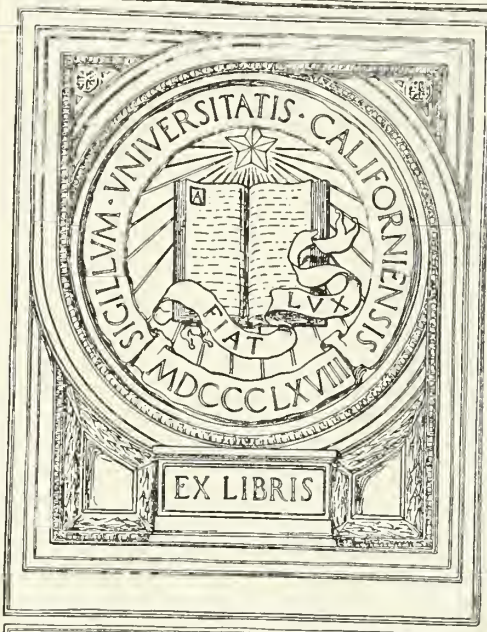

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SYMPOSIUM ON PEDIATRIC SURGERY
INTRODUCTION

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NEW ORLEANS

By way of introduction I will discuss a few of the surgical conditions, preoperative and postoperative care and I will describe in detail fluid administration and parenteral feeding.

SURGICAL CONDITIONS

1. *Tracheoesophageal fistula* and *esophageal atresia* in the newborn may be suspected because of excessive amounts of mucus in the mouth and regurgitation of feedings followed by attacks of cyanosis. If one suspects this condition, a No. 8 French soft rubber catheter may be passed through the nasal passages into the esophagus. If the catheter enters the stomach, atresia is not present. However, the presence of the catheter in the stomach should be confirmed by flouroscopy as the end of the catheter may curl up in the blind esophageal pouch. With the patient in a prone position and with the end of the catheter in the upper esophageal section, under fluoroscopy one may instill ½ to 1½ cc. of lipiodol slowly through the catheter so as to prevent the overflow of the lipiodol into the trachea. The infant should be maintained in a prone position during examination and the oil should be removed by suction immediately upon completion of the x-ray studies. Barium should not be used as a contrast medium because of the danger of a chemical pneumonitis resulting from aspiration of this substance. An accurate differential diagnosis of the various forms of esophageal atresia and tracheoesophageal fistula may be made by x-ray examination. Preoperative factors of importance include the administration of oxygen, antibacterial therapy, and constant suction of the contents of the upper esophageal pouch through a No. 10 French catheter. Electrolyte and water balance must be carefully maintained. Once the diagnosis has been established nothing should be given by mouth.

II *Intestinal atresia* usually causes death within the first week of life due to severe dehydration and intestinal perforation. Although there is a high mortality rate in these infants, early diagnosis and treatment can do much to lower mortality. The symptoms are almost always shown on the first day of life and consist of vomiting which becomes progressively more frequent and severe. Abdominal distention is usually an important feature. The absence of cornified epithelial cells in the stools in the first forty-eight hours of life may be helpful in the diagnosis. This is called the Farber test and consists of an examination of a stained smear of the meconium to show the epithelial cells. X-ray examination is helpful in the localization of the site of obstruction. Preoperatively, decompression by means of suction is of the utmost importance. Increasing the oxygen concentration of inspired air by placing the infant in an oxygen tent also aids in decompression. Intestinal stenosis with obstruction during the first week of life cannot be differentiated clinically from atresia.

Presented at the Seventieth Annual Meeting of the Louisiana State Medical Society, April 25, 1950.

III. The presence of an *imperforate anus* is brought to the attention of the physician the first few days of life because of the absence of an anal opening, failure to pass stools, or passage of meconium through an abnormal outlet. There are three types of rectal anomalies in general: (1) The most common consists of an imperforate anus with the rectal pouch ending blindly some distance above. (2) The second type is that with the rectal pouch ending blindly in the hollow of the sacrum with a normal anus and distal rectal pouch. (3) The least common form is an imperforate anus with an obstruction due to a persistent membrane. These anomalies are commoly accompanied by fistulae. In addition to the absence of meconium stools one observes abdominal distention, vomiting, and other symptoms of obstruction within twenty-four to thirty-six hours. X-ray examination by the Wangensteen method will help to determine the position of the blind rectal pouch. The infant is held with his head down and with a lead marker in place over the skin at the anal site. Anterior posterior and lateral film should be taken. The gas which is present in the colon rises and outlines the blind rectal pouch. This procedure when employed by the end of the first day may be very helpful. Examination prior to this may be misleading because insufficient time may have elapsed to permit air to reach the distal portion of the large bowel.

IV. *Malrotation of the intestines* usually becomes manifest in the first three weeks of life and shows signs and symptoms of high obstruction because the mesentery compresses the second or third portion of the duodenum. Bowel movements may occur because the obstruction often is incomplete. Fever may indicate infarction or volvulus.

V. The diagnosis of *congenital diaphragmatic hernia* must be considered in newborn infants who present symptoms of cyanosis, dypsnea, or vomiting. The cyanosis may occur only on feeding or crying. X-rays and fluoroscopic examination will confirm the diagnosis and permit the identification of the herniating structures. The use of barium as a contrast medium is contraindicated except in the presence of an esophageal hiatus hernia.

VI. Diagnosis of an *omphalocele* is obvious and the treatment is immediate surgery. It represents herniation of the abdominal contents into an abnormal saclike umbilical cord, so that these abdominal contents are covered by a peritoneal and amniotic membrane only.

VII. *Duplications of the alimentary tract* also cause signs of obstruction, including vomiting, distention, and dehydration. Occasionally a tumor mass may be palpated.

VIII. *Meconium ileus* manifests itself as a severe intestinal obstruction with early onset of vomiting and the passage of thick, tenacious meconium. These cases have been found to be due to fibrocystic disease of the pancreas.

IX. Most cases of *intussusception* occur during the first year and cause colicky pain with signs of shock. Early and repeated vomiting may occur. Bloody stools may be passed. The latter is a late sign. An abdominal mass is often felt and occasionally the tip of the intussusception may be palpated through the rectum. Treatment is early surgery.

X. The symptoms of *pyloric stenosis* are those due to high obstruction, including projectile vomiting which usually begins during the second week of life. At times the vomiting may begin as early as the first day of life. We find the x-ray examination with barium valuable as it enables us to make an early diagnosis and operate before the patient has lost much weight.

XI. The treatment of *inguinal hernia* in infants otherwise normal is surgical regardless of age. A truss may be used when it is necessary because of the physical condition of the patient to postpone surgical correction.

XII. *Obstructive conditions of the urinary tract* amenable to surgery should always be borne in mind. Included in this group would be congenital obstructive valves in the posterior urethra, ureterocele, bladder tumors, foreign bodies (bladder).

PREOPERATIVE AND POSTOPERATIVE CARE

One of the most important aspects of preoperative and postoperative care is the careful regulation of the electrolyte, fluid, and nutritional balance in these infants and children. Special caution should be observed in determining the amount of saline to be administered to newborn infants since kidney function in this age group is relatively immature. Blood transfusion or plasma should be given as indicated by the red blood count, hematocrit and the plasma protein level. The rate of administration of the blood should be slow to prevent circulatory embarrassment. Because of possible blood loss at the time of surgery or the development of shock, blood should be available to be given during or following, if needed. In those conditions in which decompression of the gastrointestinal tract is desired the simple procedure of passing a Levin tube into the stomach and connecting the tube to a source of general suction is expedient in reducing distention. The use of high oxygen concentration in the tent is also helpful in diminishing the intestinal distention.

Nutrition is improved by parenteral feedings when necessary but most cases seen early need only some fluid with proper postoperative care.

Opiates are not used preoperatively in young children. Barbiturates may be used if desired. Atropine or scopolamine is used to reduce formation of mucus.

Fluids are administered intravenously or by clysis. By using hyaluronidase, fluid subcutaneously is rapidly absorbed so that one must be just as careful about the quantity administered as though it were given intravenously.

It is impossible to give a mathematical answer to the question of fluid requirements Approximate rules may be given, but the patient must be judged clinically and changes made accordingly.

I wish to emphasize the danger of too rapid administration of fluid, or overdosage with fluids, because of the danger of water intoxication; to warn against overdosage with sodium chloride. The approximate requirement may be easily and quickly calculated.

FLUID ADMINISTRATION

Dehydration: Consists of loss of intracellular and extracellular fluid. The amount of fluid to be administered should consist of the amount lost, plus the daily basic requirement. In an infant, the amount lost may be calculated by the loss of weight. Various studies indicate that water loss amounts to about 5 per cent of the patient's weight in moderate dehydration, and to 10 per cent in marked dehydration.

Therefore, an infant whose ideal weight is 6 kg., and who has lost 500 gm., should receive 500 cc. to cover the water deficit and 110 cc. per kg. for daily maintenance. A child weighing 20 kg., with moderate dehydration, would need 5 per cent x 20 kg., or 1000 cc., to cover the water deficit. The coverage of the deficit should be spread over more than one day, if possible.

Water requirements are shown in table 1.

TABLE 1

APPROXIMATE NORMAL WATER LOSSES AND ALLOWANCES* PER DAY FOR PERSONS OF VARYING SIZE NOT SUBJECT TO EXERTION OR SWEATING

Size	Water Loss				Usual Water Allowances		
	Urine cc.	Stool cc.	Insensible cc.	Total cc.	cc/person	cc/kg	oz/lb.
Infant (2-10 kg.)	200-500	25-40	75-300**	300-840	330-1000	165-100	2.5-1.5
Child (10-40 kg.)	500-800	40-100	300-600	840-1500	1000-18000	100-45	1.5-0.7
Adolescent or adult (60 kg.)	800-1000	100	600-1000***	1500-2100	1800-2500	45-30	0.7-0.5

*Including the water content and water of oxidation of food, which under normal circumstances, except for infants, approximate the insensible water loss.

**1.3 cc. per kilogram per hour.

***0.5 cc. per kilogram per hour.

(Butler, A. M., and Talbot, N. B.: New England J. Med. 231:585.)

Sodium and chloride replacement: As in the case with water, the amount of sodium and chloride ions should consist of the daily basic requirements plus the deficit. (See Table 2) These ions are extracellular ions

and the deficit may be calculated from the deficit of extracellular water. This deficit represents one half of the total water loss. Therefore, one half of the fluid given to cover the deficit will be normal saline.

Postoperatively, sodium chloride should be withheld for forty-eight hours, except to cover extracellular fluid losses, as in sweating, vomiting, or gastric aspiration, because the excretion of chloride is decreased. Laboratory examinations will reveal a low chloride level in the extracellular fluid but infusions of sodium chloride often fail to raise the level and may cause weakness, nausea, and vomiting (postoperative salt intolerance).

Losses of gastric juice by vomiting or aspiration must be met by a two thirds volume of normal saline.

The water requirement, other than that furnished by saline, is furnished by 5 per cent glucose.

TABLE 2
SODIUM CHLORIDE REQUIREMENTS DAILY

Infants	1 gm.	125 cc. normal saline
Children	3 gm.	350 cc. normal saline
Adolescents	6 gm.	700 cc. normal saline

When large amounts of fluids have to be replaced, and especially when fluid has been lost by diarrhea or vomiting, some modification of Ringer's solution is preferred to saline to replace part of the saline. Note that Ringer's solution contains only 0.6 per cent sodium chloride and, therefore, a larger amount will be necessary to cover sodium chloride requirements than if normal saline is used.

Parenteral Feeding: 5 per cent amino acid in 5 per cent glucose solution supplies calories and nitrogen. It should be given slowly when administered intravenously. The remainder of the calories are supplied by glucose solution. Additionally, suitable amounts of B vitamins, ascorbic acid, and vitamin K are given parenterally.

At least 1 gm of amino acid per kg. per day or, preferably, twice this amount, should be used to maintain nitrogen balance and protein synthesis. One half of the ampule of vitamin B complex and ascorbic acid, as used for adults, should be given infants and children (such as, Lyo B-C of Sharp & Dohme, or Solu B with ascorbic acid by Upjohn.)

If a significant deficit of serum protein exists, blood plasma should be administered in addition to the amino acids.

To feed a child entirely by parenteral methods:

1. Calculate total fluid requirement.
2. Calculate amount of amino acids.
3. Calculate amount of saline.
4. Make up the fluid needed in addition to that supplied by the amino acid solution and saline with 5 per cent glucose.
5. Add vitamins.
6. Modify amount of fluid, depending on the clinical condition of the patient.

This will provide insufficient calories to maintain a patient many days. If necessary, we use 10 per cent glucose and use amino acid in 10 per cent glucose. When giving the stronger solutions, they must be given very slowly to avoid diuresis and, when diuresis occurs, a larger amount of fluid must be given. Approximately a little over half the usual calories required will sufficiently maintain a patient.

Example: To maintain on parenteral feeding a patient weighing 20 kg.; no water, sodium or chloride deficit to be made up, the requirements are shown in table 3.

TABLE 3

Total fluids required		*Calories*
20 (kg.) × 80 cc.	1600 cc.	
Amino Aeid required at		
1 Gm. per kg. = 20 Gm.	400 cc.	140 calories
5% amino acid solution contains 5 gm. per 100 cc.		
Therefore, amino acid required will be 400 cc.		
Sodium Chloride required	350 cc.	
Balance of fluid, 5% glucose	850 cc.	170 calories
		310 calories
5% amino acid in 5% glucose contains		3.5 calories per cc.
5% glucose contains		0.2 calories per cc.

TABLE 4

APPROXIMATE DAILY REQUIREMENTS OF CHILDREN FOR CALORIES, PROTEIN, AND WATER

Age in Years	Calories* per Kg.	Protein Gm. per Kg.	Water CC per Kg.
Infancy	110 (120-100)	4.0	150
1-3	100 (100-90)	3.5	125
4-6	90 (90-80)	3.0	100
7-9	80 (80-70)	2.5	75
10-12	70 (70-60)	2.0	75
13-15	60 (60-50)	1.5	50
15+	50 (50-40)	1.0+	50
Adult	40 (40-30)	1.0	50

*To convert to calories per pound of body weight, take one half of the value for calories per kg. and subtract 10 per cent of it, e.g., 60 cal. per kg.÷2=30—3 or 27 ca. per pound of body weight.

TABLE 5

APPROXIMATE DAILY CALORIC REQUIREMENTS OF NORMAL RESTING PERSONS OF VARYING SIZE, TOGETHER WITH THE DAILY DEXTROSE AND AMINO ACID ALLOWANCES* THAT THEORETICALLY MIGHT SATISFY THEM

Size	Daily Caloric Requirement	Daily Dextrose Allowance		Daily Amino Acid Allowance	
	cal./kg	gm./kg	cal/kg	gm./kg	cal./kg
Young Infants	60	14	54	1.5	6
Old Infants	55	13	51	1.0	4
Children	30	7	28	0.6	2
Adolescents and adults	25	6	24	0.6	2

*Available evidence suggests 6 gms. of nitrogen or 40 gm. of amino acid as a reasonable daily allowance for the adult; that for estimating the daily allowance for young resting patients on a high carbohydrate diet is meager. (Butler, A. M. and Talbot, N. B.: New England J. Med 231:585.)

These tables (tables 3, 4 and 5) are given to show the requirements for active infants and children and nonactive infants and children. If the latter calorie requirement is met, it is usually sufficient. Note that the amount of amino acid given is greater than the amount listed in the last table.

SOME COMMON ORTHOPEDIC PROBLEMS OF CHILDHOOD

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NEW ORLEANS

In the broad scope of the healing arts, the field of orthopedic surgery is a branch that is comparatively young in years. Rather strangely, it was a division that was limited, originally, to the problems of the child. The term "Orthopedics" was first given it by Nicholas Andry, the French surgeon, who in 1757, wrote his thesis on the prevention and correction of children's deformities. Andry was not the first to be aware of these deformities, for two centuries before his era, Paré wrote in his own ten volum treatise on surgery about the relation of posture and spinal deformities in young girls. However, the impetus to orthopedics was stimulated by Andry, and in the succeeding years, this field, as a branch of preventive medicine had its growth. With successive wars and mechanization of industry, more and more attention was given the traumatic aspects of orthopedic surgery, and it was not until the present century that great strides were made in not only the prophylactic but also the therapeutic application of proper methods of orthopedic treatment in the structural problems of the child.

The purpose of this topic is to list the common orthopedic problems in the infant, preadolescent and preadult individual, with a statement of the accepted forms of corrective therapy, both surgical and nonsurgical. For this purpose, it is necessary to divide the pathology into logical headings for clarity.

1. CONGENITAL DEFORMITIES

These may be divided into two categories, primary or idiopathic, and secondary. In

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the former, it is conjectured that there is pathology in the germ cells which causes a defect in the fertilized egg. In the secondary type, it is believed that to a normal fetus, some other cause produces the change, such as injury to the mother, or nutritional defects to the growing child in utero. Others classify them according to appearance into three classes. First, those with atrophy or hypertrophy of a part; secondly, those with numerical variations of parts or members; and lastly, those with developmental abnormalities. The types are many, but the more usual kinds, and a word about care, are presented here.

(a) A most common finding is polydactylism, where digits are increased in number. The problem requires surgery for removal of the extra digits for various reasons. In the hand, the defect is unsightly, and a child with this visible abnormality is subjected to gibes and teasing from other children, and suffers psychological hazards. Also, the extra part can inhibit function. In the foot, the problem is one of shoe fitting, and static problems of weight bearing may develop if the deformity is allowed to remain. Preoperative radiological studies are essential, as there may be more skeletal abnormalities than appear on mere inspection of the part. These minor amputations may be done as early as desired, preferably before the child is of walking age.

(b) Club foot is not an unusual abnormality. Discovered at an early age, in most instances it is quite amenable to conservative or nonoperative care. The elements of this deformity, varus of the forefoot, inversion of the entire foot, and equinus position, are all three separate problems, and although the intrinsic structures of the foot are not abnormally formed, the imbalance created by this persistent position will eventuate into deformities of growth. Later in life bone surgery will be essential to obtain good weight bearing. When this entity is identified in a new baby, treatment may be begun in the first month by application of proper plaster casts, after the method given and described by Kite, in 1935, wherein carefully fitted boot casts are applied with alternate wedgings of the deformity, until establishment of the normal foot alignment is attanied and maintained.

In later life, if the deformity has persisted and bony changes have occurred, then more severe surgical corrections to the midtarsal region will be necessary, as well as lengthening of the heel cord to allow the heel to rest on the floor. The condition is never as satisfactorily treated in older children as in younger ones.

(c) A not infrequent abnormality is congenital dislocation of the hip, a condition in which the femoral head is located outside of the acetabular socket. The etiology of this condition is not known, but it has been recognized since ancient times. However, only in the past fifty years has successful treatment been attained. It is more frequently seen in the temperate zones, and was thought for some time to be predominant in people of Latin descent. However, it has been experienced in recent years that the problem may occur in persons of all races, and has been seen several times in the colored. In the very young infant, it is frequently overlooked, and later makes its first visible presentation after walking has been established. With the appearance, after the first year of life, of a shortened leg, prominence of the trochanter, the presence of abnormal skin folds on the inner aspect of the thigh, the eversion of the extremity, one can suspect the dislocation of the hip. X-ray studies will reveal the delay of development of the superior femoral epiphysis, the lateral and upward displacement of the involved hip, and a loss of the obdurator coxofemoral angle. Treatment may vary from wide abduction splints in mild subluxations, to closed manipulations and casts in the so-called frog position in more severe types, to skeletal traction, followed by osteotomies of the upper portion of the femur, and shelf operations on the acetabular socket. In early cases, with proper care, excellent results may be obtained. In later childhood, however, surgery is more extensive, and the results, while satisfactory, are not as complete or desirable. It is, there-

fore, necessary for early diagnosis to be made.

(d) Torticollis, or congenital wryneck, is frequently seen in the various crippled childrens' clinics. Many theories are held as to the cause of development of this condition, and it is believed that trauma of delivery is the usual method of production. Recently, others have believed that intrauterine changes, consisting of malposition of the head, with some degree of ischemia to the sternomastoid muscle is a possible etiological factor. It is noted in these children, that shortly after birth, there is a hard, fusiform swelling in the sternocleido mastoid muscle of the side of the neck. As the muscle becomes shortened, a visible poor relation between head and trunk is established, in which the head is tilted to the side of the pulling muscle, while the chin rotates toward the opposite shoulder. If left untreated, this condition tends to be permanent, and causes developmental atrophy of the side of the face closest to the deformity, with a shifting in the level of the eyes for normal usage. In early childhood, this may be easily overcome by the division of the sternomastoid muscle at its attachment at the clavicle or mastoid process, with removal of the tumor mass, when found, and corrective splint applications to the head to maintain it in an over-corrected position, until all contractures have been overcome. This will again allow development of the head in a symmetrical fashion, and prevent any eyestrain in later life.

2. INFECTION

A second great category or childrens' orthopedic problems consists of those related to infection. This covers a multitude of various types of local and systemic infections, but for brevity, the most common are listed with their present-day concepts of treatment.

(a) The dread problem of osteomyelitis has been a spectre of a number of childhood infections for many years. Great strides have been made in the diagnosis and treatment of this problem in the past fifteen years. When the author was first launched into practical medicine, osteomyelitis was an acute surgical emergency, and was treated as such with a fair degree of mortality. Osteomyelitis in childhood is a blood borne infection, the source being derived from local infections in lymphatic organs or in staphylococcic infection of surface wounds. The organisms traverse through the Haversian system of the osseous structures, and lodge near the epiphyses of the long bones. The onset is one of severe general illness, with flushing of the skin, restlessness, increased pulse rate, fever, and a leukocytosis that may reach as high as 25,000. The affected limb is held in a semiflexed position, with excruciating tenderness at the level of the metaphysis of the bone affected. The adjacent joint may be swollen. The area is hot, reddened, and palpation of the limb reveals thickening, heat, swelling and muscle spasm. Blood culture studies may reveal the presence of the offending organism. Radiological studies in early cases are unrevealing, and show no problem other than thickening of the soft tissues. In later stages, however, destruction of the bone beneath the periosteum at the site of the metaphysis becomes obvious, and increases with the spread of the infectious process. The present concepts of the treatment of the disease consist of primary treatment of the individual case. First and foremost, the limb should be immobilized, either by simple traction, or in plaster, to allow for relaxation of the structures and to prevent painful motion. Secondly, attention should be paid to the care of the individual, insofar as nutritional and fluid requirements are concerned. Body fluids must be kept up, and an accurate record of intake and output recorded. In addition, multiple small transfusions should be given at frequent intervals, due to the fact that the infectious process is destroying the blood cells. Aspiration of the affected part at the site of maximum tenderness should be performed as soon as the localized area of swelling is located. This serves two purposes. First, the identity of the organism may be known, and its sensitivity to antibiotics determined. Secondly, the abscess cavity, after aspiration, may be

filled with penicillin solution and can attack the organisms directly. Lastly, penicillin should be given parenterally at frequent intervals to raise the blood level of the body sufficiently to combat infection. Within recent years, at Charity Hospital in New Orleans, this method of treatment has prevented the surgical intervention of subperiosteal drainage of the abscess or entrance into the marrow cavity by means of a drill to permit evacuation of the abscess. If surgery is determined to be a necessary sequence of events, the patient should be at maximum fluid balance, and the extent of surgery is to be determined for drainage by the appearance of the abscess cavity beneath the periosteum under direct vision. Immobilization, fluids, and antibiotic therapy should be continued until all toxic symptoms have subsided. The radiological picture is not of too great importance with the administration of antibiotics, since it is definitely known that the administration of these drugs gives a delayed x-ray picture.

(b) Suppurative or septic arthritis of the joints is seen with increasing frequency in young children in recent years. A mode of infection is believed to be similar to that of osteomyelitis, namely, the invasion of the blood stream by offending organisms which lodge in the crevices of the joints, rather than in the end vessels of the metaphyses of the bones. The onset of symptoms is almost identical with that of osteomyelitis, with the same type of hyperpyrexia, malaise, dehydration, swelling of the joint with the presence of an abnormal amount of synovial fluid, and painful immobility of the extremity involved. Aspiration of the joint reveals the presence of purulent material and treatment is instigated in a similar manner to that given in osteomyelitis. However, a problem exists here in that it is known that some enzyme is present in the leukocytes, which has the effect of lysing cartilage and causing permanent destruction of the articular surface and residual stiffening of the joint, if proper drainage is not established. If the process does not subside within a brief period of time under aspiration and injection therapy, along with other supportive measures, then it is recommended that surgical drainage of the joint be effected. After the joint has been opened and drained, the surgeon is faced with a two-fold problem of continuance of therapy. If the synovial membrane is not too engorged, and the articular surfaces of the joints are not involved, then the joint is thoroughly lavaged with normal saline, and carefully closed. If, however, there is segmentation of the joint cavity into compartments and there is tremendous thickening of the synovial membrane, then the drainage should be made semipermanent by marsupialization of the operative site by suturing the synovial membrane to the skin, to allow continuance of drainage without blockage from the edematous synovial lining. The patient is continued in traction with encouragement to active motion to assist the drainage, and it is found that the wounds are healed within two or three weeks, with only mild limitation of joint function.

(c) Tuberculosis in childhood, as far as bone or joint structures are concerned, usually involves the joints of the hip or lower spine. Invasion of the organisms into the joint causes destruction of the articular surfaces, with gradual loss of motion, and eventually complete ankylosis of the involved articulation. In the spine, there may be destruction of the vertebral bodies with deformities of the trunk resulting, and in the hip, it may be followed by flexion contractures with crippling deformities noted on walking. A prodromal history of this process is one of a child who shows progressive loss of weight, late afternoon fever, night pain in the affected joints, and gradual swelling and tenderness about the involved area. X-rays show progressive destruction of the articular surfaces and malformation of position of the joint in relation to the rest of the body. The problem is one of arresting the process, as in pulmonary tuberculosis. Inasmuch as it is felt that invasion of the joint causes eventual stiffening, the problem of the surgeon is to place the limb in an optimum position, so that when fusion does take place, the

function of the part may be preserved as much as possible, and weight bearing and locomotion may be continued in a limited but painless fashion. This may take a long time, and it is now generally considered that along with general body building measures, surgical fusions of the joint may result in arrest of the process at a much earlier interval than by simple immobilization in optimum position. With general supportive measures, and the use of streptomycin and the newer drugs, open surgery can be safely done on the involved areas, an arthrodesis can be performed by bone graft methods with immobilization in plaster until radiological evidence of solid fusion is obtained. Careful follow-up studies must be continued for a number of years to see that no relighting develops.

3. PARALYTIC INVOLVEMENTS

Paralytic involvements of children fall under three large categories, two of which may be definitely aided by proper orthopedic therapy.

(a) Anterior poliomyelitis is a problem that has been held in the attention of the lay public and the medical profession to a large degree in recent years. The problem to the medical profession is primarily one of early diagnosis and the proper general care of the patient. From an orthopedic standpoint, the problem is one of prevention of deformity, the institution of proper rehabilitation measures, and in the later stages, the use of such appliances and such surgery as will allow the patient to become independent of external support. The concepts of the mode of infection at the present time are known to an equal degree by all members of the interested medical profession, and need not be elaborated upon here. After the diagnosis is established, the problem in the early convalescent cases is one of control of discomfort and the prevention of joint stiffening and control of deformity by protection of the paralyzed muscles. Under proper physical therapy measures, reeducation of the involved structures may take place over a period of approximately two years, with protection of the part to allow restoration of function in the best position. At the end of this period, in early childhood before the eighth or ninth year, it is generally accepted in good practice that protection of the part in proper braces is of primary importance. Occasionally, muscle transplants are done before the ninth year, but as a general rule, bony stabilization measures and tendon transplants are done after this time. This is due to the fact that bony structures are better developed and greater cooperation of the patient may be established. The more common procedures of orthopedic surgery in relation to involvements from poliomyelitis are stabilizations of the feet, in which the subastragalar, calcaneocuboid, and astragaloscaphoid joints are fused solidly by removal of the articular cartilage between them to prevent untoward inversion and eversion of the foot. Stabilizations of the spine to perform fusion are done where there is imbalance of the trunk muscles. In both foot and hand, tendon transplants are performed to re-establish balance of flexion and extension, and allow more normal use of the parts. The whole problem is one of progressing the patient from chair to weight bearing, from weight bearing with crutches to weight bearing without crutches, and from the use of braces to the elimination of them, if possible.

(b) Spastic paralysis is a different problem from that of poliomyelitis. It is a distinct problem in childhood, as these children are completely under the care of the interested parents. The cause was formerly believed to be due to trauma of childbirth, but it is felt at the present time that this plays only a small part. Present statistics indicate that there are about 7 spastics per 100,000 population, and although the exact causes are not known, concepts at this time include rapid delivery and premature children, the Rh factor, the birth injury group from trauma of forceps or excessive traction, cerebral anoxia, convulsions from brain damage, or brain damage caused by convulsion, encephalitis, and neoplasms. Spastic paralysis is a loss of control of the neuromotor system of the body, and may be present from a mild amount of loss of control of the extremities to a complete

tetraplegia with speech and eye defects, and, of course, such lack of development or such damage to the brain that mental deficiency exists along with the problem. Those cases with mental deficiency are, of course, ruled out from any type of treatment, and are institutional problems throughout their lives. Those cases with athetosis, or the persistence of involuntary movements, are, as a general rule, unsuitable for surgery, since no known method of immobilization exists that would control these untoward motions during reparative surgery. The chief problem in spastic paralysis is one of constant, persistent education. These patients may be taught carefully, under guided instruction, to feed and dress themselves and to perform useful functions. Proper bracing and support in many instances allow the use of the involved extremities to some degree, and in these cases, where it is found that a useful function can be employed by a hand or foot, with repair certain types of operations may be performed. These may consist of fusion of joints which are held in permanent flexion, tendon transplants where an imbalance of muscles exists, and division of nerve supply to involved muscles to reduce the number of impulses to that muscle, and thereby lower the spasticity. In this state, there are a number of spastic paralysis cases, some of which are under observation and treatment in various centers. The tendency at the present time is to perform less surgery and to give more education and treatment. The problem is a severe one, as we will always have these affected people on our hands.

(c) The muscular dystrophies are fortunately not too common in our vicinity, although in the practice of orthopedic surgery a number of them are presented at various clinics and in private practice. These dystrophies are often hereditary, and some are manifested at birth, while others wait until puberty to appear. The essential process in most of these is a simple muscular atrophy. In some, there is more than just atrophy, since the muscles look quite large and bulky, and pathological studies reveal deposits of fat in the affected muscles. Most of them are characterized by gradual and progressive loss of muscle strength, with no definite evidence of any central nervous system lesions. There is no evidence that the condition is a manifestation of syphilis. There may be associated central nervous system disorders along with it, such as idiocy, epilepsy, and optic atrophy. The diagnosis rarely offers any difficulty and the progressive nature of the lesions makes the answer more obvious. The gait disturbance, the exaggerated lumbar lordosis, the swaying from side to side, and the steppage gait, along with the pathognomonic Gower's sign of legs climbing, and the relaxation of the shoulder girdle muscles all give ease to the diagnosis. There is no known treatment for it at the present time.

4. TRAUMA

Trauma in relation to childhood is a slightly different problem from that of adult individuals. It must be remembered that the surgeon is dealing with rapidly growing tissue, associated with the presence of open epiphyses, and in a group of individuals whose tissues are very reactive and where healing is quite rapid. Trauma is quite frequent in the active child in relation to the bones and joints, and with early diagnosis, and smaller tissues, restoration of fractures is not as difficult as in the older individual. In fractures of long bones, restoration of length and alignment is of primary importance. Accurate reapposition of fracture fragments is not as important in the child as in the adult, as repair is a much more rapid process. Open reduction is rarely indicated in shaft fractures unless there is definite evidence of interposition of soft tissues between the fragmented ends. At the distal and proximal ends of long bones, fractures or dislocations through the epiphyseal line must be accurately studied and the epiphysis accurately restored. Even then, the parents must be told that even minor trauma can cause sealing of the epiphysis and loss of growth from that end of the bone, so that discrepancies of length may appear at a later age. It is, therefore, important that these children, even in mild cases, be followed for a longer period of

time, to determine if deformities of angulation or shortening will ensue. There are certain exceptions to the no surgery rule, the prime example being the median epicondyle of the humerus, which usually is broken off and lies free in the joint with its face reversed from its donor site. As a general rule, however, moulding occurs with the healing of the fracture, and if length and alignment are maintained, the results will be eminently satisfactory.

5. STATIC INVOLVEMENTS

Static involvements of the body are of primary importance in the young child. One is made aware at the present time of the importance of this by the numerous children being referred to the orthopedic surgeon because of such deformities as pronated and flattened feet, knock-knees, bowlegs, and the problems of poor posture. It is gratifying to know that the medical profession at large is becoming aware of these deformities in early life, when simple measures will cause a recession so that permanent defects will not follow in later life. The problems of knock-knee and bowlegs are similar in character, both being derived from the same type of process, it is believed. The baby begins to walk and holds it feet wide apart to maintain balance. This causes the weight line to be protracted from the trunk to the interval between the dependent lower extremities, and the weight is, therefore, borne on the inner borders of both feet. The use of the diaper between the thighs only adds to this problem. The weight bearing line then being shifted to the inner side of the lower extremities causes more pressure on the epiphyses on the inner side, and results in many instances in knock-knee and bowlegs. A secondary result later in life is flattening of the longitudinal arches. This whole process is increased by the deficiency in vitamins, or by hereditary tendencies, or, in some instances, by extreme obesity in the infant. The problem of the orthopedic surgeon in these milder cases is to apply corrections to satisfactory type shoes to shift the weight line back to its normal position and recreate the same line-up that was present before the knock-knee or bowleg resulted. Adjunct therapy with the referring physician by the use of a sufficient amount of vitamins seems to increase the healing process, since it is known that with the deficiency diseases, such as the lack of vitamin D in rickets, there is a predisposition to the severity of the deformity. As far as general postural measures are concerned, prevention is the best cure for postural deformities. In early childhood, it is not possible to give instructions in preventive treatment of postural abnormalities, but after the fifth or sixth year, the child may be encouraged or instructed in proper methods of carriage and exercise. After the tenth or twelfth year, when the boy or girl is aware of himself or herself, gymnastic exercises for the purpose of correcting the deformities present may be instituted.

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PEDIATRIC SURGERY—ROENTGENOLOGY

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NEW ORLEANS

For reasons of coherence, this part of the discussion will be restricted to the subjects already considered by my colleagues. I shall attempt to present the material in the same sequence and to illustrate the points made. Some critical evaluation of roentgen technic and diagnosis also is in order.

ESOPHAGEAL ATRESIA AND TRACHEO-ESOPHAGEAL FISTULA

Visualization of the esophagus with a water barium suspension is quite satisfactory as a routine procedure, the findings in the normal infant being quite similar to those of the adult. However, where obstruction is suspected and there is danger of introducing contrast material into the tracheobronchial tree either by a spill over from the larynx or by way of a fistula, lipiodol should be substituted for the barium suspension. Iodized oil is consequently the medium of choice in infants whose esophagus is atretic or stenotic or who have a tracheal or bronchial communication.

Fistulae without atresia usually lie near the bifurcation of the trachea. Their exact

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position and dimensions are better demonstrated when the patient is prone. A small quantity of lipiodol introduced through a catheter will then readily outline the fistulous tract. Continued passage of the catheter into the stomach proves the patency of the lower esophagus.

The lower end of the blind proximal portion of an atretic esophagus is most often found in the upper thorax. Passage of the catheter introduced under fluoroscopic control will be blocked at this point and the catheter will coil on itself. Instillation of a very small quantity of iodized oil graphically outlines the blind pouch which sometimes is delineated by its air content and so may be visible on an initial scout film. The presence of air in the gastrointestinal tract indicates that the atresia is of the more common type (over 70 per cent) with communication of the lower eesophageal segment and the trachea or bronchi. Where both segments end blindly, no air can enter the stomach. It is impossible to determine the length of the atretic segment because the lower esophagus cannot be fully distended. Stenosis of the esophagus is rare. The stenosing membranous diaphragm or web described by Vinson must be exceedingly rare.

INTESTINAL ATRESIA AND STENOSIS

In general complete obstruction of the bowel is more common in the lower small intestine; whereas partial occlusions are more frequent in the duodenum. This difference is more striking when one includes those incomplete and often intermittent obstructions of the duodenum due to extrinsic lesions such as peritoneal folds associated with incomplete rotation of the bowel and midgut volvulus. The complete obstruction is of course characterized by absolute absence of gas below the obstructed segment while the stenotic lesions exhibit the usual phenomena of incomplete obstruction, namely, distended bowel above and gas containing, but collapsed bowel below. Unless a complete obstruction obviously is very high, it is better not to attempt to visualize or localize the point of obstruction with opaque medium. This procedure wastes time, adds little pertinent information and does not exclude the possibility that there may be other atretic segments distal to that which is responsible for the obvious obstruction. I should advise also cautious use of opaque enemas to localize a distally situated obstruction. The large bowel, particularly the right side in patients with ileal atresia, may be very thin and may be perforated by the hydrostatic pressure of the enema. This caution is especially applicable to premature infants. Stenoses, on the other hand, may be fully investigated by the routine methods including always serial interval films of the small bowel. It is only thus that the precise site of the obstruction can be localized and possibly some distinction between intrinsic and extrinsic block made. Demonstration of malrotation or unattached mesentery may explain intermittent episodes of obstruction even when the child is in a free interval at the time of examination.

IMPERFORATION OF THE RECTUM AND ANUS

The demonstration of rectal or anal atresia usually is not difficult. Sufficient time is allowed for air and gas to enter the distal bowel (twenty-four hours after birth) and the patient is then radiographed in an inverted position with an opaque marker at the usual position of the anus. It must be borne in mind, however, that all the meconium in the blind end of the rectal pouch may not be displaced by air and that the apparent thickness of the septum may therefore be increased. The frequently associated communication with the urogenital tract is best visualized by instillation of iodized oil into the external orifice of the fistulous tract.

MALROTATION

The common anomalies of rotation which may be visualized on roentgenograms are demonstrable by oral administration of barium when the patient is relatively asymptomatic or the obstruction obviously is very high. Opaque enemas are to be preferred if there are signs of partial obstruction below the duodenum. Complete failure of rotation with the small bowel in the right side of the abdomen and the colon on the left usually does not produce symptoms.

When rotation is incomplete the cecum may lie in the right side of the epigastrium or the right hypochondrium. Bands pass from it or the ascending colon to the posterolateral aspect of the abdominal wall across the second portion of the duodenum and narow it by extrinsic pressure. This narrowing and the abnormal position of the right colon may be the only positive finding, unless the unattached mesentery of the midgut actually is producing an obstructive volvulus at the time of the examination. The volvulus may develop while the roentgen study is in progress and for this reason it is advisable to expose serial interval films. In some cases the rotation of the cecum is complete, but both the cecum and the small gut mesentery are unattached. Under these circumstances a roentgen diagnosis is difficult unless preternatural mobility of the cecum is recognized on manipulation under fluoroscopic control or there is variability of the position of the right colon and lower ileum. In reversed rotation the cecum passes behind the superior mesenteric artery and duodenum and occupies a variable position in the abdomen.

DIAPHRAGMATIC HERNIA

These hernias are almost always congenital and present little difficulty in diagnosis except in those rare instances where only a part of the liver herniates through a defect in the right leaf or only the spleen through a break in the continuity of the left leaf. Three common sites are through the posterolateral portion (old pleural peritoneal canal or foramen of Bochdalek), through the esophageal hiatus and through the retrosternal space (foramen of Morgagni). Rare hernias through the vascular apertures also are described. The diagnosis usually is evident on scout films which show compression of the ipsilateral lung, displacement of the mediastinum to the opposite side and gas containing bowel loops in the thoracic cavity. Fluoroscopy and films after ingestion of barium will demonstrate the position of the defect and give some clue as to its size. The study with opaque medium may be the only way to discover esophageal hiatus hernias and to determine whether they are true hernias or partially intrathoracic segments of the stomach associated with a congenitally short esophagus.

DUPLICATION OF THE ALIMENTARY TRACT

Duplication of the alimentary tract may present at any level, but is most frequent in the small bowel. The duplicated segments may be palpable and may cause obstruction or rarely bleeding. Those few which communicate with the lumen of the bowel may be directly identified by contrast filling; duplications of the esophagus may be brought into relief against the air filled lungs and rectal duplications may displace the bowel forward from the hollow of the sacrum and thus be recognized. However, the vast majority, if indeed they are seen at all, will appear as nonspecific mass lesions which displace or impress some segment of the gastrointestinal tract. They will be indistinguishable from connective tissue tumors arising from the deeper layers of the bowel wall and from mesenteric cysts. Differentiation between a rectal duplication and an anterior meningocele may be difficult if there is no gross defect of the lumbar or sacral vertebrae. One should in every instance, where a large extra-intestinal mass is demonstrated, make certain that it does not represent a retroperitoneal tumor, especially a renal embryoma. These tumors may come off the lower pole of the kidney and present in the center of the abdomen.

PYLORIC STENOSIS

In the past and even in some fairly recent literature, multiple criteria for the roentgen diagnosis of congenital hypertrophic pyloric stenosis have been offered. These are concerned almost entirely with secondary phenomena of obstruction at the outlet of the stomach. Among them are gastric dilatation, retention, thickening of the gastric wall and hyperperistalsis. Actually no one or no combination of these findings suffices to warrant an unqualified diagnosis. The only characteristic finding is narrowing and elongation of the pyloric canal. This can be demonstrated in every case which is adequately studied.

MECONIUM ILEUS

The roentgen diagnosis of meconium

ileum is difficult. The distended loops contain a granular material which represents the inspissated meconium and do not as a rule show fluid levels in films made with the patient erect. If contrast material is introduced into the large bowel, a procedure which is not altogether without hazard, the colon is found to be collapsed.

INTUSSUSCEPTION

Usually obstructive intussusception of infancy is of an ileocolic or ileoileocolic type and is readily and conclusively diagnosed by administration of an opaque enema. No patient suspected of intussusception should have barium by mouth. There is noted an abrupt concave ending of the contrast stream which bifurcates as the barium insinuates itself between the outer and middle cylinders of the intussusception. Plication of the bowel wall by the pull of the small intestinal mesentery produces a coiled spiral pattern. As the effect of the hydrostatic pressure is prolonged, the site of obstruction, which usually is in the proximal half of the colon, although it may be at any level, shifts toward the ileocecal valve and the intussusception may be completely reduced. There has been some controversy about the desirability of hydrostatic reduction as a preferred and relatively harmless therapeutic measure. Transient recurrent segmental small bowel intussusception has been described recently as one cause for intermittent abdominal distress in children.

HERNIAS

It is possible to demonstrate internal hernias in children just as in adults. The other hernias, as for example, umbilical, inguinal, and obturator hernias also may be visualized in gastrointestinal studies or may produce intestinal obstruction of a nonspecific type with discovery of the etiological factor at the time of operation.

CONGENITAL MALFORMATIONS OF BONES

Of the many congenital malformations, only those which are common and amenable to surgical correction are considered.

Polydactylism is an error of segmentation of the primordial skeleton (oversegmentation). Oversegmentation is rare above the wrists and ankles and affects the metacarpals (or metatarsals) and phalanges more frequently than the carpals or tarsals. Undersegmentation leads to syndactilism and irregular segmentation to malformation of the small bones of the hands and feet (Caffey). The roentgenograms are self explanatory and require only description.

The most common variety of congenital clubfoot is talipes equino varus. The three chief components of the deformity, inversion, medial deviation, and plantar flexion are readily visualized on dorsoplantar and lateral radiographs. These serve also to guide the orthopedist in evaluating the results of his therapy. Inversion is manifested by superimposition of the anterior ends of the calcaneus and talus on the dorsoplantar film. This results from medial shifting of the calcaneus under the talus. Normally and after satisfactory correction, the talus is directed toward the base of the first metatarsal and the calcaneus toward the interval between the bases of the fourth and fifth metatarsals. Medial deviation or adduction of the forefoot is evident from internal displacement of the navicular in relation to the talus and by gross medial deviation of the forefoot. Plantar flexion is recognized from the lateral film which shows the talus riding forward in relation to the tibia and projecting well beyond the calcaneus which is drawn posteriorly and upward to approach the tibia.

The diagnosis of congenital dislocation of the hip is difficult only in the first weeks of life when the articular surfaces still are largely cartilagenous. Even then asymmetry of the pubocoxofemoral curve and abnormal mobility when traction and reverse traction are exerted on the femur will be diagnostic. Later, after the osseous nucleus of the femoral capital epiphysis appears, there is visible a subluxation or gross dislocation. In the latter instance, the hypoplastic epiphyseal center is situated in a shallow depression in the body of the ileum above the poorly cupped, sloping roofed acetabulum. The femoral neck is anteverted.

The function of the roentgenologist in the matter of congenital torticollis is solely to

rule out the presence of osseous anomalies of the cervical spine.

INFECTION

Osteomyelitis almost always is suspected clinically ten to fourteen days before the earliest changes are visible on roentgenograms. These serve chiefly to confirm the diagnosis, determine the extent and site of the lesion and follow its course. Before the advent of the sulfa drugs and antibiotics, there were demonstrated, first, small radiolucent areas of bone necrosis which might remain limited to the metaphyseal region or extend through much of the shaft and, shortly thereafter, calcification in the periostium stripped up by subperiosteal abscess. Later the involucrum became thicker, denser and less irregular while the sequestrated shaft might remain entombed or be extruded through cloacae. The chief signs of renewed activity in chronic infections were recurrent osteoperiostitis, central abscess formation and sequestration. Arthritis, pathological fractures and growth disturbances were frequent complications. It is often possible now to abort the disease or to shorten and ameliorate its course so that the roentgen findings remain minimal and sometimes are so atypical that they can only be interpreted in light of the history and clinical data.

Localized pyogenic abscesses of bone present as a central cavity surrounded by a sclerotic capsule with subperiosteal new bone formation limited to the level of the abscess and of moderate extent. If the abscess is small and subcortical or intracortical and the osteoperiosteal reaction is dense, differentiation from osteoid osteoma may be impossible. Nonsuppurative sclerosing osteomyelitis (Garré's disease) is rare and may be confused with syphilitic or tuberculous diaphysitis, sclerosing osteogenic sarcoma, and osteoid osteoma.

Epiphysitis may be primary or secondary. The lesion may remain localized, but frequently extends into the joint and may cross the metaphyseal plate to the shaft. Once extension has occurred, it may then be difficult to determine which is the primary focus. Extension into the joint results in suppurative arthritis while involvement of the cartilagenous plate implies growth disturbance.

SEPTIC OR SUPPURATIVE ARTHRITIS

The disease is manifested early by thickening of the capsule and pericapsular soft tissues and by accumulation of exudative fluid within the joint, distending it and widening the joint space. The regional bones become decalcified. At this stage pathological subluxation may occur. In severe progressive infections, erosion and destruction of the cartilage develop, particularly at points of greater pressure. The joint space then becomes narrow and the subchondral bone is exposed and eroded. If the epiphyseal plate is involved, epiphysiolysis may occur, the completely detached epiphysis lying free in the joint cavity. Healing in these severe cases takes place by fibrous or bony ankylosis. Here again the sulfa drugs and antibiotics have markedly influenced the natural course of the disease.

TUBERCULOSIS

My personal experience with bone and joint tuberculosis is quite limited. Most of the lesions in the spine have been of the common intervertebral type, involving a disc and two adjacent bodies with narrowing of the disc, collapse of the anterior portions of the bodies and kyphosis. Tuberculous spondylitis may also present in the form of a central abscess in the vertebral body, anterior marginal erosion by extension beneath the anterior longitudinal ligament and localized disease of the pedicles, laminae, or processes. Paravertebral abscesses accompany the osseous lesions.

In the extremities, diaphysitis and tuberculids (sarcoids) are rare in comparison with metaphysitis and epiphysitis. These reveal themselves as small, well defined defects in the metaphysis or the epiphysis much like those of pyogenic epiphysitis. Two lesions may face each other across the metaphyseal line, or if the joint is involved across the joint space. When the process extends into the joint, the characteristic signs of synovitis develop.

When the disease is primary in the joint, there appear first distention of the joint space and diffuse osteoporosis of the neighboring bones or of the affected extremity.

The tuberculous granulation tissue destroys first those portions of the cartilage which are not in contact so that the joint space may be long maintained in the weight bearing area. Finally the articular cartilages are entirely destroyed and the subchondral bone is universally eroded. Cold abscesses may appear. They tend to drain dependently and often contain calcareous material.

TRAUMATIC LESIONS

Simple fractures in childhood resemble those of adult life, except insofar as they are influenced by the greater elasticity of youthful bone. Incomplete fractures consequently are more frequent. They may appear as hairline radiolucent shadows which are visible only upon close inspection of first quality films, or as minor bucklings of the cortex without a fracture line. The long bones may be considerably bowed or angulated in the absence of complete fractures. Sometimes there is no immediate evidence of fracture, but later demonstration of subperiosteal callus which may be excessive if the fragments are not immobilized, proves that the bone was broken. Normal vascular channels should not be mistaken for fissure fractures nor should accessory bones or ununited apophyses lead to an erroneous diagnosis of avulsion fracture with separation of cortical fragments. In case of doubt, examination of the contralateral extremity will be most helpful. Epiphyseal separations are of course peculiar to childhood and may involve any epiphysis although the epiphysis at the distal end of the radius is by far the most frequently affected. There always is an associated fracture of the juxta-epiphysial segment of the shaft. These lesions usually are readily visualized, but may call for careful scrutiny of the roentgenograms if the displacement is minimal or if there has been partial or complete spontaneous reduction. In the latter instance, there will be no residual deformity.

Epiphyseolysis and juvenile osteochondrosis although not strictly traumatic conditions often are first manifest after injury which may be trivial and are briefly considered here.

Slipping of the femoral capital epiphysis is a lesion of adolescence and the very early changes are similar to those of Perthe's disease, namely widening of the epiphysial line with irregular decalcification in the juxta-epiphysial border of the neck. Usually some displacement already is present when the patient is first seen and can be recognized on good anteroposterior and lateral radiographs which show the entire pelvis including both hips. The epiphysis maintains it relation to the acetabulum, the neck being displaced upward and laterally. The patient should be reexamined at intervals since displacement may recur after adequate reduction.

Juvenile osteochondrosis or focal aseptic necrosis may develop in many sites. Among the most common are the upper end of the femur (Perthe's disease), the tarsal scaphoid (Koehler's disease), the tibial tubercle (Osgood Schlatter's disease) and the medial tibial condyle (Blount's disease). Apophysitis of the calcaneus may be a clinical entity, but cannot be diagnosed roentgenologically since all calcaneal apophyses in a certain stage of development appear fragmented and very dense. Osgood Schlatter's disease probably is diagnosed more frequently than it occurs for the tibial tubercle may develop from more than one center and may be irregular in outline. There must be actual fragmentation with displacement of fragments away from the shaft and localized swelling of the overlying soft tissues to permit an unqualified diagnosis.

It is advantageous to examine Perthe's disease and Blount's disease (tibia vara or aseptic necrosis of the medial tibial condyle) in some detail since proper management of these conditions is requisite if severe deformities are to be prevented or corrected. The first sign of Perthe's disease is widening of the epiphysial line with irregularity of the marginal bone of the femoral neck. The head still appears intact and the articular capsule is distended. Later, necrosis of the head is observed. The marginal bone along the proximal side of the epiphysial line is eroded and there is

variable density of the head. The capital epiphysis then flattens, broadens and is grossly fragmented. The neck becomes shortened and broad. Approximately eighteen months after the onset of the disease, recalcifications begins, first in the neck and then in the head. The entire course of the disease approximates four years. During all this time the joint space is maintained or slightly widened. Interval studies are necessary to follow the course of the disease, determine when healing has occurred and assess the final deformity.

Aseptic necrosis of the medial tibial condyle may develop during infancy or in childhood. The necrotic segment exhibits characteristic changes in texture and density and becomes flattened and beaked. Depression of the overlying medial portion of the epiphysis ensues and produces lateral bowing of the leg. The deformity is enhanced by a differential rate of closure of the lateral and medial portions of the cartilage plate.

Dislocations in childhood are in general like those of adult life. In infancy, dislocation of the shoulder may accompany Erb's palsy. Congenital dislocation of the hip already has been discussed.

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THE MATTING SYNDROME: A TYPE OF INTESTINAL OBSTRUCTION

WITH A REVIEW OF 60 CASES OF INTESTINAL OBSTRUCTION*

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NEW ORLEANS

On our private services during the five year period from January 1946 to January 1951, 58 patients underwent 60 operations during the course of which findings indicated acute or complete obstruction in 36 instances and chronic or partial obstruction in 24. Some of the latter were recurrent, partial obstructions. Among the acute cases, the diagnosis was intestinal obstruction either of a nonspecified or a specified type in 32 of the 36 instances. Twice the preoperative diagnosis was acute appendicitis and once it was perforated peptic ulcer. Once the diagnosis was a mass. Intussusception was known to be present in 2 cases before operation and once it was unexpectedly found at operation. Strangulated hernia was the cause of operative obstruction in 2 patients. Congenital obstructions were operated upon in 6 babies. Paralytic ileus of a very severe type without peritonitis following a kidney operation necessitated a colostomy in 1 patient. It is the only case of paralytic obstruction in the entire series. The causes of the obstruction in the acute cases are given in Table 1.

TABLE 1
CAUSES OF OBSTRUCTION IN 36 ACUTE CASES

Bands and adhesions (congenital 1)	16
Clockwise rotation and congenital band	2
Atresia small intestine	3
Imperforate anus	3
Intussusception	3
Hernia (strangulated)	2
Foreign body	2
Internal hernias	2
Mesenteric thrombosis	1
Volvulus	1
Paralytic ileus	1
Total	36

The causes of obstruction in the 24 cases with chronic or recurrent partial obstruction are shown in Table 2.

TABLE 2
CAUSES OF OBSTRUCTION IN 24 CHRONIC CASES

Matting syndrome	8
Acquired adhesive band	2
Congenital peritoneal band	7
Endometriosis	2
Hernia	2
Diverticulitis	2
Megacolon	1
Total	24

There were 14 children 4 years of age or younger in the entire group. Three of these had an imperforate anus, for 1 of whom an abdominoperineal pull-through operation was performed; 3 had congenital atresia; 3 had congenital bands, 2 of which had associated clockwise rotation; 2 had intussusception; 1 each had strangulated hernia,

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megacolon, and a postoperative intestinal obstruction.

A characteristic "matting syndrome" is making its appearance much more frequently. Such patients have been operated upon before, usually for pelvic trouble or for acute appendicitis which had to be "drained". Several years after the previous operation, this group of patients begins to have pain and soreness in the right lower quadrant of the abdomen and in the region of the abdominal wall scar. A vague indefinite sensation of nausea may accompany the attacks of soreness. Some patients complain of a sensation of a "knot" in the abdomen under the scar. The attacks seldom get to the stage of a severe, acute condition with cramps and nausea and vomiting. At first they are intermittent but become more intense and occur more frequently. Persistence of soreness is a characteristic feature of the syndrome. Constipation is an associated symptom and it may or may not have been present prior to the onset of the present trouble. Objectively, the patient is usually well nourished. They do not look sick and the examination may be negative except for the abdomen where two findings are apt to be encountered: a mild amount of tenderness in the region of the old wound, and a sensation of an indefinite mass or resistence in that area. Auscultation does not reveal additional evidence to help in the diagnosis. Usually there is no distention at the time of the examination though it may be present in one of the attacks. Laboratory work is usually reported negative and gives surprisingly little information. Gastrointestinal series, even when the roentgenologist has been instructed to take roentgenograms for small bowel stasis will be reported negative. These patients should be carefully evaluated for emotional and functional factors and usually they are found to be sound and not unstable. This is of additional help in confirming the impression which the surgeon justifiably has under such circumstances, that is, that the patient has "matting syndrome," a type of partial intestinal obstruction with recurrent exacerbations. The objective findings at operation are always more or less true to a form and characteristic in their appearance. The omentum and small bowel, are adherent to the abdominal wall in the region of the wound. The omentum is thickened and scarred and indurated and in some instances is actually edematous. It is heavy and instead of being a fine veil of soft fat, it is thick and hard in consistency. In addition to this, it is firmly adherent to one or more loops of bowel and the bowel is adherent to the adjacent intestine and, most important of the findings, which proves the legitimacy of the diagnosis, the small intestine proximal to this area is dilated and hypertrophied so conclusively that everyone at the operating table agrees that at least this evidence of partial obstruction is present in spite of a negative roentgenographic examination. The histories of 2 such patients are reported.

CASE REPORTS

Case No. 1. Mrs. W. A., age 50, came under our care in January 1948, because of recurrent attacks of cramping pain in the right lower quadrant of the abdomen. The significant past history was that in 1918 she had had an appendectomy, and in 1942 she had an operation elsewhere for adhesions, presumably because of the same type of pain. General examination was essentially negative except for a tender, definite, but nondiscrete mass in the right lower quadrant of the abdomen. The uterus was slightly enlarged and contained fibroids. Laboratory work, including a cholecystogram, was within normal limits. The diagnosis of partial intestinal obstruction with matting syndrome involving the omentum, small bowel and cecum was made, and operation was advised but the patient declined. During the next few months, her symptoms increased in severity. She had more intense pain. She did not return for operation until September 1948. At operation, a mass of omentum was found attached to the ascending and transverse colon with definite constriction of the middle of the ascending colon and ballooning of the cecum and ascending colon proximal to this. In addition, she had adhesions with a sharp kink in the terminal ileum and dilatation and marked hypertrophy proximal to this showing definite evidence of partial obstruction. The entire mass of omentum was removed. The adhesions were severed. Subsequently, hysterectomy was done for bleeding fibroids of the uterus. The patient was re-examined in May 1950, and was found to be entirely well except for some back pain which was not the type of complaint for which she was operated upon. She has been relieved of all abdominal symptoms.

Case No. 2. Miss L. G., age 46, complained of

tenderness and pain in the right lower quadrant of the abdomen, the duration of which was five years. She had a ruptured appendix with peritonitis in 1918. An appendectomy was performed at that time. Because of pain and soreness in the region of the incision in 1948, an operation was performed elsewhere; an old scar was removed and adhesions were released. There was temporary relief from the pain following this, but for the past five years she has had more or less constant and mildly annoying pain but with exacerbations. There has been some constipation and occasional mild diarrhea. When she came under our care in August 1950, examination revealed good nutrition. The abdomen was scaphoid, and there was a palpable indefinite mass in the right lower quadrant in the region of the scar. This was tender and sensitive, expressed by the patient as being "sore". Laboratory work was essentially normal. A gastrointestinal roentgenographic examination was reported negative. No evidence of stasis in the small bowel was found. Diagnosis of partial intestinal obstruction and matting syndrome was made. After preparation, she was operated upon on September 4, 1950. The omentum was found to be adherent to the old scar. It was indurated and matted in the right lower quadrant, angulating the cecum and ascending colon very sharply. The consistency of the omentum was firm, much harder than a normal omentum. The cecum and ascending colon were adherent to the omentum. And this was all adherent to the transverse colon. The adhesions were all freed, and the thickened matted omentum was completely excised. There was a congenital type veil over the cecum and this was freed by incising it. Exploration otherwise revealed a normal gallbladder. The appendix had been removed. The uterus was retroverted. This was corrected by suturing the round ligaments onto its posterior surface. The patient was re-examined in February 1951, five months postoperatively. She was very much improved and she was very grateful. She occasionally had 3 or 4 soft stools during a day. Investigation did not reveal the cause of this. She had been relieved of pain and soreness in the abdomen. Abdominal examination was objectively negative.

These two cases are very typical of matting syndrome. The diagnosis must be made on clinical findings and cannot be substantiated by laboratory or roentgenograph findings. As is indicated above, they cannot be cured by simply releasing the adhesions at operation. Both patients had been operated upon elsewhere and presumably lysis of adhesions was performed. It is necessary to remove the wadded indurated omentum entirely and release the adhesions carefully and in some instances to resect segments of intestine which are matted together by adhesions. In one of our cases we felt it necessary to resect 3 segments of intestine (1 in the jejunoileum, 1 in the terminal ileum and 1 in the colon). Only by such radical effort was she cured, for prior to coming under our care she had had some 18 operations, 7 of which were for intestinal obstruction. Foreign materials such as papain, heparin and amniotic fluid have been suggested for combating the tendency to reformation of adhesions. These have never been generally accepted, probably because they are not reliably effective. A better attitude is boldly to resect badly adherent bowel loops. This explains why intestinal resections were performed in 25 per cent of our cases, a relatively high incidence.

MANAGEMENT OF INTESTINAL OBSTRUCTION

Because of numerous advances modifying its course, the surgical management of intestinal obstruction is changing radically. In the preoperative phase antibiotics, blood transfusions, intestinal decompression, and fluid and electrolyte replacement all help to make the patient look much less sick than he actually may be. This is particularly true in strangulated obstruction. Twice during this series we waited; once a period of twenty-four hours and again a period of twelve hours with the patient under our observation, receiving antibiotics, until at operation the bowel was found to be gangrenous; perfectly black. The patients did not look very sick; they were being decompressed and prepared for operation. In both of these instances the patients fortunately recovered, but such examples emphasize how seriously delays may jeopardize a favorable outcome. When the diagnosis is made, operation should be done promptly. Decompressive measures are not indicated over a long period of time; a few hours being all that is necessary to get a patient into proper condition in most instances of acute intestinal obstruction. Even in the absence of severe tenderness strangulation is a possibility. A lesson we have learned from such findings at operation is not to delay, or to be satisfied with the relative comfort obtained by decompression with

the Miller-Abbott tube, and also, that a false sense of security may be suggested by absence of toxemia, which in reality is only suppressed in its systemic manifestations by antibiotics.

At operation the first principle and one which should always be insisted upon is adequate exposure. A large incision should be made and in infants the entire gastrointestinal tract should be lifted out through the incision so that complete inspection may be easily obtained. In infants it is necessary to look immediately for false attachments of a high cecum and failure of counterclockwise rotation into the normal position. Abnormal rotations are usually in the clockwise direction and it is possible that the small bowel may have to be unwound around its mesenteric attachments. Preoperative roentgenograms may give very accurate indications as to the level of the obstruction but one should not depend on that being the only obstruction. The entire gastrointestinal tract should be carefully inspected. And then whatsoever technical procedure is indicated should be carried out. In the adult, exposure is likewise very important. It is never satisfactory simply to lift out a piece of the ileum or small bowel and do an enterostomy. One must remove the bowel from the abdomen without fear of the difficulty of replacing it even though it is badly distended. One must be absolutely sure that the obstruction has been found and obviated. If necessary, resection of the intestine should be instituted. If there is any doubt as to the viability of the bowel, resection had better be carried out sufficiently wide to obtain clearance into a less edematous portion of the bowel. Under special conditions such as mesenteric thrombosis, a very wide resection should be made in order to prevent the propagation of the thrombus into the then viable segment of the intestine.

If the bowel is tremendously distended, decompression by insertion of a suction tip into the bowel is not only permissible but probably is a technical measure of advantage. We have not hesitated to use this, particularly where there may be some difficulty replacing bowel which is badly distended. Williams and Williams reported remarkable recovery of 12 to 14 desperately ill patients treated by this method. A further technical method of value is the employment of enterostomy. The size of the tube has to be judged by the size of the bowel, and a very long peritoneal tunnel must be employed to prevent the danger of fistula. In severely obstructed cases with peritonitis, in order to diminish the prolonged necessity of using an indwelling transesophageal gastric decompression tube, we put in one, two, or three enterostomy tubes at various levels in the small intestine. An enterostomy tube proximal to an anastomosis may be a life-saving measure and it always should be employed when an anastomosis is made. Even in infants, if there has been congenital atresia, a very fine catheter in the dilated proximal segment may protect the anastomosis as the distal undeveloped bowel gradually dilates. Moreover, it helps as an irrigating means to soften the meconium and inspissating material in the bowel in the obstructed infant. Multiple decompressive enterostomies may, after further trial, be found of great help in certain cases of obstruction with severe distention and peritonitis.

In the cases of chronic intestinal obstruction with matting syndrome, one of the very important procedures is to remove the entire omentum. In this group of cases the omentum was resected in 8 instances, 2 of which were in acute cases and 6 were in the group with chronic partial intestinal obstruction.

Resection of intestine is indicated, not only when there is strangulation with evidences of nonviability, but also in the chronic cases where there is matting and severe adhesions. The latter type of case was formerly managed by separating all adhesions carefully and sometimes by employing a substance such as amniotic fluid, papain or heparin to prevent their recurrence. But this type of therapy has not been corroborated by reports in the literature to substantiate its value. A far better idea is to resect adherent snarled loops of bowel. When there is marked matting and angu-

lation of the bowel with multiple adhesions, omentectomy and separation of the adhesions only, may not be sufficient. If necessary, bowel resection should be undertaken to prevent the recurrence of chronic or acute obstruction.

Four of the patients on whom we operated died. Two of these were infants with congenital obstruction; one was a seven-month premature twin with an atresia at the upper end of the jejunum. A duodenojejunostomy was accomplished, and although after operation air progressed into the distal loop the baby was too weak, apparently, to eat and propel the contents along the distal segment. We operated upon the child again. The anastomosis seemed to be open and there was no evidence of obstruction nor was there peritonitis but severe asthenia resulted in death. A second newborn infant died after duodenojejunostomy for an obstruction of the distal duodenum, from what was thought to be an aspiration pneumonia. Two adults died. One had been operated upon previously for intestinal obstruction. Exact information concerning this was not obtainable, but at the operation we performed, a complete total multiple polyposis of the entire small bowel was found. Only about 7 feet of small intestine remained, the rest had been removed. Moreover, there were two intussusceptions from large polyps and because of the totality of the polyposis the bowel was opened and the large polyps leading the intussusceptions were removed. It did not seem advisable to shorten the bowel more since the pathology could not be obviated and because so little of the intestine remained. Postoperatively, this patient developed tetany and peritonitis and died. A fourth patient developed intestinal obstruction following an abdominoperineal resection for a carcinoma of the rectum. We suspected the obstruction but delayed for about three days before intervening. Furthermore, we suspected the type of obstruction, prolapse of the loop through the pelvic peritoneal diaphragm. The delay resulted in peritonitis which was present at the time we finally decided to operate upon him. The obstructed loop was released and three different enterostomies were made. He developed small bowel fistulas and died. Of the 4 deaths, 2 were for what might be regarded as impossible situations, the seven-month premature child with atresia, and the patient with total polyposis of the small intestine and a short bowel. The loss of the man with intestinal obstruction for prolapsed loop of ileum through the pelvic diaphragm was largely due to poor judgment and procrastination. His bad general condition in the presence of carcinoma and the previous operation contributed to the breakdown of the enterostomy tunnels, with resulting fistula which, try as we did by conservative and surgical means, we could not control in the presence of the severe plastic peritonitis. Fistula is one of the dangers of enterostomy but, though it may add to the risk, it may be a life-saving measure in some instances, and such a single loss is not to be taken as the conclusive evidence of its value. It is to be noted that out of 16 cases in which intestinal resections or anastomoses were done, only 2 died. There were 3 patients in whom anastomoses were made for congenital obstructions. In 13 instances in which resections were done in the face of intestinal obstruction, all survived. The increased safety in which resections may be accomplished under the modern advantages of chemotherapy and other improved surgical conditions should extend its use in cases which are apt to have recurrence of obstructions without resections.

SUMMARY

A study of 60 operations for intestinal obstruction from benign causes is reported; a relatively low incidence (6.6 per cent) of obstruction from hernias was found in the group. A relatively high incidence of obstruction from bands and adhesions was encountered. Thirty-six of the 60 cases had acute or complete obstruction and 24 had chronic or partial obstruction. Bowel resection was accomplished 13 times and in additional 3 cases anastomosis was made for atresia. The mortality rate (6.6 per

cent) is relatively low and could have been improved by prompter action in one case. The matting syndrome was described.

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CONGENITAL HEMOLYTIC JAUNDICE

REPORT OF TWO CASES

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AND

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NEW ORLEANS

Of the three types of jaundice (hemolytic, hepatocellular, and obstructive), the one least commonly observed clinically is the hemolytic. Congenital hemolytic jaundice (chronic familial jaundice, hemolytic splenomegaly, chronic acholuric jaundice, or spherocytic or globe-cell anemia) is a form of hemolytic jaundice in which cholelithiasis is a frequent complication. The following case reports illustrate the coexistence of these two conditions, namely cholelithiasis and congenital hemolytic jaundice.

CASE REPORTS

Case No. 1: J. C., a 15 year old white school boy, presented himself to one of us because of recurrent bouts of jaundice. The patient had been delivered by cesarean section, and on discharge from the hosptial five days later, a note had been made stating he was more icteric than is usually seen, but no further investigations had been done. It is assumed this was physiological icterus neonatorum. This jaundice had cleared in a few days, according to his mother, only to recur at the age of 4 or 5 months; at this time it had lasted for several days and then gradually disappeared; there were no other manifestations so far as the mother could recall. At the age of 18 months, he had an attack of fever (up to 104°F.), vomiting, and slight jaundice lasting seven to ten days. From this age up to 7 years, he had similar attacks, about every three months. An appendectomy was done at the age of 7 years for the purpose of relieving these attacks, but they continued to occur about every six to eight months until the present time. The last bout, in April and May 1950, was manifested by profuse sweating, midepigastric and right subcostal pain, radiating to the right infrascapular area, slight fever, and jaundice. During his more recent attacks, the patient noticed dark urine and light green stools. He has had intolerance to fatty foods, especially milk and cream, for the past two years. The family history was significant in that this patient's father had an attack of jaundice at 15 years of age, and his paternal grandfather has had jaundice and anemia for many years. This patient's paternal aunt (*Case No. 2*) has had jaundice, anemia, and splenomegaly for many years.

Cholecystogram, in September 1949, revealed many stones in the gallbladder.

Physical examination revealed a well developed, underweight asthenic young man of about 15 years. There was slight jaundice of the sclerae. Heart and lung examinations were essentially negative. On abdominal examination the spleen was nonpalpable.

Laboratory data, June 7, 1950, revealed a red blood cell count of 3.6 millions and hemoglobin of 10.9 grams; white blood cells 5,850, with 40 per cent lymphocytes, 50 per cent polys., 2 per cent eosinophils, 1 per cent basophils, and 7 per cent monocytes. The red blood cells in the smear showed anisocytosis, anisochromia and some polychromatophilia; spherocytosis and microcytosis. The urine revealed a specific gravity of 1.020; slight trace of albumin, no sugar, and the sediment contained 3 to 5 WBC/HPF. Kolmer and Kahn tests were negative. Fragility test on June 9, 1950, showed beginning hemolysis at 0.50 per cent saline and complete hemolysis at 0.34 per cent, while control reading was 0.42 per cent beginning and 0.32 per cent complete. Serum bilirubin was 1.8 mg. (1 min. direct) and 6.7 mg. total. Cephalin flocculation 3 plus; icterus index 19; phosphatase 3.7 Bodanksy units; prothrombin 20.9 sec. (50 per cent of normal) and thymol turbidity 1 U.

On June 10, 1950, a cholecystectomy was done and on exploration of the abdomen, an enlarged spleen was found. Splenectomy was planned as a later procedure. He received a postoperative transfusion on June 10, 1950, and this was followed by an increase in jaundice and fever, probably a hemolytic transfusion reaction. Patient remained jaundiced until readmission.

Patient was readmitted on July 10, 1950, and a splenectomy was done on July 12, 1950. Urine examination before operation revealed a weakly positive bile test and urobilinogen weakly positive in 1:10 dilution. Serum bilirubin was 1.4 mgm. (total); icterus index nine. Hemograms before and after splenectomy are given in table 1.

TABLE 1
HEMOGRAMS

	1 day before 7/11/50	1 day after 7/13/50	2 days after 7/14/50	8 months later 3/10/51
RBC	3.67	4.32	4.18	4.72
Hb.	11.2 Gr.		14.9 Gr.	14.5 Gr.
WBC	6,000	16,700		8,250
Retics.			5.1%	2.2%
Platelets			438,900	495,600

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The patient's jaundice cleared gradually in about seven days after splenectomy. His appetite improved greatly and in four months, he gained 15 pounds, the first time he had ever gained any appreciable weight.

Case No. 2: E. L., a 43 year old white housewife, paternal aunt of patient J. C. (*Case No. 1*), complained of splenomegaly, anemia, and recurrent episodes of jaundice. She first noticed a mass in her left upper quadrant, while in bed after delivery of her last child in 1938. This was mentioned to her attending physician, who forthwith treated her with parenteral liver extract. The latter, however, had no effect as she continued having bouts of "biliousness," nausea, vomiting, and jaundice.

Physical examination revealed a well nourished and well developed white female with mild jaundice of both sclerae. Heart and lungs were essentially normal. Abdominal examination revealed a soft, nontender abdominal wall, with spleen palpable 5 cm. below the left costal margin in the anterior axillary line. Laboratory data, on June 15, 1950, showed a red blood cell count of 3.14 millions, hemoglobin 10.7 grams, total white blood cell count of 8,100, and reticulocytes 13.9 per cent. Blood smear revealed many small round spherocytes, and the characteristics of a microcytic normochromic anemia. Fragility test revealed beginning hemolysis at 0.50 per cent saline and complete hemolysis at 0.34 per cent, with control beginning at 0.42 per cent and complete at 0.32 per cent.

She entered the hospital on October 30, 1950, for splenectomy, which was done the following day. Gallstones were palpated at the time of splenectomy, but cholecystectomy was not done. She had a very stormy postoperative course, having gone into shock once on each of the first two postoperative days. Her recovery thereafter was uneventful, and on discharge, the only abnormality was an increased platelet count of 1,814,000/cu. mm. No postoperative thromboses were detected. Hemograms before and after splenectomy are shown in table 2.

TABLE 2
HEMOGRAMS

	1 Day Before Oct. 30, 1950	1 Month Later Dec. 6, 1950	4 Months Later Mar. 6, 1951
RBC	3.49	4.79	3.99
Hb.	11.6 Gr.	14.9 Gr.	12.5 Gr.
WBC	9,700	10,750	8,700
Retics.			1.7%
Platelets		924,370	

Convalescence at home was uneventful. The jaundice cleared, although the latest hemogram reveals an occasional spherocyte, and fragility is slightly increased, hemolysis beginning at 0.50 per cent saline and being complete at 0.26 per cent; control beginning at 0.42 per cent and being complete at 0.30 per cent.

DISCUSSION

Congenital hemolytic jaundice is a chronic, congenital, and often familial affection. It is characterized by three important signs: (1) jaundice; (2) splenomegaly; (3) characteristic changes in the peripheral blood, viz., anemia, spherocytosis, microcytosis, reticulocytosis, and an increased fragility (decreased resistance) of the red blood corpuscles. These signs may be so mild that the disease is not recognized until adult life.

The jaundice is of the hemolytic variety characterized by (1) an increase in serum bilirubin which produces an indirect van den Bergh reaction; (2) increased urinary and fecal urobilinogen; and (3) absence of bile pigment from the urine. The spleen is almost always enlarged in active cases and may vary from just being palpable to huge in size. The anemia results from the rapid destruction of erythrocytes, and the reticulocytosis is a response on the part of the bone marrow to increased erythrocyte destruction. Microcytosis and spherocytosis are due to the fundamental abnormality of the disease process, and increased fragility is a consequence of spherocytosis. The shape and size of the red blood cell (microspherocyte) are very typical of this disease, and the various explanations of the pathogenesis revolve about this peculiarity.

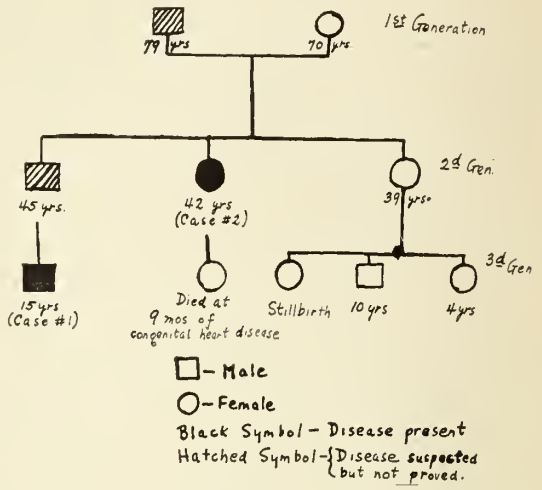
In general, it may be stated that there are two schools of thought concerning the hemolytic mechanism in congenital hemolytic jaundice. One group believes that the fundamental defect is an inherited trait of the bone marrow which causes the production of abnormal red blood cells of small diameter and great thickness (microspherocytes). These cells are spheroidal and closely approximate the form assumed by red blood cells when they are about to rupture in hypotonic saline solution. It has been generally accepted from several investigations that the increased fragility is a direct consequence of the shape of the cells. These fragile spherocytes, which are in the

precarious position of almost rupturing, are easily destroyed, and the spleen plays the major role in this process. Thus hemolysis takes place, anemia is produced, and erythropoietic hyperactivity results. This has been the usual concept until recently, when further investigations of the role of hemolysins were undertaken by Dameshek, *et al.*

Henstell and Dameshek studied the bone marrow and peripheral blood of a patient with congenital hemolytic jaundice, and found that the immature red blood cells in the bone marrow and in the peripheral blood were of normal size, although the mature red blood cells in the blood stream were microcytic. This led them to believe that the bone marrow did not produce abnormal red blood cells, but that the latter were the result of the action of some agent on the cells which had already reached the general circulation. Thus the explanation propounded by Dameshek that congenital hemolytic jaundice is due to the presence in the blood of hemolysins which make the erythrocytes more spherical and thus more fragile. In this way the red blood cells are more susceptible to the normal cell-destroying processes of the body, and anemia, hyperbilirubinemia, and increased erythropoietic activity are produced. It is felt by Dameshek that the spleen acts as (1) a stasis organ where destruction of the more fragile red cells can occur, and also (2) that it may be the site of the formation of hemolysins which originate the hemolytic process itself. From the clinical standpoint, this is most strongly indicated by the improvement occurring after splenectomy in congenital hemolytic jaundice. Hemolysins have been found in the blood of patients with acute hemolytic anemia, and also in an occasional instance of congenital hemolytic jaundice. Hemolysins in the spleen have not been demonstrated.

It is quite likely that no single explanation is applicable to congenital hemolytic jaundice, and features of both mechanisms are in operation.

Many family trees of this disease involving four or five generations have been published. The trait is transmitted as a Mendelian dominant and may be passed on by either parent. In these particular cases, the family tree is shown in figure 1.



The importance of cholelithiasis as a complication cannot be overemphasized. According to most reports cholelithiasis occurs in approximately 30 to 60 per cent of cases of congenital hemolytic jaundice. These stones are usually pure bilirubin stones and are formed as a result of the increased excretion of bilirubin in the bile. This excessive production of bilirubin is a direct consequence of the hemolytic process. In *Case No. 1*, cholelithiasis was diagnosed long before the fundamental disease process was even suspected, and the symptoms were dependent on cholelithiasis as well as on the hemolytic crises of the fundamental disease process. In *Case No. 2*, gallstones were felt by the surgeon at operation, but were not removed, due to the poor condition of the patient. It is important to keep in mind the possibility of congenital hemolytic jaundice in any relatively young person who has cholelithiasis.

The treatment of congenital hemolytic icterus is splenectomy. Results from this procedure have been uniformly beneficial. The hemolytic process is arrested, the anemia and jaundice disappear, although increased fragility remains unchanged in most cases. Spherocytosis is usually reduced or entirely disappears. The effect of splenectomy is lasting, and when failure to improve after splenectomy occurs, one must

suspect the possibility of an accessory spleen or an atypical (acquired) hemolytic icetrus. In cases complicated by cholelithiasis, splenectomy should be performed first to correct the hyperbilirubinemia (which causes stone formation) and cholecystectomy should be done later.

Despite the fact that congenital hemolytic jaundice is usually considered a mild and chronic disease, it may prove fatal. Hemolytic crises and gallstones are possibilities that constantly confront the patient until splenectomy is done. Death may occur during a hemolytic crisis or as the result of a complication of gallstones.

SUMMARY

1. Two cases of congenital hemolytic jaundice in the same family are reported.

2. Both patients had cholelithiasis, the commonest complication of congenital hemolytic jaundice.

3. Cholelithiasis in a relatively young person should always arouse the suspicion of congenital hemolytic jaundice.

4. The mechanisms of production of congenital hemolytic jaundice are discussed.

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DEVELOPMENT OF ELECTRIC SHOCK THERAPY AT EAST LOUISIANA STATE HOSPITAL

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JACKSON

"Shock therapies are now firmly entrenched both in institutional and office practices."[1]

Electric shock therapy was first used at East Louisiana State Hospital in the early autumn of 1941, under the supervision of Dr. Willard Waldron, former member of this Staff, who was the only therapist at that time. Following the resignation of Dr. Waldron, no electric shock therapy was administered until May 1944, when Dr. Charles E. Sturm became associated with the hospital. Since it was re-instituted, the number of therapists were gradually increased until at present there are five members of the Medical Staff administering this form of therapy.

The Staff was forced, under conditions which were very limited, to do their work under considerable handicap. There were only two shock machines owned by the hospital in April 1949. Therapy had to be administered on the ward and in some cases with the patients in bed. Such a procedure was time consuming since some scheduled arrangements had to be made for the electric shock therapists to use the shock machines and the trained group of assistants. This arrangement was not conducive to stimulation of increased interest, but to the contrary, all too frequently it resulted in a partial loss of interest on the part of most of the physicians. In May 1949, most of the electric shock therapy at the hospital was being administered by two physicians. Their treatments constituted over 80 per cent of the total treatments and their work was limited to the white female service of the hospital. Less than 20 per cent of the total electric shock therapy was being administered on the white male service, colored male service, colored female service, and criminally insane service. There was no such thing as intensive electric shock therapy.

At the Central Louisiana State Hospital in Pineville, Louisiana, during the early summer of 1948, Dr. Howard G. Alexander and the writer set up a treatment center. The purpose of this center was to administer E. C. T. and more particularly intensive electro convulsive therapy. The value of such a center to the patients and to that hospital proved itself many-fold.

At the East Louisiana State Hospital in May 1949, all the available space on the

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wards and in the utility buildings was being utilized. There was no place to establish a center. The wards were overcrowded and still are in many instances.

In August 1950, a new building to house the untidy white male patients and the Infirmary was made available to the hospital. An acknowledgment to our former Superintendent, Dr. Glenn J. Smith, should be here made for his untiring efforts in cooperating with the Louisiana State Hospital Board in securing funds for the erection of this sorely needed structure. This building was occupied on August 25, 1950. This move of patients eventually afforded us room to install an E. C. T. center.

The first E. C. T. center was opened on February 13, 1951. This center was made available to white male patients needing intensive treatment. It could accommodate 30 patients who received on an average of nearly 3 shocks daily, five days per week. It was soon determined that this center was inadequate to administer to the needs of all the white males urgently in need of therapy. The second unit was opened on the new building referred to above. This center cares for 50 untidy white males. The physician can administer a total of 50 treatments in a minimum of forty minutes without rushing things, thus affording him more time for his other duties.

A third center for intensive therapy was made available for the colored female service on April 9, 1951. Treatments in this center are given daily excepting Sunday, and any one patient may be given E. C. T. as frequently as 1 to 4 times daily. The patients now on treatment are for the greater part from the "back wards." Most of these colored women have a hospital age of over six years. No effort is made at this center, presently, to treat according to diagnosis as some who are now under treatment are diagnosed as manic depressive psychosis,[2] dementia praecox,[3] involutional melancholia, general paralysis, and mental deficiency with psychosis. This particular group of individuals were the worst among our colored females. Most of them had been in restraint or strong rooms or both for years due to their combative tendencies, untidiness, and destructiveness.[4] Most of these women are now out of restraint and are allowed the freedom of the ward, but are still under treatment. It is impossible to prognosticate a beautiful outcome, as far as recovery is concerned, for these unfortunate individuals. There is one irrefutable statement that can now be made and that is, "these unfortunate colored women, who are under treatment, are happier in their lives at the hospital and the hospital is improved as a result of the intensive convulsive therapy."

Intensive therapy is administered on the white female service to a lesser degree. On this service approximately 85 patients are receiving conventional convulsive therapy two to three days weekly. Plans are now being formulated for intensive E. C. T. centers for the colored male service and the white female service.

Conventional E. C. T., which was stepped up rapidly in the fall of 1949, is being continued on all services. In the criminally insane department of this hospital E. C. T. is used, but to a lesser extent than among the other services of the hospital. The reason that it is not more frequently administered on this service is that those inmates are mostly of strong paranoidal coloring and thus are far less responsive to this mode of treatment.

The hospital now owns 10 electric shock machines. Two of these machines are Model CW 47 Reiter electrostimulators which are used for:

1. Convulsive therapy.
2. Nonconvulsive prolonged stimulative therapy.[5]
3. Combined convulsive therapy and stimulative therapy.
4. For stimulative therapy and respiratory problems as in barbituate coma.

Also in our armamentarium are 4 Model B 24 Medcraft Therapy Units. These have the glissando control. In addition to these units we possess 4 Rahm Units that are now used only as emergency units in the event that any of the above units should become faulty. The Rahm Units are only capable

of administering the standard Cerletti-Bini technic.

Most of the treatments are administered with the therapy units that have the glissando control. This unit is quite simple to manipulate and its controls are handled with ease. The individual treatment is given in a minimum of time. It can be set in tenths of seconds from 0.1 second to 1 second and from 70 volts to 170 volts.

Abram E. Bennett[6] said, "The glissando technique, it seems to me, by gradual development of the seizure by gradually raising the voltage to prevent violent tonic spasms, probably will reduce the instance of fracture and seems to offer certain advantage today." In the remarks of Dr. Lothar Kalinowsky[6] it is noted, "We have been using the glissando technique for quite a while and we are not too convinced that it prevents fractures, but it certainly has no disadvantages and we still go on with it. It is very difficult to prove because in every instance previously we were lucky and never had many fractures with the standard technique."

During the past two years our records reveal that there have been 5 cases of fractures of the long bones, 1 of these patients sustaining a bilateral fracture of the femur. There were 3 acetabular fractures. Two vertebral compression fractures have been found. There has been only 1 death[7] attributed to E. C. T. During the month of May 1949, a total of 507 shock treatments were administered. During the month of April 1951, a total of 2729 treatments were given.

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MULTIPLE LARGE FIBROMYOMA OF THE CERVICAL STUMP

CASE REPORT

C. GORDON JOHNSON, M. D.*
M. DURALDE CLAIBORNE, M. D.*
NEW ORLEANS

Because fibromyoma of the cervical stump are somewhat rare with not very many cases reported in the American literature, it was thought that this case might be of interest to the general medical profession.

In 1950, 3 cases of cervical stump fibromyoma were observed by us. However, in the other 2 cases the tumors were of relatively small size. Most gynecologists today do total hysterectomies routinely in contrast to the number of subtotal hysterectomies done in former years. Cases such as these represent one of the many reasons for total hysterectomy.

CASE REPORT

The patient, a 44 year old, married female, was seen on a routine check on December 12, 1950. She stated that she had had surgery in 1934 at which time a right salpingectomy and subtotal hysterectomy were performed because of uterine fibroids and ectopic gestation. An appendectomy was performed at the same time. Since the operation she has had absolutely no vaginal bleeding or vaginal discharge. As a matter of fact, she had no gynecologic symptoms at all. She had no stress incontinence, no symptoms of prolapse or rectocele, and no symptoms of dyspareunia.

Obstetrical history: Gravida I, Para 0, with a right tubal pregnancy terminated by surgery, as mentioned above.

Operations: The only operation consisted of right salpingectomy, subtotal hysterectomy, and appendectomy in 1935, as mentioned above.

Pelvic examination revealed a normal female distribution of hair, with normal vulva and vagina. Bartholin and Skene's glands were negative. The perineum was well supported with no cystocele or rectocele. The cervix was normal in size and well epithelialized. Probing the cervical canal produced no bleeding. The probe could be introduced for a distance of approximately 4 centimeters. Further examination revealed a large, orange size mass in the right lower quadrant and another mass of about the same size which filled the posterior cul-de-sac. These masses were solid, very firm and nontender and it was the impression from this

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examination that the masses represented either fibromyomata arising from the cervical stump or solid ovarian tumors.

On December 14, 1950, she was admitted to Touro Infirmary and on December 15, 1950, under spinal anesthesia a laparotomy was carried out using a lower midline abdominal incision extending from the symphysis pubis to the umbilicus. On opening the abdominal cavity the omentum was found to be adhered to the anterior abdominal wall, to the fibromyomata in the pelvis, and also to the left ovary. This omentum was freed, using sharp and blunt dissection, following which further inspection of the pelvic organs revealed three

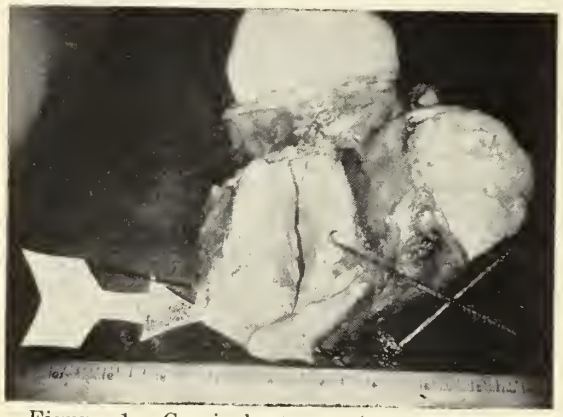

Figure 1. Cervical stump (see arrow) with three attached fibromyoma.

fibromyomata, each about the size of a large orange matted together with the cervical stump apparently incorporated in this mass. Both ovaries were attached to the top of the mass and were approximately normal in size containing normal, small follicle cysts. The right tube had been removed previously and the left tube was found to be perfectly normal, also attached to the top of this mass. The vesico-uterine fold of the perineum was incised transversely, following which the bladder was freed from the anterior aspect of the cervix. The infundibulpelvic ligament on each side was then doubly clamped, cut, and ligated with transfixing sutures, following which the round ligament on each side was doubly clamped, cut, and ligated. The remaining portion of the broad ligament on each side of the mass in a series of steps was then doubly clamped, cut, and ligated with transfixing sutures, following which the vaginal cuff was cut away from the cervical stump in a circular fashion and the whole mass removed in toto. The vaginal cuff was then closed using a continuous suture of #1 chromic catgut, following which the round ligament and infundibulopelvic ligament were brought down on each side and attached to the lateral aspect of the vaginal cuff in an effort to support the vaginal vault. Several bleeding points in the bladder fold were ligated but because of the continued generalized ooze, it was necessary to pack the area between the bladder fold and the anterior vaginal wall with gelfoam gauze. Also, in the posterior cul-de-sac there was a generalized ooze which resulted from freeing the mass in the posterior cul-de-sac which had been very adherent. Because there were no definite bleeding points to be ligated this posterior cul-de-sac was also packed with gelfoam gauze. Also, because the posterior cul-de-sac was void of peritoneum, the sigmoid colon was brought forward and attached to the top of the vaginal cuff in an effort to close off this area. The vesico-uterine fold of perineum was then brought over the vaginal cuff to completely reperitonealize this area. The omentum was then brought down, following which the abdominal wall was closed in the usual manner.

The patient lost a moderate amount of blood during the procedure and she was given 500 cc. of blood while on the table, and also, 500 cc. of blood on returning to her room.

The pathology department at Touro Infirmary reported the tissues removed as described above. There was no part of the body of the uterus remaining in the specimen removed at this operation.

Her postoperative course in the hospital was uneventful and she was discharged from the hospital on the ninth postoperative day.

A postoperative check on January 15, 1951 revealed the abdominal incision to be well healed and supported as was the vaginal vault.

ACID-FAST NOCARDIA CAUSING AN ERRONEOUS DIAGNOSIS OF TRACHEOBRONCHIAL TUBERCULOSIS

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AND
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NEW ORLEANS

Although the ability of the aerobic actinomycetes (Genus Nocardia) to produce both systemic and localized disease in man is now well recognized, the fact that these organisms may also be found in the normal mouth or in the presence of chronic bronchopulmonary infection[1] is sometimes overlooked.

In smears of sputum or pus containing aerobic actinomycetes only bacillary forms may be found. Since some strains are acid-fast, differentiation from the tubercle ba-

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cillus is difficult without additional study of the organism.[2]

The following case demonstrates the above problem, and, in addition, the difficulty that may be encountered in deciding whether this organism may be causing pulmonary or systemic nocardiosis when found in the sputum of a patient with productive cough.

CASE REPORT

A 31-year-old white female was admitted to the hospital on January 20, 1949, complaining of sore throat, fever, and enlarged tender cervical lymph nodes for the previous four days. The patient had diabetes mellitus, known for the past four years and controlled by diet alone except during illness. During the previous four months respiratory infections wtih fever, sore throat, productive cough and occasional blood-streaked sputum developed every two or three weeks. Afternoon temperature of 100° F., malaise, night sweats, and a 25 pound weight loss occurred during this period. Protamine zinc insulin, 30 units daily, had been required. Past history was not contributory.

Physical examination revealed an obese white female with temperature of 103° F. The lymph nodes in the submaxillary region and the anterior cervical chain were enlarged and tender. The entire pharynx was inflamed, and there was a grayish-white exudate over both tonsils. Examination of the chest revealed only an occasional coarse rale which disappeared on coughing. The heart presented a regular rhythm and no murmurs. The spleen was not palpable. There were no other positive findings.

Blood count: Hb 16.2 gm., WBC 8,750 polymorphonuclear neutrophiles 25, monocytes 1, lymphocytes 74. Heterophile antibodies for sheep erythrocytes positive 1:56. Throat culture alpha hemolytic streptococci. Urinalysis was negative. EPA of chest was negative.

Course in hospital: Aqueous procaine penicillin 300,000 units daily was administered. Sore throat and lymphadenopathy disappeared after one week, at which time the WBC count was 7,800 with polymorphonuclear neutrophiles 24, monocytes 17, lymphocytes 59, and heterophile antibodies positive with a titer of 1:448. A diagnosis of infectious mononucleosis was made.

For six weeks following the initial acute illness she continued to have afternoon temperature of 100° F. and a cough productive of 1 to 2 ounces of mucopurulent sputum daily. During this illness her diabetes was well controlled with a 1350 calorie diet without insulin. Weight was maintained at 200 pounds.

Sputum examinations at this time revealed many acid-fast rods morphologically resembling tubercle bacilli. Repeated x-ray examinations of the chest including lordotic views of apices, stereoscopics, and obliques were all entirely normal. Tuberculin tests were not done but were known to have become positive three years previously. A diagnosis of tracheobronchial tuberculosis was entertained. Bronchoscopy performed on March 2, 1949, showed no abnormalities. Aspirations were negative for acid-fast bacilli. Three guinea pigs inoculated intraperitoneally with sputum concentrates were sacrificed at the end of six weeks, and only nonspecific granulomatous lesions were found. Sputum concentrates prepared with dilute sulfuric acid and cultured on Petragnani's medium were still negative after two months. A few acid-fast rods were found in concentrated sputum specimens once or twice weekly. X-rays of chest at fourteen day intervals continued to be negative.

On March 4, 1949, the patient was transferred to the tuberculosis hospital. During the six weeks there she was afebrile, and sputum decreased in quantity. Acid-fast bacilli were not found, and she was sent home on bed rest. For the following six months the patient was allowed only limited activity. She continued to have a productive cough. Respiratory infections manifested by sore throat and fever to 101° F. occurred once or twice monthly. Sputum examinations showed acid-fast rods with each attack but were negative between infections. X-rays of chest at monthly intervals continued to be negative. On July 9, 1949, tonsillectomy was performed, and serial sections showed only normal tonsillar tissue. Dihydrostreptomycin, 0.5 gm. daily for thirty days, was administered after tonsillectomy.

During a respiratory infection in October, 1949, the sputum was again found to contain acid-fast bacillary forms. Cultures of 10 separate specimens during that month were identified as *Nocardia asteroides, vide infra.* At this time the possibility of early pulmonary nocardiosis could not be eliminated. However, over a period of ten months there had been no change on x-rays of chest and no evidence of ulcerative lesions of the tracheobronchial tree. Therefore, therapy was not instituted. The patient was allowed to return to full activity. It should be mentioned that throughout the illness the patient never had an elevated erythrocyte sedimentation rate.

On the basis of the aforementioned findings it was decided that this patient had a chronic bronchitis with recurrent respiratory infections, the specific etiology not determined. It is likely that Nocardia played very little if any part in the pathogenesis of these infections.

Follow-up studies over a period of eighteen months have been carried out. X-rays of the chest every two months have been negative. Respiratory infections have been infrequent, and there has been no productive cough following these infections. Diabetes has been well controlled and weight stabilized. Afternoon fever has been absent. The

sputum no longer contains acid-fast bacilli on smear or Nocardia on culture.

The sputum specimens were concentrated with 4 per cent sodium hydroxide and neutralized with 4 per cent hydrochloric acid. Growth was obtained aerobically on Corper's egg glycerine and Sabouraud's dextrose agar in three to five days. Subcultures grew on rabbit blood agar and in nutrient broth. The growth consisted of an irregularly folded, pale yellow colony about 1 millimeter in diameter. Grampositive, filamentous, occasionally branching, acid-fast forms, which could not be differentiated morphologically from tubercle bacilli, were found on microscopic examination. However, slide cultures demonstrated tangled branching hyphae. The organism failed to liquefy gelatin, coagulate milk, produce hydrogen sulfide or indole, or ferment sugars. It exhibited a musty odor. Guinea pig inoculation intraperitoneally with a 2 cubic centimeter saline suspension of the organisms resulted in death after three days. Multiple peritoneal abscesses were found which on microscopic examination contained acid-fast bacillary forms. Cultures from the abscesses yielded growth as above on Corper's and Sabouraud's media. From these findings it was felt that this organism could be classified as *Nocardia asteroides.*

The fragility of the mycelium of this organism persisted throughout all studies. Smears from solid media, broth, or animal lesions always demonstrated acid-fast bacillary forms. Slide culture was necessary for demonstration of branching hyphae.

Studies were carried out to determine the sensitivity of this organism to various antibiotics. (See Table 1) Serial dilutions of six antibiotics were made in tryptose broth. The agar plates were streaked with a 1:100 dilution of a three days' growth from a tryptose agar slant, and the broth was inoculated with 1.5 cc of the dilute suspension of organisms. Readings were made at twenty-four and forty-eight hours. The lowest concentration of the drug causing complete inhibition of growth was regarded as the end point.

TABLE 1
SENSITIVITY OF ORGANISM TO VARIOUS ANTIBIOTIC

	Plate Method	Broth
Chloromycetin	50 r/cc.	50 r/cc.
Sulfadiazine	12.5 mg./cc.	10 mg./cc.
Streptomycin	31.25 r/cc.	60 r/cc.
Penicillin	50 u/cc.	10 u/cc.
Aureomycin		25 /cc.
Terramycin	50 r/cc.	25 r/cc.

COMMENT

Although acid-fast organisms other than tubercle bacilli may occasionally be found in sputum, the necessity of excluding the latter is apparent. Unfortunately, in the case presented the organism was not identified for several months. During this period all the inconveniences resulting from a diagnosis of tuberculosis were imposed on the patient. Correct diagnosis was important because of differences in therapy, isolation, and interpretation of disease production. Isolation was not necessary since transmission of Nocardia from man to man has not been known to occur. Bed rest and specific therapy were not necessary since the presence of this organism in sputum does not itself indicate disease as in the case of the tubercle bacillus.

A more common error as reported in the literature[3-5] has been to make a diagnosis of pulmonary tuberculosis on the basis of x-ray findings in the chest plus other compatible clinical signs. In these patients with nocardiosis an organism was not demonstrated until late in the disease or at autopsy at which time Nocardia were identified.

Observation of this patient over a period of eighteen months made it clear that the organism was not acting as a pathogen. However, this was not obvious earlier in the course. Animal inoculation studies are not of much assistance since a progressive disease cannot be produced, and abscess formation depends upon the size of the inoculum.[6] This might explain the failure of earlier guinea pig inoculations with sputa concentrates to demonstrate lesions. A skin test as a means of determining disease production has been studied in animals.[6] However, sensitivity after infection has not been studied in humans.[7]

The failure to isolate the organism in culture prior to October 1949, is not readily explainable.[8] It is possible that the organism did not survive the concentration technic utilizing dilute sulfuric acid. Several concentration technics should be utilized when the presence of Nocardia is suspected. The use of selective media or antibiotics may be helpful.

In agreement with other reports sulfadiazine would have been the drug of choice if therapy had been required. It is felt that in vitro sensitivity tests with this organism should be accepted with reserve. Studies of response to other drugs should be done in vivo. Other antibiotics should not be withheld when failure of clinical response to sulfadiazine occurs.

CONCLUSIONS

1. The necessity for adequate identification of all acid-fast organisms found in sputum is again emphasized.

2. The presence of an aerobic actinomycete in the sputum of a patient with productive cough does not necessarily indicate either pulmonary or systemic invasion by this organism.

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SUNBURN AND THE INJURIOUS EFFECTS OF ULTRAVIOLET RADIATION

This is the season in which sunburn and the injurious effects of ultraviolet radiation attain maximum interest for the clinician.

The effects of sunburn are principally due to the ultraviolet effect, and ultraviolet radiation has been defined by the Council on Physical Therapy of the American Medical Association as "Radiation characterized by invisible rays in the electromagnetic spectrum between the violet rays and the roentgen rays. In wave length it ranges from 4000 to 200 Angstroms. It possesses powerful actinic and chemical properties."

The consequences of undue exposure may be immediate and remote. Included in these effects of both types are those produced by glare from the surface of water, in which visible sunlight is at a minimum, and yet the ultraviolet activity producing sunburn may occur. That the immediate results of sunburn may be annoying and mildly disabling, is common knowledge. It is further understood by physicians that tissue injury may result, and the extent to which this may occur is of clinical importance. Four degrees of skin erythema are recognized as being produced by ultraviolet radiation. These effects vary from a first degree, which appears in about four hours and disappears in less than twenty-four, to a fourth degree, in which there is an intense increasing redness with edema and blistering that appears in a few hours, lasts for days, and is followed by deep pigmentation. The changes are associated with reflex dilation of the arterioles, and a local increased permeability of the vessel walls. Laurens states that blondes are 40 to 170 per cent more sensitive than brunettes and men 20 per cent more sensitive than women. Pigmentation follows erythema but the degree, as is well known, is variable. The origin of the pigment has been the subject of much investigation. The human skin contains pigment both in the epithelium and in the corium. The pigment of the basal cells of epithelium is in the superficial levels only when the skin is well tanned. It is thought by some that the horny layer of the skin is a decisive factor in light sensitivity, and that the protective action of this layer depends chiefly upon absorption, and to a less extent upon dispersion and reflection.

The action of ultraviolet on blood cells and hemoglobin is not what is popularly supposed. The Council on Physical Therapy stated, "Numerous claims that ultraviolet radiation exerts a variable therapeutic effect in secondary anemia have been advanced. The evidence supports the conclusion that while in some cases the ultraviolet rays may have had a slight therapeutic influence on this condition, such influ-

ence appears to be limited and, at most, irradiation is to be regarded as an adjuvant to the established methods." The Council on Physical Therapy has also stated in effect that the effect of ultraviolet on blood pressure is, "too slight and inconstant to be of clinical value."

The metabolic studies of ultraviolet effect have been made by Laurens and by Mayer. Repeated irradiations cause the diminished consumption of calories, decrease in basal rate of 10 to 15 per cent. Nitrogen metabolism was increased, excretion of uric acid was increased. Ultraviolet radiation may double the fat content of the blood and cholesterol may increase 30 per cent. Blood sugar of normal persons is not influenced appreciably by ultraviolet radiation, but in some diabetics, blood sugar is temporarily decreased and with diminution of the amount of sugar in the urine. This is thought to be due to increased insulin excretion.

The degree of the constitutional effect of the sunburn is dependent upon the extent of the burns. Symptoms in addition to those of a local origin are: fever, malaise, headache, depression, and those of a general toxemia which is not necessarily mild. The common observation among physicians, which is not appreciated sufficiently by the public, is that the individual's pigment contributes to his degree of tolerance to the sun. For the same reason, the individual who does not acquire tan or pigment after an exposure continues to be susceptible to the ill effects of irradiation. An additional factor in susceptibility is that contributed by chemicals ingested or applied to the surface. Among chemicals, the salicylates and barbiturates have been suspected of producing, in susceptible persons, some degree of photosensitization. Phenolphthalein and sulfanilamide are known to have such effect. Among the substances applied to the surface of the skin, those cosmetics containing oil of bergamot produce in susceptible people a dermatitis when exposed to the sun. A startling effect of the sun in disease is that produced by the exposure of the skin of a patient suffering from pellagra.

The remote effects of excessive sunlight are more difficult to recognize, but conceivably are of much greater importance. Consideration of the prevalence of skin cancer on exposed surfaces, and of the age of patients, gives some index as to the cumulative effect of such sun exposure. Skin cancer in the northern half of the United States is recognized as being much less frequent than in the southern half where it constitutes a major dermatologic problem. And further in the North the lesions appear in the sixth and possibly fifth decades, while in the South these lesions appear in the fourth and even the third decade. In many instances the lesions develop at a time remote from that of the greatest exposure to sun, and frequently, at a time when there has been no recent exposure. These observations suggest the ill effect of ultraviolet may be stored and that its cumulative influence may become manifest in later years.

The inference to be drawn from these thoughts is that suntan of itself does not mean health, and that repeated skin injury from exposure to the sun may contribute to the possibility of skin cancer, and possibly, to remote ill effects unknown at the present time. Even the immediate effects of sunburn may be serious.

It is therefore of some moment to caution against excessive sun exposure and to advise against repeated sunburn when pigmentary protection does not readily manifest. It is evident that blondes for some countless generations flourished where there was little sun, and that in the tropical and subtropical areas only the brunette types tended to survive. Let not the transplanted blondes in these areas attempt to negate the phylogenetic experience.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

ABSTRACTED MINUTES
1951 MEETING OF HOUSE OF DELEGATES
LOUISIANA STATE MEDICAL SOCIETY

One hundred and one delegates, 16 officers and 9 past presidents present.

MINUTES

Minutes of the *1950 meeting of House of Delegates* approved as recorded.

Minutes of meetings of *Executive Committee since 1950 meeting of House of Delegates* approved.

SPECIAL ORDER

Report of President of Woman's Auxiliary, containing the following recommendations, accepted: 1. State Society and Auxiliary work more closely on local and state levels. 2. List of officers and chairmen of committees of State Society and presidents and secretaries of component societies sent to president of Auxiliary each year. 3. State Society continue publication of NEWS AND VIEWS. 4. Annual report of Auxiliary be presented to House of Delegates. 5. Importance of TODAY'S HEALTH be stressed.

Appointment of committees: *Credentials*—Dr. Wm. H. Roeling, Chairman, New Orleans; Dr. Eric Guilbeau, Jr., Lafayette; Dr. H. H. Hardy, Alexandria. *President's Report*—Dr. Jerome E. Landry, Chairman, New Orleans; Dr. A. G. McHenry, Monroe; Dr. C. M. Wiginton, Hammond. *Resolutions*—Dr. T. Benton Ayo, Chairman, Raceland; Dr. N. J. Tessitore, New Orleans; Dr. J. E. Knighton, Shreveport.

Roll of *members who died since* 1950 *meeting* read.

Announcement in re *inability of Dr. P. T. Talbot to attend meeting*—letter of regret to be sent to Dr. Talbot.

Acceptance with thanks, of book compiled by *Dr. Rudolph Matas* giving activities of *Past Presidents Advisory Council of the State Society 1928-1950;* secretary-treasurer to be custodian and place in Rudolph Matas Library at the Tulane Medical School.

Talk by *Dr. E. M. Toler* concerning *legislative activities.*

Report by *Dr. A. A. Herold, fraternal delegate* to meetings of Colorado, Kentucky and Texas medical societies.

COMMUNICATIONS

Dr. Rudolph Matas, Past President and *Dr. H. Guy Riehe*, Third Vice-President in re *inability to attend meeting*: Letters of regret to be sent to doctors.

Pan-Pacific Surgical Association announcing *Fifth Congress to be held in Honolulu*, November 7-19, 1951: Received and filed.

New Orleans Business and Professional Women's Club containing *resolutions* in re *premarital examinations for both sexes and creation of a hospital for indigent tubercular patients*: Resolution in re premarital examinations referred to Committee on Public Policy and Legislation; resolution in re hospital for indigent tubercular patients tabled.

National Society for Medical Research in re membership and contribution: Received and filed.

Administrator of DePaul Sanitarium extending invitation to doctors to visit new addition to hospital: Communication to be acknowledged with thanks.

Royal Perfume Company offering gifts of perfume to doctors: Received and filed.

ACTION TAKEN

Proposed amendment to Section 10 of Chapter X of By-Laws: Chapter X to be revised by Committee on Medical Defense in consultation with attorney; report to be made to Executive Committee.

Recommendations to Governor for appointment on Committee on Sex Offenses: Three names to be submitted.

Recommendations for appointment on Louisiana State Board of Medical Examiners: Dr. Roy B. Harrison and Dr. Sam Hobson.

Attorney for State Society: Attorney employed to handle medical defense cases to also be employed to handle other legal matters; salary $1200.00 per year—$700 to be paid from Medical Defense Fund and $500 from general fund; increase effective July 1, 1951.

Recommendation of following doctors and laymen to serve on Board of Louisiana Physicians Service: Drs. Rhett McMahon, W. E. Barker, Jr., N. J. Tessitore, A. V. Friedrichs, O. B. Owens, W. L. Bendel, George W. Wright, Edwin L. Zander, L. O. Clark, J. W. Faulk, Arthur D. Long, Guy R. Jones, P. H. Jones, H. Ashton Thomas, Charles B. Odom, C. J. Brown, M. C. Wiginton, Charles McVea, H. W. Boggs; Laymen—Don Ewing, Pat Turner, Frank Lais, Jr., E. H. Curtis, Bill Clark, N. C. McGowen, Jim Bell, John LaNasa, Scott Wilkinson.

Resolution in re professional standards in hospitals: *Approved as follows*: "WHEREAS, The American College of Surgeons has announced its decision to discontinue the program of hospital standardization it has so ably conducted for many years; and WHEREAS, The American Hospital

Association Board of Trustees subsequently announced that the American Hospital Association would "assume full responsibility for the hospital standardization program now conducted by the American College of Surgeons," and its House of Delegates increased association dues to finance the program; and WHEREAS, Objections raised by the American Medical Association, the American Academy of General Practice, and others, to control of hospital medical practice by the American Hospital Association led to a series of conferences between representatives of the American Medical Association, the American Hospital Association, and the American College of Surgeons; and WHEREAS, A compromise agreement has now been proposed for the creation of a joint committee composed of representatives from the American Medical Association, the American Hospital Association, the American College of Surgeons, and the American College of Physicians, said committees to have complete authority over the evaluation and standardization of hospitals, including both administrative and professional aspects; and WHEREAS The evaluation and standardization of medical practice in hospitals is of such paramount importance to all branches of the medical profession that it should be under the sole and complete authority of the American Medical Association, which is the only medical organization representative of the entire profession in America and in which all segments of the profession have official democratic means of expressing their views on matters of such importance as the control of hospital medical practice; and WHEREAS, The creation of an extramural committee with authority over this important aspect of modern medical practice would deny those branches of the profession not officially represented on such committee official voice in the establishment and control of policies and procedures; now therefore be it RESOLVED: That, regardless of what other organizations may undertake in connection with the standardization of nonprofessional matters in hospitals, the sole responsibility for the evaluation, standardization, and control of medical practice in hospitals should be vested in the Council on Medical Education and Hospitals of the American Medical Association." Similar resolution on this subject offered by the Association of American Physicians and Surgeons, Inc: Tabled in view of action taken.

Resolution proposing abolishment of Fellowship in the AMA: Delegates to AMA to use own judgment in matter; resolution tabled.

SUBJECTS DISCUSSED—NO ACTION TAKEN

Amendment to By-Laws in re election of Councilors.

Membership in World Medical Association and subscriptions to journal of organization.

School Health Program; creation of Committee on Child Health suggested.

AMENDMENTS TO BY-LAWS

Section 9 of Chapter IX—Enlargement of Committee on Public Policy and Legislation.

Section 1 of Chapter XI—Increase in per capita appropriation to Committee on Public Policy and Legislation; from fifty cents to one dollar. Increase in per capita appropriation for annual entertainment fund; from one dollar to one dollar and a half. Surplus funds from annual meetings to be placed in general fund of the Society.

REPORTS WITHOUT RECOMMENDATIONS

Following reports received and filed: Secretary-Treasurer. Council. Councilors of First, Second, Third, Fourth, Fifth, Sixth, Seventh and Eighth Districts. Advisory Committee to Selective Service. Advisory Committee to Woman's Auxiliary. Committees on Arrangement—1951 Annual Meeting, Budget and Finance, Domicile, Hospitals, Journal, Lectures for Colored Physicians, Medical Defense, Medical Education, Medical Indigency, Medical Testimony, National Emergency Medical Service, Scientific Work. Planning Board in re Survey of Facilities and Personnel for Medical Care. Council on Medical Service and Public Relations. Louisiana Physicians Service, Inc. Louisiana State Board of Medical Examiners.

REPORTS CONTAINING RECOMMENDATIONS

President—1. An equitable pension plan to be worked out for our office employees. 2. The Committee on Committees review the Committee on Public Health with the view of creating a more workable and efficient representation. 3. Participation in activities of the Western Legislative Conference be continued. 4. A continuance of participation in the AMA Conference of Presidents and Other Officers of State Societies. Following report of the Committee on President's Report approved: The Committee on the President's Report wishes to commend the President for his untiring efforts in the advancement of medicine and in helping to solve its problems in both the state and nation during the past year. We approve of Recommendation #1 in principle and recommend that this plan be worked out by the Executive Committee. Recommendation #2 has been taken care of by other recommendations. Recommendation #3 we approve and believe that the participation in this conference should be continued. We approve Recommendation #4 and believe that this is a good public relations recommendation.

Committee on Aid to Indigent Members:—1. Increase in monthly payment ($10.00) made to doctor receiving assistance during past few years: Referred back to committee. 2. Survey to ascertain assistance rendered by other state medical organizations: Secretary's office to assist in survey.

Committee on Cancer:—1. The Cancer Committee should be a major committee under jurisdiction of the Executive Committee of the State Society: Ap-

proved by acceptance of report of Committee on Committees. 2. Chairman of the Cancer Committee should preferably be a New Orleans doctor so that close liaison with the State Society office and the office of the American Cancer Society can be maintained: Approved. 3. A program of professional education should be maintained; the method to be determined from year to year: Approved. 4. Sincerest appreciation expressed for cooperation of the Tulane and LSU Medical Schools and the American Cancer Society through its Louisiana Division: Approved. 5. Personal expression of appreciation of chairman to following persons for help in carrying out the cancer program—Dr. John Overstreet and the team of visiting physicians from Tulane University; Dr. Walter J. Burdette and team of physicians from the LSU Medical School; Dr. Ambrose Storck; Dr. Charles L. Black; Dr. L. O. Clark; Dr. R. E. C. Miller; Dr. Charles McVea; Dr. Hollis T. Rogers; Dr. Walter Moss and Mrs. Marian Simmons, Executive Secretary of the Louisiana Division of the American Cancer Society: Approved.

Committee on Committees:—1. Continuation of the Committee on Congressional Matters as a standing committee: Approved. 2. Continuation of the Committee on Maternal Welfare as a standing committee: Approved. 3. Continuation of the Committee on Cancer as a special committee: Approved. 4. Continuation of the Committee on Industrial Health as a special committee: Approved. 5. Continuation of the Committee on Rural Medical Service; name to be changed to Committee on Rural and Urban Health; committee to be composed of eight members, one from each Congressional District; Approved. 6. Continuation of the Committee on National Emergency Medical Service as a special committee: Approved. 7. Continuation of the Planning Board in re Survey of Facilities and Personnel for Medical Care with duties as outlined in report: Approved.

Committee on Congressional Matters:—1. Committee on Congressional Matters be continued as a standing committee separate from the Committee on Public Policy and Legislation: Approved by acceptance of report of Committee on Committees.

Committee on History of Louisiana State Medical Society:—Action of Executive Committee in approving following recommendations approved: 1. Acceptance by the State Society of $2,816.88 refund of amount advanced for publication of the History of the Louisiana State Medical Society, for distribution to contributors or their heirs. 2. Continuance by Dr. Rudolph Matas to edit and defray all expenses of the History until it is completed and ready for publication. 3. In event of death of Dr. Matas before completion of History funds left by Dr. Matas to be used for completion of the History, under auspices of the Louisiana State Medical Society with agreement that the Louisiana State Medical Society shall receive whatever benefits may result from publication. 4. That the History shall appear as a publication officially endorsed by the Louisiana State Medical Society after its approval by the House of Delegates. 5. Dr. Matas to continue as Chairman of the Committee on History as long as he is physically able to direct and supervise this work. 6. That all rights and privileges enjoyed by Dr. Matas as founder, editor, director and owner of this History, under auspices of the Louisiana State Medical Society, shall remain inalienable.

Committee in re Investigation of Louisiana Physicians Service:—Following report referred to Executive Committee with approval of House of Delegates; Executive Committee to issue necessary authority for separation and operation of hospital and medical services as outlined: "After a very careful consideration of the relationship existing between Louisiana Physicians Service and Louisiana Hospital Service, and also, the Hospital Service Association of New Orleans, the Committee finds: (1) A satisfactory working basis among the three was not obtainable because of several factors not under control of the medical profession. (2) After a thorough discussion with representatives of Louisiana Physicians Service and Louisiana Hospital Service, the committee feels that the relationship should be dissolved. (3) The committee advises that the Louisiana Physicians Service be directed to sell surgical, medical, and hospital insurance throughout the state."

Louisiana Health Council:—Report containing the following recommendations accepted: 1. Doctors of the state participate more freely in the local and state health councils. 2. Council on Public Health be created that will assist the state health council and its subsidiaries in health work. 3. Fifteen hundred dollars be appropriated for use of this council in carrying out its activities.

Committee on Maternal Welfare:—1. Committee on Maternal Welfare be discontinued as a standing committee and become a subcommittee of the Committee on Public Health of the State of Louisiana: Recommendation withdrawn by chairman of committee after acceptance of report of Committee on Committees.

Committee on Public Health of the State of Louisiana:—1. Cancer program, rural health program, a program on industrial health and a program on school health handled by separate committees: No action taken in view of acceptance of report of the Committee on Committees.

Committee on Public Policy and Legislation:—1. Recommendations to Governor for appointment on Committee on Sex Offenses: Three names to be submitted.

Committee on Resolutions:—1. Copy of report be incorporated in minutes of the meeting and published in New Orleans Medical and Surgical Journal.

ELECTION OF OFFICERS, COMMITTEES AND DELEGATE AND ALTERNATE TO AMA

President-elect—Dr. W. E. Barker, Jr., Plaquemine.

First Vice-President—Dr. Charles B. Odom, New Orleans.

Second Vice-President—Dr. H. W. Boggs, Shreveport.

Third Vice-President—Dr. W. Robyn Hardy, New Orleans.

Chairman of House of Delegates—Dr. A. V. Friedrichs, New Orleans.

Vice-Chairman of House of Delegates—Dr. T. Benton Ayo, Raceland.

Councilor, Third District—Dr. Guy R. Jones, Lockport.

Councilor, Sixth District—Dr. Arthur D. Long, Baton Rouge.

Councilor, Seventh District—Dr. J. W. Faulk, Crowley.

Councilor, Eighth District—Dr. H. H. Hardy, Alexandria.

Delegate to AMA (1952 and 1953)—Dr. J. Q. Graves, Monroe.

Alternate to Delegate to AMA (1952 and 1953)—Dr. A. A. Herold, Shreveport.

COMMITTEES

Journal—Dr. Charles M. Horton, Franklin.

Medical Defense—Dr. C. B. Erickson, Chairman, Shreveport.

Scientific Work—Dr. William H. Gillentine, New Orleans; Dr. J. E. Knighton, Shreveport.

Public Policy and Legislation—Dr. Cuthbert J. Brown, Chairman, New Orleans; Dr. J. E. Clayton, Norco; Dr. Julius M. Fernandez, Franklin; Dr. Arthur A. Herold, Shreveport; Dr. Dewitt T. Milam, Monroe; Dr. Daniel J. Fourrier, Baton Rouge; Dr. Ernest C. Faulk, Rayne; Dr. M. B. Pearce, Alexandria.

1952 MEETING

Invitation to meet in Shreveport accepted.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SHORT-TERM PREDOCTORAL FELLOWSHIPS

The National Foundation for Infantile Paralysis announces a new type of short-term predoctoral fellowships for undergraduate medical students who are interested in research in medicine and the related biological and physical sciences. The fellowships cover a minimum of two months experience in research under the direction of a competent investigator in the laboratories of appproved medical schools or research institutes in the United States.

Under the plan, the Dean of each four-year medical school has the privilege of nominating one medical student to receive a fellowship. The National Foundation for Infantile Paralysis will provide a stipend of $400 for each student who qualifies for the summer laboratory study.

The new fellowships, as well as the regular pre and postdoctoral fellowships currently being offered by the National Foundation, are administered by its Division of Professional Education with the assistance of a professional committee headed by Dr. Thomas B. Turner, Professor of Bacteriology at the School of Hygiene and Public Health of Johns Hopkins University.

The purpose of the new short-term fellowships is to enable medical school students to test their desires and determine their aptitudes to participate in research in medicine and related biological sciences at an early stage in their professional careers.

RESEARCH FELLOWSHIPS IN ARTHRITIS

The Arthritis and Rheumatism Foundation is offering research fellowships in the basic sciences related to arthritis. Fellowships will be granted at both the predoctoral and postdoctoral levels. The predoctoral fellowships will range between $1,500 and $3,000 per annum, and the postdoctoral from $3,000 to $6,000. The deadline for these applications is November 15, 1951. Application forms may be obtained by writing the Medical Director,

Arthritis and Rheumatism Foundation. 535 Fifth Avenue, New York 17, N. Y.

A LESSON IN SOCIALISM

As a teacher in the public schools, I find that the socialist-communist idea of taking "from each according to his ability," and giving "to each according to his need" is now generally accepted without question by most of our pupils. In an effort to explain the fallacy in this theory, I sometimes try this approach with my pupils:

When one of the brighter or harder-working pupils makes a grade of 95 on a test, I suggest that I take away 20 points and give them to a student who has made only 55 points on his test. Thus each would contribute according to his ability and —since both would have a passing mark—each would receive according to his need. After I have juggled the grades of all the other pupils in this fashion, the result is usually a "common ownership" grade between 75 and 80—the minimum needed for passing, or for survival. Then I speculate with the pupils as to the probable results if I actually used the socialistic theory for grading papers.

First, the highly productive pupils—and they are always a minority in school as well as in life—would soon lose all incentive for production. Why strive to make a high grade if part of it is taken from you by "authority" and given to someone else?

Second, the less productive pupils—a majority in school as elsewhere—would, for a time, be relieved of the necessity to study or to produce. This socialist-communist system would continue until the high producers had sunk—or had been driven down —to the level of the low producers. At that point, in order for anyone to survive the "authority" would have no alternative but to begin a system of compulsory labor and punishments against even the low producers. They, of course, would then complain bitterly, but without understanding.

Finally I return the discussion to the ideas of freedom and enterprise—the market economy—where each person has freedom of choice, and is responsible for his own decisions and welfare.

Gratifyingly enough, most of my pupils then understand what I mean when I explain that socialism—even in a democracy—will eventually result in the living-death for all except the "authorities" and a few of their favorite lackeys.

Thomas J. Shelly,
Teacher of Economics and History,
Yonkers High School,
Linden and Poplar Sts.,
Yonkers 2, New York.

NEWS

Doctor Roy Carl Young, Medical Director of Fenwick Sanitarium of Covington attended the meeting of the American Psychiatric Association in Cincinnati from May 6th to May 11th where he received his Fellowship certificate in the Association.

Doctor Young also attended the meeting of the National Association of Private Psychiatric Hospitals and was reelected Treasurer of that organization.

THE INTERNATIONAL COLLEGE OF SURGEONS MEETS IN CHICAGO

The sixteenth annual assembly of the United States Chapter of the International College of Surgeons will be held in Chicago on September 10th through the 13th, 1951, with headquarters at the Palmer House.

An excellent program has been arranged. Prominent surgeons from the United States and other countries will participate. Scientific sessions will be held by all specialty sections of the United States chapter.

The annual banquet will take place on Wednesday evening, September 12. Mr. Lawrence Abel, F. R. C. S. (Eng.), of London, will be the principal speaker.

The assembly will conclude with the convocation, to be held in the Civic Opera House on the evening of September 13. Senator Estes Kefauver will deliver an address on "The America of Tomorrow".

Hotel reservations may be arranged by writing to the Housing Division, Chicago Convention Bureau, 33 North LaSalle Street, Chicago 2, Illinois.

ANNUAL MEETING OF THE NEW ORLEANS GYNECOLOGICAL AND OBSTETRICAL SOCIETY

At the Annual Meeting of the New Orleans Gynecological and Obstetrical Society held at the Lakewood Country Club on Wednesday, May 30, Dr. Harry Meyer was installed as president and other officers for 1951-52 were elected as follows: Dr. Curtis J. Lund, president-elect; Dr. E. W. Nelson, vice-president; Dr. Abe Golden, secretary; Dr. John C. Weed, treasurer.

Dr. John S. Herring, in his address as out-going president, reviewed accomplishments of the organization during the past year which have included outstanding scientific presentations by notable speakers.

Dr. Harry Meyer, in accepting the presidency for the coming year, pointed out that this specialty group is composed of obstetricians and gynecologists from all hospital and teaching institutions in the city.

THE USE OF ALUMINUM COOKING UTENSILS IN THE PREPARATION OF FOODS

Periodically rumors are circulated to the effect that foods cooked in aluminum cooking utensils are deleterious to health because of injurious substances imparted by the vessel. Thus it becomes necessary to again call attention to pertinent facts about aluminum.

Aluminum abounds in the earth's crust and is widely distributed in nature being present in a wide range of edible plants. Undoubtedly man has ingested small quantities of aluminum daily since he came upon the earth. Aluminum compounds are also important and useful therapeutic agents.

The possibility that aluminum utensils can impart injurious agents to the foods cooked in them has been extensively investigated. Up to the present time there has been no cogent scientific evidence indicating that the minute traces of aluminum that may be imparted to food in the process of cooking are in any way injurious to the consumer. As for the rumor that the use of food prepared in aluminum cooking utensils is a factor in the causation of cancer, it may be added also that there is absolutely no scientific basis in support of this view.

In view of these facts it is the opinion of he Council that the use of aluminum cooking utensils is in no way injurious to health.

BOOK REVIEWS

The Physiological Basis For Oxygen Therapy: By Julius H. Comroe, Jr., and Robert D. Dripps. Charles C. Thomas, Springfield, 1950. Pp. 85. Price, $2.50.

This is one of the monographs in physiology published in the American Lecture Series. Its purpose is to emphasize the rational, physiological basis for oxygen therapy. The book is therefore concerned with (1) an analysis of the effects of the inhalation on various functions of the normal body, (2) the problems of anoxia and other abnormal conditions in which the inhalation of oxygen has been suggested and (3) the possible hazards attendant upon the administration of oxygen.

The monograph is well written and documented and will be of interest and value to those concerned with the problem of oxygen therapy.

The section on the effect on arterial oxygen saturation, content and tension is brief but quite adequate. The author properly emphasizes that the inhalation of 100 per cent oxygen by a healthy person, while adding only 11 per cent in total oxygen, results in an increase of 50 per cent in the pressure head of oxygen to which the tissues are exposed since the added oxygen is in physical solution and is readily available. This is of extreme importance when the oxygen tension is low, since the amount in physical solution summates with the oxygen taken up by hemoglobin to its saturation point. Anoxia is discussed in detail following an outline in which the various types are classified from a clinical point of view. The authors stress the difficulty of making a diagnosis of anoxemia from the degree of cyanosis present and emphasize the importance of laboratory examination in this regard. The use of the oximeter for this purpose is also described. The inhalation of oxygen in acute anoxia is discussed and the question of its use in chronic anoxia left open. The short chapter on oxygen inhalation in conditions without anoxia includes recent work dealing with its use in eliminating nitrogen from the body, the treatment of anaerobic infections and migraine. The final chapter on possible harm from the inhalation of oxygen is thorough and complete including a consideration of the problem of "oxygen apnea."

H. S. Mayerson, Ph. D.

The Ethical Basis of Medical Practice: By Willard L. Sperry; with a foreword by J. Howard Means, M. D. New York, Paul B. Hoeber, Inc. 1950. Pp. 185. Price, $2.50.

In a simple and thought-provoking manner, this small volume, written by the Dean of the Harvard Divinity School, deals with the mutual and overlapping problems of ministers and physicians. The discussions have been developed from lectures which Dean Sperry has given before the Medical Staff of the Massachusetts General Hospital, the University of Michigan and elsewhere. Problems are presented in which the physician must decide "not between black and white, but between rather closely matching shades of gray." Chapters of especial interest are: Democratic and Totalitarian Medicine, Telling the Truth to the Patient, Prolongation of Life and Euthanasia, Pro and Con. No other modern book known to the reviewer,

presents so well the ethical basis of medical practice to which in the increasing tempo of life today, all too little attention is given. This book should find a place both in the libraries of physicians and medical students.

MARY LOUISE MARSHALL

Operations of General Surgery, Second Edition: By Thomas G. Orr, W. B. Saunders Company, Philadelphia, 1949. Pp. 890. Price, $13.50.

This volume presents with remarkable completeness and, at the same time, excellent selectivity, both the newest and long-established technical procedures of proven merit in the entire field of general operative surgery. To accomplish this, the author has drawn on classic periodical and textbook illustrations, which he has in some instances modified, and he has also included many original illustrations, altogether totaling 1700. Supplementing the illustrations and their legends, the author gives terse word descriptions of the operations, and brief but sound comments concerning their application, including dangers and safeguards. For the convenience of those desiring to refer to original sources of material there are excellent reference lists at the end of each chapter.

AMBROSE H. STORCK, M. D.

Personality in Peptic Ulcer: By A. J. Sullivan, M. D., & T. E. McKell, M. D. Charles C. Thomas, 1950. Illus. Pp. 100. Price, $3.00.

This little book is entertaining and easily read. The illustrations, based on sketches by Dr. Fred Rehfeldt, are ingenious.

The authors classify ulcer patients in four groups. Group A, (72 per cent) consisted of patients with the "typical ulcer personality." These patients are described as driving, tense, anxious—the promoter and go-getter. Group B (11 per cent) is described as definitely psychoneurotic. The authors suggest that psychiatric help be obtained for these patients. Group C (5 per cent) includes those patients in whom some striking external situation precipitated the ulcer. The extrinsic factor in these cases seemed dominant. In Group D (10 per cent) the intrinsic and extrinsic factors seemed minimal, but there existed some unusual constitutional factor, e. g. peptic ulcers associated with Meckel's diverticula, hiatus hernia, etc. Two per cent of their cases were not classified due to insufficient data.

The interrelationship of various intrinsic and extrinsic factors in the production of peptic ulcer is discussed, and many illustrative cases are reported. The authors are to be commended for presenting convincing data regarding the etiology of peptic ulcer. The book will be of value to any physician treating ulcer patients, and could be used by the intelligent patient with profit.

PHILIP M. TILLER, JR., M. D.

Regional Orthopedic Surgery: By Paul C. Colonna, M. D., Philadelphia and London, W. B. Saunders Co., 1950, Pp. 706, Illus. Price, $11.50.

This book was designed for use in undergraduate teaching of orthopedic surgery and diseases of the bones and joints. As the name implies, it is organized on the basis of anatomical regions for the most part. However, there is a separate introductory section on the physiology of bones and joints and separate sections on neuromuscular disturbances, tumors of bone, orthopedic apparatus and appliances, and physical medicine as applied to orthopedic surgery. The last chapter on physical medicine was written by Dr. George Morris Pearson.

As a whole, this book accomplished what it sets out to do, namely, to present orthopedic conditions from a regional approach in a very admirable manner. However, as the author recognizes, the voluminous nature of present-day orthopedic literature is almost impossible to cover completely in a book of this type. Some would question the advisability of including a brief discussion and description of fractures along with other bone pathology in each region. However, if the object of presenting material for evaluation of muscles in skeletal sections on a regional basis is kept in mind, the inclusion of such fractures is permissible.

For the most part, the illustrations are of good quality, especially those which are original. The alternate use of positive and negative roentgenogram prints distracts from the aesthetic qualities of the illustrations.

This is by far the best modern book available to the undergraduate student on orthopedic surgery. It presents the material in a concise and lucid manner, coordinating applied anatomy and physical examination with various types of pathology found in each region. Although it is of primary value as a teaching text, it will also serve

very well as a reference book for the general surgeon and practitioner.

JACK WICKSTROM, M. D.

Newer Concepts of Inflammation: By Valy Menkin, M. A., M. D., Springfield, Ill. Charles C. Thomas, 1950. Pp. 145. Illus. charts. Price, $3.50.

This little book by Valy Menkin, who has spent twenty years or more in investigating the basic problem of inflammation, is highly interesting. It presents a well integrated and well documented explanation of the changes seen in inflammatory reaction. The concept is essentially one involving chemical factors, attempting to explain the inflammatory changes at the level of various basic chemical substances, each responsible for one or more of the features of inflammation. The simplicity and straightforwardness of the presentation are very convincing, since basic truths fully understood often lose the complexities of partial or conjectural explanations.

The book is divided into five chapters. In the first four, are discussed capillary permeability, inflammation in immunity, phagocytosis, diabetes in inflammation, fever and repair. These four chapters form a fascinating and well-knit story, which should be interesting to all medical men. For those who desire only the distillate of these 145 pages, however, the last chapter of recapitulation and conclusion effectively outlines the substance of the book.

The author has made good use of footnotes to include brief summaries of work directly supporting his statements. The bibliography at the end of each chapter (a total of over 125 references) is a valuable part of the book. The illustrations are well chosen and effective.

W. H. HARRIS, JR., M. D.

Normal Values in Clinical Medicine: By F. William Sunderman, M. D., Ph. D., & Frederick Boerner, V. M. D., Philadelphia, W. B. Saunders Co., 1949. Pp. 845. Price, $14.00.

This volume of 845 pages is divided into 14 sections which include a total of 74 chapters. These sections are selected mostly following the design of anatomical or physiological systems. The last 4 sections, however, are appended to this organization and include values for metabolism and nutrition, anatomical normals, teeth and saliva (normal values in dentistry) and a final section of miscellaneous data.

The data presented are well documented with bibliographical references, but, for the most part, the presentation is dogmatic, with little effort made to distinguish between or discuss values at variance with one another. Generally, the attention to methods by which values were obtained is neglected or is too brief to serve more than refresher information to one already familiar with the technics.

The chapter on endocrines is notable in its exclusion of all endocrines except the sex hormones. The chapter on drugs and doses, also seems too brief for general reference. While values for the special senses are good, those for the nervous system in general are quite sketchy and incomplete.

Especially good is Chapter 23, a resumé of physical characteristics and chemical components of blood and serum. Coverage of values for the gastrointestinal tract and its related organ functions is quite complete as is the report of values for the respiratory system.

In general, this book is not easy reading. Its material is almost exclusively of diagram and table presentation. Its exclusion of methodology and critical discussions of the validity of the values given, place it in the category of a reference source. For this purpose, however, it may be well recommended.

JOHN K. HAMPTON, JR., Ph. D.

PUBLICATIONS RECEIVED

The Blakiston Co., Philadelphia: Handbook of Nutrition, prepared under the auspices of the AMA (2nd Edition).

Federal Security Agency, Washington: Industrial Health and Medical Programs, by Margaret C. Klem, Margaret F. McKiever, and Walter J. Lear, M. D.

Froben Press, Inc., N. Y.: Rice, Dietary Controls and Blood Pressure, by Frances I. Seymour, M. D.

Medical Association of S. C.: The Life of Dr. Peter Fayssoux of Charleston, S. C., by Chalmers G. Davidson.

Oxford University Press, N. Y.: The Kidney, Structure and Function in Health and Disease, by Homer W. Smith, A. B.

Philosophical Library, N. Y.: Philosophy for the Common Man, by Heinrich F. Wolf.

Premier Publications, Ltd., Sacramento: Memories, Men and Medicine, by J. Roy Jones, M. D.

W. B. Saunders Co., Philadelphia: Diabetes Mellitus, Principles and Treatment, by Garfield G. Duncan, M. D.; Principles and Practice of Obstetrics, by J. P. Greenhill, M. D. (10th Edition); Electroencephalography in Clinical Practice, by Robert S. Schwab, M. D.; A Textbook of X-Ray Diagnosis, by British Authors (2nd Edition); Clinical Heart Disease, by Samuel A. Levine, M. D., (4th Edition); Textbook of Medicine, by Russell L. Cecil, M. D. and Robert F. Loeb, M. D.

Charles C. Thomas, Publisher, Springfield, Ill.: Fever Therapy, by H. Worley Kendell, M. D.; Blood Groups in Man, by R. R. Race, Ph.D., and Ruth Sanger, Ph.D.; Tuberculosis Among Children and Adults, by J. Arthur Meyers, M. D. (3rd Edition); Emotional Factors in Cardiovascular Disease, by Edward Weiss, M. D.; Post-Graduate Lectures on Orthopedic Diagnosis and Indications, by Arthur Steindler, M. D.; Roentgen Manifestations of Pancreatic Disease, by Maxwell H. Poppel, M. D.; Treatment of the Nephrotic Syndrome, by Lee E. Farr, M. D.

University Medical Publishers, Palo Alto, Calif.: Handbook of Medical Management (2nd Edition), by Milton Chatton, M. D., Sheldon Margen, M. D., and Henry D. Brainerd, M. D.

University of Oklahoma Press, Norman: Pioneer Doctor, by Lewis J. Moorman, M. D.

New Orleans Medical

and

Surgical Journal

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SOME PRESENT DAY CONCEPTS OF CONGESTIVE HEART FAILURE AND ITS TREATMENT*

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Congestive heart failure is being revealed as a very complicated pathological state. The simple concept of a failing heart muscle and back pressure, with increase in blood volume due to retention of salt,[1] secondary to decrease in renal blood flow[2] or congestion of the kidneys will not alone suffice[3] without considering the more extracardiac disturbances. Sodium chloride retention,[4] which has received the greatest emphasis lately, has been suggested as being closely related to pituitary, adrenal, renal, and liver functions. The sodium and chloride blood levels, the carbon dioxide combining power, the matter of acidosis or alkalosis, the potassium and calcium depressions or elevations, nonprotein nitrogen retention, and probably the hemoglobin content, blood plasma proteins, especially the serum albumin levels, extracellular electrolyte concentration, and intracellular changes, all play a part. All of these factors are being suspected and investigated in the study of prerenal chemical disturbances in heart failure. These are all of importance in the elucidation, not only of the mechanism of edema formation, but also of its dissipation.

During the last two decades great progress has been made in the treatment of edema and congestive heart failure. In addition to adequate digitalization, more powerful and less toxic diuretics have been developed, salt intake has been restricted and absorption prevented, and the number of cases of refractory edema has been greatly reduced. Nevertheless, patients still die with slowly advancing relentless heart failure, which must be investigated and explained.

Most of the modern severe critics of the back pressure theory of congestive heart failure, accept the back pressure explanation for acute paroxysmal dyspnea, pulmonary congestion, edema, and frothy bloody bronchorrhea. This is admittedly acute failure of the left ventricle, which indicates failure of the drainage of the pulmonary areas, the shift of blood or plasma fluid mass from the greater to the lesser circulation. However, it is generally pointed out that in this acute condition there is no gain in weight or increase in total blood volume, or increase in venous pressure. All of these changes, however, are found in chronic heart failure in that there is an absolute increase in the total body fluid volume and blood plasma. This is a characteristic sign of chronic heart failure apparently responsible for the rise of venous pressure and engorgement of the liver.

The reasons for the pathophysiological changes are still not absolutely established. It seems logical to consider that the disor-

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ders of heart failure should begin to develop as a result of decreased efficiency of the heart muscle in most patients. It has been demonstrated[5] that reduction in cardiac output occurs in most cases of congestive heart failure, especially with low pulse pressure, as in coronary atherosclerosis, rheumatic myocarditis, diastolic hypertension, hypothyroidism, heart tamponade, pericardial constriction, erythremia and chronic severe dietary deficiency. However, there is another group of conditions in which the picture of congestive heart failure appears and the cardiac output is usually above normal in high pulse pressure conditions such as in syphilitic aortic regurgitation, systolic hypertension, hyperthyroidism, arteriovenous shunt, congenital lesions, anemia, and beriberi. In these we have been prone to consider that there has been a relative drop from a high level to levels still above normal, or to just normal levels of cardiac output. The cardiac output drop to a relatively low or to an actually low level seems to affect the kidney function, especially to reduce glomerular filtration. The stress of reduced circulation and anoxia affects other essential organs, especially the pituitary, adrenal, and thyroid glands. It has been repeatedly demonstrated in heart failure cases that the sodium excretion and the day volume is decreased, while the night volume is increased.

A clear understanding of the mechanism of sodium chloride and water retention in heart failure cases may be elucidated by a study of the factors that control sodium chloride and water excretion in urine of normal individuals. In normals the diurnal excretion of salt and water is greater than the night output. These outputs are not dependent upon changes in filtration or renal blood flow. Increase and decrease in salts and water in the urine are under the control primarily of tubular reabsorptions.

Exercise, sitting, standing, as well as stepping produce a drop in sodium chloride. excretion. Restricted sodium chloride intake decreases sodium chloride in the urine and the extracellular fluid volume, while excessive sodium chloride intake increases sodium chloride in the urine and the extracellular fluid volume. Hormones of menses, ACTH, cortisone, testosterone, and desoxycorticosterone acetate increase sodium retention. Pitressin decreases water output but sodium chloride total excretion remains the same. Concentrated sodium chloride intravenously causes water and salt excretion that is refractory to pitressin. Alkalosis produces excessive sodium excretion. Acidosis causes excessive chloride excretion.

Chronic congestive heart failure is characterizes by a retention of sodium chloride and water during the day with a rise in the output at night that is however not fully compensatory. This is just the opposite from normals; otherwise the congested cardiacs' reactions to exercise, infection, anoxia, and hemorrhage are similar to normals but generally dampened.

Glomerular filtration of sodium chloride is usually reduced in congestive heart failure patients. At the same time in congestive failure there is renal tubular avidty for sodium, and sodium retention is conspicuous. Retention of sodium may be then considered to stimulate elevation of the blood volume and of the venous pressure. A stress factor elaborating salt retaining hormones may be operative in part. In experimental animals a rise in the venous pressure in the kidney decreases sodium chloride output without a change in fltraton or renal blood flow.

The traditional concept is that high venous pressure produces a high hydrostatic capillary pressure in the venous limb which overcomes the onconic or osmotic pressure of plasma proteins and thus prevents the return of sodium chloride and water to the vascular compartment from the interstices.

Prerenal deviation of sodium chloride and water immediately into tissue interstices occurs in hypoproteinemia. It has been stated that such a mechanism would cause a decrease in the blood volume and thus not be a part of the mechanism of congestive heart failure in which the plasma

volume was increased. Then, too it has been pointed out that patients who have had congestive failure continue to have difficulty in handling sodium chloride after the venous pressure has returned to normal.

Noncardiac conditions such as infections, and hemorrhage have shown temporary sodium chloride retention. In cardiacs the defect persists for years even when there is no increased venous pressure. Qualitative along with quantitatve differences have occurred as a result of a renal nocturnal excretion.

In recent years there have been demonstrated disturbances in the electrolytes which sometimes may be controlled and reversed, but which if not recognized lead to dissolution. Just what is responsible for the death from pure heart failure is not known. It may be in the irreversible electrolyte upsets that may come on spontaneously in morbid states. They are more frequently precipitated in a patient with congestive chronic heart failure by the too vigorous application of mercurial diuretics. The development of more potent mercurials and the additional restriction of salt intake and uptake by resins contribute to subnormal electrolyte levels. Frequent repetition of mercurial diuretic injections at intervals of twelve to twenty-four hours may produce the effects of sodium chloride and disturbed potassium and acid-base equilibrium. These effects may persist and become accumulative, producing hyponatremia, hypochloremia or both in a serious salt depletion syndrome and usually a refractoriness to further mercurial diuresis. Sometimes glomerular and tubular pathology are aggravated.

Refractory edema in persistent heart failure calls for a complete survey of the whole situation. If and when a mercurial diuretic fails to produce a diuresis, it is necessary to make a study of the blood electrolyte levels, at least the sodium and the chloride independently, and the carbon dioxide combining power. It may be a sodium depletion acidosis or chloride depletion alkalosis which must be reversed. It is important to determine how much actual restriction there was in the salt intake, whether effective amounts of ammonium chloride were being given, whether digitalization has been complete and maintenance dosage has been sufficient, and whether the physical activities have been kept at an absolute minimum.

It is necessary to rule out kidney or liver disease that may have produced a hypoproteinemia or hypoalbuminemia, severe anemia, and mechanical factors such as constrictive pericarditis and tricuspid stenosis that may cause liver engorgement, ascites, and edema. Active rheumatic fever or any other acute infection that produces fever or causes a reversible heart disease as arteriovenous aneurism, myxedema, beriberi should have been treated or corrected before concluding that the patient is in a terminal stage of refractory heart failure.

Successful therapy consists in a judicial combination of methods to correct any cardiac, prerenal, general, or local factors that contribute to an edema formation or its persistence. Our efforts are no longer directed toward getting more potent mercurial diuretics. In the last few years we have been more concerned with effective but less toxic drugs. Low sodium diets have been devised and many patients take these without much protest. Yet it is difficult to prepare salt free diets in the home. By exchange of resins, particularly those with potassium added, it has been possible to get results without being too stringent about salt intake but potassium and calcium deficiencies may develop. It has been shown that mercurial diuretics may produce a hypochloremia alkalosis with normal sodium and refractoriness to the drug. On the other hand, primary or secondary depletion of sodium and acidosis seems also to be responsible for the refractoriness. Complete chemical studies are necessary to establish the situation and to reveal any other factors which may be present.

We have in recent years continued our studies on the effect of diuretics on urine cutput and on body weight, blood volume and venous pressure, sodium chloride, po-

tassium and calcium clearances. More recently we have determined glomerular filtration by inulin clearance and total renal flow by para-aminohippurate clearance in the hope of getting the evidence as to the mechanism of action of digitalis, aminophyllin, and thiomerin, and whether or not damage has been done during diuresis. We have further hoped that this might throw some light on the mechanism of accumulation of edema fluid in patients with congestive heart failure.

Congestive failure patients show mostly a qualitative long persistent sodium retention, and slower excretion of sodium. There is characteristically a relative rather than an absolute inability to excrete sodium chloride. Just as in normal individuals there is retention of sodium chloride during exercise, infection, and hemorrhage, but this occurs in a more exaggerated form or to a greater degree in cardiac patients.

The complete elucidations of the mechanisms of salt and water excretion in heart failure required still further observations in the normal and abnormal states. The studies of the group at the Southwestern Medical School have shown that the increased excretion of sodium chloride on sitting, standing, and stepping, in hemorrhage, and in salt overloading may be inhibited by putting a venous obstructing band about the neck. All of these conditions had caused only moderate decline in the excretion of sodium and the reduction could be prevented by compression of the neck. The excretion of chloride tended to parallel that of sodium. Bleeding seemed to cause a rise in the potassium excretion in some instances. These findings furnished to Harrison and his group present evidence supporting the concept of a homeostatic mechanism generally or a center in the brain. This homeostatic mechanism is concerned with sodium conservation, and is apparently affected by alterations and by distribution of blood within the body. The authors felt that their data did not support the idea that a decline in cardiac output constituted the stimulus to the retention of sodium chloride.

In congestive heart failure conditions it was found that acidosis with ammonium chloride produces excess of chloride excretion. Alkalosis produces excessive sodium excretion. It is most important to determine what produces a balanced excretion of sodium and chloride with neither in excess of the other.

Renal hemodynamic disturbances correlate with the reduced cardiac output concept of heart failure. When glomerular sodium chloride filtration is lowered without corresponding decrease in tubular reabsorption, edema results. On the other hand, in patients with glomerular nephritis tubular reabsorption is defective, edema may not result as the sodium is excreted. Changes in the sodium excretion can be produced in patients with congestive heart failure to the extent of the change governed by the amount of sodium filtered. Restriction of sodium chloride intake causes edema to clear up even though the filtration rate remains low. Bed rest dissipates massive edema unless filtration is markedly reduced. In patients with heart failure exercise causes great retention of sodium and water, and massive edema, while in normals, exercise produces only slight sodium retention.

Reduced cardiac output and elevated venous pressure definitely affect renal function. The role of the kidney has superseded physical osmotic capillary pressure mechanism in the production of edema. Other prerenal factors may participate in the diversion of the sodium and chloride and water to tissues. Reduced blood flow may also affect the important endocrine secretions from the pituitary, adrenal, and thyroid glands.

Distribution of orally ingested salt and water depends on local factors, hydrostatic inverse capillary and tissue pressures. Injection intravenously of salt solution produces pulmonary edema, especially in the presence of some left heart failure. In right ventricular failure there is less tendency to pulmonary edema; however, it causes edema of the dependent parts.

THE MECHANISM OF MERCURIAL DIURESIS

Mercurial diuresis has generally been considered to be effected by the decreased reabsorption of sodium and water by the tubular epithelium. Richards[32] observed that in the frog kidney diuresis was due to decreased rate of tubular reabsorption and that there was no increase in glomerular filtration. Schmitz[33] studied the effect of salyrgan on dogs and reached similar conclusions. Herrmann, *et al*[34] found that salyrgan produced a striking effect upon the tubular epithelium of patients in congestive heart failure and accomplished diuresis primarily by defective tubular reabsorption. Christian and Bartram[35] showed that mercury acts on the kidneys alone. Quite recently it has been postulated by Duggan and Pitts[36] that organic mercurial diuretics decrease the reabsorption of sodium in the distal tubules. Our patients demonstrated that the mercurial depressed the tubular sodium reabsorptive mechanism and we have recorded great outpouring of sodium and water after the injection of Thiomerin (See Fig. 1).

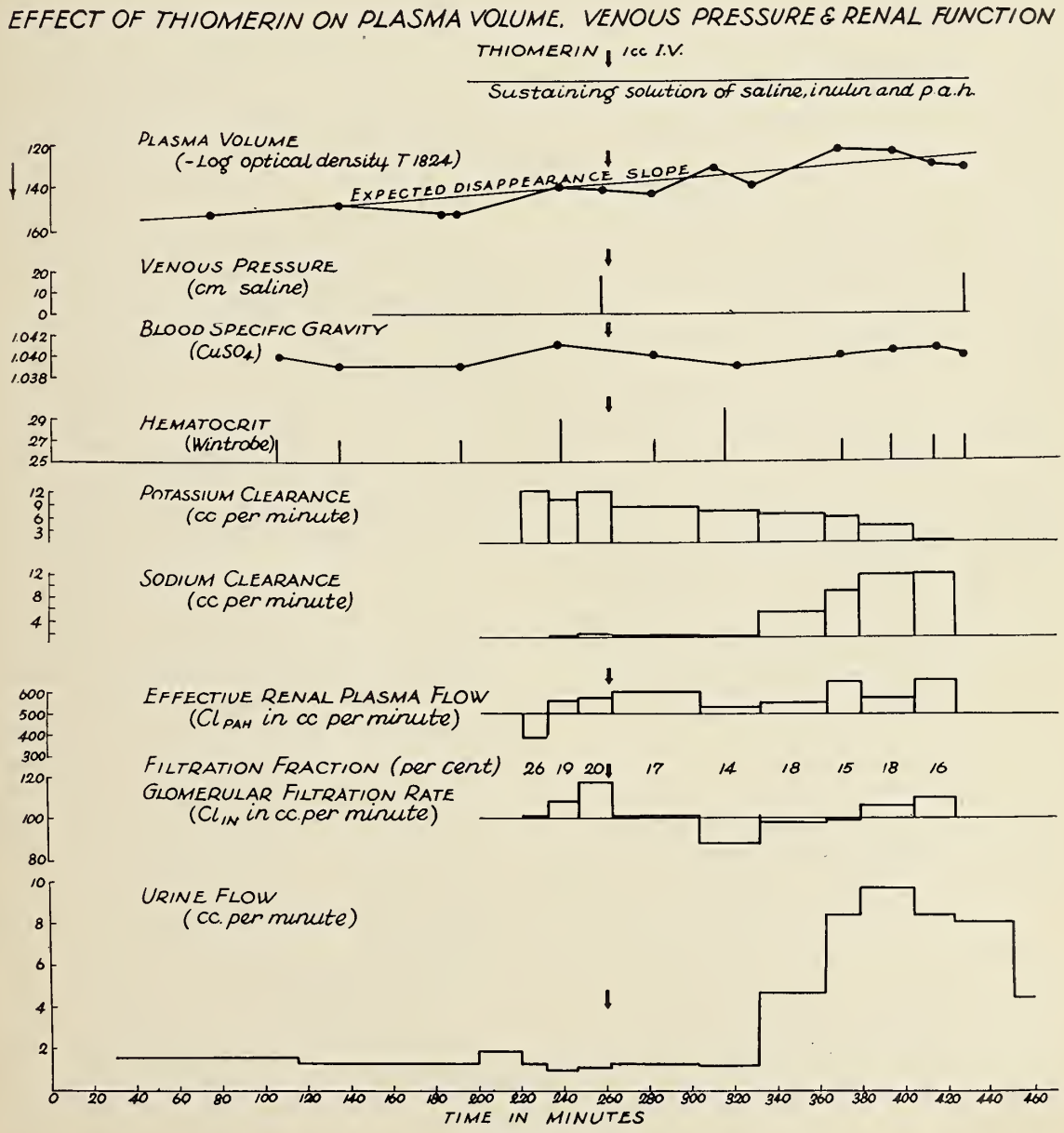

Figure 1

An initial hemodilution of the blood during mercurial diuresis has been observed by some investigators. It is suspected that this was due to the theophylline combined in the diuretic. Schmitz[33] noted no such effects in his studies. Hemoconcentration during diuresis was noted by Bryan[39] and his associates who found no constant change in specific gravity or colloidal osmotic pressure immediately after injection of mercury. In our laboratory we[40] found in general a hemoconcentration with mercurial diuresis. In more recent studies we have noted that venous pressure and blood volume changes are secondary to the loss of sodium and water that results from mercurial diuresis.

Herrmann *et al* have maintained that immediate increases of sodium excretion and a very transient lowering of serum sodium is the trigger mechanism which calls sodium and water from the tissues after in-

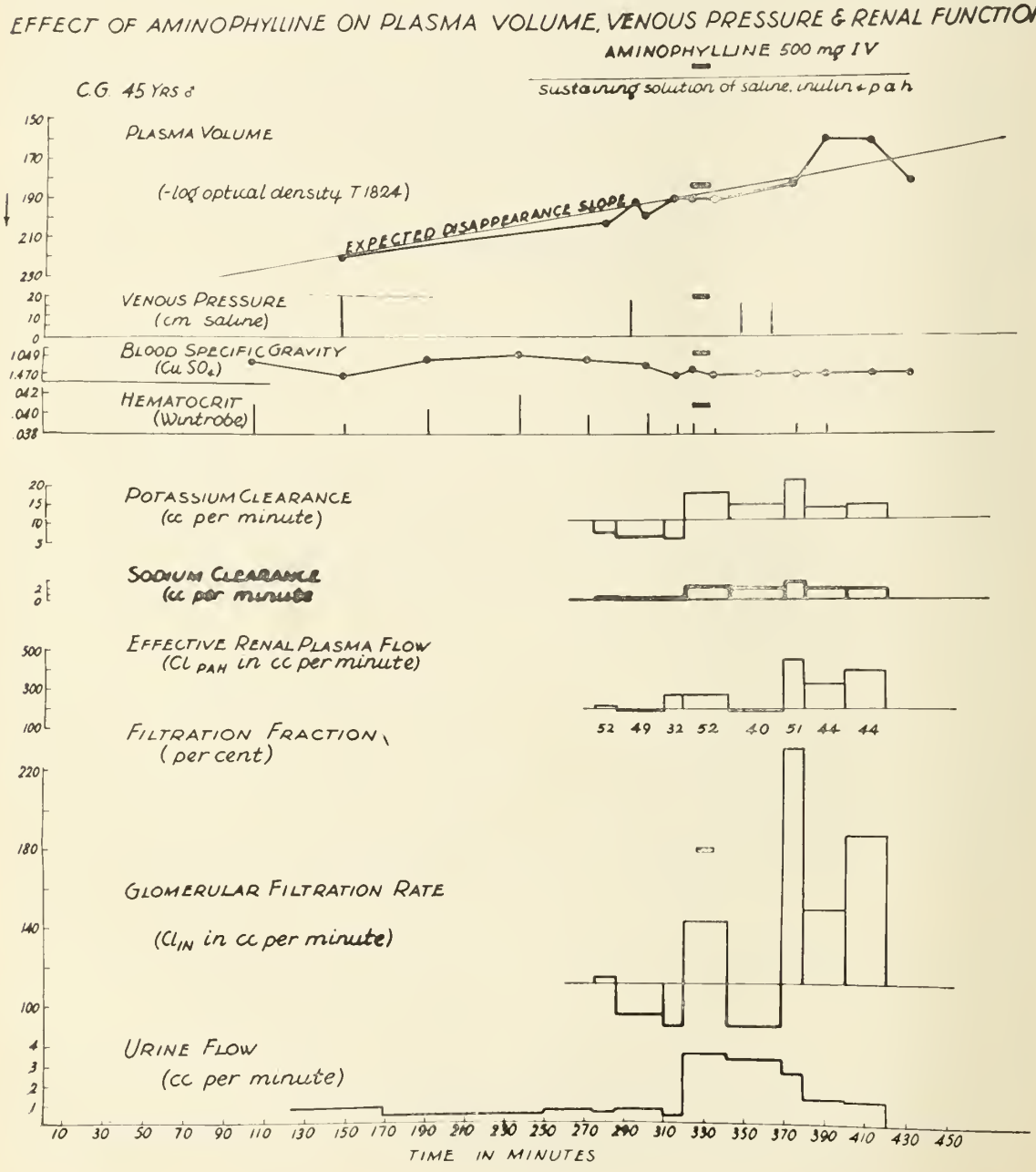

Figure 2

jection of a mercurial. More refined methods will be required to establish this belief.

MECHANISM OF DIURESIS WITH AMINOPHYLLINE

The mechanism of diuresis with aminophylline is still controversial. Evidence presented by Schmitz and Herrmann's group suggested that aminophylline acted by increasing glomerular filtration by augmenting glomerular circulation. Until recently we felt that any defect in tubular reabsorption was due to a secondary circulatory effect incident to increased blood flow through the tubular plexuses and the increased rate of passage of glomerular filtrate through the tubules interfering with reabsorption as the filtrate rapidly passed the epithelial cells.

We have noted increased sodium excretion by all of the patients to whom aminophylline was given, as shown in Figure 2. In some of our patients there was apparent hemodilution immediately after giving aminophylline; in others hemoconcentration appeared to occur. Regardless of the changes in concentration of T-1824 attributable to aminophylline sodium excretion was significantly enhanced. It would appear that aminophylline exerts a renal effect which is independent of its general circulatory effect.

The nature of the change in circulatory dynamics which produce such profound shifting changes in dye concentration as noted in some patients is not clarified by our studies. The temporary fall in concentration of T-1824 may be a peripheral vascular phenomenon. McMichael *et al*[16] have suggested that aminophylline reduces venomotor tone, in addition to its stimulating effect on the myocardium. Venodilatation may result in a fall in hydrostatic pressure so that there is temporary rush of edema fluid from the tissue interstices into the veins causing the transient hemodilution noted. Further studies are in progress to compare plasma volume shifts occurring in patients when they are in failure and when cardiac compensation has been restored in them.

SUGGESTED MANAGEMENT OF CONGESTIVE HEART FAILURE

The excretion of sodium is increased by all of the diuretics. The behaviour of the mercurials and aminophylline is alike in effecting an early rise in sodium excretion. With digitalis there is apparently a slower but more persistent rise in urinary sodium concentration and output.

In the management of congestive heart failure prompt determination of the venous pressure will provide a firm base line for evaluation of treatment to be undertaken. When there is marked elevation of venous pressure, or a sudden rise in venous pressure as in acute left ventricular failure, slow intravenous administration of aminophylline is the primary treatment of choice. It is in effect a bloodless phlebotomy. While the effect of aminophylline is being dissipated, digitalization should be carried out, thus perpetuating and augmenting lowered venous pressure produced by aminophylline.

The routine use of intravenous digitalis is not recommended and is often undesirable; one dose digitalization intravenously, was carried out by us only to study the effects of the drug and because the maximal effect of digitalis is not apparent when half-digitalizing doses are employed. Numerous preparations available are capable of inducing full digitalis effects in a few hours when given by mouth. If digitalis, preceded by aminophylline, does not appear adequately to mobilize the sodium and water, thiomerin is in order in the management of the edematous patient.

SUMMARY

1. Mercurial diuresis results in a prompt increase in sodium and water excretion by depressing tubular reabsorption. The plasma volume and venous pressure gradually fall in response to diuresis.

2. Aminophylline also produces a prompt rise in sodium and water excretion. This renal effect may or may not be associated with a general circulatory effect. In the patient in congestive failure, aminophylline appears to produce diuresis by increasing glomerular filtration rate and effective renal plasma flow.

3. Digitalis in full digitalizing doses given intravenously effects a prompt fall in venous pressure. There is a slower onset of diuresis but sodium excretion is augmented as well as water excretion.

4. Aminophylline seems to be the drug of choice when a prompt lowering of venous pressure is desired. Digitalis may next be employed to maintain the lowered venous pressure, further diuresis, and for cardiotonic effects. Thiomerin for its action on the renal tubules, may be employed if aminophylline and digitalis do not restore circulatory equilibrium in the grossly edematous patient.

5. In refractory cases, the whole situation must be resurveyed and restudied as to diagnosis, and adequacy of therapy, especially digitalization. If mercurial diuretics are ineffective and if weakness or renal changes have developed, aminophylline should be tried. However, the electrolyte balance must be studied with blood nonprotein nitrogen, carbon dioxide combining power, chlorides, potassium, and calcium must be determined, and compensatory steps taken according to the defects found.

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CANCER OF THE RECTUM; ITS RECOGNITION AND TREATMENT*

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The surgical attack on the malignancy of the lower gastrointestinal tract has during the past two decades kept pace with surgical progress elsewhere. This is exemplified by marked improvement in mortality statistics, in morbidity and in operability rates, despite the fact that patients continue to appear with cancer of the rectum and colon at the same long interval after the initial symptoms should have been recognized.

It is trite to repeat the continual warnings of the sentinel symptoms but the very fact that some forty to fifty thousand individuals die yearly of cancer of the colon and rectum and two or three times that many have the disease is ample reason for repetition even though it be platitudinous. It is a deplorable fact that cancer of the rectum, which may always be diagnosed, is passed up by the patient and the doctor frequently to a point where it has developed to an advanced stage and even metastasized widely before a diagnosis is made. Patients so frequently hesitate to seek advice and examination and doctors so frequently are cursory in their examination that our figures of cures will probably not be revised downward soon except as a result of repetition, admonition, and urgent propaganda.

Seventy per cent of the cancers of the colon occur in the sigmoid and rectum and are diagnosible by digital examination or proctoscopy or both and with or without biopsy. Interestingly enough, in this region of the large bowel about 70 per cent of the polyps occur and this is a distinct facet upon which to build a thesis concerning the etiology of rectal cancer, but more about that later.

There have been a number of trends which have developed in the surgical treatment of cancer of the lower gastrointestinal tract in recent years—and I take it no one will be offended at the statement that surgery is the only treatment for cancer in this location.

In the past ten years the following marked changes have become more or less standardized in the hands of all experienced surgeons dealing with lesions in this location.

1. More attention to the preparatory period preliminary to operation.

2. The recognition that cleansing of the bowel is as essential a part of the program as is the operation itself.

3. The lavish use of whole blood in the preoperative period.

4. Use of antibiotics and other chemotherapeutic agents in the reduction of the bacterial content of the bowel itself.

5. The widespread use of single stage maneuvers.

6. The controversial question of the preservation of the sphincteric mechanism and/or the establishment of a low primary anastomosis operation following the resection.

SYMPTOMS

The symptomatology of cancer of the rectum revolves around: (1) Blood in the stool or on the stool; (2) change in bowel habit. Strangely enough, the early symptoms which are so essential to observe are either masked or ignored or misinterpreted. It is not possible to determine the exact time at which cancer of the rectum begins, but it is highly possible that most of them have existed many months or even a year or more prior to their recognition. Most surgeons believe that between nine and twelve months elapse prior to diagnosis, and that has been my experience in a large series of cases.

Bleeding in cancer of the rectum means bright red blood and bright red blood more often than not is due to some other lesion, such as hemorrhoids, fissure, and fistula, rather than to cancer. The blood may be mixed with the stool or simply streak the stool and it should be remembered that it

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does not appear until the mucous membrane has been eroded and that may be months from the initiation of the cancer. On occasion, a sudden hemorrhage may call attention to the presence of the growth. Small amounts of blood on the paper are among the earliest symptoms in most cases.

Change of bowel habit often is urged as among early symptoms and this simply means alternating periods of diarrhea and constipation and it should be noted that these periods are of short duration usually. Constipation is a cardinal complaint in about two thirds of the cases and alternates with a psuedo-diarrhea which may mean two or three loose stools daily. Frequent stools often follow the taking of cathartics, and therefore, are not connected with diarrhea. The so-called ribbon stool has no significance as a symptom of cancer of the rectum since it depends upon the consistency of the stool and the tonicity of the anal sphincter and is seen more often in constipation than in organic diseases of the rectum.

Pain is seldom a symptom of cancer of the rectum until the malignancy is far advanced. When the growth has become fixed with involvement of neurological elements severe pain may result, but usually pain occurs only in the late cases.

Excessive loss of weight and strength are worthless symptoms in the early recognition of this condition. Obviously all or any of these symptoms are inadequate factors by which to diagnosis cancer of the rectum and their main usefulness is to succeed in calling attention to some unusual condition in the bowel bringing about its detection in the course of examinations more thorough than usual. In the presence of these suggestive phenomena it is therefore imperative if an early diagnosis is to be made that one resort to the simple expediency of digital and proctoscopic examination. By the former alone a presumptive diagnosis is possible in more than 90 per cent of all cancers of the rectum and by proctoscopic examination all carcinoma of the rectum and sigmoid up to 25 cm. may be accurately diagnosed; albeit, occasionally a biopsy is necessary for absolute confirmation. While it is my custom to biopsy and grade all cancers of the rectum and lower sigmoid I believe that proctoscopic examination and palpation will be sufficient in practically all cases to make an accurate diagnosis.

I would emphasize that roentgenologic examination for the diagnosis of rectal and low sigmoid growths is not indicated nor is it accurate in a large number of cases because of the bony pelvis which prevents satisfactory examinations. Cancer of the rectum can be accurately diagnosed in all cases by digital and proctoscopic examinations plus biopsy and to wait until the appearance of classical textbook symptoms such as loss of weight, strength, profound anemia, dehydration, and pain, is merely postponing the diagnosis until generalized metastasis has occurred and there is no hope of a cure.

TREATMENT

Treatment of cancer of the rectum, with few exceptions, remains surgical and the more radical the surgery, with or without a colostomy, the better the end results. All surgical treatment, of course, should be preceded by an adequate preoperative period of preparation, the objects of which are:

1. Decompression and cleansing of the bowel.
2. Replacement of blood loss and the establishment and maintenance of protein balance by transfusion of whole blood.
3. Steps to combat dehydration with glucose and saline solutions.
4. Concentration of vitamins, especially vitamins C and K.
5. The use of chemotherapeutic agents.

These objects are best carried out in a hospital over a period of four to six days, but there are exceptions to this and it is entirely possible that many cases may be prepared in an ambulatory manner without hospitalization.

The rehabilitation which thus combats anemia, insures against electrolytic imbalance and dehydration, restores liver glycogen and vitamin reserve, while at the

same time, replacing protein deficiency is of vital importance and cannot be overemphasized.

The cleansing of the bowel by purgation and rectal irrigation is of no less importance and should be persisted in with considerable vigor if there is chronic obstruction due to a local growth.

As for the use of chemotherapeutic agents and antibiotics, I must confess that while I was dilatory in accepting them as of great value, I am forced to the conclusion that their use is of great importance in preliminary preparation by sterilizing the bowel content and thus aiding greatly in the prevention of postoperative infection.

What agents one uses seems of not too great importance and we go from sulfathaladine to terramycin to chloromycetin, to some new drug, with considerable rapidity which is satisfactory evidence of the potency of all of them and which I think should convince us all of their effectiveness.

CHOICE OF OPERATION

Trends in the treatment of cancer of the rectum have been not too numerous in the past decade save for the tendency of a few surgeons to press the idea of sphincteric saving operations at a bold rate and, what seems to me, an unwarranted extreme. In this view I am supported by many of the most experienced surgeons operating upon rectal cancer and it seems difficult to combat the statistical evidence which large series of cases offer. It is a well known axiom that the lower down in the gastrointestinal tract the growth occurs, the less satisfactory the prognosis, and while I am convinced that sphincter saving operations have their place, particularly as palliative procedures, I am equally sure that growths which occur below the reflection of the peritoneum should certainly be operated upon by a radical one-stage combined abdominoperineal operation after the technique of Miles or some variation of his procedure. The choice of operation lies among the following:

1. Combined abdomino resection in one stage (Miles).
2. Colostomy and posterior resection in two stages (Mummery).
3. Local resection without colostomy.
4. Operations preserving the sphincteric mechanism.

In the average individual, who is a reasonably good risk and whose growth lies below the peritoneum, I believe Miles' operation is unquestionably the procedure of choice. It can be done with a very satisfactory mortality, a satisfactory morbidity, and it excels in results. In the last 107 cases which I have done by Miles' technique there have been 3 deaths or a mortality rate of 2.7 per cent. The resectability rate was 81.8 per cent.

Occasionally, one finds an individual in whom, because of co-existing debilitating disease or obesity or some other good reason, the Miles operation seems better supplanted by a graded procedure. Here Mummery's operation is of value. Into this same category falls the local excision of low lying growths without a colostomy, in an occasional case. I think that any operation which gets rid of the cancer in a debiliated individual, with a high risk, is worth-while, if it is a success, and occasionally satisfactory results do accompany these local procedures.

As for saving the sphincteric mechanism or doing anastomoses low in the pelvis, I feel that gradually these procedures are being more and more stabilized, and furthermore, that the position I assume; namely, of drawing a line at the peritoneal reflection below which an anastomosis is not made, is becoming more and more popular. It is not a particularly difficult feat for an average technician to do an anastomosis low in the pelvis, but the crux of the situation seems to me to lie in the question as to whether or not more people will be saved by doing radical excision with a colostomy than by doing a low anastomosis. I have no hesitancy in urging colostomy on people whose growths are below the peritoneal cavity and I shall continue to feel that the position certainly is a safe one until more convincing data is assembled to disprove it.

On the other hand there are many inoperable growths, because of liver metastasis or peritoneal implants, which may be removed locally, and in them I think it is perfectly reasonable to do anastomosis, for unquestionably, the individual will be more comfortable by preservation of the sphincteric mechanism than with a colostomy.

All of this adds up to the fact that no single type of procedure fits all cases of cancer of the rectum. Indeed, here as elsewhere, flexibility of application must be a cardinal principle and one should never hesitate to do an occasional operation which varies from the ideal if by so doing life will be prolonged or comfort given to the patient. Unquestionably, too little attention has been paid to doing palliative procedures when the growth is removable but when distant metastases obviously rule out a cure. Certainly an individual dies of cancer of the liver, if the growth has been removed, much more comfortably than if the growth has been allowed to remain and extend locally to involve neurological elements and other viscera.

In all clinics over the past two decades there has been a remarkably satisfactory lowering of surgical mortality and morbidity with very definite increase in five and even ten year freedom from recurrence. How much further one may extend radical surgical procedures advantageously becomes a question, but certainly a review of long term freedom from recurrence emphasizes the fact that continued efforts to extend our field of operation should be persisted in.

PROGNOSIS

A review of any series of cases shows a remarkably satisfactory curability rate when compared with cancer elsewhere in the gastrointestinal tract. Recently, Graham and I have circularized a number of clinics and published the results of this survey. There is a notable difference in the curability rate of private patients in comparison with ward patients in all clinics. For this there are many specific reasons which need not be gone into here.

Dating back to the work of Daniel Fisk Jones in 1936, we find the survival rate in his cases to vary from 52.6 per cent to 61.5 per cent—five years' survival. His operability rate was 63.5 per cent.

In 1948, with Johnston, I published a series of 162 combined abdominoperineal resections with a three to four year survival of 63 per cent, and a four to five year survival of 56 per cent. The mortality rate in this series was 5.3 per cent, the resectability rate was 75.1 per cent. This trend toward elevation of the resectability rate and decline of the mortality rate has increased no little over recent years.

One stage operations have gradually replaced in large measure graded procedures and one must be in accord with Jones who said, "I have gradually increased the number of one-stage operations and decreased the number of two-stage operations and believe that this should be done as men find their ability to do the one stage operation increasing. I still feel that there are a few cases in which I want to do and which are not fit for a one-stage operation." That this is a distinct advance is indubitably true and it does not sacrifice, but rather increases the scope of the operative maneuver.

Another point is that small and supposedly early cancers of the rectum should be invariably subjected to the most radical type of extirpation. Indeed some of the smallest cancers are high grade and it is not an uncommon thing to find liver metastases and general peritoneal involvement in cancers which have given few or no symptoms and which are small punched-out ulcers, but on biopsy show grade 3 or 4. There is no substitute for radical surgery in dealing with cancer of the rectum and it should inevitably be pressed within reasonable limits of mortality.

On the other hand the encouragements which one receives in reviewing statistical data from large groups of cases emphasize the point that no where else in the gastrointestinal tract are ultimate end results comparable to those received from surgical attack on cancer of the colon or rectum.

Nowhere else does the five year freedom from recurrence compare statistically with that from operations for cancer in this location. Such encouragements, of course, should stimulate continued efforts to extend operative procedures until such time as a simple test for determining the presence of a cancer in its early stages is developed and a different type of treatment evolves therefrom.

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NONTRAUMATIC RUPTURE OF THE COMMON BILE DUCT*

TWO CASE REPORTS

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Since nontraumatic, spontaneous, rupture of the common bile duct is rare, it would seem that every authentic case should be reported. Ruptures of the common bile duct have been reported from time to time and the clinico-pathological features presented. The etiology may be associated with calculi, acquired or congenital stricture of the common bile duct, malformations (congenital cystic dilatation), infection and tumors.

The general incidence of common duct perforations relative to the remaining portion of the bile duct system may be appreciated in the figures of McWilliams.[1] In a survey of 90 cases of spontaneous rupture of the biliary tree, only four (4.4 per cent) were found in the common duct. Apparently, these cases were unassociated with previous operative procedures and calculi were present in the common bile duct. Unfortunately, detailed information was not presented.

In 1930, Bailey[2] recorded a case of spontaneous perforation of the common bile duct in a 45 year old male. At operation, the gallbladder appeared normal, although it contained small calculi. A probe was passed through the ducts but failed to reveal obstruction or a definite perforation, but at autopsy a point of rupture was located at the junction of the cystic and common ducts in a posterior position.

In 1932, Vale and Shapiro[3] reported a nontraumatic perforation of the common bile duct in a 23 year old Mexican woman. At operation, bile was found in the peritoneal cavity. The gallbladder was chronically inflamed and contained innumerable calculi, which were removed. A definite site of perforation was not found. However, a posterior perforation may have been present. The patient had a peritonitis but slowly recovered to a state of good health.

In 1941, Newell[4] recorded a case of bile peritonitis incident to an acute spontaneous rupture at the common bile duct in a 63 year old man. He contended that no cause could be determined for the perforation. The common bile duct was four times normal size and had assumed the functions of an atrophic gallbladder with consequent dilatation and choledochitis. Probably, the inflammatory process was followed by an acute exacerbation with edema or spasm of the sphincter of Oddi, resulting in increased intraductal pressure and rupture at the weakest point. The possibility of a minute calculus embedded in the wall of the common bile duct was considered. This patient recovered.

Additional cases have been recorded by Traube,[5] Wernsdörfer,[6] Dijkstra,[7] Gurevich,[8] LeClerc,[9] Maitre[10] and Ferrancani.[11] As previously indicated, the above cases were unassociated with previous operative procedures. Following surgery, only a few cases of spontaneous rupture of the common bile duct have been recorded.

In 1935, Wolfson and Levine[12] recorded 3 cases of spontaneous rupture of the common bile duct as a sequel of choledochostomy. In these cases, the time interval between the two operations was one month, two months, and two and one-half months. Recognition of the possibility of perforation of the common bile duct following choledochostomies will permit immediate operative intervention. In this type, the etiology is associated with a necrotizing inflamma-

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tory process at the site of the choledochostomy.

In 1938, Newburger[13] reported a case of spontaneous rupture of the common bile duct incident to stones that were overlooked at the original operation, ninety-six days prior to the perforation. Post-mortem examination revealed a perforation of the stump of the cystic duct and three black pigmented stones impacted at the junction of the hepatic, cystic, and common ducts. These calculi, each 1.5 cm. in diameter, were faceted, lying in pocket dilatations, so that one stone was in each duct. The bile duct system was definitely dilated. He further reported a review of the literature with 12 case reports, all following surgery, 8 of which were substantiated by operation or autopsy.

Plimpton and Clagett[14] of the Mayo Clinic reported 1 case of spontaneous rupture occurring seven months after an operation on the biliary tract. The first operation was a cholecystectomy in 1937, performed because of jaundice. In 1941, a second operation was performed for a stricture of the common bile duct. The final operative procedure, in 1942, revealed a small amount of free bile in the peritoneal cavity and a large space containing approximately 2 liters of bile which was entered after freeing the edge of the liver from the anterior abdominal wall. Owing to the precarious condition of the patient, exploration was not carried further. Adequate drainage was established and the incision was closed. The patient made an uneventful recovery. Although the actual site of perforation was not determined, it was thought that it occurred either in the stump of the cystic duct or the site of the choledochostomy.

In 1943, Brunschwig presented 2 cases of postcholecystectomy rupture of the common bile duct. In the first case, the patient was a 67 year old female, who had a cholecystectomy for calculi. Two months later, a cholecystectomy was performed; the common bile duct contained a calculus, which was removed. Approximately a year afterwards, the patient returned with right upper quadrant pain, icterus, nausea, and vomiting. Necropsy on the seventh hospital day disclosed a perforated choledochus, 3.5 cm. below the cystic duct and a single faceted cholesterol stone, distal to the site of rupture which measured 1.4 cm. in diameter. In the second patient, a female, age 72, a cholecystectomy had been performed a year previously. Recurrence of gallbladder-like symptoms resulted in an exploratory laparotomy. Two centimeters above the duodenal margin, there was a 1.5 cm. perforation in the common bile duct associated with a 1.5 cm. stone near the duodenal portion of the choledochus. Proper operative and postoperative procedures resulted in a complete recovery of this patient.

In 1947, Drieling[16] recorded a case of spontaneous rupture of the common bile duct following choledocholithotomy. The operative procedure had been performed six months before the rupture. Exploration disclosed the perforated duct and a large round calculus embedded in its distal portion. After a rather long convalescence, the patient was reported in good health. Drieling emphasizes the importance of common duct stone in postoperative rupture which may be associated with spasm of the sphincter of Oddi. According to this author, there are only 27 case reports of postoperative rupture of the choledochus.

Additional cases have been presented by Masciottra,[17] Schen,[18] Durst[19] Bernard,[20] Mirizzi,[21] and Poppovici.[22]

Traumatic rupture of the choledochus is a very rare entity. In 1948, Hicken and Stevenson[23] reported a case wherein a tractor crushed the abdomen of a 7 year old boy. Exploratory laparotomy disclosed a laceration of the posterior wall of the common bile duct. Adequate drainage and supportive therapy was followed by complete recovery. These authors stress two valuable points.

1. If the extrahepatic biliary system is completely decompressed, laceration of the common bile duct will heal spontaneously.

2. Operative cholangiograms should be commonly employed to accurately localize

lacerations or perforations in the biliary tract.

These statements are worthy of our sincere attention.

Our 2 cases of nonoperative rupture of the common bile duct follow:

CASE REPORTS

Case No. 1. White female, age 45, admitted November 6, 1948; expired November 11, 1948.

Chief Complaint: Right upper quadrant pain.

Present Illness: The patient had been in fairly good health until three days before seeking medical relief, when she noticed soreness and dull pain in the right upper quadrant. This pain, colicky in type, gradually became more severe, especially at night. It remained in the right upper quadrant; no radiation was noted. There was nausea but no vomiting. The urine was dark but the stools were normal. No chills, fever, or jaundice were noted. Since the onset of the illness, the patient had been slightly dyspneic.

Past History: The patient had had recurrent attacks of right upper quadrant pain for six years, the frequency, duration and severity of the attacks increasing with time. A definite relation to the ingestion of fatty or greasy foods was elicited. There was no history of icterus, clay-colored stools, hematemesis, melena, constipation or diarrhea. The attacks were not severe enough to require hospitalization.

Except for mild dyspnea on exertion, the remaining past history was not significant.

Physical Examination: Temperature 100° F. pulse 72; respirations 15; blood pressure 116/70. Positive findings included slightly icteric sclerae, marked tenderness in the right upper quadrant beneath the costal margin, voluntary rigidity and a positive Murphy sign. No abnormal abdominal masses were felt. Otherwise, the examination revealed nothing unusual.

Laboratory Data: A blood count revealed the hemoglobin to be 14 grams; RBC 4.87 million, WBC 9500 with a differential of 68 per cent polymorphonuclears, 19 per cent stabs, 1 per cent metamyelocytes, 8 per cent lymphocytes, 3 per cent monocytes and 1 per cent eosinophils. Icterus index, 19 units. Urinalysis revealed the presence of bile and a trace of albumin.

Hospital Course: On admission, treatment consisted of intravenous fluid, a fat-free diet, vitamin K, and morphine as needed. Since the clinical condition was becoming worse, the Senior Surgeon advised immediate operation, which was performed forty-eight hours after admission.

Operative Report: Under sodium pentothal induction and cyclopropane anesthesia, an upper right rectus incision was made. Upon opening the peritoneal cavity, approximately 700 cc. of free bile were found. Careful examination disclosed four facetted yellow calculi, each 4 mm. in diameter, in Morrison's pouch. The gallbladder was markedly injected and distended; plaques of exudate were noted. Gentle palpation of the common duct produced three other calculi of similar nature. However, the surgeon, at the time, felt that the calculi had escaped from a necrotic zone in the neck of the gallbladder. The latter was removed. At this time, the patient's condition was extremely poor; therefore, a split hard rubber drain was placed in the common duct and a Penrose drain in Morrison's pouch. The abdominal wound was closed in the usual manner.

Pathological Report: Acute purulent exacerbation of a chronic cholecystitis, no evidence of perforation. Thirty facetted calculi (3 to 10 mm. in diameter) of mixed pigment type.

Postoperative Course: The postoperative course was exceedingly stormy. The patient received intravenous fluids, including amigen, blood and plasma; the usual supportive measures were given. In addition, penicillin and streptomycin were administered. However, the patient's condition grew steadily worse. On November 10, 1948, the lower portion of the abdominal wound was opened, allowing a large amount of bile to be evacuated. The patient's condition was such that further operative procedures were inadvisable. The patient expired ten hours later.

Postmortem Examination: The significant findings may be presented as follows:

The peritoneal cavity contained approximately 1000 cc. of yellow bile-colored fluid. The parietal and visceral peritoneal layers contained a yellow fibrinous-like exudate. The intestinal loops were moderately edematous and bound together by fresh fibrinous adhesions which were easily broken. The liver extended 4 cm. below the costal margin in the midclavicular line. Its surfaces were covered by a shaggy bile-stained exudate. The liver itself, weighed 1390 grams. The hepatic parenchyma was reddish brown in color, friable in consistency and the locular pattern was faintly visible. There was a free ooze of blood from the cut surfaces. The intrahepatic ducts were slightly dilated and patent.

Examination of the gallbladder bed revealed a Gel-foam pack in this area. The cystic duct had been doubly ligated approximately 1 cm. from the common bile duct. Examination of the common and major hepatic ducts revealed considerable dilatation. The common bile duct varied from 1 to 1.3 cm. in its luminal diameter. All extrahepatic ducts with the portal vein and hepatic artery were embedded in markedly edematous bile-stained connective tissue and fat. Careful dissection of the common duct revealed a 3 mm. perforation on the posterior aspect approximately 4 cm. above the

Figure 1

Figure 2

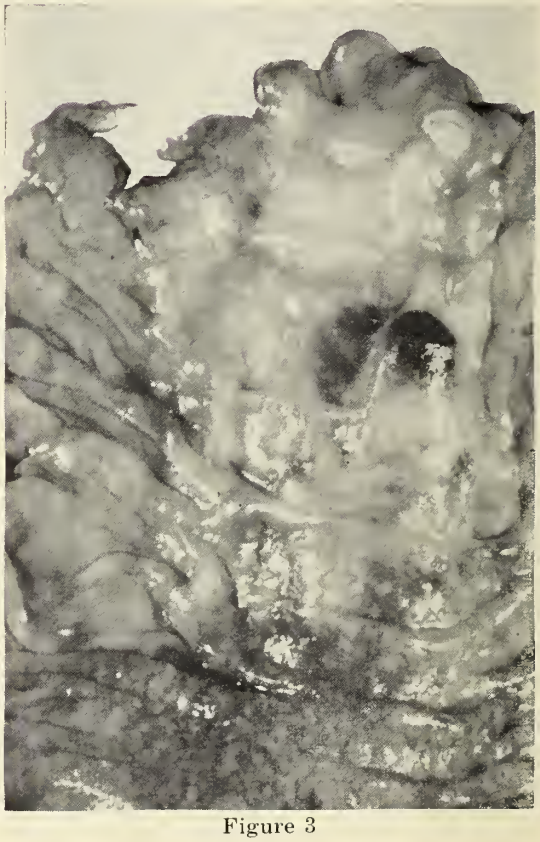

Figure 3

ampulla of Vater (Fig. 1). A small sinus extended upward nearly to the origin of the cystic duct and this passage contained three facetted yellow calculi each measuring 3 mm. in diameter. Upon gently milking the common duct, three similar calculi were extruded through the perforation into the above described sinus. In addition, there was a free passage of bile. Then the common duct was opened longitudinally revealing the area of perforation (Fig. 2). The mucosa, itself, was smooth and yellowish brown in color and no obvious exudate was present. However, at the site of perforation, the edge of the mucosa was rough and irregular. Further inspection revealed an 8 mm. greenish black smooth calculus, firmly embedded in the ampulla of Vater (Fig. 3). Considerable difficulty was encountered in its removal at the postmortem table. The portion protruding into the duodenum was brownish black in color while the portion within the duct was greenish brown in color. No significant abnormalities were encountered in the major hepatic ducts.

Histopathologic study of the common bile duct disclosed a subacute inflammatory process in which the greater portion of the mucosa was intact. At the site of perforation, however, there was necrosis with a rather intense inflammatory reaction and complete disintegration of the wall (Fig. 4 and 5). Apparently, the rupture was due to pressure necrosis by a calculus and increased intraductal pressure. Study confirmed the presence of bile peritonitis and septic peritonitis due to *Escherichia*

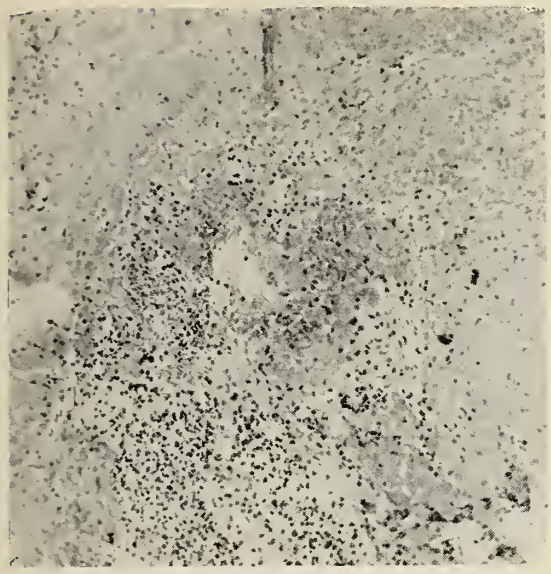

Figure 4

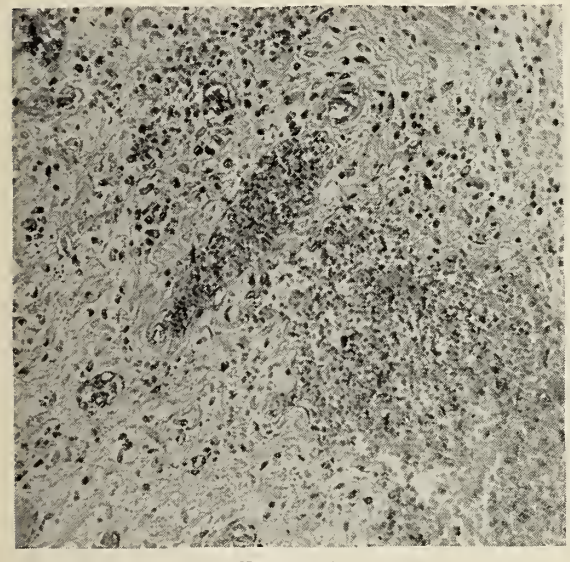

Figure 5

coli. The liver disclosed some middle and central zonal necrosis associated with bile stasis. Moderate parenchymatous degeneration of the myocardium and changes of terminal vascular failure were noted.

Comment: Clinically, such a case represents an acute abdominal emergency requiring closure of the perforation and adequate peritoneal drainage, supplemented by good supportive measures. In this case, there was a forty-eight hour observation period prior to surgical intervention. Further, the opening in the common bile duct was in a posterior position and not recognized. A fatal outcome ensued.

Case No. 2. White female, age 48, admitted September 30, 1949; discharged October 20, 1949.

Chief Complaint: Right upper quadrant pain.

Present Illness: The patient had been in excellent health until September 27, 1949. At 10:00 P. M. she had eaten a meal of chop suey and some twenty minutes later experienced epigastric distress associated with frequent belching. The following day, right upper quadrant pain developed which radiated to the right and infrascapular area. The pain was colicky in type and became progressively severe. There was some nausea and vomiting. No jaundice was noted. No previous similar episodes or history of gallbladder disease was elicited.

Physical Examination: Physical examination disclosed generalized abdominal tenderness, rigidity, rebound tenderness and a positive Murphy sign. The Senior Surgeon's impression was that of acute cholecystitis with possible rupture of the gallbladder. Appendicitis with perforation and peritonitis was considered.

Laboratory Data: The significant laboratory data on admission may be outlined as follows: RBC 4.20; Hgb. 12.9 grams; WBC 15,400 with a differential of 75 per cent polymorphonuclears, 10 per cent stabs, 12 per cent lymphocytes, 3 per cent monocytes and 1 per cent eosinophils. Toxic granulation was evident.

The NPN was 28 mgms; plasma chlorides 570 mgms; carbon dioxide combining power 58 vol. per cent; total serum proteins 6.8 grams with normal AG ratio.

Except for a trace of albumin, no abnormalities were found in the urine.

Course in the Hospital: The Senior Surgeon felt that immediate operation was indicated. Under general anesthesia of sodium pentothal supplemented with nitrous oxide, a right rectus incision was made in the upper quadrant. Upon incision of the peritoneum, approximately 1000 cc. of the muddy dark grey bilelike fluid was encountered. No food particles were seen in this fluid. No areas of perforation were found in the duodenum or stomach. The gallbladder was hyperemic and markedly edematous; its wall was greatly thickened. The common duct was identified in a greenish fibrinous exudate. Careful examination disclosed a 3 to 4 mm. perforation located in the anteromedial aspect 1 cm. distal to the junction with the cystic duct. The gallbladder was aspirated but bile could not be obtained. The fundus was incised and four firm, greenish black calculi were removed. These stones were of pigment type with some calcium salts; they varied from 2 to 5 mm. in diameter; the external outlines varied from round-oval-faceetted. The common duct was explored and a probe entered the duodenum easily. Clear bile escaped from the perforated area in the common duct. The zone of perforation was enlarged and a "T" tube was in-

serted. A hard rubber drain was placed in the fundus of the gallbladder and a Penrose drain was tucked in the foramen of Winslow. The drains and "T" tube were brought out through a small incision lateral to the abdominal operative site. The peritoneum was closed with continuous plain catgut sutures. The anterior sheath of the rectus muscle was closed with interrupted figure-of-eight chromic catgut sutures. Subcutaneous tissues were approximated with plain catgut sutures and the skin closed with interrupted vertical mattress silk sutures. The patient returned to her room in good condition.

During the operation the patient received 1000 cc. of 5 per cent dextrose in saline.

Postoperative Course: The immediate postoperative course was fairly good. Wagensteen drainage was used. On November 2, 1949, the temperature was still 103°F. The abdomen was slightly distended and generally tender. We thought that we were dealing with a bile peritonitis, with or without secondary bacterial invasion. Therefore, the patient was given 300,000 units of penicillin per day and 250 mgm. of streptomycin every three hours for the next eight days. Supportive intravenous fluids, including blood, plasma, Baxter's protein hydrolysate, and vitamins, were employed. During this period, the temperature and pulse gradually returned to normal. The fluid and electrolytic balance was carefully followed by laboratory procedures. The drains were removed on November 8, 1949.

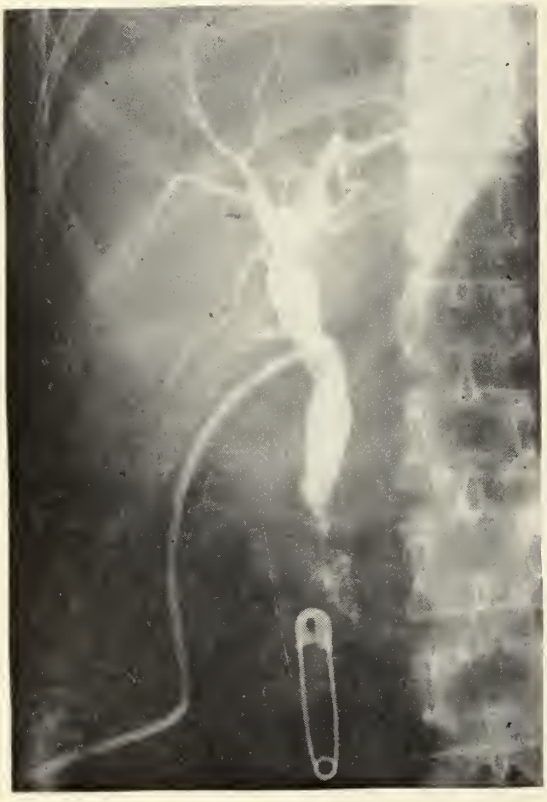

Figure 6

On November 11, 1949, a cholangiogram (Fig. 6) failed to reveal calculi and the dye passed easily into the duodenum and cystic ducts. The entire biliary tree was well outlined. The patient's condition steadily improved and she was discharged on her twentieth hospital day in excellent condition.

Comment: This case illustrates the results of prompt surgical exploration, evacuation of free bile, closure of perforation in the bile duct, good peritoneal drainage and adequate supportive measures. Plasma, whole blood, and antibiotics must be used. Unless this regimen is followed, death may be expected in nearly all cases.

DISCUSSION

Choledochal calculi are relatively frequent and represent the most important factor in perforation of the common bile duct. The source of these stones is somewhat controversial though their their nature and character, except for size, are identical with those of calculi found within the gallbladder. Whether they arise entirely within the duct, or represent deposits of crystals about a nidus expelled from the cystic duct, matters little to this discussion. The symptoms, signs, and laboratory findings are essentially those of cholelithiasis with the added factors incident to varying degrees of obstruction to the bile flow. The treatment of the latter is fairly uniform, i.e., immediate relief of the obstruction by removal of the calculus or calculi. There have been instances where failure to remove all calculi has resulted in postoperative ruptures in the biliary tract.

It is generally agreed by most writers, particularly Newburger, Brunshwig, Newell and McWilliams, that the following factors are important in the perforation of the bile duct system.

1. Increased intraductal pressure due to mechanical blockage by calculi, mucus plugs, tumors, parasites, and stricture, or by reflex spasm of the sphincter of Oddi, or both. Naturally, overdistention will result in perforation at the weakest point.

2. Active cholangitis with necrosis of the ductal wall.

3. Thrombosis of arterial or venous channels may lead to ischemic necrosis and perforation. Calculi may or may not be associated.

4. Activation of refluxed pancreatic juice into the common bile duct may produce tissue necrosis. This supposition seems unlikely in view of our present day knowledge.

Trauma to the duct from external sources, such as falls and automobile accidents, direct wounds caused by knives and projectiles, upward traction due to shrinkage of the liver or downward traction by adhesions, and carcinomatous invasion of the duct (carcinoma of the stomach or pancreas) are considered remote possibilities.

Rupture, traumatic or otherwise, of any portion of he ductal system or gallbladder leads to bile peritonitis. McLaughlin,[23] lists a very complete and satisfactory classification of the possible factors in the etiology of bile peritonitis. Obviously, one of the causes is rupture of the common bile duct. His conclusion that the vast majority are due to microscopic rather than gross rupture may be questioned. The role of calculi cannot be underestimated.

As in gallbladder disease, the highest incidence is in the fifth decade of life or later. It is more common in the female than in the male, and there is an antecedent history highly suggestive of cholelithiasis.

Clinically, the condition is characterized by rapid onset, severe pain, often some degree of shock, frequently subclinical jaundice and obvious signs of peritonitis. Including those incident to recent surgery, either cholecystectomy with perforations of the cystic duct at its stump or a rupture of a sutured common or hepatic duct, the histories suggest gallbladder disease of a severe degree. Differentially, acute pancreatitis or a perforated peptic ulcer must be seriously considered. At operation, free bile in fairly large amounts is found within the peritoneal cavity.

The disease is associated with a mortality of 50 to 70 per cent in most recorded series. It seems likely that the shocklike picture is, in part at least, due to a large fluid loss and marked electrolytic changes in the body. The use of antibiotics may be indicated since pathogenic organisms belong to the *Escherichia coli group,* although hemolytic streptococci may be encountered.

SUMMARY

Two additional cases of spontaneous, nonoperative rupture of the common bile duct have been presented with a general review of the literature. Prompt recognition of this rare clinical entity is mandatory since operative intervention is imperative in these cases. Where there is gross rupture of the common bile duct, the mortality is nearly 100 per cent if operative correction is not performed. Likewise, postoperative supportive therapy with proper laboratory aids cannot be overemphasized.

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URETEROSIGMOID ANASTOMOSIS AND CYSTECTOMY*

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For many years, the operation of ureterointestinal anastomosis and cystectomy carried such a formidable operative mortality and morbidity that it was given little attention in the role of treatment for carcinoma of the bladder. However, with the advent of antibiotics and improved surgical technics, this procedure is not nearly as formidable as was formerly believed, and is rapidly acquiring a wide acceptance in the treatment of many conditions requiring diversion of the urinary stream.

In this presentation the following points will be presented: (1) Historical background; (2) Operative technic; (3) Postoperative results and complications; (4) Indications for cystectomy and ureterosigmoid anastomosis.

HISTORICAL BACKGROUND

In this discussion I have taken the liberty of drawing freely on the excellent article written by Hinman and Weyrauch in 1936,[1] who summarized all of the methods used up to that time. As early as 1879, T. Smith reported the first ureterointestinal anastomosis. Interestingly enough, he utilized a direct end-to-side anastomosis, very similar in nature to the one we will describe. However, due to technical difficulties the operation was unsuccessful. In 1892, Chaput described a similar method which did not appear to be too successful. However, this fact did not seem to alter his enthusiasm, for he states: "It is particularly indicated in complete resection of the bladder, cancer, tuberculosis, extrophy, in fistulae of the ureter, and in wounds and ruptures of that organ, and in certain cases of ureteral calculus." I do not believe that in light of our present knowledge we are quite as enthusiastic about the indication as was Chaput.

Through the years there followed a long series of various methods and devices for this procedure. Their very number is staggering and indicative of the fact that none was too successful. No attempt will be made to cover all of them. However, there are a few which are of sufficient significance in principle to warrant mention. The one principle which seemed to have some merit and for which I believe there is a definite clinical indication at present was the implantation of the ureters to an excluded portion of the intestinal tract. Of these, the one which seems to be the most practical is an artificial bladder made from the entire rectum with an iliac sigmoidostomy, first described by Mouclare in 1895, and later recommended by Miles, to avoid ascending infection.

In 1909, Coffey elaborated the submucosal, or tunnel technic. He later modified this method to a certain extent, by the use of ureteral catheters (Coffey #2 technic) and then had a Coffey #3 technic using a necrotizing suture, which had very little use and was promptly abandoned. The Coffey #1 technic and the many modifications thereof, had almost complete acceptance by the entire urologic profession for many years. This method is still widely utilized and, no doubt, produces excellent results in many instances. However, it is my belief that the method is faulty in principle. It is believed by many that the submucosal tunnel per se, does not produce a true valve action. In addition, constriction by surrounding tissue and scar tissue laid down postoperatively is apt to produce partial obstruction at the stoma with a consequent hydroureter and hydronephrosis, resulting in urinary sepsis and the loss of kidney function. The belief that the portion of

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ureter drawn into the bowel sloughs away to produce a smooth stoma, is completely false. As a matter of fact, this portion of the ureter very frequently persists and forms a source of obstruction.

In 1948, Nesbit[2] and the writer simultaneously and independently, arrived at the conclusion that the elimination of the submucosal tunnel, with the production of a good stoma would produce a better end result than the previous methods described. Although our methods are similar in the principle that a direct mucosa to mucosa anastomosis is established and the submucosal tunnel is eliminated, they vary considerably in technical details. Subsequently, Frank Hinman Jr.[3] presented a method of implantation very similar in principle to the one to be presented.

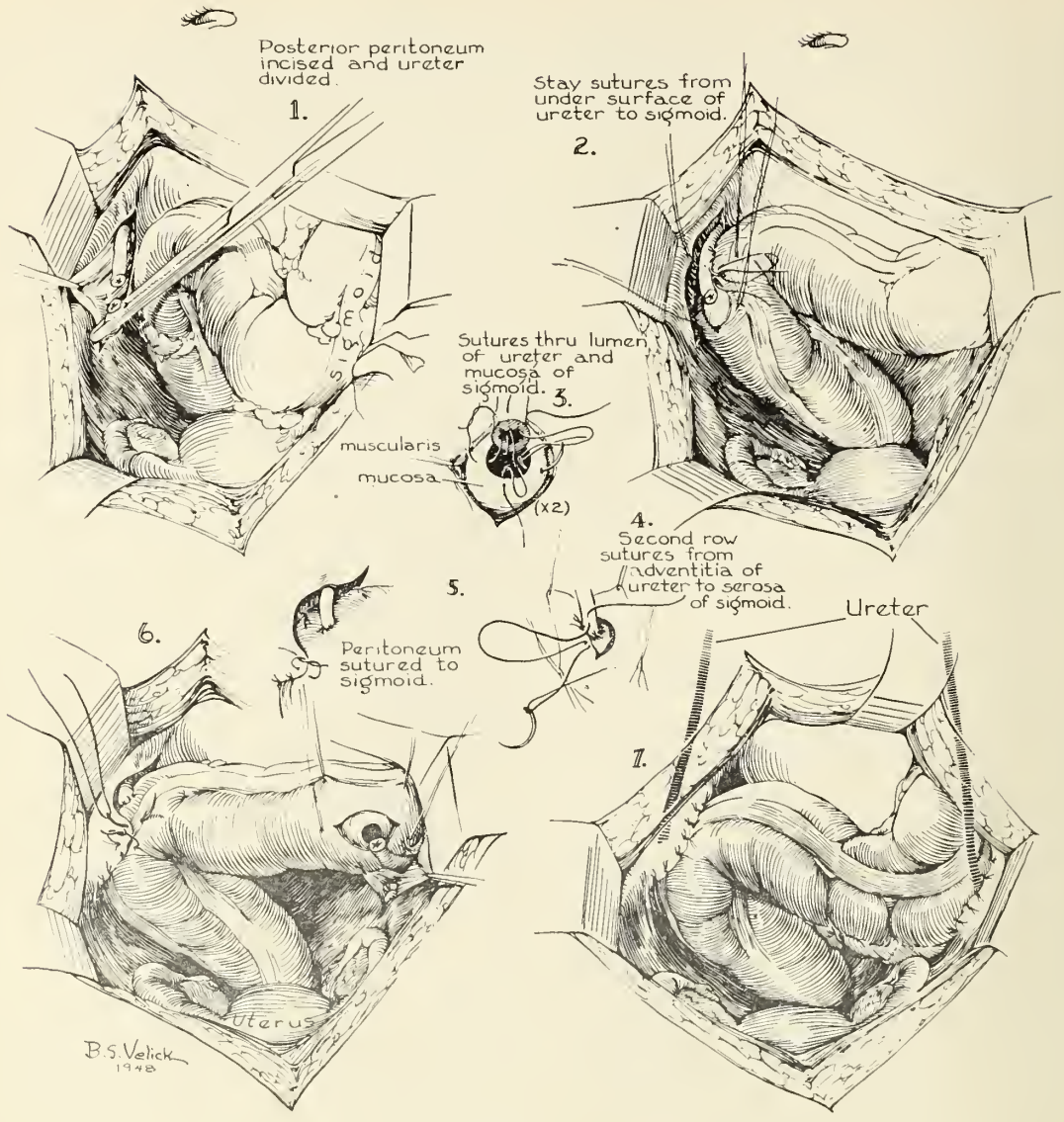
PREOPERATIVE AND POSTOPERATIVE CARE

Preoperative care is the same as for any intestinal surgery. The patient is prepared for five days on a low residue diet and given sulfathalidine in the usual doses. In patients who are sensitive to the sulfonamides, streptomycin may be used in doses of 4 gm. by mouth daily for two days and a quite satisfactory preparation obtained. Cleansing enemas are given the night before surgery. Postoperatively, the patient is maintained on a nothing by mouth regime. Adequate fluid intake is given intravenously. The patient is then placed on a low residue diet, and is usually on a regular diet by the fifth postoperative day. A colon tube is maintained in the rectum for four to five days. Both penicillin and streptomycin are given for the first seven postoperative days.

OPERATIVE TECHNIC

I should like to emphasize at the outset of this discussion the importance of meticulous attention to detail in the placing of sutures, the preservation of blood supply, and the gentle handling of tissues. This is truly a plastic procedure, and if it is to be successful, the strictest attention to all minute details is essential.

With the patient in the extreme Trendelenburg position, the abdomen is opened through the usual midline subumbilical incision, usually extended up above the level of the umbilicus. After the peritoneum is opened the small intestine is packed out of the pelvis, and the pelvic and aortic areas carefully palpated for the presence of lymph node involvement. The sigmoid is then manipulated to determine the best site of anastomosis. The site chosen is the point at which the sigmoid lies most naturally over the course of the ureter. It is of fundamental importance that the bowel be brought to the ureter, rather than the ureter to the bowel. The right side is usually anastomosed first. After the site of anastomosis has been determined an incision is made into the posterior parietal peritoneum directly over the ureter. The ureter is then located and isolated for a distance of about 3 cm., care being taken to preserve the blood supply. It is then cut across and the lower segment ligated. The medial leaf of the incision in the posterior parietal peritoneum is then sutured to the lateral wall of the sigmoid using silk sutures. This serves a twofold purpose, in that it "fixes" the site of anastomosis and forms the under surface of the peritonealizing closure to be made later. When this step is completed, a longitudinal incision is made through the serosa and muscularis down to the submucosa of the sigmoid. It seems to make little difference whether this incision is made through a tinea or not. When the submucosa has been reached it protrudes into the incision very much as noted in Figure 2. The ureter is then brought over to the site of the anastomosis as shown in Figure 2, care being taken to avoid angulation or kinking of the ureter. The first suture is a fixation stitch, which simply fixes the ureter above the site of anastomosis. A second suture is then taken between the upper angle of the incision down through the muscularis of the bowel and the adventitia of the ureter. Both of these sutures are so placed that the end of the ureter will be directly in the center of the incision into the wall of the bowel. A stab opening is then made through the mucosa and submucosa. This opening should be ap-



Figures 1-7

proximately the same size as the end of the ureter. A direct mucosa to mucosa approximation is then obtained, the end of the ureter and the submucosa of the bowel being approximated as shown in Figure 3. Four O chromic catgut is used for this purpose. The sutures are so placed that the knots are on the outside, care being taken to avoid occlusion of the lumen of the ureter or puckering at the site of anastomosis. A second layer of sutures is then placed between the adventitia of the ureter the muscularis and serosa of the bowel as shown in Figure 4. These sutures should be taken in the longitudinal axis of the ureter to avoid disturbance of blood supply at the distal end. They are placed just far enough up on the ureter to produce a slight invagination of the first suture line. This creates a "papilla" within the lumen of the bowel and may be of some value in the prevention of the reflux of intestinal contents. When the second layer of sutures is completed, a good water tight junction without stenosis should result. You will note that an accurate approximation of mucosa to mucosa is present. It is a fundamental surgical principle that in order to avoid scarring at the site of anastomosis in any type of bowel surgery this approximation must be ob-

tained. After the anastomosis is completed the lateral leaf of the incision in the posterior parietal peritoneum is elevated, care being taken that no kink is produced where the ureter comes out from beneath it at the upper angle. The peritoneum is then sutured to the serosa of the sigmoid as shown in Figures 5 and 6, thereby completely extraperitonealizing the anastomosis. The same procedure is repeated on the left side as shown in Figures 6 and 7. More recently, we have been placing the ureter at a lower level in the sigmoid, in the belief that there is probably less absorption of electrolytes with the ureter placed at a lower level. This adds no particular technical difficulty, except that one is working somewhat deeper in the pelvis than with the original method.

IMMEDIATE AND LATE MORTALITY AND MORBIDITY

A total of 64 successive cases have been done by this method with two postoperative deaths, all other patients having been discharged from the hospital under their own power. Many of these were exceedingly poor operative risks, one of the two operative fatalities being a markedly debilitated 70 year old male, and I believe we exercised poor judgment in doing too much surgery at one sitting.

The average age was 61, the youngest operated for malignant disease being 38, and the oldest 80. Fifty-one patients had bilateral ureterosigmoid anastomosis and cystectomy in one stage. Six had two stage procedures, and in 7 cases, ureterosigmoid anastomosis alone was done. It is our belief that the cystectomy is much easier to perform at the time of ureterosigmoid anastomosis, and that the added surgery does not increase the operative risk any more than a second stage cystectomy would do.

Immediate postoperative complications have been relatively uncommon. There were 4 postoperative eviscerations and 3 incisional hernias. We believe these were in part due to the modified Cherney incision which was used on all the earlier cases. Since changing to a midline incision, this complication has not occurred. Two cases had troublesome ileus for several days. There was 1 retropubic abscess and 1 case of acidosis. Three patients developed fecal fistulae. However, each of these was due to rectal involvement by carcinoma or surgical trauma and had no apparent connection with the anastomosis.

The late results are shown in Table 1:

TABLE 1.

Years	Alive	Dead
0—1	1	21
1—2	13	9
2—3½	9	1
Total	29	31

Follow up on 4 cases incomplete.

Of the total of 60 patients, 29 or 48 per cent are still living. Although 52 per cent of the patients operated upon are dead, we wish to emphasize that no case has been refused surgery which we felt could stand the operative procedure. A great many cases with advanced carcinoma, in whom little or no hope for cure was held, have been operated upon with the belief that the palliation obtained was worth the surgery involved. In our experience this belief has been well substantiated. Of the 21 cases dying in the first year, 16 died of carcinoma, 2 deaths were renal and 1 was due to a pelvic abscess. The other 2 died of unknown causes. One patient who expired after twenty months died of acidosis, which was recognized too late, and improperly treated. At autopsy, there was no evidence of recurrence of his carcinoma. Therefore, only 8 per cent of the total deaths may be directly attributed to the ureterosigmoid anastomosis. Admittedly, the results of our cancer surgery leave much to be desired.

URINARY SEPSIS

Since all patients were placed on antibiotics during the immediate postoperative period early sepsis presented a problem in only 1 case and disappeared after about two days of rectal drainage. None of the other cases presented any evidence of urinary sepsis in the immediate postoperative period.

Of a total of 60 cases in which an accurate follow-up was obtained, 44 or 60 per cent have had no chills, fever or other evi-

dence of urinary sepsis. Fourteen had a minimal amount of chills and fever. In this category we considered those who had had two or less episodes of sepsis. Eight were considered to have had moderate urinary sepsis and, two are listed as severe. In one of the latter, kidney infection was undoubtedly the primary cause of death, although acidosis may have played a part. In the other, the patient was a severe hypertensive preoperatively, and had an aneurysm of the abdominal aorta. However, he did experience considerable urinary sepsis and, therefore, it was felt that in all fairness we must consider it as a contributory factor in his demise.

In general, I believe that we can state that urinary sepsis has not presented any great problem in these cases. Each episode of infection has, with one exception, been readily controlled by the usual antibiotics or chemotherapy, and has been of relatively short duration. In addition, we have observed that as the patient continues postoperatively, there is apparently some degree of natural immunity built up to the intestinal organisms. In several patients, we have observed a decreasing severity both in the character and frequency of the attacks.

AIR PYELOGRAMS AND URETERAL REFLUX

The presence of air pyelograms following direct anastomosis has been mentioned as an objection to this method. In our experience, this has not been the case. All postoperative pyelograms up to as long as two years postoperatively were reviewed for air pyelograms. Air was found to be present in the kidney pelvis in only five kidneys from the entire series. With one exception, these were present in kidneys which were nonfunctioning preoperatively. It is interesting to note that these patients had very few symptoms and sepsis was not a pronounced problem in any of them. If one transplants a hydronephrotic ureter, with marked fibrosis in the musculature, and poor peristalsis, it is inevitable that postoperative difficulties will develop.

A total of 16 patients was studied for reflux, the study being made by filling the colon with a Skiodan enema under considerable pressure, and then shooting a flat film. This study included only 31 kidneys, 1 patient having had a nephrectomy prior to ureterosigmoid anastomosis. Of the 31 kidneys, 5 showed a reflux of Skiodan up the ureters. In only 1 patient was the reflux bilateral.

EARLY AND LATE INTRAVENOUS PYELOGRAPHY

The total number of patients with accurate pyelograms and follow-ups was 46. For the purposes of more accurate evaluation, the data is broken down into the total number of kidneys. A preoperative and postoperative comparison is incorporated in Table 2.

TABLE 2.

Total No. of Patients With Accurate Pyelograms and Follow-up—46

	Preoperatively	Postoperatively
No. kidneys Studied	92	91
Nonfunctioning	9	7
Hydronephrosis	18	31
Normal	62	41
Decreased function	3	12

A number of the postoperative hydronephroses so listed were minimal in character. Many patients who showed a mild dilatation immediately postoperative, had a definite reduction in dilatation on films taken at a later date. It is noteworthy that 2 kidneys which were listed an non-functioning to intravenous pyelography preoperatively regained some function postoperatively. However, the number of normal kidneys was reduced from 62 to 41, or a decrease of approximately 34 per cent. Likewise, decreased function was noted in 12 kidneys. In most instances these showed poor dye shadow, but as far as could be determined, no actual hydronephrosis existed. Although many factors contribute to faint shadows in intravenous urography, we consider these results as unfavorable. Repeated pyelograms were made on many of these patients, some as long as three years postoperatively. In only 1 case did we note progression of the hydronephrosis. Surprisingly enough, this patient has no urinary sepsis and is maintaining a normal nonprotein nitrogen.

ACIDOSIS AND HYPERCHLOREMIA

One of the major problems in caring for the patient with ureterosigmoid anastomosis is that of acidosis. Very early in our experience we encountered an extremely interesting case, which emphasized this problem, but it was not until subsequent cases of acidosis began to appear that we realized its true significance. This first patient was a 54 year old colored man, who was admitted to the Veteran's Hospital with extensive carcinoma of the bladder, and involvement of both ureteral orifices to such an extent that intravenous pyelography revealed a completely nonfunctioning kidney on the left, and only slight function with marked hydronephrosis on the right. Urea nitrogen on admission was 42, and he appeared to be in a very serious condition. It was concluded that his surgery should be done in two stages. The ureter of the functioning kidney was transplanted to the sigmoid, and ten days later the second ureter was transplanted and the cystectomy done. The patient had a fairly stormy postoperative course but made a comparatively good recovery, only to return to the hospital about three weeks after discharge with an N.P.N. of 155 and a CO_2 of 12. He was comatose at that time, and required a great deal of intravenous molar lactate to correct his chemistries. However, he responded surprisingly well to treatment and was discharged on sodium bicarbonate by mouth. Since that time, he had several hospital readmissions, and each time he was found to have a moderately severe acidosis. However, his general condition remained good and he continued to work at his occupation of cleaning out boxcars for a cement company some two years postoperatively. He finally expired after twenty-seven months of acidosis. This patient stimulated us to make further studies on those patients with ureterosigmoid anastomosis, and we have endeavored to follow as many as possible from this standpoint.

Clinical symptoms which we have encountered have been general malaise, poor appetite, mild nausea, and weakness.

Accurate chemical studies have been obtained on 21 patients. Sodium and potassium levels were normal in the 13 cases in which these determinations were made. Practically all patients showed a moderate elevation of blood chlorides whether acidosis or elevated blood nonprotein nitrogen was present or not. Of the 21 cases studied, 33 per cent had CO_2 values of 50 vol. per cent or above. These were considered to be normal. Twenty-four per cent had a CO_2 level of 40 to 48 vol. per cent, and 43 per cent had CO_2 levels below 40 vol. per cent. All but two of these were between 30 to 40 vol. per cent. It is noteworthy that an elevation of blood nonprotein nitrogen occurred in only those patients who had advanced kidney damage and were listed as having expired from kidney disease. In none of the others was there any appreciable elevation of the nonprotein nitrogen, either early or late. There seemed to be little relation between the CO_2 level and the blood nonprotein nitrogen. This fact emphasized the point that a simple determination of nonprotein nitrogen is not sufficient to evaluate the condition of a patient who has had a ureterosigmoid anastomosis. We believe that our incidence of acidosis is no higher than that reported by other methods.

Eleven of these patients were placed on rectal drainage for a five day period, but this seemed to have no appreciable effect on the CO_2 levels.

Boyce,[4] in a recent study of the absorption of certain constitutents of the urine from the large bowel of dogs, was of the opinion that the low levels of serum carbon dioxide combining power were due to the loss of base both from the diarrhea induced by the flushing of the colon with urine, and by inefficient loss of base from a kidney functioning at maximum excretory capacity. In addition, he was of the opinion that the retention of acid radicals might be a contributing factor. It is noteworthy that his experimental animals showed an initial depression of carbon dioxide combining power, which later returned to a constant subnormal level. This has certainly not been our clinical experience. In only one

or two of our patients was there any evidence of lowered CO_2 capacity immediately postoperatively, and in most instances this condition appeared after a period of two or three months. Ferris and Odel,[5] in analyzing the electrolyte pattern of the blood in some 141 patients, found acidosis in 88 per cent, and hyperchloremia in 80 per cent. It was their belief that the hyperchloremic acidosis seemed to result from the absorption of chloride across the rectal mucosa and that the acidosis was directly secondary to the hyperchloremia. It is my opinion that a combination of two factors is present. First, with the hyperchloremia an excess of sodium is bound up as sodium chloride leaving less available as bicarbonate. Second, with any ureterosigmoid anastomosis there is a certain inevitable degree of kidney damage. There is a wide individual variation both in the amount of damage which is already present preoperatively, and that which occurs postoperatively. If the kidneys are normal or nearly so they are able to compensate for hyperchloremic acidosis by an increased excretion of fixed acids. However, with kidney damage this compensation cannot take place and clinical acidosis occurs. This explanation would account for the fact that a certain percentage of these patients does not show any laboratory evidence of a lowered CO_2.

As regards management of this rather serious complication, I believe that there are several factors to be considered. First, one must be aware that this complication is a very common one, and these patients should have blood studies at regular intervals, with blood chloride and CO_2 levels, as well as nonprotein nitrogen determination. The awareness that this complication does exist will at least preclude some of the unfortunate experiences which we have had prior to our recognition of it. As far as instructions to the patient are concerned, we usually apply the following regime: (1) The patient is instructed to use only the amount of salt in his diet required for cooking, and to add no additional salt to his food. It is our belief that a salt free diet is impractical because we feel that these patients need adequate nutrition and since a completely salt free diet is rather unpalatable, they should not be restricted too rigidly. (2) The patient is instructed to empty the bowel at two hour intervals during the day, and as often at night as he awakens. (3) If any tendency to acidosis exists, the patients are given 4 grams of sodium bicarbonate three times daily. This seems to control the acidosis quite satisfactorily in practically all instances. Sodium citrate and one sixth molar sodium lactate by mouth have also been used for this purpose instead of sodium bicarbonate.

Recently, Bricker,[6] of Washington University, in doing pelvic sweeps for extensive carcinoma of the pelvic organs has devised a bladder consisting of a short loop of ileum terminating in an ileostomy. This consists of a very short loop from which absorption is minimal, and the urine does not collect in it, but flows continuously into a Rutzen bag, through a wet ileostomy. The method of transplantation of the ureters into the loop is that which we have described. He reports a complete absence of sepsis and acidosis in his series of 25 cases. About six months ago, we established a rectal bladder, performing the transplants in the usual fashion, and following this procedure with an iliac colostomy, closing off the distal end of the rectosigmoid to form a bladder. This patient has had an excellent course from a standpoint of both sepsis and acidosis. However, he is of a fairly low intellectual level and complains rather bitterly of his colostomy. Although Bricker's results seem to be excellent, it is my belief that a wet colostomy is highly undesirable and should be avoided if an intact sigmoid colon is present. The formation of an artifical bladder from the sigmoid and rectum is certainly practicable, and in my opinion should be used in all cases where a preexisting hydronephrosis and hydroureter exist. We have noted that in almost all of the cases in which we have had trouble, our difficulties have arisen from attempting to transplant large ureters into the bowel. These are the cases which developed air

pyelograms and sepsis. However, this is not entirely true, as a few of our cases of sepsis have had essentially normal pyelograms. As for the routine employment of the artifical bladder, the problem seems to be whether the disadvantages of a permanent colostomy, with an inevitable increase in operative mortality due to added surgery, are great enough to overbalance the degree of sepsis and acidosis present in a certain percentage of the cases. We are at present attempting to build up a series of cases with colostomies, so that we may evaluate this problem more accurately.

INDICATION FOR CYSTECTOMY AND URETEROSIGMOID ANASTOMOSIS

Perhaps the most controversial subject in the entire field of urology is the question of when to do a cystectomy for carcinoma of the bladder. Opinions among top flight urologists vary from those who state that cystectomy is never indicated, to those that feel that it should be performed in almost all cases of grade two, or above, papillary carcinomas of the bladder. The first group contends that grade three and four tumors are incurable by any method, and that if the grade two tumors are curable surgically, they can also be cured by transurethral means or radiation. The second group feels that the grade two tumors are very apt to grow and progress, and that if a cure is to be obtained, early removal of the entire carcinoma before any spread has occurred offers the best prognosis. Undoubtedly a middle path somewhere between these two extremes offers the soundest approach to the problem.

In my opinion, partial cystectomy, although recommended by some excellent men such as Jewett,[7] is fundamentally unsound surgically. The lymphatic networks of the bladder originate in the mucous and muscular coats, being particularly abundant in the muscular coat, whence they drain into the superficial lymphatic plexuses which pass to the surface of the bladder and there give rise to the collecting trunks. It is readily apparent that with any muscle invasion whatsoever, the possibility of lymphatic extension of carcinoma beyond the area of excision would be great. I believe that it is no more logical to do a partial cystectomy than it is to do a partial mammectomy for carcinoma of the breast. Admittedly, one will occasionally cure a lesion by this method, but the percentage of cure would be so small as to preclude its usefulness.

The use of Broder's classification alone in determining the indications for cystectomy is not satisfactory. It has been repeatedly pointed out that different grades of malignancy are present in the same tumor and that the specimen obtained at the time of cystectomy may show considerably more malignant change than was anticipated from the obtained biopsies. Therefore, one must use other criteria as well as the grade of malignancy.

Immediate cystectomy should be performed on all grade three and four tumors and tumors of the sessile or invasive type, irrespective of size. The smaller the tumor, the more radical the procedure. The use of bimanual recto—or vagino—abdominal palpation under anesthesia, as suggested by Jewett, is very worth-while in determining operability. However, I do not feel that any patient should be denied the palliation obtained by diversion of the urinary stream, even though the bladder carcinoma has advanced beyond the stage of operability. I am sure we have all had occasion to observe patients dying of carcinoma of the bladder, and are familiar with the inevitable blood clots, sepsis, continuous desire to void, and other unhappy complications from which these poor people suffer. On the other hand, since we have been performing ureterosigmoid anastomosis even in inoperable cases, we have been particularly impressed with the comparative comfort which these people have. I am sure we have prolonged their lives considerably in many instances, and made their last days far more comfortable than they would have been without diversion of the urinary stream. Admittedly, the chances of cure in grade three and four invasive lesions are poor. However, the prognosis by any other method is completely hopeless. It has been suggested

that the manipulation involved in cystectomy hastens the spread of carcinoma, and shortens the life of these patients. I am somewhat doubtful that this is the case, but even if it does we have at least given them a moderate degree of comfort in their last days.

The grade two papillary lesions with a fairly wide base are the ones which have caused me the most difficulty in reaching a decision as to what procedure to follow. Several factors should be considered, in making up one's mind in these cases: First, the gross appearance of the tumor, its location, whether multiple or single, and the width of the base. The obtaining of an accurate biopsy from the base of the tumor in these cases is unquestionably the most important single factor in determining whether to operate or rely on transurethral resection of the tumor. It has been my practice on these patients to do as complete a transurethral resection as possible separating the tissue removed from the base of the tumor from the more superficial tumor tissue, so that an accurate determination can be made as regards muscle invasion. If there is definite muscle invasion then it is my belief that cystectomy should be performed immediately upon making the diagnosis. If, on the other hand, there appears to be no muscle invasion, these patients may be observed cystoscopically over a period of time. If the lesion is at all extensive at the time of the first transurethral, the patient is returned at the end of a two month period and even though the mucosa appears healed at the site of the lesion, additional tissue is removed with a resectoscope to determine the presence or absence of carcinoma cells beneath the mucosa. I am sure that we have all had the experience of having removed a surface carcinoma and having had extension beneath the healed mucosa with the tumor appearing in an adjacent area in a considerably more extensive form than the original lesion. It is to preclude the loss of valuable time that this second biopsy should be done. If no carcinoma cells are found at this time the patient may be observed at regular intervals and cystectomy deferred.

Time does not permit the discussion of the relative merits of radiation therapy or electrocoagulation.

CONCLUSION

I believe that we have developed a practical method for ureterosigmoid anastomosis. This belief is borne out by the fact that all of the patients with nonmalignant disease, and some with malignant disease, are alive and in comparatively good health well over three years after transplantation. The results of our cancer surgery leave much to be desired. The defeatist attitude which has been assumed by some concerning carcinoma of the bladder should not be adopted. We should continually endeavor to improve our cancer surgery, and in this way more satisfactory results may be obtained.

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THE VALUE OF ELECTROENCEPHALOGRAPHIC EXAMINATION*

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NEW ORLEANS

The electroencephalogram is an adjunctive, diagnostic instrument. It is to the brain effectively what the electrocardiogram is to the heart and, like the electrocardiogram, it can give a definite diagnosis, a suggestive diagnosis, or it can be abso-

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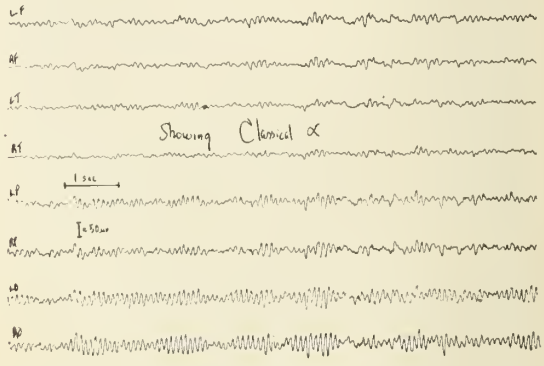
lutely normal in the presence of gross pathology of the organ, or it can be mildly to moderately abnormal in a so-called normal person. All of you, doubtless, accept without condemnation of the technique the fact that the electrocardiogram does not diagnose a valvular stenosis, yet you would never fail to employ the electrocardiogram when it was readily available in the diagnostic work-up of a cardiac case. The electroencephalogram should be regarded in the same way. In many instances, the electroencephalogram will give you an absolute, incontrovertible diagnosis, e.g., in coma, but in most instances the information it will furnish will be ancillary. For this latter reason, the electroencephalogram is best read in clinical terms by one able to relate the electroencephalographic findings to the total diagnostic picture. The electroencephalographer, then, should be a clinically experienced neuropsychiatrist or neurologist. Perhaps one of the simplest analogies to offer in support of that contention is the analogy of the chest x-ray showing an infiltrative, pulmonary shadow—the clinically informed New Orleans radiologist finding such in a native Orleanian who has not left the city since birth is not likely to entertain coccidioidosis as part of his differential diagnosis, although the x-ray findings can be identical with those of tuberculosis. The average busy physician who refers his patient to a radiologist expects a diagnostic impression in report with the radiologist being possessed of specialized, clinical knowledge about his field. The busy physician should expect the same of the electroencephalographer. The obvious corollary, however, is that the electroencephalographer must be supplied with clinical data by the referring physician in order to give a clinical reading. In this latter regard, an English worker, Turner,[1] has said, "Without adequate consideration of the history and findings on clinical examination, it (the EEG) is largely valueless and may be misleading".

Now, a word about the electroencephalogram instrument itself and the manner of making a recording. The instrument is simply a tremendously powerful amplifier which picks up at the scalp surface the minute electrical discharges of the brain via small solder electrodes fastened to the scalp with bentonite paste and lead to the instrument by fine copper wires. The instrument amplifies the activity from 5 to 50 million times and provides that the activity picked up from each electrode, or lead, as it is called, is put through an ink-writing voltmeter which records the impulse variations on a sheet of paper continuously moving at 3 cm/second. Each recorded line on the paper is termed a channel, in reference to the distinct circuit through which the activity has been amplified. A truly adequate instrument has 8 such channels thus enabling one to view the major areas of the brain in simultaneous function. Since the homologous brain areas display practically identical patterns under normal conditions and dissimilar patterns under abnormal conditions, the electrodes are placed on the skull in a symmetric manner: the left and right frontal in identical positions, the left and right temporal similarly, the parietals similarly, the occipitals, and so on. Since the largest instrument built at present has only 8 channels, and the anterior portions of the temporal lobes have particular importance in psychomotor epilepsy as opposed to the posterior aspects, we run two patterns, the frontals, mid-temporals, parietals and occipitals as one simultaneous group, and the frontals, anterior temporals, mid-temporals and parietals as the second group. By virtue of selector switches on the instrument, the brain is constantly scanned, as it were, over the 10 leads throughout a recording. The ideal EEG machine should have all 10 leads visible at once with an extra channel for the ECG. The reason for recording the ECG is that it is a common artifact in the brain recording and the QRS complex can occasionally be mistaken for a spike, the electroencephalographic result of a paroxysmal potential burst in the brain, which is a grossly abnormal finding. At present, we simply run a strip of ECG in a normal channel whenever we need it for reference.

The patient is handled very similarly to the ECG patient. The electrodes are applied with the patient sitting up on a bed and he is asked to recline with eyes closed when all are applied. Ideally, given a patient of sufficient IQ, he is asked to maintain an attitude of alert expectancy but to avoid active cerebration and, above all, to keep still, to relax and try to sleep because muscle tension and movement artifacts tend to obscure the brain's electrical activity. Since sleep tends to bring out pathological activity, every effort is made to get the patient to sleep and in most laboratories patients are routinely given a small dose of short-acting barbiturate or similar sedative-hypnotic. The average recording takes about thirty minutes. When the occasion demands, we put on additional electrodes more precisely to localize a lesion and may run an hour or more. Since the sedative-hypnotics and anticonvulsants, taken routinely, produce a fast artifact in the EEG, the referring physician should interdict such medication about thirty-six hours prior to the EEG if there be no likelihood of status epilepticus developing. This is especially important with the anticonvulsants for they may not only introduce a fast artifact but may suppress the very paroxysmal activity for which we are looking.

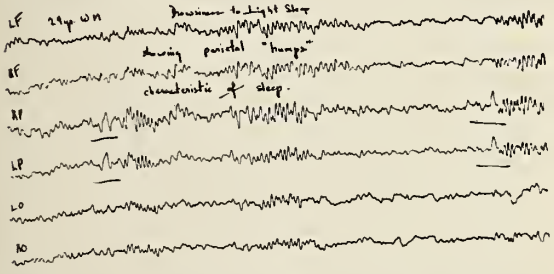
On occasion, and only with the approval of the referring physician, we may administer intravenous metrazol to a patient in the effort to activate a paroxysmal dysrhythmia when there is reason to believe that the patient's brain is subject to such paroxysmal outbursts although his interseizure EEG's are negative. In every case, however, where the patient can coöperate, we hyperventilate the patient for from three to five minutes as alkalosis tends to activate epileptic activity. When that procedure is not fruitful, we often have the patient open and close his eyes in an effort to activate pathologic activity, particularly petit mal. This is particularly true of children with true petit mal. This is a good point to emphasize the fact that the EEG of a known epileptic may be perfectly normal during interseizue periods, and an apparently normal person with no seizure history may display, within certain limits, an epileptoid or definitely epileptic record. It is for those reasons that EEG's are usually reported in statistical terms. An abnormal pattern, depending on its degree, is said to be, going from mild to severe, "consistent with but not suggestive of convulsive disorder", "suggestive of convulsive disorder", and "suggestive" is then qualified up to "very strongly suggestive". So, too, for brain damage where the most definite one can statistically be is to say that the most abnormal pattern is "presumptive evidence" of brain damage. In the absence of a history and neurological findings, that is the way a brain tumor is reported.

In the normal brain and some abnormal brains, recording with the eyes closed since visual activity disrupts the cerebral patterns, the basic wave form arises principally from the parieto-occipital regions and is of sinusoidal form with an amplitude ranging from 30 to 70 microvolts and a normal frequency range of 8.5 through 12/second. (Figure 1). The predominant

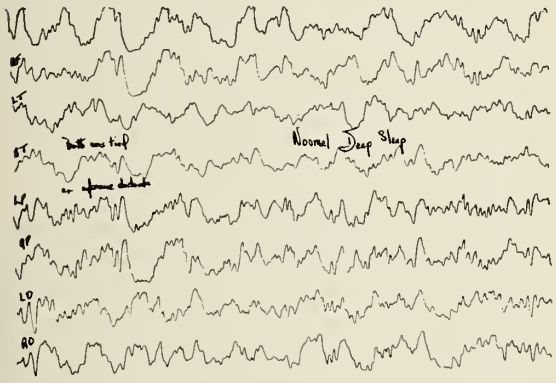


normal frequency is 10/second. These waves are called alpha waves. In the frontal and temporal regions, irregular low voltage activity arises of from 17 to 35/second in frequency which is termed beta activity. In the adult waking record, irregular extremely slow activity having a frequency of 0.5 to 3/second is called delta, or S3, activity and is grossly abnormal. It is, however, normal for the infant. The patterns of children are slower than adults' and the child may not achieve his totally adult frequencies until he is nine-

teen. Any trains of activity in the range of 4 thru 7/second in the waking adult are abnormal and the activity is referred to as S2, or theta, activity, moderately to very slow. With normal sleep in the adult, the voltage drops markedly in all leads. In drowsiness, the record flattens, as we say, and then gives way to a rhythmic slow picture, in light sleep punctuated here and there by roughly one second trains of 14-16/second spindle-shaped waves termed sleep spindles. (Figure 2). With deep



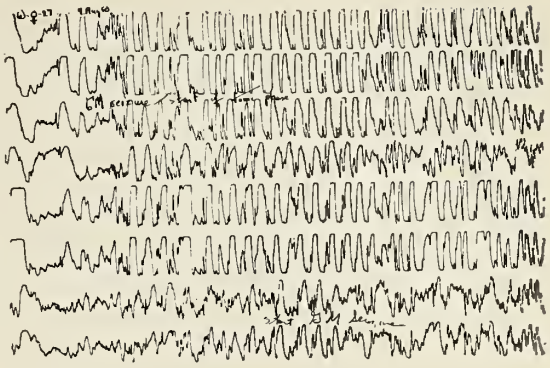
sleep, the entire record becomes even slower and there is a rhythmic rise and fall of the large slow waves, (Figure 3) and the sleep



spindles decrease or practically disappear.

In general the abnormalities of the waking and sleeping patterns which indicate pathology are the presence of excessive fast or slow activity, generally or focally, lack of symmetry of amplitude in homologous leads, and, preëminently, paroxysmal activity such as spikes, spike and dome, delta waves, etc., occurring generally or focally. (Figure 4).

The EEG, then, finds its use in the diagnosis of the epilepsies, in brain damage from any cause, and in the diagnosis and location of space-occupying lesions in the



anterior and middle fossae (tumors of the posterior fossa do not ordinarily reveal themselves to the EEG unless indirectly through the delta activity of increased intracranial pressure). The EEG is a useful tool in the etiologic diagnosis of mental deficiency and in spastic children of normal or defective intellect. A subclinical epileptic spastic may be helped by chemotherapy. The EEG should be done in every case of serious, acute head injury for prognosis as well as diagnosis. I hazard the guess that there would be less deaths and punch-drunks in the professional boxing ring if fighters suffering a knockout were not permitted to train or fight until their EEG's were perfectly normal in serial study. The EEG is useful to the ophthalmologist in the diagnosis of strabismus of central origin. It is useful to the orthopedist contemplating a corrective operation on a spastic child. If the child is a subclinical epileptic, the added sensory input from a corrected limb may raise the brain's electrical potentials to the convulsive threshold. Serial EEG may be useful to the obstetrician in pre-eclamptic cases. Because of its tremendous amplifying power, the EEG easily picks up the fetal heart through the mother's abdomen after the first trimester so that it is a quick means of diagnosing intrauterine death. Although it has little practical value, it can be used similarly to diagnose twins and triplets. The EEG can be a considerable aid to the otolaryngologist in cases of hysterical or simulated deafness. In ophthalmology, since porencephaly not uncommonly follows vascular or traumatic lesions in the occipi-

tal lobes, and since it may give the first hint of an occipital lobe tumor, an EEG should be done in all cases of homonymous hemianopsia. In general, the EEG has no established value in the diagnosis of the functional psychiatric illnesses, neurotic or psychotic, nor is there any characteristic EEG pattern in the psychopath. It is useful, however, in neuropsychiatry in distinguishing organic behavior disorders from functional. A child or adult may not have seizures and yet have incessantly repeated bursts of paroxysmal dysrhythmia in his brain, the so-called subclinical or larval epilepsy, which grossly interferes with his personality function and adjustment and may produce deviant behavior. In the organic psychoses of degenerative type the EEG commonly displays no diagnostically specific pattern nor does it diagnose cortical atrophy or absence from any cause. In acute diffuse cerebral lesions the EEG is of little etiologic diagnostic value for the extremely slow activity which results simply indicates stupor or coma whether on the basis of highly increased intracranial pressure, encephalitis, diabetic coma, or meningitis, etc.

In the nonepileptic, post-traumatic case, the EEG is of little or no value unless serial studies are done which show a change of pattern toward or away from normality, or unless one has a pre-injury EEG with which to compare the post-traumatic studies. The exception to this is where there has been focal brain injury and a spike, or slow wave and spike, focus, or focal depression of sleep spindles appears on the EEG.

The EEG finds its principal use in the diagnosis and prognosis of the convulsive disorders; therefore, it would seem desirable to discuss those disorders in relation to electroencephalography in some detail.

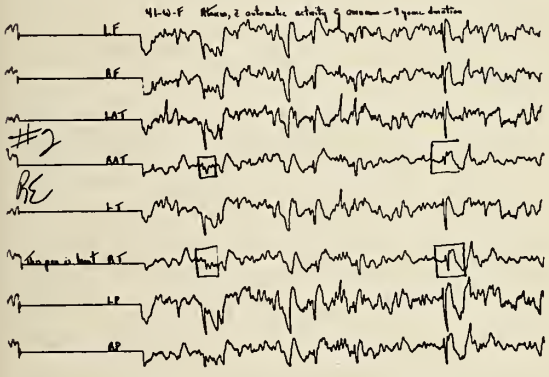
The common, contemporary, clinical classification of the convulsive disorders is anachronistic in that it has not kept pace with the electropathophysiologic findings of the laboratory. Hence, any physician attempting to treat a convulsive disorder in terms of so general a diagnostic classification as grand mal, petit mal or psychomotor epilepsy, without electroencephalographic assistance, is doing himself and his patient an unwitting disservice. I do not include Jacksonian seizures for, obviously, a true Jacksonian seizure identifies itself clinically to the competent eye. A venerable colleague might interpose here that after fifty years of practice he believes he well knows a grand mal convulsion when he sees one. Surely he does, but he can not in a significant and, therefore, in a scientifically prohibitive number of grand mal convulsions, tell by observation and history alone whether they are idiopathic or symptomatic, a vitally important distinction because of the incidence of mortality and the chance of successful surgery in the latter. Wesley Watson,[2] for example, reported that in a series of 279 craniocerebral injury cases of combat origin, 41 per cent of those who developed post-traumatic epilepsy had generalized seizures without focal onset or focal aura. Similarly, we are all familiar with the fact that a generalized convulsion is not uncommonly the first sign of a brain tumor, which, of course, is almost invariably focal. The EEG is the only practical means at present to make a dependable distinction between the principal forms of grand mal.

In general, clinicians talk of the convulsive disorders as idiopathic or symptomatic grand mal (or major epilepsy), focal motor seizures not going on to grand mal, focal sensory seizures, psychomotor epilepsy, and petit mal; and break down petit mal, into pyknoepilepsy or classical petit mal, akinetic epilepsy, and the myoclonic jerk. Recently, Lennox[3] has suggested a fourth type of so-called petit mal; namely, the massive myoclonic jerk. From the standpoint of pathogenesis, however, as reflected in the electrical activity of the variously morbid brains, these clinical categories are not clear cut. Further, treatment directed against a large clinical grouping such as petit mal, diagnostically covering all little seizures, may be a panacea for the one case and poison for the next because what appears clinically as the "Little Sickness" may be any

one of a variety of pathologically distinct disorders. Unhappily, electroencephalography has no uniform, accepted system of clinically correlated classification and terminology worked out as yet which it can present to the clinician, but it *can* tell him what type of electrical dysrhythmia he is dealing with and, ergo, aid in planning the therapeutic course.

Let us now examine the principal clinical types of convulsive disorder and their most important electroencephalographic aspects. We have already mentioned the problem of distinguishing idiopathic and symptomatic grand mal. Of all the EEG patterns indicative of major epilepsy to the electroencephalographer *interpreting the records in terms of adequately supplied clinical information,* almost every one gives him some indication of its etiology—be it brain tumor, focal cortical laceration scar, shrunken gyrus, old encephalitis, birth injury, cerebrovascular accident, or idiopathic epilepsy. The importance of these etiologic indications to useful EEG-reporting with consequent appropriate therapeutic management is too obvious to bear elaboration.

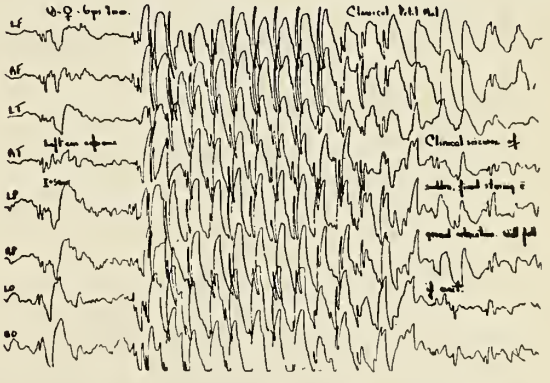
In psychomotor epilepsy, (Figure 5) the



EEG is a diagnostic necessity because of the occasional amenability of one of the two known forms of this disorder to surgical intervention. The two forms of psychomotor epilepsy are, so far, clinically indistinguishable. On the EEG, one form shows a characteristic, generalized pattern of flat-topped waves and a low threshold for the production by metrazol-photic stimulation of a myoclonic spike. The other form shows a precise anterior temporal lobe focus in the EEG, either unilateral or bilateral, and a normally high or higher than normal myoclonic threshold to metrazol-photic stimulation. It is this latter type with the temporal spike focus that has been the subject of surgery at the hands primarily of Penfield, Bailey, and Morris. The EEG also serves prognostically in this latter type postoperatively to determine the continued presence or absence of temporal or paratemporal paroxysmal activity.

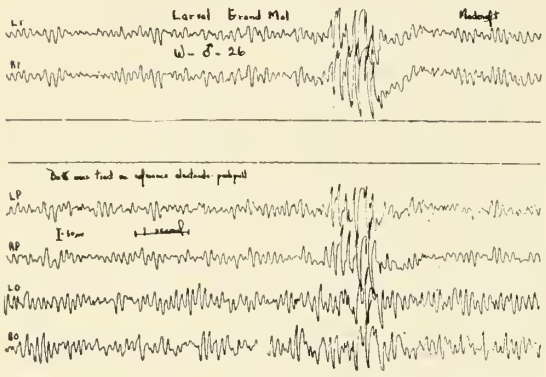
Another diagnostic function the EEG serves in psychomotor epilepsy is in differentiating some psychomotor syndromes from schizophrenia. Prolonged psychomotor attacks of weeks', months', or years' duration can simulate schizophrenia. This is particularly well to remember in dealing with what are termed in the neuropsychiatric ward vernacular "ten day schizophrenics". Henri Gasteau,[4] working at the Neurological Institute in Montreal, has even suggested in a very recent communication that there is evidence for a common diencephalic basis for low myoclonic threshold psychomotor epilepsy and schizophrenia so that the confusion of diagnoses may have pathogenic justification.

Going now to petit mal (Figure 6), as

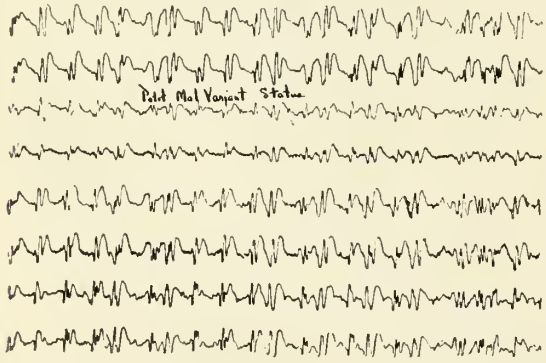


the term is commonly used, we arrive at a point where it can be dogmatically stated that the clinician using only the art of diagnosis can arrive at a correct diagnosis and appropriate therapy only through good fortune or trial and error. Fortune favors him, also, if he can give the family a valid prognosis. The reason for this is not complex. There are at least four electroen-

cephalographically distinct types of minor seizures which can all look alike clinically but are etiologically and pathologically quite different. There is pyknoepilepsy, characterized on EEG by the 3/second wave and spike, which is what most electroencephalographers are referring to when they use the term petit mal, and which is diencephalic in origin. (Figure 7) There



is the minor motor seizure, as Wilkins[5] terms it, characterized on EEG by *larval* grand mal activity, that is, bursts of grand mal paroxysms in the brain of insufficient duration or force to produce peripheral tonic-clonic convulsive behavior but adequate to give the child or adult a momentary clouding of consciousness, or dullness of comprehension as an epileptic equivalent, once so-called by Putnam and Merritt,[6] or an "absence", as the French say. (Figure



8) There is the petit mal variant minor seizure characterized on EEG by 2/second spike and distorted wave usually cortically focal and apparently not of diencephalic origin, and invariably associated in the same patient sooner or later with major convulsive seizures. Lastly, there are those mild psychomotor seizures characterized by fleeting disorder of perception and awareness which are often clinically confused with petit mal.

All these little seizures described are physiologically different and their optimal treatment is, therefore, different. As time does not permit the enumeration of all these differences, let us use true petit mal (or pyknoepilepsy) and the petit mal variant as examples to contrast. Their little seizures are clinically indistinguishable but their physiologic characteristics are almost antipodal—true petit mal is usually easily made to appear on EEG in sleep and by adequate hyperventilation. Petit mal variant is better seen in a waking record and is either unaffected by hyperventilation or suppressed by it. True petit mal can be made to appear in the EEG by inducing hypoglycemia; petit mal variant cannot. True petit mal can often be made to appear in the EEG by having the patient open and close the eyes; not so petit mal variant. True petit mal is usually generalized in the EEG, whereas the petit mal variant is usually focal. Petit mal commonly exists alone, the petit mal variant usually with, or invariably sooner or later in association with grand mal. In true petit mal the intelligence is only indirectly and temporarily affected. In the petit mal variant definite mental deficiency is the rule. Tridione is the drug of choice, at present, for true petit mal; whereas it often makes the petit mal variant worse. The hydantoins are the drugs of choice for the petit mal variant; whereas they often make true petit mal worse. Lastly, and very importantly, when the clinician must give the members of a family a prognostic answer to their inevitable question, he who knows that his patient has a classical 3/second wave and spike petit mal can confidently reply that the patient usually outgrows it in his early twenties or before, thus, subsequently adding to a reputation for medical wisdom as time confirms the happy prognosis. When the physician knows his patient to have the petit mal variant pattern, he knows that the

prognosis for complete recovery is poor into, if not through, the mature years and he can so inform the family, regretfully, but with assurance of accuracy.

Such a description of two antithetical convulsive entities which are so easily confused diagnostically with one another without the aid of electroencephalography, exemplifies the importance of EEG to the complete diagnosis of cerebral dysfunction. It may give a final and definite answer or be of no aid whatsoever, and in that way it is closely analogous to the electrocardiogram, but, like the ECG, it should always be employed as an adjunctive diagnostic aid when there is suspected or apparent abnormality of the organ the function of which it reflects in bioelectric terms. As stated in the opening words of this paper, the EEG is effectively to the brain what the ECG is to the heart.

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SCHEME TO HOSPITALIZE CERTAIN BENEFICIARIES OF THE FEDERAL SECURITY ADMINISTRATION

At various times in the recent past it has been stated that if the Socialists in the administration failed to enact the compulsory sickness insurance program and the state medicine it implies that they would proceed to atempt to secure the adoption of their entire plan by piecemeal legislation. What appears to be such a plan is the recent proposal of Oscar Ewing, the Federal Security Administrator, to provide hospitalization up to sixty days a year for persons, 65 and older, and their dependents who are entitled to Social Security cash benefits, regardless of whether they are actually receiving such benefits or not. Such hospitalization is to be paid for out of Social Security funds now in hand, and expected to be in hand, from payroll deductions already in operation.

The deduction at the present time is 1½ per cent each from the employer and employee. This is scheduled to increase, so that by 1970 the combined percentage will be 6½ per cent. Several years ago, $9,000,000,000 was paid into the Federal Treasury as a sort of loan from the Federal Security Agency, and the daily press has recently reported that another $7,000,000,000 has accumulated at the present time. Funds in these astronomical figures have piled up just since 1933. Such are the powers of taxation!

The operation of the scheme is briefly as follows:

The persons covered would be all persons 65 and over, and their dependents who are entitled to Social Security cash benefits regardless of whether they are actually receiving benefits, also widows under 65 and dependent children, and any other survivors who are eligible for Social Security benefits under the existing law. The Federal Security Administration would regard this hospitalization as the insured right of eligibles. Because of the lack of hospital space at certain times or in certain areas not all applicants could be promised care at a given time. The program would not cover tuberculosis, or mental patients, or most chronic patients. Rest homes and domiciliary homes could not participate.

At the national level, the Federal Security Administrator would set the policy; the Federal Hospital Council would advise him but would have no veto power. The Federal Security Administration would deal with State governments, and State licensed hospitals would be eligible. If the State did not participate, the Administration would deal directly with the hospital.

Sixty days' hospital service would be provided in any one year. Hospitals are to be paid for services, drugs, and appliances which the hospital customarily furnishes to its bed patients. Specifically excluded

are medical care, except that generally furnished as an essental part of hospital care for bed patients. The payments to the hospital would be determined on a mutually agreed basis, which would reimburse the hospital for its reasonable costs incurred for all bed patients occupying semiprivate accommodations in such hospitals. It is anticipated that the program could not be put into operation until 1953, just after the presidential election, and by that time would cover approximately 7,000,000 people. Total cost is estimated as being $200,000,000, more or less, the first year. This is ingeniously arrived at as follows: It is stated that hospitalization in general non-Federal hospitals for the population of the United States, all ages, averages approximately 1 day per person per year. The proposal anticipates a possible 2.5 days of hospitalization per year for the eligibles under this plan. The average cost per day in the type of hospital care anticpated is assumed to be $15. The anticipated $200,000,000 cost the first year could be absorbed out of the existing tax on wages. This amount is expected to be less than 0.2 of 1 per cent of the total taxable payroll for the year 1953, which is estimated as being $141,000,000,000.

In presenting a plea for the adoption of this program the author states that this group of 7,000,000 persons and their dependents, 65 years and older, are people who as a whole need much more than the average amount of hospitalization, they have less than average income with which to meet the costs of hospitalization, and much less than the average opportunity to obtain private insurance.

This program of tax supported sickness insurance enacted into law would expand like an accordion. In a matter of months the age limits would be lowered and the benefits increased, the tax increased, and the whole program of socialized medicine would be on the highway to enactment. The sequence of events by which this would be accomplished is easy to foresee. Politicians would vie with each other in promising and voting for more and more "free" benefits under the so-called insurance system. The public does not realize that there is nothing free; that the Government has no money. The only money it can give away is that which it takes from the taxpayers; and that the "free" part represents somebody's toil. If ever there was an attempt to sell a Trojan horse scheme to the American medical public, this is it.

—o—

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An informed profession should be a wise one.

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P. H. Jones, M.D., Chairman, 3 years; Roy B. Harrison, Vice-chairman, 3 years; Edgar Hull, M.D., 2 years; all of New Orleans.

Medieal Testimony:

Edmund Connely, M.D., Chairman, 1 year; T. A. Watters, M.D., 2 years, A. N. Sam Houston, M.D., 3 years; all of New Orleans; I. W. Gajan, M.D., New Iberia, 3 years; J. W. Cummins, M.D., Monroe, 2 years.

Public Policy and Legislation:

Cuthbert J. Brown, M.D., Chairman, New Orleans; J. E. Clayton, M.D., Norco; Julius M. Fernandez, M.D., Franklin; Arthur A. Herold, M.D., Shreveport; DeWitt T. Milam, M.D., Monroe; Daniel J. Fourrier, M.D., Baton Rouge; Ernest C. Faulk, M.D., Rayne; M. B. Pearce, M.D., Alexandria.

Scientifie Work:

C. Grenes Cole, M.D., Chairman; W. H. Gillentine, M.D.; both of New Orleans; J. E. Knighton, M.D. Shreveport.

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Child Health:

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Domicile:

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History of LSMS:

Rudolph Matas, M.D., Chairman; D. N. Silverman, M.D.; Isidore Cohn, M.D.; all of New Orleans.

Hospitals:

N. J. Tessitore, M.D., Chairman; Wm. H. Roeling, M.D., Vice-chairman; both of New Orleans; Stephen E. Ellender, M.D., Houma; Frank H. Davis, M.D., Lafayette; Julius M. Fernandez, M.D., Franklin; M. C. Wiginton, M.D., Hammond; T. Jeff McHugh, M.D., Baton Rouge.

Industrial Health:

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Lectures for Colored Physieians:

Daniel J. Murphy, M.D., Chairman; J. D. Rives, M.D., Conrad G. Collins, M.D.; all of New Orleans; P. D. Abramson, M.D.; Chas. R. Gowen, M.D.; both of Shreveport.

Medieal Indigency:

Jules M. Davidson, M.D., Chairman; New Orleans; H. Guy Riche, Jr., M.D., Baton Rouge; Chas. Russell Brownell, M.D., Morgan City; T. B. Sellers, M.D., New Orleans; Douglas L. Kerlin, M.D., Shreveport.

National Emergeney Medieal Service (Civil Defense):

Charles B. Odom, M.D., Chairman; Val H. Fuchs, M.D.; both of New Orleans; Rhett McMahon, M.D., Baton Rouge; Willard A. Ellender, M.D., Houma; Jared Y. Garber, M.D., Lake Charles; C. P. Herrington, M.D., Alexandria; Henson S. Coon, M.D., Monroe; William J. Norfleet, M. D., Shreveport; E. H. Byrd, M. D., Leesville; E. P. Breaux, M.D., Lafayette; F. C. Shute, M.D., Opelousas.

Nominations:

(Committees to be elected at 1952 Annual Meeting).

Pension Plan for LSMS Offiee Employees, in re Investigation of:

L. A. Monte, M.D., Chairman; Eugene B. Vickery, M.D.; Sam Hobson, M.D.; all of New Orleans.

Procurement and Assignment (La. Advisory Committee to Selective Service):

J. Kelly Stone, M.D., Chairman; H. Ashton Thomas, M.D.; both of New Orleans; Guy R. Jones, M.D., Lockport; M. D. Hargrove, M.D., Shreveport; H. H. Cutler, M.D., Monroe; Rhett G. McMahon, M.D., Baton Rouge; G. E. Barham, M.D., Lake Charles; M. B. Pearce, M.D., Alexandria.

Public Health of the State of Louisiana:

A. V. Friedrichs, M.D., Chairman; Roy B. Harrison, M.D., Nicholas J. Chetta, M.D.; all of New Orleans; C. J. Schexnaildre, Jr., M.D., Franklin; W. J. Sandidge, M.D., Shreveport; W. L. Bendel, M.D., Monroe; Carlos Alessi, M.D., Hammond; R. G. Holcombe, Jr., M.D., Lake Charles; Roy W. Wright, M.D., Pineville.

Rural and Urban Health:

J. P. Sanders, M.D., Chairman, Shreveport; Guy R. Jones, M.D., Vice-chairman, Lockport; Geo. H. Hauser, M.D.; J. J. Irwin, M.D.; both of New Orleans; James E. McConnell, M.D., Monroe; M. C. Wiginton, M.D., Hammond; Arthur Vidrine, M.D., Ville Platte; J. A. White, Jr., M.D., Alexandria.

Second District Med. Soc. & OPMS, in re Investigation of Membership In:

E. L. Leckert, M.D., Chairman; A. V. Friedrichs, M.D.; Roy B. Harrison, M.D., all of New Orleans.

Woman's Auxiliary (Advisory Committee):

Roy B. Harrison, M.D., Chairman; H. Theodore Simon, M.D., Vice-chairman; Edwin Guidry, M.D.; all of New Orleans.

PLANNING BOARD IN RE SURVEY OF FACILITIES AND PERSONNEL FOR MEDICAL CARE

Val H. Fuchs, M.D., Chairman, New Orleans; J. Y. Garber, M.D., Vice-chairman, Lake Charles; Alton Ochsner, M.D., New Orleans; Felix A. Planche, M.D., New Orleans; J. W. Faulk, M.D., Crowley; Paul D. Abramson, M.D., Shreveport; P. A. Donaldson, M.D., Reserve.

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M. M. Hattaway, M.D., Chairman; C. F. Bellone, M.D., Vice-chairman; Theodore F. Kirn, M.D.; all of New Orleans; Leo J. Kerne, Thibodaux; T. B. Tooke, Jr., M.D., Shreveport; T. A. Dekle, M.D., Jonesboro; Daniel J. Fourrier, M.D., Baton Rouge; Max M. Miller, M.D., Lake Charles; O. B. Owens, M.D., Alexandria; P. H. Jones, M.D., New Orleans (Editor, NOMSJ) ex-officio member; C. Grenes Cole, M.D., New Orleans (Sec. Treas. State Society) ex-officio member; Edwin L. Zander, M.D., New Orleans (Pres. State Society) ex-officio member.

EXECUTIVE COMMITTEE

Edwin L. Zander, M.D., New Orleans—President..

W. E. Barker, Jr., M.D., Plaquemine—President-elect.

Charles B. Odom, M.D., 1707 Pere Marquette Bldg., New Orleans—First Vice-President.

H. Whitney Boggs, M.D., 803 Jordan St., Shreveport—Second Vice-President.

W. Robyn Hardy, M.D., 601 Maison Blanche Bldg., New Orleans—Third Vice-President.

George W. Wright, M.D., Monroe—Past President.

A. V. Friedrichs, M.D., 840 Maison Blanche Bldg., New Orleans—Chairman, House of Delegates.

T. Benton Ayo, M.D., Raceland—Vice-Chairman, House of Delegates.

C. Grenes Cole, M.D., 1430 Tulane Avenue, New Orleans—Secretary-Treasurer.

H. Ashton Thomas, M.D., 922 Richards Bldg., New Orleans—Councilor, First District.

Joseph S. Kopfler, M.D., Kenner—Councilor, Second District.

Guy R. Jones, M.D., Lockport—Councilor, Third District.

Paul D. Abramson, M.D., 1130 Louisiana Avenue, Shreveport—Councilor, Fourth District.

C. Prentice Gray, Jr., M.D., Monroe—Councilor, Fifth District.

Arthur D. Long, M.D., 1140 Perkins Road, Baton Rouge—Councilor, Sixth District.

J. W. Faulk, M.D., Crowley—Councilor, Seventh District.

H. H. Hardy, M.D., Alexandria — Councilor, Eighth District.

REPORT OF DELEGATES 1951 AMA MEETING

To the President and Members
of the Executive Committee
Louisiana State Medical Society
Gentlemen:

The following report covers the proceedings of the Annual Meeting of the House of Delegates of the A. M. A., held at Atlantic City, N. J., June 11th through the 15th, 1951.

The House was called to order promptly at 10 a. m., June 11th, by the speaker, Dr. F. F. Borzell.

It was gratifying to see that 200 out of a possible 201 delegates, were seated during the meeting. For the first time, two members of the newly formed "Student American Medical Association" were seated in the House as Delegates from their organization. It may interest you to know that 40 medical schools so far ratified the constitution out of the 47 schools attending the organization meeting. It is felt that ultimately all medical schools will become affiliated.

It was voted to make the immediate five past

presidents automatically members of the House with full powers of Delegates.

The rule in regard to Delegates was changed. In the past, once a delegate was seated, he could not be replaced. The rule now permits the Alternate to be seated when conditions will not permit the Delegate to attend the sessions, but once the Alternate has been seated, he must continue to serve throughout the rest of the session, and no further replacements will be permitted.

The Board of Trustees established rules for exemption from membership dues, and they were approved by the House. These rules are:

(1) Members who have retired from the practice of medicine, provided they are also excused from the payment of dues, in full or in part, by their component societies and constituent associations. (This will necessitate an amendment to the By-Laws, Chapter II, Section 3, and has been brought to the attention of the Committee on Constitution and By-Laws.)

(2) Members over 70 years of age, regardless of whether or not they are in practice and regardless of local dues exemption.

(3) Members for whom the payment of dues constitutes a financial hardship and who are also excused from the payment, in full or in part, of component and constituent society dues for the same season. In each case, notification of exemption for financial hardship should be made to the American Medical Association by the Secretary of the county and state medical society.

(4) Interns and residents not more than five years after graduation from medical school, except that time spent in military service may be excluded in calculating the five year limit.

(5) Members who enter military service prior to July 1 of any year are exempted from one half of the year's dues and subsequently during service from full dues.

The question of delinquent dues was referred back to the Board of Trustees for study and decision. The Committee itself disapproved waiving of the 1950 dues.

The special Committee of the Board of Trustees to study the Twelve Point Program was empowered to formulate a "statement of policy" for their future guidance.

State societies are to be advised to be careful that the dates of their meetings do not conflict with the dates of local or national elections.

A resolution was unanimously adopted on the death of Dr. Roy W. Fouts, a former Speaker of the House.

The contract of Whitaker and Baxter terminates this year, and the Board of Trustees decided not to renew it. On recommendation of the House, the Board of Trustees decided to retain this firm to work with the Coordinating Committee.

Dr. Henderson made it very clear that any funds contributed to the A. M. A. Educational Fund can be earmarked for a particular medical school by the donor. The cost of dispensing these funds is absorbed by the Board of Trustees. The Woman's Auxiliary presented the fund with a check for $10,000, and the American Academy of Radiology presented a check for $2000 at this meeting.

The Committee on Blood Banks distributed a comprehensive report in bulletin form, and they strongly advise against mass typing of blood.

On the last day the Election of Officers was held, with the following results:

1. President-Elect—Dr. Louis H. Bauer.
2. Vice-President—Dr. O. S. Hunter.
3. Secretary—Dr. George F. Lull (Re-elected).
4. Treasurer—Dr. J. J. Moore (Re-elected).
5. Speaker of the House—Dr. F. F. Borzell (Re-elected).
6. Vice-Speaker of the House—Dr. James Reuling (Re-elected).

Dr. Walter B. Martin was re-elected to the Board of Trustees for a five-year term, and Dr. David B. Allman was elected to serve out the unexpired term of Dr. Bauer:

Dr. Frank Murphy was elected to the Council of Medical Education and Hospitals to succeed Dr. W. S. Middleton, who refused further appointment.

At the Conference of Presidents and other officers of state medical associations held on Sunday, June 10, we were rewarded with four talks that could not be equalled on any one program:

1. A PHYSICIAN VIEWS MEDICINE—by Dr. W. Andrew Bunten, Cheyenne, Wyo.
2. AN EDITOR VIEWS MEDICINE—by Edwin F. Abels, Lawrence, Kansas.
3. A CLERGYMAN VIEWS MEDICINE—by Most Reverend John J. Wright, D.D., Ph.D., Roman Catholic Bishop, Worcester, Mass.
4. A LEGISLATOR VIEWS MEDICINE—by Hon. Richard M. Nixon, Whittier, Calif.

At the dinner for the Delegates on Monday night, June 11, Mr. Dan Beck, Executive- Vice-President of the International Brotherhood of Teamsters, A. F. of L., delivered an excellent address entitled, "Government Medicine — Danger Ahead." This address was carried over two nation wide hookups, and it is unfortunate that every practicing physician could not hear this talk.

On Tuesday night, June 12, Dr. John W. Cline was installed as President, and since he is an excellent speaker, there is no doubt that his inspiring talk was well received on the nation wide broadcast.

Your delegates were pleased to note that both the President of the State Society, Dr. Edwin L. Zander, and the Secretary-Treasurer, Dr. C. Grenes Cole, attended every session of the House and in addition, some of the Committee meetings.

Your delegates want you to know that we appreciate the honor of representing the membership of our great State Society, and we pledge ourselves

again to work for the interest of our membership as a whole and will always act according to your instructions to the best of our ability.

The final tabulation was not in when we left, but it was thought that the registration would reach or exceed 13,000 doctors.

JAMES Q. GRAVES, Delegate
VAL. H. FUCHS, Delegate

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

LOUISIANA PHYSICIANS SERVICE

On May 7, 1951, the House of Delegates of the Louisiana State Medical Society advised that the Louisiana Physicians Service should separate entirely from joint operation with Louisiana Hospital Service, and that it should proceed to sell surgical, medical, and hospital insurance throughout the State. This action was taken after the House of Delegates had received the report of the committee appointed by the President to advise the House of Delegates in regard to certain matters presented to it in connection with the operation of these two insurance companies. Following this, certain activities of Louisiana Hospital Service were observed which the Louisiana Physicians Service considered to be prejudicial to the interests of the Louisiana Physicians Service and in opposition to the best insurance practice.

Suit was filed in the Civil District Court in East Baton Rouge Parish by Louisiana Physicians Service, seeking an injunction against Louisiana Hospital Service, and this was granted and made permanent after a series of hearings by Judge Spaht. In addition, a plea for a hearing before the insurance commissioner was entered in the office of the Secretary of State by Louisiana Physicians Service, and on July 27, 1951, a decision was rendered by the Honorable Wade O. Martin, Jr., Secretary of State and ex-officio Insurance Commissioner, in favor of Louisiana Physicians Service. This decision suspended the certificate of authority of Louisiana Hospital Service, Inc., for a period of sixty days from the date of the order. Suspension prevents them from undertaking any new business during the period of the action of the order, but allows them to operate and service old contracts.

The rights of Louisiana Physicians Service have by this means been protected and the operation of the business made more secure. The legitimate interests of the Louisiana State Medical Society have been served expeditiously. Other facts concerning this situation will appear in the next issue of the Journal.

DR. RALPH E. KING GIVEN THE AXSON-CHOPPIN AWARD

Dr. Ralph E. King, state senator from Winnsboro, was presented the Axson-Choppin Award at the annual meeting of the Louisiana Association of Public Health Workers which was held recently in Alexandria.

This award, which honors the memory of the first and second state health officers in Louisiana, is presented annually by the association to someone outside the field of public health who has rendered valuable service to the cause of public health in the state. A large plaque was given to the winner.

VETERANS ADMINISTRATION, SHREVEPORT

The Veterans Administration Center is urgently in need of a doctor to fill a vacancy on their Adjudication Rating Board, as Medical Officer.

The entrance salary for this position is $6400.00 per annum. Upon the completion of every 18 months of service, the basic salary is increased $200.00 per year up to a maximum salary of $7400.00. The hours of duty presently observed by this installation are from 8:00 A.M. to 4:30 P.M., Monday through Friday.

In a position of this nature, the doctor on the Rating Board will adjudicate the extent of physical disabilities of claimants for the purpose of awarding compensation to persons because of injuries on the job or compensation or pension for service connected or non-service connected disabilities to veterans or surviving dependents.

Anyone interested should contact the Personnel Officer, Veterans Administration Center, 510 E. Stoner Avenue, Shreveport, Louisiana, as soon as possible.

U. S. VITAMIN CORP. BUYS ARLINGTON CHEMICAL CO. COMBINED PLUS NEW FACILITIES WILL ENLARGE SERVICE TO PROFESSIONS

U. S. Vitamin Corporation, New York, N. Y. has announced the purchase of time-honored Arlington Chemical Company of Yonkers, N. Y. The 72,000 square foot plant, together with a large new building to be constructed thereon, will be utilized to enlarge the services of both U. S. Vitamin and Arlington to the medical and pharmaceutical professions.

Steeped in tradition as a manufacturing pharmaceutical house, Arlington has pioneered in the introduction of many highly regarded products since its inception in 1887, almost three quarters of a century ago. A protein preparation first marketed in 1893 was the forerunner of today's widely used protein hydrolysates, of which Arlington's Aminoids is one of the best known.

It is stated that the present and planned new manufacturing and Laboratory facilities, together with an additional score of chemists and other scientists, will lead to the introduction of several new products in the near future.

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LOUISIANA ACADEMY OF GENERAL PRACTICE SEPTEMBER 5-7, 1951

The Louisiana Academy of Dental Practice announces the Fifth Annual Scientific Assembly, to be held at the La Tropicana in Baton Rouge. The following program has been arranged:

WEDNESDAY, SEPTEMBER 5

7:30 P. M. Annual Banquet for the State and the District Officer

THURSDAY, SEPTEMBER 6

8:00 A. M. Registration

9:00 A. M. Meeting of the House of Delegates

12:00 Noon Luncheon for the House of Delegates

1:30 P. M. Opening Exercises
Remarks by the National President
J. P. Sanders, M.D., Shreveport, Louisiana

2:00 P. M. Samuel Fitzsimons Ravenel, M.D., Greensboro, North Carolina
Dean of Southern Pediatric Seminar, Saluda, North Carolina
"Practical Points in Pediatric Practice"

2:45 P. M. R. L. Sanders, M.D., Memphis, Tennessee
Professor of Surgery, University of Tennessee
"Diagnosis and Treatment of Acute Abdomen"

3:30 P. M. Recess and Visit Techanical Exhibits

4:00 P. M. Harry Merrill Murdock, M.D., Townsend, Maryland
Medical Director of the Shepherd, Enoch Pratt Hospital, Associate Professor of Psychiatry, University of Maryland
"Diagnosis and Treatment of Office Psychiatric Problems"

4:30 P. M. Chauncey Mayer, M.D., Chicago
Associate Professor of Medicine, Northwestern University
Attending Staff at Passavant Memorial Hospital, Cook County Hospital, Chicago
Author of *Electrocardiography* of several editions
"Diagnosis of Acute Coronary Thrombosis"

7:30 P. M. Banquet
Introductions
Installation of Officers
Speaker: Mac F. Cahal, M.D., Kansas City, Missouri
Executive Secretary and General Council of American Academy of General Practice
"A Twentieth Century Renaissance in American Medicine"

FRIDAY, SEPTEMBER 7

8:00 A. M. R. L. Sanders, M.D., Memphis, Tennessee
Professor of Surgery, University of Tennessee
"Gall Bladder Disease: Differential Diagnosis and Treatment"

8:45 A. M. Robert Merrill Murdock, M.D., Townsend, Maryland
Medical Director of the Shepherd, Enoch Pratt Hospital
Associate Professor of Psychiatry, University of Maryland
"Office Psychiatry"

9:15 A. M. Recess and Visit Exhibits

10:00 A. M. Chauncey Mayer, M.D., Chicago
Associate Professor of Medicine, Northwestern University
Attending Staff at Passavant Memorial Hospital, Cook County Hospital, Chicago
Author of *Electrocardiography* of several editions
"Diagnosis and Management of Cardiac Emergencies"

10:45 A. M. Moving Picture: San Francisco Convention, Wyeth, Inc.

11:15 A. M. Samuel Fitzsimons Ravenel, M.D., Greensboro, North Carolina
Dean of Southern Pediatric Seminar, Saluda, North Carolina
"Practical Points in Pediatrics"

12:15 P. M. Luncheon
Round Table Discussions
All speakers present

2:30 P. M. Meeting of the House of Delegates
Executive Board Meeting with the

Officers of the State and the District Societies

A speaker for this post-graduate scientific program was sponsored by Wyeth, Incorporated.

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WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

OUACHITA PARISH

The Ouachita Parish Medical Auxiliary held their monthly luncheon at the Bayou DeSiard Country Club on Thursday, June 14, 1951. The guests were: Mrs. Arthur Herold, National President of the Women's Auxiliary to the American Medical Association and Mrs. Gus Street, Past President of the Mississippi State Auxiliary. Mrs. A. G. McHenry, Mrs. R. M. Simonton, Mrs. W. H. Webster and Mrs. Irving Wolff were the hostesses for the luncheon.

There were many members and their guests attending the luncheon. Among those present were: Mrs. A. L. Peters, Mrs. H. S. Coon, Mrs. N. Kalm, Mrs. W. C. Cookston, Jr., Mrs. Joseph Michaud, Mrs. Henry Guerriero, Mrs. W. Carroll Summer, Mrs. D. L. Anderson, Mrs. W. H. Webster, Mrs. Ralph Armstrong, Mrs. D. M. Moore, Mrs. Stanley Mintz, Mrs. B. J. Lacour, Mrs. J. Schonlau, Mrs. Jack Rawls, Mrs. A. Tisdale, Mrs. John Pracher, Mrs. Bernard Soto, Mrs. George Variono, Mrs. J. Walsworth, Mrs. A. G. McHenry, Mrs. Clifford Johnson, Mrs. Phanar Perot, Mrs. C. B. Flinn, Mrs. Ben Cobb, Mrs. Hayden Cutler, Mrs. A. Scott Hamilton, Mrs. Guy Williams, Mrs. E. M. Clark, Mrs. Prentice Grey, Mrs. DeWitt Milam, Mrs. Cyril Yancy, Mrs. Fred Marx, Mrs. J. B. Vaughn, Mrs. Prentice Gray, Jr., Mrs. Ralph Talbot.

The Ouachita Parish Medical Auxiliary invited the public to hear Mr. O. J. Bori, of Vicksburg a statistician speak on Americanism. Mr. Bori's inspiring lecture was entitled "This is Our Problem."

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BOOK REVIEWS

Hematology: For Students and Practitioners: By Willis M. Fowler, M. D. Rev. 2d ed. New York, Paul B. Hoeber, Inc., 1949. Illus. pp. 535. Price $8.50.

The author of this book has admirably fulfilled his expressed intention of writing a textbook of hematology to satisfy the requirements of medical students and the practitioner. He makes no attempt to approach the subject from the viewpoint of the trained hematalogist, though they too will find the material presented in a concise, well organized manner. There is no detailed discussion of controversial material except where such knowledge is essential to the interpretation. Hematology is herein presented as essentially a part of internal medicine, with emphasis on the clinical and therapeutic aspects of the various diseases, rather than as a specialty—an approach of great value to the medical student. A definite effort is made to incorporate many of the recent therapeutic advances in this second edition, making it of current value. The style is simple and lucid, and the book on the whole makes very easy reading, so that while there is startlingly new approach to the subject material, it will be a useful book for the student.

GEORGIANA VON LANGERMANN, M. D.

Record of the Past Presidents' Advisory Council of the Louisiana State Medical Society during my Presidency, 1928-50; compiled by Rudolph Matas, M. D. (Manuscript) pp. 259. illus. por.

On Monday, May 7, 1951, Dr. Rudolph Matas, president emeritus of the Past Presidents Advisory Body of the Louisiana State Medical Society, through his successor, Dr. Leon Menville, presented to the House of Delegates of the State Medical Society a record of the activities of the Past Presidents' group during the twenty-two years as president, from organization of the group in 1928, until his retirement from office at the meeting in Baton Rouge in 1950, when he was made president emeritus.

The record, a 250 page, three inch thick quarto volume with dark red imitation morocco scrapbook cover, consists of a collection of original invitations to annual dinners, original menus, newspaper clippings, summaries and minutes of proceedings of each dinner, historical account of the informal organization and formal creation of the advisory body by the House of Delegates in 1931, with portrait and dedication to Dr. Robert Douglas who presented the primary resolution which gave official status to the past presidents as an advisory body, portraits of each president of the Louisiana State Medical Society from 1928-1950, of Dr. Matas and of a few others, biographic sketches and eulogies of deceased members, reprints of several articles written by Dr. Matas during his presidency relative to the Past Presidents, to the state medical society and the medical profession of Louisiana,

and clippings from the 1950 summer edition of the Tulanian.

Dr. Leon Menville, who succeeded Dr. Matas as President of the Past-Presidents' Advisory Council, acting for Dr. Matas in presenting the volume to the Louisiana State Medical Society, suggested that the volume be placed in the Rudolph Matas Medical Library of Tulane University, where it would always be available for use. Presentation to the Matas Library was made by Dr. C. G. Cole, Secretary-Treasurer of the Louisiana State Medical Society, on May 10. This volume forms an invaluable addition to the collection to be found in this library on the Medical history of Louisiana.

Pathologic Physiology: Mechanisms of Disease. Edited by William A. Sodeman, M. D., F. A. C. P. Philadelphia, Penn., W. B. Saunders Company 1950. pp. 808. Price, $11.50.

When one undertakes to review a new book there are several question that he must answer. What need is there for a book of this sort? Are there are not other books in this category that are sufficient for the purposes thereof? Does this book meet the requirements of the need? Is the data presented and the manner of presentation intelligible for the reader for whom it is intended? To offer a proper answer in the affirmative or negative requires of the physician that he be cognizant of the fact the modern structure of medicine rests on the pillars of physiology and biochemistry. He must also know that modern medicine requires an encyclopedic knowledge that the modern physician cannot hope to possess.

Sodeman's book is the collaborative effort of 25 authors. Each one is supposedly authoritative in his own field. How then can one presume to pass judgment on the worth of the many contributions presented in this book. It might be suggested that one with a good background and excellent training in biochemistry and physiology might be chosen to state whether it contains sound modern concepts acceptable to all authorities. But this volume is not intended for such persons. What then about the validity of a review by a practising physician? Can it be said with sincerity that any physician possesses the knowledge of the many and intricate theories and facts, physiologic in nature, that abound in all departments of medicine. This is not a textbook of medicine. Symptoms and signs are treated principally from the viewpoint of nosology. What then becomes necessary for the physician is that he have faith in the trusworthiness of the assembled data. Since the reader cannot test the value of the facts he must be able to attest to the honor and integrity of the authors. This then is a prime necessity. Coupled with this must be the knowledge that the authors are truly informed and able to write with authority. Between research scholars and practising physicians there must be a liaison. This liaison can only be successful if the authors, fully appreciative of the theoretical garnishments are able to present the practical fact—the meat—so that it is obvious, palatable, and digested with reasonable effort, satisfaction and benefit.

The reviewer believes that Sodeman's *Pathologic Physiology* fulfills all of the above requirements. Here is a work by research and practising physicians whose merited reputations are already established; who are keenly aware of the great importance of scientific research and yet cognizant of the needs of the practising physician. The happy blending of theory and fact in the realm of the raison d'etre of symptoms and signs and treatment is eminently achieved. The reviewer feels that every practising physician seriously intent on an understanding of the bases of modern medicine can use this knowledge to great advantage, secure in the knowledge that the facts are factual; the authors authoritative; and the explanations explanatory. The excellent format and index of the book with its fine illustrations, paper and print are niceties to be expected in a welcome, workable addition to our armamentarium. Dr. Sodeman, who needs no introduction, is to be congratulated and commended for the fine company he keeps within the covers of this splendid book.

I. L. Robbins, M. D.

Bronchoesophagology: By Chevalier Jackson, M. D., Sc. D., LL. D., F. A. C. S. and Chevalier L. Jackson, M. D., M. Sc., F. A. C. S., Philadelphia, W. B. Saunders Co., 1950. pp. 366. illus. pl. Price, $12.50.

A narration of some past events, which are not mentioned in the book being reviewed, is appropriate as a tribute to the genius and perseverance of the senior author.

This book is based, as would be any book on bronchoesophagology published today, on the fundamental clinical observations of Dr. Chevalier Jackson, made in the years from about 1890 to 1925 when he was the principal artisan in moulding the science of bronchoesophagology.

Dr. Jackson was a man with a mission, and the turning point in his career was the restriction of his physical activities in 1911 due to pulmonary tuberculosis. This decided him to confine his work to laryngology and to bronchoscopy and esophagoscopy (later he proposed the more appropriate terms bronchology and esophagology). During his convalescence from tuberculosis the hours of enforced bed rest were courageously and stubbornly used to the utmost in writing, collecting notes, and painting illustrations for his first widely read text, *Peroral Endoscopy and Laryngeal Surgery* which appeared in 1915. If Dr. Jackson had not had the misfortune to have had tuberculosis, the

world would have had very probably the misfortune of long delay in the fruition of bronchoesophagology as a science. In his early years and for many years this frail man carried the burden of "him who is the court of last resort", and gave charitably and unstintedly of his life saving ability. No one who had not known him and his work in those days, with the world clamoring for his services, could appreciate the load he carried.

Dr. Chevalier L. Jackson has become distinguished in his own right and has able carried on the work of his illustrious father. Together, they have produced in *Bronchoesophagology* an indispensable reference work for every one interested in bronchoesophagology; familiarity with its contents will help the practitioner of this specialty solve his problems.

Well deserved commendation is due the publishers for the excellence of the entire format of the volume.

H. Kearney, M. D.

Cranioplasty: By David L. Reeves, A. B., M. D. Springfield, Ill. Charles C. Thomas, 1950. pp. 119, illus. Price $3.00.

This well illustrated monograph reviews briefly but interestingly the history and technics of cranioplasty, the advantages of the various materials which have been used to repair cranial defects, together with the reasons why most of them have been discarded, the indications for and the possible complications following cranioplasty, and the methods of preparing and applying tantalum plates. Interesting data concerning the author's personal series of 196 cases of cranioplasty are included. Details of the histories and postcranioplasty reactions of 16 of these are described. One hundred twenty-seven of the cases were followed long enough to tabulate the permanent neurologic defects. Convulsive disorders resulted in 20.47 per cent of these; all were cases in which the dura and the cerebral cortex had been penetrated at the time of the injury. The author predicted that a survey of these patients after five years had elapsed postoperatively would reveal an incidence of convusions of 35 to 50 per cent. The commonest neurologic defect was hemiplegia. For those who wish to deal more extensively with certain aspects of cranioplasty than is possible in such a monograph, an excellent bibliography is included. It is evident that this represents avaluable text for neurologists and neurosurgeons.

H. D. Kirgis, M. D.

Dictionary of Psychoanalysis; ed. by Nandor Fodor and Frank Gaynor, Philosophical Library, New York, 1950. pp. 208. Price, $3.75.

This is a little book of scattered quotations from Freud's numerous papers. It is not a dictionary because so much of it consists of incomplete and uninforming statements. For example, all that is quoted under the heading of phantasy is one isolated statement, "Our phantasy always works on existing patterns". This may be interesting but it hardly does justice to Freud's genius. Some topics are covered fairly completely but in a way that is confusing because dates of references are not given to show how his concepts changed over the many years. Also the book would have had more value if the editors had made the list of his papers complete.

The title is misleading because psychoanalysis is not confined or limited to Freud's contributions.

It is not a good reference book, but it has this value; one can use it to scan the whole territory of Freud's explorations in a short time, and it should encourage the reader to go back and enjoy the original paper.

Walker Thompson, M. D.....

A Primer for Diabetic Patients: By Russell M. Wilder, M. D. Philadelphia, W. B. Saunders, 1950. (Rev. 19th Edition3. Illus. pp. 199. Price, $2.25.

This is the ninth edition of the Primer, with revisions to conform with the therapeutic advancements made since 1946.

The Primer is small enough in size to be carried by the diabetic patient; it presents material to be thought over and understool by the patient under the guidance of his physician. Consisting of nine chapters, the book is concerned with the orientation of the diabetic patient with regard to immediate problems which may arise as well as those to be handled over long periods. It presents the physiology of diabetes, the treatment of diabetes, methods of testing urine, the methods to be used by the patient in handling his insulins, as well as the preventive aspects of the complications of diabetes. Several chapters concentrate on the practical aspects of dietary measures, including substitions and recipes.

The handbook is an excellent guide to be used by diabetics in conjunction with their physician's supervision. Its material could be understood even better if pictorial diagrammatic aids emphasized all the discussions, although the average patient with supervision can handle the material quite adequately.

Joseph E. Schenthal, M. D.

Amusing Quotations for Doctors and Patients; edited by Noah D. Fabricant, M. D. New York, Grune & Stratton, Inc., 1950. pp. 149. Price, $3.00.

This collection of clever and amusing quotations on all phases of medicine is arranged in groups

alphabetically by subject. It will prove especially useful to those called upon for public addresses or after dinner talks. The quotations are well chosen, the authors ranging from Marcus Aurelius to Irvin S. Cobb, from Samuel Johnson to Don Marquis. There are few such collections available; this volume will therefore be a welcome addition to the physician's private library as well as to the medical library collection.

MARY LOUISE MARSHALL.

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SURGERY IN DIABETES*

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BATON ROUGE, LOUISIANA

In view of the fact that approximately 4 per cent of all individuals will at some time exhibit manifestations of diabetes mellitus, a reiteration of the surgical problems involved is thought to be worth-while, especially since, as Root points out, almost every diabetic will, at sometime in his life, have a surgical procedure done upon himself.

INCIDENTAL SURGERY

Because of more complete understanding of the pathologic physiology in diabetics, together with more adequate appreciation of the metabolic processes involved, fluid and electrolyte economy, and the rectification of aberrances by proper application of dietary principles and the use of insulin, there no longer remains any contraindication to do indicated incidental surgery in a diabetic any more than in a nondiabetic. In previous years, procrastination and even total avoidance of elective surgical procedures were perhaps more justified, but with the current advances in medical therapy in diabetics, such procrastination merely defers elective procedures until such time as the patient is in an older age group, and consequently, usually a poorer surgical risk. Prior to undertaking any surgical procedure on a diabetic, it is, of course, mandatory to obtain a good preoperative evaluation of cardiac, renal, pulmonary, and diabetic status. In addition, it is advisable to forego surgery until such time as any imbalances have been stabilized and any aberrances have been rectified when possible.

SURGICAL COMPLICATIONS OF DIABETES

Conditions resulting from skin infections and conditions resulting from arterial insufficiency of the lower extremities constitute the principal surgical complications of diabetes.

With the advent of antibiotics, principally penicillin, the complications of skin infecitons can now be more safely approached with added surgical conservatism; whereas, prior to the advent of effective antibiotics and chemotherapeutic agents, early radical excision of large carbuncles was necessary in order to control the infection and the diabetes present concomitantly. The current trend has been toward early massive doses of penicillin, permitting the infection to become localized prior to incision and drainage with minimal final tissue loss. During the acute phase of such an infection, it is, of course, still necessary to observe carefully for any change in the status of the activity of the pre-existing diabetes as reflected by change in insulin requirement. Acidosis should be anticipated in diabetics who are initially seen with a rather acute skin infection or complication thereof. It is usually prudent in the treatment of these patients, who are generally diabetically unstable because of the infection present, to utilize regular insulin during the period of

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correction of any acidosis as an emergency procedure and through the time when necessary surgery is performed, continuing until the infection has become stabilized.

Probably the most important therapy of arterial insufficiency of the lower extremities is of a prophylactic nature. As soon as the diagnosis of diabetes mellitus is made in any patient, that patient should be thoroughly instructed regarding the potential danger to his feet, and even to his life, that can result from neglect. Throughout his diabetic life, the patient should be constantly vigilant. He should look upon any foot infection with downright alarm. Epidermophytosis should be treated promptly and vigorously; minor infections about the nails should be given prompt attention. Careful cutting of the nails, especially of the great toe, should be done in such a fashion as to prevent ingrown toenails. Shoes should always be carefully fitted so as to avoid cramping of the toes as well as the production of blisters or other skin changes due to local pressure. The use of external heat in the form of hot water bottles, and electric pads, is extremely dangerous. This is especially true in the diabetic who has nerve involvement with impaired sensory perception. Vasoconstricting influences, such as exposure to excessive cold, smoking, and extremes of fatigue, should be avoided at all times. Adequate protection of the feet from excess cold can usually be accomplished by the use of woolen socks. At the first manifestation of ischemia the diabetic should sleep with woolen socks. The diabetic should frequently and carefully clean his feet. The use of a drying bland foot powder will help prevent the accumulation of moisture to some degree. At the onset of any skin discoloration of the toes, the diabetic should immediately notify his physician who in turn should advise that walking should not be allowed until such time as whatever vascular complications present have been safely dealt with.

In the event that gangrenous changes are present, the diabetic of today has a much better chance of early rehabilitation with a useful lower extremity than had the diabetic of as recently as ten years ago. This is attributable, in a large measure, to advances made in the study of the pathologic physiology of diabetics, nutrition, antibiotic and chemotherapeutic agents, and advances in studies of the physiology of peripheral circulation.

In cases in which there is good demarcation and no infection present, with gangrene involving one or more toes, it is not infrequently possible to produce a satisfactory transmetatarsal amputation as described by McKittrick. Such an amputation when successful results in a useful foot. Transmetatarsal amputation should not be attempted unless the ischemic process is stable and an adequate circulation is felt to be present in the foot. Various criteria have been proposed for the evaluation of foot circulation. Smithwick proposes that such amputations be reserved for individuals in whom flushing is noted in the whole foot, twenty seconds or less after the foot, which has been previously elevated for five minutes, is placed in a dependent position.

In patients with progressive gangrene or active infection, preliminary amputation, in order to control infection, can result in stabilization of the infectious-ischemic process at a level which will permit final amputation and subsequently at the transmetatarsal level. In general, the transmetatarsal amputation has been most successful in the hands of McKittrick after a period of stabilization of at least three weeks. When extensive gangrene, with or without infection, is present in a foot, successful amputation below the midleg level is not possible. A midleg amputation with a useful stump is much more desirable than is a thigh amputation since it permits the use of a prosthesis more successfully and does not result in a wheel chair existence which is the best that can be offered to many patients requiring thigh amputations.

When the gangrenous process and peripheral circulation do not permit the use of midleg amputation, then supracondylar or midthigh amputations are the only choice.

GENERAL PRINCIPLES IN AMPUTATION IN DIABETICS

Emergency amputation in diabetics is done only for the control of infection. Very infrequently, is it necessary to perform an emergency operation of any type on a diabetic until acidosis has been controlled. A period of four to six hours can make a real difference in the acidotic state with proper therapy. Definitive transmetatarsal amputation should usually wait until the patient has been stabilized for at least three weeks. During this interval much can be done to improve the general condition of such a patient. Antibiotics, particularly penicillin, play a great role in this more conservative approach to surgical therapy in the ischemic diabetic extremity. Lumbar sympathectomy is thought by many to improve collateral circulation sufficiently prior to definitive amputation to warrant its routine use. Vasodilating drugs are not receiving the enthusiastic reception accorded them a few years ago. In general one must remember that in diabetic amputation the margin of safety is not great. The success or failure of an amputation stump can depend upon attention or failure in one of many small details. A few technical points are worthy of emphasis: Avoidance of a tourniquet about the thigh in definitive amputations lessens the hazard of a local vascular damage to the femoral artery and of the effect of anoxia to the tissues of the stump distal to the tourniquet. Avoidance of unnecessary trauma to the tissues of the end of the stump is of extreme importance. The use of the gloved fingers rather than tissue forceps on skin flaps can make the difference between failure and success of wound healing. Accurate ligation of bleeding vessels, being careful not to include masses of muscles or fatty tissue, is a worth-while precaution. Tissues should be accurately approximated, leaving no dead space. In transmetatarsal amputations no dorsal skin flap should be dissected up. In thigh amputation the use of skin traction should be practiced routinely.

ANESTHESIA

In general, the avoidance of anoxia is the prime requisite in an anesthetic administered to a diabetic. Many anesthetic agents have been employed successfully. Where possible, local anesthesia is advised. Local anesthesia is, of course, contraindicated in instances where local tissue changes are present or where wound healing presents a major problem, such as in amputations. Of considerably more importance than the anesthetic agent employed is the proper administration thereof. Whereas in the hands of a trained anesthetist familiar with its use, cyclopropane is the drug of choice, in many instances it is undoubtedly true that the "occasional" anesthetist would offer more safety with an anesthetic agent with which he is more familiar. Spinal anesthesia in the form of either low spinal or one sided spinal has a definite place in diabetic amputations. Enthusiasm for refrigeration anesthesia has waned considerably.

SUMMARY

Advances made in the study of diabetes, fluid and electrolyte economy, nutrition, antibiotics and peripheral circulation have made it possible to offer diabetics requiring surgery for incidental nonrelated conditions a margin of safety comparable to that for nondiabetics.

These same advances have made the surgical approach to the diabetic with failing lower extremity circulation considerably more conservative.

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POLYPS OF THE COLON*

C. E. BOYD, M. D.

SHREVEPORT

Definite proof that all carcinomas of the colon begin as a polyp is lacking. However, the evidence of such is strong, and this is the general opinion of most authorities on this subject. There is no doubt but that polyps are potentially malignant. This makes the subject one of extreme importance to all physicians, general practitioners, internists and surgeons. It is chiefly, or perhaps, only through early detection and adequate removal of polyps that the incidence and the mortality of cancer of the colon can be reduced. †In 1948, there were reported 22,860 deaths in the United States from cancer of the colon; or a rate of 15.6 per 100,000 population.

CLASSIFICATION

Intestinal polyps have been described in the literature under many names, such as "disseminated polyps," "multiple polyposis," "multiple adenomas," "diffuse adenomatosis," and "polyposis." It is hoped that a standard nomenclature can be obtained which will eliminate much confusion.

Polyps may first be classified as acquired or inherited. In the acquired there are one or more growths and no hereditary or familial tendency. This group is by far the larger. The inherited type, "familial polyposis," as described by Dukes, has multiple polyps and is inherited from either parent as a Mendelian dominant. The number of polyps in the latter group are up to 1000 or more. Boehme in 1950 stated that there were not quite 400 such cases reported in the literature. It is therefore apparent that one's chief interest is with the acquired group. The acquired group may be classified as single or multiple. Polyps may be further classified on an anatomical basis as sessile or pedunculated. In both the inherited and acquired form, the growth is an adenoma or a papilloma, and both are of epithelial origin. The adenomas are by far in the majority.

INCIDENCE

The frequency of polyps of the colon, the differences in the sexes, the location of the growth, and the age of the patient have been variously estimated. In over 21,000 autopsies performed by various investigators covering all ages and both sexes, the incidence of polyps of the colon was about 6 per cent. If hyperplasia in old people is classified as a true polyp, the incidence would be much higher. In about 60 per cent of the cases, the growth is single. The clinical incidence of polyps in patients over forty years of age is approximately 12 per cent. All authorities agree that the majority are found in the rectum, sigmoid, and the descending colon. Ewing states: "The chief seat of intestinal polyposis is in the rectum, ..." The disease is more common in men than in women, the proportion being about 2½ to 1. Also, approximately 25 per cent of all cases of cancer of the colon will show one or more benign polyp.

The incidence and distribution of polyps in children vary somewhat from polyps in adults and therefore will be discussed very briefly. The disease is extremely rare in children under one year of age. Its frequency increases with age, but is still relatively infrequent in children under ten years of age. In those children who do have the disease, the majority of growths are found in the rectum. The growth is single in about 70 per cent of the cases and is almost invariably pedunculated. The pedicle may grow as long as 4 or 5 inches due to the constant traction exerted by the bowel. The growth in the vast majority of cases is a simple adenoma. Bleeding from the bowel is the principal symptom; and in children who have this complaint, one or more polyp will be found in approximately every fourth child examined. Therefore, it is obvious that even though polyps are infrequent in children in the general

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†Louisiana State Department of Health, January 31, 1951.

population, they are quite common in children who pass blood in the stools.

PATHOGENESIS

The pathogenesis of polyps was carefully studied by Atwater and Bargen in 241 cases autopsied at the Mayo Clinic in 1945, and they concluded that the epithelium of the colon passes through a gradual series of changes in the development of a polyp and in the further development of malignancy. Their complete report is of great interest, and this subject deserves further study by other investigators. All agree that the greater the branching of the glands, the higher the degree of malignancy; and that the greatest epithelial deviation toward carcinoma occurs most often in the peripheral portion of the polyp. The mucosal stroma in benign polyps is not markedly changed until large polyps have formed. Then the polyps are frequently the seat of inflammatory changes and hemorrhages. Necrosis may be seen microscopically.

DIAGNOSIS

The cardinal symptom of polyps of the colon is fresh blood in the stool. The amount is usually small and usually on the outside of the formed stool or appears at the end of the stool. In Meckel's diverticulum the blood is mixed with the stool. Diarrhea is not a common symptom except in the hereditary or familial type of polyposis. In ulcerative colitis, diarrhea is the predominant symptom, and the stool is mixed with blood and mucus. Secondary anemia is noted in some cases. Pain is an unusual symptom. A mass protruding from the rectum is at times the first symptom, and rarely, obstruction brings the patient for medical aid. Prolapse of the rectum in young children may be the initial symptom, as illustrated in one case which will be given.

In the differential diagnosis, one must consider the following: adenocarcinoma; sarcoma; fibroma; myxoma; lipoma; angioma; myoma; endometrioma; neurofibroma; teratoma; enterogenous cysts; psuedopolyposis, which occurs at times due to amebic dysentery, tuberculosis, chronic ulcerative colitis, or foreign body reaction; and simple hyperplasia as is frequently seen in old people and as described by Scarbrough and Klein, may also be added. When found it is usually multiple and consists of pale flattened elevations of the mucosa. Microscopically the cells have normal staining properties. Its significance is questionable, but is not infrequently seen close to frank carcinoma. Therefore, some would classify these areas of hyperplasia as true polyps. Except for this condition, and adenocarcinoma, the other conditions above are infrequent.

The diagnosis can be made in the great majority of cases by rectal, sigmoidoscopic, and x-ray examination. It should be emphasized that all patients seen with symptoms of rectal bleeding, diarrhea, a mass protruding from the rectum, prolapse of the rectum, unexplained secondary anemia, and an unexplained abdominal pain, should be thoroughly studied by sigmoidoscopic examination and by double contrast x-ray examination of the colon. To the above list of indications for the study of the colon might well be added all cases of hemorrhoids, anal fissures, and anal fistulae. It is evident that bleeding may well be ascribed to one of these causes, and the actual cause may be a polyp or a carcinoma higher up. It should be emphasized that the finding of a rectal or sigmoidal polyp on sigmoidscopic examination should be a further indication for x-ray studies. By using the double contrast technique, x-ray diagnosis in the best hands is about 80 per cent for moderately sized and large polyps, located above the rectum. Small polyps, 1 and 2 millimeters in diameter, can not be diagnosed by x-ray. The study should therefore be repeated often in suspicious cases where a diagnosis can not otherwise be made.

TREATMENT

The treatment is based upon the knowledge that polyps are potentially malignant. The treatment depends upon the size and location, upon the microscopic findings of a biopsy, upon the number of polyps present, upon the anatomical type (whether ses-

sile or pedunculated), and upon the general condition of the patient.

The size of the polyp does not indicate that it is benign or malignant. Neither can one tell a malignant polyp by its gross appearance.

If the biopsy of a sessile polyp shows frank malignancy, the treatment of choice should be a colectomy; either a right, left, or total, depending upon other factors. Many sessile polyps can be cured by fulguration if located on the posterior wall and below the peritoneal reflexion. Fulguration of sessile polyps on the anterior wall is extremely hazardous to vital structures, and fulguration above the peritoneal reflexion can easily lead to perforation. If used under these conditions, the dangers should be kept in mind and extreme care should be exercised. Fulguration of a small sessile polyp must not be too deep. Clinical judgment and the use of a machine with which one is familiar is essential. Large sessile polyps and those located high, say 20 to 25 cms., are best treated by a segmental resection especially if a biopsy shows carcinoma in situ.

Pedunculated polyps may be fulgurized at any location if care is taken to leave a little stalk. A small amount of stalk will slough from the distal fulguration. Snaring is often equally as successful except that bleeding may at times prove troublesome. A combination of snaring and simultaneous fulguration is an excellent method. A pedunculated polyp that shows cancer in situ or adenoma malignum will be cured by simple removal at the stalk. If, however, cancer is found in the stalk, one is dealing with a major surgical problem. A colotomy with removal of the polyp and fulguration of the pedicle is sufficient for a high pedunculated polyp if it is benign or shows only carcinoma in situ with no involvement of the stalk.

Swinton has treated 22 cases successfully which showed early malignant change, by local removal and has followed his cases up to seven years. He has reported no recurrences.

If it is necessary to go into the abdomen, transillumination should be available. P. A. Rosi of Chicago also recommends examination with a scope through openings made at the junction of the sigmoid and descending colon, in the middle of the transverse colon, and perhaps in the middle of the ascending colon.

For a polyp showing frank malignancy, a hemicolectomy is the procedure of choice. For multiple polyposis or familial polyposis, there are two schools of thought. Most surgeons interested in this work advise a total colectomy, leaving the rectum, and treating the polyps in the rectum by fulguration, unless there is frank carcinoma present in the rectum. In this case removal of the rectum is mandatory. A few think it is better to do a total colectomy including removal of the rectum. The reason given is that the rectum is the most likely place to develop a carcinoma, that if left it must be observed and treated nearly constantly and continuously, and that the end result is no better than a good functioning ileostomy, as most patients who have their rectums left, have five or more loose watery stools per day. However, as stated, the majority, by far, favor leaving the rectum if possible.

It should always be remembered that once a polyp is found the patient should be examined with the sigmoidscope and by x-ray periodically the rest of his life. The interval should be about six months.

CASE REPORTS

A few cases shall be presented briefly to illustrate typical features of the disease.

A child two and one half years of age who had recurrent prolapse of the rectum was found to have one large pedunculated polyp in the rectum and another at the recto-sigmoid. After removal, the prolapse did not recur.

Another child, four years of age, came for study because of rather profuse rectal bleeding. A barium enema study revealed a large polyp in the sigmoid colon. At surgery, after difficulty, because transillumination was not available, the polyp was found in the left side of the transverse colon and the base of the stalk was at the splenic flexure. This illustrates the fact that polyps in children at times have extremely long pedicles, and also points

out that transillumination should be available in the operating room.

In another child, two and one half years of age, who came for examination because of rectal bleeding, a pedunculated polyp was removed from the rectum and another from the lower sigmoid. Several months later, bleeding recurred. Examination revealed a rather large pedunculated polyp in the recto-sigmoid which was obviously missed at the first examination. After the polyp was removed there has been no further bleeding. This case emphasizes that frequent reexamination is often necessary.

In 1943, a white male, twenty-nine years of age was found to have a small pedunculated polyp 10 inches from the anus. It was removed with a biopsy forcep, and the pathological diagnosis was adenoma malignum, grade I. Even though the patient has persistently refused further study, he is in apparent good health and is likely one who has been cured by a very simple removal of the growth. Other similar cases since then, which were benign and those that showed carcinoma in situ with no involvement of the stalk, have been treated by snaring and fulguration. Follow-up examinations have been done at regular intervals and no recurrence has been found, as yet. The cases showing carcinoma in situ have been carefully followed on a mean average of less than two years.

A white female, fifty years of age, was seen for rectal bleeding which obviously came from a small posterior anal fissure. Procto-sigmoidoscopic examination revealed a polyp in the rectum. This indicates why each case which presents himself with the complaint of rectal bleeding should have a thorough examination of the rectum and colon, even though an obvious cause of the bleeding is easily found.

Another white female, forty-two years of age was operated upon for a complete strangulated large bowel obstruction. At surgery a large carcinoma of the sigmoid was found with distant metastasis, intussusception of the sigmoid, multiple polyps of the colon, and a papillary cystoadenocarcinoma of the left ovary. This patient gave a history of intermittent diarrhea of two years' duration, with mucus and blood in the stool, for which she sought no medical aid. This case points out what we all know, namely that many carcinomas of the colon reach the surgeon too late. It further emphasizes that all cases of unexplained or prolonged diarrheas should have both sigmoidoscopic and x-ray examinations of the colon.

SUMMARY

1. Twenty-two thousand eight hundred and sixty persons were victims of cancer of the colon in 1948. True polyps are at least potentially malignant and it is reasonable to assume that 50 per cent or more of these deaths could have been prevented had each of the victims been sigmoidoscoped and studied by x-ray examination by the first physician he consulted.

2. It is hoped that a standard nomenclature can be obtained.

3. The conditions which may be confused with polyps have been listed.

4. In 21,793 autopsies covering both sexes and all ages, approximately 1200 cases had one or more polyp of the colon, an incidence of about 6 per cent (If hyperplasia in old people is classified as a true polyp, the percentage would be greatly higher).

5. In approximately 60 per cent of the cases, the growth is single.

6. In patients over forty years of age, the clinical incidence is probably 12 per cent or higher.

7. The diesase is more common in men than in women.

8. The majority of polyps of the colon are found within reach of the sigmoidoscope.

9. Polyps of the colon are rare in children, are almost invariably pedunculated, are usually single, are almost always benign, and the majority are found in the rectum. In children who pass fresh blood in the stools, polyps are frequently found.

10. Atwater and Bargen made a splendid contribution in studying the pathogenesis of polyps of the colon. Further study seems indicated.

11. The cardinal symptom of polyps of the colon is fresh blood in the stool. A careful survey of each patient with this presenting symptom is in order. The vast majority can be diagnosed by rectal, sigmoidoscopic, and x-ray examination.

12. The proper treatment varies from local removal to very radical bowel surgery depending upon the size, location, number of polyps present, the pathological findings, the anatomical type of polyp, and the general condition of the patient.

13. No examination of a patient, espe-

cially one forty years of age or older, should be termed complete without a sigmoidoscopic examination.

14. Once a polyp is found, the patient should be examined periodically the rest of his life.

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BRONCHOSCOPY IN PULMONARY DISEASES*

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The use of the bronchoscope as an aid in the diagnosis and treatment of diseases of the lung has been a development of the last twenty-five years. Before that time the bronchoscope was used chiefly for the removal of foreign bodies. The modern technique originated by Chevalier Jackson and developed by him, Gabriel Tucker, Louis Clerf, and others has made bronchoscopy indicated in practically every disease of the lung at some time during its course in some particular patients. Today bronchoscopy is recognized as a necessary and accepted diagnostic procedure.

In dealing with intrathoracic disease the internist can tap, look and listen on the outside; the roentgenologist can, in a sense, look through the patient and the bronchoscopist can look inside the lungs and can bring up specimens of tissue and uncontaminated secretions for laboratory study. This completes a diagnostic team never before equaled for coping with pulmonary disease. Adding the surgeon, completes the treatment team.[1]

Contraindications to bronchoscopy in disease do not exist if the bronchoscopy is really needed.

DIAGNOSIS

Diagnostically bronchoscopy may be done to:[2]

1. Diagnose the presence of disease or its nature by appearance, biopsy, or aspiration of secretions.
2. To define the status of known disease, as the condition of bronchi in tuberculosis or the patency of an abscess cavity.
3. To localize disease.

The first bronchoscopic examination is primarily a diagnostic study; however, treatment may also be accomplished.

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Unfortunately, there is frequently a delay in the early diagnosis of many pulmonary lesions. This is particularly true in cases of pulmonary cancer when prognosis depends so heavily on early diagnosis. In 500 patients studied by Lell[3] because of various types of pulmonary symptoms over 100 could be relieved only by surgical intervention, and 62, or 12.4 per cent, had cancer of the lung. To prevent this delay the alert cooperation of the diagnostic team mentioned above is necessary. If we are going to make any progress in the early diagnosis we must become more liberal in advocating bronchoscopic examination at early states of disease.

Approximately 75 per cent of primary bronchogenic carcinoma is central in location which means that they produce some form of change in the involved structures that are visualized on direct inspection. In those central cases in which biopsy is not possible and in the 25 per cent comprising the peripheral group, positive diagnosis may often be made by cytologic studies of the bronchial secretions. Herbut and Clerf[4] obtained 83 per cent positive results from tumor cell study alone.

With the advent of cytological study of bronchial secretions a most important advancement in the early diagnosis of carcinoma was made and should be more widely used. Bronchoscopy is without doubt the most important single procedure in the diagnosis of cancer of the lung. Approximately 80 per cent of the cases can be diagnosed by these means.[5]

Any patient in whom carcinoma is suspected should not be observed but should be considered an urgent case. The short period of two or three days may make the difference between a localized operable lesion and a metastatic disease. When cough persists think of cancer. When you think of cancer use the bronchoscope.

Other lesions in which diagnosis is dependent upon bronchoscopy are:

1. Middle lobe syndrome,[6] which is an obstructive pneumonitis with associated suppuration of nontuberculous origin. Cough is usually the first and most important symptom. Bronchoscopic findings are those of constriction of the middle lobe bronchus. Treatment is primarily surgical.

2. In adenoma and cylindroma of the bronchus, bronchoscopy is the only means of establishing the diagnosis clinically.

3. Tuberculosis. With the introduction of antibiotics in the treatment of tuberculosis bronchoscopy has become of even greater importance. Because of the danger of the prolonged use of the antibiotics one must be certain of the diagnosis before their use. Often diagnosis can be made only through bronchoscopy. Bronchoscopy is indicated for any person with tuberculosis who presents the history or physical findings suggestive of bronchial obstruction. It is advisable in all cases in which tests of the sputum are persistently positive even though the pulmonary lesions appear to be healing clinically and roentgenographically. It is indicated in all cases in which operation is to be undertaken in order to determine the presence or absence of tracheal or bronchial involvement. It is of value in the study of tracheobronchial tuberculosis when the patient is undergoing treatment.

4. In aortic aneurysm and congenital anomalies bronchoscopy may be the first clue to the cause of bronchial compression.

5. Bronchogenic cyst. All patients with bronchogenic cysts should be thoroughly studied and followed; since the cysts are felt to be harmless their removal is not indicated; however, Clagett and Moersch[7] found carcinomatous changes in 4 per cent of their cases. The importance of diagnosis of these changes is obvious.

6. In fibrocystic disease of the pancreas, according to Atkins[8] bronchoscopy is of definite value in diagnosis and treatment. The bronchoscopic findings are diagnostic and may be necessary to establish a positive diagnosis. The secretions are very tenacious and often cannot be expectorated. Bronchoscopy may afford relief and prolong life by removing them.

7. It is also indicated prior to aerosal treatment. Before treatment is begun bronchoscopy should be done to determine, if

possible, the cause of the infection and to exclude foreign bodies, tumors, strictures, or broncholiths. Optimum results are obtained when the proper antibiotic is used. This can be determined only after the predominant organism is found, which is best done by bronchoscopic aspiration. In addition to the above, bronchoscopy should be done prior to or in conjunction with bronchography. Bronchography should be used only as an adjunct in the diagnosis. Any patient with sufficient pulmonary pathology to require a bronchographic study certainly merits preliminary bronchoscopic examination.

TREATMENT

Bronchoscopy in treatment of pulmonary disease is also important.

Of course, the removal of foreign bodies or benign tumors such as fibromas, adenomas, lipomas and cylindromas are well known to all of you; however, I feel that some of the other conditions in which bronchoscopic treatment is of benefit are frequently overlooked.

1. In asthma. Removal of tenacious secretions and bronchial plugs may give dramatic, though often brief relief. Dilation of a stenosed bronchi often associated with asthma usually brings prompt improvement in the asthma and the patient may remain symptom free for a long period of time.

2. Atelectasis of the newborn can be very serious. When atelectasis is massive or persistent prompt bronchial aspiration is indicated.[9] By prompt, is meant within twenty-four to thirty-six hours. Persistent atelectasis in infants and children may be a forerunner of bronchiectasis. (Holinger).[10]

3. Treatment in fibrocystic disease of the pancreas has been mentioned before.

4. Bronchoscopic drainage is of great benefit in the treatment of bronchiectasis. First, by relieving bronchial obstruction, bronchiectasis may be prevented. Second, bronchoscopy is used in conjunction with antibiotics both systemically and by aerosal to cure minimal lesions. Third, it is indicated to empty a lobe or a lung prior to surgery in more advanced lesions. It is of inestimable benefit in the continued treatment of extensive disease.

SUMMARY

I have attempted to show in this paper that bronchoscopy has advanced in leaps and bounds in the last twenty-five years, is definitely of value in the diagnosis of many pulmonary diseases, and is essential for the early diagnosis of cancer of the lung. Bronchoscopy is also a great help in the treatment of asthma, the treatment of bronchiectasis and atelectasis of the newborn.

Although bronchoscopy has reached these heights in a few isolated medical centers its great potential is not fully recognized throughout the country. Bronchoscopy is not a serious or painful operation and should be done without hesitation when any of the above are suspected.

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DISCUSSION

Dr. Harold G. Tabb (New Orleans): I agree with Dr. Pirkey that bronchoscopy is indispensable today in the diagnosis and treatment of pulmonary disease. The bronchoscope is as necessary in the management of pulmonary disease as the cystoscope is in urinary disease or as the vaginal speculum in gynecological disease. Evidence obtained from bronchoscopic examination is vitally import-

ant to correlate with radiographic and clinical findings in arriving at an acurate diagnosis of intrathoracic disease. In many instances evidence obtained at bronchoscopy is the clinching evidence for diagnosis.

As Dr. Pirkey has brought out, bronchoscopy has assumed greater importance in recent years by the development of a cytologic examination of bronchial secretions for cancer of the chest. Desquamating carcinoma cells can now be obtained through the bronchoscope in a high percentage of cases for study by Papanicolaou's technique. With the angle telescopes which can be introduced through the bronchoscope for examination around corners into secondary branch bronchi, there is little of the endobronchial tree which cannot be visualized by the endoscopist today.

In tuberculosis, bronchoscopy certainly has one of its greatest fields of usefulness. Here, as Dr. Pirkey pointed out, bronchoscopy is important to determine progress of the disease as well as a guide to surgical intervention. It has been my experience that in early tuberculosis, actual lesions are rarely found but a change in the normal endobronchial contour, such as some bronchial obstruction from compression by the hilar glands, is a frequent finding. This may be treated through the bronchoscope in some cases, and the obstruction removed, preventing any possibility of atelectasis.

In addition to the lesions already mentioned by Dr. Pirkey as manageable by bronchoscopy, I might mention bronchoesophageal and tracheoesophageal fistulae which are excellently demonstrated by means of the bronchoscope.

Bronchoscopy has made great strides in the past few years and it is gratifying to see the medical profession putting the confidence into it which it deserves. I think it will continue to justify that confidence if the medical profession will continue to use it at the earliest sign of pulmonary disease. It is a relatively minor procedure in trained hands, but offers a major contribution to the problem of diagnosis.

SURGERY OF SUPPURATIVE PULMONARY DISEASE*

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It is becoming increasingly obvious to all physicians that patients with suppurative disease of the lungs constitute a fair percentage of their practice. This group of diseases generally comprises, bronchiectasis, lung abscess, infected pulmonary cysts, which occur fairly frequently. To these should certainly be added lipoid pneumonites and granulomas, mycotic infections of the lung, and chronic suppurative pneumonitis, or more commonly known as so-called unresolved pneumonias. Within the past decade a great deal has been written on various phases of this subject, with particular emphasis on the good results of resection of the disease process. This has in large measure been due to a number of factors. The most important of these have been proper preparation of the patient for operation, improvement in anesthetic management and operative technique, and finally, increasing experience in the postoperative management of these patients.

BRONCHIECTASIS

Bronchiectasis is a chronic disease and its resultant changes in the bronchi and lungs are in the majority of instances permanent. It vies with tuberculosis as to importance. It may affect persons of all age groups but usually the onset of the disease can be traced back to childhood, as having followed severe pneumonitis or one of the acute infectious diseases, such as whooping cough and measles.

Bronchiectasis is characterized by dilations of a portion of the bronchial tree. It is a recognized fact that in early cases of bronchial infections, dilatation of the bronchi may ensue, and be functional and reversible.[1] After repeated episodes of infection the changes become irreversible, as a result of destruction of the elastic element in the bronchi and replacement by fibrous tissue. As the process progresses, due to recurrent episodes of inflammation, pneumonitis, atelectasis, and destruction of adjacent and peripheral pulmonary tissue occur.[2, 3]

The incidence in the sexes is of little significance, as it is approximately equal in both groups. The disease is chiefly one which occurs in the younger age groups. The average age in reported series is about 30 years. However, this does not represent the age of the onset of the disease, which undoubtedly ranges fifteen to twenty years

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lower. The disease is fairly common in older age groups—but with few exceptions the group above 55 years is rarely considered for surgical eradication of the disease process.

The chief complaint of patients with bronchiectasis is usually chronic cough with expectoration. Expectoration characteristically varies with changes in position as drainage is facilitated. The amount of sputum may be as much as 10 ounces or more daily. Hemoptysis is frequent and may on occasions be massive. Foul sputum is a predominant feature of the more advanced cases. Symptoms of chronic sinusitis may be present.

The physical findings in many instances, as well as roentgenograms, show nothing of note. In the advanced cases, clubbing of the fingers may be prominent. Signs of sepsis are rarely present, except during acute pulmonary exacerbations of the disease. Pulmonary signs are usually limited to moderate changes in the breath sounds with fine or coarse rales in the area of involvement. In the plain roentgenogram, increased bronchovascular markings may be an indication of the presence of the disease process. Examination of the sputum usually elicits little or no information of value.

The diagnosis of bronchiectasis is made on the basis of the symptomatology, and the physical, ronetgenographic, bronchoscopic and bronchographic observations. The presence of severe symptoms with little or no physical findings should suggest the diagnosis of bronchiectasis. Bronchoscopy may demonstrate organic obstruction, changes in the bronchial mucosa, and the presence of purulent secretions, and in itself is not diagnostic. The essential diagnostic method is bronchography. It is extremely important that the entire bronchial tree be filled and visualized, thus the full extent of the pathologic process is outlined. This is extremely important, as it will determine the type of case which is suitable for surgical excision of the disease process.

The type of treatment employed is based on the severity of the symptoms, the degree of bronchiectasis, and the physical condition of the patient. There are essentially two groups of patients in which conservative or medical management should be the procedure of choice. The first group comprises children below 8 years of age, in which the changes in the bronchi are more than likely reversible and no permanent damage to the lung is found roentgenographically. These patients frequently respond to conservative management, which comprises proper diet, postural drainage, use of antibiotics and chemotherapeutic agents. Very often after this type of management, the amount of secretion will sharply decrease, and the caliber of the bronchi will revert to normal. In any event, even though they do not respond to conservative therapy, operative resection should be delayed until the patient has reached the age of 8, the acute exacerbations of respiratory infections being controlled by antibiotic therapy. The second group comprises those individuals who have extensive bilateral disease or who are above 55 years of age and have comparatively poor pulmonary function, although resection may be occasionally performed in those patients in this group with extremely limited disease. In the larger group of patients between those previously mentioned, only significant palliation may be obtained by conservative measures, but a cure is never accomplished. Minimal symptoms never warrant a radical attack on this problem. However, in the presence of significant symptoms, surgical therapy must be considered. The more localized the disease, the more amenable it is to resection. However, even in bilateral disease limited to the two basal lobes, the disease can be eradicated by careful segmental and lobar resections.[4] In bilateral involvement, if the major involvement is on one side, the degree of relief obtained following resection of this portion of the pulmonary bed may be sufficient to obviate the necessity of resection on the second side.

It is quite generally accepted in most centers that the definitive treatment of bronchiectasis is surgical. That bronchiectasis is a serious disease has been well demon-

strated by Perry and King,[5] who showed a twelve year period mortality of 26 per cent in nonsurgically treated cases. Similar reports were made by others.[6-8] The results from surgery have been far superior as evidenced by the reports of Churchill, Bradshaw and O'Neil,[9] Maier,[10] and Meade,[11] in which the mortality figures range from 4 per cent to less than 1 per cent.

LUNG ABSCESS

The management of lung abscess has always presented one of the most trying problems for the physician. This is particularly true of multiple lung abscesses within a lobe or lung. The conservative management of lung abscess has not given the desired results. Because of limited time, neither etiological factors in the production of lung abscess,[12] nor its incidence will be discussed, except to state that within recent years, due to improved anesthesia, better preoperative and postoperative care, and the use of antibiotics, the incidence of this condition has decreased.

In the acute lung abscess, the choice of immediate therapy lies with conservative management. What does that imply? Adequate drainage of the abscess cavity by means of postural and bronchoscopic drainage, and the use of antibiotic and chemotherapeutic agents. The type of postural drainage depends entirely upon the location of the abscess. This is a very important phase of conservative therapy. A few of the failures of conservative management of acute lung abscess can be attributed to failure on the part of the attending physician or surgeon to pay sufficient attention to this important detail. Unless adequate drainage is established, the lesion will increase in size. It is estimated that approximately 35 per cent of lung abscesses can be cured by conservative means.[3]

When shall we call a lung abscess chronic? Our views on this have changed considerably within the past several years. Up to within recent years, an abscess persisted for at least three months or more before it was termed chronic. Abscesses which are more than four or six weeks old usually will show the pathologic changes of chronicity. If during or at the termination of this period, there has been no tendency toward progressive diminution in the size of the abscess, in spite of adequate conservation therapy, resection should be advised.

The management of chronic lung abscess has always presented one of the more trying problems encountered by the surgeon. This has been especially true of multiple abscesses, since these do not as a rule respond well to conservative therapy. Multiple abscesses of the lung, usually involving one lobe or lobes, are seen fairly frequently in children who develop suppurative pneumonitis. Resection of the diseased lobe or lobes has achieved acceptance as the treatment of choice when surgical intervention becomes necessary. Abscesses of the lung when seen in individuals over 45 years of age are frequently the result of malignant breakdown. Radiologically, these abscesses have a characteristically irregular wall. A good axiom is to consider lung abscess in this age group as malignant until proven otherwise.

Another conditon which is of great concern to the clinician is the so-called suppurative pneumonitis, which gives rise to small multiple abscesses which show little tendency to resolve. Apparently trauma can be an etiologic factor. Usually, suppurative pneumonitis follows a lobar or extensive bronchopneumonia, more than likely of the Friedlander's type or microaerophylic streptococcus, which fails to resolve. These are insensitive to penicillin and frequently do not respond to streptomycin. The roentgen studies demonstrate shadows, generally lobar in distribution. No bronchiectasis can be demonstrated by lipiodol injection. The preliminary treatment is aimed at improving drainage and reducing infection. If within three or four weeks no gradual improvement is noted, pulmonary resection is indicated.

LIPOID PNEUMONITIS AND GRANULOMA

Lately, considerable emphasis has been placed on the lipoid pneumonites and granulomatous lesions within the pulmonary parenchyma, as a possible etiological factor in indeterminate pulmonary lesions. The

lesion may involve lobe or lobes. A frequent site is the middle lobe. It may occur bilaterally as was seen in one of our cases. These patients usually have a history of long standing pneumonitis, which is corroborated by roentgen evidence of a pneumonitis. One may elicit a history of administration of oily nose drops over a prolonged period, or that the patient has been accustomed to daily doses of mineral oil per oral route. Bronchoscopic examination may not reveal any pathology. However, examination of bronchial secretions may reveal oil droplets. The response to conservative management as a rule is poor, and resection of the involved lobe or segment usually follows.

Many of the so-called indeterminate lesions of the lung fall within the two previously mentioned groups. If within a period of three to four weeks, a positive diagnosis cannot be made, and the lesion shows no evidence of progressive clearing the thorax should be explored and resection of the offending segment, lobe or lung performed. Too often these so-called indeterminate lesions prove to be malignant.

MYCOTIC INFECTIONS

Actinomycosis — Primary actinomycosis of the lung is very rare. The lungs usually become involved by inhalation or aspiration of infected material from the upper air passages, and in early stages, may show a bronchitis or bronchopneumonic form. Later, formation occurs of abscesses which may coalesce, involving the pleura, and extending through the chest wall, resulting in fistulous tracts. Diagnosis depends upon recovery of fungus from sinus tracts. Treatment is by use of sulfonamides plus penicillin and wide drainage of the abscesses and sinuses. If confined to one lobe or lung, the lobe or lung may be resected. Blastomycosis of the lung may occur on rare occasions. Clinically, it cannot be differentiated from pneumonitis. The diagnosis may be made from recognition of the fungus in the sputum or from culture of the sputum. In the majority of instances, the diagnosis is made by pathological study of the excised lobe or lung.

Coccidioidomycosis — This disease has been found endemic in California and the Southwestern states. It has become an important public health problem since an increase in the disease had been noted in animals, particularly sheep, cattle, and dogs.

The disease occurs in two forms: The disseminated or granulomatous form of the disease which is often associated with pulmonary findings. Secondly, the disease may often assume a benign initial course, behaving like influenza, lasting three to four weeks. The patient may appear fully recovered, only to show later evidence of pulmonary breakdown with cavitation, which is first evidenced by hemoptysis and cough.

Roentgenographically, they may show giant thin-walled cysts in addition to granulomatous-like lesions in the pulmonary parenchyma.

If repeated episodes of hemoptysis occur, surgical extirpation of the cyst should be performed. There is a great analogy between this disease and tuberculosis, and it should be treated in a somewhat similar manner, although there is considerable controversy on this score.

PULMONARY CYSTS

True cystic disease of the lung probably is congenital and is not to be confused with "cystic bronchiectasis". Such intrapulmonary cysts have definite fibrous tissue walls and are lined with respiratory type epithelium. They may be single or multiple, in one lobe, or scattered. In general, they are asymptomatic as long as infection does not supervene. Sooner or later, however, infection develops and probably never completely clears again. The drainage is poor and fluid levels are frequent. Lipiodol almost never flows into the cysts. External drainage rarely may be indicated as a life saving measure, but may be entered upon with the full realization that resection will be necessary for cure. In most cases primary lobectomy is indicated.

CONCLUSIONS

Suppurative disease of the lung results from obstruction of the bronchus which prevents easy drainage and subsequent infections. This process may give rise to lung

abscesses or bronchiectasis. This process may result in chronic pneumonitis with multiple small abscesses. The etiologic factors here may be lipoid substances or fungus infections. These often produce so-called indeterminate lesions, which will not resolve under conservative management, necessitating resection of the lobe involved. Pulmonary cysts when infected, give rise to considerable difficulty and may necessitate resection. Our experience and those of others have amply demonstrated that these cases can be permanently benefited by pulmonary resection, with a negligible mortality and morbidity.

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THE EMERGENCE OF NEW VIRAL AND RICKETTSIAL DISEASES*

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Change is a phenomenon, characteristic of medicine in general, and the field of infectious diseases is no exception. The disappearance of the great epidemics and the general decline in occurrence of many important epidemic and endemic diseases are outstanding changes and have paralleled a general increase in living standards and improvement in environmental sanitation. Improved techniques of immunization and amazingly effective new methods of treatment have further combined to reduce the apparent importance of infectious diseases.

In spite of these changes, however, infectious diseases continue and will continue to merit our serious consideration. In the first place, the potential menace of the waning diseases not only persists but actually increases with the passage of time. As frequency of infection decreases, so does herd immunity, thus rendering the soil ever more fertile. And secondly, even as we learn to cope with known diseases, new entities continue to emerge.

It is to this latter phenomenon that I propose to direct your attention. The word "emergence" was deliberately selected as connoting "coming into view" and hence recognition. The adjective "new" has been employed in a rather liberal fashion. To gain proper perspective of the total phenomenon of change, we must go back in some cases to what is, at best, only relatively new. Furthermore, "new" has been used in various ways, to wit: new to our experience or geographical area; newly recognized (although possibly long in existence); or, finally and most literally, new to mankind. Lastly, it should be pointed out that the titular restriction of our discourse to viral and rickettsial diseases is really no restriction of importance since the phenomena which we are about to consider have been only rarely exemplified in modern times by members of other classes of microbial agents.

DISEASES NEW TO OUR EXPERIENCE

The discussion under this heading refers principally to well established disease entities, active in remote parts of the world but currently absent from our own immediate environment. Briefly, the existence of an infectious agent pathogenic for man in one part of the world constitutes a threat to the population of any other specific part of

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the world (including our own) which may not yet harbor that particular agent, but in which conditions favorable to the propagation, persistence, and dissemination of the agent exist. These latter necessary conditions, perhaps, need emphasis. Because of our relative freedom from lice and our high standards of water and sewerage sanitation such diseases as epidemic typhus and cholera do not seriously threaten us.

There are, however, a number of diseases which do threaten the United States. The recent outbreak of influenza in England and Europe and its subsequent spread to Canada and the eastern seaboard of the United States point out how vulnerable we are to the invasion of highly infectious agents which are transmitted by human contact.

An important but more easily countered threat is that posed by the arthropod-transmitted agents of disease. Because many parts of our country have been ravaged by it in the past and because of our proximity to a huge reservoir in South and Central America, the arthropod-transmitted agent that comes first to our minds is the virus of yellow fever. Actually, for lack of proper biologic environment, it seems unlikely that yellow fever virus could become entrenched here in an extra-human cycle, although stegomyia-transmitted outbreaks of limited nature might occur following the undetected entrance of an infected person or vector. A really extensive outbreak seems very unlikely, however, since changes in our environment have reduced urban mosquito breeding, screening of houses is widely practiced, and if need be, suitable control measures could be rapidly applied. A more serious, though less commonly recognized menace is to be found in the virus of Japanese B encephalitis. As Hammon in particular has pointed out,[1] this most serious of the arthropod-borne encephalitides closely resembles in its transmission and reservoir mechanisms the agents of St. Louis encephalitis and equine encephalomyelitis which are firmly established in the United States. Indeed, several mosquito species native to the West Coast are competent laboratory vectors.[2] Because of the extra-human and nondomestic character of its probable reservoir and transmission mechanisms, control would be difficult or impossible once the agent became established.

The foregoing examples, perhaps, suffice to illustrate the point. Despite the best efforts of public health authorities, "foreign" agents of disease may immigrate. As practitioners of medicine, we have the obligation to be alert for the signs of such immigration. Most importantly, we might prepare ourselves for the recognition of such signs by considering just which of the various exotic agents might find conditions essential to survival in our own local environments.

DISEASES NEWLY RECOGNIZED BUT PROBABLY NOT NEW TO MANKIND

One of the major lines of medical progress has been the progressive sorting out, one by one, of etiologic disease entities from the previously confusing welter of human illness. This process apparently has been completed, or nearly so, as far as diseases caused by bacteria and higher parasites are concerned. Such is far from the case, however, with respect to infections caused by viruses and rickettsiae.

In the early 1920's the syndrome of aseptic meningitis was described.[3] With the passage of time we have come to recognize within it a number of distinct etiologic entities, although even now we cannot put a name to every case. Major interest in this group now centers about the differential diagnosis of nonparalytic phases of poliomyelitis. Lymphocytic choriomeningitis (a relatively rare disease),[4] mumps meningoencephalitis (much more common as the only manifestation of infection than is perhaps generally realized),[5] and Coxsackie virus infections[6, 7] represent specific entities which can, with greater or lesser ease, be established on an etiologic basis.

Acute nonbacterial upper respiratory infections constitute, perhaps, the largest and most important group of as yet unseparated entities. Despite a long history of successful transmission experiments in man, and a history nearly as long of sporadically suc-

cessful attempts to propagate an agent outside of man (chimpanzees,[8] tissue culture,[9] chick embryos),[10-12] we cannot yet describe the etiology of the common cold. The very recent and highly convincing report by Ward and Proctor[13] of the propagation of a common cold virus in the chick embryo deserves mention. However, the work of the Army Commission on Respiratory Diseases[14] indicates the existence of at least two clinically distinguishable entities, and we must remain with the thought that even more agents may be capable of producing the syndrome of the common cold.

Like the common cold, clinical influenza is a syndrome and not an etiologic entity. Since 1933, influenzal viruses have been isolated both from sporadic cases and during epidemic outbreaks. Until recently, these isolated strains have belonged to one or the other of two antigenically distinct groups, even though evincing wide antigenic variation within the groups. Recently, a third viral type, antigenically distinct from the previously described A and B groups, has been isolated from cases of clinical influenza.[15, 16] Even now, however, the picture remains incomplete. A significant proportion of cases of clinical influenza still cannot be attributed to any known etiologic agent.

The rapid development of specific therapy for bacterial pneumonias in the 1930's was parallelled by an increasing recognition of the occurrence of nonbacterial and presumably viral disease of the lungs which was at first referred to as atypical pneumonia or virus pneumonia. Today this group is known to embrace at least three etiologically distinct entities and there is no certainty that still other agents may not be involved. The most commonly recognized entity, initially separated out on the basis of the cold agglutinin technique,[17] has been designated as primary atypical pneumonia. An agent, designated as the virus of primary atypical pneumonia, has been isolated by Eaton[18] and the results of seroneutralization tests with this virus have correlated fairly well with those obtained by the cold agglutinin techniques.[19] The agent is difficult to work with, however, and others have been slow to confirm the results. Hence, it is still premature to conclude that nonbacterial pneumonia associated with a rise in cold agglutinins represents a single entity. Less commonly, viral pneumonias are caused by one or another member of the ornithosis-psittacosis group of viruses or by *Coxiella burneti,* the agent of Q fever.

Other entities have emerged in relatively recent years from the syndromes of hepatitis, kerato-conjunctivitis, and acute stomatitis of childhood. Indistinguishable on a clinical basis, infectious hepatitis and homologous serum jaundice have been differentiated as distinct etiologic entities on epidemiologic grounds and on the basis of human transmission experiments.[20] The agent (or agents) of the former appears to be transmitted by the respiratory and enteric routes. The natural means of transmission of homologous serum jaundice, however, remains obscure. Similarly, kerato-conjunctivitis has been shown to comprise at least two entities. The recurrent form is a manifestation of infection with herpes virus,[21] whereas the epidemic form is apparently caused by a viral agent first isolated by Sanders in 1942.[22] Particularly important to pediatricians has been the separation, first made by Dodd, Buddingh and Johnston,[23] of the usual manifestation of primary infection with the virus of herpes simplex in childhood from other forms of acute stomatitis.

Somewhat analogous to the emergence of meningo-encephalitis as a common manifestation of mumps-virus infection has been the emergence of abortion, stillbirths, and various fetal abnormalities as manifestations of maternal infection with the agent of rubella.[24] While this important relation seems securely established, additional quantitative data are needed in order that in individual cases we can assess the risk in relation to the stage of gestation at which the infection takes place. The possible relations of maternal infections with still other viral agents to abnormal outcomes of pregnancy remain to be established. Conscientious reporting by physicians of these

other diseases as they occur in women of child bearing age is important to the solution of this problem.

Finally, great interest currently centers about the emergence of a group of agents designated as the Coxsackie viruses. Characterized essentially by their ability to infect suckling mice, producing in these animals in all cases an extensive myositis and in some cases central nervous system changes as well, this group now comprises seven or more antigenically distinguishable types.[25] Although the first member of this group was isolated only in 1948,[26] there is no reason to believe that these viruses are newly adapted to man. Against such a belief are first, the nearly complete restriction of isolations to materials of human origin, and second, the great ubiquity of the agents. The diversity of circumstances under which these agents have been isolated renders it difficult to assess their role as human pathogens. One syndrome, epidemic pleurodynia (or Bornholm's disease), apparently may be attributed without reservation to a member of this group.[27, 28] Coxsackie viruses have also been isolated from healthy persons and from persons with various minor febrile illnesses,[29] with "intestinal influenza" or "summer grippe",[30] with the Guillain-Barré syndrome,[31] and with illnesses simulating both paralytic[26] and nonparalytic[6, 7] poliomyelitis. This latter association seriously complicates the problem of making a clinical diagnosis of less typical forms of poliomyelitis. Indeed, because of the frequency with which Coxsackie and poliomyelitis infections coincide temporally and geographically and even in the same individuals, Dalldorf[25] has suggested that they may be associated in the production of disease.

DISEASES NEWLY AFFECTING MAN

The distinction between truly new diseases of man and those just newly recognized is not always easy and it must be admitted that there is room for dispute as to the propriety of assignment of some of the entities which will be considered in the following.

At least four new rickettsial diseases have emerged in modern times, two of which we can dispose of rather quickly. One, which made its appearance in Queensland in 1947 and is designated as North Queensland tick typhus, may in fact have only been newly recognized and, in any case, is geographically remote.[32] It is of interest in passing to note that the agent isolated is a member of the widely distributed antigenic group of which Rocky Mountain spotted fever is the prototype.[33] The other entity, Bullis fever, was a transient phenomenon which emerged during World War II in and about Camp Bullis, Texas, as a mild, rather nonspecific febrile illness, apparently tick-transmitted, and which has not since recurred.[34, 35] Strains of the agent which were isolated were lost before antigenic characterizations had been made.

The most important rickettsial disease to emerge, if indeed it can be properly so classified, is Q fever. The agent was isolated first in the mid-1930's from slaughter-house workers in Australia,[36] and soon thereafter from ticks collected in Montana.[37] During World War II outbreaks among troops revealed the presence of the agent in the Mediterranean area.[38] More recently, infections have been reported from Panama[39, 40] and from England.[41] While this geographical ubiquity constitutes a strong argument against Q fever as a truly new disease, the available evidence suggests that at least in the United States it is still in the process of adapting to man. Only since 1946 have naturally occurring infections been recognized in this country. While sporadic cases and outbreaks have occurred in various parts of the country (chiefly related to livestock and hide processing),[42-44] Q fever has begun to constitute a major problem on our West Coast. In the Los Angeles area the source of infection appears to be in the local dairy industry;[45] elsewhere, outbreaks and cases have been related to sheep and goats in addition to cattle.[46] While ticks are known to harbor the agent and presumably are important to the reservoir mechanism, transmission to man probably derives from infected animals. Infected tissues, milk, and

urine may contain the agent, the remarkable viability of which makes possible a variety of relatively indirect avenues of dissemination, including especially air-borne contaminated dust.[47]

The fourth new rickettsial disease, rickettsialpox, almost certainly made its debut in the borough of Queens in New York City in 1946.[48] Although the agent is antigenically a member of the Rocky Mountain spotted fever family, its vector is a mite, an ecto-parasite of the house mouse.[49, 50] Like *R. tsutsugamushi,* it characteristically produces a primary lesion resembling the eschar of scrub typhus. Fortunately, rickettsialpox is a mild disease with no reported mortality or complications.[51] So far, it has been reported chiefly in the New York City Metropolitan area but the existence of a definite focus of infection in Boston has recently been demonstrated,[52] and physicians practicing elsewhere may confidently expect to see it sooner or later.

The greatest number of newly isolated viral agents is to be found in the arthropod (and chiefly mosquito) transmitted group. The two new members of this group most important to us—the viruses of St. Louis encephalitis and Western equine encephalomyelitis—are essentially limited to North America and emerged one after the other in the early 1930's.[53, 54] Eastern equine encephalomyelitis emerged as a disease of man in the Boston outbreak of 1937,[55] but has not since been responsible for a large number of human infections. It has been found not only in the Eastern United States, but also in South Africa. The third equine virus—Venezuelan—was identified in the latter thirties,[56] produces a benign human disease,[57] and so far has not been identified outside of Trinidad and Venezuela. All four of these agents are presumed to have a basic reservoir in birds and bird mites, the virus passing to successive mite generations through the ova. From the reservoir the virus passes over to lower mammals and man via various mosquito species of indiscriminate feeding habits.

In the course of epidemiologic studies of the North American encephalitides and of yellow fever an additional array of agents (fifteen or more) have been isolated from mosquitoes. Some of these—such as California virus[58] and the virus of West Nile Fever[59]—are established pathogens of man. Others—such as the Semliki Forest[60] and Ilheus encephalitis[61] viruses—apparently can and do infect man as evidenced by serologic studies but have not been associated with overt disease as yet.

Of similarly uncertain significance is a group of agents given the unwieldly designation of Encephalomyocarditis viruses (EMC), a name which describes their dual tropisms in experimental infections. The first representatives of this group appeared in the course of attempts to adapt polio virus strains to rodents.[62, 63] Before their true identity was revealed, these strains (Columbia SK and MM) masqueraded as poliomyelitis viruses and caused no little confusion. Subsequently, antigenically similar, if not identical, agents have been associated by agent isolation or on serologic grounds with fatal myocarditis in a chimpanzee in Florida, violent encephalitis in man in Uganda (1 case), and with violent short-lived febrile illness in man in Manila (many cases).[64, 65] Further, virus has been isolated from mosquitoes, mongoose, and laboratory monkeys as well as from man in Uganda[66] and neutralizing antibodies have been found in many rodent sera collected in the southern United States.[67] Apparently we are confronted in this case with a widely spread agent or group of agents which, while potentially pathogenic for man, has not yet discovered a regularly effective pathway to him.

A final entity which should receive our serious attention has not yet been defined etiologically. In the winter of 1946-47 and again in 1948-49 the country of Iceland was visited by a disease which simulated poliomyelitis in some respects—chiefly in that paresis of various muscle groups was a characteristic feature of the more severe cases. It differed from polio, however, in many important epidemiologic and clinical respects. Clinically, the systemic effects were more profound and greatly prolonged;

relapses were frequent; physical signs and symptoms of meningeal irritation were lacking although spinal fluids revealed moderate pleocytosis and an elevated protein content; and sensory disturbances were common. Epidemiologically, the outbreaks occurred in midwinter; age-specific attack rates were lowest in children, highest in late adolescence, and generally high in adults. In spite of large numbers of cases, there was no mortality, although serious disability has persisted in the more severe cases. The disease was apparently highly contagious, spreading easily through schools and households to such an extent that overall attack rates were very high, approaching 10 per cent in some communities. Available evidence suggested spread by direct contact with an incubation period of about one week. To date, extensive efforts have failed to establish the identity of the etiologic agent.[68] When one considers the highly contagious nature of this disease, the characteristic age group and the total proportion of the population affected and then recalls that Iceland is a common way-station on our lines of air travel to and from Europe, it becomes evident that this psuedo-polio of Iceland is of great potential significance to us.

DISCUSSION

The foregoing account is intended, in part, to review some of the more recently described viral and rickettsial disease entities. Of much greater importance, this presentation is intended to draw attention to the phenomenon of emerging disease entities as a continuing process. These entities will be seen and described first by the alert practicing physician who is cognizant of the possibilities and has some understanding of the reservoirs of new diseases and the mechanisms by which they come into being.

The problem of imported exotic disease requires little comment. The basic principle is preparation for recognition based on knowledge as to which such disease agents might be expected to find their basic living requirements in our own immediate environment.

The emergence of etiologically defined entities from the mass of previously existing but ill-defined human illness is, in theory at least, a straightforward process involving agent isolation (a job for the microbiologist), correlation with a carefully described clinical syndrome, description of the principle reservoir and transmission mechanisms, and an evaluation of the major factors which influence disease occurrence. The role of the clinician in this process, however, should not be underestimated. Without his alertness and initiative in selecting cases of potential interest the services of the microbiologist may never be sought. On the epidemiologic front, the clinician again occupies a strategic position. Details as to the patients' living circumstances, general way of life, recent past activities, and possible direct or indirect association with other cases of similar illness can best be collected by someone in whom the patient instinctively has confidence and who can make his inquiries while the trail is still warm. A peculiar opportunity of the clinician is the collection of instances of single-point-in-time or "one and only" exposures upon which we base our knowledge of incubation periods and periods of case infectivity.

The emergence of truly new diseases entails all of the problems of recognition and description which we have just considered and the role of the clinician is the same. Additional interest attaches, however, to the basic reservoir of such diseases and to the mechanisms by which the agents find their way to man. The nature of the reservoir seems clear enough, although its extent may be hard to comprehend. Lower vertebrates and the vast invertebrate fauna harbor an unknown but undoubtedly vast number of viral and rickettsial parasites (often perhaps saprophytic as far as the reservoir host species is concerned). The total number of recognized veterinary entities is large but probably constitutes but a small fraction of the total vertebrate reservoir. The extent of the invertebrate reservoir is even less well defined but the isolation of a number of rickettsial species from ticks collected during Rocky Mountain

spotted fever surveys and the similar isolation of a larger number of neurotropic viral agents from mosquitoes collected during studies of the epidemiology of yellow fever and the various encephalitides are of obvious significance.

The possible mechanisms by which parasites from the reservoir come to affect man are not difficult to stipulate in a general way. The least profound possibility is that the agent has long had the capacity to infect man but that only recently, due to changes in environment or in human habits or customs, has man come into effective contact with the agent. The other possibility is that, by abrupt or gradual mutation, an agent not new to man's environment develops the capacity to infect man. While no certain natural example of this phenomenon can be cited, the problem of forcibly adapting an agent to an unnatural host species has been successfully resolved frequently in the laboratory. Serial passage techniques—usually following the use of overwhelming inocula in the first passage and carrying on from suspiciously ill animals or even in blind passage—probably find no counterpart in nature. It seems more likely that the natural process may follow the more subtle approach of alternate passage through man and the natural reservoir host, analogous, for example, to the laboratory adaptation of hog cholera virus to the rabbit.[69]

In summary, the emergence of new viral and rickettsial entities should be recognized as a continuing phenomenon for which no termination can be predicted. Even though we may conceivably complete the process of etiologic recognition of entities already established in man, the natural vertebrate and invertebrate reservoir of truly new agents appears to be nearly inexhaustible, especially as we consider the world as our basic epidemiologic unit. The importance of this phenomenon to public health authorities seems self-evident. It should be emphasized in closing, however, that recognition of these new entities and the collection of basic epidemiologic information constitute both special opportunities and responsibilities for the private practitioner, and are fundamental to the rapid development of effective methods for both treatment and control.

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HEALTH AND LONGEVITY*

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THE MEASURE OF PROGRESS

We physicians are, generally, so busy practicing medicine as to find little time to look deeper into the whole extensive problem of the effectiveness of our labors in attaining the objectives of our traditional creed "to save lives and to relieve suffering." Some of us, in our more philosophic moments, take time off to ponder this problem, but most do not. The extent to which the combination of saving life and relieving suffering can be measured is problematic. The difficulty is, of course, that while the former is an objective factor, the latter is subjective. We do not have, and it is doubtful whether we will in the foreseeable future have a means of measuring the suffering of people. But there is little doubt that those forces which effect a greater saving of life also tend both to prevent and to relieve suffering. In a general way, then, we can assume that a community of people which is subjected to life saving forces will also find itself living a life of less suffering. To a large extent, the actual means for the measuring of "saving life" and the development of techniques and instruments used in such measurement have fallen to the lot of nonmedical people, such as Graunt, Farr, Pearson, Pearl, and Dublin. We physicians make a great ado about saving life. But is saving life a criterion of progress, and if it be, to what extent have medical therapeutics and other factors contributed to this progress? Such a question may appear startling at first because we ordinarily take for granted, without questioning, that saving life is a progressive human practice. But when we begin to analyze, philosophically, the meaning of progress, we may find ourselves beset with a maze of moral and ethical questions which defy objective consideration.

Social criteria for the measure of progress may manifest themselves in as many different ways as there are different cultures and in as many variations as philosophies of life vary in each culture. Therefore, to some progress will be measured by the degree of happiness of a people, to others by the amount of people practicing their particular religion, to still others by the national production ability, and further, by the degree of democratization of government, and so on it goes from culture to culture, from cult to cult, and from class to class.

Is there, however, a criterion which is not limited by cultural or philosophic differences, which is as fundamentally valid in the East and in the West, in modern times and ancient times, in democratic countries and in nondemocratic countries, in historic times and in prehistoric times? Such a factor which is not limited to the various stages of human society but which has limited and will continue to limit human society insofar as it is composed of living entities will basically not be a social criterion but a biological criterion, even though sociological factors do fundamentally determine the stage of development of this biological criterion. Progress cannot be conceived of, in a positive sense, without presupposing the survival of living things. No cultural group, no part of a cultural group regardless of its own criterion of progress, could manifest progress unless it survived, except if its criterion of progress be self destruction. Progress in evolution is measured by the ability to survive and not by the ability of organisms to become specialized or to remain generalized,

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although the combination of both these forces is a basis of survival. The ability to survive in the nonhuman biological world depends on the ability of organisms to develop some degree of compatibility with the forces of the changing environment. The ability to survive in the human world will not only depend on the latter, but also on the ability of man himself to manipulate and accommodate the changing environment to himself.

Bare, unqualified survival implies the ability to remain living just long enough for the species to reproduce itself. Qualitative survival refers to the degree to which the average survival approximates the potential average biological limit of the life span of the species. This is referred to as *longevity*. The quality of human longevity depends upon man's ability to develop and to modify his environment and to build up the resistence of his organic functions, i.e., on his ability to develop and maintain health. Survival is, therefore, the bare criterion of man's ability to maintain his existence. But longevity is both the qualitative and quantitive essence of man's ability to progress as a socially producing animal. It is the basic biological criterion by which man's social progress may be measured throughout his whole historical and prehistorical existence. It is also a measure of his health. Although the essence of survival is biological, its superstructure is sociological under conditions of man's increasing ability to produce the instruments of survival. It is influenced by the stage of development of medical and hygienic science, and therefore by the life saving efforts of physicians. But man's ability to maintain his health which is reflected in his longevity depends primarily on the technological stage of his development, i.e., his ability to produce those things (among which food is the most important) which will influence the prolongation of his life.

Progress can be measured objectively by man's ability to survive, and the degree of progress can be measured by the degree to which his life has been prolonged toward the biological potential length of the species. The criterion for human progress, therefore, is the objective biological factor of longevity. But the fundamental force which man uses in furthering this progress is the objective *sociological* factor of technology.

MEDICINE: A NATURAL AND SOCIAL SCIENCE

Up to very recently, few physicians questioned the fact that medicine was a natural science. Physicians were mostly concerned with the care of individuals. Each individual was a biological entity. When the individual was sick, it was accepted that something had gone wrong with its biological dynamics, and to get the person well became an attempt to alter the biological dynamics back toward the "normal". But with the development of technology it became apparent that saving life was easier by applying preventive and control measures and in the process of doing so it also became apparent that social phenomena were powerful etiological or accessory factors in disease production, and that the application of such preventive and control measures required the manipulaton of the social forces as well as the natural. Therefore, medicine has more and more become recognized as a social science. Actually, it is both a natural and a social science. Medical science which deals with biological man as a social entity must perforce be both biological and social in essence.

POPULATION DEVELOPMENT AND TECHNOLOGY

In the period of man's history before he developed a technology capable of mobilizing the forces of nature for his own uses, his ability to survive was largely the result of the same natural forces as those determining the survival of other biological phenomena, even though he had become cleverer than brutes, had learned to outwit them, was better able to track them down and to protect himself against them and, to some extent, against the natural elements by collective, cooperative action. His early tools were, indeed, a guarantee against his extinction, since they made it easier for him to obtain food from any environment, but they did not increase his food supply beyond that which the environment naturally produced unaided. The population could grow no greater than the natural

limit of the food supply. The combination of a high reproduction potential and a greatly limited food supply resulted in a low longevity. When nature was bountiful the population increased, and when she was austere the population decreased. Therefore, whatever general laws of population governed other living things also were valid for man, since all populations depend for their existence primarily upon the availability of a food supply, and savage man, like other living things, depended upon the natural food supply. In the upper paleolithic period (upper stage of savagery), when man began to concentrate in village life, and therefore to develop methods of collective social action, the germ of the process of social population development was generated as distinct from the process of natural population development. But, for the most part he was still governed by the latter process.

Thus, man began, in the dim past, to lift himself out of the abysmal darkness of the natural struggle by creating tools and thereby initiated a process of accumulating a heritage of technical knowledge which culminated in what prehistorians call the Neolithic Revolution. The quantitative accumulation of techniques produced a qualitative change in technology. Man learned to control nature by cooperating with her. He became the archetype master of his food supply by discovering how to cultivate certain nutritious plants and to domesticate certain useful animals. The human economy changed from one of complete dependence on nature to produce, to one where man harnessed nature and directed her to produce at an increased tempo and at his will. From this time onward, man began to develop from one *social* epoch to the next as the quantitative accumulations of technology generated qualitative changes in production techniques and in the relations between men in the new processes of living together and producing socially. This in turn generated new patterns of social life, such as the Urban Revolution of the Bronze and Iron Ages, the Industrial Revolution, and at present, the great sociopolitical struggles that are going on for releasing the technological forces to all the world's people.

Beginning with the great Neolithic Revolution in the technology of production, every great change in such technology also brought with it profound changes in social relations and primarily in the functions of people related in the process of the new methods of producing for a livelihood. Each such change released new forces for increasing the population, for increasing the accumulation of greater technology in the treasury of our social heritage, and for increasing the health and longevity of human beings.

LONGEVITY AND SOCIAL PRODUCTION

It is not difficult to illustrate that it was not the practice of medicine primarily but the ability of society to produce, i.e., the stage of development of society's technology, that has been basically the mainspring for gradually increasing longevity of the various populations of the world. Table I illustrates how longevity has increased from ancient to modern times. No one can deny that medical practice in any semblance of effectiveness is more than one-hundred years old. It would be more cor-

TABLE 1
AVERAGE LENGTH OF LIFE FROM ANCIENT TO MODERN TIMES

Period	Early Iron and Bronze Age	About 2,000 Years Ago	Middle Ages	1687 1691	Before 1789	1838 1854	1900 1902	1946
Longevity	18	22	33	33.5	35.5	40.9	49.2	66.7
Area	Greece	Rome	England	Breslau	Massachusetts	England Wales	United States	United States
Author	Angel	Pearson	Russell	Halley	Wiggles-worth	Farr	Glover	Greville

From *Length of Life*—Dublin-Lotka-Spiegelman-p. 42.

rect to reduce this duration by one-half. Yet, from an 18 year average longevity in the early Iron and Bronze Age, the longevity increased by more than 100 per cent up to one hundred years ago, and by more than 150 per cent up to fifty years ago. Nor can it be denied that whatever effective medical measures did exist through the centuries of this growth of longevity, such measures were not applied to the bulk of the population, but only to that small section which was able to afford either the services of physicians or had the means to carry out their advice. The only basic social factor which correlates with the historical trend of longevity is that of society's ability to produce and the degree with which the fruits of this production have filtered to the populace.

The great increase in production which began with the Industrial Revolution was followed by a greatly increased impetus in the development of longevity, and, as would be expected also, a rapid increase in the world's population. What is it about increasing production that increases health and longevity? First of all, and basically, there becomes available an increase of the food supply. Diet and nutrition are boosted to higher and higher levels. Secondly, shelter and clothing increase so that the human organism becomes more adequately protected against the natural elements. Thirdly, the protection and distribution of water, without which a population cannot survive, becomes increasingly more effective. Fourthly, the population is gradually lifted out of the morass of its own filth by the development and extension of sanitary excreta disposal facilities. Fifthly, by the processing, storage, and distribution of food, it becomes more and more divested of its death dealing adulteration. Sixthly, the environmental control of vectors made it possible to eliminate or greatly suppress many epidemic scourges. And seventhly, more and better immunizing agents are created through the technology of bacteriological and immunological sciences for the prevention of various epidemic diseases. But what are these basic achievements of production if not the fundamental instruments of public health practice during the past hundred years? These are the instruments which have reduced the classical manifestations of malnutrition from very common to relatively infrequent occurrences in the United States; which have reduced the deaths from diarrhea and enteritis in children under 2 years of age from 116 deaths per 100,000 population in 1900 to 4.7 in 1948, and in the whole population from 143 deaths per 100,000 to 6.0 in 1948; which have reduced dysentery death rates from 12 deaths per 100,000 to 0.7 in 1948, and typhoid fever from 32 to 0.1 in 1948; and further, which have reduced tuberculosis deaths from 195 per 100,000 in 1900 to 30 in 1948, scarlet fever deaths from 10 per 100,000 in 1900 to 0.0 in 1948, pertussis deaths from 12 in 1900 to 0.8 in 1948, measles from 13 per 100,000 in 1900 to 0.6 in 1948, diphtheria deaths from 40 per 100,000 to 0.4 in 1948.

THE MEANING AND INFLUENCE OF PUBLIC HEALTH

There is no doubt to the student that the great saving of life from the diseases mentioned above was primarily accomplished by the preventive practices which are based on the fundamental theories of public health. To say that activities of public health organizations were directly instrumental in effecting such reduction in mortalities is to misunderstand the nature of public health practice. Public health teaching is such that some of its theories are carried into practice by official public health organizations, but the greatest part becomes infiltrated into the cultural conscience of the community so that its practice becomes both the unconscious and the conscious ways of life of the people. A simple illustration is the average American's attitude toward water and excreta. The time was not too distant in the past when almost any source of water supply was satisfactory for domestic use and people did not hesitate freely and unconcernedly to drink and cleanse themselves with waters which obviously contained their own excreta and other filth. To the average American, today, a potable water supply and a

	Expectation of Life at Birth[1]		National Income[3] Per Capita, 1939	Pre-World War II Available Calories Per Person Per Day[2]	Available Total Proteins Per Person Per Day[2]	Available Animal Proteins Per Person Per Day[2]	Total Protein That Is Animal	Infant Mortality Between 1936-40	Death Rates 1928-38[4]	Birth Rates 1928-38[4]	Illiteracy Population—10 years and over[5]		Urban Population[5]	Population Types 3†
	Years	Period	Dollars		Grams	Grams	Percent				Percent			
India	26.7	1931	34	2021	56	9	16	166.0	23.7	34.9	91[10]	(1931)	13	3
Egypt	30.9	1927-37	85	2199	69	8	12	205	30.0	45.8	85[11]	(1937)	25	3
China	34.7[6]	1929-31	29	2201	68	5	7			45.0*				3
Mexico	37.2	1929-33	61	1909	59	20	34	125.5	26.1[9]	43.5	52	(1940)	35	3
Korea	37.5	1931-35		1904	70	15	21				69	(1930)	7	
Peru	39.0[7]	1933-35	72	2090	58	8	14	128.0	15.0[9]	32.0	57[12]	(1940)	35	3
Chile	41.2	1939-	174	2481	70	24	34	236	24.4	33.5	28	(1940)	52	
Brazil	43.0	1939-40	46	2552	73	26	36				57	(1940)	31	3
Colombia	46.3	1939-41	76	1934	62	29	47	158.0	15.5	32.1*	44	(1938)	29	3
Bulgaria	46.3	1925-28	109	2831	90	18	20	149	15.6	29.5	31	(1934)	20	2
Japan	48.3	1935-36	93	2268	67	12	18	112.2	17.7[9]	29.4	10	(1935)	47	2
Poland	49.8	1931-32	95	2702	72	19	26		14.4	26.8	23	(1931)	30	2
Hungary	49.8	1930-31	125	2815	89	24	27	147.3	15.3	22.0	6	(1941)	36	1
Greece	50.0	1928	136	2523	65	14	22	115.0	16.3	29.3	41	(1928)	35	2
U. S. S. R.	50.8[8]	1926-27	158	2815	71	17	24		17.8[9]	40.+				2
Portugal	50.7	1939-42		2461	74	23	31	144	17.0	29.0	49	(1940)	31	
Cz. Slovakia	53.6	1929-32	134	2761	72	25	35		13.5	18.4	4	(1930)	48	1
Italy	54.9	1930-32	140	2627	81	19	23	102.4	14.1	23.8	22	(1931)	44	1
Austria	56.5	1930-33	166	2933	79	36	46	99	13.6	14.3		(1935)	63	1
Finland	57.0	1931-40	184	2950	80	37	46	73	13.6	19.9	1[13]	(1930)	24	1
Ireland	57.1	1925-27	248	3184	92	41	45	66.3	14.2	19.5		(1946)	38	1
Belgium	57.9	1928-32	261	2885	77	32	42	76.7	13.3	16.5	6[14]	(1930)	61	1
France	58.8	1933-38	283	3012	87	38	44	65.8	15.7	16.2	4	(1936)	53	1
Germany	61.3	1932-34	520	2967	77	34	44	61.0	11.6	18.0	+	(1936)	66	1
Un. Kingdom	61.5	1937	468	3005	80	43	54	59.5	12.0	15.1	+	(1931)	79	1
Norway	62.4	1921-31	279	3129	83	41	49	38.8	10.4	15.6	0	(1935)	27	1
Switzerland	62.9	1931-41	445	3049	89	48	54	43.9	11.6	16.4	+	(1941)	33	1
Canada	64.6	1940-42	389	3109	87	47	54	60.1	9.9	20.6	4	(1931)	54	1
Denmark	64.7	1936-40	338	3249	76	44	58	55.6	11.0	18.0	0	(1935)	63	1
Un. States	65.0	1939-41	554	3249	88	50	57	48.7	11.1	17.4	4	(1930)	56	1
Australia	65.3	1932-34	403	3128	90	59	66	38.3	9.4	17.4	0	(1930)	64	1
Sweden	65.6	1936-40	436	3052	88	54	61	40.4	11.7	14.5	0	(1930)	42	1
Netherlands	66.5	1931-40	338	2958	78	37	47	36.2	8.8	20.8	0	(1935)	52	1
New Zealand	66.9	1934-38	396	3281	96	61	64	32.2	8.5	17.3	0	(1935)	60	1

1. Most of this data is from "Length of Life" by Dublin, Lotka, and Spiegelman.
2. World Food Survey—Food and Agriculture Organization of the United Nations, July, 1946.
3. Point Four and World Production—H. S. Piquet, Annals of the Am. Academy of Political and Social Science, Vol. 268, p. 148, 1950.
3†. Same reference as (3). Population Types are as follows:
Type 1—*Low growth potential.* Birth rates below 25/1000 pop. Low death rates. Small natural increase with prospect of relatively stationary population in the future.
Type 2—*Transitional growth.* Birth rates approximately between 25 and 35. Both birth and death rates generally falling. Rapid population growth. Exception is U. S. S. R. high birth rate.
Type 3—*High growth potential.* Birth rates around 35 or over. Death rates (but not birth rates) generally declining. Rapid growth in absence of civil disturbance, famine, and epidemic.
4. Epidemiological and Vital Statistics Reports, from World Health Organization.
5. United Nations, 1948. Statistical Year Book, and Demographic Yearbook. Dates in column on illiteracy apply to column on urbanization.
6. Rural China.
7. For the city of Lima.
8. White Russia and the Ukraine.
9. Data for 1932.
10. Excluding 17 million people in outlying area.
11. Excluding Nomadic population.
12. Not including 350,000 jungle population and 465,144 under-enumeration of population.
13. 15 years and over.
14. 7 years and over.
* Birth rate for China is an approximation; for Colombia and Japan, 1938-44.
\+ Less than 5% illiteracy.

safe and aesthetic disposal of his excreta is a basic and almost unconscious expectation from our way of life. Public health theory infiltrates into the laws of the land, into the educational and religious institutions, into the styles of clothing, the types of architecture, the facilities in housing and interior decoration, into the methods of food production, storage and distribution, into industrial plants and production, into concepts of decency, morals, and humaneness, into the play and recreation of people, into the literature, drama, press, radio and political and social propaganda, and generally into the sympathies and expectations of people. So thoroughly do these theories of public health gradually infiltrate the life of society that people completely forget and their progeny are never reminded that the roots of such practices were originally stimulated by educational efforts of the agents of public health and their propagandists. Yet without the ability to produce, all this public health theory and practice would be nonexistent or no more than nebulous dreams. Public health practice must work with the available materials produced by the community. The teaching and practice of hygiene cannot, in a general way, supersede the stage of productive development of a people.

One may ask: "If production is such a primary factor in health, is this a public health or an economic concern?" When one considers such basic forces of social life, i.e., forces which are the primary conditions for survival itself, distinction between the social, economic, and political fades away. Under no conditions can public health be separated from the latter categories if we accept the Winslow definition of public health. If public health be concerned with people obtaining an adequate amount of food, how could it separate itself from the social-economic-political dynamics involved in the production and distribution of food? Therefore, the level of living of a population is most emphatically a concern of public health; it is one of its basic principles, one of its fundamental teachings, one of its primary stimulations to action.

ORGANIZED COMMUNITY EFFORT IN SAVING LIFE

The problem of health and longevity, although predominantly related to the material development of a country is also influenced by the degree of organized community effort continuously expended in mustering the facilities available for increasing the health and longevity. This is most probably the factor which, to a large extent, determines which of a group of countries in a similar level of economic development, will have a greater longevity than the other countries of the group. Examination of table 2 shows, for example, that countries like New Zealand, and Australia, have greater longevity than the United States.

The effect of organized community effort in saving lives is illustrated by tables 3, 4, 5, 6, and 7. In these tables, an attempt is made to show how many lives have been saved in the year of 1948, by applying the 1900 death rates to the 1948 population and comparing these hypothetical deaths with the actual deaths of 1948. Table 3 shows the number of lives that have been saved from a group of diseases whose control has been effected mostly by the vigorous application of preventive and control techniques coupled with rising levels of living. In relation to the 12 diseases of this group, 663,380 lives were saved in the year of 1948. As has already been pointed out, much of the preventive and control techniques have become or are in the continual process of becoming habitual practices in the every day life of our people during their rest and leisure, their recreation, their education and their work, i.e., much of the educational and regulatory activities of public health have insinuated and are continually insinuating their impressions into the habitual living routine of the community. Thus, many of the life saving practices of the community may not be consciously associated with public health because the community may long since have forgotten the originating public health force. Who, for example, is continually conscious of the powerful impetus to sanitary living which was generated by the public health campaigns of Frank, Pettenkofer, Chadwick,

TABLE 3

DISEASES WHOSE CONTROL HAS BEEN MAINLY ASSOCIATED WITH ORGANIZED COMMUNITY EFFORTS IN THE FORM OF PUBLIC HEALTH PRACTICES AND BETTER LIVING STANDARDS, UNITED STATES

Diseases	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Typhoid and Paratyphoid	31.3	0.1	23,788	45,760	205	45,555
Scarlet Fever	9.6	0.0	7,296	14,035	68	13,967
Whooping Cough	12.2	0.8	9,272	17,836	1,146	16,690
Diphtheria	40.3	0.4	30,628	58,918	634	58,284
Tuberculosis	194.4	30.0	147,744	284,212	43,833	240,379
Dysentery	12.0	0.7	9,120	17,544	1,078	16,466
Malaria	6.2	0.1	4,712	9,064	170	8,894
Syphilis, all forms	12.0	8.0	9,120	17,544	11,616	5,928
Diarrhea and Enteritis	142.7	5.6	108,452	208,627	8,112	200,515
Puerperal Causes	13.4	2.8	10,184	19,590	4,122	15,468
Premature Birth	32.4	26.7	24,624	47,368	39,085	8,283
All Other Diseases of Early Infancy	37.9	15.4	28,804	55,409	22,458	32,951
Total	544.4	90.6	413,744	795,907	132,527	663,380

TABLE 4

DISEASES WHOSE CONTROL HAS BEEN ASSOCIATED WITH BETTER LIVING STANDARDS, MODERATELY EFFECTIVE PUBLIC HEALTH AND MEDICAL THERAPEUTIC EFFORTS, AND BETTER NURSING CARE—UNITED STATES

Diseases	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Measles	13.3	3.5	10,108	19,444	888	18,256
Pneumonia, all forms	202.2	35.2	153,672	295,616	51,425	244,191
Influenza	26.7	3.5	20,292	39,035	5,068	33,967
Nephritis, all forms	88.6	53.0	67,336	129,533	77,377	52,156
All Diseases of the nervous system, excluding Lesions of Vascular Origin	98.9	9.9	75,164	144,591	14,498	130,093
Accidents other than Motor Vehicles	72.3	45.0	54,796	105,410	65,742	39,668
Total	502.0	150.1	381,368	733,629	214,998	518,631

TABLE 5

DEATHS FROM DISEASES AND CONDITIONS FOR WHICH PRACTICALLY NO EFFECTIVE CONTROL, EITHER PREVENTIVE OR THERAPEUTIC, HAS BEEN DISCOVERED, 1900 TO 1948 UNITED STATES

Diseases	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Cancer	64.0	134.9	48,640	93,568	202,386	−108,818
Diseases of Heart	137.4	322.7	104,424	200,878	471,469	−270,591
Diabetes	11.0	26.4	8,360	16,082	38,638	− 22,556
Congenital Malformations	12.0	13.2	9,120	17,544	19,246	− 1,702
Suicide	10.2	11.2	7,752	14,912	16,354	− 1,442
Motor Vehicle Accidents	0	22.8	0	0	32,259	− 32,259
Intracranial Lesions of Vascular Origin	106.9	89.7	81,244	156,287	131,036	25,251
Cirrhosis of Liver	12.5	11.3	9,500	18,275	16,512	1,763
						−437,368
						27,014
Total	354.0	632.2	269,040	517,546	927,900	−410,354

TABLE 6
DEATHS FROM DISEASES WHOSE CONTROL HAS BEEN PREDOMINANTLY THERAPEUTIC IN NATURE, 1900-1948, UNITED STATES

Diseases or Conditions	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Appendicitis	8.8	2.9	6,688	12,865	4,171	8,694
Hernia and Intestinal Obstruction	11.9	6.9	9,044	17,397	10,099	7,298
All Diseases of the Digestive System not included in Tables 3, 5, and 6	54.7	17.1	41,572	79,971	24,425	55,546
Diseases of the Genito-Urinary System and Adnexa excluding Nephritis	17.4	9.0	13,224	25,438	13,172	12,266
Total	92.8	35.9	70,528	135,671	51,867	83,804

TABLE 7
CONDITIONS WHICH SHOW DECREASED MORTALITY RATES RESULTING FROM BETTER DIAGNOSTIC SKILLS, UNITED STATES

Diseases or Conditions	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Bronchitis	45.2	2.4	34,352	66,082	3,450	62,632
Senility	50.2	6.3	38,152	73,392	9,209	64,183
Ill-Defined Causes	60.7	12.4	46,132	88,743	18,082	70,661
Total	156.1	21.1	118,636	228,217	30,741	197,476

TABLE 8
SUMMARY TABLES 3, 4, 5, 6, and 7 WHICH REPRESENT APPROXIMATELY 95% OF ALL DEATHS OCCURRING IN 1900 AND 1948, UNITED STATES

	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Totals of Table 3	544.4	90.6	413,744	795,907	132,527	663,380
Totals of Table 4	502.0	150.1	381,368	733,629	214,998	518,631
Totals of Table 5	354.0	632.2	269,040	517,546	927,900	−410,354
Totals of Table 6	92.8	35.9	70,528	135,671	51,867	83,804
Totals of Table 7	156.1	21.1	118,639	228,217	30,741	197,476
Totals of Tables 3, 4, 5, 6 and 7	1,649.3	929.9	1,253,319	2,410,970	1,358,033	1,052,937
Complete Data, United States	1,719.1	988.5	1,306,516	2,513,324	1,444,337	1,068,987

Shattuck and many more such pioneers of a century or more ago. Yet their teachings have become indelibly ingrained in the hygienic laws, regulations, practices, and habits of our world. The dairy farmer and the manfacturer of dairy equipment may be conscious of the hygiene of milk production, but by the time the bottles of milk have reached the consumer, the details of the safety measures which became crystallized into a safe bottle of milk, have become almost completely lost. It is habitually expected that a bottle of milk is safe to drink. The water-works engineers, the manufacturers of flush toilets and wash bowls, and their engineers and the plumbers may be conscious of the problems of safe water and of cross-connections, but not the individual who habitually flushes the toilet, washes his hands, and quenches his thirst. What is generally not appreciated in the environmental control of vectors and vehicles of transmission of disease is that such practices not only protect against known diseases, but also against unknown diseases and new diseases which may find a harbor

in our ever changing environs, or which may appear as the result of changes in our socio-economic intercourses or by the development of variants in microscopic life. The population is almost never conscious of the saving of life that occurs as a result of control of the latter.

Table 4 represents a group of 6 conditions causing death, the control of which up to about 1940 was partly effected by preventive and control measures and partly by better nursing care and rising levels of living. All of these diseases had been gradually declining before the sulfa drugs and antibiotics had become so easily available. For pneumonia, influenza, nephritis, and accidents other than by motor vehicles, however, the decrease in death rates has been accelerated since these medicaments have come into common use. The latter drugs have, in particular, shown dramatic life saving qualities since they have become generally available for use in pneumonia. Although the death rates from pneumonia decreased by 50 per cent from 1900 to 1937 as a result of better living conditions and a better understanding of how to manage such cases, the decrease between 1937 and 1948 was about 65 per cent, undoubtedly as the result of new therapeutic measures. The decline of deaths from accidents other than from motor vehicles is the result of better therapeutic management of the accident cases and the decrease of hazards in industry and homes by various preventive measures including better housing. As compared to 1900, 518,631 lives were saved in this group of conditions in the year of 1948. From all evidence, the greatest amount of life saving from these conditions has resulted from nontherapeutic factors.

Table 5 concerns itself with a group of eight conditions for which practically no effective measures of control, either preventive or therapeutic, have been discovered up to the present time. For these conditions, there has actually been an increase of 410,354 deaths in 1948 over that which might have occurred, had the present death rates been the same as in 1900. All these diseases, except congenital malformations, appear to have one factor common to all of them, that is, that they seem to be associated with factors rooted in the cultural characteristics of our social development. Among these cultural characteristics are:

1. A prolongation of life, resulting mostly from the advancing levels of living and the prevention and control of communicable diseases with the resulting development of a population that is becoming top-heavy with aging people whose well-being we have been unable to secure.

2. A way of life in which toxic materials, resulting from industrialization, continue to increase in every aspect of our environment from the air, the water, the soil, the clothes and the shelter to the very food and therapeutic agents which we consume.

3. An increasing complexity of social life and the rising tempo of living with its drain on the physical, mental, and emotional processes for which we have been unable to to set up adequate controls.

4. The increasing development of transportation, the control over which is still sadly lacking.

5. The inadequate support for research relating to the physiology of aging and of environmental toxins and other agents.

These are a group of diseases that will require a much greater organization of community effort in order to effect life saving results. The organization of community effort will require, in this case, a much higher organized application of therapeutic and preventive measures than has, up to the present time, ever been accomplished in our country, and also larger expenditures for research.

Table 6 is concerned with a group of four conditions which have been amenable to life saving mostly by means of therapeutic measures. Even though one would at first be inclined to regard the life saving efforts in this group to have been accomplished by very little organized community efforts, such an evaluation is really not a true one. Actually there has been a good deal of organized community effort expended in distributing therapeutic facilities and services

to the people. This has been accomplished by:

1. Development of community controlled Hospitals
   a. Governmental (controlled 78.2 per cent of all hospital beds in 1944)
   b. Nonprofit association (controlled 11.3 per cent of all hospital beds in 1944)
2. Development of hospitalization service insurance plans (over 30 million enrollment in Blue Cross Plans in 1949)
3. Development of Physicians Services Insurance plans

In relation to this group, there has been a savings of 83,804 lives in the year of 1948 as compared to the deaths that might have occurred with the 1900 death rates.

Table 7 concerns itself with a group of 3 conditions which show greatly decreased mortality rates mostly due to better diagnoses and the transfer of the condition to another disease category. Except in the case of bronchitis the saving of life here is illusory. For "senility" and "ill-defined causes" it is quite probable that a good deal of these deaths find themselves today in the group of diseases of table 5 for which practically no effective control, either preventive or therapeutic, has been discovered.

EFFECTIVENESS OF PREVENTION AND THERAPY

The above analysis leads to conclusions which will startle most of our profession who are not in the habit of evaluating the life-saving effectiveness of our therapeutic labors. It leads directly and without equivocation to the conclusion that therapeutic medicine has always taken a not too important back seat position in the efforts of society to save life. The great expectation from theraupeutic medicine has, as yet, not materialized. The physicians' obligation to save life has been most successful only when they have united with other professions such as nurses, sanitarians, engineers, nutritionists, biologists, and educators, in organized community efforts of prevention, control and education. In the year of 1948, 663,380 lives were saved as the result of higher living levels and public health practices, while only 83,804 lives were saved as the result of measures which were predominantly therapeutic in nature. And further, 518,631 lives were saved by a combination of better living levels, public health practices, better nursing care, and therapeutic efforts, in which the latter played a relatively minor role. The above figures do not reveal another important aspect in which therapeutic medicine played almost no role in saving life, and that is the remarkable conquests against death from such horrifying and recurring ravages as yellow fever, cholera, Old World typhus, plague, and smallpox.

The above conclusion that an ounce of prevention is worth a pound of cure is, of course, not new. It is merely statistically proved. But it required many years of routine recording and tabulation of disease data so that this thesis could, beyond question or quibble, be quantitatively measured and proved. One of the great advocates of the above thesis was Lemuel Shattuck, the pioneer *par excellence* of the American Public Health Movement. More than a century ago he was struggling for the scientific approach to saving life and he spent a great deal of effort pleading and fighting for an efficient registry system which would supply, with the physician's help, the data to determine the laws of human life. It is a remarkable testimony of the power and importance of preventive medicine and hygiene that in the past hundred years, during which time therapeutic medicine has grown into an apparently formidable science, public health still remains the peerless weapon for saving life. What Shattuck wrote a century ago on this subject is still as fresh and valid and to the point as though it had been written today. Human productive power, as it is evaluated above, he likewise assessed as most fundamental for saving human life, for increasing longevity, for bringing greater happiness to a population, for progress in human society. It would be well to conclude this paper with a quotation, at length, from this peer of public health who

wrote the following gem* in 1845 to the Secretary of the Commonwealth of Massachusetts:

"It may be asked, what can the government do to arrest the hand of death? We do not suppose that an act of the legislature can compel a child to live, or an adult to keep his energies in a healthy state of action. But it is as certain that human life may be prolonged by knowledge and care, as it is that an ox will fatten, a silk-worm spin its thread, or a plant thrive better where knowledge and care are bestowed, than where they are not. Let the facts which the Registry System proposes to collect concerning births, deaths and marriages, and the circumstances which attend them, be collected, digested, arranged, published and diffused annually, and their effects on the living energies of the people would be incalculable. They would be an annual lesson on the laws of human life in their operation among ourselves—a kind of *Practical Physiology* taught in all our towns and at our firesides—and hence, far more instructive and impressive than any derived from books. They would teach our people how to understand human life and how to improve, prolong and make it happy . . . It behooves the state to develop and preserve its productive power—the lives and health of the people—as much as possible, and search out those causes which tend to blast it in its bud, or wither it in its ripeness.

"These are not the speculations of a visionary theorist, but the legitimate deductions from serious, sober facts. We are not a theorist—an experimentalist. We have no sympathy with the opinions of some modern reformers, who seem to be governed by theories founded on uncertain, partial data, or vague conjecture. We are a statist—a dealer in facts. We wish to ascertain the laws of human life, developed by the natural constitution of our bodies, as they actually exist under the influences that surround them, and to learn how far they may be favorably modified and improved. This can only be done by an accurate knowledge of the facts that are daily occurring among us. These matters are important to the physician to aid him in curing the sick, but far more important to the people to aid them in learning how to live without *being sick;* and they deserve the serious consideration of all persons in this commonwealth.

"To show that these matters are practicable, we cite the example of other governments. In most European states, facts of this kind are registered and collected in a careful, systematic manner, not for the purpose of aiding any police regulations, as some have erroneously supposed, but for the physical benefit of the people. And, whatever we Americans may say to the contrary, the average longevity in many places where these measures have been in operation, appears greater than with us.

"Geneva was one of the earliest cities to establish a system of registration of births, marriages and deaths. The registers were begun as early as 1549, and have since been continued with great care. They are viewed as preappointed evidences of civil rights. The registration includes the name of the disease which caused the death, entered by a district physician, who is charged by the state with the inspection of every person who dies within his district. A second table is made up from certificates setting forth the nature of the disease, with a specification of the symptoms, and observations required to be made by the private physician who may have had the care of the diseased. These registers have been frequently examined. I have before me the results of an examination made by Edward Mallet, a very able work, published in the 'Annales D'Hygiene.' From this work it appears that human life has wonderfully improved since these registers were kept. The number of years which it was probable that every individual born would live, appears in the different periods as follows:

Period	Years	Months	Days	Rate of Increase
1550 to 1600	8	7	26	100
1600 to 1700	13	3	16	153
1701 to 1750	27	9	13	321
1751 to 1800	31	3	5	361
1801 to 1813	40	8	10	470
1814 to 1833	45	0	29	521

Showing that the mean duration of life has increased more than five times during these periods!

"The progression of the population and increased duration of life have been attended by a progression in happiness. As prosperity advanced marriages became fewer and later. The proportion of births was reduced, but a greater number of the infants born were preserved, and the proportion of the population in manhood became greater. In the early ages, the excessive mortality was accompanied by an excessive fecundity. In the last ten years of the 17th century a marriage still produced more than five children; the probable duration of life attained was not 20 years. Towards the end of the 18th century, there was scarcely three children to a marriage, and the probabilities exceeded 32 years. At the present time, a marriage only produces 2¾ children, and the probability of life is 45 years.

"Geneva has arrived at a high state of civilization. The real productive power of the population has increased in a much greater proportion than the increase in its actual number. The absolute number of the population has only doubled dur-

*Fourth Annual Report to the Legislature, relating to the Registry and Returns of Births, Marriages, and Deaths in Massachusetts, for the year ending April 30, 1845, by John G. Palfrey, Secretary of the Commonwealth. Letter to the Secretary from Lemuel Shattuck, Esq.
The Journal of the Medical Sciences, No. XXII, p. 412, April 1846.

ing three centuries; but the value of the population—the productive power, has more than doubled upon the mere numerical increase. In other words, a population of 27,000 in which the probability of life is 40 years for each individual, is more than twice as strong for the purposes of production, as a population of 27,000 in which the probability or value of life was only 20 years for each individual.

"This wonderful improvement is attributed, among other things, by E. Mallet, to the information obtained, rendering the science of public health better known and understood; to larger, better and cleaner dwellings; to more abundant and more healthy food; and to a better regulated public and private life."

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THE CONFLICT BETWEEN LOUISIANA PHYSICIANS SERVICE, INC. AND LOUISIANA HOSPITAL SERVICE, INC.

In another part of this issue (see Organization Section) there is an account of the recent aspects of the conflict between Louisiana Physicians Service, Inc. (Blue Shield) and Louisiana Hospital Service, Inc. (Blue Cross). It was hoped four years ago that these two organizations could work together in harmony for their mutual interest and in the best interests of better medical service and in the fight against State Medicine. It is regrettable that the situation developed in such a way that the House of Delegates advised Louisiana Physicians Service to sever connections. This was done after the Board of upstate Blue Cross offered the Executive Committee of the State Society several plans of unified operation and none of these plans were considered by the special committee to be in the best interests of the Louisiana Physicians Service or the State Medical Society. The action of the House of Delegates approved the report of the committee and the relationship was dissolved.

It is lamentable, in the weeks following the severing of joint operations that events drifted in such a direction that it was necessary for Louisiana Physicians Service to take legal steps to protect its rights and the interests of its subscribers. This "melancholy business," to use Winston Churchill's famous phrase, was initiated by the officers of the Louisiana Physicians Service only after making the most strenuous efforts as a Board and on a personal basis to appeal to Blue Cross to correct the false impresisons and to avoid a situation which would have put Louisiana Physicians Service in an unfair position. This is what would have happened if all of the Louisiana Physicians policy holders had been blanketed into Blue Cross while they were misinformed as to the true status of the respective companies.

As is shown in the account referred to above, Louisiana Physicians Service won a case in the Civil District Court under Judge Spaht in Baton Rouge and a related case in the office of the Insurance Commissioner, the Honorable Wade O. Martin, Jr. These separate decisions, one enjoining the practices of Louisiana Hospital Service, and the other suspending its license for sixty days, are a solid vindication of the position taken by the Board of Louisiana Physicians Service and are a testimony to the soundness of judgement of the officers. These two decisions put the Louisiana Physicians Service in a position where it can solicit its old subscribers, enroll new subscribers, and carry on an operation which at one and the same time is of such distinct

service to the public and to the medical profession. The company will now sell surgical, medical, and hospital insurance, and is in a position where it can ultimately sell it over the entire State and not be bound by Blue Cross regulations, which have previously kept it out of the New Orleans area.

It is of considerable moment for the doctors of this State to realize how necessary the success of Louisiana Physicians Service, Inc. is to organized medicine. With the current practice of Blue Cross organizations the medical profession cannot have more than one third of the voting strength in a matter of policy. Actual operation, therefore, has passed out of the hands of the medical profession and is largely directed by hospital administrators and their agents. Prepaid medical insurance is one of the chief weapons in the fight against socialized medicine. It must succeed. To do so it must have the doctors' help. If an organization over which they have no control becomes dominant in the practice of medicine, they, the doctors, will pass under its tyranny. For instance, it is conceivable that the majority of surgical fees will be set by prepaid insurance organizations in the generations ahead of us. If we do not control the organization that sets the fees it will be our fault. Again it is obvious that the trends in the practice of medicine are such that the hospitals are becoming of greater and greater importance. It is also easy to see that Blue Cross organizations, being largely under the direction of hospital executives, tend to follow the lead of hospital management. Hospital management in the recent past has shown a regrettable tendency to want to engage in the practice of medicine itself. For these two reasons, it is crystal clear that the doctors must promote, control, and ensure the success of their own prepaid medical insurance plans; otherwise the control of the practice of medicine will not be theirs. The prospects for Louisiana Physicians Service are brighter now than they have been since its organization four years ago. The founders, the officers, and the supporters have done medicine in Louisiana a great service. Each member of organized medicine should support them.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

CHRONICLE OF THE CONFLICT BETWEEN LOUISIANA PHYSICIANS SERVICE AND LOUISIANA HOSPITAL SERVICE

The House of Delegates of the Louisiana State Medical Society, which had its meeting on May 7, 1951, approved a special committee report requesting Louisiana Physicians Service (the Blue Shield Plan) to cancel its operating agreement for billing, selling, and collecting with Louisiana Hospital Service (the upstate Blue Cross Plan). The committee report also recommended that L.P.S. (Blue Shield) provide a prepaid hospital program in connection with its established surgical-medical program. The committee had been appointed at the request of the Executive Committee of the Louisiana State Medical Society by Dr. George W. Wright, who served as an ex-officio member with Dr. P. H. Jones, New Orleans, as Chairman; Dr. Roy B. Harrison, New Orleans; Dr. W. S. Kerlin, Shreveport; Dr. M. B. Pearce, Alexandria; and Dr. F. B. Rizzo, Monroe, as members.

Based on the recommendations of the committee, the approval of the House of Delegates, and the subsequent approval of the Executive Committee of the Louisiana State Medical Society, the Board of Directors of the Louisiana Physicians Service (Blue Shield) dissolved its working agree-

ment with the upstate Blue Cross Plan. The agreement had provided that Blue Cross do the selling, billing, and collecting for L.P.S. (Blue Shield).

Subsequent to the termination of the working agreement, the upstate Blue Cross Plan began issuing certificates, letters, and other materials and began soliciting Blue Shield subscribers, to sell them surgical insurance. The letters, which tended to confuse the public, contained certain misleading information and attempted to induce the subscribers of Blue Shield to believe that their Blue Shield certificates had been cancelled, and that Blue Cross was substituting their rider to protect the subscribers. This was untrue as Blue Shield had not cancelled its certificates. It was Blue Cross's objective, through the use of these misleading letters, printed cards, mimeographed forms, and through their misleading and deceptive statements to induce policyholders of Blue Shield to cancel, terminate, or surrender their policies in our company and to take the Blue Cross coverage.

Because of these unethical practices, the doctors had to obtain a temporary restraining order and subsequently obtain a preliminary injunction against Blue Cross in the upstate area from blanketing in Blue Shield subscribers. In the Reasons for Judgment issued by Judge Spaht, the document reveals that the action of the Louisiana Hospital Service (the upstate Blue Cross Plan) in using certain materials and literature was

"* * * unfair and deceptive and for the express purpose of inducing subscribers in plaintiff corporation (L.P.S.) to cancel their policies and substitute defendant's policies (L.H.S.), all in direct contravention of the Louisiana Insurance Unfair Trade Practices Act.

"The court knows defendant's actions tended to confuse the public.

"The effect of these letters was to lead the subscriber to believe that in order to have continuous coverage he should cancel his existing policy with the plaintiff corporation (L.P.S.) and to take the policy of the defendant corporation (L.H.S.).

"Another unfair result of these documents is to lead the recipient of one to believe that his policy is canceled immediately by termination of the relationship between the two corporations. Defendant well knew that plaintiff's policies were on a month to month basis and continued on indefinitely."

The above quotations were taken directly from the Reasons for Judgment issued by the Honorable Judge Spaht of the Nineteenth Judicial Court of the Parish of East Baton Rouge, on June 12, 1951.

Because of these practices indulged in by the upstate Blue Cross Plan, the Louisiana Hospital Service was ordered to show cause, before the Insurance Commissioner of the State of Louisiana, why the Certificate of Authority of Louisiana Hospital Service should not be suspended or revoked for violations of the Unfair Trade Practices Act of the State of Louisiana.

On June 20th, in the Capitol Building in Baton Rouge, there was a hearing before the Honorable Wade O. Martin, Jr., Secretary of State and ex-officio Insurance Commissioner of the State of Louisiana. At this hearing documentary evidence in the form of letters, circulars, mimeographed postcards, and other written material, which had been used by Louisiana Hospital Service, was presented to the Commissioner. On July 27, 1951, the Insurance Commissioner rendered an opinion which said, in part, "that this attempt to induce subscribers of the Blue Shield to place their coverage in Blue Cross without clearly presenting this fact and by the payment of the same premium in the usual customary manner constituted an unfair trade practice contrary to the provisions of the Louisiana Insurance Laws."

In his final statement the Commissioner stated, "under the authority vested in him by law, does hereby suspend the certificate of authority of the Louisiana Hospital Service, Inc. for a period of sixty (60) days from the date of this Order." Following this there was a paragraph of definition as to the meaning of the suspension order.

It is clear, therefore, that the Louisiana Physicians Service won a case before Judge Spaht in the Civil District Court at Baton Rouge, and a case before the Honorable Wade O. Martin, Jr., Secretary of State and ex-officio Insurance Commissioner, State of Louisiana. These two cases covered different aspects of the conflict, and both were necessary to secure legally what are obviously ethical and moral rights.

The practices indulged in by the upstate Blue Cross Plan have been directed to the attention of the national Blue Shield and Blue Cross Commissions, and an investigation has been requested of the Commissions and specific action against a plan which would seek to damage the reputation of Blue Shield and Blue Cross.

The doctors of this state in the past few years have spent much time, money, and effort to increase public relations by the system of prepaid health care. We have spent much time fighting the socialization of medicine, compulsory health insurance, and the like. We are now confronted with a situation here in Louisiana which is more drastic than many of the doctors can realize.

Control of the system of Medical Economics now hinges on the fight we shall make to preserve the status of Blue Shield in this state. It is most unfortunate that the use of the Blue Cross emblem has fallen prey to an organization that would indulge in such tactics as referred to previously. The control of the entire system of medical economics is in jeopardy. The reasoning behind this statement is simple because if the control of prepaid health care in the upstate area of Louisiana is taken away from the doctors by the destruction of their Blue Shield organization; and should the subscribers be induced and deceived into canceling their Blue Shield coverage, and, if the persons directing Blue Cross in the upstate area are permitted to maintain such dictatorial powers, then doctors of the State will have little voice in their fees, their practice or the affairs of hospitals. The fact is that at this particular time the groups are small and Blue Cross' influence in the upstate area is proportionately smaller than in any state of the union, but this does not remove the obvious danger.

Your attention is directed to what could possibly happen if an organization succeeded in gaining control of medical economics.

Even though there are two sides to every dispute surely many doctors responsible for the operation of Louisiana Physicians Service and the Louisiana State Medical Society would not have made such a drastic decision to sever their relations with Blue Cross in the upstate area had not such a decision been necessary and after much thought and consideration.

Surely a judge would not have handed down such a decision had the facts not been clear. It is quite obvious from the actions of Blue Cross in the upstate area that their one objective is to wrest control of prepaid health care fro mthe doctors of this state. Through their *coup d'etat* tactics, they have partially accomplished their objective.

To undo the damage that has been done, it is necessary that every doctor in the state of Louisiana lend his support to Blue Shield and inform the public of our position in this fight with Blue Cross. The doctors of this state *must* stick together and fight as a unit to preserve the control of medical economics—for, divided they fall.

When a patient or subscriber asks about Blue Shield, be sure your comments are unhesitatingly in favor of Blue Shield and that you recommend its program. The program which Blue Shield is now offering is identical to that which Blue Cross offers for hospital care. We are of the opinion our new combined hospital-surgical coverage is better than what Blue Cross has offered. This, of course, is our opinion and we reserve the right to express our belief.

We sincerely hope when your patients inquire, you will tell them to "Change to Blue Shield."

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A. M. A. DUES

The Executive Committee directed me, as your Secretary, to secure further information regarding 1950 and 1951 AMA dues

while at the Atlantic City meeting in June, and I wish to report as follows:

If you paid your 1950 dues before December 31, 1950, or within one month following date of written notice of your delinquency, you are in good standing and will receive the JOURNAL and enjoy all privileges of membership, and you will have until December, 1951, to pay your 1951 dues. However, if you did not pay your 1950 AMA dues prior to December 31, 1950 or during the 30 days grace following notification by AMA of your delinquency, both the 1950 and 1951 dues become payable, and unless these dues are paid your name will be automatically removed from their roster.

You must remember that any physician in good standing with our State Society in 1949 was automatically a member of AMA. If you did not pay your 1950 dues, you are a delinquent for these dues. There were no membership dues prior to the year 1950; there were only fellowship dues up to that time.

If you wish to pay your 1951 dues of $25.00 and the 1950 delinquent dues of $25.00 owed the AMA for your membership and JOURNAL which you enjoyed during 1950, you can be reinstated to membership and continue to be a member as long as you pay your succeeding annual dues. Your 1951 AMA dues will not be accepted until the 1950 dues have been paid.

If, however, you desire *not* to be a member for, say, 1951, or 1952, or 1953, and wish to again become a member in 1954, you can do so by paying your 1954 dues plus the 1950 delinquent dues you still owe for your membership and JOURNAL and other benefits you enjoyed during that year. Of course, under these conditions you would not be a member for the year 1951, or 1952, or 1953, and consequently would not owe any dues for these respective years.

At the Atlantic City meeting in June the House of Delegates disapproved several state society resolutions doing away with fellowship dues, and fellowship dues are still $5.00 a year, which dues are in addition to the regular membership dues of $25.00. Membership dues, of course, include the AMA JOURNAL priced at $15.00 per year to nonmembers. You can readily see that you only pay in reality, $10.00 for the many services enjoyed by being a member of your national organization.

If in addition to enjoying a membership you also become a fellow, you have the privilege of selecting any one of the specialty publications issued by the AMA, instead of the AMA JOURNAL.

AMA dues for any member over seventy years of age will be deleted.

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1952 ANNUAL MEETING

Dr. Ralph H. Riggs of Shreveport has been appointed Chairman of the Committee on Arrangements for the 1952 Meeting to be held in Shreveport, April 28-30. Serving with him are the following committees:

Advisory—Drs. Paul D. Abramson, C. B. Erickson, J. M. Gorton, L. W. Gorton, M. D. Hargrove, A. A. Herold, Sr., and W. R. Mathews.

Badges—Dr. W. M. Browning, Chairman; Drs. Ross Tilbury, J. G. Wafer and B. H. Young.

Banquet—Dr. Chas. Anderson, Chairman; Drs. G. A. Creel, R. B. Langford and Wm. A. McBride.

Decorations—Dr. R. D. Crow, Chairman; Drs. Jas. F. Gavin, Irwin Rice and B. P. Smith.

Entertainment—Dr. Chas. Gowen, Chairman; Drs. Alice Holoubek, Harry Trifon and George Wolfe.

Finance—Dr. J. P. Sanders, Chairman; Drs. S. W. Boyce, Frank Bryant and Hugh Ilgenfritz.

Golf—Dr. W. G. Jones, Chairman; Drs. Gene Caldwell, Wm. J. Hill and E. G. St. Martin.

Hospitals—Dr. Wm. E. Reid, Chairman; Drs. Peachy Gilmer, A. A. Herold, Sr., T. P. Floyd, J. R. Stamper and Clint Willis.

Hotels and Meeting Rooms—Dr. Clarence H. Webb, Chairman; Drs. Sam Gill, Arthur Herold, Jr., and H. DeN. Tucker.

Lanterns—Dr. James Eddy, Chairman; Drs. W. H. Carroll, W. M. Hart and W. M. Matthews.

Luncheons—Dr. J. E. Knighton, Jr., Chairman; Drs. R. T. Lucas, B. M. Kalstone and J. D. Youman, Jr.

Publicity—Dr. Keith Mason, Chairman; Drs. Whitney Boggs, C. E. Boyd and Orville Thomas.

Registration—Dr. L. L. Davidge, Chairman; Drs. Wm. M. Hall, W. C. Holman and G. J. Woolhandler.

Scientific Exhibit—Dr. Charles Black, Chairman; Drs. E. E. Dilworth, John Hendrick, E. J. MacPherson and W. W. McCook, Jr.

Signs—Dr. H. B. Levy, Chairman; Drs. Wm. L. Bain, Carson Reed and H. H. Vaughan, Jr.

Technical Exhibit—Dr. Don Overdyke, Chair-

man; Drs. B. C. Garret, Jr., E. L. Wenk and R. K. Womack.

Transportation—Dr. W. B. Worley, Chairman; Drs. Penn Crain, Wm. F. Drummond, J. V. Hendrick, T. M. Oxford and Tom Smith.

Woman's Auxiliary—Dr. R. B. DeLee, Chairman; Drs. N. J. Bender, T. A. Glass, K. B. Jones and Raymond Mays.

The doctors of Shreveport have already started planning for this meeting, the headquarters of which will be at the Washington-Youree Hotel. For specific information concerning the meeting, contact the committees listed above.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SOCIALIZED MEDICINE

Socialized medicine evidently is far from being a dead fish on the beach!

William Green, president of the American Federation of Labor, has just issued a strong appeal to "all our 8,000,000 members and their families" to contribute to the Committee for the Nation's Health.

Now that Oscar Ewing's prodigious propaganda machine in behalf of socialized medicine has been stalled by Congress, at least temporarily, Mr. Green has taken up the cudgel and, as honorary vice-chairman of the Committee for the Nation's Health, is going to run full-steam ahead.

In a full-page appeal in the A.F. of L. publication, "The American Federalist," Mr. Green addressed this message to all members. The letter follows in part:

"At the Houston convention last September, we of the American Federation of Labor pledged ourselves to a continued fight of national health insurance, disability insurance and federal aid to train more doctors and strengthen local public health departments.

"Determined to block these necessary and desirable measures, the American Medical Association has been spending millions of dollars in the last two years. The medical lobby is a spearhead of the reactionary forces.

"We of the American Federation of Labor are determined to preserve and extend our hard-won gains in social security, health and welfare. In this important activity our invaluable ally is the Committee for the Nation's Health, a group of distinguished physicians and laymen. The Committee for the Nation's Health is working hard to aid the American Federation of Labor and Labor's League for Political Education to build the solid educational base for a mandate to achieve labor's health goals.

"Every contribution to the Committee for the Nation's Health will help defeat the medical lobby's lies at the grass roots. Your contribution—large or small—to this Committee will pay off in better health and welfare legislation for all our 8,000,000 members and their families."

This type of appeal to the labor public shows that our campaign must be waged continuously.

NEWS ITEM

Effective August 10th, 1951, the office of the American Board of Obstetrics and Gynecology will be located in Cleveland, Ohio. Please address all communications to:

Robert L. Faulkner, M. D.
Secretary-Treasurer
American Board of Ob. & Gyn.
2105 Adelbert Road
Cleveland 6, Ohio

TRI-STATE MEDICAL ASSEMBLY MEETS SEPTEMBER 26 AND 27

The Tri-State Medical Assembly will be held in Marshall, Texas, on September 26 and 27, 1951. An extensive and interesting program has been arranged. Guest speakers will be the following:

University of Arkansas:
Dr. Allan G. Cazort, Clinical Professor of Medicine
Subjects: 1. Therapy of Dyspnea in Asthma
2. Drug Sensitivity

University of Texas:
Dr. William Levin, Associate Professor of Medicine
Subjects: 1. Diagnosis and Treatment of Anemias
2. Hypersplenic Disorders

Baylor University:
Dr. Fred M. Taylor, Assistant Professor of Pediatrics
Subjects: Undiagnosed Fevers
Southwestern Medical College of the University of Texas:
Dr. W. G. Reddick, Professor Clinical Medicine
Subject: The Management fo Diabetic Coma
Dr. Elliott M. Mendenhall
Subject: Recent Advances in Treatment of Pulmonary Tuberculosis
Dr. Everett C. Fox, Clinical Professor of Dermatology and Syphilology
Subject: Treatment of Common Skin Diseases
Dr. F. A. Duncan Alexander, Chief, Anesthiology, Veteran's Hospital, McKinney, Texas
Subject: The Management of Pain
Dr. Harry M. Spence, Clinical Professor and Chairman Dept. of Urology
Subject: Hematuria

There will be a banquet on the night of September 26, 1951 at which the University of Texas Medical Branch will confer an award on Dr. George Perry Rains, an early graduate of the University. The speaker of the evening will be Mr. E. J. Forio, Vice President of the Coca-Cola Company, Atlanta, Georgia, who will speak on "Public Relations." The doctors wives are invited to the banquet. There will be entertainment for the ladies during both days of the meeting.

For further information, write James H. Harris, M. D., Secretary-Treasurer, Tri-State Medical Assembly, Marshall, Texas.

HEALTH AUTHORITY SEES AMEBIASIS SPREADING

Despite good environmental sanitation programs in large cities, amebiasis, a parasitic infection often transmitted by foodhandlers including workers and housewives, may be spreading, a health authority warned.

Dr. Howard B. Shookhoff, of the Bureaus of Laboratories and Preventable Diseases of the New York City Health Department, said authorities are becoming more and more aware of the "great prevalance" of this disease throughout the country. It has been estimated that 15,000,000 are infected. The doctor reported in the Bulletin of the New York Academy of Medicine.

Amebiasis ranks second today only to malaria among the world's most widespread protozoan infections, he pointed out. "Although malaria is slowly being squeezed out of existence by new programs," he declared, "amebiasis on the other hand may actually be spreading."

REVISED CATALOG OF MEDICAL MOTION PICTURES

A revised catalog of motion pictures is now available through the Committee on Medical Motion Pictures. Copies will be sent to the secretary of each county and state medical society. This catalog lists sixty-two 16 mm. films, most of which are at the professional level. Fourteen of these films are suitable for showing to lay groups. Eight new films have been added. Copies are available upon request from:

Committee on Medical Motion Pictures
American Medical Association
535 North Dearborn Street
Chicago, 10, Illinois

BOOK REVIEWS

The External Secretion of the Pancreas: By J. Earl Thomas, M. D. Springfield, Charles C. Thomas, 1950, Pp. 160, illus. Price $3.50.

This is a monograph in the *American Lectures in Physiology* series. It is written from the point of view that "modern physicians are about as much interested in the sciences that are basic to their practice as are those who spend their whole time in teaching and research." The monograph is thus a complete and well documented critical review of the fundamental work on the pancreas. Medical students and physicians will find it of much interest and value.

The first chapter is concerned with the morphology of the pancreas, the development of the duct system, blood and nerve supply, and microscopic anatomy. The author points out why it is improbable that a stone at the common orifice which would close the ampulla would cause bile to enter the pancreatic ducts and possibly cause acute pancreatitis. More probable is the point of view of Popper that when acute pancreatitis follows occlusion of the common orifice the drainage is caused by activation of the pancreatic enzymes in the mixture of bile and pancreatic juice in the ampulla. The second chapter details the experimental methods which have been used by various workers. This is followed by a discussion of the properties, composition, and enzymes of pancreatic secretion, and the functions of the external secretion stimuli for the pancreas. The evidence for a humoral mechanism is given in detail as is the work on the functional innervation o fthe pancreas. the final chapter is concerned with the mechanism of pancreatic secretion.

A reading of this monograph emphasizes that much work remains to be done in the elucidation of the physiology of the pancreas. Many of the

commonly held beliefs are based on incomplete evidence and still need to be confirmed. This uncertainty is also reflected in many of the clinical impressions regarding the relation of the pancreas to various disease states. Thus, failure or deficiency of the neutralizing function of the pancreas may, conceivably, be an etiologic factor in peptic ulceration of the duodenum but its relative importance has not been finally determined.

H. S. MAYERSON, Ph. D.

Recent Advances in Nutrition with Particular Reference to Protein Metabolism: By Paul R. Cannon, Ph. D., M. D., Lawrence, Kansas, Univ. of Kansas Press, 1950. Price $2.00.

This book consists of a series of three lectures which deal largely with the subject of protein metabolism. Much of the material presented is based on research conducted by the author and his collaborators on the protein value of certain foods and the role and importance of essential amino acids in nutrition. Application of findings in recent experimental studies to clinical medicine is considered briefly.

This small book is written in a clear and interesting manner and should furnish the undergraduate medical student or the practicing physician with a good introduction to current concepts and problems in protein nutrition.

GRACE A. GOLDSMITH, M. D.

The Use of Pedicle Flaps in Plastic Surgery of the Head and Neck: By Borden B. New, M. D., F. A. C. S. & John B. Erich, M. D., F. A. C. S., Springfield, Ill., Charles C. Thomas, 1950, Pp. 104. Price, $3.00.

This monograph, written by excellent plastic surgeons, is a thorough and detailed essay on the use of skin pedicle flaps for the correction of head and neck defects. It is written in such form as to be completely understandable to the student, the young plastic surgeon, or to any surgeon who finds it necessary to correct such a defect. They discourse as to the advantages as well as disadvantages of each procedure and appraise their merit. It is also recommended to the established plastic surgeon as a very readable and dependable guide. The book is illustrated with numerous drawings, diagrams, and photographs.

GREER RICKETSON, M. D.

Acute Head Injury: By Joseph P. Evans, M. D., Ph. D., Springfield, Ill., Charles C. Thomas, 1950. Illus. Pl. Pp. 116. Price, $2.25.

Within the limits outlined by the author this constitutes an excellent and well organized review of the subject of head injuries. It reflects Dr. Evans' vast experience with these problems. The monograph is supplemented with a rich list of references to the existing literature. This book is of special interest to the neurosurgeon but its reading is recommended to every one who comes in contact with head injury patients, particularly the general surgeon and the surgeon specializing in traumatology. It also should be included in the reading list for medical students.

FRANK GARCIA, M. D.

Thromboembolic Conditions and Their Treatment with Anticoagulants: By Charles D. Marple, M. D. and Irving S. Wright, M. D., Springfield, Ill., Charles C. Thomas, 1950, Illus, Pp. 416. Price, $8.50.

The authors preface this book with a discussion of the reasons for the conflicting current reports and views concerning intravascular clotting, pointing out, among other reasons, that many discrepancies are due to insufficiently meticulous clinical laboratory determinations, while in other instances lack of understanding on the part of clinicians is responsible for divergent opinions. This monograph summarizes the pertinent present day basic observations and thoughts of responsible experimental investigators and careful clinical observers. Much attention is given to consideration of those matters about which there is debate. It is clearly stated by the authors that this publication is not a definitive presentation of either the diagnosis or treatment of thromboembolic conditions. It does not undertake teaching the diagnosis of thromboembolism nor does it purport to definitively present the matter of anticoagulant therapy. Nevertheless, in addition to the basic material presented, there is a thorough consideration of what the authors consider to be the presently logical clinical applications of anticoagulant therapy. The book contains sections on such practical matters as techniques for the administration of anticoagulants, the management of hemorrhage due to anticoagulants, failures and abuses of anticoagulant therapy and an appendix in which pertinent clinical laboratory procedures are given in detail. One section is devoted to a review of recent developments. The book is very well annotated, with 684 references. The index is well arranged and complete.

AMBROSE H. STORCK, M. D.

PUBLICATIONS RECEIVED

The C. V. Mosby Co., St. Louis: Fractures, Dislocations and Sprains, by John Albert Key, B.S., M.D., and H. Earle Conwell, M.D., F.A.C.S. (5th Edit.)

W. B. Saunders Co., Phila.: Clinical and Roentgenologic Evaluation of the Pelvis in Obstetrics, by Howard C. Moloy, M. D., M.Sc.

Charles C. Thomas, Publisher, Springfield, Ill.: Manual Therapy, by James B. Mennell, M. D.; Tobacco and the Cardiovascular System, by Grace M. Roth, Ph.D.

University Medical Publishers, Palo Alto, Calif.: Review of Physiological Chemistry, by Harold A. Harper, Ph.D. (3rd Edit.).

New Orleans Medical
and
Surgical Journal

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P-92 PENICILLIN

NEW PENICILLIN SALT WITH DECREASE IN REACTION RATE*

ALFRED B. LONGACRE, M. D.†
NEW ORLEANS

The increasing incidence and severity of reactions developing in patients receiving penicillin argues against the indiscriminate use of this antibiotic. Reports in the literature support the fact that in many instances these reactions will subside following cessation of penicillin therapy. However, in certain cases the reactions, though rarely fatal, are often distressing and may lead to complications interfering with the expected recovery. The instances of fatal reactions[1-4] are relatively few and not always clear-cut, but leave the impression that those reporting those cases felt that penicillin contributed to the anaphylactic type of reaction responsible for the patient's death.

INCIDENCE OF REACTIONS

The literature contains numerous reports pertaining to the incidence[5-11] of penicillin reaction. Pillsbury[12] *et al*, in 1947, pointed out that there is an increasing incidence of reactions to penicillin therapy. They found that in the first 824 patients with syphilis treated with penicillin 1.8 per cent developed a reaction; whereas in the last 200 cases roughly 5 per cent showed some form of an allergic reaction. Cormia,[13] in 1945, reported an incidence of 0.5 per cent of 2000 soldiers showing an allergic reaction to penicillin. In 1948, Black[7] reported an incidence of 2.2 to 5 per cent in patients receiving penicillin; whereas in 1949 Barton[17] reported that 10 per cent of the patients receiving penicillin parenterally demonstrated some form of reaction. From these reports it seems reasonable to conclude that the incidence of reaction in patients receiving parenteral penicillin probably is between 6 and 10 per cent of those receiving the drug. The incidence of contact dermititis seen in patients receiving local penicillin is somewhat higher, being observed in between 10 and 20 per cent of the patients. Reactions following oral administration of penicillin as tablets, inhalation, or lozenges are probably equal to those of the parenteral series.

As a result of the increased incidence and severity of reactions in penicillin therapy two unfortunate situations are developing: (1) Some patients with a relatively mild infection in which penicillin would be of benefit, are being deprived of this drug, in order to guard against sensitizing these patients to penicillin in the event that at some later date they may require penicillin for a more serious infection. (2) Other patients with a relatively severe infection, who should receive the advantages of penicillin, are also being deprived of its advantages because of a history of a previous reaction to penicillin.

P-92

A new penicillin salt known as P-92 has been developed. Preliminary studies have demonstrated that this form of penicillin not only markedly decreases the incidence

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*Presented at the Seventy-First Annual Meeting of the Louisiana State Medical Society, New Orleans, La., May 9, 1951.

†Assistant Clinical Professor in Surgery, Department of Surgery, Louisiana State University, School of Medicine, New Orleans.

Grant for Laboratory furnished by Commercial Solvents Corporation.

of reaction, but also decreases severity of reaction in those in whom a reaction has been observed with other salts of penicillin. P-92 is a penicillin salt of N-methyl-1, 2-diphenyl - 2 - hydroxyethylamine. Experimental studies with the base N-methyl-1, 2-hydroxyethylamine have demonstrated that it possesses certain antiallergic properties which are not related to a true antihistaminic action.

P-92 is prepared as a white powder and is distributed as such in vials of 10 mm. capacity. Addition of 4.2 mm. distilled water to the contained powder makes a suspension with each millimeter containing 300,000 units of penicillin. In the powder form P-92 is completely stable, but when once put into a suspension its stability will decrease, but compares favorably with other forms of penicillin. It has a high rating of syringeability being easily administered intramuscularly through a 21 gauge needle; without discomfort at the time or site of injection.

RESULTS WITH USE OF P-92

This report is of the results obtained in a series of patients to whom this new penicillin salt P-92 was administered. These patients came from the Surgical Service of Charity Hospital and the Surgical and Medical Service of Touro Infirmary in New Orleans, as well as from the author's private practice. In this series are many cases which had a history of previous reaction to other dosage forms of penicillin. A careful history pertaining to previous allergy or to whether or not they had received penicillin therapy prior to this admission, and if they had, whether or not they had a reaction to this penicillin was sought after in every case. All laboratory determinations were made in the Antibiotic Research Laboratory, a Department of Surgery of the Louisiana State University School of Medicine*

Prior to initiating the clinical study to determine the incidence of reactions and therapeutic value of P-92 penicillin, several determinations of penicillin blood concentrations following the administration of a single dose of 300,000 units intramuscularly were made.

Table 1 summarizes the blood levels obtained following a single injection of 300,000 units of P-92. Accepted serum blood levels of penicillin were observed in all instances for a twelve hour period following injection. At twenty-four hours 7 of the 12 subjects still possessed the therapeutic blood level. Two of the remaining 5 subjects possessed minimal concentrations of 0 to .015 units of penicillin per cc.; whereas in 3 instances no penicillin was demonstrable in the blood serum. Even though 4 of the subjects demonstrated penicillin blood lev-

*This study was made possible by grant of Commercial Solvents Corporation which also supplied the P-92 penicillin.

TABLE 1
INTRAMUSCULAR PENICILLIN P-92
Code No. 323

Case No.	Control of Pt. Serum	6 hrs.	12 hrs.	24 hrs.	36 hrs	48 hrs.	60 hrs.	72 hrs.	Sensitivity of Test
1	G	.25	.125	.062	.062	.062	.062	.031	.031
2	G	.125	.125	.062	G	G	G	.031	.031
3	G	.25	.125	.031	G	G	G	....	.031
4	G	.25	.125	.125	.062	.031	G	G	.031
5	G	.062	.031	G	G	G	G	G	.031
6	G	.25	.062	....	G	G	G	G	.031
7	G	.25	.062	G	G	G	G	G	.031
8	G	.125	.062	.015	G	....	G	G	.015
9	G	.125	.062	.015	G	G	....	G	.015
10	G	.25	.125	.062	.015	G	G	G	.015
11	G	.25	.125	.125	.031	.031	.015	.015	.015
12	G	.25	.125	.031	G	G	.015	.015	.015

Number — Unit value of penicillin per ml. of patient's serum
G — No inhibition of growth
Methed — Serial dilution
Test organism — C-203 *Streptococcus pyogenes*
Broth — Difco heart infusion broth B-38

els throughout the remaining period of observation, these levels were of such low concentrations and occurred in such a low percentage observed, that for practical purposes P-92 penicillin should not be considered effective longer than twenty-four hours following injection.

Table 2 includes the interval between the last preceding dose. The total dose of P-92 at the time the blood specimen was taken is recorded to correlate with the blood level. Many of the blood levels obtained under these conditions were higher than those seen following the single dose. It is conceivable that there is an additive effect of the penicillin which will account for this increase in level. Tables 3 and 4 contain the blood levels obtained when penicillin P-92

TABLE 2
PENICILLIN IN PEANUT OIL
P-92 300,000 u/ml.

Case No.	Control of Pt. Serum	1 hr	4 hrs.	12 hrs.	24 hrs	48 hrs.	72 hrs.	Sensitivity of Test
1	G	.063	.125	.063	.125	.015	G	.015
2	G	.125	.125	.063	.063	.032	.125	.015
3	G	.032	con-tam.	.063	.063	.032	G	.015
4	G	.063	.125	.125	.125	.063	.125	.015

Number — Unit value of penicillin per ml. of patient's serum
G — No inhibition of growth
— — No specimen
Methed — Serial dilution
Test organism — C-203 *Streptococcus pyogenes*
Broth — Difco heart infusion broth B-38

TABLE 3
P-92 PENICILLIN IN ALUM. MONOSTEARATE
PEANUT OIL
300,000 u/ml.
Jan. 9, 1951

Case No.	Control of Serum	½ hr.	1 hr.	4 hrs.	12 hrs.	24 hrs.	Sensitivity of test
1	G	.063	.063	.063	.063	.063	.016
2	G	.031	.063	1.0	.25	.031	.016
3	G	G	.016	.031	.013	.031	.016
4	G	G	.016	.031	.063	....	.016
5	G	....	.125	.25	.063	.031	.016

Number — Unit value of penicillin per ml. of patient's serum
G — No inhibition of growth
— — No specimen
Test organism — C-203 *Streptococcus pyogenes*
Broth — Difco heart infusion broth B-38

TABLE 4
SPOT BLOOD LEVELS DRAWN ON PATIENTS RECEIVING 300,000 U. DOSES OF P-92 IM. PENICILLIN. LOT NO. 308443

	u/cc serum	Hrs. after last dose	Total P-92 in cc.	u/cc serum	Hrs. after last dose	Total P-92 in cc.
1. Open reduction and fixation of right femur	0.5	3½	15 cc	0.5	3½	14 cc
2. Fracture of head of radius	0.125	6	3 cc	0.125	6½	4 cc
3. 3° burns of left lower extremities	0.125	4½	10 cc	*0.062	2¾	11 cc
4. Carcinoma of face	0.25	4½	10 cc	0.5	3	12 cc
5. Cholocystectomy	0.5	4	9 cc	P-92 discontinued		
6. Hernioplasty	1.0	6½	9 cc	1.0	5	11 cc

*Had been getting 1 cc. b. i. d. but 24 hrs. between last and next to last dose.
Sensitivity of test — 0.015
Method — Serial dilution
Test organism — *Streptococcus pyogenes*
Broth — Difco heart infusion broth B-38

is suspended in two different menstruums, namely, in peanut oil and in peanut oil with a monostearate base. In both instances, the blood levels, though of a lower magnitude than those obtained from the P-92 suspended in saline, did persist for considerably longer periods. Levels obtained when the P-92 was suspended in peanut oil are higher than those when obtained from penicillin suspended in peanut oil and aluminum monostearate. Observations indicate that P-92 suspended in peanut oil will in many instances maintain the therapeutic blood level for at least forty-eight hours, in a fewer instances for seventy-two hours. Traces of penicillin have been observed following a single dose of P-92 in peanut oil for as long as ninety-six hours.

Clinical observations have been made on a total of 312 patients, all of whom received P-92 penicillin parenterally. For the purpose of therapeutic analysis the patients have been divided into three groups, namely, clean cases, contaminated cases, and cases of primary infection. In this series the clean and contaminated cases total 245 patients of which only 205 were complete enough for therapeutic evaluation. In 5 instances an infection developed regardless of the antibacterial therapy, which in addition to P-92 included other antibiotics. There are 45 cases of infection which received P-92 penicillin in addition to other antibacterial therapy. Because of this complexity of treatment any accurate evaluation of any one of the factors of therapy is impossible and any comment as to the possible evaluation of the penicillin factor of the treatment would be pure speculation. The records of the remainder of the cases as well, for other reasons, did not lend these patients to a therapeutic evaluation of their treatment. The results observed in these cases support the conclusion that the therapeutic value of P-92 is at least equal, if not better than other types of penicillin, especially those of the long acting type.

All of the patients in this series received P-92 in 300,000 unit dosages administered twice daily, the total daily dose being 600,000 units. The longest consecutive period of treatment for any one patient was fifty-three days for a total dosage of 16,800,000 units without evidence of reaction. In 175 cases the duration of treatment varied between three and eight days; whereas in another group of 111 patients the duration of treatment varied between eight and twenty-two days. Of the remaining patients only 28 received penicillin for a period of less than three days, the remaining receiving it for a period exceeding twenty-one days.

In this series, 67 patients had received other forms of penicillin prior to this admission. Of the 67 patients 10, or 14.9 per cent gave a positive history of one form or another of reaction to the penicillin. A positive history of allergy other than drug was obtained in 32 of the patients. Of the remaining patients, 178 denied any history of allergy; whereas in the remaining 83 the information was too unreliable to determine either the presence or absence of an allergy.

All patients who developed even a questionable reaction are included as possibly due to P-92 penicillin. There were 9 instances in which the patients developed some type of reaction to the therapy which they were receiving, including P-92 penicillin. In 5 of these 9 instances it is believed that the reaction might be directly attributable to the P-92.

In 1 of these 5 patients there was a positive history of a severe reaction to the previous administration of a procaine crystalline potassium G type of penicillin. This was characterized by an urticarial type of rash over the entire body accompanied by edema of the eyelids, the fingers, and neck, lasting for approximately three weeks and terminating with an extensive desquamation. P-92 penicillin was administered to this patient during a recurrent attack of a single acute infection. Following the second dose of P-92 an urticarial rash developed and there was some edema of the hand. However, the patient stated that the reacton was not as severe as prevously experienced and it subsided within one week. In another instance, a reaction developed in a patient with a positive history of pompholyx. Following the administration of P-92 prophylacticly this patient developed a recurrence of this condition.

The remaining 4 patients who developed a reaction while under observation received in addition to P-92 penicillin other antibacterial medication including antibiotics and the sulfa drugs. Even though the P-92 could possibly be the responsible agent for these reactions, it would be admittedly unfair to attribute it solely to this preparation without considering the possibility that any one or more of the other drugs might as readily have been the cause.

In a case of severe virus infection with a previous history of a severe penicillin reaction, P-92 was administered in desperation in dosages of 600,000 units every four hours. There was immediate improvement in the clinical picture; the temperature returning to normal within eight hours, but followed by a slight elevation to 101° F. for a period of twenty-four hours. On the second day of P-92 therapy there developed a fine maculopapular eruption and a few urticarial wheals over the abdomen and forehead. In this instance, history of sensitivity to previous dosages of phenobarbital was obtained and the present cause of the reaction is confused with the fact that this patient in addition to the P-92 penicillin had received two large doses of phenobarbital during the course of treatment. It is conceivable that the reaction might be attributed to the phenobarbital, for with continued P-92 therapy the reaction subsided. However, inasmuch as P-92 sensitivity cannot be excluded in this case, it is included in the series of 9 patients who developed a reaction during P-92 therapy.

Another patient in whom a reaction developed, and on whom several other drugs in addition to P-92 were used, was given a test dose of P-92 following his discharge from the hospital at which time he still had a rash and urticaria. He returned at daily intervals for check-up and stated that the rash seemed to begin to disappear following the test dose of P-92 penicillin.

The following case will illustrate the advantage of a hypoallergic penicillin for patients who are known or found to be sensitive to penicillin. Twenty-four hours after starting regular crystalline penicillin G treatment for a pelvic infection, this patient developed a severe urticarial rash and edema accompanied by a slight elevation of temperature. P-92 penicillin was immediately substituted and all signs of reaction completely cleared in thirty-six hours and did not return during the entire course of treatment with this latter drug. Unfortunately the supply of P-92 ran out, and because of the persistence of the infection the patient was given a procaine crystalline penicillin G form with immediate recurrence of all of the allergic manifestations. This case suggests that it is possible, in some instances at least, to give P-92 even in the face of a known penicillin sensitivity. It also suggests the possibility that P-92 may be of value becouse of regression of an established penicillin allergic reaction.

Of the patients who gave a positive history of reaction to penicillin administered at some time prior to the treatment under observation, 7 received P-92 penicillin without developing any signs of reaction to the drug. In another instance in which a patient had previously been sensitive to penicillin, the reaction was included in that group in which multiple forms of therapy confused the evaluation of the cause of the reaction. And in another patient the reaction directly attributable to P-92 penicillin was much less severe than the previous reaction which the patient had experienced when given procaine penicillin G.

SUMMARY

Of the 312 patients under observation for reaction, 9 or 2.8 per cent developed some form of reaction. However, this figure of 2.8 per cent incidence of reaction probably does not give the exact incidence of reaction of the patients receiving P-92 penicillin. Likewise a corrected figure obtained by omitting those receiving other therapies which might have been responsible for the reaction, would also be misleading. For purposes of discussion it can be concluded that 2.8 per cent of the people who received P-92 penicillin in this series did show some form of reaction which may or may not have been due to the penicillin. The percentage rate of reaction in those patients in which P-92 was the only antibacterial therapy, and thus probably the only cause, was

1.6 per cent. Regardless of which percentage rate of reaction is the correct one, either of them is considerably below the present reaction rate seen in patients receiving other forms of penicillin.

It appears that P-92 can be safely given to patients who are known to be sensitive to penicillin, or in whom a reaction develops while receiving other penicillins. This is attested to by the fact that of the 10 patients with a history of a reaction to regular penicillin, 7 did not show any reaction when receiving P-92 penicillin. Whereas, in one of the two other instances with a known sensitivity to previous penicillin, the reaction with P-92 penicillin was minimal as compared to a very severe reaction on the other penicillins. In another case the exact cause for a reaction developing during therapy cannot be actually determined, in that the patient received in addition to P-92 other specific antibacterial therapy which could have been responsible for the reaction. A case in this series developed a reaction while under therapy with regular penicillin. This reaction subsided and did not recur while under P-92 penicillin, but did recur when the patient was placed back on regular penicillin once again. Not included in this series, but in a private case of another physician was a similar instance of a patient with a penicillin reaction; the reaction subsided while under therapy with P-92 penicillin.

Though it cannot be concluded that P-92 will not cause reaction, this study indicates that the amine base of P-92 may be of value in causing regression of certain allergic reactions to other forms of penicillin. It also in many instances will prevent a reaction in patients who have reacted to other forms of penicillin and in specific cases where penicillin is mandatory, even in the presence of a marked sensitivity, P-92 can be administered with the hope that the reaction will be minimal. Consequently, this form of hypoallergic penicillin will prove to be a valuable addition to the present antibiotic armament against infection.

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TUBERCULOSIS TREATED WITH ANTIBIOTICS*

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SHREVEPORT

Since Robert Koch, in 1882, isolated the tuberculosis organism and proved that this was the specific cause of the disease tuberculosis, there has been a constant search for a therapeutic agent that would control the germ and the spread of this organism within the human body.

At first, it was tuberculin with disappointing results. The various salts of the metals, gold and silver, and all the other metals that have been used to treat any disease, were used in turn with the same disappointing results. The reason for reporting this is to point out that we have not completely conquered these organisms yet. In 1944 when Wakeman discovered streptomycin, we had our first hope for a specific drug that we could use in the human without doing more harm than bene-

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The Gowen Sanatorium, Inc., Shreveport, La.

fit to the body. Henshaw and Pfuetze reported the first group of cases of tuberculosis treated with streptomycin with good results. Then the Veterans Administration reported an extensive series of cases with wonderful results. However, further use has proved that streptomycin is not a perfect therapeutic agent which rids the body of all tubercle bacilli.

For the purpose of this report we have chosen 500 specific cases which have come under our personal care and which we have divided into two groups. The first group comprises 223 proven cases of tuberculosis that were treated without any specific therapeutic agent at the Gowen Sanatorium from 1942 through 1945. The second group of 300 proven cases of tuberculosis were treated at the same institution from 1946, when streptomycin became available, to the present time. The first group of 223 cases was treated with the routine of sanatorium rest, pneumothorax in the selected cases, phrenic nerve interruptions, and thoracoplasty where indicated, as well as a few cases of pneumoperitoneum. In this group there were 132 males and 91 females. These were approximately 70 per cent far advanced cases, 20 per cent moderately advanced and 10 per cent minimal. Of these 223 patients there were 28 deaths in the sanatorium; 12 were discharged as unimproved; and the remaining 183 were discharged from the hospital as improved or quiescent. A number of psychological and economic factors enter into the discharging of a patient from a tuberculosis hospital. It is, therefore, difficult to keep a patient until he is absolutely classified as cured. Since it is impossible to hasten the rate of formation of scar tissue, the time element involved in the final stage of getting completely well is one factor. The finances necessary to maintain a patient in a sanatorium is a large factor entering into the time of discharging a patient, particularly those living within an easy radius of the institution. Patients living near can be satisfactorily treated outside of the sanatorium at this stage. However, let me emphasize that no patient should leave the care and routine of a sanatorium as long as he has tubercle bacilli in his sputum. Public health, the health and welfare of his family and associates, and particularly, contacts with young children should determine the length of time a patient should remain in the sanatorium.

In the group of 300 patients, there were 129 females and 171 males. Further classification on admission to the sanatorium showed that 275 had tubercle bacilli in the sputum on ordinary concentration and smears. There were 25 on whom we failed to find bacilli, but who showed definite evidence of active tuberculosis from physical findings, x-ray and the results of treatment with antibiotics.

On admission to the sanatorium, the stages of the disease were as follows: far advanced 212, moderately advanced 69, and minimal 19. On discharge, according to the bacilli found in the sputum, 190 were negative on concentration and ordinary smear rather than culture or animal inoculation, 110 had bacilli in the sputum after various antibiotics had been administered and collapse therapy and sanatorium treatment had been used. According to the classification of the National Tuberculosis Association, 48 of these people are apparently well, living a normal life and working a normal day, most of them at their previous occupations. There are 52 apparently arrested. One hundred and seventy-one would be classified as improved active (in the old classification as quiescent) and are living a very restricted life and continuing their pneumothorax or pneumoperitoneum. Eleven are unimproved and 18 have died.

CASE REPORTS

*Case No. 1** T. G., age 2 months; diagnosis, active tuberculosis. Father had active tuberculosis, tuberculin patch test strongly positive. X-ray showed enlarged hilus gland with extension into the upper left parenchyma and some into the middle right lobe. The baby was treated for sixty days with 0.3 ghs. daily of dihydrostreptomycin, diet, supporting medication, and penicillin, to control the acute respiratory infection when indicated. Her condition showed marked improvement im-

*Courtesy of Dr. R. F. Lucas, of the Children's Clinic, Shreveport.

mediately and the present x-ray shows all involved areas are apparently healed.

Case No. 2. A. B. K., age 64, far advanced pulmonary tuberculosis with bilateral cavitation. He was given 1 gm. streptomycin a day for one hundred and twenty days. Pneumoperitoneum was instituted and excellent results were obtained with a rise of both sides of the diaphragm. The patient left the sanatorium after 8 months, in splendid condition, well above his normal weight. Pneumoperitoneum was continued as the patient came back each week for his refills. The patient remained at home a few weeks, and without apparent symptoms, suddenly developed bleeding from the bowels and vomiting. He was a taken to a general hospital and all treatments failed to give relief and he died within forty-eight hours.

Autopsy report: June 21, 1949—Lungs: Tuberculosis; (a) Consolidated lesion in the right lobe which was tuberculous pneumonia. (b) Miliary. (c) Fibrocaseous nodules which were still active histologically. These were the predominant lesions in the upper lobe (where cavities are reported to have been present before streptomycin). They showed evidence of control or healing. However, in the same location were found active miliary lesions. It was assumed that the miliary seeding and pneumonia represented later developments.

Duodenum: Chronic peptic ulcer. However, it did not look like one that would have given rise to intractable hemorrhage. In view of the tremendous amount of tuberculosis of the liver the prothrombin level may have been low. Also, hemorrhage on the basis of thrombocytopenia may be observed in acute miliary tuberculosis.

Case No. 3. S. H. H. was admitted to the sanatorium in October 1950, male, age 101. X-ray showed far advanced pulmonary tuberculosis with acute laryngeal and tracheobronchial disease. He complained of severe pain and had been unable to take anything but liquids for several weeks and that was very painful. Streptomycin was begun and only 0.25 gram was given daily. Due to his age we were rather hesitant to give a full dose of the drug. Within a week the pain disappeared in the throat and he was eating quite normally for one of his age. His cough and expectoration disappeared, but he continued to have bacilli in the sputum. X-ray showed considerable clearing and fibrosis in all areas. Temperature and pulse were within normal limits most of the time. He expired on April 23, 1951.

In cases of intestinal tuberculosis streptomycin had a most beneficial effect in controlling the symptoms and bringing about an apparent healing of the intestinal lesions.

In another case, that of a chronic purulent rhinitis, we were able to recover the bacilli from the nose. After a few days of administering streptomycin, the condition cleared up and apparently the infection disappeared. No bacilli could be found.

METHOD OF ADMINISTRATION AND DOSAGE

All of our patients received streptomycin intramuscularly. Practically all injections were given in the hips, but a few were given in the arm muscles. Injections in the arm muscles were given only to those patients who had well developed muscles. When streptomycin first became available to institutions, we gave streptomycin every three hours around the clock. Due to extensive soreness of the hips, we soon changed to a schedule of every four hours and shortly to every six hours. The patients still complained of sore hips, so in view of the fact that our clinical results appeared as good on six hour methods as on three hour ones, we went to eight hours and then shortly to twelve hour intervals. This has proven very satisfactory and the incidence of sore hips is much less. Part of this is due, of course, to the fact that we are obtaining a purer drug now.

Our streptomycin solutions are prepared so that each cc. contains 250 mgs. We now use almost exclusively, the dihydrostreptomycin. When the drug first became available, the cost was such that it was prohibitive to give more than a gram in twenty-four hours. Fortunately, this has been found to be the optimal dose in pulmonary tuberculosis and is the dose we maintain in the average case today. Our cases have received streptomycin from thirty to one hundred and twenty days. Most patients receive it for ninety days.

In cases which were proven bronchoscopically to have ulceration of the tracheobronchial tree, we have given streptomycin inhalations in doses of 125 mg. four times a day. Five minutes of adrenalin were usually added to get better distribution of the streptomycin. Inhalations are given alone or in combination with intramuscular injections.

DRUG REACTIONS AND MANAGEMENT OF REACTIONS

The most common reaction to the intramuscular injection of streptomycin is sore muscles at the site of injection. This was

especially distressing with the three and four hour treatment periods. We have found that hot packs give the quickest relief for this condition. With the twelve hour treatment period and more refined streptomycin, this condition does not occur too frequently nowadays. In our series, we had two abscesses which required opening. One of these was sterile.

Dizziness was one of the most frequent reactions. However, most patients adjusted themselves promptly without having to discontinue the drug. In a few the drug was discontinued for a few days and then treatment was resumed. We found that elderly patients are most susceptible to dizziness and we usually treat those patients on 0.5 gram of streptomycin daily. We have had no patient who did not entirely recover from dizziness, though a few of them required a few months to do so. We have had no cases of impaired hearing as a result of treatment.

With our first lots of streptomycin, skin rashes were fairly common. These would usually be controlled with antihistamines. Temperature reaction occurred about the same time. These occurred with and without the accompaniment of a skin rash. These could frequently be controlled with antihistamines. In some cases the patient had to be desensitized to streptomycin by reducing the daily dose to 0.1 gram or less and gradually increasing to full dosage. With present lots of streptomycin, these two types of reactions are not common.

There have been a few cases of visual disturbance which have consisted primarily of difficulty in reading. The patients stated that there was blurring at times. This condition promptly cleared when streptomycin was discontinued. There was one case that developed marked adenopathy and eosinophilia. This caused the patient only slight discomfort and cleared promptly after streptomycin was stopped.

In using antibiotics, timing of giving the drug in relation to collapse therapy is an essential factor in getting maximum results. It is also absolutely essential that the diseased tissue be well drained or the antibiotics cannot reach the source of infection. All active pulmonary tuberculosis that has any symptoms of tracheobronchial disease should be inspected carefully and frequently for ulceration and bronchial stenosis and edematous bronchi by bronchoscopic examination. The management and treatment of tracheobronchial diseases is one of the most difficult that faces the phthisiologist.

Up to ten years ago tuberculosis was considered a disease most prevalent in the younger generation. In the 500 cases reported, about one third occurred in patients under 40 years of age and the other two-thirds, or by far the greater number, occurred in persons over 40, the largest number being between 40 and 70 years. In these 500 cases, the youngest patient was 2 months old and the oldest was 101 years old.

CONCLUSION

We can conclude from the experience we have had that streptomycin is a valuable adjunct in the treatment of tuberculosis. Streptomycin should not be considered a cure-all for tuberculosis, and when used, should be used in conjunction with other standard treatment. We find that streptomycin does shorten, somewhat, the course of the disease and gets many patients in shape for some form of collapse therapy. P. A. S. was used in some cases in which it was suspected that the organism was resistant to streptomycin.

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INTRAVENOUS ADMINISTRATION OF DILUTE PITOCIN IN OBSTETRICS*

EXPERIENCE IN 173 CASES*

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The intelligent use of continuous intravenous administration of dilute pitocin in a controlled manner has, in our experience,

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proved to be a valuable adjunctive obstetrical measure, but like any valuable procedure, it can be abused. For this reason and because of the rapid development of its use in the past year by specialists as well as general practitioners primarily to stimulate the onset of labor, a word of caution should be sounded now. We do not believe that it is a safe enough procedure, for example, for a busy obstetrician to telephone an intern or nurse "to start a bottle of pitocin" on his patient, and then arrive later when the patient is well advanced in labor. Just as the numerous accidents following the injudicious use of intramuscular administration of pituitrin after its introduction in 1909 caused it to be strongly condemned by 1920, so will the intravenous use of pitocin, if its use in the practice of obstetrics is not properly controlled.

It appears that the continuous intravenous administration of pitocin is a safer and more physiologic method than frequent intramuscular injections. It has been shown by Hellman and associates[1] that in contrast to intramuscular injections, the same or smaller doses by continuous intravenous administration give better tokodynamometric patterns of uterine activity with far more increase in work gradient of the uterus. In normal labor the lower uterine segment is relatively inactive, and there is a gradient of activity from the fundus downward. When the normal balance is reversed, that is, the lower segment is overactive, a condition known as uterine "dyskinesia," abnormal labor results with cessation of descent of the head and failure of the cervix to dilate. Similarly, Steer and Hertsch[2] demonstrated electrographically, by means of electrode detection of uterine contractions, that true labor begins with activity of the fundal musculature, which then spreads downward when the proper state of muscular excitability exists. This is in contrast to ineffective, false labor or inertia in which irregular, spasmodic and nonspreading contractions occur in all parts of the uterus. An overdose or too rapid administration of pituitrin or pitocin can produce uterine muscle imbalance.

The indications for intravenous administration of dilute pitocin can be classified into four general groups: (1) induction of labor, (2) augmentation of labor, (3) postpartum uterine atony and (4) incomplete abortion. We have employed this method in 116 patients for induction of labor, 37 patients for augmentation of labor and approximately 20 patients in the postpartum period. Our experience with this group of patients, who were seen during the period 1949 to 1951 either on the Tulane Obstetrical Service at Charity Hospital in New Orleans or in the Department of Obstetrics, Ochsner Clinic, will be discussed.

INDUCTION OF LABOR

Indications—The same precautions and obstetrical contraindications apply to induction of labor by intravenous administration of pitocin as by any other method. There should be no significant pelvic contracture or fetal malpresentation, and ideally, the infant should have reached full maturity. However, in patients with severe pre-eclamptic toxemia, the last condition might not always be possible. We have used pitocin in patients with all types of indications for induction, including toxemia, essential hypertension with or without nephritis, abruptio placenta, missed abortion, polyhydramnios, epilepsy, strong and painful Braxton Hicks contractions at term, multiparous patients who were unable to reach the hospital on short notice after labor began, and patients with ruptured membranes in whom labor did not start spontaneously.

Technic—After having used dilutions of pitocin varying from 5 minims to one complete vial (15 minims) in 1000 cc. of glucose in water, we believe that 5 to 10 minims in 1000 cc. is a satisfactory quantity both for effectiveness and for ease of calculating rate of dosage and total pitocin used. The average total amount of pitocin used during induction in our series was 5.5 minims; the smallest amount was 1 minim and the largest 20 minims.

The infusion is always started before the pitocin is added to the flask in order to prevent a rapid uncontrolled amount of pitocin solution from entering the vein during the manipulations required to introduce the in-

fusion. The rate of flow should always be adjusted to about 10 to 12 drops a minute, until the character and speed of development of the contractions have been determined. In our series the average time elapsed between institution of the infusion and onset of contractions was thirty-five minutes, the shortest being one minute and the longest six hours. The rate can be slowly increased over a varied period of time until rates of 40 to 50 drops a minute have been attained. We have arbitrarily adopted a maximum rate of 1 minim an hour. The routine use of a small bore needle,[3] such as a No. 22, helps prevent too rapid inflow of the solution, which is one of the dangers of the procedure.

Possible complications of this procedure are development of tetanic contractions, elevated blood pressure, or rupture of the uterus. The controlled method of induction just described aids in the development of physiologic uterine activity and prevents the occurrence of sudden tetanic contractions in women whose uterine musculature is especially sensitive to pitocin.

This can be illustrated by the case of Mrs. B., a primigravida, with normal blood pressure but severe edema of the lower extremities and moderate Braxton Hicks contractions. Three weeks after the expected date of confinement a continuous pitocin drip at a rate of 10 drops a minute was started. Contractions became frequent and strong in a matter of minutes, and merely increasing the rate of flow from 10 to 15 drops a minute, produced almost tetanic contractions of long duration, with a mild increase in blood pressure and slowing of the fetal heart rate. When the rate was immediately decreased to less than 10 drops a minute, labor reverted to normal. The membranes ruptured spontaneously shortly thereafter, and soon afterward when satisfactory labor was in progress, the pitocin infusion was discontinued after a total of only 100 cc. (1 minim) had been given. Labor progressed to a successful termination.

We were certain that if the usual 1 minim or greater intramuscular dose had been used in a patient with such a sensitivity, the obstetrician would have experienced some anxious moments attempting to control the tetanic contractions. Especially must one be cautious in using pitocin in any form in patients with prolonged rupture of the membranes. The uterine musculature seems to be more sensitive to pitocin in these women and the great safety advantage which the extremely dilute pitocin infusion offers here is of considerable value.

Blood pressure, pulse and fetal heart rate are always checked routinely before a pitocin infusion is begun and frequently thereafter. For the most part, normal blood pressure is not affected by correct administration of pitocin. However, occasionally, temporary elevation of blood pressure, which is not serious, is produced. This has occurred in several cases, of which the following is an example.

Mrs. B., a secundigravida living out of the city, had normal blood pressure and other physical findings. Labor was induced by an intravenous infusion of pitocin containing 10 minims per 1000 cc. Contractions began in thirty minutes and satisfactory labor ensued for a period of four hours. Blood pressure at this time was 180 mm/Hg. systolic and 120 mm./Hg diastolic, the pressure having been normal prior to this. The rate of infusion flow had never exceeded 16 drops a minute. The infusion was immediately discontinued and within one-half hour the blood pressure returned to normal. Unfortunately, the progress of labor ceased also during this time so the infusion was cautiously restarted. Labor was shortly inaugurated again and was completed in four more hours with the blood pressure remaining normal. This patient received a total of 1000 cc. (10 minims).

In our experience with toxemic patients at Charity Hospital in New Orleans, the incidence of elevation in blood pressure above the stabilized elevated level, after induction by pitocin infusion, is greater than in patients with normal blood pressure. An elevation of over 30 mm./Hg. occurred in 11 of 49 women with toxemic pregnancies, or 22.4 per cent, and a 30 mm. reduction in 6

(12.2 per cent). It was found necessary to discontinue the infusion in a few of these patients but often merely reducing the rate of flow was sufficient to control the blood pressure.

A large proportion of the cases of blood pressure elevation in toxemic patients occurred in our early experience when we were using larger amounts of pitocin and faster rates of administration than we now find necessary. Since adoption of the use of a 5 minim solution in these patients with a maximum rate of flow of 1 minim an hour, blood pressure elevation above a previously stabilized level has not occurred, even in severe pre-eclamptic hypertensive women.

In 13 of the 49 toxemic patients, the hourly urinary output was recorded. There was no change in 12 and a decreased output in one.

Unfortunately, in this series there was one case of ruptured uterus.

This was L. A., a Negro woman at term, gravida III, para II. She was admitted to Charity Hospital after spontaneous rupture of the membranes. The blood pressure and temperature were normal and the fetal heart tones were not audible. There were no uterine contractions. Vaginal examination shortly after admission revealed a rigid, scarred cervix with only 1 cm. dilatation. There is a distinct possibility that the cervix may have been torn at the internal os during the examination. When labor did not occur spontaneously, induction was begun by administration of 15 minims of pitocin in 1000 cc. of glucose in water. Irregular contractions began shortly thereafter, although no significant strong or regular contractions occurred, the patient having been under close supervision by a member of the resident staff. After the patient had received approximately 500 cc. of solution, or 7.5 minims of pitocin, over a period of two and one-half hours, lower abdominal pain and some bright red bleeding developed. Immediate sterile vaginal examination revealed that the cervix had not dilated to any significant extent but that a rupture had occurred in the lower uterine segment which extended upward for a distance of 6 or 7 cm. Cesarean section was immediately done with delivery of a macerated stillborn infant; this was followed by total hysterectomy because of the uterine laceration. The patient made an uneventful recovery.

There is some question in our minds whether the pitocin was the cause of the uterine rupture, because of the weak and irregular nature of the contractions stimulated by the infusion and the rigidity and possible scarred condition of the cervix. A normal spontaneous labor might have produced the same results in this particular patient. However, the amount of pitocin and the rate of administration in this case was much greater than we now consider advisable and safe. Moreover, this case should serve as a warning of what can be expected to occur.

Results—We have analyzed 116 consecutive cases of induced labor by means of pitocin infusions; 45 of these were private patients admitted to the Ochsner Clinic and 71 were admitted to the Tulane Obstetrical Service at Charity Hospital in New Orleans. Of the entire series 87 patients had a favorable cervix and 29 an unfavorable cervix. By favorable cervix, often called "ripe," is meant one which is soft and dilatable with significant effacement or dilatation, or both. Successful induction was achieved in 82 or 94.3 per cent of the 87 patients with a favorable cervix. Of the 29 patients with an unfavorable cervix induction was successful in 10 patients or 28 per cent. Of the 19 unsuccessful cases, 7 were successful when the infusion was repeated on the following day.

The average duration of labor following induction was four hours and fifty minutes. The shortest labor was forty minutes and the longest thirty-six hours.

Discussion—Even though artificial rupture of the membranes may be considered to be somewhat more effective than pitocin infusion, the latter has the great advantage of causing no harm if it is unsuccessful. Moreover, it can be repeated with a good chance that the second or even third at-

tempt will be successful. In our series, of the 17 patients who had repeated infusions on successive days induction was successful in 7. Three attempts have been the maximum made to date on any one patient in our series.

Even in the cases of unsuccessful induction with unfavorable cervices, it has been noted that considerable effacement and dilatation of the cervix frequently occur so that labor may start spontaneously within twenty-four to forty-eight hours. Moreover, there is generally produced in these cases sufficient descent of the head and dilatation to enable artificial rupture of the membranes to be done in an urgent case, in which a closed cervix had prevented it beforehand.

AUGMENTATION OF LABOR

Indications—We have experienced a high degree of success with the use of pitocin infusions to augment labor. In these women some sort of labor has already been initiated and what is usually needed is a physiologic stimulus to labor which the continuous dilute intravenous administration of pitocin supplies. The same technic of administration as for induction of labor is used and the same precautions must be observed.

We have found this procedure of value in (1) patients with prolonged labor due, for example, to persistent occiput posterior positions and poor mechanisms of labor, (2) those whose contractions have decreased or stopped because of saddle block, and (3) those in whom the progress of labor has been arrested in the first or second stage because of inertia. We believe that the use of pitocin infusions will lower the incidence of traumatic midforceps deliveries in the latter instance.

Some of the complicated conditions in which we have used pitocin intravenously to augment labor have been abruptio placenta, intrauterine sepsis, breech presentation and one case of eclampsia. In the latter, blood pressure was not affected and the patient was delivered successfully.

Results—Of 37 consecutive patients who received a pitocin infusion for augmentation of labor, 36 or 97.3 per cent had successful results; the only failure occurred in a woman aged 30 years, gravida II, para I, who subsequently required cesarean section for delivery because of cervical dystocia and asynclitism. Her first pregnancy elsewhere had resulted in a difficult breech delivery with a stillborn infant.

The average total amount of pitocin used in 37 patients who had pitocin infusions for augmentation was 3.7 minims. The smallest amount was 1/5 minim and the largest 10 minims.

POSTPARTUM UTERINE ATONY

There are not as many indications for the use of this procedure in the postpartum period as there are for induction or augmentation of labor and we have no controls in this group. We have found it of considerable value in the following conditions in which the postpartum contractile power of the uterus has been diminished and the danger of postpartum hemorrhage is greater: (1) uterine inertia, (2) prolonged labor due to any cause, resulting in uterine exhaustion, (3) the grand multipara, (4) the overdistended uterus from such conditions as polyhydramnios or multiple fetuses, (5) abruptio placenta, and (6) following intrauterine manipulation.

It is our impression in the cases (approximately 20) in which we have employed this procedure that it has helped control and prevent excessive postpartum bleeding. The constant intravenous infusion of pitocin maintains the uterus in a good contractile state for as long as is desired. The infusion can be given at a faster rate since there is no danger of uterine rupture, and 1 cc. or 15 minims of pitocin is used instead of 5 or 10 minims.

INCOMPLETE ABORTION

A field in which the use of dilute pitocin shows promise is in incomplete abortion. Although our experience in this group has been too small to permit definite conclusions, we believe that pitocin infusions may prove helpful in emptying the uterus with a minimum loss of time and blood.

SUMMARY

Our experience indicates that the controlled use of intravenous administration of dilute pitocin is a valuable new obstetrical measure. We have employed this procedure

for induction and augmentation of labor, to prevent postpartum uterine atony and to terminate incomplete or inevitable abortion.

Of 116 consecutive cases in which induction of labor was attempted, success was achieved in 94.3 per cent of the 87 patients with a favorable cervix and in 28 per cent of the 29 patients with an unfavorable cervix. Of the 37 cases in which the procedure was employed to augment labor it was successful in all but one. Our impression from the use of this precedure in the postpartum period in about 20 patients has been that it has helped to prevent postpartum hemorrhage. We also believe that pitocin infusions may prove helpful in treatment of incomplete abortion.

Possible complications of pitocin infusions are development of tetanic contractions with the disturbance of the fetal heart rate, elevation of blood pressure, or rupture of the uterus. However, we believe that these complications can largely be prevented by intelligent use of the procedure.

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MERCURIAL DIURETICS IN TOXEMIA OF PREGNANCY
A PRELIMINARY REPORT*

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It is generally agreed that the prognosis in severe preeclampsia and eclampsia is much better in those patients who maintain, or have induced, a good urinary output. In the management of toxemias of pregnancy, low salt diets, diuretics, and sedation are now almost universally employed. The rationale for this therapy is the current belief that most of the accumulation of edema fluid in these conditions is the result of a disorder in sodium metabolism. Therefore, the diuretic agent that best promotes a sodium diuresis should be the one used in the management of pre-eclampsia. The use of cation exchange resins still has to be evaluated.

The authors have been impressed by the constant, and apparently, safe use of mercurial diuretics in the treatment of congestive heart failure by the medical services. We, therefore, searched the literature for references to the use of mercurials in the prevention and management of pre-eclampsia. Brown and Bradbury,[1] suggested a clinical trial after they observed that salyrgan was the most effective of the drugs studied in promoting the elimination of excess sodium and edema fluid in pregnant women. Salyrgan was compared in their series with other mercurial diuretics, hypertonic glucose, ammonium chloride, aminophylline, and urea.

While mercury has been used as a diuretic agent since the 16th century, the first organic mercury compound was described as a diuretic by Saxl and Heilig in 1920. The drug they used was novasurol, which had been introduced as an antiluetic agent three years previously. Four years later, Brunn introduced salyrgan (mersalyl). Because Brown and Bradbury reported salyrgan as the most effective of the mercurials tested, we have restricted our study to this drug.

The site of action of the organic mercurials in producing sodium and water diuresis is thought to be, largely, if not entirely, in the kidney. The work of Bartram and Christian, in which they injected small amounts of a mercurial in one renal artery, supports this theory. They observed an increase in urine flow, of low specific gravity, on the injected side. When larger amounts of mercurial were injected, the diuresis was bilateral, but after an appreciable delay on the noninjected side. Saxl and Heilig believed there were also extrarenal actions

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of mercury in causing diuresis, but such actions have not been proved.

The mode of action of the mercury in the kidney is thought to be a toxic action on the cells of the renal tubule, which according to Richards, "abolished the power of active re-absorption and power of selective retention of diffusable substances" by the tubules. Ray and Burch[2] have presented a complete review of the pharmacodynamics of the mercurial diuretics.

We have been concerned with the toxic reactions ascribed to mercury and have followed the contraindications to its use, as outlined by Ray and Burch. These include acute glomerulonephritis, renal disease with insufficiency which may interfere with the excretion of mercury and allow accumulation in the tissues, blood urea nitrogen over 60 mgm/100 cc, known idiosyncrasy to mercury, inadequate response to injections, oliguria, hematuria, and albuminuria in patients with previously normal urine, overdehydration, and depletion of electrolytes.

Because there have been no reported fatalities, and only one serious reaction following intramuscular injection of the drug, we have chosen this route in the majority of cases. The medical services employ the slow intravenous injection routinely, but since the only fatalities due to toxic reaction on the heart have been in intravenous therapy, we have been understandably conservative. The generalized edema in severe cardiac patients sometimes necessitates intravenous administration to obtain proper absorption. However, in the toxemias of pregnancy, the heavy edema is usually in the lower extremities, and though subclinical generalized edema may be present, we feel that absorption is adequate when salyrgan is injected in the deltoid or gluteal muscles.

Although authorities differ on the size of dose necessary to induce diuresis, we have used 2 cc. of a 5 per cent solution of salyrgan intramuscularly. Perhaps experience will show us that we can control edema adequately with smaller doses. Since we believe we are not treating a chronic disease, and, therefore, our treatment does not extend over long periods, we have less to fear from cumulative effects of the drug.

Thus far we have confined our use of salyrgan to patients who have been hospitalized for control of toxemia. No ambulatory clinic patients have as yet been treated. We have felt that in this way we can judge our results more accurately. Ultimately, it is planned to use weekly injections in those patients in our toxemia clinics whose control does not necessitate hospital care.

The selection of patients to be treated is made on the basis of sudden, excessive weight gain with pitting edema of the lower extremities. In several instances patients who did not fit these criteria were given salyrgan with poor or no results. Prior to injection with salyrgan, all of the patients treated had been on salt free diets, and many had received hypertonic glucose. Ammonium chloride had also been used frequently, since in many instances the patients had been under ambulatory treatment for their toxemia for several weeks before admission to the hospital. Therefore, this report does not represent a controlled series on the value of salyrgan as a diuretic agent.

Our procedure at the present time is to admit to Charity Hospital all patients with toxemia who do not seem to be controllable in the out patient clinics. This includes a large number who fail to cooperate on salt poor diet. Upon admission, these patients are sent to the toxemia ward, where a complete work-up is done before administration of salyrgan. Intake and output are recorded daily. They are weighed at the same hour each day on the same scales. Salt free diet is prescribed. Sedation is given to patients who are found to need it.

The laboratory work-up includes daily urine albumin determination, electrocardiogram, blood chemistry and kidney function tests. Patients are on a complete bed rest during this time. After this work-up is completed and a base line is reached, the patients are given 2 cc. salyrgan, usually intramuscularly, at 11:00 p. m. Increased urinary output in successful cases is usually

started within the first eight hours, but may be delayed as long as twenty-four hours. In several cases, urine output was appreciably increased after the first hour.

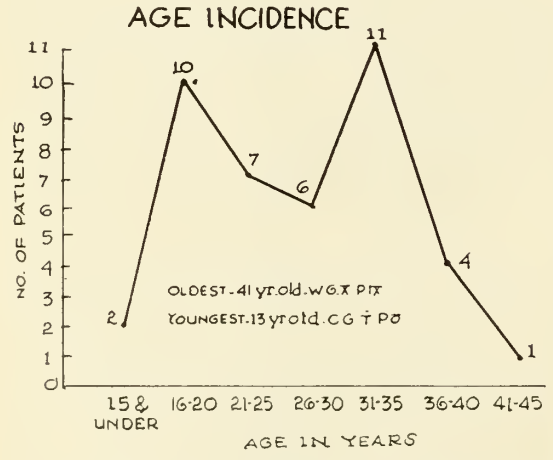
AGE INCIDENCE

The basis for this paper is a preliminary report on the first 41 patients that we have treated. Of these, 33 were colored and 8 were white. As can be seen in Table 1, there was no significant age grouping.

TABLE 1
AGE

	No. of Cases
15 and under	2
16—20	10
21—25	7
26—30	6
31—35	11
36—40	4
41—45	1

Our youngest patient was a thirteen year old colored grav. I, para 0, and our oldest was a forty-one year old white grav. X, para IX. (Fig. 1).



PARITY

As should be expected, nulliparous women made up a large percentage of our cases. Table 2 shows the parity of the patients in our series.

RESULTS

Twenty-nine patients received salyrgan on one or more occasions along with bed rest, salt free diet, and sedation. Twelve patients received, in addition to the above measures, hypertonic glucose and ammonium chloride. The average weight loss in the former group was 7.1 lbs., while 8.3 lbs. was the average loss in those women who received hypertonic glucose as well.

PARITY OF TREATED PATIENTS

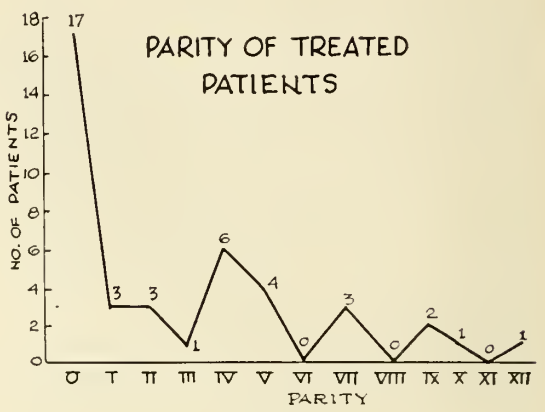


TABLE 2
PARITY

Parity	No. of Cases	
0	17	(41.2%)
I	3	
II	3	
III	1	
IV	6	
V	4	
VI	0	
VII	3	
VIII	0	
IX	2	
X	1	
XI	0	
XII	1	

No effect on blood pressures was noted following the use of the mercurial. Usually, the patients had been treated with complete bed rest and sedation for several days before salyrgan was administered. During this period elevations of blood pressure not due to hypertensive cardiovascular disease are usually well controlled.

In attempting to evaluate our results, we have analyzed the urinary output by comparing the twelve hour period prior to the administration of salyrgan with the subsequent twelve hour period. We have classified our results as follows:

Good	11
Fair	6
Poor	15
Unable to evaluate	9

Among those classified as "poor," we feel that 3 of the patients were definitely "dried out" by the three or four days of salt free diet and bed rest that preceded the injections of mercurial. Six of the patients

in whom our results were poor were improperly selected cases, since they did not satisfy our criteria for selection to the series. These women had chronic hypertensive cardiovascular disease without pitting edema. Five other patients had a decrease in urinary output following the use of salyrgan but showed weight loss for the period of from 2 to 5 pounds. We are unable to explain this except by inaccuracies in measurement of the urine volume.

In all patients in the series, the average urinary output for the twelve hours preceding medication was 2528 cc. The average output for the subsequent twelve hour period was found to be 2723 cc. We feel that this slight increase in average output does not reflect the value of salyrgan, since improperly selected cases as well as those with inaccurate measurement of urine volume are included.

In those patients in whom the results were classified as "fair" and "good," the average output prior to salyrgan was 2116 cc., and after medication 3066 cc., which amounts to almost a 50 per cent increase.

Ray and Burch[2] have listed as toxic manifestations undue apprehension, dyspnea, substernal discomfort, sweating, pallor, and pulse changes. The more serious systemic reactions to mercury may also occur. These include chills, fever, asthma, cutaneous manifestations, and the signs of dehydration and excessive loss of electrolytes. In no instance have we observed any sign of toxicity following the use of salyrgan.

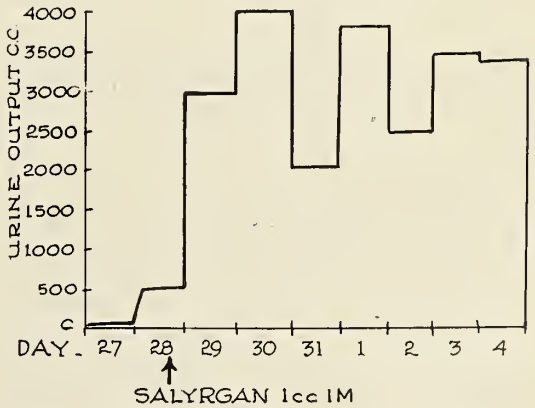
On two occasions we have obtained amniotic fluid, prior to delivery, twenty-four hours following administration of 2 cc. of salyrgan intramuscularly. Neither of these specimens showed any trace of mercury. It is thought to be entirely possible that mercury, which combines with albumin in the body, does not cross the placental barrier. Further studies will be made as to possible effect on the fetus.

In those patients in whom we were able to do follow-up blood chemistries after salyrgan administration, we found no significant alterations. In one severe pre-eclamptic an elevated blood urea nitrogen returned to normal with salyrgan diuresis. Serum proteins in our cases were not appreciably decreased.

Salyrgan was used with apparently dramatic results in 3 severe pre-eclamptics with very poor urinary output who failed to respond to hypertonic (20 per cent) glucose.

CASE REPORTS

Case No. 1: D. S., a 32 year old grav. IX, para IV, admitted to Charity Hospital on December 27, 1950 with a history of vaginal bleeding, painless at first, of three hours' duration. L. N. M. P. June 18, 1950. E. D. C. March 25, 1951. She had been seen twice during December in the prenatal clinic. Blood pressure was 120/88 on the initial visit, and 132/82 on the second visit. Urine albumin was recorded as negative. On admission blood pressure was 90/60. Urine showed 4 plus albumin. B. U. N. 19.1. The patient was in mild shock. A diagnosis of abruptio placentae was made. Fetal heart tones were not heard. A Porro cesarean section was done and stillborn twins were delivered. Urinary output on the day of surgery was recorded as 27 cc. She received blood transfusions and fluids to the extent of 3750 cc. on that day. On the following day her output was 260 cc. and the blood pressure was 114/90. On the second postoperative day she was given 1 cc. salyrgan intramuscularly. In the following twenty-four hours her urinary output was 3015 cc. She continued to have satisfactory output. On the third postoperative day her blood urea nitrogen was 44.4 mg./100 cc. On January 4, 1951, the blood urea nitrogen was 17.8. Figure 3 shows the daily output following one injection of salyrgan.

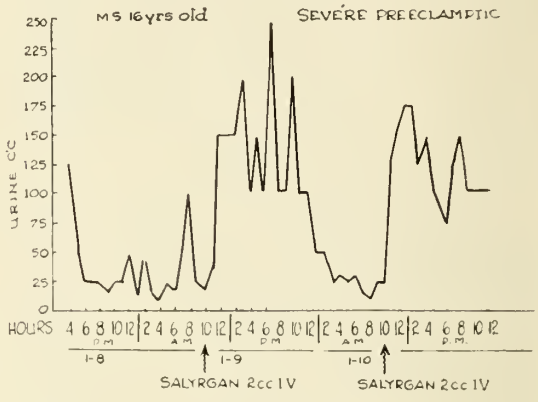


Case No. 2: A. L., a 20 year old colored grav I, para 0, admitted to Charity Hospital on March 19, 1951. L. M. P. August 15, 1950. E. D. C. May 22. She had been followed in the prenatal clinic, having first been seen on November 30, 1950. Blood pressure at that time was 102/66. Her prenatal course was uneventful. She gained 10 pounds between November 30 and March 15. Half of this weight

gain was from February 22 to March 15. On March 17, 1951, she had a severe headache and noticed marked swelling of the feet. She was admitted to the hospital. Blood pressure on admission was 160/90. Urine showed 4 plus albumin, and there was 2 plus pitting edema of the lower extremities as well as edema of the face and hands. She was not weighed on admission. Opthalmoscopic examination showed marked spasm of the retinal arterioles. Sterile vaginal examination revealed a long closed cervix. Fetal heart tones were heard. She was placed on toxemia routine and given morphine gr. 1/6. Intravenous administration of 1000 cc. of 20 per cent glucose in distilled water gave only 45 cc. of urinary output in twelve hours. Additional sedation with morphine and sodium luminal was given. Sixteen hours after admission her total urinary output was 45 cc., and it was decided to give her 2 cc. salyrgan intramuscularly. There was no output in the first hour folloying injection. The next hour the output increased to 100 cc. The twelve hour output following salyrgan was 744 cc. Output remained adequate. Labor ensued and on March 23, 1951, a stillborn infant was delivered spontaneously. Fetal heart tones were last heard March 20, 1951.

Figure 4 shows hourly output preceding and following injection of 2 cc. of salyrgan.

Case No. 3: M. S., a 16 year old colored grav. I, para 0, admitted to Charity Hospital on January 8, 1951. L. N. M. P., June 5, 1950. E. D. C. March 12, 1951. The patient was first seen in our clinic on November 16, 1950, at which time she was five and a half months pregnant. Blood pressure at this time was 130/74. Prenatal course was negative except for excessive weight gain. From her first visit until admission to Charity Hospital she had gained 24½ pounds. On January 8, 1951 the patient was seen in the prenatal clinic and found to have a blood pressure of 190/120. She showed 2 plus edema of the lower extremities. She was admitted to the toxemia ward and given heavy sedation with morphine and sodium luminal. An infusion of 20 per cent dextrose in distilled water failed to increase her low urinary output. On the day following admission to the hospital, 2 cc. of salyrgan was given intramuscularly. The urinary output in the twelve hours preceding this injection was 413 cc. In the twelve hours following mecurial administration the urinary output was 1695 cc. The hourly output then dropped and a second dose of 2 cc. of salyrgan was given. The output for twelve hours prior to the second dose was 408 cc. and 1230 cc. in the subsequent twelve hour period. Figure 5 shows hourly urinary output.



CONCLUSION

The preliminary report on the treatment of toxemia of pregnancy with an organic mercurial diuretic that we have presented does not permit us to draw any definite conclusions. We feel that our results indicate the value of further study. Lack of toxic reactions leads us to believe that mercurials are safe to use in mobilizing edema fluids in pregnant women, if the contraindications to their use are borne in mind. Further, we believe that salyrgan and similar drugs will prove to be a valuable adjunct to therapy in many of our cases of pre-eclampsia, in which there is sudden weight gain with pitting edema. Failure to find any trace of mercury in the amniotic fluid seems to indicate that there is no harmful effect on the fetus.

SUMMARY

1. Forty-one cases of toxemia of pregnancy were treated with one or more doses of salyrgan.

2. No toxic reactions occurred.

3. On two occasions amniotic fluid obtained twenty-four hours following administration of salyrgan failed to show any trace of mercury.

4. Salyrgan increased urinary output by 50 per cent in those women in whom our results were classified as "good" or "fair."

5. Average weight loss in patients treated with salyrgan, salt free diet, and bed rest was 7.1 lbs. Those receiving in ad-

dition, hypertonic glucose lost an average of 8.3 lbs.

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FREE FEEDING IN OBSTETRICS*

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Free feeding in obstetrics is not new. It has been used since there have been mothers and children. It has been only during the last thirty years that any other type of feeding, except free feeding, has been used for obstetrical patients. Not until the early 1920's when dietary supplements, such as vitamins, calcium, and iron were given to maternity patients was any thought given to the diet and nutrition of obstetrical patients. In the last twenty years further work has been done in controlling the diet as far as quantity or caloric intake, and quality or an adequate intake of protein, fats, carbohydrates, vitamins, and essential minerals, in order to see that maternity patients had what could be called an adequate and well balanced diet. This trend in supplementary and controlled nutrition has been promoted in an effort to decrease the fetal and maternal mortality rates, as well as reduce complications of pregnancy and improve ethe general health of the obstetrical patient.

Statistics today show that in the last twenty years infant and maternal mortality rates have been markedly reduced. Those who believe in controlled and supplementary diets believe that improved nutrition has been a factor in these improvements. On the other hand at the present time there are a few who are again saying that controlled and supplementary diets are of little value. These would have us believe that little is gained by advising and educating the maternity patient as to her nutritional needs and requirements, or impressing on the patient the necessity for following the dietary instructions. This would revert back to the days in which women received practically no prenatal care.

GENERAL TYPES OF FEEDING

Free feeding in obstetrics must first be defined. True free feeding would be that in which neither the quantity nor the quality of the food that the patient received is controlled, restricted or supplemented in any way, allowing the patient complete freedom as to her diet. She may take as many or as few calories as she wishes. She may eat as much or as little of any class or type of food as she wishes. Diametrically opposed to true free feeding is controlled feeding, in which the patient is instructed as to how many calories she should eat, and the types or classes of food that she should eat. In addition to this, dietary supplements such as vitamins and minerals are usually added. Between these two extremes one finds a combination of free and controlled feeding. One of these might be called free quantitative feeding with controlled qualitative feeding. In this case the patient would be allowed to take as many or as few calories as she wished but would be advised as to what foods to take and supplements such as vitamins and minerals would be added.

The other type of feeding would be classified as controlled quantitative feeding and free qualitative feeding. In this case the patient is restricted only in caloric intake and the quality of her food is not controlled in any way and no vitamins or minerals are added. Both of these types of feeding are a combination of the two extremes of free and controlled feeding.

VALUE OF CONTROL OR FREEDOM OF DIET

In reviewing the literature there are no references to true free feeding. No one has advocated complete freedom of diet, both quantitative or qualitative without restrictions or supplements. This indicates that there is definitely no trend toward complete free feeding at this time. All of the literature on nutrition in pregnancy in the last twenty years indicates that there is some

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control, restrictions or supplements in regard to the diet. The question then arises: To what degree is control or freedom of diet of value? In recent literature most of the trend is toward completely controlled nutrition, although it is becoming more obvious that the qualitative control is much more important than the quantitative control.

King's[1] studies on free feeding in obstetrics have received a great deal of publicity among the profession and also among the lay press. His series of patients consisted of 226 consecutive, unselected, private patients. No restrictions were placed on the diet of these women other than a reduction of salt intake whenever edema was noted in the latter months. Each patient received a multivitamin capsule daily throughout pregnancy and had calcium after the twenty-fourth week. Whenever the hemoglobin fell below 12.5 grams, ferrous sulfate was prescribed. From the point of view of caloric intake the technique was described as free feeding. The women were all of high and moderate income groups and the diets were described as being adequate. At the present time he is evaluating the diets of these patients to see if they fulfill the qualitative requirements of an adequate diet during pregnancy. Of course, the restriction of salt and the addition of vitamins, calcium and iron, remove this series from what might be called true free feeding.

Although the average weight gain was 24.4 lbs. the gain varied from a minimum of 4 lbs. to a maximum of 52 lbs. Forty-eight patients or 21 per cent of the total gained over 32 lbs. during the prenatal period. Thirty-two patients or 14 per cent gained less than 16 lbs. The average amount of weight retained three months postpartal was 2 lbs. but this varied from a loss of 16 lbs. to a gain of 48 lbs. Thirty-two patients, or 14 per cent of the total weighed 8 lbs. more when they were three months postpartal than at the time their pregnancy began. Sixteen patients, or 7 per cent had a net loss in their weight of more than 8 lbs. postpartal.

King's[1] studies in free feeding point out that pregnancy tends to correct over and underweight conditions. It was found that heavy women gain less and retain less weight than slim women who tend to gain more and retain weight. This confirms the findings of Beilly and Kurland[2] who found that obese women gain less weight during pregnancy but usually have larger babies. Dawson and Borg[3] also found that women of excessive body weight in the beginning of pregnancy did not gain in proportion to their weight.

An excessive weight gain was found, by King to be due to either or both of two conditions: an exaggeration of the positive water balance, or developing obesity. Excessive weight gain due to water retention may be a symptom of early toxemia of pregnancy and will disappear almost completely during the postpartal period. Restriction of calories will have little effect on this weight increase and may do harm, if necessary protein is withheld in proportion to the storage of water in an effort to keep the weight down. He also concluded that developing obesity is a psychological problem which is not easily controlled merely by restricting calories. The treatment of obesity requires psychotherapy consisting of giving the patient confidence in the physician and herself, and allaying her fears and anxieties.

A review of the literature shows almost complete agreement with the statement of King[1] regarding an accumulation of fluid and fat. Willson[4] has found that excessive weight, due to a deposition of fat usually gives a relative steady increase in weight; whereas, weight increase due to fluid is usually sudden and unpredictable. Dawson and Borg[3] point out that excessive weight gain does not necessarily mean toxemia but may be just obesity, which is not necessarily harmful. Almost all patients with toxemia gain excessively, but this is usually due to the excess accumulation of tissue fluids. Luikhart[5] confirms the opinion of King[1] that restrictions of salt, ammonium chloride, and moderate restriction of fluid is the best treatment for excessive weight gain due to water retention. It has also

been confirmed by Coopersmith[6] that caloric restriction, appetite depressing drugs,[7] and psychotherapy are more important in the management of excessive weight due to fat deposits.

The effects of excessive weight gain on the maternity patients are variable. It may be true, as has been shown by King,[1] and Dawson and Borg[3] that obesity is not necessarily harmful, although Burke,[8] Wilson,[9] and others believe that a large weight gain will produce a large baby. Sheldon[10] has shown that more stillbirths, neonatal deaths and large babies, occur in women who gain excessively during pregnancy. Whether or not excessive weight, due to fluid retention, is a cause or effect of toxemia of pregnancy, has not been decided.[11-14] Luikhart[15] believes that toxemia and weight increase are definitely related, as in his series of 1,000 patients, with weight controlled to within 15 to 18 lbs., there were no patients who developed toxemia. Loughran[16] states that control of weight, diet, and fluid balance will lead to reduced toxemia, eclampsia, and a shorter labor.

Burke[17] believes that qualitative control is more important than quantitative control. She has shown that women on excellent and good diets have children in good and excellent condition at delivery. The women on poor diets had children in poor physical condition.[18] In fact, almost all premature, neonatal deaths, stillborns, and infants with congenital malformations were from the mothers who had poor diets.[19] Also the infants of the mothers on good diets were larger and longer than those on poor diets. She also believes that protein deficiency is associated with toxemia. In her series of patients only 42 per cent with poor diets had a normal pregnancy. There was no toxemia in the patients who had a good diet, but 44 per cent of the patients, who had poor diets, developed toxemia. Protein in the diet is thought to have a definite relationship to infant vitality and the incidence of toxemia, edema, and anemia.[20] Protein is the most important part of the diet.[21,22] A high protein diet is essential to the welfare of mother and infant.[23,24] One of the big differences between excellent and poor diets is the amount of protein.[24-29]

Tompkins[30] believes in qualitative and quantitative control. In his late writings he carefully restricts the weight gain to 24 lbs. and has established a normal weight curve for the entire pregnancy. This consists of about 3 lbs. the first trimester; 11 lbs. the second trimester; and 10 lbs. the last trimester. This confirms the 24 lb. weight gain as recommended by Chesley[31] and closely resembles his normal weight curve. According to the literature, 24 lbs. is considered to be the optimum weight gain for most maternity patients, who are on a controlled diet. Strangely enough, this is the average weight gain of the patients of King[1] who were on a free feeding regime.

Tompkins[30] has also shown that patients who enter pregnancy overweight and/or gain excessively are more likely to have maternal complications, such as toxemia, pre-eclampsia, and eclampsia, rather than those who enter pregnancy with a normal weight and maintain a normal weight curve. Underweight patients who gain less than normal are also very likely to have complications pertaining to the infant. This results in a much higher incidence of premature infants, neonatal deaths and stillbirths. This theory that inadequate caloric intake and weight gain is injurious is rather new. Patients underweight at the beginning of pregnancy develop toxemia more often than patients overweight at the beginning of pregnancy although the incidence of toxemia is increased in both. The patient who enters pregnancy with an average normal weight but whose weight deviates from the normal weight curve, either up or down, can expect an increase of maternal and infant complications. The patient who enters pregnancy underweight has the greatest risk of developing toxemia or going into premature labor. Less weight gain than normal during the first and second trimester increased the incidence of premature labor. Excessive weight gain in the second and third trimester increased the incidence of toxemia and pre-eclampsia. The incidence of premature labor was 41 per cent less in patients on controlled dietary regimes. The incidence of toxemia

was ten times greater in the patients whose diet was not controlled and restricted. The infant mortality rate was 26 per cent greater, the stillbirths 38 per cent greater, neonatal deaths 15 per cent greater, and premature labor 70 per cent greater, in the patients whose diet was not controlled.[32]

Reviewing the literature leaves one with the impression that obese women have larger infants than small women. Also women who gain excessively have larger infants than those who gain normally, or slightly less than normal.[33] Weight restrictions below the normal weight gain does not reduce the size of the infant appreciably, unless, the nutrition of the mother is definitely inadequate. This leaves the impression that excessive weight gain will increase the size of the infant, but moderate weight restriction will not reduce the size of the infant below normal. The quality of the diet,[34] particularly, as far as protein intake is concerned, is thought to influence the weight, length, and physical condition of the child.[35] It is thought that both the caloric intake and the quality of the diet influences the incidence of toxemia of pregnancy, although there are a few who disagree.[36,37] Maternal and infant complications have been found to have a distinct relationship to the nutritional status of the mother.[38] It has been shown that dietary deficiencies in animals are related to malformations of the newborn.[39-42] This probably applies to humans as well.[43]

REQUIREMENTS FOR ADEQUATE DIET

In view of the fact that obesity and nutritional deficiencies occur very frequently in obstetrical patients, some measure should be made to remedy this. Obesity is known to be detrimental to health as well as are other nutritional deficiencies, which cause such things as anemia[44] and nutritional edema.[45] It has been shown by Burke that only about 40 per cent of women have an adequate diet. An adequate diet during pregnancy as recommended by the Food and Nutrition Board of the National Research Council consists of:

Calories	2600 to 2800
Protein	85 to 100 grams
Calcium	1.5 grams
Phosphorus	2.0 grams
Iron	20 mgms.
Vitamin A	8,000 I. U.
Thiamine	2.0 mgms.
Riboflavin	2.5 mgms.
Niacin	18 mgms.
Ascorbic Acid	100 mgms.
Vitamin D	400-800 U.

It is apparent that the only way many women will have this diet is with the advice and help of the attending physician. This means dietary control, not free feeding.

CONCLUSIONS

In conclusion, no evidence can be found that free feeding in obstetrics contributes to the health of the mother and infant. There is a vast amount of evidence that indicates controlled feeding does contribute to the health of both the mother and infant. The trend is for both qualitative and quantitative control, but the emphasis is shifting from quantitative control to qualitative control, although both are important. At the present time there seems to be little reason to return to the nutritional status of the past, that is, free feeding in obstetrics.

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DISCUSSION

Dr. Jack R. Jones (Baton Rouge): Dr. Miller presents a nice review of the literature on this subject.

An adequate controlled diet for the prenatal patient is essential. Many of the complications of pregnancy can be eliminated by an optimal weight gain. Dawson and Borg state that excessive weight gain due to obesity or deposition of fat is not necessarily harmful. It may not be harmful, but I cannot agree that obesity is conducive to good health, either in the pregnant or nonpregnant state.

There is a variance of opinion as to what constitutes a normal weight gain during pregnancy. Some specify 18 lbs. maximum weight gain and others 25 lbs. For several years I have allowed my prenatal patients to gain a maximum of 18 lbs. from an average weight derived from a chart of standard weights for age and height. In this manner, the underweight patient can gain more during her pregnancy than the overweight patient.

An 18 lb. weight gain from the average weight during the nonpregnant state seems to be enough. A patient loses at delivery from 12 to 15 lbs. and, following the above formula, she may expect in six weeks to return to her desired weight. Approximately 1000 prenatal patients have been on this regime without a single case of toxemia.

Recently, some pediatricians have fostered the so-called demand or selective feeding for children. They believe that the child should be allowed to eat when and of what he wishes and that his physiological and psychological demands will guide him to imbibe the correct quantity and quality of food. Suffice to say, some obstetricians are as liberal with their prenatal patients. Surely they must regret this laxity when complications of excessive weight gain make their appearance.

Most of us agree that free feeding in obstetrics, per se, has no place in present day prenatal care.

ACCIDENTAL HEMORRHAGE IN THE THIRD TRIMESTER OF PREGNANCY*

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Hemorrhage remains the leading cause for maternal mortality, notwithstanding the greater availability of blood and blood substitutes.

Accidental hemorrhage in the third trimester of pregnancy results from a variety of conditions among which are: (1) ulceration of the cervix or vagina; (2) ruptured varicosity; (3) cervical effacement; (4) cervical polyps; (5) premature separation of a normally implanted placenta or abruptio placenta as suggested by DeLee.[1] The first four causes of bleeding are important but not usually a great hazard to the life of the patient. Placenta previa has been omitted from the discussion because hemorrhage from this cause is considered inevitable and not accidental.

INCIDENCE OF ABRUPTIO PLACENTA

As a killer, abruptio placenta ranks second only to placenta previa. The incidence varies with different authors,[1-3] but a fair figure seems to be about once in 130 pregnancies. The condition occurs about three times as often in multipara as in primagravida. This fact is understandable because of the frequent association of the disease with hypertension which, in turn, is so often associated with the older age groups.

ETIOLOGICAL FACTORS

The etiological factors are: toxemia of pregnancy, particularly cardiovascular renal disease. More than one third of all cases of abruptio placenta occur in patients who have cardiovascular renal disease.[4] Without treatment the hypertensive gravida with albuminuria is very likely to develop abruptio placenta or fetal death in utero. Disease of the endometrium is thought to play a role in premature separations, but studies to date yield very little information. With the above conditions present, minor trauma may cause a separation of the placenta, i.e., a sudden jar, coitus, a blow in the abdomen. During labor, operative intervention, version and extraction, separation following delivery of first twin, the use of bags, gauze, or traction on a short umbilical cord may all cause premature separation.

ACCOMPANYING SIGNS

Separation of the placenta is almost always accompanied by marked hemorrhage. The blood escaping under the decidua basalis may go in several directions:

1. The edges of the placenta remaining attached with a lake of blood bulging into the cavity of the uterus and pushing the uterine wall out into the abdomen.
2. May separate the entire ovum from the uterus.
3. Blood may break into the amniotic cavity.

All of the above produce concealed hemorrhage and tend to be most serious. Fatal hemorrhage has occurred without the escape of a single drop of blood from the vagina.

4. Blood may seek passage under the membranes and then out through the cervix and vagina. Regardless of severity, all grades of abruptio placenta begin as concealed types. When the blood dissects up the membranes and escapes to the outside, it is less likely to disrupt further placental continuity and is usually associated with the milder types of premature separation.

Couvelaire described a special serious type of abruptio placenta which he called apoplexia-utero-placentaire. It has become known as a Couvelaire uterus. The uterine muscle becomes infiltrated with blood, petechiae appear under the peritoneum, covering the uterus and broad ligaments, and in the cul-de-sac. The maximum bleeding appears in the uterine wall opposite the placenta, but the greatest muscle dissociation is in the middle and outer muscle layers of the uterus and not in the inner layer as one would anticipate. The frequent uterine atony found in the third stage of labor in abruptio placenta is probably a result of this infiltration of blood to varying degrees.

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SYMPTOMS

At times very slight placental separation will initiate violent uterine contractions which terminate labor before further separation can take place. Small separations may be manifest by increased uterine irritability with small infarcts present on the placenta at delivery. In certain cases the initial separation is great enough to cause immediate fetal death which may be followed by the loss of the mother. The severity of symptoms depends on the blood loss and degree of shock present. As previously mentioned, the amount of vaginal bleeding does not govern the ultimate seriousness of the disease, and the observer should not be lulled into a false sense of security by minimal visible bleeding.

Sudden sharp abdominal pain, often with a sensation of something tearing, accompanied by marked increased tonicity of the uterus, with or without vaginal bleeding, are the most common symptoms. Increase in the size of the uterus, marked abdominal tenderness to palpation, and changes in the fetal heart tones from normal are signs which may or may not be present. Thirst, rapid pulse, falling blood pressure, loss of consciousness, sweating and pallor, all signs of shock depend on the severity of shock. Remember a blood pressure of 110 or even 150 systolic may represent severe shock in a patient who had had a blood pressure of 200 or more prior to the separation. During the acute episode, the hemoglobin determination helps little since hemodilution temporarily gives false readings.

During labor mild cases of abruptio placenta are frequently seen. The separation usually stimulates contractions, which, in effect, hasten the termination of labor. These infants frequently show some signs of distress—increased agitation and/or increased heart rate. With conditions right, a quick delivery may save some of these babies. The severe cases occurring during labor carry a very poor prognosis for the infant and the mother. The third stage of labor is fraught with danger in abruptio placenta. Many uteri are atonic as a result of overdistention, myometrial disease, or myometrial infiltration with blood. Postpartum hemorrhage occurs frequently, and preparations for treatment should be made in advance. If it occurs, the atony should be treated promptly and vigorously.

DIAGNOSIS

The diagnosis is based on signs and symptoms plus findings on sterile vaginal examination. Severe abdominal pain, increased uterine tone, vaginal bleeding, alterations of fetal heart tones, and shock would point to this condition. The final diagnosis is made after sterile vaginal examination has eliminated other causes of vaginal bleeding. In addition, the vaginal findings influence, to a great extent, the type of treatment to carry out.

TREATMENT

Varied treatment is recommended by groups in different parts of the country, some preferring to deliver almost all of these women by cesarean section,[7] others preferring to deliver almost all from below.[6] A third group tends to combine the two methods[4,5] The author feels that delivery from below is desirable, and almost all of the mild cases should be delivered that way. Some of the severe cases can be delivered from below. Those that occur in multipara in active labor or in multipara not in labor but with a ripe cervix can be delivered from below. Moderately severe cases in primipara in labor with partially dilated cervices and some severe cases well advanced in labor can be delivered from below. Those cases with unripe cervices and those failing to make progress within a few hours should be treated by surgery.

Treatment should be determined by the severity of the case and the condition of the cervix. Attempts to treat abruptio placenta should not be carried out without generous amounts of blood being available. This means, of course, a blood bank or sufficient compatible donors close by. If blood is not available, these patients should be moved to a point of availability. The aim in treatment is to stop the bleeding and replace blood loss. The uterus should be emptied as soon as possible. During the replacement of blood, a sterile vaginal examination should be done. If the patient is not

in labor, the infant a previable premature, and there is minimal bleeding and a closed cervix on sterile vaginal examination, do nothing. Some of these patients do no further bleeding and can be delivered at or near term. If the patient is not in labor, has an adequate pelvis, abruptio is mild, and the cervix is ripe, rupture membranes and await delivery from below.

If the patient is in labor with a mild abruptio, rupture membranes. Labor is usually rapid in these cases. Deliver the infant as soon as it can be safely accomplished.

In the patient with a serious abruptio, and in shock, not in labor, and with a ripe cervix, treat shock, rupture membranes, and observe carefully for a few hours. If blood replacement is going to be difficult, do laparotrachelotomy under local anesthesia. If labor does not begin shortly after rupture of membranes and stimulation with pitocin (usual induction dosage), section as above.

In the patient with serious abruptio in labor, rupture membranes unless the infiltration of blood is great enough to paralyze the uterine musculature. Labor will usually terminate spontaneously within a short period.

In the event the patient with serious abruptio has a long closed cervix, laparotrachelotomy under local anesthesia is universally adopted as the best plan of treatment.

Any forcible dilation of the cervix, forceps on a floating head, or high forceps, and Braxton-Hicks version are all mentioned as to be condemned as poor forms of treatment. Packing the lower uterine segment and vagina only hides the bleeding and does not produce a good effect. The Spanish windlass has a place in the treatment of this condition. Version and extraction, if all conditions are right, at times, has a place in the treatment. Scalp traction is useful to hasten labor when the contractions are weak and ineffectual. If the breech is presenting, the anterior leg may be brought down as soon as dilation permits.

The third or placental stage of labor is very important because additional blood loss at this period may seriously jeopardize the patient's life. A high percentage of these patients have postpartum hemorrhage from uterine atony caused by infiltration into the uterine muscle by blood elements. This can be counteracted to some extent by giving an intravenous oxytocic drug with delivery of the anterior shoulder and then a slow delivery of the infant's body. It is very important to save blood in an individual who is already depleted of red cells. If the uterus does not contract promptly, the hand should be introduced into the uterine cavity, the oxytocic drug repeated intravenously, and the uterus massaged and anteflexed with the outside hand while the inside hand acts as a foreign body for the uterus to contract upon. If this does not counteract atony promptly, then the uterus should be packed once properly with a six yard gauze strip four inches wide. The packing should include the vagina. If bleeding occurs through the pack, a hysterectomy should be promptly performed. If one pack properly placed does not control bleeding, do not waste time and good blood by repacking. The additional blood loss may be just enough to tip the scales against the patient.

In the event the operator decides against vaginal delivery, or in the event that labor did not progress properly and cesarean section is decided upon, the uterus may present a picture described by Couvelaire—serosal hemorrhages in the broad ligaments and cul-da-sac. This may result in the inability of the corpus to contract after the infant is delivered, producing uncontrollable hemorrhage. Should atony which fails to respond to oxytocic drugs be present, it may be necessary to do a hysterectomy. Some of these uteri, in spite of rather extensive gross pathology, contract satisfactorily, and the section can be completed without further trouble.

Previously outlined treatment should serve as a guide in the management of abruptio placenta. The careful obstetrician plans ahead and is not bewildered by the

emergencies that arise. The plan for management of abruptio should be flexible and fitted to the individual case. Only in this way can one case be delivered from below and the next case equally serious be delivered with equal safety by cesarean section.

It has been noted almost from the first description of abruptio placenta that certain serious cases have marked hemorrhagic tendencies in spite of adequate blood replacement. These patients exhibit marked loss of fibrinogen, reduction of prothrombin activity, and presence of a circulating fibrinolysin. In a recent paper by Weiner et al. they conclude that the above changes occur as a result of the premature separation.[8]

The statistical data is frightfully misleading in abruptio placenta. The maternal mortality in mild cases is almost nil but is very high in severe cases. The over-all mortality is between 5 and 10 per cent. The infant mortality is low in mild cases but approaches 100 per cent in severe cases.

SUMMARY

1. Abruptio placenta is most often associated with cardiovascular renal disease.
2. Severe abdominal pain with increased uterine tone are the most constant findings.
3. Treatment should be determined by the condition of the cervix and severity of the separation. The method of treatment should be fitted to the individual patient.
4. To replace blood loss and empty the uterus as soon as possible are the prime aims of treatment.
5. Postpartum hemorrhage is common and should be treated vigorously.

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THE HEADACHE PROBLEM*

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SHREVEPORT

Because headache means to many patients the presence of sinusitis, the differential diagnosis of this condition has become of unusual importance to the rhinologist but since headache can be the result of so many diverse conditions this feat is by no means easy to accomplish.

Before proceeding further with this discussion it is best to consider what is meant by the term *headache*. In this paper headache will be considered to be pain felt inside the head. This will eliminate from discussion indefinite sensations felt in the head and variously described by the patient as a feeling of a tight band around the head, feeling of a brick pressing on the forehead, or a sensation as though the head was expanding.

Stedman's medical dictionary defines headache as a diffuse pain in various parts of the head, not confined to the distribution of any nerve. *Neuralgia* is defined as a pain of a severe throbbing or stabbing character in the course of distribution of a nerve. The majority of headaches are the result of dilatation of the intracranial and extracranial blood vessels and follow the course of these vessels.

Spriggs[1] reported that 10 per cent of 4796 consecutive patients gave headache as their chief complaint and that in only 3 per cent of cases was the headache found to be due to nasal disease.

Regardless of this fact as the ear, nose and throat physician is often first consulted it is important that he be fully cognizant

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of the problem and work closely with the internist, neurosurgeon and ophthalmologist.

I feel that most of us with a busy practice do not take the time that we should to obtain a careful history in these cases as this will usually reduce the etiological possibilities. Some of the important factors to be discussed in obtaining the history are:

1. Age at onset, whether or not the headache is associated with puberty, menstruation, menopause, family history, physical exposures, fatigue, constipation, allergy.

2. Quality of pain, whether of the superficial or burning type or of the deep, throbbing variety, and whether or not the pain is referred. McAuliffe, Goodell and Wolf[2] have found the headache of acute and chronic sinusitis to be of the deep, nonpulsating variety, not referred, and of low intensity.

3. Location: unilateral, bilateral, and if it recurs in same or different location.

4. Type of onset: sudden or slow build up and termination, duration, periodicity, effect of position.

5. Effect of exercise.

6. Effect of drugs in relieving.

According to investigation by Lewis[3] and Wolf the pain sensitive structures of the head exclusive of the sensory nerves are:

1. Nasal mucosa, especially ostia of sinuses.

2. Mucosa lining accessory sinuses of nose.

3. The larger extracranial and intracranial blood vessels and adjacent dura.

4. Fibrous tissues about the head and neck.

5. Muscular tissues about the head and neck.

CLASSIFICATION OF HEADACHE

A. Independent Forms.
   1. Migraine.
   2. Tension states, nervous exhaustion, psychogenic.
   3. Posterior neck conditions: myalgia, nodular induration, hypertonic neck muscles, fibrositis, arthritis of cervical spine.
   4. Erythromelalgia of the head.

B. Headache associated with disease of individual organs.
   1. Brain diseases: tumor, abscess, meningitis, encephalitis, hydrocephalus, pachymeningitis interna, cerebral and cerebrospinal syphilis, cerebral arteriosclerosis, epilepsy, post-traumatic.
   2. Ear diseases: otitis media, purulent, acute; mastoiditis and complications.
   3. Eyes: refractive errors, muscle imbalance, congestive glaucoma. Inflammatory conditions: keratitis, uveitis, optic neuritis, etc.
   4. Nose and sinuses: Contact septum with turbinate, empyema, sphenopalatine neuralgia.
   5. Teeth.
   6. Digestive tract: kidneys, pelvis.

C. Headache in general disease.
   1. Infectious diseases.
   2. Acute and chronic intoxications, alcohol, tobacco, lead poisoning, etc.
   3. Constitutional disorders: endocrines, anemias.
   4. Histamine.

It is beyond the scope of this paper to thoroughly discuss all the known causes of headache but some of the main characteristics of the more common forms will be given with particular attention being paid to those of E. N. T. origin.

INDEPENDENT FORMS. 1. MIGRAINE

Migraine, more commonly known as "sick headache," is characterized by periodic paroxysms of intense pain preceded or accompanied by characteristic sensory or motor disturbances or their combination along with general vasomotor or psychic phenomena. The most frequent beginning site is in the neighborhood of an eye, either above, lateral to or deep. There is a tendency for the pain to become diffuse and involve the whole side of the head or become generalized.

The patient may describe the pain as dull, boring, pressing, throbbing, hammering, viselike or shooting. The pain tends to increase gradually to an intense height.

The headaches may last one to several days. It may begin with an aura. Nausea

and vomiting are usually present with anorexia during the attack. The patient is irritable, complains of photophobia and abhors noise.

A variety of conditions seem to have a role in precipitating attacks, such as mental and emotional excitement, fatigue, dietary indiscretions, menstruation.

Puberty is the most frequent time of onset. It is twice as common in females as in males.

Treatment consists of avoiding the factors which precipitate attacks and giving ergotamine tartrate or a similar acting drug as soon as possible.

There are several theories as to etiology; the most likely is that it is a vasomotor reaction involving the branches of the external carotid arteries.

2. NERVOUS AND MENTAL STATES

The incidence of headache which is designated as neurasthenic or psychogenic is apparently very great. When evidence is lacking to ascribe the headache to any specific cause, the usual conclusion is that the disturbance rests on a neurasthenic or psychogenic basis. Diagnosis is made primarily on a careful history, and secondarily, on the absence of reasonable factors discernible to objective examination.

3. POSTERIOR NECK CONDITIONS

Myalgia is characterized by tender areas in muscles due to physical or intrinsic allergy. Symptoms are exaggerated by rainy weather, drafts, air conditioning. It is relieved by injections of procaine, vasodilators; salicylates usually give little or no relief.

Primary fibrositis is of unknown etiology. It is not related to joint disease. Pain is not constant in location and is of the burning variety. Atmospheric changes tend to produce exacerbations. Temporary relief is obtained by heat, massage, and salicylates. Vasodilators are of no help.

Clinical examination will usually rule out the ear as a cause of headaches; however, the neurosurgeon may be of great help in the intracranial complications as he is invaluable in locating the cause of headache in expanding lesions and inflammations of the meninges.

EYE DISEASES

Certainly every patient with headache of one month's duration should have ophthalmoscopic examination to rule out papilledema. The ophthalmologist also may be of aid to the neurosurgeon by doing quantitative visual fields. Other eye conditions which must be ruled out are:

1. Refractive errors (history helps).
2. Phorias:
   - A. Vertical.
   - B. Horizontal.
     - a. esophoria; convergence excess or divergence insufficiency.
     - b. exophoria; convergence insufficiency or divergence excess.
3. Congestive glaucoma.
4. Inflammatory conditions: uveitis, retro-bulbar neuritis, etc.

NOSE AND SINUSES

Sinusitis: Contrary to the thoughts of most patients and some physicians chronic sinusitis rarely produces headache. This is not true, however, of acute sinusitis and acute exacerbation of chronic sinusitis.

In diagnosing headache of sinus origin pain is of little localizing value as an acute maxillary sinusitis will often have pain in the frontal region. Tenderness is of marked diagnostic value.

Tenderness:

a. Ewing's point—usually means frontal sinusitis.
b. Supra and infraorbital foramenia indicates neuritis which arises from contiguous sinus or remote area.
c. Ethmoid region—indicates anterior ethmoiditis.
d. Canine fossa—indicates maxillary sinusitis.
e. Sluder's point behind ear—indicates posterior ethmoiditis, sphenoiditis or spheno-palatine neuritis.

The pain in above conditions may be due to:

a. Positive or negative pressure in a blocked sinus.
b. Necrosis of the lining membrane with osteitis.
c. Neuritis of adjacent nerves.

In addition to previously mentioned causes of headache of nasal origin contact of mucosal surfaces of turbinates and septum either of vasomotor or allergic origin may be at fault. Simple shrinkage will make the diagnosis of these cases. Treatment depends upon the cause.

Spheno-Palatine Neuralgia: Sluder popularized lower half headache radiating to ear, neck and shoulder with tenderness at Sluder's point.

Causes:

A. Contact of septum with:
   1. Posterior tip of middle turbinate.
   2. Spheno-ethmoid recess.

B. Inflammation in posterior group of sinuses.

Treatment: cocainization of ganglion or involved sinus.

Histamine Cephalgia: Horton[4] and associates have thoroughly discussed this clinical picture consisting of severe unilateral headache with sudden onset and termination, accompanied by vasomotor rhinitis, conjunctival injection, and lacrimation on homolateral side. It may occur during sleep and be less severe in erect position. It may be precipitated by alcohol. The absence of visual disturbances, nausea and vomiting differentiates the attacks from migraine and seldom is there an inherited tendency. The absence of trigger areas and the fact that the distribution is vascular and not confined to the branches of the trigeminal nerve distinguishes it from tic douloureux.

Diagnosis is made by the symptoms and by headache being relieved by pressure over the carotid or by intravenous injection of 3 to 5 mm. 1-1000 epinephrine.

Treatment is by intravenous or subcutaneous injections of histamine, 1-250,000 sol. by vein 30-40 drops per minute. Duration of infusion should be one to one and a half hours. Rate of flow is what is important when giving by vein.

When given by subcutaneous route the total dose and not the rate of injection is important. In office management the usual subcutaneous dose is 0.2 cc. of standard solution (histamine acid phosphate 2.75 mg. in 5 cc). Dose is increased 0.2 cc. daily until 0.5 cc. is reached. This amount is given two or three times weekly. Patient should remain quiet from twenty to thirty minutes after each injection. If unbearable headache is produced 3 to 5 minims of epinephrine are given for relief. Benadryl 50 mg. is usually given the night after the injection to terminate the histamine reaction and serve as a sedative.

After three or four weeks nicotinic acid, 50 mg., is given orally t.i.d. on days when no histamine is given.

SUMMARY AND CONCLUSIONS

In this paper no claim is made of any original work on this subject but from a review of current medical literature a clinical classification of headache is given with a review of signs and symptoms of some of the major causes with especial attention being paid to those of E.N.T. origin.

Only brief mention of treatment is given as it is felt that the diagnosis is what is most important as treatment can be found in any standard textbooks after etiology has been ascertained.

As many patients feel that their headaches are of sinus origin the E.N.T. physician may be the first consulted. He should, therefore, be conversant with headaches in general and work closely with the internist, neurosurgeon, and ophthalmologist in determining etiology and treatment.

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THE PROBLEM OF THE DIZZY PATIENT*

MILES L. LEWIS, JR., M. D.
NEW ORLEANS

One of the most distressing symptoms which brings a patient to the physician's office is dizziness or vertigo. True vertigo may be defined as a sensation of whirling motion, either of the patient or his surroundings. It is conceded by most authorities that true vertigo is caused by conditions affecting the vestibular apparatus.

Unfortunately, the problem of proper diagnosis and management of these patients is complex and not always solvable. The most important point in evaluation of any case of dizziness is determination of the exact sensation the patient is experiencing. He may be having dizziness, light-headedness, confusion, syncope, difficulty in gait, or true vertigo. Ask him to try to describe his sensations. Is it the same feeling he gets when he looks down from high places? Does he feel faint, does he fall or lose consciousness, or is it the sensation he might get after riding on a merry-go-round? The best means of helping the patient describe his sensations is the caloric test. The patient can compare the sensation he is complaining of with the sensation produced by the test.

All these symptoms are manifestations of a disturbance in equilibrium. Equilibrium is dependent upon sensory impulses arising from (1) exteroceptive nerve endings (eyes, touch, pressure and cutaneous temperature); (2) proprioceptive nerve endings (muscle, tendon and joint endings, and the vestibular end organs in the semicircular canals and utricle); and finally, (3) the higher cerebral centers.

For convenience of discussion cases of vertigo and dizziness may be classified into those of peripheral origin, those of central origin and those due to other causes.

*Presented at the Seventy-First Annual Meeting of the Louisiana State Medical Society, New Orleans, May 9, 1951.

From the Departments of Otolaryngology, Ochsner Clinic and Tulane University of Louisiana, School of Medicine, New Orleans.

PERIPHERAL ORIGIN

Vertigo of peripheral origin is due to conditions affecting the vestibular end organs or the eighth cranial nerve. It is characterized by associated movements such as past pointing, by severe vertigo, nausea and vomiting, the associated auditory phenomena of tinnitus and deafness, and a peripheral type nystagmus which is regular, composed of a quick and slow component, and usually horizontal.

Vertigo of peripheral origin may be produced by numerous conditions. Pressure on the drum head may be caused by impacted cerumen, a foreign body or external otitis. Obstruction of the eustachian tube due to allergy, inflammation or neoplasm can cause severe vertigo; in these patients the nasopharynx should be examined and tubal patency tested.

Moderate to severe peripheral type vertigo occasionally accompanies acute otitis media but in such cases the diagnosis and treatment are apparent. Labyrinthitis, actual inflammation of the membranous labyrinth, occurs rather rarely today and always is secondary to acute or chronic otitis media or mastoiditis. These patients usually lie on the normal side to decrease the nystagmus and vertigo. Loss of auditory and vestibular functions indicates suppurative labyrinthitis, which should be treated surgically. However, if these functions are retained, the inflammation is of the serous type and more conservative treatment is indicated. Labyrinthine fistula occurs in the horizontal canal secondary to cholesteotoma of the mastoid and is diagnosed by a positive reaction to the fistula test. Treatment of this condition is surgical.

Fracture of the temporal bone or concussion of the inner ear from head injury causes severe vertigo, usually accompanied by tinnitus and deafness, and facial paralysis may also be present. Neurolabyrinthitis, or toxic neuritis of the eighth nerve, is encountered frequently; these cases are usually referred to as "labyrinthitis" by the internist. They may be due to hypersensitivity to drugs, such as quinine, salicylates, alcohol, or morphine, or they may result

from systemic or focal infection. The symptoms last from a few days to a few weeks. Treatment consists in removal of the etiologic agent.

The blood supply of the inner ear is the internal auditory artery, which is an end artery. Obstruction of this artery, whether by thrombus, embolus, or spasm, causes a typical picture of severe vertigo, roaring tinnitus, severe deafness, and nausea and vomiting of sudden onset. These symptoms are severe for several days. The patient lies in bed without moving his head. Gradually over a period of weeks the vertigo, nausea and vomiting clear up. The tinnitus decreases in intensity and the patient returns to normal activity. The deafness is usually permanent and mild postural vertigo may continue for several months. If the patient is seen early, vigorous vasodilation may be tried in an effort to re-establish the blood supply. However, treatment is ordinarily confined to sedation, restoration of fluid balance and reassurance.

There is a widespread but unfounded belief that tumors of the cerebellopontine angle often cause severe vertigo. The usual manifestations are severe nerve type deafness, tinnitus of long duration, and corneal anesthesia on the involved side. Occasionally moderate vertigo is present. Roentgenographic evidence of enlargement of the internal auditory meatus, when present, confirms the diagnosis.

Much confusion has existed concerning Ménière's disease or endolymphatic hydrops. This is a distinct clinical entity, the pathology of which is well known. The etiology is obscure but is considered by many to be due to hypersecretion of endolymph. This diagnosis should be reserved for patients experiencing paroxysmal episodes of severe vertigo, accompanied by a roaring tinnitus, nerve type deafness, and nausea and vomiting. These patients are usually women in the third or fourth decade of life, who may have an allergic history and are extremely apprehensive about their attacks. Examination usually reveals no abnormalities except a nerve type deafness, usually unilateral, and possibly a hypoactive response to caloric stimulation in the involved ear. The patient always states that the vertigo he has is much more severe than that produced by the caloric test. Medical treatment of Ménière's disease consists in limiting fluid intake, low sodium diet, and use of diuretics, vasodilator drugs such as nicotinic acid, histamine and atropine-like drugs, sedation and in rare cases streptomycin destruction of labyrinthine function. Surgical treatment is occasionally employed in severe unilateral cases which do not respond to a medical regimen; destructive labyrinthotomy is the procedure of choice and has largely replaced hemisection of the eighth nerve.

CENTRAL ORIGIN

Vertigo of central origin is not as severe as that of peripheral origin, and is often positional and transient; auditory phenomena are not usually present and the nystagmus is of the central type. Conditions affecting the vestibular nuclei and tracts produce this type of vertigo.

Arteriosclerosis of the central nervous system is the commonest cause of vertigo that we see. The vertigo is probably due to a diminished blood supply to the vestibular nuclei and tracts. It is usually mild, is often positional and responds poorly to treatment. Dramamine and sedation are often beneficial, and spontaneous remissions may occur.

Hypertension usually produces dizziness rather than vertigo; it is worse when the blood pressure is high and responds to measures which lower the blood pressure. Vertigo is a prominent symptom of the postconcussion syndrome, often persisting for many months after the initial injury.

One-third of the patients with cerebellar abscess or tumor have true vertigo. Usually other cerebellar signs are present. Tumors of the fourth ventricle may cause recurrent episodes of vertigo which can be confused with Ménière's disease. Degenerative diseases of the central nervous system may involve the vestibular nuclei and pathways and produce vertigo. The principal offender is multiple sclerosis in which 10 per cent of patients complain of vertigo

as the initial symptom. Other diseases in this category are syphilis, syringomyelia, and poliomyelitis.

OTHER CAUSES

There are numerous other causes of dizziness and vertigo which do not directly affect the vestibular apparatus. Most of these conditions cause dizziness or imbalance and not true vertigo. Cerebral anemia often produces dizziness and even syncope. It may be caused by hypotension, anemia, vasomotor instability or cardiac decompensation. Various metabolic disturbances, such as hypoglycemia, endocrine disorders and the menopausal syndrome, often produce dizziness. Some patients with migraine complain of mild true vertigo. Ocular vertigo is a misnomer. Various ocular conditions, such as muscle imbalance, refractive errors, and glaucoma, produce giddiness or dizziness but not vertigo. Here the diagnosis is simple; if the sensation is not relieved by closing the eyes, then other causes should be considered. Undoubtedly many cases of dizziness are on a psychogenic basis. The reaction to caloric stimulation is of great value in these patients. Lastly, disturbances in gait may be confused with vertigo or dizziness.

SUMMARY

As can be seen, a multitude of conditions may cause dizziness and vertigo. The most important diagnostic point is determination of what the patient means when he says he is dizzy. In general, severe vertigo, especially when associated with tinnitus and deafness, is due to labyrinthine disease. Milder positional vertigo is usually central in origin. Dizziness not due to labyrinthine disease may be caused by systemic disease, metabolic, or endocrine disorders or ocular disease, or it may be psychogenic.

Complete examination of the ear, nose, and throat including evaluation of labyrinthine and auditory function, a thorough medical examination and even neurological and ocular examinations may be necessary in many patients before the proper diagnosis can be made.

DISCUSSION

Dr. Adrian B. Cairns (New Orleans): True vertigo as Dr. Lewis pointed out is defined as a sensation of whirling motion, either of the patient or of his surroundings. It may be imitated by stimulating the labyrinth with ice water.

A large number of patients are referred to the otolaryngologist with the chief complaint of dizziness or vertigo. For this reason it is important to know that a patient who has a serious labyrinthine disturbance usually has associated pathology of the cochlea. The reverse is not always true. An audiometric examination will act as a screening test and in such serious conditions as Menières disease, cerebellopontine angle tumors and suppurative labyrinthitis there will always be an associated hearing loss.

I would like to discuss briefly two conditions that we see often:

1. Vertigo due to eustachian tube blockage. The patient has true vertigo as the labyrinth is stimulated by the negative pressure in the middle ear. The cause of the tubal blockage should be determined and eradicated.

2. Anxiety state. This is a very common cause of dizziness. The patient is usually of the nervous type. In these cases the patient does not have a true vertigo and on close questioning will be found to have more of an unsteadiness. Hearing is usually normal. The caloric response does not resemble the spells, and the patient will tell you that the test is much worse than the spells. However, we should never forget that nervous patients can have serious organic conditions.

In conclusion I would like to emphasize that the problem of the dizzy patient is a challenge to the otolaryngologist and will require further study and research.

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DIABETES AND THE DIABETES DETECTION DRIVE

The week of November 11-17, 1951, will be Diabetes Week. This is the week in which the Annual Diabetes Detection Drive will be made.

The American Diabetes Association has for the past three years sponsored and organized a continuous and nationwide effort to find out who the people are who have diabetes and do not know it. Along with this case finding program is the health educational program, which is sponsored and directly conducted by the medical profession working through the local medical societies.

The disease, which is in the nature of its composition incurable and which has a million acknowledged cases already, is important to the medical profession in every aspect of its practice. It is realized that there are probably a million diabetics unknown to themselves and to their doctors, and still two million more, who are going to become diabetics, among those now living. The importance of diabetes and diabetic detection drives in this situation is readily manifest.

The activities of the American Diabetes Association in this regard are most commendable. It is the only national organization in this field. It was originally founded in 1940 by physicians who were deeply concerned over the growing problem of diabetes in this country. The membership is still largely medical and includes more than 1400 physicians whose interests are intimately connected with the problem of diabetes. The association is the only one of those currently vocal in this country in which the primary initiative was and remains principally that of physicians. The objectives of the association are:

To find the greatest number possible of yet-undiscovered diabetics.

To assist diabetics in their efforts to lead normal lives.

To improve the treatment of diabetes.

To bring the newest information about the disease to all interested physicans.

To encourage and support research on diabetes.

To promote public knowledge about diabetes and understanding of the individual diabetic's problem.

The compilation of the results of Diabetes Week in 1950 supports the aims of the Association. It is found in general that the

proportion of newly discovered cases of diabetes to the total number of people tested ran between 0.5 and 1 per cent. It seems clear from considerations of this sort and other data which are available that the actual number of diabetics is increasing. Analysis of the incidence of diabetes in over 45,000 selectees shows the disease is 3 to 4 times as prevalent among young adults as has hitherto been known on the basis of earlier studies.

The increase in the actual number of diabetics is in part, no doubt, due to aging of our population. Heredity is regarded as being a factor. A predisposition to diabetes is apparently inherited as a Mendelian recessive characteristic. It has been variously estimated that approximately 1 out of every 4 persons is "a diabetes carrier." Obesity is also associated with the greater incidence of diabetes. Theories to explain this are various. Whatever these theories may be, it is obvious that under such circumstances more food material is taken in and less muscular energy is expended. A burden upon the mechanism of metabolism results. Additional theories are concerned with the endocrines and with the complicated balance of forces that is maintained between them. Regardless of the theories, the best service the physician can do for the diabetic is to arrange his methods of practice so that the diabetic may be detected as early as possible, and when detected, the physician can then direct the course of the disease so that its ravages will be minimized.

In an article in the September 15 Journal of the A. M. A., Joslin shows that the controlled diabetic has an outlook that was little dreamed of twenty-five years ago. He reports in a study of 760 diabetic patients suffering from the disease for twenty-five years or more that approximately 80 per cent were active, and a few were in perfect health. He states:

"The patients in perfect condition are those whose treatment was initiated (with hardly an exception) with strenuous control of diabetes in their early years; this control being maintained for ten years, more or less, to more than the usual extent and even then continued.

"In this series the evidence is overwhelming that strict treatment of diabetes pays and, moreover, that control of the disease is possible."

In any detection drive it is expected that there will be borderline cases. These are likely to be referred to the proper quarters for glucose tolerance tests. This test does not actually measure the tolerance for sugar; it does not show the capacity of the patient to utilize his food. In recent years this test has been subjected to a variety of interpretations. Among its critics, Soskin feels that it is of value only if the glucose is given intravenously, and if due consideration is given to the action of the liver in interpreting the test. While possibly confusing in some instances, the glucose tolerance test seems a useful guide in the study of many borderline cases.

The Chairman of the Committee of the American Diabetic Association for Louisiana this year, as in the three years past, is Dr. Arthur A. Herold of Shreveport. The burden of organizing and directing the work will fall upon him. The effectiveness of the drive, however, will depend upon local cooperation, and its value to medical public relations will be in proportion to the effort exerted. The lessons of the last fifteen years have taught that the doctor must not only treat disease but he must be active in arranging for its prevention, detection, and prospective care before it develops. Accordingly, it is much in the public interest and in the interests of the profession to find the greatest number possible of yet-undiscovered diabetics.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

COMMUNICATIONS

Following is an article received by the secretary-treasurer from Colonel David E. Liston, Surgeon, Medical Corps, Headquarters Fourth Army, concerning reimbursement for medical services rendered Army personnel.

CIVILIAN MEDICAL CARE FOR THE ARMY

One of the most important and necessary services furnished the American soldier is adequate and timely medical care and treatment, including hospitalization. This service is provided for Army personnel in the United States generally by dispensaries, infirmaries, and hospitals located at the many Army installations throughout the country. There are many locations, however, where Army or other United States federal medical treatment facilities are not available when medical service is required by Army personnel. In cases of this nature, the services of civilian physicians, clinics, and hospitals are necessary. With the expansion of the Army and the deployment of Army personnel to practically all points in the United States either on a duty, travel, or leave status, the continued cooperation of civilian physicians and agencies is of utmost importance in providing adequate medical service to the U. S. soldier in time of need.

Certain criteria and procedures have been established in connection with the furnishing of medical service to Army personnel by civilians in accordance with the current laws and regulations. These criteria define the conditions under which individuals of the Army may be authorized civilian medical care at the expense of the Army. These procedures include methods for reporting and receiving payment for treatment or hospitalization of Army personnel by the civilian medical agencies.

Civilian medical care (other than elective) at the expense of the Army is authorized for commissioned officers, contract surgeons when employed by the Army on a full-time basis, warrant officers, enlisted personnel, cadets of the United States Military Academy, general prisoners and prisoners of war when these personnel are on a duty status or when they are absent from their place of duty on leave or informal leave (pass) status. Applicants for enlistment in the Army and selectees also are authorized necessary civilian medical care at the expense of Army funds while they are being processed for enlistment or induction into the Army. Payment for civilian medical expenses incurred by Army personnel who are absent without leave is not authorized. Any obligations resulting from civilian medical care to Army personnel who are absent without leave are the responsibility of the Army individual concerned.

Normally, civilian medical care for Army personnel is authorized only when there are no other federal medical treatment facilities available. First aid or emergency treatment is authorized at any time, notwithstanding the proximity of Army or other federal medical treatment facilities. In this connection, emergency medical care may be defined as that required to save life, limb, or prevent great suffering. Surgical operations should not be performed without prior approval of military authorities, unless indicated as an emergency procedure. Elective medical treatment in civilian medical treatment facilities or by civilian physicians will not be authorized as Army funds cannot be used for payment of these services.

Due to the limitation of funds available to the Army, dependents of military personnel may obtain available medical care at Department of Defense medical facilities only.

Any obligations resulting from civilian medical care to dependents of military personnel are the responsibility of the dependents concerned or their sponsors.

As a general rule, local military commanders will furnish the civilian medical agency with prior written authority for ordinary medical care to Army personnel under his jurisdiction. In such cases, prior arrangements with the civilian medical agency will be made by the individual or by a proper military authority. For emergency cases treated without prior written authorization, the surgeon of the nearest military command should immediately be notified by the civilian medical agency, giving the individual's name, organization, nature of illness or injury and statement of the practicability of transfer of the patient to an Army or other governmental hospital. The civilian agency or physician then will be advised without delay by the appropriate military authorities as to procedures to be followed.

Bills for authorized medical care and treatment of Army personnel should be submitted to the commanding officer of the organization to which the patient belongs, or to the military authority who provided the authorization for the medical service. If the location of these individuals is not readily known or if such military commanders authorizing treatment have moved to another station, the bill should be sent to the military authority listed below.

For Services rendered in the following states:

FOURTH ARMY AREA

Arkansas, Louisiana, New Mexico, Oklahoma, Texas, submit bills to The Surgeon, Fourth Army, Fort Sam Houston, Texas.

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SOCIALIZED MEDICINE

It is felt by the secretary-treasurer that the following letter received from Dr. Elmer Hess, President of the American Urological Association should be of interest to every member of the State Society and it would be worthwhile to follow the suggestion included in this communication.

Dear Doctor:

You have many times been thanked sincerely, gratefully, even profusely, almost to the point of embarrassment for a life-saving or a health-restoring service. What a made-to-order opportunity is presented by such an occasion to plant into the minds of grateful patients the seeds of the simple truth that socialized medicine is national socialism. Ask your patients whether they think they would have fared as well under a political medical system, with production line guessing for diagnosis and treatment and with a politically appointed physician whose compensation would depend more upon his political connections than upon the quality of service he renders.

Remind your patients of the additional payroll deduction that would be necessary if the government furnishes free medical care. Miss no opportunity to enlighten them concerning the facts. The voice of an increasing total of grateful patients thus informed and converted by you and your confreres will gradually but inevitably have its influence in moulding public opinion. Supplementing the efforts of organized groups, this much we as individuals can and should do if we will only put forth the effort and have the will to do it.

Will you address at least 5 copies of this letter to physicians of your acquaintance? This will cost you a maximum of 15 cents and perhaps an hour of your secretary's time. Do it now and don't forget and neglect the assignment which you have given to others. Remind each grateful patient during his treatment and at the time of his dismissal from your care where his better interests lie. Let him know that this fight against socialized medicine is really not the doctor's fight but the people's fight to preserve for themselves the best quality medical care that any nation has ever enjoyed and that the whole fight is against national socialism.

Cordially yours,
Elmer Hess, M.D.
President
American Urological
Association

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

DIABETES WEEK

Diabetes Week (November 11-17) will again spearhead the American Diabetes Association's nationwide Diabetes Detection Drive, the fourth sponsored by this Association.

The year-round Diabetes Detection program, approved by the American Medical Association, is the only broad health education and case finding program developed exclusively by the medical profession. Its objectives are twofold: (1) to further the detection of diabetes among the public; and (2) to disseminate general information about the disease.

Twenty-eight State Medical Societies, over 500 County Medical Societies, and the 28 Affiliate Associations have already established Committees on Diabetes. In Louisiana, in addition to the State Medical Society Committee, chaired by Doctor A. A. Herold, Sr., approximately five County Medical Societies will cooperate in this year's Drive.

Both state and county-wide detection programs will be conducted in Louisiana this fall. The American Diabetes Association recommends that detection programs be organized with the cooperation and participation of County and State Medical Societies.

In past surveys, urine tests have been made by Benedict's method, Clinitest or Galatest. The latter are simple and time-saving means of testing for glycosuria. The reagents, however, must be fresh to give dependable results. Doubtful tests should be checked with Benedict's solution. Standard blood sugar techniques, as the Folin-Wu or Somogyi procedures, should be used for follow-up tests.

The principle of self-testing for glycosuria was approved by the Council of the American Diabetes Association, June 5, 1949, and by the House of Delegates, American Medical Association, June 28, 1950. Many State and County Medical Societies have already taken similar action. Self-testing units contain directions for use and instructions to report all positive findings to family physicians for confirmatory diagnosis.

By way of caution, some mild cases of diabetes may not be discovered on initial examinations unless:

A test is made one to three hours after a full meal—preferably ninety minutes.

A blood sugar test is made in addition to the urinalysis.

ANNUAL MEETING OF THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The fifteenth annual meeting of The New Orleans Graduate Medical Assembly will be held March 10-13, headquarters at the Municipal Auditorium.

Listed below are the Chairmen and Vice- Chairmen of the Program Committees:

Anesthesiology—Dr. Frank L. Faust, Chairman; Dr. John Adriani, Vice-chairman.

Dermatology—Dr. M. T. Van Studdiford, Chairman; Dr. Barrett Kennedy, Vice-chairman

Gastroenterology—Dr. Jules Myron Davidson, Chairman; Dr. Benjamin O. Morrison, Vice-chairman.

Gynecology—Dr. E. Perry Thomas, Chairman; Dr. John C. Weed, Vice-chairman.

Medicine—Dr. Joseph S. D'Antoni, Chairman; Dr. Louis Monte, Vice-chairman.

Neuropsychiatry—Dr. T. A. Watters, Chairman; Dr. Dean H. Echols, Vice-chairman.

Obstetrics—Dr. Curtis Lund, Chairman; Dr. E. L. King, Vice-chairman

Ophthalmology—Dr. George M. Haik, Chairman; Dr. William B. Clark, Vice-chairman.

Orthopedic Surgery—Dr. Guy A. Caldwell, Chairman; Dr. James L. Lenoir, Vice-chairman.

Otolaryngology—Dr. H. Ashton Thomas, Chairman; Dr. Francis E. LeJeune, Vice-chairman.

Pathology—Dr. Edwin H. Lawson, Chairman; Dr. William H. Harris, Vice-chairman.

Pediatrics—Dr. Ruth G. Aleman, Chairman; Dr. John Henry Dent, Vice-chairman.

Radiology—Dr. Joseph N. Ane, Chairman; Dr. Richard C. Boyer, Vice-chairman.

Surgery—Dr. James D. Rives, Chairman; Dr. M. M. Hattaway, Vice-chairman.

Urology—Dr. Edgar Burns, Chairman; Dr. Gilbert C. Tomskey, Vice-chairman.

The program is being arranged and promises to be one of the most interesting this Assembly has ever had.

CHILD HEALTH PROGRAM

The Child Health Committee of the Louisiana State Medical Society is arranging to meet in Alexandria during the early part of November, with representatives of various educational groups and with as many representatives of parish societies as can attend. The object of this meeting is to coordinate the efforts of the various agencies who are working in the Child Health Program, and to bring about a proper coordination between the school authorities, the physicians, and the representatives of the lay public. The operation of coordinated effort of this type in the parishes of Tangipahoa and Iberville has resulted in a very satisfactory situation in which the children were examined and the private practice of medicine was supported. It is felt that this is not strictly a pediatric problem. The general practitioner and the physicians practicing in the various specialties have equal responsibilities.

SUMMER MEETING OF THE LOUISIANA HEALTH COUNCIL

The Louisiana Health Council had its summer meeting in Baton Rouge, August 15 and 16, on the L. S. U. Campus. Mr. H. C. Sanders presided over the meeting. The Wednesday afternoon meeting was directed towards nurses recruitment and three important speakers presented facts relative to that subject. The Thursday morning session was given over to Health Council organization and an important talk was given by Dr. M. C. Wiginton of Hammond. His talk was followed by the symposium on the Public Health Service of the State Health Department with Dr. S. J. Phillips as chairman. The meeting was very well attended and much interest was shown. Dr. Wiginton and Dr. J. P. Sanders, were the only representatives present of the State Medical Society.

DR. TALBOT HONORED

At the July, 1951, meeting of the Orleans Parish Medical Society, a proposal was signed by all members of the Board of Directors nominating Dr. P. T. Talbot for honorary membership in the Orleans Parish Medical Society. Dr. Talbot, before his retirement in October, 1950, served for thirty two years as Secretary-Treasurer of the Louisiana State Medical Society and as General Manager of the New Orleans Medical and Surgical Journal.

DIODRAST AIDS SURGEONS IN DIAGNOSING BRAIN TUMORS

An effective technic in the diagnosis of brain tumors, intracranial aneurysms and cerebral vascular accidents, involving use of the radiopaque compound Diodrast, is described by Dr. Sidney W. Gross, Mt. Sinai Hospital, New York, in charts prepared for exhibition at medical society meetings.

The technic, which is now being widely employed in neurosurgical clinics whenever such tumors are suspected, was described in detail at the recent meeting of the American Medical Association.

When Diodrast is injected into the common carotid artery, the blood vessels in the head, supplied by this artery, are made visible in X-rays. Brain tumors change the normal pattern of the blood vessels.

GREATER ACCURACY IN LABORATORY DIAGNOSIS

The sick man seeking a diagnosis will soon be getting a sharper picture of his disease condition, from doctor or hospital, than he may have had in the past.

The promise of greater accuracy in laboratory diagnosis results from a service announced by the College of American Pathologists.

This national body of medical specialists is initiating a program which will enable pathologists who direct laboratories to obtain highly standardized chemical solutions for use in performing tests on body fluids.

By checking solutions prepared by their own technicians against the standard solutions supplied them, directors of medical laboratories can thereby increase the reliability of their medical tests, to the immediate benefit of the sick.

Distribution of standardized dextrose and nitrogen solutions to 1450 member pathologists, which began August 30, actually marks the initial step in the development of a comprehensive program for standardization of laboratory procedures, Dr. M. G. Westmoreland, executive secretary of the College of American Pathologists, declared.

MOTION PICTURES ON HEALTH

A revised list of "Sources of Motion Pictures on Health" has been prepared by the Committee on Medical Motion Pictures of the American Medical Association. This new mimeographed list includes 9 pages of addresses of the major loan and rental libraries, the state health departments' film libraries and references to printed lists and catalogs. Copies are available from:

Committee on Medical Motion Pictures
American Medical Association
535 North Dearborn Street
Chicago 10, Illinois

WOMAN'S AUXILIARY TO THE LOUISIANA ACADEMY OF GENERAL PRACTICE

Newly elected officers and appointive chairmen for the Woman's Auxiliary to the Louisiana Academy of General Practice include the following:

Advisory Council: Dr. Marquis C. Wiginton, Hammond; Dr. Eldrege L. Carroll, Columbia, and Dr. Edwin R. Guidry, New Orleans.

Officers: President, Mrs. Edwin R. Guidry, New Orleans; President-elect, Mrs. P. A. Donaldson, Reserve; Vice-president, Mrs. Hollis T. Rogers, Winnsboro; Recording Secretary, Mrs. John N. Bostick, Gilbert; Corresponding Secretary, Mrs. P. P. Labruyere, Marrero; Parliamentarian, Mrs. Floyd M. Hinderland, Gretna; Past President, Councilor and Advisor, Mrs. George D. Feldner, New Orleans.

Chairmen of Special Committees: Convention, Mrs. Carroll Gelbke, New Orleans; Vice-chairman, Mrs. Daniel Murphy, New Oleans; National Building Fund, Mrs. Esmond Fatter, New Orleans; G. P. Wife of the Year, Mrs. M. C. Wiginton, Hammond.

Chairmen of Standing Committees: Archives, Mrs. Cosmo J. Tardo, New Orleans; Budget, Mrs. D. B. Barber, Pineville; Historian, Mrs. C. P. Herrington, Alexandria; Membership, Mrs. John W. Atkinson, Gretna; Printing, Mrs. William Gillaspie, New Orleans; Program, Mrs. Forrest Baker, Gonzales; Publicity, Mrs. C. R. Robinson, New Orleans.

Councilors: First District, Mrs. Vincent Blandino, New Orleans; Second District, Mrs. Frederick A. Wild, Jr., Destrehan; Third District, Mrs. F. H. Davis, Lafayette; Fourth District, Mrs. John G. Pou, Shreveport; Fifth District, Mrs. Eldredge Carroll, Columbia; Sixth District, Mrs. C. P. Lipscomb, Ponchatoula; Seventh District, Mrs. James B. Hodge, Jr., Sulphur; Eighth District, Mrs. Milton Honigman, Alexandria.

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WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

An invitation to the New Orleans chairman of the Essay Contest sponsored locally by the Woman's Auxiliary to the Orleans Parish Medical Society, in Louisiana by the Woman's Auxiliary to the Louisiana State Medical Society, and nationally by the American Association of Physicians and Surgeons, and to the local winner of the national award, has been extended to attend the National Convention of the AAPS in Indianapolis, October 4-7.

Pat Baxter, the vivacious seventeen year old McMain graduate, who captured first honors in Louisiana and the nation and who had her prize winning essay 'Why the Private Practice of Medicine Furnishes this Country with the Finest Medical Care" inscribed upon the pages of the Congressional Record, will read her treatise at the Banquet meeting on Friday, October 5. Sharing honors with Pat will be the speaker of the evening, Senator McClelan.

Accompanying Miss Baxter as chaperone will be Mrs. Edwin R. Guidry, who acted as local and state chairman for the contest, and who previously piloted Rose Agnes of Metairie High School to a fourth place prize in last year's contest.

Both Miss Baxter and Mrs. Guidry will fly to the convention as guests of the association. The invitation and the opportunity to so represent New Orleans and Louisiana and the Medical Auxiliaries active in the project are interpreted as a distinct honor and recognition of the part Dr. Edwin L. Zander, president of the Louisiana State Medical Society, has played in this nation wide educational effort to combat compulsory state medical taxation.

SOUTHERN MEDICAL ASSOCIATION AUXILIARY

The meeting of the Woman's Auxiliary to the Southern Medical Association will be held in Dallas, Texas, November 5-8. Headquarters for the Auxiliary will be at the Baker Hotel.

BOOK REVIEWS

Differential Diagnosis of Internal Disease: By Julius Bauer, M. D., F. A. C. P., New York, Grune and Stratton, 1950. Illus. Pp. 866. Price, $12.00.

This book represents a departure from the usual. Instead of a rather complicated and cross-indexed collection of diseases, symptoms, and signs, Dr. Bauer has written an interesting, straight-forward, and highly personal account of problems involving diagnosis. The simplicity of the organization is indicated by the chapter headings, e.g. Chapter 1, Headache; Chapter 2, Chest Pain. Sub-headings are relatively few.

Also unusual in a book of this type is Dr. Bauer's recognition that a symptom may be of importance in itself, and should not always be considered just a clue indicative of some orthodox disease entity. Emphasizing this point of view, Chapter 6 is entitled "Disorders of General Feelings."

The practicing physician will recognize that the author has seen many patients, and that he is writing about things he observes day in and day out. The physician beginning practice will have available to him in this book the experience of an excellent clinician.

Apparent in many sections of the book are Dr. Bauer's unorthodox concepts, especially regarding the etiology of obesity, of various functional disturbances, and some of the degenerative diseases. Any one familiar with his *Constitution and Disease* will recognize the same dogmatic opinions, and probably will disagree with many of them.

This book will be of most value to the physician beginning practice, especially to the young internist or general practictioner. It should not be put in the hands of the student who will not distinguish the greater part which is very valuable from those sections which may be misleading.

PHILIP M. TILLER, JR., M. D.

Visual Anatomy: Head and Neck: By Sydney M. Friedman, M. D., Ph. D., Springfield, Ill., Charles C. Thomas, 1950, Pp. 217, figs. Price, $6.50.

In his preface Dr. Friedman states that the book is designed as a "revision text" for undergraduate and postgraduate students; it is intended for use in review, and not as a substitute for a textbook or atlas. As for the need of such a book, the author points to the curtailment of time devoted to anatomy in the present-day curriculum and to the inevitable forgetting of subject matter that together make review necessary. The choice of structures for inclusion, he explains, was determined by the aim "to suit the needs of medical practice in general."

The 88 illustrations are boldly executed, diagrammatic drawings in which the contents are reduced to essentials. They are the core of the book as a "visual text," where "facts are presented largely by illustration and only secondarily by the written word." The material is arranged by regions, and the approach in description is "outward from the basic framework."

HAROLD CUMMINS, *Ph. D.*

Sir William Osler: Aphorisms from His Bedside Teachings and Writings: Collected by Robert Bennett Bean, M. D. and ed. by William Bennett Bean, M. D., New York, Henry Schuman, Inc. 1950. Pp. 159. Price, $2.50.

Those who are familiar with a small volume called *Counsels and Ideals of Sir William Osler*, published in 1905 and now long out of print, will welcome this second collection of the wise aphorisms of Sir William Osler on medicine and the medical life. These cameos of wisdom are grouped by subjects such as The Medical Student, The Patient, etc. Dr. Robert Bennett Bean, at one time Professor of Gross Anatomy in the Tulane Medical School, gathered these notes during his association with Dr. Osler both as a student and as a graduate at Johns Hopkins University. Inclusion in this volume is more definitely medical than in *Counsels and Ideals*, as edited by Dr. C. N. B. Camac.

MARY LOUISE MARSHALL

PUBLICATIONS RECEIVED

Anson L. Brown, Inc., Columbus, Ohio: Technical Methods for the Technician, by Anson L. Brown, M. D. (4th Edit.).

Bruce Publishing Co., St. Paul: Allergy in Re-

lation to Pediatrics, by Bret Ratner, M. D.

Doubleday & Co., Inc., N. Y.: The Changing Years, by Madeline Gray.

Paul B. Hoeber, Inc., N. Y.: A Textbook of Clinical Neurology, by J. M. Nielsen, B. S., M. D. (3rd Edit.).

The C. V. Mosby Co., St. Louis: Human Biochemistry, by Israel S. Kleiner, Ph.D., (3rd Edit.)

Charles C. Thomas, Springfield, Ill.: Dr. Alexander Spitzer's The Architecture of Normal and Malformed Hearts, translated by Maurice Lev., M. D., and Aloysius Vass, M. D.; Causalgia, by Frank H. Mayfield, M. D.; Chronology of Ophthalmic Development, by Arthur H. Keeney, M. D.; Instruments and Apparatus in Orthopaedic Surgery, by E. J. Nangle, M. B.; Food and You, by Edmund Sigurd Nasset, A. B.

Year Book Publishers, Inc., Chicago: Handbook of Operative Surgery of the Stomach and Duodenum, by Claude E. Welch, M. D.

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BANTHINE IN THE TREATMENT OF DUODENAL ULCERS*

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SHREVEPORT

Banthine has been used clinically in the treatment of doudenal ulcers for over two years. The experimental work and several clinical studies have been reported.[1-6] It is an anticholinergic agent, inhibiting muscular contraction stimulated by acetylcholine. It also inhibits salivation, causes mydriasis, blocks the vagus effects on the stomach and decreases gastric motility and acidity.

This is a follow-up study of 40 duodenal ulcers treated with banthine, reported previously,[7] with the addition of 36 others. These patients have been under observation from two to seventeen months with an average of nine months since the initial course of banthine was started. All were white, and were obtained from our private practice. These patients had proven ulcers both clinically and roentgenographically. With the exception of 2 patients who elected to start their course of treatment in the hospital, all were advised to continue their regular work during the course of treatment. All patients were placed on a bland diet with milk given between meals and at bedtime. At the initiation of the studies seventeen months ago, banthine was prescribed 100 mgm. every six hours, day and night at 6:00 A. M., 12:00 noon, 6:00 P. M. and 12:00 midnight. However, marked side effects became quite frequent and the dosage was changed to 50 mgms. every six hours using the same schedule. This has proven to be effective with most of the patients and the incidence of unpleasant side effects has decreased markedly. However, larger doses were used in those patients who did not have an adequate response on 200 mgm. daily. Occasionally patients were given 50 mgm. three times a day and 100 mgm. at midnight in order to combat the usual nocturnal elevation of gastric acidity.

Originally, roentgenographic studies were repeated every one or two months until healing was found. However, this was possible in only 25 cases. Since follow-up roentgenographic studies at frequent intervals could be done only on one-third of all of the patients, it was felt that criteria for clinical inactivity must be established. Therefore, if a patient was symptom free for at least three months on a regular diet after having stopped banthine and all other antispasmodics and antiacid drugs, his ulcer was considered clinically inactive. Symptoms appearing after this were considered recurrence and studied roentgenographically. When possible the patients were seen weekly early in the course of treatment and monthly thereafter.

At the beginning of our study, the use of banthine was restricted to those patients with ulcers which had failed to respond to prolonged medical and dietary management and were considered candidates for surgical intervention such as vagotomy with resection or gastroenterostomy. These, along

*Presented at the Seventy-first Annual Meeting of the Louisiana State Medical Society, New Orleans, La., May 9, 1951.

Banthine furnished by Dr. Irwin C. Winter, Director of Clinical Research, G. D. Searle & Co.

with a similar group treated later in the study, are classified as severe duodenal ulcers (Table 1). Very carefully controlled

TABLE 1
DUODENAL ULCERS NOT RESPONDING TO PROLONGED MEDICAL AND DIETARY MANAGEMENT AND CONSIDERED CANDIDATES FOR SURGERY

	Total	Ages	Average Age
Males	29	28 to 67	41
Females	5	26 to 56	45
Duration of Symptoms	9 to 300 months	Average 131 months	
Symptoms:	Before Banthine		After Banthine
Pain and burning			
Intractable	28		3
Intermittent	1		1
Occasional	0		14
Vomiting:			
Intractable	8		1
Moderate	5		0
Mild	1		1
Hemorrhage:			
Major	4		0
Minor	0		1

medical ulcer management including strict diets, antispasmodics and antiacids had been used by these patients without relief of symptoms. Many had been hospitalized in order to eliminate environmental factors which may have played a part in producing their ulcers. The average duration of time that had elapsed since the original onset of symptoms of duodenal ulcer in the members of this group was one hundred thirty-one months. The only treatment originally prescribed in this group was a bland diet and banthine. The majority of them became symptom free in a very few days. A few of the patients required the addition of antacids between meals and at bedtime for complete relief. Four patients who were completely asymptomatic after taking the first dose of medicine stopped taking it at the end of two months and have been on a regular diet since that time. Three patients with intractable pain after banthine therapy and one with intermittent pain were treated surgically, and these will be discussed later.

Included in our group of mild duodenal ulcers (Table 2) were those which usually

TABLE 2
MILD DUODENAL ULCERS

	Total	Ages	Average Age
Males	32	20 to 67	55
Females	10	31 to 62	45
Duration of Symptoms	1 to 180 months	Average 147 months	
Symptoms:	Before Banthine		After Banthine
Pain and burning			
Intractable	12		0
Intermittent	23		0
Occasional	6		13
Vomiting:			
Moderate	6		0
Mild	2		1
Hemorrhage:			
Major	3		0
Minor	1		0

responded to antispasmodics and antiacids with a bland diet. Many of them had had frequent recurrences of their symptoms but were able to obtain relief by strict diet, rest and drugs. Also included in this group are 7 patients with their first episode of ulcer symptoms. These were all placed on 50 mgm. of banthine every six hours and a bland diet. The relief from symptoms was almost immediate in most cases. One patient in this group had a minor hemorrhage after starting therapy but he had not followed the banthine as prescribed.

Several objectional physiological effects (Table 3) were noted. Practically all of

TABLE 3
OBJECTIONABLE PHYSIOLOGICAL EFFECTS

	Moderate	Severe*
Salivary suppression	4	6
Constipation	8	0
Dysuria	3	4
Mydriasis	2	0
Abdominal cramping	3	0

*The objectionable physiologic effects were severe enough to cause discontinuance of Banthine.

the patients complained of mild salivary suppression, constipation, and mydriasis. Two of the patients were unable to do their work because of mydriasis. In these, the noon dose was discontinued and antacids substituted. Three patients developed severe epigastric cramping fifteen minutes after taking the drug. Two of these had been on the drug for two months prior to this complication. After omission of several doses, banthine was again given with no further difficulty. Six patients, 3 males and 3

females, had such severe salivary suppression as to necessitate discontinuance of the drug. Three male patients, 1 of whom had palpable prostatic hypertrophy, complained of severe dysuria and the drug was discontinued. All of these had been placed on 100 mgm. every six hours. After one year, one of these patients returned and was placed on 50 mgm. every six hours with no urinary difficulty. Four female patients complained of dysuria, but 3 of them were willing to tolerate this discomfort.

Follow-up roentgenographic studies were done on just 26 of these patients, and the month during which the healing was complete is shown in Table 4. In the majority,

TABLE 4
HEALING BY ROENTGENOGRAPHIC STUDIES

No. Months After Start of Treatment	No. of Cases
1 Month	5
2 Months	15
3 Months	3
4 Months	3

healing occurred between the second and third month. Six of these were very severe duodenal ulcers which had been considered candidates for surgery.

Most of the patients in our study remained on banthine therapy for less than three months (Table 5). Four stayed on the drug for six months.

TABLE 5
DURATION OF TREATMENT WITH BANTHINE

Months	No. of Cases
1 or Less	17
2	35
3	17
4	2
5	1
6	4

Also noted in this study was the physical habitus (Table 6) and the occupations

TABLE 6
PHYSICAL HABITUS OF 76 DUODENAL ULCER PATIENTS

	Male	Female
Asthenic	26	4
Sthenic	21	9
Hypersthenic	14	2
Total	61	15

TABLE 7
OCCUPATIONS

MALES:		FEMALES:	
Priest	1	Housewife	10
Doctor	4	Nurse	2
Executive	11	Stenographer	1
Salesman	6	Executive	2
Mechanic	14		
Oil Field Worker	4		
Farmer	5		
Laborer	3		
Schoolteacher	1		
Cook	1		
Truckdriver	3		
Fireman	1		
Electrician	2		
Unknown	2		

(Table 7) of the entire group. It is interesting to note the large percentage of semiskilled and unskilled laborers in this series.

There were 11 recurrences among the male patients and 5 recurrences among the female patients. These became symptom free again after restarting banthine. One patient treated in early 1950 had a large ulcer which healed completely with 100 tablets of banthine. Symptoms recurred in the fall and again 100 tablets produced relief and he remained asymptomatic on a regular diet for the remainder of the year. In the spring of 1951 symptoms again recurred and on this occasion an active ulcer was shown by roentgenographic studies. He is again asymptomatic on banthine.

CASE REPORTS

Case No. 1. A white male, age 49, a machinist, had a history of duodenal ulcer for fifteen years. He had been on very restricted diet, antiacids, antispasmodics and banthine before he came to us. Physical examination revealed tenderness in the epigastrium, but no other significant findings. An x-ray on October 10, 1950, revealed prominent gastric rugae with marked deformity of the duodenal cap with partial stenosis and evidence of an ulcer crater. There was 15 per cent retention in twelve hours. A resection was recommended, but the patient wanted to take banthine again. He was placed on two tablets every six hours, and on October 25, 1950, repeat roentgenographic studies revealed a marked stenosis and deformity of the duodenal cap and evidence of a large ulcer crater was found. At six hours there was 50 per cent retention. There had been no change in his pain and vomiting. A larger ulcer which had penetrated into the pancreas was found on surgery.

Case No. 2. A white male, age 52, had a history of an active ulcer intermittently for sixteen years.

He had considerable pain. He had been placed on banthine without much improvement. X-ray revealed a large pyloric duodenal ulcer which did not respond to treatment. Surgery was recommended. A resection was done and he was found to have a penetrating duodenal ulcer.

Case No. 3. A white male, age 29, had a history of having had an ulcer for the past five years. He had repeated, intense pain. X-ray revealed a large duodenal ulcer. He had been placed on banthine previously and had a good response. However, he would not take his medication, and continued having intractable pain. Because of his mental attitude and his uncooperativeness on a medical regime, a gastric resection was done. This patient could have been handled quite well on the medical regime with banthine had he been cooperative.

Case No. 4. A 32 year old white male had had ulcer symptoms for four years. Roentgenographic studies revealed a large duodenal ulcer. He was placed on banthine and a bland diet and became symptom free. He showed x-ray healing in two months. He stopped the treatment and in ten days developed severe intractable pain. A penetrating ulcer was diagnosed. He was hospitalized and required banthine, antacids and a milk and cream regime. The pain subsided after four days but he requested surgery. A partial resection with vagotomy was done. On section, the ulcer showed signs of healing.

Case No. 5. A 54 year old white male had repeated attacks of hematemesis for twelve years. He would be hospitalized once or twice a year requiring several pints of blood. There was no pain. X-ray revealed a duodenal ulcer. Surgery was recommended. He was placed on banthine prior to the resection.

Case No. 6. A 65 year old white male had had a duodenal ulcer for ten years. He had a vagotomy six years ago with relief of symptoms, but recently his ulcer had recurred. He was asymptomatic on a bland diet. He suddenly developed severe ulcer symptoms. There was no response to bedrest, 400 mgms. banthine a day, or with a Sippy regime and antacids every hour. At that time it was learned that he was secretly taking cortisone. As soon as this was stopped, the ulcer healed.

Case No. 7. A 54 year old colored farmer had recurrence of duodenal ulcer as proved by x-ray. He did not respond to conservative treatment. He was given banthine and became symptom free for about two weeks. After that he was placed on placebo tablets, made up of quinine and having a similar taste. He next returned to the hospital with severe hematemesis and an emergency gastric resection was performed. He developed symptoms shortly after he was placed on the plabeco. This patient was treated at the Charity Hospital and was not included in our survey.

CONCLUSION

1. Banthine is an effective antispasmodic for use in treatment of duodenal ulcers.
2. The great majority of patients respond to 50 mgm. every six hours with a bland diet and milk between meals.
3. A few patients required the addition of antacids between feedings.
4. Recurrences after cessation of banthine therapy are about as frequent as with other forms of treatment. A course (one to two months) of banthine every spring and fall or at any period of severe emotional and physical strain or dietary indiscretion seems advisable. Other patients may prefer to take 50 to 100 mgm. of banthine at bedtime and antacids during the daytime in order to prevent recurrences.
5. Cessation of the drug because of unpleasant side effects was required in 10 patients.
6. The use of banthine does not usually require a period of hospitalization or bedrest and these patients are able to take their treatment without losing time from work and also maintain a well balanced diet.
7. The usual indications for surgical interference in duodenal ulcers, namely obstruction, hemorrhage, and perforation still remain.

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RADIOACTIVE IODINE^{131} IN THE DIFFERENTIAL DIAGNOSIS OF THYROID DISORDERS*

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JOHN HIDALGO, M. S.
ROBERT NIESET, Ph.D.
NEW ORLEANS

The purpose of this paper is to report the application of a standardized technique for radioactive iodine^{131} tracer study to 207 subjects and to emphasize the usefulness of tracer studies in the differential diagnosis of thyroid disorders.

In 1938, Hertz, Roberts, and Evans demonstrated the selective uptake of radioactive iodine by the thyroid gland.[1] This observation paved the way for a new approach to the study of thyroid physiology and pathology. Hamilton[2] and Hamilton and Soley,[3,4] using a Geiger-Mueller tube over the thyroid gland, were able to show that radioactive iodine is rapidly absorbed and concentrated in the thyroid gland. They found it possible to differentiate between normal and hyperthyroid glands. Subsequently, others[5-7] used urinary iodine excretion either alone or in conjunction with uptake estimations directly over the gland as the basis of their technique. The unsatisfactory features of urinary excretion methods and "accumulation gradients" have been emphasized by Oshry and Schmidt[7] and Werner and his co-workers.[8]

Quimby and McCune[9] developed a technique for direct quantitative measurement of the amount of radioactive iodine taken up by the thyroid gland. This method (or modifications) has been widely used by others. In essence, the method consists of comparing the count obtained over the thyroid gland with that obtained over an administered dose of radioactive iodine placed in the same geometric relationship to the Geiger-Mueller tube. It has been demonstrated that if the uptake of radioactive iodine by the thyroid gland is followed at hourly intervals after oral ingestion and plotted against time, an exponential curve is described which shows a plateau after twenty-four hours.[8,10,11]

The details of our technique for direct measurement of radioactive iodine concentration by the thyroid gland have been reported elsewhere.[12]

PROCEDURE

The concentrated solutions of radioactive iodine received from the Atomic Energy Commission at Oak Ridge, Tenn., are assayed and a dilute stock solution is prepared. The I^{131} is derived from neutron bombardment of tellurium. Tracer doses and standards are prepared simultaneously on the same day from the same stock solution. Like doses are measured into similar bottles. The standards are one half as strong as the tracer doses.*

The I^{131} administered in these experiments was carrier-free. Keating and associates[13] have demonstrated the variable results upon uptake when stable iodine carrier is used.

Tracer doses diluted with tap water were administered to 207 subjects. The dose was usually given after breakfast. The subjects varied in ages from 17 to 81, and 80 per cent were females. (The studies were done on patients seen on the private and public ward services of Touro Infirmary.)

The patients were asked to return twenty-four hours after the tracer dose was given, at which time the counts were done.

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From the Departments of Biophysics and Medicine, Touro Infirmary, and the Departments of Biophysics and Medicine, Tulane University, New Orleans, La.

*We have reduced the strength of the standard, first, because tube lag in our sensitive bismuth wall tubes rendered counts on 100 microcurie doses inaccurate; and secondly, because we soon found, as others have, that a 50 microcurie routine tracer yields as much information as one twice that strength. It thus has been estimated that 200 microcuries I^{131} may be used per year with safety;[8] the desirability of smaller tracer doses is obvious. We, therefore, use a 50 microcurie tracer dose and a 25 microcurie standard (simulating 50 per cent uptake). Since the ratio of counts in the gland to counts in the standard is the important factor, the dose need not be (and for decay reasons seldom is) exactly 50 microcuries as long as the tracer dose is exactly twice as strong as the standard.

All counts were made with the patient in the supine position. The end of the bismuth-wall shielded tube supported in a suitable carrier bracket was positioned 15 cm. over the midline of the thyroid gland and the count recorded. A control background count was then taken with the tube a similar distance above the midthigh. The difference between these two, in counts per second, is the net "thyroid count." Before, during and after a series of tracer counts, a count over the standard bottle—placed in the same geometric position in relation to the tube as the thyroid gland—was recorded. Since our standards are 50 per cent as strong as the tracer doses the per cent uptake

$$= \frac{\text{net counts per second over the standard}}{\text{net counts per second over the thyroid}} \times 200$$

LIMITATIONS OF THE METHOD

1. Vomiting and diarrhea constitute contraindications for obvious reasons.

2. Pregnancy is a contraindication after the twelfth week since Chapman *et al*[14] have demonstrated the uptake of radioactive iodine by the fetal thyroid in the second and third trimester of pregnancy.

3. Stable iodine compounds may depress uptake by the thyroid for as long as three months. Some sources of stable iodine are readily spotted; others require considerable detective talent to trace them down. One low uptake was explained only after it was determined that the patient had been given iodide for a provocative Wasserman in another clinic and two low uptakes occurred because of concurrent thyroid medication; desiccated thyroid may inhibit uptake for twelve weeks. Some of the more obvious sources of stable iodine include sodium or potassium iodide, iodine-containing amebacides, Lugol's solution, iodides in cough mixtures and iodine in compounds used for cholecystograms, bronchograms, pyelograms, and those compounds used for arteriography and spinal visualization.

4. Antithyroid drugs such as thioureas, thiocyanates interfere with uptake for days or weeks.[8,10]

5. Iodine lack may give a falsely high uptake. One of our cases (chronic alcoholism) showed an uptake of 68 per cent.

RANGE OF I^{131} UPTAKE BY THE THYROID GLAND

The 207 cases (Fig. 1) had uptakes fall-

Table I

CORRELATION I^{131} UPTAKE and CLINICAL DIAGNOSIS

I^{131} Uptake	Total Cases	Toxic Cases	Non-toxic Cases
>45%	27	24	3
40 - 44%	11	5	6
11 - 39%	147	0	147
0 - 10%	22	0	22

ing into four broad groups. Twenty-seven cases had uptakes greater than 45 per cent; 24 of these were clinically toxic. Three cases were not toxic and had the following clinical diagnoses: 1 malignant hypertension, 1 congestive heart failure, and 1 malnutrition with iodine lack. Eleven cases had uptakes between 40 and 44 per cent; 5 were clinically toxic and 6 nontoxic. One hundred and forty-seven cases had uptakes between 11 and 39 per cent. All of these were clinically euthyroid. The distribution curve is bell-shaped. (Fig. 2).

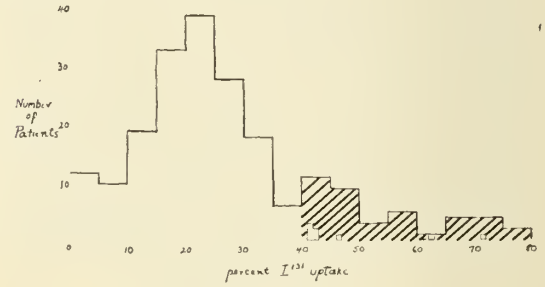

Figure 2

Twenty-two cases had uptakes between 0 and 10 per cent. Of these, 17 cases had an assignable cause for the low uptake: 8 had recently taken stable iodine compound; 2 were taking desiccated thyroid; 4 had ablated glands; 2 had primary hypothyroidism and 1 had a recent gallbladder visualization. Five cases had low uptakes for no known cause although stable iodine ingestion is strongly suspected since they had recently been treated for respiratory infections. We feel justified in omitting these 5 cases in our calculations of the efficiency of the method.

It is significant that no untreated toxic case had an uptake of less than 40 per cent. While our series of toxic cases is too small

to be statistically significant, the impression is gained that 40 to 45 per cent is a borderline zone. Six euthyroid and 5 toxic cases fell in this range. This group of 11 cases is a small but important group. If one accepts the zone lines drawn at 10, 40 and 45 per cent uptake, the accuracy of diagnosis is over 95 per cent. (Fig. 1).

Since one of our purposes was to determine whether geographic location has any effect on iodine uptake, the technique of measurement becomes important. In Boston, Means,[15] using a tube distance of 30 cm. from the gland, reports 55 per cent uptake as the upper limit for euthyroidism. In California, Jaffe and Ottoman[16] using a 10 cm. counting distance arrived at 35 per cent uptake as the upper limit for euthyroidism. Werner, Quimby and Schmidt[10] employed a 15 cm. distance and obtained data strikingly similar to ours. Using 35 per cent uptake as the upper limit of normal, they found 9 per cent of the euthyroid cases above, and 6 per cent of the toxic cases below this level. Using 40 per cent uptake as the dividing line, they found 4 per cent of the euthyroid cases above, and 11 per cent of the toxic cases below this level. An overlap being inescapable, they prefer using 35 per cent uptake as the upper limit of normal thereby excluding fewer toxic cases.

While our group of toxic cases was too small for final evaluation, our failure to find untreated toxic cases with less than 40 per cent uptake allows no other reasonable limit to be set. Our data indicate that at 40 to 44 per cent uptake there is an overlay of 6 euthyroid (4 per cent) into the toxic level. The accuracy of the method in the diagnosis of euthyroidism is about 95 per cent.

The absolute figures dividing the various groups will vary with the technique used but it would appear that a uniform procedure will yield accurate results from the standpoint of clinical grouping. It should be noted that the absolute figure for percentage uptake will increase with increase in the distance of the counter tube from the thyroid.[12] This fact explains the differences in absolute levels in different laboratories. That gland size makes little differences in uptake value is shown by the fact that at least 25 of our euthyroid group had glands enlarged to twice normal size or greater. In our method[12] an attempt is made to indicate the basic physics for tube type and distance from the gland. While variations in technique may yield different absolute levels for hypothyroidism, euthyroidism, and hyperthyroidism the distribution of cases is strikingly similar in widely different geographic locations.

One of our purposes is to point out the significance of radioactive iodine studies in the diagnosis of thyroid disorders and in the differential diagnosis of diseases which may possibly simulate them.

COMPARISON WITH OTHER LABORATORY TECHNIQUES

Three laboratory techniques are available for evaluation of clinical data.

1. The basal metabolic rate[2]
2. The serum bound iodine[3]
3. The radioactive iodine tracer

Jaffe and Ottoman[16] indicate that the basal metabolic rate determination is accurate in about two-thirds of the patients studied. The error may be caused by technical difficulties of the test, improper preparation of the patient, or failure of the patient to follow orders. Furthermore, a certain group of patients (children, neurotics, asthmatics, and patients with cardiac decompensation) are eminently unsuited for this estimation. Werner *et al.*,[8] showed that the basal metabolic rate fell outside the accepted range of plus or minus 10 per cent in approximately 50 per cent of euthyroid patients and half of these fell in the hyperthyroid range. These authors, in fact, have substituted radioactive iodine uptakes for basal metabolic rate determinations as a routine laboratory screening procedure in the diagnosis of thyroid disorders. They indicate that about 20 per cent of patients thus tested require confirmatory procedures as opposed to some 50 per cent who require other tests when the basal metabolic rate is the first approach. In our subjects 44 per cent of euthyroid patients had basal metabolic rates outside the limits of plus or minus 10 per cent and slightly more than

half of these were in the hyperthyroid range.

The organically bound iodine in serum is a highly technical procedure and impractical in most institutions; furthermore it has an accuracy of about 76 per cent as compared with 95 plus per cent obtained with radioactive iodine. Our data above indicate an accuracy of some 95 per cent for the differential diagnosis of thyroid disorders. This accuracy for a single estimation far exceeds that of any other method available to the clinician.

There exists a large group of patients eminently unsuited for basal metabolic rate determinations, whose thyroid status is at best poorly evaluated without tracer technique. Psychotics, asthmatics, leukemias, congestive heart failure cases constitute part of this group. Using radioiodine tracer doses, eminently satisfactory evaluations of the thyroid status of children may be obtained. There is further a large group of patients with anxiety states who approach the basal metabolic apparatus with fear and trepidation. One of these cases in our series had 8 basal metabolic rates done because of tremor, tachycardia, excessive sweating and weight loss. Her metabolic rates ranged from plus 27 to plus 44. A tracer technique showed an uptake of 18.5 per cent. We have for the first time an accurate tool for the evaluation of these patients.

Hypertensive cardiovascular disease is frequently associated with elevation of the basal betabolic rate. In such cases, the issue is at times complicated by thyroid abnormality. Mrs. L. R., age 56, had hypertensive cardiovascular disease in 1948 with a blood pressure of 210/120. Her heart rate was 100 to 110 per minute; there was moderate anxiety and her thyroid gland was diffusely enlarged to twice normal size. In that year she survived an anterior coronary thrombosis. Tachycardia, mild tremor, goitre, hypertension and angina persisted. Numerous basal metabolic rate determinations showed rates from plus 22 to plus 37. A course of Lugol's solution for a month was followed by transient drop in basal metabolic rate to the low 20's. Propylthiouracil administered for one year failed to alter the clinical picture. A tracer uptake indicated 17 per cent uptake by the thyroid gland. This was well within normal limits. Following a short bout of congestive failure an attempt at thyroid ablation with a treatment dose of radioactive iodine was made. There has been marked clinical improvement because of the hypothyroid state induced. The significant issue is that we were never quite certain prior to a tracer study that the thyroid gland was not overactive.

It has been stated that thyroidectomy restores the patient to a previous state of emotional instability. While most cases of recurrent hyperthyroidism are not difficult to diagnose, patients at times pose a considerable problem. Mrs. McI, age 45, had a thyroidectomy done in 1941 and again in 1947. Following the failure of propylthiouracil to control her symptoms she had been maintained intermittently on Lugol's solution. Weight loss, anorexia, tremor, tachycardia, and emotional instability were all present in marked degree. Her emotional instability was so great that futile as it appeared, a quasi-successful basal metabolic rate estimation was done; the rate was plus 29. Extensive scarring at the site of previous operations precluded the possibility adequate palpation of the neck for thyroid tissue. The patient was such a poor surgical risk that surgery was deemed undesirable. Her last dose of Lugol's solution had been taken some three weeks before a radioactive iodine uptake study was done; an uptake of 35 per cent was found. While this figure is in the high normal range, the fact that she has taken stable iodine made it highly significant. It was no time to temporize. A treatment dose of radioactive iodine was given and her symptoms subsided rapidly. She gained 24 lbs. in six weeks and her only complication was post-treatment hypothyroidism readily controlled by orally administered desiccated thyroid. By the same token tracer studies are valuable in ruling out recurrent hyperthyroidism. Three post thyroidectomy cases

were referred for testing because of uncertainty as to the recurrence of hyperthyroidism. All of these had normal uptakes and were not judged to be hyperthyroid.

There is further, as pointed out by Means,[16] a group of patients with hyperthyroidism and normal basal metabolic rate. An inferential diagnosis may be made by trial testing with stable iodine; an accurate diagnosis may be made with radioactive iodine tracer study. Reinhardt[17] has pointed out the value of radioactive iodine tracer studies for determining the completeness of thyroidectomy. This is especially valuable in following "total" thyroidectomy for carcinoma of the gland. The diagnosis of intrathoracic goiter[19] may be made with relative ease and tracer studies may be the only method of picking up and indicating treatment for functioning metastases.[20]

RADIATION HAZARD

Many have asked questions with reference to radiation danger to the patient and hospital personnel incident to tracer studies. Assuming a 50 per cent uptake of the tracer dose of 50 microcuries, 25 microcuries iodine[13] would be trapped by a normal-sized 25 gram gland yielding a concentration of one microcurie per gram. It has been calculated[11] that one microcurie of iodine[131] per gram thyroid tissue, uniformly distributed (containing about 0.008 micrograms iodine) and allowed to remain long enough to decay completely would supply a radiation dose of 160 e.r. This is an innocuous hazard to the patient.

With reference to personnel about the patient, there is no hazard as such. It may be estimated that if the gland content in a tracer measurement is 25 microcuries iodine[131] none of the beta-radiation (effective radiation distance in tissue is 2 mm.) escapes the body, while the gamma radiation at a distance of 1½ ft. from the thyroid gland for twenty-four hours would be 0.004 r. Nontoxic exposure limit is 0.1 r. or 25 times this dose. The problem of hazard incident to the use of large treatment doses will be discussed elsewhere.[12]

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BIOLOGIC EFFECTS OF IONIZING RADIATION*

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All living things have been exposed to ionizing radiation since the beginning of life on earth. We are constantly bombarded by the scattered radiation from cosmic rays which reach our atmosphere from outer space and are also exposed to radiation from radioactive compounds naturally present in earth and water. Even in the absence of any artificial sources of radiation, the average person is normally exposed to some 0.3 milli-roentgens of ionizing radiation each day. Thus, the invention of x-ray machines, the purification of radium, and the achievement of nuclear fission have merely introduced a hazard of receiving dangerously large doses of a form of energy to which we have always been exposed.

DEFINITION OF IONIZING RADIATION

The term ionizing radiation refers to all forms of radiation that carry sufficient energy to produce ionization in the materials that absorb them. This includes electromagnetic waves such as x-rays and gamma rays, and also high energy "particulate" radiation such as alpha and beta particles, neutrons and protons. When ionizing radiation is absorbed, the resulting state of ionization lasts only the briefest fraction of a second and is thus present only during actual exposure, yet this brief moment of ionization is responsible for all subsequent biological effects. The obvious pathologic lesions, however, do not appear for days, months or even years after exposure. Since ionization is responsible for the changes it is easy to understand why all types of ionizing radiation should produce biological injuries of the same general character. This fact also makes practicable the measurement of doses of different kinds of radiation by a common unit, the roentgen, which is a measure of ionization.

DEGREES OF SENSITIVITY

Any living things can be killed by sufficient exposure to radiant energy, but there are great differences in the lethal dose for different forms of life. Some bacteria, for example, can survive doses of over 100,000 roentgens, whereas the lethal dose for man is believed to be in the neighborhood of 500 roentgens, delivered to the whole body. Not only do different forms of life differ in radiosensitivity, but the various types of cells within the same body have a wide range of susceptibility to radiation injury. Among the most radiosensitive cells are lymphocytes, the hematopoietic cells of the bone marrow, the germ cells both in the ovary and testis and the epithelium of the gastrointestinal tract, particularly the small intestine. In general, the radiosensitivity of a neoplasm follows quite closely the radiosensitivity of the cells from which the neoplasm arose, and, as is well known, the tumors that lend themselves to effective radiation therapy are those whose cells are more easily destroyed than the cells of the normal tissues about them.

TISSUE INJURIES

The actual injury suffered by an irradiated tissue is quite similar in character to a sunburn, if one can conceive of a sunburn which is not confined to the surface but extends deeply into the tissues. The early changes in the skin are capillary dilatation with associated erythema, together with edema, both intracellular and extracellular, and swelling and fibrillation of collagen and elastic tissue. Very early in the reaction there is an arrest of mitosis, which lasts for a variable period of time, depending on the dosage. The endothelial cells lining blood vessels also show swelling and injury which permits the loss of fluid through vessel walls and may even result in the occlusion of the lumens of some of the smaller vessels. In addition to these changes a low grade inflammation soon develops. The inflammatory exudate is made up chiefly of edema fluid containing scattered lymphocytes and macrophages and a few neutrophiles. After small doses of radiation, the tissues return to their previous condition so far as can be detected by gross

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or microscopic examination. However, if larger doses are used the reaction appears earlier is more severe, and lasts longer. Doses sufficient to produce erythema of the skin ordinarily result in damage to skin appendages. The hair is lost within the field of treatment and the activity of sebaceous and sweat glands is decreased. These changes are reversible after moderate doses, but after larger doses extensive and permanent epilation occurs and permanent atrophy of the skin appendages may result.

After exposure to doses, such as are used in the treatment of malignant tumors, there is characteristically a superficial sloughing of the epidermis, very similar to that seen after a severe sunburn. If the treatment has been properly planned the epithelium is repaired and the edema of the dermis subsides to leave a somewhat atrophic but pliable skin. If the dosage has been excessive the edema which appears in the early phase may persist and become organized. The resulting change is similar in many respects to lymphedema. The ingrowth of fibroblasts may render this a permanent or very slowly reversible "woody" edema of the affected tissues. Such tissue has a poor blood supply. Many of the vessels are occluded, while others have undergone ectasia. Tissue of this sort has decreased resistance to bacterial infection and shows poor healing after accidental or surgical trauma. Surgical intervention, even in the neighborhood of such an area, may further compromise an already impaired blood supply and precipitate ischemic necrosis. In heavily overtreated tissues spontaneous radiation necrosis may develop, usually some months or years after the original irradiation. The resulting ulcer is surrounded by woody, firm, poorly vascularized scar tissue, very tough and brawny and almost bloodless. Such lesions seldom heal spontaneously and effective treatment requires excision of the entire volume of damaged tissue. Epidermoid carcinoma is a frequent complication of severe radiation injury of the skin. The carcinomas are usually preceded by keratoses and may develop at any time from two to thirty or more years after exposure. It should be emphasized that severe radiation atrophy, radiation necrosis, and radiation carcinoma result from excessive exposure and are not to be anticipated as a consequence of properly administered radiation therapy. Radiation changes in other tissues are quite similar to those which have been described in the skin, taking into account, of course, the variable radiosensitivity of specific types of cells and differences in the process of repair in the several organs.

SYSTEMIC EFFECTS

In addition to the local tissue injury, exposure to large doses of radiation may result in systemic effects. Among the most important of these is an abrupt and often a dramatic decrease in the number of circulating white blood cells. Severe radiation leukopenia lowers resistance to infection and favors the development of bacteremia.

Anemia may be produced by excessive or repeated exposures but is much less frequent than leukopenia. Another systemic manifestation is radiation sickness with its associated nausea, vomiting and psychic depression. Radiation sickness is not well understood, but it is believed to be due in large part to extensive tissue destruction with release of products of tissue breakdown. Injury to the intestinal mucosa may be a contributing factor. Mucosal ulcerations not only favor bacterial invasion but may permit the absorption of toxic materials from the intestinal lumen into the blood stream.

HAZARDS OF HARMFUL EXPOSURES

The danger of receiving harmful exposures to radiation is by no means limited to atomic warfare. At present any person who is licensed to practice medicine has the legal right to use radiation in the diagnosis and treatment of his patients. Many physicians take advantage of this right without having had adequate experience or training in radiology. There are a number of special reasons why the use of radiation by inadequately trained persons is hazardous. The first of these is that during exposure there is no sensation of heat, pain,

tingling, or other warning sign of injury. A second danger is that a latent period of a week or more elapses after exposure before any obvious injury appears. A radiologist must be able to predict the ultimate effects of his treatment even though at the time he can see no change whatsoever in the tissue that he is treating. A third danger arises from the fact that there is no known means of inhibiting, reversing or significantly modifying the effects of a dose of radiation once it has been administered. Still another danger is inherent in the cumulative factor in radiation injury. Even small doses, any one of which would be too small to produce any obvious changes, may, if repeated often enough, result in serious tissue injury. You have all noticed that your dentist when taking x-rays has you hold the film with your own finger. The dentist knows that the small dose of radiation which your finger receives will result in no damage to you, whereas if he held the films himself several times a day for months or years, the probable result would be serious atrophy of the skin and probable loss of his finger. Two or more doses of radiation separated by a rest period will not produce as great an effect as the same total dose given in a single sitting. There is some recovery, but it is incomplete. In other words, the effects of repeated exposures are cumulative but show incomplete summation.

One of the most important factors in predicting the effect of a given dose of radiation is the size of the field of treatment. Small volumes of tissue can be exposed to doses of 2,000 to 10,000 roentgens with safety. However, as the area exposed becomes larger, both the local and the systemic effects are greater. When the whole body is exposed the effect is maximum. Thus, doses stated in roentgens alone mean very little unless the conditions of treatment are specified. For example, 600 roentgens delivered under ordinary conditions to a 10 by 10 centimeter portal will barely produce a reddening of the skin, but the same dose applied to the whole body will be fatal.

In the military uses of radiation we are interested in whole body radiation. Actually, in atomic bombing, radiation injury is a secondary hazard. Some 85 per cent of the casualties at Hiroshima and Nagasaki resulted from blast injury and thermal burns and only about 15 per cent were attributable to ionizing radiation. When an atomic bomb explodes in air the intense discharge of all types of radiation lasts about one minute and most of the ionizing radiation is emitted during the first second. Thus by the time one would know that an atomic bomb had exploded the main exposure to ionizing radiation would already have occurred. Since the lethal dose of whole body radiation for man is some 500 roentgens, no tissue in the bodies of those who survive an atomic explosion is exposed to doses much larger than this. Hence, obvious radiation injuries are limited almost entirely to highly radiosensitive tissues such as the blood forming organs, the germ cells and the intestinal epithelium. Among the survivors at Nagasaki and Hiroshima, damage to hematopoietic tissue was reflected in the rapid appearance of severe leukopenia. Injury to gastrointestinal epithelium was largely responsible for the nausea, vomiting, and gastrointestinal hemorrhages which were so common. Damage to germ cells occurred, but the sterilizing dose for both men and women is in the neighborhood of 600 roentgens; those who received such doses usually died. The survivors who were studied showed in general only transient sterility and several have since become the parents of children. The dose of radiation necessary to cause loss of hair is also close to the lethal level of whole body radiation and hence when epilation occurred it was only transient. Largely as a consequence of the depression of the white cells and possibly due to the denudation of gastrointestinal epithelium, local and systemic bacterial infections were important complications and were directly responsible for the death of many of the Japanese victims.

TREATMENT

There is no thoroughly satisfactory medical treatment for persons who have been

exposed to dangerous doses of whole body radiation but a few therapeutic principles are well established. There is evidence from the Japanese experience and also from animal experiments that physical exertion is deleterious to irradiated subjects. If rats are heavily irradiated and then exercised, the mortality is much higher than in controls who are allowed to remain at rest. The white blood cell count of irradiated persons is seriously depressed and considerable fliud may be lost from circulation in the gastrointestinal tract and other injured tissues. A state resembling shock may develop and the liberal administration of whole blood or plasma may be a life saving measure. When gastrointestinal symptoms are prominent, parenteral feeding may become necessary. Antibiotics were not available to the Japanese in Hiroshima and Nagasaki. In experimental studies antibiotics have prolonged or preserved the lives of irradiated animals who would otherwise have died during the phase of extreme leukopenia and gastrointestinal injury. There is little question that antibiotics would be equally effective in the treatment of human casualties.

To date, we have no effective means of inhibiting radiation reactions, or of preventing the inexorable development of progressive radiation changes in human beings. Present treatment is largely palliative. However, a number of laboratory investigations are in progress which offer some hope of more effective therapy. Glutathione, cysteine, and other sulfhydryl compounds have given some degree of protection to irradiated animals if administered before exposure. Toluidine blue, a substance with antiheparin activity, serves in some part to combat the bleeding tendency which frequently develops. Certain of the flavonoids have also given promise of benefit, as has vitamin C. Very recently it has been shown that animals whose spleens are protected by a lead shield during irradiation of the rest of the body have a much better prospect of survival than animals not so protected. Perhaps the most encouraging discovery is that injection or implantation of normal spleen or bone marrow into irradiated animals after exposure will decrease the severity of the blood damage and favor ultimate recovery. There is good reason to believe that work along these and other lines will yield measures much more effective than any now at hand in the treatment of victims of irradiation.

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INTRA-ABDOMINAL APOPLEXY

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Spontaneous rupture of an artery of one of the abdominal viscera with hemorrhage between the leaves of the mesentery or into the peritoneal cavity is a rare vascular accident. This report deals with a single case of intra-abdominal apoplexy with a correct tentative preoperative diagnosis. The 37 previously reported cases will be discussed briefly.

CASE REPORT

P. D. was a 39 year old white man whose systolic blood pressure had repeatedly been observed to exceed 300 m.m. Hg. for at least ten years. On July 14, 1950, a left thoracolumbar sympathectomy was performed by Dr. M. Hara. His postoperative course was normal until the fourth day when he experienced epigastric pain and tenderness with associated nausea. The pain and nausea subsided after six hours, but some tenderness persisted. In the early morning of the tenth day he had no complaints, and his blood pressure was 290/185 mm. Hg. One hour later he complained of intense epigastric pain, and when seen in consultation by me a few minutes later the clinical picture was that of profound peripheral circulatory collapse and diffuse peritoneal irritation. A diagnosis of massive intraperitoneal hemorrhage was made, and it was felt that the most likely cause of the bleeding was spontaneous rupture of a visceral vessel. Delayed hemorrhage from the spleen which might have been injured when the sympathectomy had been performed ten days previously was also considered a diagnostic possibility.

Operation: After the administration of 2000 cc. of blood had elevated the blood pressure to 80/40 mm. Hg., the abdomen was entered through an upper left rectus incision. In the mesentery of the proximal jejunum there was a huge hematoma which had ruptured into the free peritoneal cavity. Extravasation of blood had also extended through the wall and into the lumen of the jejunum. The

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hemoperitoneum was estimated at 2500 cc., and bleeding was still active. A 40 cm. segment of jejunum was resected, together with its mesentery containing the hematoma (Fig. 1). An end-to-end

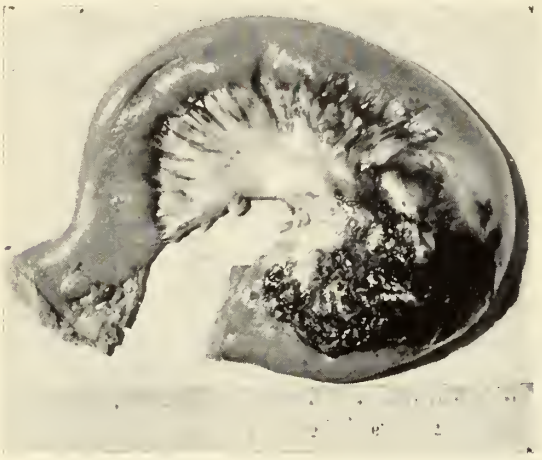

Fig. 1. Resected jejunum showing intramesenteric hematoma and extravasation of blood into bowel wall.

jejuno-jejunostomy restored intestinal continuity. Rupture of a branch of the superior mesenteric artery had resulted in the massive hemorrhage.

Postoperative Course: By the fourth day the patient was afebrile, eating a soft diet, and having normal stools. On the fifth day he suddenly collapsed, and died within a few hours.

Autopsy: Death resulted from coronary occlusion and myocardial infarction. The jejuno-jejunostomy was intact, and bleeding had not recurred.

DISCUSSION

A review of the reported cases of intra-abdominal apoplexy indicates that this vascular accident, like its cerebral counterpart, usually occurs in elderly individuals with hypertension and arteriosclerosis. The youngest patient was 27, the oldest 80; and the greatest frequency of occurrence was in the sixth decade of life. Males were afflicted more often than females, the ratio being almost 3:1.

The basic pathologic process usually responsible for the rupture of the vessel is arteriosclerosis. The rarity of this intra-abdominal vascular accident has been ascribed to the relative infrequency with which advanced arteriosclerotic changes occur in the celiac axis and its branches.[1]

In 15 cases (39 per cent) the exact anatomic site of the hemorrhage was not identified. In the remaining 22 cases the involved vessels were: left gastric 7, superior mesenteric 6, gastroduodenal 2, middle colic 2, left gastroepiploic 1, right gastric 1, right colic 1, ileocolic 1, and splenic 1.

In only one instance was the diagnosis strongly suspected before operation or necropsy. Crile's[2] patient developed signs of progressing intraabdominal hemorrhage four days after celiac ganglionectomy for hypertension; and at operation rupture of a branch of the middle colic artery was found. The majority of the remaining 35 patients were recognized as having acute intra-abdominal disease; and were operated upon with preoperative presumptive diagnoses of perforated peptic ulcer, intestinal obstruction, mesenteric thrombosis, appendicitis with perforation, acute pancreatitis, etc. Intra-abdominal apoplexy should be considered as a provisional diagnosis in the elderly individual who presents signs of arteriosclerosis, peritoneal irritation, and continuing blood loss.

Thirty (81 per cent) of the previously reported 37 cases were treated surgically, with an operative mortality rate of 26 per cent. It is noteworthy that of the 8 patients who died in spite of operation, there were 5 in whom a definite bleeding point could not be found. The diagnosis was made at necropsy in the 7 cases in which operation was not performed.

It was impossible to determine the exact nature of the operative procedure in some of the 30 cases submitted to operation. The procedure of choice seemed to be simple ligation of the offending vessel. In several instances bleeding had apparently ceased and nothing was done. The patients of Crile[2] and Ross[3] required resection, and both survived. The case reported here was handled by resection, but death occurred on the fifth postoperative day due to coronary occlusion and myocardial infarction.

SUMMARY

A case of intra-abdominal apoplexy is reported. The vascular accident almost certainly occurred four days after a first stage thoracolumbar sympathectomy for severe hypertension; and the diagnosis was made and operation performed on the tenth day when the intramesenteric hematoma ruptured into the free peritoneal cavity. A

lengthy segment of jejunum and its mesentery required resection. Death occurred on the fifth postoperative day due to coronary occlusion and myocardial infarction.

The concurrence of hypertension, arteriosclerosis, and signs of diffuse peritoneal irritation and concealed hemorrhage should arouse strong clinical suspicion of intra-abdominal apoplexy.

The treatment is surgical, and should consist of ligation of the bleeding vessel whenever practicable. Resection will occasionally be indicated.

The 37 previously recorded cases are discussed briefly.

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EXCHANGE RESIN DIURESIS IN CIRRHOTIC ASCITES*

PRELIMINARY REPORT

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Effective adsorbents, the anionic and cationic exchange resins have, in their brief clinical application, attracted unusual interest. Speculation is wrought as to the extent of their scope in the control of undesirable fluids and chemicals in disturbed physiology of the digestive system.

The initial observations of Segal and his associates,[1] confirmed by Wilkinson,[2] Kraemer[3] and others, exact acceptance of anion exchange resin as adjunctive in controlling gastric hyperacidity. Bargen[4] sponsored the adsorbency of locally applied powdered anion exchange resin counteracting the digestive skin irritation concomitant to secretion from entero-abdominal fistulas. Administering indicator quininium cation orally Segal and his associates,[5] from the amount and time of appearance in the urine, proved determinable achlorhydrics without intubation.

Dock,[6] in 1946, reported an oral cation exchange resin capable of increasing fecal excretion of sodium. Therefrom it was hypothesized that sodium adsorption by this resin, and thence fecally excreted, could achieve sodium depletion and become therapeutically applicable to the management of cardiac edema and hypertension. Crisom[7] in confirmatory animal experimentation indicated that cation exchange resin by preference binds dietary sodium in the intestine without seriously involving potassium. Experimentally adsorption of sodium for rectal excretion on a 10 per cent resin diet approximates 16 mgm. per gram of resin, the fecal increase being proportional to the urinary decrease.[8]

Irwin and his associates[9] studying resin influence on serum levels of sodium, potassium and calcium indicated effectiveness in the control of ascites associated with cirrhosis. Resin induced sodium depletion management of hypertension to supplant the impractical sodium free diet seems an eventuality if such a regime is truly applicable which is a debated issue.[17]

Diuretic potentiality of ammonium cation exchange resin in cardiacs has been illustrated clinically by Hay and Wood[11] depicting sodium depletion and enhancement of mercurial diuretics by ammonium absorption acidosis. These same authors indicated applicability in hepatic cirrhosis. Since the edema and ascites in cirrhosis may be of different origin and is associated with an abnormal reduction in plasma albumin the advisability of attempting diuresis through hyponatremia alone might not be conceivably feasible. However, the tendency to sodium retention in portal cirrhosis has been reported[12] and applicability of the low sodium acid-ash diet has been stressed.[13] Further, Goodyer and his associates[14] studying sodium excretion in hepatic cirr-

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From the Browne-McHardy Clinic, New Orleans, Louisiana.

The resins (Win 3000) Merdroxone Sodium and Parenamine were supplied by the Department of Medical Research of Winthrop-Stearns, Inc.

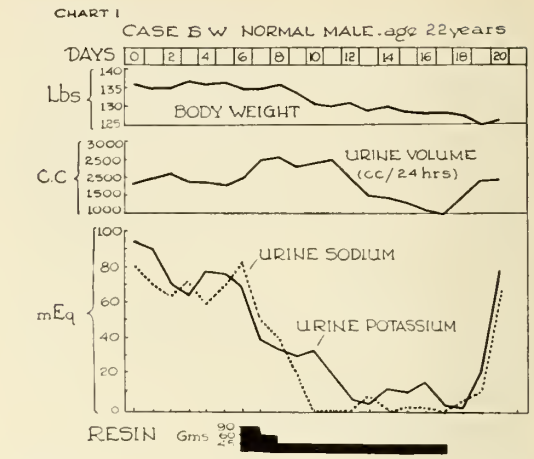
Flame Photometric Studies were made available by a grant from the Medical Group Research Fund.

hosis revealed impairment in respect to increased renal tubular resorption. Ricketts,[15] evaluating cirrhotic concomitant oliguria, concludes salt to be antidiuretic and in substantiation shows sodium restriction to increase diuresis. With the premise that sodium depletion accomplishable by oral cation exchange resin could control the ascites and edema of cirrhosis, we began our study.

Initial observations were made with ammonium cation exchange resin supplied in 40 mesh granular form. This essentially tasteless preparation's insolubility presents an ingestion difficulty. On contact with sodium, at an activating pH between 6 and 8, it releases ammonium in exchange for sodium ions, adsorbing the latter. There is consequent reduction of sodium absorption from the intestine and therefore increased fecal sodium excretion with concomitant diminution in urinary sodium output. This adsorptive influence extends to other ions in proportion to the relative amounts in solution with a preference for bivalent ions over the monovalent. The atomic weights of sodium and potassium approximating, the uptake of each by the resin is dependent in their relative concentration. Calcium magnesium and vitamin B are possibly influenced to some extent.[16] The potentiality of sodium and potassium depletion becomes obvious. Calcium, of low concentration in the gastrointestinal tract[9] has presented no significant deficiency problem unless unusually large amounts of resin are ingested. The resultant ammonium chloride absorption on release from resin and interference with base absorption potentiates acidosis. In long term administration possibly many other factors may come into consideration. Hay and Wood[11] feel the hypokaliemia encountered with ammonium cation resin is avoided by the use of ammonium potassium cation resin.

CASE REPORTS

Initially, we made our observations on a normal male student. (Fig. 1). The diet was not restricted but fluid intake was regulated at 2500 cc. daily. The slight weight loss is possibly related to anorexia concomitant to resin administration. Urine output had a strong ammoniacal odor and excited frequency and urethral burning. Hyaline casts were present in the urine sediment on the sixth to

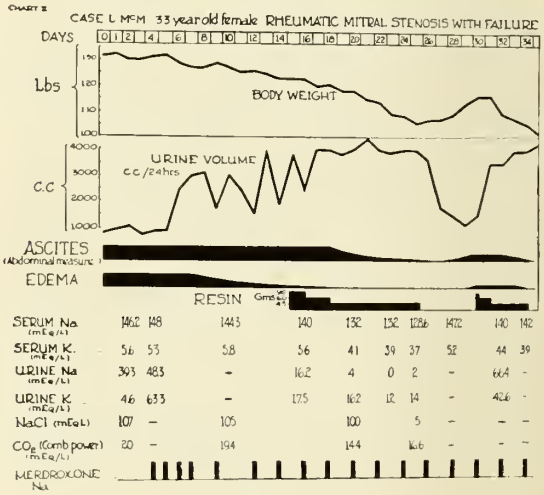


SERUM Na (mEq/L)	149.3	146.3	143.6	140	142.3	140	142	143.6
SERUM K (mEq/L)	5.6	6.2	4.6	4.1	3.85	4.0	4.6	6.1
NaCl (mEq/L)	110	105	105	107	107	100	96	110
CO_2 Comb power (mEq/L)	25	25	20.4	17.9	23	20	25	21.6

Figure 1

tenth days but cleared thereafter. The urinary sodium and potassium suppression with less effect on serum sodium than potassium is illustrated. Fatigue, weakness and vertigo were present on the eighth and ninth days.

For illustrative interest, a case of heart failure is included. (Fig. 2). Neither diuresis nor com-



SERUM Na (mEq/L)	146.2	148	144.3	140	132	132	128.6	147.2	140	142
SERUM K (mEq/L)	5.6	5.3	5.8	5.6	4.1	3.9	3.7	5.2	4.4	3.9
URINE Na (mEq/L)	39.3	48.3	-	16.2	4	0	2	-	66.4	-
URINE K (mEq/L)	4.6	6.3.3	-	17.5	16.2	12	14	-	42.6	-
NaCl (mEq/L)	107	-	105		100		5	-	-	-
CO_2 (Comb power) (mEq/L)	20	-	19.4		14.4		16.6	-	-	-
MERBROLONE Na										

Figure 2

pensation had been achieved by digitalization and mercurial induced diuresis when resin therapy was instituted. Conceivably, ammonium excretion enhanced mercurial diuresis, and therefore, it was given when resin was discontinued on the twenty-fifth day to discount this influence. Profound vertigo, malaise, weakness, nausea and emesis occurred on the twenty-second, twenty-third, twenty-fourth, twenty-fifth, twenty-sixth, twenty-seventh, and thirty-fifth days. This patient has since been

ambulated and has been on resin for a total of one hundred and seventy continuous days and has maintained compensation without supplemental mercurial diuretics.

A third case indicates questionable judgment in the election to use resin in a patient with severe renal impairment. This 54 year old male was azotemic with a nonfunctioning left kidney and a 20 per cent renal function on the right side. He was initially seen with a complicating congestive heart failure on a hypertensive basis. Compensation was achieved by digitalization and mercurial diuresis. When the patient left the hospital on maintenance digitoxin of 0.15 mgm. daily he was also given ammonium cation resin 45 grams daily. On the sixth day on resin there was the onset of nausea, diarrhea, profound weakness, drowsiness, and chest pain. His local physician remarked to the family that the patient had developed an "irregular heart." By the fifteenth day he had developed intractable hiccoughs, he vomited intermittently and chest pain was more frequent and severe. He was then returned to the hospital where it was recognized that he had frequent ventricular extrasystoles. Digitalis intoxication associated with hypokaliemia and alkalosis was subsequently confirmed electrocardiographically; the serum potassium level was 3.7. Obviously, all requisites for inducing hypopotassemia were present: potassium loss by emesis, diarrhea, resin adsorption and inadequate potassium intake because of nausea. This was probably further accentuated by initial gastric lavage and saline infusion. Upon recognition of our error the patient was then carefully given, with electrocardiographic control, potassium chloride intravenously. Death ensued, when the electrocardiographic changes indicating hyperpotassemia were evident although the serum potassium was only 6.3 mgm., from ventricular fibrillation. (Since this case will be reported elsewhere, only the bare details are included.).

Hoffman[17] has indicated the inability to dictate what might happen in nephritics in relation to potassium. Merrill and his associates[18] have amply depicted the interest in recognition of hyperpotassemia electrocardiographically. If death were due to hyperpotassemia as assumed, it may possibly have been avoided by the immediate administration of glucose and insulin.[18]

Our further observations were conducted on four patients with advanced cirrhosis of the liver with demonstrable ascites. In each instance, the initial paracentesis was done by peritoneoscopy to further establish the diagnosis. In our desire to maintain nutrition by keeping the diet palatable we exacted no sodium restriction other than omission of free salt with potassium chloride substitution. All patients were encouraged to follow a Patek dietary regime. In an effort possibly to prevent complicating depletion we gave supplemental calcium, potassium, and vitamins in excess of requirement. In all instances oral and parenteral amino acids (parenamine), mercurial diuresis (merdroxone sodium), lipotropic substances, plasma and blood were given adjunctively as indicated and tolerated. Serum albumin was not available to these patients. Bed rest, though admittably desirable, was rarely satisfactorily achievable in our cases.

Case A. K. (Fig. 3), a 36 year old icteric male

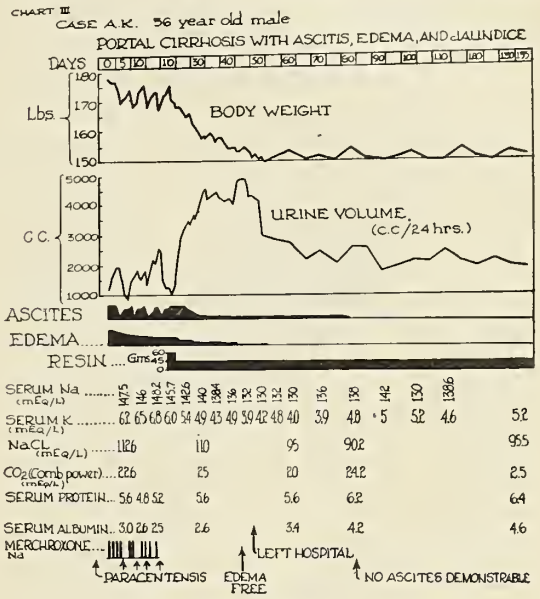


Figure 3

with ascites and edema, had cirrhosis as a late complication to recurrent hepatitis over a period of nine years. Paracenteses and mercurial diuretics gave transient relief of ascites but edema remained unchanged and recurrent ascites was accentuated. Because of progressive hyperbilirubinemia further use of mercurials was curtailed. Paracenteses were indicated every fourth day. On the twentieth day of hospitalization resin was started. The result is obvious. Thereafter no paracenteses were required. The patient was discharged on the fifty-second day and now has been followed for six months on a maintenance dose of 20 grams of resin daily. There has been no recurrence of ascites or edema.

Case M. E. (Fig. 4), a 58 year old alcoholic pharmacist, hospitalized in anasarca with typical findings of hepatic cirrhosis. As an outpatient six paracenteses had been done with the average fluid therefrom being 5600 cc. Hospitalized, he was given merdroxone sodium every second day with improvement but paracenteses were necessary every seventh day. On the thirty-fifth day resin was started. Thereafter, no paracenteses were required, mercurial diuretics were continued with enhanced diuresis and the patient's general condition improved. When resin was discontinued for ten days the patient regained weight and became edematous despite merdroxone. When resin was restarted the response was obvious without para-

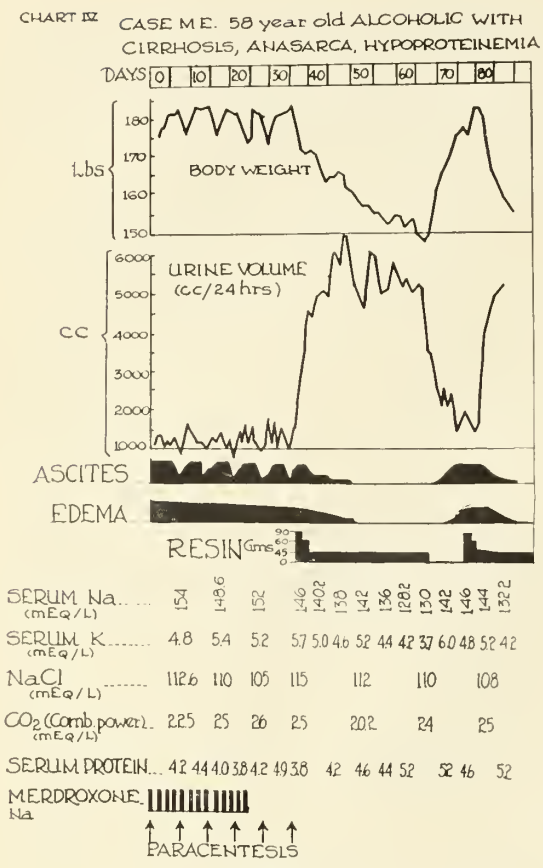


Figure 4

centesis. The patient deserted the hospital on the eighty-sixth day. He died three months later presumably of terminal bronchopneumonia with generalized anasarca.

Case J. M. (Fig. 5), a 47 year old clerk, with typical cirrhosis presumably the latent result of an arsenical hepatitis. Esophageal varices with recurrent hemorrhage complicated ascites and edema. After an initial hospital observation with only mercurial diuresis and sodium restriction there was no improvement. Only an initial paracentesis was necessary since the peritoneoscopic wound drained continuously for fifteen days. After the second day of resin drainage subsided, general improvement was obvious. The patient expired suddenly exsanguinating from esophageal hemorrhage.

Case J. V. (Fig. 6), a 62 year old grocer, a moderate but persistent alcoholic since youth had been an outpatient with paracenteses weekly for eight months. Mercurial diuresis had not materially changed the frequency of paracentesis nor the quantity of ascitic fluid obtained. On resin, paracenteses were less frequently indicated, with the adjunct of mercurial diuresis they were further extended and finally discontinued and the patient at death with cholemia was free of ascites. The diminution in urinary sodium and potassium by

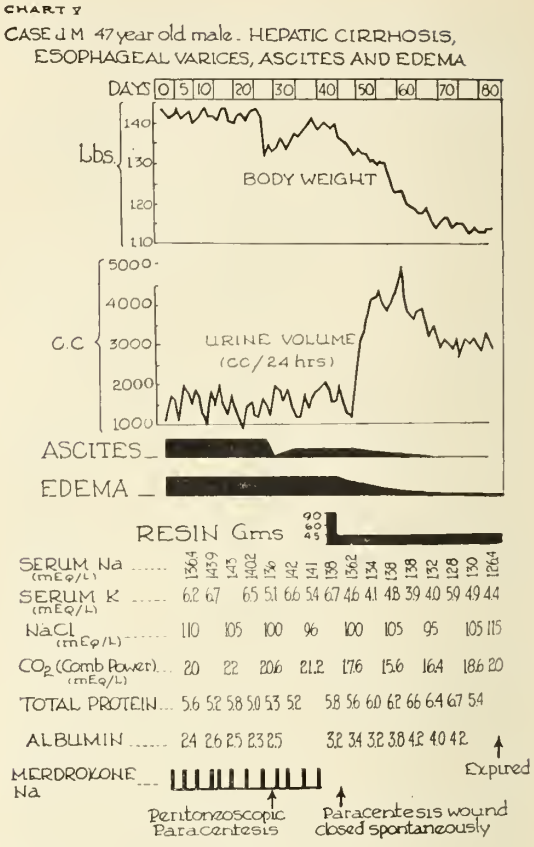


Figure 5

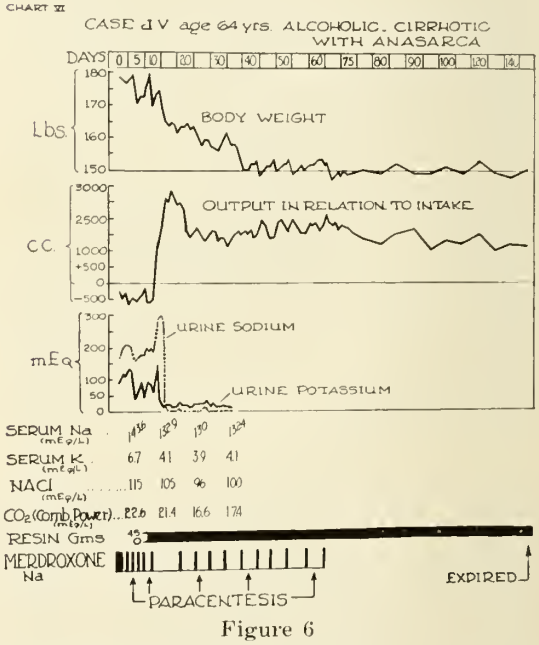


Figure 6

resin despite mercurials is illustrated in a thirty-five day study.

Besides these cases which were ideal and actually selected for their evident response we have had 3 patients who were not appreciably benefitted by

the addition of resin to their regime and died shortly after it was instituted. We have had 2 additional severe cases of postinfectious hepatitis cirrhosis who to this time have been greatly benefitted; these cases are to be reported elsewhere for their atypical onsets and are therefore omitted. Six mild ambulatory patients treated without hospitalization have been completely relieved of demonstrable edema for a period of eight months; a third mild case shows recurrent edema whenever resin is discontinued for more than seven days after seven months observation. Twelve other severe cases have responded satisfactorily in a follow-up of less than six months.

Cylinduria and mild albuminuria have been common to every patient we have had on resin. It apparently has little significance since it clears promptly when resin is discontinued. It is probably the result of renal irritation from ammonia excretion.

Obstipation with a "gritty" dehydrated, unusually firm stool is a common significant complaint.

In all, we have observed 28 cases of edema and ascites associated with hepatic disease under resin therapy. Three patients were not benefitted. Resin was effective in controlling fluid retention in the remaining 25 cases without the misfortune of appreciable complication.

In the early stages of this study an ammonium potassium resin was not available. At present most patients have been switched to this combination which theoretically has the advantage of preventing hypokaliemia. In addition the newer preparations are more palatable being of finer mesh.

Since a single untoward experience with the use of resin in renal impairment we have heeded the warning and concur in the impression that it is contraindicated in definite renal insufficiency. Since renal impairment is a frequent concomitant to hepatic and cardiovascular disease one must have adequate laboratory evaluation prior to and during initial resin therapy.

It is appreciated that a control series is impractical in application to this present observation, that many instances of cirrhosis respond without resins and that our conclusions of efficiency may therefore be questioned. The adjunctive influence in these illustrated cases, however, is too impressive for denial.

DISCUSSION

Ammonium cation exchange resin demonstrably influences edema related to sodium retention. Diuresis by resin induced sodium depletion obviously differs from the mercurial diuresis wherein there is an increased sodium urinary output.

Resin adsorption accomplishes fecal excretion of sodium and potassium with concomitant reduction in urinary excretion of these cations and resultant serum depletion of both with the potentiality of hypokaliemia and hyponatremia.

Possibly excess oral potassium administration forestalls hypokaliemia in that the potassium is available for gastric absorption before resin adsorption at the optimum resin activation of six to eight which is achieved at a lower level in the small intestine. Ammonium-potassium exchange resin will probably obviate the risk of hypokaliemia.

Our studies on calcium were inadequate but no obvious abnormality in this respect has presented itself. What other depletions are potential is not yet known but the warning exists that in long term administration many basic organic materials may be affected.

SUMMARY

1. Our study substantiates the adsorptive action of ammonium exchange resin in a study of 28 cases of hepatic cirrhosis.

2. Ammonium resin by diminishing sodium and potassium absorption from the intestine by fixation and fecal excretion reduces their respective serum levels and urinary excretion.

3. Effective serum sodium reduction by resin indicates its applicability to the management of abnormal fluid retention characterized by disturbed sodium excretion.

4. Any adjunctive method of managing ascites exclusive of paracentesis is favored in the control of cirrhosis of the liver because of the marked protein loss by paracentesis in a disease characterized by hypoproteinemia.

5. Resin acidosis produced by ammonium chloride absorption concomitant with di-

minished base absorption probably potentiates mercurial diuresis.

6. The irritation of abnormally increased urinary ammonium chloride excretion possibly explains cylinduria common to the use of resins.

7. Hypokaliemia may be produced by ammonium cation resin.

8. Resins are probably best avoided in instances of renal insufficiency.

9. Resins will probably prove valuable adjunctives to the management of sodium retention edemas in carefully followed cases.

10. Laboratory studies essential guidance to resin therapy require flame photometric studies, are expensive and inhibit the use of resins in general practice.

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MANAGEMENT OF EARLY CIRRHOSIS OF THE LIVER*

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Though its early stages have interested a few workers,[1,2] cirrhosis of the liver to most of us still suggests a sallow, wasted person with spidery legs, a "pot belly," liver palms, angiomas and many paracentesis scars. These are difficult patients to treat and we consider ourselves fortunate if we are able to help half of them to return to useful living. Such an attitude, however, is really no longer necessary. The ready availability of microscopic examination of material obtained by liver biopsy has enabled us to discover the early pathogenetic changes which have their termination in Laennec's cirrhosis. In most instances progression of the disease can be arrested far short of the terminal state.

There are three common beginnings which result in advanced cirrhosis. The most frequent of these in the United States is repeated subjection of the liver to the effects of poor nutrition with or without the twin insult of excessive alcohol. The concomitant recurrent changes of fatty infiltration and hepatic cellular necrosis with accompanying acute or chronic inflammation at some point give rise to invasive intralobular fibrosis which is the characteristic microscopic lesion of true cirrhosis. Less frequently, acute hepatitis of viral or toxic origin eventuates in the same invasive picture, without preceding or accompanying

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fatty change. Recurrent cholangitis may serve in some instances as the incipient lesion. If these pathogenetic mechanisms are controlled in their infancy, the clinical picture of Laennec's cirrhosis need never develop. Moreover, there is now available abundant proof that even though invasive fibrosis is well advanced, progression of the lesion may be completely arrested,[3] and there is considerable suspicion that at least partial regression of even a fibrotic lesion may occur.

From our series of patients with hepatic disease I have selected 50 who showed early pathologic changes which would eventuate in advanced Laennec's cirrhosis if not treated. Most of them already presented microscopic evidence of invasive fibrosis though in a few the disease was still in the stage of simple fatty infiltration with minor areas of cellular necrosis. All 50 patients had liver biopsy,[4] and 23 had serial studies. Thirty-three have been under observation for more than one year, and half of the entire group has been studied more than two years.

Laboratory examinations included determination of the red blood cell count, white blood cell count and sedimentation rate, serologic test for syphilis, urinalysis, and fecal examination as well as liver function tests, consisting of bromsulfalein retention test, cephalin-cholesterol flocculation test, serum bilirubin, total serum protein with albumin-globulin ratio, quantitative urine urobilinogen excretion test and prothrombin time estimation.

The therapeutic regimen which these patients followed has invariably included a daily diet containing from 150 to 200 Gm. of protein and from 1200 to 4500 calories, initial bed rest in patients with acute symptoms or biopsy findings, moderate supplementary vitamins in the form of Brewer's yeast powder, and one therapeutic vitamin capsule daily. Addition of lipotrophic agents, liver extract, testosterone, adrenal cortical extract and other therapeutic agents has not been considered necessary.

The sex ratio and age distribution of the patients in this group are similar to the usual reported series of patients with cirrhosis. There were 40 men and 10 women ranging in age from 30 to 62 years. Only 15 of the entire group were not classified as more than moderate drinkers; hepatitis was of significance in perhaps 3 of the group and recurrent ascending cholangitis in 2. Poor nutrition was an important factor in at least 45 of these patients.

Of the 50 patients only one, a completely uncooperative individual, failed to improve immediately. Two other patients have died, one of coronary thrombosis and one of a cerebrovascular accident. Only 7 showed evidence of relapse at the time of their last examination and 21 had perfectly normal liver screens when last seen. Forty-one are clinically well at present and working full time.

The only variable in the therapeutic regimen, that of caloric intake, seems to make no difference in the patient's progress. Forty per cent of the group had diets of 1500 calories or less but did just as well as those who had 4150 caloric intakes. A single patient had clinically recognizable esophageal varices with hematemesis and has been free of symptoms since esophagogastrectomy.

CASE REPORTS

The following cases serve as specific illustrations of response of the various lesions to treatment. The first is that of simple fatty change.

Case No. 1. L. M. B., a white man, 50 years old, about 50 lb. overweight, was first seen complaining of easy fatigability. Overindulgence in alcohol was readily admitted. Blood pressure was 148 mm./Hg. systolic and 108 mm./Hg. diastolic. The liver, which was enlarged to 12 cm. below the right costal margin, was firm, smooth and slightly tender. The fasting blood sugar was 205 mg. per cent, bromsulfalein retention 10 per cent in forty-five minutes, serum bilirubin total 1.30 mg. per cent. Liver biopsy revealed extreme fatty infiltration with slight early fibrosis and chronic inflammation.

Treatment consisted of a diet of 1200 calories with 150 Gm. protein, yeast and vitamins. Eight months after he was first seen he had lost 17 lb. and felt perfectly well; the blood pressure was 125 mm./Hg. systolic and 90 mm./Hg. diastolic. The liver was soft and nontender and had decreased in size to 5 cm. below the right costal margin. Results of liver tests were normal. The liver

specimen obtained at biopsy was nearly normal with only slight fatty infiltration and fibrosis. When last seen two years after admission the patient was perfectly well. The liver was felt 2 cm. below the right costal margin and the results of liver function tests were normal. He still has some trouble keeping his weight down.

The quick response to therapy despite the restriction of caloric intake is well illustrated in this instance. An important contributing factor to the fatty changes in the liver was the uncontrolled diabetes mellitus.

The second case is one in which acute hepatitis played an etiologic role and illustrates the importance of prompt treatment of this condition.

Case No. 2. A. D. T., a white man, 42 years old, was first seen complaining of gastric pain of two years' duration which after study was believed to be related to antral gastritis. He returned about a year later complaining of anorexia, nausea, vomiting, and fever (to 100.4° F.) for about three months. He had lost about 20 pounds during that time. Overindulgence in alcohol was denied. The liver was soft, smooth and slightly tender, and palpable 2 cm. below the right costal margin. Bromsulfalein retention was 24 per cent in forty-five minutes. Sedimentation rate was 33 mm./hr. (Westergren). The patient refused to follow the recommended regimen at that time and continued to feel badly. The liver slowly enlarged and results of liver function studies became more abnormal. About twenty-one months after admission bromsulfalein retention was 33 per cent, cephalin flocculation 5, serum albumin 2.9 Gm./100 cc., and globulin 2.0 Gm./100 cc. of blood. Liver biopsy at that time revealed bandlike fibrosis and large areas of active inflammation without any fat, which was considered to be consistent with posthepatitic cirrhosis.

Because of relatively slow improvement and an enthusiastic report appearing at that time on the the value of aureomycin, this preparation was given for two weeks. By this time he had begun to eat his full diet of 500 Gm. of carbohydrate, 200 Gm. of protein and as much fat as he wished, and he was taking his yeast and vitamins and observing the rules of rest.

Pronounced improvement was noted about thirty months after admission. The patient felt well, had gained 50 pounds and was back at work. The liver was barely palpable on deep inspiration. Bromsulfalein retention was 11 per cent and results of the other laboratory studies were perfectly normal. Biopsy done at this time revealed slight residual chronic inflammation and inactive fibrosis.

The third case illustrates the effect of infection of the biliary tract and ascending cholangitis on preexisting alcoholic cirrhosis.

Case No. 3. J. P. M., a tremendously overweight alcoholic lumberman, 54 years old, was complaining of fatigue, pain, and abdominal swelling when seen initially. The liver was 20 to 25 cm. below the right costal margin. The fasting blood sugar was 168 mg. per cent, bromsulfalein retention 15 per cent in forty-five minutes, and total serum bilirubin 1.2 mg. per cent. Liver biopsy revealed severe fatty infiltration with acute and chronic inflammation, moderate hepatocellular necrosis and fibrosis. On a regimen of a 1200 caloric diet with 150 Gm. protein, yeast, vitamins, and rest he steadily improved except for recurrent mild episodes of gallbladder colic until nine months after admission, when he had recurrent bouts of severe colicky pain in the right upper abdominal quadrant associated with chills, fever, nausea, vomiting and mild jaundice. There was exquisite tenderness in the right upper abdominal quadrant and the liver was palpated 5 cm. below the right costal margin. Bromsulfalein retention was 32 per cent in forty-five minutes; cephalin flocculation was 3 plus; one minute serum bilirubin 0.5 mg. per cent and total 1 mg. per cent. Thirteen days after this attack the gallbladder and an impacted stone in the ampulla were removed. A section of liver revealed considerable increase in periportal inflammation with cholangitis.

Following operation he again progressively improved and when last seen thirty-one months after he first consulted us, he was perfectly well. The liver at that time could be felt 4 cm. below the right costal margin and was much softer in consistency than previously. Results of liver tests were perfectly normal and biopsy revealed mild inactive cirrhosis.

DISCUSSION

Thus, once the disease is diagnosed a great deal can be done for these patients. They are in fairly good physical condition and can be promised excellent results from treatment. The great difficulty is in discovering them among the patients in an office practice. Their complaints are usually nonspecific; fatigue, loss of energy, anorexia, weakness, anxiety, and sleeplessness are the most frequent, although there is occasional discomfort in the right upper abdominal quadrant. A history of overindulgence in alcohol can usually be obtained. Rarely fever, jaundice and chills may be reported.

The liver is usually palpable 2 to 3 cm. below the right costal margin though not infrequently it is a good deal larger. It

feels firm, or soft, smooth, and slightly or not at all tender. The spleen is rarely felt and the other physical stigmas of cirrhosis —ascites, increased collateral circulation of the abdomen, spider angiomas, liver palms, hepatic facies, wasted arms and legs—are almost never seen. In many instances the bromsulfalein retention test is the only laboratory test which gives a positive result; this was true in 29 patients in this series, and in 4 patients results of all laboratory studies were perfectly normal. Occasionally, abnormal values will also be obtained for serum bilirubin, albumin-globulin ratio and prothrombin time.

Typically then, the patient is a slightly obese man, 40 years old, complaining of anorexia, weakness and slight discomfort in the right upper abdominal quadrant, with a rather soft and nontender liver which is palpable 3 cm. below the right costal margin. Laboratory investigation reveals a 10 per cent bromsulfalein retention and the physician quite properly suspects the diagnosis of early cirrhosis. Further inquiry discloses overindulgence in alcohol with neglect of food. Liver biopsy reveals moderate fatty infiltration with slight hepatic cellular necrosis, considerable chronic inflammation, and early invasive fibrosis. Appropriate therapy is then started. Even though biopsy is not always available, it seems wise to treat such patients as if they had early cirrhosis; this is particularly true since no harm can result from the moderate increase in protein intake, vitamin supplements and the interdiction of alcohol; whereas in the untreated patient the risk of a progressive lesion with terminal advanced Laennec's cirrhosis is a significant threat.

CONCLUSION

Cirrhosis of the liver can be diagnosed early. The condition can be completely cured or arrested in essentially every patient with early stages of the disease. It is far better to diet and restrict a few alcoholic patients who do not have cirrhosis than to allow advanced cirrhosis to develop in a single individual.

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INSOMNIA*

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Insomnia—the persistent inability to obtain adequate sleep—is one of the more common and troublesome complaints encountered in medical practice. This paper will deal rather generally first with some of the conditions in which insomnia is met and second with certain aspects of treatment.

Rarely is insomnia an isolated symptom but it is often so emphasized by the patient that other elements of the clinical picture may be obscured. To most people the prospect of beginning a day without a previous night's sleep produces anxiety and the tossing about waiting for sleep which does not come is a miserable experience which most of us have had at one time or another. Loss of sleep in itself does not constitute a threat to life and does not seriously impair health. Persistent insomnia, however, is frequently associated with serious emotional illness and may furnish an index of the degree of seriousness. Usually there is notable agitation present in these conditions as well as simple inability to sleep.

CAUSES

A variety of causes for continued wakefulness exist and it seems worth-while to consider them briefly. The more obvious ones are sleeplessness due to the presence of disturbing stimuli such as noise, bright light, pain, hunger, temperature extremes, and unfamiliar surroundings. Certain beverages commonly used, such as coffee, tea, and some soft drinks are often blamed for inability to sleep. In hypertension and thyrotoxicosis difficulty in sleeping is the

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rule. A very rare cause of insomnia is a lesion of the so-called sleep centers in the brain. This group of causes, of course, is either transitory or associated with underlying illness of such nature that attention is not likely to be primarily directed to the sleep disturbance.

To achieve complete fulfillment of the function of sleep tension must be excluded. This is obviously impossible in most emotional disturbances as they are invariably accompanied by some degree of tension which is commonly sufficient to prevent sleep. A frequent accompaniment of emotional disturbance is the presence of unpleasant dreams which may so frighten the individual as to cause awakening. If such dreams are recurrent they may be anticipated so as to produce unrest on retiring. In certain neurotic illnesses there is a fear of going to sleep because of the underlying fear that there may be no awakening. The insomnia in this group of causes usually is not prolonged and is generally amenable to simple sedation until the person has stabilized.

In the minor disturbances the cause is usually clear to the physician or can be determined by superficial questioning. There are major mental illnesses, however, which may in their early phases come to the attention of the family doctor because of persistent wakefulness. Contact with the patient in most instances will make it clear that this is only a part of a more pervasive difficulty. Depression can be such an illness. It is probably the most common type of emotional disturbance seen and can vary in degree from the minor to the extremely severe. The mildly depressed person usually complains of fatigue, tension, lethargy and irritability in addition to insomnia. He may voice the opinion that if he could only rest for a time he would be able to carry on once more. Sometimes this is correct and he responds quite favorably to sedation and a temporary reduction of activity. Often, however, progression to a more profound state of depressed mood takes place and a previously effective dose of sedative becomes ineffective. Under such conditions it is well to consider psychiatric management, because of the increasing risk of suicide, or at best, the prolonged disability which can occur in depression. Some excitement states can be handled by sedation and little else, but in many cases they reach the point of being uncontrollable by this means and also require psychiatric management.

TREATMENT

This brings up the point of the treatment of insomnia. Some general statements as to type of drug chosen and some pertinent comments about administration should come first. Too often a drug of short acting duration is given, or else an insufficient amount of the drug is ordered. In a person who has been unable to sleep it is wise to give a medication which is prolonged in its action and in an amount which brings about somnolence within a short time after it is given. If it is important to produce sleep quickly a drug which can be given intravenously or hypodermically is worthwhile. This is usually not required, however, and an oral preparation serves nicely. If oral administration is not feasible then rectal instillation can usually be carried out. It is also well to remember, when prescribing a sedative to be taken at home, that mistakes in directions do occur and it is safe to dispense an amount which, if taken all at once would be unlikely to be fatal in its effects. Suicide, either by intent or by error, can be avoided if this is done. If it is necessary to dispense a larger quantity a responsible person other than the patient should be given charge of the supply and carefully instructed as to the amount to be given and the frequency with which it should be given. The danger of habituation should be borne in mind also and prolonged use of any sedative avoided. The opiates will cause sleep, but because of the possibility of addiction should not be given in the absence of pain.

As to the various preparations used to promote sleep the barbiturates are probably the most popular. Barbiturates are not analgesic and may produce confusion in the presence of pain. A large number of com-

pounds are available with some variation in the duration of action and the possible methods of administration. These are the principal pharmacological differences despite more extensive claims made by the different manufacturers. Among the long acting preparations which are useful are barbital (veronal) and ipral calcium. One disadvantage of the long acting types is the presence of a "hangover" following their use, but in situations requiring assured sleep this is usually a minor consideration. Of the more commonly used intermediately acting barbiturates amytal is probably most often prescribed, and of the short acting group phenobarbital (luminal) and seconal. The sodium salts of amytal and pentobarbital, another intermediate form, as well as pentothal are available to intravenous use. Sodium phenobarbital is hypodermically injectable.

The bromides can be used to produce sleep, but in general this is impractical because of the quantity required.

Chloral hydrate is an old and very useful soporific. In doses of 15 to 30 grains this drug produces prolonged restful sleep which has been considered most nearly like natural sleep. It may also be worthwhile to remember that the infamous "Mickey Finn" can be valuable to the physician at times. This is prepared by adding 15 grains of chloral hydrate to a half ounce or ounce of whisky. Chloral is contraindicated in cases of liver or kidney damage or the presence of severe heart disease.

Paraldehyde is valuable as a sedative and is safe, but has been discredited for general use because of its unpleasant odor and taste. It can be given orally or intramuscularly as well as by rectal instillation and is worth keeping in mind.

SUMMARY

In summary, insomnia has been briefly discussed in its relationship to other symptoms and as a part of a more extensive illness. Most cases of insomnia have a tendency to undergo spontaneous clearing, or at least require only simple measures. In a few serious exceptions there is need for more drastic treatment of the underlying illness. Some of the common drugs used in treating persistent sleeplessness have been mentioned and some general remarks about their use made.

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THE PSYCHOPATHIC PERSONALITY IN TREATMENT

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The symptom complex presented by the individual dubbed somewhat euphemistically as the psychopathic personality is usually disposed of in hospitals, clinics, and prisons, categorically into the untreatable group. It has become the practice, apparently for mere intellectual gymnastics, to explore the psychodynamics and the development of the entity of the disease itself, accomplishing this with a negative orientation as to therapy with dire warnings of the pitfalls, disappointments, and frustrations in dealing with the problem in the therapeutic situation. Often enough, this condition is not even given this much consideration and is perfunctorily dispensed with by either discharging or otherwise dismissing the patient into society, or on the other hand, banishing him to pure confinement and custodial care. Often enough clinics and individual therapists will not accept these patients on any basis. It is perhaps not without reason that these services do not accept or quickly discharge within an extremely short time all psychopathic personalities. The question then arises as to why ordinary psychotherapy finds itself inadequate in this condition. Factors in the psychopathology contributing to the general pessimism of treatment have been variously listed as follows: acting-out of itself prevents introspective, uncovering therapy; the guilt-expiation system in the psychopath is so efficient as to preclude mature sublimative substitutes; the interpersonal relationship as set up by the psychopathic personality is of the same nature of the schizophrenic, that is, full of distrust and suspicion and is, therefore, a profound force in deterring a real reduc-

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tion in distance between the individual and others. This latter reason alone can account for the great difficulty in setting up a meaningful therapeutic situation.

It is assumed that the psychopathic personality is at the lower levels of ego strength in relation to the psychoneuroses in general in the sense that the patient is more immature. His immaturity is defined as extreme dependency but may also be thought of as a defensive operation and the famed acting-out as complex satisfactions and compromises for deeper needs and drives. It is assumed that the central integrating mechanism is fractured by reason of underlying etiology which may be either developmental traumatic experience or constitutional factors or both. The fact in therapy that the physician is working with a patient who acts for satisfaction instead of feeling and experiencing emotion poses a real problem in management. This acting all too often is not harmonious with others in the patient's environment or to society in general, but is not always useless to the patient, and is conceivably sometimes complementary and helpful to society. A current exxample is the well-known newspaper man who at one time was the terror and shame of the profession who has since adjusted well to the role of a clever columnist, writing a sometimes bitter, sometimes frankly blasting, bombastic, daily contribution which has uncovered some unfortunate social situations which actually needed correction. This negative orientation towards the general environment in this individual is now utilized in a quite acceptable fashion.

It must then be assumed that the great forces thrusting the patient into the behavior characteristic of a psychopathic personality are perhaps not only unreachable but are not to be modified. It remains then the task of the therapist to help the patient to find alternative solutions for qualifications and gratifications which may be wellnigh insatiable otherwise. Again it must be recalled that the patient acts and almost never feels the appropriate emotion. This fact renders use of the potent factor of acceptance of the total person in psychotherapy difficult. The relationship between doctor-patient can become quite tenuous as the patient acts out his hostility for the therapist, for example, by simply terminating treatment for one reason or another. The method of complete acceptance, indeed an almost conspiratorial alliance with the patient can often lead, however, to an immediate emotional response so that he is able then to feel some of his difficult emotional problems. In a particularly guilty patient the removal of the "satisfaction" of rejection with consequent rebellion is immediate and profoundly felt so that he is then able to give more serious considerations to feelings and intellectual defenses rather than unmodified acting. Acceptance in the earliest phase of treatment must of necessity be complete and intense. The patient must be helped to feel extremely positive emotions to the therapist. The therapist must be willing to give approval to the patient, implying at the same time, that the actual deeds and acts are a part of him to be understood. If then the patient is able to delimit self from acts and understand the function of the latter other behavior may be expected. It must be remembered that these individuals have never "belonged," have always been rejected, the very fibre of their character has prevented acceptance and that this latter has been a factor, and compensation in the neurosis. When the patient is "disappointed" and is unable to experience rejection in the therapeutic situation, a strong wedge is driven into the complex and the patient apparently experiences strong doubts as to the efficiency of the pathological behavior in the direct gratification of impulses.

The great task of ego-building — a strengthening of the central integrating mechanism—remains but at the same time the patient's constant preoccupation with his position with the therapist as to whether he is accepted or rejected will recur in treatment. The patient may attempt to precipitate new test situations in an attempt to force the old familiar and comfortable emotional reactions where he can feel unwanted, not belonging, guilty, and

then rebellious. If the first contact with the therapist has been sufficiently meaningful, that is, the positive feelings for the therapist initially have been intense, the memory of this chink in the armor of the personality will prevent really disastrous acting-out. The therapist, however, must go to great lengths to confront the patient with his acceptance as an individual and at the same time dissociating the acts per se. The therapist is, of course, an agent of the culture and in this role cannot condone acts which would destroy it. This does not in any way prevent him from accepting the patient as a person and as a completely likeable one—an experience which may force the patient into a reorientation of the total personality. The setting for the successful treatment of the psychopathic personality lies in the individual doctor-patient relationship. The small, stylized, rigid, overdetermined society in the mental hospital and ordinary prison, is quite made to order for the acting out of the psychopath and this situation places a great obstacle in the path of treatment. If the patient can be helped to feel merely one interpersonal relationship which is emotionally meaningful such as the individual doctor-patient relationship, he may more readily be able to cope with multiple relationships later. When a patient is treated as an out-patient, society is conceivably diluted and vague in its gradually shifting attitudes and prejudices, and the psychopath cannot become rigidly responsive to society in general as he does disastrously in the inflexible society of the institution.

The help in insight development in the psychopathic personality cannot be given too early but, of course, must be appropriate and consistent with the material presented by the patient at the time. Complete interpretation is absolutely mandatory in quickly forming acting-out patterns. The therapy differs from that appropriate for the neuroses and psychoses in the respect that the patient is given quickly an intellectual system to cling to—a defense for a curiously qualitatively filtering integrating mechanism. It is felt that this mechanism is not so much a result of a shattered ego as it displays an over-all integrity but rather that it is unable to prevent the filtering through of action, and action alone, without feeling from underlying drives. The ego then is quantitively intact but is permeable qualitatively to acting-out phenomena. The early and quite frank interpretation of acts in an emotionally meaningful therapeutic relationship can only give strength to the ego which has been unable to make a satisfactory adjustment particularly in the social sphere. Interpretation used in the immediate situation can for the first time be an extremely relieving experience in him who has remarkably enough complete lack of understanding and tolerance for self. For the psychopathic personality with the peculiar dissociation of behavior has been at a complete loss to comprehend his own character since it is so intimately interwoven in the warp and woof of self. The psychopath has actually been denied illness since his symptoms are not like neurotic symptoms—on a feeling although unpresently felt level—but rather is doomed to peculiarly isolated behavior and action patterns.

The constitutional factors cannot be overlooked or discounted in treatment. There are biological—physiological if not frank genetic factors which explain the choice of a psychopathic living adjustment to a schizophrenic one, although there are great similarities between the two. If one concept is found to bring these two conditions closer, the similarities in therapy will then be adequately explained and accounted. There is probably no accident that a given individual reacts to a given universal trauma with a psychopathic reaction. Constitutional-biological and physiological factors may then be thought of as limiting treatment to the utilization of the potentialities and possibilities of the so-called psychopathic personality. The potentialities of the psychopath are greater perhaps than the neurotic for the reason that the former is always free to act while the latter is found to be greatly inhibited by intrapsychic conflict, doubt, indecision and interminable introspective preoccupation—all

on a feeling rather than on an active level. The psychopathic impulsiveness can actually be utilized socially if effort is made to help it become acceptable. It is also known that the psychopath in the confusion of rebuffs and rejections finds it difficult to realize exactly what is acceptable in himself as an individual. Treatment can be extremely helpful as a proving ground on this level.

CASE REPORT

H. F., age 28, unmarried, intelligent, high school graduate, Protestant, part-time musician.

Patient was first admitted to a mental hospital on the insistence of his father for psychotherapy for drug addition to benzedrine. He first began using drug experimentally some two years before coming to treatment, and had found that increasing moods of depression had urged him to seek some surcease. Marijuana smoking helped supply this. His history heretofore had been rife with scholastic and parental rebellion, failure to form ordinary high school relationships. The patient was constantly readmitted to various institutions varying from the county jail through private mental hospitals. He flouted the law of the land, thieved, begged and borrowed as he continued his addiction to benzedrine and his social rebellion.

When brought to treatment, he was surly and hostile and desired immediate release from the hospital. An admitting attendant told him he was "no good and would always be that way." The opening interviews were spent in "reliving" the pathetic life of the patient who had a hopelessly rejecting father and hostilely inclined but overprotective mother. As the patient tended to "relive" his somewhat scarlet past, he was constantly accepted and there was a perceptible change in his hard, heretofore unchallenged front. The usual attempt to defend himself from others failed and his own dependency need began making its demands. The patient began to speak freely and frankly of the problems of his life including the conflicts with parents. He was released from the hospital after some thirty sessions and approximately six weeks. The time of discharge from the institution was determined when the intense positive feelings of the patient to the therapist became obvious to both. This, of course, followed complete emotional acceptance by the therapist in the daily treatment interviews. On several occasions after release he became intoxicated with benzedrine and drove the forty miles or so through urban traffic to be near the therapist for further support and for satisfactoin of his great dependent needs.

After some sixty hours of treatment, he made a fair adjustment obtaining a modest laboring job. Some one hundred and fifty hours of more intensively uncovering treatment was then done with the ultimate benefit of release from benzedrine and its concomitant difficulties. The patient has maintained himself economically for the past year, although he remains in the home of his parents, apparently still unable to break this hostile-dependent relationship. Benzedrine and drug addiction are no longer problems, although the patient tends to drink alcohol somewhat immoderately. He plans a writing career preferably of a critical type for his future. There is as yet no permanent female relationship in his life. Treatment has been terminated for approximately one year.

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PRESENT CONCEPT OF CATARACT SURGERY

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Because of the increasingly important role the general physician is playing in successful cataract surgery, we believe some of the newer concepts of cataract management should be presented so that a better understanding and closer cooperation may be had between the ophthalmologist and the general physician.

With newer and more refined surgical techniques developed by the ophthalmic surgeon and with the improved methods of controlling constitutional diseases developed in general medicine, cataract surgery has become more highly successful than ever before.

PRELIMINARY STUDY OF THE PATIENT

When lens opacities are discovered in a patient, or suspected to exist as one of the causes of decreasing vision, the ophthalmologist makes a number of detailed studies

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of the diseased eye. With the aid of a slit lamp he determines the exact type and morphology of the cataract present, the presence or absence of old or recent inflammatory changes, and the type of surgical approach best suited for the particular patient. The intraocular pressure is measured and if it is found elevated, a complicating glaucoma may be suspected. In mature cataracts, where the fundus cannot be visualized, light perception and projection tests, endoscopy and the "two light" test are carried out to determine the integrity of the underlying retina.

With a careful history and the clinical findings, the ophthalmologist may classify a cataract as belonging to a certain etiological group of cataracts. With this information the medical and surgical management of the patient is outlined.

MEDICAL MANAGEMENT

The medical management of the cataract patient is chiefly concerned with two general types of treatment: (1) local treatment, and (2) systemic treatment.

In the past, the local treatment of cataracts has chiefly consisted of the use of drugs which produce hyperemia and chemosis, in the hope that the nutrition of the lens would be improved and the opacities cleared. However, these drugs seem to be of little value and at the present time there is no known specific therapy that will cause developed lens opacities to become transparent. An important adjunct to local treatment is careful and repeated refractions. This procedure corrects the changing degrees of myopia and astigmatism that are associated with cataracts, and maintains the patient's useful vision for as long as possible.

The systemic treatment of cataracts is directed toward correcting any general constitutional and systemic disorders that the patient might have. With the great advancements in nutrition, vitamin therapy, and hormonal products, good medical management of the patient becomes more important and more satisfactory than ever before. With adequate systemic therapy, early developing cataracts may sometimes be noticeably slowed in their growth.

There are a number of procedures and certain information about the systemic state of the patient that the ophthalmologist feels are particularly important, but are best carried out by the general physician. Important among these are:

First, a careful and complete history of the various body systems with a follow-up of any significant symptoms. Very often, by this means alone, exciting or contributory causes to cataract formation are discovered.

Secondly, a complete physical examination, including a dental survey, is important not only in finding pathological processes that might contribute toward cataract formation, but also in determining the individual's suitability for surgery. The ophthalmologist is particularly interested in such changes from the norm as: hypertension, particularly elevated diastolic pressures which could be a cause of operative and postoperative hemorrhage, and foci of infection, with special attention to the nose, throat, sinuses, teeth, gall bladder, cervix, and prostate, which may act as a focus of postoperative inflammation. The presence of any lung changes, such as bronchitis, asthma, tuberculosis, or bronchiectasis, particularly when producing a cough that might complicate the operative and postoperative course, must be looked for.

Special laboratory studies should be used when there is an indication, but such procedures as complete blood counts, fasting blood sugar levels, coagulation and prothrombin times and capillary fragility cuff tests are examinations that always should be made and if found abnormal, therapy aimed at correcting the underlying pathology instituted.

The general health and hygiene of the patient should be well regulated. Nutrition should be well balanced and supplementary vitamins, particularly vitamins C, P, and A supplied. Any toxic state that exists must also be controlled. Diabetes and hypertension should always be as well regulated as possible. Elimination should be carefully attended to, for the straining accompanying fecal impaction may prove disastrous in the postoperative period. Careful attention to

these factors by the general physician eliminates many of the complications that might be encountered by the ophthalmologist and insures the patient of a better chance of success in regaining vision.

SURGICAL APPROACH TO CATARACT MANAGEMENT

The question often arises as to what time is the best to remove a cataract. It is no longer necessary for a patient to lose all of his useful vision while he waits for his cataract to become "ripe" or mature before surgery is undertaken. With intracapsular extraction and other techniques, the visual needs of the patient, rather than the maturity of the cataract, is the requisite for surgical intervention. During the years that extracapsular cataract extraction was the only method of removing a lens, one had to wait until the lens was mature and the lens cortex was soft before operating. It was necessary for the lens cortex to be soft so that the lens material could be easily washed from the eye and the small, hard lens nucleus delivered. With the development of the intracapsular method of removing the cataract within the lens capsule, the waiting period for a mature cataract to develop was no longer necessary, and, instead, the lens could be removed at the time best suited to the patient's visual needs. The extracapsular technique of removing cataracts has not been completely discarded, for in many cases of existing or expected complications it is often the operation of choice. In hypermature cataracts with liquid cortical material, in thin, degenerated lens capsules, in old iridocyclitis with adhesions, and in fluid vitreous, this method is preferred by many opthalmologists. Following extracapsular extractions, the remaining posterior lens capsule may become opaque and a second operation to incise the occluding membrane may be needed to clear the pupillary area.

The development of the intracapsular extraction has led to the development of the so-called "round pupil" extraction. Previously, it was necessary to remove the upper portion of the iris to facilitate the washing of lens cortex from the anterior chamber. With the intracapsular technique this was no longer necessary and the pupil was left intact to contract with the light and accommodation reflexes. However, the opportunity for the development of iris prolapses and secondary glaucoma are increased in this method and so great caution and careful selection is made before this type of extraction is decided upon.

It has only been within relatively recent times that sutures have been used to close the incisions, or sections, made in the anterior segment of the eye. Formerly, the lids were merely closed over the wound. This necessitated protracted hospital stays, with long periods of complete bed rest. Even so, the complications were frequent. With the development of very fine but strong suture materials and very sharp needles, suturing of the wounds became possible. This procedure alone reduced complications markedly and allowed a much earlier ambulation.

Local anesthesia remains the mainstay in most cataract surgery, but several important additions and refinements have been developed in local anesthesia which account for its continued use as the usual procedure. In earlier times only cocaine was instilled in the conjunctival sac. Now, however, in addition to this topical application, novocaine block is made of the seventh nerve to paralyze the muscles of the lids. This prevents the patient from squeezing the lids and pressing on the eye, with its accompanying disastrous effect. Novocaine is also injected into the muscle cone in the retrobulbar space. This gives a much better anesthesia to the inner structures of the eye and helps eliminate the discomfort of surgery. It also dilates the pupil and reduces intraocular tension when it is elevated.

General anesthesia is not usually employed for three reasons: (1) the danger of general anesthesia in the aged, (2) the patient is unable to cooperate with the surgeon during the surgery, and (3) postoperative vomiting may be a serious complication. Recently a good deal of clinical investigation has been carried out with the use of sodium pentothal and curare. These agents may prove to be important adjuncts

to the anesthesia problem, but as yet, there have not been enough observations over a long enough period of time for any definite conclusions to be drawn.

COMPLICATIONS OF SURGERY

Regardless of the surgeon's skill and of his knowledge of local anatomy and of the pathological changes in the special case, unforseen situations may occur both during operation and afterwards. Among the most important of these complications are the following:

Hemorrhage: Postoperative hemorrhage is a frequent complication, especially in diabetes, hypertensive and markedly arteriosclerotic patients. It arises most frequently from vessels of the limbus and less frequently from the iris. Hemorrhage into the anterior chamber is not usually serious but expulsive hemorrhage and vitreous hemorrhage are most serious.

Vitreous Loss: This is a complication that in some cases is unavoidable. Fluid vitreous, the use of too much pressure and uncooperative patients are all conducive to it. Vitreous loss in association with a ruptured lens capsule and floating lens cortex is a most serious complication. The eye remains red, irritable, and inflammatory reactions develop. Care of the wound at the time of surgery and postoperative cortisone locally have lessened the severity of the reaction in many cases.

Glaucoma: This complication may result from either postoperative inflammation, prolapse of the iris or of the lens capsule into the wound, or the downgrowth of epithelium into the anterior chamber. Successful treatment of postoperative glaucoma is very difficult; not infrequently, a second operation to control the glaucoma must be done to preserve the eye.

Iritis: Iritis occurs more frequently following extracapsular than intracapsular extractions. The inflammatory process can frequently be controlled by the use of antibiotics and local cortisone.

Rupture of the Wound: Rupture of the wound is often due to coughing, vomiting, straining, or a violent patient. In some cases debilitation and poor healing qualities are the primary causative factors. Presurgical management of the patient to prevent the occurrence of the complication is the best means of control.

Prolapse of Iris: Prolapse of the iris is also a serious complication, since the smallest degree of prolapse is a potential source of danger as well as a constant source of pain and discomfort. It requires further operative measures for its treatment.

Sympathetic Ophthalmia: This is a rather infrequent complication, but when it occurs it is most disastrous. Antibiotics and local and systemic cortisone and ACTH have been of value in controlling the disease in early cases.

Retinal Detachment: Retinal detachment may occur in a few days to several years following cataract extraction. In general, reattachment is not highly successful. However, with the newer methods of discovering the tears in the retina that lead to the detachment and with finer electrocautery techniques, the percentage of successful reattachments is rising.

Infection: Purulent inflammation of the eye following cataract surgery may be either exogenous or endogenous, the former variety being most frequent. The frequency of occurrence and the seriousness of the complication has been considerably ameliorated by the use of the antibiotics.

SUMMARY

1. The best results in cataract extraction are secured by careful preliminary study of the patient, correction or control of associated constitutional conditions, and constant postoperative observation. These aims are best achieved by a close cooperation between the ophthalmologist and the general physician.

2. The most opportune time for cataract extraction depends upon the visual needs of the patient, the presence of complications, and the type of cataract present.

3. The development of intracapsular cataract extractions, the use of sutures in the wound, and refined local anesthesia have greatly improved results and reduced complications in cataract surgery.

4. Complications of cataract extraction

are frequently very serious and measures to prevent them are usually more successful than measures to control them.

DISCUSSION

Dr. Richey L. Waugh, Jr., (New Orleans) : Careful evaluation of the patient and meticulous care during the extraction of the cataract and afterwards make for better results in cataract surgery. Dr. Haik and Dr. Lyda have well outlined many of the present trends in cataract surgery and presented advantages of both the extracapsular and intracapsular methods of extraction.

With an intracapsular extraction the entire lens is removed within its capsule and no particle of lens material left behind to cause, through inflammation and swelling, an iridocyclitis and subsequent secondary glaucoma. The intracapsular procedure has greatly reduced the incidence of both these postoperative complications.

However, the intracapsular procedure has made loss of vitreous more frequent and as equally serious. Any disruption of the anterior vitreous face through any added pressure in the intracapsular procedure may allow free access of vitreous to the iris with subsequent inflammation, direct blockage of the chamber angle, and adherence to the cornea with a resulting cloudiness that greatly interferes with vision. Loss of vitreous is also an invitation to a retinal detachment that cannot always be treated successfully.

The operator does well who, considering these facts, does not, out of pride, try the more difficult intracapsular in all senile eyes. In many instances, a planned extracapsular extraction may be the procedure of choice.

By performing a planned extracapsular extraction, the very thin posterior capsule remaining behind may act as a stay against any loss of vitreous during operation. This thin lens capsule may often interfere less with vision than the results of inflammation caused by direct contact of the vitreous with the iris or opacification and thickening of the cornea by vitreous adherence.

The operator may prove to be more skillful who chooses his operation for his patient whenever there may be any possibility of vitreous loss associated with fluid vitreous, a hypermature lens, prominent eyes, a difficult patient, or poor anesthesia. Whenever a narrowing of the chamber angle occurs on opening the eye, an extracapsular extraction may avoid loss of vitreous that is already bulging forward.

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CHILD HEALTH PROGRAM

In recent years the Louisiana State Medical Society, through its Committee on Child Health, has promoted a program of awakening interest in this problem, and of bringing about a situation where the cooperative endeavor could go forward in the interests of child health. The initial effort was a Parish Health Council; such Parish Health Councils have been organized in Tangipahoa Parish with Dr. M. C. Wiginton, as chairman, and in Iberville Parish with Dr. W. E. Barker, Jr., as chairman. These health councils consist of representatives of the Parish Medical Society, Parish School Board, Dental Society, P. T. A., and the Department of Health, and other interested groups. This organization has been in a position to put forward a school health program in which the various interested parties cooperate and which stays under the direction of the physicians.

A four-point school health program was suggested by the A. M. A. and Louisiana has adopted the four-point program, as follows:

1. Instruction of teachers in the screening of school pupils for mental and physical defects.

2. Screening of all pupils by teachers with the assistance of a public health nurse and visiting classroom supervisors.

3. Examinations (free of charge or for a small fee) by local physicians of children found to have defects or deformities. Referral to the proper specialist if necessary.

4. Thorough examination of all first grade pupils with notations of all defects and recommendations for their correction.

In the two Parishes where these programs have been established considerable progress has been made, such that the Public Relations Department of the A. M. A. has commended them. The Child Health Committee of the State Society is now endeavoring to make their experience available to other Parishes and to organize similar councils to carry on this most desirable form of health education for the improvement of school health. A recent survey showed that one-third of all medical societies have a school health committee.

In furthering this work, the State Child Health Committee is arranging to have a meeting in Alexandria on November 4. It is hoped that each medical society will have a representative there who will assist in promoting the organization and operation of the plan in his Parish. Also attending this meeting will be various interested edu-

cational groups who are asking for the privilege of assisting in this work. It is very much hoped that organized medicine will be adequately represented and active in the endeavor. It is obvious from a consideration of how the plan worked in the two Parishes, and from the basic relationship between physician, parent, and child that there could be no better form of improving public relations of organized medicine than this.

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CHEMOTHERAPY OF TUBERCULOSIS IN MAN

The chemotherapy of tuberculosis in man is a matter of great importance to those whose particular responsibility is care of such patients, and also, to almost everyone who practices medicine.

The Council on Pharmacy and Chemistry of the A. M. A. has issued three reports on this topic, and in the A. M. A. Journal of September 15, 1951, publishes a fourth article which is a statement of progress on the problem. Study of these reports provides valuable guidance. It is unpleasantly clear that streptomycin does not cure tuberculosis. Observations which are summarized in the report are now on approximately 10,000 individual cases. The report is a single cooperative study in which the Veterans Administration, the Army, and the Navy participated.

The toxicity of streptomycin and dihydrostreptomycin is principally related to the effects on the eighth cranial nerve. Signs of renal irritation, skin eruptions, and fever occur occasionally in patients. The principal effect is on the vestibular and auditory apparatus. Vertigo, accompanied usually by ataxia and by diminished response to caloric stimulation, is the commonest toxic manifestation of streptomycin therapy. It is found in successive observations that it appeared in only 3.4 per cent of 383 patients receiving 1 gram twice a week for a period of one hundred and twenty days. With larger doses, vertigo appeared in 80 per cent of patients. Using 2 grams a day of dihydrostreptomycin was less of a source of toxic effect. Using doses not exceeding 1 gram a day, 8 per cent of patients on streptomycin developed vertigo as opposed to 3 per cent of those using dihydrostreptomycin.

The second effect of great importance in this type of chemotherapy was the frequency with which cultures of tubercle bacilli, obtained from patients, became inured to the drug and were able to grow in considerable concentration of streptomycin. Eighty-two per cent of all positive cultures were found resistant to 10 gamma or more per cubic centimeter after one hundred and twenty days of therapy. Following successive investigations, it was found that some tubercle bacilli became resistant to *p*-aminosalicylic acid (PAS) and that combining these two drugs only 17 per cent of patients developed resistant positive cultures after one hundred and twenty days of therapy. The regime in which this was true employed 1 gram of streptomycin twice a week plus 12 grams of *p*-aminosalicylic acid daily, given concurrently. Seventy-seven per cent of 303 cases obtained evidence of improvement radiographically at the end of one hundred and twenty days. Fifty-six per cent of 209 cases developed a negative sputum in the same time. The investigators in the study were so thoroughly convinced that *p*-aminosalicylic acid should always be given concurrently with streptomycin that the latter drug has not been used alone since the fall of 1949.

Therapy with substances other than streptomycin or dihydrostreptomycin has been investigated. Neomycin, viomycin, and mycomycin have not been found suitable or beneficial. Aureomycin and terramycin were also studied and the results were apparently not encouraging. Investigations of the effect of corticotrophin and cortisone in animals indicated that they should not be used in patients with active tuberculosis, and that they should be used

with extreme caution in human beings with possible latent tuberculous infection.

The synthetic thiosemicarbazone, named amithiozone, was investigated and there is some doubt as to its value.

Cepharanthin is an alkaloid used in Japan in recent years. The investigators felt that the experience with this drug did not warrant a clinical trial.

This valuable article is summarized by the authors as follows:

1. Reducing the dosage of streptomycin to 1 gram, either daily or twice a week, has reduced toxicity without impairing therapeutic efficacy.

2. The concomitant daily administration of a *p*-aminosalicylic acid has definitely delayed the emergence of streptomycin-resistant tubercle bacilli and has thereby made possible the desired continuation of effective therapy beyond four months, a procedure that is now being explored.

3. Preliminary observations indicate that concomitant administration of *p*-aminosalicylic acid and streptomycin may have further increased the survival rate of patients with meningeal or miliary tuberculosis.

4. Although many antibiotics and other drugs have been studied during the past eighteen months, and although several of them undoubtedly have some bacteriostatic action on tubercle bacilli, none of them promises a favorable comparison with streptomycin, much less of being the "wonder drug" frequently mentioned by the press.

It is clear in these extensive and detailed investigations that the combined use of streptomycin and *p*-aminosalicylic acid has value, and the greatest use will be in the form of assistance to the well established and thoroughly understood methods of treating tuberculosis.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

DANGER OF SOCIALISTIC TRENDS

So much has been said recently in the House and Senate of the United States and so many false statements spread throughout the Nation by the socialistic group of individuals in and out of Washington relating to a purported shortage of doctors, that it behooves each and every member of the medical profession to exert every effort possible to correct these misstatements of facts and to disabuse the minds of our patients of any such propaganda put out by Oscar Ewing and his cohorts who would sell us down the river for compulsory health insurance and federalized medicine.

Every doctor in our state should act as a committee of one to contact at least one patient a day, correcting any false impression she or he might have regarding the socialistic state so beautifully pictured by the Truman-Ewing group as an Utopian state for the relief of their ills.

Just think how many patients could be converted to the free enterprise system of the practice of medicine as against the welfare state, if every doctor in Louisiana spent a few minutes each day with only one patient, explaining the advantages of the present system of medicine, free from control of politicians and bureaucratic boards in Washington.

This welfare state and socialistic trend is spreading throughout the respective states and Louisiana is no exception, and the physicians of the state should remain

ever alert to challenge and prevent its spread.

As you well know, there is an election for governor and other state officers to take place soon in Louisiana and we should begin to look around and select candidates who will see eye to eye with the medical profession and will not support legislation detrimental to our profession as some of them did at the last general session of the legislature.

There may not be a doctor in every little town or community in the state, and this is wholly unnecessary for good medical care. There are so many well equipped clinics and hospitals located throughout the rural sections which, with good roads and splendid transportation facilities, make better scientific medical care more accessible and available than the population enjoyed twenty years ago when a doctor was located in every little hamlet in the state. We may not have as many doctors in some of our rural sections but the people are getting better and quicker medical service.

Let us all work for better service to our patients, preserving that personal equation relationship of patient to doctor and free from government control. Won't you, one and all, make a pledge to go all-out for the education of your patients against this dangerous socialistic state?

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1952 DUES

Dues for 1952 membership in the Louisiana State Medical Society should be sent, with your American Medical Association and local society dues, to the secretary of your parish or district society in December of this year.

Amount of State Society dues for 1952 is $25.00.

Amount of AMA dues for 1952 is $25.00.

Please cooperate with us by sending in your dues promptly.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

DR. W. D. BEACHAM FIRST PRESIDENT OF THE AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY

The National Federation of Obstetric-Gynecologic Societies has reconstituted itself as The American Academy of Obstetrics and Gynecology. This action was taken at the Federation meeting held on June 13, 1951, in Atlantic City, in response to the long-felt need for a national society for obstetricians and gynecologists based on individual and personal membership.

The following officers were elected at this meeting: President—Woodard D. Beacham, New Orleans, Louisiana; President-elect—Carl P. Huber, Indianapolis, Indiana; Vice-President—Louis H. Douglass, Baltimore, Maryland; Treasurer—Herbert E. Schmitz, Chicago, Illinois; Secretary—Ralph A. Reis, Chicago, Illinois; Executive Board—Robert G. Craig, San Francisco, California; John L. Parks, Washington, D. C.; Charles D. Kimball, Seattle, Washington; Samuel B. Kirkwood, Winchester, Mass.; Philip F. Williams, Philadelphia, Pennsylvania.

The Academy was incorporated on August 4, 1951, as a non-profit corporation under the laws of the State of Illinois. Its objects are listed in the Constitution and By-Laws which were adopted

at a meeting held at Hot Springs, Virginia, on September 5, 1951. They include "fostering and stimulating interest in obstetrics and gynecology and all aspects of the work for the welfare of women which properly come within the scope of obstetrics and gynecology."

UROLOGY AWARD

The American Urological Association offers an annual award of $1000.00 (first prize of $500.00, second prize $300.00 and third prize $200.00) for essays on the result of some clinical or laboratory research in Urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Chalfonte-Haddon Hall, Atlantic City, New Jersey, June 23-26, 1952.

For full particulars write the Secretary, Dr. Charles H. de T. Shivers, Boardwalk National Arcade Building, Atlantic City, New Jersey. Essays must be in his hands before February 15, 1952.

HAND STEREOSCOPE

A $45.00, light-weight stereoscope for medical radiology that outstrips in performance units costing ten times more has been announced by the X-Ray Department, General Electric Company, Milwaukee.

Revolutionary in its design, the new stereoscope weighs only four pounds, compared with table stereoscopes, which often weigh 60 pounds or more, and floor models weighing over 100 pounds. It occupies only one square foot, compared with ten for floor models and over four for desk models. Thus it can be easily transported to classes, meetings, wards, darkrooms or other locality, as desired.

GRANTS AID FOR RESEARCH IN CARDIOVASCULAR DISEASE AND IN RELATED FIELDS

The Louisiana Heart Association announces that it will welcome requests for grants in aid for research in cardiovascular disease and in related fields. The deadline for receipt of requests is named as November 12, 1951.

Application blanks should be obtained from the office of the Louisiana Heart Association and requests addressed to Dr. Russell Holman, Chairman, Research & Fellowship Committee, Louisiana Heart Association, Inc., Room 103—1430 Tulane Ave., New Orleans, La.

Applications received by November 12, 1951 will be reviewed on or about November 20, 1951. It is anticipated that funds will be available for research allocations on July 1, 1952 out of the Association's 1952 Heart Campaign receipts. Preference will be given to requests from Louisiana.

SURGICAL ASSOCIATION OF LOUISIANA MEETS NOVEMBER 11

The Surgical Association of Louisiana will have it annual meeting on Sunday, November 11 at the St. Charles Hotel, beginning at 10 a.m. Two guest speakers are going to present papers.

Dr. Jonathan E. Rhoads, who is Professor of Surgery and Surgical Research at the University of Pennsylvania, will speak on "Experimental and Clinical Studies on the Plasma Volume Expanders."

Dr. Paul W. Shafer, Professor of Surgery at the University of Kansas, will speak on "The Use of a Temporary Collateral Arterial Circulation to Permit Occlusion Resection and Frozen Artery Replacement of Vital Vessel Segments."

The Program is as follows:

10:00 A. M.—"Gastric Resection for Peptic Ulcer"—Dr. Donald B. Williams, Lafayette, La.

10:30 A. M.—"Immediate Post-Operative Complications Following Gastrectomy"—Dr. Frank T. Kurzweg, New Orleans, La.

11:00 A. M.—"Portal Hypertension"—Dr. John A. Hendrick, Shreveport, La.

11:30 A. M.—"Experimental and Clinical Studies on the Plasma Volume Expanders"—Dr. Jonathan E. Rhoads, Professor of Surgery, University of Pennsylvania.

1:30 P. M.—"The Use of a Temporary Collateral Arterial Circulation to Permit Occlusion Resection and Frozen Artery Replacement of Vital Vessel Segments"—Dr. Paul W. Schafer, Professor of Surgery, University of Kansas.

2:15 P. M.—"The Surgeon and Radioactive Isotopes"—Dr. Walter J. Burdette, New Orleans, La.

UNITED STATES HEALTHIEST LARGE NATION IN WORLD

The United States is the healthiest large nation in the world, and close to, if not ahead of, the healthiest of the small nations, it was reported in the current (October) Today's Health, published by the American Medical Association.

An article written by Frank G. Dickinson, Ph.D., director of the Bureau of Medical Economic Research of the A. M. A., states that "our rate of health progress, as shown by increasing life expectancy, is also greater than that of the other large nations and nearly all of the small nations. Our rapid adoption of the knowledge that medical science has gained makes this possible."

The extent of our medical facilities is also a factor in this progress, the article reported.

"We have the greatest number of physicians

per 100,000 population of any nation in the world except Palestine, where many of the refugee physicians do not make their living by practicing medicine," Dr. Dickinson wrote.

"Althocgh we have chosen to spend only four cents in every dollar of our family budget for medical care, we seem to use our expenditures rather well."

Dr. Dickinson pointed out that although in Sweden only one-fifth of all births are attended by physicians, there is an extremely low maternal mortality rate. However, he noted that Swedish persons live longer in Minnesota than in Sweden.

INCOME DEDUCTIONS FOR MEDICAL EXPENSES

An amendment to H. R. 4473 permitting taxpayers to deduct from their adjusted gross income medical expenses including health and accident insurance premiums, up to $1,250 per year for single persons and $2,500 per year for the taxpayer and his dependents was defeated in the Senate on September 27.

The committee amendment permitting deduction of medical expenses (including health and accident insurance premiums) for persons over 65 years of age, however, was approved.

CORRECTION

In the September issue of the New Orleans Medical and Surgical Journal, committees to serve with the Committee on Arrangements for the 1952 Meeting to be held in Shreveport, were listed. On the Hospital Committee, the name of Dr. T. P. Lloyd was listed in error as T. P. Floyd.

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BOOK REVIEWS

Menstruation and its Disorders: *Proceedings of the Conference Held Under the Auspiees of The National Committee on Maternal Health*, Ed. by Earl T. Engle. Springfield, Ill., Charles C. Thomas, 1950. pp. 338. Price $6.50.

This compilation of thirteen articles by leading authorities adds greatly to our knowledge of normal physiology and functional pathology of the endometrial and menstrual cycle. While most of this investigative work is highly technical, the reader gains an insight into the vast possibilities of cystochemistry. Chapters on endometrial blood flow, functional bleeding and activity of the myometrium should lead to more rational treatment.

Illustrations made by the Carnegie Laboratory of Baltimore show several of the 24 embryos collected by Hertig and Rock. These are all within fourteen days of ovulation age and 41 per cent were found to be abnormal. Such studies coupled with enzymatic and other metabolic processes within the ovaries and endometrium are essential to an understanding of infertility.

This book with its ample comments will be most interesting to those seeking an answer to human fertility.

EUGENE H. COUNTISS, M. D.

Methods in Medicine; a manual of the Medical Service of George Dock, M. D., Sc D.; by George R. Herrmann, M. D., Ph. D. 2nd ed. rev. St. Louis, C. V. Mosby Co. pp. 488. Price, $7.50.

Methods in Medicine is a 500 page book designed as a practical ward or bedside guide for hospital staff personnel as well as for the practitioner. It presents the essentials of clinical and clinical laboratory procedures, organizing the material for ready reference.

One section is concerned with the proven laboratory procedures and tests, organizing the subject matter under material to be examined. Another section describes and outlines the special studies to be undertaken with specific clinical disorders arranged according to body systems.

Additional chapters present therapeutic methods advised in handling common emergencies as well as giving basic orientation in dietetics.

The manual is particularly adapted to the use of hospital internes and residents but can be of assistance to the practitioner as a reference for a specific laboratory procedure.

JOSEPH E. SCHENTHAL, M. D.

Funetional Anatomy of the Limbs and Baek: A Text for Students of Physical Therapy and Others Interested in the Locomotor Apparatus; by W. Henry Hollinshead, A. B., M. S., Ph. D. Philadelphia, W. B. Saunders Company, 1951. pp. 341. Price, $6.00.

This book, written as a text for students of physical therapy, infers considerable in the title, covers more than the functional anatomy of the limbs and back, and still falls short of what might be hoped for from the head of a large foundation's Section on Anatomy.

The first section of this monograph discusses the basic introduction to anatomy necessary for the student without a background in anatomical terminology, the bone of the body, the organs, and organ systems.

The second section is concerned with the anatomy

and function of the upper extremity. The third section of twenty-four pages is devoted to the back; the fourth to the lower limbs; and the final section to the head, neck and trunk.

The illustrations are for the most part accurate and acceptable. Occasionally, however, they seem somewhat incomplete for anything but casual reference.

This book should serve well its intended purpose as a text for students of physical therapy, describing the anatomy simply. It may find limited use as a quick reference for medical students, making available to them under one cover a summary of the function of most of the musculature of the body. It is far too incomplete to serve as a reference for any one seriously interested in the functional anatomy necessary for surgery or the diagnosis of musculo-skeletal lesions.

JACK WICKSTROM, M. D.

Indications for and Results of Splenectomy; by Frederick A. Coller, M. D.; Alexander Blaine, III, M. D.; Gould Andrews, M. D. Springfield, Illinois, Charles C. Thomas, 1950. pp. 100. Price, $2.25.

This monograph presents a report of thoughts and observations by the authors, as well as a review of current ideas on the part of others who have devoted particular attention to the problems of splenectomy. The personal observations of the authors are based on 132 consecutive elective splenectomies at the Michigan University Hospital in the fifteen year period, July 1934 to July 1949, included in which were examples of all the common types of splenic diseases as well as some of the rarer splenic diseases for which splenectomy is nowadays performed. There is presented an analysis of clinical results as determined by careful follow-up studies. The conclusions which the authors were able to draw are presented not only in respect to the proper selection of cases for operation but in respect to certain technical details and precautions which they feel should be observed in connection with the performance of splenectomy. Examples of the latter type of conclusion are the observation that deaths could be avoided if blood transfusions were employed more vigorously in patients with thrombocytopenic purpura and if they were withheld with equal vigor in hereditary spherocytic anemia during hemoclastic crises; and also that deaths could be avoided if splenectomy were performed earlier in cases of Banti's syndrome (before onset of hematemesis), and in congenital and acquired hemolytic icterus. Attention is also drawn to the fact that although mesenteric thrombosis is always a hazard in splenectomy, there is, on the other hand following splenectomy, an increased sensitivity to dicoumarol so that if this drug is used, it should be administered with the greatest caution. Failure to remove accessory spleens in patients with thrombocytopenic purpura is cited as a reason for failure of splenectomy to effect cures under such circumstances. The typography and general format of the monograph makes it quite readable.

AMBROSE H. STORCK, M. D.

A Textbook of X-Ray Diagnosis by British Authors in Four Volumes; Vol. II: By S. Cochrane Shanks, M. D., F. R. C. P., F. F. R., and Peter Kerley, M. D., F. R. C. P., F. F. R., D. M. R. E. Philadelphia and London, W. B. Saunders Co., 1951. pp. 702. Price, $18.50.

This appearance of the third volume and the promise of the last volume in a short period will complete this four volume set by the well known British authors. The style and informative material of the text in this book covering the "chest" is consistent with the excellent presentation in the first two volumes.

Volume II is divided into two parts: the cardiovascular system and the respiratory system.

Part one consists of ten chapters covering the various methods and techniques of x-ray examination, the anatomy, displacement, enlargement and pathology of the heart, the aorta, the pericardium, the pulmonary vessels and the peripheral vessels.

Part two dealing with the respiratory system is subdivided into 26 chapters. The normal anatomy and the various pathological processes affecting the respiratory system are covered adequately.

Of special interest in both parts of this book are the line drawings and diagrams in some cases superimposed on roentgenograms illustrating the normal anatomy of the structures of the chest in the standard radiological positions. These should serve as extremely useful points of reference to anyone concerned with the radiology of the chest.

As in the previous edition and in the first two volumes of this set by the same authors the text is clear and the illustrations are excellent. Since this volume is one of the best if not the best of the comprehensive surveys of the chest it should be available to all physicians who are interested in heart and lung diseases.

J. N. ANÉ, M. D.

PUBLICATIONS RECEIVED

The Blakiston Co., Phila.: Statistics for Medical Students and Investigators in the Clinical and

Biological Sciences, by Frederick J. Moore, M. D., Frank B. Cramer, B. A., and Robert G. Knowles, M. S.

Paul B. Hoeber, Inc., N. Y.: Autopsy Diagnosis and Technic, by Otto Saphir, M. D. (3rd. Edit.)

W. B. Saunders Co., Phila.: Postgraduate Medicine and Surgery, Peptic Ulcer, by David J. Sandweiss, M. D., F. A. C. P.; Psychosomatic Gynecology: Including Problems of Obstetrical Care, by William S. Kroger, M. D., and S. Charles Freed, M. D.; An Atlas of Normal Radiographic Anatomy, by Isadore Meschan, M. A., M. D.

Charles C. Thomas, Publisher, Springfield, Ill.: Comparative Physiology of the Thyroid and Parathyroid Glands, by Walter Fleischmann, M. D., Ph.D.; Thyroid Function and its Possible Role in Vascular Degeneration, by William B. Kountz, M. D.; The Effect of Hormones upon the Testis and Accessory Sex Organs, by Morris J. Heckel, A. B., M. D.; Amenorrhea, by Lawrence M. Randall, M. D., and Thomas W. McElin, M. D.; Hormones and Body Water, by Robert Gaunt, Ph.D., and James H. Birnie, Ph.D.; Roentgen Anatomy, by David Steel, M. D.; 711 Medical Maxims, by William S. Reveno, M. D.; Grouping, Typing and Banking of Blood, by Otaker Jaroslav Pollak, M. D. Ph.D.

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RECENT ADVANCES IN THE TREATMENT OF CERVICAL CANCER*

A. N. ARNESON, M. D.†
ST. LOUIS, MISSOURI

The relative value of a method used in treatment of cancer depends upon survival rates attained and incidence of untoward sequelae following the procedure involved. There was a period during which radiation was accepted almost universally as the method of choice for treatment of cervical cancer. That decision was the result of increase in survival rates and decrease in primary mortality in comparison with the results then obtained by surgery alone. More recently there has been re-exploration of the use of surgery due to advance in operative technic. Stimulus has been given those researchers by the occasional lack of response some lesions show to irradiation, and the contention that a quantity of radiation adequate for control of tumor cannot be delivered to the regional nodes. The surgical program attempts also to overcome the disturbing local reactions that occur as the result of excessive irradiation. Extirpation is being attempted for "operable" cases as well as advanced forms that were formerly considered inoperable.

If the question is raised as to which procedure should be followed in the treatment of cervical cancer, the answer is not yet to be found in statistical analyses. From such data as are available there is rather striking similarity in results among the very early stages of involvement. Among the more advanced forms there is scarcity of surgical data, and many patients are those considered to be irradiation failures making a direct comparison unfavorable to operative removal. Perhaps some form of answer is to be found in criticism of methods of irradiation that have been employed. For the most part x-rays and radium have been applied empirically without any satisfactory degree of precision. Frequent tissue injuries and therapeutic failures are inevitable in such a system. Those untoward sequelae have prompted suggestion that clinical results have reached a plateau beyond which no further improvement is to be expected. There is no real evidence to support such a belief. Advance in knowledge in radiotherapy has established levels of dose tolerance for normal tissues, as well as for cancer cells. Technics have been devised for improving homogeneity in distribution of radiation applied to a tumor. Application of those data in clinical practice should result in improvement comparable to the advances that have been made in surgery.

The aim of radiation treatment is to deliver an adequate dose to the tumor-bearing region with a minimum of damage to normal structures, such as skin, bladder, bowel, vaginal mucous membrane, and tumor bed. The neoplasm simulates a foreign body, and as such incites reactions in the normal tissues of the host. Orderly regression involves the attainment of balance or readjustment between the host's tissues and the

*Presented at the Seventy-first Annual Meeting of the Louisiana State Medical Society, New Orleans, La., May 9, 1951.

†From the Department of Obstetrics and Gynecology, The Mallinckrodt Institute of Radiology, and the Barnard Free Skin and Cancer Hospital, Washington University School of Medinice, St. Louis, Missouri.

tumor. To produce the desired end result it is essential to know how much radiation will be required, and the effect to be expected upon all tissues. It is important to know the dose arriving at specified points representative of the whole, and finally to understand the effect of intensity of irradiation upon the biologic changes to be attained.

A system of dosage necessitates use of a unit for specifying amounts of radiation. The contribution from roentgen rays must be given in tissue roentgens arriving in the tumor rather than in "air" or in "skin" roentgens. The use of total milligram-hours of radium is totally inadequate for indicating tissue effects, but has assumed some general meaning in the treatment of cervical cancer. Data upon number of radium sources, location, strength, active length, distance, filter, et cetera, provide means for transposing milligram-hours of radium into gamma roentgens, but the calculations are difficult and tedious. Furthermore, loss of intensity near radium source is high, and variation in dose throughout the tumor is apt to be marked. In the treatment of cervical cancer there is rapid falling off in dose at points lateral to the intra-uterine tandem. Preparation of isodose lines showing distribution of radiation for each patient requires enormous detail. Despite lack of homogeneity, however, it is practical to indicate biologic effect satisfactorily by specification of dose at certain critical points. Data upon amount of radiation arriving at those points then becomes representative of the whole dose in gamma roentgens.

The Manchester system of dosage utilizes points designated as "A" and "B"[1]. Point "A" is located 2.0 cm. lateral to the cervical canal, and at 2.0 cm. depth to the mucous membrane of the lateral vaginal fornix. The location falls in the so-called "paracervical triangle" that contains the crossing of the ureter by the uterine artery. The dose at that point becomes critical by virtue of the fact that overtreatment of the paracervical triangle may result in untoward reactions attributed to excessive irradiation of the bladder, rectum, or cervix. Point "B" is considered at the same level as "A" but located 5.0 cm. from the midline. That will fall near the position of the obturator node, and the dose arriving at that point is indicative of the amount reaching the regional lymph nodes. In addition to the above, it is also necessary to determine the dose arriving at the bladder and the rectum.

The initial problem to be met in planning radiation treatment is selection of a dose believed adequate for control of the lesion in question. The amount of radiation required for destruction of cervical cancer cannot be specified precisely but a reasonable estimation can be given within a range of doses. The intensity of treatment will, of course, affect the total dose to be selected. Various amounts of external irradiation are employed in different clinics, but if it is assumed that an average course of x-rays requires from three to four weeks for application, the tumor should receive between 1,500 and 2,000 roentgens during that period. The amount of trauma produced each treatment day is relatively slight. Due to time over which the total dose is protracted, there will be recovery from some damage before treatment is complete. Marked alterations in tumor may be noted clinically and microscopically, but total destruction of cervical cancer is not to be expected. In absence of radium treatment renewed growth has been demonstrated within a period of two weeks after such a course of x-rays.[2, 3] It is important, therefore, to combine external irradiation and radium application in the attempt to avoid unnecessary recovery by lapse in active treatment. A plan of that sort incurs risk of overexposure, and each method must be adjusted to the other and to the general conditions presented by the patient. The interdependence of x-rays and radium cannot be overemphasized. For a number of years we have scheduled radium treatment for a date following immediately the completion of roentgen irradiation. More recently the radium treatment has been divided into two or more exposures with the

first given near the middle, or in the latter half of the course of x-rays. For such a plan there is evidence that destruction of cervical cancer requires a contribution from radium on the order of 4,000 to 6,000 r gamma if applied within a period of two days,[4] and probably about 6,000 to 8,000 r gamma if applied within a period of seven to ten days. Those values are in good agreement with data given by other authors. It should be noted that the values given here apply to experience with a course of x-rays similar to that described above. In many clinics the amount and sequence of roentgen treatment is different. For example, some authors advocate the use of radium prior to the application of x-rays. One of the stated reasons for following that plan is that radium can be applied within the vagina before any loss of space by contracture. Indications for beginning treatment with x-rays include control of infection, and regression in size of the primary lesion before radium is applied.

After selection of a dose believed adequate for the tumor it then becomes important to know if normal tissues may be expected to recover from damage incurred by treatment. Permanent injury is not apt to occur as the result of external irradiation applied within the limits described above. Occasionally, however, there may be damage to small bowel, and exposure of that structure should be kept at a minimum by use of small skin fields located at regions best suited to the lesion in question. Fletcher[5] has described in detail a rather precise technic for pelvic irradiation.

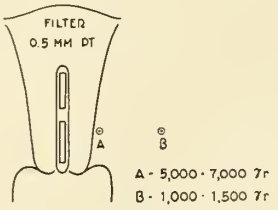
Damage to normal tissues is more apt to result from radium treatment. The bladder and rectum have a fixed relationship adjacent to the uterus and vagina. High dose effects are to be expected in those organs. Tolerance of the rectovaginal septum has been estimated by Tod[6] to be on the order of 8,500 to 9,500 r gamma applied over a period of twenty-one to twenty-eight days. For complete treatment with both x-rays and radium applied within four to six weeks the tolerance level is estimated at a combined dose of about 10,500 roentgens. The vaginal mucosa, on the other hand, will recover satisfactorily after receiving 20,000 r gamma. Such large amounts of radiation will obviously produce considerable scarring and contracture, and should be avoided whenever practical. The bladder will apparently tolerate doses slightly in excess of the stated tolerance of the rectovaginal septum. The cervix and wall of the uterus appear capable of withstanding amounts on the order of 25,000 r gamma. The tolerance dose for the paracervical triangle is at about the level specified for the rectovaginal septum.

A study of radiation effects has been made by reviewing patients treated from 1921-1947. Clinical experience during that period is similar to that which has occurred in other clinics. Application of radium has been upon an empirical basis, and modifications for improvement in technic have been gained through trial and error. Expression of total dose in milligram hours took on some meaning during that period, and only in the past few years has there been greater precision by use of gamma roentgens. The different methods of treatment have been reconstructed for temporary application in patients so as to measure directly the amounts falling upon the bladder and rectum. Calculations have been made for determining average doses arriving at "A" and "B". Clinical results and incidence of complications have been correlated with specification of radium dose. Those results are to be reported in detail by Dr. Sherman, Dr. Bonebrake, and Dr. Ter Pogossian.

Between 1921 and 1936 the principal method of radium treatment was by means of an intra-uterine tandem alone. High intensities were employed, usually on the order of 100 mg. radium. At the beginning a greater amount of radium was placed in the cervical end of the tandem than in the fundal portion. The ratio was approximately 25 mg. above and 75 mg. below. Somewhat later the applicator was changed so that each end of the tandem contained 50 mg. radium. Full treatment was given at one sitting. For the first decade of that

period all patients received a total of 3,000 mg. hrs. radium radiation, but after that time the dose was increased to 5,000 mg. hrs. The contribution from x-rays was relatively small during the period in question. In Figure 1 can be seen a diagram of the radium arrangement, and doses falling at specified points. The dose at "A" is 5,000 to 7,000 r gamma. That quantity is within the expected tolerance of that region, except for the high intensity of treatment, and should represent a lethal dose for cervical cancer. At "B", however, the dose falls to 1,000 to 1,500 r gamma. The amount falling within the bladder has been estimated at 8,000 r to 10,000 r and within the rectum at 10,000 r to 12,000 r. Complications are to be expected, and it can be seen that some degree of injury occurred in 57 per cent. The average survival rate is 24 per cent, but it should be noted that the data are not intended to show relative or absolute cure rates. The study upon radiation effects has been made upon patients followed to complication or to death, or for a period of five or more years. Those lost to follow-up with incomplete data upon clinical course have been deleted.

CERVICAL CANCER - RESULTS AND COMPLICATIONS
206 patients followed 5 years - 1921-1936
Radium by tandem alone 3,000 - 5,000 mghrs



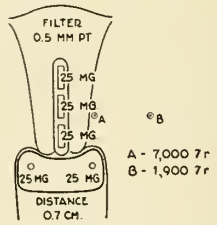
STAGE	NUMBER OF PATIENTS	5 YR SURVIVAL PER CENT	COMPLICATIONS PER CENT
I	22	55	40
II	81	42	47
III	84	6	70
IV	19	0	80
	206	24	57

Figure 1. Radium doses arriving at specified points, clinical results, and incidence of complications for method of treatment used 1921-1936.

By 1937 the use of vaginal radium had become routine in all patients. There was also reduction in strength of radium sources. Three tubes, each of 25 mg. strength, were used in the intra-uterine tandem. The vaginal sources were held in place by means of a piece of sponge rubber cut to fit the vaginal vault. A tube of 25 mg. strength was placed in each lateral fornix, and if more than 3.0 cm. apart, a weaker source was often placed in the center. It is estimated that the distance between tubes of radium and vaginal mucosa was about 0.5 to 0.7 cm. All patients received a total of 5,000 mg. hours radium radiation. This was applied at a single sitting, but in the later half of the 1937-1947 period, the application was generally made in two approximately equal exposures given about one week apart. For that division the total dose in mg. hours was increased to about 6,000 mg. hours. The contribution from x-rays was increased during the decade in question so that most patients received a tumor dose of about 1,500 r before radium was applied. In some instances transvaginal irradiation was used for an additional 3,000 r to 5,000 r applied directly to the cervix with 100 KV x-rays.

In Figure 2 it can be seen that "A" re-

CERVICAL CANCER - RESULTS AND COMPLICATIONS
245 patients followed 5 years - 1937-1947
Radium by tandem and vaginal sources - 5,000 mghrs



STAGE	NUMBER OF PATIENTS	5 YEAR SURVIVAL PER CENT	COMPLICATIONS PER CENT
I	42	60	36
II	113	44	25
III	76	11	22
IV	14	0	31
	245	35	27

Figure 2. Radium doses arriving at specified points, clinical results, and incidence of complications for method of treatment used 1937-1947.

ceived 7,000 gamma roentgens. That did not exceed the maximum amount previously delivered. At "B" there was an increase, however, that point receiving almost 2,000 r. Superimposed upon the contribution from x-rays there is to be expected some lateral extension of the zone treated adequately. That fact is demonstrated by the improvement that can be seen in survival rates for the different stages of tumor advance as well as for the average result of 35 per cent. For the technic in question, the bladder received about 7,000 gamma r and the rectum approximately 7,400 gamma r. Those amounts are considerably less than the values given in the first series, with clinical evidence of that fact shown by decrease in the total incidence of complication to 27 per cent.

An important factor in the improvement in average results is change in type of clinical material. The percentage incidence of Stage I cases in the 1937-1947 group is almost double that of the 1921-1936 period. At the same time there is advance in survival rate for each stage. The improvement noted in all stages except IV is evidence of extension of the zone of tumor control lateralward from the cervical canal. The increase in survival rates is indirect evidence that some lymph node metastases must have been controlled by radiation treatment. At the same time mention should be made of the fact that none of the Stage IV patients survived five years free of tumor. Classification of patients has been both rigid and conservative. It is possible that routine cystoscopy and proctoscopy might have shown evidence justifying more advanced classification for some patients not otherwise recognized as falling into Stage IV. That would not appear, however, to be the full explanation. It is believed that complete failure in the more extensive lesions is due largely to the lesser amount of external irradiation employed in these patients in comparison with that used in some clinics. Furthermore, it has been demonstrated that the amount of radium radiation arriving at the lateral pelvic wall is totally inadequate. The survival rate in Stage IV must necessarily be low, but a method showing zero rate in that group is inadequate. Increase in dose at the lateral pelvic wall, therefore, becomes a critical problem in treatment.

A practical means for increasing radium dose in the lateral parametrium is by means of interstitial irradiation. Needles introduced into the paracervical and parametrial tissues can be used within limit of tolerance for normal structures for a substantial increase in dose at "B". In the series of patients here studied the use of needles was begun in 1937. Frequency of use since that time has increased constantly, but due to technical problems involved the method has not been applied routinely. For the most part needles are employed in patients with extensive vaginal invasion, or in advanced tumors presenting hard, nodular, infiltrating types of lesions. The distribution of radiation is apt to be somewhat irregular with high dose levels scattered throughout the tumor-bearing region. There is also greater risk of sequelae. The method is used in only a limited number of clinics, and has been abandoned almost completely in some. One of the principal sources of error has been failure to use very low intensity sources.

About 1947 our method of irradiation was completely revised. In addition to planning treatment upon data established for tolerance of normal tissues as well as tumor, the whole scheme was modified to one of lower intensity. Radium tubes were standardized with active length of 1.5 cm., external length of 1.7 cm., external diameter 3.0 mm., and wall thickness of 0.5 mm. platinum. Strength of the tubes is 5.0, 10.0, 20.0, and 40.0 mg. radium. The unit system of loading is almost identical to that described in the Manchester System.[1] The average intra-uterine tandem contains three tubes. For a unit strength of 5.0 mg., the upper two sources placed in the tandem are 10.0 mg. each. One unit, or 5.0 mg. radium, is used in the cervical end. By that means the amount of radiation delivered to the paracervical triangle by all sources, including those in the va-

gina, is made somewhat less than for equal amounts of radium placed in the cervix. In point of fact, consideration has been given the use of a blank source in the cervical end of the tandem. Vaginal radium is applied at each lateral fornix by means of rigid plastic applicators that are somewhat oval in shape. Distance between tubes of radium and the adjacent vaginal mucosa is fixed by radius of the ovoids. The applicators are of different size, having equatorial diameters of 2.0 cm., 2.5 cm., and 3.0 cm. Size of ovoid to be used is determined by vaginal diameter. One ovoid is applied into each vaginal fornix, and to increase variability in volume each pair of applicators is held together by a median spacer bar that holds the two in apposition or at a distance of 1.0 cm. Modification of the Manchester ovoids by use of the spacer bar was introduced by Fletcher.[7] For unit of strength in the cervical canal the small applicator is intended for use with three units, the medium with four, and the large with five units. Variation in strength of radium tubes that we established in 1947 is not adaptable to that exact differential in loading.

Use of the lower intensity sources has required increase in total milligram hours of treatment. Furthermore, increase in distance at which vaginal sources are used has also necessitated a greater number of milligram-hours radium in comparison with the sponge rubber technic. As stated before, the average effective distance between vaginal mucosa and a tube of radium loaded into sponge rubber was about 0.7 cm. Upon an empirical basis it was learned that approximately 1,000 milligram hours could be delivered by a 25 milligram source without producing irreparable damage. Contribution from that particular tube would be about 13,000 r. Other sources used in the treatment would also contribute to the region in question thereby increasing the total dose arriving upon mucosa in the lateral fornix. Vaginal ovoids of medium size are currently being used for amounts on the order of 2,000 milligram hours from each wing of the applicator. Contribution of a particular tube to the adjacent mucosa is about 7,000 r. As a result there has been a rather marked fall in the amount of radiation reaction noted in the vagina after treatment.

At the present time patients are being treated with at least two separate applications of radium. These usually fall about seven to fourteen days apart and are planned for a time during and immediately at the end of roentgen treatment. The total dose is on the order of 7,500 milligram hours to 8,000 milligram hours. The dose arriving at "A" is approximately 7,000 r gamma. Tolerance for that region is not exceeded, and for the low intensity involved the dose should be lethal for cervical cancer. Point "B" receives approximately 2,400 r gamma. That amount should be almost half the quantity required for control of cancer. The dose falling upon the bladder and rectum is about 7,000 r gamma, which is within limits of tolerance established for those structures. In the attempt to increase dose levels in the lateral parametrium, there has also been alteration in technic of roentgen treatment. Greater amounts are being employed, but through smaller beams intended to confine the direct radiation to the parametrium with a lesser exposure for the cervix, bladder, and rectum. The course of x-rays requires about one month for completion, and is estimated to contribute a minimum of 2,500 tissue roentgen at "B".

Evaluation of procedures now used cannot be made upon the basis of survival statistics, but improvement in results is to be expected as well as reduction in the incidence of sequelae. Furthermore, there should be an occasional patient in Stage IV found to be free of disease at the end of a five year period.

Among other advances made in radiotherapy there should be mentioned the use of radioactive gold. Used first in animals for experimental evaluation, injection of the material into patients has shown promising results.[8, 9] Radiations emitted by the isotope are within the range found to be therapeutically effective. Dispersion

through tissues is relatively uniform, and the material has affinity for traveling through lymphatics to the regional nodes.

Finally, some comment should be made upon advances in surgery. Carefully planned treatment with x-rays and radium will sometimes result in considerable palliation for the clinically hopeless patient not previously irradiated. Radiation treatment of patients with persistent or reappearing cancer, is, however, notoriously unsatisfactory. Explanation of therapeutic failure can, in some instances, be made upon the basis of error in the primary treatment. The fact remains, however, that patients showing evidence of radiation failure are seen quite frequently. Some of those are due to overtreatment, some to inadequate irradiation, and perhaps others are the result of tumor with resistance equal to or greater than the tolerance of normal tissues. Rarely is much accomplished by additional external irradiation. The use of radium may add to the patient's discomfort by necrosis, slough, and inflammatory reaction. Chordotomy and sedation may provide some relief from pain, but no escape from draining sinuses, fistulae, and the associated infection. Pelvic evisceration, on the other hand, may rehabilitate the patient to an astounding degree. Such an operation is expected to have considerable primary mortality, but it has a most important place in the management of post radiation cervical cancer producing pain, and causing breakdown in tissues about the cervix, bladder, and rectum.

CONCLUSION

In conclusion, there is reason to expect that advances made in radiotherapy will result in increase in survival rates. There should also be decrease in sequelae after treatment. Furthermore, the application of all data now available for radiation treatment should lessen the incidence of therapeutic failures. It may sometime be practical to predict radiosensitivity with a degree of accuracy that will permit selection of patients for surgery at the outset, but until that precision in diagnosis is attained, it appears that the best outlook for the patient is gained by carefully planned treatment by irradiation.

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DISCUSSION

Dr. J. V. Schlosser (New Orleans): The optimum technique of radiation therapy for carcinoma of the cervix has yet to be developed; however, studies, such as Dr. Arneson's are leading us surely to our goal. Empirical techniques can no longer be considered adequate. As Dr. Arneson has pointed out, radium therapy, for example, can no longer be analyzed on the basis of milligram hours of exposure alone. Consideration must be given to filtration and active lengths of the radium sources and their distribution, including the dimensions of the applicators used to position the radium. These variables are best correlated by expressing the tissue dosage in gamma roentgens delivered to reference points or to volumes of tissue irradiated. X-ray therapy may similarly be planned in advance to deliver certain precalculated doses to reference zones. Since 1941, the cases at Charity Hospital have been treated by techniques precalculated as to tissue roentgens. Several ranges of dosage and combinations of treatment, have been tried. We have not adopted the Manchester technique, our radium therapy consisting of a precalculated, slightly modified Regaud technique. A multiplicity of foci are used and the vaginal applicators have a radius of 2 cm. These are factors which we feel are important in reducing radiation injury. The dosage of radium has been reduced from 7500 gamma roentgens and for a number of years a tissue dose of 6600 gamma roentgens to the paracervical triangle has been used. No attempt is made to increase the tissue dosage at the lateral pelvic wall by means of radium therapy. This is accomplished by external x-ray therapy. Whenever possible small x-ray fields are used (5.5 cm x 10 cm.) separated by a shielded gap of 4 cm. in the

midline. It is our opinion that by so sparing the lower intestinal tract and bladder, the incidence of late injuries is reduced. Total energy absorption is also reduced, thus minimizing radiation sickness. Thereby less stress is placed on the patient's reparative economy. Doses at Point B have ranged from 2200 r to 4400 r. At the present time we feel that the best dosage is 3000 r plus or minus 10 per cent. It is important to stress the fact that x-ray and radium techniques should be designed as a single unit. The two sources of radiation are mutually complementary. They cannot be considered as isolated methods of treatment. Distribution in time is also extremely important. Prompt execution of the over-all plan is essential to success. At the present time we feel that a period of twenty-one to twenty-four days of x-ray therapy should be followed immediately by the radium application. Permanent undesirable sequelae following irradiation therapy have been pointed to as one of the reasons for adopting surgical management for primary carcinoma of the cervix. This line of reasoning arises in the concept that in order to increase cure rates, one must intensify the tissue dosage and per se, the rate of injury will increase. As a matter of fact, more intensive dosage schedules do not necessarily result in higher cure rates. The healing of the tumor following radiation therapy is a result of numerous complicated and as yet not well understood phenomena. Failure of response after too aggressive treatment has been observed and the British workers have applied the term "supralethal" effect to this phenomenon. Better planning of techniques, as well as more conservative doses reduces the incidence of injury as Dr. Arneson has indicated. This has been well supported by our experience, since in 320 cases treated by empirical techniques, the incidence of severe permanent complications was 14.7 per cent; whereas that for 390 cases treated by precalculated techniques was 8.7 per cent. It should be pointed out that we have considered as complications only those late and permanent complications of radiation therapy, whereas Dr. Arneson's selection has been made on a much more stringent basis. Thus Dr. Arneson classifies as complications all of the early transient radiation reactions such as cystitis and proctitis, as well as the late permanent complications. Nor was the patient's chance for cure sacrificed with the reduction in complications, for under precalculated techniques our salvage rates have consistently improved. For primary cases of carcinoma of the cervix, the absolute five-year salvage rate in 1,210 cases is 30 per cent; whereas for 198 cases treated during the final year of the study, the salvage rate is 41 per cent. This leads us to conclude with Dr. Arneson that salvage rates can be steadily improved while the incidence of injury is reduced. For this reason we feel that in the management of primary carcinoma of the cervix, radiation therapy is the procedure of choice.

VULVOVAGINITIS*

JASON H. COLLINS, M. D.
CHARLES J. ELLINGTON, JR., M. D.

NEW ORLEANS

Vaginitis and vulvitis are terms applied to any changes from the normal observed in these organs, be they irritation, inflammation, ulceration, atrophy or neoplasms. The conditions are by far the most common encountered by those treating the female patient.[1] Not only are these organs subject to local factors resulting in changes but are affected by a wide variety of systemic abnormalities whether endogenous or exogenous in origin. Furthermore, systemic conditions often lower resistance in these tissues or alter their normal physiology so that local factors more easily produce pathological states. An attempt to list all the factors one must consider when presented with the problem of vulvovaginitis results in a long list of diseases and agents which one readily recognizes as mirroring most of the causes of the common ailments of humanity.

ETIOLOGY

I. Systemic Diseases
   - A. Diabetes
   - B. Deficiencies
     1. Vitamins A, B
     2. Achlorhydria
   - C. Jaundice
   - D. Glucose metabolism
   - E. General skin disease
     1. Lichenification
     2. Eczema
     3. Scleroderma
     4. Pemphigus
   - F. Diseases of the Central Nervous System

II. Psychogenic
   - A. Neurodermatitis

III. Allergies
   - A. Food
   - B. Pollens (hay fever)

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C. Venenata (contact)
1. Nylon, rayon, wool
2. Perineal pads
3. Nail polish
4. Soap
5. Perfumes
6. Powder
7. Toilet tissues
8. Condoms and diaphragms
9. Lubricants

D. Medicamentosa
1. Douche powders
2. Laxatives
a. Phenolphthalein
3. Barbiturates
4. Narcotics
5. Iodides
6. Bromides

IV. Bacterial
A. Neisseria
1. Gonococcus
2. Sica

B. *Streptococcus*
Anaerobius
Gamma
Alpha
Hemolytic

C. *Staphylococcus*
Albus
Aureus

D. *B. Coli*
E. Shigella
F. Urea splitters
G. *Mycobaterium tuberculosis*
H. *Bacillus crassus*

V. Protozoan and helminths
A. *Trichomonas vaginalis*
B. *Endamoeba histolytica*
C. Trichiura
D. *Oxyuris vermicularis*

VI. Fungi
A. *Candida albicans*
B. *Candida stellatoidea*
C. *Candida trpoicalis*
D. Tinea
E. Actinomyces

VII. Insects
A. Scabies
B. Peidiculosis pubis
C. Ticks
D. Fleas
E. Myiasis

VIII. Trauma
A. Masturbation
B. Tight clothing
C. Foreign bodies

IX. Pregnancy

X. Atrophies
A. Senile vaginitis
B. "Kraurosis"
C. Post radiation

XI. Anatomical
A. Cystocele
B. Rectocele
C. Prolapse
D. Fistulae
E. Lacerations
F. Fissures
G. Congenital anomalies
H. Phimosis
I. Obesity

XII. Genitourinary diseases
A. Salpingitis
B. Cervicitis
C. Uterine diseases
D. Bartholinitis
E. Skenitis
F. Cystitis
G. Urethritis
H. Caruncles
I. Ectropion

XIII. Diseases of rectum and anus
A. Hemorrhoids
B. Fissures
C. Prolapse
D. Parasites
E. Anal incontinence

XIV. Neoplasms
A. Benign
B. Malignant
C. Condylomata accuminata

XV. Leukoplakia

XVI. Venereal diseases
A. Gonorrhea
B. Syphilis
C. Lymphopathia venereum
D. Granuloma inguinale
E. Chancroid

X. Herpes

DIAGNOSIS

Space and time do not permit complete discussion of all these items but the following is given as a working method of approaching the problem as thoroughly as possible.

As in any other problem in medicine, a complete, accurate history is necessary. This includes reference to the patient's family history, allergies such as hayfever, eczema, and hives. The patient's occupation with reference to exposure to dusts or chemicals, clothing, and the type of material with emphasis on the synthetic cloths, particularly nylon, must be investigated.

The patient's habits relative to drugs and laxatives, particularly those containing phenolphthalein must be known. Sexual habits such as masturbation, contraceptives, douches, deodorants, perfumes, powders and all such items require elaboration. The patient's emotional and environmental background must be evaluated. Finally, a thorough knowledge of all former treatments must be outlined with emphasis on douches, ointments, jellies, hormones, antibiotics and last, but by no means least, the history of whether or not these people have had the misfortune of being subjected to radium or x-ray as a form of treatment to the vulva.

The physical examination of the patient includes a general examination of the skin, a search for evidence of systemic disease, parasites, and the general habitus. The pubic and vulval areas are inspected under a good light with aid of a magnifying lens if parasitic infestation such as pediculosis or myiasis[2] is suspected. Any ulcerative lesion present is investigated with smears, cultures, biopsies, darkfields, and serological tests. Any neoplastic nonulcerative lesion demands biopsy. Changes known as leukoplakia, a descriptive term meaning only "white plaque", may represent any change from benign vitiligo to carcinoma. It is impossible to distinguish clinically between these extremes and biopsy is mandatory.

The vagina is next inspected for foreign bodies. This is a "must" in children with a complaint of pain or leukorrhea or pruritus or bleeding. Smears and cultures are made of the vaginal secretions and the organisms of yeast and trichomonads sought. Amebic cervicitis and vaginitis has been reported in the Americas.[3-5] Check is made of urinary continence and the status of the perineal and perianal region. The cervix, uterus, tubes, and ovaries are evaluated. Disease in these organs may be the original site resulting in lowered local resistance.

Laboratory tests essential for a complete evaluation include blood count for anemias, urinalysis for sugar, and stools for intestinal parasites. A glucose tolerance test may be the only way of detecting early diabetes. Many a diabetic has had pruritus vulvae as the initial complaint and though the condition is often associated with *Candida albicans* infection[6] the yeast organism is not necessarily present in diabetic vulvitis. Recent reports of the study of the fluorescence of the vulvar tissues under certain conditions have appeared, but to date the results are inconclusive.[7]

Vaginal smears are of some screening value for malignancy but most valuable for studying the degree of cornification of the vaginal cells. In children or postmenopausal women topical estrogens may be employed in an attempt to produce cornification as a therapeutic measure.[8] To the trained eye, these smears need not be stained as cornified cells are readily recognized in the ordinary saline smear.

TREATMENT

Any treatment of vulvitis and vaginitis should be a complete one. Careful history taking and observation may be more valuable than pathologic or intradermal tests. Suspect sensitization from previous local therapy. Avoid testing during the acute phase as a localized area of sensitivity may become generalized. An unrecognized allergic abnormality may be superimposed on one in which the etiological factor has been previously known, by the specific therapeutic agent to which the patient manifests a sensitivity. The picture then becomes confusing and over-all treatment unsatisfactory. A spot test of any new local medicament twelve to twenty-four hours prior to widespread application may prevent such an occurrence.[9] Not to be overlooked are the alkalies of potassium oleate used as vulcanizing accelerator or antioxidant agents in the manufacture of commonly used contraceptive devices.[10] Allergies can be treated topically or systemically with antihistamines but the best results are obtained when it is possible to identify the allergen and eliminate it or desensitize the patient. A vulvovaginitis associated with hay fever has been reported in children ranging in age from two to twelve years.[11] An example of the difficulty one encounters in locating these allergens is illustrated in the

case recently seen wherein a very thorough history failed to indicate any source until the question of type of cloth this entertainer wore as a Gee string revealed it to be nylon. Substitution of cotton resulted in relief.

Diabetic vulvitis will resist any and all forms of topical treatment, whereas control of the diabetes will effect a complete cure. Faulty food habits and the elimination of excessive sugar from the diet frequently relieves patients who have no clinical or laboratory signs of diabetes. Good nutrition appears necessary to healthy vulvar tissues. Supplemental vitamins, particularly the B complex and vitamin A, seem to have a beneficial effect upon some forms of vulvitis and vaginitis. Leukoplakia vulvae has been reported as responding favorably to large dosages of vitamin A and hydrochloric acid[12] but a word of warning must be interjected. It is deemed unsafe to so treat patients unless biopsies and close supervision are possible. Leukoplakia of the vulva is definitely a premalignant lesion.[13]

Psychological and psychiatric advice frequently helps some of these patients in such conditions as neurodermatitis but the clinician has to realize that a patient who has been having pruritus vulvae of years' or months' duration may appear as or be a psychiatric problem as a result of the pruritus. Evaluation of such patients is most difficult even to the trained psychiatrist. In those in whom the pruritus preceded the psychological changes no amount of psychotherapy will be beneficial; whereas treatment and relief of the symptoms may completely change the personality back to normal.

A host of methods and agents of treatment to local lesions are prevalent. In general the aim is to relieve pain or itching (a form of pain[1]) and to eliminate the cause. In many instances the original causative agent has long disappeared but the secondary changes in skin or vagina that result from the scratching and intensive treatment result in persistence or intensification of the symptoms.

Cleanliness must be secured. Cervical and other pelvic lesions are treated to eliminate pathologic secretion from the pelvic organs. Urinary incontinence[14] or fistulae need correction. Relief from pain or irritation can be secured temporarily with local applications of mild ointments, sitz baths, boric acid packs,[9] resting of affected parts, and avoidance of irritation from clothing. Specific therapy is applied when the diagnosis of the causative agent has been established.

Bacterial vaginitis and vulvitis are not uncommon. These range from such common conditions as impetigo and furunculosis to venereal disease. Most of the common bacteria present elsewhere on the body surface or in the intestinal tract can be isolated and cultured from vulval and vaginal secretions.[15] Seldom do they cause symptoms unless the patient's resistance is lowered systemically or locally by other conditions. In children a common error is the diagnosis of gonorrheal vulvovaginitis based solely on smear findings. Closer study with cultures reveals that many such cases are due to a closely allied gram negative diplococci organism and not to gonococcus.[16]

Treatment of these bacterial lesions is relatively simple with the sulfonamides and antibiotics applied topically or given systemically. In children and postmenopausal women, more rapid cure can be obtained with topical estrogens as adjunctive therapy.

The so called "Lipschutz" ulcer, usually found in adult women, is a bacterial ulcer caused by the *Bacillus crassus*.[17] It responds readily to cleansing measures, sulfonamides and antibiotics.

Hydradenitis suppurativa is a more serious infection of the sweat glands which if neglected may require surgical management. Early treatment with antibacterials is often effective.

Such specifics as podophyllin in alcohol for condylomata accuminata,[18] aureomycin and/or tetra-ethyl ammonium chloride in herpes, emetine for amebic infection,[3-5] and surgery for most neoplastic growths result in cures. Sedation may be necessary or of value when general physical rest would be

an adjunct to specific therapy. Nonresponsive or clinically or histologically suspicious leukoplakia is best handled by vulvectomy. Two, and probably the two most common, causative agents still resist treatment in a fair percentage of cases. These are the trichomonas and yeast organisms.

In a reported series of 500 consecutive cases of obstetrical and gynecological patients 437, or 87.4 per cent, had some type of leukorrhea. Eighty-three, or 19.2 per cent, had demonstrable trichomonas. Pruritus was found in 36 of the 83 cases of trichomoniasis.[19] Trichonomas vaginitis was found in 321, or 26.8 per cent, of 1197 pregnant women who were examined by wet smear. Both trichomonas and yeast were found in 64 or 9.8 per cent of 654 pregnant women. More negro women than white harbored the two infections. This difference is undoubtedly due not to racial predilection but to difference in mode of living, personal hygiene, and nutrition.[20]

Trichmonas vaginitis in many individuals resists treatment and no agent has been discovered that effects 100 per cent cure. At present, the most successful treatment consists of thorough cleansing of the vagina with green soap in water, followed by drying with an ether dampened sponge, then insufflating the vagina, vulva, and perineum with a trichomonacidal powder, floraquin being the more commonly employed. This requires treatment on at least three successive office visits followed by home treatment with suppositories of the same trichomonacide. (Instructions are given all patients to avoid fecal or salivary contamination of the vulva. The use of saliva as a genital lubricant is not uncommon). Resistant cases require thorough urological surveys of both male and female. Ordinarily the home treatment must be carried through two or more menstrual cycles. In postmenopausal women topical estrogen therapy in the form of cream or suppository is advocated as an adjunct. It is believed that the greatest activity of the trichomonad occurs at the lowest estrogen level at which time the mucosal resistance is less, thus permitting increased destruction.[21] Many other preparations such as tetronyl,[22] atabrin,[23] phisodem,[24] and boric acid powder, and silver picrate suppositories[19] have been advocated with varying degrees of success. Tyrothricin[25] and penicillin[26] suppositories have proved unsatisfactory. Aureomycin has been successfully used but often one observes that a yeast vulvovaginitis follows the use of aureomycin. This is attributed to the complete reduction of the bacterial flora of the vagina which allows the yeast organisms to thrive. Yeast vulvovaginitis is commonly seen in the diabetic[6] and in pregnancy. It is reported in patients receiving intensive aureomycin therapy. The prevalence of the organisms was shown in a survey of the skin surfaces of 309 individuals. One hundred and nine presented various skin abnormalities (not moniliasis) and 200 had apparently normal skin surfaces. The sites of culture were the interdigital spaces of hands and feet, the axilla, umbilicus, and inframammary surface of the females. *Candida albicans* was isolated from 1.5 per cent of the normal skin surfaces and from 6.4 per cent of the abnormal skin surfaces.[27]

Candida albicans and *Candida stellatoidea* comprised the majority of strains of yeast obtained by culture from the vagina of 244, or 37 per cent, of 667 pregnant women.[20] *Candida albicans* was most frequently found. Saccharomyces and cryptococcus may be cultured from symptom free vaginas. However only Candida is considered pathogenic.[6] *Candida tropicalis* is another pathogen frequently found. There appears to be no definite relationship of symptomatology and the species of yeast, Quantitative degree of infection with yeast, particularly *C. albicans*, was discovered to be associated with appearance of symptoms of pruritus and discharge. A study should be made to determine whether those persons having no symptoms and harboring a few organisms are in a carrier state or in one of incipient infection.[20]

The diagnosis of yeast vaginitis is made by history and physical examination and confirmed by wet unstained or stained prep-

arations and by culture. The smear may be stained satisfactorily with either Wright's or Gram's stain.[6]

If the initial smears fail to reveal the presence of yeast when it is strongly suspected, culture of vaginal secretions should be made. A very simple culture procedure which requires a minimum of equipment is that of a sterile test tube containing sterile physiological saline kept at room temperature and examined in twenty-four to forty-eight hours. The only disadvantage is that it may reveal contaminates which are not pathogenic.[28] Another excellent culture media is Sabouraud's.

It would be difficult to estimate the incidence of yeast vulvovaginitis. Various studies have reported findings ranging from approximately 2 per cent to 45 per cent. Campbell and Parrott's series of 836 consecutive gynecological outpatients reported an incidence of *Monilia albicans* in 15.9 per cent. Of these 38.3 per cent had signs and/or symptoms of moniliosis. The remaining 61.7 per cent exhibited no signs or symptoms. Carter and Jones, as quoted by Swan and Greenblatt, were able to culture yeastlike organisms from 14 per cent of 100 gynecology patients. In the same report, quoted by Wodruff and Hesseltine, positive results were obtained in 15 to 33 per cent of white and 41 per cent of colored females. Hesseltine states that positive cultures were obtained far more commonly from patients complaining of vulvar itching than in those who were symptom free. In another series of 320 nonpregnant patients, 18 per cent with symptoms and only 7 per cent of the 202 without symptoms revealed positive tests.[5]

The frequency with which yeast is found in the pregnant patient is considerably higher. The incipient and carrier states become manifest probably because the increased vaginal secretion, high in glycogen content, is more receptive to the growth of yeast. Hesseltine and Beckette estimate conservatively that 25 per cent of all gravid women harbor *Candida albicans*. Gardner found *Candida albicans* in 11.5 per cent of 585 obstetrical patients. In a comparative study using wet smears and culture, 321, or 26.8 per cent, of 1197, and 37 per cent of 667 pregnant women, respectively, had yeast or yeastlike organisms. In 232 obstetrical patients positive cultures were obtained in 56 per cent of 48 women with vulvar irritation and only 32 per cent of 184 patients without vulvar complaints.

Adult diabetic patients without vulvitis showed only 12.5 per cent with positive cultures, an incidence comparable to that found in an average group of nonpregnant women; whereas, 95 per cent of the diabetics with vulvitis were found to harbor the yeastlike organism.[6, 20, 29-31]

It has been stated, probably quite truthfully, that symptoms of yeast vaginitis may be relieved during pregnancy but the disease is not cured until after delivery.

We believe that the difficulty to effect cure in the pregnant individual is due chiefly to our reluctance to carry out treatment to the full extent. Our patients apply proprion gel digitally to just within the vaginal orifice. We feel that mechanical application as with the usual applicator is unwise in the same manner that any vaginal instrumentation performed by the patient is hazardous to the pregnancy. Certainly, the pregnancy is of primary importance. For the same reason we forbid douching. During the period of gestation our aim is primarily for symptomatic relief. Proprion gel is ineffective in those cases in which the labia is involved.[28] Here gentian violet becomes the treatment of choice in conjunction with proprion gel. The gentian violet can be applied at the routine office visit or the patient may perform this at home. Desinex powder or ointment is equally effective. We have found that usually only a few such treatments are required.

In diabetics, cure usually follows control of the diabetes and conversely cure is never effected unless the diabetes is controlled.

Many other preparations have been reported in the treatment of mycotic vulvovaginitis. Gentian violet is particularly effective in yeast infections of the vulva, perineum, groin, and anus.[28] Gentian violet

combined with lactic acid, acetic acid, and polyethylene glycol was used on 191 cases.[29] Of these 149 or 78 per cent were considered cured. Five per cent obtained symptomatic improvement but the smears remained positive. Fourteen per cent showed no improvement and had positive smears.

Recinolic acid 3 per cent in a tragacanth-acacia buffered jelly effected a cure of 74 per cent in a group of pregnant patients, and 90 per cent in the nonpregnant. Recinolic acid 3 per cent in a buffered acid (4.5) jelly with .1 percent oxyguinoline sulfate has also been used.[31]

The subject of douches has been left for separate discussion. It is the authors' conviction that the douche is abused. It is difficult to learn the origin of the habit but one seldom encounters patients who do not douche. Commercial advertisements re feminine hygiene are undoubtedly responsible. Not only is the act abused but the agents employed are innumerable and in general of little value from any hygienic or therapeutic standpoint. It is believed that many cases of vulvovaginitis are caused and prolonged by injudicious douching. Physicians should discuss the habit with their patients and inform them that with rare exception, douching is entirely unnecessary and possibly even injurious to the vaginal membranes.[32] When necessary, plain water, saline, or mild acid douches employing household vinegar are all that is needed.

There is one glaring therapeutic evil present today. This is the employment of x-ray or radium to the vulval tissues. We believe and many roentgenologists are beginning to concur, that x-ray or radium should never under any circumstances be used on the vulva. It never is curative and is always injurious.

SUMMARY

1. A general discussion of the problem of vulvovaginitis is presented.

2. Accurate history taking is stressed.

3. Allergens account for a considerable proportion of symptoms of vulvar discomfort.

4. Synthetic cloths, tight clothing, and overtreatment are common etiologic factors.

5. The role of nutrition is discussed.

6. Trichomonas and yeast vaginitis is still the greatest problem, most common, and most difficult to manage.

7. Many cases are of psychological origin but the problem of differentiating from organic cause is still unsolved.

8. The general habit of douching is decried.

9. Radiation as therapy for any vulvar disease is condemned.

10. Accurate diagnosis has no substitute.

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DISCUSSION

Dr. Lewis S. Robinson (Shreveport): The signs and symptoms associated with vaginitis are probably the most common complaints encountered in the practice of gynecology. These consist of leukorrhea, itching and burning with chafing of the vagina and vulva, dysuria and occasionally pelvic discomfort. As Dr. Collins has so adequately pointed out, the causes of vulvovaginitis are numerous, and treatment must vary accordingly.

Leukorrhea, often associated with pruritus of the vulva, is frequently the complaint which causes the patient to seek medical aid. Normally, there is a small amount of secretion arising from the cervical glands, Bartholin glands, and the sweat glands of the external genitalia. However, when this discharge becomes colored, malodorous, irritating, or sufficient to soil the underclothing it is indicative of a pathological change requiring investigation. Unfortunately, too many of these patients have been dismissed with instructions to 'take a douche' with no effort having been made to determine the etiology of the discharge. A douche in such cases has probably never cured anything. It only washes away the discharge and alleviates some of the symptoms. This can be an unfortunate error, as leukorrhea is often an early symptom in such conditions as diabetes, venereal infections, tuberculosis, and carcinoma of the genital tract. The statement that "all women have a discharge and you need not worry about it unless it is bloody" is erroneous. To quote Dr. Conrad Collins, "It is no more normal for a woman to have a constant discharge from her vagina than it is to have a constant discharge from her nose, eyes, or ears".

Dr. Collins is to be commended for covering such a broad subject so thoroughly and concisely. I do not want to rehash his statements, but would like to emphasize that all lesions of the vulva and vagina should be biopsied to rule out carcinoma. Too, I certainly agree that x-ray and radium are contraindicated in the treatment of lesions of the vulva.

I would like to confine the rest of my discussion to the more common types of vaginitis. Namely, infant, senile, trichomonal, and yeast vaginitis.

Infant vaginitis is characterized by a vaginal discharge which is often due to infection by the gonococcus. However, it may be due to other bacteria, yeast, foreign bodies in the vagina, or pin worms. Certainly it is well not to make a diagnosis of gonococcal vaginitis by smears alone, as culture of the organism is a much more accurate means of diagnosis. Gonococcal vaginitis in children is satisfactorily treated with antibiotics and sulfonamides in conjunction with estrogens.

Senile vaginitis is usually due to infection of the atrophic vaginal epithelium by staphylococci or streptococci. In addition to the usual symptoms of vaginitis, there may be some spotting of blood. Senile vaginitis responds well to estrogen therapy. This can be given by intramuscular injection, orally, or as estrogen vaginal suppositories or creams. The vaginal suppositories or creams are preferred because of the danger of uterine bleeding from administration of estrogens to postmenopausal women. Estrogen creams or suppositories applied once or twice daily for seven to fourteen days, and then every other day for about two weeks, will result in the production of an adult type of vaginal mucosa. Superimposed infections such as yeast and trichomonas are treated according to their etiology.

There have probably been as many different medications tried for the treatment of trichomonas vaginalis vaginitis as for any other condition. A few of the preparations which have been used are tetronyl, floraquin, vioform, devegan, stovarsol, gentian violet, silver picrate, hexylresorcinol, acijel, glycerite of hydrogen peroxide, lauryl sulfate, 75 per cent mercurochrome, and sulfonamide creams and jellies. Many advocate the use of acid douches as all or part of the treatment, whereas others consider them unnecessary or undesirable. Probably one of the most unique plans of treatment advocated was the use of vaginal douches consisting of a liter of warm boiled water to which a small spoonful of kerosene had been added. The percentage of cures using the various medications has been reported as being 50 to 96 per cent. A method of treating trichomonas infections which has produced satisfactory results for one clinician will

often produce poor results for another. Whatever the method one uses, the best results are obtained only when treatment is persistently carried out. There is a certain percentage of failures with any of the approved methods of treatment. This may be due to infection from the trichomonads being harbored in Bartholin and Skenes glands or the bowel. Likewise the male can also be a source of reinfection. If cervicitis is present it must also be treated as this will expedite the cure of the vaginitis and prevent abnormal secretions which favor recurrences.

I have obtained satisfactory results by the use of floraquin in the treatment of this condition. The method used is essentially the same as Dr. Collins described, except that diodoquin tablets are used in conjunction with the suppositories and the powder insufflation. As the trichomonad is a common inhabitant of the rectum it is felt that the diodoquin will reduce the number of these organisms in the bowel and help to prevent reinfection. Treatment with floraquin is continued for at least two months. Then the patient is advised to use the suppositories for about three days after each of the 3 menstrual periods following an apparent cure. Yeast vaginitis has also been treated with propion gel or aci-jel and results have been good.

Frequently yeast or trichomonas vaginitis is associated with so-called nonspecific infections of the vagina. These produce a foul, purulent, profuse discharge such as one sees in gonorrhea. However, Gram's stain will reveal mixtures of staphylococci, streptococci, and colon bacilli. These cases respond well to one of the sulfonamide creams prior to treatment of the specific infection.

UROLOGICAL CONDITIONS RELATED TO GYNECOLOGY*

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SHREVEPORT

The superiority of total over subtotal abdominal hysterectomy has been recognized for many years. However, the possibility that a resident in gynecology might be introduced to pelvic surgery by doing total hysterectomies is a more recent concept. Prior to 1946 it was our feeling that the doctor in training should first do subtotal hysterectomies and as he advanced in experience and skill take over the total operation.

This attitude is reflected in the fact that 83.4 per cent of the abdominal hysterectomies done at Shreveport Charity Hospital in 1944 were of the subtotal variety.

Since 1946 the trend has been strongly in the opposite direction and this has been considered a salubrious move for both residents and patients. However, in 1949 we were given cause to reconsider. Late in the postoperative course of a patient who had had a total hysterectomy it was found that she had partial obstruction of both ureters. Surgical exploration of the ureters was necessary to free dense periureteral adhesions which may have followed bilateral ligation of the ureters. This patient made a difficult recovery and today shows some very interesting and unexplainable kidney pathology.

In November of that year we started a series of cases with two objectives in mind: First, to find what urological pathology was produced by gynecological lesions and was it reversible by surgery? Second, what was the actual incidence of injury to the urinary tract resulting from all types of pelvic surgery?

Of the abdominal hysterectomies presented in this series 92.5 per cent have been of the total type. The vast majority of these operations have been done by the gynecological residents.

MATERIALS AND METHODS

Every patient admitted to the gynecology service from November 1, 1949, to March 1, 1951, was included in this study if any major surgery was anticipated. During the preoperative work-up all of these patients had a screening I.V. pyelogram. A K.U.B. film was taken, then 30 cc. of 35 per cent diodrast were injected intravenously and a 10 mi. and 20 mi. film made.

Between the sixth and eighteenth postoperative days all patients had a cystoscopic examination to determine the patency of the ureters. A retrograde and/or an I.V. pyelogram was done on (1) patient who had shown any preoperative urological pathology, (2) patients with whom any dif-

*Presented at the Seventy-first Annual Meeting of the Louisiana State Medical Society, New Orleans, May 9, 1951.

ficulty was encountered in passing ureteral catheter, (3) cases in which the operator feared any ureteral injury.

A total of 261 cases was studied.

PREOPERATIVE UROLOGICAL PATHOLOGY AND CAUSE

Thirty patients out of the 261 studied showed a significant degree of hydronephrosis and hydroureter. Thus 11.45 per cent of the lesions that required operation produced changes in the urinary tract.

Fibroids. — Considering fibroid tumors alone, 31.26 per cent of those tumors filling the true pelvis or larger caused hydronephrosis. In all but one of these cases the hydronephrosis cleared following removal of the tumor. That single case showed a 90 per cent return to normal. (Figures 1 and 2.) There were 9 cases of large fibroids which caused displacement of the bladder or ureters without producing upper tract dilatation.

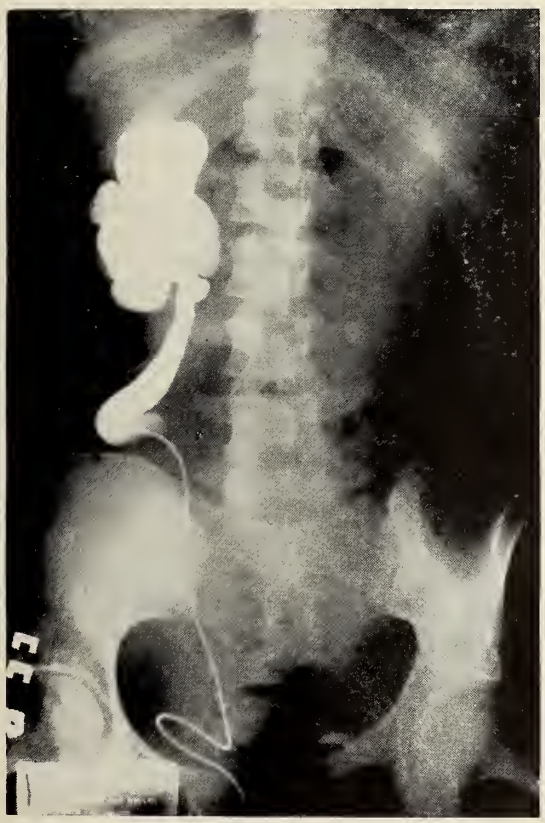

Figure 1. Preoperative retrograde pyelogram in a patient with large uterine fibroids which demonstrates extensive hydronephrosis due to pressure.

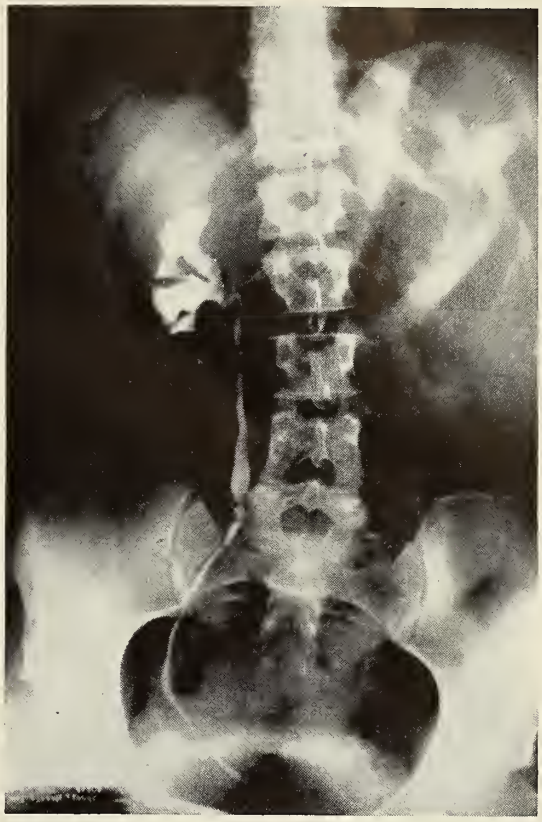

Figure 2. Postoperative pyelogram in the same patient showing a 90 per cent return to normal.

Of the smaller fibroids none produced hydronephrosis unless complicated by uterine prolapse or pelvic inflammatory disease. The pelvic inflammatory disease appeared to be significant by decreasing the mobility of the uterus and fibroid to the extent that constant pressure was exerted on one or both ureters. Of the patients with small fibroids and pelvic inflammatory disease 9.09 per cent had hydronephrosis. The pathology was reversible in all of these cases after surgery.

Pelvic Inflammatory Disease.—Five of these patients or 22.72 per cent had a hydronephrosis as a result of the pelvic inflammatory disease. Four of the 5 had large hydrosalpinx or large inflammatory cysts to produce pressure. We feel that this percentage is magnified by the fact that only the patients with more extensive disease came to surgery. The fifth case had smaller hydrosalpinx but had very extensive adhesions along the posterior surface

of the broad ligaments and in the cul-de-sac.

Following surgery the hydronephrosis disappeared in all of these cases.

Uterine Prolapse and Cystocele.—These cases do not appear to be an important cause of hydronephrosis in our series. Of the 70 patients with this diagnosis studied only 2 (2.85 per cent) had any hydronephrosis. One of these patients did not show any less hydronephrosis after operation. It was thought that her diabetic bladder, with infection, might have been partly responsible.

Ovarian Cysts.—There were 9 patients whose only gynecological pathology was an ovarian cyst. These cysts varied from 7 cm. to 39 cm. in diameter. None of these cases showed hydronephrosis.

CONGENITAL ANOMALIES AND INCIDENTAL FINDINGS

There were 3 cases of congenital absence of the kidney. In two patients the left kidney was absent and in one it was the right. One of these was found with a uterus didelphus. One had a Gartner's duct cyst. The other showed no other congenital anomalies but was being studied prior to vaginal hysterectomy for uterine prolapse.

There were 5 cases showing double ureters and double kidney pelves on one side. This gives an incidence of congenital anomalies of the upper urinary tract of 3.07 per cent.

Incidental findings that may be of importance to the patient later were (1) asymptomatic benign cyst of the kidney, (2) one old asymptomatic compression fracture of the fourth and fifth lumbar vertebrae, (3) one lumbar rib, (4) one asymptomatic ureteral calculus, (5) two sacralizations of the fifth lumbar vertebra, (6) one lumbarization of the first sacral vertebra, (7) two occult spina-bifidas, (8) three cases of asymptomatic gallstones and (9) four cases of arthritis of lumbar vertebrae.

TRAUMATIC INJURIES

There were 3 cases of perforation of the bladder. All were recognized and repaired at the time of injury and no complications followed.

Five cases developed hydroureter and hydronephrosis following operation. All cases were entirely asymptomatic and cleared spontaneously and completely within thirty-four days after surgery. They were found only because of the routine survey. None of these cases showed complete obstruction. The cause of this transitory hydronephrosis was thought to be due to edema following trauma and possibly kinking by tight suturing of the cardinal ligaments.

From the entire series 3 patients received serious injury to a ureter. The surgery in each case was performed by a different resident, but in all instances the accident occurred during his first six months of operating privileges. This gives an incidence of ureteral injury of 1.15 per cent. The mortality for the series was nil.

CASE REPORTS

Case No. 1. This patient had a total hysterectomy with bilateral salpingo-oophorectomy in February 1950. The indication for surgery was a right interligamentaary fibroid 7 cm. in diameter.

She remained completely asymptomatic and nonmorbid until the seventeenth postoperative day when she received her routine cystoscopic examination prior to going home. The absence of excretion of indocarmine from the right ureteral orifice and the inability to pass a ureteral catheter or to inject diodrast more than 5 cm. informed us of the obstructive lesion. An I.V. pyelogram demonstrated a nonfunctioning right kidney.

In retrospect the operator thought it likely that the ureter had been ligated during blind suturing to control excessive bleeding at the removed tumor site.

A nephrostomy was done on the nineteeth postoperative day and kidney function returned within one week. Twenty-five days later a transperitoneal exploration of the right ureter was done and a catgut suture was found at the site of the obstruction. The ligature and adhesions were removed and a catheter introduced through the bladder.

At present the patient has moderate hydronephrosis which appears to be a result of the nephrostomy rather than the damage to the lower ureter.

It was interesting to learn that kidney function can return after having been completely blocked for nineteen days.

Case No. 2. The second patient had a large fibroid with pelvic inflammatory disease and an inflammatory cyst 12 cm. in diameter lying in the

left broad ligament. She had a total hysterectomy with bilateral salpingo-oophorectomy in April 1950.

The postoperative course was entirely asymptomatic and nonmorbid. On the eleventh postoperative day cystoscopic examination revealed obstruction in the left ureter about 10 cm. above the bladder. Dye could not be passed in a retrograde manner. The following day the left ureter was explored and treatment was carried out in the same manner as had been done on the first patient.

On the sixteenth postoperative day the I.V. pyelogram demonstrated normal kidney function and no hydronephrosis. Follow-up at one year still shows normal kidney function and no hydronephrosis.

Case No. 3. The third patient was a 47 year old colored woman with bilateral dermoid cysts and small uterine fibroids. Total hysterectomy with bilateral salpingo-oophorectomy was done in February 1951. The patient was ambulatory from the first postoperative day, and had no elevation of temperature after the second day. Cystoscopic examination was done on the eleventh postoperative day. The catheter could not be passed more than 5 cm. up the right ureter and injected dye stopped at the same point. I.V. pyelogram demonstrated normal kidney function and no hydronephrosis. The ureter was visualized well past the sacral promontory with a local diffusion of dye around the distal portion of the visualized ureter.

Extraperitoneal exploration was done at that time and a large quantity (about 3000 cc.) of extravasated urine removed. The ureter was found to be severed apparently from pressure necrosis of a ligature. The ureteral ends were held in proximity by a band of periuteral fascia. Because of the infection a ureteral anastomosis was done over a No. 6 ureteral catheter as a palliative precedure. Multiple rubber dam drains were placed at the site. Six weeks later an anastomosis of the ureter and bladder was performed by the production of a flap tube of the vesical wall by the method described by Ockerblot. It is now three weeks since operation and this patient shows only minimal hydronephrosis. Further improvement is expected with time.

COMMENT

Hydronephrosis in 11.45 per cent of 261 cases requiring gynecological surgery was not as high as was anticipated. The criteria for diagnosing hydronephrosis might make a difference. Even though this figure is not high, it is significant. It becomes more significant when the individual case is studied. We find that tumors filling the true pelvis to the extent that pressure is produced are likely to cause changes in the urinary tract. The same size tumor on a pedicle and lying above the ileopectineal line is not likely to bother the kidney.

Smaller tumors fixed in the pelvis by adhesions or by growing between the layers of the broad ligament are a potential source of kidney damage.

Patients showing such findings should have urological study before electing a conservative policy of observation over a period of years.

An incidence of ureteral injury of 1.15 per cent is high for either sub-total or total hysterectomy. However, it is not higher than the estimated development of cancer in the cervical stump and not nearly so fatal. Using the usual methods of collecting statistics on ureteral injuries not more than 1 of these 3 cases would have been found. The case with the ureteral injury 10 cm. above the bladder could hardly be blamed specifically on the total hysterectomy technique.

This study has promoted a strong relationship between the gynecological and urological departments of our hospital. This feeling of cooperation may be extended to an exchange of residents for part of their first year's training.

We expect to continue total hysterectomies in our teaching program, but will strive to improve the incidence of ureteral damage by keeping aware of the possibility.

SUMMARY

1. Uterine tumors and pelvic inflammatory disease may cause hydronephrosis.

2. The size and location of the tumors as well as the extent of the inflammatory disease are important in causing upper urinary tract pathology.

3. In this series of cases the urological pathology was reversible in all but 2 cases. The pathology was 90 per cent reversible in 1 of these 2 cases.

4. A small number of cases were found to show a transitory postoperative hydronephrosis.

5. The incidence of ureteral injury in this residency teaching program was 1.15 per cent.

6. The 3 cases suffering ureteral injury gave no clinical signs or symptoms up to the time of diagnosis. It is likely that 2

of these cases would never have produced symptoms of kidney damage.

DISCUSSION

Dr. Jack R. Jones (Baton Rouge): The authors are to be commended on the thorough manner in which this study was conducted.

Several findings are significant and should be reiterated: First, the incidence of congenital anomalies of the upper urinary tract was 3.07 per cent. This is higher than most of us are aware of and slightly higher than is usually reported. These anomalies would never have been discovered without a preoperative pyelogram. The experienced gynecologist recognizes a pelvic kidney but he rarely has occasion to explore for other urological deformities. In this series, the operator had the knowledge of these anomalies before surgery was performed. Without this information, it is readily understandable that a higher instance of ureteral injury might have occurred. Yet every gynecologist, when doing a hysterectomy, is alerted to the possibility of damage to the urinary tract.

The 3 cases reported to have had a ureter inadvertently ligated at the time of hysterectomy have all recovered. Nevertheless, this is a serious complication of pelvic surgery and many other patients have not been so fortunate. The mortality rate from ureteral injury varies from 3 to 25 per cent.

A most interesting finding in this series of cases is the return of kidney function after apparent complete obstruction of an ureter for as long as nineteen days. Until recently there has been no clinical evidence of a kidney returning to normal function after a blockage of more than ten days. However, Prentiss and Mullenix have evidence to indicate that there is hope for recovery of the function of a kidney that has been blocked two to four weeks. In my personal experience with 2 cases of ureteral damage, the kidney returned to only 10 per cent normal function after ten days of blockage. The time seems to vary depending upon the age of the patient, existing kidney pathology, and infection.

When ureteral injury is detected, the first mode of treatment should be to relieve the blocked kidney by establishing urinary drainage. Then when the condition of the patient permits, a reconstruction operation may be accomplished.

The incidence of ureteral injury of 1.15 per cent seems high and yet it might have been higher if the cases were not under study and the residents aware of this problem. Most gynecologists do not know their incidence of ureteral injury incurred during pelvic surgery. The literature indicates a 1 to 3 per cent incidence of ureteral injury in pelvic surgery. As pointed out by Dr. Dilworth, there are no definite symptoms of ureteral ligation and a patient may recover from her hysterectomy and yet be unaware that she has lost a kidney. However, one physical finding may be present after ureteral ligation, that is, transitory kidney tenderness due to the back pressure, stretching of the kidney capsule, and ischemia. This finding may be lost if heavy postoperative sedation is used.

This excellent paper should alert every surgeon performing pelvic surgery. I would like to reemphasize that a thorough urological investigation and evaluation should be accomplished before extensive pelvic surgery is contemplated. Then if there is fear of ureteral injury an indwelling ureteral catheter should be inserted before the operation. Only in this way may we avoid serious complications and injuries to the urinary tract.

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MULTIPLE SIMULTANEOUS UNILATERAL TUBAL PREGNANCY

A CASE REPORT

ROBERT KAPSINOW, M. D.

LAFAYETTE

Multiple ectopic pregnancy is an unusual complication of pregnancy. The pathologic criteria for establishing the diagnosis of an ectopic pregnancy were not fixed until approximately 1913. Prior to this time, a hematosalpinx was invariably considered evidence that a tubal pregnancy had existed. It has also been known that in the presence of unilateral tubal pregnancy frequently there is also a moderate amount of congestion in the other tube. For this reason, the historical record of multiple tubal pregnancies prior to 1913 is subject to much doubt.

It was only with positive pathological diagnosis of tissue removed that a more realistic attitude could be taken towards the frequency of multiple tubal pregnancies. Since then, either sections of both tubes or evidence of multiple feti, were necessary.

Stewart in his report on bilateral ectopic pregnancy has reviewed the literature extensively giving a report of a total of 212 cases studied. The cases reported in the literature were divided into three groups. Those in Group 1, consisting of 7 cases, were essentially of value only historically because the majority were found only at autopsy. One hundred and thirty-nine cases that were classified as being in Group II represented no attempt at subdivision into simultaneous or coexistent bilateral ectopic pregnancy. Stewart states that the

66 cases which he placed in Group III are not acceptable because while many of them were undoubtedly bilateral pregnancies, positive criteria are lacking.

The incidence of multiple tubal pregnancy is extremely low. There are a few reports extant indicating a ratio of one case in several hundred ectopics, even in large institutions. However the case that is being reported is even more rare, for it is one of multiple simultaneous *unilateral* tubal pregnancy estimated to be in the third month of pregnancy. An exhaustive search of the literature has failed to uncover a similar case, either in being unilateral or at that stage of advancement.

Clinically, the diagnosis of ruptured tubal pregnancy is not difficult. Medical students have been constantly warned of the necessity of keeping in mind the fact, that any woman in the child-bearing age who misses *one* period and complains of pains in the lower abdomen whether severe or not and who may or not show evidence of bleeding, should be considered as suffering from a ruptured tubal pregnancy until proved otherwise. Whether it is possible to make a preoperative diagnosis of rupture of both tubes when pain is present in both adnexal areas is really academic and must wait for surgical confirmation. There is now no question but that surgery is the only accepted form of treatment. With the frequent use of multiple blood transfusions and antibiotics, the mortality rate following surgery of this condition has steadily fallen. Indeed it is remarkably interesting to see the rapid recovery that is made following surgery as was demonstrated by the case reported here.

CASE REPORT

C. A. S., a colored female, age 30, appeared at the office complaining of weakness. On November 10, 1950, she suddenly stopped menstruating after having been bleeding for five days. Her menses usually lasted from six to nine days. There had been no bleeding since its arrest except a little when she would void. Since then she had become weaker and felt like fainting all the time. Her "stomach had become swollen and hard. The menses prior, she stated, was on October 6 and she had never missed a period nor did she consider herself pregnant.

The family history was of interest only in that it showed that she had had one pregnancy with a viable child, now 12 years of age. She had had no miscarriages or other indications associated with a missed period, all during these twelve years.

Upon examination, it was found that this negress while very well developed and nourished was very pale and her abdomen was considerably distended. In spite of the evident intra-abdominal bleeding, she had a blood pressure of 144/60. Her pulse was 136. The finger nails were blanched at the beds, the mucous membranes of the eyes, mouth and vagina were almost white. The abdomen was dull to percussion, except at the dome. On pelvic examination, it was found that the cervix was soft but the body of the uterus could not be made out. Nothing could be felt in the cul-de-sac. The clinical diagnosis was ruptured tubal pregnancy most likely of the left side, because it was on this side that she suffered most on palpation of the abdomen.

The patient was immediately transferred to Our Lady of Lourdes Hospital. She received a unit of blood at once while preparations for surgery were made.

Operation was performed under cyclopropane. More blood was given. A left rectus incision was made. Upon opening the peritoneum fluid dark blood escaped, and with the first gush, a fetus that was approximately three months old extruded into the wound. The assistant thought it might be due to a ruptured uterine pregnancy because of its size. However, upon immediate palpation, the uterus was found to be normal in size and texture. A mass was located in the left adnexal area which was lifted up into the wound and it was found that in the ampullary portion of the tube there was a mass of placental tissue within which was an amniotic sac and another fetus of approximately the same size as the first. Inasmuch as the left ovary was involved with the placental mass, the left tube and ovary were clamped and excised and the stump transfixed and peritonealized to the left uterine cornua. The right tube was examined before closing and while it was surrounded with much blood clot, there was no indication that its was pathologic. The right ovary was normal. All easily removable clots of blood were withdrawn. No attempt was made to extract suggestive portions of placental tissue that were attached to the sigmoid. The wound was closed in layers. As surgery progressed, the anesthetist reported that the patient became progressively better. The pulse was more firm and slower and the blood pressure remained at approximately 140/80.

Postoperatively, the patient received a third unit of blood, together with penicillin in large doses. During the first twenty-four hours she showed a febrile reaction of slight degree and from then on was afebrile. The wound healed per priman and

on the sixth postoperative day after having removed the sutures, the patient insisted upon going home. She was seen again on December 12, 1950. The wound had healed very well and she was up and about. At that time her menses had not appeared. She returned for examination on January 5, 1951, stating that her menses had recurred on December 27 and lasted through December 30. Frequent reports from other members of her family state that she is perfectly recovered and her menses are normal.

Pathological report: Gross pathology. The specimen consists of two feti, one attached by its umbilical cord to a large ragged mass of tissue; two unidentified pieces of tissue, and a large mass of clotted blood. The feti are of equal size and measure crown-rump 9.0 cm. and crown-heel 13 cm. and weigh 30 grams apiece. The ragged mass to which one is attached by its umbilical cord measures 9.5 by 6.0 cm. in size. Its surface is ragged and blood stained. On inspection it consists largely of placental tissue. The umbilical cord of one fetus leads into one thin walled transparent sac and the stump of the other into another thin walled transparent sac. The two cords insert however into the placental tissue within one centimeter of each other. The larger of the other two pieces of tissue measures 5 by 4 by 2.0 cm. It consists of blood stained soft spongy tissue. The other piece of tissue measures 2.5 by 2.5 by 12. cm. It is soft and spongy and blood stained. The mass of clotted blood measures approximately 7.5 by 4.5 by 2 cm. in size. Representative sections of all portions of the specimen excepting the feti were taken for histological examination.

Diagnosis; Ectopic twin pregnancy. It is impossible to determine from the specimen received whether the pregnancy is confined entirely to the tube or not. At least in one section examined chorionic tissue is adherent to the ovarian tissue. In focal areas in the decidua and placental tissue, areas of acute suppuration are noted.

CECIL L. SINCLAIR, M. D.,
Pathologist.

SUMMARY

An unusual case of simultaneous multiple unilateral tubal pregnancy with rupture and abortion is presented. The exceedingly rare occurrence of this type of complication of pregnancy without the textbook history of symptoms and with rapidity of recovery is noted. No attempt has been made to establish any diagnostic criteria except to recall that pallor, and dullness in the flanks, even with a history of no missed menses, may be due to ruptured ectopic pregnancy.

REFERENCE

Stewart, H. L., Jr.: Bilateral ectopic pregnancy, West. J. Surg. Obst. & Gyn. 58:648 (Nov.) 1950.

URINARY TRACT INFECTION IN CHILDREN*†

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The term "pyuria" is used broadly to include infections such as cystitis, pyelitis and pyelonephritis involving different portions of the urinary tract. This is a common and important condition in infants and children as it has been estimated that between 1 and 2 per cent of the illnesses occurring in this age group is the result of infection of the urinary tract. There is a distinct sex predominance as between 75 and 90 per cent of the cases of pyuria are in females.

ETIOLOGY

The etiology of pyuria varies but in the majority of instances some member of the colon-typhoid group of Gram-negative bacilli is the causative agent. The organism, *B. coli communis* (*Escherichia coli*), is the most common invader. The Gram-positive cocci, especially the staphylococci and streptococci are the etiologic agents in about 20 per cent of the cases. Other organisms such as the dysentery bacillus and members of the Salmonella group are found occasionally. In some cases there is a mixed infection and two or more organisms are recovered consistently in cultures.

Bacterial invasion of the urinary tract may occur by way of the blood stream or by the ascending urogenous route of infection. In view of the fact that infections of the urinary tract occur predominantly in females and that micro-organisms commonly present in the lower intestinal tract are most often involved, it is reasoned that the infection is generally an ascending one. The vagina becomes contaminated with organisms from the rectum and since the urethra is short in the female, the organisms easily reach the bladder.

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Stasis of urine anywhere in the urinary tract is a predisposing factor in the initiation of infection and is the most important cause of persistent and recurring infections.

The pathologic findings are dependent primarily on the location and the duration of the infection and, as will be pointed out later in case reports, are also dependent to a large extent on underlying congenital anomalies.

SIGNS AND SYMPTOMS

The symptoms of pyuria vary extremely in severity. In some instances there is a stormy, severe illness and at times there are no symptoms. The onset may be abrupt with high fever, vomiting, pallor, and, in infants, convulsions. Chills are rarely seen in infants and children but they occur more frequently with pyuria than with other infections. As in all other illness in infants, digestive symptoms, chiefly vomiting, anorexia, and diarrhea may predominate. There may be a sustained elevation of temperature for several days but more characteristically the temperature curve shows wide swings. Symptoms directly referable to the urinary tract are relatively uncommon in infants and young children. There may be anuria. There is at times dysuria as evidenced by crying at the time of voiding. There are no physical findings that may be interpreted as indicating infection of the urinary tract. The evidence of illness is dependent on the severity of the process and is not specific in character. The patient may appear perfectly well or be obviously acutely ill. There is a varying degree of dehydration and there may be an acetone odor to the breath. In rare instances there is costovertebral tenderness on one or both sides.

The urine usually is diminished in amount, is acid in reaction and contains ketone bodies. There is a varying amount of albumin. Pus cells, characteristically in clumps, are present. There may be only a few pus cells per high power field in an uncentrifuged sediment or the urine may be grossly cloudy with pus. There may be a few red blood cells in the sediment. Bacteria usually are present and the causative organism can be determined by cultures of urine obtained by catheterization of females and by clean, voided specimens from males. The white blood cell count is elevated (commonly between 15,000 and 30,000) with a predominance of polymorphonuclear leukocytes.

DIAGNOSIS

The diagnosis of pyuria can be made only from an examination of the urine. Such an infection may be suspected from clinical observation and particularly in instances of high fever in which no obvious cause is discovered on careful examination. In cases of obscure fever, examination of the urine should be done several times as in rare instances pus may not be present for several days after the onset of the illness. The number of white cells which must be present in the urine to warrant the diagnosis of pyuria cannot be stated exactly. Certainly it is not unusual to find occasional pus cells during febrile illnesses and even in normal individuals. The presence of numerous leukocytes in the urine, especially in clumps, and the finding of organisms on culture do warrant the diagnosis.

TREATMENT

The duration of acute pyuria in infants and young children is usually a few weeks when untreated. In the majority of instances where there is no urinary stasis, recovery would take place spontaneously and there would be no recurrence of the infection whether or not specific therapeutic measures were carried out. The response to therapy is so dramatic, however, with almost immediate relief of symptoms, that all such cases should be treated.

The treatment consists first of general, and secondly, of specific measures.

During the acute, febrile stage the patient should be kept on complete bed rest, given a bland diet and large amounts of fluids.

The chemotherapeutic and antibiotic agents which have been discovered during the past few years have proved to be specific in the treatment of pyuria. They have almost entirely replaced the methods of

treatment formerly used which were in general: (1) altering the pH of the urine by giving either alkali or acid in an effort to retard the growth of the causative organisms; (2) urinary antiseptics (such as hexamethylenamine and hexylresorcinol) which at best were relatively ineffective. The use of the ketogenic diet and later mandelic acid in chronic pyuria was effective and in rare instances is still the preferred method of treatment.

The sulfonamides have proved to be effective urinary antiseptics and cases of pyuria usually respond promptly to treatment with these drugs. Sulfadiazine and gantrisin are effective against the majority of organisms which are responsible for infections of the urinary tract and these drugs can be given in smaller doses in the treatment of pyuria than in the case of severe infections elsewhere in the body. A sulfonamide concentration of 100 to 200 mgm. per cent in the urine is adequate in most instances. This can be obtained in infants and small children by giving one-half to one grain of the drug per pound of body weight per twenty-four hours in divided doses 3 or 4 times daily. The drug should be continued for several days after the urine has cleared (and a sterile culture obtained if this procedure is feasible). This usually involves a course of sulfonamide in diminishing doses of seven to fourteen days duration. The antibiotics or combinations of the sulfonamides and antibiotics are more effective in certain specific infections.

The results of treatment are so good in the majority of instances that it seems reasonable in the general practice of medicine to treat *female* infants and children with acute pyuria at home as outlined above without the aid of any laboratory procedures except the examination of the urine. If, however, the condition does not respond promptly or if there is a recurrence of the pyuria, the patient should be hospitalized for thorough investigation of the urinary tract. It has been recommended that in all cases of pyuria urinary tract investigation should be carried out after the acute infection has subsided. While the necessity for this in all cases may be questionable, there is no question as to the advisability of complete investigation in cases of chronic or recurrent pyuria.

The occurrence of pyuria in the *male* infant or small child has an entirely different significance and must always be considered as evidence of congenital malformation of the urinary tract until proved otherwise. For this reason, the male child with pyuria should always be hospitalized for study before treatment is begun. It is usually expedient to clear up the infection as far as possible before doing investigative procedures, but cultures and blood chemistry determinations should be obtained beforehand.

Investigation of the urinary tract should be carried out also in youngsters with less specific symptoms such as recurrent unexplained abdominal pain and unexplained malnutrition.

The various procedures employed in the investigation of the urinary tract and the methods of treatment of some of the anomalies which are encountered are illustrated in the following case reports.

CASE REPORTS

Case No. 1. S. B., a girl, was first examined at the age of 5 years. Intravenous pyelograms were performed because of a diagnosis of recurrent pyuria. The pyelograms were interpreted as normal. Because of further attacks of pyuria, the pyelograms were repeated three years later and no abnormalities were noted. During the next year she had even more frequent attacks of pyuria and at the age of 9 years retrograde pyelograms were done. The right kidney and ureter showed no evident abnormality except for slight kinking of the upper one third of the ureter. The left kidney seemed somewhat larger than the right and the kidney pelvis was slightly dilated. There was a definite kink at the ureteropelvic junction. In view of these findings the left kidney was explored and a plexus of aberrant vessels was found extending from the lower pole of the kidney to the aorta. These vessels lay across the left ureter at the pelvic junction. They were tied off and the ureter freed. Since that time there has been no recurrence of pyuria and the child's general condition has steadily improved.

Case No. 2. R. M., a 4 year old boy, was first admitted to the hospital because of polydipsia, polyuria, and protuberant abdomen of two years duration. He had a poor appetite and had been

on an inadequate diet. On examination he appeared malnourished and had a large abdomen. The urine contained a large amount of pus and had a low specific gravity; streptococcus, staphylococcus and colon baccillus were present in the culture. The blood nonprotein nitrogen was 55 mgm. per cent. Reflux pyelograms were done which showed bilateral hydronephrosis. A urethrogram showed slight enlargement of the verumontanum. The supracalicular portion of the urethra was narrow and elongated. The prostatic urethra appeared depressed backwards. The findings were interpreted as evidence of congenital hypertrophy of the vesicle neck. Nothing could be done about the situation and the child died a year and a half later. An autopsy was not performed.

Case No. 3. M. I., an 8 year old girl, was first seen in 1942 and gave a history of recurring pyuria for six years. Her weight was only 50 pounds. The urine contained albumin and pus with a green producing enterococcus on culture. No improvement was noted after a course of sulfadiazine. An intravenous pyelogram showed bilateral double kidneys with separate pelves and ureters on both sides. On each side there was marked dilatation of one ureter and hydronephrosis of one kidney. Left heminephrectomy was performed with removal of the dilated ureter.

Two months later she was very much improved and had gained 6 pounds although she continued to show pyuria. Ten months later she was hospitalized for study. At this time the results of examination of the blood, urine, and blood nonprotein nitrogen were normal. On an intravenous pyelogram, the kidney and ureter on the left appeared normal with less dilatation of the anomalous urinary pelvis and ureter on the right.

A letter from her family recently states that the child is healthy although she has not been examined during the past year.

SUMMARY

Pyuria is a relatively common condition in children and responds promptly to modern therapeutic measures when uncomplicated.

The urinary tract should be investigated thoroughly in all males with pyuria and in all females in whom there is persistence or recurrence of the infection in an effort to discover remedial congenital malformations before irreparable damage has occurred.

TREATMENT OF HYPOSPADIAS

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AND
B. MARVIN HARVARD, M. D.
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Plastic operations on the penis are performed for psychologic and physiologic reasons. Despite the fact that the functions of procreation and micturition are foremost, it must nevertheless be remembered that a malformed organ may be the source of serious mental trauma. For these reasons, the surgeon should approach the problem of hypospadias with a technic which is applicable to all degrees of the deformity and at the same time completely relieves the associated chordee; moreover, the technic should be capable of performance by any reasonably skilled surgeon and it should produce a hairless, elastic urethra with no tendency to contract. In addition, it should be capable of completion during the preschool age.

Various technics have been employed in an attempt to fulfill these ideal requirements, most of which, in our opinion, have not satisfactorily met them. Some technics are inadequate because they are not applicable to all degrees of the deformity. Frequently, the artificial urethra contains troublesome hairs upon which crystals are deposited. More often, the new urethra is inelastic and requires constant dilation. Not infrequently, the technic itself is too complicated for general usage. In some instances six to eight successive stages may be required for completion.

Before an attempt is made to create an artificial urethra, it is of primary importance to correct the associated chordee. Obviously, if the penis cannot be permanently straightened, it is useless to proceed further. The importance of this simple step cannot be overemphasized. It is advisable that the chordee be corrected as early as possible in order to enable maximum growth

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of the penis. The optimum age for performance of the straightening operation is eighteen months.

The technic of the straightening operation consists simply in incising transversely across the penis below the glans and continuing the incision into the prepuce on either side. The penis is then stretched upward and any restricting bands are incised transversely. After these have been severed so that the penis is easily straightened and remains straight, the transverse incision is closed longitudinally with interrupted catgut sutures. Occasionally, a longitudinal relaxing incision on the dorsum of the penis may be required. This is left open.

A detailed study of the various technics presently employed for the correction of hypospadias will not be presented here. However, for comparison, a few of the more commonly employed technics will be briefly described.

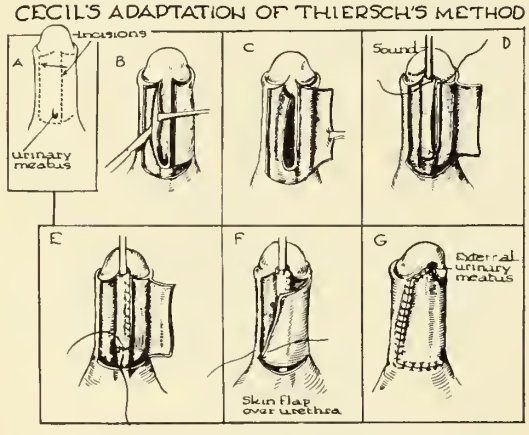

Fig. 1: Thiersch's method for correction of hypospadias. (A) Broad parallel pedicle flaps are outlined eccentrically on ventral surface of penis from just behind corona to slightly posterior to hypospadiac opening; they are then joined by a transverse incision posterior to the meatus. (B) That flap whose pedicle is nearest the midline is dissected free and used to form the new urethra over a catheter; the remaining flap is brought over the new urethra and sutured to opposite side.

Thiersch's Method (*Fig. 1*)—Broad, parallel pedicle flaps are outlined eccentrically on the ventral surface of the penis from just behind the corona to slightly posterior to the hypospadiac opening. They are then joined by a transverse incision posterior to the meatus. That flap whose pedicle is nearest the midline is dissected free and used to form the new urethra over a catheter. The remaining flap is brought over the new urethra and sutured to the opposite side.

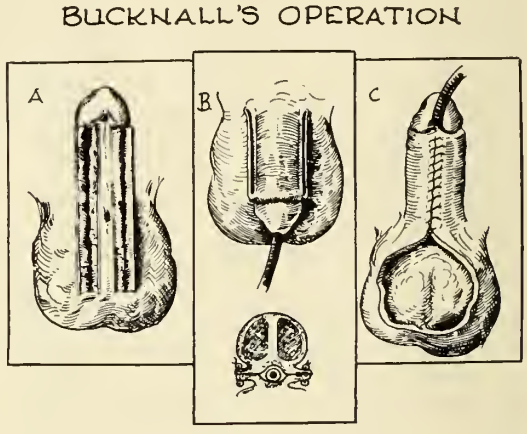

Fig. 2: Bucknall's method for correction of hypospadias. (A) Two long, parallel lateral incisions are made over the penis and extended on the scrotum. The lateral flaps are then dissected upward but a median strip of tissue with the hypospadiac orifice in the center is left intact. (B) Small catheter placed in meatus and penis brought down over scrotum to midline. (C) Margins of central strip approximated over catheter to form new urethra. Lateral flaps brought together with broad surfaces apposed.

Bucknall's Method (*Fig. 2*)—Two long, parallel lateral incisions are made over the penis and extended on the scrotum. The lateral flaps are then dissected upward, but a median strip of tissue with the hypospadiac orifice in the center is left intact. A small catheter is placed in the meatus and the penis brought down over the scrotum to the midline. The margins of the central strip are approximated over the catheter to form the new urethra. The lateral flaps are then brought together with the broad surfaces apposed. Following complete healing scrotal incisions are made parallel to the previously made skin flaps far enough laterally to provide ample coverage for the ventral penile surface. The defect in the scrotum is closed by simple approximation of the skin edges.

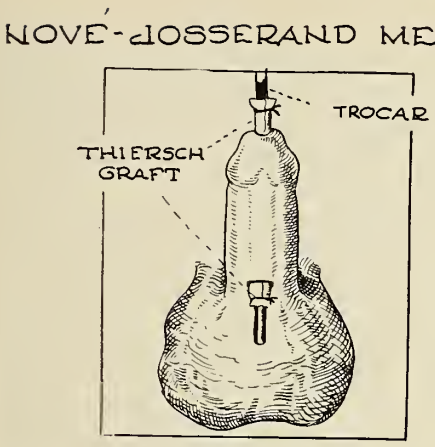

Fig. 3: Nové-Josserand's method for correction of hypospadias. Perineal urethrostomy established and hypospadiac meatus closed. Two months later long Thiersch graft wrapped around a tube is drawn through a trocar hole bored from perineal urethrostomy through glans.

Nové-Josserand's Method (*Fig. 3*)—A perineal urethrostomy is established and the hypospadiac meatus is closed. About two months later a long Thiersch graft is wrapped around a tube and drawn through a trocar hole bored from the perineal urethrostomy through the glans.

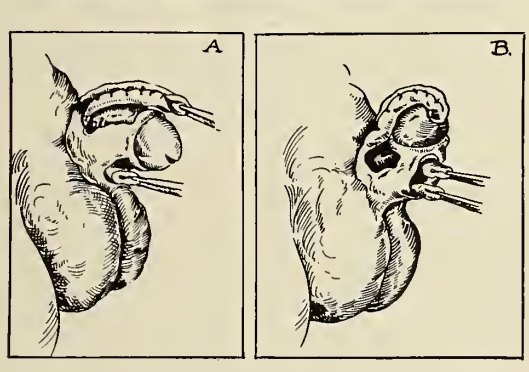

Fig. 4: Davis' method for correction of hypospadias. (A) Pedicle tube graft is created from skin of dorsum of penis and prepuce with its fixed end nearest base of penis. (B) Graft drawn through opening in glans and sutured directly to freed ends of hypospadiac urethra.

Davis' Method (*Fig. 4*)—A pedicle tube graft is created from the skin of the dorsum of the penis and the prepuce with its fixed end nearest the base of the penis. This enables the penis to be bent over dorsally so that the graft may be drawn through an opening in the glans and sutured directly to the freed ends of the hypospadiac urethra. The dorsal end of the graft is freed in about two weeks.

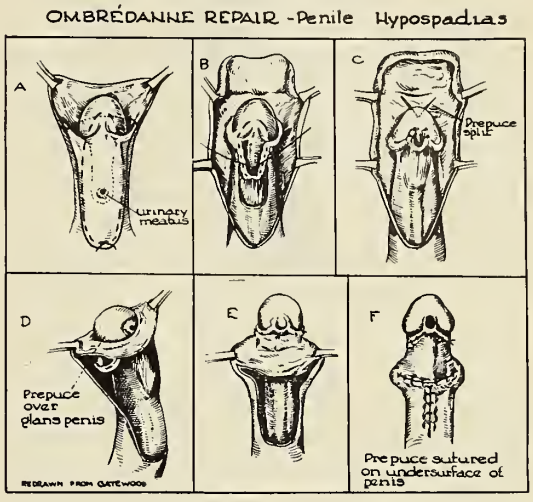

Fig. 5: Ombredanne's method for correction of hypospadias. (A) Pouch of skin created from hypospadiac meatus to glans. Linen thread basted in periphery of sutured sac. (B) Parallel incision made on shaft and carried up onto prepuce and around its coronal attachment. (C) Lateral flaps created on shaft. (D) Central portion dissected upward but median pedicle from meatus to coronal sulcus left intact. (E) Purse-string linen suture then drawn down against the catheter.

Ombredanne's Method (*Fig. 5*)—In this "sac" method a pouch of skin is created extending from the hypospadiac meatus to the glans. A linen thread is basted in the periphery of the sutured sac as shown in figure 5A. An accompanying parallel incision is made on the shaft and carried up onto the prepuce and around its coronal attachment. The two layers of the prepuce are carefully separated. Lateral flaps are created on the shaft. The central portion is dissected upward but a median pedicle from the meatus to the coronal sulcus is left intact. The purse-string linen suture is then drawn down against a catheter. This maneuver completes the pouch. The large flap of skin created by the lateral and preputial dissection is incised in such a fashion as to allow the glans to be drawn through it; this provides an apron of skin to be used in covering the ventral surface. Healing is allowed to take place. At a later stage the

urethral sac is drawn up through a prepared site in the glans and fixed.

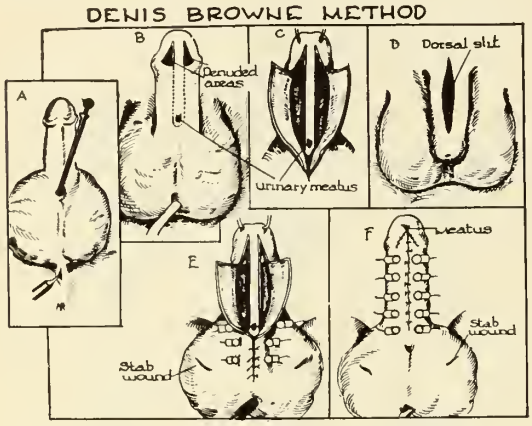

Fig. 6: Denis Browne operation for correction of hypospadias. (A) Diversion of urinary stream. Malecot catheter in bladder on sound. With diathermy knife, incision made over point until catheter exposed. (B) Two parallel incisions made along ventral surface of penis and brought together immediately behind meatus. Triangular area of epithelium removed from either side of glans penis. (C) Dorsal slit made from base of penis to coronal sulcus; edges separated widely. (D) Approximation of lateral flaps by double row of sutures. Sutures fixed with crushed shot or plastic beads held in place by crushed aluminum bands. (E) Completed operation.

The Denis Browne Method (Fig. 6)—This most recently developed method for the repair of hypospadias is based upon the principle that a strip of intact skin acts as a nucleus from which epithelium spreads to line the newly formed canal. The technic is simple and can be performed by any reasonably capable surgeon. Moreover, it can be completed before the patient reaches school age. After the straightening operation has been done at a previous date, this method requires only one stage. The technic involves several distinct steps:

1. *Diversion of the Urinary Stream (Fig. 6A)*—A Malecot catheter is inserted to the bladder on a sound; the sound is partially withdrawn and its curve reversed so that it points in the perineum. With a diathermy knife a short incision is made over the point until the catheter is exposed. It is then grasped with a forceps and its distal end drawn through the opening. Gentle traction is placed upon the catheter until its wings are felt against the internal sphincter. It is tested with an irrigating syringe to be sure that its position is such that the bladder will be kept completely empty. As soon as this is determined, it is sutured to the perineum.

2. Two parallel incisions are made along the ventral surface of the penis and are brought together immediately behind the ectopic meatus. This outlines the strip of intact skin which constitutes the nucleus from which epithelium lines the tube. A triangular area of epithelium is removed from either side of the glans penis, as indicated in figure 6B.

3. Lateral flaps are raised and dissected free and the scrotum is punctured on either side to allow free egress of blood and serum which may accumulate under the flaps after suturing has been completed.

4. A dorsal slit is made from the base of the penis to the coronal sulcus; its edges are separated widely in order to prevent any tension upon the suture line which may result from edema in the immediate postoperative period. This is left open and heals promptly without a troublesome scar.

5. The lateral flaps are approximated by a double row of sutures. The first row is composed of interrupted through-and-through silkworm sutures placed half an inch away from the edge of the skin flaps and adjusted so that when locked there is an eighth of an inch slack between the flaps; the sutures are fixed with crushed shot or plastic beads held in place by crushed aluminum bands (Fig. 6D). The skin edges are then approximated with the smallest possible catgut sutures applied with the utmost care to avoid inversion of the skin edges. After the entire ventral surface of the flaps has been approximated, the flaps are then lifted upwards and sewn to the tip of the glans so that the raw undersurfaces of the penile flaps are in contact with the raw surfaces produced on either side of the glans penis (Fig. 6E). This brings the new meatus up to about the normal position. A dressing is not required unless there is some oozing at the end of the operation in which case a light pressure dressing is applied but it should

be removed as soon as the oozing has stopped.

After the patient has been returned to the bed, the urethrostomy tube is attached to a bedside bottle for continuous drainage. Penicillin and sulfonamides are given postoperatively to prevent infection. The sutures may be removed at the end of a week or ten days and the urethrostomy tube a day or two later. Some urine may be expected to pass through the urethrostomy opening for the first twenty-four hours after the tube is removed but it is usually completely closed by the end of forty-eight hours. The operation is completely finished in the majority of these patients and they are ready to be discharged by the end of the fourteenth postoperative day.

The two most important steps in this operation are (1) diversion of the urinary stream and (2) the dorsal slit, which prevents any possible tension on the suture line during the period of edema. From our experience with the various methods of treating hypospadias the Denis Browne operation appears to withstand more complications during the postoperative period without failure than the majority of other methods. It is simple and easy to perform and is completed in one stage. It requires a short period of hospitalization, a factor of tremendous economic importance. Finally, it is applicable to all types of the deformity.

SUMMARY

Some of the more commonly employed operations for the correction of hypospadias are briefly described. These include the method of Thiersch, Bucknall, Nové-Josserand, Davis, Ombredanne, and Denis Browne. The Denis Browne operation, which is based on the use of a strip of intact skin which serves as a nucleus from which epithelium spreads to line the newly formed canal, in our opinion, has several advantages over the other methods. It is not only simple to perform but can be completed in one stage and is applicable to all types of the deformity. In addition, it withstands more complications during the postoperative period and requires a shorter period of hospitalization than most of the other methods.

CONGENITAL AND INFANTILE APHASIA*

REVIEW OF LITERATURE AND REPORT OF CASE

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A congenital defect of the central nervous system may lead to three types of faulty speech development: receptive in nature—sensory aphasia; expressive—motor aphasia; or mixed—sensory-motor aphasia. Although central lesions in infantile and adult aphasias may conceivably be similar, resulting speech disturbances in children in whom speech is not yet fully developed are not comparable to those in adults; i.e., loss of or deficient motor speech and other linguistic skills, such as reading, writing, and comprehension of the spoken word.

The term aphasia was noted in the literature as early as 1867[1] and the problem fully recognized in 1926 after Head's publication.[2] Leibman[3] delineated the three types of aphasia mentioned above every clearly in 1930. However, there is still a great deal of confusion regarding relative frequencies among children who present retardation or nondevelopment of speech. This confusion immediately suggests that speech pathologists, clinical psychologists, and physicians should be acutely aware of the condition in order that such children may not be misdiagnosed as cases of deafness, emotional disorder (including voluntary mutism) or mental retardation. In this paper, only the term aphasia will be used, such terms as idioglossia, paraphasia, word deafness, and congenital auditory imperception being avoided for semantic reasons.

ETIOLOGICAL FACTORS

Since this condition dates from infancy, most causative factors are operative during

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the prenatal or neonatal period. It must be assumed that the cerebral defect consists in incomplete development of or damage to association tracts concerned with interpretation of sound, particularly of language, and/or with the production of meaningful speech. Obviously, the cerebral defect may extend further with other associated widespread neurological manifestations. The cerebral lesion may be an inherited selective defect in development of this area of the brain. Allen[4] states there is a familial trend in one-third of all cases of sensory aphasia. Rogerson[5] reported two cases of sensory aphasia in one family. Worster-Drought[6] states that most sensory aphasics are males (5 to 1). Prenatal conditions or any trauma to the brain, if bilateral, may result in infantile aphasia. Perhaps an important traumatic factor is cerebral anoxia, but cerebral hemorrhages could conceivably be causative. Isoimmunization to various blood types may be a prenatal etiologic factor and central nervous system infections may be a postnatal causative factor.

CLINICAL ASPECTS

The most frequent reason for which the parents of aphasic children consult the physician is the child's failure to develop, or respond to speech, or even to other sounds. In the primarily receptive type of aphasia with failure to interpret sounds, parents frequently realize that the children's hearing is not greatly impaired and careful audiometric tests bear this out. Any fragmentary speech which may develop is usually defective and sounds like gibberish except to persons accustomed to it. These children may interpret visual signs readily and usually appear intelligent despite their inability to comprehend spoken words.

Children who present the motor or expressive form of aphasia do not speak at all or make only primitive sounds. Usually they cannot repeat any words although they demonstrate some understanding of speech and do not exhibit the obvious auditory inattention characteristic of children with sensory aphasia. There may be incoordination not only of speech organs but of other muscular systems as well. Children with milder forms of motor aphasia may develop speech without any specific therapy, although there may be a residual linguistic disability. Some aphasic children suffer from a mixed form with defects not only in acoustic interpretation but also in the motor sphere. Obviously, the therapist confronted with a child suffering from a severe degree of sensory-motor aphasia has the problem of directing therapy not only toward language comprehension but also toward speech production.

Aphasic children may have any degree of intellectual potential; but their mental status cannot be evaluated fairly by means of ordinary verbal psychometric tests. In an inadequate environment with no specialized educational facilities these children may become, as Worster-Drought[6] states, "imbeciles from deprivation." They fail because of inadequate training and not because of defective intellectual potential. Some of these children exhibit compulsive abnormal behavior, which may be in part the result of emotional trauma from constant exposure to situations in which the child attempts to perform beyond his capacities.[7]

Because of the apparent confusion which exists as to infantile aphasia, the writers undertook to inquire into the syndrome. Questionnaires concerned with infantile aphasia were mailed to forty-five speech pathologists. A response was obtained from seventeen of this group. Six replied that they were not in situations where they might observe such cases.

Five replied that they had encountered some cases but that case reports were not available for summary. One speech therapist reported that an occasion to resort to that diagnosis in children had never arisen in his experience. From five speech therapists who returned their questionnaires, together with case reports, a total of 34 cases were collected (up until 1940 only 50 cases were reported).[6] Among these 34 patients, the age at time of diagnosis varied from thirty-four months to twenty-eight years with a mean age of seven and one-half years. Sex distribution was fairly even—

18 males and 16 females. However, a selective factor was operative since one therapist who reported 19 of the cases had had dormitory facilities for twice as many females as for males. Among possible causative factors listed were included prenatal viral infection—4, birth injury—3, cerebral anoxia—3, prematurity—2, and encephalitis—1. Diagnosis made prior to diagnosis of aphasia included deafness—18, mental retardation—11, and emotional problem—3. Twenty-two of these children received intensive speech therapy. Nineteen of them made uniformly good progress; 1 made fair progress, and 2 made slow progress with therapy. Many were attending regular classes in public schools following varying periods of speech therapy. Two of these children, however, were having a great deal of difficulty making adequate social adjustments. Mental ability was judged to be average or dull normal in 19, retarded in 2, and unknown in 13. Severe hearing loss was noted in 4 instances and slight hearing loss in 3 cases. A suggestive familial trend was noted in only 1 instance among the 34 case reports—the father of 1 girl also suffered from sensory aphasia.

Excerpts of letters received in reply to the questionnaire were of value in formulating the trend of thought and variance of opinion even among speech pathologists in regard to the problem of infantile aphasia. One director of a university speech clinic wrote:

"—we seldom, if ever, use the term aphasia with reference to loss of speech in childhood. We have seen a few aphasias in children in which the symptoms were obviously the result of cerebral trauma. I do not recall any children whose acquisition of speech has been delayed and in whom we felt there was a cerebral condition comparable to that in adults—the term aphasia is so loosely used with respect to children."

A director of another speech and hearing clinic in another university of comparable size and the same locale wrote:

"We do see, from time to time, children whose delay in the acquisition of speech seems to stem from a type of infantile aphasia . . . I agree with you that the problem of aphasia dating from infancy, which perhaps we have catalogued too glibly under the heading 'delayed speech,' is in need of investigation."

A third director of a university speech clinic stated:

"At my present stage of thinking, my skepticism regarding the reality of such a syndrome has been considerably reduced—but this has been on the strength of cases reported to me by colleagues whose experience and diagnostic thoroughness I respect, rather than on the basis of cases coming through our clinic."

A director of speech in a clinic at an eastern college wrote:

"As I see it now, the mistakes of the past decade have been to overlook aphasia and to give too much weight to deafness and feeblemindedness. In the past decade, moreover, too little attention was given to schizophrenia. At the present time there seems to be a tendency to throw too many cases into the aphasic file. I am sure that many cases go into that file that are really infantile schizophrenics."

A speech pathologist in a hospital wrote:

"I know that there are children who develop speech late and in school show specific disabilities with evidence of good general intelligence. It seems reasonable to me that in the preschool period these children either are not diagnosed or are misdiagnosed because of the difficulty of making a differentiating diagnosis at this age . . . at school age they are apt to be missed, too, because then they can talk. From the recoveries we've seen in children from aphasia resulting from accident, it's obvious to me that this would be expected to happen."

A director of a private school for speech correction stated:

"I have always thought that there were many aphasic children in the institutions for the feebleminded and also the state schools for the deaf."

As a corrollary, a speech pathologist in a school for cerebral-palsied children wrote:

"I have been interested in this problem for some time because I am convinced that it is a factor in certain cases of nonverbal cerebral-palsied children."

CASE REPORT

History. T. C. was the second born male infant of very understanding parents. The family history was noncontributory and the sibling normal. During the third month of pregnancy, the mother had some type of viral disease with a morbilliform eruption, lymphadenopathy, and pharyngitis. The clinician at that time made a presumptive diagnosis of infectious mononucleosis rather than rubella but with no confirmatory laboratory proof. The labor was induced post-term and the birth process normal except for a dry labor. The infant's birth weight was 5 pounds 7 ounces. Very little subcutaneous fat was present and because the infant appeared to be very weak he was cared for in a premature nursery. As the infant de-

veloped, he was a constant feeding problem, and it was difficult to introduce any solid foods. At one and one-half years of age, because of anorexia, poor state of nutrition, and anemia, he was given several small transfusions.

Physical and motor development were delayed, with sitting at eleven months and walking at eighteen months. Between two and three years of age, there was still no evidence of any speech development, and the parents were concerned because at various times the child failed to respond to sound. The patient was seen in a hearing clinic, and, although no formal audiometric tests could be done, it was felt that the child had some hearing impairment. This, together with his motor retardation, led to the general impression that this boy was seriously retarded. The child was brought to us because of his delayed speech development. A psychological examination was suggested prior to instituting any speech therapy. The psychologist who saw this child briefly in consultation at two and one-half years of age suggested to the parents that the boy be institutionalized as soon as feasible because he felt that the boy was a hopeless problem of generalized mental deficiency. Despite this discouraging report, the parents still felt the situation was not hopeless, and a further psychological evaluation was done.

Mental, Hearing, and Speech Evaluation. At the age of thirty-two months, the child was seen in consultation by Dr. Edgar A. Doll of the Devereaux School and Drs. Helmer Myklebust and Harold Westlake of the Speech and Hearing Clinic, Northwestern University. The following report is a summary of their findings:

Mental Evaluation.[8]

Psychological observation suggested at least average mental capacity with presumption of better-than-average potential. This impression was sustained throughout the examination in spite of limited language comprehension and response and in spite of descriptive reports of mild behavior problems. He was alert, attentive, responsive, and showed good discriminative judgment. His comprehension of the environment significance, his manipulation of objects, as well as his over-all behavior and reports of activities, gave further confirmation of at least average potential. This impression gained weight in the face of handicaps which apparently inhibited the full expression of his potential.

Administration of the Vineland Social Maturity Scale with mother and father serving as mutual informants yielded a social age score of 2.8 years, social quotient of 100. Detailed analysis of this examination showed a mild degree of retardation of self-help activities, in eating and dressing, and a specific retardation in language use. If these handicaps were discounted as inhibiting full expression of his capacity, the social score would rise to about 3.5 years, or a social quotient of about 125. Such evaluative scoring served as inferential evidence to confirm the impression of underlying better-than-average mental capacity. It was further inferred that the retarded expression in self-help activities was a consequence of environmental solicitude in relation to specific handicaps. The retardation in speech was construed as due to developmental language deficiency of the order of possible congenital aphasia.

Hearing Evaluation.[9]

This examination revealed that the patient had normal hearing and voice quality. Furthermore that his motor skill and mental capacity fell within normal limits. A serious disturbance was revealed in the area of language comprehension. On the basis of these findings, the following diagnosis was made: Aphasia—mixed type, predominantly receptive with mild expressive involvement.

Speech Evaluation.[10]

The patient appeared ready for speech. He performed the movement patterns basic to speech easily with apparently normal muscle tonus. He followed rhythm patterns accurately. Phonation was initiated effortlessly, and the breathing pattern was favorable for a speech pattern. Throughout the interview, he responded more readily as well as more accurately to visual clues than to auditory clues.

Conclusion.

Patient is of at least average, and probably better-than-average intellectual capacity, without noteworthy hearing impairment but with developmental aphasia. There are implications of congenital central nervous system impairment which presumably produced delayed motor development, impairment in eating, and interference with speech development. Etiology, while obscure, is more definitely suggestive of the prenatal viral infections of the type seen in rubella.

Prognosis is favorable both in behavior expression and in more recent phases of the developmental history. Behavior may be improved by gradual improvement in self-discipline and corresponding reduction in personal dependence.

Progress Report. Intensive speech training was given at the L. S. U. Speech Clinic. In addition, the parents afforded not only speech stimulation in the home but also followed closely procedures used in the speech clinic. At the onset of his speech lessons, he was able to make only a few sounds, and his vocabulary was limited to two or three garbled words. After ten months of speech therapy, his vocabulary had increased to about one hundred ten words. His muscular coordination and activities as well as his social behavior progressed at a more rapid rate than formerly. Although eating habits were still a problem, there was a remarkable stride in his personal independence as compared to his status prior to speech therapy.

COMMENT

It behooves all professional personnel concerned to be fully cognizant of the syndrome of aphasia in childhood. It is difficult to reconcile the divergence of opinion, even among speech pathologists, as to the frequency or even actuality of this entity; but one cannot fail to be impressed by the number of cases which some have encountered. The response of the patient reported in this paper to intensive speech therapy (training associated with visual, auditory, and tactile clues) lends further credence to the existence of this syndrome. Even assuming that this is an uncommon cerebral defect, it would seem far wiser to err on the side of frequent diagnosis, for fear that a single case will be missed, rather than of refusal to ever make such a diagnosis. It would be tragic to fail to recognize a child wtih infantile aphasia and label the child a mental deficient. An aphasic child with such a label very likely will eventually become socially inadequate simply for lack of specialized educational facilities. With proper speech training and education, these children can become useful, active members of society.

The possibility also arises that there may be many degrees of infantile aphasia. Perhaps many of the four and five year old children with delayed speech which we, as pediatricians, so reassuringly pass off to the parents as of no consequence are actually mild cases of infantile aphasia. These children may begin to talk "under their own power" simply because the cerebral defect is of lesser degree. Speech clinics might find it profitable to investigate groups of children who "take off" late in talking. Careful histories might reveal common etiologic factors productive of cerebral lesions, and speech training might prove to be effective.

SUMMARY AND CONCLUSIONS

The clinical features of infantile aphasia include failure or delay in development of speech. When speech develops, it is frequently garbled. Hearing and intelligence may be normal although both are difficult to evaluate. Abnormal behavior may appear in these children simply because they lack normal opportunities to express themselves.

It is pointed out that many of the children of four to five years of age with delayed speech development may not simply be "deviates from the norm" but may actually suffer from mild degrees of aphasia. Earlier recognition and proper guidance for milder types of aphasia will depend ultimately on better definition of the pattern and rate of normal speech development.

At present, there apparently is little or no agreement either as to frequency or actuality of this syndrome in childhood. Unfortunately, mild cases are apt to be passed over and more severe ones are often tragically mislabeled as mental defectives.

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DISCUSSION

Dr. C. H. Webb (Shreveport): I would like to add my word of approval of this subject brought before us by Dr. Van Gelder. I have had the opportunity of seeing two children who apparently had congenital aphasia, in one instance the sole disturbance, and in the other instance, associated with congenital heart defect. The latter child at three years of age had correction of the congenital heart defect which resulted from an attack of German measles in the mother at 2½ months gestation. The correction was done at John Hopkins, and at the same time a careful study of the child was made, because she had not started talking. There was a question as to whether this was due to congenital deafness or congenital aphasia, but the final conclusion reached there was that it represented congenital aphasia associated with congenital heart defect. Another child, whom I have seen within the past two months, at five years of age had been considered by a half dozen physicians and the family as a mental deficient because of the lack of speech. However, the child had acquired a very considerable ability to make his wants

known and to respond to visual instruction. Careful study indicated that this child also did not have mental deficiency. The last report I had indicated that probably the hearing was adequate and that the difficulty was on the basis of aphasia. We have had during the past two years a special class in speech training in the schools in Shreveport and a perfectly grand job is being done there with some of the children. We appeal for recognition of these children's difficulties, keeping them out of the category of mental deficiency and thinking more of defects of this type.

Dr. Myron Wegman (New Orleans): There is very little I can add to the problem of aphasia which Dr. Van Gelder has discussed so thoroughly, but I should like to call brief attention to some of the other problems of communication which are implicit in this field. Many schools have now become much more aware of the reading and writing difficulties which are perhaps as important as speech. I have seen instances in which persons who had reached adult age and were functioning at far less than their intellectual capacity had new pages of life opened by specific remedial reading instruction. This is a very important subject and one which I am very happy to have brought before this society.

Dr. VanGelder (In conclusion): I am happy to hear that Shreveport has a speech and hearing program; unfortunately, in Baton Rouge we do not have. Personally, the case I reported today is the first child with aphasia that I have recognized. Undoubtedly, I have missed some cases prior to this time. Over the past year, since becoming aware of the problem, we have made presumptive diagnosis of aphasia in 3 more children. One of the problems is to differentiate these children from the deaf. It is impossible to do satisfactory audiometric examinations on the younger children and one must rely on the judgment of experienced personnel in this field. Of course I think the big problem is differentiating these children from mental deficiencies. I must plead with you that we should not rely upon the average psychologist to make the diagnosis. It really takes an interested and highly specialized psychologist to work with these children and to give us a proper mental evaluation. I know that at least in the cases we have observed that has been our big problem—to find a psychologist who can give us the proper mental evaluation.

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CARE OF THE ACUTE POLIOMYELITIS PATIENT IN THE HOME AND IN THE LOCAL HOSPITAL

Acute anterior poliomyelitis is an endemic and epidemic disease. Each summer in recent years has seen an increase in the number of cases and problems.

The family sees the patient suddenly stricken, possibly with disastrous results. The public sees the end picture, which is usually a cripple. These two facts have constituted a background against which many phases of the disease have been emotionally displayed. Widespread interest has been aroused. Much investigation is in process. As a result of increased knowledge and of nationwide experience, the voice of some authorities calls for a middle of the road course in the social planning and the therapy of the disease. It is advised now that many patients with polio be treated in the home. Where circumstances are not suitable for this care, the local hospital is advocated. Various reasons for this may be briefly presented.

In an epidemic it is impossible for all patients with polio, or suspected of developing it, to be cared for in established polio centers. The admission of suspected cases crowds out the patient seriously affected with the disease. When the patient is in the hospital for even a short time, there is disruption of the parent-child relationship. This can best be developed and maintained in a normal home environment. It is apparent that the removal of the child from the home does not free the other members of the family from risk of the disease. In the words of Francis, it is necessary to recognize the significance of the family as a focus of dense infection in outbreaks of poliomyelitis. One member of the family group may develop paralysis, but the others carry the virus as well. It is now believed that probably only 1 in 100 of those who are infected with the virus develop the paralysis.

Accordingly, it is felt that suspected, nonparalytic cases, and cases with partial paralysis of the lower extremities, should be kept at home if a physician's attention is readily available, and if there is a local hospital equipped with a respirator ready for emergency use. It is also necessary that facilities in the home for the care of the sick child should be adequate and the attending physician should feel that the particular case can be cared for at home. Most polio patients, especially children, make a rapid recovery, except for residual paralysis, within a few days or weeks of the development of the disease. Parents and nurses can be taught to carry out much of the physiotherapy that is desirable in both the acute and convalescent phases. Firm mattresses, bed boards, and foot boards are readily available. Sand bags to maintain the patient's position can easily be made,

and if not available, bags of salt can be used. Pads of cotton and small pillows can be utilized when such support is needed. A washing machine with a heating unit attached makes a good hot pack machine. Wool for the packs can come from cutting a soft blanket, and they can be wrung out in the wringer of the washing machine.

The question as to whether moving a polio patient increases the intensity of the disease, and whether other physical activity during, before, and preceding the onset of the paralysis may be detrimental, is one about which controversial opinions have been formed. Until further clarification is at hand, it would seem a commonsense attitude that polio is like other disease in the respect that the greater the severity of the disease process, the more the necessity for reduction of physical activity. If this is true, moving the patients from home to distant polio centers may be detrimental in some instances.

Along these same lines, *The Polio Post*, which is the information sheet of the National Foundation for Infantile Paralysis, is advocating that the milder cases of Polio stay at home, and has recently established facilities for grants-in-aid to cover home care under certain conditions, and it is suggested that the National Foundation's epidemic aid appropriations will probably be used increasingly to obtain good care for polio patients in their homes. Up to the present time appropriations for home care have been made to State Health Departments. It is projected that they could also be made to hospital centers for personnel to be used in the field.

Concerning facts of this general nature, Drs. Simon and Wegman and Drs. Wickstrom and Platou of the L. S. U. and Tulane Medical Schools, have sent out a joint letter to the membership of the Society, urging the physicians to prepare for the polio epidemics that may be expected in succeeding summers. It is recommended to utilize home care for the patients who are suitable and save hospital beds and space in the polio center for those types of the severe cases that cannot be otherwise properly treated. The advice contained in the letter is most timely. Putting it into practice would in some measure minimize the panic that a polio epidemic spreads in a community. It would also relieve much emotional stress on the part of the polio patient and the parents.

Plans to meet polio adequately must be made before the epidemic begins.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

IMPORTANT

Let us not lose one of our delegates to the AMA. If you did not pay your 1950 AMA dues prior to December 31, 1950 or within 30 days following notification by the AMA of your delinquency, your name was automatically removed from the roster as a member. Your 1951 AMA dues will not be accepted until your delinquent 1950 dues have been paid.

If however you have already paid your 1950 dues you should pay your 1951 dues not later than December 31, 1951.

If more of our members do not continue their AMA membership we are going to lose one of our delegates to the AMA and this would be most unfortunate as the southern states are already represented by too few delegates.

Won't you please send your renewals for membership to your parish society, the Louisiana State Medical Society and the American Medical Association promptly so that our status will not be impaired and we can continue to have proper representation in our national association.

Of course, you know the $25.00 AMA dues entitle you to full membership, including the AMA Journal, which is priced to individual subscribers at $15.00 per year.

You can readily see that this makes you pay only $10.00 for membership in your national organization with all its benefits. You cannot afford to deny yourself these privileges and benefits. Don't forget to send in your dues.

Your cooperation, for the good of organized medicine, will be appreciated.

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NATIONAL AND LOCAL MEDICAL LEGISLATION

Though it be a fact that the Senate and Congress of the United States are on vacation, this is a good time to put our house in order, to rebuild our fences and to prepare our defenses to combat socialized or federalized medical bills coming up in Washington when the next Congress convenes in January, 1952.

Our friends of free enterprise medicine in Congress always welcome any suggestions they can get from the profession in defense of their action in support of or against any pending medical bills.

In writing to these Senators and Congressmen, always, when possible, give clear cut reasons for requesting their support or nonsupport of any and all bills up for action, either before the respective committees or on the floor of the Senate or House of Representatives. This will assure them that we are sincere and sufficiently interested to warrant their sincere consideration of our requests for enlisting them in our behalf. Louisiana Senators and Congressmen are as follows:

Senator Allen J. Ellender
Senator Russell B. Long
Representative F. Edward Hebert, 1st District
Representative Hale Boggs, 2nd District
Representative E. E. Willis, 3rd District
Representative Overton Brooks, 4th District
Representative Otto E. Passman, 5th District
Representative James H. Morrison, 6th District
Representative Henry D. Larcade, Jr., 7th District
Representative A. Leonard Allen, 8th District

Not only wire or write the Senators and Congressmen from this state, but also the chairmen of the respective committees before which bills will come up for hearing. Find listed below the personnel of the two important committees which handle the bulk of health and medical legislation in the Senate and House.

SENATE COMMITTEE ON LABOR AND PUBLIC WELFARE

Democrats

James E. Murray, of Montana, Chairman
Lister Hill, of Alabama
Matthew M. Neely, of West Virginia
Paul H. Douglas, of Illinois
Hubert H. Humphrey, of Minnesota
Herbert H. Lehman, of New York
John O. Pastore, of Rhode Island

Republicans

Robert A. Taft, of Ohio
George D. Aiken, of Vermont
H. Alexander Smith, of New Jersey
Wayne Morse, of Oregon
Irving M. Ives, of New York
Richard M. Nixon, of California

HOUSE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

Democrats

Robert Crosser, of Ohio, Chairman
Lindley Beckworth, of Texas
J. Percy Priest, of Tennessee
Oren Harris, of Arkansas
Dwight L. Rogers, of Florida
Arthur G. Klein, of New York
Thomas B. Stanley, of Virginia
John B. Sullivan, of Missouri
William T. Granahan, of Pennsylvania
John A. McGuire, of Connecticut
Thomas R. Underwood, of Kentucky
F. Ertel Carlyle, of North Carolina
John Bell Williams, of Mississippi
Peter F. Mack, Jr., of Illinois
Homer Thornberry, of Texas
Louis B. Heller, of New York
Kenneth A. Roberts, of Alabama

Republicans

Charles A. Wolverton, of New Jersey
Carl Hinshaw, of California

Leonard W. Hall, of New York
Joseph P. O'Hara, of Minnesota
Wilson D. Gillette, of Pennsylvania
Robert Hale, of Maine
James I. Dolliver, of Iowa
John W. Heselton, of Massachusetts
Hugh D. Scott, Jr., of Pennsylvania
John B. Bennett, of Michigan
Richard W. Hoffman, of Illinois
J. Edgar Chenoweth, of Colorado
John V. Beamer, of Indiana

Your Secretary has heard from the grapevine communication that some of our members are not familiar with the personnel of these respective committees or the names of our Senators and Congressmen and are therefore unable to contact them, which prompts the listing of above committees and names.

We sincerely hope that this will aid and stimulate all the parish and district societies to get busy in fostering some concerted action in helping to defeat those bills detrimental to organized medicine and supporting the ones favorable to the medical profession and our patients who, after all, benefit most by our efforts.

We would like to suggest that it is most important at this time to know how each candidate for Governor and the respective candidates for the State Senate and House of Representatives feel about our fight against socialized or state medicine and all cultists, and especially the chiropractors who are inadequately trained and wholly unqualified to treat our people.

We would like a statement of policy from each candidate as to how he stands on these important questions at issue, in order that the members of the parish societies and State Society might be informed prior to election.

It is high time that the members of the medical profession take more interest in our local and state elections and exert and exercise a greater influence upon our patients in the outcome of these elections.

"A hint to the wise" should be sufficient.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

BLUE SHIELD AVAILABLE TO DOCTORS

Louisiana Physicians Service—the Blue Shield Plan—recently announced the availability of its new "N" Certificate for hospital, medical, surgical and obstetrical care, which is being made available to every doctor and his family dependents in the Orleans Parish area.

Blue Shield is the only plan sponsored by the Louisiana State Medical Society and by the Orleans Parish Medical Society for prepaid health care to include hospitalization, medical, surgical and obstetrical benefits. The Blue Shield hospital program includes 100 days hospital care per admission at $7.00 per day for the doctor, and $6.00 per day for his family dependents. For those who desire additional room allowances a rider may be added to the basic contract which will provide $11.00 per day for room and board in the hospital for the doctor and $8.00 per day room and board allowance for his family dependents.

The Blue Shield program also includes complete services for operating room, delivery room, oxygen therapy, basal metabolism, electrocardiograms, and routine laboratory. Liberal allowances are also made on medicines, drugs, serums and hospital diagnostic X-ray examinations.

The following is a schedule showing the cost on the different type room allowances:

MONTHLY BLUE SHIELD MEMBERSHIP DUES

	*	**
Doctor only (no maternity)	$1.85	$2.25
Doctor & Spouse (no mat.)	3.65	4.25
Doctor, Spouse and all children under 19 year of age (with maternity)	4.95	5.75

*—Room allowance of $7.00 per day for doctor and $6.00 per day for dependents.

**—Room allowance of $11.00 per day for doctor and $8.00 per day fo rdependents.

Within the very near future, Louisiana Physicians Service—Blue Shield—will mail to each physician a folder describing the plan in detail as well as an application card.

If you desire additional information you may contact Louisiana Physicians Service—Blue Shield —119 North Galvez Street, New Orleans, Louisiana.

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MEETING OF THE AMERICAN ACADEMY OF DERMATOLOGY & SYPHILOLOGY

The tenth annual meeting of the American Academy of Dermatology and Syphilology will be held in Chicago at the Palmer House, December 8 through the 13, announces Dr. John E. Rauschkolb, secretary-treasurer, of Cleveland, (P. O. Box 6565), Ohio.

Principal sessions will be held in the Palmer House Monday through Thursday, December 10-13, with special courses in histopathology and mycology scheduled for Saturday and Sunday, December 8 and 9, at the medical schools of the University of Illinois and Northwestern University. Special courses in X-ray and radium, bacteriology of the skin, anatomy and embryology of the skin and special problems in dermatohistopathology will be held Saturday and Sunday at the Palmer House.

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INTERNATIONAL COLLEGE OF SURGEONS

1952 Assembly: The Seventeenth Assembly of the United States Chapter, International College of Surgeons will be held in Chicago, September 2-3-4-5 at the Stevens Hotel.

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FOUR-GROUP COMMISSION TO ACCREDIT HOSPITALS

The Journal of the American Medical Association has announced the establishment of a joint commission representing the American Medical Association, the American Hospital Association, the American College of Surgeons and the American College of Physicians for the accreditation of hospitals in the United States and possibly Canada.

The joint commission will be composed of 18 members: six appointed by the American Medical Association, six by the American Hospital Association, three by the American College of Surgeons and three by the American College of Physicians.

While the plan for establishment of the joint commission has already been approved by the four organizations, none of the 18 members have yet been selected. They will be appointed within a short time. The commission hopes to be in operation by January 1, 1952.

A minor change in the representation will be made if the Canadian Medical Asociation accepts an invitation to participate. In this event it will appoint one representative and the American Hospital Association will appoint an additional member from the Canadian hospitals, making the total commission membership 20.

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MEETING OF THE FIFTH AMERICAN CONGRESS ON OBSTETRICS & GYNECOLOGY

The Fifth American Congress on Obstetrics and Gynecology will be held in Cincinnati, Ohio, March 31 through April 4, 1952, at the Netherland Plaza Hotel.

Sponsored by the American Committee on Maternal Welfare, the Congress will feature a comprehensive five-day scientific program covering the medical, nursing and public health aspects of the maternal care team.

The medical section program is headed by Dr. Woodard D. Beacham, New Orleans, in cooperation with the general program chairman, Dr. Nicholson J. Eastman, Baltimore. Chairman of the public health section is Dr. Herman N. Budesen, Chicago. The nursing program is headed by Miss Hazel Corbin, R. N., director of the Maternity Center Association, New York.

Congress registration fees are $5.00 for members and $10.00 for non-members. Further information, registration or reservations can be obtained by writing Mr. Donald F. Richardson, Executive Secretary, American Committee on Maternal Welfare, 116 South Michigan, Chicago 3, Illinois.

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AWARD FOR OUTSTANDING RESEARCH IN THE FIELD OF INFERTILITY

The American Society for the Study of Sterility announces the opening of the 1952 contest for the most outstanding contribution to the subject of infertility and sterility. The winner will receive a cash award of one thousand dollars, and the essay will appear on the program of the 1952 meeting of the Society. Essays submitted in this competition must be received not later than March 1, 1952. For full particulars concerning requirements of this competition, address The American Society for the Study of Sterility, 20 Magnolia Terrace, Springfield, Massachusetts.

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FELLOWSHIPS IN INDUSTRIAL MEDICINE

The Institute of Industrial Health of the University of Cincinnati will accept applications for a limited number of Fellowships offered to qualified candidates who wish to pursue a graduate course

of instruction in preparation for the practice of Industrial Medicine. Any registered physician, who is a graduate of a Class A medical school and who has completed satisfactorily at least two years of training in a hospital accredited by the American Medical Association may apply for a Fellowship in the Institute of Industrial Health. (Service in the Armed Forces or private practice may be substituted for one year of training.) Requests for additional information should be addressed to the Institute of Industrial Health, College of Medicine, Eden and Bethesda, Cincinnati 19, Ohio.

WOMAN'S AUXILIARY TO THE LOUISIANA ACADEMY OF GENERAL PRACTICE

The auxiliaries to the First and Second Districts of the Louisiana Academy of General Practice met November 2, 1951 in the home of Mrs. P. P. La Bruyere in Marrero, La. At this time plans for the annual Christmas party were formulated. The date for this party was chosen for December 9, and the home of Mrs. Daniel Murphy will be used. Toys presented by those attending will be donated to a charitable institution.

Honored at this meeting was Mrs. George Feldner who had been chosen by the radio program of the same name as "Woman of the Week." Mrs. Feldner is the past president of the Woman's Auxiliary to the Louisiana Academy of General Practice.

Convention plans for this organization's next annual convention in September were discussed.

The first annual Christmas party sponsored by the Woman's Auxiliary to the Louisiana Academy of General Practice will be held Sunday, December 9. All eight districts of Louisiana will hold these parties at the same time and will follow the same pattern.

Some of the plans to be used at the parties throughout the state will be as follows:

1) At the stroke of eleven the G. P.'s will be toasted by their wives.
2) Gifts of toys brought to the parties will be donated to some charitable institution at Christmastime.
3) Carols will be sung by all attending.
4) Hours of the party will be from seven to eleven-thirty.

BOOK REVIEWS

Friend of the People; the Life of Dr. Peter Fayssoux of Charleston, S. C., Columbia, S. C., Medical Association of South Carolina, 1950. pp. 151. Price $2.75.

Material regarding Southern physicians and medicine in the Revolutionary period has been meager; we are, therefore, especially glad to welcome this scholarly and interesting study of the life of Dr. Peter Fayssoux of South Carolina. His outstanding prominence in medicine is evidenced by his office as Surgeon-General and Chief Physician for the Southern Hospital during the Revolution. He was equally important in governmental matters in his day, espousing the cause of the "Anti-Federalists," "States-righters" of their day.

Peter Fayssoux was the son of a Hugenot immigré who came to South Carolina about 1737, achieved a measure of financial success in eight years and died leaving two small children, one of whom was Peter, born in 1745. After two years the widow was married a second time to James Hunter who became wealthy in his own right. Peter was thus able to go to Edinburgh for his medical education and there began a friendship with another American student, Benjamin Rush, which lasted throughout their lives.

Replete with reference to persons and events of these troublous times, and completely documented, the account maintains a sense of reality and unusual interest bespeaking the author's skill as a historian. Dr. Fayssoux was one of the organizers and first President of the Medical Association of South Carolina, by whom this volume is published. It constitutes a real contribution to the American medical history of the colonial period and of the South.

MARY LOUISE MARSHALL

PUBLICATIONS RECEIVED

Appleton-Century-Crofts, Inc., N. Y.: Atlas of Genito-Urinary Surgery, by Philip R. Roen, M.D., F.A.C.S.

Paul B. Hoeber, Inc., N. Y.: Clinical Allergy, a Practical Guide to Diagnosis and Treatment, by Samuel J. Taub, M.D., F.A.C.P. (2nd Edit.)

J. B. Lippincott Company, Philadelphia: Surgical Treatment of the Motor-Skeletal System, Parts one and two, by Fredric W. Bancroft, A.B., M.D., F.A.C.S., and Henry C. Marble, A.B., M.D., F.A.C.S.

W. B. Saunders Company, Philadelphia: Postgraduate Medicine and Surgery, Physical Medicine and Rehabilitation for the Clinician, edited by Frank H. Krusen, M.D.; Surgical Practice of the Lahey Clinic, by Members of the Staff of Lahey Clinic, Boston; The Specialties in General Practice, edited by Russell L. Cecil, M.D.

Charles C. Thomas, Publisher, Springfield, Ill.: Outline of Fundamental Pharmacology, by David Fielding Marsh; Studies in Medicine, A Volume of Papers in Honor of Robert Wood Keeton, by various contributors.

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THE TUBERCULOSIS PROBLEM IN LOUISIANA

SYDNEY JACOBS, M. D.*
ARTHUR A. CALIX, M. D.**
MAURICE CAMPAGNA, M. D.***
CARL C. KUEHN, M. D.****
NEW ORLEANS

The Louisiana Tuberculosis Control Program of the present is designed to eliminate tuberculosis completely. We no longer talk of reduction; instead we look forward to the day, not too far in the future, when tuberculosis will no longer be a major public health problem.

For Louisiana, that day has not yet arrived. We need to intensify our present efforts and we must co-ordinate them better. We cannot afford to emphasize unduly any one segment of our program at the expense of another. We must operate on the premise that—just as a tuberculosis patient is more than a pair of sick lungs—the tuberculosis problem involves a multitude of approaches. The primary objective in the control of tuberculosis is the same as in any other communicable disease, namely, to prevent infection. If prevention has failed and disease has developed, the objective is to obtain adequate treatment at the earliest possible stage in order to prevent a fatal outcome and shorten the duration of illness, followed by rehabilitation to restore the individual to the greatest possible usefulness in the shortest period of time. Early hospitalization also removes the patient as a source of infection and helps to reduce the prevalence of the disease.

In Louisiana, we have found ourselves unable to fulfill our objectives because we simply do not have enough resources. Without adequate funds to buy and to operate x-ray equipment, staff and operate clinics, and maintain a proper distribution of hospital beds, we have been unable to affect our tuberculosis problem as we should. Our problem is still great. In 1950, at least 739 persons died of tuberculosis, which is still the leading cause of death in this State in the age group 15-34, although seventh as a general cause of death. It is true that our death rate from tuberculosis is dropping (from 59.6 per 100,000 in 1940 to 27.7 per 100,000 in 1950)—but not so rapidly as in the country as a whole. Only five states have higher tuberculosis death rates than ours. The decreasing death rates, of course, tell only part of the story. There are still far too many unreported and untreated cases of tuberculosis:

As a matter of fact, 191 of the 739 victims of tuberculosis in 1950 were not reported to health authorities prior to death. It is also important to note that although our death rate from tuberculosis has dropped to 27.7 per 100,000 in 1950, it continues to be 41.0 for the non-white population and only 20.5 for the white.

Still, we are making progress. We are finding more cases of tuberculosis than pre-

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viously. Our goal of an increased tempo for mass x-ray study is being approached.

Last year 413,755 (14″ by 17″ and microfilms) films were taken as part of our case-finding procedures. This is the largest total ever taken in a single year in this State. This remarkable achievement was possible only because of close cooperation between official parish health units and divisions of the voluntary agency, the Louisiana Tuberculosis Association. In a truly democratic fashion, the use of tax funds and monies supplied through sale of Christmas Seals operated to the benefit of better diagnostic facilities for this State.

The value of photofluorography as a means of finding the unsuspected case of tuberculosis has been thoroughly appreciated. It is the means par excellence of finding the patient, and it points to the great need of treating him once his case has been made known to the Health Department. Photofluorography has been developed to a high plane of efficiency at the Charity Hospital in New Orleans, where last year 71,478 microfilms were taken on all persons reporting to the hospital admitting rooms or clinics for any type of medical service. No other general hospital unit in the United States took more films than this. Of this number, 2.4 per cent were strongly suggestive of active tuberculosis and were referred for appropriate clinical examination. Incidentally, an additional 3.7 per cent were found to have nontuberculous diseases such as cardiac abnormalities and pulmonary carcinoma.

The case finding program carried on by the City of New Orleans is becoming increasingly effective. This program consists of a mobile x-ray unit which is owned and operated by the City of New Orleans and made available to industries and to the general public. A continuous year round screening program is carried on and special emphasis is placed on food establishments, industries, and those individuals who are considered to be in the low income group. Also included in this case finding program is a stationary unit which takes 4″ by 10″ photofluorographic stereographic x-rays and which is used for general work and referrals by private physicians. Over 50,028 seventy millimeter x-rays were taken by the City of New Orleans in 1950. One hundred seventy-three institutions were surveyed and there were 130 other surveys. In this way the New Orleans Bureau of Tuberculosis Control was able to uncover 1,010 new suspects.

The Alexandria-Rapides Health Unit took 12,748 films last year and has become an important asset to its section of the State; here hundreds of inductees into our armed forces were x-rayed. The Caddo-Shreveport Health Unit and Shreveport Charity Hospital together x-rayed 15,202 persons. The units in Lake Charles and in Baton Rouge also performed excellent service. Our mobile x-ray units, continuing to help local parish health units conduct their surveys, found 1,225 persons (of 109,225 examined) with enough evidence of tuberculosis to justify further study.

Our diagnostic and pneumothorax clinics are rendering a needed service in providing therapy for those unable to pay for medical treatment. Strategically placed in Alexandria, Shreveport, New Iberia, New Orleans, Monroe, Crowley, Donaldsonville and Opelousas, these serve all portions of the State. In line with an established policy of bringing treatment facilities as close as possible to the patient, more will be opened. The next one is to be started in Lake Charles.

In 1949, we uncovered 2,827 new cases of tuberculosis in Louisiana; for them 1,128 hospital beds were available. Our job is obviously to provide additional treatment facilities so that as soon as the diagnosis of pulmonary tuberculosis has been made the patient can be isolated. If diagnosed early, isolated at once, treated effectively, he can be speedily rehabilitated to a place of usefulness in society—and we shall be taking the long step toward our primary objective of protecting others in Louisiana against tuberculous infection.

EXTRATHORACIC INITIAL SYMPTOMS IN BRONCHOGENIC CARCINOMA*

CHARLES ODERR, M. D.†
NEW ORLEANS

About 15 per cent of patients harboring a carcinoma of the lung will not present themselves with lung symptoms or signs.[2] Twenty such patients form the basis of this report.

GROUP I:
THOSE PRESENTING EVIDENCE OF BRAIN TUMOR

Three of the 20 cases presented with motor signs, either paralysis or Jacksonian seizures, and had detectible lung lesions. One had only headache which had been thoroughly studied for nearly a year without evidence of organic disease being revealed. The lung lesion was obscured and misinterpreted due to its close proximity to a large pulmonary artery. Arteriography would most certainly have advanced the diagnosis many months. A more thorough planigraphic study might have been equally successful.

Review of the available data in the literature indicates involvement of the motor area is the most frequent, but increased pressure without localized signs is nearly as common. About 11 per cent of bronchogenic tumors metastasize to the brain, and in many it will be the presenting symptom.[1,5] Symptoms usually begin suddenly and progress rapidly, and spinal fluid examination is often negative. If one can develop evidence of an obscure chest lesion, a difficult differential diagnosis is made much easier. To this end we have so far found planigrams to be the most useful of the supplementary roentgenographic procedures.

Cases Nos. 1, 2, 3 and 4 in the table comprise this group.

GROUP II:
THOSE PRESENTING EVIDENCE OF BONE METASTASES

Three patients of this series presented with back or pelvic pain due to bone metastases; and one presented with a mass on the head, due to skull metastasis. One of the back cases had advanced destruction of D12, pain radiating down both legs for six months, and obstruction of pantopaque in myelography; yet the chest examination was completely negative. This was an adenocarcinoma in a man of 43 and the lung lesion was not visualized until microscopic examination of autopsy specimen revealed it. The fifth case in this group complained of pain in the left buttock which proved to be due to destructive metastasis near the acetabulum.

According to Abrams, Spiro and Goldstein,[1] metastases to bones occur in about 40 per cent of cases by autopsy findings. Some of these will present with bone pain as the first symptom. The lesions are lytic and most likely to be in the spine, pelvis or ribs. Localized pain in known cases is suggestive even if bone x-rays are negative, especially in the spine. As with suspected intracranial metastases, chest examination must often be pursued with planigrams and other supplementary procedures when the conventional examinations are negative.

Cases Nos. 5, 6, 7, 8 and 9 comprise this group.

GROUP III
THOSE PRESENTING WITH GASTROINTESTINAL SYMPTOMS

Three patients presented with abdominal gastrointestinal complaints. One of these complained of nausea an hour after eating, and this was apparently due to metastases which were found in the liver and duodenum at autopsy. The other two complained of epigastric pain and had adenocarcinomata with mediastinal metastases.

The mechanism in the production of gastrointestinal complaint is thought by Wenzl[12] to be due to irritation of the vagus nerve. One of the cases was twenty-seven years old and a nonsmoker. The micro-

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*Presented at the Seventy-first Annual Meeting of the Louisiana State Medical Society, New Orleans, La., May 9, 1951.

†From the Radiological Service, Veterans Administration Hospital, New Orleans, La.

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scopic diagnosis in this case was adenocarcinoma.

Cases Nos. 10, 11 and 12 comprise this group. Case No. 13 was also one presenting with gastrointestinal complaint but in this case the complaint was dysphagia and was due to obstruction in the midesophagus. This was an adenocarcinoma and had originated on the right side. The obstruction in the esophagus was due to pressure from invasion of the surrounding tissues but actual invasion of the esophagus had not occurred.

GROUP IV

THOSE PRESENTING WITH ENLARGED NECK NODES

Enlarged neck nodes was the original complaint of three patients and lymphoma was suspected when mediastinal masses were seen by x-ray. Two of these were undifferentiated carcinoma and one was a squamous cell.

Cases Nos. 14, 15 and 16 comprise this group.

GROUP V

CASES PRESENTING WITH PAIN RADIATING DOWN LEFT ARM

There was one patient with predominating symptoms of pain down the left arm and this later became associated with a Horner's syndrome (unilateral small pupil, enopthalmus and anhydrosis). This patient had an apical tumor which shelled out after x-ray therapy and at autopsy showed a fistula communicating with the esophagus. This was a squamous cell carcinoma and had appeared on the original x-ray as a superior mediastinal mass.

This was case No. 17.

GROUP VI

A CASE WITHOUT SPECIFIC SYMPTOMS OTHER THAN WEAKNESS AND WEIGHT LOSS

One patient, fifty-four years of age, complained only of weakness and weight loss for a period of one year and had had a negative chest x-ray during the early part of this period. When x-rayed again on the appearance of cough, chills and sputum, he had a large abscess in the right lung secondary to an oat cell carcinoma of the right bronchus. The post-mortem examination showed widespread metastases including lesions to the adrenal glands.

This was case No. 18.

GROUP VII

CASES FOUND INCIDENTAL TO SOME OTHER TYPE OF WORK-UP

This group is composed of two patients in whom x-ray evidence suspicious of carcinoma was found incidental to some other type of work-up. One of these was an area of pulmonary infiltration found in a thirty-two year old man who was examined for fractured ribs. He signed himself out before lung films could be taken. Two months later he developed a cough, and a film at that time showed a mass in the right lung. A routine chest film two years before had been negative. This patient also had a four-plus Wassermann. The microscopic examination showed adenocarcinoma, and there were multiple metastases.

The other case of this group was a man with myasthenia gravis who had had several negative chest films, and then on one examination showed what appeared to be a mediastinal mass. This grew rapidly during the period he was being studied for possible thymic tumor. All attempts at cytological and bronchoscopic diagnosis failed to demonstrate that the mass was actually a bronchogenic carcinoma; as exploratory thoractomy and later autopsy proved it to be.

Cases Nos. 19 and 20 comprise this group.

COMMENT

With the increasing popularity of chest survey films, we are bound to be confronted more often with suspicious lesions. If all ordinary methods fail to give a satisfactory diagnosis of these lesions, thoracotomy should be recommended according to several recent authors on the subject.[4, 7-9] In men, almost any vague symptom referable to the brain, abdomen, or skeleton, as well as to the chest, should be considered a possible early indication of pulmonary neoplasm. That the peak of age incidence is in the early fifties is again emphasized in this group. The adenocarcinomata are not, according to Graham,[6] statistically correlated with heavy smoking; and the one non-smoker case in this series was of the adenocarcinoma type (Case No. 10).

In the interpretation of chest films of

TABLE OF CASES*

Case No.	Complaint	Age	Race	Packs of cigarettes per day	X-ray	Micro
1	Headache	51	White	1-1½	Left hilum mass	Epidermoid, undifferentiated
2	Epilepsy & headache	41	Negro	Previous smoker	Right hilum mass	Anaplastic
3	Contractions of left leg and headaches	55	White	1	Right hilum mass	Anaplastic
4	Convulsions	74	White	1	Right base mass	Squamous cell
5	Pain in shoulder and back	53	Negro	½	Medias. mass	Squamous cell
6	Lumbar pain	43	White	?	Chest neg.	Adenocarcinoma
7	Pain in buttocks	51	White	?	Atelectasis, R. L. L.	Epidermoid, Grade III
8	Mass over occiput	55	White	?	Ovoid mass, rt. hilum	Anaplastic
9	Pain in arm and back	54	Negro	1	Rt. hilum mass	Anaplastic
10	Abdominal pain	27	White	0	Not visible	Adenocarcinoma
11	Epigastric pain	54	White	1	Rt. hilum mass	Adenocarcinoma
12	Weakness	72	White	?	Nodular mass at rt. base	Large oval dark cells
13	Dysphagia	63	White	2	Rt. hilum mass	Adenocarcinoma
14	Neck nodes	52	White	?	Paratracheal mass	Oat cell
15	Neck swelling	44	White	½	Mediastinal mass	Anaplastic
16	Neck mass	56	Negro	1	Circular densities in parenchyma	Squamous cell
17	Arm pain	57	Negro	1	Mediastinal mass	Squamous cell
18	Weakness	54	White	1	Abscess, rt. lung	Oat cell
19	Abnormality noted on rib film taken after auto accident	32	Negro	½	Rt hilum mass	Adenocarcinoma
20	Myasthenia gravis	56	White	1	Rt. hilum mass	Oat cell

*All Males

suspects almost any unexplained shadow, especially if absent on previous films, must be considered possible early evidence of pulmonary neoplasm. Even a negative routine film does not give assurance that no tumor exists. The adenocarcinomata, which arise more peripherally than the squamous and undifferentiated types, tend to produce less prominent chest symptoms in the early stages. Multiple views with the standard techniques are best suited to increasing the chances of early recognition of this type. Planigram studies are most valuable for the early detection and recognition of the centrally arising lesions.

SUMMARY

Twenty men having bronchogenic neoplasm who presented themselves with the initial complaints other than chest symptoms have been reviewed. Metastases to brain, bone, neck, and mediastinum accounted for the initial complaint in seventeen of the cases. Three cases were found incidental to some other type of work-up.

Men, especially between forty-five and fifty-five, who have any new chest complaint or exaggeration of old complaint, or whose symptoms simulate any of the extrathoracic syndromes mentioned here, should be thoroughly examined for bronchogenic neoplasm. Routine chest film is not enough.

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NONHORMONAL CARCINOMA OF THE ADRENAL CORTEX*

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NEW ORLEANS

This paper has for its purpose the discussion of some significant salient diagnostic features pertinent to adrenal cortical carcinomas in which no clinically recognizable hormonal changes exist, and a brief review of 4 illustrative cases. Nonhormonal types of malignant tumors of the adrenal cortex are too seldom regarded in differential diagnostic clinical considerations and too frequently go unrecognized until the pathologist submits his final anatomic diagnosis. This opinion was corroborated by my review of the card files and charts of more than one-half million consecutive admissions (1932-1950) at the Charity Hospital of Louisiana at New Orleans. I failed to find a single case in which the diagnosis of nonhormonal carcinoma of the adrenal cortex had been made clinically. Important contemporary textbooks pertaining to cancer or exclusively devoted to the adrenal gland give only scant attention to this important entity. For the sake of clarity, the following clinical classification of adrenal cortical tumors is suggested:

1. No clinically recognizable hormonal changes.

2. Hormonal changes caused by excessive production of androgens.

a) Male child—Precocious masculinization.

*Presented at meeting of the Orleans Parish Medical Society, January 8, 1951.

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b) Female child—Develops adult masculinization.

c) Female adult—Loss of feminization and acquisition of masculine characteristics.

3. Hormonal changes caused by excessive production of estrogens.

a) Male adult—Loss of masculinity and acquisition of feminine characteristics.

4. Hormonal changes caused by excessive production of other steroids.

a) When associated with overproduction of androgens, the Cushing syndrome with associated sexual changes occurs (most evident in females).

b) When associated with steroids related only to metabolism, Cushing syndrome without evident sexual changes takes place (in males and females).

Nonhormonal carcinoma of the adrenal cortex is seen usually in adults of both sexes past 30 years of age. Early in the disease, symptoms are minimal. More frequently, the clinical picture lacks specificity and bears intimate resemblance to the oft-repeated "fatigue syndrome" familiar to the general practitioner; namely, malaise, weakness, anorexia, occasional low grade fever, and sometimes fleeting discomfort in the abdomen and flank. Unfortunately, routine palpation of the abdomen does not necessarily provide reliable information because of the elusive anatomical position of the adrenal in the deep recesses of the flank. Much later, the tumor mass may increase in size to palpable dimensions and possibly produce symptoms referable to adjacent viscera caused by malignant invasion or external compression. By this time, there has passed by the golden irretrievable interval during which time the extirpation of an unmetastasized malignant tumor is surgically feasible.

Hormonal changes and Cushing syndrome have been identified with adrenal cortical carcinomas with such unremitting emphasis in the medical literature, it has unwittingly resulted in the erroneous conception that the absence of the dramatic endocronopathic changes rules out any serious consideration of adrenal neoplastic involvement. This type of thinking is wholly without basis of fact. Consider, for example, those reported cases of adrenal cortical carcinomas of the excessive androgen type in adult males which have been diagnosed only by virtue of urinary steroid studies because hormonal changes were not clinically evident.

When the possibility of an adrenal cortical tumor presents itself, there are two roentgenographic diagnostic procedures available, namely, pyelography and perirenal air insufflation. Both the intravenous and retrograde pyelograms are of equal but limited value. Their usefulness is dependent upon the finding of displacement of the renal and pyelographic shadows without the presence of calyceal deformity or enlargement of the renal outline such as would be caused by parenchymal renal pathology. Furthermore, pathognomonic pyelographic findings are predicated on the existence of an extrinsic mass (i.e., adrenal cortical neoplasm) which is large enough to produce displacement of a neighboring organ and that the resultant force created by such a mass is directed inferiorly toward the kidney.

The technique of perirenal insufflation of air or some other innocuous gas has been successfully and effectively used to obtain an accurate outline of both adrenal glands. The right adrenal normally appears as an elongated slender wedge located between the liver and psoas muscle. On the left side, the adrenal is wider and may even have a crescentic outline. Changes in respect to size and contour from the normal are often detectable so that even benign glandular hypertrophy has been accurately diagnosed on the basis of radiologic findings. This procedure is not entirely without danger, especially in inexperienced hands, and reactions of variable severity, including death, have been reported.

Because of the nonhormonal character of the tumor under consideration in this paper, the invaluable bio-assay techniques which are currently available cannot be employed in the diagnostic approach to this problem.

In common with other difficult surgical

problems, the final diagnosis awaits surgical exploration. Surgical exploration of both adrenal glands should be performed as a diagnostic procedure in the presence of important clinical evidence suggestive of adrenal cortical carcinoma. Justification for this attitude is apparent in the balance which weighs heavily in favor of a potential life-saving procedure against the lesser magnitude of the low morbidity and mortality of the exploratory operation. Once there is reason to believe that an adrenal cortical carcinoma is present, conservative watchful waiting is no longer tenable. Attention is invited to the case of J. B. S. which is briefly reviewed below. In this man, a carcinoma of the adrenal cortex measuring 1.0 cm. in its greatest diameter had already metastasized to the other adrenal and both lungs.

CASE REPORTS

Case No. 1: J. B. S., 56 year old white male, was admitted to the hospital complaining of a small mass in the right inguinal region of four months' duration. This mass was soft and nontender but had been increasing in size and becoming progressively more painful. Occasional gross hematuria was reported by the patient. He had some anorexia and nausea but no vomiting and stated that he had lost approximately 20 lbs. in the preceding three months.

Physical Examination: Blood pressure 100/70. The left kidney was palpable but otherwise normal. A soft irreducible tender mass, 4 by 3 cm. was noted in the right inguinal region. This mass was nodular and palpable below the subcutaneous inguinal ring. The skin overlying the mass was reddened.

No clinical evidence of endocrinopathy.

The patient eventually expired in the hospital and the following anatomical diagnoses were established at postmortem examination:

1. Carcinoma of the adrenal cortex (the entire malignant tumor was 1 cm. in diameter)
2. Metastasis to the left adrenal gland and bilateral lung metastasis.

Case No. 2: C. P., 45 year old white male, was admitted with a history of gradual onset of dyspnea of four months duration. Edema of the eyelids and ankles occurred soon after the onset of the dyspnea which became so severe as to disable the patient. The dyspnea gradually progressed to orthopnea and the patient developed a pleural effusion. While in the hospital, 2600 cc. of clear fluid were aspirated from the right pleural cavity. Studies of this fluid were negative for tumor cells. Because of repeated pleural effusions, multiple aspirations became necessary to relieve respiratory embarrassment. Injection of x-ray opaque material into the veins of the upper extremity revealed complete block of the superior vena cava but the nature of the block could not be demonstrated. Approximately one month later, the patient died of cardiorespiratory failure.

There was no clinical evidence of endocrinopathy.

A postmortem examination revealed the following anatomical diagnoses:

1. Carcinoma of the left adrenal cortex.
2. Metastasis of the left adrenal cortical carcinoma to the right pleural cavity, both lungs, the mediastinal lymph nodes, liver, and right kidney.
3. Cor pulmonale.
4. Fibrocaseous tuberculosis of the right apex.
5. Occluded superior vena cava due to external pressure of tumor mass.

Case No. 3: J. B., 46 year old white male, admitted to Touro Infirmary complaining of a pain in the left side of three and a half months' duration. This pain, aching in character, was worse in the morning. It usually began in the region of the left costovertebral angle and radiated to the left lower quadrant but neither to the genitalia nor the thigh. Moderate frequency and nocturia were present but antedated the onset of the present illness. The patient also complained of occasional nausea and vomiting. He stated that he had lost about 60 lbs. in the preceding twelve months.

Physical Examination: Blood pressure 92/60.

Moderate tenderness was elicited in the left costrovertebral angle and the left lower quadrant. The left kidney was palpable but no abdominal masses were otherwise noted. No clinical evidence of endocrinopathy was evidenced.

The only significant laboratory finding was an N. P. N. of 95 mgm. per cent.

Exploration of this mass revealed an adrenal cortex carcinoma overlying the left kidney. The mass was quite large and had infiltrated the adjacent retroperitoneal structures as well as the intraperitoneal viscera and it was not feasible to remove the entire malignant tumor.

Case No. 4: A. W., 55 years of age, was admitted to Touro Infirmary complaining of recent onset of weakness, anorexia, malaise, and a vague feeling of discomfort in the left upper quadrant. Routine study revealed a small mass in the right pulmonary apex which was thought to be a lung abscess. Because of the possibility of this actually representing a metastatic malignancy from some other focus or even a primary malignancy in the lung, a complete survey was done. This revealed the existence of a displaced left kidney in which

the pyelographic shadow was normal. It was thought that this renal displacement was due to a left adrenal neoplasm. Exploration of the mass revealed an adrenal cortical carcinoma. The patient expired a couple of weeks later at which time necropsy findings revealed metastases to the other adrenal gland, intestine, liver, left kidney, and lungs.

SUMMARY AND CONCLUSION

1. Anorexia, ease of fatigue, and malaise, when associated with flank and abdominal pain which is accentuated by exercise, should suggest the possibility of an adrenal cortical neoplasm.

2. Normal physical findings in the examination of the abdomen do not necessarily obviate consideration of an adrenal malignancy. However, an easily palpable left kidney, especially in the sthenic and hypersthenic types of individuals, should suggest abnormal renal displacement caused by an extrarenal mass although this does not implicate only the left adrenal gland.

3. Nonhormonal carcinoma of the adrenal cortex, by definition, implies the absence of both clinical endocrinapathy and biochemical detection of aberrant steroid states. An interesting corollary to this fact is the lack of association between the gross and histological appearance of the tumor and the type of degree of biological activity.

4. Pyelography and perirenal insufflation of air provide a limited but definite value in the diagnostic work-up of a suspected adrenal neoplasm.

5. Surgical exploration of both adrenals should be an accomplished fact without delay when the accumulated evidence reasonably suggests the possibility of a carcinoma of the adrenal cortex.

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MANAGEMENT OF THE COMPLICATIONS OF HEART FAILURE

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NEW ORLEANS

In recent years an improved understanding of cardiovascular physiology has led to better clinical management of cardiac failure. However, the remarkable relief afforded by certain drugs has detracted from a study of a patient as a whole and has resulted in stereotyped therapy. This paper will attempt to outline some of the steps in the care of refractory cases. Failure of the blood supply to all the organs of the body may lead to an unresponsive state unless the aim of treatment is to restore the disturbed physiology and chemical state of the individual to normal. Many of the complications, if recognized early, are easily corrected by simple methods. (See Table 1).

TABLE 1
COMPLICATIONS OF HEART FAILURE

A. Nutritional disorders.
B. Toxic effects of the mercurial diuretics.
   1. Electrolyte and water imbalance.
   2. Immediate reactions.
   3. Mercurialism.
   4. Local irritation.
   5. Redigitalization.
C. Abuse of barbiturates.
D. Digitalis intoxication.
E. Pulmonary complications.
   1. Pulmonary embolism.
   2. Pleural effusion.
   3. Pulmonary atelectasis.
   4. Hypostatic congestion.
   5. Pneumonia.
   6. Chronic pulmonary edema.
   7. Hemoptysis.
F. Coexisting disorders.
   1. Anxiety.
   2. Hyperthyroid and hypothyroid states.
   3. Anemia and hyoproteinemia.
   4. Avitaminosis.
   5. Allergic states.
   6. Obesity.
   7. Arteriovenous shunt.
G. Intractable edema.
H. Surgical complications.

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NUTRITIONAL DISORDERS

An appraisal of the dietary needs of the cardiac is always centered on a low sodium intake and reduction of the caloric requirements of the obese. However, subcaloric intake may be gradual over a period of months due to many unintentional factors. Durant[2] lists the following factors: (Table 2). (1) Emotional factors, such as anxiety, often enhanced by the physician, and isolation which results from eating alone the special diet prescribed; (2) economic difficulties in obtaining the proper food; (3) gastrointestinal disturbances resulting from congestion and edema; (4) therapeutic reasons, such as nausea from digitalis, the removal of water soluble vitamins by diuresis, tapping with electrolyte loss, and the low sodium diet which so many patients find difficult to tolerate.

TABLE 2
NUTRITIONAL DISORDERS (DURANT)

1. Beriberi type—good caloric intake such as carbohydrate and alcohol but needing vitamin B.
2. Generalized inanition—subcaloric intake for long period.
   a. Emotional factors.
      1. Anxiety enhanced by doctors.
      2. Isolation.
   b. Economic.
   c. Symptomatic gastrointestinal.
   d. Therapeutic reasons.
      1. Nausea from digitalis.
      2. Removal water soluble vitamins by diuresis.
      3. Tapping—removal of electrolytes.
      4. Low sodium diet.

Specific printed diet lists should contain information about salt substitutes, proper methods of seasoning food, suggested menus, ways of preparing or obtaining salt free bread and butter. Use of the cation resins will enable a more liberal salt intake.[8] The newer ammonium potassium resins absorb sodium in their passage through the gastrointestinal tract and have little if any effect on absorption of vitamins, potassium or calcium balance.[6] The resins are insoluble substances given daily in doses, such as 15 gm. after meals, three times a day. Although finely powdered, they must be suspended in liquid or mixed with food and some patients object to their taste. To obviate this difficulty, dosage schedules can be arranged such as a week of the resins followed by a week of rest. The author has several patients taking the resins with marked relief of symptoms. The use of mercurials and paracentesis can often be obviated or reduced to long intervals.

Time should be spent explaining to the patient the necessity for the diet to be followed and every attempt made to see that instructions are carried out. Meals should be taken with the family group who may share some of the sodium restrictions. The promise of some salt while the resins are being taken will eliminate the boredom of the diet. Correction of existing gastrointestinal disturbances will bring marked relief to the patient and increased enjoyment of food. Diabetic cardiac diets should for the most part follow the cardiac pattern with addition of sufficient insulin to cover the caloric intake.

TOXIC AND UNDESIRABLE EFFECTS OF THE MERCURIALS

In managing intractable heart failure certain toxic and undesirable effects of the mercurial diuretics are encountered. (Table 3) These are: (1) Local irritation; (2) redigitalization; (3) mercurialism; (4) immediate reactions; (5) electrolyte and water imbalance. The latter two are our chief concern and will be discussed in more detail. Ray and Burch[10] review the serious effects of mercury on the cardiovascular system. Direct toxic effect on the heart may occur immediately after the intravenous injection of mercury and this route should be avoided. The new subcutaneous diuretic thiomerin offers a safe and effective method of administration.[14] Heart block and delirium cordis have been produced in the turtle heart. Cardiac standstill and fall in blood pressure were observed in dogs when mercuric succinate, benzoate, or acetate were employed. Elec-

TABLE 3
ELECTROLYTE PATTERNS (SCHWARTZ)

SYNDROME	SERUM CONCENTRATION MEQ/L		
	Cl	HCO3	Na
Low chloride alkalosis	88	37	140
Low salt syndrome (acidosis)	88	17	120

trocardiographic studies have revealed mechanism disturbances and various degrees of atrioventricular and intraventricular block.

Of equal importance in the genesis of the refractory state is a disturbance of the patient's electrolyte and water balance, resulting from mercurial diuresis. Schwartz in an excellent review[11] states that the effect of diuresis on the electrolytes in the body depends on the amount of the various electrolytes excreted in the urine. After mercurial diuresis, serum chloride concentration falls, due to an excessive loss of chloride in the urine with a rise in serum bicarbonate but no significant change in serum sodium. Occasionally serum sodium may fall also. Daily injections of mercurials may produce hypochloremic alkalosis with first a diminished and then no diuretic response at all. Correction of this state may be accomplished by adding ammonium chloride which increases the diuresis to mercury. The refractory state may develop with chloride levels to 88 to 98 mEq/liter, and bicarbonate levels of 30 to 38 mEq/liter. If mercurial diuretics are necessary at frequent intervals, ammonium chloride should be given to increase diuresis, increase chloride, and decrease serum bicarbonate.

Even with the addition of ammonium chloride, hypochloremic alkalosis may develop due to excessively large diuresis (loss exceeds replacement), inability to take or or retain drug due to nausea, and failure of absorption of enteric coated tablets. In such instances ammonium chloride may be given intravenously in 1 per cent or 2 per cent solution in 5 per cent glucose at a rate not exceeding 200 cc./hr., a total of 10 to 15 gm. in the course of a day. The ammonium ion is toxic and intravenously may cause collapse, convulsions, and death, if the intravenous rate exceeds the ability of the liver to convert it to urea. Dilute hydrochloric acid is a satisfactory substitute orally in thirty or fifty fold dilution of U. S. P. dilute hydrochloric acid (10 per cent), approximately 20 cc. diluted to a volume of 600 to 1000 cc./day.

Response to mercurials may continue in spite of hypochloremic alkalosis. As this condition progresses anorexia and confusion increase with gradual coma and death. Excessive loss of potassium often accompanies the development of hypochloremic alkalosis and judicious replacement may be necessary. Renal failure may complicate the picture and determination of the electrolyte profile at intervals is essential to proper management and the continuous use of diuretics.

Hypochloremic alkalosis is not the so-called low salt syndrome. This is a hypochloremic acidosis with a total reduction of sodium and chloride. The exact circumstances are obscure but it accompanies renal disease, starvation, strict low sodium diets, and repeated paracentesis. Some of the sodium may not actually be lost but may transfer into the cells. The use of hypertonic saline (3 to 5 per cent) may correct this disorder when given in calculated amounts.

The differentiation of the low salt syndrome from hypochloremic alkalosis (Table 3) is essential in the correction of the refractory case of heart failure. So far as more careful use of the mercurials is concerned, many toxic reactions can be prevented by using the intramuscular or subcutaneous route,[14] by smaller doses, alternating days or weeks, and occasional rest periods. The efficiency of oral mercurial diuretics remains to be proven. It is generally accepted that when the blood urea nitrogen exceeds 60,[10] the mercurials are contraindicated. On occasion they may be used when the figure is over 60 with congestive heart failure alone in the absence of renal disease.

Mild hypocalcemia may occur when diuretics are being given, with carpopedal spasm occuring especially in the early morning. Calcium lactate by mouth or cautious use of calcium gluconate by the intravenous route in small doses may be needed. Digitalis therapy does not necessarily contraindicate the use of calcium.

BARBITURATE ABUSE

Another complication often seen in the

advanced cardiac is produced by the improper use of barbiturates. The cardiac is often unable to sleep at night and the use of heavy doses of barbiturates will depress breathing and produce Cheyne-Stokes respiration. This type of breathing is a cause of increased restlessness and insomnia in older patients. They become disoriented, unable to void and often must be restrained. In place of the heavy barbiturates small doses of chloral hydrate, demerol, or aminophyllin suppositories may be used.

DIGITALIS INTOXICATION

Digitalis intoxication commonly results when large doses are given to a patient who fails to give a history of previous digitalis therapy. In refractory heart failure the dose should be carefully reviewed because standard rules to gauge digitalizing and maintainance doses must be discarded.[12] The theoretical maximum improvement for the particular type of heart disease must be considered.[5] Acute inflammatory and necrotic lesions of the myocardium are best handled on average maintainance doses to keep irritability of the myocardium to a minimum. With other types, one may gradually increase the dose of digitalis until first symptoms of toxemia appear or until it is certain that increasing failure is being produced.

Gastrointestinal symptoms are quickly relieved by withdrawing all digitalis until such symptoms subside. Disturbances of cardiac rhythm which are early signs of toxicity, especially with the purified glycosides, must be handled individually as the situation requires. Where indicated the judicious use of quinidine or pronestyl will control tachycardias and prevent further difficulties. Heart block will usually disappear if of digitalis origin, when enough of the drug is excreted. The best treatment of digitalis intoxication is its prophylaxis.

PULMONARY COMPLICATIONS

Bunn[1] believes that too many pulmonary conditions associated with heart disease come to light at the autopsy table. The following should always be kept in mind: (1) pulmonary embolism; (2) pleural effusion: (3) pulmonary atelectasis; (4) pulmonary congestion, hypostatic congestion; (5) hypostatic pneumonia; (6) chronic pulmonary edema; (7) hemoptysis.

Although the source of emboli is usually the lower extremities, the heart itself is often the site of origin. Pulmonary emboli which come from the leg veins are due to slowing of the circulation. Methods should be instituted to prevent their formation, such as passive exercises with flexing of the extremities several times a day. Elastic wraps from the toes to the inguinal region may be helpful in preventing stagnation of blood particularly where old thrombophlebitis is present. Use of the anticoagulants is strongly recommended in chronic cardiacs. At the present time some type of heparin followed by dicumarol therapy is the method of choice. Tromexan and paritol which are new anticoagulants are under investigation and may offer some advantages in certain selected instances. Frequent prothrombin determinations are essential. In the face of recurrent thrombi and emboli Foley and Wright[3] report on long term anticoagulant therapy over a period of five to twenty months. Prothrombin powers were checked at more frequent intervals during several weeks or months of hospitalization. Diet appeared to play some part in the dicumarol requirements. An adequate protein intake helps to stabilize the requirements in some patients. Excessive intake of alcohol may affect the dosage as may oil-containing laxatives. The author has treated several ambulatory patients with dicumarol for more than a year and feels that one or two prothrombin determinations a week are essential to controlled therapy.

Fluid in the pleural cavity is a complication of heart failure which should be suspected if cough and dyspnea persist in spite of thorough treatment with the usual remedies. The physical signs are not always easily elicited especially in emphysematous patients. Fluoroscopic examination and roentgenographic techniques, to include the oblique and lateral views, are indicated. Occasionally, a diagnostic thoracentesis will reveal fluid when all other

methods fail. Dramatic relief of dyspnea is often afforded by the removal of small amounts of fluid.

Pulmonary atelectasis must be recognized and treated early to prevent small areas from coalescing and involving larger portions of the lungs. Preventive steps include frequent changes in the position of the patient, sitting up in bed, encouraging deep breathing, coughing several times a day, and the administration of oxygen with or without small amounts of carbon dioxide as indicated. Antibiotics and respiratory stimulants are of assistance also. Until intra-alveolar edema appears passive pulmonary congestion is often not recognized. Disturbing symptoms may be present even before actual intra-alveolar edema results. Hemoptysis may occasionally be severe enough to produce a significant anemia especially in the pulmonary hypertension of severe degrees of mitral stenosis. In rare instances transfusion may be necessary. This condition is most often confused with the hemoptysis accompanying pulmonary embolism.

COEXISTING DISORDERS

There are certain conditions which are not direct complications of heart failure but may coexist and influence the management of a refractory cardiac. Among these are: (1) anxiety; (2) hyperthyroid and hypothyroid states; (3) anemia; (4) hypoproteinemia; (5) obesity; (6) avitaminosis; (7) allergic disorders; (8) arteriovenous shunts. The aim of the physician should always be to establish rapport and allay anxiety.[9] Every patient must successfully maintain a relationship with his job, family, and his environment, and their should be underemphasis of details concerning the cardiac status in favor of details about energy requirements of a job, traveling to and from work, hobbies and recreation.

In studying anxiety in the chronic cardiac one must not overlook a smoldering hyperthyroid state. The antithyroid drugs, including radioactive iodine, offer hope in relieving the burden of a failing heart. Many patients with angina have noted marked improvement after doses of radioactive iodine.

Existing anemias must be corrected by proper diet, occasional small transfusions of whole blood or washed red cells. Hypoproteinemia may be avoided by use of enough protein low in sodium content. Avitaminosis brought on by poor absorption, excessive use of mercurials, and faulty diet is best corrected by parenteral administration of the B complex group. Obesity should be eliminated to reduce the burden of the struggling heart and the necessity for loss of weight explained carefully to the patient. Allergic states are difficult to manage but respond to desensitization, change of environment, and the use of ephedrine-like drugs without cardio-accelerator properties. The necessity for the recognition of congenital defects and arteriovenous shunts needs no further explanation.

MANAGEMENT OF EDEMA

Stead[13] in a recent recent review of the renal factors involved in heart failure stresses an understanding of disturbed hemodynamics. The edema of heart failure is due to a reduction in filtered sodium chloride. The student of heart failure is being pulled into the field of endocrinology to evaluate the effect of reduced circulation and decreased oxygen tension on the pituitary-adrenal relationship and other aspects of metabolism. Diets restricted in salt and protein may affect the function of the pituitary, thyroid, and adrenal glands, as well as the electrolyte composition of the cells. Physical chemistry may present problems as a definition is attempted for the mechanisms by which osmoreceptors operate and the "osmotic set" of the receptors if such exists. An outline of the management of cardiac edema is presented in Table 4 and includes many of the factors already mentioned.

SURGICAL COMPLICATIONS

It is not infrequent that acute surgical emergencies arise in the face of heart failure. These are best deferred if possible for a few hours or days until some degree of compensation is restored and electrolyte imbalance corrected. Restoration of the clot-

TABLE 4
TREATMENT OF EDEMA (STEAD)

A. Measures to make the circulation more adequate.
   1. Increase the cardiac output—digitalis.
   2. Decrease the activity of the body to decrease number of liters pumped. Decrease weight, stairs, work.
   3. Correct diseased states which increase the requirement of the body for blood.
   4. Correct states having adverse effect on myocardial function.

B. In the presence of inadequate circulation:
   1. Decrease NaCl in diet to 150-200 mg/day. Watch Cl. excretion in the urine. Add dialyzed milk for protein content.
   2. Increase the excretion of NaCl by use of diuretics such as mercurials and ammonium chloride.
   3. Remove sodium from the gastrointestinal tract with cation resins.
   4. Removal of fluid by mechanical means—thoracentesis and paracentesis.

ting power to safer levels is necessary when patients are taking anticoagulant drugs. Anesthesia should be selected only after careful consultation between surgeon, internist, and anesthetist. Constant nursing attention is required to avoid many of the pitfalls previously discussed. An emergency cardiac tray should be kept in the room at all times so that necessary drugs may be obtained at a moment's notice. Liberal use of oxygen for periods of from several days to weeks is often indicated.

SUMMARY

This paper has attempted to emphasize some of the important factors in the correction of the complications of heart failure. The patient must be treated as a whole and the physician must be alert to derangements produced by the treatment itself. Improved methods of electrolyte determination make it essential that better laboratory facilities be made available to all physicians called upon to treat refractory heart failure. The recent introduction of the cation exchange resins offers relief to the cardiac faced with the possibility of existing indefinitely on a low sodium diet. A better understanding of the digitalis-like drugs will enable the physician to prevent or quickly recognize many of the complications of heart failure. Finally one must attempt to evaluate the functional capacity of the patient so that he may remain an active member of society instead of an abandoned so-called Grade IV cardiac.

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PRESENT DAY INDICATIONS FOR CESAREAN SECTION

A REPORT OF CESAREAN SECTIONS PERFORMED ON THE TULANE SERVICE AT CHARITY HOSPITAL, JANUARY 1, 1949 - JANUARY 1, 1951*

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There is no other procedure in obstetrics which has enjoyed more controversial phases than that of cesarean section. The literature relating to this operation throughout the years, is voluminous, and all are aware of the historical background surrounding its inception. For the students

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of obstetrics, the past thirty years have been years of marked advance. The advent of modern surgery, and later, blood transfusion lifted cesarean section from its previous role of often fatal necessity to one of intelligent choice. However, today, armed with antibiotics, the obstetrician has less fear of infection, and there is a tendency to undervaluate the additional stigmata attending this procedure.

We have considered, above all, that an incision in the uterus is one of profound seriousness carrying with it a permanent, crippling effect, which in turn stigmatizes all further productivity. This coupled with the limiting effects of fecundity, the increased mortality over vaginal delivery, the risk of uterine rupture, and the innumerable facets of religious, moral, and psychological factors, necessitates clear indication for its performance.

In 1921, J. Witridge Williams reported a twenty-one years' experience with cesarean section in a bulletin of the Johns Hopkins Hospital.[1] Then, only 183 cesarean sections were performed in 20,000 deliveries, an incidence of less than 1 per cent. Prior to 1906, pubiotomy had been given trial (1899-1906) and 50 sections had been performed in twelve years. In the last nine years of the study, 133 were performed. The overall maternal death rate was 5.46 per cent. Some of his conclusions are of sustained value today, for example, that Porro sections carried one half less risk, and that cesarean section should not be employed to treat eclampsia. It is interesting to note in passing, that he recommended sterilization after the third section, a dictum not endorsed as such by present concepts.

Edward L. King, who for many years has studied cesarean section in the city of New Orleans has shown previous trends.[2] Significant enough was his condemnation of cesarean section as a treatment for eclampsia in the 1920-1930 period, when the maternal mortality of 35 per cent depicted the futility of the method.

This study is presented and designed to take inventory of our present day philosophy and concepts in the management of delivery by cesarean section.

SCOPE OF PRESENT STUDY

We have purposely chosen the experiences on the Tulane University service at the Charity Hospital in New Orleans, since your essayists have personally observed the patients referred to, and have accepted the interesting chore of making the decisions when abdominal intervention was indicated. Statistics are often tiresome, but are important to evaluate these decisions in terms of success or failure of one's goal. We would like to present the following pertinent figures in order to discuss incidence, indication, and result.

STATISTICAL STUDY

The study includes a twenty-four month period from January 1, 1949, to January 1, 1951. During this period there were 21,474 deliveries at Charity Hospital of which 743 ended in cesarean section, a rate of 3.46 per cent. Of these deliveries 7,844 were on the Tulane service, where there were 310 sections performed, a rate of 3.9 per cent. (Figure 1).

DELIVERIES AND CESAREAN SECTIONS

JAN. 1. 1949 – JAN. 1. 1951

	DELIVERIES	CESAREAN SECTION NUMBER	RATE %
CHARITY HOSPITAL	21,474	743	3.46
TULANE SERVICE	7,844	310	3.9

Figure 1

The anesthetic of choice in 232 (74.8 per cent), was spinal, in 59, (19.0 per cent) general, and in 19 (6.2 per cent) local infiltration (Figure 2). Spinal anesthesia has

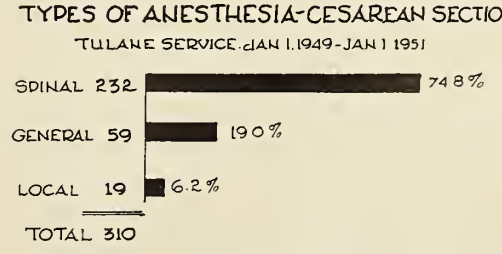

Figure 2

been preferred because of the absence of anesthetic effect on the baby, of less effect on the normal mechanism of the uterus (bleeding and atony) and the additional effect of operative ease due to patient relaxation. Postoperatively there is less abdominal distention. It must be administered by a trained anesthetist who appreciates the vasomotor variations from the non-pregnant patient. This has been discussed on a previous occasion,[3] and is mentioned again in admonition. General anesthesia was employed when spinal anesthesia was not indicated or desired, and local infiltration whenever general and or spinal were contraindicated.

The predominating choice of operative procedure was the low cervical type with a transverse incision whenever possible (Figure 3). There were 249, (80.4 per

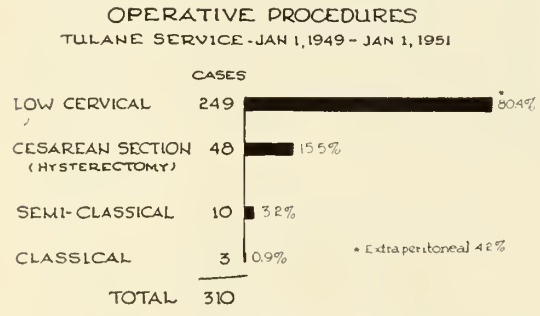

Figure 3

cent) low cervical; of these 13, (4.2 per cent) were extraperitoneal; 48, (15.5 per cent) section-hysterectomy; 10, (3.2 per cent) semi-classical and classical procedures performed in 3 patients, or 0.9 per cent of the total. All classical and semiclassical type incisions in the uterus were for the most part occasioned by early pregnancies. These were classified as such whenever the incision extended past the lower uterine segment, intentionally or otherwise. It is obvious that with little or no lower uterine segment formation in seven and eight months' gestation, the low cervical incision is not always possible. In some instances of central placenta praevia it was not wise to incise the uterus entirely through a placental bed. Other than for these reasons, it would appear that present day obstetrics should delegate the classical type of cesarean section to the historical shelf together with pubiotomy, symphiotomy, and the Portes section.

INDICATIONS

In general, we like to feel that there are three large categories in which indication for cesarean section can be placed; one in which vaginal delivery is averted because of existing mechanical obstruction, one in which termination of pregnancy is indicated from a strict *maternal* indication, and the third in which the attending interest is directed chiefly to the *baby*. Naturally, there are innumerable experiences wherein a given situation may fall into two or all three, and decisions are clear to all concerned.

Some prominent examples of mechanical obstruction are concerned with overlarge, and occasionally a deformed fetus, obstructive placenta praevia, intra and extragenital tumors, (example, uterine fibroids, ovarian cysts, ptosed or pelvic kidney) true cervical dystocia, vaginal stenosis, vaginal varices, extensive vaginal condylomata, previous experiences with repaired fistulae, and most commonly, serious degrees of relative or absolute narrowing of one or more of the pelvic planes.

Strict maternal indications involve instances of serious maternal hemorrhage and those patients in whom there exists a clear-cut indication for delivery when it is not feasible to accomplish this gracefully from below. Examples would be uncontrolled preeclampsia or eclampsia, uterine rupture, placenta praevia and abruptio, compound presentations, previous classical section, carcinoma, (genital or breast), and occasionally true uterine atony.

There are definite fetal indications which are concerned with arrest of progress during labor due to faulty fetal attitudes, maternal diabetes, and prolapse of the umbilical cord when the baby is in excellent condition and delivery is not imminent. Heart disease, tuberculosis, and eclampsia are not treated by cesarean section but rather cesarean section is employed if some other *additional* indication for section is present independent of the maternal disease.

In the 310 patients who were delivered

by cesarean section, 212 (78.4 per cent), fell into two categories. Of these, 124 (40 per cent) had had previous cesarean section and 88 (28.4 per cent) presented insurmountable fetopelvic disproportion (Figure 4). The great majority of the latter

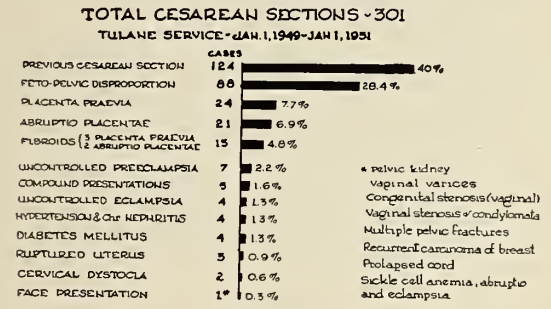

Figure 4

were afforded adequate trials of labor. Three complications accounted for 60 per cent of the remaining 98 patients. Still occupying a dramatic role was the steady incidence of placenta praevia, 24 (7.7 per cent), abruptio placentae, 21 (6.9 per cent), and uterine fibroids, 15. (4.8 per cent). We have still to be impressed with complete conservative management of recognized hemorrhage in the third trimester. Three maternal deaths, discussed later, were due directly or otherwise to premature separation of the normally implanted placenta. Uncontrolled preeclampsia 7, (2.2 per cent), compound presentations 5, (1.6 per cent), and four each (1.3 per cent each) of uncontrolled eclampsia, hypertension with chronic nephritis and diabetes mellitus completed the more common indications. Ruptured uteri 3, (0.9 per cent), true cervical dystocia 2, (0.6 per cent) and one each (0.3 per cent) of the existence of a face presentation, pelvic kidney, vaginal varices, congenital stenosis of the vagina, vaginal stenosis and condylomata accuminata, multiple pelvic fractures, recurrent breast carcinoma, prolapsed umbilical cord, and sickle cell anemia in a Rh negative negress with abruptio placenta and eclampsia, completed the miscellaneous with some of the unusual indications.

It is of interest to note the absence of the "elderly primigravida", as an indication, in spite of the fact that we observe our share of pregnant primigravida in this category.

The three instances of ruptured uteri were not associated with previous cesarean section.

DISCUSSION

If the statistics were corrected to delete those patients with histories of previous cesarean section, the incidence would be reduced by more than one-third. The trend to make use of this method of delivery will naturally impose a yearly increase in the total. Although many patients have been delivered vaginally following cesarean section performed for other than frank obstruction, space does not permit of a discussion of this interesting and controversial phase. Suffice it to say, we have successfully and repeatedly violated the adage, "once a section always a section".

Fetopelvic disproportions are evaluated individually. Experience has taught us to rely on x-ray cephalometry and pelvimetry with limitation.[4] Space again does not permit a detailed discussion of the value of x-ray application; however, in the absence of frank deformity or frank fetal enormity this valuable aid has *yet* to replace the intelligent trial of labor. Emphasis should not be placed on the known presence of various amounts of numerical disproportion alone. All variants in both mechanism and progress must be taken into serious consideration by careful vaginal examination.

Since hemorrhage accounts for 50 per cent of our maternal deaths, whether it be neglected hemorrhage on admission or not, success has been maintained only in radical management. Our adage in all serious hemorrhage is, "to control the bleeding immediately", the cesarean section resulting whenever bleeding points cannot be reached instantly to accomplish control. This is particularly true of abruptio placenta and obstructive placenta praevia. Conservative management is employed only when these conditions occur or are apparent at the end of the first or during the second stage of labor.

In toxemias of pregnancy, cesarean section, when employed, is done so purely to effect early delivery when vaginal delivery

is otherwise not possible and or induction of labor not indicated. Again, we would like to emphasize that this procedure is not used as a treatment of eclampsia.

Of the less frequent indications, diabetes deserves mention. If for no other reason than for the fact that the stillbirth rate in diabetic mothers is extremely high, and that the diabetic baby is best salvaged at the thirty-seventh week of gestation, cesarean section is justified. It has not replaced vaginal delivery where this route was facile and feasible.

MORTALITY

Figure 5 shows the maternal deaths from all causes, during this two year period. There were 2 deaths in 1232 white deliveries and 6 in 6612 colored deliveries for an over-all mortality of 1.02 per 1000 deliveries. Of these, 1 white and 4 colored maternal deaths were associated with cesarean section for an over-all mortality of 1.61 per cent. In 3 of the 5 deaths, 2 occurred in elective procedures.

DELIVERIES AND CESAREAN SECTIONS
TULANE SERVICE- JAN 1.1949-JAN 1 1951

	WHITE	COLORED	TOTAL
DELIVERIES	1232	6612	7844
MATERNAL DEATHS ALL CASES	2	6	8
MATERNAL MORTALITY PER 1000	1.61	0.90	1.02
CESAREAN SECTIONS			
NUMBER	56	254	310
PER CENT	4.5	3.8	3.9
MATERNAL DEATHS			
NUMBER	1	4	5
PER CENT	1.78	1.57	1.61

Figure 5

Figure 6 depicts in detail, the causes of the 8 maternal deaths.

Of the white deaths, one occurred in a postpartum eclamptic, readmitted ten days after delivery one week after discharge and after having convulsions for seventy-two hours. She died on admission. The second died of a pulmonary embolus twelve hours after delivery.

The colored deaths are listed as follows:

1. Malignant hypertension, total abruptio, section hysterectomy death due to lower nephron nephrosis.

2. Ruptured uterus, complete abruptio, in profound shock on admission, section hysterectomy, died one week later, after having been up and about, of a massive pituitary necrosis. (Sheehan's syndrome).

3. Complete abruptio on admission, section hysterectomy, irreversible shock.

4. Repeat, elective section, section hysterectomy, transfusion reaction (incompatible blood), lower nephron nephrosis.

5. Pregnancy 7 months, self ingested poison, convulsions; died shortly after admission.

6. Amniotic fluid embolus at time of delivery.

MATERNAL DEATHS - TULANE SERVICE
JAN 1, 1949 - JAN. 1, 1951

	WHITE	COLORED	TOTAL
DEATHS	2 x	6 xx	8
MORTALITY PER 1000	1.61	0.90	1.02

x (1) PP Eclampsia (2) Pul. Embolus PO section 1st day

xx (1) Malignant hypertension, Total abruptio, lower nephron nephrosis, PO section hysterectomy

(2) Ruptured uterus, complete abruptio, in prolonged shock on admission. PO. hysterectomy, massive pituitary necrosis

(3) Complete abruptio on admission - irreversible shock PO hysterectomy

(4) Repeat section PO hysterectomy. Transfusion reaction Lower nephron nephrosis

(5) 7mos pregnancy. self-ingested poison Convulsions

(6) Amniotic fluid embolus - at delivery

Figure 6

Of those associated with cesarean section the pulmonary embolus might have been preventable, but the transfusion reaction can be considered the only clear cut preventable death.

Although we accept the mortalities, it is futile in every instance to save a patient who is allowed to travel up to 100 miles in profound shock and is admitted lifeless. There are increasing numbers of patients who leave their local medical care, and travel through many of our Louisiana towns, oblivious to the available care en route when too often a bottle of plasma or an infusion could make the difference between life and death.

No patient has been lost from infection.

Figure 7 shows the overall fetal mortality

rate of 12.2 per cent. This includes all babies form all types of complications including premature infants.

FETAL DEATHS IN CESAREAN SECTIONS

TULANE SERVICE: JAN. 1-1949-JAN. 1-1951

	WHITE	COLORED	TOTAL
CESAREAN SECTIONS	56	254	310
FETAL DEATHS (ALL CAUSES)			
NUMBER	11	27	38
PER CENT	19.6	10.6	12.2

Figure 7

SUMMARY

Present indications for cesarean section on the Tulane service at Charity Hospital were discussed. Mention was made of the anesthetic and type of operative procedure in 310 cesarean sections occurring in 7,844 deliveries. Modern trends revealed increasing indication for cesarean section in fetopelvic disproportion and repeat sections. The next prominent group were placenta praevia, abruptio placentae and uterine fibroids. A select few toxemias were so terminated but cesarean section was not performed for treatment of eclampsia. There is a definite role for section in the protection of the diabetic baby.

The over-all section rate for Charity Hospital for this two year period was 3.46 per cent, for the Tulane Service 3.9 per cent. There were 5 maternal deaths associated with cesarean section, 1 preventable. This resulted from a transfusion with incompatible blood. The other 4 were concerned with: a postoperative pulmonary embolus, and 3 abruptio placentae, 2 of whom were admitted in extremis. There were 2 lower nephron nephrosis and 1 instance of pituitary necrosis (Sheehan's syndrome). The fetal mortality was 12.2 per cent from all causes including prematurity.

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KIRSCHNER WIRE INTRAMEDULLARY FIXATION VERSUS HANGING CAST IN FRACTURE OF HUMERUS*

JOSEPH E. WHEELER, M. D.

ALEXANDRIA

Various types of traction in the treatment of fractures of long bones have been used since before the days of Hippocrates.

In 1933, John A. Caldwell[1] of Cincinnati, popularized the hanging cast in the treatment of fracture of shaft of the humerus. The hanging cast or traction cast consists of a plaster of Paris cast extending from the axilla to the hand, placed over stockinette with the elbow flexed to an angle of 90 degrees and the forearm in midpronation. A wire loop is incorporated in the cast just above the base of the thumb and through this loop a section of bandage is introduced, passing upward to be tied around the patient's neck. If the cast is not heavy enough to reduce the fracture, a weight may be included in the plaster, of sufficient size to overcome the shortening of the upper arm.

With the overriding of the fragments overcome, as in many fractures, it may be found that the distal fragment rides anterior to the proximal fragment. By moving the center of gravity posteriorly and flexing the elbow more acutely, better approximation may be secured. If the distal fragment is posterior, extension of the elbow with shifting of gravity anteriorly is indicated. When the distal fragment lies medially, the weight should be placed on the

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lateral side of the arm, but when there is lateral displacement the center of gravity should be on the medial side. Felt pads may also be used above and below the fracture site to correct lateral displacement, and as in other fractures treated by traction, the weight may be increased or decreased or the angulation of the traction apparatus may be changed without obtaining a satisfactory reduction.[2] Each change of weight or cast, and each change of angulation means x-rays, extra suffering for the patient and prolongs the treatment of the fracture. An extended delay may even result in a nonunion of the humerus as the shaft of the humerus is the site of nonunion quite frequently.

Due to the above mentioned difficulties, after three or four maneuvers with the hanging cast or other types of traction, we have resorted to open reduction. Formerly internal fixation was secured by the use of metal plates, Parham bands, or maintenance of apposition by application of wires or screws. If reduction had not been obtained before three or more months, some type of bone graft was used.

During the last few years intramedullary fixation of fractures of long bones has become a popular method of treatment. For over two years we have used intramedullary fixation in this type of fracture, after failure to obtain proper reduction by traction or hanging cast. As there is no weight bearing involved and as the mechanics is such that rigid fixation is not required, multiple Kirschner wires were used. As Aesop taught in his fable of long ago, proving that in union there is strength, one wire or stick may easily bend or break, but by using them in multiples, the strength and support is greatly increased.[3] By using Kirschner wires the necessity of maintaining different types and sizes of intramedullary nails is also obviated.

OPERATIVE PROCEDURE

The operation consists of first reducing the fracture by the open method. An incision one inch long is then made over the lateral aspect of the shoulder. By blunt dissection the greater tuberosity is exposed. A 1/16 inch Kirschner wire is then drilled through the greater tuberosity into the medullary cavity of the humerus extending distally well beyond the fracture site usually to a point about 1 inch proximal to the intercondylar region of the humerus. By means of right angle pliers the proximal 1/4 inch of the Kirschner wire is bent to a right angle and buried well beneath the deltoid muscle to prevent the wire from wandering. Other similar wires are then introduced in a like manner until the medullary cavity is fairly well filled and the possibility of the fragments slipping is prevented. Following the closure, the arm is placed in abduction from 60 to 90 degrees on an aeroplane splint for three weeks, after which time the wound is usually healed and the arm can be worn in a sling. The shoulder and elbow should then be exercised daily and gradually brought into normal activity, except for heavy strain, after two months.

The intramedullary wires may be removed as soon as x-rays show union strong enough to dispense with the internal fixation. As there is but little pain and slight limitation of motion associated with retention of the wires in the bone they may be removed at any time suitable to the patient and the surgeon. In our series the earliest extraction was performed in eight weeks whereas the latest period of removal was eight months.

The extraction of the wires may be performed through a large stab incision using local or light pentothal anesthesia. The stab incision penetrates to the deltoid muscle, and bluntly separating the muscle fibers with a hemostat, the blunt wires may be grasped individually and removed. One silk or dermal suture is sufficient for closure.

CASE REPORTS

Case No. 1. J. G. Injured in auto wreck September 11, 1948. Fracture left humerus, junction of lower part of middle third. Placed in hanging cast at another hospital. Eight manipulations and two casts without proper reduction and alignment. Open reduction with four Kirschner wires introduced October 28, 1948. Aeroplane splint applied for four weeks. Carried arm in sling three weeks.

Worked during Christmas holidays in Post Office. Entered college in January. Wire removed June 16, 1949.

Case No. 2. H. H. S. Injury in truck wreck, June 8, 1949. Admitted to hospital June 12, 1949, with hanging cast applied at another hospital. Fracture left humerus junction middle and lower third with overriding of fragments. Skeletal traction applied by wire through olecranon. Could not reduce. Open reduction June 20, 1949, with introduction of 4 large Kirschner wires into medullary cavity. Arm in abduction in aeroplane splint for three weeks, and then sling with gradual resumption of function. Wires removed September 8, 1949. Good union and good function.

Case No. 3. D. P. Injury about right shoulder March 24, 1950, by fall from ladder on same day. Fracture surgical neck of humerus. Hanging cast for one week without reduction of fragments. Open reduction on March 29, 1950, with introduction of 6 large Kirschner wires into medullary cavity. Abduction by aeroplane splint for three weeks and then sling. Wires removed June 13, 1950. Firm union with slight limitation of motion in shoulder to be worked out by patient.

Case No. 4. A. B. Injured about right shoulder in a fall down the steps, December 10, 1950. Had an old hemiplegia involving right side. Had no treatment for shoulder before entering hospital December 24, 1950. X-rays indicated fracture of surgical neck of right humerus with medial displacement of shaft on head. January 4, 1951, shoulder manipulated under general anesthesia in attempt to reduce fracture. Unable to reduce. Traction by Kirschner wire through olecranon for four days without reduction. Open reduction January 9, 1951, with insertion of 6 Kirschner wires. Aeroplane splint applied for three weeks and then removed. Wires removed March 6, 1951. Union firm. Function of shoulder good except for hemiplegia.

CONCLUSIONS

After several attempts at reduction of fractures of the shaft of the humerus by hanging cast or traction, it is felt that open surgery with internal splinting is indicated. Due to conditions applying to this type of fracture, fixation by intramedullary introduction of multiple Kirschner wires affords a satisfactory method of treatment.

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CLINICAL FEATURES OF ACUTE GASTROENTERITIS, PRESUMABLY VIRAL IN ETIOLOGY*

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SHREVEPORT

The clinical entity of acute gastroenteritis, often epidemic in nature, prevailing during the winter season and characterized by explosive onset of incessant nausea and vomiting often followed by diarrhea and/or fever, is widely recognized and generally presumed to be viral in etiology. In the first "key" article on this subject, Reimann[1] in 1945 stated:

"From the few reports of similar large and small outbreaks of a mild acute gastrointestinal disturbance observed in the United States and elsewhere one would gain the impression that it is an uncommon 'new' disease entity. It is almost certain, however, that it is widespread, communicable, endemic, sporadic, and at times epidemic disease or group of diseases, apart from the known forms of dysentery and acute food poisoning, which because of its mildness usually passes unnoticed in the press of other problems".

Experiences during the past six years would lead few general practitioners or pediatricians to disagree with this statement at the present time, despite the paucity of clinical reports prior to [2-5] or since 1945.[6, 7]

A variety of names have been applied to this entity: hyperemesis hiemis or the winter vomiting disease (by Zahorsky[2] in one of the first clinical descriptions); epidemic vomiting disease of winter[8]; seasonal gastroenteritis; intestinal grip (so-called); acute infectious gastroenteritis; Spencer's disease; Hannover disease; and, among the laity in recent years, "intestinal flu" and "Virus X".

Attempts to prove the viral etiology of this disorder have not been too rewarding. Reimann was unable to infect mice or calves but he and his co-workers[9] were apparently successful in infecting human

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volunteers by inhalations of nebulized filtrates of throat garglings and stools. Fifty-three per cent of these volunteers developed typical symptoms of malaise, headache, abdominal discomfort, nausea, vomiting and diarrhea, as compared with 9 per cent of 240 controls in the same student body who developed the natural disease. Ingestion of serum or filtrates of garglings or stools and inhalation of nebulized serum did not produce attacks of the disease. The conclusion was suggested that the agent is filtrable, air borne, enters through the respiratory tract and is present in the oropharynx and stool, but not in the blood.

Conversely, Gordon, Ingraham and Korns[10] were able to produce the typical symptoms, transmitted in series to volunteers who ingested filtrates of stools and throat washings during a typical outbreak of gastroenteritis in New York State. Inhalations of filtrates failed to infect the volunteers. Animal inoculations and attempts to propagate the virus on embryonated hen's egg were unsuccessful.

No virus had been demonstrated to attack the gastrointestinal tract primarily until the discovery of a virus in cats by Silva[11] in 1940 and in calves by Baker[12] in 1943. Buddingh and Dodd[13] isolated a filtrable virus from infants with stomatitis and diarrhea in 1944. In recent years Light and Hodes[14] have succeeded in isolating a viral agent from infants with diarrhea and transmitting the agent to calves, producing diarrhea in these animals—with one of the four strains of virus, 29 successive passages in calves were accomplished. They had the opportunity of studying six epidemics during the years 1941-42 in Baltimore and Washington, observing that the disease appeared to be a single clinical entity limited to infants under 6 weeks of age. Premature infants were more susceptible than full term babies, suggesting that the virus required immature tissue in which to grow, and therefore, differed from agents causing epidemic gastroenteritis among older individuals. Stomatitis did not occur and specific neutralizing antibodies were demonstrated in the sera of recovered infants and infected calves.

These studies suggest the existence of a group of enterotropic viruses, perhaps opening a field of laboratory and clinical investigation of as much importance as that pertaining to the newly recognized virus infections of the lungs. Reimann[1] states:

> "If the disease regarded as epidemic diarrhea, nausea and vomiting is responsible for periodic outbreaks as it seems to be in the United States, it outnumbers all other diarrheal diseases at times and the view of Hardy and Watts[15] that Shigella dysenteriae infection is the most probable diagnosis for acute endemic diarrhea does not always hold".

REPORT OF CASE SERIES

We have reviewed from our records since 1945 the case histories of 200 infants and children who had illnesses which seemed to fall within the category of acute gastroenteritis, presumably viral in etiology. The diagnosis was essentially clinical, using as criteria the nature and duration of the illness, occurrence during epidemics which seemed typical, occurrence in sequence within a family or contact group, or by negative bacteriological study.

Incidence. Of these 200 patients 161 have been observed in only one attack; the remaining 39 have had two or more attacks, so that we have histories of 251 attacks of the illness occurring among the 200 during the past 10 years. This suggests either a lack of good immunity, or the presence of a group of viruses without cross immunity, or errors in diagnostic classification.

With one exception all of these children were white; 103 were male, 97 female. The greatest age prevalence at time of the first known illness occurred at 1 to 5 years. Fifteen were infants less than 6 months of age, 21 were 6 months to 1 year, 59 between 1 and 2 years, 70 between 2 and 5 years, and 35 were over 5 years of age.

The season of greatest incidence in this group was during the winter and early spring months; 162 of the 251 episodes of illness occurred during the months of December through March; only 33 during May through August.

Twenty of the 200 patients were one of

two or more siblings who were attacked simultaneously or within a few days; 24 others had a history of contact with 40 or more children and adults who are not included in the series but had a typical attack antecedent or subsequent to the patient's illness. Indicated incubation periods varied from one day to one week; two to three days seemed typical. In some instances entire families were attacked; within one week after the onset of one child's illness, 5 children and 4 adults in three contact families developed typical symptoms.

Symptomatology. The typical attack strikes explosively, at any time of day or night, with vomiting—or nausea followed shortly by vomiting—which continues incessantly for six to twelve hours. After the stomach is emptied, foamy mucus or occasionally bile is vomited, with frequent gagging and retching. Between times, the child is pale, may perspire and is usually drowsy. After twelve hours, vomiting is usually intermittent for one to several days, prone to occur if large amounts of liquids (particularly milk) are taken. Fever and loose stools may begin during the initial stage, but more often after twelve to twenty-four hours; the inception of abdominal pain (cramping) or discomfort usually occurs on the second or third days, especially in the presence of loose stools. Diarrhea is seldom excessive, typically 2 to 6 loose or watery stools daily, offensive in odor, occasionally green or mucus-containing but rarely bloody.

In the 127 instances in our series where initial symptoms were definitely listed, nausea and vomiting ushered in the attack in 99 cases; fever was the initial symptom in 12 instances, diarrhea in 10, abdominal pain in 4, and listlessness or anorexia in 2.

The wide range of symptomatology is indicated by the symptoms recorded in the histories. These reflect the leading complaints recounted by the mothers or attendants and are not necessarily complete or accurate as indicators of incidence. The frequency of listed symptoms for the 251 attacks is as follows: Nausea and vomiting, 230; fever, 160; diarrhea or loose stools, 134; abdominal pain, cramping or discomfort, 86; anorexia, 31; listlessness or malaise, 15; pallor, 14; drowsiness, 8; fretfulness, 8; dizziness, 7; pale-colored stools, 7; headache, 6; convulsions, 5; restlessness, 4; coated tongue, 3; distention, 3; generalized aching, 2; chilliness, 1; weakness, 1; fainting, 1; urticaria, 1; wild excitation, 1; night sweats, 1.

Many children recover rapidly, after twenty-four to seventy-two hours, except for anorexia, pallor or mild abdominal complaints. In other instances, the child may be so prostrated, toxic or dehydrated as to require hospitalization; or symptoms of intermittent vomiting, profound anorexia, loose stools and abdominal cramping may continue for one to several weeks. Relapses of vomiting, loose stools or fever often occur after an interval of several days to several weeks and some have had intermittent symptoms of anorexia or abdominal pains for months afterward.

Physical Examination is seldom very revealing, except to exclude more serious illnesses, or in the presence of complications. In our series, the pharynx was noted to have a dull red appearance in 29 instances; a generalized respiratory infection was present in 22 cases; otitis media in 5; clinically marked dehydration was noted 12 times; the abdomen was distended in 3 instances, but more often was scaphoid; other observations, consistent with the listed symptomatology, depended on the stage of the disease in which the child was seen, or the age of the patient (resistance, excitation, fretfulness, etc.).

Laboratory Examinations. Sixty-eight blood counts taken from 65 patients demonstrated a wide variety of findings. Anemia was present in only a few instances, and evidences of hemoconcentration in several others. The total leukocyte counts varied from 2200 to 27,600 per cu. mm.; however, only 16 of the 68 counts exceeded 10,000, while 31 were less than 7,000. In 65 differential counts, wide variations were also observed; neutrophiles exceeded lymphocytes in 39 instances, were less in 24 and equal in 2. There was no consistent trend

of association between leukocytosis and preponderance of neutrophiles or lymphocytes, nor of association af atypical lymphocytes with high or low counts.

Atypical or "Beta" lymphocytes were seen in 26 (40 per cent) of the 65 differential studies, varying from occasional or few to as many as 20 per cent of the lymphocytes. These atypical cells are similar to those found in rubella, rubeola, infectious hepatitis and several other viral infections, larger than the usual lymphocyte, with indented or horseshoe-shaped nucleus, clumping or vacuolization of nuclear chromatin and vacuoles or azure-staining granules in the cytoplasm.

Urinalyses from 50 patients evidenced a trace to 1 plus albumin in 11, 1 to 4 plus acetone in 15, bile or bilirubin in 10, pyuria in 3, casts in 3 and erythrocytes in 1. Stool examinations for amebic trophozoites or cysts, and stool cultures for pathogens were made in 19 instances. All were negative, except for hookworm ova in one specimen. Carbon dioxide combining power determinations, studies of nitrogen retention and liver function tests were done in too few instances to be significant in a series study, and generally related to more acutely ill and hospitalized patients.

DIAGNOSIS—CLINICAL VARIATIONS AND COMPLICATIONS

The varied clinical picture, the occurrence during the season when many other contagions are prevalent, and the impossibility of demonstrating a specific etiologic agent make for diagnostic difficulties and, indeed, pose problems in distinguishing between atypical manifestations of this entity and the presence of complications or concomitant diseases.

The gastrointestinal manifestations, for example, may be confused with appendicitis, mesenteric lymphadenitis, intussusception or other obstructive diseases. Appendicitis may usually be differentiated by the predominance of cramping pain over other symptoms, especially at the onset; early appearance of fever; infrequent early appearance of fever; infrequent vomiting as compared with the incessant vomiting of viral gastroenteritis; advent of localizing abdominal findings; and laboratory demonstration of leukocytosis with neutrophilia. Eighteen children whom we have seen with acute appendicitis during recent years had leukocyte counts above 10,000 in all but 2 instances; all had relatively high neutrophile percentage. Yet we know that occasionally this disease is atypical, especially in younger children; we have already noted that viral gastroenteritis may begin with pain and fever instead of vomiting. On a number of occasions it has been necessary to hospitalize children and observe them carefully before a definitive diagnosis could be made; most of them had gastroenteritis, but 2 developed localized tightness and tenderness within twenty-four hours and acutely inflamed appendices were removed. Another had pain, fever, occasional vomiting, leukocytosis and questionalbe tenderness over the right lower quadrant. Operation was elected; a normal appendix was found, but the mesenteric glands were very large, with increased local vascularity. Conversely, a physician's son, exposed to relatives with symptoms of viral gastroenteritis during an epidemic season, was hospitalized because of early abdominal pain with excessive vomiting and subsequent fever. He was watched closely by several physicians; on the fifth day, after subsidence of most symptoms, rebound tenderness developed as the first definite evidence of appendicitis. A baby of six months, examined on the third day of illness, had onset of incessant vomiting for one night, fever and loose stools the next day, and small amounts of blood in several loose stools on the third day. Vomiting had ceased, the temperature was normal, abdominal and rectal examinations were unrevealing, and atypical lymphocytes were present in the blood smears. However, fluoroscopic examination with barium enema demonstrated the typical crescent of intussusception in the transverse colon; it reduced easily without manipulation during the examination. It seems likely that the last 3 patients all had viral gastroenteritis, with mesenteric adenitis, appendicitis, and intussusception as complications.

In 3 instances, during epidemics of this disease, children with mumps have suddenly developed vomiting, abdominal pain, and rise of temperature. The clinical differentiation betwen gastroenteritis and mumps pancreatitis may be difficult under these circumstances.

Dysentery of bacterial or amebic causation needs to be differentiated because of the specific therapy available. Suspicious symptoms of excessive, bloody, or prolonged diarrhea, prostration, prolonged fever or dehydration require careful laboratory work or, if necessary, therapeutic trial.

Acholic stools, prolonged anorexia, and vague abdominal complaints in some of our patients suggested possible mild hepatic involvement, especially when the urine contained bile or bilirubin. Clinical icterus has not been observed, and the Hanger flocculation test in several instances was negative or mildly positive. One should not be surprised to observe that mild hepatitis may be caused by some of these enterotropic viruses, and differentiation from nonicteric infectious hepatitis is clinically impossible, depending altogether upon virus laboratory studies.

Respiratory manifestations may be purely concomitant, especially otitis media or generalized respiratory infection. However, localized pharyngitis or nasopharyngitis may well result from the disease, in view of evidences of respiratory transmission of the virus.

Indications of central nervous system involvement are sufficiently numerous to suggest that the viral agent (or agents), although primarily enterotropic, is to a lesser degree neurotropic. Witness the observed symptoms: headache, dizziness, pallor without anemia, malaise, listlessness, restlessness, drowsiness, fainting, and excitation. Some of these undoubtedly may be produced by secondary chemical changes, but often they occur early and without evidences of ketosis or other marked metabolic alterations. The precipitate onset of vomiting may be central in origin, especially since relief is sometimes effected by sedation or dimenhydrinate (Dramamine) administration. Five of our patients had convulsions without excessive hyperpyrexia, and it is a common clinical observation that small children are more likely to have convulsions early in gastrointestinal infections, even without high fever, than in many other infectious processes.

The possibility that the virus or viruses of gastroenteritis may not only produce neurotoxins, but may actually invade the central nervous system to produce encephalitis, occurs to us as a result of studying 6 infants and children who developed encephalitis in apparent association with acute gastroenteritis. All 6, whose ages varied from 13 months to 7 years, became suddenly ill with vomiting, then fever (102-105 degrees C.). Five of the six patients had convulsive seizures within one hour to three days of the onset; the sixth child became drowsy on the third day, then demonstrated nystagmus and external ophthalmoplegia. Four of them passed loose, offensive stools; 3 were known to have had direct contact with one or more members of their family who within the previous week had typical attacks of acute gastroenteritis. Three had spinal fluid pleocytosis, with 28, 70 and 130 cells per cu. mm. From the second of these, who had a typical gastroenteritis for three days before convulsions supervened, samples of spinal fluid, blood (acute and convalescent), throat washings and stool were submitted to the U. S. Public Health Virus Laboratory at Montgomery, Alabama. None of the viruses known to produce acute encephalitis could be demonstrated. Of the three children whose spinal fluid cytology was normal, 2 recovered with residua, unilateral facial paralysis in one instance, partial hemiplegia in the other. The final child, the youngest of the six and the only fatality, died on the third day of illness. At autopsy, the brain was edematous, with injection of cortical vessels and a few petechial hemorrhages. Microscopic sections showed fragmentation of cortical cells and lymphocytic infiltration.

While we recognize the fact that known neurotropic viruses—that of poliomyelitis, for example—may produce gastrointestinal

disturbances, the above recounted cases suggest the reverse. This possibility will be susceptible to proof only after isolation of the responsible agents.

Cyclic vomiting, gastrointestinal allergy, and gastrointestinal epileptic equivalents offer problems of differentiation from recurrent attacks of gastroenteritis. Time and careful study is usually required.

TREATMENT

During the initial stage of vomiting most of the patients in this series were treated by administration of sedatives and limitation of intake strictly to water and carbonated drinks given in spoonful amounts at frequent intervals. In the absence of diarrhea, sedation and fluids may be given by rectal administration. We must only warn that mothers must be specifically instructed when to use barbiturates by suppository, as we have seen severe depression result from indiscriminate usage.

Since Bradley's[6] report on the exclusive use of coca-cola syrup, given in small amounts frequently until vomiting ceases, this method has enjoyed considerable vogue. More recently[16] he has reported almost miraculous results in this and other types of vomiting from the use of a carbohydrate-phosphoric acid solution (emetrol). Our experience with emetrol is too meager to permit conclusions, but it is fair to state that our results have been less striking. Likewise the use of dimenhydrinate (Dramamine) in this type of vomiting must be subjected to further trial, although it seems to produce dramatic results in control of nausea from motion sickness and other vestibular disturbances.[17]

Dehydration, ketosis or other manifest chemical imbalance must be overcome by appropriate parenteral therapy. The administration of intravenous dextrose solution often has a rapidly salutary effect on vomiting.

It is our belief that, once vomiting has checked, the giving of easily digested foods regardless of diarrhea is preferable to starvation regimes. Chung[18] among others has shown that the larger the intake of foods, the greater the absorption, regardless of the severity of the diarrhea. Highly antigenic foodstuffs should be withheld during any upset, and it has been our observation that milk may not be tolerated very well for a few days. It might be appropriate to recall that Park,[19] a quarter of a century ago said, "The habit of starving an infant just because he has frequent stools is fallacious and gives rise to disastrous results".

CONCLUSIONS

1. A type of gastroenteritis, presumably of viral etiology and often epidemic in nature during the winter season, characterized by explosive onset with vomiting, followed by fever and diarrhea, has been widely prevalent.

2. The clinical features noted during 251 attacks in 200 infants and children which seemed to fit into this entity, have been reviewed.

3. Laboratory findings of significance are:

(a) A tendency to normal or low leukocyte counts.

(b) Presence of atypical lymphocytes in 40 per cent of the hemograms.

(c) Negative bacteriology from stool cultures.

4. Although primarily enterotropic, the etiologic agent gives evidences of involving the nervous, respiratory, and hepatic systems at times.

5. Treatment has been symptomatic; therapy with emetrol and dramamine must be subjected to further clinical trial.

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PREMALIGNANT LESIONS OF THE COLON

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Improvement in diagnostic facilities and surgical therapy, notably in the field of preoperative and postoperative care, has led to gratifying results in the management of malignant lesions of the colon. These lesions offer the best prognosis of any of the malignant lesions of the gastrointestinal tract. This improvement has come about without any lessening of the time interval between the onset of symptoms and the establishment of the diagnosis of cancer. The usual time interval from the onset of symptoms to the time of definitive surgical therapy is an average of approximately nine months.[1]

This time lag could be reduced materially if physicians who came in contact with the disease would adopt a suspicious attitude toward vague symptoms of the gastrointestinal tract to the point of investigating these complaints by means of the proper diagnostic tools. The entire colon can easily be reached through x-ray visualization, sigmoidoscopic study, and digital examination. It is also important for the physician to be constantly searching for and removing the known premalignant lesions of the colon. It is the latter phase of this problem concerning us in this presentation.

FAMILIAL POLYPOSIS

Of all the premalignant lesions affecting the colon probably the best known is the curious disease of familial polyposis. This disease is quite dramatic, occurring in the younger element of the population and almost invariably leading to carcinoma of the colon. Studies[2] on this disease indicate that at least half of them present in the first two decades of life and almost three-fourths occur in males. In over a third of the cases a definite family history of carcinoma of the colon or multiple adenomatosis can be obtained.

The majority of these patients present with blood in their stools while less common symptoms are diarrhea, vague abdominal pain, and rarely the actual protrusion of a rectal polyp.

Pathologically the polyps are characteristically distributed throughout the entire colon but the right colon may be free of involvement. The left colon and rectum rarely escape involvement. Of interest is the observation that in the presence of a history of familial predisposition, polyps are more likely to involve the entire extent of the colon.

Polyps of every conceivable variety, ranging from extremely small almost microscopic to huge pedunculated tumors, are observed in these colons. The true adenomatous or neoplastic character of these polyps is a constant finding and carcinomatous changes are seen in almost 80 per cent of cases.

In view of the above finding, multiple familial polyposis of the colon must be treated as potential, if not actual, cancer and radical surgical therapy is certainly justifiable.

PSEUDOPOLYPOSIS

In chronic ulcerative colitis, in response to repeated ulcerations and epithelial growth a pseudopolyposis develops, which is believed to be fundamentally different from the neoplastic polyp. This epithelial proliferation is a response to repeated inflammatory stimuli. Warren[3] states that he has never observed these polypoid changes to progress to a malignant stage. Bargen on the other hand has published statistical data

indicating that the incidence of carcinoma of the colon is significantly higher in patients with long standing chronic ulcerative colitis. The problem of the relation of ulcerative colitis to carcinoma is not settled but we would probably be wise to watch with caution patients suffering with the disease.

THE ADENOMATOUS POLYP

The last and by far the most important premalignant lesion of the colon is the single adenomatous polyp. This is a common lesion as indicated by Helwig's[4] study of autopsy material. He found that almost 10 per cent of 1460 consecutive cases had one or more adenomatous polyps. The majority of these polyps were found in the rectosigmoid region and their general location corresponds roughly to the sites of carcinoma of the colon found in other studies.

It may be worthy of mention at this point that other benign tumors of the colon may form polypoid masses and must be differentiated from true adenomatous polyps. The more common of these include lipomas, leiomyomas, angiomas, and neurofibromas. No conclusive evidence that these lesions are premalignant is at hand.

Histologically the structure of adenomatous polyps may vary widely but a fairly typical polyp could be described as an epithelium covered stalk of connective tissue, moderately vascularized and may contain a muscularis mucosa continuous with that of the intestinal wall. The stalk may be thin and straight or possibly multiple adjacent stalks may make up a single polyp. The covering epithelium ranges from the normal of the large intestine to irregular, variable glands with cells of various sizes frequently containing hyperchromatic atypical nuclei and mitotic figures. The amount of mucous secretion varies greatly and goblet cells may at times be completely absent. These polyps are usually devoid of any inflammatory reaction.

Microscopically it is sometimes difficult to determine the presence or absence of malignant change in these polyps. While a fully developed carcinoma is not difficult to recognize, the transitional forms are difficult to classify. Of the three important criteria of malignancy, anaplasia, irregularity of architecture and invasion, it is necessary to have at least two of these factors present before making a definitive diagnosis of a malignant growth. It is possible for any one of these three criteria to be present without an actual malignant growth with one exception—lymphatic or vascular invasion. It is important from the pathologist's standpoint, therefore, to receive the entire polyp with its stalk in good condition for an intelligent examination.

In view of the presence of a large percentage of the polypoid lesion of the colon and almost three-fourths of the malignant lesions of the colon within range of the sigmoidoscope, the importance of the intelligent use of this valuable diagnostic and therapeutic instrument is self evident.

SUMMARY

In summary, this review has attempted to discuss some of the more common and better understood premalignant lesions of the colon with the hope that wider recognition of these lesions may lead to earlier diagnosis and therapy of malignant lesions of the colon.

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COMMON DERMATOLOGICAL PROBLEMS IN THE REFINING OF PETROLEUM*

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INTRODUCTION

In its early days petroleum refining was concerned mainly with the production of motor fuels, kerosenes, lubricants, and

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paraffines from crude oils. In that period occupational skin diseases in the refinery employees, while not infrequent, were for the most part manifested as oil acne, wax boils and paraffine papillomata. Recent years have seen a great expansion of the manufacturing processes into the allied chemical fields and the production of numerous types of solvents and specialty products. With the changes in manufactured products and the changes in the working environments there has been a more frequent appearance of other types of skin lesions.

The skin in its normal state, through the protective action of the horny layer and the secretions of the pilosebaceous system, constitutes a defense against external irritants. In the petroleum industry the employees are prone to use on their skin various solvents and alkaline cleansing agents with abrasive scrubbers that reduce the efficaciousness of these natural barriers, thus rendering the skin more susceptible to external irritants. The skin is also a rather individualistic organ and reacts to irritation differently in different individuals. We, therefore, have been able to recognize some predisposition to dermatoses of environmental origin.

PREDISPOSING CAUSES

1. *Race*—The negroid skin is less susceptible than white skin to dermatitis from tars, solvents, and the actinic rays. The ill effects of actinic rays are increased in the presence of irritant tars. The thin dry skin found in certain white individuals is much more susceptible to the actions of tars, actinic rays—the defatting action of solvents, and the alkalines present in the majority of cleansing agents.

2. *Perspiration*—Where high temperatures are a necessity those who perspire freely are most susceptible to irritating solids, mists, and vapors. Excessive perspiration together with friction, macerates the horny layer of the skin making the skin more permeable to external irritants and more susceptible to the coccigenic and mycotic infections.

3. *Season*—Those dermatoses that are precipitated or aggravated by perspiration are more prevalent in the warmer months, while those due to defatting of the skin from solvents and alkalis are more prevalent in the colder months.

4. *Age*—Young and new workers are more frequently affected with the acute occupational dermatoses. Chronic eczematoid dermatitis is more frequent among the older workers.

5. *Diet*—Food, drink and medications may increase susceptibility by influencing the *Ph* of the skin. Vitamin deficiencies predispose to dermatoses.

6. *Personal Hygiene*—The most important of the predisposing causes is poor personal hygiene. The wearing of work clothes saturated with irritants and improper cleansing of the skin are important predisposing causes; however, the injudicious use of solvents and harsh cleansing agents accounts for its part of occupational skin disease.

7. *Emotional Factors*—It is difficult to evaluate the role of emotional disturbances as predisposing to skin disease. Unstable and psychoneurotic patterns are commonly found in the dermatological patient and their skin abnormalities disappear with remarkable rapidity when the emotional factors are adjusted.

ETIOLOGY

The actual cause of the majority of occupational skin diseases can for convenience be divided into three causes. It would be understood that any one or combination of these causes may be present in a single case:

1. *Mechanical causes* — Cuts, bruises, abrasions, pressure, and friction of the skin may provide a portal of entry for bacteria, fungi, and irritants.

2. *Physical causes* — Temperature, humidity, ionizing radiation, infrared and ultraviolet radiation are the important physical agents that may cause alteration of normal skin physiology and result in dermatological problems both acute and chronic.

The working conditions of the modern petroleum refinery reduce exposure to excessive heat to infrequent intervals. The severe heat exposures of the old coke days are gone, but we still ponder as to the possibility of latent effects on the skin.

3. *Chemical causes*—The chemical cause may be one due to primary irritation or one acting as a sensitizer.

The primary irritants have a direct chemical or physical action upon the skin, such as may be caused by the action of acids, alkalis, or the defatting agents. The first two of these usually provide no difficulty in etiology or treatment; however, the defatting agents are frequently overlooked, especially as the effect is usually of gradual onset, and the agent may have been used over such a period of time as to be dismissed by the patient as innocuous. Indeed some of these solvents are used as agents for cleansing of the skin. Also one must not forget that the use of harsh alkaline soaps may lead to the production of a primary irritant type of dermatitis.

The dermatitis from sensitizers requires more than one contact with the offending chemical. The initial contact with the chemical so conditions the skin that even though no visible changes are present subsequent contact with the same chemical after a period of incubation causes a dermatitis. Sight should not be lost of the fact that some primary skin irritants may also cause a sensitization type of dermatitis.

DIAGNOSIS

The diagnosis of occupational skin disorders follows the lines of investigation for any dermatologic condition; however, added responsibility rests upon the physician, because the diagnosis of an occupational skin disease often involves loss of time to the worker, loss of the worker's service to the employer, and not infrequently a change in the worker's occupation which may mean a reduction in pay. Modern industrial concerns welcome the information which may lead to the prevention of occupational disease, yet hasty conclusions based merely upon the fact that a patient is employed within an industrial plant, lead to needless hardship upon the worker and loss of useful manpower. The importance of a close relationship between the industrial physician and the private practitioner cannot be overstressed in an effort to arrive at a proper diagnosis, thus preventing any avoidable hardship on the worker or employer.

The investigation of a dermatological case is based upon a carefully taken history, by the appearance of the lesions, the site or sites of involvement, and occasionally, but not always, patch testing.[1]

The history must include not only details of work and possible exposures at work, but also home exposures, personal habits, hobbies, and recreation. In some cases an occupational cause of the eruption may be suspected, but there will not appear sufficient contact with the offending agent to explain the various sites which are involved. In such cases close questioning of the worker will often explain the localization of the eruption to such sites. Co-existing or preexisting skin disorders may be present or may be the underlying cause of the specific skin condition. Diseases predisposing or causing skin disorders, such as diabetes, and lues, must be ruled out.

The physical examination should be performed with the patient stripped. Careful attention is directed to the distribution of the lesions. Occupational dermatitis usually begins on the exposed parts—hands, forearms and neck. Sites of rubbing by the clothing as the wrist, neck, beltline, and ankles may be especially significant.

While the refinery physician sees many dermatoses his most common occupational problems are presented by four skin conditions; namely, acne and folliculitis from oils, the so-called wax boils from unrefined waxes, the defatting and drying action of solvents, and the sensitization reactions. Industrial oils, depending upon their composition, can cause burning of the skin by their irritating and defatting action, and also, eczematoid lesions, but the most frequent problem with which we are concerned is the acneform lesions. These lesions are caused by the blocking of the pilosebaceous orifices and are probably entirely mechanical in action with secondary bacterial invasion. The lesions usually appear as multiple small papules with a purulent, pointing center. They often involve the hairy areas and are actually a folliculitis. The

most frequently involved areas are the extensor aspect of the forearms, the anterior surface of the thighs, and the buttocks in the individual who wears oil contaminated clothing. The insoluble oils are the chief offenders in causing acne and folliculitis.

Wax boils, a common dermatologic problem in the past, are rapidly disappearing from the modern refinery which has instituted a program of protective clothing and cleansing facilities. They are probably caused by a combination of mechanical blocking of the pilosebaceous orifices and a specific irritation produced by unrefined wax. The sites of eruption are always in the areas of greatest contact, chiefly the scrotum, inguinal regions, thighs, lateral aspect of the abdomen, and forearms. They appear as large purulent lesions, sometimes of great depth, often with a relatively small degree of surrounding inflammation. They have a tendency to great chronicity and heal with a great amount of scarring.

The dermatitis seen from contact with solvents such as varsol, kerosene, petroleum ether, and others is, as has been mentioned, usually of gradual onset. These patients will present a picture of red, roughened, scaling skin, later progressing to fissures. These breaks in the skin provide means of entry of primary sensitizing irritants, as well as causative organisms of coccigenic and fungus infections.

Sensitization dermatitis usually presents the greatest problems of diagnosis, and of treatment. They usually begin as superficial papules or vesicles and may become pustular. These rupture easily and produce a moist, raw oozing, edematous patch, which because of its annular appearance is often mistaken for fungus infection. New vesicles and pustules develop peripherally and may coalesce to form extensive irregular areas with a profuse thin, serous, or seropurulent discharge. In a later stage the lesions usually become dry and scaly, and the surface cracks showing raw exudative lesions.

The patient suspected of a sensitization dermatitis presents several problems to the physician. The first is whether to remove him from the work environment. In making this decision the history is the most important factor. Here the criteria for diagnosis of an occupational dermatosis, as formulated by the Committee on Industrial Dermatoses,[2] will be of great aid to the physician:

1. Is the site of greatest exposure the site involved at the onset?
2. Is the site of the greatest skin involvement the site of maximum exposure?
3. Have other fellow workers suffered from similar eruptions?
4. Does the suspected causative agent produce eruptions of this type?
5. Is the occupation one in which similar cases have been observed?
6. Is the time relationship between exposure and onset of the eruption correct?
7. Is there any history of outside exposure to other irritants?
8. Are the cutaneous lesions present consistent with those known to have followed a similar exposure?

If the employee is new on his job, and therefore, only recently exposed to the suspected agent, it is often best to continue him on his regular work, while employing mild ointments and protective clothing as a certain percentage of workers will develop an immunity to the sensitizing material.

Failing in the above or in severe cases, it is best to remove the worker from his usual work environment. If the worker's dermatitis clears while not exposed, and the condition recurs upon return to work, and he meets the other criteria for an occupational dermatosis, then there is little doubt as to the origin of the eruption; however, the exact etiological agent is often still undetermined. When this is the case, the patch test may be of use. The patch test, when used with suitable controls, and when positive, indicates a definite sensitivity to the material tested. Care should be used to employ suitable dilutions of the suspected material to prevent severe reactions. A negative test does not rule out occupation as the cause of the dermatitis, but may mean only that the etiologic agent has not been found.

or that the patch test does not approximate the working conditions.

TREATMENT

Most cases of industrial dermatitis are mild and occur in new workers, and as mentioned previously, the use of nonirritating protective creams, ointments, and protective clothing will usually be sufficient to keep the worker on the job until the dermatitis has cleared, usually a matter of several weeks. If the dermatitis does not clear under this treatment, the worker should be removed from the job. This should, and usually does, result in recovery. If recovery does not occur after a reasonably long period away from work (six weeks to two months), the cause of the dermatitis must be sought elsewhere than in his occupation.

Workers with extensive severe dermatitis should be removed from their work and treated with wet dressings until the acute symptoms have subsided.

Dressings can be used as compresses of Burrow's solution 1:20 or saturated solution of boric acid. After the acute symptoms have subsided soothing ointments, such as zinc oxide or boric acid ointment may be used.

Lotions or ointments containing irritant or stimulating drugs should be used only on chronic cases and only after carefully considering the possibility of irritating an already inflamed skin. There is no reason for the use of sulfonamide drugs or antibiotics, unless the dermatitis is complicated by bacterial infection. Minor eruptions may be converted into serious ones by such treatment. Analgesic agents, such as phenols, benzocaine, and menthol, should be used with caution for they are well known sensitizers. Itching may be relieved by use of warm baths containing bran, oatmeal, or cornstarch. The antihistamines have not given the expected results in allaying pruritis in industrial dermatoses, but when other measures have failed, they may be safely used.

PROPHYLAXIS

The prevention of industrial dermatitis has received a great deal of justifiable attention and has reduced the incidence of occurence greatly. Numerous preventive methods are employed; however, the best measures are those that prevent contact of potential irritants with the skin. These are industrial hygiene engineering control measures, such as totally enclosed processes, ventilation of work rooms, and special exhaust vents to carry away irritating gases, vapors, and dusts.

Cleanliness is the most effective personal protection. This includes cleanliness of the skin, clothing, and environment. Enough showers should be available, so that the workers may shower and change to street clothing after each shift. Mild nonalkaline cleansing agents without abrasive scrubbers are recommended.

Protective work clothing may be designed to prevent irritants from touching the skin. The type of clothing depends on the type of irritant from which the worker is to be protected. For example it is not sufficient to say that rubber or plastic will prevent skin contact with oil because some plastics absorb oil and some rubber dissolves in oil. Many oils have different characteristics and each protective program must be studied as an individual problem. The inhibitors and anti-oxidants used in some synthetic materials may prove to be skin irritants to certain individuals. Protective foot gear has also been known to cause a dermatitis from the glue, the dye or even the leather or rubber materials in the shoes.

Protective creams, ointments or lotions, depending on the type of irritant, have their advocates. The actual good they do is debatable, but they are worthy of a trial, as the worker will not leave the job without first removing the protective application, thus assuring the removal of the irritant from the skin and avoiding further contact with the irritant in question.

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THE PREVENTION AND CONTROL OF NARCOTIC ADDICTION

In recent months the public's attention has been sharply drawn to the problem of narcotic addiction. This came about through investigations of Congressional committees, special investigations in New York and Chicago, and articles in the public press in which narcotic addiction was featured as a problem or as a news item. Medical interest is presently increased in the subject by articles from the Washington office of the American Medical Association,[1] the United States Commissioner of Narcotics,[2] and by interested psychiatrists who have discussed the problem lucidly in medical literature.

It is clear that the problem has three aspects, which will be briefly discussed. These are

1. Supply
2. Enforcement
3. The individual problem of moral responsibility

Addiction is currently high, not record high. There has apparently been a sharp upsurge in addiction since the sharp limitation of supply during the war. Addiction is greater in cities than in rural areas. The worst cities in this respect are listed by the Narcotics Bureau as New York, Philadelphia, Baltimore, Washington, D. C., Detroit, Chicago, and New Orleans. It is stated that in World War I the Army rejected 1 man in 1500 as an addict; in World War II, 1 in 10,000. The estimated current rate for the entire adult population is about 1 in 3000. It is also estimated that a quarter billion dollars a year are spent for illicit narcotics. When the supply is rigidly controlled there is no addiction. Obviously, rigid control is a theoretical state. The great problem is international oversupply, principally of opium, in which the world's legitimate needs call for an average of 450 tons annually, while production is in excess of 2000 tons annually. Producers in Asia, manufacturers in the Mediterranean Basin, sell their product both in legitimate channels and in the black market. Seamen and professional smugglers tap these black markets, and by making proper contacts at both ends, can make fortunes in a few trips. Strenuous efforts have been made, at one time through various international contacts, and more recently, through an international body known as the Permanent Central Opium Board of eight impartial members. The authority of this board is theoretically what the members derive from their governments and this extends to legitimate trade. It is hoped that the influence of the board will control both the production and the manufacture, which, of course, is an

[1]Connery, George E.: Control of narcotic addiction, J. A. M. A. 147:1162, (Nov. 17) 1951.

[2]Anslinger, Harry J.: Control of the traffic in narcotic drugs, Merck Report, 60:33, (Oct.) 1951.

ideal yet to be attained. The nations with the greatest oversupply of narcotics are Italy, Greece, Iran, India, and China; Mexico is the largest source of supply of smuggled marijuana. Turkey has a control law but that country remains the major source of heroin smuggled into the United States. China's production is far in excess of her needs and she is reported to be attempting to unload 500 tons of opium on the world market.

In regard to the second aspect of the control problem, elaborate regulations exist for this purpose. They are based on the Harrison Narcotic Act and subsequent acts, which are incorporated in the Internal Reveune Code. These laws have been uniformly sustained by Courts and provide the basis for governmental control in this country. They are supplemented by a uniform state law, which has been enacted by 42 states. Such a law enables local authorities to effect an enforcement and prevention of narcotic addiction. It is apparent, however, that local authorities are not as active in the matter as the situation should require, and most of the enforcement falls upon the Narcotics Bureau which actually has a staff 20 per cent smaller than it had a number of years ago, consisting of 188. In 1930, this staff consisted of 250. In spite of this limitation of personnel, the Bureau accounts for 10 per cent of Federal convictions of all kinds, with only 2 per cent of Federal enforcement personnel. With a larger budget and increased personnel, more adequate control could be kept on smuggling.

Present interest in the matter of narcotic control laws has resulted in an increase in the schedule of prison sentences: the first offense not less than two and not more than five years, the second offense, not less than five or more than ten, the third not less than ten or more than twenty. It is stated that at one time a Federal judge in New Orleans generally gave a year and a day, while a Federal judge in Memphis gave five to eighteen years sentence. It is reported that traffic ceased immediately in Memphis and continued to flourish in New Orleans.

Another aspect of control, which has received much comment in the public press, and which is regarded as fundamentally different by competent students of the subject, is the improper use of barbiturates. It is felt currently that this should be kept separate from the control of narcotic addiction, which in substance refers to the products derived from opium, cocaine and *Cannabis Indica*.

The third aspect of control, which is more fundamental but less easily defined, is that of the training of the individual. Cumulative experience shows that young addicts do not come out of good families. Harry J. Anslinger, the United States Commissioner of Narcotics, puts the blame for juvenile addiction on the parents. He says the problem results from the "absence of a moral quality in too many American homes." Opinion is divided as to whether the narcotic problem should be presented in schools, the propaganda agencies, religious organizations, and service clubs. There is a strong feeling that drawing attention to narcotic addiction will incite an interest in "something new". All agree on the value of instruction for adults. They all agree that development of the moral character should begin in the home. There is considerable disagreement as to where and when this type of instruction should be supplemented. A substantial part of youth believes only what it learns for itself. This part of youth might become less venturesome, and less likely to experiment in the field of narcotics if the same truths which were taught in the home were presented by responsible sources outside of the home.

The problem of addiction among physicians illustrates the fundamental difficulties of control even when knowledge is adequate. With apologies to a better poet, it can truthfully be said,

"Addiction is a monster of so fearful a mien
As to be hated, needs but to be seen,
But seen too oft, familiar with his face
First the unwary physician pities, then
endures, then embraces."

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

LOUISIANA ELECTIONS

The first Democratic primary for vote on candidates for state offices, senators and members of the House of Representatives of the Louisiana Legislature will be held on January 15. In order to ascertain feeling and policy of these candidates in regard to matters of vital interest and concern to the medical profession the Committee on Public Policy and Legislation addressed a letter to every candidate for governor (10); lieutenant governor (8); other state offices (17); representative (385); senator (194); requesting a statement on the following matters:

1. The nationalization of medicine and the welfare state.
2. The chiropractic bill.

Following are excerpts from replies received. It is possible that some of the candidates have not been able to answer the inquiry sent them prior to publication of this issue of the Journal and when additional replies are received they will be kept in the office of the Society for reference. If any member is desirous of securing additional data in this regard we would suggest that a communication be sent to the chairman of the Committee on Public Policy and Legislation, Dr. C. J. Brown, 1430 Tulane Avenue, New Orleans.

CANDIDATES FOR GOVERNOR

Name of Candidate	Socialized Medicine	Chiropractic Bill
HALE BOGGS	"I have a record in the Congress of standing firmly against any form of socialization of any profession."	"Your organization should be congratulated on the alert and forceful manner in which you protect the citizenry of Louisiana from the licensing of cultists."
WILLIAM J. DODD	"Opposed emphatically to socialized medicine and as next Governor of Louisiana will cooperate with all representative groups to defeat this plan."	No comment.
LUCILE MAY GRACE	"I was the first Anti-Truman candidate to announce fighting the nationalization of medicine and the welfare state."	"Against the chiropractic bill."
ROBERT F. KENNON	"Against socialized medicine."	"Think the Legislature should give the answer."
DUDLEY J. LeBLANC	"Have always opposed socialized medicine."	No comment.
JAMES McLEMORE	"Bitterly opposed to nationalization or socialized medicine or any other of Truman's socialistic plans or programs."	"Opposed to the licensing of chiropractors to practice medicine."
CARLOS G. SPAHT	"Opposed to the nationalization of medicine."	"With regard to the chiropractors' bill that was introduced in the last session of legislature, I am definitely opposed to that form of legislation."

CANDIDATE FOR LIEUTENANT GOVERNOR

Name of Candidate	Socialized Medicine	Chiropractic Bill
LEON GARY	"Strongly opposed to any such movement, and especially to any small movements at this time pointing toward a national movement."	"A license should never be issued except to one fully qualified and trained to practice the privilege of the license."

CANDIDATES FOR ATTORNEY GENERAL

Name of Candidate	Socialized Medicine	Chiropractic Bill
G. M. BODENHEIMER, JR.	"Unalterably opposed to the nationalization of medicine or any form of socialized medicine."	"Opposed to the licensing of chiropractors."
FRED S. LeBLANC	"Positively against the nationalization of medicine." "Opposed to the passage of the omnipresent chiropractic bill in the state legislature and will be	so inclined until the course of training required of chiropractors is equivalent to that presently required of physicians and surgeons."

CANDIDATE FOR COMMISSIONER OF AGRICULTURE & IMMIGRATION

Name of Candidate	Socialized Medicine	Chiropractic Bill
W. E. ANDERSON	"There is not any individual more opposed than I am to the socialistic trends toward the welfare state."	"Don't think I am qualified to pass judgment on this matter."

CANDIDATES FOR REGISTER OF STATE LAND OFFICES

Name of Candidate	Socialized Medicine	Chiropractic Bill
FRANK R. GAYLE	"Shall always be for the continuation of the American Democratic principles of life and will so express myself."	"The chiropractic bill which is ever present in the legislature should not even have the attention of the legislators."
LEE L. LAYCOCK	"Utterly opposed to nationalization of medicine and the welfare state."	"My efforts were one of the contributing factors in having the chiropractors' bill killed by the committee and I have always opposed this group."

CANDIDATES FOR STATE AUDITOR

Name of Candidate	Socialized Medicine	Chiropractic Bill
L. B. BAYNARD	"Will be pleased to render whatever assistance I can."	No comment.
DOUGLAS FOWLER	"Bitterly opposed to socialized medicine in any form."	"Any man that places himself before the public as a professional man should have the necessary training and qualifications before he is allowed to practice his profession."
T. A. THOMPSON	"Against the nationalization of medicine and the welfare state."	"Certainly would never advocate the licensing of unqualified practitioners."

CANDIDATES FOR MEMBER OF HOUSE OF REPRESENTATIVES

Name of Candidate	Socialized Medicine	Chiropractic Bill
J. D. TAYLOR, Winnfield	"Oppose socialized medicine in any form."	"Opposed to chiropractic bill and will vote in the Legislature to that effect."
EDWARD LANDRY, Abbeville	"Definitely against the socialization of medicine."	"Don't think that these men are trained to perform miracles as I have heard."
E. C. FREMAUX, Rayne	"Fully aware of seriousness of this situation. Main reason seeking public office today is to be in better position to fight this dangerous trend."	"Am more or less in sympathy with the medical profession but would like to have more information on subject before passing judgment."
W. GEORGE BOWDON, JR., Alexandria	"Bitterly opposed to nationalized medicine and the welfare state in any form."	"Opposed, on the floor of the House, the chiropractic bill and voted against it every time it has been brought up. I will continue to oppose this kind of legislation."
E. H. LANCASTER, JR., Tallulah	"Opposed to the nationalization of any profession and am opposed to any form of socialism."	"Reserving right to express an opinion on this subject following a study of same."
A. M. MARTIN, Alexandria	"Bitterly opposed to socialized medicine."	"Opposed to any sort 'faith healing', quacks, etc."

Name of Candidate	Socialized Medicine	Chiropractic Bill
EDWARD K. ALEXANDER, DeQuincy	"Absolutely against such a system."	"Will state that I am opposed to any group not having the sanction of the medical profession engaging in any practice which purports to be medical in nature . . . and will oppose such a bill, unless it has the official approval of the legitimate medical groups in this state."
W. L. FUTRELL, DeRidder	"Oppose nationalization of medicine."	"At the last meeting of the State Legislature I voted against the Chiropractic bill . . . no reason to change my mind."
ERIC B. SETTOON, JR., New Roads	"Definitely not in favor of nationalization of medicine."	"It would have to be proven to me that they are adequately trained and qualified to treat our people before I would be in favor of licensing them."
FRED J. HEINTZ, Covington	"Positively opposed to socialized medicine."	"I have always opposed this bill."
J. A. McCURNIN, SR., Baton Rouge	"Vigorously opposed to the nationalization of the medical profession, or any other profession."	"Will be guided solely by the sentiments of the medical profession on this question."
W. J. ROUILLIER, JR., Lutcher	"Positively oppose the nationalization of medicine and the welfare state."	"Oppose the licensing of chiropractors."
JASPER K. SMITH, JR., Vivian	"Oppose any measures that would tend to socialize medicine or any other profession."	"Opposed to licensing the chiropractors in our state."
JAMES L. EARHART, New Orleans	No comment.	"As a member of the Public Health & Quarantine Committee, I led the fight against the Chiropractors' Bill . . . and will continue to oppose any legislation that may be detrimental to the public's health."
MATTHEW R. SUTHERLAND, New Orleans	"Against the nationalization of medicine and the present trend in our State and Federal Governments toward socialism."	"Wish to reserve my opinion on this issue until such time as I have had a full opportunity to study it in detail."
N. CEFALU, Amite	"Against any socialized movement of any kind."	No comment.
BERT W. CLARKE, Metairie	"Want to assure you that I will vigorously oppose any attempt at nationalization of medicine and the welfare state."	"Oppose the licensing of unqualified persons to practice the profession of medicine."
J. MARSHALL BROWN, New Orleans	"Very much against socialism in any form."	"My opinion that chiropractors should not be licensed to practice medicine."
DOM CARRA GRIESHABER, New Orleans	"Definitely against any scheme which would chain any one of the professions."	"Opposed to the licensing of any group who are unqualified and jeopardize the health of the general public."
HAROLD J. LANGLEY, Lake Charles	"Inclined to believe that the people of Calcasieu Parish are against socialization in every form."	"Not well enough informed at this time to make any comment on the chiropractic bill."
JACK WILLIS, Monroe	"Opposed to the nationalization of any profession."	No comment.
JOHN P. CAMPORA, New Orleans	"Opposed to the socialization of medicine."	No comment.
M. D. FELTENBERGER, Pollock	"Bitterly opposed to any nationalization of medicine."	"Cannot at this time answer on the chiropractor matter as I need some time to study the situation."

Name of Candidate	Socialized Medicine	Chiropractic Bill
WM. JOSEPH SMITH, New Orleans	"Opposed to nationalization of medicine and welfare state."	"Opposed to licensing of chiropractors."
CHAS. ANZALONE, Independence	"Against the nationalization of medicine and the welfare of state."	"Voted against the licensing of chiropractors during last session and I am still against same."
R. W. HODGE, SR., Shreveport	"Opposed to socialized medicine but I do feel that hospital fees and physician fees have reached an all time high."	"Cannot see the reason why a chiropractor shouldn't be allowed to practice his profession."
JOHN B. COOK, New Orleans	"Against the nationalization of the medical profession."	"Opposed to chiropractic profession invading the medical profession."
MRS. R. S. PARROTT, SR., Eunice	"Against any form of socialization."	"Opposed to licensing of chiropractors, truthfully I class them as quacks."
COURTLAND E. HATHAWAY, Monroe	"Strictly against any form of socialized or nationalized medicine."	"Have never used the services of a chiropractor and probably never will. However, I cannot see the point in depriving someone else of their services . . . Consequently I would not vote for or support any bill that directly or indirectly refused licenses to them."
ARTHUR A. KELLAB, Shreveport	"As you doctors have pledged to the people of Louisiana to keep the medical profession free from socialized medicine, etc., I wholeheartedly join hands with you in your unselfish crusade."	"I shall never betray the ethics of my conscience and place the lives of our people in the hands of the quacks—or any quack."
TERRY McPHEARSON, Hall Summit	"Unalterably opposed to the nationalization of medicine and the present trend towards the welfare state."	"Have not formed an opinion on the licensing of chiropractors. I am not familiar enough with the training they receive before they practice . . . I can assure you that I will attempt to be fair if the question comes up."
WALTER CARNOT VETSCH, New Orleans	"Would like to go on record as a candidate who is strictly opposed to such Trumanesque socialistic ideas."	No comment.
ROLAND L. WELCKER, New Orleans	"Definitely opposed to nationalization of medicine and the welfare state."	Question asked in regard to present law.
E. F. LeBRETON, JR., New Orleans	"Opposed to socialized medicine."	"certainly am opposed to a professional man who is untrained and therefore unqualified to treat our people."
ALLAN DURAND, St. Martinville	"Completely and unalterably opposed."	"Will have to become more informed before I could make a definite statement."
SIDNEY SYLVESTER, Lawtell	"Strongly opposed to this issue."	"Voted against the chiropractic bill in the past and nothing has been brought out which will cause me to change my mind."
EDWARD W. HOERNER, New Orleans	"Opposed to socialized medicine in any form."	"Opposed to chiropractic medicine in any form."
MRS. BLAND COX BRUNS, New Orleans	"Opposed to the nationalization of medicine."	"Opposed to the chiropractic bill which has come up in past legislative sessions."
JOHN J. MATASSA, New Orleans	"Will oppose any program detrimental to the medical profession and am definitely against socialized medicine."	"Will oppose any program detrimental to the medical profession and am definitely against socialized medicine."
ROY SANDERS, Chestnut	"Opposed to nationalization of medicine and the welfare state."	"Opposed the chiropractic bill of the last session. I do not favor any lowering of standards of training in any profession."

Name of Candidate	Socialized Medicine	Chiropractic Bill
CARSON WESLEY RUSSELL, Shreveport	"Against the nationalization of medicine and the welfare state."	"Against the licensing of chiropractors."
J. TORRAS PHILLIPS, Alexandria	Unalterably opposed to the nationalization of medicine and the welfare state."	"Am in accord with you in your opposition to the licensing of chiropractors."
L. FUGL AR, Alexandria	No comment.	"During last legislature I voted against chiropractors' bill. I see no reason why I should change my opinion."
D. ELMORE BECNEL, Reserve	"Do not intend to vote or advocate the nationalization of medicine."	"Opposed to the licensing of chiropractors."
ROSARIO J. CENTANNI, New Orleans	"Opposed to socialized medicine."	"Will support those bills which will be beneficial and for the best interest of our people and will oppose any bill which may prove detrimental to the medical profession."
M. L. VINING, Oak Grove	"Opposed to socialized medicine."	No comment.
J. MAYO BLANCHET, Lafayette	"Opposed to the nationalization of medicine."	"Opposed to the chiropractic bill."
LEWIS R. GRAHAM, New Orleans	"Unqualifiedly against any attempt at nationalization of medicine and the establishment of a welfare state in general."	"At present, with the lights before me, I am definitely opposed to licensing of chiropractors."
TOM L. McKENZIE, W. Monroe	"Emphatically opposed to the nationalization of medicine or any legitimate profession."	"Opposed to licensing of any group of quacks."
PETER W. MURTES, New Orleans	"Definitely against the practice of socialized medicine."	"Opposed to the granting of licenses to chiropractors."
JOHN J. BORNE, JR., New Orleans	"Believe in keeping our medical profession free from socialized medicine . . . shall do all in my power to discourage any movement in that direction."	"Agree in opposing the licensing of chiropractors."
GEORGE D. MARTIN, New Orleans	"Against socialized medicine of any form."	No comment.
BAZILE J. SCAFFIDI, New Orleans	"Feel that there may be some merit to the voluntary joining of people in organizations to help them pay medical fees, the same as the Blue Cross is helping people to pay for hospitalization."	No comment.
R. C. HAUSER, Bastrop	"Recognize the advancement that has been made in medicine . . . feel this was accomplished by allowing the medical profession to act in their own behalf."	"No chiropractic bill should become a law that would overlap with the treatment of disease or not provide regulatory measures so that their practice would extend beyond the category for which they are trained or educated."
BYRON L. STAFFORD, Lecompte	"Against the nationalization of medicine . . . For your society to be against socialized medicine is not enough, you must offer something far superior in its place."	"Not thoroughly enough informed on the subject to give you a conclusive answer."
FRANK C. MORAN, JR., New Orleans	"Oppose any movement toward socialization of any professional or business group."	"Oppose the licensing of chiropractors."
FRANK GRAHAM, Shreveport	"Against socialized anything and that included medicine."	No comment.

CANDIDATES FOR STATE SENATE

Name of Candidate	Socialized Medicine	Chiropractic Bill
ALVIN T. STUMPF, Gretna	"Have always stood by the recommendations of the Louisiana State Medical Society."	"Have always stood by the recommendation of the Louisiana State Medical Society."
PAUL E. BONTA, New Orleans	"Greatly opposed to socialized medicine."	"Would have to study the bill more fully before giving an opinion."
HENRY L. PEPPER, SR., New Orleans	"Opposed."	"Opposed."
JOHN J. PETERS, SR., Winnfield	"Against nationalization and welfare state."	"Against the chiropractic bill."
DEWITT L. SAULS, Amite	"Will certainly give the two matters thorough study should I be elected to the Legislature."	"Will certainly give the two matters thorough study should I be elected to the Legislature."
DAVE O. HULETTE, New Orleans	"Unalterably opposed to the socializing of medicine or anything else."	"Believe it is the height of folly to license chiropractors and am fully opposed to their being licensed."
FORREST C. PENDLETON, New Orleans	"Against."	"Against."
RUDOLPH F. BECKER, JR., New Orleans	"Opposed to the nationalization of medicine and the welfare state."	"Against the licensing of chiropractors."
LAURANCE EUSTIS, JR., New Orleans	"Strongly oppose the nationalization of medicine and the welfare state."	"During the past legislative sessions I have voted against the chiropractic bill and you can count on me to continue this practice."
JOHN SINGREEN, New Orleans	"Most assuredly against the nationalization of medicine."	"Against the licensing of chiropractors."
JOHN S. NELSON, Plaquemine	"Against the nationalization of medicine."	"Against the licensing of chiropractors. During legislative sessions of 1940 and 1942 as a state representative, I cooperated fully with the medical societies and will continue in the same manner if elected state senator."
GUY W. SOCKRIDER, Lake Charles	"Opposed to the nationalization of medicine."	"Opposed to the licensing of chiropractors."
WARREN J. MOITY, New Iberia	"As a State Senator, I will cooperate with the La. State Medical Society one thousand per cent in their effort to secure the best medical care for the people of their state, at any time an opportunity arises."	"As a State Senator, I will cooperate with the La. State Medical Society one thousand per cent in their effort to secure the best medical care for the people of their state, at any time an opportunity arises."
DR. E. M. TOLER, Clinton	"Opposed to socialized medicine."	"Opposed to licensing chiropractics in the State of La."
PATRICK BARRY, JR., Breaux Bridge	"Strictly against any form of socialized medicine."	"Opposed to licensing of chiropractors until such time that I am informed in writing by a majority of the members of the La. State Medical Society that they want the licensing of chiropractors."
BERNARD TRAPPEY, New Iberia	"On the nationalization of medicine, I am not in accord with such a proposition."	"Not familiar enough with its provisions to be able to answer intelligently."
J. MAXIME ROY, Lafayette	"Definitely opposed to any bill or measures that would bring us socialized medicine."	"Voted against the Bill and I intend to oppose it whenever it is brought up again."
GILBERT F. HENNIGAN, Fields	"Against socialized medicine in any way, form or fashion."	No comment.

Name of Candidate	Socialized Medicine	Chiropractic Bill
THOMAS A. BRADFORD, Jena	"One hundred per cent against socialized medicine or any other socialization in the United States."	No comment.
JOHN R. HUNTER, JR., Alexandria	"Definitely opposed to the nationalization of medicine and the welfare state."	"Feel that the La. State Med. Soc. is best qualified to determine the question, and I shall be guided by and adhere to the wishes of the La. State Med. Society in this regard and shall oppose the licensing of chiropractors."
JAMES D. SPARKS, Monroe	"Opposed to the nationalization or socialization of the medical profession."	"Not familiar with this legislation, its background . . . I know that people who practice chiropractics are available to the public and presume they have a license of some sort. However, if by 'license' you mean a bill to permit chiropractors to . . . issue prescriptions, diagnose and treat diseases, I would certainly be opposed to this."
ELMORE F. BONIN, St. Martinville	"Against the nationalization of medicine and the welfare state."	"Oppose the licensing of chiropractors."
LAWRENCE CHAUVIN, JR., Houma	"In full agreement with the general opinions shared by our medical societies for the benefit of mankind. If elected I will strive to do the utmost to maintain the high standards practiced by the society."	"In full agreement with the general opinions shared by our medical societies for the benefit of mankind. If elected I will strive to do the utmost to maintain the high standards practiced by the society."
TED R. BROYLES, Leesville	"Believe it would be very detrimental to the health of our nation to adopt the policy of socialized medicine."	"Shall endeavor to the best of my ability to protect the medical profession when the occasion arises."
M. ELOI GIRARD, Lafayette	"Violently opposed to socialism —in medicine—in any business."	"Am not prepared to promise opposition to the chiropractic bill as I am not familiar enough with the subject; however, my mind is open on the subject."
GUY G. GARDINER, Crowley	"Opposed to the nationalization of medicine."	"Opposed to the licensing of chiropractors."
WILLIAM S. LINDSLEY, New Orleans	No comment.	"Would rather let my views remain open for the time being. I have made various investigations relative to this issue, however, and so far the majority of people whom I have contacted seem to favor chiropractors. Nevertheless a further study should be made before a decision can be reached."
R. B. RICHARDS, New Orleans	"Opposed to nationalized medicine and the so-called welfare state."	"Will do my part to defeat the usual chiropractic bill."
G. A. ACKAL, New Iberia	"Strongly against any form of Socialized Medicine."	"Opposed to licensing chiropractors."
L. R. HEWITT, Mansfield	"Opposed to the nationalization of medicine in any of its phases."	"Opposed to submitting the public to any cultists who are not adequately trained and qualified to treat our people."
HARRY C. HUSSER, New Orleans	"Adamantly against all forms of socialization."	"As for the general licensing of chiropractors . . . you are assured that I will actively oppose this bill."

Name of Candidate	Socialized Medicine	Chiropractic Bill
DAVID H. MACHAUER, New Orleans	"Afraid that 'Socialized Medicine' and 'The Welfare State' are such broad terms that it is difficult, without outlining to me any specific program or set of facts to give any quick affirmative or negative."	"Categorically I am with you on this."
HAROLD P. CRANE, SR.,	"Will positively go on record to do everything within my power and will vigorously oppose any legislation in this direction."	"Entirely uninformed as to its merit or demerit."
GUS M. BOUCHER, Shreveport	"Will not only oppose socialized medicine and the welfare state legislation but will act as your leader in the state senate against such drastic and communistic legislation."	No comment.
PUCKETT WILLIS, Sikes	"Opposed to the nationalization of medicine."	"Voted against the chiropractic bill. My stand on this is a matter of record."
C. H. DOWNS, Alexandria	"Oppose any measures which would have for their purpose the nationalization of medicine or which would in any way be detrimental to your Society."	"On every occasion in the past opposed the adoption of the chiropractic bill and should it be presented at any future sessions of the legislature my position regarding it will be the same."

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

DADE COUNTY CANCER INSTITUTE SCHOOL OF CYTOLOGY

The Cancer Cytology Center of the Dade County Cancer Institute, an affiliate of the Medical Research Foundation of Dade County in Miami, Florida, has announced its first one-week seminar for physicians to be held at the Institute from January 14th to 19th inclusive. The lecture courses are scheduled from 9 a.m. to 5 p.m. daily during this period.

Instruction will be under the supervision of Doctor J. Ernest Ayres, Director of the Institute and its research staff. More than twenty outstanding local and visiting physicians and scientists will compose the faculty.

This first School of Cytology in Florida anticipates enrollment from local, State and regional areas as well as from the Caribbean.

The general course of instruction in cancer diagnosis and cytology will include lectures, demonstrations and symposia covering the various branches of medicine as related to cancer, including clinical, cytological, surgical and histopathological fields.

Interested physicians should direct their inquiries regarding qualifications, registrations, fees and other details to the Director of the Dade County Cancer Institute at 1155 North West 14th Street, Miami, Florida.

Applications for registration, limited to 35 physicians, will be accepted through January 12th.

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ANNUAL CLINICAL CONFERENCE OF THE CHICAGO MEDICAL SOCIETY

The Clinical Conference which has been established by the Chicago Medical Society for presentation each spring, offers lectures on many aspects of medicine to keep doctors abreast of the new things being developed from year to year. Each year the Society presents something of special interest to those attending. It will be held March 4, 5, 6, 7, 1952 in the Palmer House, Chicago.

The year, 1952, will show in response to popular demand, an increased number of demonstrations or work shop periods in addition to the regular series of lectures. These demonstrations include presentation of patients, carefully selected scientific movies, and other features interesting from an educational standpoint. The lecture are on subjects of interest to both the general practitioner and the specialist and will be one half hour in duration. The faculty, which is now being assembled, will represent outstanding teachers of the medical world.

The scientific and technical exhibits are being selected with great care. The scientific exhibits will present visually some of the most recent advances in medicine. The technical exhibits are both helpful and time-saving and worthy of real study. To those who have attended previous clinical conferences, the wealth of material is well-known.

For newcomers, to this activity of a great medical center, it will be an opportunity to renew old acquaintances as well as improving one's medical outlook. The Chicago Medical Society Clinical Conference should be marked on every physician's calendar right now. The completed program will be available shortly and will be printed in our Bulletin or mailed upon request. This meeting has earned the reputation of being one of the most outstanding medical conferences in the country.

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ANNUAL MEETING OF THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The fifteenth annual meeting of The New Orleans Graduate Medical Assembly will be held March 10-13, headquarters at the Municipal Auditorium.

Eighteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners. In addition, the program will include symposia on "Resuscitation" and "Complications of Antibiotic Therapy and Their Management", daily demonstrations of medical and surgical procedures in color television, clinicopathologic conferences, medical motion pictures, over 100 technical exhibits and three round-table luncheons.

The Assembly has planned another interesting postclinical tour to follow the 1952 meeting in New Orleans. On Saturday, March 15, a party composed of doctors and their families will leave by plane for Merida, Yucatan, Mexico. The itinerary also includes Mexico City, Cuernavaca, Taxco and Acapulco in addition to other sightseeing. Arrangements have been made for medical programs and visits to hospitals in Merida and Mexico City. The group will return to New Orleans on Saturday, March 29.

Details of the New Orleans meeting and the postclinical tour are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

THIRTY-SEVENTH ANNUAL CLINICAL CONGRESS—AMERICAN COLLEGE OF SURGEONS

Nine hundred and three initiates were received into fellowship and three honorary fellowships were conferred by the American College of Surgeons at the Convocation on Friday evening, November 9, which was the closing session of the thirty-seventh annual Clinical Congress in San Francisco. The fellowships were conferred by Dr. Alton Ochsner of New Orleans, President of the College. The Fellowship Address was delivered by Dr. J. Roscoe Miller, of Chicago, President of Northwestern University.

The new honorary Fellows are:

Sir Reginald Watson-Jones, London, England, Director of Orthopedic Service, London Hospital Medical College; Director, Orthopedic Department, London Hospital.

Dr. A. Mario Dogliotti, Turin, Italy; Professor of Surgery, Faculty of Medicine of Turin and also the Postgraduate School of Surgery; Director of the Surgical Clinic; Molinette Hospital.

Dr. Rudolph Matas, New Orleans; Professor Emeritus of Surgery, Tulane University School of Medicine; a founder and the First Vice President in 1913 of the American College of Surgeons; Past President of the College, 1925-6.

The American College of Surgeons has around 17,000 Fellows in the western hemisphere and in a few countries overseas. Headquarters are in Chicago. It was organized in 1913 to elevate the standards of surgery.

The following initiates from Louisiana were made fellows: Walter F. Becker, New Orleans; Walter J. Burdette, New Orleans; Claude C. Craighead, New Orleans; Julius T. Davis, Jr., New Orleans; Frank T. Kurzweg, New Orleans; James T. McQuitty, New Orleans; William C. Quinn, New Orleans, and Samuel Zurik, New Orleans.

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RAPIDES PARISH MEDICAL SOCIETY FOUNDER'S DAY FORUM

The annual Founder's Day Forum of the Rapides Parish Medical Society will be held at the Hotel Bentley in Alexandria on January 12, 1952. The program will consist of a luncheon, presentation of scientific papers and a banquet for doctors and their wives at eight o'clock in the evening. The president of the State Society, Dr. Edwin L. Zander and the secretary, Dr. C. Grenes Cole, have been invited to speak at the luncheon.

All Louisiana doctors are invited to attend this Forum and should contact Dr. Richard E. C. Miller, Chairman, for further information.

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NEWS ITEMS

The American Board of Obstetrics and Gynecology announces the election of Dr. John L. Parks, of Washington, D. C., as a member and Director of the Board. Dr. Parks succeeds Dr. Joseph L.

Baer, who has been Vice President of the Board for over twenty years and who has resigned.

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At a meeting of the Board of Regents of the American College of Surgeons held at the Fairmont Hotel in San Francisco November 9, 1951, Dr. Evarts A. Graham of St. Louis was appointed to succeed Dr. Arthur W. Allen of Boston as chairman. Dr. Graham is emeritus professor of surgery, Washington University School of Medicine and emeritus surgeon-in-chief, Barnes and St. Louis Children's Hospital. Dr. Graham has been a member of the Board of Regents since 1940.

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IN MEMORIAM

DR. FRANCIS FENWICK YOUNG, JR. DIED AT 2:15 P. M. OCTOBER 24, 1951

Born August 10, 1887, at Abbeville, Louisiana. The son of the late Doctor Francis Fenwick Young, Sr. and Mrs. Noemie Roy Young.

He received his early education in the parochial schools of Abbeville, La., and later his A. B. degree from Jefferson College, Convent, La. in 1907.

He completed his medical education at the Fort Worth Medical College, Fort Worth, Texas, in 1911. This medical school has since become affiliated with Baylor University, Houston, Texas.

He began his practice of medicine in Erath, Louisiana, and practiced there about a year and half prior to coming to Covington where he has practiced medicine since 1913 and throughout the Parish of St. Tammany up to several years ago when he retired because of ill health. Doctor Young was noted for his kindness and charity to the underprivileged.

He served as Coroner from May 1932 continuously to 1948 when he resigned because of ill health and was replaced by Doctor H. E. Gautreaux.

Doctor Young was a past-President of the St. Tammany Parish Medical Society and a member up to the time of his death. He was also a member of the Louisiana State Medical Society, the Sixth District Medical Society and the American Medical Association.

He is survived by his brothers, Doctor J. Dalton Young, Shreveport, La., Mr. A. Laurie Young, Covington, Dr. L. Roland Young, Covington, Dr. Roy Carl Young, Covington, and one sister, Mrs. Robert E. Putnam, Abbeville, La.

DR. THOMAS C. PAULSEN

WHEREAS, through the untimely death of Dr. Thomas C. Paulsen, this society has suffered the loss of one of its most esteemed and beloved members; and

WHEREAS, this physician whose life of unselfish service and devotion to the highest ideals and principles of the practice of medicine in spite of his own great physical suffering has reflected honor upon the profession and

WHEREAS, his tireless battle against pain and disease was always a source of comfort and courage to his patients and inspiration to this community and to his fellow practitioners

THEREFORE, BE IT RESOLVED, that the members of the East Baton Rouge Parish Medical Society express their heartfelt sympathy to the Paulsen Family and that a copy of this resolution be spread on the minutes of this society as a tribute to his memory.

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BOOK REVIEWS

Electroencephalography in Clinical Practice; by Robert S. Schwab, M. D., Philadelphia, W. B. Saunders Co. 1951. pp. 195, Illus. Price $6.50.

In something less than 200 pages of text Dr. Schwab has managed to present an excellent review of the current status of electroencephalography both as a clinical technic and a research tool. Beginning with a historical statement, he deals successively with the characteristics of records, the technic of obtaining reliable records, and the special features of the E. E. G. in epilepsy, other disorders of the nervous system, and in psychologic disease. The special problems of E. E. G. research and the management of the E. E. G. laboratory are also discussed. The presentation is simple and straightforward throughout. The book is heartily recommended to both the physician and non-medical worker wishing to introduce himself to this field.

D. A. Freedman, M. D.

PUBLICATIONS RECEIVED

The Arundel Press, Inc., Washington: Antibiotic Therapy, by Henry Welch, Ph.D., and Charles N. Lewis, M. D.

The Blakiston Co., Philadelphia: Biological Antagonism, the Theory of Biological Relativity, by Gustav J. Martin, Sc.D.

W. B. Saunders Co., Philadelphia: Textbook of Refraction, by Edwin Forbes Tait, M. D., Ph. D.

Charles C. Thomas, Publisher, Springfield, Ill.: Visceral Innervation and its Relation to Personality, by Albert Kuntz, Ph.D., M.D.; Untoward Reactions of Cortisone and ACTH, by Vincent J. Derbes, M. D., and Thomas E. Weiss, M. D., and edited by Roscoe L. Pullen, M. D.; Surgery of Peripheral Nerves, by Emil Seletz, M. D., F.A.C.S., F.I.C.S.; Physical Medicine and Rehabilitation for the Aged, by Walter S. McClellan, M. D., Cardiac Pain, by Seymour H. Rinzler, M. D., F.A.C.P.

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EMOTIONAL FACTORS IN CHILDHOOD DISEASES*†

JAMES MARVIN BATY, M. D.
BOSTON, MASS.

The purpose of this discussion is to point out to "family physicians" and others interested in the care of children the importance of the emotions and the intellect in relation to illness and to describe a method for evaluating this relationship and the necessity of considering these factors in the treatment of acute and chronic diseases. It is not intended to discuss children with recognized, gross disorders of behavior or established psychotic disturbances.

The Boston Floating Hospital is a general hospital of 56 beds for the care of infants and children. It is a unit of the New England Medical Center and the teaching hospital for Pediatrics of the Tufts College Medical School.

As in other general hospitals, the primary responsibility of the Boston Floating Hospital has been considered to be "service" in rendering diagnostic and therapeutic care to patients ill with acute and chronic diseases. Attention has been focused principally on infectious and metabolic processes resulting in disturbed physiological function and on the physical aspects of growth and development.

A formal project in "Play Therapy" was conducted during the summer of 1946 in an effort to minimize the psychological trauma that often is experienced by children admitted to the hospital with acute illnesses. A small play room and a large, open porch were modestly equipped and a young woman trained in nursery school techniques placed in charge. She was in attendance during the morning hours throughout the summer. With the assistance of the nursing staff, about 15 children could be handled daily in good weather, in or out of their beds as their conditions warranted. During inclement weather only 5 or 6 children could be taken to the play room.

This effort was effective to some extent. The children who were able to participate were happier, became adjusted to the hospital experience more adequately and were less homesick. The physicians, medical students, and nurses saw their patients in a somewhat different light and realized there were greater responsibilities than simply curing a case of pneumonia or removing an acutely inflamed appendix.

Through this work and demonstrations in clinics in other parts of the country our attention was directed to the necessity for developing facilities not only for simple play activities but also designed to allow for a better understanding of the emotional and intellectual development of the children who came to the hospital and what effect these factors might have on the course of their illness and on recovery.

With this in mind a psychiatrist, a psychologist, a psychiatrically trained social service worker and a nursery school teacher to supervise the play room were added to the hospital staff. The psychiatrist worked

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*From the Boston Floating Hospital and the Dept. of Pediatrics, Tufts College Medical School, Boston, Massachusetts.

†Presented at the Seventy-first Annual Meeting of the Louisiana State Medical Society, New Orleans, La., May 9, 1951.

on a part time basis and the others full time. In order to obtain necessary funds this group was designated a "Psychiatric Unit" but the members of the group are an integral part of the hospital staff and they do not constitute an autonomous service.

A larger playroom was constructed next to the one already in use with an adjoining observation corridor and a one way vision mirror. This room was equipped with toys of various types, material for finger and water color painting, slides and mats. Larger slides, a sand box, a jungle gym and building blocks were placed on the open porch but could be used only in good weather during the summer months. The smaller play room was equipped with a carpenter's bench, chairs and tables and used mostly for the older children and for psychological testing.

The primary purpose of this effort as suggested above, was to minimize as far as possible the psychological trauma occuring during hospitalization. It was also proposed to evaluate the emotional status and intellectual development of the children who came to the hospital with different complaints. It was not intended that children with gross behavior disorders or psychiatric disturbances should be sought or treated.

This is still our intention but since these facilities are known to exist, this policy is increasingly difficult to maintain. Such children are occasionally admitted for a period of observation and evaluation when beds are available. No attempt is made to carry out long term psychiatric treatment of severely disturbed youngsters. When these problems are recognized the parents and referring agencies are advised of the necessity, and assistance is rendered in the initiation of psychotherapy or in the selection of the proper institution if this is thought advisable.

In actual practice it proved impossible with the available personnel to evaluate the emotional and intellectual status of *all* the patients admitted to the hospital. However, it is felt that all of the patients have been influenced by the activities of the Psychiatric Unit either directly or indirectly and about 65 per cent of them have had personal attention from one or more members of the team. Approximately 20 per cent of the patients have been investigated thoroughly and their subsequent course followed.

The first and a most important step in the adequate emotional adjustment of the child and the family to the hospital experience is the greeting on arrival. The receptionist, the staff of the business office and the admitting room personnel must have a friendly, cordial and reassuring attitude. Those of us who are in and out of hospitals daily forget that a hospital may be a strange and even terrifying place to the child and to the parents. A person with an unfriendly or austere manner may be efficiently utilized in some capacities but should never be tolerated in the admitting area of a hospital.

The method of treating patients in the Boston Floating Hospital does not differ appreciably from that practiced in other general hospitals. The method of handling the children does differ, however, from the conventional pattern. The student and graduate nurses attempt to act as "mother substitutes" for their small patients and are friendly and considerate of every one. The director of the play room and her volunteer assistants go through the wards the first thing each morning with well stocked carts and see that each patient has toys, play or work materials suitable for their age and physical condition. She also decides at this time, with the help of the attending physicians and nurses, which children are to be taken to the playroom. Wheel chairs are supplied in order that semiambulatory children may get about the ward some and play pens are available for the toddlers.

The members of the Psychiatric Unit are on the wards daily and are available to the members of the medical and nursing staffs for discussion of individual patients. Psychometric testing, observations of behavior, a psychiatric social history and the opinion of the psychiatrist about individual patients

may be obtained by specific request of the physician in charge of the patient. The selection of the patients for more complete emotional and intellectual evaluation has been casual. In the majority of instances the medical staff has requested help after they have failed to explain an illness or symptom by conventional methods of scientific investigation. In many cases some member of the medical or nursing staff has felt that a child was emotionally disturbed or was poorly adjusted to the hospital situation and has requested such an evaluation and a number of children have been admitted because of specific disorders of behavior.

I should like to present statistical data to show the effectiveness of this approach in handling sick children but we have been unable to compile data that is valid. Nor will it be possible to obtain figures comparable to those showing the effectiveness of penicillin in the treatment of pneumococcus pneumonia. But, we have become increasingly aware of the variety of somatic symptomatology that can be produced by emotional disturbances and environmental factors. And, we believe that the deleterious effects of illness and hospitalization on the attitudes and emotional development of children can be prevented and that the hospital experience can even be made a beneficial one.

CASE REPORTS

This is a brief summary of a relatively uncomplicated case history as an illustration of this approach.

John C.—was referred to the hospital at the age of 5 9/12 years from a neighboring state with the request by his pediatrician that after the boy had recovered from the acute episode he be investigated because of recurring attacks of abdominal pain and vomiting. The family history was remarkable only in the occurrence of allergy on both sides. The prenatal, natal, and growth and development histories were all normal. The child had always had a finicky appetite and had been thin but he had been very well. Six months previous to admission he became acutely ill with appendicitis but made a rapid and uneventful recovery following operation. After this he had recurring attacks of abdominal pain and vomiting lasting one to three days at intervals of two to four weeks. When he arrived in the hospital he had been vomiting for three days. He appeared mildly ill and showed evidence of moderately severe dehydration and acidosis. He was given fluids parenterally and recovered within a few hours following which a conventional investigation was unfruitful.

The youngster was unusually bright with an outstanding vocabulary and an intelligence rating of 128. He showed no indication of emotional instability during the psychological test but was disturbed and insecure in his behavior on the ward. The father was 48 and had an agreeable pleasant personality. The mother was 46, an ex-school teacher, very rigid and overprotective in her attitudes towards the boy.

Therapeutic efforts consisted of reassurance of the parents concerning their fears of physical disturbances and discussions of the influence of the various environmental factors on their son. Four months and a year later they wrote us that John was greatly improved. He had had no attacks of vomiting and was doing very well in school and at play.

Ruth L.—A 14½ year old white Jewish female was first seen at the Boston Floating Hospital in April 1949 at the age of 12 years with a history of hepatitis at the age of 9 years. Her jaundice had persisted throughout the ensuing six to eight months but then she had appeared well till she reached approximately 10 years of age at which time she was found to have liver damage, an enlarged spleen, and secondary anemia, at another hospital. She was then treated with liver and vitamin preparation and did fairly well for the ensuing two years prior to her first admission to this hospital. However, her activity had been considerably limited. Her appetite had been poor and weight gain only fair. Diagnosis of cirrhosis with splenomegaly and Banti's syndrome picture was made at that time. Patient underwent splenectomy with splenorenal anastomosis.

For the ensuing fifteen months the patient did fairly well with a fair record of school attendance but her activity had been limited. She has been maintained on a high protein, high carbohydrate diet with intermittent liver and iron therapy. In July 1950, at 14 years of age, she was readmitted with history of tarry stools of three days' duration. She also gave a history of some anorexia and fatigue. X-rays at that time revealed esophageal varices and although it was felt that her anastomosis was probably not completely functioning no further therapy was thought advisable at this time. She was discharged home.

Beginning about this time she began to have occasional loose stools with bright red blood.

The next admission was approximately six months later when she entered with the complaint of diarrhea, fresh blood in the stools occasionally, and frequent "canker sores" in the mouth. Barium enema at that time revealed extensive ulcerative colitis of the bowel. Repeated barium swallow confirmed the esophageal varices. Liver function

studies were consistent with a chronic hepatitis or cirrhosis of moderate degree. She had a moderate anemia which was completely corrected by transfusion therapy. She was seen in consultation by the various interested services including medical, surgical, gastroenterological, and psychiatric. The consensus of opinion was that attempt at a medical-psychotherapeutic regime was advisable. She was placed on ACTH and chloromycetin and a diet of high caloric, high carbohydrate, high protein, moderately low fat and moderately low residue. Psychotherapy was maintained first on a level of reassurance and encouragement and as the diarrhea improved and the patient in general showed good response she was ambulated and more intensive psychotherapy was carried out. At first the psychotherapy was based around the relationship with her house officer. However, as the patient improved, all of the hospital personnel were called into play, including the visiting staff, the house officers, the psychiatrist, the clinical psychologist, the psychiatric social service worker, the playroom teacher, the graduate and student nurses.

The solving of Ruth's colitis problem was brought about because of several important factors. We felt that because of her chronic liver disease she had become essentially an invalid for the last six or seven years of her life and had developed a strong relationship with her mother in which there was mutual dependency and hostility. The child in her early life had indicated greater than average energy. She was especially athletic, favoring male companionship and athletic activities rather than female. Since her illness she had been completely frustrated and her normal outlets for this aggression had developed more an attitude of hostility and rebellion. Family in turn had been withdrawn from their social activities. Family life had been centered around Ruth's illness. Interviews with the mother were carried out by several of the staff with the intent to secure an insight into Ruth's emotional problems as related to her medical illness and to help the mother to better adjust her own life and activities in connection with Ruth's many problems. After six weeks of hospitalization the patient was discharged home, to return each week for physical examination and psychotherapy. She was urged to participate in as many activities as she physically felt able to. Her diet was to be normal and she was advised to expect occasional occurrences of abdominal cramp and loose stools. While home the mother would call the hospital frequently, reportedly at Ruth's request, to report each complaint as it occurred, to ask for advice regarding it.

She was readmitted approximately seven weeks following discharge with fever and chills and evidence of an urinary tract infection. Repeated studies made at that time showed slightly poorer liver function. Patient had slight clinical icterus of the sclerae and ascites. It was strongly felt that patient should go to a convalescent home rather than to her family home for a short period of observation, since the family become completely frightened and apprehensive and the patient observing their feeling becomes again more aggressive, apprehensive, and hostile.

She was at a convalescent home for children for approximately three weeks where she did very well, showing a good appetite, disappearance of the icterus and ascites, and maintained normal stools. However toward the end of her stay at the home she expressed a marked feeling of frustration, due to the fact that her activities were limited, that there were no facilities for outside play. She has developed a much more mature attitude to her problem and has developed considerable insight. She is able to withstand her occasional symptoms of nausea and abdominal cramp with the realization these will continue to occur but are usually only temporary. It is now planned she will be boarded at a farm which she herself has suggested. She will, however, continue her psychotherapy and interviews at bi-weekly or monthly intervals as needed.

COMMENT

The utilization of a team consisting of a psychiatrist, a psychologist, a psychiatrically trained social service worker and a nursery school teacher as a part of the staff of a general pediatric hospital has been described. This group is not a separate unit, but functions as a part of the regular hospital staff, adding another weapon for the examination of children—an intellectual and emotional evaluation. This approach has been undertaken with the idea that these factors are extremely important in the resistance and reaction to disease and in the recovery from illness.

The program has proved helpful in the management of patients but has been of even greater importance in stimulating interest in mental hygiene. The medical students, physicians, nurses and other hospital personnel have become increasingly aware of emotional and intellectual development and their relationship to physiological function both in health and in disease. These factors are studied in supposedly normal, well adjusted children before the development of abnormal behavior patterns seen later in life.

There is need for further careful observation in this direction and fundamental investigation of emotional and intellectual de-

velopment in order to obtain a better understanding of these factors and more clearly delineate their interrelationship.

THE PSYCHOTHERAPIST

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NEW ORLEANS

When we speak of psychotherapy we must also inquire *"Who is the psychotherapist?"*

What sort of an individual should undertake this formidable task, the task of attempting to mould in a favorable direction the very character, the personality of an individual?

Who should undertake the job of helping that individual rid himself of deep-seated, significant, emotional conflicts, help him become free of crippling prejudices, aid him in becoming less fearful of basic aggressions, enable him to use his assets creatively? Who is to help that person make full use of his innate potentials for intellectuality, emotionality and sensuality, and to lead him to the attainment of an inner freedom which will allow him to work creatively in his milieu and to establish healthy, meaningful and pleasurable interpersonal relationships so that life can be worthwhile, an exciting experience?

To be adequate, to cope with such an assignment, the therapist must himself believe in life, believe in the ability of human beings to change, to grow emotionally, to assume greater stature, and to measure up to those possibilities mentioned above. He must like people, he must be interested in people and things, and he must be alive, alert, and enthusiastic. He must know—not just think—that people can change, and he must believe in his ability to be of help to that individual in directing change in the proper direction. He must be like a *catalyst* in a chemical reaction, *something which permits the reaction to take place*, which allows it to move towards the desired goal and to accelerate the speed of that reaction.

The psychotherapist must be temperamentally compatible with the patient. He cannot treat an individual whom he dislikes. Theoretically, insights into his own personality, provided by his training, should make it unlikely that there would be many patients whom the therapist dislikes, but in actuality few achieve that degree of growth which provides complete freedom from emotional reactions to certain people with whom they come in contact.

The therapist must have the willingness, the ability, and the energy to give. He must have the ability to allow people to get close to him to achieve emotional rapport, so that the patient can for the first time in his life establish a completely honest relationship with another human being; can remove his mask. He must provide encouragement and support because without this help the individual frequently lacks the urge or the strength to go on . If he is too passive many a patient capable of responding adequately to treatment will lose heart and regress still further. The *most effective psychotherapists that I have known have been energetic, friendly people who would never quite accept the fact that a particular patient could not recover.* Even though they intellectually looked upon the case as having a most unfavorable prognosis their own energy and optimism, their own enthusiasm, would not let them say, "Nothing more can be done." They would say, "We have done this much but let us try again." The very strength of the therapist's personality carries over to the patient and his family. The individual will often take new heart and it is amazing to observe patients which some less competent physician had given up as unsuitable for treatment begin to work effectively with an experienced, energetic therapist.

GOOD LISTENER

In considering the basic requirements of personality and professional ability of a psychotherapist, Frieda Fromm Reichmann has stated that if she were asked to

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answer the question in one sentence as to what constituted a proper background for such a physician she would reply, "The psychotherapist must be able to listen." She has pointed out that to be able to listen and to gather information from another person without reacting along the lines of one's own problems or experiences of which one may be reminded, perhaps in a disturbing way, is an art. It is a form of interpersonal exchange which a few people are able to practice without special training. To be in command of this art may not be tantamount to actually being a good psychotherapist but it is a prerequisite for all forms of intensive psychotherapy. It may be further stated that if it is true that the therapist has to avoid reacting to the patient in terms of his own life, he must have enough sources of satisfaction and security in his nonprofessional life to forego the temptation of using his patients for the pursuit of his personal satisfaction or security. If he has not succeeded in getting the personal fulfillment in life which he wants and needs he should realize that his attitude toward the sources of dissatisfaction and unhappiness in his own life must then be clarified and integrated to the extent that they do not interfere with his emotional stability and with his ability to concentrate upon listening, follow significant leads, and ultimately help the patient arrive at interpretations which are appropriate to his problem and not the therapist's. The psychotherapist must have enough security so that there has been a fulfillment of his wishes for prestige and of his being able to use successfully his powers, skills, and abilities for interpersonal goals within the range of his interest. If a therapist has not achieved this in his own life he may be unable to help the patient do so.

MUST BE RECEPTIVE

In association with the therapist's ability to listen he must be able to accept the patient's resentments, complaints, and dissatisfactions including expressions of disapproval against himself. *The psychiatrist's sense of security undergoes, of course, its greatest test when it is subjected to the patient's display of hostility.* Such patients react hostilely to the hostile behaviour and shortcoming of the influential adults in their environment, including the therapist, and they transfer to him anger and resentment engendered by previous experiences. This does not necessarily mean that he should always accept unbridled expressions of aggression from his patient since many immature hysteric individuals express themselves in the form of substitute temper tantrums. It is a part of psychotherapy upon occasion to help the individual develop some power of restraint, some capacity for repression made necessary by the environment in which we live.

The therapist on the other hand must be secure enough to be able to recognize the fact that he is not omnipotent, that he may have to accept a compromise goal. He must realize that only a relatively poor adjustment may be the best that certain patients can achieve so that he does not feel frustrated when only a limited goal can be gained. Frequently inexperienced psychiatrists set a goal far beyond the patient's own capacity and become disheartened and doubtful of their own ability when the goal is not achieved.

KEEN INSIGHT ESSENTIAL

It is obvious that the psychotherapist must have more than erudition: *he must have great capacity for empathy.* He must be able to feel with the patient. In association with this feeling-state there comes a certain intuition which he should try to cultivate and understand. It is probably not really intuition but some spark lighted in his mentation based on past experiences in conjunction with his capacity to feel which gives him keen insight into significant aspects of the problem. With a little *thought* about these impressions (taking nothing for granted) an otherwise obscure situation may quickly become clarified. The psychiatrist himself must recognize that he may have some mood variations. They may not necessarily represent cyclothymic aspects in his personality but he must realize that at certain times he is in-

tellectually less alert because of fatigue or toxic factors when his powers of concentration then function at a lower level, and that these moods may affect his judgment. If he has sufficient insight into this he can postpone judgment until another day.

The therapist must be willing to bear much responsibility for his patient while he is waiting for him to achieve some resolution of his conflict and find a better type of adaptation. He must be permissive, in the sense that he is understanding, of any form of human behaviour based on his knowledge of motivation. This does not necessarily mean that he approves of behaviour which is socially and personally destructive and harmful. He himself must have broad knowledge in the field of the social sciences so that he can have some understanding of cultures other than his own. He should be experienced in the field of psychology, psychopathology, and anthropology. It would be fortunate if he is of a literary bent because many patients find it possible to achieve more readily an intellectual rapport with a physician who is widely read and has some knowledge of fields of endeavor in which they are interested. The patient who is an engineer appreciates his doctor having a talking knowledge of engineering. The businessman gains respect for the physician who knows something about the problems currently confronting the industrialist; it will be helpful if the psychiatrist is familiar with the problems of industrial psychiatry.

The therapist must have a capacity to exhibit restraint regarding several points. He must avoid the temptation so frequently present to give the patient too quickly a full statement of his own understanding of his character and personality defects. He must avoid the necessity of dominating patients because of his own need for power or control. He must not try to solve his own personal problems by pressing patients into attitudes and reactions foreign to their needs and temperament. He must not give counsel or advice based on prejudices or complexes that do not have a particular requirement for the patient. He must not try to press the patient ahead faster than he is capable of going just because the mental mechanisms are perfectly apparent to him and he is annoyed that the patient is not making greater progress. He must avoid showing feelings of disapproval of the patient's acts and attitudes. A non-rejecting attitude is essential to successful psychotherapy. Moralistic responses upon the part of the therapist are seldom helpful and often harmful. It is essential to follow the dictum that the physician should be moral but not a moralist.

IMPORTANCE OF EVALUATING PATIENT

The psychiatrist's own self-respect is of considerable significance for the therapeutic procedure. If it is true that one's ability to believe in others is dependent upon the development of one's own self-esteem then only a self-confident psychotherapist is capable of maintaining a good opinion of his patients and of meeting them on the basis of mutual human equality. The psychiatrist will keep in mind that he is superior to his patients only by his special training experience and not necessarily in any other way. His patients may frequently have greater personal assets than he has. *The fact that a person needs psychiatric help in handling his difficulties in living by no means constitutes any basic inferiority.* Only the psychiatrist who realizes this is able to listen to his patients in such a way that there may be a psychotherapeutic success. If the psychiatrist has respect for his patients it will be a safeguard against the mistake of assuming an attitude of personal "irrational authority" instead of listening and conducting therapy in the spirit of collaborative guidance. An authoritarian behaviour is harmful not only because it interferes with the patient's efforts to achieve growth and maturity but also because it constitutes a traumatic repetition of the authoritarian aspects of the cultural pattern in general and of the paternal pattern in particular to which most mental patients have been harmfully subjected in their past. However, there may be, as mentioned above, place for a firm authoritarian approach where patients

have regressed to an uncontrolled state akin to that sometimes seen in children. A firm, secure, nonrejecting parent is not afraid at that point to step in and give nonpunitive direction which not only provides a certain feeling of security for the patient but adds to his belief in the therapist. Just as the child does not respect the weak ineffectual parent whom he can dominate, neither does the patient respond effectively when he observes the same lack of strength in the therapist.

DOCTOR'S ANXIETY A MEASURING ROD

The therapist must be personally secure because where there is lack of security anxiety is present, and where there is anxiety there is fear of anxiety in others. The insecure psychiatrist is therefore liable to be afraid of the patient's anxiety. Hence he may not want to hear about their anxiety and their anxiety-provoking experiences. He may thwart the patient's tendency to submit these experiences to psychotherapeutic investigation and feel called upon to give premature reassurance to the patient because he needs reassurance himself. In doing so he is liable to obstruct his patient's verbalization and this in turn interferes with the investigation of important material. To the patient the doctor's anxiety represents a measuring rod for his own anxiety. If the doctor is very anxious the patient may take that as a confirmation of his own fear of being threatened. In other words, the doctor's anxiety decreases the patient's own self-esteem.

Since psychotherapy has a scientific basis but must be practiced as an art, attainment of as many of these qualities as possible is essential if one is to be a successful therapist. Although none can expect to achieve perfection an objective evaluation of his own qualifications to practice this art will keep the physician ever alert to the need to improve his skill and to discover new technics.

TREATMENT OF MILD KNOCK KNEES AND PRONATED FEET IN CHILDHOOD*

RESULTS IN 63 CASES

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NEW ORLEANS

It has been our belief that in most instances knock knees and bowlegs in children represent a physiologic cycle which does not require intensive treatment, such as bracing, plaster wedging, and osteotomy. To prove this we reviewed 63 cases of genu valgum and genu varum treated in most instances with simple shoe wedges and, in a few instances, with nothing at all. Excellent or good results were obtained in over 77 per cent of these cases.

PHYSIOLOGIC CONSIDERATIONS

We believe that almost every normal child passes through a physiologic cycle in regard to alignment of the lower extremities. A child is born with moderate bowlegs. As he stands and takes his first steps, he walks on a wide base for balance (Fig. 1a.) This usually is then corrected by development of a knock knee deformity (Fig. 1b), although femoral and tibial bow-

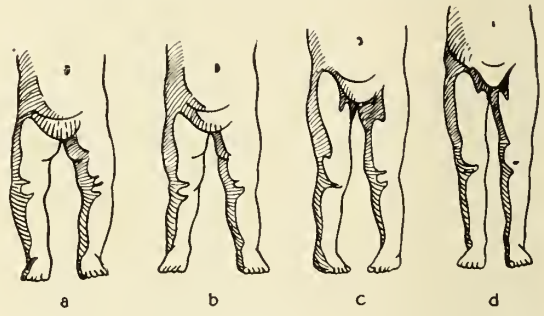

Figure 1. Normal progress of bowlegs through knock knees to final correction.

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ing may still actually be present. Provided he has normal feet, he will then toe in as he walks, in an attempt to correct the knock knees (Fig. 1c). As he toes in, he tends to rotate internally at the hips, and thus the lateral side of the knee faces more to the front. With the internally rotated lower extremity fixed firmly to the ground as he takes a forward step, the forward thrust of weight through the knee tends to straighten out the knock knees. Furthermore, by toeing in, the inner border of the foot is raised, and the arch is formed. After the knock knees have been corrected and the arch is formed, there is no further need for toeing in, and the child toes straight ahead (Fig. 1d).

PATHOLOGIC VARIATIONS

The pathologic variations of this picture are obesity, malnourishment, congenital flat-feet, and internal and external rotator contracture of the hips. We are not considering rickets, a deficiency disease in which bowlegs may be only one of its manifestations, or tibia vara (Blount's disease), which occurs long after the normal cycle is well on its way to completion.

Development in the obese child may stop at the bowlegged stage or the knock knee stage, because the *normally* soft bones of infancy tend to deform further with the added superincumbent weight. Thus, a fat baby, although a pleasure to parent and pediatrician alike, stands in peril of having deformed legs. We have urged dietary control of obesity in infants, and have noted poor results of treatment when reduction was not accomplished.

The undernourished child, on the other hand, is generally thin and lanky. His weak muscles are unable to support his joints, so that deformities will occur in the lines of least resistance. Because of poor carbohydrate and fat intake, protein is not spared and must be used for caloric requirements, depriving him of adequate "building blocks." For this reason, growth is erratic, and the combination of soft bones, weak ligaments and poor muscle power tends to increase, rather than decrease, the deformity.

The child with congenital flatfeet cannot toe in, since the valgus position of the heel and forefoot prevents this. The term, congenital flatfeet, is used broadly here, to include simple flatfeet, congenital calcaneovalgus and calcaneonavicular or calcaneoastragalar synostosis.

External rotator contracture of the hip prevents even a normal range of internal rotation. A certain amount of this is physiologic early in infancy, but, in normal subjects, should disappear. On the other hand, internal rotator contracture may develop in some children whose tendency to toe in is greater than normal, and special measures may be needed to correct this. We have never observed a cycle of bowlegs, knock knees, and further reversion to bowlegs. Therefore, persistent internal rotator contracture of the hips is important only in its effect on the gait and in producing lateral callosities of the feet.

MATERIAL AND METHOD

Since 1942 we have seen approximately 200 patients with bowlegs and knock knees of the psysiologic variety of childhood, excluding those with actual bony disease. Of these, we have been able to re-examine and evaluate results in 63. With a few exception, to be noted, treatment consisted of use of medial heel wedges and dietary and vitamin adjustment when indicated. In this regard we have noted no cases of actual florid rickets, and radiographic reports of "healed rickets" in many instances are open to serious question, since we do not believe that the mere widening of a metaphysis in the absence of other signs is sufficient evidence upon which to base a diagnosis of previous rickets. One patient in the present series had supracondylar osteotomies, and one patient wore braces for three months for intoeing beyond a normal limit.

Medial heel wedges are used for both knock knees and bowlegs. Since the feet in both cases are pronated, the weight concentration falls to the medial side of the foot (Fig. 2). By overcoming the pronation of the heel, the wedge causes the weight concentration to be distributed closer to the axial line of the lower extremity. More-

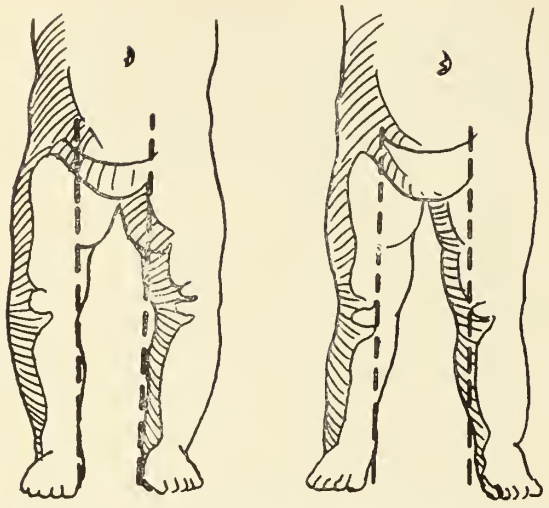

Figure 2. Distribution of weight bearing in bowlegs and knock knees.

over, in both cases, the ankle mortice and subastragalar joint are protected from abnormal motion and consequent deformity. In knock knees, the medial collateral ligament of the knee is usually tense and, by raising the inner border of the heel, stress is removed from this structure, allowing it eventually to tighten. Furthermore, in knock knees the medial heel wedge will cause the foot to pivot internally as weight is borne, thus producing the intoeing necessary to correct knock knees. In bowlegs, where this intoeing may be troublesome, a short outer sole wedge may be added so that when the heel is raised in the take-off, the foot will pivot laterally.

The vitamin intake of the patients in this series was determined on admission and usually was found to be adequate. If it seemed low, it was adjusted accordingly. Of the 6 patients who were treated by the infron regimen advocated by Morris,[1] results were good in 3, fair in 1 and poor in 1; the other one improved but was not followed long enough for accurate evaluation. However, Morris was treating infantile rickets in clinic patients whose previous diets could be considered inadequate; whereas the present series consists of private patients where rickets presented no problem. Moreover, our patients who received infron were past the age when such therapy is thought to exact its maximum benefit.

No particular attempt was made to control these patients' diets except to urge reduction in obese children and attempt to build up obviously malnourished ones. This problem in general was handled by the pediatrician or family physician. Five patients in the series remained obese; in the 3 with bowlegs the results were good in one and fair in 2, and in the 2 with knock knees the results were fair in one and poor in one. The poor result is so bad as to require surgical correction.

ANALYSIS OF RESULTS

For the purpose of analysis, the cases were divided into groups, according to age upon admission but the results in these groups varied so little from the complete picture that they were omitted. The cases were further subdivided according to severity of the condition into mild, moderate, and severe. We arbitrarily designated as severe those with over 10 cm. separation of malleoli with condyles touching in knock knees, or over 10 cm. separation of condyles with malleoli touching in bowlegs. Cases were designated as moderate when there was separation of 5 to 10 cm. and those with separation of less than 5 cm. were designated as mild. One might argue that separation of 10 cm. in a child 80 cm. tall is not as bad as in a child 70 cm. tall, but such an argument is academic, since both would be abnormal. Final results were predicated more on a clinical basis, according to the age, height and appearance of the child. In general, we believe that separation of less than 2.5 cm. in a child older than 9 or 10 years constitutes an excellent result, and that a little more than this constitutes a good result. Both are satisfactory from a cosmetic standpoint, and more importantly, from a functional standpoint. If correction occurs with growth, further correction may be reasonably expected until growth ceases. Experience has shown that valgus and varus deformities of the knees in adults predispose to faulty joint mechanics and disabling hypertrophic changes, a fact which may not be generally recognizable. This is the reason why we believe it is so important to correct this condition in childhood.

There were 2 cases of knock knees in children under one year of age, but both were walking when seen. Both are showing spontaneous improvement without shoe wedges but have not been followed long enough to determine the final result.

Of 51 patients with knock knees, more than one year old, 10 have not been followed long enough to determine the final result. Of the remaining 41, results were excellent in 10 and good in 20, or a total of 30 satisfactory results. There were 9 fair results and only 2 poor results (Table 1). Of 10 additional patients who have not been followed long enough to determine final results, 8 were improving at the time of evaluation and 2 were not improving.

TABLE 1
RESULTS IN 51 CASES OF KNOCK KNEES ACCORDING TO INITIAL SEVERITY

Initial Severity	Excellent	Good	Fair	Poor	Improving*	Not Improving*
Mild	7	10	5	2	4	0
Moderate	3	8	4	0	3	2
Severe	0	2	0	0	1	0
Total	10	20	9	2	8	2
Total %	19.6	39.2	17.7	3.9	15.7	3.9

*Cases not followed long enough for evaluation

Of 12 patients with bowlegs the results were excellent in 3, good in 8 and fair in one (Table 2). It is interesting to note that in 8 of the 12 patients the bowlegs reverted to knock knees sometime during the course of treatment and actually we were evaluating the state of their knock knees.

TABLE 2
RESULTS IN 12 PATIENTS WITH BOWLEGS ACCORDING TO INITIAL SEVERITY

Initial Severity	Excellent	Good	Fair
Mild	1	6	1
Moderate	2	2	0
Severe	0	0	0
Total	3	8	1
Total %	25	66.6	8.4

As additional support of our contention that the time element is important in these children we reviewed the records of all patients with either bowlegs or knock knees who were seen at the age of 3 years or earlier, and who were followed to the age of 6 years or over. There were 20 of these, in 7 of which the result was excellent and in 9 good, which represents a total of 16 satisfactory results, with but 4 fair results and no poor results (Table 3).

TABLE 3
RESULTS IN 20 PATIENTS WITH KNOCK KNEES AND BOWLEGS SEEN AT AGE OF 3 YEARS OR UNDER AND FOLLOWED TO THE AGE OF 6 OR MORE

Initial Severity	Excellent	Good	Fair	Poor
Mild	4	4	1	0
Moderate	3	4	3	0
Severe	0	1	0	0
Total	7	9	4	0

Since it is believed that the degree of pronation of the feet has an effect on the result, the results were correlated with the condition of the feet at the final evaluation (Table 4). Most of the patients with excellent or good results had either normal feet or only mild pronation. For this reason, we have come to believe that serious efforts should be made to overcome the pronation by exercise and shoe corrections, when dealing with alignment problems of the legs.

TABLE 4
CORRELATION OF FINAL RESULTS OF KNOCK KNEES AND BOWLEGS WITH EXTENT OF FOOT PRONATION AT FINAL EVALUATION

	Excellent	Good	Fair	Poor	Improving	Not Improving
Normal feet	4	8	2	1	0	1
Mild pronation	8	14	4	0	4	1
Moderate pronation	1	5	4	1	4	0
Severe pronation	0	1	0	0	0	0

In analyzing our fair and poor results, we were able to state definitely that one poor result was due to excessive obesity. There was no apparent cause for the other poor result. Of the 10 fair results, there was no apparent reason for the results obtained in 6. Of the remainder, one was obese, one had pronounced internal tibial torsion with tibial bowing and compensatory knock knees, which will undoubtedly

require derotation osteotomies, the third wore shoe corrections for only two months, and the fourth showed persistent out-toeing which was the opposite of what he needed to provide the correction. However, further improvement in at least some of the unsatisfactory group can be expected with continued growth.

DISCUSSION

We believe that there is sufficient evidence to justify conservatism in the treatment of physiologic variations in the alignment of the lower extremities of infants and young children. Operative measures, when necessary, should be delayed until the child is at least 10 years old. No braces were used in this series with the exception of one child who wore them only three months, and another child who wore them after osteotomies. However, we believe that although they do not appear to be essential, they may be worth a trial in the more severe cases.

This survey has resulted in modification of our method of treatment in three ways. We formerly considered it necessary to see these patients at yearly or biyearly intervals. We now intend to have patients return at six month intervals, since we believe that the number of fair and poor results could be reduced by paying more attention to problems of weight and foot imbalance. This leads to the second modification. We intend to attack the problem of foot pronation more vigorously. Finally, we intend to use a "swung-in" or supinator shoe to promote more pronounced intoeing and at the same time aid in preventing pronation.

SUMMARY

Results of treatment by use of medial heel wedges and dietary and vitamin adjustment, when necessary, in 63 cases of infantile knock knees and bowlegs have been evaluated. Of those followed long enough for final evaluation satisfactory results both from a cosmetic and functional standpoint were obtained in 77.3 per cent.

As a result of this survey we have modified our method of treatment in the following way:

(1) Patients are instructed to return at intervals of six months instead of yearly or biyearly.

(2) More vigorous attack is being made to correct foot pronation.

(3) A supinator shoe is used to encourage more intoeing and prevent pronation.

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CLINICAL SIGNIFICANCE OF MINOR INEQUALITIES IN LEG LENGTH*

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It is common knowledge that minor inequalities in leg length frequently exist. Though often recognized, its significance is little appreciated in actual clinical practice.

In a series of 99 cases it became clearly apparent that many patients with complaints of pain in the lower extremities and the back, presented no remarkable physical findings other than unequal leg lengths. A history of fracture, or bone disease, that might have caused this inequality could not be obtained. This is true of both adults and children. It was, therefore, reasoned that the inequality was idiopathic and, with its resultant faulty mechanics, was responsible for the patients' complaints. A study and analysis of these cases forms the basis of this report.

Minor discrepancies can be defined as those of such magnitude that they are unrecognized unless looked for, and then when found, are obvious. The average difference in leg length in this series was about one-half to five-eighths of an inch. The shortening is readily detected in most cases. Many of the patients walk with a tendency to lurch, or tilt the body to the short side. It is frequently noted that, when standing, the knee on the longer side is slightly flexed in a subconscious effort to equalize the leg lengths. If the patient is asked to stand erect with both knees in complete extension,

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the pelvic tilt becomes apparent. The arm on the shorter side will then fall further away from the side of the body, while the arm on the longer side falls closer to the body. (Fig. 1). If the patient attempts to

Figure 1

compensate for the pelvic obliquity by developing a lumbar scoliosis, this deformity is immediately evident.

Once the inequality is detected, it is confirmed and estimated by the simultaneous palpation of the superior portions of the iliac crests. The examiner's hands are placed on each crest, and, by observing the difference in the level of the hands, the amount of discrepancy is easily determined. It is imperative that both knees be held in complete extension. (Fig. 2). An appropriate raise is then applied beneath the foot of the short extremity. If it is of correct height, the pelvis will now be level and the body will be in balance. This method is much more satisfactory than attempting to measure the length of the extremities by means of a tape from the anterior superior iliac spine to the corresponding internal malleolus.

It was interesting that the vast majority

Figure 2

of cases revealed shortening of the left lower extremity. This was found to be the case in 80 of 99 patients. The average discrepancy was one-half inch in most instances, but ranged from three-eighths to one inch. There was no correlation between the dominant hand and the shorter lower extremity.

ADULT GROUP

Four distinct complaints were commonly encountered among the adults:

1. Low back pain.
2. Sciatic pain.
3. Pain about the knee.
4. Pain in the ankle or foot, usually the heel.

Back pain: This group was the largest, and comprised 42 cases. There were 28 females and 14 males. The left lower extremity was shorter in 32 cases, the right in 10. The age range was from 19 to 76, the majority of cases being in the third and fourth decades. The complaint was lumbosacral in 25 cases, right sacro-iliac in 6, left sacro-iliac in 8, and lumbosacral in 2. Most cases gave a rather protracted history, some as long as 20 years. Upon physical examination, other than cases with

acute painful backs, the finding in most cases was entirely negative. X-ray examination in the majority of these cases revealed no significant abnormalities other than occasional mild lumbar scoliosis. One case presented a spondylolysis at L 5, and one a spondylolysthesis at L 5. Two cases had unilateral sacralization of the fifth lumbar vertebrae. All cases were given a shoe raise. In addition, many were advised to sleep in hard beds; some wore corsets. The majority obtained relief.

Case Reports: The following two cases are illustrative of this group:

A 37 year old white female had complained of pain in the lumbosacral region since the age of 14. The pain was worse in the morning on arising, after sitting, and accompanied by considerable stiffness. Physical examination was essentially negative except for one-half inch of shortening of the left lower extremity. When a one-half inch book was placed under the left foot, the patient remarked that her back felt better. The heel of the left shoe was raised one-half inch. The relief was almost immediate, and the patient has remained asymptomatic during a two year period of observation.

A 28 year old white male was referred to a urologist because of pain in the right lumbar region. In the course of a routine KUB, a questionable cyst in the neck of the right femur was discovered. Orthopedic examination was essentially negative, except for one-half inch of shortening of the left lower extremity. A shoe raise immediately eliminated the pain in the lumbar region.

Sciatic pain: There were 15 patients in this group, 8 males and 7 females. Their ages ranged from 22 to 66 years. The age distribution was equally divided throughout the decades. The left side was shorter in 12 cases, the right in 3. In 10 cases the pain was on the longer side, or, on the side of the concavity of the lumbar scoliosis. It is, therefore, possible that actual compression of a nerve root was a factor in the production of sciatic pain. In 6 of these cases, physical examination was essentially negative. Of the remaining 4, 1 patient had a lumbar laminectomy because of intractable sciatic pain. Large epidural varicosities were found at operation. The relief was satisfactory, but he still complained of tension and a pulling sensation in the back, and the posterior aspect of the thigh. Re-examination revealed there was one-half inch of shortening of the left lower extremity that apparently had been overlooked. A shoe raise was applied, which relieved the residual complaint. In a similar case, without positive physical findings, the application of a shoe raise failed to give any relief of symptoms. X-rays in this case revealed pseudo-spondylolysthesis of L 4 with very severe hypertrophic changes involving the articulations between L 4 and L 5. The pain in this case is now intractable, and operation will be performed. A third case presented pain in the region of the right sacro-iliac joint. X-ray findings were indicative of an osteoid-osteoma in the right ileum which was removed in two stages. Post-operatively pain developed in the back of the right leg which was not relieved by elevation of the shoe. Subsequent events disclosed a severe psychoneurosis. A fourth case had a laminectomy performed for a ruptured disc with severe right sciatic pain. A years later, this patient still had residual backache. Examination at this time revealed that there was one-half inch of shortening of the left lower extremity, apparently overlooked at the time of operation. A shoe raise gave immediate relief of the back pain.

Five cases had sciatic pain on the shorter side, or the side of the lumbar convexity. Three of these cases presented evidence of a ruptured intervertebral disc, although 1 has already obtained relief from a shoe raise. The other 2 cases failed to present any positive physical findings, and shoe raises in both these cases gave complete relief of symptoms.

Case Report: The following case is illustrative:

A 52 year old white male complained of right sciatic pain off and on for the past five years. There had been no injury to his back. The pain began in the region of the right sacro-iliac joint, and radiated down the entire right lower extremity into the foot. At times the foot and leg would get numb. Peculiarly, this pain was only present on standing, not during walking or reclining. Physical examination was completely negative, except for five-eights of an inch of shortening of the right lower extremity. X-ray examination failed to reveal any pathological findings. A shoe raise was prescribed, and complete relief was obtained.

Knee pain: There were 7 cases in this group, 4 males and 3 females. The left lower extremity was shorter in 4 instances, the right in 3. All complained of pain primarily in and about the knee, and the anterior aspect of the lower thigh. It is interesting to note that the complaint of pain was present in the knee on the longer side in 6 out of 7 cases. The explanation for this probably is that these patients walk and stand with a slightly flexed knee. This produces a considerable strain on both the knee joint, and the extensor apparatus. In the single case where the pain was present on the shorter side, a definite tender bursa was palpable over the lateral aspect of the knee. X-rays in all of these cases were negative. There were no other positive physical findings other than the inequality in leg length. A typical example of this group is the following:

Case Report: A 50 year old white male complained of pain in the left knee of many years duration. Recently the pain had become so severe that he found it difficult to get about. He had been treated for arthritis of the knee previously. Physical examination revealed a normally functioning knee joint, without any evidence of degenerative changes. The only positive physical finding was one-half inch of shortening of the right lower extremity. A shoe raise was prescribed. All pains disappeared, and have not returned to date.

Foot pain: Twelve patients complained primarily of foot or ankle pain. The left limb was shorter in 11 instances, and the right in 1. The age range was from 23 to 81. Six cases complained of pain in one heel, 3 complaining of pain on the longer side, and 3 on the shorter side. One patient complained of a painful corn on the lateral aspect of the little toe of the longer leg. Four patients had pain in the feet, 3 unilaterally, and 1 bilaterally. One patient had pain in the ankle on the shorter side. The interesting feature of this group is that 11 of the patients had unilateral complaints. They probably resulted from unequal stresses applied to the limbs as a result of the inequalities in leg length. Shoe raises were prescribed in all instances.

JUVENILE GROUP

Twenty-one children between 1½ and 15 years of age were observed. There were 12 males, and 9 females. They were referred for the following complaints:

Peculiar or awkward type of gait or posture	8
Pain in the hip on the shorter side	2
Pain in the legs	3
Pain in a heel	3
Pain in the foot and ankle	2
Accidental discovery	3

The left lower extremity was found to be shorter in 18 instances, the right in 3. The range of shortening was from one-half to three-quarters of an inch. Eighteen cases presented one-half inch of shortening, 2, five-eighths of an inch, and 1, three-quarters of an inch.

When it became apparent that the only positive finding was inequality in leg length, all children with one exception were treated by compensatory elevation of the shoe on the shorter side. In the course of treatment of the first child, an unexpected development resulted. The patient, a 10 year old boy with one-half inch of shortening of the left lower extremity, complained of pain in the right heel. A shoe raise was prescribed, and in the course of three months, it was obvious that the amount of shortening was decreasing. In five months' time the limbs became equal in length, and the shoe raise was discarded. A year later the limbs were still equal in length.

During this period, other children with unilateral shortening were treated by appropriate shoe raise. The effect of treatment is known in 11. In 7, complete equality was obtained. The shortest time required was three months, the longest seven months. Of the remaining 4, 1 child with one-half inch of discrepancy originally, had a residual of only one-quarter of an inch after three months. This child was not seen again after this time. Two other children reduced one-half inch of shortening to one-eighth of an inch after approximately eleven weeks, and four months, respectively. Both are still under treatment. The last case was unimproved after six months of treatment. Unfortunately, the total growth of this child during this stage was not

known, and it is possible that he did not grow at all during this period of time.

Of the remaining 10, 4 began treatment too recently to observe any effect. Five discontinued treatment and were never seen again. An effort will be made to locate these cases to determine what happened in the interim. A 2 year old child is only under observation. Through the cooperation of the parents, her growth will be followed to see if the discrepancy will remain static or will spontaneously correct.

DISCUSSION

A comparison of the adult and juvenile groups revealed several features in common. The inequality in leg length in both groups was apparently idiopathic. The percentage incidence of shortening of the left lower extremity compared to the right lower was approximately the same. The amount of discrepancy in both groups was the same. It is, therefore, probable that the onset of discrepancy occurs early in infancy, and most likely is the result of the greater functional impetus given to the growth of the major extremity during early development. With the advent of accomplished walking, it probably remains static and persists into adult life.

Since it has been possible to equalize leg length in a small group of normal children by apparent increased growth of the shorter limb, incident to continuous elevation by a corrected shoe, the process will be attempted in children with limbs shortened as a result of disease.

SUMMARY

Minor idiopathic inequalities in leg length commonly occur. The left limb is shorter 4 times more often than the right. These discrepancies are capable of producing various symptoms in the back and lower extremities, both in adults and in children. In a small group of normal children, the discrepancy in leg length was overcome through the accelerated growth of the shorter limb. This increased growth was probably stimulated by the use of a shoe raise in treatment.

CORTISONE AND ACTH IN DERMATOLOGIC STATES*

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Extensive reviews of all phases of cortisone* and ACTH*[1-3] therapy include reports of its use in a variety of dermatologic conditions and set forth the theories advanced for such results as it achieves in them. A further review of the literature is therefore not necessary at this time. The purpose of this communication is merely to record our personal experience with these drugs in the treatment of 19 patients with various kinds of skin diseases and to emphasize the indications and contraindications for their use in the light of these observations.

Patients treated with ACTH received varying amounts of the drugs. Those who received cortisone were usually treated by a basic schedule which involved the administration of 300 mg. in broken doses for the first twenty-four hours, 200 mg. in broken doses for the second twenty-four hours, and 100 mg. daily thereafter in single injections for varying periods of time.

As a matter of convenience, the cases in

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*Cortisone is the hormone of the adrenal cortex previously known as compound E (17-hydroxy-11-dehydrocorticosterone). ACTH is the adrenal corticotropic hormone which stimulates responsive adrenal glands to produce cortisone or a cortisone-like steroid such as compound F.[1]

this series will be presented in certain general categories.

LYMPHOBLASTIC DISEASE
CASE REPORTS

Case No. 1.—A 65 year old man with a history of Hodgkin's disease, confirmed by biopsy, for the past three or four years, had previously been treated with x-ray therapy, nitrogen mustard, and intravenous injections of pontocaine, with only temporary benefit. He was seen in consultation because of extreme pruritis. He was treated with cortisone, beginning July 26, 1950, for a twelve-day period, the 100 mg. dosage being given for ten days. Pruritis was promptly relieved, his appetite improved, and he experienced a sense of well-being.

He then went East by air, taking with him only enough cortisone for five daily 100-mg. doses, the last of which was given August 11. August 14, the third day after treatment was discontinued, he went into a coma and was in the same condition when he was brought back to New Orleans by private airplane. Cortisone therapy was resumed immediately, by the original schedule. On the second day of re-treatment he came out of coma and felt well enough to sit up in his room and read the paper. As after the first course of treatment, his appetite increased, he had a sense of well-being, and his mental outlook was greatly improved, but acute lobar pneumonia supervened and death occurred on the eighth day of his second hospitalization, while he was still on cortisone therapy.

Case No. 2.—A 58 year old white man with a clinical and laboratory diagnosis of Hodgkin's disease for the past several years, was seen in consultation because of extreme pruritis associated with thickened skin, more marked on the arms, legs and neck. Nitrogen mustard had been administered with considerable relief about a month before the consultation. Cortisone therapy was begun October 20, and was continued for seven days, the 100 mg. dosage being given for five days. Between November 9 and 13 inclusive the patient received 100 mg. of the drug daily and then, until November 22, he received 50 mg. on alternate days. Treatment was then discontinued permanently.

Results in this case were excellent. Almost as soon as therapy was instituted itching decreased dramatically and the skin became softer and much more pliable. By the second day of treatment pruritis had practically ceased. At the same time the patient's appetite increased and he expressed a sense of well-being. When he was last seen, about two months after treatment was discontinued, his general improvement had continued. He was eating and sleeping well, had gained weight, and had no itching at all. There was still some evidence of dermatitis, but the skin was soft and pliable.

Case No. 3.—An 82 year old woman had had symptoms and signs of chronic lymphatic leukemia cutis for the past three years. The diagnosis had been confirmed by blood studies and by biopsy of the skin and a lymph node. The patient had had an undetermined amount of x-ray and had recently received a full course of nitrogen mustard, which had brought about considerable relief of symptoms and some reduction in the size of the lymph nodes. She was seen in consultation because of extreme pruritis, generalized lymph node enlargement, and much thickening and excoriation of the skin. At this time the blood count showed 21,500 white cells per cubic millimeter, with 82 per cent lymphocytes. The clinical evidence of mild cardiac disease was confirmed by electrocardiogram.

Treatment with ACTH was begun December 4, in 90 mg. daily doses, and was continued for five days. During this time the patient suffered from chills, nausea, and vomiting, her legs became quite edematous, and she was extremely nervous. The skin improved in appearance, but pruritis was only slightly relieved. December 12, the third day after treatment was discontinued, the itching again became extremely severe, all other symptoms returned, and the skin reverted to its original thickened state, or perhaps a somewhat worse state. Soon after the patient left the hospital it was observed that the lymph nodes in the groin and axilla had increased in size. The white blood cell count was not essentially different from the count when she was first seen.

COMMENT

The few reports in the literature on the use of cortisone and ACTH in Hodgkin's disease indicate that these drugs have been used chiefly for the relief of itching. Both patients in this series with this disease had intractable pruritus, which had been only transiently improved by other measures. In both, the immediate results of treatment were good. Pruritus was promptly relieved, appetite and mental outlook improved, and there was an increased sense of well-being. In 1 case the improvement has lasted for almost three months; in this case there were no withdrawal symptoms. The other patient, however, went into a coma after treatment was discontinued, and though he was promptly brought out of it by re-treatment with cortisone, he succumbed to lobar pneumonia eight days later, while he was still under treatment. The case is thus instructive illustration of the fact that severe and even fatal infections can occur under this form of therapy.

The patient with leukemia cutis also had intractable pruritus, which had been only

transiently improved by nitrogen mustard therapy. She suffered from numerous side-effects while under treatment with ACTH. Her originally mild cardiac disease increased in severity, as manifested by marked edema of the legs, and relief from pruritus was slight and temporary. The increase in the size of regional lymph nodes after treatment was discontinued suggests that the lymphatic system may have undergone some stimulation from the drug.

PSORIASIS—ARTHROPATHIC TYPE
CASE REPORTS

Case No. 4.—A 27 year old white man was hospitalized at the Veterans Hospital in New Orleans in January 1950, after the development of arthritis about a month before. Somewhat later a rash typical of psoriasis appeared on the hands, legs, and chin. The fingers and nails were soon extensively involved, and when he was first seen, the nails on both the hands and feet were growing almost at right angles. The biopsy report was compatible with the clinical diagnosis of psoriasis.

This patient was suffering so severely from arthritis that treatment with cortisone in 100 mg. amounts was continued daily for sixty-six days; then it had to be discontinued because of severe headaches. Meantime, the original psoriatic lesions had become transformed into hyperkeratotic, thickened lesions about 3/4 inch in height and 1/2 inch in diameter. These findings, in conjunction with a mild conjunctivitis, the appearance of an inflammatory eruption on the glans penis, and the presence of arthritis, now suggested the diagnosis of Reiter's syndrome. Biopsy of the skin lesions resulted in the diagnosis of keratoderma blenorrhagica.

Both the results of treatment and the side-effects were striking. There was remarkable relief from the arthritic condition. Although the patient was bedridden when he was first seen, only a few days after cortisone therapy had been instituted he was able to walk up and down the ward. His appetite became enormous; previously he had to be forced to consume 1,000 calories daily, but now he ate from 4,000 to 5,000 daily. His weight also greatly increased. When treatment was discontinued, the keratotic lesions seemed to melt away.

When treatment was resumed, forty-four days after the first course had ended, the dosage of cortisone was increased to 175 mg. daily. With this dosage there were no headaches, and the hyperkeratotic lesions observed when cortisone was first administered did not reappear. The gain in weight continued. A "buffalo hump" appeared on the back of the neck. The face became rounded. The pelvic girdle increased in size. The abdomen became protuberant. The growth of hair on the body also definitely increased.

Cortisone was discontinued after almost five months, when it was felt that maximum possible improvement had been attained. At the present time, about six weeks after the drug was discontinued, the only skin lesions are a few flat, inflammatory plaques over the ankles, left arm, and face. The lesions of the nails have lost much of the hyperkeratotic element formerly present. The patient is beginning to complain, however, of increased pain in all the joints.

While he was receiving cortisone for the second time, this patient underwent reconstructive surgery of the hand. It is interesting to note that wound healing occurred normally.

Case No. 5.—A 31 year old white man, soon after he began to suffer from arthritis, had an eruption on the toes, fingers, and oral mucous membrane. It soon spread to the arms, groin, shoulders, knees, penis and buttocks. Originally, the eruption resembled psoriasis, and biopsies of the oral and skin lesions were reported as compatible with this diagnosis. When the patient was first seen in consultation, in September 1950, he stated that he had been given cortisone in small doses (25 to 75 mg. daily) in another city. While under treatment the skin lesions had become horny and apparently presented the appearance of keratoderma blenorrhagica. In 1941 he had had a urethral discharge, which had cleared up under chemotherapy. No etiologic diagnosis had been attempted, but the history, together with the present findings, seemed to warrant a diagnosis of Reiter's syndrome.

Cortisone was begun in the Veterans Hospital in New Orleans, September 12, 1950, in 100 mg. doses daily, and was continued for almost five months, (until January 11, 1951). Toward the end of this period the dosage was decreased to 25 mg. daily. Under treatment the patient had some headaches, not severe enough to discontinue treatment, and he also underwent a personality change, which cleared rapidly after cortisone was withdrawn. The results of treatment were good. Arthritic symptoms were promptly relieved. The skin lesions peeled off and disappeared almost entirely, and the nails of the fingers and toes also improved. Even when the dosage of cortisone was decreased the arthritis continued to improve and the subungual keratin masses seemed visibly smaller from one day to the next. When the patient left the hospital January 23, arthritic symptoms and skin changes were still only minimal.

This patient had two episodes of intercurrent disease while under cortisone therapy. September 26, 1950, in the course of an investigation to determine the cause of a low-grade fever, a blood culture was reported positive for *Staphylococcus albus*. Penicillin was given in the amount of 2,000,000 units every two hours for two weeks. At the end of this time the temperature returned to normal and blood cultures became negative.

January 2, 1951, nine days before cortisone therapy was concluded, jaundice appeared and examination revealed the liver to be enlarged and tender. Punch biopsy of the liver showed hepatitis. The episode lasted only a few days.

COMMENT

The history and the clinical course during cortisone therapy show striking resemblance in these two cases. In both instances the illness began with arthritis, which was soon followed by a typical psoriatic eruption. Both patients received cortisone for approximately five months, though one had had small daily doses for about three weeks before he was hospitalized. In this case treatment had to be interrupted for two months because of severe headaches. The other patient also suffered from frontal headaches during therapy, but they were less severe and treatment could be continued without interruption. In both cases lesions typical of keratoderma blenorrhagica developed during therapy and in both cases the total picture warranted a diagnosis of Reiter's syndrome. When adequate dosages of the drug were given, treatment was not complicated by the appearance of these skin lesions, and in both cases the nails, which are always severely involved in arthropathic psoriasis, were greatly improved. In both cases arthritic symptoms were relieved. One patient, who had been bedridden before treatment and unable to turn without assistance, became ambulatory.

This patient had striking side-effects from therapy. His caloric intake increased from 1,000 to 5,000 calories per day, and he gained almost a pound a day. The fixing syndrome was pronounced in this case. The other patient underwent a transient change in personality, and evidences of pathologic lying appeared shortly before treatment was concluded.

LICHEN PLANUS

CASE REPORTS

Case No. 6.—A 40 year old white woman was seen March 27, 1950, with rather extensive lichen planus involving both axillas, the back of the neck, the right hand, the left wrist, the abdomen, both thighs and both legs. Itching was persistent and severe. The rash had progressed under treatment with bismuth injections and x-ray. Cortisone was begun December 18; a dosage of 100 mg. was given daily for five days, followed by the same amount alternate days until six injections had been given.

The response was dramatic, all symptoms being almost completely relieved. There were no side-effects and no withdrawal symptoms. When the patient was last seen, January 26, 1951, the only residual signs of the original condition were a few pigmented areas.

Case No. 7.—A 24 year old white woman was seen in consultation for a rash of several weeks' duration which had appeared on the hands and which later spread to the forearms and upper chest. Itching was intense. At first the rash was typical of contact dermatitis. Nine days later the appearance was typical of lichen planus.

Initial treatment was conservative, consisting of x-ray to the most severely involved areas, bismuth injections, and antihistaminic drugs. No improvement at all was evident. In fact, the rash appeared to be more extensive and symptoms were aggravated.

November 8, 1950, about seven weeks after the patient was first seen, cortisone was begun in 100 mg. amounts by the schedule used in the previous case. Relief was almost immediate. The rash disappeared promptly and the patient looked and felt well. There were no side-effects and no withdrawal symptoms. When the patient was last seen the only traces of the rash were a few hyperpigmented areas, and there had been no recurrence of either rash or symptoms.

COMMENT

The treatment of lichen planus with cortisone does not seem to have been reported to date. Results in both these cases were good. Both patients had severe, extensive disease and suffered great discomfort from itching. Previous therapy had been ineffective. Both were given cortisone by the same schedule, both receiving about 1,500 mg. of the drug. They had no side-effects or withdrawal symptoms. The immediate results were excellent. Almost from the first day of therapy the rash improved. Later it seemed to melt away, and itching was almost completely relieved. Six weeks after treatment both patients are in excellent condition and there is no indication for retreatment in either case.

PEMPHIGUS

CASE REPORTS

Case No. 8.—A 60 year old colored man was admitted to the New Orleans Charity Hospital September 6, 1950, with a history of the presence of bullous lesions for the past month. The eruption had first appeared on the hands and feet and had gradually spread to involve the entire body, in-

cluding the oral mucous membranes. Examination showed that while some of the bullae were on an erythematous base, most of them were situated on normal skin. Nikolsky's skin fragility sign was positive.

The temperature, which had been 101° F. when the patient was admitted, had risen to 105° F. by the fifth day. Treatment during this time had been symptomatic. Examination revealed coarse and fine rales at both lung bases. The electrocardiogram revealed no abnormalities. The total eosinophilic count was negative. Biopsy of the skin showed chronic inflammation with bullae-formation; no pathological diagnosis was made. The clinical diagnosis was acute generalized pemphigus.

Treatment with ACTH was begun September 11, 1950, and was continued in 100 mg. dosages daily for five days. When no response was observed, it was replaced by cortisone. The dosage was 300 mg. daily for five days, 200 mg. daily for eight days, and 100 mg. daily for another two days. After two days of treatment the temperature returned to normal and the skin lesions cleared completely. A large decubitus ulcer, however, appeared on the buttocks. Some pancreatic irritation was also evident, as shown by glycosuria and a high fasting blood sugar. On the thirteenth day of cortisone therapy severe edema and erythema of the left leg appeared and the patient became extremely dyspneic. He died the following day, from pulmonary complications. Autopsy showed thrombophlebitis with complete thrombosis of the left femoral vein, basal pneumonia, old atelectasis, and multiple pulmonary infarctions. The adrenal cortex, presumably as the result of cortisone therapy, was very thin.

Case No. 9.—A 16 year old negro girl was admitted to Charity Hospital at New Orleans, November 22, 1950, with a severe generalized bullous dermatitis, which had appeared after a sore throat ten days earlier. The original eruption was a typical erythema multiforme of the bullous type, the blisters being 2 inches or more in diameter, with necrotic centers and an irislike appearance. A week after the patient was first seen oral lesions made their appearance, and soon afterward ulcerative vaginal and anal lesions developed. Biopsy of the skin was compatible with erythema multiforme or pemphigus. Although this girl was not acutely ill at this time, her skin surface was almost completely denuded. Aureomycin, terramycin, and penicillin were administered without improvement.

Cortisone was begun December 17, 1950, by the usual schedule, the 100 mg. dosage being continued for seven days. Under this therapy the skin lesions disappeared, the mucous membrane lesions improved, and the patient felt much better. Her temperature, however, which had originally been about 101° F. daily, now began to rise to 103 and 104° F. Because of the rise in temperature, as well as the difficulty in obtaining cortisone, treatment was discontinued prematurely. The temperature first fell to 102° F. and then to the original level of 101° F.

Almost immediately after cortisone was withdrawn the skin lesions became much worse. Extremely large bullae soon covered the entire body. The oral and vaginal lesions increased and a severe purulent conjunctivitis appeared. At this time the bullae were flaccid and arose on normal skin. The findings were now clinically diagnostic of pemphigus. ACTH was begun on January 4, 1951, 120 mg. daily being given. The dosage was gradually decreased over a period of three weeks until only 15 mg. daily was being given. The response to therapy was not dramatic, though skin lesions developed less rapidly and there was improvement in the mucous membrane lesions. The conjunctivitis remained unchanged. This patient is still hospitalized and her present condition is poor.

Case No. 10.—A 58 year old colored man was seen in consultation, December 14, 1949, at the Veterans Hospital in New Orleans, where he had been hospitalized for more than a year for chronic pemphigus. At the time of the consultation he had a generalized exfoliative dermatitis, with a foul-smelling, wet, itching eczema, which was also generalized. Every conceivable type of therapy had been tried without relief. Then the administration of 5,250 mg. of cortisone over a two month period produced striking results. Itching was completely relieved, and the hyperkeratotic lesions disappeared entirely. The patient's appetite increased, and he expressed a general sense of well-being while under treatment. He also had a considerable gain in weight, most of which was lost soon after therapy was discontinued. Another side-effect was some irritation of the pancreas, manifested by glycosuria and a high fasting blood sugar, as in Case No. 8.

The electrocardiographic changes present in this case before treatment disappeared while the patient was on cortisone therapy. Paradoxically, however, the reason for discontinuing treatment was considerable cardiac enlargement, associated with signs of cardiac distress.

The initial good results in this case were unfortunately transient. The patient returned to the hospital January 10, 1951, about four weeks after treatment had been discontinued, with typical pemphigus vulgaris. Because of the secondary cardiac and metabolic disturbances caused by the first course of treatment, cortisone therapy has not been resumed. At the present time he is in poor condition. He has a generalized rash and he is profoundly weak.

COMMENT

Pemphigus, which is a potentially catastrophic condition, was one of the first dis-

eases to be treated with adrenocortical hormones. Reported results have been widely variable. The results in all 3 cases in this series were poor. Immediately after treatment was begun there was considerable, and sometimes dramatic, improvement, but the end-results were unsatisfactory. One patient died from a complication of treatment and the condition of both other patients is extremely poor.

DISSEMINATED LUPUS ERYTHEMATOSUS

CASE REPORTS

Case No. 11.—A 47 year old white woman was first seen August 30, 1950, with subacute lupus erythematosus of a year's duration. Diagnosis had been confirmed by two biopsies. Two previous low-grade exacerbations had required hospitalization. November 27, 1950, the patient was again hospitalized, with arthralgia, fever to 103° F., orthopnea, dyspnea, gallop rhythm, and a flare-up of the skin lesions on the exposed areas of the neck, arms and face. Three specimens of urine revealed no abnormalities. The electrocardiogram was within normal limits. Blood study showed 2,350 white cells per cubic millimeter. Examination of the bone marrow showed Hargraves' lupus erythematosus cells quite well. Roentgenograms of the chest showed no abnormality.

The patient was at once placed on ACTH. She received 90 mg. the first day, 60 mg. for the next eight days, and 30 mg. daily for the next two days. The response was excellent. The skin cleared considerably and arthralgia and dyspnea disappeared. The temperature, which had fallen to 101° F. on bed rest alone, became normal when ACTH therapy was begun. There were no clear-cut withdrawal symptoms, but the day after treatment was discontinued the temperature rose to 99.4° F., and the patient complained of slight palpitation and dyspnea. At the end of two months the temperature is still normal and there has been no recurrence of other acute symptoms.

Case No. 12.—A 65 year old negro woman was admitted to the New Orleans Charity Hospital, August 22, 1950, in a semicomatose condition. She had been hospitalized in 1948 with acute disseminated lupus erythematosus but had been well since then until the present time. When she was admitted she was having daily elevations of temperature to 101 and 102° F. Large erythematous and bullous lesions were present over the entire skin surface, as well as on the oral and vaginal mucous membranes. Urinalysis revealed 4 plus albumin. There were 3,000 white blood cells per cubic millimeter. Hargraves' lupus erythematosus cells were not found in the bone marrow.

ACTH was begun on the fourth day of hospitalization. The dosage was 90 mg. daily for seven days, followed by 60 mg. daily for another seven days. On the second day of treatment the patient became lucid and her temperature fell to normal. On the fourth day she had an episode of complete aphasia, which lasted only twenty-four hours. The skin lesions partially cleared.

The day after ACTH was discontinued cortisone therapy was begun. The dosage was 200 mg. daily for five days, 100 mg. daily for three days, and 25 mg. daily for five and a half days. The temperature, which had risen as soon as ACTH was discontinued, became permanently normal after the fourth day of cortisone therapy. When treatment was concluded, the skin lesions had entirely disappeared and the only remaining symptom was extreme weakness, which is still present, some four months after the last cortisone was administered.

Case No. 13.—A 40 year old white woman was seen September 29, 1950, with a history of dermatitis, associated with mild aches and pains in the chest, for four to six weeks. At this time she was afebrile. Two weeks later the temperature began to rise daily to 101-103° F., the chest pains became more severe, and there were severe pains in the back and considerable weakness. The patient was hospitalized October 18, with a diagnosis of acute disseminated lupus erythematosus. Urinalysis showed 3 plus albumin, red and white blood cells, and a few casts. The white blood cell count was 4,200 per cubic millimeter and the sedimentation rate 30 mm. in forty-five minutes. Roentgenograms of the chest showed slight enlargement of the cardiac shadow, and possibly fluid in the lungs.

The patient was put on a low-salt diet and cortisone was begun at once. The schedule was 300 mg. the first day and 200 mg. for the next five days. After six days of treatment the temperature fell to normal and the patient felt greatly improved. When the dosage was increased to 300 mg. for twenty-four hours and to 200 mg. for the next twenty-four hours, the improvement in the skin was almost dramatic. Thereafter cortisone was given in the amount of 50 mg. three times daily until November 1, when the patient was discharged from the hospital.

She received cortisone in 50 mg. dosages every other day from November 2 through November 13. November 14, she was again hospitalized, this time with severe dyspnea, nausea and weakness. A pericardial effusion was now present. Roentgenograms showed an enormous enlargement of the cardiac shadow and the electrocardiogram showed myocardial damage. At the end of three days, with no treatment but rest, all symptoms disappeared except mild dyspnea.

The patient remained well, and her skin remained in good condition, for about a month after she was discharged from the hospital. At the present time she is again complaining of pains in the chest and back, nausea, and dyspnea, and the dermatitis is daily becoming more active.

COMMENT

It is difficult to say very much about these three cases except that they bear out the numerous reports in the literature of the striking but usually transient results obtained with cortisone and ACTH in disseminated lupus erythematosus. These drugs apparently alleviate the severest symptoms of the disease, but the fact that this therapy had to be discontinued in 1 of 3 cases in this group because of cardiac complications is discouraging. The pericardial effusion may have been part of the lupus, but it seems more likely to have been aggravated by the cortisone administered.

EXFOLIATIVE DERMATITIS, NEURODERMATITIS, ALLERGIC DISORDERS

CASE REPORTS

Case No. 14.—A 58 year old white woman was first seen August 15, 1950, with a neurodermatitis of the face, neck, upper arms and shoulders. She was hospitalized November 13, and between that date and December 4 she was given cortisone by the usual pattern of dosage. For the first several days of treatment the rash was improved, she felt better, and her depressed mental outlook was much improved. From the beginning, however, she reacted to the drug with the complaint of chest pains and palpitation. After the initial improvement in her mental outlook she began to regress, she expressed fear of the injections, and she was very nervous after she had received them. The rash reappeared when she was on the 100 mg. daily dose, which was considered the full therapeutic dose, and treatment was discontinued when it became evident that it was producing no benefits. There were no withdrawal symptoms.

Case No. 15.—A 43 year old white woman had had a generalized neurodermatitis, much worse in the summer, since 1948. She was hospitalized August 24, 1950. Treatment with cortisone was administered by the usual schedule, the 100 mg. daily dose being continued for fourteen days. She then received nine additional injections in the same amount over an eighteen day period. Finally, she was given 50 mg. on alternate days for thirty days. The total dosage was 4,300 mg.

Under this treatment the skin cleared up completely, the patient gained weight and felt better, and her mental outlook was much improved. There were no withdrawal symptoms.

Case No. 16.—A 48 year old white man, employed as an automobile mechanic, was seen September 29, 1950, with chronic recurrent neurodermatitis of about two months' duration. He had consulted a series of physicians and undergone a variety of treatments without permanent benefit. The rash was most severe on the neck, arms, and legs.

Cortisone therapy was begun in the hospital October 2, 1950, by the standard schedule. The 100 mg. daily dosage was continued for ten days, then was given every second day, and finally three times weekly. Treatment was discontinued November 29.

This patient has been able to resume his former work as mechanic and was quite well when he was last seen, about six weeks after treatment was discontinued. His skin has completely cleared up. He has continued to have a sense of well-being and his mental outlook remains improved.

Case No. 17.—A 40 year old white woman was first seen October 28, 1950, two months after she had begun to suffer from vaginal pruritus. Treatment with chlortrimeton maleate was followed by the appearance of a generalized allergic rash. She was hospitalized October 28 and cortisone was begun by the usual schedule. On the ninth day of treatment (November 5) symptoms of mental disturbance became apparent, and two days later typical paranoia developed. Cortisone therapy was discontinued at once and psychiatric consultation was requested. At this time it was first learned that this patient had previously had shock treatments. She is still in the care of a psychiatrist, in a psychiatric institution, and her mental status is poor, in spite of shock therapy. In this case dependent edema, associated with a low total plasma protein, appeared two weeks after cortisone was withdrawn.

Case No. 18.—A 67 year old white man was seen November 3, 1950, with a chronic generalized exfoliative dermatitis of a year's duration. He had been treated by many physicians, with no apparent benefit. He was extremely nervous. Examination revealed a generalized lymphadenopathy and a severe generalized exfoliative dermatitis involving the entire body. Cortisone was given at the rate of 100 mg. daily for eight days, with very slight clinical response. It was then increased to 200 mg. daily for five days, after which 100 mg. daily was given for the next two days. Considerable improvement now began to be evident. Finally, dosages of 75 mg. were given daily for three days. By the end of this time the severe pruritus present on the patient's admission to the hospital had completely disappeared, and his skin was practically clear except for excoriations, which healed slowly.

Three days after treatment was discontinued the pruritus returned, and within a week he presented a severe, generalized exfoliative dermatitis which did not begin to subside until several weeks had elapsed.

While this patient was on cortisone, his mental status was seriously deranged for several days, his behavior pattern suggesting schizoid schizophrenia. The derangement was only transient, and he returned to normal while still taking the drug.

Case No. 19.—A 62 year old blind and deaf

woman was seen December 10, 1950, with a neurodermatitis involving the whole body and a severe vaginitis. Between this date and December 30, she received approximately 2,000 mg. of cortisone in 100 mg. daily doses. She showed considerable improvement. Her skin began to clear almost as soon as treatment was instituted, and while she was not completely free of neurodermatitis when she was last observed, early in January 1951, she regarded herself as much better. There were no withdrawal symptoms.

COMMENT

In this group of cases results were excellent in 2 patients with neurodermatitis, which in one instance was recurrent. In the other cases the results can only be regarded as unsatisfactory. All patients with neurodermatitis have a large psychosomatic factor, and it was particularly prominent in some of these cases. One patient had a transient episode of mental confusion, in another the drug had to be discontinued because of the psychosomatic reaction, and a third patient ended in the hands of a psychiatrist. In 2 of these 3 cases therapy had to be discontinued before the effect on the skin could be determined. In the third case the skin condition was worse after treatment than before because of a severe rebound relapse.

DISCUSSION

An important point in the use of cortisone and ACTH was made by Sulzberger,[4] who pointed out that even though these drugs may benefit some diseases strikingly, they do not cure them. They achieve whatever results are accomplished by their influence on some basic component in the complex forming the reaction patterns of the patient's adaptation mechanisms. The effects can thus include a wide variety of toxic and allergic mechanisms of disease. That so many different types of disease respond, sometimes almost miraculously, to the administration of these agents is no proof at all that there is any causal relationship between the various conditions.

These drugs must be administered with a great deal of caution. The patients must be under constant observation. Treatment must be interrupted from time to time, both to see whether skin lesions will heal when they are withdrawn, and also to give hidden or masked infections an opportunity to manifest themselves. In 3 cases in this series (Cases Nos. 1, 5 and 8) masked infection played a significant role. Two of the 3 patients died, 1 from lobar pneumonia and the other from thrombophlebitis and thromboembolism.

The case of severe rebound relapse which occurred in a patient with exfoliative dermatitis in this series (Case No. 18) resembles cases reported by other observers. The relapse was really more severe than the original condition. We agree with Hench[1] that delayed relapses and remissions can be explained in many cases by a continued utilization of incompletely absorbed cortisone in intramuscular deposits, in addition to the fact, as he says, that in some cases there is an authentic improvement in the status. He mentioned 2 cases of his own in which symptoms returned more slowly and less completely after the second than after the first course of cortisone, and it is quite possible that the utilization of incompletely absorbed cortisone explains the similar course of events in a case of arthropathic psoriasis (Case No. 4) in this series.

Cortisone also seems to clarify the diagnostic signs of some diseases which, before treatment, defied precise diagnosis. This was true in 2 cases in this series (Cases Nos. 9 and 10).

Another point which Sulzberger[4] makes should be borne in mind by all physicians who contemplate the administration of cortisone and ACTH: One does not always do the patient a favor by giving him these drugs. Results are sometimes dramatically good, as they were in a few cases in this series (Cases Nos. 2, 4, 5, 6, 7, 11, 12, 15 and 16). Even when the original disease cannot possibly be affected by their administration, as it cannot be in Hodgkin's disease, for instance, relief from such a troublesome symptom as pruritus, though it may be transient, is sometimes well worth-while. The patients frequently improve in appetite and mental outlook and express a sense of well-being that is sometimes almost euphoric. But withdrawal symptoms are always a possibility, and they may be very severe, as they were in 2 cases

in this series (Cases Nos. 1 and 18), and side-effects may also be extremely serious.

There were a number of undesirable side-effects evident in this small series of cases, of which mental disturbances and cardiac damage were the most serious. Mental disturbances occurred transiently in 4 cases (Cases Nos. 5, 12, 14 and 18) and were very serious in 1 patient (Case No. 17), who is still in the care of a psychiatrist. Cardiac damage was evident in 4 cases (Cases Nos. 3, 8, 10 and 13). The fixing syndrome was pronounced in a patient with arthropathic psoriasis (Case No. 4) and transient glycosuria with a high fasting blood sugar occurred in 2 cases (Cases Nos. 8 and 10). Other side-effects included headaches, nausea and vomiting, and chills. This is an impressive array of side-effects, many of them serious, in a small group of patients, and they frequently could not be explained either by large dosages or long continued administration.

CONCLUSIONS

On the basis of a personal experience with these 19 cases of various dermatologic diseases, the following conclusions are offered:

1. Cortisone and ACTH are indicated in catastrophic diseases such as pemphigus and acute disseminated lupus erythematosus. Temporary good results are possible, and if there are recurrences, re-treatment is not contraindicated.

2. They are useful in short-term diseases such as allergic dermatitis and lichen planus, in which administration over a long period of time is not required. Good results are frequently accomplished and undesirable side-effects are unlikely.

3. They are best avoided in neurodermatitis, in which there is a frequent psychosomatic element and in which, in spite of occasional good results, recurrence of all symptoms is usually to be expected after therapy is discontinued.

4. Cortisone and ACTH are absolutely contraindicated in patients who have a history of previous mental disease or mental instability.

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DISCUSSION

Dr. Leslie K. Mundt, (New Orleans): I would like to compliment Dr. Kennedy and his colleagues for their excellent report on this subject which is of so much interest to us all. It is one of the most complete discussions of the subject to date.

Until recently the main objection to the use of these hormones has been that hospitalization was required not only for the purpose of carrying out the necessary studies before and during treatment, but also to enable the medication to be administered by injections around the clock. The hospitalization, laboratory studies, and cost of the drugs created an enormous economic burden that only the wealthy could bear.

The situation at present regarding cortisone has changed. The cost is still up but oral medication is now available. This form is equally as effective as the injectable suspension and, in fact, the two can be used interchangeably.

It is, therefore, possible to treat patients satisfactorily out of the hospital. This does not mean that careful and frequent office examinations and laboratory controls during treatment are not just as important as before.

When ACTH and cortisone have been used in a number of cases certain impressions are gained. I believe one should not lose respect for the many complications that might arise but knowing that for the most part the complications are reversible one loses a great deal of the fear he would ordinarily have when giving the medication as more experience is gained with its use.

As I see it in dermatology, there are three groups of cases or conditions where cortisone therapy should be given consideration. It is generally agreed that its use is justified in castastrophic illnesses such as systemic lupus erythematosus and pemphigus

even though improvement is only temporary and a maintenance dose is often required. Moribund patients regain their strength and well-being and remissions can be maintained for indefinite periods providing the medication is continued for a sufficient period. When the hormone is discontinued exacerbations do not necessarily occur immediately.

Short-term illnesses that carry a high morbidity offer an ideal place for cortisone therapy. Such conditions as acute urticarial reactions, serum-sickness, severe poison ivy and drug eruptions of various types, especially penicillin reaction, are good examples of this group. To illustrate I would like to cite 3 cases recently encountered. One patient, a 44 year old female, received mild first and second degree burns on the hands and face when her oven exploded. She was given tetanus antitoxin by a local physician and ten days later a typical serum-sickness reaction developed characterized by fever, malaise, arthralgia, angioneurotic edema and urticarial wheals. Dramatic response was obtained twenty-four hours after cortisone was started. She was entirely well in four days. Incidentally, the burns healed immediately under the treatment with little or no pain. Two other patients with urticarial types of erythema multiforme, one caused by penicillin and the other sulfonamide, responded equally as satisfactoritly as the burn case on cortisone. These patients had fever and joint pain and were miserable before therapy and I am certain the natural courses of their dermatoses would have run into a period of two or three weeks. In all such patients it is important to give sufficiently large doses of the hormone, whether it be cortisone or ACTH, or else the clinical effect will be disappointing. Cortisone is generally started with 100 mgm. every eight hours for the first twenty-four hours, 100 mgm. every twelve hours for the second twenty-four hours, and then 25 mgm. four times a day until clinical improvement is noted. Then at intervals of two to three days the dosage is gradually decreased to 25 mgm. three times a day, 25 mgm. twice daily, 25 mgm. daily and finally 25 mgm. every other day until it is discontinued completely.

No one, I believe, could take issue with the use of cortisone in the above two groups. However, there is another type of case where the indications could be considered borderline, but which in certain instances I have found the treatment very useful indeed. I am thinking of certain chronic recalcitrant states such as nummular eczema or infectious eczematoid dermatitis and other similar examples of autosensitization which are often the most incapacitating and difficult cases to manage. Dermatoses of the order of discoid lupus erythematosus, atopic dermatitis and psoriasis vulgaris are of such a chronic nature that cortisone therapy only invites disappointment and, therefore, should not be started. My practice in severe infectious eczematoid eruptions that do not respond to orthodox treatment is to give cortisone in full doses and as the dosage is decreased, local treatment is carried out vigorously. I have had good results in several otherwise intractable cases by this method of treating the skin locally while the patient is on a maintenance dose of the drug. Ultimately, the improvement holds up when the cortisone is finally discontinued.

In summary, I find cortisone extremely useful in the office management of dermatologic patients. Its use is not necessarily confined to diseases of a catastrophic or serious nature.

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LOCAL USE OF CORTISONE ACETATE IN EYE DISEASE*

LOUIS A. BREFFEILH, M. D.

SHREVEPORT

In recent publications cortisone acetate has been successfully used in treatment of various eye diseases.[1-8]. Most of the cases were treated by intramuscular injections requiring hospitalization. This unfortunately limited the patients under observation. In using the medication locally, we can

*Presented at the Seventy-first Annual Meeting of the Louisiana State Medical Society, New Orleans, May 9, 1951.

eliminate the undesirable reactions. The absorption is not of sufficient concentration to require close observation, and the medication can be used in any disease which may respond to its therapeutic results.

Before selecting the cases to be treated, the publications and the therapeutic advantages of the medication were reviewed. The more desirable cases were those of iritis associated with arthritis, as reported by Henderson and Hollenhurst.[1, 2] Their results were so encouraging that the medication was used on other cases of iritis with similar results. Kuzell and Schaffarzich[3] also used the medication parenterally on 5 cases of iritis, and they felt that only 1 of the 5 showed any improvement. This brings up the question of the drug concentration if used locally instead of by parenteral injection. Spies and Stone[4] reported 1 case of iritis in which an excellent result was obtained when the drug was used locally as an ointment. Olsen, Steffensen and their coworkers[5] used the medication parenterally and locally in 6 cases of iritis, keratitis, and 1 with central scotoma. Their results were very encouraging, and they concluded that the local application of the medication was absorbed in sufficient concentration to affect the inflammatory process. Steffensen, Wishbow and their co-workers[6] found no injurious effects from the medication. Their conclusion was that iritis and corneal disease responded to treatment. Their results in vernal conjunctivitis, dendritic or trophic ulcers, and epithelial dystrophy were unsatisfactory. Thygeson and Fritz[7] reported excellent response in the treatment of phlyctenular keratoconjunctivitis in the Eskimos. Leopold, Purnell and their coworkers[8] suggested the use of a wetting agent vehicle instead of saline for greater penetration of the cornea.

Cortisone appears to affect the inflammatory reaction of body tissue. It is especially advantageous to ophthalmologists in that it inhibits the formation of scar tissue and aids in the absorption of newly formed cellular exudates. The medication is not antibactericidal, and it appears to inhibit the antibiotic tissue reaction. In the presence of infection it must be used in conjunction with antibiotic medication. Even if used over a long period of time, there does not appear to be any unfavorable reaction.

In this study the medication was used only locally. The dosage varied from one drop every hour to one drop three times a day, depending upon the severity of the condition and the length of time the medication was to be used. An aqueous suspension of cortone acetate (manufactured by Merck and Company), which contains 25 milligrams of the medication per cubic centimeter, was prescribed in a four to one dilution with isotonic saline. As this solution precipitates on standing, the patient was instructed to shake the preparation well before using.

CASE REPORTS

In this series there was a total of 20 cases studied, and there were no injurious effects noted in any of the patients. Seventeen patients had lesions in the anterior portion, and 3 had involvement of the posterior portion of the eye.

Case No. 1: *Iritis associated with arthritis* in a 44 year old male. This patient had had repeated attacks of iritis in his left eye and had been using atropine for three days with no results. Corrected vision was 20/20 in the right eye and 20/50 in the left eye. The left eye was acutely inflamed with numerous posterior synechiae and keratitic precipitates. Cortisone was prescribed to be used every hour and 1/8 per cent scopolamine to be used three times a day. In twenty-four hours the pain had subsided and on the third day the eye was clear of injection. The scopolamine was discontinued on seventh day when all the synechiae were broken. The cortisone was discontinued the fourteenth day. The patient was discharged on the twenty-second day, at which time vision was 20/20 in the left eye and all evidence if iritis was absent.

Case No. 2: *Iritis associated with arthritis* in a 64 year old white female. This patient had been on cortisone parenterally for several months; and when the medication was discontinued, iritis developed in the right eye. Cortisone in 50 milligrams doses was given daily, with no response. The medication was then used locally every two hours. The eye was clear on the third day and the dosage was decreased to one drop three times a day for three weeks. One week after discontinuing the medication locally, the ciliary injection returned. The local medication was started again and the inflammation had subsided by the fourth day. This patient is receiving cortisone 50 milligrams daily by mouth and locally three times a day. After one month of observation the eye is quiet.

Case No. 3: *Plastic iritis with cataract* in a 33 year old colored female. This patient had had repeated attacks of iritis with loss of vision in the left eye. Her present attack had lasted for six months. Examination revealed a corrected vision of 20/20 in the right eye and light perception in the left eye. The left eye was acutely inflamed and mutton fat deposits were present on the endothelium of the cornea. Numerous posterior synechiae and a cataract were also present. There was no response to atropine and penicillin after one week of treatment. Cortisone every two hours was prescribed, and on the seventh day the synechiae began to break down and the precipitates were less. The dosage was decreased to three times a day; and on the twenty-first day, the pupil was well dilated and many large precipitates still persisted. All medication was discontinued and the patient returned after one month with many new precipitates. Cortisone was restarted three times a day: and after two weeks of treatment, the new deposits were absorbed but the old deposits persisted.

Case No. 4: *Plastic iritis with keratitis* in a 25 year old colored male. This patient was referred for a corneal transplant. He had had all types of treatment, including radiation to the cornea, with no results. Examination revealed vision of finger count at 6 feet in the right eye and 4 feet in the left eye. There were numerous posterior synechiae and an occlusio pupil forming over the right eye. Over one third of the cornea of both eyes was involved in an interstitial keratitis. After two months of atropine therapy, vision had improved to 20/400 in the right eye and a key hole pupil persisted. Cortisone was prescribed every four hours; and after thirty days of treatment, the cornea began to clear and the synechiae, except for several at 6 o'clock, were broken. Vision had improved to 20/100 in the right eye and 20/200 in the left eye.

Case No. 5: *Acute iritis with secondary glaucoma* in a 32 year old white male.. This patient had iritis of his right eye for three days, and the eye became suddenly painful during the night. Examination revealed an acutely inflamed right eye with numerous keratitic precipitates. Corrected vision was 20/40 in the right eye and 20/20 in the left eye. Tension was 43 (Schiotz) in the right eye. He was hospitalized and 300,000 units of penicillin given daily. The local treatment consisted of 1/8 per cent scopolamine three times a day and cortisone every hour. The tension was normal in twenty-four hours, and he was free of pain. The ciliary injection had cleared by the third day and he was discharged on the seventh day, at which time no deposits were found in the anterior chamber. After two weeks of observation he was free of any evidence of iritis.

Case No. 6: *Acute iritis, secondary glaucoma and subluxated lens* in a 49 year old colored female. The eye was inflamed for two weeks and was painful for five days with progressive loss of vision. Examination revealed vision of 20/20-2 in the right eye and no light perception in the left eye. Tension was 70 (Schiotz) in the left eye. The eye was acutely inflamed and the cornea edematous. Using eserine, pilocarpine and prostigmine for twenty-four hours, the tension was 55 (Schiotz). Surgery was refused, and cortisone was prescribed every hour along with pilocarpine and eserine, which were alternated every hour. The tension remained between 50 and 55 for six days. Floropryl and cortisone were prescribed. The patient returned two months later complaining of severe ocular pain. The medication was exhausted and the tension at this time was 50. The prescriptions were refilled as they relieved her symptoms. The only response to cortisone in this patient was the relief of pain, even though the tension remained high. Miotics alone had failed to relieve the pain.

Case No. 7: *Heerfordt's Disease* (*Uveoparotitis*) in a 39 year old white female. This patient was under treatment for parotitis with aureomycin, 250 milligrams every six hours, when her left eye became inflamed. Examination revealed an acute inflammation of the left eye which was painful and tender. Cortisone every hour and scopolamine three times a day were prescribed. The pain subsided in twenty-four hours and all ciliary injection had cleared by the fourth day. The scopolamine was discontinued and the cortisone was used every three hours for one week, at which time all evidence of iritis was absent. All medication was discontinued and the patient was discharged after one week of observation.

Case No. 8: *Traumatic iritis with ring keratitis* in a 61 year old colored male. This patient was struck in the left eye one month prior to examination, and the eye had remained painful. Vision in the left eye was bad before the injury. Examination revealed corrected vision of 20/20 in the right eye and 20/200 in the left eye. The left eye was acutely inflamed, and many keratitic precipitates were present. The cornea revealed a ring shaped keratitis corresponding to the pupil. After using atropine for one month, the eye remained inflamed. Cortisone was prescribed as one drop every three hours, and on the third day all ciliary injection subsided. The ring keratitis persisted after two months of treatment and no improvement of vision was found.

Case No. 9: *Traumatic iritis* with corneal laceration in a 35 year old white male. This man was struck in the left eye by a piece of wood which resulted in the loss of vision. Examination revealed an acutely inflamed left eye with a lacerated cornea and edema of the macula. Corrected vision was 20/20 in the right eye and 20/200 in the left eye. The cornea was debrided, atropine instilled, and the eye dressed. The next day the epithelium had healed over and corrected vision was 20/200. Cortisone was prescribed every hour and the corrected vision on the third day was 20/50; on the

fourth day 20/40; and the seventh day 20/20. All medication was discontinued and the patient was discharged on the thirteenth day.

Case No. 10: *Corneal ulcer with interstitial involvement of the cornea* in a 28 year old white male. This patient was treated for two weeks for conjunctivitis with no improvement. Examination revealed a large corneal ulcer at 9 o'clock with interstitial infiltration of the cornea with exudates. The patient was hospitalized and received 300,000 units of penicillin daily, and cortisone was used every hour in conjunction with scopolamine three times a day and 10 per cent sodium sulfacetimide ointment at night. In twenty-four hours the pain had subsided, and by the third day the ulcer had begun to heal. He was discharged on the seventh day, and the cornea still revealed some exudates in the stroma on slit lamp examination, but could not be seen by ordinary examination.

Case No. 11: *Multiple corneal ulcers* following the introduction of glass wool insulation fibers into the corneal epithelium in a 27 year old colored male. This patient was treated for two weeks with no improvement. The eye was acutely inflamed. Examination revealed seven corneal ulcers at the lower portion of the cornea. Corrected vision was 20/60 in the right eye and 20/20 in the left eye. Ulcers were debrided, and atropine and sodium sulfacetimide ointment instilled, and the eye dressed. The eye was redressed daily for seven days. The epithelium healed over the ulcerated areas leaving white corneal sterile abscesses and a corrected vision of 20/30. Cortisone was prescribed every three hours; and on the third day, the exudates began to clear. Vision had improved to 20/20. After seven days of treatment, the exudates could be seen only on slit lamp examination. The patient was discharged after two weeks of cortisone therapy.

Case No. 12: *Syphilitic interstitial keratitis* in a 29 year old colored female. The left eye had been inflamed for one week and the patient could see a white film forming. Examination revealed a corrected vision of 20/20 in the rght eye and 20/30 in the left eye. One third of the cornea was involved. As the patient had just completed a penicillin series, she was given mapharsen for a total of twelve injections. After three months no improvement was noted, and cortisone was prescribed to be used four times a day. In one week the cornea was clear on ordinary examination, and at the end of the second week the cornea was clear on slit lamp examination. During the second week the right eye became involved in an interstitial keratitis in the upper one third. Cortisone was prescribed for this eye; and after one week of treatment, the cornea was also clear. At the end of the third week, both eyes were clear of corneal involvement. The patient has not returned for observation.

Case No. 13: *Keratoconjunctivitis with interstitial keratitis and old central corneal scars* in a 26 year old white female. The eyes had been inflamed for three weeks with no response to treatment. Vision had always been bad due to burns received as an infant from treatment of the eyes. Examination revealed a bilateral keratoconjunctivitis with central scars and many patent blood vessels in each cornea. Corrected vision was 20/80 in the right eye and 20/200 in the left eye. Aureomycin ointment, scopolamine, and warm compresses were used for three days for the acute condition. Cortisone was prescribed to be used every hour with sodium sulfacetimide ointment each night. On the eighth day, corrected vision was 20/70 in the right eye and 20/80 in the left eye, and the blood vessels in the cornea were free of blood. Sixteen days of treatment revealed the corneal scars had decreased in size and could only be seen by indirect lighting and close observation. Vision had improved to 20/40 in the right eye and 20/60 in the left eye.

Case No. 14: *Corneal dystrophy* in a 73 year old white male. Vision had decreased in the past four years and was worse in the morning. Examination revealed dystrophy of the cornea of both eyes with marked bedewing. Corrected vision was 20/200 in each eye. Numerous vitreous opacities and early lenticular changes were present and the tension normal. Homatropine 1/2 per cent was prescribed to be used each night. In one month, vision in the right eye was improved to 20/100; and in the fourth month, it was 20/40. Vision in the left eye remained 20/200. Cortisone was prescribed three times a day and vision in the right eye had decreased to 20/60 in one month and 20/80 at the end of the second month. Cortisone was discontined and 1/2 per cent homatropine was represcribed.

Case No. 15: *Chronic uveitis with immature cataracts* in a 65 year old white female. This patient's vision had become progressively bad for the past six months. She was told she had cataracts. Examination revealed corrected vision of 20/180 in the right eye and 20/60 in the left eye. The eye was quiet, except for numerous aqueous and vitreous floaters and immature cataracts. Cortisone was prescribed to be used every hour; and on the seventh day, vision had improved to 20/40 in the right eye and 20/50 in the left eye. The aqueous opacities were absent in the right eye and had decreased in the left eye. At the end of the second week vision remained the same and aqueous floaters were absent.

Case No. 16: *Chorioretinitis* in a 34 year old white female. This patient complained of poor vision for four days. She had received local medication with no response. Examination revealed vision of 20/160 in the right eye and 20/20 in the left eye. She was hospitalizied and given penicillin, fever therapy, and atropine. In two weeks vision improved to 20/20. A large area of chor-

ioretinitis was seen just outside the macula. The eye remained quiet for two months, but the vitreous floaters persisted and cortisone was prescribed to be used every three hours. After two weeks of treatment the vitreous floaters were less and the lesion began to decrease in size. At the end of one month of treatment vitreous floaters were less numerous and the inflamed area was much smaller.

Case No. 17: *Chorioretinitis* in a 32 year old white female. The patient had a painful inflamed right eye. The vision in this eye was light perception. The pathology had been diagnosed as vitreous hemorrhage. Examination revealed acute injection of the eye with numerous aqueous and vitreous floaters. Fundus could not be seen. Cortisone was prescribed to be used every hour with atropine ointment to be used once a day. After two weeks of treatment, vision improved, but the medication ran out and vision decreased to 20/200 at the end of the fourth week. A large area of chorioretinitis was found in the macula area and the fundus could be visualized. Cortisone was started every three hours; and after one month of treatment, the vitreous opacities had cleared revealing a large area of chorioretinitis at the macula. Vision remained 20/200.

Case No. 18: *Follicular conjunctivitis* in a 5 year old white male. The eyes were red and irritated for eight days and did not respond to treatment. Examination revealed numerous follicles in the tarsal conjunctiva of both eyes associated with bulbar conjunctival injection. Cortisone every two hours was started, and the irritation subsided on the fourth day. The follicles did not decrease in number. After four weeks of treatment the follicles became smaller and medication was discontinued. After seven weeks of observation, the follicles had decreased in size, but were still present.

Case No. 19: *Surgical removal of a large pterygium* in a 77 year old white male. This patient had a pterygium operation on his left eye. The growth recurred and a second operation was necessary. A large scar resulted which interfered with vision. He also had a large pterygium on the right eye which covered the inner one third of the pupil. Examination revealed a corrected vision of 20/200 in each eye. A McReynold's transplant was performed on the right eye; and on the seventh day, new vascularizing tissue was found to extend into the cornea. Cortisone was prescribed to be used every two hours; and in one week, the newly formed vascular tissue did not contain any blood and the newly formed scar tissue decreased in size. Corrected vision at this time was 20/40. After three weeks of treatment the scar was much smaller and vision remained 20/40. Treatment was discontinued and two weeks later new glasses were prescribed with vision of 20/40 Jaeger type 2.

Case No. 20: *Surgical removal of a large pterygium* of the right eye in a 70 year old white male. This patient had bilateral pterygia. The growth in the right eye covered one third of the pupillary area. Uncorrected vision was 20/80 in each eye. A McReynold's transplant was performed; and on the fourth day, cortisone was prescribed to be used every hour. On the ninth day, uncorrected vision was improved to 20/40 and the resulting corneal scar was very small, with no new forming corneal vascularity. The medication was used three times a day; and on the fifteenth day, the corneal scar was hardly noticeable and vision was 20/30.

TABLE 1
SUMMARY OF CASE RESPONSE TO CORTISONE

Case No.	Result
1. Iritis associated with arthritis	Excellent
2. Iritis associated with arthritis	Excellent
3. Plastic iritis with cataract	Excellent
4. Plastic iritis with keratitis	Excellent
5. Acute iritis with secondary glaucoma	Excellent
6. Acute iritis, secondary glaucoma and subluxated lens	Poor
7. Heerford't disease	Excellent
8. Traumatic iritis with ring keratitis	Good
9. Traumatic iritis with corneal laceration	Excellent
10. Corneal ulcer with interstitial involvement of the cornea	Excellent
11. Multiple corneal ulcers following the introduction of glass wool insulation fibers	Excellent
12. Syphilitic interstitial keratitis	Excellent
13. Keratoconjunctivitis with interstitial keratitis and old central corneal scars	Excellent
14. Corneal dystrophy	Poor
15. Chronic uveitis with immature cataracts	Excellent
16. Chorioretinitis	Good
17. Chorioretinitis	Good
18. Follicular conjunctivitis	Poor
19. Surgical removal of large pterygium	Excellent
20. Surgical removal of large pterygium	Excellent

CONCLUSION

1. Twenty assorted cases were treated with cortone acetate. The results were excellent in 14 cases, good in 3 cases and poor in 3 cases. (Table 1)

2. The best response to local cortisone was in the cases of iritis and corneal inflammatory disease. Lesions in the posterior part of the eye do not respond well to local cortisone and should be combined with either oral or parenteral injection of the medication.

3. There was no response to the medication in the following cases: (1) acute

iritis with secondary glaucoma and subluxated lens; (2) corneal dystrophy; and (3) follicular conjunctivitis.

4. Cortisone inhibits the tissue inflammatory reaction and decreases exudates and fibrous scar formation.

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FRONTAL HEADACHE

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NEW ORLEANS

To the allergist the following sources of head pain (which should be differentiated from the term "headache") are of especial interest:

1. Nasal and paranasal structures

Pain or discomfort originating from the nasal and paranasal structures is common in infections and in allergic reactions. Frontal sinus pain in acute sinusitis is known to be diffuse in the frontal region. Antral pain is located in the maxillary region. The pain of sphenoid and ethmoid involvement is found between and in back of the eyes, and in the vertex. McAuliffe, Goodell, and Wolff[1] studied the referral of pain from the nasal and paranasal structures, including nasofrontal ducts, turbinates, ethmoids, sphenoids, maxillary sinus ostia, and maxillary sinuses. The interesting fact is obvious that pains from all these areas are not particularly referred to the frontal region. Painful stimuli to many of these structures often were referred to other parts of the head.

2. Muscles of the head and neck

Painful stimuli arising from any type of head pain may cause contraction of the muscles of the head and neck. This sustained contraction in itself causes pain which may accompany or follow the primary syndrome. This explains the frequent presence of occipital or neck pain in the later stages of migraine. This pain may persist even after relief of vascular dilation has been obtained by ergotamine tartrate or dihydroergotamine. Neck muscle hypertonicity is often seen in the emotional type of headache.

3. Irritation of peripheral nerves

Pains caused by neuralgias of the cranial nerves are usually sharp, lancinating, unilateral, and paroxysmal. They follow the distribution of the nerves.

4. Intracranial vessels

5. Extracranial vessels

The differentiation of the various types of vascular headaches may be quite difficult. The intracranial type of vascular headache is due to dilation of the cerebral arteries, including those at the base of the brain.[2] The arteries of the pia and the dura play a part. Vasodilation causes pain, in the presence of normal systemic arterial pressure due to the increased amplitude of pulsation. The pains are aggravated by jolting, and are helped by increasing intracranial pressure which gives extramural support to the vessels. Dilation of the supratentorial vessels causes pain mainly in the frontotemperoparietal region since the fifth nerve is the principal afferent pathway.[2] The ninth and tenth cranial and upper cervical nerves are the most important pathways for pain coming from arteries in the posterior fossa, which is felt in the occipital region.[2] These pains may be induced by histamine but we are not here specifically talking of Horton's syndrome.[2] These intracranial headaches may be found in con-

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junction with true migraine. They may be produced by nitrites, sepsis, and anoxemia.

As stated above, it is often difficult to catalogue or classify headaches according to their clinical picture. Various types or combinations of head pain may be seen in the same individual. This is particularly true of the vascular headaches.

The syndrome migraine is caused by dilation of extracranial vessels, mainly the superficial temporal, occipital or frontal arteries.

The superficial temporal is the main vessel involved in migraine, and the pain is generally regarded to be hemicranial. It later may involve the other side or even become generalized. While the differentiation of pain into the frontal type may be regarded by some as being arbitrary, it is felt by the author that the syndrome of frontal pain is distinct and should be differentiated from the general conception of typical migraine.

The pain of migraine may be relieved by vasoconstrictors such as the ergotamines, infiltration with a local anesthetic, pressure, infrequently by surgical extirpation, and at times by the antihistaminics.

It should be pointed out that the prodromal symptoms of migraine have been shown to be associated with temporary vasoconstriction of the cerebral vessels. This indicates the fact that changes in the intracranial and extracranial vessels may be closely related. We may see variations in the location of pain in different patients and even in the same patient. Obviously, true vascular headaches may be present in the absence of the criteria of classical migraine. These are: prodromal aurae (which often include visual disturbances), characteristic location and type of pain, nausea and even vomiting, and hereditary tendency. An edema phase may follow prolonged vasodilation. This is comparatively resistant to therapy.

The clinical picture of migraine differs greatly from the syndrome described by Horton and his coworkers.[3] Histamine cephalalgia is a specific severe unilateral type of headache, which is of short duration, and is accompanied by lacrimation, nasal blockage, and flushing on the affected side. Usually the attacks last for less than an hour, and often awaken the patient at night. The visual disturbances, and nausea and vomiting which are typical of migraine do not occur in this condition, and there is an absence of the strong hereditary tendency. It differs from trigeminal neuralgia in the fact that trigger zones are absent, and because the pain does not follow the distribution of the fifth nerve. An important diagnostic point is that the subcutaneous injection of histamine base may precipitate a typical attack in about thirty to fifty minutes.[2] This response must be distinguished from the relatively immediate generalized headache that may follow histamine injection, which is a more general reaction in the intracranial vessels. Therefore, the immediate appearance of pain after histamine does not indicate histamine cephalalgia; however, others feel that this type of pain appears promptly. Freedom from attacks is said to be obtained by using histamine in therapy, with the idea of increasing the vascular tolerance, or by producing a so-called "refractory state" to histamine. In this condition, as in migraine, the pain may be reduced in intensity by sitting up or by standing.

Others, including Eyermann,[4] have described headache syndromes of various types. It is obvious that there may be a merging or even overlapping of the various vascular syndromes. Therefore, classification is difficult, especially when the types of headaches vary in the same individual. True or classical migraine is relatively not as common as has been believed. To label recurrent headaches generally as being migrainous is a very inaccurate identification. This fact becomes clearer after we consider the possible presence of still another variant in this galaxy of vascular headaches, the frontal syndrome.

In 1946, I became interested in several patients whose headaches could be proved to be based on sensitization to inhalant antigens.[5] Headache due to inhalants had previously been recognized by Eyermann,[4]

Goltman,[6] Vaughan,[7] Rinkel,[8] Feinburg,[9] and others. I reported a series in which sensitization to house dust could be demonstrated as being the only or main factor responsible for the appearance of pain. These patients were skin test positive to house dust. In some, excessive environmental exposure to the antigen could be shown to be a factor, and headache could regularly be precipitated by injection of the extract. Seasonal variations were also observed in some patients.

Coca, Thommen and Walzer,[10] Efron,[11] and others state that headache is a frequent, or even the only manifestation of a systemic reaction. Systemic reactions in my cases due to overdosage were undoubtedly manifested by the appearance of headache.

In these reported cases,[5] I found that the pains were located entirely or principally in the frontal area. All of them had symptoms of chronic nasal allergy. Therefore, studies were made in order to determine the incidence and relative frequency of this type of pain. In reviewing the records of 252 patients with nasal allergy of all types, it was found that 58 per cent of them complained of frontal headache. In 100 normal individuals with no regular nasal symptoms, the incidence of frontal headache was only 27 per cent, a difference of 31 per cent. Persons with recurrent respiratory infections were excluded from this latter group.

It was observed that many of the patients stated that frontal headaches appeared or were worse during the times that nasal symptoms were more prominent. The use of vasoconstrictors in the nose gave relief to some.

On the other hand, headache might be present when nasal symptoms were minimal, or even absent at the time of onset of the headache. Some patients stated that relief often occurred when nasal discharge became more abundant. It was felt that there was insufficient correlation between the amount or degree of nasal blockage or other nasal symptoms and the onset of head pain. Therefore, we could not state that the headache depended on the degree of local nasal reactions.

In the extrinsic or noninfective type of nasal allergic, headache could often be precipitated by an overdosage of the antigen. While the head pain could appear in a few minutes after injection, in some patients its onset would be delayed for several hours. In this delayed type of reaction the time interval was fairly constant. Local reactions at the site of injections were usually quite moderate, even though subsequent headache appeared. There was a universal trend to improvement in the headaches which coincided with improvement of the nasal condition during hyposensitization.

It was found that frontal headache had a variable period of duration, lasting from a half hour to several days and even weeks. Nausea and even vomiting appeared at the time of the headache in a large number of patients. Prodromal aurae were not consistently observed, although vertigo and visual changes, including scotomata, were occasionally present during attacks. In a small number of patients fever appeared during the headache.

Characteristically, the frontal pains were bilateral, and were localized in the region of the forehead. In many patients the pains were unilateral at times. Unilateral and bilateral pains may alternate. Occasionally, discomfort is also felt in the region of the eyes, across the bridge of the nose, or even into the face. In a few patients the pain later radiated to the vertex or to the temporal regions, or even over the entire head. In many patients pain was also present in the occipital region. As stated above pains in the posterior neck muscles may accompany or follow pain in any part of the head.

These preliminary observations showed the necessity for a large scale survey to study these and other facts related to headaches. The survey was made possible by a grant from Sandoz Pharmaceuticals to the Louisiana State University School of Medicine. While the detailed findings and procedure of this study are described elsewhere,[12] in this presentation the specific

data relative to frontal headache are tabulated.

A cross section study was made of 4,634 individuals, in whom the incidence of all types of headache was found to be 64.8 per cent. Among the important points was the finding that there is a significantly higher percentage of nasal symptoms among persons with headaches, than among those with no headaches. This also is true for asthma, "colds", and a familial history of allergy.*

Also, among the interesting facts that were observed, was that there is a relatively high incidence of the frontal type of headache and a low incidence of true migraine.[13] Since the therapeutic approach to frontal headache is often related to that for migraine, the following data, relative to the latter syndrome are also herewith presented. These reveal so much information that further verbal elaboration is unnecessary.

In frontal headache the main diagnostic point is the location of headache, since in other respects these patients closely resemble the total headache group. It must be pointed out that frontal headaches from 72.6 per cent of all headaches.[13]

Here we defined migraine as a headache based on certain of the following criteria:

1. History of headache in family
2. Unilateral or bilateral location of pain
3. Prodromal symptoms
4. Gastrointestinal distress
5. Throbbing type of pain.

We included any one answering all five or any four of these criteria. We also included any one answering criteria two and four and any one of the others. Based on the general conception of migraine. this may be regarded as being a sufficiently accurate description of clinical or classical migraine.

*These data were tested by Dr. Huldah Bancroft, Professor of Biostatistics at Tulane University, for the probability of error.

TABLE 1
SEGMENTS IN STUDY

Segments	Total Survey	Total Nonheadache	All Types Headache	Frontal Headache	Migraine Headache
Total Numbers	4634	1639	3005	2184	155
% of 4634	.....	35.2%	64.8%	47.3%	3.3%
% of 3005	.....	.....	.....	72.6%	5.15%

TABLE 2
DISTRIBUTION OF SAMPLE (EACH FIGURE BELOW REPRESENTS PERCENT OF SEGMENT)*

	Total Survey	Total Nonheadache	All Types Headache	Frontal Headache	Migraine Headache
Male	30.2	42.4	23.6	23.6	16.1
Female	69.8	57.6	76.4	76.4	83.9
White	70.0	69.3	70.3	71.3	78.7
Negro	29.7	30.6	29.3	28.7	21.3
Married	43.1	47.6	40.6	41.3	40.7
Single	38.9	32.2	42.4	43.7	47.1
Widowed	8.5	11.6	6.8	5.8	5.8
Separated	4.8	4.1	5.3	4.9	4.5
Divorced	4.3	3.9	4.6	4.3	1.9
Manual	38.5	49.2	32.6	31.3	21.9
Professional	23.7	19.7	25.9	26.5	43.2
Students	11.7	6.6	14.4	16.0	16.1
Housewife	10.7	9.1	11.5	10.9	5.8
Clerical	10.0	9.1	10.6	10.4	9.7
Salesman	4.4	5.2	4.0	4.0	2.6
Executive	0.5	0.3	0.6	0.5	0.6
Agriculture	0.1	0.2	0.1	0.1	0.0
College grad.	15.5	13.0	16.8	17.6	27.7
College stud.	12.0	7.8	14.3	15.4	18.1
High sch. grad.	34.0	28.8	36.9	36.7	37.4
Gram. sch. grad.	22.1	24.6	20.8	19.6	11.0
Part gram. sch.	11.2	17.8	7.6	7.5	3.9
Trade School	1.5	1.7	1.4	1.3	1.3
Uneducated	3.7	6.3	2.2	1.9	0.6
Age through 20 yrs.	10.8	6.6	13.1	12.5	8.7
21 " 30	32.9	23.8	37.8	40.8	41.3
31 " 40	20.0	19.0	20.5	20.9	23.3
41 " 50	19.2	23.0	17.1	16.5	19.3
51 " 60	11.6	17.4	8.5	7.6	6.7
61 or older	4.9	9.9	2.2	1.7	0.7

*Where per cents do not add to 100, the difference indicates those who did not answer the particular question.

TABLE 3
INCIDENCE OF RESPIRATORY OR ALLERGIC DISEASES, AND RELATED DATA

	Total Nonheadache	All Types Headache	Frontal Headache	Migraine Headache
Hay fever	6.8	10.4	10.4	12.9
Running nose	3.8	7.8	8.1	9.7
Sneezing spells	5.7	13.5	13.5	18.1
Itching of nose or eyes	4.1	11.9	12.1	18.7
Discharge from nose	3.0	5.7	5.9	11.6
Discharge from eyes	2.0	3.7	3.8	10.3
Blocked nose	3.8	13.3	14.0	23.2
Drip in back of throat	5.0	17.8	19.3	27.1
Sinus trouble	3.6	14.9	15.7	29.0
Not troubled with any of above	81.2	55.1	53.3	35.5
Asthma or wheezing	2.6	3.5	3.3	5.8
Repeated coughs	2.4	5.4	5.6	7.1
Frequent sore throats	2.3	9.8	10.0	17.4
Phlegm in throat	4.7	15.2	15.8	27.7
Do not have any of above	86.4	72.1	71.1	53.6
No colds	23.4	7.8	7.1	4.5
One or two per year	64.6	70.2	69.6	74.8
Three to six per year	6.7	17.9	19.2	18.1
Almost constantly	1.0	3.3	3.3	1.9
Constantly	0.4	0.8	0.8	0.6
Use nose drops usually	2.0	6.3	6.5	9.7
Use drops during colds	20.5	41.3	43.0	49.7
Never use drops	74.1	52.4	50.5	40.6
Smoke usually	36.5	35.9	37.3	28.4
Smoke rarely or never	60.3	64.1	62.7	71.6
Have hives	3.7	7.1	7.6	14.2
Have eczema	1.0	2.4	2.3	5.2
Have Poison Ivy	2.8	5.0	5.1	3.9
None of above	88.2	86.5	86.1	78.7
Unusual exposure	9.0	16.2	16.0	19.4
None	84.2	83.8	84.0	80.6
Allergy in family	11.3	25.1	26.5	39.4
None	86.0	74.9	73.5	60.6
Headache in family	.....	28.9	29.9	72.3
None	.....	70.9	70.1	27.7

It must be emphasized that since frontal headache forms the bulk of the total number of headaches (72.6 per cent), the findings of this total are dependent, therefore, to a large extent on the percentages for the frontal group. Also, we see that in the smaller migraine group, many of these points are accentuated. Because of lack of space it will be impossible to discuss all the various findings in detail.

It is obvious that the frontal type of headache possesses at times some of the characteristics of migraine, or the symptomatology that has become identified with vascular headaches. These include prodromal symptoms such as aurae, visual difficulties, nausea and even vomiting. throbbing type of headache, et cetera. Also, in a recent study I found that the ergotamine drugs are effective in an impressive percentage of cases of frontal headache.[14] The ergotamine drugs are known to be exceptionally helpful as vasoconstrictors of cranial vessels. While some may feel that the response seen in individuals with frontal headache is due to nasal decongestion, the author feels that it is due to the direct constricting effect of the ergotamines on arterial musculature.

TABLE 4
INCIDENCE, TIMING, SEASON, AND DURATION OF HEADACHES

	All Types Headache	Frontal Headache	Migraine Headache
Frequency of headaches*			
1 - 6 per year	26.1	24.4	11.0
7 - 12 per year	26.0	26.0	20.6
13 - 24 per year	17.2	18.0	14.0
25 - 48 per year	16.1	16.8	26.5
49 - 96 per year	7.3	7.1	10.3
97 - 360 per year	7.4	7.7	17.6
Time of day			
Usually on awakening	13.3	13.3	25.0
Forenoon	3.4	4.1	4.6
Afternoon	10.2	11.5	14.5
Evening	7.6	8.7	9.2
After work	7.1	8.2	7.9
During sleep	1.9	1.8	5.3
No particular time	62.1	59.9	50.7
Mostly in spring	2.7	2.4	2.6
Mostly in summer	7.7	8.2	5.2
Mostly in autumn	0.9	0.9	1.3
Mostly in winter	4.7	5.4	5.2
No particular season	80.8	84.5	85.8
Duration			
Less than 1 hour	28.9	31.9	9.6
1 - 6 hours	44.1	50.1	50.0
6 - 12 hours	5.9	6.4	13.7
12 - 24 hours	2.9	2.8	8.2
1 - 2 day	6.2	5.7	0.0
3 days or longer	2.9	3.1	0.0
No answer	9.1	7.2	5.8

*A number of individuals failed to answer the question regarding the frequency of headache. These particular figures are based on those who answered this question.

TABLE 5
SYMPTOMATOLOGY OF HEADACHES

	All Types Headache	Frontal Headache	Migraine Headache
Location of Headache			
Forehead one side	11.9	16.4	14.3
Forehead both sides	27.0	37.2	23.4
Whole front of head	25.6	35.3	14.9
One side of head	6.5	3.8	42.9
Both sides of head	5.7	3.3	25.3
Top of head	10.3	7.5	12.3
Back of head	14.3	11.9	22.1
Neck	6.4	5.7	11.0
Face	1.7	1.7	2.6
Eyes	22.1	30.8	26.6
Nose bridge	4.3	4.2	7.1
Entire head	10.4	3.2	7.8
Prodromal symptoms	20.9	21.3	61.9
None	78.3	78.7	38.1
Visual disturbances before	2.8	2.9	5.8
Visual disturbances during	20.0	22.5	29.0
Both before and during	6.1	6.4	18.1
None	70.2	68.1	47.1
Sharp and stabbing headache	11.8	13.1	15.8
Dull and pressure-like headache	37.7	25.9	28.9
Throbbing headache	29.8	33.3	70.4
Constant headache	16.5	19.2	21.7
Change during attacks	8.0	8.6	11.8
No answer	12.0	9.9	1.9
Usually vomit	1.9	2.0	5.8
Occasionally vomit	5.3	5.2	17.4
Get nauseated	20.9	21.4	61.3
Neither	71.1	71.4	15.5
Nasal symptoms before or during	7.9	8.4	19.1
Neck pains during	14.7	13.0	34.9
Neck pains before or after	2.9	2.3	10.5
Muscular pains during	,5.1	4.3	10.5
Muscular pains after	1.5	1.4	3.9
Paresthesias before	1.2	1.3	7.2
Paresthesias during	2.9	2.8	7.9
Paresthesias after	0.7	0.6	3.3
Muscular weakness during	4.5	4.6	15.1
Tinnitus	6.5	6.4	13.2
None	67.6	69.1	38.2

"The anterior and posterior ethmoidal arteries arise from the ophthalmic as it runs forward along the medial wall of the orbit. They pass medially, between the superior oblique and the medial rectus. The posterior, which is much the smaller of the two, traverses the posterior ethmoidal canal and supplies the posterior ethmoidal sinuses and the posterior and upper part of the lateral wall of the nasal cavity. The anterior ethmoidal artery passes through the anterior ethmoidal canal with the anterior ethmoidal nerve, enters the anterior fossa of the skull, and crosses the cribiform plate of the ethmoid to the nasal slit, passes through an aperture at the lateral side of that slit into the nasal cavity, where it descends, with the nasal continuation of the anterior ethmoidal nerve, in a groove on the inner surface of the nasal bone, and, finally, passes between the lateral cartilage and the lower border of the nasal bone to the tip of the nose. It gives off meningeal branches in the anterior cranial fossa and supplies the anterior and middle ethmoidal cells, the frontal sinus, the nasal mucoperiosteum, and the skin on the dorsum of the nose."[15] (See Figure 1)

TABLE 6
SUSPECTED CAUSES OF HEADACHES

	All Types Headaches	Frontal Headache	Migraine Headache
Fatigue	32.5	34.5	42.6
Allergy	4.7	5.1	10.3
Colds	12.5	13.4	16.1
Excessive smoking	5.6	5.9	1.9
Eye strain	35.1	40.8	41.9
Overeating	1.9	1.8	2.6
Over-drinking	4.4	4.4	5.2
Overheating	6.5	7.4	5.8
Sinus trouble	11.6	12.4	22.6
Menopause	4.4	3.7	5.2
Menstruation	23.8	24.4	27.7
Emotions	10.6	11.2	19.4
Worry	13.5	13.5	16.1
Constipation	16.7	16.6	21.3
Getting chilled	1.4	1.3	3.2
Exercise	1.7	1.8	4.5
No idea of cause	12.2	11.0	5.8
Others	3.1	3.1	5.8
No answer	0.9	0.5	0.0

TABLE 7
TREATMENT OF HEADACHES

	All Types Headache	Frontal Headache	Migraine Headache
Treatment experiences:			
Aspirin helps	64.1	65.3	43.9
Aspirin sometimes helps	21.9	22.1	40.6
Never tried or ineffective	13.1	12.6	15.5
Narcotics help	4.8	5.0	12.9
Narcotics sometimes help	2.3	2.4	7.1
Never tried or ineffective	92.0	92.5	80.0
Ergotamine group helps	1.0	0.9	4.5
Ergotamine group sometimes helps	0.6	0.5	3.9
Never tried or ineffective	97.0	98.6	91.6
Antihistamines help	3.4	3.4	3.2
Antihistamines sometimes help	3.0	3.1	5.8
Never tried or ineffective	92.7	93.3	91.0
Nose drops help	6.6	6.6	8.4
Nose drops sometimes help	9.3	9.7	12.9
Never tried or ineffective	83.2	83.8	78.7
Preferred treatments:			
Aspirin etc.	81.2	82.7	78.0
Narcotics	2.5	2.5	6.5
Gynergen	0.3	0.2	1.3
DHE 45	0.2	0.2	1.9
Cafergot	0.3	0.2	2.6
Antihistaminics	1.9	2.1	1.3
Nose drops	4.0	4.1	7.7
None at all	14.0	13.6	12.9
Treatment directed by:			
E.N. T. specialist	4.8	4.6	9.1
Ophthalmologist	4.0	4.4	6.5
Allergist	0.7	0.7	1.3
Neuropsychiatrist	0.1	0.1	4.6
Neurosurgeon	0.1	0.1	0.0
Internist	2.2	1.9	4.6
Other physician	3.6	3.4	7.8
Dentist	0.7	0.7	0.0
No one	82.0	84.2	68.8

*Individuals surveyed simply checked off proper answers on the questionnaire. The findings were then transferred to I. B. M. cards for computation. In reviewing the statistics it became obvious that many had confused the two answers, "No" (no help from the drug) and "Never tried," hence these two figures were confused.

It is apparent that edema of the nasal mucosa would produce some degree of pressure even though minor on the vessel walls, and thereby possibly initiate vasodilation in the anterior meningeal branch of the ophthalmic. Thereby frontal pain would be produced. The nasal pressure would act as the trigger. The supra-orbital artery (and frontal branch) is a terminal branch of the ophthalmic artery.

In some cases of frontal headache this artery is palpable and visibly dilated. It is also recognized that the ophthalmic arteries are branches of the internal carotid vessels. It has been thought by many that the effect of the ergotamines is principally on the branches of the external carotid. However, we cannot say that the ergotamines do not constrict the branches of the internal carotid, since there is no definite anatomical, physiological, or clinical proof of this idea.

I have found that the antihistamines frequently relieve frontal headache. This may be due to the effect on the nasal mucosa. Also, vasoconstrictors used properly in the nose may relieve pain. I instruct my patients in the technique of the lateral head low position.

Taquino[16] states that he has frequently relieved frontal pain by applying 4 per cent cocaine by swab to the region of the internal nasal branch of the anterior ethmoid nerve which is a continuation of the nasociliary nerve, a branch of the ophthalmic. There is certainly an intermingling of afferent fibers in the ophthalmic nerve and in the semilunar ganglion. Therefore, it is interesting to speculate that some cases of frontal pain may be due to the establishment of a pathway of referred pain. Perhaps frontal pain is due to either the vascular or neurogenic mechanisms. At the present time the weight of evidence may indicate that the former is the more important.

The likelihood that these pains were simply of so-called sinus origin is lessened by the fact that there is a typical limited distribution of pain. As stated above, sinus pain is referred to various regions of the head and face. Much of the discomfort in nasal edema has been shown to originate from involvement of the turbinates, and we know that this is not particularly referred to the frontal area.

In the survey of 4634 individuals, 35.3 per cent reported nasal symptoms of any

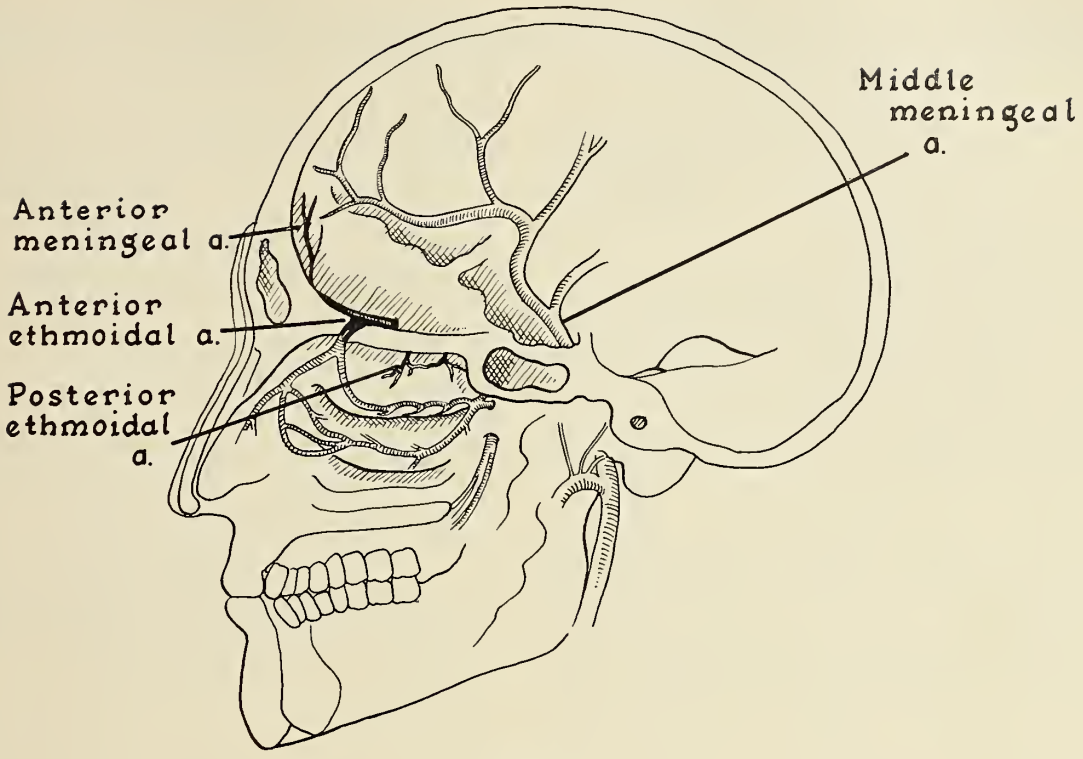

Figure 1

type. Of this group 83.0 per cent had headaches; whereas in the non-nasal symptom group (64.7 per cent), only 55.6 per cent had headache.

Many otorhinolaryngologists feel that headache may be seen in acute sinus infection, but only rarely in the chronic type. My patients have a chronic recurrent type of headache. Also, it is no longer generally stated that frontal headache is due to a vacuum in the frontal sinuses which was thought to follow obstructions of the nasofrontal ducts.

There would appear to be some association between eye strain and frontal type of head pain. It is felt by the author that the eye strain may be falsely blamed by the individual in many cases, or that the eye strain acts as a nonspecific aggravating factor. Among the 2184 cases of frontal headache, 46.7 per cent had nasal symptoms and 39.3 per cent of the latter have disturbed vision with their headaches. No nasal symptoms were experienced by 53.3 per cent and in this group only 25.5 per cent had disturbed vision. Thus, there seems to be some small measure of direct relationship between nasal and visual symptoms.

Since nasal symptoms and changes are commonly associated with frontal headache, the factor of nasal allergy must be considered. Therefore attention should be directed to a correct etiological diagnosis. Usual skin testing procedures are employed with especial emphasis on inhalant allergy. In addition to inhalant sensitizations, foods may at times be a cause.

In another publication,[12] I report that the general headache incidence is greater among persons whose occupations embody more mental stress and exertion. Headaches are also generally more common among females, younger individuals, and among single persons. Therefore, psychogenic, emotional, and occupational problems must be adequately studied and managed.

It is becoming more apparent that the lability of the arterial vessels that is responsible for headache is affected by a

number of factors, including age, endocrine disturbances, mental and emotional problems, and various allergic states.

CONCLUSIONS

1. The frontal type of headache is found in 72.6 per cent of all types of headaches.

2. Nasal symptoms are often associated with frontal headache.

3. There is a greater incidence of various allergic states in headache sufferers.

4. Frontal headache is apparently vascular in nature and may be due to dilation of the anterior meningeal arteries.

Note: Acknowledgement is made of the assistance of Mr. James Villere, Southwest Manager of Sandoz Pharmaceuticals.

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THE CONTROL OF PAIN BY INTRAVENOUS PROCAINE

In the past five years, procaine has been advocated intravenously for the control of pain, itching, muscle spasm, discomfort of arthritis, and edema. It was given as 0.1 per cent solution in 5 per cent dextrose in water. Many reports have appeared which indicate that it is effective in controlling discomforts and pain of various conditions. Recently, the Council on Pharmacy and Chemistry of the A. M. A. has authorized the publication of a report in a controlled study by Keats, D'Alessandro, and Beecher.* These authors felt that because of the lack of controls in the studies that were reported and because of the known rapid hydrolysis of procaine in the blood stream, further investigation of this method of treatment was necessary.

They chose as subjects patients in the first postoperative day, eliminating those who gave a history suggestive of procaine sensitivity. The three drugs employed were saline, procaine hydrochloride, and morphine sulphate. Saline was given at the rate of approximately 200 cc. per hour. Procaine was given as 0.1 of 1 per cent solution in 5 per cent dextrose in water. Morphine was given slowly in a syringe, intravenously, in the course of one minute, the dose being 8 mg. per 70 kg. of body weight. Evaluations of pain relief were made by trained technicians who were not present at all times and who were unaware of the nature or dose of the drug administered. The technicians appeared at specific times for evaluation. The effects were judged by their ability to produce both pain relief and comfort. A total of 53 patients divided into four groups was studied. Twenty-one per cent obtained relief of pain and comfort from saline at the end of thirty minutes; 40 per cent from procaine a similar time; and 71 per cent from morphine. The dose of procaine used was the so-called procaine unit, that is, 4 mg. per kg. of body weight administered over a twenty minute period. Observations in the course of the test were made as to the frequency of side reactions. With saline, general numbness and dizziness were noticed in 3 per cent, and nausea and vomiting in 6 per cent. With morphine, nausea was noted in 20 per cent; dizziness and vomiting in 14 per cent. While with procaine, a variety of side reactions was found. Dizziness was present in 63 per cent, nausea in 45, and vomiting in 23. Less than 5 per cent of those receiving procaine had convulsions, disorientation, paresthesias, tinnitus, and restlessness. Fifteen per cent developed marked apprehension and 13 beg-

*Keats, Arthur S., D'Alessandro, Genesio L., and Beecher, Henry K.: J. A. M. A. 147:1761, (Dec. 29) 1951.

ged for the intravenous medication to be stopped.

The advocates of the intravenous use of procaine have advanced the hypothesis that the drug increases the capillary permeability in areas of trauma or inflammation. When the drug penetrates the tissues it relieves reflex vasospasm and increases the peripheral blood flow. The authors of the report, however suggest that the analgesia produced by intravenous procaine results from its action on the central nervous system. They note that, in 1944, Bigelow and Harrison demonstrated that subcutaneous infiltration of procaine into one arm produced an elevation of the pain threshold in the opposite arm. They further observed that the best results have been reported in those situations where symptoms are accompanied by a large psychic overlay such as low back pain, itching, and tinnitus, or those conditions associated with great variability of symptoms, such as arthritis, serum sickness, and angina pectoris. It was considered that the degree of analgesia from procaine was achieved at a cost of tremendous side reaction liability and this itself was mainly unpleasant. With six patients, the administration had to be stopped because of the magnitude of the side reactions. There is a great variability in the individual susceptibility to the toxic effects of procaine. Seventy-five milligrams over a four minute period were followed by generalized clonic convulsions, while 800 mg. over a twenty minute period, in which 160 mg. were given in four minutes, were only followed by dizziness.

In another study previously reported, there were 21 per cent of patients relieved by saline and 76 by morphine. In this study, 20 per cent were relieved by saline and 70 by morphine, 40 per cent being relieved by procaine. This comparison indicates the accuracy of the method by which procaine was being judged, and they state that the degree of relief produced by procaine approximated that produced by 90 mg. of pentobarbital sodium.

Such a detailed and dependable study as this leads the physician to believe that the method is only 40 per cent effective and apt to be accompanied by more than 50 per cent of unfavorable side reactions. If one takes into consideration these facts, the value of the method becomes doubtful.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

FACTS ABOUT AMA DUES FOR 1952

1. American Medical Association membership dues for 1952 are $25.00.

2. Fellowship dues for 1952 have been abolished.

3. American Medical Association membership dues are levied on "active" members of the Association. A member of a constituent association who holds the degree of Doctor of Medicine or Bachelor of Medicine and is entitled to exercise the rights of active membership in his constituent association, including the right to vote and hold office as determined by his constituent association, and has paid his American Medical Association dues, subject to the provisions of the By-Laws, is an "active" member of the Association.

4. American Medical Association membership dues are payable through the component county medical society or the constituent state or territorial medical association, depending on the method adopted locally.

5. Commissioned medical officers of the United States Army, the United States

Navy, the United States Air Force or the United States Public Health Service, who have been nominated by the Surgeons General of the respective services, and the permanent medical officers of the Veterans Administration and the Indian Service, who have been nominated by their Chief Medical Directors, may become Service Fellows on approval of the Judicial Council. Service Fellows need not be members of the component county or constituent state or territorial associations of the American Medical Association. They do not receive any publication of the American Medical Association except by personal subscription. If a local medical society regulation permits, a Service Fellow may elect to become an active member of a component and constituent association and the American Medical Association, in which case he would pay the same membership dues as any other active member and receive a subscription to The Journal of the American Medical Association.

6. An active member of the American Medical Association may be excused from the payment of American Medical Association membership dues when it is deemed advisable by the Board of Trustees, provided that he is partially or wholly excused from the payment of dues by his component society and constituent association.

The following may be excused in accordance with this provision: (a) members for whom the payment of dues would constitute a financial hardship as determined by their local medical societies; (b) members in actual training but not more than five years after graduation from medical school; (c) members who have retired from active practice; (d) members who have reached the age of 70, on request, and starting January 1 following the 70th birthday, and (e) members who are called to active duty with the armed forces (exemption begins July 1 or January 1 following entrance on active duty). The last two categories are excused from AMA dues regardless of local dues exemptions.

7. Active members of the American Medical Association are not excused from the payment of American Medical Association membership dues by virtue of their classification by their local societies as "honorary" members or because they are excused from the payment of local and state dues. Active members may be excused from the payment of American Medical Association membership dues only under the provision described in Paragraph 6 above.

8. American Medical Association membership dues include subscription to The Journal of the American Medical Association. Active members of the Association who are excused from the payment of dues will not receive The Journal except by personal subscription at the regular subscription rate of $15.00 a year.

9. Members may substitute one of the special journals published by the Association for The Journal to which they are entitled as members.

10. A member of the American Medical Association who joins the Association on or after July 1 will pay membership dues for that year of $12.50 instead of the full $25.00 membership dues.

11. An active member is delinquent if his dues are not paid by *June 1* of the year for which dues are prescribed and shall forfeit his active membership in the American Medical Association if he fails to pay the delinquent dues within thirty days after the notice of his delinquency has been mailed by the Secretary of the American Medical Association to his last known address.

12. Members of the American Medical Association who have been dropped from the membership roll for non-payment of annual dues cannot be reinstated until such indebtedness has been discharged.

13. The apportionment of delegates from each constituent association shall be one delegate for each thousand (1,000), or fraction thereof, *active members of the American Medical Association* as recorded in the office of the Secretary of the American Medical Association on December 1 of each year.

STATEMENT BY GOVERNOR EARL WARREN OF CALIFORNIA IN RENEWING HIS ADVOCACY OF COMPULSORY HEALTH INSURANCE DURING CBS RADIO BROADCAST, NOVEMBER 4, 1951

Governor Earl Warren of California, speaking on a CBS radio broadcast on November 4th, again advocated the enactment of a system of compulsory health insurance.

Warren, three times defeated in efforts to inaugurate such a system in California, made it clear that he now favors a system of Government-directed Medical Care for all the American people.

The Governor denied that his program was socialized medicine but the plan he has advocated in California closely parallels the program of socialized medicine advocated by President Truman and Federal Security Administrator Oscar Ewing.

The full text of Governor Warren's statement follows:

"It is not sufficient to say that America has developed the finest medical care in the world, even though this is true. We still must find a way to make it accessible to all of our people.

"*The well-to-do can pay for good medical care; the indigent receive it from public agencies and through the charitable work of the doctor; but the self-reliant worker, the man in the average or lower income bracket who contributes so much to building our country, and whose greatest ambition and hope is to raise a good American family, cannot bear the financial catastrophe of serious illness.*

"I have advocated for California a program of prepaid medical care as a possible solution. The proposal has been called socialized medicine by some who are opposed to it. It even has been given the ugly name of communism by others. It is neither. Nor is it statism as practiced in Germany or socialism as practiced in England.

"I have never been and am not now in favor of socialized medicine. I do not believe in socialism, but I do believe in social progress, which has been the hallmark and the glory of the American nation from its beginning.

"*I am convinced we will enter upon a new era of progress in the cause of health when we make it possible for every one of our people to protect himself and his family from the economic disaster of backbreaking hospital and medical bills.*

"I believe it is the responsibility of the states to undertake to help doctors, hospitals and the public they serve in the solution of what, up to the present time, has been an insoluble problem. I have never held out my proposal as the only solution. It is my proposal until someone offers a better one.

"I am firmly of the belief, however, that our American system is sufficiently adaptable to make possible the solution of the problem of medical care without doing violence to the political, economic or professional concept of all the people who are sincerely interested in the problem."

If Governor Warren, who has announced himself as a candidate for the Presidency, were not so prejudiced and blind to the present free enterprise practice of medicine —the best system on earth—he would be unwilling to lend his influence and efforts to a system of compulsory health insurance such as he is advocating along with President Truman and Oscar Ewing at the present time.

Beware of such men who are aspiring to high office and who would lead us down the river to state medicine.

Senator Taft who has always been a friend to free enterprise—the voluntary way of the practice of medicine, has also announced as a candidate for the Presidency.

Of course, it would not be hard for the members of the medical profession to choose the proper candidate.

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HOSPITAL ACCREDITATION

The AMA has announced the establishment of a joint commission composed of eighteen members, six members from the American Medical Association; six members from the American Hospital Association; three members from the American College of Surgeons; and three members from the American College of Physicians. The plan of such a joint commission has already been approved by the four organizations, and the eighteen members will be appointed at an early date.

The combined budgets will approximate $250,000 to finance the commission which will conduct a hospital inspection and accreditation program of the hospitals of the United States and Canada, which will encourage physicians and hospitals voluntarily:

(1) To apply certain basic principles of organization and administration for

the efficient and proper care of the patient.

(2) To promote the highest quality of medical and hospital care in all of its aspects in order to give patients the greatest benefits offered by medical science, and

(3) To maintain the essential diagnostic and therapeutic services in the hospital through coordinated effort of the organized staff and the governing body of the hospital.

Since our Society protested against the plan to place this function entirely in the hands of the American Hospital Association, we feel sure that the membership will be gratified to learn of the presently delegated commission. Personnel of this commission is as follows:

Dr. Gunnar Gundersen, LaCrosse, Wisconsin and Dr. Stanley Truman, Oakland, California—3 years.

Dr. Dwight H. Murray, Napa, California and Dr. Herman G. Weiskotten, Syracuse, New York—2 years.

Dr. Rolland J. Whitacre, Cleveland, Ohio and Dr. Julian P. Price, Florence, S. Carolina—1 years.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

DR. CAIRNS ELECTED PRESIDENT OF EYE, EAR, NOSE AND THROAT HOSPITAL STAFF

At the Annual Meeting of the Staff of the Eye, Ear, Nose and Throat Hospital, Dr. Adrian B. Cairns was elected President of the Staff for the coming year. Other officers elected to assist Dr. Cairns were: Dr. Albert Habeeb, First Vice-President; Dr. Jack Anderson, Second Vice-President; Dr. Harold Tabb, Secretary-Treasurer, and Drs. Irvin Goldman and M. C. Wilensky, members of the Executive Committee at large. Dr. George H. Hauser, the outgoing President, presided at the meeting.

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FOURTH ANNUAL NEUROPSYCHIATRIC MEETING OF THE VETERANS ADMINISTRATION

Dr. Harold W. Sterling, Manager, has announced that the Fourth Annual Neuropsychiatric Meeting will be held at the Veterans Administration Hospital, North Little Rock, Arkansas, on February 28 and 29, 1952. Guest lecturers who have already indicated that they will participate include the following: Dr. Leo H. Bartemeier, President, American Psychiatric Association, Detroit, Michigan; Dr. Daniel Blain, Medical Director, American Psychiatric Association, Washington, D. C., and many others.

RUDOLPH MATAS LECTURE

The fifth annual Rudolph Matas Lecture will be held, February 15, on the Tulane University campus.

Delivering the lecture this year will be Dr. Joe Vincent Meigs, Clinical Professor of Surgery at the Harvard University Medical School and Chief of the Vincent Memorial (gynecological service) of the Massachusetts General Hospital at Boston.

Dr. Meigs will speak on "Treatment of Cancer of the Cervix."

The lecture is sponsored each year by the Tulane chapter of Nu Sigma Nu medical fraternity in honor of Dr. Rudolph Matas, emeritus professor of surgery at Tulane.

Dr. Meigs' address will be open to the public and will be presented at 8 p. m. at Dixon Hall. Also appearing on the program will be John Schneider, Tulane medical senior, who is president of Nu Sigma Nu; and Dr. Alton Ochsner, chairman of the Department of Surgery at Tulane and president of the American College of Surgeons, who will introduce Dr. Meigs.

Previous Matas lecturers included Dr. Alfred Blalock, Baltimore surgeon; Dr. William C. Menninger, Topeka psychiatrist; Dr. Cecil Watson, University of Minnesota physician; and Dr. Frank Lahey, director of the Lahey Clinic at Boston.

AMERICAN PSYCHOSOMATIC SOCIETY WILL MEET IN FEBRUARY

The first meeting of the Psychosomatic Forum of New Orleans, American Psychosomatic Society, will be held at 8:30 p. m., February 28, in the Board Room, 1st floor, Hutchinson Memorial Building, 1430 Tulane Avenue.

Psychosomatic Problems in Children will be the subject of the meeting and guest speakers are Drs. Irwin Marcus, Ian Stevenson and C. G. Grulee, Jr. Additional subjects will include enuresis, diabetes and infantile colic. The guest speakers and Drs. Ralph Platou and Myron Wegman will conduct a panel discussion.

SURGICAL ASSOCIATION OF LOUISIANA ELECTS OFFICERS

The following officers were elected at the Fourth Annual Meeting of the Surgical Association of Louisiana, held Sunday, November 11, 1951, at the St. Charles Hotel.

Dr. James D. Rives, New Orleans, President; Dr. T. Jeff McHugh, Baton Rouge, 1st Vice-President; Dr. J. Kelly Stone, New Orleans, 2nd Vice-President; Dr. Henry G. Butker, New Orleans, re-elected, Secretary; Dr. Edmund L. Leckert, New Orleans, re-elected, Treasurer; Dr. George Wright, Monroe, member of Board of Directors for a period of three years; Dr. John A. Hendrick, Shreveport, member of Board of Directors for a period of three years; Dr. Joseph Danna, re-elected a member of Board of Directors for a period of three years.

Other members of the Board of Directors are Dr. W. Kernan Irwin, Baton Rouge; Dr. Roy B. Harrison, New Orleans and Dr. Howard Mahorner, New Orleans.

Dr. James Q. Graves, to serve on the Board of Directors for one year, as Past President.

KNOW YOUR BLUE SHIELD PLAN

As there seems to be widespread lack of information among physicians regarding the policies and purposes of Louisiana Physicians Service—Blue Shield Doctor's Plan—as well as an appreciable amount of misinformation, it seems expedient to submit a resume of its origin, organization, and physical set-up, what it offers to both the public and the medical profession and its liaison with the component Parish Medical Societies.

The medical profession as a whole recognizes the need of voluntary plans for prepaying medical, surgical, and hospital expenses. Despite the fact that several members of the Congress who openly endorsed the Administration's health program were defeated in the most recent elections and there seems to be no great activity at the present moment among the ranks of socialized medicine, the idea is far from dead. We are in imminent danger of being absorbed into a socialized state and unless we get our patients insured in a voluntary health plan, mutually satisfactory, it is distinctly probable that some form of a compulsory plan will be forced on us disastrous to all concerned.

What constitute acceptable basic criteria of a voluntary, prepayment health insurance plan? We can all concede that such a plan should make medical, surgical, and hospital services available to the public on a prepayment basis that includes free choice of physician and hospital without sacrifice of medical standards or of the vitally important personal relationship between physician and patient. It should also offer to the low income patient the privilege of choosing his physician and maintaining his status as a private patient instead of having to seek treatment at a clinic or hospital ward. To the physician it should offer a convenient and prompt method of payment of a fair fee for services rendered patients who might otherwise find it difficult, if not impossible, to meet the expense incurred, and lastly its policies, medical contracts with the public, schedule of allowances and fee schedule should be under the control of physicians.

Organization of Louisiana Physicians Service

The origin of L.P.S. is interesting as the Plan was devised by the physicians of the state. In 1944, the House of Delegates of the Louisiana State Medical Society appointed a special committee, known as the Prepayment Health Committee, Dr. O. B. Owens of Alexandria, chairman. This committee studied the development of prepaid hospital, medical, and surgical care plans in operation at that time. As a result, Louisiana Physicians Service—your Blue Shield Plan—was organized on August 18, 1946 and its first medical, surgical certificates became effective November 1, 1946. The House of Delegates of Louisiana State Medical Society at its meeting in the spring of 1946 appropriated $20,000 for the organization of Louisiana Physicians Service.

Early Cooperation with Blue Cross

At the outset Louisiana Physicians Service entered into an arrangement with two Blue Cross Plans and one non-Blue Cross Plan, operating in the upper part of the state, whereby these Plans would act as the selling agent and present our program of prepaid surgical, medical care to the public in conjunction with their hospital programs. Subsequently, the three hospital programs were consolidated into one and the Board of Directors of Louisiana Physicians Service entered into an agreement whereby this new hospital program would be the selling agent in the up-state area for Louisiana Physicians Service (Blue Shield).

Blue Shield-Blue Cross Controversy

By action of the House of Delegates of the Louisiana State Medical Society on May 7, 1951, the Board of Directors of Louisiana Physicians Service (Blue Shield) was instructed to terminate its working agreement with Blue Cross and to formulate and offer its own program of hospital care

to accompany its existing medical, surgical, obstetrical program. At the time that the House of Delegates ordered the dissolving of the working agreement, it was assumed that those persons responsible for the Blue Cross Plan would dissolve the working agreement in an amicable way, so as not to disturb the general public.

Instead, however, Blue Cross Plan in the up-state area of Louisiana indulged in many unethical practices and condoned many things not ethical to the operation of a prepaid health care program. A complete report of the practices indulged in by the up-state Blue Cross Plan was made in the September 1951 issue of the New Orleans Medical and Surgical Journal in an editorial, pages 123-126. Also, a supplemental report was contained in the same issue in the Organization Section.

No Relationship Between Blue Shield and Blue Cross

There is now NO relationship between Blue Shield and Blue Cross in Louisiana. Each is a separate program, offering competitive services.

Blue Shield Starts Anew

Louisiana Physicians Service (Blue Shield) as it now stands, is YOUR prepaid health care program, organized for the benefit of YOUR patients and provides for them a system whereby they can, either in a group or individually, budget for the cost of hospital, medical, surgical and obstetrical expense.

Doctors Govern Blue Shield—LPS

The Board of Directors of Louisiana Physicians Service is responsible for its management. The Board consists of eleven members, ten of whom are doctors, chosen from a panel, known as the Board of Trustees, which is appointed by the House of Delegates of the Louisiana State Medical Society at its annual meeting. From this Board of Trustees, the Board of Directors of Louisiana Physicians Service, selected one physician representing each of the eight Congressional Districts and including the President and President-elect of the Louisiana State Medical Society as ex-officio members of the Board of Directors. There is one layman on the Board at this time and he is the Executive Director.

LPS—Blue Shield—New Program

Louisiana Physicians Service—the Blue Shield Plan—now offers a hospital, medical, surgical program that, in our opinion, is the best available for the premium dollar charged.

More than 1,000 doctors throughout Louisiana have enrolled as participating physicians, and have voluntarily agreed to accept the LPS schedule of surgical fees for surgical services rendered to an LPS subscriber whose aggregate annual income, if married is $3,000.00 or less, and $2,000.00 or less on a single person.

We cannot stress too strongly that Louisiana Physicians Service (Blue Shield) is your plan. You should know how it operates. Most of all, you should recommend it to your patients.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY RAPIDES PARISH

The Rapides Parish Auxiliary entertained at a Christmas party at the Alexandria Golf and Country Club. Mrs. Noel Simmons, Mrs. Allen Winters, Mrs. N. M. Brian, Jr., Mrs. Henry Gahagan, Mrs. Clarence Pierson, and Mrs. Rodney Masterson were among those present at the meeting.

Mr. Don Ewing, Associate Editor of the Shreveport Times, spoke to the Medical Auxiliary on "Honesty Versus Legality in Government". Many members attended this interesting talk.

MARY REES VOORHIES,
State Publicity Chairman.

ORLEANS PARISH

The following is a complete list of the officers and committee chairmen of the Woman's Auxiliary to the Orleans Parish Medical Society for the year 1952.

President, Mrs. Louis Leggio; President-Elect, Mrs. Edwin Guidry; First Vice-President, Mrs. Howard Mahorner; Second Vice-President, Mrs. Rufus Alldredge; Third Vice-President, Mrs. Edward Nelson; Fourth Vice-President, Mrs. N. J. Tessitore; Recording Secretary, Mrs. Branch Aymond; Corresponding Secretary, Mrs. Charles R. Robinson; Publicity, Mrs. William H. Gillentine; Treasurer, Mrs. Robert Kelleher; Historian, Mrs. Philips J. Carter; Parliamentarian, Mrs. Lloyd Kuhn.

Chairmen of Standing Committees:

Commemorations, Mrs. John Sanders; Contact, Mrs. Anees Mogabgab; Conventions, Mrs. C. Grenes Cole; Entertainment, Mrs. W. J. Rein; American Heart, Mrs. Willard Wirth; Cancer, Mrs. Boni Delaurel; Red Cross, Mrs. George Taquino; Tuberculosis, Mrs. Richard Buck; Periodic Health, Mrs. Joseph J. Ciolina; Notifications, Mrs. Edward W. Nelson; Printing and Supplies, Mrs. George Feldner; Doctor's Day, Mrs. Mannie Mal-

lowitz; Publications AMA Bulletins, Mrs. N. J. Tessitore; Nurse Recruitment, Mrs. Nathan Polmer; Essay Contest, Mrs. Edwin Guidry; Public Relations, Mrs. Jules Myron Davidson; Revision, Mrs. Monte Meyer; Hostess, Mrs. Albert B. Pavy; Membership, Mrs. Howard Mahorner; Registration, Mrs. H. F. Brewster, Mrs. Carl Wahl; Clothes Collection, Mrs. Rufus Alldredge; Samples, Mrs. William Harris; Telephone, Mrs. Edwin Socola; Medical Culture, Mrs. Dan Silverman; Courtesy, Mrs. Blaise Salatich.

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BOOK REVIEWS

Integrated Practice of Medicine—Progress Volume; by Harold Thomas Hyman, M. D. Philadelphia, W. B. Saunders Co., 1950. pp 734. Price $10.00.

This book is a supplementary volume for *An Integrated Practice of Medicine.* It is intended to bring the original set up to date by summarizing the most recent therapeutic measures and clinical methods. Included in the book is material covering the use of ACTH (Anterior-pituitary-adrenohormone) adrenal cortical extract (cortine, cortisone, compound E) antebus, antibiotics, and anticoagulants.

The therapeutic management of practically all of the infectious diseases is included. These as well as many other clinical entities are outlined on the basis of general principles of diagnosis and therapy, the latter emphasizing the immediate care as well as degrees and types of continuing care that may be necessitated. The practical aspect of therapy is presented and emphasis is placed on all significant recent advances in therapy. An evaluation of the specific therapeutic agents is offered in all discussions and detailed data are offered concerning specific drugs from the aspect of dosage forms, package information and manufacturers.

There are numerous tables which consolidate types of material under consideration making the book a ready reference tool. The volume is in general a practical and well organized reference book on all the recent therapeutic advances and will be useful in all phases of medicine.

Joseph E. Schenthal, M. D.

The Physiology of the New Born Infant; by Clement A. Smith, M. D. 2nd ed. Springfield, Ill., Chas C. Thomas Co. 1951. 348 p. Price $7.50

The physiology of the new born infant is a detailed text that covers every function of the fetus and of the new born baby. In addition to the chapters on respiration, circulation, blood, icterus, digestive tract, and renal function, there are unusually good chapters on mineral metabolism, neonatal endocrinology, minerals, vitamins, and immunology. For the busy pediatrician who wants information without digesting the book, there are summaries at the end of each chapter.

This is a book that I feel sure all pediatricians will enjoy and benefit from as a reference.

Suzanne Schaefer, M. D.

Emotional Factors in Cardiovascular Disease: by Edward Weiss, M. D., Chas. C. Thomas, Springfield, Illinois, 1951. Pp 84. Price, $2.25.

Physicians often overlook the impact their words or mannerisms may have on the patient. This assumes special significance when providing the patient with information concerning his heart. Every physician privileged to use the stethescope is obligated to protect his patients from fears and neuroses arising from misunderstandings and poor presentation of facts. The patient is entitled to explanation and guidance in understanding his disease and overcoming emotional disturbances which either arise from or are the cause of his physical discomfort. In this monograph the author has provided a concise and simple aid to the physician and student with which to whet his awareness of the problems concerned with emotional factors in cardiovascular diseases and offers suggestions as to the manner in which they may be managed. Included are sections on "functional" heart disease, treatment, neurocirculatory asthenia, hypertension, hypotension, organic disease, and psychosis. Its brevity and readability are commendable and it may be properly recommended to the student and physician as a good refresher on an important subject to the patient as an individual rather than as a group of organ systems.

Sam A. Threefoot, M. D.

PUBLICATIONS RECEIVED

The Arundel Press, Inc., Washington: Penicillin Decade, by Lawrence Weld Smith, M. D., and Ann Dolan Walker, R. N.

Philosophical Library, New York: The Battle for Mental Health, by James Clark Moloney, M. D.

Charles C. Thomas, Publisher, Springfield, Ill.: The Skull and Brain, Roentgenologically Considered, by C. Wadsworth Schwartz, Ph.B., M.D., F.A.C.R., and Lois Cowan Collins, B. S., M. D.; Nutrition and Climatic Stress, by H. H. Mitchell and Marjorie Edman; Aphorisms of C. H. Mayo and William J. Mayo, collected by Fredrick A. Willius, M. D.; The Pathogenesis of Tuberculosis (2nd Edit.), by Arnold R. Rich, M. D.; Electrocardiographic Studies in Normal Infants and Children, by Robert F. Ziegler, M. D.; A Translation of Galen's Hygiene, by Robert Montraville Green, M. D.; Hypertension, a Manual for Patients with High Blood Pressure, by Irvine H. Page, M. D.

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THROMBOSIS AND EMBOLISM*

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It is doubtful that any surgeon in the United States today knows more about intravascular clotting, or has done more to prevent it and cure it, and publicize its dangers, than Arthur W. Allen. It seems appropriate, therefore, to begin this brief presentation on the subject with a few sentences which he recently wrote about this condition and with which, I believe, every thinking surpeon must be in complete agreement:

"Considering the effort expended in various clinics for the prevention and treatment of thrombosis and nonfatal pulmony embolism, one is at times somewhat doubtful of its comparative value. Statistically, it seems possible for the pathologist to show, quite clearly, that just as many deaths from pulmonary embolism occur now as were evident ten years ago. On the other hand, many clinicians can demonstrate with equal clarity that hundreds of patients are living, as a result of their efforts, who would have been dead from embolism if left untreated."

The experiences of my associates and myself bear out these facts and illustrate the paradoxical situation which now prevails in regard to thrombosis and embolism. We have been paying increasing attention to these postoperative complications over the past decade, and at first glance our reward seems to be a considerably increased incidence. In the period of six years and four months beginning in 1943, there were 47 instances of intravascular clotting in the 10,000 operations performed over the same period. This is, as usual, a fractional incidence. It is disconcerting, however, to find that while there were only 5 cases of thrombosis and embolism in 1945 there were 7 cases in the first four months of 1948. The explanation of the apparent paradox is simple: In our own hospital we are very much aware of the possibilities of intravascular clotting after operation. We have a very high index of suspicion. I think I can fairly say that we miss almost no cases at the present time, nor, indeed, have we missed any within the past two or three years. The incidence of intravascular clotting in 1948 was therefore no higher than it was in 1943. It is merely that our diagnostic acumen has improved along with our awareness of the condition.

It is also fair to say that as a result of our vigilance what Allen has pointed out as a generality is true of our own hospital; many patients are alive as a result of our efforts who would have died of embolism if we had not set ourselves to see to it that they did not die.

Allen also pointed out three valid reasons, in addition to improvement in diagnosis, why we are seeing more intravascular clotting today than we did ten years ago, and why the death rate from embolism remains high in spite of every effort to reduce it. The first is the fact that most patients now live long enough after operation to develop intravascular clotting, which is almost never evident before the fourth day and which usually appears later. Shock, infection, and pneumonia, which once took a heavy toll immediately after operation, are now not usual, and patients are living

*Read by invitation before the Louisiana Surgical Society at New Orleans, La.

on into the period in which intravascular clotting is a possibility. The second reason is that the percentage of aged surgical patients, who are more susceptible than young persons to this postoperative complication, is steadily increasing. Finally, the magnitude of surgical procedures has greatly increased, and with it the proportion of seriously ill patients submitted to surgery. It is small wonder, in view of these facts, that the incidence of thrombosis and embolism shows no downward trend at this time, and that the situation in respect to embolism remains very discouraging: In our own series 11 of 18 embolisms occurred without premonitory symptoms or signs, and 7 of the 11 patients died. We must do a good deal better than that.

ANALYSIS OF DATA

These 47 instances of thrombosis and embolism constitute only a small series, it is true, but the analysis of them is nonetheless worth while. It reveals, in epitome, the situation which exists in all hospitals in which surgery is done. (Table 1)

TABLE 1

In 47 instances of postoperative intravascular clotting
EMBOLISM DEVELOPED
in 4 of 25 patients with thrombophlebitis
AND 3 of 11 patients with phlebothrombosis
WHILE in 11 patients it developed without warning
AND 7 of the 11 DIED

The first fact which emerges from this analysis is that while intravascular clotting may occur in younger persons, as the inclusion of a 17 year old boy in this series clearly shows, in its most dangerous aspects, that is, its embolic aspects, it is a disease of later life. Its dangers, moreover, increase with age. There were 27 patients in the series under 40 years of age, of whom 5 developed embolisms, 1 of which was fatal. There were 20 patients over 40 years of age, of whom 13 developed embolisms, 6 of which were fatal. Every one of the 7 patients who was 60 years of age or over developed an embolism, either abruptly or following clinically evident phlebothrombosis or thrombophlebitis, and 5 of the 7 died.

TABLE 2

Of 27 patients under 40 years of age
5 developed embolisms
AND 1 DIED
Of 20 patients over 40 years of age
13 developed embolisms
AND 6 DIED
All 7 patients over 60 years of age developed embolisms
AND 5 of the 7 DIED

The second fact which emerges from an analysis of this small series is that certain operations are far more likely to be followed by intravascular clotting than are others. Thus 16 of the 47 vascular complications occurred after hysterectomy, 12 occurred after other intra-abdominal pelvic operations, and 5 occurred after plastic procedures on the perineum. In other words, 33 of the 47 cases of thrombosis and embolism which occurred in the Vicksburg Hospital over a six and one-third year period followed pelvic operations. (Table 3)

TABLE 3

Of 47 postoperative vascular complications
16 followed hysterectomy
12 followed other intra-abdominal pelvic operations and
5 followed plastic operations on the perineum
While 5 of the 7 who died were operated upon for malignant disease.

Intravascular clotting also has a tendency to occur in association with malignant disease. Statisticians might not be impressed by the figures because from their standpoint they are too small to be significant, but no clinician could fail to be impressed by the fact that 5 of the 7 fatalities in this small series occurred after operations for carcinoma, 2 of the uterus, 2 of the stomach, and 1 of the breast. On the other hand, there can be no absolute security after any operation, even those in the upper part of the body in which intravascular clotting is admittedly less frequent. The remaining vascular complications in this series followed operations on the biliary tract, resections of the stomach or large bowel, herniorrhaphy, the application of a pedicle graft

to a varicose ulcer, internal fixation of a fracture, repair of an extensive laceration of the thigh, and an operation for osteomyelitis. The prolonged bed rest necessary in the last three operations mentioned is too well known a predisposing factor in intravascular clotting to need emphasis.

Another point in this series which is worth emphasizing is that the proportion of thrombophlebitis was considerably higher (25 cases) than the proportion of clinically evident phlebothrombosis (11 cases). In the remaining 11 cases, all of embolism with abrupt onset, phlebothrombosis was presumably present but was not clinically evident, even to the suspicious eyes of our staff. I am, myself, much impressed with the fact, which is not usually stressed, that embolism may occur after thrombophlebitis, as it did 4 times in this series, and that it may also be fatal, though that, fortunately, did not happen in this series.

CLINICAL DIAGNOSIS

The diagnosis of intravascular clotting is seldom a difficult matter, if one constantly anticipates its occurrence, except in the group of patients whom embolism strikes down like a bolt from the blue. That may be a cliché, but I know no better description of the disaster. In all other cases clinical evidence is usually all that is necessary. Roentgenograms of the chest were made in only 7 cases in this series and were positive in only 3. That is what would be expected: With a single exception, they were made only in nonfatal cases, none of which was very severe because of the promptness with which treatment was instituted. The majority of patients with fatal embolism died too promptly—4 of them within thirty to thirty-five minutes of the onset of symptoms—to permit roentgenograms of the chest even if they had been necessary. The same reasoning holds for electrocardiograms, which were positive in only 2 of the 4 cases in which they were made. Phlebography was not employed in any case. Our previous experience with it has convinced us that it is not necessary and that it can be misleading.

THERAPY

Since the middle of 1944 it has been the general policy at the Vicksburg Clinic to treat intravascular clotting with dicoumarol, regardless of what other methods are used also. Exclusive of the 7 fatal cases of embolism, in practically all of which death occurred too promptly to permit definitive treatment, 33 of the 37 patients who developed vascular complications after operation received dicoumarol as the basic therapy. Eight of the 33 were also submitted to venous ligation, and 8 were treated by paravertebral block (in 1 instance repeated 6 times). One patient was treated by all three measures.

Before passing on to anticoagulant therapy, let me briefly state our position in regard to venous interruption. Our failure to use it widely by no means indicates that we do not regard it as of great value. But it just so happens, as already mentioned, most of our patients who lost their lives from embolism had the massive variety, in which death occurred almost immediately. The patients not in this unfortunate category have responded well to anticoagulant therapy. If for any reason this type of treatment is contraindicated—as it is (1) after operations on the brain or spinal cord, (2) in the presence of a blood dyscrasia, a bleeding tendency, or liver damage, (3) in pregnancy near term, and (4) when a second surgical procedure is necessary within two weeks of the first—in all of these circumstances we regard venous interruption as the method of choice. In certain cases we would also regard division of the vein, with removal of the proximal clot and venous ligation, as the superior mode of treatment. It is undoubtedly true that dicoumarol will not dissolve a clot that has once formed, but our experience has been that when anticoagulant therapy has been adequately established, propagation of the clot is unlikely. For these and other reasons, venous ligation, which we used routinely prior to 1944, we are now using less and less frequently.

Embolectomy needs no extended discussion. We regard it as a clinically imprac-

tical procedure. Our own experience corroborates that of others, that patients who develop embolism abruptly seldom live long enough to permit embolectomy, even if they could tolerate it.

We follow a standard routine for dicoumarol therapy. In all but the occasional case the first injection is in the amount of 200 mg. and is given as soon as intravascular clotting is diagnosed or suspected. Thereafter, treatment is given or withheld daily according to the lexel of prothrombin activity. We attempt to hold the level at 12 to 35 per cent of normal activity and therefore administer dicoumarol in appropriate dosage on any day on which the level of 35 per cent is exceeded. If on any day the level of prothrombin activity falls to less than 10 per cent of normal, we administer hykinone intravenously, in dosage of 30 to 60 mg.

Other observers are somewhat more radical in their concept of the lower limits of safety but we regard their position as unnecessarily dangerous. In our own series, with all our precautions, frank bleeding occurred in 2 instances. Both patients, curiously, had been submitted to vaginal hysterectomy. One patient, who had been given dicoumarol prophylactically, began to bleed on the sixth day of treatment, when her prothrombin time was 46 seconds. She responded promptly to the withdrawal of the drug, the administration of hykinone, and transfusion, but 58 days later she presented clinical and roentgenologic evidence of a pulmonary embolism, which cleared up promptly under appropriate therapy. The other patient developed phlebothrombosis on the third postoperative day and began to bleed on the sixth day of treatment, when her prothrombin time was 35 seconds, and after she had received a total of 700 mg. of dicoumarol. She also responded promptly to the measures employed in the first case.

For reasons of economy we did not for a time employ heparin at the Lutheran Hospital, but we have come to believe that in spite of this very realistic objection to its use, it is probably wise to administer it immediately after operation in cases in which intravascular clotting is a possibility and to continue it until dicoumarol can be substituted and the prothrombin activity has fallen to the desired level and that policy is now practiced.

PROPHYLAXIS

As the cases of intravascular clotting in this small series make perfectly clear, the surgeon who seeks to prevent intravascular clotting after operation and to identify it as soon as it occurs must devote his attention particularly to certain groups of his patients: Those in middle life and older; those submitted to certain operations, specifically women submitted to hysterectomy and other pelvic procedures, and all patients submitted to surgery below the level of the chest; patients who are obese, who suffer from cardiac disease, or blood dyscrasias or infections, or who have been submitted to extensive resections of tissue; patients who for one reason or another cannot follow the modern practice of early ambulation. No matter what the operation may be, all patients need to be watched for the development of thrombosis and embolism, but those in the groups just mentioned demand unremitting attention. They provide the majority of cases of embolism and the bulk of the fatalities from embolism is concentrated in them.

It is, of course, well worth while to watch the patient's temperature, pulse, and respiration for unexplained elevations, particularly simultaneous elevations, but our experience is that the phenomena are not the valuable warning signs which some observers, chiefly Allen and his group, believe them to be. The reason is that they so seldom occur, at least in this part of the country. They were not present simultaneously in any case in our series, and Ochsner and DeBakey noted their entire absence in 12 of 25 fatal instances of embolism which they collected from the New Orleans Charity Hospital, while in 5 other cases the only change, and that was slight, was in the pulse rate. Our own experience is that the temperature is elevated, though not markedly in a fair number of cases before intravascular clotting becomes evident, that the temperature and pulse are elevated simultaneously, though seldom markedly, in

a small number of cases, and that the respiration is seldom affected at all. To us the most reliable method of anticipating trouble is careful palpation of the legs and feet, not only daily but several times daily, in an endeavor to demonstrate the slightest evidence of Homan's sign.

Certain general measures of prophylaxis are applicable to all cases: Elevation of the foot of the bed; movement about the bed as soon as the patient regains consciousness after operation, and graded ambulation as soon afterwards as is practical; active and passive leg exercise; compression bandages applied from toes to groin when varicose veins are present. The avoidance of tight binders; the use of the Miller-Abbott tube or Wangensteen constant suction to prevent distention; the free use of oxygen.

All of these measures, as Allen emphasizes, can be carried out by any surgeon anywhere. They need no special facilities and they ought to be employed routinely when contraindications do not exist. But these measures cannot be employed at all, or cannot be employed to their fullest extent, by patients who are too old and senile, patients with advanced malignancy, and patients who are too ill to be troubled by the various maneuvers suggested. These patients must be treated by other measures, as must patients in whom the chances of intravascular clotting are especially great.

Of the value of prophylaxis there is no doubt. Our own small series may not prove much statistically, but Allen's large comparative series do. He performed prophylactic ligation of the superficial femoral vein in 950 patients, selected because of their age, the predisposing circumstances, or the necessity of prolonged bed rest following operation. Forty deaths were to be expected from intravascular clotting in this group; four occurred.

In 647 other patients, all between the ages of 40 and 60, Allen and his group practiced prophylaxis by the administration of dicoumarol within forty-eight hours of operation, with additional treatment if there was not a prompt depression of the prothrombin activity. There were no deaths at all from pulmonary embolism in this group, and the incidence of thrombosis was 80 per cent less than the expectancy. Two patients died of hemorrhage, it is true, but both would probably have died anyway, and it is doubtful that the patient who died of subarachnoid hemorrhage fourteen hours after receiving dicoumarol was in any way affected by the treatment.

We have not yet put the policy of prophylactic dicoumarolization after operation fully into effect and this report therefore does not reflect any consistent usage. But we are coming more and more to believe that it is the part of wisdom to institute dicoumarol therapy on or about the fifth postoperative day, no matter how smooth the convalescence, in all patients who present the combination of circumstances which are known to predispose to intravascular clotting.

We do not advise, or subscribe to, the idea of routine administration of dicoumarol to all patients after operation, for a number of reasons: The general incidence of intravascular clotting is small, and the incidence under 40 years of age considerably smaller. The hemorrhagic complications which might ensue would probably cause more deaths than intravascular clotting now causes. Finally, the burden which would be placed upon laboratories and upon physicians and nurses by this policy would be intolerable. Even by the limited prophylactic method which we are now using the burden is heavy. It must, however, be assumed. The patient who is receiving dicoumarol must be watched constantly and prothrombin activity tests must be run daily. There are scarcely enough skilled laboratory technicians available to support the limited application of prophylaxis now rather generally employed, and, as Allen points out, a week-end when laboratories are closed altogether could easily be disastrous.

Let me briefly mention, in conclusion, the perhaps promising investigations by Kay and his associates at the Tulane University School of Medicine. Their studies indicate that thrombosis is likely to occur in the

postoperative period whenever the plasma antithrombin level is abnormally now at the same time that the prothrombin conversion rate is at, or near, normal. This is a very useful lead, but, as these observers properly point out, the routine performance of these tests, which would be necessary every day for at least five days in all patients submitted to major surgery, would place on hospital laboratories a burden out of all proportion to benefits, in view of the small number likely to develop intravascular clotting. The second part of their investigation is more hopeful because it is more realistic. Their investigations suggest that the addition of alpha tocopherol by mouth together with calcium gluconate by vein to all postoperative routines may eventually prove to be the means of preventing, without the need for any laboratory tests at all, the development of this potentially fatal complication of surgery.

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THE PRESENT STATUS OF MILITARY PSYCHIATRY*

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In any war psychiatric casualties will inevitably result. The present fighting in Korea is no exception.

In World War I, the tremendous manpower drain due to neuropsychiatric casualties emphasized the magnitude of the problem. Because of its importance many of the foremost psychiatrists of that time recognized the problem, worked out the solution and evolved a set of principles for the care and treatment of the psychiatric problems caused by combat. Their findings, their conclusions, and their recommendations were carefully written up and published as Volume X of the Medical History of World War I. These books were then placed on shelves and were forgotten and the lessons inscribed were not appreciated or were ignored, both by civilian and military neuropsychiatry.

When World War II came along with the mobilization of some 14,000,000 men some recognition that the problem existed was given, in that provision was made at the induction centers for screening inductees, with the idea that by such screening the occurrence of psychiatric disabilities would be almost eliminated and if not entirely eliminated the incidence would be greatly decreased. It was true that the time provided for psychiatric screening was short and inadequate as compared to the time required for an ordinary routine evaluation of personality disturbances. Several studies had been made in various places for determining selection criteria with very inconclusive results. Yet, notwithstanding the inadequate type of screening measures employed, 1,850,000 (12 per cent of all examined and 38 per cent of all rejections) men were rejected at induction stations for neuropsychiatric disorders. This huge number of rejections again emphasized the very high incidence of psychiatric disorders in our national manpower pool.

The problem was again emphasized when in 1942-1943, during the north African Campaign, the high command became increasingly alarmed by the impairment of effectiveness of combat units by the large numbers of combat reaction cases which were evacuated to the rear and thus became lost to the combat units. This fact was coupled with the sudden realization that discharges from the service were approximately equal to the number of men being inducted into the service. Other figures given in Dr. W. C. Menninger's book *Psychiatry in a Troubled World* indicated that out of 8,000,000 men hospitalized for all causes in World War II 1,000,000 were hospitalized for neuropsychiatric conditions and some 345,000, or 40 per cent of all discharges for mental and physical defects were neuropsychiatric in origin. Up until this time no definite organized plan for the prevention and treatment of neuropsychiatric casualties had existed in our armed

*Presented at meeting of the New Orleans Society of Neurology and Psychiatry, at New Orleans, La., October 18, 1951.

†Chief of Neuropsychiatric Service, Brooke Army Hospital, and Director of Department of Psychiatry, Army Medical Field Service School, Fort Sam Houston, San Antonio, Texas.

forces. There had been a number of psychiatrists assigned to the various armies but not in sufficient numbers to provide a psychiatrist for each division. No plan existed to prevent neuropsychiatric disorders and there was no provision made for any special treatment and evacuation procedures for neuropsychiatric cases. It became apparent that something must be done immediately. Prior to this time neuropsychiatric casualties were returned to the rear areas for treatment and only 5 per cent returned to combat duty. In 1943, Hansen and Tureen in the 5th Army, with the cooperation of the Army Surgeon, demonstrated that treatment in the forward areas in the combat zone resulted in a return of 70 per cent of neuropsychiatric casualties to combat duty. In October, 1943, the War Department authorized the assignment of a psychiatrist to the staff of each Division Surgeon and psychiatric treatment at the Division level was instituted in World War II. This had previously been done in World War I with a return of some 50 to 60 per cent to combat duty.

During the period October, 1943, to the end of the War many studies of the actions of men in combat were made. Brigadier General E. D. Cooke, as an Inspector General, published his book *All But Me and Thee.* Glass, Grinker, Ranson, Ludwig, Menninger, Spiegel and Hanson made studies of the conditions which evoked the combat reactions, proper methods of treatment and the results of treatment.

Many of the results of these various investigations have been published as a symposium on Combat Psychiatry in a supplemental number of the Bulletin of the U. S. Army Medical Department, November, 1949.

These studies have definitely indicated that the incidence of the war neuroses or combat exhaustion cases is directly proportional to the occurrence of battle casualties. They point out that there are normally many uncomfortable and unpleasant emotional reactions in the normal soldier in combat. That the war neuroses or combat reactions in the beginning are of many varieties of great acuity; that in the majority of cases they respond well to treatment in the forward combat areas; that up to 75 or 80 per cent of all psychiatric combat casualties can be returned to duty; that another 10 per cent will return to noncombat duty and that eventually only about 10 per cent will have to be evacuated from the theater. This occurred only with the establishment of sound administrational and organizational policies which, in brief, can be stated as follows: They provided for treatment as far forward as possible. A single channel for the evacuation of combat neuropsychiatric casualties was set up which insured centralized and positive control of screening, treatment and evacuation. Emphasis was placed on preservation of medical discipline, shortening of the period of hospitalization, avoidance of unnecessary hospital atmosphere and instilling in the patient the expectation of return to full duty.

Psychodynamically, the organization and administration strove toward (a) the preservation of the patient's identification with the combat group, (b) immunization of the secondary gain of neurotic illness, and (c) avoidance of suggestion of illness and disability.

In general it may be said that the treatment of psychiatric casualties followed these procedures, as follows:

(a) Psychiatric first aid from members of their own unit;

(b) If evacuated from unit, they first reached medical channels in the Battalion Aid Station where simple but often definitive treatment was given. A high percentage of patients returned to duty at this point.

(c) If further evacuated they were next seen at the Division Clearing Station where treatment was given by the Division Psychiatrist. Here 20 to 40 per cent of all psychiatric casualties were returned to full duty.

(d) Patients who required more treatment than could be given at the Division Clearing Station and who were not considered salvageable for combat duty in the division within the time limit established

were evacuated to the Army Neuropsychiatric Treatment Station.

(e) Here they came under the control of the Army surgeon for up to five to seven days. Ten to 20 per cent of all patients were returned to full combat duty from this level (T. C. 6, April 7, 1950).

TREATMENT WITHIN THE COMBAT UNIT

This treatment was of great importance and consisted of indoctrination of company officers in proper management of psychiatric complaints in order that they could properly evaluate minor psychiatric conditions and prevent their evacuation. This could be accomplished by exhortation and leadership, reassurance, and by changes of job assignment in some cases.

TREATMENT AT BATTALION AID STATION LEVEL

Mild to moderate anxiety states complicated by physical exhaustion and the effects of exposure comprised the major portion of psychiatric patients at this level. They were cold, wet, dirty and physically exhausted. Here they were given dry clothes, sedated, warmed, given a good meal and a night's rest. Adequate sedation, 0.36 to 0.55 grains sodium amytal, is a prime requisite of treatment at this level. Usually twenty-four hours psychotherapy at this level, if indicated, must of necessity be brief and superficial. Calm, confidence, firmness, and understanding in the battalion surgeon indicated he expected an early return to duty after the soldier had rested.

At this point it may be well to mention the normal fear reactions found in combat. These consisted of palpitation, nausea, tremulousness, and other somatic manifestations and were most often found in replacements or men returning to duty after hospitalization. They were sincere but were alarmed and they interpreted their symptoms as those of cardiac, gastrointestinal, or other physical conditions. A careful examination with reference to the appropriate system was given, the patient reassured and the cause of his symptoms explained to him.

Other conditions encountered were: Mild to moderate anxiety reactions (severe agitation and tension) acute panic states, severe hysterical manifestations, and acute psychoses. These were evacuated to the Division Clearing Station under adequate sedation to protect them from further trauma.

Two other types of cases should be mentioned in which a mandatory return to duty was indicated. These were the simple malingerers or "gold bricks" and those who grossly exaggerate minor complaints.

TREATMENT AT THE DIVISION CLEARING STATION AND ARMY NEUROPSYCHIATRIC TREATMENT STATION LEVEL

At these two levels treatment is somewhat interchangeable except that treatment facilities were more elaborate at the Army level and a higher per cent of patients were given definitive treatment at the Army level.

The treatment given at these installations may be considered under the following headings:

1. Treatment for fatigue and exposure.
2. Alleviation of deprivations.

Change of clothing, shaved with hot water, hot showers, etc.

Recreation equipment, reading and writing materials, cigarettes, candy and personal items were available, as were Red Cross services and those of chaplain.

3. Psychotherapy.

a. Patient given chance to talk and to feel that he had been given a fair hearing.

b. Careful examination with reference to physical complaints but no leading questions were asked and a realistic, firm, respectful, decisive attitude on the part of the therapist was maintained.

c. Ventilation frequently resulted in marked decrease of tension.

d. Support of superego was given by appeal to soldier's loyalty and sense of duty to his own combat unit.

e. Suggestion was frequently used both negative and positive. Any suggestion of illness was avoided by avoiding hospital atmosphere—expectation of return to duty was fostered and patients remained ambulatory.

4. Uncovering therapy was used by

a. Interview therapy with abreaction

b. Intravenous barbiturates and hypno-

sis. These were contraindicated in severe anxiety states with panic and confusion, the so-called pseudopsychoses.

5. Reassurance was given as to absence of any physical basis for their complaints.

6. Explanation of causes of symptoms was given in many cases.

7. Manipulation of secondary gain was performed by informing patient of decision to return to duty and this was not subject to reversal.

Some delay in return to duty until certain symptoms cleared. Inform patient of possible change in status due to hospitalization and entry into replacement stream (return to duty in some strange unit).

8. Sedation—see above.

9. Restore orientation (pseudopsychotic states. Assign orderly to help regain contact).

10. Work therapy — Primarily useful work—not crafts.

11. Manipulation of environment. Not easy.

12. Manipulation of group mechanisms —some group therapy was done but it was not well organized.

All the above combined treatment measures in the 7th Army in the period January 1 to May 24, 1945, resulted in 53 per cent of all neuropsychiatric casualties being returned to duty at the Division level and 43 per cent at the Army level, with a combined percentage of 63 per cent returning to combat duty within the Army Area.

TREATMENT IN THE COMMUNICATION ZONE

Patients reaching the rear at this point were kept under treatment in specialized installations for a variable period of time within the limits of the evacuation policy of the theater. At this level not many patients could be expected to return to combat duty as these consisted of the more severe and more firmly fixed psychiatric conditions. Even at this level another 15 to 20 per cent of all patients were returned to some type of noncombat duty.

From the communications zone then only about 10 to 15 per cent of combat casualties were finally evacuated to the Zone of the Interior. In the Zone of the Interior the usual definitive type of treatment was given in special or general hospitals until maximum benefit of hospitalization was obtained. Some few were returned to duty but the majority were separated from the service and returned to civilian life.

You may ask what have we to expect from screening at the induction stations in any future total mobilization. As previously pointed out about 39 per cent of all rejections at this level in World War II were for psychiatric reasons. Studies undertaken since the end of the war indicate that even this type of screening eliminated many who could probably have rendered adequate and valuable service. Even though many were accepted who later had to be discharged, many other individuals with some form of neurotic behavior performed adequately and sometimes brilliantly throughout the war. It was also demonstrated that many soldiers who became combat casualties if treated and handled properly had as great an expectation of adequate performance as before. It would, therefore, seem that induction screening procedures should take into consideration the severity, chronicity and repetitive patterns of behavior in the individual who shows manifest evidence of nervous disorder or poor adjustment problems.

In the severe, long established repetitive type of mental disorder the individual should be rejected.

Of those who suffer from moderate occasional neurotic illnesses all should probably be accepted, although it can be anticipated that some 30 per cent or more of these will later require separation. No accurate means of predicting which ones will soonest break have as yet been devised.

Of the remaining individuals who show only neurotic predisposition and who have made an adequate civilian adjustment all should be accepted and it can be expected that they will finally turn up only about the same casualty rates as the ordinary well adjusted individual.

In the Korean situation no over-all figures are available as to total numbers of psychiatric casualties. Reports indicate that the same rate of incidence as occurred

in World War I and II has occurred in Korea. That is roughly 1 of every 4 or 5 casualties reaching the Battalion Aid Stations is psychiatric.

However, the principles of handling screening and treatment of combat casualties as described above has resulted in a return to duty in Korea and Japan of approximately 85 per cent or more. Approximately only 10 to 15 per cent are returned to the United States. Here in the States, according to our experience at Brooke Army Hospital, it may be expected that 80 to 90 per cent of these patients will return to some form of noncombat duty.

It must be remembered that in Korea the time in combat has been of relatively short duration as compared with World War II. There has been until recently no heavy artillery fire on our troops and we have not been subjected to heavy bombing. As these factors increase we may expect some increase in total casualties or probably a considerable increase in the severity of combat reactions so that there may well be a decrease in the percentages returned to duty.

PROCUREMENT OF PSYCHIATRISTS

The requirements of the psychiatric program in the Armed Forces are being met in several ways: (1) The Military Residency training program has begun to furnish considerable numbers of well trained young psychiatrists. (2) Many Reserve Officers and physicians who secured all or part of their medical training at Government expense are subject to involuntary recall. (3) A very intensive, practical four months' course in neuropsychiatry is given at the Medical Field Service Schools which qualifies the graduates to perform highly satisfactory work under supervision. The quality of this course is evidenced by the fact that the American Board of Psychiatry and Neurology gives full Residency credit for the time spent in the course. It also provides that during the officer's tour of duty he will be assigned to the practice of psychiatry.

PREVENTIVE PSYCHIATRY

Time does not permit a full discussion of this subject; however, in the Army, psychiatric consultation services are provided in all large training camps. A psychiatric service is provided in all Disciplinary Barracks for purpose of treatment and rehabilitation. The principles of psychiatric orientation and combat psychiatry are included in the curricula of all service schools, showing recognition of the importance of psychiatry in military thinking.

The Neuropsychiatry Consultants Division has established in the Army Research and Graduate School at Walter Reed Army Medical Center a Research Division which will coordinate and correlate the Research and Investigative activities in the clinical facilities of the Army Medical Services.

SUMMARY

In this short period of time I have attempted to give you some idea of the background of Combat Psychiatry.

The principles and methods of treatment of combat casualties have been described. The present status of procurement has been mentioned and finally the Army's interest and concern with preventive psychiatry has been pointed out.

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"SPELLS": THE CAUSES AND DIAGNOSIS OF A COMMON COMPLAINT

IAN STEVENSON, M. D.

NEW ORLEANS

The complaint of "spells" of loss of consciousness, with or without various muscular movements, is one of the commonest encountered in the practice of medicine. Because the attacks are episodic and usually of brief duration, the physician rarely has a chance to observe them directly. Unfortunately, no importance can be attached to the terms used by patients to refer to their episodes of loss of consciousness, e.g. "spells", "black-outs", "seizures", "faints" and "passing out". Patients may use any of these terms or others to refer to any of a number of superficially similar, but fundamentally different conditions. Moreover, in most instances, physical examination of the patient is quite unhelpful in the differential diagnosis of transient loss of con-

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sciousness. These difficulties undoubtedly explain our observation (in the clinics of Charity Hospital at New Orleans) that a considerable number of patients have been treated for one cause of loss of consciousness when in fact they were suffering from some other condition. Nevertheless some of these errors might have been avoided since the various causes of episodic loss of consciousness may be differentiated with accuracy by the history alone in nearly every case. It is the purpose of this article to review briefly the salient distinguishing features of the commonest causes of episodic loss of consciousness.

Although episodic loss of consciousness may occur from a large number of causes, many of these are rare and the great majority of instances arise from one of four conditions, namely epilepsy, hysteria, vasodepressor syncope, and hyperventilation. In these conditions the physical examination in between attacks contributes little or nothing of relevance to the diagnosis. In most of the other, rarer causes of transient loss of consciousness, the physical examination or simple physical tests reveal some single feature of diagnostic importance. For example, in patients with Stokes-Adams attacks or fainting with aortic stenosis, a clue will be found in the examination of the heart. In carotid sinus syncope (which is actually a rather rare type of episodic loss of consciousness) the attacks are related to pressure on the neck from changes in the position of the neck or from tight collars.[1, 2] Moreover, the attacks may be reproduced by pressure over the carotid sinus. In chronic orthostatic hypotension the blood pressure falls in the erect position independently of emotional stimuli.[3] The absence of such physical signs, therefore, makes it all the more probable that the patient suffers from one of the four chief causes of episodic loss of consciousness mentioned above. Such an absence of physical signs also makes important an accurate and detailed description of the attacks, including all events before, during, and after the loss of consciousness on several different occasions. Whenever possible the patient's account should be supplemented by the descriptions of another reliable observer.

EPILEPSY

The salient features of epilepsy are so well known that only those points of importance in differential diagnosis will be mentioned here. These features are also given in tabular form in Table 1 where are listed also the important distinguishing characteristics of the three other major causes of episodic loss of consciousness. Each of the three principal types of epilepsy, grand mal, petit mal, and psychomotor, may be confused with one or more of the other three conditions mentioned.

In grand mal epilepsy the prodromal symptoms of the attack are brief and consciousness is lost rapidly. The patient falls to the ground where he stands and may injure himself. There follow strong tonic and then clonic contractions of all muscles. The contractions are usually symmetrical and occur in all the limbs, and in the muscles of the head. The tongue may be bitten and the patient may urinate or defecate. After some seconds of these clonic movements the patient lapses into a state of muscular flaccidity during which loss of consciousness continues for several more minutes. When consciousness finally returns the patient is usually confused and may be disorientated. He may complain of headache for an hour or more and frequently feels drowsy and sleeps for several hours.

In petit mal epilepsy loss of consciousness lasts only a few seconds. In some patients only the stream of talk or thought is interrupted, but others may fall to the ground or lose control over some object held in the hand. The distinguishing features are the sudden onset and the brevity of the attack and the rapid return to full consciousness and motor control.

In psychomotor epilepsy the patient does or says something which is inappropriate to the situation. Althought the act itself, such as undressing, may be performed flawlessly it has an automatic quality and the patient in doing it appears abstracted and is quite unresponsive to the presence or remarks of those around him. As in other forms of epilepsy the onset is sudden. In

TABLE 1

PRINCIPAL DIAGNOSTIC FEATURES OF FOUR COMMONEST CAUSES OF EPISODIC LOSS OF CONSCIOUSNESS

	Epilepsy (Grand Mal)	Hysteria	Vasodepressor Syncope	Hyperventilation
Onset.	Rapid	Gradual	Rather rapid	Gradual, preceded by dizziness.
Fall to Ground.	Sudden	Gradual	Rather sudden	Gradual
Injury to self.	Frequent	Rare	May occur	Rare
Loss of consciousness.	Complete	Complete or partial. Often somewhat responsive to stimuli.	Complete, but brief. Restored upon becoming recumbent.	Usually partial and brief.
Muscular movements.	Symmetrical and rhythmical.	Irregular. Symbolically expressive or purposeful.	Absent.	May be some spasms or twitchings.
Duration of unconsciousness.	About 5 minutes	Often 5, 10 or more minutes.	Usually 1 or 2 minutes only.	Usually 2 or 3 minutes or less.
Setting	May occur at any time, including sleep.	Only in presence of other people.	Chiefly in presence of real or imagined danger to body.	Any anxiety-producing situation.
Recovery	Gradual and with period of confusion and drowsiness.	Complete at once.	Usually complete at once.	Gradual after hyperventilation ceases.
Neurological changes.	Some changes, e.g. Babinski, usually present.	Nearly always absent.	Absent	Absent except for any signs of tetany present.
Cardiovascular and respiratory changes.	Absent except secondary to convulsive movements. Cyanosis from apnea.	Absent	Blood pressure falls, heart may slow before faint. Pallor and sweating of skin.	Tachypnea. Tachycardia. Some fall in B. P.

this form of epilepsy the recovery of consciousness and of self-control may also be sudden and the patient amnestic for his recent behaviour.

The electroencephalogram is helpful in the diagnosis of epilepsy and in delineating the different forms of epilepsy from each other. However, electroencephalography is not always available. Moreover, it does not provide conclusive evidence but only further information which must be interpreted in relation to the other data. Between 10 and 15 per cent of normal individuals have abnormal electroencephalograms. Of known epileptics, definite abnormalities in the electroencephalogram are present in only 50 or 60 per cent.

Epilepsy is a psychosomatic disease in the sense that psychological events may be influential in precipitating the attacks. The epileptic attack seems in many patients to represent a discharge of psychic tensions which cannot otherwise be released.[4] Many epileptics become irritable and tense after a long period without a convulsion. Studies of some epileptic patients have shown other biological meanings of the epileptic seizure. Thus, in one patient the convulsion seemed to protect him from assaultive, murderous activity by discharging his rage in an unorganized manner.[5] In other patients, the seizure, by bringing on unconsciousness may prevent unacceptable impulses (such as sexual impulses) from reaching consciousness.[6]

Many patients with epileptic attacks also have hysterical convulsions so that now one and now the other mechanism may account for the "spells" of one patient. The diag-

nosis of one condition by no means excludes the other.

HYSTERIA

Hysteria is the symbolic expression of an impulse or wish which is unacceptable to the subject and therefore cannot be expressed directly. The oblique expression of the emotional content is mediated through the voluntary neuromuscular or sensory system.[7] We are concerned here only with hysterical fainting and convulsions.

In hysteria, the loss of consciousness is usually rather slow in contrast to the abruptness found in epilepsy and vasodepressor syncope. The patient has time to break his fall to the ground and sometimes may even find a bed on which to fall. He may lie quietly and immobile on the ground or may exhibit various tonic and clonic muscular contractions. If there are no movements then the attack must be distinguished from vasodepressor syncope, but in the latter consciousness is restored rapidly when the patient becomes recumbent whereas hysterical fainting may be continued for many minutes. If there are muscular movements they lack the symmetrical and rhythmical character of those in epilepsy. They often strikingly betray the particular unacceptable impulse which finds expression in the hysterical seizure. The arm movements of one female patient seemed to be irregular and haphazard in direction, but the result of their activity was a gradual disrobing and exposure of the patient. Another patient showed movements of the legs and pelvis which were closely similar to coital movements. Another rushed towards her husband as if to strike him before she fell to the ground unconscious. She never rushed in this manner towards any other member of the family during her "spells". Still another patient in falling to the floor knocked over a table loaded with lunch trays although this would not have occurred if he had lost consciousness instantly and fallen where he sat. When on the floor he lay immobile, partially curled up on his side. When any one approached or touched him he moved his legs in violent contractions which closely resembled kicks and had to be similarly avoided.

Sometimes patients in hysterical attacks re-enact some particularly traumatic event. One patient had choking spells in which she showed in a most extraordinary way all the appearances of being throttled. Her eyes bulged, her lips became cyanotic and she struggled for breath as if she were indeed being choked. During the episode she remained quite unresponsive to other stimuli. She had apparently been threatened with such choking by a man whose sexual advances she refused.

The patient does not usually hurt himself during an hysterical convulsion, although he may hurt others. He does not bite his tongue or (with rare exceptions) urinate or defecate. Consciousness may be completely lost or only partially. It is important to question the patient and other informants about this carefully. The patient with hysteria usually says he "remembers nothing" or "was completely out". However detailed questioning often reveals that he could hear the voices of his relatives who were agitatedly running around trying to bring him out of the attack. Or he may remember that he was slapped or that water was thrown in his face. The convulsive movements (as in the patient mentioned above) may be increased or altered when the patient is approached or handled. All this is in contrast to epilepsy in which consciousness is completely lost and the patient unresponsive to all stimuli.

Hysterical fainting and convulsions invariably occur in the presence of other persons; whereas epileptic seizures may come on at any time and as often when the patient is alone as when he is with others. The occurrence of attacks at night when the patient is sleeping is strongly indicative of epilepsy.

Hysterical fainting and convulsions are usually of longer duration than epileptic convulsions. The latter run a rather well-defined course within a few minutes at most, but hysterical fainting or convulsions may last for considerably longer. When hysterical fainting or convulsions cease, the patient recovers consciousness and alertness completely. In fact, he often astonishes his family by going about his

business as if nothing had happened. Rarely in hysteria there may be some psychic disturbance for a time following the period of unconsciousness. Thus one patient had a hysterical faint with irregular convulsive movements which was precipitated by a discussion of her troubled relations with her husband. When she emerged from the state of unconsciousness (during which she was quite unresponsive) she described a most vivid hallucination of a female figure who always appeared smiling before her when she was in trouble. However, such psychic states are rather rare and the hysterical faint or convulsion is usually ended without the confusion or drowsiness so characteristic of the epileptic patient after a convulsion.

Should the physician be fortunate enough to observe an attack and make a neurological examination, he will not find any abnormal signs beyond the partial or total loss of consciousness and corresponding diminution or loss of sensation. Changes in the reflexes are exceedingly rare although they do occasionally occur. In epilepsy, on the contrary, the Babinski reflex is found immediately after the convulsive movements have ceased and may persist for as long as several hours afterwards.

Hysteria occurs chiefly in ignorant, unsophisticated, and suggestible persons. Such persons may link their convulsions with some coincidental but causally insignificant occurrence such as drinking cold water or eating tomatoes. They may then have convulsions following such events. The convulsion is thus precipitated in these instances by the suggestion accepted by the patient. Such a relationship is not found in epilepsy and is diagnostic of hysteria. Somewhat similarly when a patient predicts the occurrence of a convulsion at a given time and then has a convulsion at the indicated time, we know the convulsion to be hysterical since epileptic convulsions cannot thus be predicted.

Both hysteria and epilepsy may be more frequent around the time of menstruation. Many women show increased tension at this time. Such tension is contributed to by changes in hormonal activities, changes in tissue fluids, and alterations in the psychic state with the changing sexual functions. The increased psychic tension is often a factor in precipitating hysterical fainting and convulsions at this time. Both increased psychic tension and changes in tissue fluids altering cortical excitability may be factors increasing the frequency of epileptic convulsions at this period of the month.

Hysterical fainting and convulsions are more closely related to psychic disturbances than are epileptic convulsions. As mentioned before, epilepsy may occur in a setting of mounting and unverbalized tension, but it is often difficult to isolate any specific precipitating factors and it must be admitted that many attacks of epilepsy are spontaneous in the sense that we do not understand why a particular attack occurs when it does. In contrast there are always precipitating factors related to hysterical fainting and convulsions. These may be elusive and they must be pursued with diligence, but if the study is adequate they will invariably be found. The patient himself can usually tell us little concerning the precipitating factors in his attacks. He will probably say "The spells just come on me" or "I just pass out and don't remember anything else until they bring me around". The symbolic movements of the patient in the attack may offer a clue to the precipitating circumstances. The relatives of the patient may detect a certain pattern in their occurence. Frequently, we must await the gathering of psychological data over a series of interviews before the precipitating factors become clarified.

VASODEPRESSOR SYNCOPE

Vasodepressor syncope is the medical term for the common faint. In some persons vasodepressor syncope occurs repeatedly and must be differentiated from other causes of episodic loss of consciousness.

Vasodepressor syncope occurs in a setting of real or fantasied danger to the subject. Most commonly the danger is a physical one and vasodepressor syncope occurs frequently during venepunctures, minor operations, or other exposures to blood or pain. The subject has an initial intention to run from the scene of danger and there is a corre-

sponding cardiovascular mobilization. Blood is shunted from the viscera to the skeletal muscles. Almost simultaneously, however, there is an inhibition of the flight impulse with sudden decrease of muscle tone. Without the pumping action of muscular activity to aid in venous return a large amount of blood is left pooled in the skeletal muscles. Cardiac output and blood pressure fall with ensuing cerebral anemia and loss of consciousness. In some patients there is also inhibition of the heart with bradycardia. When the subject falls to the ground the return of blood to the heart and the flow of the blood to the brain are both aided and consciousness is rapidly regained.[8]

If the patient is examined before the faint, the blood pressure is usually first elevated (during the phase of cardiovascular mobilization) and then falls (during the phase of inhibition). As the symptoms develop the patient may complain of dizziness or lightheadedness, nausea, and weakness. He is pale and sweats profusely. Although the initial symptoms may extend over several minutes, consciousness is often lost suddenly with injury in falling. The loss of consciousness does not come as rapidly as that in the epilepsy but more rapidly than that in hysteria. The duration of unconsciousness is shorter than that in both epilepsy (grand mal type) and hysteria. If unconsciousness lasts for more than fifteen to twenty seconds, a brief mild clonic convulsion may occur, but usually there are no muscular movements in vasodepressor syncope.

HYPERVENTILATION

An increase in respiratory activity is one of the prinicpal physical changes found in fear and anger. Hyperventilation is, like cardiovascular mobilization, appropriate to a situation involving a threat to the organism when there is an intention to struggle or run away, and consequently, a need for greater muscular effort.[9] These physical changes are also found in anxiety states when the danger is symbolic rather than real. Although all persons experiencing anxiety show similar physical changes there are considerable quantitative differences between the changes in different persons. In some patients the cardiac symptoms are more prominent, in other muscle tension is greater and in still others hyperventilation is the most important physical change.

During the hyperventilation there is a considerable decrease in arterial carbon dioxide tension. The acapnia and alkalosis are accompanied by such symptoms as dizziness or lightheadness, and numbness and tingling sensations, especially around the lips and the fingers. Palpitations, dry mouth, and spasms of the muscles of the hand or face may also occur. Some patients lose consciousness. In others consciousness is only altered, perhaps with unusual laughing or crying. Consciousness is more apt to be lost if the blood sugar is low, as when hyperventilation occurs during fasting or some hours after a meal. In some patients hyperventilation and apnea alternate and the symptoms will fluctuate accordingly. Loss of consciousness when it does occur is usually of brief duration since with unconsciousness the hyperventilation ceases.[1, 10]

Not all unconsciousness accompanying hyperventilation is related to the acapnia. The stressful situation evoking anxiety may give rise to hyperventilation and vasodepressor syncope at the same time. Or the patient may become alarmed at the symptoms accompanying hyperventilation and then have vasodepressor syncope. Hyperventilation may also accompany hysterical fainting. Finally the cardiovascular changes accompanying hyperventilation (tachycardia and decrease in blood pressure) may combine with a previously existing defect in circulatory adaptation to the upright position (e.g. orthostatic hypotension) and induce loss of consciousness.

Many patients who hyperventilate are not aware that they do so. They may complain of the dizziness, the loss of consciousness, or some of the cardiovascular symptoms of anxiety such as palpitations, without mentioning their breathing. When they do complain of a change in respirations it is usually to refer to shortness of breath or smothering without recognizing that

they are hyperventilating. Careful inquiry about this symptom should be made of the patient and other informants without, if possible, using leading questions. If there is any doubt about the matter the patient should be asked to hyperventilate without being told what to expect. The symptoms and signs of the induced hyperventilation should then be compared carefully with those described for the spontaneous attacks of dizziness or loss of consciousness.

As with hysteria and vasodepressor syncope, hyperventilation will be found to occur in a situation evoking psychic tension and it is part of the diagnosis to uncover the precipitating stresses and the circumstances of the attacks. Hyperventilation resembles vasodepressor syncope in that the physical changes are concomitants of an emotional state and are contrasted with hysteria in which the physical changes are symbolic expressions of an unacceptable impulse or wish.[11]

In considering the differential diagnosis of episodic loss of consciousness it must be pointed out that one diagnostic tool, the therapeutic trial of drugs, is of no value in the solution of this problem. However great the therapeutic efficacy of a certain drug may be, this can tell us nothing about the diagnosis. The old sedative drugs like bromides and phenobarbital may be as effective in allaying the anxiety associated with hyperventilation as in depressing the cortical excitability of the epileptic. Furthermore, these drugs as well as the newer anticonvulsants like dilantin, may have a strong suggestive effect on patients with anxiety and hysteria. For example, we have seen a patient whose attacks of fainting were completely abolished for more than six months by dilantin which was prescribed in a confident manner by a physician who thought (from an inadequate history) that the patient had epilepsy. Later when the attacks returned there was an opportunity to observe the patient in a typical "spell" which consisted of marked hyperventilation, a coarse, irregular tremor of the hands, great anxiety, and impaired but not complete loss of consciousness. Her attacks of fainting invariably occurred in circumstances arousing anxiety and were produced by hyperventilation and acapnia rather than epilepsy. In view of such observations we believe the use of drugs should be postponed until an accurate diagnosis has been made since their premature prescription may confuse the problem.

SUMMARY

The differential diagnostic features of the commonest causes of episodic loss of consciousness are reviewed. Episodic loss of consciousness may be due to a number of physical diseases but these are almost invariably revealed on physical examination. When the physical examination is negative, the loss of consciousness is almost certainly caused by either epilepsy, hysteria, vasodepressor syncope, or hyperventilation. Although the doctor rarely has the chance to observe the patient in an attack, in most instances an accurate diagnosis can be made from the history alone. Importance is attached to obtaining an accurate description of all events before, during, and after individual attacks by a reliable informant. If this is done, special tests or the advice of specialists will rarely be necessary. A therapeutic trial of various drugs is of no help diagnostically because the drugs which are of value in epilepsy may also suppress the anxiety of patients with other conditions or influence the course of these illnesses by the effect of suggestion.

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AN UNUSUAL CASE OF CARCINOMA OF THE CERVIX

R. W. DICKENHORST, M. D.*
SHREVEPORT

The following case report is presented because of the unusual course and progression of events leading to restoration of the patient to good health. It serves as an excellent example of what may be accomplished by close follow-up, perseverance, and judicious use of the armamentarium at hand in combating the most common malignancy of the female patient. The satisfactory result was ultimately attained through the catalytic effect of many cooperating agencies and techniques.

CASE REPORT

Mrs. N. M., a well developed, well nourished, white female, 41 years of age was first seen in the Shreveport Charity Hospital Tumor Clinic July 5, 1933. The chief complaint at that time was a bloody vaginal discharge of five weeks' duration. The past history was noncontributory. The patient stated that she had gone through nine normal pregnancies. Family history was negative for cancer. Pelvic examination revealed the only positive physical findings. The cervix was found to be soft and freely movable. It was described as being lacerated, ulcerated and somewhat friable with one small hemorrhagic area. The examiner expressed the opinion that this was a carcinoma of the cervix, Stage I. A biopsy specimen was taken which was subsequently reported as epidermoid carcinoma of the cervix, Grade III. During July 1933, the patient received external roentgen therapy consisting of 628 r to each of four, 15 by 15 cm. pelvic ports. The factors were as follows: 200 kv., 30 ma., filter of 0.5 mm. cu. and 2 mm. Al., focal skin distance 70 cm., 157 r being delivered to each port daily. On July 29, 1933, the patient completed 4500 mgm. hrs. of radium therapy. A total of 60 mgm. of radium being applied in the form of a Regaud applicator inserted into the uterine canal containing 15, 15 and 10 mgm., and a London colpostat containing 10 mgm. was placed in each lateral fornix.

Regression following this therapy was excellent. She was closely followed in the tumor clinic and found to be completely free of disease until January 22, 1946, (a period of twelve years and six months). Examination at this time revealed the cervix to be completely effaced. There was a suspicious area of what appeared to be granulation tissue in the posterior vaginal vault. Tissue taken by biopsy from this region was reported as epidermoid carcinoma, Grade II. In view of the previous therapy, it was felt that this recurrence could best be handled by intravaginal x-ray. On February 14, 1946, the patient completed 7,000 r to one intravaginal port. This was administered using the following factors: 200 kv., 0.5 mm. Cu. & 1 mm. Al. filter, at 50 cm. distance, 700 r being given daily through a cone 4 cm. in diameter.

Once again regression was excellent and the patient was free of disease until January 27, 1947, when biopsy specimens from several small suspicious areas in the region of the introitus on the posterior wall of the vagina were reported as epidermoid carcinoma, Grade II. After careful consideration it was decided that further therapy should be in the form of an interstitial radium needle implant into the rectovaginal septum. Since the patient had had irradiation on two previous occasions and also because of the proximity of the proposed implant to the rectum, a colostomy was thought to be advisable. A first stage Lahey colostomy was performed on February 15, 1947. Two weeks following the colostomy the patient was taken to the operating room and seven 2 mgm. radium needles were inserted 1 cm. apart well beneath the vaginal mucosa in a semicircle corresponding to the posterior half of the vagina. The external ends were crossed by two 2 mgm. needles and the internal ends were left uncrossed. The active length of the needles used in this implant was 4 cm. and the filtration 0.5 mm. platinum. The radium was left in place a sufficient period of time to deliver 4,000 gamma roentgens.

The tumor completely regressed following this therapy and the patient has remained free of disease. Upon last examination (October 29, 1951) the patient was asymptomatic without evidence of recurrence on physical or roentgenological examination. She has learned to live quite well with her colostomy. This colostomy will in all probability be permanent since barium enema examination reveals marked atrophy of the lower bowel segment and proctoscopic visualization demonstrates telangectasia of the rectal mucosa.

At the time of writing of this case report it has been over eighteen years since the carcinoma was first diagnosed and almost five years since the last recurrence.

DISCUSSION

The possibility of this patient having developed three separate epidermoid carcinomas of the cervix has not been ruled out; however, I feel that one is justified in as-

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suming that it is much more likely to represent two recurrences from the original neoplasm.

The control of this patient by radiotherapy, after she had a recurrence on two occasions, quite definitely illustrates the value of close follow-up in order that appropriate therapy may be instigated at the earliest possible moment. It also is against the defeatist attitude assumed by some physicians when faced with a recurrence of a malignancy.

THE MENTAL HEALTH ANGLE IN OBSTETRICAL CASES*

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The impressions which I shall pass on to you in this paper are gleaned from a study of the literature which I made preparing the first drafts of the Pierre the Pelican prenatal series published a short time ago, and from a recent sampling study of the information, attitudes and emotions of pregnant women.

It is a perfectly safe generalization to make that the attitudes toward pregnancy are as variable as the number of pregnant women. One can run the whole gamut of the field and discover, at one extreme, those who accept the coming of a baby cheerfully, who want the youngster, who will do a good job in caring for it, who are adult emotionally, who may have limitations of financial resources, but who have a broad margin of ingenuity—in other words adequate people. Added to this remarkable condition is a reasonable freedom from fear, the presence of cheerfulness and good humor, and a radiation of confidence.

At the opposite end of the scale are those women who are terribly frightened at the knowledge that they are pregnant, are fearful of the outcome, and do not wish the baby. Later they will probably take an attitude of resignation and accept their "fate" as though they were captive slaves. They will be difficult to work with during pregnancy and will probably be equally difficult during the birth process.

Between these extremes of complete adequacy and complete inadequacy is the position of most women. It is true that many of them are ambivalent with regard to wanting a baby. Many of them do not accept the coming of the baby, particularly at first, but some of these same mothers will later accept the coming of a child and will then show overeagerness. Perhaps this is because they are trying to make amends for having been unwilling to accept the coming of the baby in the first place. Every mother should know that it is all right for her to have the feeling of wanting her baby and not wanting it, and she should be assured that her feeling is normal, and that in all probability the time will come when she will very much want it. For strange would be the mother whose instincts are not aroused by the fingers of a baby and its gurgling, cooing sounds—even though a year previously she may have harbored the wish of not wanting the baby at all.

The pregnant woman needs mental hygiene care. She needs an opportunity to talk out her troubles with her physician. Sometimes this works splendidly and the physician makes provision of time, and shows by his attitude that it is all right for her to talk out her problems when she comes to see him. She has a half hour to sit down and ply him with questions or tell him what is on her mind. Not all physicians are prepared to fully understand the need for this and many of them are not prepared to be of help. Having a baby, for them, is a physiological process which may be carried out without very much regard for the total personality of the mother.

More and more these days, however, the training of physicians is loaded with a psychosomatic slant and the literature in obstetrics is giving more and more consideration to the mental condition of the pregnant woman.

There is no place on earth where mental and physiological processes come more together than in the birth of a child. What the mother thinks and what the doctor thinks, the attitude of the mother toward

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childbirth and toward the child she is bearing, the skill of the physician, the understanding of the mother, physiological processes—all of these combine in the birth process.

The implications of all this are far reaching from the point of view of education. All that a prospective mother has learned from her own mother, what she has heard from talking with twelve year old girls, what she thought of the first menstrual period. All of this and much more is background coming to the foreground when a pregnant woman presents herself and her problems to the doctor for consideration.

It is a very delicate time. A time when the physician can tip the balance either way. He can make the mother feel that the birth process is an entirely mechanical one, about which she cannot do much, or he can make her feel that it is a process in which she is a very important participant.

If he merely gives her only the feeling that birth is physiological, she will perhaps eat the right foods, if told to do so, follow her instructions, hope for a sedative that will "knock her out" when the time comes for the baby to be born, and consider herself in the role of a passive spectator, just as much as possible, and not look forward to the event as an important participant as she should.

More and more the skilled physician in obstetrical practice is giving his prospective mothers the feeling that the part they play is very important. He seeks cooperation from them, wants them to understand how the baby is developing, wants them to know how important their emotional states are, gives them assurance so that they may know he will be with them "through it all".

More and more too, physicians are depending upon supplementary information, usually in printed form, to be given to patients. This is merely being efficient in the same way a doctor is efficient when he writes a prescription these days rather than compounding his own medicine. After having given the mother printed information the physician can briefly check up on her to find out whether the reading was completed, was understood, and whether additional questions have arisen. In general, there is an indication that the more competent men in practice are willing to make use of these supplemental aids. Such printed information does not take the place of conferences between patient and physician, but makes them more efficient and effective.

We have discovered in our work that people will read material if it is written at the proper level for understanding, if it is illustrated, is not too long, and hits them "squarely between the eyes" which means that it brings up a particular topic at a time when the patient is motivated. Probably all of you know of the Pierre the Pelican postnatal letters which have been sent to all parents of first-born children routinely in Louisiana since January 1947. This series of pamphlets has been widely used—not only throughout Louisiana but the rest of the United States and some foreign countries. One reason it is so successful is that parents of first-born children need help and want it badly, and the content of the series is timed to accord with the young parents' needs at a particular time.

However, mothers and fathers are just as desirous of having information before the baby is born as afterward. The nine months prior to the birth of the child are months of strong motivation for most mothers and many fathers. It is a time when they can be reached with materials written especially for them to accord with their needs. To take care of this need we have recently prepared some new prenatal materials which are now in distribution in Louisiana.

I would like to tell you how the service using these new materials operates. Let us put it in the form of a story so familiar to you. On X day a bride of three months comes to your office embarrassed and bewildered. For the first time since her menstrual periods began years ago she has "missed." She wants to know immediately whether or not she is going to have a baby. After examination, you tell her that she is, and you make a guess as to when the baby will be born. While you are talking with her you reach into a little cubbyhole in your desk and pull out a card. On this you fill

in her name and address and your name and your guess as to when the baby will be born. Then she signs her name and drops the card in the mailbox. The postage is already paid. The card goes to the State Health Department and when your patient gets home it will not be many days until she receives the first Pierre the Pelican prenatal pamphlet. It goes like this, "I know a secret! You're going to have a baby. Not many people know it yet, just the persons you have told. But they have begun to tell others and it won't be long until everybody knows, but that's all right." Then on through the pamphlet there are topics of great interest to this prospective young mother. Next month, here comes another pamphlet with a discussion of problems appropriate to the period, and on through until the last pamphlet is mailed to her just seventeen days before the date of expected delivery.

This service has just begun in Louisiana and last month 449 requests came in from physicians around over the State asking that the pamphlets be sent to their patients. This is very gratifying, and we are certain that by the end of the year we shall be having requests at a rate of about 10,000 per year.

It is probably true that there is so much diversity in human nature when it comes to periods of life, problems encountered, types of people, social status, occupation, race, and even creed, that if we are ever to achieve our goals in mental health education it will be necessary to prepare services that are intended for particular groups at particular times. However, there are certain focal points at which all people regardless of race, creed, color, or employment, come together. One of these is pregnancy, particularly before the birth of the first child. Those of us in mental health education, therefore, need to seek out these focal points where all people "go through the eye of the needle" if we may be permitted this figure of speech. It is at this point that teaching is easy because of the desire of all people to understand.

Some time ago we wanted to make a spot check to find out whether or not these prenatal materials were being studied and also we wanted to know whether or not the mothers were anxious on the topics that had been introduced. For example, we asked the mothers to put a check mark opposite the topic "Whether it is all right for mothers to work after they become pregnant." We asked that the mothers put a check mark opposite every one of the thirty-three topics which we listed—if they worried about that topic. When they got through checking the list we asked them to go back and put a double check opposite the two topics about which they had worried most.

This was simply a sampling study. We took an unselected set of names and addresses of 100 patients, coming in from all over the State, and sent them this set of questions. We expected to receive about 30 replies—which, by the way, we asked to be sent in anonymously since we were not interested in names, and thought we might get a little bit more frankness in reply if the patients knew they were not to sign their names. We got 40 answers, 39 of which are summarized here.

In the paragraphs that follow I shall list some of the topics about which pregnant women may become anxious and shall tell you in each case how many women of the 39 checked an item as important to her. Of the 39 women 29 checked the topic "Sex relations during pregnancy" as being a source of worry. This will be reflected in other questions later. The importance of the topic stands out clearly. No obstetrician should evade bringing up the question when the patient first presents herself for examination. If the obstetrician does not bring up the topic he should give the patient literature covering it.

The topic of next greatest concern to the 39 women who answered our question form was "The danger of having a miscarriage." Twenty-six of the 39 women checked this topic as important to them. It would, therefore, seem perfectly clear that the obstetrician should remove this worry from the minds of pregnant women wherever it is reasonable to do so, stressing normal living and furnishing the patient with only such

precautions as are necessary for her to observe in avoiding a miscarriage.

The third topic of greatest concern, marked by 22 of the 39 women, was this question: "Are there special upsets that go with childbirth?" Apparently in the minds of women there is a lingering suspicion that mothers are likely to give evidence of abnormal behavior at the time of the arrival of the baby. All phychiatric studies indicate that this is not the case. Certain symptoms which are already present in the patient may become exaggerated when the time arrives for the birth of the baby, but patients should be assured that there are no upsets that go with childbirth as such—by this is meant there are no characteristic mental upsets that go with having a baby. It is important for the physician in obstetrical practice to know that this is a significant worry in the minds of many women and should be eliminated.

Twenty of the women answering our questionnaire were concerned over the attitude of the father toward pregnancy. This question would bear further analysis in a future study. What exactly was his attitude? Did he not wish his wife to have the baby? Did he feel the financial burden involved? Did he not want to accept the coming of a baby? At this time we do not know the answer, but we do know that half the women answering the question form were concerned about how the father felt toward the pregnancy.

Seventeen of the 39 mothers showed some concern on the question "What kind of parent will you be?" In the former question the old prenatal influence is still probably prevalent in the minds of some mothers. They feel that what they do and think and hear will somehow affect the talents of the baby. In other words, probably a good many mothers are still obsessed by the importance of doing or not doing certain things with the thought that it will affect the rate at which the baby learns. Many of them may even think that the baby is already learning before he is born. Early psychoanalytic literature supported the theory of very early learning. However, it ought to be said to young mothers that so far as we now know no learning takes place before birth and the learning which takes place within the first few months after birth is highly unstable and if not practiced is soon forgotten.

Half the mothers have begun to think about the kind of parent they will be, and of course this condition holds promise. It is just as well that they begin to reflect upon the requirements of parenthood early. This anxiety should be capitalized upon by the obstetrician in consultation or in making available to the young parent an appropriate type of printed information.

Nineteen of the mothers said they were anxious on the question of marking the baby, 17 about having twins, and 17 about having a premature baby. It is significant that approximately half the mothers still have a concern on the subject of marking the baby, a concept disproved in the minds of physicians for a hundred years. This idea represents a cultural lag of an idea which somehow refuses to die out.

Fifteen of the 39 mothers were concerned on the topic of breast feeding of the baby. Recent literature has emphasized breast feeding because of the improved psychological relationship between mother and child. If 15 of the 39 women are concerned it may mean that there is an increasing number of young mothers who wish to breast feed their babies.

An equal number of mothers show concern about "whether it is all right for mothers to work after they become pregnant." This is clearly a topic where mothers need definite answers, primarily from their physicians. They need to be told that they can go right ahead leading a perfectly normal life if they have to work and that only reasonable cautions such as undue lifting or standing be avoided.

Fourteen mothers had concern on the subject of whether they *could* breast feed their baby, assuming that they wanted to. Thirteen were concerned about "morning sickness," about "craving different kinds of foods," and 14 about having "after-baby blues." These apparently are topics of some

interest to mothers and about which they would like to have information. Fourteen of the 39 mothers said they were concerned about whether their husbands should go to see the doctor also. Thirteen wanted to know "Whether it is all right sometimes not to want your baby before it comes," 11 "does vomiting hurt the baby," 13 "the kind of parent your husband will be," 15 "will it hurt a great deal when the baby comes," and 12, "The baby and the in-laws." Ten mothers were concerned about "Getting larger and getting out of shape," 11 about "smoking and drinking," and 10 about the attitude of either the husband or wife toward each other." Ten were anxious about "being tied down before the baby comes and after," 9 about "whom the baby will be like." Eight were concerned that "if contraceptives had been used whether it would affect the baby"; 10 "The effect on the baby if either father or mother had sex experiences before marriage." Nine were concerned about the possibility of having too many visitors after the baby came.

The topics which some have thought might be of greatest concern to the mothers appear not to be at all. Two of these are: "Insanity in the family," and "feeblemindedness in the family." Apparently, these topics are of such minor importance to contemporary expectant mothers that they need not be introduced by the physician. More harm would probably be done by introducing them than by leaving them alone.

When we look back at the answers that are double-checked, we see that the topic double-checked twice as frequently as any other is on the question of "Sex relations during pregnancy." The next most frequently double-checked items are "Will it hurt a great deal when the baby comes," "Marking the baby," "Having a premature baby," "The danger of a miscarriage," and "Are there special upsets that go with childbirth."

In addition to the checklist, we asked certain questions outright. The first of these was—"Are there any topics in the first few pamphlets you have received which you just couldn't bring yourself to ask your doctor about? If so, what are they?" Thirteen of the 39 women made no reply to this question. Sixteen answered by saying "no." But nine said "yes, there were questions which they just couldn't bring themselves to discuss with their doctor, and 7 of these referred to the matter of sexual relations.

Another question was, "Do you enjoy keeping up with the baby by reading about its development at the end of each pamphlet?" The answer here is a very emphatic "yes," given by 36 mothers. The mothers appreciate detailed description of the growth of the fetus. It seems to give them a feeling of development which is hard to describe during a period when it is difficult for them to appreciate, or in any physical way sense, the growth that is taking place.

The next question was this: "Have you felt that the doctor was so busy that it was unfair to take his time by sitting down to talk about problems that worry you?" Nineteen of the mothers said "no." This we take to mean that there is sufficient rapport between many of the patients and their physicians. However, 14 of them said "yes, they felt that the doctor was so busy that it was unfair to take his time by sitting down to talk about problems." For these patients it would seem to be particularly appropriate to place in their hands suitable literature in order that they may get the information they need through reading.

Our sixth question referred to the father and asked "Did the father read the second pamphlet which was prepared especially for him?" Thirty-three answered "yes"; 3 answered "no" and 3 did not answer this particular question. There was marked enthusiasm among some of the mothers with regard to this particular pamphlet. It is true that the father is left out of the picture all too frequently and this pamphlet attempts to bring him back into the picture. Typical replies were: (a) "Yes, and enjoyed it very much." (b) "Yes, and I do believe it helped him understand my condition better." (c) "Yes, he read and enjoyed all of them." (d) "Yes, and I might add that he read or I read aloud all of the pamphlets and we found them very helpful." (e) "Yes, all of

them." (f) "Yes, in fact he read them all and enjoyed them as much as I did." (g) "Yes, he read the others also." (h) "He not only read that one, but every one that I have received." (i) "Yes. I saw to it that he read it very carefully." (j) "Yes, and he got quite a bit from it. Most fathers don't realize the things you had to say or they just don't think about it."

So much for the study. Now to return to the role of the obstetrician, and to summarize. In psychiatric terms, the obstetrician takes over the father role in his relationship with the patient. He must be interested and emotionally devoted to his task. He must exude confidence. At the same time he must know the answers and must be firm in his instructions. Most of all he must be the kind of person who will secure cooperation.

The expectant mother is in a highly suggestible relationship to her obstetrician. Such a condition is advantageous to learning and to the formation of attitudes. The obstetrician can mediate such important ideas as that: (1) The risks of childbirth are now greatly reduced. (2) Breast-feeding is a wonderful experience if you want to do it, and can. (3) It doesn't make a particle of difference whether you have a little boy or a little girl. (4) It's a perfectly normal thing to be divided in your mind at first on the question of whether you want the baby or not. (5) I'm going to stay by you all the way through, particularly when the time comes for you to have the baby. (6) Having a baby is something in which you can take an active part. I will teach you in advance all that I can.

One of the things which every obstetrician can do but which he often fails to do is to help shape up attitudes toward the coming child. Unfortunately, many obstetricians believe they have done their job when the baby's breathing is established and the mother is physically restored. Actually, he has the opportunity of forming many important attitudes with regard to the child and his influence will be felt long after the mother is thinking of other things.

In the absence of this type of personal service or even augmenting it, suitable supplementary printed matter that is well written and cast at the right educational level and which is appropriate from the point of view of the topics discussed will be very helpful to expectant parents.

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ADOPTION*

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Adoption, a vital part of our modern social pattern, is in fact an ancient custom. There seems to have been no time in the history of man when there did not exist some method of caring for parentless and neglected children or of providing for an heir to childless parents.

A. INTRODUCTION

America's earliest statutes permitted adoption by deed, without court proceedings of any kind. Massachusetts,[5] just one hundred years ago, was the first state to require a formal judicial proceeding. Founding of The Children's Aid Society of New York marked the beginning of systematized child-placing in this country. Many private and state agencies have subsequently been founded, emphasizing selective placement by highly specialized case-work methods, and leading to widespread improvements in adoption practices.

Since the first White House Conference of 1909, leaders in children's work from all over the United States have been called together three times; the fourth conference on Children and Youth was held just last December. The 1909 conference resulted in the creation of the Children's Bureau, the first public agency whose sole purpose was to consider the welfare of the child. Along with many other activities this governmental agency continues to do much to improve and standardize adoption procedures in this country through research, dis-

*Condensation of a senior Pediatric panel discussion, Tulane University School of Medicine, New Orleans, La.

tribution of publications, and cooperation with state and private organizations.

B. THE PSYSCHOLOGICAL ASPECTS OF ADOPTION

It is an important fact to remember that no child can reach his full emotional maturity in a home environment filled with emotional conflict, strife, and neurotic manifestations. Probably most people who wish to adopt children honestly desire and feel the need of a child in the home, even though many of them lack the emotional stability necessary to make a good home. Perhaps the best approach to evaluation of stability in prospective adoptive parents is to determine the exact reasons why they wish to adopt a child.[7,8,14,16] To simplify recognition of some neurotic tendencies common among prospective parents, a few situations are cited:

Should the adoptive mother be one who insists that she wants a child, while the husband says little or nothing about the adoption, simply acting as a "silent partner," then one should be on the lookout for neurotic tendencies in the mother. Women who, as children, were neglected by their own mothers often need an object to smother with "affection." Placing a child into such a home can result in overprotection of the child, with subsequent development of disobedience, impudence, and the use of neurotic symptoms to control the mother.

On occasion, a couple will appear demanding a "two and half year old, blond, blue eyed boy." Insistence by the adoptive couple on such specificity should make the investigator suspect that such a couple are only reluctantly relaxing their rigid boycott on parenthood.[14] A flat refusal to accept a younger child may indicate that the parents are repulsed by the thought of toilet training, or that they will be intolerant of untidiness.[14] Refusal to accept a baby with even a minor correctible defect—a risk always taken by true parents—may predict later failure to meet responsibilities to any child these parents may receive.

All too often, physicians are guilty of advising adoption of a child to "steady" a shaky marriage. To people already so emotionally maladjusted, a new child in the home will more often increase than alleviate troubles.

Among questions frequently asked by prospective parents is, "What age child should we adopt?" Psychologically, there is some risk in adopting a child under two years of age, even though Cattell tests[12] and others are of value in determining potentialities at an earlier age. Accuracy of formal tests is low before the age of at least nine months. Because results are often equivocal even then, they should be repeated at fifteen months. No tests are completely reliable, as results depend so much on interpretation and consequent errors varying with experience of the examiner and emotional tensions of all concerned.

When adopting an older child, the parents may lack satisfactions from having been the objects of earlier emotional attachments. Further, the older child has had greater opportunities to receive emotional trauma by bad handling in previous environments. Also, understandable feelings of insecurity may develop more frequently in children passing through shifting foster homes and affections, even though each of these was individually satisfactory.

When an adopted child asks about his real parents, all the available truth should be told, in simple understandable terms, without any fancy trimmings. At the same time, the child should be saved from shame for himself or his true parents by logical explanations of motivation for adoption. When he is old enough to understand it will be wise to explain that in any family, circumstances may arise which may make adoption desirable. If exaggerated information is given to the child concerning his true parents, then in his phantasy state it may appear to him that real love and security is only possible with true parents; on the other hand, should the true parents be described in derogatory terms, the child may in effect lose faith in all parenthood.

It must be emphasized that unless questions concerning adoption are answered in a pleasant and reassuring way, and as simply as they are asked, it is easy for the child later to misinterpret any disciplinary efforts or restrictions as direct evidence

that his parents do not and never have loved him. Then the fact that the child knows his background may make him feel subconsciously that he owes his adoptive parents no allegiance; resentments can then easily expand into a gamut ranging from well concealed to openly hostile behavior.

The introduction of a child in their home can be a frightening experience for any couple who are unprepared for the experience. "Unexpected"—even though normal —actions may even raise their suspicions about the child's genetic background. This may, on occasion, prove to be a rather happy thought to explain in retrospect all forms of deviate behavior without the necessity of recognizing their own real inadequacies as parents. Then, through no real fault of his own, the child may be returned to the agency by adoptive parents who failed in their job for simple lack of preparation.

A few words must be said regarding stability of a new adoptive family. The cultivation of comradeship begins at once—not when the child reaches adolescence. A boy needs a friendly father as an example, and a mother who will protect him as a baby and encourage his increasing independence as he grows older. A girl needs a father's sincere interest and affection, for only in this way can she develop a natural relationship with men. She needs a mother to act as an example to guide her own life. For the proper development of children and their preparation for living, there is no substitute for a wholesome *family* atmosphere!

C. THE LEGAL ASPECTS OF ADOPTION

No law relating to the welfare of children stands by itself. The principles and standards essential for full protection of children must be the foundation of a whole network of statutory and administrative provisions benefiting children. The adoption law, as one of these provisions, should promote the best interests of the child. The Children's Bureau has suggested that individual state laws be made to conform in principle and pattern to a suggested "ideal" adoption law.[29]

The objectives of such an ideal law are: to protect a child from unnecessary separation from his natural parents, from adoption by persons unfit to be parents, and from interference after he has been established in his new home—by anyone who might have later claim through some defect in legal machinery or procedure. The law would protect natural parents from hurried decisions and necessity to give up a child under pressure, strain, or anxiety. The ideal law would also protect adopting parents from assuming responsibility for children of whom they know nothing, and from disturbance of their relationship by natural parents whose legal rights had not been given earlier full consideration.

The provisions of the "ideal" adoption law are, in summary:[29,41]

1. Jurisdiction in adoption is given to a single court of record, preferably a juvenile court, and is limited to cases in which petitioners reside in the community in which the court functions. This provision is to insure a maximal possibility of adequate preliminary study of a proposed home, and all necessary supervision of that home after placement.

2. The maximal age to be covered in sections relating to the adoption of minors is stated, but there is no limitation on who may be adopted.

3. Any adult, or any married couple are permitted to petition for adoption of a child, under jurisdictional restrictions as to residence. If safeguards that should be included in the law are observed, the petitions of persons unfit or unable to care properly for the child will not be granted.

4. The petition must be accompanied by a written consent to adoption, obtained either from the natural parents, or from that person or agency legally having the right to consent.

5. Notice that a petition to adopt has been filed is then to be sent to the Department of Public Welfare, or its authorized agency.

6. The Department or its agency then makes a thorough study, and files all documentary evidence with the court.

7. The child must live in the adoptive home for a specified time, preferably a year, under the supervision of the Depart-

ment of Public Welfare or its licensed agency.

8. A closed hearing is held, and all records are kept confidential.

9. If the Court finds that the best interest of the child will be served, it will enter a decree of adoption. This decree is to define the rights and obligations of the adoptive parents as well as those of the child, and it is to end all rights and obligations of the natural parents.

10. If the final decree is not entered, the child is transferred to a suitable home for his care and guardianship.

11. Safeguards assure the welfare of the child in legal matters that may arise from irregularities in the proceedings.

12. There are also provisions relating to the issuance of a new birth certificate, and notification of the bureau of vital statistics. But there is no provision for annulment.[29]

The Louisiana law,[31] in general, differs very little from the form just outlined. But because Louisiana has as the basis of its law the Napoleonic Code, under which adoption is recognized, the status of an adopted child after the final decree has been entered is defined in sections of the Code relating to inheritance and line of descent. A single pattern runs throughout these statutes.[19-21] Adoption in Louisiana brings about a substitution of parents only, not of family. That is, there is no change in the relationship between the adopted person and his relatives other than parents, and no legal relationship arises between the adopted and the blood relatives of the adopter. Because in most cases the adoption is performed without the consent of the adopted child, it provides (in common with the laws of several other states) that the blood parents be subject to support of the adopted child if he is unable to obtain it from the adopting parents.

Existing adoption laws are of two types: adoptive statutes proper, which govern court proceedings; and placement statutes, which regulate the placing of children in homes in contemplation of adoption. During the past few years considerable progress has been made toward bringing adoption laws into harmony with recognized principles of child protection. A trend toward recognizing legal and social protections that will prevent invasion of the rights of parents and children is found in provisions of recent adoption laws relating to consent to adoption. There is also increasing awareness of the need for legislation closely related to adoption that will require Court sanction of voluntary relinquishment of parental rights. In most states, however, the pattern of regulation under adoption and placement statutes is still seriously deficient.[33]

Defects in adoption laws of some states can probably best be illustrated by quoting parts from one of them.

". . . . The petition shall contain the name and age of the person sought to be adopted, the names and ages of the parents or guardian, their residence and post office address, if living and known to the petitioner, and if unknown, after diligent inquiry, said fact shall be stated. It is unnecessary to state in the petition the name, address . . . of the father of an illegitimate child or person, but only that all of the living parents and guardian, if any, have joined in the petition . . . If the parent or guardian has legally designated some agency or person as representative in the proceedings, with authority to consent to adoption, said agency or person shall be made a party to the proceeding in place of the parent."

". . . . the petitioner must state in the petition any gifts, bequests, and other benefits he proposes to make or confer upon the person to be adopted."*

". . . . Parents, guardian, agency, or person sought to be adopted may either become parties to the petition voluntarily, or shall be made defendants to said petition and summoned to defend as in other cases."

"In either case the Court shall hear the evidence and if satisfied that the interest and welfare of the person sought to be adopted will be promoted by the adoption, may decree said person to be adopted, . . . and thereafter the petitioner shall have and exercise over such person so adopted all power and control as parents have over their own children."

Thus, one particular state law provides for no investigation, no trial residence, and invests the child with no rights!

It should be emphasized, that a child who

*Rights of the Child—the adopted child does not become the heir of the petitioners unless heirship be one of the gifts, grants, or benefits proposed to be conferred.[27]

must be provided for by others than his own parents should be assured of a home that will offer maximal opportunities for sound physical, mental, spiritual, and emotional development. To this end adoption laws *must* provide for a social study of the prospective adoption home, and for a period of residence of the child in the home under supervision of an agency qualified to place children, in order to be as sure as possible that the home is suited to the child and the child to the home.

Better adoption legislation is important, but it is also necessary that existing legislation be strengthened by conscientious administration, so as to realize the intent of the law. A good adoption law, poorly administered and inadequately supported, will be no better than a bad law or none.

A well informed physician is in an excellent position to urge careful observance of existing laws, and to stimulate interest in providing additional legal protection for children subject to adoption.

D. AGENCIES AND METHODS OF ADOPTION

There are several methods whereby a person may be adopted. Probably the best method is through licensed adoption agencies; their primary function is not to find babies for specific homes, but rather to find homes for specific babies. These agencies follow policies set forth by the United States Department of Public Welfare.[35]

There are many agencies, located mainly in the larger cities of the United States. Each of them, often sponsored by a religious organization, has a set of basic requirements to be met by prospective parents. These vary from agency to agency but in general[35] they indicate that adoptive parents must be legally and happily married, be financially able to support the child, be in good health, have an adequate home in which all members will welcome and really desire the child, be emotionally mature parents, and have a good reputation in the community.

Because a licensed agency operates within the law, and has at its disposal expert services of highly trained personnel, all parties to the adoption are protected from many legal and social pitfalls into which they otherwise might be drawn.[42-44] The licensed agency does not place a child until he is legally available for adoption. The legal rights of the natural parents have then been set aside, so they do not know where the child is sent. This protects the child and adoptive parents from one of the greatest dangers in adoption, since it frequently happens otherwise that the natural parents later change their minds and attempt to reclaim their child. The physical characteristics, mental capacity and religious background of the child are matched as closely as possible to those of prospective adoptive parents. A thorough preliminary study of the child and his background greatly reduces the risk of later disturbances.

Independent placement is usually considered to be a dangerous procedure, although under certain conditions it might be satisfactory. Independent placement may be handled by anyone, those usually involved being relatives, physicians, lawyers clergymen, and midwives. In most cases an individual handling such an adoption procedure independently is in effect assuming the rôle and responsibilities of a well trained social worker—for which he is generally unprepared. If independent placement *is* necessary in a given situation, it is still probably best handled through a qualified social agency.[37] Because approximately 50 per cent of all children adopted in the United States are adopted by parents, stepparents, or other relatives[39] independent placement has a definite place in adoption. But to provide adequate legal protection and supervision, these placements should be made under the direction of a qualified social agency.

Independent adoptions[36] may be well intentioned, and are often conducted on an entirely noncommercial basis. A physician may wish to assist an unmarried mother and may have friends who are looking for a child; a lawyer may be consulted by the parents of a girl faced by the social stigma of having given birth to an illegitimate child; and with highest motives they may arrange for private adoption, even lacking adequate protection that all parties need.

When a commercial element is introduced into this picture we have in essence the "black market" or "grey market." Speed and secrecy are the two main attractions. For the natural mother this may appear to be the quickest solution to a difficult problem, and for adoptive parents it often seems the most logical way to "cut a lot of red tape." Financial exploitation is not the greatest evil in such a siutation.

From figures gathered for the mid-century White House Conference on Children and Youth[39] we find that there is a steadily increasing number of children born outside of marriage. Statistics on illegitimate births are never complete, but there are probably forty to fifty thousand more annually in the U. S. now than there were ten years ago. Problems of safeguarding children, adoptive parents, and natural parents are growing in direct proportion to this increase in children born to unmarried mothers. Because licensed agencies are handling only about 25 per cent of all adoptions in the U. S., it is obvious that most of these children, parents, and adoptive parents are not benefitting from those safeguards which do exist.

E. THE PHYSICIAN'S ROLE IN ADOPTION

It is a heavy responsibility to remove a child from his own flesh and blood, to place him with another family where he falls heir to their hopes and ambitions, as well as to their property and family name. Having neither the training nor facilities for such a task, the physician should not undertake it lightly, alone, or unaided.

If, however, the physician does become involved in an adoption proceeding, he has two important duties to perform: to protect the child in its new home, and to protect prospective parents. He must satisfy himself that the new home is emotionally mature and that the placement will not be to the detriment of the child. The physician should leave the necessary investigation of social and economic backgrounds to the welfare agency, but he should be concerned with the emotional and physical health of all parties concerned.

When a physician in practice is confronted with an adoption problem, it will in all probability fall into one of three categories:

1. An unmarried mother wishing to place her child for adoption.

In this situation the physician must first determine whether the mother *really* wishes to give up the child. It is usually advisable to postpone a final decision until after the child is born. When the decision is made, it should be determined by the ability and desire of the mother to care for the child adequately, both financially and emotionally. If the child is to be retained, the physician may be of assistance in helping the mother through many early adjustments.

Should the final decision be to release the child for adoption, then it is best to refer the mother directly to an authorized child-placing institution.

2. Prospective parents wishing to adopt a child.

If the couple be childless, the physician should first evaluate reasonable causes for sterility, and assist in their correction, if possible.

Before advising such a couple the physician must determine the motives behind their wish to adopt a child, and assure himself that they will make desirable parents. If he feels that they could provide a suitable home in which a child would have full opportunities for sound physical and emotional development, then he can do no better than refer them to an authorized adoption agency, with a preliminary full explanation of the functions of such agencies and the legal and social advantages of adopting a child with their help.

If, on the other hand, no such agency is available in his community, and the physician feels obliged to arrange the adoption, he must be fully cognizant of all of the legal and social problems involved, and be careful to provide all available protection for everyone concerned.

3. A child probably eligible for adoption, of whom the physician has professional knowledge.

The physician's medical responsibility to this child in the preadoptive and postadop-

tive period is no less than his responsibility to any child in his care. Rather it is more, for he has assumed a moral obligation to the child as well as the adoptive parents. Through knowledge gained by his study of the child, which should consist of at least a thorough history and physical examination, serological and other pertinent laboratory data, he must assure himself that the child is at least an acceptable physical candidate for adoption. Indicated active immunizations and all other usual medical procedures should be a part of his service. Here again, it is always best to secure the help of an authorized child-placing agency.

If, however, he chooses to place the child independently, he must be sure that full legal and social protections are given all concerned—the child, the adoptive parents, and the natural parents.

F. SUMMARY

We believe that Louisiana has reasonably good and workable adoption laws. Still, most adoptions are undertaken without adequate safeguards.

Essential as they may be, purely medical responsibilities constitute only an important *part* of the total adoption process. All of us would be well advised to acquaint ourselves thoroughly with local laws and services available through licensed agencies.

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SYSTEMIC AND LABORATORY INVESTIGATION OF INTRAOCULAR DISEASE*

N. LEON HART, M. D.

NEW ORLEANS

The purpose of this paper is to emphasize the importance of the close cooperation that must be established between the eye physician and the internist or family physician, in order to determine the etiology of intraocular disease. The advent of antibiotics and sulfonamides has created a pitfall for those who do not resist the urge to take advantage of their empirical use before a systematic effort has been made to determine the etiology. Not only is the patient denied the benefit of proper medication in many instances, with the risk of suppression rather than eradication of an inflammatory process, but also, there exists the possibility that the empirical therapy may camouflage the etiology, rendering diagnosis difficult or impossible. An organized program of investigation such as the one about to be presented should be followed with alterations as indicated in each individual case.

METHOD OF INVESTIGATION

In addition to the history and general physical examination, the investigation should include the following steps:

1. A complete ophthalmologic examination.
2. A complete otolaryngologic examination, including roentgenologic examination of the sinuses.
3. A complete dental examination, including roentgenograms.
4. Urinalysis, a complete blood count, and a blood serologic examination. If the blood serology is positive, the quantitative Kahn test, examination of the cerebrospinal fluid, and the colloidal gold test are indicated.
5. Roentgenograms of the chest.
6. Genito-urinary survey, including prostatic massage and microscopic examination of a prostatic smear, with such special examinations as are considered necessary.
7. Stool examination, including investigation of five normally passed stools, followed, if the normally passed stools were negative, by the examination of two stools passed after purgation.
8. Sigmoidoscopic examination, with investigation of material aspirated from the bowel wall or from frank or suspected lesions.
9. Agglutination tests for brucellosis, toxoplasmosis, typhoid, paratyphoid and tularemia. Tests for Weil's disease are to be performed if there is reason to suspect its presence.
10. Blood cultures for brucellosis if the agglutination is positive.
11. The Frei test and the tuberculin test. The skin test for brucellosis is not reliable.

This method of investigation was followed in 27 consecutive cases of uveitis who were in-patients in the Veterans Hospital at New Orleans. Three patients, for various reasons, did not remain for sigmoidoscopy.

The stools were positive for *E. histolytica* in 10 of the cases. The prompt remission of ocular inflammation when antiamebic therapy was administered, and disappearance of *E. histolytica* from the stools are of more than passing interest. In one patient, the parasite was found, not in the stool, but from material taken from an ulcer of the mucosa of the sigmoid. In some cases, it is true, other therapeutic measures were utilized, such as tonsillectomy in one case, and penicillin therapy. On the other hand, in two cases obvious foci of infection were not eliminated. Another patient retained his chronically diseased tonsils and

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another declined treatment for his prostatic disease. Two of the patients, however, who presented only uveitis and amebiasis, were treated only by aureomycin, the antiamebic properties of which are already established. Three patients promptly responded to carbarsone and chiniofon after penicillin and sulfonamides failed to produce any appreciable effect. One patient with syphilis reversed his Wassermann on penicillin therapy, but the uveitis did not subside until treated with carbarsone and chiniofon, the regression in the ocular inflammation coinciding with the disappearance of *E. histolytica* from the stools. The vision of one eye in one patient was lost as the result of uveal disease that was not diagnosed etiologically seven years earlier. The most recent case of uveitis with intestinal amebiasis illustrates vividly how a diagnosis usually simple to establish, may become most difficult as the result of the innocent efforts of the physician. A hospital employee developed uveitis, but because his services were indispensable it was decided to collect stool, blood, and urine specimens and immediately begin empirical therapy with aureomycin, 250 mgs. every four hours. Fortunately, the cysts and trophozoites of *E. histolytica* were found in the first stool specimen, for in all specimens subsequently collected, after the first day of aureomycin therapy, no evidence of *E. histolytica* was demonstrable. This dosage of this drug is not considered optimum by the internist handling this case, for the patient is now receiving terramycin, 500 mgs. every four hours. The vision of the involved eye has improved from 20/200 to 20/25 by the seventh day of therapy. It is believed that had the parasite not been found in the first stool collected, the intestinal amebiasis would have been suppressed beyond recognition only to recur later, with possibly another associated bout of uveitis, or would have been suppressed leaving the uveitis smouldering, as a result of the inadequate aureomycin therapy initiated at the onset of the uveitis.

ETIOLOGIC AGENTS

That there is a causal relationship between uveitis and intestinal amebiasis is not a claim at this time. This series is too small to come to such a conclusion. Nevertheless, the fact remains that there were found 10 instances of (nondiarrheic) intestinal amebiasis in 27 patients with uveitis, all of whom were carefully investigated and to find all 10 patients responding promptly and sometimes dramatically, to amebicidal therapy at the same time that their stools became negative for *E. histolytica*, does seem something more than simple coincidence. There is no reason to consider the eye resistant to any disease process that has proved its ability to establish itself in other organs and tissues of the body.

The tonsils were found to be the etiologic agent in 6 of the cases, and in 2 additional cases were found to be associated as secondary disease factors. In 1 of these cases the primary factor was dental, and the other patient with diseased tonsils was found to have intestinal amebiasis in addition.

In 3 instances sinus infection was found to be the source of the intraocular disease. One of these had a polyp in the left maxillary sinus, another had pus in the maxillary sinuses, and the third had bilateral ethmoid and maxillary sinusitis. Irrigation of the left maxillary sinus revealed a moderate amount of purulent exudate which disappeared after treatment. The tonsils in this patient were chronically diseased and were removed while he was being treated for his sinusitis. His eye condition subsided promptly. A fourth patient had chronic ethmoiditis which probably was not related to his eye disease, which in this instance was caused by Weil's disease and will be mentioned later.

Only 1 of the patients in this series had eye disease resulting from dental infection. This patient had a radicular cyst of an upper right cuspid, which when corrected surgically resulted in healing of the eye disease. Pyorrhea alveolaris was found in a number of cases, but in itself is not con-

sidered to be pathogenic as regards intraocular disease.

Chronic prostatitis was found present in 4 of the patients. One of these presented Reiter's syndrome: iritis, arthritis, and urethritis in which smears and cultures failed to reveal organisms. Chronic prostatitis was found in addition to brucellosis in 1 patient, and intestinal amebiasis in another, and in these cases the presence of the prostatic condition is considered as coincidental.

In 11 patients the tuberculin skin test ranged from 1 plus to 4 plus but the presence of other disease processes, the eradication of which resulted in fairly prompt clinical improvement in the intraocular disease, suggests the basic etiology to be nontuberculous.

The skin test for brucellosis was performed routinely in the earlier part of this series, and was discarded as unreliable. The agglutination test was continued and was found to be weakly positive in 2 patients in whom the diagnosis was established of other origin.

Serological tests for syphilis were positive in 4 patients, 2 of which had intraocular disease which was attributed to syphilis. The third case is an interesting one in that the patient also had intestinal amebiasis, and, although the syphilis was treated adequately by penicillin and his serological test reversed, the eye condition was not controlled until treated with carbarsone and chiniofon, at which time the evidence of *E. histolytica* disappeared from the stool. The fourth patient with syphilis also had diseased tonsils, the syphilis being adequately treated with penicillin and regression of the eye condition obtained prior to tonsillectomy.

Roentgen rays of the chest were negative in all the patients considered here.

The fasting blood sugar test revealed no diabetics in the series.

The test for toxoplasmosis was negative in all instances.

Nonicteric Weil's disease (*Leptospira icterohemorrhagica*) was found in 1 patient who developed chills and fever after swimming in polluted water. The patient was apparently well and about to be discharged from the hospital when he developed acute iridocyclitis. The diagnosis was established by agglutinations for *Leptospira icterohemorrhagica* which were positive in dilutions up to 1/6400, apparently as far as the dilution was carried out by the Laboratory of the Armed Forces Institute of Pathology, in Washington, D. C.

The details of the individual cases that have been described are not given here because they are unusual, although the Reiter's syndrome and the nonicteric Weil's disease with iritis are unusual, but because they illustrate dramatically what might be uncovered by a systematic method of investigation. Without an organized diagnostic procedure the eye physician and the internist or general practicioner, not to speak of the patient, are at a distinct disadvantage which might easily culminate in a compromising position from which the face-saving gesture of empirical therapy with antibiotics and sulfonamides appears to offer the most graceful and promising retreat. This road will certainly lead to disaster for the etiological process may thus be camouflaged or suppressed, only to reappear later in greater strength and in a form resistant to the drugs which were inadequately administered earlier.

USE OF CORTISONE

The advent of cortisone acetate has been of inestimable value in a number of cases in this group. The use of this drug may be initiated immediately after the patient is first seen, for its action has been accepted as not on the etiological agent producing a disease process, but as a protective fire wall being placed between the two. Cortisone acetate was used topically in a 1 to 4 dilution in normal saline as drops instilled 4 to 8 times daily. Apparently it produces no alteration in the results of the diagnostic procedures discussed here, although it holds the ocular response to the systemic disease in abeyance. Cortisone acetate provides the physician with a drug that can be initiated at the onset of the ocular symptoms while the etiological investigation is

being conducted, and its use can be continued after the etiology is determined and the appropriate drug instituted.

SUMMARY AND CONCLUSION

An organized method of investigation of intraocular disease requiring participation of the eye physician and the internist or general practitioner is outlined. The summarized data on 27 such cases observed in the Veterans Hospital at New Orleans, La., is presented. The presence of *Endamoeba histolytica* in 10 of the 27 cases, an incidence of 39 per cent, and its prompt disappearance from the stool simultaneously with regression of the intraocular inflammatory process shortly after antiamebic therapy was initiated, is indicative of the value of careful stool examination. The diagnosis by agglutinations for *Leptospira icterohemorrhagica* was established in one patient with acute iridocyclitis in a case of nonicteric Weil's disease.

A systematic method of examination and observation will frequently uncover many common causes of uveitis in addition to the occasional rare ones. Complete examination in each instance of the intraocular disease is necessary as the etiological agent may not be the first positive finding. An evaluation of the positive findings and conclusion as to their diagnostic significance must be made before a therapeutic approach to the problem is begun.

The routine diagnostic procedure followed in investigation of intraocular disease is outlined and the diagnostic findings in a series of patients summarized.

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SUFFICIENT SUPPORT OF THE MEDICAL SCHOOLS AND OF THE AMERICAN MEDICAL EDUCATION FOUNDATION

Organized medicine has long been active, for scientific and humanitarian reasons, in its support of medical education. In recent years, the medical schools of America have been increasingly in need of financial help.

Two years ago, it was advocated in this column that organized medicine undertake to subsidize the medical schools. This was advocated because of the great needs of the schools themselves and the equally great need of preventing them from drifting into governmental control as a result of being supported by federal funds.

In December 1950, the A. M. A. established the American Medical Education Foundation to assist the medical schools, and donated $500,000 as a nucleus for further contributions. One year ago, this Journal in a second editorial urged support of this movement, and now a third message is being presented to thoughtful physicians. It concerns national and alumni funds.

During the period of financial stress experienced by the medical schools in recent years various movements have developed among their alumni, such that the alumni would contribute to their support. These donations have been based on the feeling that the alumni were proud of their medical Alma Mater and recognized their indebtedness, both educational and financial. The financial indebtedness of the average alumnus varies from one school to another, but in most it is realized that where private endowment finances the school's needs, medical students in their tuition often pay back only 40 per cent of what their education cost. In appreciation of this beneficence on the part of the school and its endowment, medical alumni of various schools have contributed substantial sums, and these are more needed now than ever.

Doctors, accordingly, find they are called upon for funds for the American Medical Education Foundation and for their medical school at the same time. In recognition of this situation where a physician would be interested in promoting the welfare of his Alma Mater and at the same time contributing toward the American Medical Education Fund, the following arrangement has been arrived at: The physician may contribute to the national fund and allocate it to his school, or more directly, he may contribute to his school and the Foundation will be notified. Also, beginning with gifts received after January 1, 1952, all contributions designated by the individual physician for a specific medical school will be added to the school's grants from the unearmarked funds raised by the Foundation and the National Fund for Medical Education. This

will eliminate possible competition between the Foundation and fund raising campaigns for individual schools.

At the recent annual meeting of the Association of American Medical Colleges, the deans unanimously expressed their sincere appreciation and their enthusiastic thanks to the directors and officers of the American Medical Education Foundation.

The Student American Medical Association in December passed a resolution:

"We extend our sincere appreciation to the American Medical Education Foundation for the most beneficial program they are undertaking."

In the current year the American Medical Association has made another donation of half a million dollars. There is increasing interest among lay organizations and lay persons for this movement. During the first year more than 1800 individual physicians contributed, and in the current year it is hoped that this will be many thousand.

When medical schools lose their autonomy the effect will be felt not only in future generations but will be noticeable in this generation. This cause deserves the worthy consideration of every physician. He can send his contribution to his school; he will receive credit for it there, and also, receive credit for it in the American Medical Education Foundation.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

ANNUAL MEETING

Plans are well underway for an interesting, instructive and entertaining meeting to be held in Shreveport April 28-30. The House of Delegates will meet on Monday, April 28 and the opening meeting of the convention will take place on Monday evening. Chairmen of the various scientific sections have prepared a program with outstanding essayists and the schedule will be as follows:

Tuesday morning, April 29—Section on Surgery, Dr. Isidore Cohn, Chairman.

Tuesday afternoon, April 29

Section on Medicine, Dr. Louis A. Monte, Chairman.

Wednesday morning, April 30

Section on Bacteriology and Pathology, Dr. George H. Hauser, Chairman.

Section on Dermatology, Dr. Leslie K. Mundt, Chairman.

Section on Diabetes, Dr. F. W. Pickell, Jr., Chairman.

Section on Gastroenterology, Dr. Donovan C. Browne, Chairman.

Section on Neuropsychiatry, Dr. D. L. Kerlin, Chairman.

Section on Obstetrics, Dr. N. J. Tessitore, Chairman.

Section on Orthopedics, Dr. A. Scott Hamilton, Chairman.

Section on Public Health, Dr. J. D. Martin, Jr., Chairman.

Section on Radiology, Dr. J. T. Brierre, Chairman.

Section on Urology, Dr. U. S. Hargrove, Chairman.

Wednesday luncheon sessions

Section on Allergy, Dr. Vincent J. Derbes, Chairman.

Section on General Practice, Dr. Edwin R. Guidry, Chairman.

Wednesday afternoon, April 30

Section on Ear, Nose and Throat, Dr. Charles L. Cox, Chairman.

Section on Eye, Dr. John B. Gooch, Chairman.

Section on Gynecology, Dr. Abe Mickal, Chairman.

Section on Heart, Dr. A. A. Herold, Chairman.

Section on Pediatrics, Dr. Ralph J. Talbot, Chairman.

Hotel Reservations

A letter has been sent to every member of the Society concerning reservation for hotel accommodations. Give this your prompt attention so that you may secure the accommodations you desire.

Dinner Dance

The president's reception and dinner dance will be held on Tuesday evening, April 29.

Scientific Exhibits

Members desiring to have a scientific exhibit are notified that approximately 130 linear feet will be available for the scientific exhibits and will be allocated on the basis of the date request for space is received. Exhibitors are requested to include in their request number of linear feet desired for vertical exhibits and the approximate linear feet in 30 inch width table top display surface. Because of possible limitation of electric facilities, exhibitors are requested to submit with their request an estimate of the amperage of electricity necessary for each exhibit. Application should also contain exact title of the exhibit and full name and address of the exhibitor so that uniform identification display cards can be printed for each booth. All applications must be received not later than April 1, 1952, requests to be addressed to Dr. Ford J. Macpherson, Chairman, Committee on Scientific Exhibits—1952 Annual Meeting, 940 Margaret Place, Shreveport, Louisiana.

Golf Tournament

The annual golf tournament will be held at the Shreveport Country Club on April 28 and 29. An entrance fee will be charged in order to raise additional money for prizes. There will be fourteen prizes offered and all golfers who are members of the State Society are urged to try their luck over the sporty Country Club course. The tournament will be only a one-day tournament but you may qualify for the tournament on either the twenty-eighth or the twenty-ninth. It will help the Golf Committee a great deal if the members who intend to participate in the tournament will file their intentions with Dr. W. G. Jones, 314 Physicians and Surgeons Building, East, Shreveport, Louisiana, previous to their arrival in Shreveport; however, all members will be allowed to participate by signing up and paying the entrance fee.

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Skeet Shoot

A skeet shoot will be held at the Shreveport Skeet Club on Tuesday afternoon, April 29 beginning at two o'clock. Shells and targets will be available but participants should provide their own guns. Those interested in shooting should notify Dr. Lewis S. Robinson, of Shreveport, so that the committee handling details for the shoot will have an estimate of number who will participate.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

GRADUATE INSTRUCTIONAL COURSE IN ALLERGY

On April 4-5-6, 1952, at Pittsburgh, Pennsylvania, The American College of Allergists will offer an instruction course in allergy. The program has been designed for physicians in other fields of practice, especially those in general practice, that they may learn to recognize and manage the allergic component in the complaints of their patients.

THE AMERICAN COLLEGE OF ALLERGISTS HOLDS EIGHTH ANNUAL MEETING

The next annual meeting of The American Col-

lege of Allergists will be held this year at the William Penn Hotel in Pittsburgh, Pennsylvania, on April 7-8-9. The College is offering an unusually practical program for its fellows, members and guests.

In addition to 20 addresses on general topics and special scientific investigations, there will be round tables at luncheons and sectional meetings devoted exclusively to the psychosomatic aspects of the allergic patient, allergy in infants and children, allergic manifestations in the skin, as well as those seen in the eye, ear, nose and throat.

NEWS ITEMS

Drs. Edmund Connely and Charles S. Holbrook, two of the outstanding psychiatrists in New Orleans, were signally honored at the annual staff banquet of the DePaul Sanitarium on January 28 when they were presented a plaque by Sister Anne, Head Administrator, for distinguished and meritorious services to this institution throughout the many years since they became members of the staff.

Dr. Connely was doubly honored by receiving, in addition to this plaque, a certificate and gold key from the City for the splendid and capable manner in which he has conducted the affairs of the City Hospital for Mental Diseases, as its Director. These honors are distincly merited by these doctors.

Dr. Henry E. Gautreaux, of Covington, Louisiana, has been selected as outstanding citizen of that community for 1951. He has practiced medicine in Covington for forty-six years and has rendered most valuable and unselfish service to all classes, races and creeds. Since 1948 he has served as coroner of St. Tammany Parish and is a member of the Board of Directors of the new mental hospital being built near Mandeville. In 1914 he served as a member of the local draft board and devoted time to selling Liberty bonds. He was active then, and still is, in Red Cross work in the parish. He has always had an active interest in organized medicine and has served in every office, including that of president, of the parish medical society. He has, on many occasions, served as delegate to the State Medical Society and been honored with appointments to various committees. In addition to his professional and civic activities he has been associated, in an official capacity, with the Knights of Columbus for many years.

The Gueydan (Louisiana) High School honored their "Favorite Citizen" Dr. G. L. Gardiner, Sr. at the first homecoming celebration of the school on Saturday, March 8, 1952. Dr. Gardiner has been an active practitioner of medicine since 1906 and is held in high esteem by all who know him. The dedication of this first homecoming of the Gueydan High School was "in recognition of his magnificent achievement, in appreciation of his untiring efforts in behalf of the people of Gueydan".

At the Annual Meeting of the American College of Radiology which took place on February 8, 1952, in Chicago, Dr. Robert P. Ball, Baton Rouge, was elected Vice-President of the College.

IN MEMORIAM

OWEN COMPTON RIGBY, M. D.
1888 - 1952

Dr. Rigby, of Shreveport, an active member of the State Society for many years and elected to inactive membership in 1951, died on January 7, 1952.

VOLLIE LAFAYETTE SANDIFER, M. D.
1889 - 1952

Dr. Sandifer, of Logansport, died on January 21, 1952. He graduated from the Atlanta Medical College in 1915 and was a member of the State Society since 1917.

GEORGE BENNET DICKSON, M. D.
1887 - 1952

On February 2, 1952, Dr. Bennet Dickson, of Shreveport, died after having practiced medicine in this state since graduating from Tulane University in 1911.

THOMAS SPEC JONES, M. D.
1881 - 1952

Dr. Jones, of Baton Rouge, died after a long illness, on February 18, 1952. He had been in active practice of medicine since 1906. His father and his grandfather were also doctors and his son, Dr. Jack R. Jones, carries on the family medical tradition with a practice in Baton Rouge. His nephew, Dr. Frank Jones, is also a physician.

DOCTOR'S RESPONSIBILITY TO THE LOUISIANA PHYSICIANS SERVICE

We must realize that health insurance is the only kind of insurance in the world which has even attempted to succeed without the protection of the law. Fire insurance could not exist a minute with the absence of laws prohibiting arson; nor could marine insurance, automobile or even life insurance exist without legal protection. Louisiana Service—your Blue Shield Plan—was created and designed to provide NECESSARY MEDICAL, SURGICAL AND HOSPITAL CARE to em-

ployed persons and their families and also to individuals, through a voluntary system of prepayment.

Subscribers are urged to use the service when they are in need of medical and hospital care; but at the same time, to use it judiciously and to avoid unnecessary utilization and waste. Abuse is one of the greatest cost factors in a hospital, surgical, medical care program today. Daily LPS receives reports from doctors and reguests from subscribers which can only be interpreted as being abusive. In many instances the subscribers, and some doctors too, expect LPS to provide service beyond the scope of its certificate and beyond the scope for which it has agreed to provide such service. Abuse of the service by a few increases the cost of furnishing that service to all subscribers. Continued abuse of any hospital, medical, surgical program may eventually result in a higher dues rate for every subscriber.

Cooperation is the answer. The subscriber must be willing to cooperate and must be willing to expect only those services to which he is entitled. The doctor must be willing to cooperate. The doctor must know and familiarize himself with the services of Blue Shield. The doctor must be in a position to advise the patient and subscriber of what services Blue Shield will render and must be willing to so advise the subscriber not to expect services to which he is not entitled and to "pass the buck" to Blue Shield to advise the subscriber and, thereby, create bad public relations.

This is a cooperative effort between an organized plan, the subscriber-public and the doctors—all must cooperate, and all must remember that this is their insurance company.

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WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

The midterm State Auxiliary board meeting was held at the New Orleans Country Club, January 29, with Mrs. Theodore Simon presiding.

Following the board meeting, a buffet luncheon was served. The guests were: Mrs. H. T. Simon, Mrs. Robert Kelleher, Mrs. Edwin Guidry, Mrs. George Feldner, Mrs. C. Grenes Cole, Mrs. Tracy Gately, Mrs. Fred Fenno, Mrs. Monte Meyer, Mrs. Albert Habeeb, Mrs. Robert Rougelot, Mrs. Morgan Lyons, Mrs. Louis Leggio, and Mrs. John Dunn of New Orleans, Mrs. O. B. Owens, Alexandria, Mrs. D. B. Barber, Pineville, Mrs. Henry Gahagan, Alexandria, Mrs. Jacob Hoth, Mrs. Henry Jolly, Jr., Mrs. Wiley Dial, Baton Rouge, Mrs. N. M. Brian, Jr., Mrs. Rhodes Spedale, Plaquemine, Mrs. I. I. Rosen, Mrs. De Witt Milam, Monroe, Mrs. Ed Wynne, Mrs. T. A. Kimbrough, Mrs. Collins Lipscomb, Mrs. Joseph Massony, Mrs. W. A. R. Seale, Sulphur; Mrs. Creighton Shute, Opelousas, Mrs. M. C. Wiginton, Mrs. Roy Young, Covington, Mrs. Wyeth Worley, Mrs. Thomas Strain, Shreveport.

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BOOK REVIEWS

Untoward Reactions of Cortisone and ACTH: by Vincent J. Derbes, M. D. and Thomas C. Weiss, M. D. Chas. C. Thomas, Publisher, Springfield, Ill., 1951. pp. 56. Price, $2.25.

One of the American lecture series, this timely monograph, performs a very useful service in bringing together in one volume the multitudinous reactions to cortisone and ACTH. It represents the gleamings from such widely divergent fields as bacteriology, immunology, pathology, biochemistry, psychiatry, dermatology, allergy and various subspecialties of internal medicine. The reactions are grouped under separate chapter headings to facilitate ready reference to the physician interested in a certain aspect of the problem. Brief summaries at the beginning of each chapter enhance the book's usefulness. An adequate chapter on the physiology of these compounds introduces the subject and a final chapter is found embracing the author's experiences and that of the literature regarding caution and safeguards in the use of these drugs. An adequate bibliography and a complete index add to the value of the volume. It would seem to the reviewer that every physician using cortisone or ACTH should be familiar with the untoward reactions. A perusual of this volume will accomplish this aim. Being available, it will further serve as a ready reference regarding these problems.

ANDREW KERR, JR.

A Text Book of X-ray Diagnosis by British Authors, Second Edition, Edited by S. Cochrane Shanks, M.D., F.R.C.P., F.F.R., and Peter Kerley, M.D., F.R.C.P., F.F.R., D.M.R.E., Vol. I, W. B. Saunders Co., Philadelphia and London.

This volume, devoted to the head and neck, completes this well known four volume set by the British authors. It represents the second edition of the very popular three volume set by the same authors.

The book is divided into five parts. Part One covers the central nervous system. Routine and special technics, pathology, ventriculography, encephalography, cerebral angiography, intracranial lesions, anomalies, and diseases of the skull and the spinal cord are discussed in this part. The discussions of the pathological lesions producing thinning and thickening of the skull bones are clearly covered and should be valuable in differential diagnosis.

Part II on the teeth and jaws contains discussions of normal anatomy, congenital defects, inflammatory lesions, injuries, cysts and tumors of the teeth and jaws and disease of the temporomandibular joints and antrum. Part III is devoted to the eye and covers various technics for the localization of opaque foreign bodies.

The accessory nasal sinuses are covered in Part IV and the anatomy, physiology, inflammations, technic and roentgen interpretation of the sinuses are considered.

Part V is devoted to the temporal bone and covers the anatomy, physiology, pathology, technic and roentgen interpretation of this important structure. An adequate index is available at the end of the book.

The illustrations conform to the excellence of those in the other volumes of the set. The text is clear. In general, the four volumes are comprehensive and are a necessity to anyone interested in diagnostic radiology.

J. N. Ane', M. D.

The Pharmacological Basis of Penicillin Therapy; by Karl H. Beyer, Ph. D., M. D., F. A. C. P. Springfield, Ill. Chas. C. Thomas Co. 1950. pp. 214. Price, $4.50.

This work is a very competent summary of the pharmacological literature on penicillin. The various penicillins are discussed early in the book; the remainder refers mainly to the most used fraction, penicillin G. The absorption of penicillin is thoroughly covered, with special emphasis on the factors which limit absorption after oral administration. The inherent poor absorption of penicillin from the gastrointestinal tract is considered more important than destruction by stomach acid since even in achlorhydric patients five times as much penicillin is required by mouth as by the intramuscular route. Other routes of administration are discussed and the differences in blood level after all routes of administration pointed out by numerous graphs. The distribution of penicillin in various tissues and body fluids is adequately covered and the fact that inflammation of membranes makes them more permeable to penicillin. It is pointed out that most of the reactions which have occurred with the use of penicillin were allergic in character. A large proportion of the book is taken up with a discussion of the renal excretion of penicillin and the mechanisms of action of substances which compete with penicillin for the excretion mechanism. This is substrate competition for the definitive component of the transport system and may be of two types: Competition by an acceptable substrate or by a substance with an affinity for the enzyme but refractory to its catalytic effect. An extensive discussion of carinamide action and use concludes this excellent monograph.

Foster N. Martin, Jr., M. D.

Current Therapy 1951; Ed. by Howard F. Conn, M. D. & others. Philadelphia, W. B. Saunders Co., 1951. pp. 699.

One of the problems of general practice is the feeling of inadequacy in keeping abreast of medical literature, especially in its treatment phases. It is manifestly impossible for one person to wade through the welter of words which compose the bulk of our periodicals and just as unfeasible to evaluate them properly. The present volume of *Current Therapy* with its large number of able contributors helps to solve this problem.

All the general and most of the special fields of medicine are covered. The discussions for the most part are succinct but adequate. At variance with most volumes on therapeutics, all of the possible methods and theories of treatment are not presented. Rather, and in the opinion of this reviewer, advisedly so, the method of a recognized authority is given, usually in tabular form.

On the debit side of the ledger, is the physical format. The volume is rather unwieldly and does not appear to be as wellbound as most of this publisher's works. Again, if it were published biannually and on the alternate years a small supplemental volume issued containing only the changes in current therapeutic thought, this would evidence more concern for the pocketbook of the purchaser.

Carlo P. Cabibi, M. D.

PUBLICATIONS RECEIVED

Corinthian Publications, Inc., NYC: Dynamic Psychiatry, Basic Principles, by Louis S. London, M. D.

W. B. Saunders Co., Phila.: A Textbook of Clinical Neurology, with an Introduction to the History of Neurology, by Israel S. Wechsler, M. D., (7th Edit.); Gallander's Surgical Anatomy, by Barry J. Anson, M. A., Ph. D. (Med. Sc.), and Walter G. Maddock, M. S., M. D., F. A. C. S., (3rd Edit.).

Henry Schuman, N. Y.: Doctors in Blue, the Medical History of the Union Army in the Civil War, by Dr. George Worthington Adams; Hippocrates on Intercourse and Pregnancy, by Alan F. Guttmacher, M. D.

Charles C. Thomas, Publisher, Springfield, Ill.:

Endocrine Functions of the Pancreas, by Bernard Zimmermann, M. D.; Urine and the Urinary Sediment, by Richard W. Lippman, M. D.; The Prevention of Rheumatic Fever, by Lowell A. Rantz, M. D.; Brain Tumors of Childhood, by Henry M. Cuneo, M. D., and Carl W. Rand, M. D.; The Calculation of Industrial Disabilities of the Extremities, by Carl O. Rice, M. D., Ph. D.; The Auricular Arrhythmias, by Myron Prinzmetal, M. D., Eliot Corday, M. D., Isidor C. Brill, M. D., Robert W. Oblath, M. D., and H. E. Kruger; The Internship, by Roscoe L. Pullen, A. B., M. D., F. A. C. P.; The Photography of Patients, by H. Lou Gibson. F. B. P. A., A. P. S. A., and edited by Ralph P. Creer; Cellular Changes with Age, by Warren Andrew, Ph. D., M. D.; Post-Graduate Lectures on Orthopedic Diagnosis and Indications (Vol. III), by Arthur Steindler, M. D., F. A. C. S.; Child Psychiatric Techniques, by Lauretta Bender, B. S., M. A., M. D.

New Orleans Medical

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THE USE OF STREPTOKINASE AND STREPTODORNASE IN PELVIC ABSCESSES

PRELIMINARY REPORT

CONRAD G. COLLINS, B. S., M. D., M. S.

GEORGE W. TUCKER, B. S., M. D.

NEW ORLEANS

INTRODUCTION

The use of streptokinase and streptodornase as a method of medical debridement has been described in the literature for a variety of conditions such as superficial wound infection, pilonidal cyst, burns, pyothorax and hemothorax. Its use in pelvic abscesses has not as yet been popularized. In the past pelvic abscesses which were accessible through the cul-de-sac were treated by colpotomy drainage followed with definitive surgery six to eight weeks later, if necessary. Prior to the use of streptokinase and streptodornase a much larger colpotomy tube, approximately 3 cm. in diameter, was inserted into the colpotomy wound. This was left in place for continued drainage until it fell out, usually ten days to two weeks. A considerable amount of induration and scarring was found, as a rule, on postoperative examination when the above procedure was used.

In the Tulane Gynecological service at Charity Hospital streptokinase and streptodornase are being used as adjuvants to colpotomy drainage in pelvic abscesses with the idea of decreasing the viscosity of the purulent material, allowing more complete drainage, and possibly, eliminating definitive surgery, such as total hysterectomy with or without bilateral or unilateral salpingo-oophorectomy.

PHARMACOLOGY OF STREPTOKINASE AND STREPTODORNASE

The streptokinase factor acts with globin in plasma or exudates to become an active fibrinolytic substance. Streptodornase acts to catalyze the breakdown of desoxyribonucleoprotein, which constitute 30 to 70 per cent of the sediment of thick purulent exudates.[9] Sherry, Johnson and Tillet have shown that the physical, chemical, histologic, and cytologic changes are as follows:[6]

1. Visible changes of coarse sediment to thin milky type fluid.
2. Marked decrease in viscosity.
3. Decrease in the sediment after centrifugation.
4. Increase in organic acid soluble phosphorus and nitrogen.
5. No increase in organic phosphorus.
6. Decrease in degenerated leukocytes.
7. Decrease in extracellular material (desoxyribose nucleoprotein) on Feulger staining.

It has also been shown that the nucleases do not act on living cells, but on nucleic acid in extracellular accumulation and in disintegrating cells.[9] Besides its effect in decreasing viscosity and increasing drainage

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Presented at meeting of the Orleans Parish Medical Society, February 11, 1952.

From the Department of Obstetrics and Gynecology, The Tulane University of Louisiana, School of Medicine, and The Tulane Unit, Charity Hospital of Louisiana at New Orleans.

Varidase used in this study was supplied through the courtesy of the Lederle Laboratories.

Aided by a grant from the Anonymous Research Fund.

there is the theoretical advantage of removing the barrier between the humoral and cellular elements and the bacteria.[7] Therefore, with more complete drainage of the abscess cavity and more effective antibiotic activity one would expect a higher incidence of sterilization of the abscess cavity and pelvic structures.

PROCEDURE IN PELVIC ABSCESSES

Since July 1951, we have treated and have follow-up evaluation on a total of 11 patients who had pelvic abscesses treated with streptokinase and streptodornase plus colpotomy drainage. Our method is: Injection of 1 ampoule of varidase solution, mixed in 10 cc. normal saline solution, into the abscess cavity at the time of diagnostic cul-de-sac puncture. It is important that approximately the same volume of fluid is withdrawn at diagnostic puncture as varidase solution injected in order to obviate the possibility of an artificially induced rupture of the abscess into the peritoneal cavity. Approximately twenty-four hours following injection of the varidase solution a colpotomy is done. A gallbladder T tube is placed in the abscess cavity to allow for continued drainage and further injection of the varidase solution. We have found that injection of varidase solution daily for approximately four days following colpotomy is satisfactory. In our first cases we did not insert a colpotomy tube; consequently, we had to reopen the colpotomy wound about every other day. Since then we have found the smaller (1 cm.) gallbladder T tube satisfactory. This tube being of much smaller diameter, and being removed on approximately the fourth postoperative day, is expected to be a big factor in eliminating definitive surgery. All patients are also placed on flo-cillin, aureomycin, and streptomycin and in those with evidence of paralytic ileus, gastric Levine tube suction and parenteral fluids are administered.

This study is divided into two groups, one in which patients had a tubo-ovarian abscess in the adnexal region extending into the cul-de-sac, and the other in which the abscess was primarily in the cul-de-sac. This was done in order to evaluate the completeness of drainage in the two primary groups. The average postoperative days were seven for the tubo-ovarian abscesses, and eight for the primary cul-de-sac abscesses (Figure 1). When it is remembered that previously the larger colpotomy tube was left in place from ten to fourteen days, it can be seen that the hospital, febrile, and postoperative days have been substantially reduced with the above described method. Many of these patients could have been discharged on the fifth or sixth hospital day if continued chemotherapy had been feasible in the home. Of the 8 cultures which reached the laboratory and on which we received reports, 5 were positive on the initial culture. Because of frequent negative subcultures and saprophytes, they have been of little value in diagnosing the origin of the abscess or the proper choice of antibiotics.

ABSCESS	S & S and COLPOTOMY	DAYS AVE. HOSP.	DAYS P.O.	DAYS FEBRILE	CULTURE POS.	CULTURE NEG
Group I TUBO-OVARIAN AND CUL DE SAC	6	9	7	3	3	1
Group II CUL DE SAC	5	10	8	3	2	2

Figure 1.—Tabulation of significant points in hospital course of 11 cases of pelvic abscess treated with streptokinase and streptodornase plus colpotomy drainage.

FOLLOW-UP EVALUATION

In our six weeks' follow-up examination (Figure 2), there was one patient in each of

SYMPTOMS	EVALUATION – 6 WEEKS Group II R.B.	6 WEEKS Group II J.J.	6 WEEKS Group I R.W.	4 MONTHS II R.B.	4 MONTHS II J.J.	4 MONTHS I R.W.
PAIN	+	0	+	0	∓	++
MASS	+	0	+	0	+++	+
MENORRHAGIC	0	0	0	0	0	0
ACUTE FLARE-UP	0	0	0	0	0	0
POSSIBLE SURGERY	1		1	1		1

Figure 2.—Patients with significant symptoms and pelvic findings at six weeks follow-up (11 patients), and four months follow-up (6 patients).

the primary groups who had significant symptoms and pelvic findings. One patient (R. W.) with a primary tubo-ovarian abscess extending into the cul-de-sac had residual left lower quadrant pain, and on examination had some tender thickening in her left adnexal region. Another patient (R. B.) with a postoperative cul-de-sac abscess had minimum pelvic doscomfort and a cystic mass, which was drained of 50 cc. of serous fluid from the angle of the cuff. She was again seen at a four months postoperative check and was asymptomatic and had insignificant pelvic findings. Of the 6 patients seen at their four months postoperative check there were only 2 with significant complaints and pelvic findings. One was the same patient with the primary tubo-ovarian abscess who had symptoms at her six weeks follow-up and will probably need definitive surgery. The other patient (J. J.) had a pelvic abscess following a total abdominal hysterectomy and left salpingo-oophorectomy for uterine fibroids and old ruptured left tubal pregnancy. Her six weeks postoperative check was negative, but on her four months check she was found to have a large cystic mass filling the entire pelvis which was drained of 330 cc. serous fluid. Therefore, there is only one probable and one other possible candidate for surgery to date. We have no patients who have had an acute flare-up of pelvic infection, which might substantiate the theoretical advantage of varidase solution in removing the barrier between the humoral and cellular elements and the bacteria.

VISCOSITY CHANGE WITH VARIDASE

In the middle of our study we were under the impression that the varidase was changing the character of the fluid mainly in decreasing its viscosity, but had no concrete proof. Since then we have attempted to measure the change in viscosity of the fluid both before and after treatment in 3 patients. This was done (Figure 3) using an ordinary test tube with a standard column of fluid, an 18 gauge spinal needle as an airway, and a 20 gauge needle through which to measure the rate of flow. The difference in the rate of flow of the fluid obtained at the time of diagnostic cul-de-sac

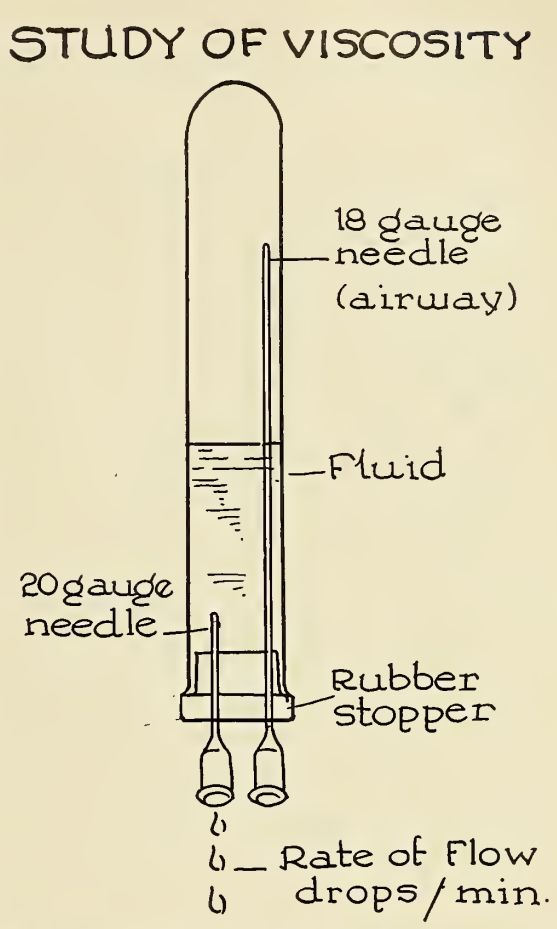

Figure 3.—Method used to test viscosity both before and after varidase injection.

puncture, before varidase was injected and the fluid obtained at colpotomy twenty-four hours later indicates the change in viscosity. As is illustrated in Figure 4 our results show a significant change in viscosity in the first 2 studied. The third case is not

Results of Viscosity Study

CASES	RATE FLOW	
	BEFORE S&S*	AFTER S&S
1	0	36
2	0	16
3	4	8

* S & S = Streptokinase and Streptodornase

Figure 4.—Change in rate of flow through 20 gauge needle after varidase.

significant and can be explained since a large portion of the varidase solution returned immediately through the needle puncture.

DISCUSSION

There are many who feel that diagnostic cul-de-sac puncture is a dangerous procedure. We have been using it on many of our diagnostic problems and have yet to see any serious immediate or late complications. Its chief value other than in ectopic pregnancy is in the differential diagnosis of pelvic pain when the pationt is either too obese, tender, or uncooperative to examine adequately. The character of the cul-de-sac fluid has been of some value to us in differentiating tubo-ovarian abscesses in the cul-de-sac from prolapsed hydrosalpinx and other cystic masses, The pus obtained from tubo-ovarian abscesses is usually thick, often greenish in color, and frequently has a fecal odor. Also in tubo-ovarian abscesses there is often a dramatic relief of the pain following cul-de-sac puncture. This can be explained by relief of tension in the thick-walled abscess cavity.

There has been some question in our minds as to the effect of the varidase solution on suture material and the healing process in postoperative patients. The fibrinolytic activity of streptokinase may theoretically interfere since fibrin deposition is one of the early phases of tissue regeneration. We have used varidase, as described above, on 2 cases which did develop pelvic abscesses following gynecological surgery. Both of those patients are reported as having pain and a pelvic mass in their follow-up checks. Subsequently they had 50 and 330 cc. of serous fluid withdrawn through the cul-de-sac. This raises the question as to whether the accumulation of fluid was due to possible hemorrhage or hematoma formation, becoming encapsulated. In case No. 1, R. B., (Figure 2), a colpotomy tube was not used, and in J. J. the failure to find any abnormalities on her six weeks check, and the large mass found at her four months examination, makes one think of a possible cystic degeneration of the remaining ovary. Future cases must be observed to evaluate this possible complication to the use of varidase.

Other than the above reported cases, we have used the varidase in 3 patients who had a cuff abscess following gynecological surgery. In these patients the cuff was opened with uterine dressing forceps and varidase solution placed in the vaginal vault. The patients were kept in the lithotomy position with speculum in place for approximately fifteen to twenty minutes before going back to bed. The granulating edges of the vaginal cuff appeared much cleaner when examined the following day and in one the remission in her daily temperature elevation was dramatic. There were no cystic complications observed in their follow-up examinations such as were found in the postoperative pelvic abscesses.

We have used varidase in granulating perineal and inguinal wounds following cancer surgery with apparent gratifying results.

In 4 abdominal wounds which became infected we used varidase, in 1 as irrigation and drainage following secondary closure, irrigation and drainage in 1 other, and in 2, with surgical debridement leaving the wound packed open with varidase saturated fine mesh gauze. Although all of the wounds healed satisfactorily our best results were obtained when surgical debridement was combined with varidase saturated packs. In one of these crochet No. 5 retention sutures were placed and left untied. The wound was packed with varidase saturated fine mesh gauze, the sutures tied on the fourth postoperative day, with primary union occurring. The other patient is on the ward now and the wound is being allowed to granulate.

CONCLUSIONS

In conclusion, although it is too early to be sure, we believe that the varidase solution is an adjuvant to colpotomy drainage in pelvic abscesses. We have been able to decrease the viscosity of the fluid. Furthermore, it our belief that we are obtaining more complete drainage and hope that fewer patients will require definitive surgery. Our use of varidase solution in the management of wound infection occurring on the

gynecological service has also been described.

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USE OF CORTISONE IN PELVIC CELLULITIS

PRELIMINARY REPORT

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Ligneous pelvic cellulitis is a chronic condition of the pelvic tissues characterized by induration, tenderness, firmness, and fixation. The tissue shows marked evidence of chronic inflammatory reaction with cellular infiltration, edema, and varying degrees of fibrosis. This type of cellulitis is usually due to streptococcal invasion of the pelvic tissues and lymphatics, most frequently following instrumentation of the pregnant uterus but also following any number of types of pelvic manipulation. It is also, in our short experience, associated with the chronic diseases of the pelvis, as may be noted in the cases to be cited. Treatment in the past has usually been prolonged and unsatisfactory.

Cortisone was suggested as a possible therapeutic agent because of experimental evidence that it inhibits fibroplasia, increases the growth of tissue macrophages in tissue culture, and prevents or reduces tissue reaction to chemical irritants.

The material collected here consists of 7 patients treated on the Tulane Gynecology Service at Charity Hospital in New Orleans, in addition to a case seen by C. G. Collins, W. F. Guerriero and V. A. Davidson. These cases have been seen only within the past three and one half months and have had a wide range of associated pathology, so that no definite or general conclusions can be drawn. However, each case has demonstrated possibilities of the usefulness of cortisone, which may bear further investigation.

CASE REPORTS

Case No. 1. Mrs. L. R., age 41, diagnosed carcinoma of cervix in July 1950, at which time there was some brawny induration of the left cardinal and uterosacral ligaments. The cervical lesion surrounded the external os and occupied about 10 per cent of the cervix. In July and August 1950, the patient received a full course of radiation and x-ray. In November 1950, a Wertheim hysterectomy and complete pelvic lymphadenectomy were performed. Pathology report revealed carcinoma of the cervix, with normal myometrium and fallopian tubes, adjacent fibrosis of the ovaries, and regional lymphoid hyperplasia of the pelvic and pre-aortic lymph nodes. The postoperative course was uneventful. During her hospital stay the patient was treated with extensive antibiotics although temperature never went above 100° F. postoperatively. She was discharged on the eleventh postoperative day. One week after discharge she complained of low abdominal pain and was found to have marked pelvic induration. She was given a course of diathermy to the lower abdomen for a period of twelve days with relief of pain but incomplete resolution of the pelvic induration. The patient was comfortable until May 1951 when she started complaining of low grade fever (as high as 100°), aching pain, and frequency of urination. She was diagnosed as having pyelonephritis. Intravenous pye-

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The cortisone used in this study was supplied through the courtesy of Merck & Co. Inc., Rahway, N. J. Aided by a grant through the Anonymous Research Fund.

lograms revealed bilateral hydronephrosis, and dilation and tortuosity of both ureters down to the brim of the true pelvis. Pelvic examination revealed a markedly indurated pelvis, frozen in character with no structures movable, including the rectum which was fixed posteriorly to the sacrum. She was treated with antibiotics for her urinary tract infection which cleared up promptly. By September 12, 1951, the induration had become progressively worse, the entire pelvis was frozen, and the rectum was almost closed posteriorly by a brawny induration surrounding it. The patient had severe malaise and low abdominal pains necessitating frequent analgesia. On September 20, 1951, an extraperitoneal exploration was done and numerous biopsies made of the indurated pelvic mass. These biopsies were reported as chronic inflammatory tissue. Postoperatively the patient was placed on cortisone, 100 mgm. the first day, 75 mgm. the second day, and 50 mgm. daily thereafter. Following the administration of cortisone the patient's pain disappeared. There was an immediate improvement in her condition and at weekly intervals remarkable resolution of the induration was noted. As of October 24, 1951, the only pelvic induration left was a small area between the rectum and vagina. She gained weight; her appetite returned; and she was again able to resume her usual activities.

Comment: This case is of particular interest because in September 1951 it was thought possible that her condition represented a recurrence of her carcinoma and more radical surgery was entertained, especially since the ligneous mass had not regressed under diathermy and antibiotic therapy. Under cortisone she has been relieved of pain and over a period of four weeks almost the entire ligneous mass disappeared. She is to all appearances healthy and has been spared further extensive surgery.

Case No. 2. P. J., 37 year old colored female, was first seen at Shreveport Charity Hospital in August 1950 with a stage II epidermoid carcinoma of the cervix. She was treated in September and October 1950 with radium and x-ray. On December 7, 1950, a Wertheim hysterectomy and complete pelvic lymphadenectomy were performed. Pathology report revealed no evidence of metastasis or spread beyond the immediate confines of the cervix. Follow-up examination on June 25, 1951, and September 24, 1951, noted no active disease but induration and fixation along the uterosacral ligaments. She was referred to Charity Hospital in New Orleans on October 22, 1951, with diagnosis of possible recurrent carcinoma of cervix. She was complaining of pains in her back and lower abdomen and of vomiting. Her pain was sufficient to require frequent administration of narcotics. On examination, just above the vaginal cuff there was a stony hard shelf with a slightly irregular surface extending from pelvic wall to pelvic wall, the whole mass being exquisitely tender. The uterosacrals formed a solid bridge through which the rectum passed. There was also a firm smooth mass in the left obturator fossa. Intravenous pyelograms showed a nonfunctioning right kidney and a normal left kidney and collecting system. The right ureteral orifice could not be visualized on cystoscopy. A proctoscope could be passed only 16 cm. because of the shelf. There was pallor of the mucosa over this shelf but no evidence of tumor. All x-rays showed no evidence of metastasis. There was, however, some sclerosis adjacent to the lower sacroiliac joint bilaterally. The impression was postoperative and postirradiation fibrosis with calcification.

Cortisone was started on October 28, 1951, in the same dosage form noted in the previous case. The patient continued to cry for sedation although it was noted that she frequently obtained more relief from 10 grains of aspirin than from 100 mgm. of demerol.

She was checked at weekly intervals and it was noted that there was marked diminution in the extent and degree of fixation and induration, although there was still a firm ridge of tissue crossing the pelvis. The mass in the left obturator fossa completely disappeared. Cortisone was discontinued November 20.

On December 8, 1951, because the patient still complained of pain and the induration had not completely resolved the patient was explored. An old incisional hernia was found with much adherent small bowel filling the defect. There was a firm band of scar tissue replacing the uterosacral ligaments. The right ureter was occluded by scar tissue at the level of the common iliac artery. There was no gross evidence of malignancy. The band of scar tissue was incised and biopsy specimens were taken. These were reported as fibrous tissue. The patient was put back on cortisone on December 11, 1951. This had apparently no effect on healing, although it was necessary to explore the wound on December 17, 1951, because of a pocket of gas in the subcutaneous tissue.

Following surgery the patient had numerous complaints and pains, the location of which varied from hour to hour. She said, however, that the pain which had previously incapacitated her was gone. She was controlled in large part by placebos.

She was discharged December 28, 1951. There was still fibrosis in the pelvis but it was resilient rather than boardlike and there was no tenderness. Subjectively she was improved.

Comment: This case is quite similar to the previous one. Again it is quite possible that the use of cortisone saved this woman from radical surgery. That there was a less complete resolution of her pelvic mass might well be due to the degree of fibrosis of the inflammatory process.

Case No. 3. J. T., 44 year old colored female, diagnosed at Charity Hospital in New Orleans as

Stage II carcinoma of the cervix in March 1945. Because of lack of cooperation from the patient she received an incomplete course of external radiation in July 1945 and did not return again until September 1946. The diagnosis was then Stage III carcinoma of the cervix. She was treated in September 1946 with two applications of radium.

On December 8, 1947, patient was noted to have marked fibrosis of parametria, and a diagnosis of parametrial infiltration was made.

On March 3, 1950, mention was made of an area of recurrence. This was not described and no biopsy was taken. She was also noted to have a persistent elevation in temperature. One 150 mgm. pellet of testosterone was implanted.

On August 31, 1950, patient was complaining of right lower quadrant pain and constipation. The pelvis was frozen and the vagina contained a thick yellow purulent discharge with many telangestatic areas. She had not been using the dilute permanganate douches as instructed.

In April 1951, the vagina was clean but the pelvis induration was unchanged.

On October 22, 1951, the patient complained of backache, pain in right side, constipation, and postcoital bleeding. The pelvis was frozen. A friable area was biopsied and reported to show radiation fibrosis. She was admitted November 19, 1951, for evaluation. Intravenous pyelograms were normal. Barium enema showed no evidence of a lesion involving the large bowel. The patient was started on cortisone November 30, 1951, and given a total dose of one gram according to the same dosage schedule. On December 12, 1951, the patient was asymptomatic and there was remarkable softening of the pelvis.

Comment: The patient was seen in the clinic on January 21, 1952. She had occasional backache and fleeting lower abdominal cramps. The resolution of the solid induration of her pelvis had been maintained. This patient is a diabetic and hypertensive. Cortisone had no untoward effect on these conditions.

This patient represents a five year survival of an original stage II carcinoma of the cervix. Repeatedly during her follow-up visits she had apparently been considered to have recurrence. Certainly she had progressive symptoms in her pelvis. She showed a dramatic response to cortisone therapy. Although some tumors (particularly the lymphomas) have been noted to show temporary regression with cortisone therapy, it is not probable that such a homogenous melting away of tumor tissue would occur in an epidermoid carcinoma and be maintained as has occurred in this patient.

Case No. 4. A. T., 47 year old white female was admitted to Charity Hospital in New Orleans with the complaint of lower abdominal pain and a brown watery discharge with a fecal odor for eight days. She had had a moderate amount of pelvic pain since December 1949. Her past history is as follows: March 1944, myomectomy and appendectomy; May 1949, myomectomy and removal of malignant tumor of left ovary at Huey P. Long Charity Hospital at Pineville, followed by external radiation and intracavitary radium; March 21, 1950, supravaginal hysterectomy and transverse colostomy. Adnexa had been previously removed. There was no evidence of malignancy in any of the tissue removed including one palpable lymph node. Colostomy was performed because of traumatic perforation of the rectosigmoid. The colostomy was closed May 11, 1950. She developed a fecal fistula in the wound which closed spontaneously.

In the eighteen months since her surgery she had gained 15 pounds and except for lower abdominal pain had been well under the present episode.

Patient was an obese woman who did not appear ill although quite apprehensive. General physical examination was normal except for five abdominal scars, moderate left lower quadrant tenderness and pelvic findings. The vulva was erythematous. The vagina contained a brown liquid material and was constricted in its upper third. The stricture was dilated under anesthesia and a clean atrophic cervix was visualized, fixed and not patent. The pelvis was fixed with dense, firm bands of tissue extending from lateral wall to lateral wall, the whole exquisitely tender. There was a firm rectal shelf. Intravenous pyelograms were normal. The patient could retain barium for a barium enema only as far as the splenic flexure at which point it was expelled through the vagina, a fistulous tract from distal sigmoid to vagina being demonstrated. The fistula was demonstrated on proctoscopic examination at 10 cm. The patient was advised to have a colostomy, but pled vigorously for us to give her comfort some other way. She was started on cortisone according to the same dosage schedule on December 27, 1951.

At one week there was thought to be some softening and the pelvic mass had taken on a more nodular character. Except for severe pain at examination and lasting several hours afterwards, the patient was quite comfortable. Vaginal drainage was very slight. At two weeks there was additional softening and examination was less painful.

She was discharged January 9, 1952, with sufficient cortisone to take at home for a total dose of 1.25 grams.

She was seen in the clinic January 22, 1952. Drainage from the fistula had diminished to the extent that she soiled only one sanitary pad in twenty-four hours. She had no pain. The pelvis was quite soft although still somewhat nodular. She tolerated examination well.

Comment: This patient has had a tremendous amount of trauma to her remaining pelvic organs with ample cause for a ligneous pelvic cellulitis. She may even have carcinoma seeded in the pel-

vis. Her outlook would seem to be for a permanent colostomy. At the moment at least she has been given a respite.

Case No. 5. L. V., 32 years old colored gr. II, para II, admitted October 22, 1951, to Charity Hospital in New Orleans with a three weeks' history of intermittent left lower quadrant pain of constant severity and of fever since onset of illness. Her menstrual history was normal. She had mild dysmenorrhea and inconstant mild dyspareunia. She had been treated at Pineville from October 18 to 22, 1951, with 1,000,000 units of penicillin daily. General physical examination was negative except for a healing mycotic lesion involving perineum and thighs, and her pelvis. The uterus was small and fixed. There was a fixed mass posterior to the uterus extending into the cul-de-sac. The uterosacral ligaments were greatly thickened and quite tender. There was marked induration throughout the pelvis. Serosanguinous material, 20cc., was obtained on cul-de-sac puncture, all cultures of which were negative. The colpoclysis needle passed through a thick dense wall of tissue.

W. B. C. 18,000; 68 per cent polys. Sedimentation rate 24. Mantoux positive 1:10,000. Chest film negative. Scrapings of skin showed *Trichophyton rubrum.* X-ray of pelvis showed a soft tissue density. Intravenous pyelogram normal.

Diagnosis of chronic salpingo-oophoritis, hydrosalpinx, and ligneous cellulitis was made. Patient had a low grade daily temperature elevation. From October 25, 1951, to November 8, 1951, she was treated with procaine penicillin and streptomycin.

Cortisone was started November 7, 1951, and continued to December 5, 1951. Temperature was normal from November 7 to surgery at end of cortisone treatment. There was marked softening of the pelvic floor and the hydrosalpinx could be more readily palpated. Patient was free of pain.

On December 12, 1951, laparotomy was done. There was a large right hydrosalpinx with several cysts measuring 5 to 7 cm in diameter. On the left there was evidence of chronic salpingitis. There were multiple films of adhesions, and a plastic exdate in the cul-de-sac which formed a ready cleavage plane for dissection. Total hysterectomy and bilateral salpingo-oophorectomy were performed. The postoperative course was uneventful. The patient was seen in the clinic January 31, 1952, at which time she was asymptomatic. Her pelvis was clean and quite pliable.

Comment: This patient originally presented to us as a diagnostic problem resolved into a ligneous cellulitis after mycotic and acid fast infections were ruled out. Although definitive surgery could have been done on this patient prior to the use of cortisone, we have the feeling that surgery was facilitated by its use. The little matter of change in temperature curve cannot be attributed to the addition of cortisone to her treatment but more likely to the discontinuance of other medications.

Case No. 6. M. Y., 23 year old colored female, gravida II, para II, admitted November 5, 1951, with the complaint of pain in the lower abdomen and vagina, and a discharge for one month. She had noted a swelling in her right side for one week. The patient had been seen in the clinic one week after the onset of her symptoms at which time the pelvic organs were described as normal except for some tenderness. Patient had dyspareunia and aggravation of pain with douches. On admission her temperature was 100.8° and the only significant findings were limited to the pelvis. There was an ulcerative lesion with a raised edge and a necrotic center, 3 cm. in diameter, in the left sulcus of the vagina slightly posterior and lateral to the cervix. The cervix was clean and displaced to the right. The uterus was anterior and displaced to the right. In the left adnexal area there was a firm, nonfluctuant, fixed mass about 8 cm. in diameter, continuous with the vaginal lesion. On the right were several smaller discrete masses. During the first week of her hospital stay all of these masses were noted to enlarge.

Sedimentation rate 34, W. B. C. 11,000; polys 78 per cent. Mantoux negative, serology negative, Frei negative, Ducrey positive. Donovan bodies demonstrated on scrapings and biopsy. Cultures for acid fast bacilli and fungi negative. No x-ray evidence of calcification.

Diagnosis was made of granuloma venereum and chancroid. The patient was given 32 grams of aureomycin from November 14, 1951, to December 4, 1951. No marked change in the lesion occurred. However, the patient was comfortable and had a feeling of well being. Cortisone was given in usual dosage from December 4, 1951, to December 19, 1951, for total dose of .825 grams. Pelvic examination on December 16, 1951, revealed complete healing of the vaginal lesion, almost complete disappearance of the right adnexal masses, and appreciable diminution in the size of the left adnexal mass with loss of fixation.

The patient was discharged December 19, 1951, because of family problems, to return January 5, 1952, for a course of streptomycin at the recommendation of the syphilologist.

Due to the death of her husband, patient was not seen again until February 7. She was asymptomatic. There was a granulomatous cervicitis. The vaginal lesion was gone with no evidence of its having been there. The mass in the left adnexa was still present and larger than on discharge from the hospital. The right adnexa was unchanged.

Comment: This patient has been, so far, inadequately treated for her primary disease. What relation if any, cortisone has had in the disappearance of her vaginal lesion is debatable.

Case No. 7. H. W., 26 year old colored gravida I, para I, admitted December 6, 1951, to the orthopedic service with the complaint of pain in the

back radiating from left sacroiliac area down left leg to the heel since August 18, 1951, three days after having moved some heavy furniture. The pain was aggravated by sneezing and jarring of any sort. She had developed numbness along the posterior surface of the calf and the great toe suggesting involvement of the lumbosacral nerve. There was no history of fever. She had had night sweats and a general lassitude. In August 1951, her family physician had told her she had "pus tubes". On examination there was some muscle atrophy of the left thigh and calf. The gait was slow and favored the left leg. On pelvic examination there was a large, firm, tender, questionably cystic mass on the left, pushing the cervix and uterus anterior and to the right. The mass extended into the rectovaginal septum to within 3 cm. of the introitus. The cervix could not be visualized and the uterus was fixed. The right adnexa could not be palpated. On cul-de-sac puncture the needle passed through considerable hard tissue before any material was obtained. Thirty-five cc. of thick pus were withdrawn, and 15 cc. of normal saline containing one ampule of streptokinase and streptodornase were injected. Diagnosis of left tubo-ovarian abscess with ligneous cellulitis and ruptured intervertebral disc between L 4 and L 5 was made.

The patient ran a septic type of course with temperature elevation above 102° daily.

Hematocrit was 36 mm. which dropped to 28 mm. in twenty-three days. W. B. C. 10,500; 85 per cent polys. Serology, febrile agglutinins, Frei, Ducrey, Mantoux, blood cultures, urine, and stool all negative. Culture of material originally withdrawn on cul-de-sac puncture showed no growth. A frog test was negative. Chest film was normal. X-ray of pelvis showed no bone pathology and no calcification; there was a soft tissue density extending to level of L. 5. Proctoscopy was negative.

Cul-de-sac puncture was repeated on January 3, 1952. A small amount of grossly bloody material was obtained on repeated attempts to reach an abscess cavity. Cultures of this material grew pyogenic *Staphylococcus aureus*. Cultures for fungi were damaged. The needle grated through dense fibrous tissue. The mass felt hard and frozen in the pelvis.

From admission December 6 to January 5, the patient was on antibiotics with little change in her fever curve. On January 5, 1952, cortisone was started using 25 mgm. intramuscularly, four times daily for five days, and then 50 mgm. daily by mouth thereafter through January 19, 1952, for a total dose of 1 gram. On January 16 considerable softening of the cul-de-sac mass was noted and it had become fluctuant. Five cc. of thick pus were obtained on puncture which grew out pyogenic *Staphylococcus aureus* on culture. Colpotomy was performed on January 20, 1952, at which time the mass was markedly fluctuant, irregular in shape and about 10 to 12 cm. in diameter. It was estimated that 200 cc. of pus were obtained.. Exploration of the cavity revealed numerous solid movable masses, but no organs were identified. The patient continued to run a septic course in spite of continuous vaginal drainage. On January 31, 1952, the colpotomy incision was extended and the cavity explored. On bimanual examination, the uterus was normal in size and shape, and freely movable. The right adnexa appeared normal. The cervix was clean. On the left there was an oval mass separable from the uterus and extending into the cul-de-sac, measuring 12 to 14 cm in diameter. On extension of the colpotomy wound, the wall of the cavity measured about 2 cm. in thickness, and about 500 cc. of friable necrotic tissue fragments were removed and sent to pathology. The preliminary pathology report on the tissue obtained was epidermoid carcinoma probably arising in a dermoid.

Comment: This unfortunate case has received very questionable benefit from cortisone. However, it was thought by all examiners that there was considerable softening of the wall of this pelvic mass and that drainage of this infected tumor was facilitated thereby.

Case No. 8. B. M., 36 year old colored gravida II, para I, abortus I, admitted January 7, 1952, with complaint of pain in lower abdomen and irregular vaginal bleeding for two months. She had a history of treatment for chronic pelvic inflammatory disease over twenty years following a septic delivery. Pelvic examination revealed an old laceration of the cervix with a very slight dark, bloody discharge and trichomonas vaginitis. The uterus was slightly enlarged and nodular, lying anterior and fixed. A sound passed 7 cm. without bleeding. Both adnexa contained tubo-ovarian masses which were fixed in a mass of firm indurated tissue. On rectal examination the uterosacrals were "woody" hard and greatly thickened with the induration extending lateral to the rectum to the pelvic wall. Diagnosis: Bleeding submucous fibroids, bilateral hydrosalpinx and ligneous pelvic cellulitis.

Hematocrit 24, W.B.C. 15,000; 70 per cent polys. Serology negative. Proctoscopic examination showed an indurated area in the region of the left uterosacral ligament which was adherent to the rectum and involved bowel wall but not the mucosa. The scope could not be passed beyond 12 cm. There was a mixed flora in her urine.

She was given streptomycin and chloromycetin until January 16, 1952, with lysis of a low grade fever. Transfusions were given until the hematocrit reached 31.

Cortisone was started January 22, 1952, according to the oral schedule previously used. This patient noted some increase in discomfort after each dose for the first four days of therapy. This

started about one-half hour after administration and lasted about two hours.

Examination on February 5, 1952, demonstrated considerable diminution in induration and fixation. The uterus was movable. A hydrosalpinx was readily palpable on the right. The uterosacral ligaments felt normal. There was still considerable induration and fixation on the left side of the cul-de-sac and the left cardinal ligament. As of this writing patient is asymptomatic. She is still under treatment.

Comment: Definitive surgery is contemplated in this patient. In view of the experience with the patient L. V., Case No. 5, we anticipate that the surgery will be greatly simplified. Did she not have submucous fibroids and menometrorrhagia, it might well be possible that she could avoid surgery entirely.

DISCUSSION

Follow-up has been of such limited duration in all of these cases presented that no final result can be prognosticated nor can one say whether the favorable results obtained in some cases can be maintained without some form of continuous therapy.

In not every case can the results obtained be directly attributed to cortisone alone although they are suggestive.

The effects so far noted of cortisone in these 8 cases of ligneous pelvic cellulitis related to various types of pelvic pathology suggest several possible uses of cortisone:

1. As specific and definitive therapy in some cases of ligneous cellulitis associated with chronic infection, radiation and previous pelvic surgery or manipulation.

2. As palliation in inoperable conditions where the symptoms are due to a related inflammatory process of adjacent connective tissues.

3. As an aid in the clinical diagnosis of pelvic malignancy by palpation with particular reference to staging of the process and evaluation of recurrence. This is suggested since frequently the induration surrounding a neoplastic lesion does not represent extension of the tumor but inflammation due to infection within the tumor.

4. As an adjunct to therapy where surgery is complicated by regional cellulitis.

5. As an adjunct to therapy in the treatment of nonmalignant granulomatous lesions in the genital tract.

SUMMARY

1 The entity ligneous pelvic cellulitis has been described.

2. A preliminary report has been given on the use of cortisone in 8 cases of ligneous pelvic cellulitis related to a variety of pelvic pathologic states.

3. From the results so far obtained suggestions have been made as to the possible usefulness of cortisone that bear further investigation.

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CURRENT APPLICATIONS OF ANGIOCARDIOGRAPHY*

HAROLD J. JACOBS, M. D.†

NEW ORLEANS

In the few short years since Forsmann, in 1931, first injected an iodide preparation through a cardiac catheter for the radiographic visualization of the right side of the heart, angiocardiography has progressed by leaps and bounds. Given great impetus by the work of Robb and Steinberg in 1938, it has reached the point where virtually every major arterial channel and many venous channels of the body have been visualized.

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PRINCIPLES OF THE METHOD

For those few who are unfamiliar with this procedure, I shall very briefly describe the principles of the method.

After it is learned that there is an indication for angiocardiography, and we shall see what these are shortly, the patient should be interrogated as to any history of asthma or hypersensitivity. If the history is negative, he should then be tested for sensitivity to the drug to be used. The drugs commonly employed are 70 per cent diodrast or 75 per cent neo-iopax in aqueous solution, both of which are organic iodide preparations. Following a negative sensitivity test, the contrast medium is injected as rapidly as possible; the vessel injected into, of course, being dependent upon the site to be visualized. The quantity injected is determined by the site and the size of the individual. The average adult dose is about 45 cc. Immediately following injection, roentgenograms of the desired location are made in as rapid succession as the x-ray equipment permits. Many systems exist for the rapid taking of roentgenograms. They vary all the way from simple manual shifting of cassettes to motion picture cameras capable of taking 60 pictures a second.

The illustrations that follow have been copied from 70 mm. photofluorographs of the type used in Public Health chest surveys. All the pictures were made at the Heart Station of Charity Hospital on a machine which has been modified so that it is capable of taking about one picture per second. Only the most informative picture or pictures of any one series will be shown.

As angiocardiography is customarily performed, a cut-down on a median basilic vein is done, a 12 gauge needle is threaded into the vein, and 40 to 50 cc. of the contrast medium is injected very rapidly (1 to 2 seconds) from a Robb syringe. Obviously, the natural course of the circulation is followed and the right side of the heart, the pulmonary vascular system, the left side of the heart and the aorta can be visualized.

With such a diagnostic tool at hand, innumerable applications of angiocardiography immediately come to mind.

APPLICATION OF ANGIOCARDIOGRAPHY

To take the more common ones first, let us consider the diagnostic problem of the large cardiac shadow. I am sure that everyone of you at some time in your career has had a case of a large cardiac shadow on x-ray examination, which, even with the benefit of tilt-table fluoroscopy or roentgenkymography, could not be distinguished definitely as either a large dilated heart or a large pericardial effusion. Heretofore, the ultimate diagnosis has been determined by means of a needle and aspirating syringe; however, to be rewarded with a syringe full of blood is somewhat disconcerting, to say the least.

Just such a problem arose in a case, the clinical diagnosis of which was hypothyroidism. Since both dilated hearts and pericardial effusions have been reported in this condition, the etiology was of little help. The electrocardiogram and fluoroscopy offered little more. An angiocardiogram was made (Figure 1) and was diagnostic of a

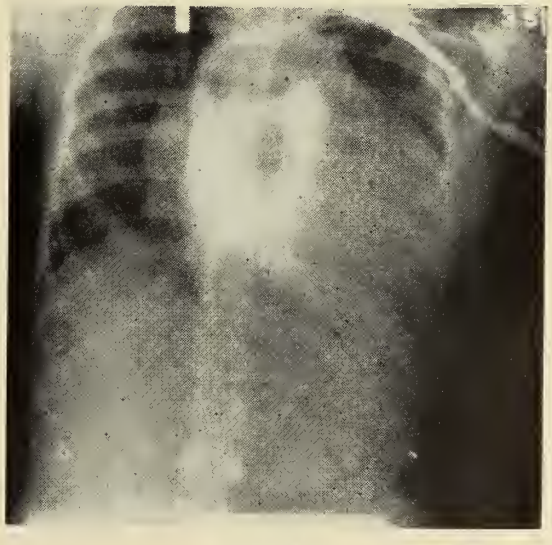

Figure 1

pericardial effusion. It was subsequently proved by pericardiocentesis followed by air instillation.

In another case, the problem was the same, differing in that the etiology was unknown but was presumed to be rheumatic.

(Figure 2) One can see from this picture

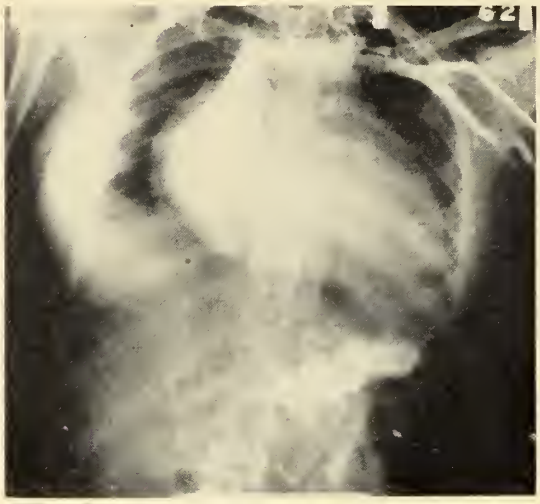

Figure 2

how huge was the cardiac shadow. You will also note that the contrast medium appears to fill it almost entirely.

Another situation where difficulties arise quite frequently is in the differential diagnosis of a mediastinal mass. Angiocardiography is not the final word in this respect, but is an aid where the differential lies between a solid and a vascular tumor.

In Figure 3, the third in the series of

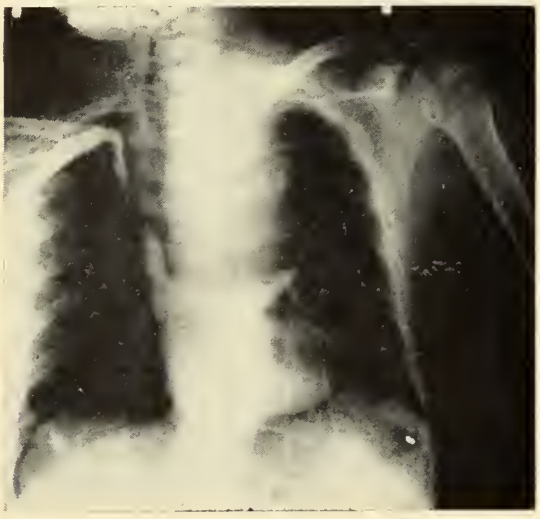

Figure 3

pictures of this particular case, a very large mass is seen in the superior mediastinum. You will note that the pulmonary arteries are filled at this stage and are being depressed by the mass. In Figure 4, the contrast medium is in the aorta and has filled

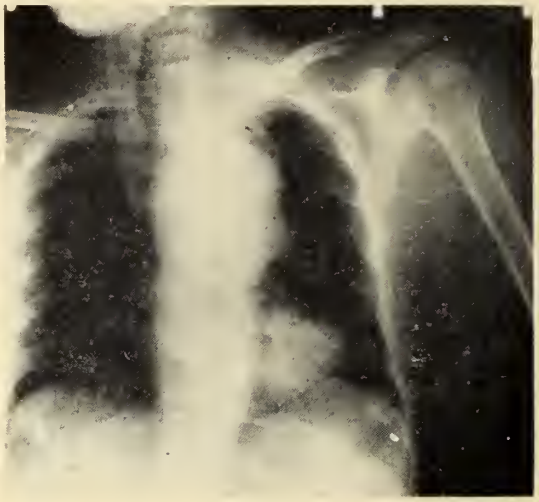

Figure 4

the mass as well, indicating that the diagnosis is aortic aneurysm.

In contrast, Figure 5 is given. The prob-

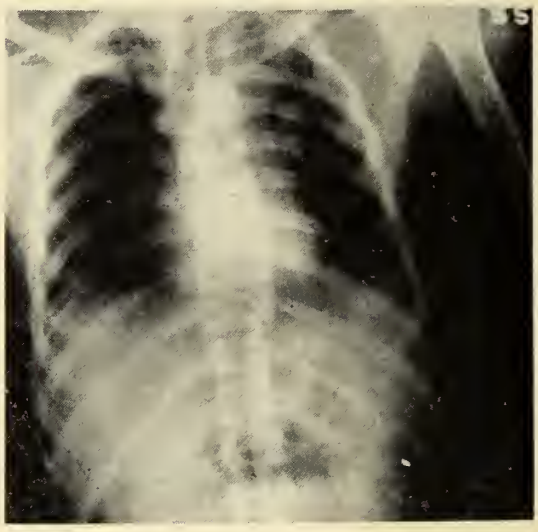

Figure 5

lem was much the same. In this instance, there was a mass just to the left of the superior mediastinum. In this picture, the aorta is well visualized to the complete exclusion of the mass. This does not definitely rule out aneurysm, but is very suggestive. At surgery, the mass proved to be a bronchogenic cyst.

Insofar as mediastinal masses are concerned, angiocardiography at times serves another useful purpose. The limits of a mass, as well as its contour may be delineated if by chance it lies adjacent to or compresses a vascular structure. This has been

used to prognosticate in cases of pulmonary malignancy. If metastases have reached the mediastinal lymph nodes resulting in insufficient enlargement to be apparent on routine chest x-ray, the contour of the superior vena cava may be distorted and the presence of the nodes thus indicated, sparing the patient an unnecessary and fruitless operation.

While on the subject of mediastinal masses, we might consider a very significant difficulty sometimes encountered. If a superior mediastinal syndrome of venous occlusion is present, it is quite apparent that angiocardiography stands little chance of being successful. To make the most of a bad situation, this has proved to be an excellent means of demonstrating collateral circulation in this type of case. We have since learned that the heart and great vessels can be visualized in such an instance by injecting the contrast medium into the saphenous vein just as it enters the femoral vein.

Another field where angiocardiography has proved of value is in the diagnosis of pulmonary disease. A patient, 58 years old, was seen for what appeared to be pneumonia of the right upper lobe. With failure of resolution following intensive therapy, further investigation was done, including bronchoscopy and sputum studies for acid fast bacilli and malignant cells. Still the diagnosis had not been made. Angiocardiogram was made and revealed complete obstruction of the superior branch of the right pulmonary artery. This has been described before and is usually taken to indicate malignancy with invasion of the blood vessels. In fact, it has been used to differentiate benign from malignant pulmonary tumors. With the findings shown, a diagnosis of pulmonary malignancy was made. This was confirmed at surgery when it was demonstrated that a tumor had invaded and completely obstructed the suspected artery. This application is not infallible for the same phenomenon can occur with inflammatory lesions resulting in fibrosis.

We will now consider the remainder of the applications in as nearly an anatomical progression as possible.

To begin with the heart, angiocardiography is an excellent tool in the diagnosis of congenital heart disease. It has been reported that this method can be used to demonstrate an interatrial septal defect. This diagnosis, of course, is made if the left atrium fills almost at the same time as the right. In our cases, the blood flow through the defect, proved by cardiac catheterization, has been in the opposite direction, and consequently, the left atrium does not visualize as early as has been described, the diagnosis being made by the refilling of the right atrium from the left.

More successful has been the use of angiocardiography in the demonstration of pulmonic stenosis. This is especially important today when valvulotomies are being performed for it distinguishes between the valvular and the infundibular types of stenosis. Interestingly, it also demonstrates the poststenotic dilation which is so commonly seen in this condition.

Proceeding farther along the pulmonary tree, we come to patency of the ductus arteriosus. As you well know, to diagnose persistency of this fetal structure is not always a simple matter, for the murmur is not always of the continuous variety, and the so-called typical murmur can be mimicked by a venous hum. For the best results in contrast visualization of this condition, a retrograde arterial injection, either into a carotid or brachial artery, has proved most satisfactory. The contrast medium flows into the aorta, and, because of the left-to-right shunt at the level of the ductus, then into the pulmonary artery.

In Eisenmenger's complex, that is, an interventricular septal defect with an overriding aorta, we see another interesting application. In this condition, the blood ejected from the right ventricle enters both the pulmonary artery and the aorta. Of course, when diodrast has been injected, both of these structures will visualize simultaneously. A pattern somewhat similar to this is seen in tetralogy of Fallot and cor triloculare with a single ventricle, with cer-

tain distinguishing features for each of the three.

Because of the progress made in cardiovascular surgery, Figure 6 represents a

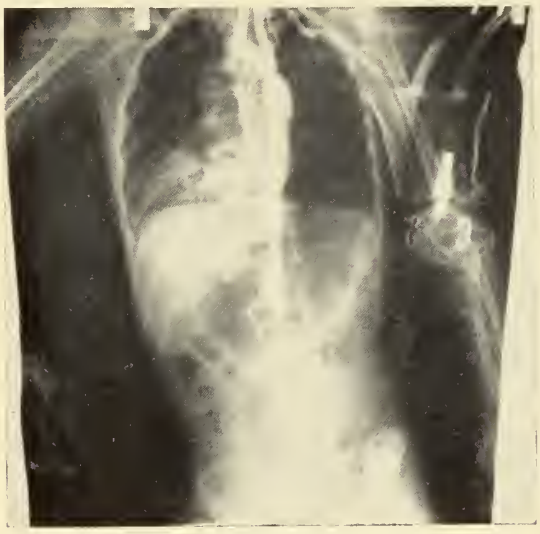

Figure 6

very important use of this procedure. It is in the localization of coarctation of the aorta. It is also of value in the diagnosis of clinically obscure cases of coarctation. The route of injection may be either venous or arterial; however, the best results have been obtained with the latter, using the carotid or brachial artery.

As to diseases of the aorta, early luetic aortitis has been diagnosed by demonstrating dilation of the ascending aorta together with irregularity of the lumen.

Progressing farther anatomically, we have been able to visualize aneurysms of the abdominal aorta, even after injecting the contrast medium intravenously, showing that it is radiographically effective for quite long intravascular distances. Better results have been reported in this situation by doing a retrograde injection into the femoral artery. The secret of success in this approach lies in having the patient do a strong prolonged Valsalva maneuver which decreases cardiac output, slows blood flow and lowers blood pressure; however, this requires complete cooperation on the part of the patient.

Angiocardiography, or rather angiography, is of interest to the neurosurgeon for it is used to visualize the blood vessels of the cranial vault following an intracarotid injection of the contrast medium. This finds greatest application in the localization of congenital aneurysms at the base of the brain to determine if they are amenable to ligation. As you well know, this can mean the difference between a long and a very short life expectancy.

The urologist, long a user of diodrast, has only comparatively recently become interested in angiography. With the visualization of the abdominal aorta, it has become apparent that, because of the great vascularity and the tremendous blood flow through the kidneys, these organs can be seen as well, giving a nephrogram rather than a pyelogram. In one particular case, nephroptosis was accidentally discovered by this method. Another type of case involving the urologist, and one which demonstrates to what ends angiography may be put, is shown in Figure 7 in which a retro-

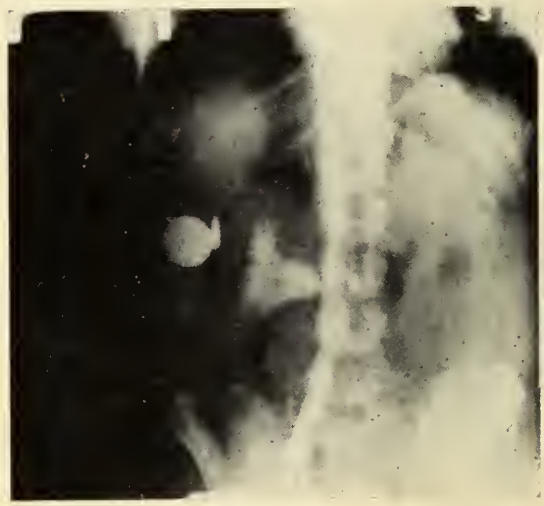

Figure 7

caval ureter was suspected. A ureteral catheter was put in place up to the pelvis of the suspected kidney. The usual amount of contrast medium was injected into the saphenous vein, giving complete visualization of the abdominal portion of the inferior vena cava and, by demonstrating the relationship of this structure and the ureter, confirming the suspected diagnosis.

We return now to the field of interest of the surgeon—the venogram. This is used particularly in the study of varicose veins.

The case shown in Figure 8 is a little out

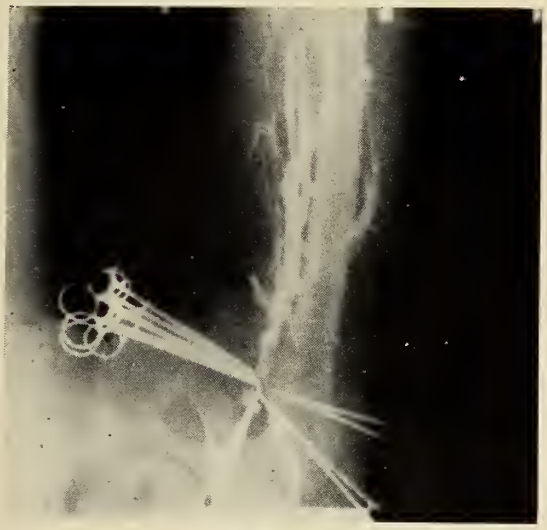

Figure 8

of the ordinary. The patient was suspected of having Milroy's disease, congenital lymphedema; however, this retrograde venogram demonstrates that the primary abnormality was incompetency of the femoral venous system.

SUMMARY

Thus we have seen some of the many uses to which angiocardiography may be put. Perhaps I have stretched the true meaning of the word, but it was done in all honesty and for the sole purpose of avoiding the cumbersome phrase "intravascular contrast radiography." I have not mentioned the many experimental applications now in use but have left that for you to visualize, for a little imagination will greatly extend the horizon of this, a clinically established procedure.

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THE GYNECOLOGIST EVALUATES LOWER ABDOMINAL PAIN*

C. GORDON JOHNSON, M. D.†
NEW ORLEANS

The present-day gynecologist considers the patient as an organism with some interrelated systems. He does not consider her as having a genital tract entirely divorced from other systems. He looks upon her as having many systems and that diseases of other systems can directly or indirectly influence the genital tract. He also remembers that pelvic pathology is not always the sole cause of many symptoms which she may present. There are also many individuals who may present familial and/or hereditary characteristics or developmental anomalies. These must always be considered in evaluating one's findings.

Pain is a symptom which is common to all systems of the body. The genital tract is, of course, no exception in this respect. Pain is the most common complaint given to the gynecologist as a reason for an examination. Unfortunately, it is too often customary to regard all feminine pain located anatomically between the umbilicus and the perineum as originating in the generative apparatus, especially if it is associated with or exaggerated by menstruation. It matters little if the pelvic organs are found to be normal for the idea is firmly fixed that pelvic pain is genital, always. There is an unfortunate tendency at times to invent pelvic pathology such as cystic ovary or prolapsed ovary, or even a displaced uterus in order to fit the patient's symptoms. In a desire to relieve pelvic pain, many operations are done in the name of gynecology. W. F. Mengert stated in a report given in 1949 that 75 per cent of 1320 ovaries removed during a five year period in a local hospital were histologically normal or contained only follicular or corpus luteum cysts. Norman F. Miller,[1] in a paper entitled *Hysterectomy, a Therapeutic Necessity or Surgical Racket*, found that in 22 per cent of the cases, the main symptom and often the only one, was lower abdominal pain.

When the consultant gynecologist finally sees the patient, she often has had many surgical procedures, including an appendectomy, removal of part or all of an ovary, uterine suspension, and, unfortunately, she still has her lower abdominal or pelvic pain.

The uterus, tubes, and ovaries are innervated from the autonomic nervous sys-

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tem. Pain can thus emanate from them only as visceral sensation just as from the intestine, liver, or spleen. There are many disorders in the female where lower abdominal pain is one of the chief symptoms. Pelvic pain or lower abdominal pain as classified by Mengert[2] is as follows:

I. Pain of genital origin
   1. Gonorrhea, pelvic inflammatory disease, pelvic cellulitis, hemorrhage.
   2. Uterine prolapse, adhesions, twisted pedicle of ovarian cysts.
   3. Periodic distention of edometrial implants
   4. Tumor incarcerated in pelvis
   5. Rupture of uterus, tube or bladder.

II. Pain of extragenital origin
   1. Pelvic neurosis
   2. Pain originating in other pelvic structures
      a) Bony, sacro-iliac
      b) Urinary tract
      c) Intestinal tract, colitis, diverticulitis, appendicitis.

DIFFERENTIAL DIAGNOSIS

Time prevents my discussing each one of these conditions so I will confine my remarks to those disorders that are commonly encountered and at times confused. Among the acute conditions that must be considered are appendicitis, acute salpingitis, extra-uterine pregnancy, twisted pedicle of an ovarian cyst, ovarian hemorrhage, and ureteral calculus.

Acute appendicitis is perhaps the most frequent cause of lower right quadrant pain. A typical case with sudden onset of pain which is at first umbilical or epigastric and later localizes near McBurney's point with gastrointestinal disturbance usually offers no diagnostic problem. Where this does not occur, one must consider among other acute conditions salpingitis. This differentiation should not be difficult in the average case. The history of exposure, onset of symptoms with high fever, chills, high leucocyte count, and bilateral abdominal pain, are factors that seldom occur in other conditions. Ruptured tubal pregnancy must always be considered and in such a condition the history will be of great value. Where rupture has taken place, as evidenced by hemorrhagic shock, one should have little difficulty in determining this. Cul-de-sac puncture is a valuable aid in such a diagnosis.

Hemorrhage from a ruptured follicle or corpus luteum cyst or at ovulation may at times be confusing. There have been many laparotomies done for supposed acute appendicitis where ovarian hemorrhage had occurred. The differential diagnosis is at times difficult. During the past six months, I have seen two 14 year old girls with acute abdomen where appendicitis was the most likely diagnosis but where para-ovarian cysts with hemorrhage into the mesosalpinx was found to be the primary condition. Twisted pedicle of ovarian cyst usually presents a clinical picture of acute abdomen. The main symptom, of course, is abdominal pain of severe type. Severity of shock depends on size of cyst and amount of disturbed blood supply. Diagnosis is easy if one is aware of the pre-existence of such a cyst prior to the acute attack.

Ureteral colic may at times simulate acute appendicitis and one should always rule it out before surgery is done. Examination of the urine with the finding of red cells, and x-ray will usually give sufficient information.

We see thus that the differential diagnosis of the acute abdomen can usually be successfully carried out. As the great majority of these conditions require immediate surgery, this differentiation is not always obligatory. It is sometimes made only at the time of surgery. Most gynecologists prefer to do an occasional laparotomy needlessly rather than to fail to do so and later have a ruptured extra-uterine or ruptured tubal abscess found at autopsy.

Chronic pelvic pain or lower abdominal pain may be the result of a multitude of conditions. One must always rule out pain of bony origin before holding the pelvic

organs responsible. Chronic lower abdominal pain may originate from the following conditions or locations: the cervix, uterine prolapse, uterine retrodisplacement, tubal disease, or ovarian pathology.

Chronic pelvic pain is often the result of cervical pathology, particularly where the supravaginal portion of the uterus has been removed and the stenotic cervical stump, which is almost always infected, remains. Prolapse of the cervical stump and parametritis are often associated and traction on the cervix will usually reproduce the patient's pain. The removal of the cervical stump is usually followed by relief from such pain.

Uterine prolapse of a second or third degree can be held responsible for many instances of chronic lower abdominal pain and can be corrected by one of two procedures, depending upon the age of the individual. In the young individual with considerable prolapse, abdominal suspension plus repairing the pelvic relaxation will result in a relief in the majority of cases. This, however, should always be preceded by the use of a pessary as a therapeutic test. In women in their late thirties and over, any prolapse of the uterus should be treated by a vaginal hysterectomy.

A retrodisplaced uterus used to be thought of as an important factor in the cause of chronic pain. The present-day gynecologist, however, does not recognize this. There are many women with retrodisplaced uteri who do not ever have chronic pain or backache.

One must try to reach a happy medium in dealing with a woman whose chief complaint is lower abdominal pain. At times he must be quite conservative and at other times, appear to be radical. One's experience is the only measure that can be used in determining which course to follow. The internist is often the first to see her and too often considers it as a strictly medical condition. Also, too often he fails to consider the pelvic organs as a possible cause and even fails to do a pelvic examination. He attempts to fit some disease pattern to the symptoms complained of. I cannot stress too strongly the importance of pelvic examination as routine in any woman. This is especially true, of course, in any woman complaining of abdominal pain. If this is not done by the internist, he should then have a gynecological consultant as a part of his routine examination of such an individual.

It is, of course, quite true that often the surgeon is at fault and surgical procedures are done without adequate findings. Too many times are normal ovaries removed for simple cysts or suspended because of questionable prolapse. Too often are uteri suspended because of retroversions that are not the cause of pain. Too often are normal uteri removed where pelvic pain has been the only complaint. In most instances, this pain remains after such surgery is done. When the consultant gynecologist finally sees the unfortunate patient, she has a battle-scarred abdomen and still has her pain. Such cases are, of course, the exception but I can assure you that they do exist.

At this time, I should like to call your attention to the presence of gastrointestinal symptoms in association with pelvic pathology. These are especially true, for instance, in lower bowel involvement in the presence of pelvic endometriosis or chronic pelvic inflammatory disease. Many of these patients complain of severe rectal pain on defecation. Some even have digestive disturbance. This is also true in metastatic genital cancer.

Rectal examination is often a valuable aid for diagnosis of pelvic pathology where the main complaint is pain. This examination is of great value in young females with intact hymen. Often it is the only means of determining pelvic pathology. This is true in uterosacral endometriosis—pelvic infection with fixation of the pelvic structures in the cul-de-sac. Such a procedure should always be part of the gynecologist's examination, just as it is a part of the internist's.

At a recent meeting in Dallas of the Southern Gynecological and Obstetrical Society, William F. Guerriero[3] gave a presenta-

tion on *Gynecic-like Pain.* Of 1100 patients whose main complaint was pelvic pain he found 42 per cent had no pelvic pathology. These were grouped as follows:

Urologic: 44 per cent, of which 75 per cent were found to have pain as a result of posterior urethritis — a condition described by his group as the female prostate.

Orthopedic: 25 per cent, mostly due to postural and mechanical conditions.

Medical: 7 per cent, this being of special interest to you as internists. Medical conditions most commonly found responsible for gynecic-like pain were: colitis in 40 patients, diverticulitis in 8 (and must be always considered in women over 40), amebiasis in 5, cancer of the large bowel in 3, and polyps of the gastrointestinal tract in 4.

The remaining 24 per cent were classified as a mixed group and included conditions in other systems than the ones already mentioned. It is also of special interest to you that 12 per cent of the mixed group were found to be of psychic origin.

CONCLUSIONS

What, then, can we do about lower abdominal or pelvic pain? It is difficult to make a diagnosis of pelvic neurosis. Sexual incompatibility, infidelity, or even sterility may be causal factors that at times are difficult to evaluate. As a matter of fact, the presence of these factors is most difficult to obtain from the patient. We cannot always be sure whether pain is of genital or extragenital origin. We can, however, usually differentiate between anatomically normal and abnormal pelvic organs. We can refuse to operate except where definite disease entities exist. The only exception is exploration in the presence of prolonged and persistent pain of obscure origin. Unfortunately, again in such cases we will in the majority find nothing. If no pathology is found on examination, we must not do meddlesome surgery for if we do, we must remember that the patient will still have her pain.

The internist can help by always including as part of his physical examination a pelvic examination. If he does not feel himself qualified to interpret any abnormal findings, then he should refer his patient for proper pelvic examination and diagnosis.

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SUPPURATIVE PERICARDITIS WITH REPORT OF THREE CASES

CHARLES V. MENENDEZ, M. D.*

NEW ORLEANS

In 1933 Truesdale collected from the literature 176 cases operated upon for acute purulent pericarditis, and added 2 of his own. This comprehensive report extended back to 1844 when Hilsman of Kiel operated upon the first purulent effusion. The mortality rate for the entire series was about 40 per cent; for the last 24 cases, it was 38 per cent. For reasons unknown there has been a scarcity of articles on this subject since Truesdale's review; whereas previous to this time, a voluminous amount had been written.

Purulent pericarditis is apparently more common than one would suspect from the above series, and probably more lethal. Pyrah and Pain in 796 autopsies done at the Leeds General Infirmary, 1921-1931, found 214 cases of acute pericarditis of which 91 were suppurative. In Osler's words, "No serious disease is so frequently overlooked," and Churchill cautions that "statistics give a false idea of the efficacy of the surgical treatment because of the tendency to add single successful cases to the literature".

ETIOLOGY AND CLINICAL PATHOLOGY

In a review of the pathology of all types of acute pericarditis, including both the purulent and non-purulent varieties, Branch, in 1933 stated that the pneumococcus was responsible for 35 per cent of the cases. The organism of rheumatic fever caused 30 per cent, while other bacteria such as staphylococcus, streptococcus, and

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the tubercle bacillus accounted for about 15 per cent more. The remaining 20 per cent of cases are noninfectious, and occur as the terminal event in such diseases as uremia, diabetes, anemias, leukemias, and coronary thrombosis. Influenza bacilli, *B. pyocyaneus*, meningococci, gonococci, *B. coli*, and diphtheroid bacilli, however, have also been reported as etiologic organisms in producing pyogenic pericarditis; and, nonpurulent effusions have been associated with xanthematous diseases such as scarlet fever, with virus pneumonia, tularemia, fungus pneumonitis, psittacosis, and possibly rickettsial infections.

A clinical pathological classification of acute pericarditis, again including all types, is as follows: serous, fibrinous, purulent, hemorrhagic, and tuberculous. As Branch emphasizes, any of these may appear as a pure textbook form, but more commonly they occur together. Pathological processes, being progressive in nature, either tend to heal or get worse; they do not remain stationary.

A true fibrinous pericarditis (the so-called dry pericarditis) is probably rare; it is almost always in some stage of serofibrinous inflammation. This latter type predominates in rheumatic fever, uremia, the anemias, and infarcts. At autopsy the pericardial sac contains thin fibrin flecked fluid, which is either clear or slightly turbid; should this fluid have been absorbed, a fibrinous pericarditis would have been produced, and this fibrin, due to the motion of the heart, would assume a marked shaggy roughness sometimes spoken of as "cor villosum". Under other circumstances, as with the anasarca of cardiorenal disease, or in tuberculosis, or again in rheumatic fever, the fibrinous component of the picture is not as prominent, and the serous phenomenon predominates. This condition, known as hydropericardium, is, strictly speaking, seldom part of an acute pericarditis. The pyogenic organisms, however, in producing acute purulent pericarditis, almost always pass through stages of serous and fibrinous inflammation. An acute inflammatory reaction due to a special etiologic agent which combines red cells with the inflammatory exudate is referred to as hemorrhagic pericarditis. The color of the fluid may vary from a light tinge to a dark red, and naturally, the longer it has persisted the more reddish brown the exudate becomes because of red cell destruction. This type is characteristically found accompanying tuberculosis, syphilis, malignancy of the pericardium, or coronary thrombosis. Tuberculous pericarditis, though not common, is far from rare. It is, of course, secondary to tuberculosis elsewhere, and usually a direct extension from the pleura or from mediastinal nodes.

The course of acute pericarditis is variable. It is remarkable how many of the cases recover, or manifest so few symptoms that they, or their scars, are discovered only accidentally at autopsy. It is generally accepted that when fibrinous pericarditis heals, whether passing through a serous or a purulent stage or not, adhesions form between the visceral and parietal layers of the pericardium. The size, and number of the adhesions depend upon the amount of fibrin present. They may completely obliterate the pericardial sac in some cases; in others, a few long fibrous festoons may remain; and in still other instances, the site may be represented only by a local scar, the so-called "milk-spot". Death from acute pericarditis usually occurs when a large purulent exudate receives inadequate surgical drainage. A large serous exudate may, of course, create profound pressure symptoms.

Acute pericarditis is found more frequently in males than in females, in a ratio of 3 to 1, and it has been reported in ages ranging from 1 to 75, with an average of 35 years. White people appear to be less susceptible to the disease than are negroes.

Osler stated that recovery is due not so much to the approach employed or the technique of drainage as to the time at which the operation is done and the condition of the patient following the primary disease to which pericarditis is secondary. Hedblom, in 1922, showed the importance of the primary process in influencing the prognosis by the following observations.

Only 5 per cent of 51 patients suffering from pericarditis following rheumatic fever died, whereas 80 per cent of 40 patients whose condition was associated with empyema, pneumonia, or septicemia died. Such figures should caution one in claiming a recovery from any particular method of drainage, but in spite of this it is felt that the principles of drainage are vital, and acute suppurative pericarditis is an affliction in which, if principles are disregarded, the chances of failure are greatly multiplied.

SIGNS, SYMPTOMS, AND DIAGNOSIS

Failure to keep in mind the possibility of pericarditis may lead one to overlook the diagnosis. Because purulent pericarditis develops at the height of an associated illness, it is likely to be unnoticed and death attributed to the original pneumonia, empyema, lung abscess, or mediastinitis. The following signs and symptoms should be looked for: rapid paradoxical pulse, fever, dyspnea, cyanosis, precordial distress, engorgement of the neck veins, friction rub, increased cardiac dullness, and distant heart sounds; in fact, the patient's condition may appear almost terminal. On fluoroscopic examination the enlarged heart shadow, apparent also on chest film, will show diminished motion. The friction rub may be transitory, and the heart sounds, due to a floating forward of the heart, may not be d i s t a n t. Electrocardiagraphic changes may be of some assistance if the diagnosis is questionable; and serial tracings throughout, and following the illness are helpful in evaluating the cardiac status. Diagnostic aspiration should be done as soon as possible, and if pus is obtained emergency surgical drainage should be performed. The pericardium may be aspirated through one of the lower two or three interspaces either to the right or to the left of the sternum. An alternative route is from the epigastrium to the left of the xyphoid process with the needle directed superiorly. Remaining medial to the internal mammary vessels which course about 2.5 cm. lateral and parallel to the sternal border will minimize complications produced by traversing the lung. If purulent exudate is obtained by aspiration, as much as possible should be removed. This will lower the intrapericardial pressure which is producing the tamponade, and benefit the patient immeasurably. The risk of the surgical procedure following relief of the tamponade is also diminished. Though a few cases have been reported in which patients were apparently cured of purulent pericarditis by aspiration of the pericardium and installation of sulfadiazine or penicillin, it does not appear that such a procedure is one of choice. The limitations of aspiration are too great. Surgical drainage is indicated as soon as the diagnosis is made.

OPERATIVE PROCEDURE

Throughout the literature a controversy has existed over the preferable route for drainage of the pericardium. It would seem, however, that a sufficiently large opening situated in a completely dependent position is all that could be desired, and that the easiest means of achieving this end should be the best. For these reasons the following

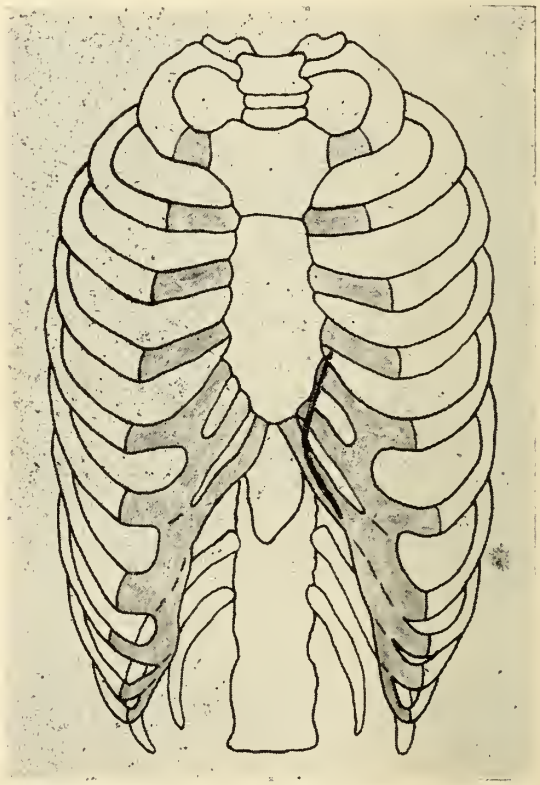

Figure 1. Incision recommended for pericardiostomy. (Thorax taken from Grant's Atlas of Anatomy.)

low anterior approach is recommended. In adults local anesthesia is preferable to general. A boomerang shaped incision (Fig. 1) is made with the vertical limb overlying the left border of the lower sternum, and the more horizontal limb overlying the seventh costal cartilage. The seventh, sixth, and fifth cartilages are subperichondrially resected, and the internal mammary vessels are ligated as they enter and leave the operative wound. A vertical incision adjacent to the sternal border is then made into the pericardium. Care is taken to reflect the left parietal pleura laterally so that it is not inadvertently entered. The incision into the pericardium is carried as far inferiorly as the diaphragm. The pericardium is then sutured to the subcutaneous fascia to insure that the stoma remain patulous. At this point the index finger is inserted into the pericardial cavity to separate all points of adherence between the parietal and visceral layers of pericardium. This maneuver should be carried out gently but thoroughly. With an opening of sufficient size into the pericardium its recesses can be reached, and loculations of fluid can be dispersed. It is most important to sweep the exploring finger posteriorly around the apex of the ventricle where exudate tends to collect. Following digital manipulation it will frequently be noted that many tough, purulent curds will be released. These curds offer obvious evidence why difficulty is sometimes experienced in aspirating the pericardium of suppurative pericarditis. The pericardial cavity is then irrigated with 500 cc. to 1000 cc. of warm normal saline through a soft medium sized catheter. A nylon or gauze pack is placed within the wound, and a dry dressing is applied.

Immediately upon relieving the tamponade by opening the pericardium a remarkable improvement in physical signs is noted. The blood pressure rises, the pulse rate falls, the dyspnea diminishes; and, a thrashing, incoherent patient begins to rest quietly.

Digital manipulations followed by irrigation with normal saline are begun on the first postoperative day, and are continued daily as long as the fluid, and particularly the purulent curds, reform. Usually by the fifth to the tenth day digital exploration releases only a few cc. of pink serous fluid, and irrigation yields only the clear saline being employed. Placing the patient either in the supine position, or erect (seated or standing) during a considerable portion of the time postoperatively, naturally increases the dependency of the pericardiostomy and thereby facilities drainage. When manipulation and irrigation are no longer necessary, dry dressings, changed daily, are applied to the operative area, and the wound is allowed to close.

In the group of cases being presently reported, one ampule of streptokinase-streptodornase solution, containing 150,000 units and 50,000 units respectively, was placed into the pericardial cavity following each daily irrigation. That these substances are capable of digesting waste products is unquestionable, and their use in this series for enzymatic debridement appears to have been beneficial. Systemic drug therapy is, of course, carried out diligently along with the surgical treatment and irrigations.

PROGNOSIS

The prognosis in patients with suppurative pericarditis who receive adequate, dependent drainage as soon as possible should be good. Certainly the 50 per cent mortality rate reported in previous years should be significantly lowered in the future. The antibiotics undoubtedly deserve the bulk of the credit for combating not only the pericarditis but also the underlying disease which the pericarditis complicates. Regarding the ultimate prognosis, it has been reported by Shipley in 1936 that of his 7 personally operated and followed cases 2 were asymptomatic for over five years, and 3 were well for over ten years. One case, also asymptomatic, had been followed for only two years, and 1 case had been lost. Shipley also listed, at that time, 39 cases, of other surgeons, who had been followed over one year, and 35 of this group were well with no cardiac enlargement. One case was ill with adhesive pericarditis; 1 died of adhesive pericarditis, and 2 cases died, one and three years later, of causes unrelated

to the pericarditis. It is interesting that in Churchill's report of 37 pericardiectomies for chronic constrictive pericarditis, none followed suppurative pericarditis.

CASE REPORTS

During the period from July 1, 1950, to July 1, 1951, 3 cases of suppurative pericarditis were admitted to the Tulane Surgery Service of Charity Hospital at New Orleans. All were treated by surgical drainage and all recovered uneventfully. This group, the case histories of which follow, forms the basis for this report.

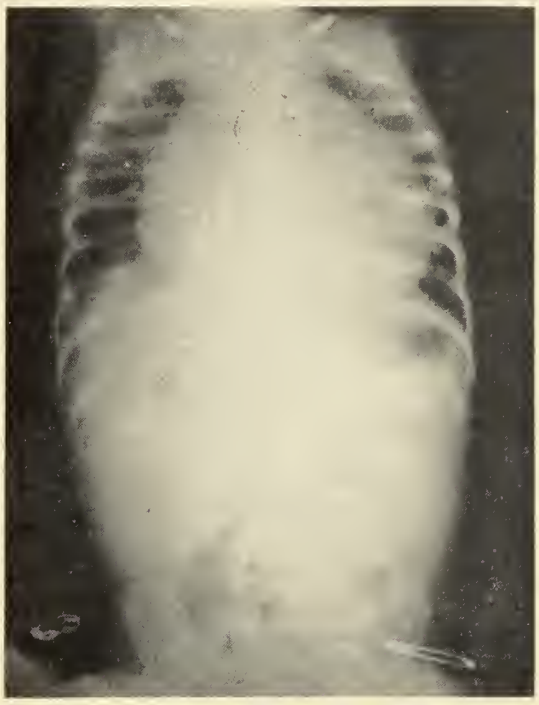

Figure 2. Case I—film taken before drainage.

Case No. 1. A. M., a 2 year old colored female child, was admitted to the Pediatric Service on August 18, 1951, from an outlying hospital with the story of having been ill for three weeks with cough and shortness of breath. A diagnosis of bronchopneumonia had been made by x-ray, and the child had received sulfadiazine, penicillin, and nasal oxygen. She apparently responded and was discharged. One week later she returned for a clinic visit and was found to have a rapid heart rate, an enlarged liver, mild generalized edema, urine containing albumin and casts, and an x-ray of the chest showing cardiac enlargement. She was referred to Charity Hospital with the diagnosis of glomerulonephritis. According to the mother, the relapse of the child's illness began with a cold and nasal discharge followed by fever. "Later," the mother stated, "she quit making water and her eyes and feet swelled." On admission to Charity Hospital the child's temperature was 100.2° F. The pulse rate was 114; the respiratory rate was 60; and the blood pressure was 124/84. The heart appeared negative. Fine rales were heard over both lungs with dullness at the right base, and the liver was enlarged down to the iliac crest. The child appeared worse the next day, and it was noted that the pulse was paradoxical with a rate of 130. Heart sounds were regular but distant, and an x-ray of the chest showed an extremely large globular heart shadow, the pulsations of which, on fluoroscopy, were diminished. Some pneumonitis with a slight effusion on the right side were also present. An electrocardiogram revealed low voltage in all leads, compatible with pericarditis with effusion. Aspiration of the pericardium yielded 180 cc. of greenish yellow pus which showed on smear occasional gram-positive diplococci. Cultures, however, were negative. The pulse rate after aspiration fell to 110. A thoracentesis was done on the right side and 10 cc. of clear serous fluid were withdrawn. On the following morning when no significant improvement in the patient's condition was noted, another attempt at aspiration was made. Unsuccessful results, however, prompted abandonment of the procedure and an angiocardiogram was obtained. It showed the pericardium to be still distended. Surgery was consulted and drainage was recommended. The operation was done under general anesthesia, and consisted of subperichondrial resection of the fourth, fifth, and sixth left costal cartilages, ligation of the internal mammary vessels and incision into the pericardial cavity. About 200 cc. of cloudy

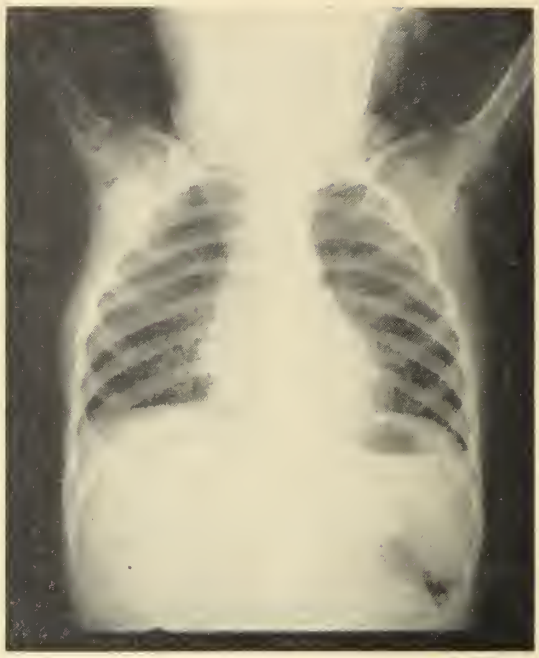

Figure 3. Case I—film taken 7½ months, postoperatively.

serous fluid were evacuated, followed by an enormous number of firm purulent curds. Digital exploration was carried out which released additional curds, and the pericardial sac was irrigated with 1000 cc. of normal saline. The parietal pericardium was then sutured to the subcutaneous fascia; a nylon pack was placed into the wound; and, a dry dressing was applied. Digital exploration and irrigations were carried out daily for six days. After the third day, curds were no longer present, and on the fifth and sixth days only a few cc. of serum were noted after manipulation. Penicillin and aureomycin were the antibiotics employed. Postoperatively, however, the patient developed congestive heart failure and required digitalis for three weeks. During this period bilateral thoracenteses were done on three occasions, with 100 to 200 cc. of serous fluid being removed from the right chest, and 10 to 20 cc. of fluid being obtained from the left chest, at each aspiration. One week following the discontinuation of digitalis the patient, asymptomatic and happy, was discharged. The chest wound had almost healed. One month after discharge an electrocardiogram was taken which showed no diagnostic changes of pericarditis. The patient was last seen in the clinic in April 1951 feeling well. The blood pressure was 118/72, the pulse rate was 134, and the respiratory rate was 20. The lungs were clear to physical examination, and the heart had no murmurs, irregularities, thrills, or rubs. On abdominal examination, the liver, kidney, and spleen were not palpable; and there was no edema of the lower extremities.

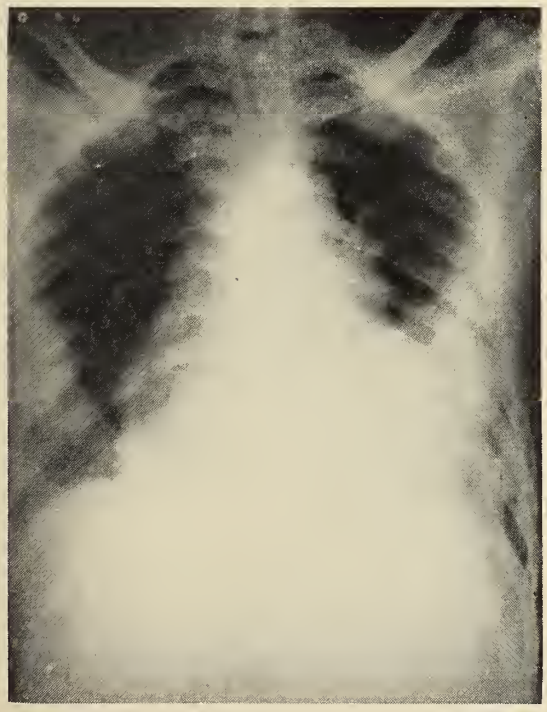

Figure 4. Case II—film taken before drainage.

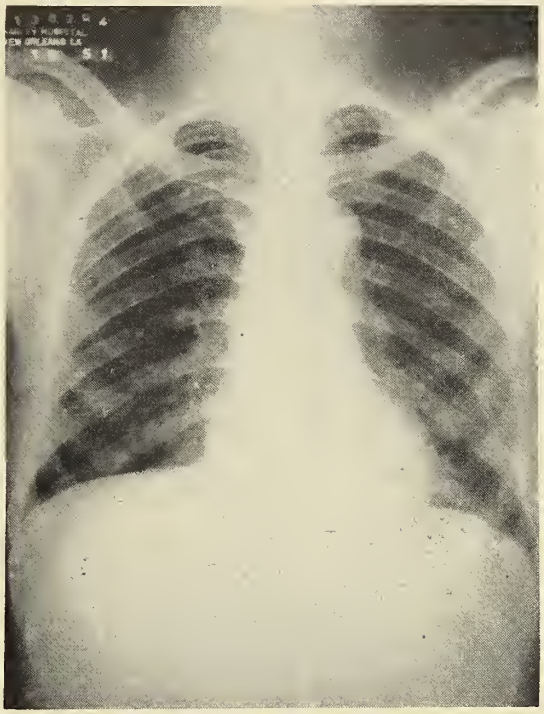

Figure 5. Case II—film taken 4 months, postoperatively.

Case No. 2. W. B., a well developed colored male of 43 years, was admitted to the medical service on October 20th, 1950, acutely ill, extremely dyspneic, pale, and cyanotic. According to the history he had a cough, and left chest pain for three months. For three weeks the cough had been much worse and was productive of pus and occasionally blood. During the latter interval he became progressively more short of breath, and ran a low grade fever. There was no history of previous congestive failure, but he had taken arm and hip shots in 1942. On physical examination the neck veins were noted to be distended; there was dullness over the left lower chest; and heart tones were difficult to hear. The pulse, which was paradoxical, had a rate of 92, and the blood pressure was 80/60. A portable chest film showed a bilateral pleural effusion, more marked on the left, and an enlarged globular heart shadow. The pericardium was tapped and about 150 cc. of thin, light brownish pus were obtained. A left thoracentesis yielded about 200 cc. of thick, green pus. The patient was then transferred to surgery, and under local anesthesia the left seventh, sixth, and fifth cartilages were resected, and the pericardium was opened. About 50 cc. of seropurulent fluid were obtained. The pericardial sac was digitally explored to break up delicate adhesions between its walls, and was irrigated with 1000 cc. of warm, normal saline. The blood pressure at the end of the procedure was 110/70. Smears and cultures of the fluid obtained were negative.

During the postoperative course bilateral thora-

centeses were performed approximately eleven times, but the amount of fluid recovered gradually diminished and its character became progressively more serous. It became apparent on chest films that a left lower lobe pneumonia and empyema were responsible for the purulent pericarditis. Digital manipulation and irrigation of the pericardial sac were carried out daily on the first five days postoperative days. One ampule of streptokenase-streptodornase (150,000 units and 50,000 units, respectively) was instilled into the pericardial cavity following each irrigation. On three occasions a similar ampule was injected into each pleural cavity following thoracentesis. Unavailability of the enzyme at that time precluded its freer use. The chest plate showed remarkable clearance during the course of the illness but due to a persistent shadow at the left base, and a constant low grade fever, an open thoracotomy for drainage was done on the eighteenth postoperative day with removal of a short segment of the sixth rib posteriorly. One hundred and fifty cc. of serous fluid were obtained. The patient drained profusely from this wound for a few days and the fever gradually subsided. The thoracotomy tube was subsequently removed and the wound granulated in nicely. The antiobiotics administered during the hospital stay were penicillin, streptomycin, and aureomycin. Several transfusions were also given. An electrocardiogram taken shortly after admission showed definite evidence of myocardial disease compatible with acute pericarditis; whereas two months later a tracing was reported as showing only suggestive evidence of pericarditis.

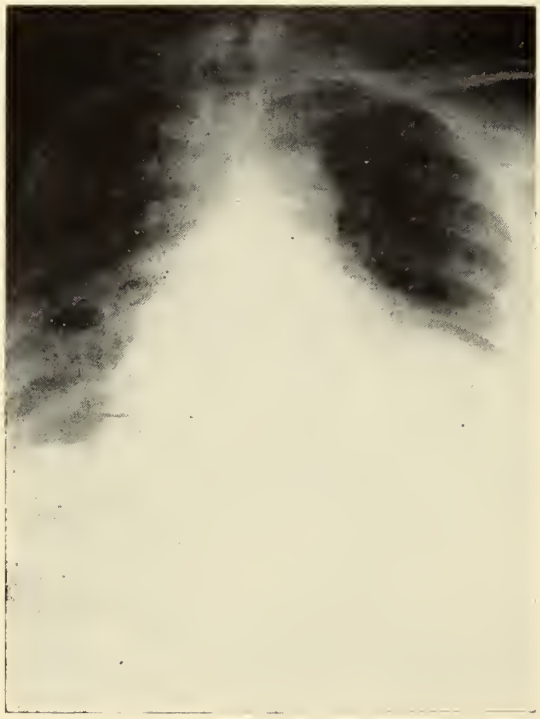

Figure 6. Case III—film taken before drainage.

Five months after pericardiotomy the patient, still asymptomatic and gaining weight, began light work. He was last seen on April 14, 1951, with no complaints.

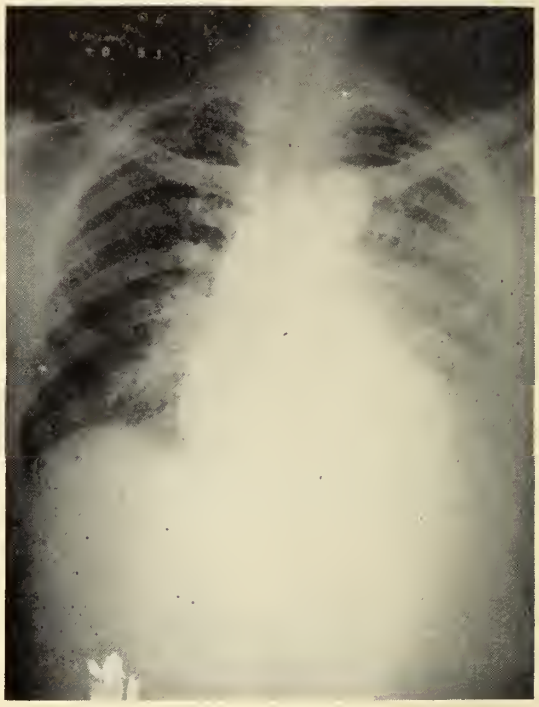

Figure 7. Case III—film taken 3 months postoperatively.

Case No. 3. F. S., an obese colored man 50 years of age was admitted on December 29, 1950, to the medical service complaining of a chest cold, cough, occasional streaking of sputum, fever, chills, and generalized aches for three weeks. He had become progressively worse, and just prior to admission noted also shortness of breath and substernal pain radiating to the neck and both shoulders. His blood pressure was 190/130; pulse rate was 140; respiratory rate was 40; and temperature was 101°F.(R). He was observed to be sweating profusely, and was orthopneic. His heart was considerably enlarged to percussion, with the P.M.I. in the anterior axillary line, and heart sounds were poorly heard. Loud rales were present over both lung fields and there was dullness at both bases. The liver was believed to be enlarged, in spite of the difficulties encountered in examining an obese patient, and the neck veins were markedly distended. He was placed on digitoxin, penicillin, salyrgan, aminophyllin, nasal oxygen, and morphine, and on the following morning there seemed to be some improvement. The pulse rate was 120, but the blood pressure had fallen, to 110/90. A marked pulsus paradoxus was present. An electrocardiogram taken at this time showed evidence of acute pericarditis and a chest film demonstrated extreme cardiac enlargement. The pericardium

was tapped and 100 cc. of cloudy greenish yellow fluid were withdrawn. Smears showed a few questionable pneumococci. The patient was transferred to surgery and a pericardiostomy was performed under local anesthesia using the low anterior approach with resection of the fifth, sixth, and seventh costal cartilages. In the course of the procedure the left pleural cavity was inadvertently entered and 800 cc. of seropurulent fluid were released. Upon incising the pericardium, 200 cc. of the same type of fluid were obtained. Digital manipulation and irrigation with saline were also carried out. A small number of purulent curds were seen. The pericardium was sutured to the subcutaneous fascia, and a nylon pack, covered by a dry dressing, was applied. The blood pressure immediately rose from 110/70 to 170/110 and the patient's general condition improved noticeably. The paradoxical pulse disappeared. A chest film taken postoperatively showed air in the pericardium but no pneumothorax was present. Apparently the fluid in the left chest had been loculated. Digital exploration and irrigation were carried out daily for ten days, and penicillin and aureomycin were administered during the hospital course. A left thoracenteses was done on the sixth day after pericardiostomy and 550 cc. of serous fluid were removed. Two cultures showed pneumococci, type 22. The patient was discharged on February 16, 1951. An electrocardiogram at that time showed changes compatible with subacute pericarditis. He was last seen in the clinic on June 15, 1951, with no complaints. He slept flat in bed and had no cough. His blood pressure was 132/92 with a pulse rate of 96. The lungs were clear. The heart was not enlarged and sounds were of good quality.

SUMMARY AND CONCLUSIONS

The etiology, pathology, and symptomatology of acute pericarditis, particularly the purulent variety, are discussed. The therapy of choice for suppurative pericarditis is surgical drainage, a method of which is outlined.

Three cases, successfully treated by pericardiostomy, are reported.

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CARCINOMA OF THE THYROID*

LAWRENCE H. STRUG, M. D.†

NEW ORLEANS

The great variation in the therapeutic approach to carcinoma of the thyroid gland is due principally to the marked differences in biologic behavior of the different types of carcinoma. It is obvious that therapeusis aimed at the papillary type of lesion, would not be sufficient and would possibly be irrational for malignant adenoma or diffuse adenocarcinoma. This view is certainly not shared by others.[1, 2] who feel that one should always use the radical approach to the problem. The latter viewpoint has its distinct disadvantages, in that removal of the thyroid, contiguous tissues, and regional areas of venous and lymphatic spread is an impossibility because of neighboring vital structures. Thus, it is readily seen why the necessity of a radical operation in the majority of instances has been challenged.

The survival and recurrence rates have been utterly confusing and disappointing,[1, 3, 4] but do show a definite relationship to the grades of malignancy and the rate of growth, which in some are extremely slow and in other types more rapid. An additional factor is that there is a difference in fundamental criteria of malignancy adopted by different pathologists, thus making it practically impossible to compare results with other groups.

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There has been renewed interest in carcinoma of the thyroid, as evidenced by the increased amount of literature on the subject in the past few years. This is due to (1) increased incidence of the disease, (2) universal acceptance of the fact that the rather common "lateral aberrant thyroids" are actually metastasis to the cervical lymphatics and (3) the recent development of radioactive iodine.

There are many pathologic classifications of tumors of the thyroid, but basically they are divided into primary and metastatic lesions. A general classification of the primary tumors is as follows:

1. Adenomas
   a) Alveolar
   b) Papillary
2. Carcinoma
   a) Malignant adenoma
   b) Papillary carcinoma
   c) Adenocarcinoma
   d) Carcinoma simplex
   e) Undifferentiated carcinoma
   f) Epidermoid carcinoma
3. Sarcoma
   a) Lymphona
   b) Reticulum cell tumors

INCIDENCE

Although numerous reports show an increasing incidence of cancer of the thyroid,[1,3,5,6] the death rate as reported in vital statistics remains low. It accounts for only 0.5 to 1.0 per cent of cancer deaths. Numerous reports in the last five years have shown that this figure is probably too low. The basic reason, which Cole has advanced,[5] lies in the fact that the cause of death in patients dying at home, as recorded on death certificates, is notoriously unreliable and most cases of carcinoma of the thyroid die at home.

In spite of the fact that cancer of the thyroid is not a common cause of death, and thyroid carcinomas are of such a low degree of malignancy that they frequently may exist for many years without causing difficulty, some of them do prove fatal. Therefore, it behooves us to attempt to prevent the formation of such tumors. The difficulty lies in the fact that we have been unable to prove or disprove that carcinomas arise frequently in adenomata. Crile reports the incidence of cancer of the thyroid in solitary nodules as 24.5 per cent.[6] Cole reports a 17.2 per cent incidence in nontoxic nodular goitre, and 4.6 per cent in all types of goitres.[5] Even so, the figures in the solitary nodule and nontoxic nodular goitre are higher than previously anticipated.

Nevertheless, one must approach this problem with some degree of rationalism in order to diagnose and treat this disease.

Age—Carcinoma of the thyroid is predominantly a disease of middle age. Some reports indicate that it occurs somewhat earlier than most other carcinomas. Crile gives the average age of patients with papillary cancer of the thyroid as 29 years of age.[6] In the series of studies at Charity Hospital, the age incidence was as follows:

31—40	4	61—70	7
41—50	11	71—80	7
51—60	15	81—90	1

The average age was 49 years. This series was not broken down into age groups with relationship to the type of malignancy. The disease is not infrequent in children, and it is of interest that in the Charity Hospital series, two of the cases were in sisters 10 and 12 years of age. This is in accord with other reports, and should make us ever cognizant of the fact that solitary nodules even in children must be given serious thought.

Sex—The disease is more frequent in females than in males in a ratio of 3 to 1. In our series it was 4.6 to 1.

ETIOLOGY

It is not within the scope of this paper to go into detail concerning the origin of cancer of the thyroid. However, it is the opinion of most observers[1,3,4,5] that a majority of all carcinomas of the thyroid develop in preexisting nodular goitres. This varies from 60 to 90 per cent. Solitary nodules have a high incidence of malignancy, and Crile believes that they are probably present from the beginning, and this is usually always the case. The incidence varies from 24.5 per cent in Crile's series[6] to 15.6 per cent in that published by Ward.[7]

On the other hand, a high proportion of

nodular goitres are proven at operation to contain carcinomas. Cole reported a total of 8 per cent of such occurrences in the nodular (toxic and nontoxic) goitres. In the nontoxic there was a 17.1 per cent incidence,[5] which is much higher than series published elsewhere.

In the series studied at Charity Hospital, there was an incidence of 50/727 (6.88 per cent) carcinoma in nontoxic nodular goitres and 6/369 (1.63 per cent) in toxic nodular goitres. Of these, 75 per cent were described as solitary nodules. The incidence of carcinoma in the solitary nodules was not determined. The incidence of carcinoma occurring in toxic nodular goitres has been consistently below 2 per cent in the published reports,[5] and in the series from Charity Hospital, 1.63 per cent compares favorably. It seems certain that the presence of definite thyrotoxicosis makes the presence of carcinoma improbable.

DIAGNOSIS

In order that the diagnosis of carcinoma of the thyroid be made with increasing frequency, it is necessary that definite clinical criteria of malignancy be established. In the centers in which there has been a special interest in this problem, the condition has been correctly diagnosed more frequently.[5,6] In most clinics, carcinoma has been suspected in 60 per cent or more of the cases, and in some it has been nearer 90 per cent. At Charity Hospital the diagnosis was made clinically in 29 cases (51.79 per cent). It is interesting that Hinton and Lord[8] found an incidence of 6.7 per cent carcinoma in 200 consecutive breasts; whereas in 184 clinically benign nodular goitres the frequency was 7.6 per cent. No one questions the need for biopsy in apparently benign breast masses.

Certain signs and symptoms should be considered practically diagnostic of carcinoma, and if observed, the diagnosis may be suspected in about 75 per cent of the cases.

1. Hardness—Usually all papillary tumors of the thyroid are hard. The cervical metastases may be soft or cystic, but the primary tumor is hard.
2. Size of tumor—The size of the tumor has nothing to do with its malignancy. The primary tumor may be very small, not palpable, and the metastasis extensive.
3. *Rapidity of growth*—Cancers of the thyroid may remain stationary in size for many years, even though the metastases may grow actively. The low grade papillary tumors rarely enlarge rapidly.
4. Fixation of structure to other tissues. This may indicate spread by direct extension involving the muscles of the neck.
5. Dyspnea and/or cough.
6. Dysphagia.
7. Hoarseness.
8. Pain.
9. Evidence of distant metastasis.

The last six indicate advanced stages of the disease in most instances, and usually indicate nonoperability. There is one exception. Enlargement of the cervical nodes in a case of nodular goitre indicates that carcinoma is probably present, but the prognosis is not necessarily bad. If biopsy shows papillary carcinoma, one may confidently expect carcinoma in the homolateral lobe and may also feel reasonably certain that cure or at least a long period of survival may be obtained.

TREATMENT

There are two valuable methods for treatment of carcinoma of the thyroid, namely, surgery and irradiation. Irradiation may be carried out by x-ray, radium or radioactive iodine. This form of therapy is effective in the highly differentiated lesion and is not particularly effective against the highly anaplastic malignancies.

It must be borne in mind that I^{131} is taken up only by functioning thyroid tissue, so it has relatively little effect on the undifferentiated, and therefore, noncolloid producing carcinomas. The normal thyroid tissue exercises a priority for iodine and to a considerable degree withholds it from the less actively functioning tumor cells.

It seems logical, therefore, when a tumor and its metastases are to be treated by $I,^{131}$ to remove all accessible thyroid tissue before such therapy is begun. Some reports

indicate that local recurrences have been kept under control by this method of management.[9,10]

There is still considerable difference of opinion as to the best method of surgical attack. On the one hand, some surgeons[4,6] feel that a more conservative approach to the problem is in order, which has a direct bearing on the pathology of the tumor.

Crile divides the surgical therapy into two types: (1) operations in which the primary tumor and its zone of lymphatic drainage are in continuity and are removed in a block, as in carcinoma of the breast; and (2) operations in which the primary tumor and its zone of lymphatic drainage are not in continuity, as in carcinoma of the lip, in which case the primary tumor is first removed, and later if metastases develop, the regional lymph nodes are excised.

Cattell, Lahey, and others[1,2,7] disagree with this viewpoint. They feel that the one good chance to remove a carcinoma is the first one. Therefore, the first operation should be as thorough an eradication of the tumor and its probable area of spread as can be accomplished without serious mutilation. Many thyroid carcinomas metastasize by way of the blood stream, and performing a radical procedure here, is unwarranted, but others, notably the very common papillary type, spread to the lymphatics of the neck, and it is entirely possible to remove them in entirety.

Our experience has been limited in comparison with thyroid centers elsewhere. However, one must definitely make a decision as to what plan of therapy to follow in the event that malignancy is suspected or proved by biopsy or subtotal thyroidectomy. In the event that the diagnosis of malignancy is clinically made and proved by biopsy of the lobe, a total removal of the homologous lobe and a radical neck dissection should be performed on that side. If both lobes are involved, as well as cervical nodes on both sides, neck dissection is not indicated, as the growth has no doubt spread to distant areas. A total thyroidectomy should be performed and followed by deep x-ray therapy. This procedure can only be considered as palliative.

Radioactive iodine has been proved of some value in the treatment of metastatic lesions provided total thyroidectomy has been performed.[9,10] It has been definitely shown that metastatic lesions have practically no iodine uptake, if the thyroid gland is present. Following thyroidectomy they can be made to show an uptake and thus derive some beneficial effect from such therapy.

SUMMARY

The marked difference in the concept of therapy of carcinoma of the thyroid is presented.

The incidence both elsewhere and at Charity Hospital is compared, but it must readily be admitted that the number of local cases is small as compared with thyroid centers.

The majority of carcinoma of the thyroid occur in young or middle aged people, and are usually of a low order of malignancy, growing extremely slowly.

The diagnosis of cancer of the thyroid can be suspected in at least 60 per cent of the cases. (51.79 per cent at Charity Hospital.)

The treatment is divided into two phases, namely, surgery and irradiation. The two schools of thought, as advocated by Crile and Black on the one hand, and Lahey, Cattel, and Ward on the other are presented. Irradiation either by x-ray or radioactive iodine has been used with some degree of success in controlling metastases.

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TRACHOMA THERAPY*

J. WILLIAM ROSENTHAL, M. D.

NEW ORLEANS

Within the last decade the therapy of trachoma has been advanced more than in all the thousands of years of its previous history. Therefore, although the classical therapy of the disease will be mentioned, more time will be allocated to the more modern therapeutics. MacCallan divided trachoma into the following four stages which should be remembered in the discussion of therapy:

I. The early stage of infiltration.
II. The period of active inflammation.
III. The stage of scarring.
IV. The healed stage.

As a rough corollary to the above, Duke-Elder (in the pre-antibiotic days), divided the therapy into four stages:

1. An attempt to get rid of the active infection by destructive chemicals locally applied.
II. The mechanical expression of the bleblike excrescences.
III. The removal of diseased areas resistant to treatment, and, finally
IV. The operative correction of deformities.

Duke-Elder then expands on the therapy in each stage:

I. The copper sulphate stone (bluestone) is used daily by rubbing it into the cul-de-sac and palpebral conjunctiva (after anesthetization) followed by irrigation. This may be done for months or years. Adler advises 0.4 per cent copper sulphate eye drops twice daily for the home use.

Early in the disease, or when there is much secondary infection, 1 per cent silver nitrate may be painted on the lids. Lotions of sublimate or oxycyanide of mercury may be used at home with boric acid or vaseline salve at night.

Even in 1938 the following therapeutic agents were obsolete: silver nitrate stick, zinc sulphate, chaulmoogra oil, tartar emetic, quinine bisulphate, mercury perchloride, lead acetate, carbolic acid, acetic acid, glycerine, trachocid (bee venom), argyrol, protargol, dionine, jequirity, abrin, iodine, gold salts, autogenous serum and powdered ginger, to mention a few.

II. The use of expression forceps (especially Knapp's roller type) to rid the lid of exuberant follicles is advised by Duke-Elder. Inaccessable follicles should be removed with a knife and sharp spoon.

Scarification with a knife and subsequent strong massage with antiseptics was also used. However, use of a curette, hard brush, or sandpaper is less effective. Other methods of removal of the follicles are by the use of carbon dioxide snow, diathermy, and galvanocautery.

III. If the whole area is grossly diseased, excision of the fornix and possibly also the tarsal plate may be performed. A peridomy may be done if the pannus is severe. In cases with an active pannus in the cicatricial stage of the disease, a mucous membrane graft may be applied from the limbus to the tarsus.

IV. Late in the disease corrective surgical procedures such as epilation, operations for entropion and trichiasis, and canthus reformations may be indicated.

As the more recent antibiotic drugs are designed to arrest the trachomatous process in the first and early second stages, the above surgical procedures will be used less and less frequently, as fewer cases will go on to stages three and four.

SULFONAMIDE AND PENICILLIN THERAPY

In 1950, Siniscal related his experiences at the Missouri Trachoma Hospital with the

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evolvement of sulfonamide and penicillin therapy. When sulfanilamide was first made available, a saturated solution (0.7 per cent) was used locally as drops, with good results. Then sulfacetamide was used orally and as drops and found to be no more effective than sulfanilamide. Little value was placed in local therapy with 5 per cent sulfathiazole drops and powder. Orally, however, it was tolerated better than the other drugs. The hospital regime, therefore, in 1941, was a saturated solution of sulfanilamide locally as drops every two hours, and 2 to 4 grams of sulfathiazole orally for seven to ten days. In 1942, sulfadiazine replaced sulfathiazole as the oral therapy because of its lower renal toxicity rate. Adjunctive therapy then used was: pontocaine, heat, atropine, cautery, and intravenous typhoid. The usual surgery indicated and used was entropion procedures, grattage, and epilation .

In 1946, 30 per cent sodium sulfacetamide was used, but found to be too irritating. A 10 per cent solution was then made up, found to be quite effective, and caused minimal irritation. Subsequently, it replaced 0.7 per cent sulfanilamide as the topical agent. It was found that 10 per cent sulfacetamide ointment at night caused itching and irritation but no objective signs were found. The former were so intense, however, that use of that form of the drug was discontinued.

Next a 10 per cent solution of gantrisin® was used topically and 3 to 10 gm./day used orally in 300 patients in 1947. This therapy was found to be very satisfactory. High oral dosage would cause mild nausea and headache, but no local reactions were found.

Equal parts of sulfadiazine, sulfamerazine, and sulfathiazole by weight (combisul®) was used orally in 1948 and found to be as effective as sulfadiazine.

The use in 1945-46 of sodium crystalline penicillin (100 u/cc) was advocated as conjunctival drops every two hours and as an ointment (1000 u/gm.) at night. This was used in 100 cases, the results being that the secondary infections were cleared up, but the trachomatous process itself was not affected. Bacitracin ointment (500 u/gm.) was used and also cleared up secondary invaders without affecting the trachoma per se.

From all this experience, Siniscal concludes that the best drops are:

1. Sulfasoxazole (gantrisin ®) (4.3 and 10 per cent).
2. Sodium sulfacetamid (10 per cent).
3. Sulfanilamide (0.7 per cent).

Good oral medication is:

1. Sulfasoxazole (gantrisin ®)
2. Sulfadiazine.
3. Sulfadiazine - sulfamerazine - sulfathiazole (Combisul ®).
4. Sulfathiozole.
5. Sulfapyridine.

Oral medication is not effective without local therapy as drops. The average newly infected case responds in ten to twenty-one days.

There are two other drugs of the sulfonamide group which are used mostly in foreign countries. They are lutazol and ophtazol (G33). Tsopellas reports much improvement in 31 out of 48 patients in stages II, III, and IV, using these drops. The improvement was symptomatic plus decrease in secretions and photophobia. From one to twelve weeks later there was less lid edema, ptosis, conjunctival vascularity, and the follicles had become atrophic. Those cases with complications showed parallel improvement. Tsopellas states his belief that the drugs' primary action is in controlling secondary infection.

Lutazol was used subconjunctivally and orally by Kamel, who found that it had no effect upon trachoma of the lid or pannus, and at the end of therapy the controls and the treated eyes looked the same. One year later the eye condition had not changed. Kamel then used sulfanilamide orally and as a powder locally. Trachoma of the lids was not affected, but the pannus had disappeared from the cornea, and its vessels were occluded. This condition obtained for at least one year.

AUREOMYCIN

Boase used aureomycin locally as drops and orally, and considers the drug the sine qua non of trachoma therapy. Treatment was carried on for four to twenty-two days,

and surgical procedures were done as were necessary. He states that he is not sure that the drug cures the disease, but his tone implies that he believes so.

Ainsle, on the other hand, used aureomycin locally in 6 cases and orally also in 2. All cases showed marked symptomatic relief in two to three weeks, but little anatomical change was seen except a decrease in vascularity of the pannus and disappearance of the follicles. All cases were old, third stage.

A third opinion about aureomycin was voiced by Ching, who got good results with the drops and ointment, with and without oral administration. It works faster than 10 per cent sulfacetamide and 1000 u/cc. penicillin, he says, but is not more effective. He believes the drug nonspecific—its results being due to decrease in secondary infection. However, he admits that secondary infection is knocked out "like a blunderbuss", and it is probably that which causes many of the worst effects of the disease. So, therefore, aureomycin does a good job even though it does not affect the virus. It had no effect on a series of trachoma patients without secondary infection.

TERRAMYCIN

Mitsui and his fellow workers used terramycin in several forms and in all stages of the disease. They report acute trachoma cured in two to three weeks with the 0.5 per cent solution used more than four times a day and with the 0.1 per cent or 0.5 per cent ointment used in the same fashion.

Chronic trachoma cases show no hard and fast results, but it depends upon the case. However, 15 out of 15 cases were cured with 1 per cent terramycin ointment three times a day for six to ten weeks, but oral sulfadiazine (one-half gram three times a day) was used for ten days. In chronic trachoma, hyaluronidase (1 TRU gm.) was used in 0.5 per cent ointment of terramycin. This was applied three times a day for six to eight weeks and 10 to 11 patients were cured.

Acute pannus and ulceration of the cornea responded to terramycin therapy in several days, but in pannus crassus, two weeks' therapy is necessary for a cure.

They state that it is best, in general, to treat patients for two weeks after a clinical cure is obtained to prevent relapses. Systemic administration of terramycin they found was not effective. Ointments appear to be better than drops, and the 0.5 per cent ointment better than the 0.1 per cent. Surgical expression of the follicles followed by terramycin therapy is quite effective if necessary.

CHLORAMPHENICOL (CHLOROMYCETIN ®)

Twenty-three trachoma patients were treated by Pijoan and his confreres with oral chloramphenicol. They gave 3 grams the first day and 2 grams for three more days, in divided doses.

All cases were benefited by a reduction in secondary infection, decrease in inflammatory processes and clearing of the exudate within the pannus. A reduction in corneal opacities occurred in 80 per cent of the patients. They were observed three months or more without return of symptoms or signs of relapse.

SUMMARY

The therapy of trachoma has made remarkable progress within the last decade. Excellent results may be obtained by the local or oral use of the sulfonamide drugs and aureomycin. Terramycin locally is evidently equally as effective. Patients have benefited from oral chloromycetin therapy.

Penicillin and bacitracin have been shown to clear up secondary infection only, having no effect on the primary disease.

The sulfonamides have been extensively used in clinical trials—aureomycin and terramycin to a lesser extent. Which, or if any of these drugs actually cure trachoma, has not as yet been determined; but more usage, plus possible in vitro experiments, may settle this question. Certainly long follow-up periods in the clinical cases are advisable.

Surgical procedures such as evacuation of follicles, removal of grossly diseased tissue, and plastic operations in stage IV still have definite indications.

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"EMERGENCY MATERNITY AND INFANT CARE"

(EMIC) LEGISLATION

Pending before Congress at the present time are two bills by Senators Humphrey and Lehman (S.1245 and S.2337). These bills are a part of the Emergency Maternity and Infant Care program sponsored by the Children's Bureau of the Federal Security Agency and advocated by Dr. Martha M. Eliot, Director. They are bills to reestablish a program similar to the E.M.I.C. which existed in World War II and continued in existence in one form or another until July, 1949. In some respects they go beyond the provisions then enforced and advocate a situation where dependents of the lowest seven grades in military service would have hospitalization provided for them.

The advocates of these bills are the Children's Bureau and others on the public payroll connected directly or indirectly with the Federal Security Agency. Authoritative opposition to them has been voiced on behalf of the A.M.A. by Dr. Edwin S. Hamilton, a member of the Board of Trustees of the American Medical Association, and by Dr. Woodruff F. Crawford on behalf of that association as the chairman of the committee appointed to investigate it. The proponents of the bills base their advocacy chiefly on the following: (1) that some 200,000 wives of service men will have babies in the coming year; and (2) the prospective parents of these children are not certain yet as to how they are going to be provided for. The opposition, which is the position taken by the American Medical Association and the components of organized medicine, is that there is no demonstrated need for the activation of a national program of the type proposed. The figures recently released by the Department of Defense show that less than 1 in 10 enlisted men in these lower grades have dependents other than dependent parents, and about one-half of that number, or about 1 in 20, have a wife only. Of these only a certain number will have children during the two years of an enlisted man's tour of military duty, and again, of these many are already receiving dependent military care at hospitals of the armed services. It is felt by those opposing the bill that the maternity care and child care could be given in the same way that it ordinarily would have been given had the fathers not been in military service. Dr. Crawford stated that his committee collected statements from medical societies, general practitioners, obstetricians, and pediatricians, in regard

to the question of whether reactivation of the EMIC was desirable or necessary.

Subsequently, conferences were held with staff members of the Children's Bureau and with persons representing major health and hospital associations, and with others interested in the services that might be provided under the possible reactivation of an emergency maternity and infant care program. All of the conferees, with the exception of the representatives of the Children's Bureau, agreed that the need for such a program had not been demonstrated and that no program should be initiated until the evidence of the need became apparent.

For the further study of the problem, the committee of the A.M.A. engaged the research department of the Welfare Council of Metropolitan Los Angeles to inquire into the ability of local servicemen to meet the costs of medical and hospital obstetrical care. Los Angeles was selected as representative of one of the more dislocated areas from a military personnel standpoint, with the idea that if the medical and financial problems were adequately taken care of there the same would be true elsewhere. Any serviceman's wife in that area who delivered during the period January 1 to January 15 was interviewed while in the hospital; also, wives of nonservicemen were visited. With the result that it was clear that the medical financial needs of servicemen's families are being adequately taken care of in the Los Angeles area.

Hearings before the subcommittee having these bills under consideration have been in process and the position of organized medicine has been ably presented. The Bureau of the Budget of the federal government has informed Chairman Lehman of the Senate Health Subcommittee that it cannot recommend passage of Emergency Maternity and Infant Care bills now under study and that it disapproves the plan for free hospitalization of servicemen's dependents.

It is reasonably clear, therefore, that another effort is being made to enact state medicine piece by piece. The advocates of these bills and those who have brought in support in their testimony are well known for their past efforts in promoting the interests of state medicine. As has been stated in these columns in the past, and as is well known to all who keep informed on this subject, the proponents of state medicine, since being defeated with their omnibus bill, are continuously making the effort to gradually incorporate the population into schemes of state paid medical care.

The experience of physicians as a whole with the EMIC program in the late war was such as to make them want no part of it now. The experience with legislation of this type is such as to show clearly it is only a stepping stone to state medicine. The opposition, therefore, of all organized medicine and the A.M.A. is well directed, and it is in the best interests of all that it should be well supported.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

DR. EDWIN LIONEL ZANDER
OUR PRESIDENT

Our president during the current year, Dr. Edwin Lionel Zander, has served our organization during trying times. When the Seventy-second Annual Meeting of the Society is over on the last of this month, the membership properly could say to him, "Well done, thou good and faithful servant."

Dr. Zander illustrates in his life, his practice, his professional attainments, and his

DR. EDWIN LIONEL ZANDER

work for organized medicine, many of the highest attributes that are so valuable in medicine today.

Dr. Zander was born in New Orleans in 1896, educated at Tulane University, was an interne and admitting officer at Charity Hospital, and started practice in New Orleans in 1922. He worked progressively forward in his specialty as obstetrician and gynecologist, and in thirty years of strenuous practice and hard work has attained many honors in his chosen field. He has been a member of the teaching staff of Mercy Hospital and Louisiana State University Medical School. He is Senior Surgeon at Charity Hospital and Chief of Obstetrics and Gynecology there. He is a member of the American Academy of Obstetrics and Gynecology.

His work in the field of organized medicine has been long and arduous. He has been on the Board of the Orleans Parish Medical Society and President of that organization. For some years he was Chairman of the Committee on Congressional Matters for the State Society, and at the same time was Chairman of the Council. He is a member of the Southern Medical Association, American Medical Association, American College of Surgeons, a Fellow of the International College of Surgeons.

In the field of civic endeavours, our Society has reason to be proud that an active practitioner could and would take such an active part and contribute such valuable services among groups whose work is for the Community as a whole. He has been active in the New Orleans Chamber of Commerce. He has been a member of the Board and Chairman of the Medical Committee of the New Orleans Chamber of Commerce. He was a member of the Young Men's Business Club of New Orleans and has been chairman of the Kiwanis Club of New Orleans. In addition to the activities of the type mentioned above, he has also found time for social activities and is a member of several Carnival Clubs, the Metairie Country Club, and Past President of the Alumni Association of the Phi Rho Sigma Medical Fraternity.

On many occasions he has made himself available as chairman of a committee or director of a drive, manager of a civic endeavor in which the community interests and the welfare of medicine have both been served.

In 1923, Dr. Zander married Miss Noelie Zibilich and they have one daughter, Claire Mae.

Dr. Zander has contributed numerous articles in the field of his specialty to professional journals.

In the year that is drawing to a close, matters of considerable moment have come before the Society for decision and action. It has been necessary to focus the opposition of the organization against many pernicious bills in Congress. Visits to many constituent units of our State organization have been necessary. Louisiana Physicians Service has required vital assistance from the State Society. Dr. Zander has been most active in promoting this accessory but necessary part of organization affairs. This

has been an election year in the State and great progress was made in requesting candidates for public office to clarify their stand before the voters in matters that affect the welfare of medicine. All these have been a small part of what has been the executive duty in months past. Our organization can take comfort and pride in the fact that these activities have been carried forward in a manner so beneficial and in keeping with the dignity of our profession.

Dr. Zander joins the happy group of past presidents of the Louisiana State Medical Society. It is most fitting that he will be able to counsel and assist the organization with his experience, his mature judgment, and his never-ending good will.

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REPORT OF PRESIDENT

Each President of the Louisiana State Medical Society, since the bureaucrats have arrived on the political scene in Washington, has warned the medical profession of the attempts of the political planners to socialize medicine. I must call your attention again to some of the new attempts by other groups which are being made. Some of the bills introduced in Congress which we are opposing are an indirect approach, such as Bill HR 5304, Universal Military Training and EMIC Bills, S.1245 and S.2337, which provide a socialized maternity and infant care program for dependents of enlisted personnel of the Armed Forces. This last Bill, S.2337, in addition, proposes a further program of socialized hospital services to all bed patients who are dependents of enlisted members of the Armed Forces, regardless of age. Senate Bill 1140, which is intended primarily to put into effect the medical recommendations of the Hoover Commission or organization of the Executive Branch of the government, would provide for the transfer of various federal medical services to a new department of health. The Federal Aid to Medical Education Bill S-337 and HR.910 (Bolton) and HR.6185, the Federal Aid to Nursing Education Bills are all socialistic. The methods of operation of Veteran's Hospitals and also the position of General Eisenhower and the veterans in regard to medicine are problems for consideration by this Society.

It is my opinion that a state law should be written, or approved after study, to create standards for community operated nursing homes in the state before they are approved.

It has also been suggested that the State Society sponsor a bill which will provide for an annual Doctor's Day.

In line with previous action of the Executive Committee, past president certificates were prepared for every doctor who has served the Society in this capacity. These were mailed to all living past presidents and also to families of deceased members who served when requests were received through the various component societies.

The President attended two sessions of the AMA, as representative of the State Society, and also many parish and district society meetings when the opportunity was presented and it was possible to be present. There should be a closer cooperation between secretaries of component societies and the office of the State Society and freer exchange of information and ideas.

The State Society has, during the past year, cooperated with the State Department of Education in regard to practical nurse training courses for the State of Louisiana.

Meetings have been held with the Louisiana Heart Association, the Louisiana Society for Mental Health, the March of Dimes Campaign Committee, State Board of Health and Metropolitan Life Insurance Company, and the Louisiana Branch of the American Cancer Society. The President has met with representatives of the American Red Cross for discussion of various problems involving cooperation of the State Society and has conferred with the District Attorney's office in New Orleans regarding control of hypnotic drugs.

A blood bank has been established in New

Orleans in cooperation with the American Red Cross, American Hospital Association, American Public Health Association and American Association of Blood Banks.

Four new committees recommended and requested by the AMA and the House of Delegates of the State Society were appointed by the President of the Society during the past year. One of these, a Committee on Grievances, was appointed to handle problems between physicians and patients, not involving ethics. A Committee on Chronic Diseases was also appointed to study and make recommendations regarding care of chronically ill patients. A Committee on Child Health, recommended at the last meeting of the House of Delegates, was appointed and has cooperated and worked with public agencies, recommending and advising in matters concerned with child health. The fourth committee to which I refer is a liaison Committee to cooperate with the Louisiana State Nurses' Association. This committee has already made progress in clearing up some of the misunderstandings previously encountered with this profession. It is my belief that similar committees should be appointed to work with the pharmacists and pharmaceutical houses, dentists, hospital and insurance companies, such as has been the practice of the Michigan State Medical Society through the Michigan Health Council.

It is my suggestion that the State Society also appoint a committee to cooperate with the American Medical Education Foundation to obtain funds for medical education.

At the beginning of the year a meeting was held with chairmen of all standing and special committees, and the Executive Committee, to review duties of the committees and to consider projects for the year. In addition four meetings of the Executive Committee were held during the year to consider various matters which required action by the Executive Committee.

One of the major problems of the year which received much attention and called for two special meetings of the Executive Committee was the question of assistance to Louisiana Physicians Service, Inc. A severance of the business arrangements with the upstate Blue Cross Plan necessitated an additional loan of $30,000.00 which results in a total indebtedness of $45,000.00 to the State Society at this time. There has been considerable discussion both pro and con concerning this organization and your President has tried to handle the matter as diplomatically as possible and at all times with the interest of the State Society foremost. On leaving the presidency it is my hope that the LPS is on the way up the road to success; however, it is my opinion that it will require a lot of cooperation from the membership to make it secure and it will be necessary to have good business management by the organization if it is to continue to prosper.

In reference to the scientific program at annual meetings, specialty groups should recognize the fact that it is the prerogative of the President to appoint chairmen of the various scientific sections and if any specialty society would like to suggest a chairman for a particular section this should be done at the beginning of the term of the president before appointments are made.

I wish to express to all members of the Society my thanks for their cooperation and kindness shown me during my term of office. It has been a great honor and privilege to have served you in 1951 and 1952. I do, however, feel particularly obligated to certain members who have helped me immensely. Dr. C. Grenes Cole, in his position as Secretary-Treasurer, has been of invaluable aid and has been most cooperative in making the position of president a pleasure. I do not believe the Society could get along without him. Drs. P. H. Jones, E. L. Leckert, J. P. Sanders, Roy B. Harrison, Val H. Fuchs, E. L. Irwin and Max M. Hattaway, are some who deserve special mention. The Executive Committee and the chairmen of the many committees have also cooperated splendidly. I wish also to extend my thanks to the entire personnel of the office and particularly to Miss Annie Mae Shoemaker, who has had so many words of appreciation written about her that I would only repeat what has previously been said.

RECOMMENDATIONS

1. Continue as special committees of the Society, the Committee on Grievances, Committee on Chronic Diseases, Committee on Child Health and Liaison Committee with the Louisiana State Nurses' Association.

2. Appointment of a special committee to cooperate with the American Medical Education Foundation.

3. Study of question of a law to establish standards for nursing homes in the state.

4. Study and prepare a law governing the sale of hypnotic drugs.

5. Foster a bill establishing an annual Doctor's Day.

6. The President of the State Society serve as an ex-officio member of the Board with no right to vote and not as an elected member of the Louisiana Physicians Service, Inc., Board.

EDWIN L. ZANDER, M. D., President.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

WELCOME TO SHREVEPORT

It is with great pleasure together with an anticipation of good things to come and gratitude for the honor conferred that the Shreveport Medical Society extends a hearty welcome to the State Medical Society and the Woman's Auxiliary with the hope that all will be able to attend the Convention in Shreveport.

The four essentials of a good meeting have been taken care of by groups of hard working committees and it is our earnest desire that our efforts may show excellent results.

The first essential is the scientific program in which the modern concepts of medicine are approached, presented and discussed, giving to all a short review of the recent advances in medical science. Included with this will be the consideration of ideas for the improvement of the Society as a whole.

Secondly, the mingling of old friends and the making of new and pleasant acquaintances, which is augmented by the various social affairs, intermingled with the more serious and scientific meeting.

Thirdly, the presentation of scientific and commercial exhibits. I understand that these will be much in evidence and should prove to be most instructive and entertaining. At this point I would urge all to visit the commercial exhibits and to give the various firms an opportunity to show their more recent and improved instruments and medical products. They are due this courtesy as the proceeds from their exhibits are a great aid in financing the conventions.

Fourthly, and last but not least, the entertainment. This has been well cared for and those not wishing to devote the entire time to matters of medical nature may find ample opportunities for relaxation along other lines.

I wish to take this opportunity to thank Dr. Ralph Riggs, our chairman on arrangements, and his various committees for the effort and interest they have shown in their endeavor to make this a most excellent occasion; one that all will enjoy, returning home with the impression of time well spent.

Shreveport Medical Society
L. W. Gorton, M. D., President.

PHYSICIANS MAKING TOUR OF MEXICO

Ten prominent physicians from widely scattered parts of the United States flew to Mexico to visit medical clinics.

The physicians, who attended the Graduate Medical Assembly convention in New Orleans, have been taking advanced work in various fields of medicine and are touring the clinics to see latest techniques in actual practice.

Members of the group include Dr. and Mrs. Dominic Battaglia and Dr. and Mrs. John A. Shannon, all of Johnstown, New York; Dr. and Mrs. Herbert Q. Horne, of Haverhill, Massachusetts; Dr. and Mrs. Vernon L. Peterson, of Charleston, West Virginia; Dr. and Mrs. Hobert Setzer, of St. Paul, Minnesota; Dr. and Mrs. Carl Baumgartner, of Bismarck, North Dakota; Dr. and Mrs. Donovan C. Brown, Mrs. Marcelle Cambon, Mrs. Irma Sherwood and Dr. Edgar Hull, all of New Orleans; Dr. Donald J. Reichert, of Dickinson, North Dakota, Dr. Roger L. Hickman, of West Memphis, Arkansis, Mr. and Mrs. Jack Siegel, of Fort Worth, Texas, and Dr. and Mrs. Henry Kooistra of Grand Rapids, Michigan.

FACTS ABOUT A.M.A. DUES

A.M.A. members having any questions about dues should not overlook the lengthy article, "Facts About A.M.A. Dues for 1952," appearing in the Organization Section of the January 12th issue of The Journal. The facts were provided so as to answer any dues questions which doctors might have on their minds.

MASS SURVEYS TO FIND EARLY STOMACH CANCERS NOT TOO SUCCESSFUL

Results of a study undertaken at The Johns Hopkins Hospital in Baltimore, covering a four-year period and 40,000 persons over 40 years of age, show that mass x-ray surveys to detect stomach cancer in its early stages are not too successful.

This conclusion is reached in a report which appeared in the January issue of THE AMERICAN JOURNAL OF ROENTGENOLOGY AND RADIUM THERAPY, which is published primarily for physicians who specialize in x-ray diagnosis and treatment.

DOCTORS TRY TO FIND CARDINAL SYMPTOM IN OVARIAN CANCER

Ovarian cancer is so insidious that even after reviewing 143 cases two Chicago doctors reported that they were unable to reveal a characteristic symptom, which would indicate to the patient or his physician the possible presence of such a lesion in its early stages.

The study was undertaken because this type of cancer usually lacks characteristic or alerting symptoms.

The doctors—Herbert E. Schmitz and Joseph T. Majewski—reviewed the cases of all patients who were treated at the Mercy Hospital Institute of Radiation Therapy in Chicago. The cases had been observed for at least five years after treatment.

The doctors' findings were reported in the current issue of the journal, RADIOLOGY, which is published primarily for physicians who specialize in X-ray diagnosis and treatment.

ATABRINE USED TO TREAT TAPEWORM

Quinacrine hydrochloride (atabrine, trademark) —used during World War II as an antimalarial agent—has proved of value in the treatment of tapeworm, according to an article in the current (Jan. 26) Journal of the American Medical Association.

Eleven persons suffering from tapeworm were given the drug, reported Drs. William A. Sodeman and Rodney C. Jung, of the School of Medicine, Tulane University of Louisiana, New Orleans. It was effective in 10 of the cases on the initial trial, and in the 11th when treatment was repeated, they stated.

The patients were given doses ranging from 0.6 to 1.2 grams at the rate of two 0.1 gram tablets every five minutes with a little water until the entire amount was taken. If the patient reacted to the drug by vomiting and nausea, sodium bicarbonate was added to the water when the medication was repeated.

In the treatment of tapeworm, the doctors said, the prompt action of quinacrine and the benign character of the toxic reaction have established it in their opinion as the drug of choice.

FIRST ANNUAL MEETING OF THE STUDENT AMERICAN MEDICAL ASSOCIATION HELD IN CHICAGO

More than 100 delegates and observers from the nation's medical schools attended the December 27-28 first annual convention of the Student American Medical Association at the Sheraton Hotel, Chicago.

Highlights of the meeting included a talk on "The Acute Abdomen" by Philip Thorek, M. D., Chicago; a buffet and dance sponsored by Abbott Laboratories, North Chicago, and the election of SAMA's new executive council and national officers.

Three new academic societies were added to the growing roster of SAMA chapters. The three are Wayne University College of Medicine, Detroit; University of Missouri School of Medicine, Columbia, and Marquette University School of Medicine, Milwaukee. The Student American Medical Association now has chapters at 44 medical schools.

The organization's national officers for 1952 are David Buchanan, University of Illinois, president; Clifford Vernick, Tufts College, vice president; and Leland Hoar, University of Oregon, treasurer.

Resolutions adopted by the House of Delegates include full support of the national blood procurement program and active participation in civil defense medical plans and operations. The House also voted to initiate surveys related to internships and medical education.

Copies of the first issue of the new Journal of the Student American Medical Association were distributed at the convention. The Journal will be distributed nine months a year to 33,000 medical students and interns.

CHARGES NEW HEALTH COMMISSION FRAUD ON AMERICAN PEOPLE

Dr. John W. Cline, San Francisco, president of the American Medical Association, charged that the President's new Commission on the Health Needs of the Nation, which is financing its work from emergency funds allocated for national defense, "is a transparent fraud on the American people."

Dr. Cline characterized establishment of the commission as "the latest maneuver in President Truman's campaign to socialize the medical profession."

In an article in a recent (Jan. 19) issue of the Journal of the American Medical Association, Dr. Cline said he wanted to make it clear that in attacking the commission, "we do not attack the individual members who are serving on it."

"This is a stacked commission," he said, "but among its membership are to be found sincere and able men who have accepted the appointment with finest intentions. However, in such an obviously political framework and in the short space of time [one year] that the commission has been allowed for its work, they will be ineffectual."

Shortly after the President announced formation of the commission on December 29, Dr. Cline said "there is no health emergency in this country to require such an investigation or to justify the use of defense emergency funds by such a commission; the health of the American people never has been better."

Dr. Cline took issue with the President and the commission chairman, Dr. Paul B. Magnuson, Chicago orthopedic surgeon, who have insisted that the 15-member commission is an unbiased, impartial group.

FRANK'S BOYS WIN DEBATE

Frank G. Dickinson, director of the A. M. A. Bureau of Medical Economic Research, coached two "boys" on a debating team who took the negative side of the subject: "Resolved: That this House recognize the need for a free National Health Service."

The affirmative side was taken by two young students from Britain, members of the Oxford University debating team.

A great deal of literature and statistics was sent by both Dr. Dickinson and the A. M. A. Council on Medical Service to Murdo, the Robber, and Bill, the Bad Check Passer. They were members of the debating team of the Norfolk State Prison Colony at Norfolk, Mass.

The two teams debated the subject before an audience of 600. The judges were former Governor William S. Flynn of Rhode Island, Justice Harold Williams of the Massachusetts Supreme Court, and Dean Erwin N. Griswold of the Harvard Law School.

The judges' unanimous decision was a victory for the Norfolk prison team.

In a "letter of appreciation" to Dr. Dickinson later, Bill, the Bad Check Passer, said that this was the first time the British team had been defeated in 52 debates in which it had participated throughout the eastern part of the United States. In most of the debates, the free national health service subject was discussed. After the prison debate the audience voted, too. The vote was 4 to 1 against.

Bill, the Bad Check Passer, said he thought he clinched the decision of the judges with:

"Guests of Norfolk, voluntary and involuntary, a free national health service will not make medical service better, but worse. The neurotics and malingerers will swamp our doctors and make it impossible for them to tend the really sick. I have been an unwilling native in a socialist Utopia for some time, and I know it will not work. . . . This talk of free service is just politicalcamouflage."

"GUIDE TO SERVICES" HAS WIDE DISTRIBUTION

The new A. M. A. pamphlet, "Guide to Services," which summarizes the varied activities and services of the American Medical Association, has been given very wide distribution.

The first mailing, approximately 3,000, included members of the House of Delegates; state society presidents, executive secretaries and public relations chairmen; county society secretaries; editors of state and county journals, and auxiliary officers and PR chairmen.

The second mailing, approximately 10,000, included science and magazine writers, editors of newspapers with more than 20,000 circulation; Blue Cross-Blue Shield personnel; allied health organizations; educational publication editors; VA and army personnel; deans of medical schools; hospitals; public libraries; colleges and universities; members of Congress; standing committees of the

A. M. A., and miscellaneous agencies, such as labor unions and service clubs.

RED CROSS REGIONAL BLOOD CENTER AT NEW ORLEANS NEEDS PHYSICIANS

The New Orleans Regional Blood Center, American Red Cross, requires the services of two physicians to supervise its bloodmobiles (mobile blood collecting units) operating in New Orleans and in rural areas to a distance of 150 miles. Louisiana and Mississippi medical licenses (or eligibility for such licensure) are required. Full time or part time work. Salary plus travel expenses.

For further information please write or telephone Dr. E. D. McMorries or Dr. J. W. Davenport, Jr., New Orleans Regional Blood Center, 1038 St. Charles Avenue. TUlane 2366.

BOOK REVIEWS

Urgent Diagnosis without Laboratory Aid; by Hans L. Baur. Springfield, Ill., Charles C. Thomas, Publisher, 1950. pp. 89. Price, $2.00.

The role of good medical observation is emphasized in this well organized volume. The work is primarily concerned with the early diagnosis of the acute and life-endangering disorders for which prompt treatment is essential. There are chapters on external appearances and odors but the main part of the book is composed of sections concerning the differenttial diagnosis of those diseases which can produce a given disorder. The method of exposition employed is economical and only essentials are presented. Fundamental physical signs receive full emphasis throughout. The book is a valuable summary of diagnostic principles in medical emergencies which will be of great aid to the physician.

MORTON ZISKIND, M. D.

Health of Slaves on Southern Plantations; by William Dosite Postell. Baton Rouge, La. State University Press, 1951. Illus. pp. 231. Price, $3.00.

Based entirely on original research, W. D. Postell's volume on the health of slaves on Southern plantations, represents a real contribution to the socio-economic as well as the medical history of the South. The study has been supported by a grant-in-aid from the Research Council of Louisiana State University, since much travel has been necessary over a period of several years, in examination of manuscripts and documentary records only to be found in local collections from Virginia to Texas.

The book begins with chapters on the health problems of the South and an explanation of the plantation system. Following this, Mr. Postell describes the provision made for the slaves' food, clothing and shelter, as shown in the financial records of the plantations and in the descriptive accounts of contemporary travelers. Sections on plantation medicine deal with the provision for medical care, prevalence of disease and injury, as well as with means used by the planters in preventing disease, and methods of therapy. The care of women and children received special attention and a chapter is devoted to hospitals for slaves. The study closes with an evaluation of the descriptive and statistical data presented, and over 60 pages of bibliography, indicative of the extent to which the findings have been documented.

It is interesting to note that many ideas today considered new were in common vogue in plantation practice of that day. Physicians were employed by the year at an annual fee, the contract practice of today. Day nurseries were maintained on large plantations to care for the small children of working mothers. The most advanced principles of public health as of that day were used in the prevention of disease. Hospitalization was cared for on a simple scale on the plantation itself, and in more serious cases, by resort to use of hospitals for slaves in urban centers. The full directions in overseers' manuals as to health care, as well as what to do in case of illness and injury, were the forerunners of such sets of rules in industrial organizations today, for the plantation system was an important industrial organization of that day.

No other book in print covers in so authoritative a manner this phase of medical history in the United States. Mr. Postell has made a valuable contribution to our recorded knowledge of the practice of medicine on the old plantations of the South.

MARY LOUISE MARSHALL.

Diabetes Mellitus, Principles and Treatment, by Garfield G. Duncan, M. D. Philadelphia, W. B. Saunders, 1951. Illus. pp. 289. Price, $5.75.

This is a delightfully written monograph which integrates the schools of thought on the subject. Summarizing his ideas after years of work on diabetes, it presents the entire field of this subject in a way which is useful to the student, general practitioner, and specialist. Dr. Duncan presents the practical aspects of handling the disease as gathered from the years of study of diabetes made at the University of Pennsylvania Hospital.

Being published at a time when there is increasing recognition of the importance of early diagnosis of diabetes among the average population, it is a handy reference for all of us. It is well worth

reading to bring one up to date on current concepts and literature. There is an excellent bibliography for references which may be desired on any particular aspect of the disease.

JOSEPH E. SCHENTHAL, M. D.

Principles and Practice of Obstetries; by Joseph P. Greenhill, M. D. & J. B. DeLee, M. D. 10th ed. Philadelphia, W. B. Saunders Co. 1951. pp. 1020, illus. Price, $12.50.

Long a classic in the field of obstetrics, the tenth edition of DeLee's text book of obstetrics remains the standard by which other texts are compared. Of course, as this is the third revision by the present author, there is more of Greenhill than of DeLee. In accordance with modern custom, and also, necessitated by increasing specialization, a number of other authorities lend a considerable hand in certain fields. These include Dr. John Adriani on *Saddle Bloek Anesthesia.*

This edition is truly a definitive one for medical students and general practitioners. As such, it precludes a discussion of the various subjects presented, in this short review.

The format of the book is excellent and the use of double columned pages makes a less unwieldly volume than previous issues. The quality of the illustrations, however, is uneven—some of them are extremely good but all too many show their vintage. Also, color is only sparingly used.

All in all, however, this book can be unqualifiedly recommended.

CARLO P. CABIBI, M. D.

Scienee Freneh Course; by C. W. Paget Moffatt, M. A., M. B., B. Chr., Rev. by Noel Corcoran, B. A. (Com.), B. Sc. M. Sc. Tech. New York, Chem. Pub. Co. 1951. pp. 332. Price, $4.75.

A person trained in science will find a very large number of words in his field to be nearly identical in French and English. This greatly simplifies the reading of scientific French in contrast to German or Russian where such parallelism is considerably less well developed. There remain verb forms and enclitics which can cause confusion. This book contains the minimum of grammar necessary to permit a person with no previous schooling in French to learn quickly to read in his own field. There are 200 pages of selections from recent scientific books and periodicals in many sciences. There is an extensive vocabulary. The book is fully recommended.

V. J. DERBES, M. D.

Tubereulosis Among Children and Adults; by J. Arthur Myers, M. D., Ph. D. Springfield, Chas. C. Thomas, Publisher, 3d ed. pp. 894. Price, $12.50.

This is an interesting, easy to read text containing a wealth of information about the clinical management of tuberculosis in children and in adults. Although some chapters have been contributed by various specialists, the unmistakable touch of Dr. Myers in correlating their material is always evident. The serial story of tuberculosis is told from primary infection through the "smoldering stage" of apparently innocuous lymph adenopathy and insignificant pulmonary infiltrate to the evolution into clinical disease with open cavities permitting the ejection of tubercle bacilli into the outside world and infection of another generation of persons to perpetuate the disease. One hundred and seventy-seven figures (x-ray reproductions, graphs, and charts) show that breaking the chain of infection is the most important single factor in the control of tuberculosis. The eradication of tuberculosis among cattle suggests what may be expected of the unrelenting effort to prevent sputum positive persons from infecting others. The tuberculin test is advocated as the most sensitive means of determining whether a person has been infected and harbors ever dangerous tubercle bacilli.

BCG administration is again discouraged because it is not effective, destroys usefulness of the tuberculin test and detracts from the proved methods of tuberculosis control elevated to so high a level in this country.

There are those who have differed with Dr. Myers in his emphasis on the tuberculin test and in his opposition to the use of BCG but no one can deny that the exposition of his ideas in the third edition of this book is concise, logical, and informative.

For anyone wishing to obtain a good idea of the fundamentals of the diagnosis and therapy of pulmonary tuberculosis and—above all—of the implications in preventive medicine, this book is highly recommended as were both previous editions. The practitioner and student alike would do well to have this book readily accessible for studying the many vexing problems in tuberculosis practice.

SYDNEY JACOBS, M. D.

PUBLICATIONS RECEIVED

W. B. Saunders Co., Phila.: A Textbook of Orthopedics with a Section on Neurology in Orthopedics, by M. Beckett Howorth, M. D.; Rheumatic Diseases, prepared by the Committee on Publications of The American Rheumatism Association, Charles H. Slocumb, M. D. Chairman.

Charles C. Thomas, Publisher, Springfield, Ill.: Early Care of the Seriously Wounded Man, by Henry K. Beecher, M. D.; Diagnostic and Experimental Methods in Tuberculosis, by Henry Stuart Willis, M. D., and Martin Marc Cummings, M. D. (2nd Ed.); Etiology and Diagnosis in the Treatment of Infertility in Men, by Robert S. Hotchkiss, M. D.; Neurosurgery: An Historical Sketch, by Gilbert Horrax, M. D., Sc.D.; The Human Blood Groups, by P. H. Andresen, M. D.; Refraction, Correlated with Optics and Physiological Optics, Motility, Limited to Heterophoria, by Walter B. Lancaster, M. D.

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HAZARDS OF ETHYL CHLORIDE ANESTHESIA*

JOHN ADRIANI, M. D.†
OLIVER BUSH, M. D.†
NEW ORLEANS

I am sure that some of you, as you glanced at the title of this paper wondered why one would discuss a drug which has been abandoned by most medical practitioners. Although the majority of physicians who devote most of their time to administering anesthetics no longer use ethyl chloride for inhalation, it is surprising to note how frequently it is used by practitioners who administer only an occasional anesthetic. What is more surprising is how few of the users of the drug are aware of its dangers. Ethyl chloride is used largely as a preliminary anesthetic to open drop ether to shorten the induction time, particularly in children, or as the sole anesthetic for minor procedures, such as myringotomy, dental extractions, incision and drainage of boils, similar minor procedures of brief duration. Fatalities, even after brief administrations, are not uncommon. Fatalities usually occur abruptly and without warning. They are characterized by sudden collapse, heart action often disappearing before respiration. These fatalities have been ascribed to cardiac arrest or ventricular fibrillation. It has been postulated that the release of endogenous epinephrine resulting from stimulation during light anesthesia precipitates ventricular fibrillation. It is well known that the halogenated hydrocarbon anesthetics, of which chloroform and ethyl chloride are the better known, are cardiotoxic agents which possess the property of sensitizing the myocardium to epinephrine and causing ventricular fibrillation when the latter is used with any of these agents. However, this is all conjecture and the exact cause of syncope and death from ethyl chloride has never been determined. Data on the pharcological effects of ethyl chloride are meagre, particularly data concerning its effects on cardiac rhythm. Most of the pharmacological data of the cardiac effects of the drug are based upon the work of Embley, published in 1907.[1] He noted irregularities suggesting vagal stimulation. Surprisingly enough, very little is written on the electrocardiographic changes occurring while the drug is being inhaled. In view of scarcity of data on this aspect of cardiac behavior, we felt that some investigation along this line was indicated.[2]

MECHANISM OF CARDIAC DISTURBANCES IN DOGS

We were reluctant to use the drug in human subjects in view of ill effects that one of us had encountered in its use before discarding it over a dozen years ago. Consequently, we did not feel justified in studying its behavior in the operating room until some preliminary data had been obtained in animals. Dogs, therefore, were anesthetized with ethyl chloride, using the open drop method in exactly the same manner as is done for human beings. Electrocardiographic tracings, using standard leads,

*Presented at the Seventy-first Annual Meeting of the Louisiana State Medical Society, May 8, 1951, New Orleans, Louisiana.

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were taken continuously during the administration of the drug. Over 30 dogs were studied. It was noted that almost immediately after the administration of the ethyl chloride was commenced various arrhythmias appeared, suggesting pronounced vagal stimulation. If atropine was given intravenously as they appeared, they disappeared within fifteen or twenty seconds; or, if atropine was given prior to anesthesia the vagal stimulation did not appear. Scopolamine afforded the same protective action as atropine. Banthine, which is an anticholinergic drug also, afforded the same degree of protection as atropine. After an average of two minutes of anesthesia the effects of vagal stimulation disappeared. As the anesthesia was deepened, evidence of myocardial depression appeared. If the drug was continued to the point of overdosage, the heart stopped in asystole, or ventricular fibrillation developed. Asystole developed almost as frequently as fibrillation. In some dogs the cardiac standstill preceded respiratory failure. Atropine, scopolamine, or banthine did not protect against the depressant effects on the heart. Comparisons were made between dogs premedicated with morphine or pentobarbital and unpremedicated dogs to study the effect of excitement. Irrespective of whether premedication was used or not the findings were the same even though the premedicated dogs did not struggle and were calm and the unpremedicated dogs manifested excitement. Priscoline, a sympatholytic agent, was administered prior to anesthesia in the unpremedicated dogs with the view of abolishing the effects of endogenous epinephrine in the event it was secreted during the excitement. No protective action was afforded by this substance. The results following its use were identical in both premedicated and unpremedicated dogs. The contention that epinephrine is released during excitement and precipitates ventricular fibrillation is not supported by these observations. The vagal effects caused by some anesthetics have been ascribed to the irritant effects of their vapors upon the membranes of the respiratory tract. When ether, which is certainly more "irritating" than ethyl chloride, was added, the vagal effects were not enhanced nor did they appear if not manifest before the ether was added. The vagal effects were not observed if ether or vinyl ether were used without ethyl chloride.

EFFECT OF ETHYL CHLORIDE IN HUMAN BEINGS

After having satisfied ourselves concerning the mechanism causing the cardiac disturbances in dogs we proceeded to study the effect of ethyl chloride in human beings. Children undergoing tonsillectomies were premedicated with atropine, grains 1/150, one per hour before anesthesia, and given ethyl chloride by the open drop method and followed by ether. A dozen patients received ethyl chloride to the point of light anesthesia. No arrhythmias or irregularities were noted. We next proceeded to study changes occurring if atropine is omitted. Six patients were given ethyl chloride to the point of light surgical (plane I) anesthesia. As soon as the ethyl chloride was started electrocardiographic changes suggesting vagal stimulation appeared, identical in every way to those noted in dogs. Atropine at this point administered intravenously completely abolished them. In none of the clinical cases was ethyl chloride administered to the point of cardiac depression.

Vinyl ether (vinethene), which is used in exactly the same manner and for the same purpose as ethyl chloride, did not cause any of the aforementioned electrocardiographic changes in dog or man. From the standpoint of cardiac effects it is preferable to ethyl chloride as a preliminary agent for open drop ether and for minor surgical procedures.

The manner in which most fatalities from ethyl chloride appear to have occurred in recorded case histories and in those we have seen suggests that overdosage, followed by depression of the myocardium, was the cause. This is then followed by asystole. What part the inhibition caused by the vagal stimulation plays we are un-

able to say. The possibility of vagal stimulation causing fibrillation, if anoxia is present, must be borne in mind. We feel ethyl chloride should never be used if the patient has not received atropine or a similar anticholinergic substance.

SUMMARY

Ethyl chloride used as an inhalation anesthetic as a preliminary to open drop ether or for brief surgical procedures may cause sudden circulatory collapse. Shortly after the inhalation of the drug is commenced, irregularities suggestive of vagal stimulation are observed. Later, as anesthesia deepens, myocardial depression occurs. Atropine prevents the appearance of the irregularities due to vagal stimulation, but does not protect the heart against the depressant effects of the drug. Fatalities are probably the result of overdosage, which causes cardiac standstill or ventricular fibrillation.

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ACUTE ABDOMINAL EMERGENCIES IN CHILDREN

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NEW ORLEANS

Every physician whose practice brings him into contact with sick children would do well to bear in mind at all times something that Ladd and Gross[1] point out in the preface to their very valuable book on abdominal surgery in infancy and childhood, that children are heirs not only to most of the pathologic states found in older persons, but also to congenital anomalies and types of infection seldom encountered in later life. It has taken a long time to arrive at that realization. It is now also realized —and the learning of the lesson has often been painful—that the former prohibitively high mortality rates for surgery in this age group can be lowered only if it is remembered, above all else, that the infant or the young child must be treated as an individual in his own right, not as a smaller edition of an adult. To those two sound generalizations there should be added a third, that the good results of surgery in young children, which have been increasingly evident during the past decade, have made it increasingly important that diagnosis should be prompt, and operation equally prompt, in all acute abdominal conditions, if only because children do not possess the adults' tolerance for abdominal distention and large fluid losses.

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PRINCIPLES OF DIAGNOSIS

The greatest diagnostic difficulty in young children is the lack of a subjective history; the younger the child, the greater is the lack. The stories furnished by parents and nurses are not always reliable. For one thing, their keenness of observation is often related to the socioeconomic status of the family, which determines the care the child receives, as well as, in some instances, the intelligence of those who care for him. For another, the physician's task often is made doubly difficult because he must secure the information he needs from parents whose emotional disturbance makes them forget important facts if, indeed, they have noticed them at all. Norris and Brayton's[2] advice, to forget the child temporarily and withdraw with the mother to a quiet room for questioning, is excellent. Time lost by this plan is often time gained.

A cardinal principle of examination is that the child should not be frightened. If the very young child can be examined during sleep, that is a great advantage, though it is unfortunately one that is not often realized. If the child is older, a little delay to gain his cooperation is again time well spent. In any event, the hand should be warmed before it is placed on the abdomen, all movements should be gentle and unhurried, and the affected area should be approached last of all.

Rectal examination should never be omitted in a young child suspected of having an acute abdominal condition. The

small size of the structures makes it possible to secure much greater information than the same type of examination provides in the adult, and the presence of an inflamed appendix, a pelvic abscess, a low intussusception, or some other intra-abdominal lesion can often be demonstrated by this method.

There should be no great delay before operation for laboratory examinations, though urinalysis, a blood count, and tests which reveal the physiologic status should be performed routinely. Urinalysis, in addition to pointing to, or excluding, urinary tract disease, furnishes important information about the state of hydration, though in children, especially young children, that is often evident on mere inspection. The blood count should be interpreted with the reservation that the white blood cell count is not the absolute diagnostic guide which it was once supposed to be.

Roentgenograms should be taken routinely, in the erect and recumbent position, and in other planes if indicated. The gas normally present in the small bowel up to the age of 2 years, and sometimes later, may introduce difficulties of interpretation and may be eliminated, Norris and Brayton[2] suggest, that the child be strapped in bed in the prone position for several hours before the examination. The suggestion is ingenious but should be employed only if the delay seems justified; very often it is not.

It is always desirable to make a precise diagnosis, but it is not always possible. If the existence of an acute abdominal condition is diagnosed, or is suspected with good reason, exploratory laparotomy is usually warranted, without further delay for the making of a differential diagnosis. It is a good working plan to eliminate respiratory and exanthematous diseases, which may also give rise to abdominal symptoms, and then operate as soon as the necessary preoperative preparations are completed, even if one can say no more than that an acute surgical emergency exists.

One final principle of diagnosis should be stressed, early consultation with the surgeon. This is becoming, fortunately, a routine practice on well conducted pediatric services and is frequently employed outside of the hospital also. The best diagnostic results are always obtained when the physician or pediatrician summons the surgeon as soon as he suspects that surgery may be required, just as the best therapeutic results are obtained when the pediatric and surgical services cooperate fully in the care of the child before and after operation.

CLASSIFICATION

The types of acute abdominal conditions which may occur in infants and young children include obstruction, infection, obstruction with infection, and hemorrhage. A convenient method of discussing these conditions is according to the age period at which they most often occur, though it should be emphasized that it is not possible to diagnose a disease categorically merely because certain symptoms and signs occur at certain periods of life. Certain conditions are, however, more common at certain times during childhood than at other times, while a few are observed only in the newborn child because, unless they are promptly corrected by surgical measures, they are incompatible with life.

In the newborn child, and through the first week of life, acute abdominal emergencies include atresias and stenoses of the gastrointestinal tract, imperforate anus, omphalocele, meconium ileus and peritonitis, and diaphragmatic hernia.

In the neonatal period, that is, the first month of life, such emergencies include congenital hypertrophic pyloric stenosis, malrotation of the intestine, and umbilical hernia.

During the first year of life intussusception is the commonest of acute abdominal emergencies. Incarcerated inguinal hernia is relatively frequent. Patent omphalomesenteric duct, which is a very uncommon condition, is also usually observed at this time.

Diseases which may occur at any time from birth through the twelfth year of life

(the period to which this presentation is limited) include acute appendicitis, intestinal obstruction from various causes, the complications of Meckel's diverticulum, duplications of the intestine, peptic ulcer, and acute cholecystitis. Abdominal trauma is also a possibility at any time during this period. Finally, while it does not constitute a true emergency, one cannot overemphasize the urgency of exploration in young children whenever intra-abdominal malignant disease is suspected.

THE NEWBORN CHILD

Atresia and Stenosis. — While congenital atresia and stenosis are relatively uncommon conditions, they are nonetheless seen with sufficient frequency to warrant serious attention. In the last three years I have seen, in private practice and on the pediatric surgical service at the New Orleans Charity Hospital, 3 instances of atresia and 4 instances of stenosis of the gastrointestinal tract, as well as 1 instance of atresia of the biliary system.

Atresia is a developmental defect in which canalization of part of the intestinal tract fails to occur. The child is therefore born with complete intestinal obstruction. In stenosis, partial canalization occurs and obstruction, although it is present, is incomplete. Clinically, atresia inevitably gives rise to symptoms soon after birth. Stenosis may also give rise to symptoms then, but they are more likely to occur a little later, and sometimes not until after the first year of life.

The ileum, according to Ladd and Gross,[1] is the most common site of intestinal atresia, followed in turn by the jejunum and the duodenum. In the 16 cases reported by Michel and Jarrell,[3] in 123 acute intestinal obstructions in children from birth to 12 years of life, 6 occurred in the duodenum, 4 in the jejunum, and 2 in the ileum. The remainder, which were variously located from the duodenum to the ileum, were multiple. In my own[3] cases of atresia the colon was affected once and the duodenum twice, in 1 instance in association with atresia of the jejunum. The duodenum was involved in all 4 cases of stenosis which I observed personally. This is in line with Ladd and Gross'[1] more extensive experience, in which the ileum and jejunum were the next most frequent sites.

Vomiting is the chief symptom of both atresia and stenosis. The lower the site of the obstruction, the slower it is to appear. If the vomitus contains bile, it can be assumed that the obstruction is below the ampulla of Vater; in this respect obstruction caused by atresia differs from that caused by hypertrophic pyloric stenosis. The level of obstruction also determines the degree of distention. The abdomen may be scaphoid in a high obstruction if the stomach has been emptied by catheter.

The meconium in atresia of the gastrointestinal tract is pale green and contains mucus, in contrast to normal meconium, which has a tarry appearance and is viscous. The test devised by Farber[4] is as useful as it is simple: Microscopic examination reveals the presence or absence of cornified cells from the vernix and lanugo hairs, and thus establishes the patency or occlusion of the gastrointestinal tract, since these constituents, which are swallowed in intrauterine life by way of the amniotic fluid, are always present in normal meconium.

The treatment of both atresia and stenosis is surgical, the use of a short-circuiting operation to by-pass the point of occlusion. In atresia of the duodenum, duodenojejunostomy is preferable to gastroenterostomy. The type of anastomosis is dictated by the size of the intestinal tract and the choice is therefore usually limited. In the atretic area, in fact, the caliber of the bowel is often so small that it may be necessary to inject saline solution into the lumen below the obstruction, to dilate the intestine to a point at which it is manageable at all.

The frequency of multiple anomalies makes it of the utmost importance to examine the entire intestinal tract as soon as the abdomen is opened, for if two areas of atresia occur within a short distance of each other, the treatment of choice is resection

of the affected segment with side-to-side anastomosis. In 1 of my own cases resection of multiple atretic areas was followed by a very satisfactory recovery. Short-circuiting operations are not desirable under these circumstances, for blind loops left in situ incline to become dilated and to cause trouble later.

Atresia of the intestine is usually attended with a very high mortality. In the 16 cases reported by Michel and Jarrell[3] there were 11 fatalities, only 3 which, however, could be classified as inevitable. All of the other deaths occurred, the authors noted, because the physicians and nurses originally in charge of the babies seemed unaware of the implications of the vomiting of bile immediately after birth.

Imperforate Anus.—Although imperforate anus is actually an intestinal atresia, it is for all practical purposes a separate clinical entity. The nomenclature is unfortunate because it tends to create the impression that all that is lacking is an opening for the rectum, and that the anomaly can be corrected merely by piercing the diaphragm which occludes it. This is, however, only one form of imperforate anus, and it must never be assumed to be present, since meddling manipulations with a scalpel can lead to irreparable damage.

Ladd and Gross[1] recognize three types of imperforate anus, in addition to simple stenosis:

1. A membranous diaphragm, as just described, separates a normally formed rectum from the exterior.

2. The large intestine ends blindly, at a considerable distance above the anal dimple.

3. The bowel ends blindly, as just described, and a gap exists between it and a perfectly normal anal canal.

Because the hind gut and the urogenital system are in communication during embryonic life through the cloacal duct, it is not surprising that in a large number of congenital anal anomalies there are persistent associated fistulas. Also, as in all congenital anomalies, anomalies elsewhere in the body are frequent and are likely to be multiple. In Ladd and Gross'[1] series some children presented as many as seven or eight, and in numerous instances it was not the imperforate anus but some other anomaly which accounted for the fatal outcome.

Since imperforate anus is the lowest possible form of intestinal obstruction, symptoms do not become manifest until hours, or even days, after delivery. It should, therefore, be part of the routine of the obstetrician, or of the pediatrician who assumes charge of the child, to perform a digital examination, or merely to insert a thermometer into the rectum, to make sure that the variety of imperforate anus (type 4) which seems normal on external examination is not present. If this precaution is omitted, the existence of the anomaly will be revealed only when meconium does not pass through the anal outlet or when, if a fistula exists, stools pass through some abnormal exit such as the penile urethra or the vagina.

The method of x-ray examination suggested by Wangensteen and Rice[5] is of value when the anal obstruction is complete: Plain roentgenograms are taken with the child in the inverted position after a marker has been placed on the skin surface of the perineum. The height to which gas ascends in the pelvic colon and rectum indicates the location of the distal blind segment and thus indicates the extent of the occlusion.

Treatment depends upon the type of abnormality present. Fortunately, patients who present imperforate anus seldom have any deficiency of regional musculature; both the sphincter and the nerve mechanism are usually normal. If the occlusion is merely stenotic, simple dilatation is all that is necessary. If it is the result of the presence of a membranous obstruction, cruciate incision, followed by dilatation, presents no problems. In the more complicated types of occlusion (types 3 and 4), treatment depends upon the level at which the large bowel terminates in a blind pouch. I think most surgeons would agree that if the gap which separates the bowel from the skin is

more than 2 cm., attempts to bring the blind segment down to the level of the anus are usually unrewarding. My own feeling is that it is wiser to limit attempts at primary correction to cases in which the gap revealed by x-ray is 1.5 cm., or preferably less. The infant will tolerate colostomy at a low level (in the sigmoid, for instance) fairly well, and it is no more inconvenient during the first year of life to handle a child with a colostomy than one with normal bowel function. If, however, it seems that an extensive secondary operation will be necessary, transverse colostomy, rather than sigmoid colostomy, is the wiser plan, since sigmoid colostomy might make later mobilization of the bowel difficult. Potts[6] suggests that in type 3 cases, when an attempt is made to bring the blind segment down to the skin margin, a small vertical incision within the anal ring be substituted for the long vertical incision formerly popular. This technique eliminates the necessity for cutting through the sphincter in the midline, which is obviously undesirable.

As these remarks indicate, correction of an imperforate anus is frequently anything but a simple matter. The operation, therefore, should be undertaken only by surgeons capable of performing any variety of intestinal surgery. An experience of my own within the past year shows the harm which can be done if this precaution is not observed: A general practitioner who recognized that an imperforate anus was present when he examined a child after delivery, assumed, incorrectly, that the obstruction was of the simple membranous type and attempted to relieve it by plunging a scalpel into the skin. He asked for consultation when meconium failed to pass. I was eventually able to bring the blind intestinal segment to the surface, but in the course of the severe infection which followed, the mucous membrane pulled away from the skin, a stricture resulted, and the outcome was not as good as it should have been. The preliminary maneuvers were, of course, unwise, but in retrospect I blame myself for not realizing the possibilities of contamination and substituting a preliminary colostomy for definitive surgery.

Omphalocele.—Omphalocele is a comparatively uncommon emergency of the newborn which is important because, in the absence of other lethal anomalies, which are fortunately relatively uncommon, many of these children can be restored to a completely normal status. While the nomenclature is still somewhat confused, omphalocele is perhaps as satisfactory as any of the terms used to describe the condition. This is not, however, a true hernia in any sense of the term. It is essentially a defect of the abdominal wall, through which obtrudes a sac covered only by peritoneum and amniotic membrane and containing any or all of the abdominal viscera.

The emergency feature of an omphalocele arises from the fact that if surgery is delayed more than twenty-four hours at the outside, the sac will rapidly dry up and rupture, after which peritonitis is inevitable. The surgical problem is essentially the restoration of the exteriorized abdominal viscera to an underdeveloped abdominal cavity, followed by closure of the large defect left after excision of the pseudo-sac. In the larger types of omphalocele the best plan, as suggested by Gross,[7] is to leave the sac in situ after protecting it by mobilized skin flaps. Repair of the fascial and muscular defect in the abdominal wall is deferred until the child is 8 to 12 months old.

Within a 3-year period I have had the distinctly unusual experience of operating on 4 children with omphalocele and of supervising the management of a fifth case.[8] The experience is still more unusual because 4 of the 5 children left the hospital alive. The results are to be explained by a highly fortunate combination of circumstances, including the close cooperation between the pediatric and surgical services at the New Orleans Charity Hospital, the consequent promptness with which the children were seen, the wise use of whole blood, other parenteral therapy, and antibiotic therapy made possible by the cooperation between the services; and, most important of all, the

fact that a potentially lethal associated anomaly was present only in the single fatal case. Omphalocele, as this experience demonstrates, is one of the many pediatric conditions in which the aggressive spirit of modern surgery, as compared with the previous spirit of resignation to the presumed inevitable, has completely changed the prognosis in a congenital lesion which, while extremely serious, is perfectly amenable to surgical attack.

Meconium Ileus and Peritonitis. — Meconium ileus can be traced to an abnormality in the development of the pancreas. The lack of normal pancreatic secretion brings about physical changes in the meconium, which becomes white or pale yellow, and which, more important, has the consistency of putty. The scybalous balls which form as a result of the altered consistency of the meconium are responsible for intestinal obstruction.

Diagnosis rests upon the usual symptoms and signs of obstruction and the abnormal appearance of the meconium. The treatment is laparotomy and enterotomy, with removal of as much as possible of the putty-like material, followed by instillation of 5 per cent pancreatin solution into the intestine through a catheter. In the single case of meconium ileus which I have encountered personally, the offending material was successfully dissolved by this method, but gangrene of the small bowel had already occurred, as the result of volvulus, which is a complication in 25 per cent of all cases, and an extensive resection was required.

Meconium peritonitis is a sterile chemical peritonitis of the newborn, which follows the spillage of meconium into the peritoneal tract through single or multiple perforations of the intestinal tract while the child is still in utero. No single explanation covers all cases. Among the possible causes are meconium ileus and partial or complete intestinal obstruction of other origins, as well as abnormal development of the coats of the intestinal wall. Since perforation is not characteristic of complete congenital atresia of the intestines, it has been suggested that meconium peritonitis cannot occur in the absence of some congenital weakness of the bowel wall combined with complete or partial obstruction of the pancreatic ducts.

The suspicion of meconium peritonitis should be aroused at delivery if the amniotic fluid is discolored or has a fetid odor, or if the abdomen of the newborn child is distended. Roentgenologic examination should then be resorted to without delay. If the condition exists, the roentgenograms will show air in the peritoneal cavity, as well as the flakes and streaks of calcium which appear within a few hours after meconium has been spilled into it.

The treatment of meconium peritonitis is immediate laparotomy, with repair of the perforations, or resection of the damaged segment of bowel, according to the indications. It is essential that operation be carried out without delay, since bacterial contamination of the fetal intestinal tract occurs within a few hours of birth, and when once it occurs, the sterile peritonitis is converted into the far more dangerous bacterial type.

Diaphragmatic Hernia.—Diaphragmatic hernia in one sense is not an abdominal condition. In another, it is: The contents of the hernia consist of abdominal viscera, and repair is best carried out through an abdominal incision. Three types are recognized. The most common occurs in the posterolateral portion of the diaphragm, along the old pleuroperitoneal canal (the foramen of Bochdalek). This type is several times more frequent on the left than on the right side. In the second type, the hernia occurs through the esophageal hiatus, and in the third type, which is uncommon, it occurs through the retrosternal area (the foramen of Morgagni).

The cardinal symptoms and signs are dyspnea and cyanosis, which arise from compression of the lungs; vomiting, which is caused by the distortion and displacement of the abdominal organs; and circulatory disturbances, which result from impaired venous return, due to angulation of the

great vessels leading to the heart. On physical examination, the affected side of the chest appears to move less than the normal side. Percussion may give a dull or a tympanitic note. Breath sounds are absent or distant on auscultation, and intestinal or peristaltic sounds are heard clearly. Plain roentgenograms of the chest and abdomen are essential for diagnosis; in fact, this type of hernia was almost unknown until the x-ray became available, and can be conclusively diagnosed only by this method. Barium, however, is not necessary and may be dangerous.

Early recognition of the hernia is often essential to prevent a fatal outcome. In any event, early operation has a twofold advantage, that the newborn child stands surgery very well indeed, and that within the first forty-eight hours of life distention of the gastrointestinal tract is not present and surgery is correspondingly simpler. It is essential that positive pressure anesthesia be employed. The hernia does not usually have a sac and the pleural cavity is thus in communication with the exterior of the body as soon as the abdomen is opened.

Adhesions are seldom present between the viscera and the thoracic wall, and withdrawal of the viscera from their abnormal position is therefore seldom difficult. Ladd and Gross[1] advise the insertion of a catheter to the apex of the thoracic cavity to assist in breaking the suction which otherwise would force them back into the chest when they were removed. They are withdrawn completely from the peritoneal cavity and laid on the abdominal wall, where they are protected with wet gauze, while the diaphragm is repaired. Ladd and Gross recommend that in left-sided hernia the stomach be replaced first, followed, in order, by the cecum, ascending colon, transverse colon, and finally the splenic flexure and the spleen. In right-sided hernia the order of return is the small intestine first, then the colon, and finally the liver. Various methods of accommodating the organs in the cavity may be necessary if they have lost their right of domicile, as they sometimes have. Crushing of the phrenic nerve is often useful. In addition to the fact that work on the diaphragm is easier while it is at rest, it rides higher after the nerve has been crushed, and more room is thus provided in the peritoneal cavity. There is also less tension on the suture line. If closure in layers cannot be accomplished without tension, the fascia can be left open and only the skin edges pulled together, as in the repair of omphalocele, in which the same difficulties of intra-abdominal tension are present.

THE NEONATAL PERIOD

Congenital Hypertrophic Pyloric Stenosis. Congenital hypertrophic pyloric stenosis is probably the commonest abdominal emergency encountered in the neonatal period. Although the nomenclature has been accepted for many years, it is still to be proved that the abnormality is really congenital. The excellent study by McKeown and his associates,[9] covering 578 operations for this condition at the Birmingham Children's Hospital between 1945 and 1950, established a high degree of correlation between the size of the tumor and the age at which operation was done, which suggested, though it did not prove, that the hypertrophy was postnatal.

The nature of the pathologic process, an abnormal overgrowth of the musculature of the pylorus, particularly of the circular muscle layer, is completely understood, but why it occurs is still not known, any more than it is known why the anomaly is far more common in males than in females, and why it occurs with much greater frequency in firstborn children.

Signs and symptoms, which usually occur after the third week of life, and most often about the sixth week, include vomiting, dehydration, a reduction in the fecal residue, and wrinkling of the skin. The child's whole appearance is suggestive of starvation. Peristaltic waves are often observed passing across the stomach from left to right. In most cases a so-called tumor can be felt at the pylorus. It is typically olive-shaped and is usually palpable in the right upper

quadrant near the midline. In the study of McKeown and his associates[9] already mentioned, a quarter of the children operated upon before the third week had no tumor masses. After the fifth week, the tumor increased in size as age increased, and after the tenth week four-fifths were classified as large.

The clinical diagnosis can be confirmed by roentgenologic examination after lipiodol, in 1 or 2 cc. amounts, has been injected into the stomach through a catheter or added to the formula, but this measure is seldom really necessary. Barium should not be given because of the risk of regurgitation and aspiration into the lungs.

Occasionally a mild degree of pyloric stenosis can be treated by diet and other medical measures, but surgery is indicated in almost all cases, and there should be no procrastination in resorting to it, if only because the mortality is so low in properly prepared children. The classical Ramstedt operation continues the procedure of choice. Care should be taken, when the pyloric mass is incised, particularly at the duodenal end, not to cut through into the duodenum, which extends up over the pyloric sphincter much as the vagina extends up over the cervix.

Malrotation of the Intestine. — Malrotation of the intestine, which is more correctly termed incomplete rotation, is most frequently evident in the neonatal period, though it may not give rise to clinical manifestations until much later in life. The anomaly occurs because the postarterial portion of the embryonic midgut, which develops into the terminal ileum, cecum, and ascending transverse colon, fails to complete its normal counter-clockwise rotation after it is withdrawn into the peritoneal cavity at about the tenth week of intrauterine life. As a result, the cecum is arrested in the right upper quadrant, and the bands of reflected peritoneum which run from it to the right posterolateral abdominal wall may partly obstruct the duodenum. When, as happens in a smaller number of instances, the cecum has proceeded further in its normal rotation, it may be arrested directly over the duodenum and cause obstruction by extrinsic pressure upon it.

In incomplete rotation of the intestine, the attachment of the bowel to the posterior abdominal wall is short and rudimentary. As a result, volvulus of the entire midgut may occur independently or may be frequently associated with the obstruction arising from the anomaly of rotation. It is practically always in a clockwise direction.

When the obstruction of the duodenum is complete, vomiting of bile-stained material, which may be either mild or severe, is present from birth. The upper abdomen is distended, and flat roentgenograms show distention of the stomach and duodenum, with little or no gas in the lower bowel. If the obstruction is incomplete, Farber's[4] test will show epithelial cells in the stools. If a volvulus is present, the typical symptoms and signs include pain, vomiting, toxemia and abdominal distention. A barium enema may be used in doubtful cases, but barium should never be given by mouth. Lipiodol visualization of the stomach and duodenum is permissible, but is seldom necessary or useful.

The proper treatment is immediate laparotomy, performed by a surgeon who is experienced in intestinal surgery, since the appearances, when the abdomen is opened, are often confusing. If only volvulus of the midgut is present, the cyanotic, distended bowel presents in the incision as soon as the peritoneum is opened. The colon is not seen. The entire bowel is delivered outside of the abdomen and the volvulus is corrected by rotating it in the correct direction unless the condition is so far advanced that resection is necessary. Obstruction of the duodenum is relieved by severing the peritoneal folds which hold the cecum in the upper right quadrant of the abdomen, so that it may move, with the ascending colon, to its new left-sided position. No matter which of these anomalies is identified first, a search should be made to find or exclude the other. More than one child has been saved from volvulus of the midgut only to die from obstruction of the duodenum

caused by malrotation of the intestine.

Umbilical Hernia.—Umbilical hernia is extremely common in young children, but it does not constitute an emergency unless it causes intestinal obstruction. This does not happen very often, although the existence of the hernia is usually evident soon after birth. Adhesive strapping is not advised, nor is early operation, partly because such hernias seldom become incarcerated or strangulated, and partly because spontaneous obliteration sometimes occurs during the first year of life. If operation is indicated, the repair may be carried out by way of a semicircular incision below the umbilicus, or a paramedian incision to the left of it. An essential point of technique is to leave the umbilicus in situ, since its removal, in some children at least, is a serious psychic hazard.

THE FIRST YEAR OF LIFE

Intussusception.—Intussusception is the commonest form of acute intestinal obstruction in childhood, particularly in the first two years of life, and even more specifically in the first year. It is so frequent, in fact, and the clinical picture is, as a rule, so sharply defined, that diagnostic difficulties would not be expected and a correspondingly low mortality would be anticipated. This is by no means true. At the New Orleans Charity Hospital, in the 11 year period ending in December 1949, the mortality in the 54 cases of intussusception in children under 2 years of age was 25.9 per cent.[10] In view of the favorable circumstances just described, this is a shockingly high death rate, though it represents a distinct improvement over the 63.6 per cent mortality in the 88 cases in this age group observed in the preceding thirty-four year period.

The incidence of intussusception, for some unexplained reason, varies from year to year. It is most frequent in the hot months, and while there is, again, no explanation for this situation, it is sometimes of diagnostic value to bear it in mind. There is no pronounced racial incidence, but the male frequency is far greater than the female. The age incidence is striking in all recorded series. Fifty of the 54 cases recently treated at the New Orleans Charity Hospital in children under 2 years of age occurred during the first year of life, and 41 of these occurred between the third and eighth months. This age distribution is entirely typical. Causative factors in children remain to be clarified; there is seldom any specific cause, such as the tumors which frequently precipitate the obstruction in adults. A familial susceptibility is sometimes noted; 3 of the 54 cases at Charity Hospital occurred within a period of four years in siblings of the same negro parents.

The clinical picture of intussusception tends to be classical. Pain is invariably present and is practically always the first symptom. Bloody stools are usual, as is vomiting. There is a good deal of discussion concerning whether or not a mass is always present in intussusception. It could be palpated without anesthesia in 32 of the 54 patients in the Charity Hospital series, and probably could be felt in more cases than it usually is if palpation were carried out carefully, systematically, and perhaps under an anesthetic. The mass is usually sausage-shaped and usually follows the outline of the colon or of part of the colon. Its presence, however, is not essential for diagnosis, and delay in attempting to demonstrate it is not justified. Sometimes the intussusception prolapses through the rectum. Whether it does or does not, rectal examination usually furnishes much useful information, and its omission is responsible for many diagnostic errors. X-ray examination is sometimes helpful but is not really necessary. In the 484 cases treated by Ladd and Gross[1] it was used only 25 times.

Spontaneous reduction of the intussusception sometimes occurs, but there is no justification for waiting for it to come to pass. It is no longer possible to brush aside the use of a barium enema in an attempt to reduce the intussusception, even though this method is not attended with uniform success. It must be used with every possible precaution, the first of which is that the child must be in the hands of the surgeon before, not after, the attempt at

hydrostatic reduction is made. Manipulations must be gentle and deliberate. The fluid must not be introduced from a height greater than 3 feet. Not more than three attempts at reduction should be made, and it is sometimes wise, even if success is apparent, to investigate the status of the bowel in the ileocecal region through a McBurney incision in early cases or through a right rectus incision in later cases.

The operative procedure employed depends upon the status of the bowel, which goes back, in turn to the time at which the patient is seen. Simple reduction is the ideal procedure, but resection may be necessary. Reduction should always be by taxis, not by traction, and unless it is accomplished promptly, it may be wiser to discontinue the attempt and resort at once to resection, to avoid the risk of rupture of the bowel and intraperitoneal spillage. As a general rule, no secondary procedure should be performed for which an indication does not exist. This includes appendectomy if the appendix is not the site of a pathologic process, as well as operations designed to prevent recurrence of the intussusception. Such procedures, aside from the element of risk which they introduce, are not justified because they are not useful.

The time lag from the onset of symptoms to the institution of surgical therapy is the most important single factor in the mortality of intussusception. In the Charity Hospital series, as in others, failure to evaluate correctly the status of a damaged bowel added appreciably to the mortality. In that series it was found that the duration of the intussusception was longer, and the mortality higher, in patients who entered the hospital from outside of the city than in those who had more convenient access to the hospital.

Inguinal Hernia.—Femoral hernia is so extremely uncommon in childhood, even in children's hospitals, in which large numbers of sick children are congregated, that it need be borne in mind only as a rarity which may possibly be encountered. Ladd and Gross[1] do not even mention it.

Inguinal hernia, however, is quite common in young children, particularly in the first year or two of life. In Michel and Jarrell's[3] study, this type of hernia was responsible for 20 per cent of small bowel obstructions in children under 12 years of age. All 22 occurred in children under 3 years of age, 15 of them in the first year, and 10 in the first 3 months, of life. All 22 occurred in males, and 16 occurred on the right side. For the predominance of right-sided inguinal hernia there are two possible explanations. The first is the fact that the processus vaginalis closes later on this side than on the left side. The second is the high degree of mobility, small caliber, and thin wall of the terminal ileum on the right, as compared with the lesser mobility, larger caliber, and thicker wall of the sigmoid colon on the left. The ileum and cecum usually comprise the contents of the hernial sac in young children.

Incarceration is relatively frequent in the first year of life and progressively less frequent thereafter. Neither incarceration nor strangulation would occur if an elective repair operation were performed as soon as the hernia was recognized after the child was 6 weeks of age or older. It was formerly the custom to delay operation until the fifth or sixth year of age, meantime treating the child with a truss, a method which is useless from the anatomic and physical standpoint and often harmful from the psychiatric standpoint. Operation is essential whenever a true hernia is present; a hernia which enters the canal or extends into the scrotum obviously will not undergo spontaneous repair.

The repair operation in infants is very simple. All that is necessary is high ligation of the sac. Plastic procedures on the inguinal canal are contraindicated for two reasons: (1) There is no fascial defect which requires repair. (2) Because of the small size and the delicacy of the structures in this area, unnecessary surgery could do irreparable harm to the blood supply of the testicle and could result in permanent atrophy.

Some surgeons are in favor of conserva-

tive measures in carefully selected incarcerated inguinal hernias. Gentle taxis is undertaken, after sedation and the application of heat, and with the legs elevated. Elective surgery is then performed a few days later. If this method is used, it must be very certain that there has been no damage to the bowel. When operation is undertaken for strangulated inguinal hernia, it is performed through an oblique incision, the hernial operation being followed by exploration through a transverse or right paramedian incision if there is any question at all as to the status of the bowel. Exploration is practically always mandatory if a possibly damaged bowel slips back into the abdomen before its status can be determined. This contingency can be avoided by making the examination before the constricting neck of the sac is cut.

Patent Omphalomesenteric Duct. — To date only 135 cases of patent omphalomesenteric duct have been reported. This anomaly, which is eight times more frequent in the male than in the female, is usually discovered during the first year of life, though it does not become an emergency unless the ileum prolapses, as happened in 31 of the recorded cases. It is, therefore, another anomaly in which elective surgery may avert a serious complication. How serious the complication may be is shown by the fact that only 5 recoveries are on record.

Elective operation usually amounts to little more than excision of the umbilicus and removal of the duct at its junction with the ileum. If, however, the caliber of the duct is large, segmental resection of the ileum, with end-to-end or side-to-side anastomosis, may be necessary. If prolapse of the ileum has occurred, resection is practically always necessary, especially if operation is performed late.

THE CHILDHOOD YEARS (1-12 YEARS)

Acute Appendicitis.—Although acute appendicitis may occur in prenatal life, it is relatively infrequent in very young children. The death rate, however, is extremely high. In the most recent of his surveys from the New Orleans Charity Hospital, Boyce[11] pointed out that the mortality for the 1,425 surgical cases in children through 12 years of age was 5.57 per cent. This was 20 per cent higher than the mortality for the whole series of 7,613 cases and more than 50 per cent higher than the mortality for the 13-39 age group. As the frequency of the disease increased with advancing years, the mortality substantially decreased, but in the 12 surgical cases in children 2 years old, there were 7 deaths.

There are two principal explanations for the high death rate of acute appendicitis in young children. The first is the extremely rapid progress of the pathologic process, which makes the time lag between the onset of the disease and the performance of appendectomy of the greatest importance. The second explanation is the difficulty of diagnosis at this time of life because of the high proportion of atypical cases and the confusion with other diseases. Gastrointestinal disturbances, for instance, are always frequent in childhood. The position of the bladder in relation to the appendix makes urinary symptoms relatively frequent in appendicitis. The reaction to any disease process is more rapid and more marked in children than in older persons, and constitutional manifestations may overshadow the local symptoms and signs referable to the diseased appendix. Acute appendicitis frequently develops in the course of an acute upper respiratory infection or of an exanthematous disease, both of which may also be associated with abdominal pain. Children cannot describe their symptoms accurately, if at all, and parents and nurses, as already noted, vary widely in their powers of observation. Tenderness, which is the most reliable physical finding, is far more difficult to elicit and to interpret correctly in children than in older persons. Rectal examination, however, is of greater value at this period of life because the examining finger can reach higher and therefore feel more.

The diagnostic difficulties in acute appendicitis in young children are, as in all diseases, most pronounced when the patient is seen early. They are often greatly enhanced by the present custom of admin-

istering antibiotics at the onset of almost all illnesses. The result is a masking of symptoms and an alteration of what might be termed the normal clinical picture. Purgation may be disastrous.

At any rate, the solution of the diagnostic problem is to bear acute appendicitis in mind as a possibility in even the most unlikely cases, in which newborn children are included; to observe the patient at frequent intervals over a period of time which preferably should not exceed four to six hours; during this time to refrain from administering food, fluid, and medicaments, including the antibiotics; and then, if a definite diagnosis cannot be made, to perform exploratory laparotomy. The rapid progress of the disease in young children makes long periods of observation even more unwise than they are in adults. Moreover, young children do not tolerate expectant treatment well, and it should not be practiced on them under any guise.

Appendectomy is the only procedure to be considered if it can be performed. It usually can be, because limiting adhesions are seldom present, even if the disease has passed beyond the simple acute stage. Incision and drainage may be indicated in appendiceal abscess; if so, appendectomy should be performed as soon as possible thereafter. The outcome in any instance of complicated acute appendicitis in childhood may depend upon the wisdom and care exercised in the postoperative period.

Intestinal Obstruction.—The impression that intestinal obstruction is chiefly a disease of adult life has been responsible for a large number of deaths from this cause in infancy and childhood. The causes may be different, but the resulting pathologic process is the same, and the death rate is likely to be high. In the 123 cases of obstruction of the small bowel in childhood reported by Michel and Jarrell,[3] there were 26 deaths. That in so recent a period (1946-1950) the mortality could be so high is sufficient proof of the extreme seriousness of intestinal obstruction at this period of life.

Although adhesions are the most important single cause of small bowel obstruction in adults, they represent a rather small proportion of such cases in children, only 9 per cent in the Michel and Jarrell series just mentioned. It seems curious that only 5 of the 12 cases followed appendectomy. Three of the other 7 cases followed intestinal operations for volvulus of the midgut, intussusception, and duplication of the ileum.

Prompt operation is the procedure of choice, since intubation is far less successful in children than in adults. In early cases release of the adhesions is all that is necessary. In advanced cases resection may be required. Enterostomy should never be employed, as children do not tolerate this operation well.

Three different types of foreign bodies may require emergency management in children:

1. *Ingested foreign bodies.* Even more remarkable than the endless variety of objects which children put into their mouths is the ease with which pins, needles, pieces of glass, and other sharp foreign bodies so often pass through the intestinal tract without apparent damage to the lining mucosa. Even large objects may pass through the pyloric and cardiac sphincters without damaging them. Children tend to put things into their mouths, and swallow them, through the latter part of the first, and all of the second, year of life. Then the habit begins to decrease as reason, at least theoretically, improves, though even older children may swallow foreign objects because of carelessness.

Treatment is conservative, with the child kept under careful observation, especially when the foreign body is a pin or some other pointed object. Indications for surgery include arrest of the foreign body at some point in the intestinal tract, and perforation or the suspicion of perforation. The ingestion of a foreign body which is obviously too large to be passed is another indication for operation, though any object which passes the pylorus and the curve of the duodenum will in all probability pass through the remainder of the tract. According to Ladd and Gross,[1] 95 per cent of all ingested objects are passed spontaneously.

2. *Phytobezoars or trichobezoars.* A phytobezoar is a not infrequent cause of intestinal obstruction in the South, where persimmon trees grow widely. It forms when large amounts of water are drunk soon after numerous persimmons have been ingested. The symptoms are those of ordinary acute intestinal obstruction. Physical findings usually include the presence of a mass. The history furnishes the clue to the diagnosis. Treatment is the removal of the obstructing bezoar by enterotomy.

A trichobezoar, which is a hairball formed in the stomach following the ingestion of strands of hair, is naturally more frequent in girls than in boys and is, like phytobezoars, more frequent in older children. The incidence has decreased as the popularity of short hair has increased. It is most often observed in nervous children, with a background of instability. Only occasionally does a trichobezoar cause acute obstruction and require emergency management.

3. *Intestinal parasites.* Acute intestinal obstruction caused by intestinal parasites, particularly *Ascaris lumbricoides*, is observed several times yearly at the New Orleans Charity Hospital, but the condition is apparently a local phenomenon, for Ladd and Gross[1] make no mention of it. In the 51 instances of obstruction caused by foreign bodies reported by Storck and his associates[12] from this institution, intestinal parasites were responsible for 13 cases. There are three possible mechanisms of obstruction. The first depends upon the actual size of the mass, in which the number of worms is often almost incredible. In a case encountered in 1950, the entire small intestine was packed with them and incisions in both the jejunum and the ileum were necessary to remove them. The second mechanism of obstruction is intussusception secondary to the presence of the mass, and the third is volvulus in a loop packed with worms.

Diagnosis depends upon the previous history of the passage of parasites, either by rectum or by mouth. It should be suspected in the negro or in the lower economic white group if a mass is palpable whose consistency suggests a bolus of worms. Once such a mass is felt, it can scarcely be overlooked in the future, particularly in a child with a thin abdominal wall. The diagnosis is confirmed by x-ray, which often reveals the actual worms.

While there is some debate over how best to treat intestinal obstruction caused by the presence of parasites, it is the feeling of the surgical staff at the Tulane University School of Medicine that the abdomen should be opened and the worms removed by enterotomy. The incision into the intestine is made longitudinally, but closure is effected transversely, to prevent stricture formation. Parasites above the incision are milked downward into it. Those below may be milked upward into it, or milked downward into the cecum, through the ileocecal valve. The removal of all the worms is not necessary, since caprokol therapy is instituted routinely before the child is discharged. Great care should be taken not to soil the peritoneum by permitting the escape of worms into the cavity while the bowel is open.

Meckel's Diverticulum.—Meckel's diverticulum is a persistence of that portion of the vitelline duct which in early embryonic life opens into the ileum. Occasionally a cord, which is the remnant of the primitive yolk stalk, may connect it with the umbilicus, or a sinus may open from it and connect the intestine with the exterior of the body.

This anomaly is reported to be present in about 2 per cent of all autopsied material. Its mere presence, however, does not constitute an emergency, though its various complications, inflammation, hemorrhage, and intestinal obstruction, may be fatal if they are not promptly treated.

The symptoms of diverticulitis are similar to those of acute appendicitis, the differential diagnosis, as a rule, being impossible until the abdomen is opened. Hemorrhage occurs in a fairly large number of cases because the aberrant gastric mucosa in the diverticulum becomes ulcerated.

When the diverticulum serves as the focal

point of an intussusception, it is usually identified only after reduction has been accomplished. Other forms of intestinal obstruction may occur if a loop of bowel becomes kinked over the cord connecting the diverticulum with the umbilicus, or if the cord serves as focal point for a volvulus.

Excision and suture constitute the preferred treatment for the complications of Meckel's diverticulum unless, as sometimes happens in intussusception, the child's condition is so poor that no further surgery can be tolerated after reduction. A careful search should always be conducted when laparatomy is done on the diagnosis of acute appendicitis and the appendix is found to be innocent. Such a search, in fact, is always indicated in an operation for acute appendicitis unless the appendix is perforated or gangrenous.

Elective surgery is in order when a persistent sinus is found leading to the diverticulum from the umbilicus, or when it is possible to determine that a cord connects the two areas, since both conditions are potential causes of intestinal obstruction.

Intestinal Duplications.—Duplications of the intestinal tract present as cystlike formations, and are therefore also known as enterogenous cysts or enteric cysts. Each duplication is contiguous with, and strongly adherent to, some part of the intestinal tract, though the histologic structure of the particular duplication is not necessarily that of the portion of the intestinal tract with which it is in contiguity.

Duplications have been described in all portions of the intestinal tract but are most frequent in the ileum (ileum duplex). They are rare in the duodenum, the twentieth case just having been put on record by Michel and Jarrell.[3] They vary in size from minute structures to large, complete replicas of some portion of the gastrointestinal tract, such as the stomach. They may or may not communicate with the lumen of the adjacent intestine. If they do not, they usually contain clear serous fluid.

Symptoms may appear at any period of life but are most frequent in childhood. They tend to be intermittent and chronic but may become acute if dilatation of the adjacent intestine gives rise to complete, or, more often, incomplete obstruction. Flat roentgenograms of the abdomen show the usual picture of small bowel obstruction and sometimes point to the precise cause, pressure on the intestinal lumen by a smooth, rounded extrinsic mass.

The ideal treatment is excision of the duplication, which is not always possible because a line of cleavage cannot be developed and because of the common blood supply of the bowel and the appendage. In such cases some surgeons prefer to establish free drainage by cutting a window between the duplication and the intestine, but resection, with side-to-side anastomosis, is preferable. In Michel and Jarrell's[3] duplication of the duodenum the proximity of the pouch to the pancreatic and common bile ducts made resection too hazardous and it was treated, very ingeniously, by internal drainage into the duodenum.

Peptic Ulcer.—Peptic ulcer is a disease which, at first glance, one would not expect to encounter, either as an emergency or otherwise, in young children. Actually, it can occur even in utero, and it is responsible for a disproportionately large number of emergency operations in childhood because at this time of life complications are relatively more frequent than they are in adults. Of the 119 operations collected from the literature by Bird and his associates[13] and performed between 34½ hours and 15 years of life, 53 were for pyloric stenosis, 43 for perforation, and 12 for hemorrhage.

These observers, whose collection of ulcers in children also includes 124 nonsurgical cases, discuss this condition according to the age at which it occurs. In newborn children, the ulcer usually bleeds, perforates, or bleeds and perforates. The onset tends to be precipitous, without recognizable premonitory symptoms or signs, and operation is therefore seldom resorted to. In children over 2 years of age, bleeding and perforation are likely to be heralded by such premonitory symptoms as refusal of food, pain, vomiting, sometimes of blood-streaked material, and melena, which may

persist for weeks or months. Chronicity, hemorrhage, perforation and stenosis were outstanding characteristics of the ulcer case histories collected by Bird and his associates in children between the ages of 2 and 6 years. During the later years of childhood, serious hemorrhage decreases, but the incidence of stenosis and perforation increases. The therapy of these complications is surgical, as in adults. The conservative therapy of hemorrhage is seldom justified, particularly in infants, who do not tolerate it well.

It might be mentioned that the case recently reported by Bulger and Northrop,[14] in which a perforated duodenal ulcer was found at operation on the fourth day after a snakebite in a 22-month-old child, is probably unique in medical literature. The resemblance to Curling's ulcer after burns is striking. The authors explain the course of events by the concentration of venom in the small body (the child was bitten on both legs) and suggest, in view of the great irritability which she exhibited, that ulceration was produced through the mediation of the central nervous system.

Acute Cholecystitis.—Although one does not usually think of acute cholecystitis as occurring in children, it is another condition, though admittedly an infrequent one, which must be borne in mind as a diagnostic possibility in childhood. The symptoms and signs are similar to those observed in adults, but the correct diagnosis is usually not made until the abdomen is opened, chiefly because the possibility of biliary tract disease is not considered. Acute cholecystitis can occur quite early in life; only recently a 6-year-old colored girl on the Tulane Service at the New Orleans Charity Hospital required cholecystectomy for it. This operation is usually indicated, especially if there have been recurrent attacks, even though the disease in children is usually bacterial in origin and cholelithiasis is seldom part of the picture, as it is in the adult.

Trauma.—In these days of the automobile and the motorbike, no discussion of acute abdominal emergencies in children would be complete without a brief word on acute abdominal trauma. In any crushing injury the possibility of rupture of a hollow viscus, such as the stomach, or laceration of a solid viscus, such as the liver and spleen, must be taken into consideration. If a wheel has passed over the body, rupture of the intestine is a possibility. Football injuries, while a relatively frequent cause of acute abdominal trauma in children over 12 years of age, seldom need to be considered in the age group discussed in this presentation. I have, however, seen a ruptured spleen in a hemophiliac boy who had not reached this age, and I am sure I need not point out the problems of management posed by such a case.

In all acute abdominal injuries diagnosis is made upon the history of trauma, the presence of abdominal rigidity, an increase in the pulse rate, and roentgenologic demonstration of free air under the diaphragm if a hollow viscus has been damaged. Pain in the shoulder suggests the presence of blood in the peritoneal cavity and justifies needle puncture to confirm or exclude it. Operation should be done on suspicion if a precise diagnosis cannot be made. It does no harm if the findings are negative and may avert a catastrophe if they are positive. The procedure carried out depends upon the necessities of the special case.

SPECIAL THERAPEUTIC CONSIDERATIONS

Anesthesia.—It goes without saying that the aid of an experienced anesthetist is indispensable in the management of acute abdominal emergencies in children.

Technique.—To handle small and delicate tissues properly, small and delicate instruments must be used. Suture material should also be fine; No. 0000 or No. 00000 black silk, or fine cotton, preferably No. 80, is satisfactory.

The incision is closed in tiers unless the child's condition is so poor, or the tissues seem so friable, that through-and-through closure with crochet cotton or silver alloy wire in indicated. This technique provides surprisingly good cosmetic results and furnishes secure protection in cases in which dehiscence and evisceration seem likely.

Adjunct Care.—The recent improvement

in the mortality of pediatric surgery is undoubtedly due in part to advances in surgical technique, suture material and anesthesia. It is also due, in large part, to the use of chemotherapy and antibiotic therapy. But it is probably due above everything else to the realization that the child, like the adult, needs such preoperative and postoperative measures as whole blood and other parenteral fluids, oxygen, and intestinal decompression, and the use of these measures with the further realization that the child and the adult differ in their capacity to utilize them.

Children are easily overwhelmed by too large amounts of parenteral fluids, or by small amounts given too rapidly. The quantities administered must therefore be carefully estimated. A practical way to estimate fluid requirements in infancy is to calculate 10 to 15 cc. of physiologic salt solution for each pound of body weight for each twenty-four hour period. Five per cent dextrose solution is added in amounts to bring the total fluid intake up to 50 to 75 cc. per pound of body weight for each twenty-four hour period. Transfusions are given with similar care. On the other hand, disproportionately large amounts of blood are lost at operation—amounts which would be insignificant in the adult but which are not well tolerated by young children. Transfusions should be calculated on the basis of about 10 cc. per pound of body weight and should not exceed 50 to 75 cc. at any one time unless it is necessary to replace blood lost by hemorrhage.

The subcutaneous route, in spite of its simplicity, is not a reliable route for the administration of parenteral fluids. As a general rule, it is necessary to cut down on the vein, preferably the saphenous vein just above the malleolus. Polyethylene tubing permits the use of a constant drip over a long period of time.

Indications for chemotherapy and antibiotic therapy must be individualized. The administration of sulfa drugs is on the basis of body weight. Antibotics must be used in sufficiently large dosages, and for sufficient periods of time, to meet the indications of the special case.

As the realization of the importance of keeping the tracheobronchial tree free of mucus and secretions has increased, tracheotomy has come to be used with increasing frequency. We feel very strongly that this measure is not a last resort to be employed only when obstruction of the airways is complete or almost complete. On the contrary, it should be performed promptly, whenever respiratory difficulties threaten to permit the development of chronic anoxia, which can be a disastrous postoperative complication.

Aspiration of the stomach should be done in all instances of intestinal obstruction prior to anesthesia, especially if a distended, fluid-filled bowel or stomach must be manipulated. The omission of this precaution may cause sudden flooding of the tracheobronchial tree, with aspiration of the material into the lungs. The catheter is left in place and aspirated at intervals during operation. Aspiration per catheter is more satisfactory than the use of the Miller Abbott tube, which young children do not tolerate well.

Generally speaking, children who are best prepared for operation in the emergencies of childhood (unless they are seen so promptly that they need no preparation at all) will have received infusions of physiologic salt solution, glucose or Ringer's solution, frequently supplemented by blood, and will be similarly treated after operation, with protein and vitamin supplements as necessary. On our own service, no operative procedure is begun until a cannula or needle has been placed in a vein and an infusion has been started; blood is also available. to be used as necessary.

The child is kept warm on the operating table by means of hot water bottles, whose temperature is regulated with a thermometer and which are wrapped in towels. Very young children are sometimes wrapped in cotton wadding and placed in incubators after operation. All children are given oxygen continuously after operation.

SUMMARY

Infants and young children are likely to present many of the acute abdominal conditions present in adults, and a number of others which are congenital or which occur early in life. Prompt diagnosis and immediate surgery are the key to good results. Among the many factors to which recent improvement can be attributed is the spirit of cooperation which has grown up between pediatric and surgical services, one consequence of which has been the introduction of the surgeon to his small patient as early as possible in his illness.

The more important of the acute abdominal emergencies of infancy and childhood are briefly discussed according to the age period at which they are most likely to occur.

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THE FREQUENCY AND GEOGRAPHIC DISTRIBUTION OF MULTIPLE SCLEROSIS, WITH SPECIAL REFERENCE TO NEW ORLEANS, LOUISIANA[1, 2, 3]

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INTRODUCTION

An investigation of the frequency and distribution of multiple sclerosis in the United States and Canada was carried out in an attempt to eliminate some of the confusion on racial selection and geographic distribution resulting from earlier studies. It was also hoped that such an investigation would serve as a prototype for obtaining frequency data on other neurological and psychiatric disorders.

Impressions gained from earlier studies suggested that multiple sclerosis was more prevalent in Europe and North America than in Africa and Asia. The disease was also thought to be most prevalent in the countries of Europe or America which are most distant from the equator, and was thought to be a more common disease in the white race than in the nonwhite races. Upon critical review of the reports on which these impressions are based, it was

[1]This study was supported by a grant to Tulane University from the National Multiple Sclerosis Society, New York City.

[2]Portions of this report are selected from a dissertation prepared by Dr. Kurland in compliance with the requirements for the Doctor of Public Health degree at the John Hopkins University, June, 1951. Dr. Kurland wishes to acknowledge the assistance of Dr. Philip E. Sartwell, Associate Professor of Epidemiology at the Johns Hopkins University, in the preparation of that dissertation.

[3]The authors greatly appreciate the fine cooperation of the physicians of New Orleans and Winnipeg who provided the basic data for this study.

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concluded that the variety of methods employed by the different investigators in collecting and analyzing data made reliable comparisons difficult.[1]

Among the studies relating to worldwide distribution, there are several reports which are concerned with the frequency of multiple sclerosis in New Orleans, Louisiana, or the southern United States. These studies, with one exception, considered multiple sclerosis a rare disease in the South. In 1905, Van Wart[2] reported that the ratio of multiple sclerosis patients to total patients in a New Orleans neurological clinic was twice as high as that reported from any other source in the United States. He concluded that multiple sclerosis was very common in New Orleans; however, Van Wart's study was made prior to the development of the Wassermann reaction and other aids for the improved diagnosis of neurological diseases.

Davenport,[3] in 1920, reported on the United States draft statistics of World War I. In analyzing the medical rejection statistics for the draftees, he found that 6 per 100,000 men were rejected for multiple sclerosis in Louisiana as compared to a national average of 10 per 100,000 men. However, the difference in rates is not statistically significant, and there is reason to doubt the accuracy of the multiple sclerosis diagnoses made at that time and under conditions of draft examinations.

In 1938, Steiner,[4] a neurologist, reported that

> "during a stay of six months in New Orleans, Louisiana, I have not seen a single case of multiple sclerosis in a native-born individual, either clinically or at autopsy. My short experience would be valueless without the corroborating reports from prominent physicians who have been resident here for a long time. All agree that in New Orleans multiple sclerosis is a very rare finding. One ophthalmologist told me that retrobular neuritis is very rare here also. Two pathologists who have performed autopsies here for the past six years have never seen a patient with multiple sclerosis on the autopsy table."

These observations were in sharp contrast to Steiner's findings in northern cities, such as New York, where he found no scarcity of native-born multiple sclerosis patients.

Dr. Louis Golden began to review all the cases diagnosed as multiple sclerosis in Charity Hospital in New Orleans for a five year period prior to his death in 1945. In a note among his unpublished studies, he reported that he found only one-fourth to one-fifth as many multiple sclerosis cases discharged from Charity Hospital as he would have expected to find among an equal number of patients discharged from the Boston City Hospital.

In a study of the geographic distribution of multiple sclerosis in the United States, Ulett,[5] on the basis of the results of a questionnaire to neurologists, reported that multiple sclerosis made up a smaller percentage of the neurological practice in the states south of the 37th degree of latitude (about midway through the United States) than north of that line. Unfortunately, only a fraction of the questionnaires which were mailed to the physicians in Ulett's study were returned and analyzed and no follow-up was attempted.

An analysis of the death certificates in the multiple sclerosis category for the United States and Canada in 1947 was carried out.[1] The multiple sclerosis death rate for Louisiana was found to be 0.3 per 100,000 population, while the rate for the total United States was 0.9 per 100,000 and that for Canada was 1.2 per 100,000. When the rates were determined for the white population and adjusted for age differences in that population, the South—from Maryland to Florida and to Texas—was found to have a rate that was slightly less than half that of the North Central and Northeastern States and only about one-third that of Canada. Incidental to that study,[1] it was found that the reported mortality rate for the colored population of the South did not differ appreciably from that of the white population of the same area.

Although the more recent of these studies support the view that multiple sclerosis is rare in New Orleans and the South, the limitation of the type of data collected to deaths, to particular age or population groups, or to incomplete observations or

TABLE 1
SOME CHARACTERISTICS OF THE NEW ORLEANS AND WINNIPEG METROPOLITAN DISTRICTS[1]

	New Orleans		Winnipeg	
Population[2]	601,608		313,626	
Nonwhite population	28 per cent		Negligible	
Increase in population	11 per cent in 7 years		6 per cent in 5 years	
Latitude	30° N.		50° N.	
Mean temperature:				
January	55° F		—3.5° F.	
July	83° F.		66.2° F.	
Annual rainfall	57 inches		20 inches	
MEDICAL FACILITIES	No.	No. per 100,000 Population	No.	No. per 100,000 Population
Medical schools	2	.....	1	.....
Physicians	828	138	414	132
Certified internists	37	6.2	21	6.7
Certified neurologists	9	1.5	2	.6
General hospitals	16	.....	11	.....
Total general hospital beds	5,371	890	2,280	730
Beds available to local residents (estimated)[3]	3,657	610	1,763	560

1The metropolitan districts include the central city plus all adjacent and contiguous minor civil divisions or incorporated places having a population of 150 or more per square mile.

2New Orleans population, estimated, April 1947; Winnipeg population, census June 1, 1946.

3Approximately 40 per cent of 3,200 beds at Charity Hospital and 30 per cent of 610 beds at Winnipeg General Hospital are for patients outside New Orleans and Winnipeg; 20 per cent of all remaining beds in both communities are assumed to be for nonresidents.

measurements, does not provide a reliable basis for geographic comparisons.

To measure and compare the prevalence of multiple sclerosis over a wide latitude where language, medical terminology and practice, and hospitalization procedures would be similar, studies of multiple sclerosis frequency in different regions of the United States and Canada were proposed by the Statistical Committee of the National Multiple Sclerosis Society. These studies were conducted through local university medical facilities in New Orleans, San Francisco, Denver, Boston, and Winnipeg, Manitoba. Their purpose was "to determine the extent of multiple sclerosis in the United States and Canada and to study the influence of climate and race on the distribution of the disease."

This present report deals with the completed study of New Orleans and compares the results with those of Winnipeg.

For a comparison of some features of metropolitan New Orleans and Winnipeg, see table 1. Future reference to New Orleans and Winnipeg as cities refers to the metropolitan districts. Each city is isolated from other large medical centers and it was believed that there would be relatively little migration of patients for prolonged treatment away from these communities. There are no recognized appreciable differences in language, medical training or practice, or hospitalization procedures in the two cities. Each city has about the same ratio of physicians and specialists per unit of population, and each appears to have sufficient hospital beds for its needs.

The climatic characteristics of the two cities can be summarized as follows: New Orleans has mild winters, hot summers, high humidity, and heavy rainfall; Winnipeg, 1,500 miles north of New Orleans, has cold winters, mild summers, comparatively low humidity, and moderate rainfall.

METHOD OF STUDY

Under the direction of the staff members of the local universities, medical students were employed and trained in abstracting hospital and clinic records and in contacting physicians and reviewing their records. Reports of the diagnosed and suspected mul-

tiple sclerosis cases and deaths for the previous ten years were obtained from all registered hospitals, including out-patient departments, clinics, and nursing homes, and the local office of vital statistics in both cities. In addition, physicians in private practice were requested, by letter and telephone, to provide reports on cases seen in the previous five years and to identify any patients who were still known to be alive regardless of when they were last seen. The limits to the period for collection and enumeration of cases were the same for both cities, that is, from January 1, 1939, to January 1, 1949.

Duplicate records on the same patient were consolidated and the patient's living or dead status and the latest diagnosis were established to as recent a date as possible. Each case was classified as "probable" or "possible" according to the opinion of the physician making the most recent diagnosis. "Probable" cases were those in which clinical evidence was consistent with the diagnosis where other possibilities were reasonably excluded, while "possible" referred to those cases in which no single diagnosis had been established.

The frequency rates and ratios below are determined on the basis of the probable cases only.

ANALYSIS OF METHOD

Replies from physicians.—Seven per cent of the physicians in New Orleans had cases to report while almost 13 per cent of the Winnipeg physicians reported cases. Only four physicians in each city (less than 1 per cent) who were known to be in practice failed to reply to written or telephone inquiries.

Data from other sources.—The records of the previous ten years in New Orleans hospitals, private clinics, and nursing homes were obtained where possible by examining the diagnostic record index. If there was no index, the director of the institution or the physician in charge of the medical or neurological service was asked to supply information on all multiple sclerosis patients whose records could be recalled. The larger hospitals and clinics generally had a satisfactory diagnostic index for the in-patient departments. However, none of the hospitals used the unit record system, where the out-patient department record is incorporated with the in-patient record. Out-patient departments seldom had diagnostic files and where they did, they were frequently not up-to-date. In New Orleans, the two large out-patient departments at Charity Hospital and Touro Infirmary did not have diagnostic files.

At Charity Hospital, the out-patient records are filed by number according to the date of the patient's original registration at the clinic and these dates go back over fifty years. There are several hundred thousand records on file; without examining each record, it would not be possible to locate those of patients seen at the clinic in more recent years. No separate diagnostic file was available for the neurological clinic and no easily examinable diagnostic face sheet was present on any of the records.

The records at Touro Infirmary out-patient department are filed chronologically by year of last visit and include over 15,000 records of patients seen over the preceding twenty years. Here, too, there are no diagnostic face sheets in the records, but the face sheet does designate the department or the clinic where the patient was treated.

In an attempt to assess the importance for case finding of the out-patient department records, a special study was made.

a. Charity Hospital, neurology out-patient department: The staff of the neurology clinic at Charity Hospital were consulted. It was their impression that multiple sclerosis was so uncommon that, if a case were suspected, the patient would be admitted to the hospital for confirmation of diagnosis and for teaching purposes. If the patient were admitted, of course, a record could be obtained from the in-patient diagnostic file. Nevertheless, it appeared desirable to survey some of the neurology clinic records. Over a two-month period, the records of the 30 to 40 patients seen each day were examined by one of the surveyors. During this period, no record of a

patient with multiple sclerosis was found.

b. Touro Infirmary, out-patient department records: An extensive search for cases was carried out in the out-patient department of Touro Infirmary. This out-patient department is similar to that of Charity Hospital but, as the records were filed chronologically by year of last visit, a review of records of patients seen recently was possible. It was decided to review the records of persons seen in the departments of internal medicine, neurology, and ophthalmology during the previous ten years. As there was no diagnostic face sheet on the records, it was necessary for the surveyor to read through each of the reports to locate a clinical impression or diagnosis. About 5,000 records were examined. As a result of this work, 2 cases were found, both of whom were reported from no other source; 1 of the 2 was a transient.

Similar studies were carried out in the out-patient departments of the Winnipeg hospitals and indicated that it would be unlikely for a patient to be reported from an out-patient department only; multiple sclerosis patients going to out-patient departments would usually be reported from the in-patient department of a hospital or a private physician as well.

Multiple sclerosis mortality reports over the preceding ten years were obtained from the New Orleans Office of Vital Statistics and were combined with the morbidity reports on the same patients.

Number of cases and sources of reports. —One hundred and thirty cases were reported in New Orleans; 219 cases were reported in Winnipeg. Of these, 94 (72 per cent) in New Orleans and 172 (78 per cent) in Winnipeg were classified as probable cases. Table 2 shows the distribution of the probable case *reports* by source of reports. It will be noted that the proportion of the cases from the different sources in the two cities was similar. Physicians accounted for slightly over one-third of the reports, hospitals about one-half, clinics (Ochsner Clinic in New Orleans and the Winnipeg Clinic) and death certicates each slightly less than 10 per cent. In both cities, nursing homes were negligible as a source of reports. About half of the physicians' reports came from neurologists, internists, and ophthalmologists. The remaining half came from all other specialists, including general practitioners.

Validation procedure. — An independent check was made of the reports which were collected in the survey with records of New Orleans and Winnipeg residents who were either former patients of the Mayo Clinic or were patient-members of the National Multiple Sclerosis Society or the Multiple Sclerosis Society of Canada.

Multiple sclerosis had been diagnosed at the Mayo Clinic from 1940 to 1949 in the case of 5 New Orleans residents and 17 Winnipeg residents. Records on all 5 patients from New Orleans and 16 of the 17

TABLE 2
MULTIPLE SCLEROSIS PROBABLE CASE REPORTS BY SOURCE OF REPORTS, NEW ORLEANS AND WINNIPEG, 1949 SURVEY

Source of Reports	New Orleans		Winnipeg	
	Number	Per Cent	Number	Per Cent
Physicians*	55	36	91	29
Hospitals*	75	49	162	52
Private clinics*	10	7	29	9
Nursing homes*	1	1	5	2
Death certificate transcripts	11	7	26	8
Total reports	152	100	313	100
Number of cases**	94		172	
Ratio of reports per case	1.6		1.8	

*Numbers given refer to the number of reports obtained and not to individuals.
**After duplication of records had been eliminated.

from Winnipeg were in the survey files. In the National Multiple Sclerosis Society there were 5 patient-members from New Orleans; records had been collected on 4. In the Winnipeg Chapter of the Multiple Sclerosis Society of Canada, there were 22 patient-members, of whom 18 had been found in the survey. The reports of all the corresponding cases in the survey files had been classified as probable.

TABLE 3
CASE REPORT CHECK

Source	New Orleans		Winnipeg	
	No. of cases from source	No. corresponding in local study	No. of cases from source	No. corresponding in local study
Mayo Clinic 1940-49	5	5	17	16
Multiple Sclerosis Society	5	4	22	18
Total	10	9	39	34

From these comparisons (see table 3), it must be conceded that some cases were missed. Their number cannot be estimated but was probably small. There is no particular reason to suppose that they were not distributed in the two cities in the same proportion as the discovered cases.

RESULTS

The living or dead status of the cases in the two cities is shown in table 4. The number of patients residing in New Orleans or Winnipeg as of January 1, 1949, is used in the determination of the prevalence ratios; the number who died between 1939 and 1948 is used to determine the mortality rates.

Prevalence ratios.—As the clearest way to illustrate the risk of a population having a particular illness is to compare the prevalence ratios for different age groups, the age specific ratios are computed. These are determined by dividing the number of cases in each city for each age, sex, and race group by the total population[1] in that same age, sex, and race group.

[1]In April, 1947, population estimate by the Bureau of the Census was available for New Orleans by age groups, sex, and color. The population distribution by age and sex for Winnipeg was based on the census of June 1, 1946. These population figures are used to compute the incidence and mortality rates between 1939 and 1948 as well as the prevalence ratios on January 1, 1949.

TABLE 4
MULTIPLE SCLEROSIS PROBABLE CASES IN NEW ORLEANS AND WINNIPEG CLASSIFIED AS LIVING OR DEAD AS OF JANUARY 1, 1949

	New Orleans		Winnipeg	
	Number	Per Cent	Number	Per Cent
Living in the city on Jan. 1, 1949	69	74	131	76
Living elsewhere on Jan. 1, 1949	6	6	5	3
Living or dead, status unknown	5	5	7	4
Died between Jan. 1, 1939 and Jan. 1, 1949	14	15	29	17
Total	94	100	172	100

TABLE 5
MULTIPLE SCLEROSIS CASES AND PREVALENCE RATIOS PER 100,000 POPULATION BASED ON CASES LIVING IN NEW ORLEANS OR WINNIPEG ON JANUARY 1, 1949, BY COLOR AND SEX

	New Orleans									Winnipeg		
	All Races			White			Nonwhite			White		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Number	69	29	40	56	22	34	13	7	6	131	50	81
Ratio (cases per 100,000 population)	11.5	10.2	12.7	12.9	10.6	14.9	7.8	8.9	6.8	41.8	32.7	50.5

1. For New Orleans by age, sex, and color: The prevalence ratios for New Orleans by sex and color are presented in table 5. Figure 1 illustrates the ratios by age for white males and females, figure 2 for whites and nonwhites. Age specific prevalence ratios are zero below age 15, begin to rise in the 15 to 24-year age group and reach their maximum at 35 to 44 years.

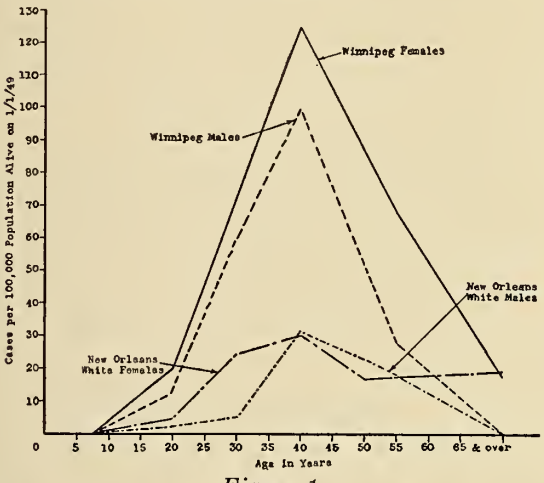

Figure 1

Muliple sclerosis prevalence† ratios per 100,000 white population* by age and sex, Winnipeg and New Orleans, January 1, 1949.

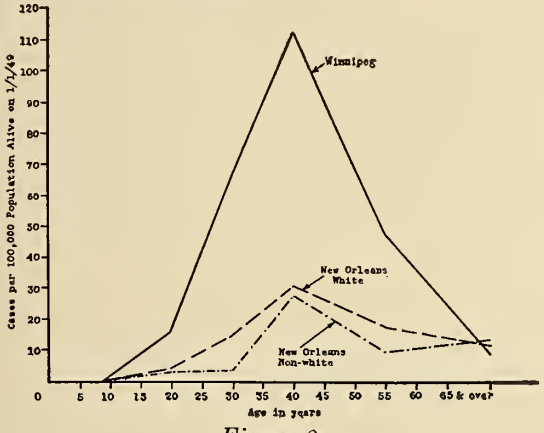

Figure 2

Muliple sclerosis prevalence† ratios per 100,000 population* Winnipeg by age, New Orleans by age and color, January 1, 1949.

*New Orleans Population—estimated 1947; Winnipeg population from 1946 Census.

†Based on probable cases known to be living in New Orleans or Winnipeg on January 1, 1949.

*New Orleans Population—estimated 1947; Winnipeg population from 1946 Census.

†Based on probable cases known to be living in New Orleans or Winnipeg on January 1, 1949.

The white female prevalence ratio for all ages is 1.4 times that for males. However, this difference is not statistically significant. The nonwhite female ratio is slightly less than that for nonwhite males, but the number of cases is so small that the difference cannot be seriously considered.

Comparison of the prevalence ratios for all ages by color reveals that the ratio for whites is 1.6 times that of the nonwhites. However, this difference also could easily occur by chance.

2. For Winnipeg, by age, sex, and color: Examination of the age specific prevalence ratios for Winnipeg, presented in figures 1 and 2, reveals that here too the maximum prevalence is at ages 35 to 44 for both sexes. The ratio for females is higher in each age group and, for all ages, is 1.5 times that for males. This sex difference in Winnipeg, which is equal to that for whites in New Orleans, is statistically significant. The nonwhite population in Winnipeg is negligible and no nonwhite cases were reported.

3. Comparison of prevalence ratios in Winnipeg and New Orleans. — The total prevalence ratio for all ages in Winnipeg (41.8 per 100,000 population) is 3.2 times the ratio for white persons in New Orleans (12.9 per 100,000 population). If the ratio for Winnipeg is adjusted to the age distribution of the white population of New Orleans, the resulting rate for Winnipeg (43.9 per 100,000 population) is 3.4 times that for New Orleans.

Incidence and incidence rates.—1. Annual incidence in New Orleans and Winnipeg, 1939-48. Fifty-four of the cases included in the New Orleans study and 80 of those in Winnipeg had their onset of symptoms between 1939 and 1948. Of these, 8 in New Orleans and 10 in Winnipeg had their onset elsewhere.

The annual incidence by sex and color is computed on the basis of the reported 46 locally occurring cases in New Orleans and the 70 locally occurring cases in Winnipeg. There was no distinctive pattern of distribution by year of onset for the sex or color subgroups, the total for each city or the total for both cities; that is, the cases were

TABLE 6
NUMBER OF NEW MULTIPLE SCLEROSIS CASES DEVELOPING FROM 1939-48 AND THE AVERAGE ANNUAL INCIDENCE RATES PER 100,000 POPULATION BY COLOR AND SEX; NEW ORLEANS AND WINNIPEG

	New Orleans						Winnipeg		
	White			Nonwhite			White		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Number	13	23	36	5	5	10	27	43	70
Rates (average number of new cases per 100,000 population per year)	0.53	1.01	0.83	0.63	0.57	0.60	1.76	2.68	2.23

uniformly distributed over the ten-year period. In table 6 the average annual incidence rate by sex and color are compared.

2. Age specific incidence rates. — Because of the small number of cases in the New Orleans subgroups, only the incidence rates by age for white persons are given, without subdivision by sex. The average annual incidence rates by age for Winnipeg and for the white population of New Orleans are presented in figure 3.

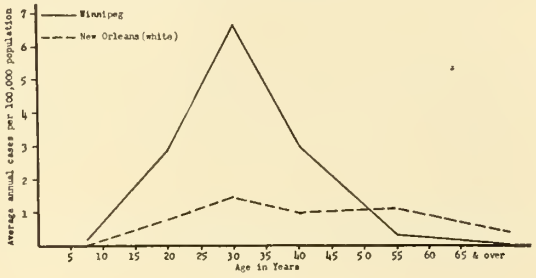

Figure 3

Average annual incidence of multiple sclerosis New Orleans for the white population and Winnipeg, 1939-1948.

a. New Orleans.—The rate is zero below 15 years of age, reaches a maximum in the 25 to 34-year group and drops slowly in the older age groups. The white female incidence for all ages is 1.6 times that for the white males, but the difference is not statistically significant. The nonwhite female rate for all ages does not differ from the nonwhite male rate.

b. Winnipeg. — Only one case occurred before 15 years of age. The incidence rate begins to rise sharply after 15 years of age, reaches a maximum at 25 to 34 years and drops off sharply in the older age groups. The female rate for all ages is 1.5 times the male rate but chance fluctuation may easily account for the difference.

c. Comparison of incidence rates in New Orleans and Winnipeg.—The Winnipeg incidence rate for all ages is 2.23 new cases per 100,000 population per year. This is 2.7 times that for the white population in New Orleans. The rate is higher for white females than white males in both cities.

The highest incidence rate in both cities is in the 25 to 34-year age group, while the highest prevalence ratio is in the next succeeding age group, that from 35 to 44 years. However, the Winnipeg incidence rate drops off rapidly beyond the 35 to 44-year group, while that for New Orleans remains relatively high. The number of cases on which these rates are based are small but the form of the curve suggests that the attack rates in the older age groups in New Orleans are relatively higher than those in Winnipeg.

Deaths and death rates. — 1. Deaths among probable cases, New Orleans and Winnipeg, 1939-48.

a. Annual number. — There were 14 deaths in New Orleans and 29 in Winnipeg for which there were probable case reports. The number of deaths per year were distributed rather evenly throughout the ten-year period.

b. Annual rates. — The average annual death rate is 0.23 per 100,000 population in New Orleans and 0.93 per 100,000 population in Winnipeg. There was little difference in the rates by sex and color within either city (table 7).

TABLE 7
DEATHS AMONG PROBABLE CASES OF MULTIPLE SCLEROSIS AND AVERAGE ANNUAL DEATH RATE PER 100,000 POPULATION: NEW ORLEANS AND WINNIPEG, BY SEX AND COLOR, 1939-48

	Deaths Among Probable Cases							
	New Orleans					Winnipeg		
	White		Nonwhite		All Races	White		
	Male	Female	Male	Female	Total	Male	Female	Total
Number	4	6	2	2	14	15	14	29
Average annual deaths per 100,000 population (1939-48)	0.2	0.3	0.2	0.2	0.23	1.0	0.9	0.93

c. Age specific death rates.—Death rates, for broad age groups in the two cities, are presented in figure 4. The number of deaths is so small that consideration of mortality specific for sex and race in this analysis is not feasible. The death rate in both cities is negligible under age 25; it then rises sharply in Winnipeg to a peak in the age group 35 to 44, and thereafter drops off. In New Orleans, on the other hand, the rate reaches a plateau at age group 35 to 44 which is maintained over the remaining age groups. Since only 14 deaths occurred in the whole ten-year period in New Orleans, it is clear that little significance may be attached to this observation.

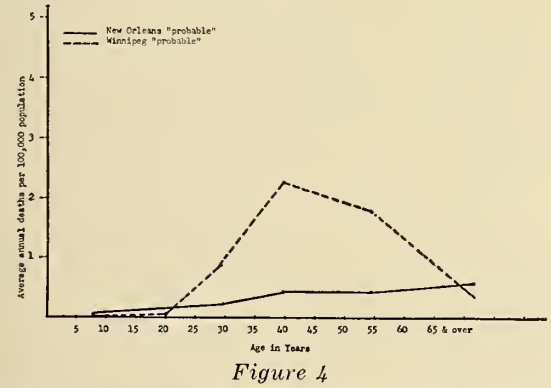

Figure 4

Average annual death rates per 100,000 population by age for deaths among "probable" cases; New Orleans and Winnipeg, 1939-1948.

Autopsy. — Results of autopsy examination.—In New Orleans not a single autopsy-confirmed case of multiple sclerosis was found in the entire ten-year period. The cause of death for 1 patient who was clinically diagnosed as having multiple sclerosis prior to death and on whom an autopsy was performed was reported to be an "encephalopathy." The pathological report was no more specific.

In Winnipeg, during the same period, there were 8 patients in whom multiple sclerosis was the clinical diagnosis and on whom autopsies were performed. The diagnosis of multiple sclerosis was verifed in 6. One of the remaining 2 was said to have pernicious anemia, the other arteriosclerosis.

DISCUSSION AND SUMMARY

Intensive surveys were conducted in New Orleans, La., and Winnipeg, Manitoba, and are believed to have been equally thorough in locating diagnosed resident cases of multiple sclerosis. The prevalence, incidence, and mortality rates in New Orleans were found to be about one-third of the corresponding rates in the Canadian city. No autopsy-proved cases were reported in New Orleans for the study period 1939 to 1948; 6 were found for this period in Winnipeg. These findings confirm reports of others who noted the scarcity of multiple sclerosis in New Orleans and the South.

The white and nonwhite rates in New Orleans do not differ from one another by statistically significant amounts. Thus, the results do not support the viewpoint of those who believe that geographic differences in frequency are due to variations in racial susceptibility but suggest that the causative factor or factors are more common in the northern parts of this continent. As multiple sclerosis may be a clinical syndrome, it is also possible that a causative factor responsible for most of the cases seen in the north is not present in the far south.

Although mortality rates for both sexes are similar, the incidence rates and prevalence ratios for females in both cities were higher than those for males. It is possible that diagnoses such as psychoneurosis are more frequently mistaken as multiple sclerosis in females or that early multiple sclerosis is more frequently considered as central nervous system syphilis in males. It is also possible that women seek medical care sooner than men do for the type of symptoms which occur early in the disease and that a higher proportion of the female cases were of more recent origin.

Some clinicians, including Putnam,[6] have suggested that the principal treatment of the disease is the migration of patients to warm, dry climates. However, the preliminary analysis by life table methods of the data collected in New Orleans and Winnipeg fails to show any statistically significant difference in life expectancy of the patients in the two cities.[7] This suggests that the remissions and exacerbations of the disease are equally frequent in the two areas. It also suggests that an endogenous mechanism rather than repeated exposure to an external agent is responsible for the exacerbations which are so often seen.

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RENAL ANGIOGRAPHY: SMITH-EVANS TRANSLUMBAR TECHNIC*

B. M. HARVARD, M. D.

NEW ORLEANS

Visualization of various segments of the vascular tree by injection of a radio-opaque medium is not new. According to Nelson,[1] Destot and Berard attempted it in 1896, the year following the introduction of roentgenology. It remained for dos Santos and associates,[2] in 1929, to perfect a technic which gave impetus to such studies. The essentials of his technic are still observed today.

Recent studies by Nelson,[1] Doss and associates,[3] and Smith and Evans[4] have proved that arteriography has a real place in the diagnosis and treatment of diseases of the urinary tract. Their work, coupled with the studies of Melick and Vitt,[5] and McGuire and Nelson,[6] showing that arterial puncture is relatively innocuous, has made the procedure attractive to us.

INDICATIONS FOR USE

Renal angiography is indicated in any condition involving the renal vascular tree. It has been shown to be particularly useful in differentiating between cystic disease of the kidney characterized by avascular areas and renal parenchymal tumors in which the opposite situation—a pooling of medium—is present.[7] It is of no value in the diagnosis of renal, pelvic, or ureteral tumors.[8]

We have been specially interested in renal angiography for preoperative evaluation of the hydronephrotic kidney with a view to determining etiology and, more important, the kidney's chance of surviving a plastic procedure.[9] Our experience is yet too limited to estimate its value in such cases. The problem is, of course, to establish criteria for survival as related to the renal vascular pattern. Whether or not this can be done is open to question. At present we

*Presented at meeting of the Orleans Parish Medical Society, December 10, 1951.

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believe that if it can be demonstrated that the interlobular vessels are fairly well distributed and present in at least 50 per cent of their usual density the kidney has a good chance to survive conservative surgical procedures. This criterion is purely arbitrary, and has been adopted merely as a starting point.

In the preoperative study of anomalies the value of renal angiography cannot be overemphasized. The bizarre vascular patterns associated with urologic anomalies often make the corrective operation a difficult problem. It is, therefore, extremely helpful for the surgeon to know where he is likely to encounter trouble beforehand. For example, it has been shown that both segments of a horseshoe kidney may receive their blood supply from a single main artery.[1] Such knowledge would certainly modify one's approach to the problem.

Arteriography can be helpful in studying ectopic kidneys when surgical procedures on these organs are contemplated. Also, the final definite proof of true renal agenesis may rest upon the angiographic picture.

Renal atrophy, particularly as related to those patients whose hypertension is thought to be of renal origin, can be evaluated by angiography. We believe that the absence of relative narrowing of the blood vessels is evidence that the Goldblatt type of organ does not exist and cannot be blamed for the hypertension. This does not mean that a small, atrophied infected kidney should not be removed. Whether hypertension is present or not, such a kidney is a definite liability and should be removed.

Masses in the upper abdominal quadrant may sometimes be a source of considerable confusion as to their origin, that is to say, whether or not they arise from the kidney. The angiogram can be of great help in this dilemma, often providing a definite answer.

PROCEDURE

The equipment we employ is that originally advocated by Smith and Evans.[4] It consists of a 10 cc. Sana-Lok syringe, an 8 inch piece of plastic tubing equipped with luer-lok adapters at either end, and an 18 gauge short-bevel needle 6 to 7 inches long. The contrast medium is 75 per cent neo-iopax. Our only substitute in the original material is a type of clear plastic tubing, which may be autoclaved, thereby reducing the possibility of contamination.

The technic we employ is essentially that used by Smith and Evans.[4] The intestine is cleansed by means of enemas, and food and fluids are withheld. Atropine is the only medication given prior to anesthetization. The patient is placed prone on the table. A scout film is made, developed, and studied for success of intestinal preparation and position on the table. The back is cleansed with antiseptics and draped. The patient is anesthetized with sodium pentothal, and the needle is inserted from a point about 1 cm. below the left twelfth rib and 8 cm. from the midline superiorly, medially and ventrally, until it strikes the body of the twelfth thoracic vertebra. It is then withdrawn about 3 cm., redirected slightly upward and more ventrally, and "stepped-down" in this fashion until it passes the anterior left edge of the vertebral body. The stylet is removed and the needle advanced an additional 0.5 to 1 cm. until it enters the aorta. Just before this the operator may experience a definite pulsation. As the needle enters the aorta, a yielding sensation much as that experienced in subarachnoid puncture will be noted. Once the needle is in the aorta, blood wells up through it in a rapid dripping. It never spurts. The syringe with its plastic adapter, having previously been filled to capacity (12 cc.), is then attached to the needle. A column of blood will be seen to flow into the plastic tubing along one side if the needle is properly placed. It advances in a retrograde, steplike manner with a clearly systolic rhythm. The machine is started and injection begun, the medium being injected in from 1.5 to 2.5 seconds. The film is exposed while the last 1 or 2 cc. of medium is being injected. The needle is removed quickly, the casette changed and a second film exposed as rapidly as possible to obtain the nephrogram.

Our most satisfactory pictures have been made with a 500 M. A. machine equipped with a high-speed Bucky diaphragm, the

film being exposed for 0.2 second. Those angiograms we have made with the high speed rotary casettes, such as are used in cardiac angiography, have not proved satisfactory because of blurring and lack of detail. This is unfortunate because the serial study so produced would obviously provide more information than could be gained from a single exposure.

CONTRAINDICATIONS

Our only contraindications to renal angiography are sensitivity to iodine, uremia, and anatomic considerations, such as pronounced obesity. We have not attempted aortic puncture by this technic in children because in them the aorta is small and located too far medially to be punctured by a needle approaching from such an acute angle.[4, 5]

Patients tolerate renal angiography well. There is little or no discomfort upon awakening. Abdominal cramps, mild shoulder pain due to diaphragmatic irritation, or tenderness at the site of injection may be experienced but these usually have disappeared by the next day. Few require anything more than mild sedation.

We have had no deaths although two deaths have been reported in the literature. These occurred prior to development of our present radio-opaque media and were the result of massive mesenteric thromboses secondary to spasm of the mesenteric vessels.[7, 10] We have injected the mesenterics many times in our current study and have yet to encounter any complications more serious than transitory cramping of the abdomen.

There have been no instances of serious bleeding in our series. Careful examination of the aorta at operation a few hours later has revealed at most a small localized hematoma of no importance. This has been the experience of others[1, 5-7] who have larger series of cases than ours.

Poor technic accounts for the majority of unsatisfactory angiograms. A poorly placed needle may result in extra-aortic or intramural injection of the medium. Aside from an unsatisfactory angiogram such an injection has little noticeable effect upon the patient. The dye is absorbed in a very short while. On several occasions we have kept the patient asleep, developed the films, and finding them unsatisfactory, repeated the puncture and injection all within a matter of minutes. We have noted no clinical difference in those patients receiving a double injection and in those receiving a single injection. Unless an obviously satisfactory puncture has been obtained, we believe the films should be developed and their quality determined before the patient is permitted to awaken, and if necessary a second attempt may be made with little fear of untoward reaction.

Still another difficulty of this procedure against which we are powerless is that not infrequently other vessels overlie the renal pattern and make interpretation difficult or impossible.

CONCLUSION

In conclusion, we believe that renal angiography is of definite value. Several years of applying it diligently to all types of urologic problems will be required before definite criteria can be established. Once these are attained the procedure will become a commonly used clinical adjunct.

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DISCUSSION

Dr. Edgar Burns (New Orleans): Our interest in renal angiography was stimulated by a feeling of need of more information regarding a number of renal lesions than is obtainable from the ordinary urographic studies. Through the efforts of dos Santos, Nelson, Doss, Smith, and others, the technic of renal angiography has been simplified to the point of making it a safe and practical procedure.

Our experience with it has been of tremendous practical value. On a number of occasions we have been able to establish a definite diagnosis between renal cyst and tumor as the cause of a space occupying mass in the renal cortex. On a few occasions we have been able to make a diagnosis of a small tumor on the renal cortex as the cause of hematuria which had not reached sufficient size to disturb the normal appearance of the urogram. If the diagnostic value of the procedure stopped at this point, we would feel that our efforts to investigate the procedure and develop the technic of application would have been entirely justified. Its value, however, extends to a number of other renal lesions.

In advanced hydronephrosis, where an attempt is being made to determine whether or not the kidney has any salvage value, the ordinary differential renal function tests do not always provide the answer in borderline cases. If this is supplemented by a study of the renal circulation as outlined in the angiogram, one is in a better position to determine whether a plastic operation may be performed with the reasonable assurance that the kidney will maintain some functional value or whether nephrectomy is a more sensible procedure. In dealing with bilateral hydronephrosis, this becomes increasingly important.

Of equal value is the information obtained regarding unilateral renal disease as it relates to hypertension. With sufficient experience I am quite certain that one can determine with a fair degree of accuracy whether or not removal of an atrophic kidney may be expected to influence the level of the individual's hypertension. In dealing with duplicated kidneys, where one segment of the kidney is diseased, a study of the circulation as outlined by renal angiography will enable one to determine whether or not the diseased portion can be removed without compromising the circulation to the undiseased segment.

The information regarding aberrant arteries, differentiation between renal and extrarenal masses, hypoplasia, and agenesis has been described, as well as its value in vascular conditions of the splenic, hepatic, gastric, aortic, renal, iliac, and even femoral and popliteal arteries. The ease and relative safety with which renal angiography can be applied serve to recommend it as a method of obtaining finer grades of diagnostic information regarding a variety of renal, as well as extrarenal, lesions.

PITFALLS IN DERMATOLOGY

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The purpose of this paper is to emphasize the various pitfalls in the management of some skin diseases. "First, do no harm" is a wise axiom. In order that we do no harm we must recognize certain disease entities, and also, the dangers in certain modalities of therapy. The physician who undertakes the treatment of skin diseases must be aware of the fact that an error in diagnosis or lack of a diagnosis may be of grave significance. Recently, a physician's wife developed a few erythematous patches on her face. Her husband decided to try treatments of ultraviolet exposures. In a few weeks she was dead,—the diagnosis: disseminated lupus erythematosus.

IRRADIATION

It must be remembered that dissemination may result from exposure to sunlight or ultraviolet irradiation but photo sensitization would seem to be a feature of the disease rather than its cause. Lupus erythematosus must be recognized in its earliest stage in order to avoid unfortunate occurances such as that just related. The early lesion consists of one or several small, slightly elevated erythematous macules with a yellowish or grayish, sometimes greasy scale. The lesions are oval or rounded and occur frequently over the nose, cheeks, inside the ears, and on the scalp. Closer examination of the individual lesions will reveal a dilatation of the follicular openings. Whenever lesions resembling the above description are seen it is imperative that any type of radiation, including ultraviolet, infra-red, and superficial roentgen irradiations be avoided.

In addition to lupus erythematosus, the same principles apply to other diseases in which light plays a part. These diseases

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are: Hydroa vacciniforme or porphyria, vitamin deficiency states, such as pellagra, urticaria solare, and photodermatitis from contact with various substances such as berlock dermatitis and meadow grass dermatitis. Prolonged exposure to sunlight may also be a factor in the development of malignant lesions, including epitheliomata and xeroderma pigmentosa. Therefore, before we institute any form of phototherapy be sure that the disease does not belong in the group of photosensitizing conditions.

Another group of conditions in which there lies a danger in therapy is that group where roentgen irradiation is of benefit and the condition is chronic and recurrent. An excellent example of this group is psoriasis. As a rule the diagnosis of psoriasis offers no great difficulty. The typical lesions consist of oval or rounded erythematous lesions with silvery scales which when removed leave areas of pin-point hemorrhages. The distribution is characteristic, namely, extensor surfaces of the elbows and knees, sacral regions, and scalp margins. The danger in treatment exists in that frequently patients seek x-ray therapy after having received a maximum number of exposures. In some cases the patient does not realize the importance of limiting the total amount of exposure regardless of how many years ago the previous treatment was given. Recently a patient came in seeking a few x-ray treatments for his chronic psoriasis. He stated that x-ray was the only form of treatment that helped him and every Thanksgiving day he comes in to New Orleans for the racing season and gets a few treatments. This is the type of case where caution must be exercised, so that we do not exceed the safe limit of total dose of irradiation. Although x-ray therapy in conjunction with the indicated topical measures is unquestionably efficacious in many skin conditions there are some diseases in which roentgen irradiation is contraindicated. These are lupus erythematosus, lupus vulgaris, photosensitivity, senile skins, moles, nevi, and dermatoses that have a strong tendency to recur in the same site.

ARSENICALS

There is a danger in the use of ionorganic and pentavalent forms of arsenic in that many cases develop arsenical keratoses. About 20 per cent of these cases progress to definite epitheliomata even if arsenic is discontinued. The use or arsenicals is not as popular now as in days gone by; however, these preparations are still in use. Some of the conditions in which arsenicals were used are psoriasis, dermatitis herpetiformis, eczema, lichen planus, pernicious anemia, migraine, and epilepsy. Many patients continue the use of arsenical preparations, especially Fowler's solution, over many years either with or without medical consultation.

RECOGNITION OF SKIN CANCERS

In spite of the fact that so much has appeared in the newspapers, magazines, and other nonmedical literature, as well as in medical literature, concerning the early recognition of skin cancers, it seems that some physicians do not realize the significance of an elevated, indurated, papular lesion, usually having rolled borders and sometimes showing a necrotic center. Any lesion of this description which does not heal in a few weeks should be considered as a possible malignancy and proper diagnostic and therapeutic measures instituted.

OVERTREATMENT

One of the most frequent errors in management of the average skin condition is overtreatment. Many physicians feel that no matter what the nature of the skin condition some ointment is bound to effect a cure. Certainly a survey of the advertisements and literature in the medical journals would tend to substantiate this belief. However, much harm can be done by strong ointments and greases. Any acute condition exhibiting predominantly redness, tenderness, and sometimes vesiculation and weeping should be treated by wet dressings alone and later lotions added. The use of ointments is generally reserved for the more chronic conditions. This may sound very simple and logical but it is a common pitfall in the management of common skin conditions.

AXIOMS FOR TREATMENT

The following brief axioms may be of

service to anyone undertaking the treatment of skin conditions:

In severe refractory, recurrent, scaly or pustular eruptions of the hands and feet, look for foci of infection between the toes, in the tonsils and teeth or even the prostate or cervix. Correct these foci if at all possible. Many of these cases come in with secondary infection which must be cleared up first and then etiological factors considered. Remember that ringworm of the hands is relatively rare; whereas dermatophytid secondary to ringworm of the feet is common. Eczematous eruptions of the hands are much more commonly due to contact dermatitis, pompholyx, impetigo, or scabies.

Avoid a quick diagnosis of ringworm of the feet. Many cases are really eczematoid dermatitis. Always look for secondary infection.

Any chronic ulcer should be studied—culturally, histologically, and serologically.

In all papular dermatoses take a serological test for syphilis.

In any generalized inflammatory nodular eruption suspect a general infection except if it be an obvious drug allergy. Do a complete study, including hematology and serology.

In eczematous eruptions or pyodermias of the back of neck, ears and back of ears, think of pediculi capitis and look for lice or nits.

Herpetic lesions of the genitals, lips, and other mucous membranes should be examined repeatedly by darkfield and serological methods. Skin tests will aid in ruling out chancroid, lymphopathia venereum, and direct smear will aid in ruling out granuloma inguinale. Scabies must also be considered.

Herpes zoster is usually easy to diagnose. The grouped unilateral vesicles on an erythematous base, often preceded by pain, form a characteristic picture. The visceral and general complications and neuralgias are usually more important than the cutaneous lesions. Herpes zoster is not uncommon in the leukemias and other blood dyscrasias, in poisoning by heavy metals such as arsenicals, and in syphilis (tabes). It also occurs following trauma and is sometimes associated with Hodgkins' disease and visceral malignant tumors. All of these underlying factors must be considered in herpes zoster.

HISTOPATHOLOGICAL PITFALLS

The remainder of this paper will be devoted to the histopathological pitfalls. Some of the common errors in pathologic diagnosis include:

1. Diagnosing a junction nevus as a malignant melanoma because of a pleomorphism of the nuclei, pigment production and minimal mitotic activity near the basal layer of the epidermis. The age of the patient is important because of the occurrence of juvenile melanomas before puberty. These will appear malignant histologically but are really benign and do not produce metastatic spread. This tumor was described by Sophie Spitz in 1948. Of course, the prognosis in both junction nevi and juvenile melanoma should be somewhat guarded because of possible error in the interpretation. Obviously there is need for more information regarding the biologic behavior of these lesions.

2. Insect bites can be erroneously called mycosis fungoides, Hodgkin's, or even very easily squamous carcinoma because of the multiple types of cells which follow tick bites, and sometimes roach bug, and occasionally mosquito bites. Eosinophilic, lymphocytic, plasma cell and sometimes foreign body giant cell infiltration occur commonly.

3. Nevus pigmentosus lesions vary moderately in their histology and are rarely misinterpreted as melanomas.

4. Fibromas, dermatofibroma, or histiocytoma sometimes are extremely cellular, are encapsulated, slightly pleomorphic, and might possibly be called a low grade fibrosarcoma. However, this mistake does not seem likely or common.

5. Lichen planus can be confused with senile keratosis unless the location and du-

ration are known. However, the clinical picture very easily clarifies this problem.

6. Granuloma pyogenicum can be confused with hemangio-endothelioma unless the clinical history is available because capillary and fibroblastic proliferation is sometimes very excessive.

7. Seborrheic keratosis can easily be confused with certain types of basal cell carcinoma. However, the superficial location, well differentiated squamous epithelium, relative absence of chronic inflammatory reaction, and formation of simple keratin masses or cysts near the surface of the lesion helps to differentiate the two tumors. The location of the lesion is also important.

8. Bowen's disease of the skin is a "preinvasive" type of intraepithelial squamous carcinoma; however, typical "Bowen's" type cells are present and help in proper classification.

9. Sweat gland adenoma could possibly be confused with metastatic adenocarcinoma of the skin, but the presence of myoepithelial cells aids greatly in proper classification.

10. Leiomyoma may be called neuroma or fibroma but differential stains for muscle tissue solve this classification easily.

SUMMARY

We have attempted to point out a few things to be kept in mind as we attempt the proper management of some skin conditions as well as the proper interpretations of our histopathological reports. Of course, there are many other conditions in which caution is necessary both in management and in biopsy diagnosis; however, it is hoped that these few considerations may be of some service to the practicing physician.

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THE PROBLEM OF THE CONSTITUTIONAL PSYCHOPATH WITH CRIMINAL TENDENCIES AND THE NECESSITY OF MORE FLEXIBLE LAWS GOVERNING EXPERT TESTIMONY IN SUCH CASES*

E. M. ROBARDS, M. D.†

JACKSON, LOUISIANA

Man's desire to possess that which is forbidden began in the Garden of Eden. A struggle between the forces of righteousness versus evil has continued throughout the ages. Moses presented man with Ten Laws, which were to be his rule and guide. Many have violated them, but no man has ever been able to amend them. Society must continue to accept them as is if our civilization is to survive.

He, the Great Physician, who gave His life that we may have a better understanding, is the only one who has had an infinite knowledge of Man's conduct and behavior in all its phases.

Lack of sympathetic understanding of our neighbor's difficulty reflects itself in the public's minor concern in the care of the mentally ill in State Hospitals in general. Apparently one of the major conduct and behavior problems is presented by that individual who has some type of mental derangement which constitutes pseudo-pathologic behavior. His mental faculties appear to have sustained little or no injury, while the disorder is manifested principally or alone in the state of the feelings, temper or habits. He is neither psychotic, epileptic, psychoneurotic nor mentally defective; nevertheless, at some time or other he is utterly unable to adjust to society's requirements due to his specific pattern that cannot be changed anymore than the leopard's spots. Such an individual is referred to as a psychopath. His peculiar conduct is not particularly obvious to society until he establishes his identity with some crime varying from a misdemeanor to some horrible sex

*Read before the Southern Psychiatric Association Convention held in Dallas, Texas, December 6, 1948.

crime or murder. It is rather generally accepted that approximately 15 per cent of the inmates of state penal institutions are psychopaths in some phase or other. It, therefore, becomes the responsibility of someone to determine his part in the crime statistics which Mr. Edgar Hoover of the F. B. I. prepared and which to me are rather startling.

Since 1930, when the F. B. I. began uniform recording of all crimes, the increase in crimes had never been such as in 1945. I briefly quote in part: One major offense every twenty seconds; someone slain or feloniously assaulted every six minutes. The Bureau of Crimes estimates: 1,565,000 major crimes; 12,000 murders; 59,800 aggravated assaults; 240,000 automobile thefts; 300,000 burglaries; 850,000 larceny cases. These figures are taken from an estimated population of 65,800,000.

The crime wave of 1945 was dominated, as in previous years, by individuals 17 years of age and persons of 18 years were second. Arrests of males increased 10 per cent in 1945, although arrests of girls over 21 declined 10 per cent; however, the figure was still 109 per cent over 1943.

With reference to this, there is hardly a day when some one fails to read some horrible account such as the following:

Male baby-sitter, 22, murders 2-year-old infant entrusted to his care.

Girl teen-agers amuse themselves throwing switches and watching the wreck for the thrill of it.

Convict trusty, female impersonator, criminally assaults, brutally murders, mutilates body of wife of official of state penal farm where inmate was a trusty.

The above cases were noted in news items during October 1948.

If the psychiatrist can refer to the psychopath as a pathologic liar as a result of his careless handling of the truth when it is most expedient for his plans, why not include his criminal projections as psychopathologic reactions when his judgment becomes subservient to a psycho-sexual urge and under stress he commits a crime (for which we know he is not responsible) and becomes a candidate for capital punishment? The psychiatrist, who is legally disarmed by laws limiting his expert testimony, may morally feel that due to lack of legal classification he becomes a party to the penalty resulting in the accused being sent to the gallows or electric chair. The psychiatrist knows the individual is mentally ill but he is legally unclassified.

I briefly refer to a case of the typical juvenile delinquent who has grown up as a social and economic maladjuster. His actions became such that it became necessary for him to be placed in a psychopathic hospital on several occasions. Following his release his adjustment was only fair when he committed his most serious and last crime, that of murder. In a certain large city he met his employer, murdered him, and returned to his hometown in his employer's automobile. He was arrested and returned to the site of his crime. In spite of the history in the case and having been at one time confined to a psychopathic hospital he was sent to trial. The verdict was *guilty as charged,* and with capital punishment, the mandate of the law was carried out.

Another case is that of a white male, age 22, foreign birth. Physical, blood and spinal fluid examinations in normal limits. Father and mother separated when he was four years old and he was reared by his grandparents until he was 16. He stated that his grandmother brought him up as a girl and admits he preferred playing with girls. First sexual experience at age of 15 terminated by choking the girl. His life from that time, when he joined the Canadian Army, was one of continual maladjustment in which there were abnormal sex experiences. During the War he served overseas and had similar experiences to that which I have referred, always choking and beating the woman involved, and was continually in and out of the guardhouse as a result of his conduct. He was returned home and then placed in a psychopathic hospital in Canada. After his discharge, he joined the Merchant Marines, had a common-law wife, and admitted choking her several times, whenever they had sex ex-

periences. He came to Baton Rouge on January 25, 1945. While on leave he met a girl in a night club, had several drinks, left with her in a taxi, criminally assaulted, choked and mutilated her to such an extent that is was questionable whether she would survive. He was arrested and committed to the Criminal Department of East Louisiana State Hospital. Observation report: This patient gives history of abnormal sex-tendencies since early childhood and asserts that he is unable to determine his own sex under stress. This is the basis he gives for his sadistic tendencies. His mental illness chiefly involves his judgment and ethics. In the legal sense of the word he was not insane and we believed him capable of assisting his attorney in conducting his defense; that he did know right from wrong but under stress was unable to determine right from wrong. He was brought to trial for a capital offense. During the trial, as one of the commission, I was advised by the State Attorney to strictly abide by the facts which determined the man's competency now and at commission of the alleged crime and by his capability of assisting in his own defense. I steadfastly contended (in spite of possible contempt of Court proceedings against me) that the accused was emotionally and voluntarily incapable (due to his personality pattern) of choosing right from wrong under stress. Verdict: *Guilty as charged,* which carries capital punishment, but the Judge in this case recommended life imprisonment.

PROPOSED LAW RELATIVE TO MEDICO-LEGAL TESTIMONY

Permitting the psychiatrist, who is required to give expert testimony in Court, to amplify his answers to questions when he considers the accused to be a criminal psychopath with homocidal and sex maniacal tendencies. Stating these individuals may or may not be insane but are mentally irresponsible under stress and may commit murder or violent sex crimes as a result of being emotionally and volutionally incapable of making adjustments to the normal standards of society as a result of intellectual, emotional or social personality defects which may be inherited, congenital or acquired in early life. Such individuals should be institutionalized and not subjected to capital punishment if found guilty.

This Act is not intended to supersede the present law governing expert testimony in the determination of sanity or insanity in criminal cases but to become a part of the law.

Below are submitted some recommendations which I hope to see put into effect in Louisiana:

1. Increase in number of mental hygiene clinics and classes, both rural and metropolitan.

2. Establishment of a closer relationship between State Hospitals and mental hygiene clinics which are serving a most useful purpose.

3. Psychiatric training for Public Health nurses with particular reference to the correct approach to the child's parents as well as to the child.

4. Enlightenment and enlistment of support of press and various civic organizations in this program.

5. A division of mental hygiene with a psychiatrist and psychologist who have the duty of compiling records of psychopaths who come into contact with either law enforcement, social security or other public agencies. The records of these agencies insofar as case histories and allied documents are concerned should be open to the Department of Mental Hygiene for periodic inspection. The psychiatrist's training would enable him to note prodromal psychopathic behavior which may not be recognized by the particular agency handling the case. The Mental Hygiene Bureau should keep files alphabetically and by counties (or parishes) on such cases where persons are apprehended on charges involving penal servitude, the prosecuting attorney should be required to notify the Bureau before the imposition of the sentence. (B. F. Krebs) If the subject is convicted, a transcript of this record should be attached to his com-

mitment to the penal institution and may be supplemented by further study. This should be attached to his Application of Pardon and presented with it to the Parole Board who will have some idea of his future conduct.

6. Construction of psychopathic wards with qualified psychiatrists and psychologists, plus trained personnel, in all penal institutions with the hope that a separate and distinct institution for his care will develop.

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OFFICERS OF THE LOUISIANA STATE MEDICAL SOCIETY FOR THE YEAR

At the Annual Meeting of the Louisiana State Medical Society at Shreveport, in April 1952, officers were selected for the coming year, and the House of Delegates is to be congratulated on its care and wisdom in their choice.

Dr. William Everett Barker, Jr. of Plaquemine, becomes President. Dr. Barker was graduated from Tulane University in 1917, interned at Charity Hospital, and served as an officer in the Medical Corps in World War I. He has been active in the interests of organized medicine in his local Society for many years, and has also been President of his local society, a member of the House of Delegates, and Councilor from his District. He has found time to serve as a public citizen, and at the same time he has been doing a large general practice in surgery for the past thirty years. He is a Fellow of the American College of Surgeons, and brings to the office of President a maturity of judgment, and ripe experience, which have long commended him to his fellow workers in the profession, and which now give great assistance in meeting the problems which medicine faces from a professional and from an economic standpoint in the years just ahead.

The President Elect, Dr. Philip H. Jones, is sufficiently well known to the readers of this column.

The First Vice President is Dr. Ralph H. Riggs of Shreveport, an eminent specialist in the field of ear, nose, and throat, and a physician who has been long active in the interests of organized medicine in Shreveport.

The Second Vice President is Dr. T. F. Kirn of New Orleans. Dr. Kirn has been prominent in the general practice movement and has long been active in the field of organized medicine, and as a public citizen. His friends know him as an ardent supporter of the rights of the physician.

The Third Vice President, Dr. D. J. Fourrier of Baton Rouge, has taken a lead there in the efforts of the local Society to combat State Medicine. He will contribute a fresh viewpoint and a youthful and active spirit in the Executive Committee.

The Chairman of the House of Delegates is again Dr. Andrew V. Friedrichs. The members of the Society, and particularly the House of Delegates, know him for his many years of service to both the Orleans Parish and the Louisiana State Medical Societies, and for his years of capable presiding over the House of Delegates. With his decisive and considered handling, the House of Delegates each year is able to do in a day and a half what would require

many days for other bodies. He is again welcomed into his previous position.

The Vice Chairman of the House of Delegates is Dr. Sam Kerlin of Shreveport, who has long been active in the field of organized medicine there, and who brings a breadth of experience and a broad knowledge of medicine to the assistance of the House. He is a well known internist in his local community, and highly regarded by his fellow practitioners over the State.

Dr. C. G. Cole was elected Secretary-Treasurer for another period of five years. It is particularly fortunate that the Society will continue to have the benefit of his services at this time. His broad experience and wide contact with both the professional and legislative aspects of medicine make him most valuable in this position.

The Council, in the coming year, remains the same. At the present time, this is a fortunate event because the work of the Council has increased and much responsibility rests upon it. Men with mature judgment are valuable there. The Council acts as a judiciary body, and as a clearing house for complaints and conflicts. It has long been accustomed to meeting the so-called grievances that come between the members of the profession and between the profession and the public. It was functioning in this capacity before the present trend towards a special committee for the handling of grievances. The Council is to be commended for its efforts along these lines in recent years, and the Society is fortunate in that its membership remains unchanged this year with the prospect of such heavy work before it.

The Society as a whole is fortunate in its choice of officers for the coming year. It is a source of satisfaction that its affairs have continued to be handled in a suitable manner in such crucial times.

CHANGE IN THE NAME OF THE NEW ORLEANS MEDICAL & SURGICAL JOURNAL

The name of the *New Orleans Medical & Surgical Journal* will be changed in the issue of January 1953. The name will be *The Journal of the Louisiana State Medical Society.*

The decision to make this the name of our Journal was reached after some discussion over a period of years. It was influenced by various considerations.

The medical profession of this State is proud of its heritage and of the Journal which has borne its present name since 1844. The place of New Orleans in medical history has been properly displayed there. The Journal is one of the oldest medical publications in the English language. It is also well understood that some degree of inconvenience is attendant upon the change of the name of any established publication.

On the other hand, it is felt that at the present time it is wise to use a name which is representative of the entire profession of the State, which is uniform with that of our sister states, which presents the Journal clearly to the advertising world as one of statewide distribution. As a part of the mechanics of this transition, Volume 104 will terminate in the December 1952 issue and Volume 105 will begin in the January 1953 issue.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

1952 ANNUAL MEETING

More than five hundred doctors attended the 1952 Annual Meeting which was held in Shreveport April 28-30. In addition 74 representatives of commercial companies were present to handle exhibits during the meeting. It is felt that this is a registration of which to be proud and it certainly exceeds previous meetings held out of New Orleans. Not only did members of the So-

ciety register in large numbers at the meeting but a great deal of interest was displayed in the scientific program, the sessions of the House of Delegates, scientific and technical exhibits, and social activities arranged by the doctors of Shreveport. These doctors are indeed to be commended on the excellent arrangements made and the interest shown in all details in connection with the meeting. All difficulties encountered were met and conquered in a manner satisfactory to all concerned.

Following is report of the Committee on Resolutions, presented to the House of Delegates and officially approved on the last day of the meeting. This indicates the many persons to whom the Society is indebted for a successful and interesting meeting.

For information of the members of the Society an abstract of the minutes of the sessions of the House of Delegates will be published in the next issue of the Journal, and in accordance with the By-Laws, the report of the Committee on Medical Defense, which was accepted by the House of Delegates, is printed below.

COMMITTEE ON RESOLUTIONS

At the conclusion of a most successful, interesting and enjoyable annual session, it is the wish of the Committee on Resolutions to express thanks to the following individuals and groups who have assisted in arranging and handling details for the meeting.

Of first importance is Dr. Ralph H. Riggs of Shreveport, who served as General Chairman of the Committee on Arrangements; chairmen of subcommittees on arrangements; and all officers and members of the Shreveport Medical Society.

Mayor Clyde E. Fant, who welcomed the Society on behalf of the City of Shreveport.

The Shreveport Chamber of Commerce, which furnished secretarial assistance and supplies in connection with registration of doctors.

The management of the Washington-Youree Hotel, which has cooperated in furnishing adequate facilities for various sessions of the convention as well as accommodations for many of the members in attendance and also other hotels and tourist courts which have cooperated in this regard.

Reverend Louis J. Bristow, who presented an inspiring address at the Opening Meeting of the Society.

Mr. Aubrey D. Gates, Field Director, AMA Council on Rural Health, who addressed the first session of the House of Delegates and also the Conference of Secretaries of Component Societies.

Other out-of-state guests and members who participated in the Scientific Program.

Shreveport newspapers and radio stations which gave generous publicity prior to and during the meeting.

Technical exhibitors and advertisers in the program for the meeting, without whom an annual meeting could not be held.

Doctors who prepared instructive and interesting scientific exhibits.

Dr. Roy B. Harrison, Secretary of the State Board of Medical Examiners, for his informative report.

The Woman's Auxiliary of the State Society and particularly the Shreveport members of this group who have assisted in arrangements.

Dr. A. V. Friedrichs, Chairman of the House of Delegates, for his efficient handling of details considered by the House.

Dr. C. Grenes Cole, Secretary-Treasurer, and secretaries of his office for valuable assistance and advice rendered prior to and during the meeting.

All other officers and members who have contributed to the success of the meeting by their presence and participation.

RECOMMENDATION

It is recommended that a copy of this report be incorporated in the minutes of this meeting, published in the New Orleans Medical and Surgical Journal and given to the press.

T. F. Kirn, M.D.
J. E. Knighton, M.D.
Moss M. Bannerman, M.D., Chairman

COMMITTEE ON MEDICAL DEFENSE

During the past year the Medical Defense Committee has been called upon to approve settlement of two cases. One of these was against a New Orleans doctor, whose case was submitted to the Committee in 1950 and the other was against a doctor of Alexandria, the case having been submitted in the spring of 1951. After thorough investigation by the attorney for the Society he recommended settlement and this was approved by the Committee.

A new case against a New Orleans doctor was referred to the Committee in July of last year. The full report of the case was considered and defense approved by the Committee and the attorney so advised. The case is still pending and there is no information at this time as to disposition of it.

The funds in the Medical Defense account of the Society have increased due to per capita appropriation from the general fund and income from investments. There is, however, increase in expenditure due to increase in the annual retainer fee paid the attorney in accordance with action of the House of Delegates at the 1951 meeting.

In compliance with the wishes of the House of Delegates the Committee, with assistance of the attorney for the State Society, prepared and submitted to the Executive Committee a complete revision of Chapter X of the By-Laws, which revision was approved by the Executive Committee. Appropriate amendments to the By-Laws will therefore be presented to the House of Delegates at the 1952 meeting.

C. B. Erickson, M.D., Chairman

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

EDITORIAL ASSISTANTS—COLLABORATORS

A clearinghouse service on *competent* editorial assistants or collaborators to assist in the preparation of papers for meetings, publication or clinical demonstrations is being established. Technicians qualified to assist in editing explanatory or sound tract material in conjunction with professional motion pictures are included. Information will be available to *all* members of the medical profession on request.

Please assist this NEW service by forwarding names and addresses of qualified collaborators to Academy-International of Medicine, 214 West Sixth St., Topeka, Kansas.

ELI LILLY AND COMPANY AIDS FLOOD VICTIMS

Eli Lilly and Company, in accordance with its long-established policy, is replacing all Lilly products in pharmacies and hospitals ravaged by the flood in the Missouri and Mississippi River Valleys. Lilly representatives in a dozen states, from Montana to Missouri, have been directed to make the replacement of flood-damaged Lilly pharmaceuticals and biologicals their first order of business. Eli Lilly and Company has been replacing stocks damaged by uninsurable hazards as far back as the 1906 San Francisco disaster.

URGES SELF-EMPLOYED SET UP OWN PENSION PLANS

The self-employed, especially professional men such as doctors and lawyers, should be permitted to exclude certain portions of their earned income from federal income taxes to buy a pension, rather than have the Social Security Act extended to cover them, it was stated editorially in the April 12 Journal of the American Medical Association.

"Each year, several billion dollars are paid by employers irrevocably into pension trusts and insurance annuity contracts for the benefit of their employees," the editorial pointed out. "Neither the

employer nor the employee who is benefited pays any current income tax on this vast sum of money, although the employee will declare the employer's share of his pension taxable income when he receives it years later.

"Simple justice requires that a similar opportunity for tax deferment be given the self-employed, especially professional men, whose peak earnings, bunched into a comparatively few years, are hit hard by steeply progressive income tax rates and who are forbidden by law to practice their professions as corporations.

"Either the counterpart of these industrial pension systems should be made available to the self-employed or the provisions of the 1942 Revenue Act providing income tax deferment for the employee for his employer's annual contribution to approved pension plans should be repealed."

If the Social Security Act is extended to cover the self-employed, a person approaching the age of 65 can pay a minimum of $121.50 during the last 18 months and receive a social security pension of $80 per month for himself at the age of 65 if he ceases to earn $50 a month, plus a monthly pension of $40 for his wife at age 65, the editorial stated. In addition, if the wife outlives her husband, the wife's pension would increase to $60 a month.

LOUISIANA STATE BOARD OF MEDICAL EXAMINERS

EXAMINATION: Medicine and Surgery
June 4, 5, 6, 1952

Wednesday, June 4th:

8:50 A.M. to 10:50 A.M.—Chemistry
11:00 A.M. to 1:00 P.M.—Surgery
2:00 P.M. to 4:00 P.M.—Anatomy
4:10 P.M. to 6:10 P.M.—Materia Medica

Thursday, June 5th:

8:50 A.M. to 10:50 A.M.—Theory & Practice of Medicine & Physical Diagnosis
11:00 A.M. to 1:00 P.M.—Pathology & Bacteriology
2:00 P.M. to 4:00 P.M.—Gynecology
4:10 P.M. to 6:10 P.M.—Physiology

Friday, June 6th:

8:50 A.M. to 10:50 A.M.—Obstetrics
11:00 A.M. to 1:00 P.M.—Hygiene

Applications must be filed at 1507 Hibernia Bank Bldg., N.O. by May 23rd. For information, telephone MAgnolia 5313.

Applicants must be present at the examination room, 4th floor L.S.U. Medical Center, 1542 Tulane Ave., New Orleans, on Wednesday, June 4, 1952 at 8:30 A.M.

THE AMERICAN CONGRESS OF PHYSICAL MEDICINE

The 30th annual scientific and clinical session of the American Congress of Physical Medicine will be held on August 25, 26, 27, 28 and 29, 1952 inclusive, at The Roosevelt Hotel, New York, N.Y. Scientific and clinical sessions will be given on the days of August 25, 26, 27, 28 and 29. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, annual instruction seminars will be held. These lectures will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapists or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

ACTH MAY AID IN EARLY DETECTION OF DIABETES

How ACTH may aid in the early detection of potential diabetics not discoverable by other means was described in the Feb. 2 Journal of the American Medical Association.

This new method of diabetic detection consists of two tests—the first being the usual glucose tolerance test, in which an oral dose of 100 grams of glucose is given a suspected diabetic patient. Blood sugar determination tests are then made at 30 minute intervals for three hours. This is followed by a second test, in which 100 milligrams of ACTH are injected into the patient one hour before oral administration of 100 grams of glucose. Blood sugar determination tests are again repeated.

In the new test, in potential diabetes the blood sugar level will rise and fail to return to normal within the three hours, and/or an increase in the intermediate blood sugar determinations over those of the first test will be noted, according to Dr. Herbert Berger, of the Berger Clinic, Richmond Memorial Hospital, and the U. S. Public Health Hospital, Staten Island, N. Y.

The use of cortisone or ACTH has been found to aggravate enormously the diabetic state, and "therefore, it seemed reasonable to suppose that, since cortisone was so diabetogenic, this material might serve to increase the sensitivity of the glucose tolerance test and thereby make the earlier detection of potential diabetics feasible," Dr. Berger said.

JAMES WILLIAM TEDDER, M.D.
(1908 - 1952)

Dr. James William Tedder, of New Orleans, died very suddenly on May 5, 1952. He practiced in New Orleans since his graduation from Tulane in 1932 and was a member of organized medicine from 1936 until the time of his death.

RESOLUTION SUBMITTED BY THE EAST BATON ROUGE PARISH MEDICAL SOCIETY

Whereas, it has pleased our Heavenly Father to remove from our midst Doctor Tom Spec Jones; and

Whereas, in the passing of Doctor Jones this Society has lost one of its most esteemed and beloved members, whose sweet Christian character is most fittingly described in these lines:

"The kind of a man for you and me;
He faces the world unflinchingly,
And smites as long as the wrong resists,
With a knuckled faith and a force like fists.
He lives the life he is preaching of,
And loves where most there is need of love.
His light shines out where the clouds are dim,
And the widow's prayer goes up for him.
His voice is clear to the deaf man's ears,
And his face sublime thru the blind man's tears.

The latch is clicked at the hovel door,
And the sick man sees the sun once more,
And out o'er the barren fields he sees
Springing flowers and leaving trees,
And feels, as only the dying may,
That God's own servant has come his way,
Smoothing the path as it still winds on
To the gates of gold, where his loved have gone."

and

Whereas, Doctor Jones' life of unselfish service to his fellowmen and his devotion to the highest ideals and principles of the practice of medicine have reflected honor upon the profession, as can only be done by

—The True Physician—

"The friend of the afflicted who come to him each day;
The helper of the needy who struggle on life's way;
The counselor of many who on his wisdom call;
The kind and true physician who ministers to all.
No selfish gain inspires him to meet the world's great need,
But "Faith in God" his motto, and "Love to Man" his creed,
With joy in happy service, which only they may know,
Who seek to comfort others, as Christ did long ago."

and

Whereas, Doctor Jones' life has been an inspiration to his community, to his colleagues, and to all who knew him;

Therefore, Be It Resolved; That the members of this Society express their heartfelt sympathy to the family of Doctor Jones; and that they commend to them the words of the Psalmist, as he beheld the lifeless form of the son of his later years, and cried out "He cannot come back to me, but I can go to him;" and that a copy of this resolution be spread upon the minutes of this Society as a tribute to the memory of our deceased confrere.

(S.) James J. Robert, M. D.
(S.) Frank J. Jones, M. D.
(S.) Thomas Y. Gladney, M. D.

PHYSICIAN WANTED

The Louisiana Ordnance Plant of Remington Rand, Inc., Shreveport, Lauisiana, is in need of a full time resident physician. For detailed information concerning this opportunity contact Mr. William F. Day, Personnel Director of the Plant.

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BOOK REVIEWS

Maternity Care in Two Counties; by Frank E. Whitacre, M. D. and Ellen Whiteman Jones, M. P. H. New York, The Commonwealth Fund, 1951. pp. 165. Price, 50 cents.

This is a careful and detailed study of maternity care in Gibson County, Tennessee, and Pike County, Mississippi, for the four years, 1940-41 and 1943-44. The authors are to be congratulated on the meticulous care exercised in their careful and exhaustive study of the clinical material, and on the absence of bias and fault-finding in this presentation.

It is impossible, of course, to review all of the data presented. The study proves again, if proof be needed, the fundamental importance of adequate antepartal, intrapartal, and postpartal care. The combination of a public health maternity nursing service and medical care by physicians is shown to be very efficient. With such a set-up, good obstetrics can be practiced in the home. Hospital facilities should of course be available for the complicated cases.

The early recognition of toxemia by detecting abnormal weight gain, hypertension, and proteinemia is stressed. Attention is called to the necessity of asepsis and antisepsis during labor, and to the danger of the use of oxytocics in the first and second stages of labor. Stress is laid on the importance of proper management of the third stage. To quote: "From an obstetrical standpoint, this birth period of approximately fifteen minutes accounts for more tragedies than the entire nine months of pregnancy and the first and second stages of labor combined."

In discussing the problems presented by maternal deaths the report states that "the burden of responsibility cannot be borne by the medical profession and health department alone". The educa-

tion of patients and the improvement of social and economic conditions are very important factors in obstetrical care.

This report presents an accurate cross-section of the obstetrical situation in the rural south, and merits careful study by all interested in the problem. The authors are to be congratulated upon the thoroughness of their study and upon the attitude of fairness to all concerned which is so manifest. A tremendous amount of study and work went into this project, and we can heartily say "well done".

E. L. KING, M. D.,
Professor of Obstetrics, Emeritus.
Tulane University of La.

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711 Medical Maxims; by William S. Reveno, M. D. Springfield, Illinois., Charles C. Thomas, 1951. 197 pp. Price $3.75.

The author has the unusual ability of combining his sound clinical observations of the sick and his skill to put these observations down in writing in a series of 711 short epigrammatic statements. These aphorisms are not available in the usual textbook and the pithy statements may be retained in the memory long after the voluminous text is forgotten.

RUTH E. HARLAMERT.

Introduction to Surgery; by Virginia Kneeland Frantz, M. D., and Harold Dortic Harvey, M. D., ed. 2, New York, Oxford University Press, 1951. 233 pp, 12 figs. Price $2.75.

This book, which is dedicated to William Cogswell Clarke, M. D., Professor of Experimental Surgery at the College of Physicians and Surgeons, Columbia University, and which first appeared in 1946, was written by two of his students, in "uneasy memory" of his "irritating and inevitable question, 'How do you know?'" The foreword to the original edition was written by Dr. Allen O. Whipple, who was a member of Dr. Clarke's first class in introductory second year surgery, a course which he initiated and which was based on this question. To those who accepted the written word as gospel truth, wrote Dr. Whipple, this was heresy, while to others it was hateful, but still others rose to the challenge and felt that this question was the most valuable possible influence in evoking in them "an inquiring and critical attitude of mind."

It would be hard to conceive of a better approach to surgery for students who had never before encountered it. Dr. Whipple, after taking the course, and teaching it, and observing its effect on some forty classes of students, regards it as the most valuable and constructive course in the surgical curriculum, and there is no doubt that the second edition of this book is an improvement over the first because, as the authors note, the revisions have been made in the light of "harsh, kindly, superficial, or searching" comments by the four classes of students who have used the text.

The essential principles of injury, inflammation and repair of tissues, which are the basis of all surgery, are presented with great clarity. Shock and hemorrhage are well discussed. The principles of surgical technique, of anesthesia, and of similar matters are discussed as principles. There is a brief historical chapter. There are excellent chapters on the taking of a history and the making of a physical examination, with some well chosen remarks on the appearance and demeanor of the physician himself. There is a small, well selected list of references, and a good index. The size of the book makes it an admirable companion for the student.

The authors have succeeded excellently in their expressed purpose of presenting "the first things of surgery," pointing out that the core of the student's education must be "in matters directly related to the healing of wounds and infections." As Whipple says in his foreword to the original edition, "They have done surgical teaching a great service in writing this monograph."

FREDERICK FITZHERBERT BOYCE, M. D.

Yearly Surgical Digest; by Richard A. Leonardo, M. D., Ch. M., D. I. B. S., F. I. C. S., New York, Froben Press, Inc., 1950. 293 pp. Price $3.00.

According to the author, this book is the first of a proposed annual series of brief, comprehensive summaries of current surgical practice, prepared by a general surgeon, to help keep the general surgeon abreast of the latest developments in his field at a considerable saving of time and labor Each issue will merely attempt to summarize most of the advances of general surgery in the preceding year.

The value of the book is questionable, on a number of counts. The first is that the alert general surgeon keeps himself abreast of the current literature, by reading it in more promptly published abstracts if he cannot manage it in the original publications. The second is that the entries are brief and tend to vagueness. In abdominal actinomycosis, for instance, it is noted that "several" cases were treated successfully with penicillin, which is hard to reconcile with the fact that actinomycosis of the neck, although it responded quickly to streptomycin, did not respond to this drug. The number of cases, the details of treatment, and similar items are not mentioned. Furthermore, the complete absence of the source of the notation is a grave and annoying deficiency in every entry in the book. An occasional name is mentioned, but a reader who desired to know more about any particular subject would have no way of knowing how to find the reference.

There is no index. Entries are alphabetical, and

none too logical. Blood transfusions are discussed on page 39 and transfusions on page 265. The first of these entries, like a number of others, includes well known historical data which seem out of place in an abstract of current surgical literature. Endometriosis appears on page 98 and page 99, but uterus, endometriosis of, on page 281. Androgenic therapy is out of place alphabetically. Why the fenestration operation appears at all in a book on general surgery is not clear. Diodoquin is misspelled (page 8).

While it is usually impossible to determine anything at all about the original reference, occasionally there is a clue, as in the mention of Ochsner, DeBakey and Dixon's experience with carcinoma of the lung. One wonders, however, about the time element of the abstract, which concerns 129 surgically treated cases in a total of 360 cases. By 1948, a year earlier than the period this book purports to cover, Ochsner and his group had reported 195 resections for malignancy of the lung in a total of 548 observed cases (J. Thoracic Surg. 17:573, 1948).

It would seem that in every respect, including comprehensiveness of coverage, accuracy, and promptness of publication, the field of this surgical digest is better covered by the annual *Year Book of Surgery.*

FREDERICK FITZHERBERT BOYCE, M. D.

Roentgen Anatomy; by David Steel, M. D., Springfield, Ill., Charles C. Thomas, 1951, Illus. 109 pp. Price $8.00.

This is an atlas which has been offered as a quick reference to the anatomical structures shown on roentgenograms of commonly used positions. It represents an approach to the available texts in gross anatomy.

The roentgenogram is shown on the right page and a line drawing of the same roentgenogram on the left of the opened atlas. The anatomical structures are numbered. The key to the numbered structures is available in English and Spanish at the lower thirds of the pages.

The illustrations are large and are of excellent quality. This book should serve as a valuable quick reference for radiologists, medical students, and general practitioners. It is to be hoped that future editions will contain additional views, particularly of the skull.

J. N. ANÉ, M. D.

Rice, Dietary Controls and Blood Pressure; by Frances I. Seymour, M. D. New York, Froben Press, Inc., 1951. 206 pp. Price $2.95.

This book is a well written treatise by an enthusiastic physician with personal experience with the rice-fruit-sugar diet for hypertension. It is well written for the laymen in that the first two chapters are explanations of the various examinations which should be done in anyone with hypertension. Explanation of the value of the rice diet is made, and detailed diet menus and recipes are included. The physician will find this book valuable for reference purposes, should he plan to use this type of treatment for his hypertensive patients. It is essential for the patient, too, since upon him falls the burden of making menus.

DANIEL W. HAYES, M. D.

Orthopaedic Appliances Atlas. Vol. I. Braces, splints, shoe alterations. American Academy of Orthopaedic Surgeons. J. W. Edwards, Ann Arbor, Michigan, 1952. $10.00. Size 8½ x 11. pp xxi and 587.

The *Orthopaedic Appliances Atlas*, sponsored by the American Academy of Orthopaedic Surgeons, was prepared "to familiarize orthotists, brace makers, residents and orthopaedic surgeons with the development of standards and technical production of orthopaedic appliances".

J. E. M. Thomson, President of the Academy in 1947, appointed an able committee consisting of Rufus H. Alldredge, Chairman, Atha Thomas and Donald Slocum for the "further study of braces and prostheses" and assigned to them the work of gathering material and illustrations and editing the text for publication. However, the comprehensive data contained in Volume I could not have been compiled had it not been for the great help contributed by the Veterans Administration and the Surgeon General of the Army.

Volume I is divided into seven parts, each of which is well illustrated and indexed. The first two parts are devoted to a historical review of early orthopaedic endeavors and development of orthopaedic centers, together with a detailed description of the sources and preparation of various materials, such as leather, steel, rubber, and plastics which are used in the construction of orthopaedic appliances. Then follow sections on appliances for the spine and trunk, and upper and lower extremities, a special chapter dealing with paralytic braces, and a final one on measurements.

The opening chapter of Part I presents in an interesting way the simultaneous development of orthopaedic measures of treatment and the manufacture and use of appliances for the correction of deformity and treatment of disease. The illustrations selected from ancient drawings and paintings are unusually apt and well reproduced, considerably enhancing the value of the text.

The succeeding parts are factual and recite the essentials that should be known to those working with braces and appliances. The information is authentic and encyclopedic. It is obvious that the book is intended for reference and is to be used by many different people with diversified interests and backgrounds.

Part III, *Appliances for the Spine and Trunk* by Atha Thomas, is comprehensive and will be of real value to everyone concerned with the manufacture and application of spine braces.

Similarly, Part IV, excellently presented by Donald B. Slocum and Sterling Bunnell, covers the anatomy and physiology of the upper extremity, splints for the hand, shoulder, and elbow braces. The illustrations and explanations of hand splints by Bunnell are comprehensive and include the ingenious application of the principles of hand surgery which he has developed and taught so well.

Shoulder and Elbow Braces by Lawrence Noall completes the story of appliances for the upper extremity.

Lower extremity braces, foot appliances, shoe alterations and clubfoot braces are detailed in Part V by Rufus H. Alldredge and Burke M. Snow. The ten pages of well illustrated text devoted to the historical development of these appliances are followed by eighteen pages of pertinent anatomy and physiology which are clearly and simply enough presented to be understandable to technicians and workers other than those with medical background. Sixty more pages give the details for design and construction of the numerous appliances used on the lower extremity.

The section on *Foot Appliances and Shoe Alterations* is written by Rex L. Diveley, whose publications on these subjects have been accepted as of high standard for a long time. This section describes the types of shoes and shoe corrections that may be used for children, adolescents, and adults, and explains the use of outside shoe extensions, cork elevations, and the like.

The difficult subject of *Clubfoot Braces*, prepared by J. R. Moore of Philadelphia, contains an interesting historical review followed by a detailed description of the preparation and application of the Denis Browne splint and the useful types of ambulatory splints.

The brief chapter on *Appliances for Poliomyelitis Patients* by C. E. Irwin includes braces for the upper and lower extremities and the trunk. The special types of appliances that have been used or developed at Warm Springs are described here.

The splints and appliances most helpful in the care of the paraplegic are briefly discussed by Leonard T. Peterson of Washington, D. C.

Winthrop Phelps of Baltimore has a short section on the special appliances most useful in connection with the care of cerebral spastic cases.

All the foregoing authors are recognized authorities in their special fields, and the chapters they have written indicate that a great deal of thought has been devoted to the selection of the material presented.

The final chapter on *Measurements* is one of the most valuable in the entire volume. The accurate determination of joint motion is well shown together with charts for recording this motion. The correct levels for taking measurements of length and circumference of the lower extremity, the upper extremity and the trunk are all clearly indicated in the excellent illustrations and should make it possible for standard measurements to be employed by all orthopaedists, orthotists and brace makers.

Undoubtedly, this volume has accomplished the aims and purposes which the committee set up as stated in the preface by Paul B. Magnuson: "The *Orthopaedic Appliances Atlas* should clarify and standardize, by name at least, the various types of apparatus used by orthopaedic surgeons and others in the treatment of patients who need these appliances . . . This book makes such information available and describes the materials in the nomenclature of the trade, so that the manufacturer of the material will know the brace maker's requirements."

Unquestionably, it will meet a great and long felt need of the orthopaedic specialty and of those who cooperate with the surgeons in the care of crippled patients.

GUY A. CALDWELL, M. D.

PUBLICATIONS RECEIVED

The Arundel Press, Inc., Washington: Living in Balance, by Frank S. Caprio, M. D.

Bruce Publishing Co., St. Paul: Allergic Pruritus; Its Dermatologic Management, by Stephan Epstein, M. D.

Corinthian Publications, Inc., New York: Dynamic Psychiatry, by Louis S. London, M. D. (Vol. 2).

J. B. Lippincott Co., Philadelphia: Fundamentals of Psychiatry, by Edward A. Strecker, M. D. (5th Edit.).

S. B. Penick & Co., New York: Bacitracin.

W. B. Saunders Co., Philadelphia: Surgery and the Endocrine System, by James D. Hardy, M. D., F.A.C.S.; A Textbook of Pharmacology, by William T. Salter, M. D.

Henry Schuman, Inc., New York: The Fight Against Tuberculosis; An Autobiography, by Francis Marion Pottenger with an Introduction by Roy G. Hoskins, M. D.

Charles C. Thomas, Publisher, Springfield, Ill.: Office Endocrinology, by Robert B. Greenblatt, M. D. (4th Edit.); Diabetes and Pregnancy, by Ralph A. Reis, M. D., Edwin J. DeCosta, M. D., and M. David Allweiss, M. D.; Doctors Differ, by Harley Williams.

Year Book Publishers, Inc., Chicago: Surgical Gynecology: a Handbook of Operative Surgery, by by J. P. Greenhill, M. D.

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THE NECK, SHOULDER, AND ARM SYNDROME*

EDWARD L. COMPERE, M. D.†

CHICAGO, ILLINOIS

The phrase maker who first described an exceptionally unpleasant and disagreeable experience as *"a pain* in the neck" may have suffered at one time from the neck, shoulder, and arm syndrome. If so, he knew what he was talking about. Few conditions which may afflict the human race can cause more severe and torturing pain than the complete syndrome of brachialgia, arterial spasm, muscle spasm of neck and shoulder, and marked paresthesia of the shoulder and arm.

Although the scalenus anticus muscle may respond to any injury, inflammation, or mechanical irritation within the neck by contracting in marked muscle spasm, the scalenus anticus syndrome is not a true or distinct entity. Scalenus muscle spasm and reflex sympathetic dystrophy of the upper extremity with severe constant burning pain, diffuse swelling, cyanosis, thin shiny skin and hyperesthesia of the arm and hand constitute the complete neck, shoulder and arm syndrome. The symptoms vary from mild tingling numbness of the fingers to constant, excruciating, totally disabling pain.

Pain in the neck, shoulder, and arm, with weakness or numbness and other variations of the neck, shoulder, and arm syndrome is usually produced by a primary injury or irritation of the ligaments, muscles, nerves, blood vessels, bones, or joints of the neck. Rarely, the entire syndrome may be produced reflexly as a result of a painful lesion of the shoulder, such as acute bursitis, injury to the supraspinatus tendon, tear of the musculotendinous cuff, or arthritis of the shoulder joint or of the acromioclavicular joint. The spasm of the scalenus muscle, when present, is secondary to lesions such as those listed above. Much of the shoulder and arm pain, swelling, cyanosis, and hyperesthesia, can be explained by pressure of the tight scalene muscles which compress the subclavian artery and trunks of the brachial plexus against the first rib, or accessory cervical ribs.

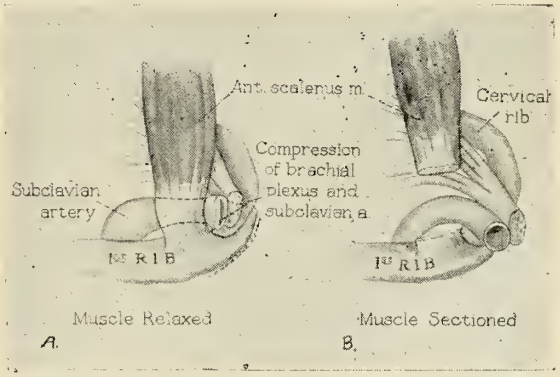

Fig. 1—(A) Compression of the subclavian artery and trunks of the brachial plexus between the scalenus anticus muscle and a cervical rib.

(B) After resection of the tendinous portion of the anterior scalene muscle. (Re-drawn from Adson)

The roots forming the brachial plexus run with the subclavian artery through a triangle formed by the scalenus anticus

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muscle in the front, the scalenus medius muscle behind, and the first rib below. Reed and Weed dissected 100 cadavers and found:

1. A direct relation between the tendons of origin of the scalenus anticus and the cervical nerve roots 5, 6, and 7.
2. The upper roots of cervical 5, 6, and 7 pass through the scalenus anterior muscle in more than 30 per cent of the cases.
3. A scalenus anticus minimus muscle was present in more than 60 per cent of the cadavers dissected and frequently caused decrease in size of the triangle through which nerves and arteries must pass in order to reach the arm.
4. The distance between the scalenus anticus and scalenus minimus varies from 0.3 to 2.3 centimeters.

The etiology of a scalenus anticus syndrome which produces neck, shoulder, and arm pain may be any one of the following conditions:

1. Cervical rib.
2. Ruptured intervertebral disk of cervical spine.
3. Arthritis of the cervical spine.
4. Neoplasm of the cervical spine or the shoulder.
5. Myofibrositis, secondary to nervous tension.
6. Aneurysm of the subclavian artery.
7. Thrombosis of the subclavian artery, secondary to a cervical rib or prolonged muscle spasm.
8. Cardiac or anginal pain.
9. Reflex spasm as a result of shoulder joint irritation, such as bursitis.
10. Inflammation, such as sinusitis or tonsillitis with edema and congestion of muscles of the neck.

Telford and Mottershead of the University of Manchester, in 1948, reported the findings in 122 patients operated upon for neck, shoulder, and arm pain, with or without swelling, numbness or weakness in the arm or hand. These investigators found:

1. Eighty-five cervical ribs in their series of 122 cases.
   A. Fifteen of these had extensive arterial thrombosis.
2. Twelve showed fibrous bands.
3. Eight had abnormal scaleni.
4. There were 2 osteomas.
5. Eight showed deformed thorax with pressure from the clavicle on the first rib.
6. There were 2 with hyperhydrosis of the hand.
7. In five of the patients these authors were unable to demonstrate any cause, and they thought it was probably due to referred pain from some lesion elsewhere.
8. Three of the cervical rib cases had aneurysms of the subclavian artery.

The sympathetic nerve supply to the upper limb comes from thoracic segments 1 to 4 through white rami communicantes. These preganglionic fibers synapse with the nerve cells of the middle and inferior cervical (stellate) ganglia. The preganglionic fibers join the roots of the brachial plexus close to their point of exit from the intervertebral foramena, to be distributed along with other nerve fibers to the limb. Few are distributed to the periarticular plexuses of the subclavian and brachial arteries and their branches. Injury of the periosteum of the humerus near the capsule of the shoulder may cause diffuse pain over the shoulder, front and back. This may explain the relief which is obtained over wide areas from cocaine injection of a single trigger point sensitivity. The diagnosis would require a very careful history. The history of pain, dull and aching in character which extends down the arm, often to the insertion of the deltoid muscle and occasionally to and including one or more fingers, with numbness in the arm or tingling and occasionally swelling of the hand, with or without weakness in grasping, should cause the examining physician to consider a lesion either in the cervical spine or a lesion in the region of the shoulder joint producing scalenus muscle spasm. The patient may complain of stiffness of the neck, sometimes with headache, and not uncommonly of pain in the precardial area. Some of these pa-

tients will have already seen a physician who has made a diagnosis of angina because of the distribution of pain from the chest outward into the arm. It is important that we remember that the fourth cervical segment supplies the dome of the diaphragm and the pericardium.

An examination of the patient will reveal:

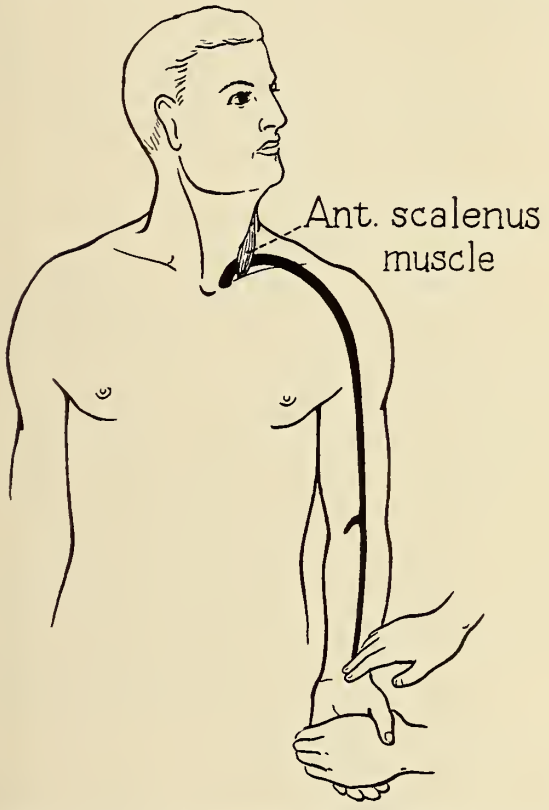

Fig. 2. Downward traction on the arm may constrict the subclavian artery between a tight scalenus anticus muscle and the first rib. The pulse volume will be decreased or no longer palpable.

1. Spasm and induration of some of the muscles of the neck, particularly the anterior scalene muscle.
2. Pain upon pressure over the anterior scalenus itself, especially of its lower portion, against the first rib.
3. Limitation of motion in the humeroscapular joint.
4. Tenderness to palpation about the borders of the scapula.
5. Sensory changes in the forearm or hand.
6. Swelling or discoloration of the arm, forearm, and hand.
7. Atrophy of the muscles of the hand.
8. Adson's test (which is carried out with the patient seated with the arms resting on the knees, the chin elevated and turned to the affected side) may increase the pain, may cause a slowing or weakening of the radial pulse and a change in blood pressure of the arm on the side of the lesion. This would indicate marked reaction or spasm of the scalenus muscle, probably secondary to a specific cervical lesion such as a slipped disk, a cervical rib, or arthritis.
9. Roentgenograms may reveal narrowing of intervertebral disk spaces, most often between 5 and 6; a cervical rib or an elongation of the transverse process of cervical 7; calcification within a shoulder joint bursa or the supraspinatus tendon; arthritis of the cervical spine, including the articular facets; arthritis of the acromioclavicular joint; or roughening of the bicipital groove.
10. A myelogram may reveal a filling defect in the cervical canal. A myelogram should be made only if there is reason to suspect a displaced disk which is causing pressure upon the spinal cord.

Treatment of the neck, shoulder, and arm syndrome should be conservative until all conservative procedures have been tried, unless there is a centrally displaced cervical disk. This treatment should consist of:

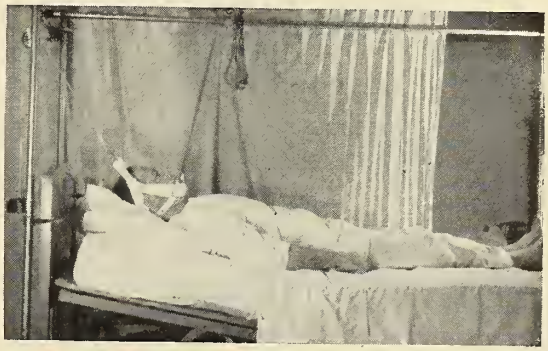

Fig. 3. Cervical traction with the neck *flexed* to relieve neck, shoulder and arm pain.

1. Cervical traction. If the condition is severe and the pain is marked, or if

there are changes of circulation or of sensation in the hand, traction should be planned for a period of not less than two weeks with the patient hospitalized. This traction must be in a forward position—that is, with the head and neck flexed. Axial or extension traction makes the pain more severe by increasing the tightness of the scalenus anticus muscle and impingement of articular facets, and may result in thrombosis of the subclavian artery. (Fig. 3)

2. Daily heat and massage to the cervical spine, the neck, shoulder and scapular region.
3. Injection of 1 or 2 per cent novocaine into the scalenus anticus muscle and the region of the stellate ganglion. This should also be injected into any sharply localized trigger areas about the shoulder.
4. The use of intravenous novocaine is of considerable value, particularly for those patients who do not have sharply localized trigger areas which when injected result in marked relief.
5. X-ray therapy to the cervical spine.
6. Patient should be instructed to sleep with the arms above the head.
7. The use of a contour pillow (a small bolster, round, smooth and firm) placed at the back of the neck so that the head drops backward over it when the patient is resting.
8. Traction should be continued for two to three hours each day for several weeks after the patient is discharged from the hospital.
9. A cervical collar should be worn by the patient for three to five months if there are definite pathological changes shown in the x-rays, such as a narrowed disk space or arthritis of the articular facets.
10. An abduction splint should be worn by those patients in whom the localized lesion is found to be in the musculotendinous cuff, the supraspinatus tendon, or bursae of the shoulder.
11. Cortone and ACTH have been used with benefit in all of the patients where there is any evidence of arthritis or bursitis, with or without pericapsular adhesions.

Operations which have been found helpful, but should be recommended only after conservative treatment has proved to be inadequate or unsuccessful, may be listed as follows:

A. Scalenotomy will give temporary relief, but in most cases where it has been used relief has been temporary only. Recurrences have been frequent and more difficult to relieve by a second operation.

B. If there is a cervical rib, it should be resected in preference to scalenus anticus muscle resection. At the time of removing the rib the scalene muscle should also be divided and a section of it removed.

C. If there is no cervical rib and an operation is carried out to divide a very tight or fibrotic scalenus anticus muscle, the region between the tip of the transverse process of the seventh cervical vertebra and the first rib should be explored. Not infrequently a firm, fibrous band which has the consistency of a tough kangaroo tendon will be encountered. This band should be divided or removed.

D. Any accessory scalenus muscle should be excised.

E. An elongated transverse process of cervical 7 should be excised.

F. If there is evidence of a central intervertebral disk in the cervical region producing paralysis or sensory changes in the arms and legs, operation is an emergency and should be carried out promptly. Central disks are the only cervical disks which in my experience justify this radical procedure, and they are rare.

G. In the presence of marked osteoarthritis of the cervical spine, with or without loss of disk space, fusion of the cervical spine should be considered. Laminectomy alone may give temporary relief, but permanent cure

can only be anticipated as a result of arthrodesis of two or more segments in the area from which the symptoms are proceeding.

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PRIMARY THROMBOCYTOPENIC PURPURA*

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Primary thrombocytopenic purpura is a disease characterized by bleeding in which the hemorrhage is spontaneous and/or due to trauma, presumably due to a decrease in the number of blood platelets. The cause is not known. Other names which are commonly applied to the disease are idiopathic thrombocytopenic purpura, Werlhof's disease, and thrombocytopenic purpura. The term "thrombocytopenic purpura" merely describes the cause of the purpura and should not be used to designate a primary type because secondary types are eight times as common as the primary type.

The disease is probably best thought of as a selective type of hypersplenism in which the formation of red cells and white cells by the bone marrow is not suppressed, the only effect being a reduction of platelet formation by the bone marrow.

This paper is in the nature of a general review in which are incorporated some of our own observations based on the study of approximately 60 cases. No attempt will be made to present a detailed analysis of these cases.

HISTORY OF THE DISEASE

The disease was first described by Paul Gottlieb Werlhof, in 1775, in a chapter entitled "Morbus Maculosus Hemorrhagica". He wrote as follows:

"An adult girl, robust, without manifest cause, was attacked recently, toward the period of her menses, with a sudden severe hemorrhage from the nose, with bright but foul blood escaping together with a bloody vomiting of a very thick extremely black blood. Immediately there appeared about the neck and on the arms, spots partly black, partly violaceous or purple, such as are often seen in malignant smallpox . . .; moreover the number of the spots increasing and surrounding completely both of the eyes, the back of the nose and the skin around the mouth and chin, with a livid black color like marked from bruises."

The patient recovered spontaneously. On the basis of this description, most authors have credited Werlhof with being the first to describe a clinical case of thrombocytopenic purpura.

Krauss, in 1883, and Denys, in 1887, first noticed a reduction in platelets in cases of purpura. Wright, in 1906 and in 1910, observed that platelets originated from megakaryocytes in the bone marrow. Frank, in 1915, postulated on very sound grounds that the platelets were reduced in thrombocytopenic purpura because the megakaryocytes were not making a sufficient number of platelets. In 1916, Kaznelson advised splenectomy as a form of therapy on the grounds that the spleen may have a thrombocytolytic activity and, therefore, a good result might be obtained as had already been demonstrated in congenital hemolytic icterus.

HEREDITY

The disease is not congenital but may have some familial characteristics. A history of bruising easily or epistaxis is occasionally obtained and sometimes relatives may have outright purpura. The hereditary tendency is not as strong, however, as it is in some of the other blood dyscrasias, such as congenital hemolytic icterus or hemophilia.

AGE

Primary thrombocytopenic purpura has been noted from prematurity to old age, but it is predominantly a disease of the young. Elliott found that 55 per cent had symptoms before the age of 20. Wintrobe stated that 62.8 per cent had symptoms before the age of 21. Wiseman, Doane, and Wilson stated that 3 out of 5 patients of any age and of

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any race have symptoms before the age of 21. Our own experience is in agreement with these views.

SEX

The female seems to be more susceptible than the male and in the literature figures such as 2:1, 3:1, and 4:3 favoring the female are found.

PATHOLOGY

Except for changes in the morphology of megakaryocytes, which will be discussed elsewhere, the pathology is largely that of hemorrhage. The spleen is either normal in size or only slightly enlarged.

Herzog's analysis of 24 autopsies on patients with idiopathic thrombocytopenic purpura revealed that 12 died of intracranial hemorrhage; 9 died postoperatively following splenectomy; 2 died of gastrointestinal bleeding; and 1 died of genito-urinary bleeding. This data was obtained from a review of 40,000 autopsies in which 36 instances of idiopathic thrombocytopenic purpura were found. The large number of patients dying following splenectomy does not warrant the conclusion that this is a common complication following splenectomy. Many of these deaths no doubt occurred before the surgical techniques were as good as they are now, and before the use of plasma, blood, and fluid was well appreciated. In Elliott's series, 7 of 11 deaths were accounted for on the basis of cerebral hemorrhage.

SYMPTOMATOLOGY

Although the onset may be sudden with massive hemorrhage, as a rule there is a history of bruising readily or repeated epistaxes which were of insufficient quantity to cause alarm. These symptoms may have been present for a few weeks to one or two years before a severe bleeding episode brought the patient to the physician. In children, the disease is not uncommonly ushered in with a coryza. Under those circumstances it presents a difficult problem in determining whether or not the thrombocytopenia is primary or of a secondary nature. The most common manifestations of the disease are hemorrhages of the skin and epistaxis. The skin hemorrhages vary from petechiae to ecchymoses to massive hematomata, the first two being by far the most frequent. Petechiae and ecchymoses are also commonly found in the mucous membranes. In the genito-urinary tract bleeding is also common, more often in females than in males. Profuse menstrual periods and, less commonly, intermenstrual hemorrhages may occur. Hematuria as a result of bleeding from the renal pelvis or bladder has been reported. We have observed 2 such cases, in 1 of which the hematuria was the only evidence of his purpura. Gastrointestinal bleeding is uncommon, but tarry stools due to swallowed blood from epistaxis may occur. Postoperative bleeding following tooth extraction or tonsillectomy is not uncommon and may be the first clue to the existence of the disease. Headache, as the result of small hemorrhages in the brain, is probably much more common than we now appreciate. About 10 per cent of our patients complained of severe attacks of headache associated with their purpura into the skin. In only 1 of our cases did we have an opportunity to prove that a bloody spinal fluid existed. This seems to be the experience of others because lumbar punctures are not often performed in this disease process.

PHYSICAL FINDINGS

The physical findings are dependent upon the site and extensiveness of the hemorrhage. No other diagnostic findings are present. It should be emphasized that in contrast to many diseases classified as blood dyscrasias, the spleen, liver, and lymph nodes are not enlarged.

LABORATORY FINDINGS

1. *Thrombocytes.* The one single laboratory finding which must be present in order to make the diagnosis is thrombocytopenia. There is no true "critical level" at which a patient will bleed or cease bleeding as the case may be, but in general the platelets in this disease are below 100,000 per cubic millimeter. In acute cases the levels are usually well below this count, often ranging from 20,000 to 50,000. In less acute, or chronic cases, it may be necessary to do repeated platelet counts because rather marked fluctuations in a platelet level not uncommonly occur in this disease. Very

often a sharp rise occurs immediately after a hemorrhage. Naturally, platelet counts are commonly made at this time and low normal values rather than abnormally low counts are often obtained. One patient, a 24 year old female in whom the disease was suspected, rarely had platelet counts below 100,000 per cubic millimeter, and often were within normal limits. These counts were made after her episodes of hemorrhage, and as soon as routine periodic counts were done, regardless of their relationship to hemorrhage, abnormally low counts were obtained and a diagnosis was established. When the facilities for performing a platelet count are not immediately available, a gross estimate sufficiently accurate for the immediate clinical needs can often be made from the stained film of the peripheral blood.

2. *Bleeding time.* The bleeding time is usually prolonged. Prolongation may be a matter of a few minutes to many hours and is a particularly prominent feature in acute cases where the counts are very low. In some chronic cases where there is a low platelet count, the bleeding time may not be prolonged.

3. *Coagulation time.* This is normal.

4. *Clot retraction.* Clot retraction may be delayed as much as twenty-four hours or more. This test is easily performed and since it closely parallels the platelet count, it has an added advantage of serving as a check upon the accuracy of the platelet count. Whole blood is placed in a chemically clean ordinary Wasserman tube and incubated at 37° Centigrade. A clot should form which shows definite evidence of retraction at the end of thirty to sixty minutes.

5. *Tourniquet Test.* This is not a specific test by which a diagnosis can be established since any disease which may cause increased capillary permeability yields a positive result. It, therefore, furnishes collateral information by which a more accurate general clinical estimate of the patient's bleeding tendency can be estimated. It should be performed by following some consistent standard procedure, otherwise the test has little value. We follow the method outlined by Dameshek some years ago. A blood pressure cuff is placed on the arm above the elbow, and inflated to a point midway between the systolic and diastolic readings. It is maintained at this level for ten minutes. The number of petechiae are counted in a circle the size of a silver dollar at a point directly below the antecubital fossa. A hand lens is often helpful in making the count. Normally, as many as ten petechiae are present. Counts of 30 to 100 or more are not uncommon in primary thrombocytopenic purpura.

6. *Red blood cells.* The red count is normal unless reduced as a result of blood loss.

7. *White blood cells.* The leukocyte count is also normal but may be elevated in response to hemorrhage into tissues. Counts up to 15,000 per cubic millimeter are not uncommon, particularly where hemorrhages into the gastrointestinal tract and into the pulmonary tissues have occurred.

8. *Prothrombin time.* The prothrombin time is normal. The test should be done primarily as an exclusion test.

9. *Vitamin C level of the blood.* This is normal. The vitamin C level should be done in infants when bleeding from the gums suggests scurvy. Usually a carefully obtained dietary history precludes the need for this test.

10. *Marrow Examination.* Examination of the bone marrow is an absolute must in arriving at the diagnosis of primary thrombocytopenic purpura. Its importance lies largely in excluding other blood dyscrasias which may be responsible for the thrombocytopenia. Diseases such as aplastic anemia, pernicious anemia, multiple myeloma, leukemia, and Gaucher's disease, all of which may primarily manifest themselves by thrombocytopenic purpura, practically always can be detected by examination of the bone marrow. The first of these is the study of the morphologic alterations of the megakaryocytes. Several observers, particularly Dameshek, believe that there is a shift to the left in the maturity of the megakaryocytes; that is, there is an increase in the number of promegakaryocytes

and intermediate forms. These forms produce very few platelets and are readily identified by their lack of cytoplasmic pseudopods filled with platelets and a decrease in the granularity of the cytoplasm. Although we routinely attempt to evaluate the maturity of the megakarycocytes in the bone marrow, we do not permit this finding to be a positive deciding factor in making a diagnosis of primary thrombocytopenic purpura. In our experience this has been too variable among purpura cases and "shifts to the left" are occasionally encountered in nonthrombocytopenic cases. The second additional reason for doing a marrow study is the number of megakaryocytes. Many observers state that this disease is consistently associated with an increase in the number of megakaryocytes. Whether or not this is true, we are not prepared to state, because from a practical laboratory standpoint, the number of megakaryocytes in the bone marrow is difficult to determine. If a good marrow specimen is obtained, however, a survey of the slide under low power usually shows that the megakaryocytes are present in normal or increased numbers. We are agreed with the general principle that when an adequate number of megakaryocytes are present, the post-splenectomy platelet response will be good, and when megakaryocytes are decreased the response may not be adequate.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of primary thrombocytopenic purpura includes all the diseases in the general category of the hemorrhagic diatheses. Many of these diseases, however, are readily excluded as soon as it is established that a thrombocytopenia is present. The task then is to determine whether it is one of the secondary types which outnumber the primary types by about 8 to 1. We have found that the following classification is useful as a guide in the differential diagnosis of thrombocytopenic purpura.

I. Idiopathic thrombocytopenic purpura
II. Secondary thrombocytopenic purpura
  A. Diseases of the blood and marrow
    1. Aplastic anemia—acute
    2. Aplastic anemia—chronic
    3. Leukemia
    4. Pernicious anemia
  B. Disease of marrow per se
    1. Myelofibrosis
    2. Gaucher's disease
    3. Neoplastic replacement
  C. Infectious diseases
    1. Typhoid fever
    2. Subacute bacterial endocarditis
    3. Meningococcal infections
    4. Small pox
    5. Tuberculosis (rare)
    6. Syphilis (rare)
  D. Intoxications—(drugs)
    1. Quinine
    2. Arsenobenzol
    3. Benzol
    4. Sedormid (barbital)
    5. Sulfa drugs
  E. Splenomegaly with hypersplenism
    1. Splenomegaly of unknown etiology (Banti's disease)
    2. Gaucher's disease
    3. Hemolytic icterus
    4. Chronic congestive splenomegaly due to portal obstruction
  F. Nephritis—Uremia (rare)
  G. Allergy

From a positive standpoint the following are important in order to establish a diagnosis according to Wiseman, Doane, and Wilson.

1. There must be a spontaneous purpura and or free bleeding from the mucous membranes.
2. The platelets must be decreased to a level of less than 100,000.
3. The clotting and prothrombin time are normal.
4. There must be no anemia or leukocytic changes which are out of proportion to the blood loss.
5. There must be no important pathologic changes of the blood.
6. There must be no recent history of ingestion of drugs prior to the onset of the disease or diseases which produce thrombocytopenia.
7. There must be no appreciable enlargement of the lymph nodes.
8. There must be no pathologic changes

in the bone marrow except for the megakaryocytes.

TREATMENT

Although many forms of therapy have been tried, splenectomy remains the treatment of choice. Therapeutic agents such as snake venom, calcium salts, parathyroid extract, rutin, intravenous methylene blue, protamine sulphate, and x-ray therapy to the spleen have all been tried, but most of them have been abandoned. Once a firmly established diagnosis of primary thrombocytopenic purpura is made, we believe that the disease should be treated by splenectomy. We cannot emphasize too much the importance of preoperative preparation of the patient by transfusions of an adequate quantity of freshly drawn blood, and by having available for immediate use additional blood should there be any postoperative indications. This is of vital importance in order to bridge the variable time period which is required following splenectomy before which the platelets show a response. Sometimes the platelets may rise within a few minutes after the splenic pedicle is clamped but sometimes it is delayed as much as twelve to thirty-six hours. The platelets may reach levels of more than a million in a matter of a few days and then return rapidly to normal or even to below normal levels. This postoperative low level is not necessarily disturbing inasmuch as there is usually a subsequent slow rise to a stabilization point within the normal range. Sometimes patients stabilize at a range below normal but still have an excellent clinical result. If a patient is bleeding at the time he is brought to the operating table, in most cases the active bleeding has stopped before the operation is completed.

PROGNOSIS

About 85 to 90 per cent of all patients who are properly diagnosed are cured by splenectomy. The remainder are not improved or may even die of hemorrhage. An occasional recurrence may occur due to accessory spleens which were overlooked at the time of the operation. Among our cases we have not as yet seen this phenomenon, but the surgeons should be warned that at the time of the splenectomy careful search should be made in the region of the hilum of the spleen, the tail of the pancreas, the transverse mesocolon, and the retroperitoneal tissues in the left side of the abdomen for accessory spleens. Among our cases there have been 2 postoperative deaths. In 1 of these the patient was not bleeding at the time of operation but failed to respond and died of massive hemorrhage from the genito-urinary tract and from an intracranial hemorrhage. The other was operated upon as an emergency and died postoperatively as the result of massive peritoneal hemorrhage at the operative site.

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THYROTROPIC EXOPHTHALMOS*

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The relationship of exophthalmos to thyroid disease has been known for over a century. Two different ocular entities have gradually evolved. One is associated with classic Graves' disease or thyrotoxicosis. The other occurs in patients with basal metabolic rates of any level and has been referred to under many different terms, the most logical probably being thyrotropic exophthalmos.

The ocular changes characteristically occurring with thyrotoxicosis are: (1) widened fissure (Dalrymple's sign), (2) lid lag (Von Graefe's sign), (3) poor convergence (Moebius' sign), and (4) infrequent blinking (Stellwag's sign). Exophthalmos is slight or absent.

Mulvaney[1] has suggested that the ocular findings associated with thyrotoxicosis are functional and probably on the basis of increased sensitivity to circulating adrenalin of the sympathetically innervated muscle fibers in the eyelids and the orbit. Three groups of these muscle fibers are present.

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Mueller's palpebral muscle extends from the levator of the eyelid and the insertion of the superior rectus muscle to the tarsal plate of the upper lid. When contracted it elevates the upper lid causing a widened fissure, staring expression, and probably results in lid lag on downward gaze. Another less well defined band of smooth muscle fibers runs from the inferior rectus muscle to the tarsal plate of the lower lid. These fibers also widen the fissure when stimulated. Still another set of smooth muscle fibers, called Landstrom's muscle, surrounds the eyeball and is closely associated with Tenon's capsule and the orbital septum. This serves to proptose the eye slightly when contracted. The effect of the combined contraction of these three groups of smooth muscle fibers is to widen the palpebral fissure to give a staring expression with lid-lag on downward gaze and possibly to slightly proptose the eye. The exophthalmos is more apparent than real because of the widened fissure which creates this illusion.

The other ocular entity, thyrotropic exophthalmos, is characterized by progressive protrusion of the eyeball which often becomes so extreme as to endanger vision and lead to loss of the eye through corneal exposure. The exophthalmos is on a mechanical basis.

The orbital fat increases in volume and the extra ocular muscles often become as large as one's little finger. The intra-orbital pressure rises and the eye is pushed forward into the palpebral fissure where it might be compared to a tampon. With the rise in intra-orbital pressure there is interference with the orbital circulation, particularly the venous return. This leads to congestive ocular signs.

The orbital pathologic changes are fairly well established.[2-4] The orbital fat becomes edematous and invaded by polymorphonuclear and round cells. Fibrosis occurs later. The extra-ocular muscles show similar changes, and in addition, undergo fatty infiltration and degeneration of the muscle fibers with subsequent fibrosis.

In thyrotropic exophthalmos the eyes are markedly protruded, often giving a startling appearance. (Table 1). The eye is mechanically fixed in the orbit and cannot be pushed backward by digital pressure as can be done with the slight exophthalmos seen in thyrotoxicosis. Likewise, it remains unchanged under general anesthesia; while under similar conditions, the slight or apparent exophthalmos associated with thyrotoxicosis disappears. Thyrotropic exophthalmos can be unilateral; whereas, this would be unusual for the changes of thyrotoxicosis. When the condition is unilateral, differentiation from orbital or intracranial tumor may present great difficulty (Fig. 1). Paresis of ocular muscles and diplopia

Figure 1.—Unilateral thyrotropic exophthalmos associated with paresis of upward gaze.

are the rule in thyrotropic exophthalmos. Limitation of motion in elevation and

TABLE 1
OCULAR FINDINGS

THYROTOXIC	THYROTROPIC
1. Exophthalmos slight, more often apparent than real.	1. Exophthalmos often extreme.
2. Exophthalmos functional, (improves with relief of thyrotoxicosis, under anesthesia or after death.)	2. Exophthalmos mechanical, (persists under anesthesia and after death.)
3. Exophthalmos nearly always bilateral.	3. Exophthalmos may be unilateral.
4. Ocular rotations unimpaired.	4. Ocular rotations limited.
5. Edema of lids not present.	5. Edema of lids present.
6. Conjunctiva normal.	6. Conjunctival edema and injection.

abduction are effected twice as often as depression and adduction. The limitations of gaze may be so marked as to leave the eye practically immobile (Fig. 2). This impairment of the ocular rotations may be partly mechanical from an increase in the volume of the orbital tissues and partly due to degenerative and fibrotic changes in the muscles themselves. The eyelids become overfull as the exophthalmos increases, probably due to the bulging forward of the lid septum and less often to true edema. The conjunctiva is often markedly edematous and may be hyperemic. Engorgement of the retinal veins, occasionally with papilledema, has been reported and is probably also due to an interference with venous return from the eye.

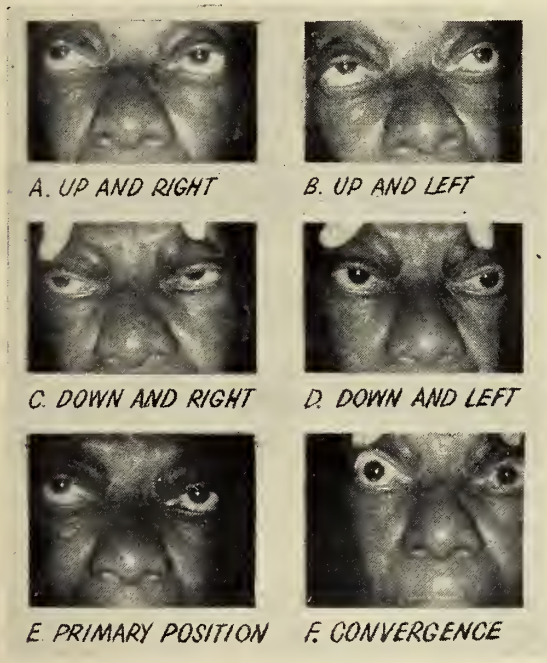

Figure 2.—Bilateral thyrotropic exophthalmos with limitation of gaze in all directions.

The exact mechanism underlying thyrotropic exophthalmos is as yet unknown. Present day concepts suggest that the etiologic mechanism is a disturbance in the pituitary-thyroid relationship. This was first suggested by the not infrequent occurrence of malignant exophthalmos after thyroidectomy. Recent methods of assay have shown that an increase in thyroid stimulating hormone in the blood and urine occurs following thyroidectomy, in malignant exophthalmos, and in certain cases of myxedema. A decrease in thyrotropic hormone is found in classic Graves' disease.[5-8] This evidence has led to a theory of balance between the thyroid stimulating hormone of the pituitary and the thyroid gland (thyroxin) and suggests that the thyroid stimulating hormone might be the cause of the exophthalmos. If thyroid function diminishes or the body demands greater amounts of thyroxin, increased amounts of thyrotropic hormone are liberated by the pituitary. Thyroxin is then produced by the thyroid, which in turn has an inhibitory effect on the pituitary, causing a decreased output of thyrotropic hormone.

Marine and Rosen in 1933,[9] and Smelser in 1937[2] produced exophthalmos in thyroidectomized animals by the injection of thyroid stimulating hormone. In this and subsequent work,[10] it has been shown that the pathologic changes in the orbit of these animals is identical with those seen in clinical cases of thyrotropic exophthalmos. These observations lend further support to the theory that thyrotropic hormone is, at least in part, responsible for progressive or malignant exophthalmos.

The occurrence of thyrotropic exophthalmos in patients with thyrotoxicosis cannot be explained upon such a simple basis. The following theory has been suggested by a recent editorial in the J.A.M.A.[11] Rawson, Graham and Riddell[12] found that thyroid tissue inactivates thyrotropic hormone. The hyperplastic thyroid inactivates the hormone even more rapidly than normal thyroid tissue. Therefore, in the presence of nonfunctioning thyroid tissue or with operative removal of the gland, an increase in circulating thyrotropic hormone is brought about which results in progressive exophthalmos. In those individuals who present thyrotropic exophthalmos together with thyrotoxicosis, the thyroid may, for some reason, be unable to inactivate the hormone. Curtis and his associates[13] called attention to the fact that localized myxedema might occur in the presence of toxic diffuse goiter and often follows surgical removal of the thyrotoxic gland. Localized myxedema and

thyrotropic exophthalmos run a parallel course and may be considered as allied manifestations of the same abnormality. No definite conclusions can be reached as to the exact mechanism of production of either condition. As Dobyns stated in his excellent review article,[14] the solution to the problem must await the availability of a simple and reliable method of assay of thyroid stimulating hormone.

Until the condition is better understood, efforts must be made at early recognition of thyrotropic exophthalmos, particularly in patients with thyrotoxicosis, because of the need for conservatism in treatment. The untoward effect of thyroidectomy is well known. Most thyroid surgeons have seen examples of severe progressive or malignant exophthalmos following thyroidectomy. We should, therefore, be content to carry the patients along as best we can (Table 2). If sufficiently thyrotoxic, such

TABLE 2
TREATMENT OF THYROTROPIC EXOPHTHALMOS

1. Directed at inhibiting production of thyrotropic hormone
   a. Thyroid substance
   b. Roentgen therapy to pituitary gland
   c. Estrin and related sterones
2. Avoid thyroidectomy
   a. Iodine
   b. Thiouracil
   c. Radioactive iodine
3. Decompresion of orbit
   a. Intracranial
   b. Lateral

medications as thiouracil, idoine, irradiation to the thyroid, or more rarely, partial or subtotal thyroidectomy may be indicated. In patients in whom exophthalmos is extreme and the eyeball is endangered, often roentgen therapy to the pituitary gland can be advised. In conjunction with Dr. Edward Rose, Department of Endocrinology, we have treated a series of 18 patients with no apparent ill effect. No direct correlation between improvement in the exophthalmos and pituitary irradiation was noted in this group of patients. If the basal metabolic rate is normal, thyroid substance has been advised, theoretically to inhibit the production of thyrotropic hormone. For the same reason, estrogenic substances are said to have a beneficial effect. When exposure of the cornea and ulceration occur, local therapy such as shields, dressings, antibiotics, and artificial tears should be employed. Tarsorraphy (lid adhesions) must be resorted to if these measures are unsuccessful. Decompression of the orbit laterally into the subtemporal fossa or intracranially as advocated by Naffziger may be necessary, although in our experience we have been able to avoid these radical procedures.

In general, the disease runs a self-limited course. The progressive phase lasts for several months to a year and then the exophthalmos becomes stabilized either at maximum levels or with varying amounts of recession.

CONCLUSIONS

1. The ocular findings associated with thyroid disease are considered as belonging in two main groups: those associated with pure thyrotoxicosis, and those which accompany progressive exophthalmos in the presence or absence of hyperthyroidism.

2. The ocular manifestations of thyrotoxicosis are summarized. They are probably due to increased tonus of the sympathetically innervated smooth muscle of the lids and orbit. Exophthalmos in pure thyrotoxicosis is usually more apparent than real.

3. A summary of the ocular signs in thyrotropic exophthalmos is given. Although the clinical and pathologic changes occurring in this condition are fairly well established, the exact mechanism of their production remains unknown. Present day evidence points to a disturbed relationship between the thyroid and pituitary glands. It is felt that the thyroid stimulating hormone of the pituitary is at least partly responsible for progressive or malignant exophthalmos. However, because of the lack of a practical and reliable clinical method of assay, its exact role in this disease is uncertain.

4. The simultaneous occurrence and parallel course of thyrotropic exophthalmos and localized myxedema suggest that they

are allied manifestations of the same abnormality. The frequent association of both these conditions with hyperthyroidism is difficult to explain on the basis of current theories.

5. A brief outline of present day treatment is presented. Conservatism should guide all treatment of progressive exophthalmos in the presence of hyperthyroidism and caution against thyroid surgery is emphasized.

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CARCINOMA OF THE STOMACH*

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Cancer of the stomach is an extremely important disease, because of its frequency, especially in men, and also because of the almost uniformly poor results that have been obtained in its treatment. In contradistinction to bronchogenic carcinoma, which is increasing more than any other cancer in the body and which frequently is not considered by the profession in early cases, cancer of the stomach is well known, because it has been a common lesion for many years. It is one of the most frequent cancers affecting males. In 1948, there were 26,219 deaths from cancer of the stomach reported in the United States.

RESULTS FROM TREATMENT

In spite of the fact that the incidence of gastric cancer is appreciated by all physicians, the results from its treatment have been very poor. A critical survey of the results obtained in the better institutions in the United States shows that of all the patients admitted to these institutions in whom a diagnosis of gastric cancer was made, only 50 per cent were operable when first seen, 20 per cent were resectable, 17 per cent survived the resection, and only 5 per cent were alive at the end of five years. Livingston and Pack[6] found from a study of reported cases that the average five year survival in surgical clinics was less than 2 per cent and that it had never exceeded 5.2 per cent. In 1948, Pack and McNeer[9] reported that of 795 cases of gastric carcinoma treated at the Memorial Hospital in New York, only 26 (3.4 per cent) survived five years. Welch and Allen[13] report a five year survival rate of 6.4 per cent. State, Moore, and Wangensteen[11] report a 6.6 per cent five year survival rate in all cases of gastric carcinoma admitted to the University of Minnesota Hospital. The above statistics are those obtained in the better hospitals of the United States. Clark[1] found that of all patients with gastric cancer in a metropolitan area only 0.8 per cent survived five years. It is indeed a sad commentary that a lesion as common as gastric cancer cannot be better controlled than this condition has been up to the present time. Any lesion in which only a 5 per cent five year salvage rate is attainable should be investigated to determine what can be done to increase the percentage of cures.

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CHOICE OF PROCEDURE

Because of the extremely bad results which have been obtained following subtotal gastrectomy in the treatment of gastric carcinoma, the suggestion has been made and emphasis placed upon the desirability of total gastrectomy in the treatment of all gastric carcinoma.[2-10, 12] Whereas total gastrectomy is certainly the procedure of choice in extensive lesions in which only this procedure will remove all the cancer-bearing area, it has been our belief that total gastrectomy for a relatively small lesion in the pylorus or antrum not only is not necessary but also will not produce a higher incidence of cures. Our experience has been that in those patients in whom subtotal gastrectomy has been done and in whom death subsequently occurred from carcinoma, the carcinoma was found to be not in the remaining portion of the stomach, in the duodenal stump, or regional lymph nodes, but as metastases in the liver or peritoneum, which undoubtedly were present at the time of the original operation, but which were not detectable.

The concept that more radical procedures will result in a higher incidence of cure is based upon the finding of local recurrence of the malignant lesion in the remaining portion of the stomach following subtotal gastrectomy. Whereas the performance of total gastrectomy in all cases of gastric carcinoma regardless of their location or size might seem radical, certainly it would be justified if the results could be improved and if only by such a radical procedure this could be accomplished. Because the proponents of the total gastrectomy concept for all cancers of the stomach have observed patients with recurrence in the remaining portion of the stomach following less than total gastrectomy, it would seem logical that more radical removal of the stomach might improve the results. On the other hand, it must be appreciated that there is considerable variation between minimal resections of the stomach (of such a degree that they might be termed biopsies) and total gastrectomies. It is our firm belief that in those cases in which local recurrence has occurred following partial resection of the stomach, an incomplete excision has been done and that many cases of cancer of the stomach can be cured if a radical subtotal resection is performed. Our experience is certainly at variance with that of de Amesti, who found that of 100 patients treated by subtotal gastrectomy, 40 had evidence of recurrence and in 45 per cent of these the recurrent lesion was in the remaining portion of the stomach. Recently, we saw a patient who four years previously had had a "gastrectomy" for an ulcer on the greater curvature, which proved to be malignant. The patient progressed very well for three and a half years, when he developed obstructive manifestations and at our initial examination a high degree of obstruction was found at the gastrojejunostomy site. A considerable portion of the stomach remained; in fact, apparently only the pyloric antrum had been removed. At laparotomy a tumor was found at the gastrojejunostomy site, the mass was attached to the liver, and there was direct extension to the splenic pedicle. The omentum and gastrocolic omentum were intact. There was no evidence of any metastases to the liver, although there was enlargement of the lymph nodes surrounding the celiac axis and those extending up along the esophagus. An en bloc dissection of all the stomach with exception of the proximal 4 cm. of the greater curvature, the gastrohepatic omentum, the gastrocolic omentum, the greater omentum, the spleen, the splenic pedicle, and the left lobe of the liver was performed. Probably had a total gastrectomy been done four years previously, he would have been cured. However, a radical subtotal gastrectomy performed originally probably would have resulted in a cure also; whereas following the "biopsy" which he had, recurrence developed. However, we believe that, in spite of the original incomplete operation and the delay of four years, he still has a chance of cure which is exceptional in gastric cancer.

In order that there may be no confusion concerning terminology, it is necessary to define what is meant by the radical subtotal gastric resection for carcinoma, and

anything short of this must be considered an incomplete operation. Radical subtotal gastric resection for carcinoma, according to our concept, consists of en bloc removal of all the gastrohepatic omentum, all of the lesser curvature of the stomach up to the cardia, all of the greater curvature of the stomach except for three or four centimeters distal to the cardia, the first portion of the duodenum, the gastrocolic omentum, and the greater omentum together with peri-esophageal lymph nodes, the left gastric nodes, the celiac nodes, the hepatic nodes, the subpyloric nodes, the right gastric nodes, and the pancreaticolienal nodes (Figs. 1 and 2). If the tumor is located on

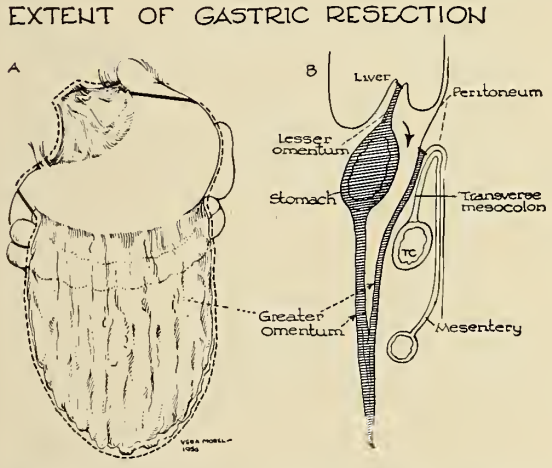

Figure 1. Diagrammatic drawings showing the extent of excision in radical subtotal gastrectomy for carcinoma which consists of en bloc removal of all the omentum, the gastrocolic omentum, the gastrohepatic omentum, the first portion of the duodenum, all of the lesser curvative up to the cardia, and all of the greater curvature to within 6 cm. of the cardia. "B" shows the extent of the resection shown in profile.

the greater curvature above the midportion, it is necessary to remove the spleen and the gastrolienale ligament as well. The entire first portion of the duodenum is removed with the stomach, because contrary to what was previously thought it is possible for a carcinoma of the stomach to extend beyond the pylorus to the duodenum. Following radical excision of the stomach, the duodenal stump is closed blindly, using a row of continuous catgut over the occluding clamp and a subsequent row of interrupted cotton

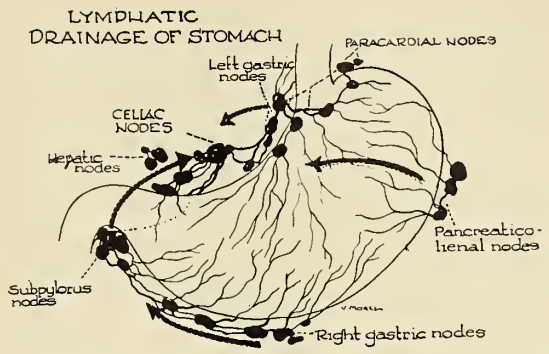

Figure 2. Lymphatic drainage of the stomach. Lesions on the greater curvature extend toward the pylorus to the subpyloric and the right gastric nodes. Lesions on the rest of the stomach extend to the left gastric nodes and the celiac nodes. In performing a radical subtotal gastrectomy for carcinoma, it is necessary to remove all the nodes shown in this diagram.

sutures. The upper half or two-thirds of the end of the stomach is closed in a similar manner and an anastomosis made between the lower half, or third, of the stomach with the first portion of the jejunum which is brought up through an opening in the transverse mesocolon. It has been our custom to perform the radical subtotal gastrectomy just described in all cases of gastric carcinoma except those in which the lesion is located in the proximal portion of the stomach in which a total gastrectomy is done. We have never been proponents of total gastrectomy for all gastric carcinomas for two reasons: (1) We believe that as much can be accomplished by the radical subtotal resection in most cases of gastric carcinoma as can be accomplished by total gastrectomy, and (2) because it has been our experience that patients submitted to total gastrectomy are likely to have postoperatively severe digestive disturbances, making them digestive cripples. Incapacitation due to such marked digestive disturbances might be justified if the incidence of cure were increased, but it is our experience that in those patients in whom recurrence occurs in the remaining portion of the stomach following gastrectomy, an incomplete gastrectomy has been done. The difference in the postoperative discomfort in patients who have had total gastrectomy and those in whom a small gastric pouch,

consisting of a small portion of the greater curvature, is left behind is striking. The pouch usually is no larger than a man's thumb. Whether it is because the pouch acts as a reservoir or because of hormonal secretion from the pouch that these patients have few or no symptoms, one cannot state. It is well known, however, that a small gastric pouch will frequently dilate to considerable size, greatly increasing the size of the gastric reservoir.

INCIDENCE OF PRIMARY GASTRIC MALIGNANCY AT THE OCHSNER CLINIC

In the past eight years, we have had 194 cases of primary gastric malignancy in the Ochsner Clinic, of which 134 (69 per cent) were males and 60 (31 per cent) were females. Of these, 186 (94.5 per cent) were carcinoma, 4 (2.7 per cent) were leiomyosarcoma, 2 (1.3 per cent) reticulum cell sarcoma, and one each (0.68 per cent) lymphosarcoma and Hodgkin's disease. It is thus seen that epithelial malignant tumors occur much more frequently than other malignant lesions of the stomach.

The locations of the tumors varied a great deal. Twenty-four (12.8 per cent) of the carcinomas were in the pylorus, 71 (32.4 per cent) had such diffuse involvement that it was impossible to designate any particular location as to site; 24 (12.8 per cent) involved the antrum; 23 (12.3 per cent) involved the cardia; 20 (10.7 per cent) the lesser curvature; 14 (7.4 per cent) the body, and 10 (5.3 per cent) the greater curvature of the stomach. In the series, diffuse carcinoma was encountered more frequently than any other type (67.7 per cent); 43 (23 per cent) were ulcerative, and 17 (9.5 per cent) were polypoid.

SYMPTOMS

The symptoms in gastric carcinoma occur so insidiously that they are likely to be disregarded in the beginning both by the patient and the physician. We are of the opinion that one of the earliest manifestations of gastric cancer is anorexia, which may be so mild that the patient is likely to disregard it, but is severe enough to keep the patient from eating sufficiently to maintain his weight. Anorexia or digestive disturbances occurring in an individual who has had gastric upsets all his life are of little significance. However, anorexia or other gastric complaints in an individual, particularly a male, who previously was well, demands investigation. Anorexia associated with weight loss is particularly significant. In 90.7 per cent of our cases, weight loss was present and was the most frequent manifestation, the average being 24.6 pounds. Other symptoms complained of in order of their frequency were: pain (83 per cent); nausea (62 per cent); tenderness (53 per cent); simple vomiting (52 per cent); anorexia (47 per cent); mass (44 per cent); retention vomiting (20.6 per cent); melena (20.1 per cent), and dysphagia, (15.4 per cent). It is of significance that the average duration of symptoms before we saw the patient was 8.8 months, demonstrating the delay which occurred in these cases. Obviously in any malignant lesion in which there is a delay of over six months, the results are likely to be bad.

DIAGNOSIS

The diagnosis of gastric malignancy is thought to be relatively easy. Because of the ease with which gastric fluoroscopy and roentgenography can be done, it is the general consensus that by roentgen examination of the stomach, lesions, either benign or malignant, can be detected without difficulty. In the present series a positive diagnosis of gastric malignancy was made by x-ray in 96.2 per cent, and the diagnosis was incorrect in only 3.8 per cent. A correct diagnosis in 96 per cent of cases should make one proud of his diagnostic acumen; however, we believe that the fact that a positive diagnosis could be made by x-ray in 96 per cent of cases is nothing to be proud of, because it indicates that the lesions were advanced because of delay in diagnosis. Also we are convinced that when a lesion is large enough to be visible on fluoroscopy and by roentgenography or visible gastroscopically, it is probably too far advanced for much to be accomplished as regards cure. It is our firm belief that if we are to improve the results obtained in the treatment of gastric cancer, we must

treat the lesion before it can be diagnosed according to our present clinical methods. Whereas this may seem paradoxical, it means that lesions which are not clinically cancer must be treated as such if an improvement in the salvage rate in gastric cancer is to be obtained. Individuals with gastric symptoms, particularly men who were previously free from such symptoms and in whom the symptoms persist in spite of adequate conservative therapy, must be suspected of having gastric malignancy in spite of negative roentgenography, gastroscopy, and other laboratory findings and should be given the advantage of an abdominal exploration. The absence of anacidity in no way precludes the possibility of gastric malignancy. It is hoped that with improvements in technique cytologic examination of the gastric secretions may prove of real value, but until such techniques are perfected and even in those cases in which the findings are negative, patients with persistent gastric symptoms must be considered as having gastric cancer until proved otherwise. Also, lesions of the stomach which are not clinically carcinoma, such as ulcers and polypi, should be treated by resection. There are many who believe that an antecedent ulcer of the stomach in no way predisposes to a gastric carcinoma in that the ulcer is not likely to undergo malignant change. It is impossible to say in a given case with an ulcer of the stomach whether the lesion is benign or malignant. However, every surgeon has observed gastric ulcers which appeared benign on roentgenography, on gastroscopy, at the time of exploration, and even after the removal when the pathologist has the specimen in his hand and yet which proved on microscopic examination to be malignant. Even though there are many who contend that gastric ulcer in no way predisposes to gastric carcinoma, *we believe that in an epithelium which is so susceptible to malignant change, such as gastric mucosa, the persistence of an ulcer or even a scar resulting from the healing of an ulcer can serve as a premalignant lesion and that all gastric ulcers should be resected not only because one cannot determine before microscopic examination whether the ulcer is benign or malignant, but also because only in this way the possible premalignant lesion can be eradicated.*

Within the past year and a half we have had two patients, both men in their forties, complaining of anorexia of relatively short duration associated with weight loss up to sixteen pounds. In both, there was no evidence of any gastric lesion as determined roentgenologically or gastroscopically. Both had free hydrochloric acid in their gastric contents. Because of the persistence of their symptoms resulting in weight loss, a presumptive diagnosis of gastric carcinoma was made and both were operated upon. In each instance, a small lesion measuring 4 to 6 millimeters in diameter was found, which following curative subtotal resection proved to be gastric carcinoma. Probably had we waited until a positive diagnosis could have been made roentgenologically or gastroscopically, the lesion would have been so far advanced that a cure could not have been obtained by resection.

PROCEDURES EMPLOYED AND SURVIVAL RATES

In the 186 cases of gastric carcinoma which we have observed in the last eight years, 22 (11.9 per cent) when first seen were so far advanced that nothing was deemed advisable in an operative way. These patients were not even subjected to exploration (Fig. 3). One hundred and

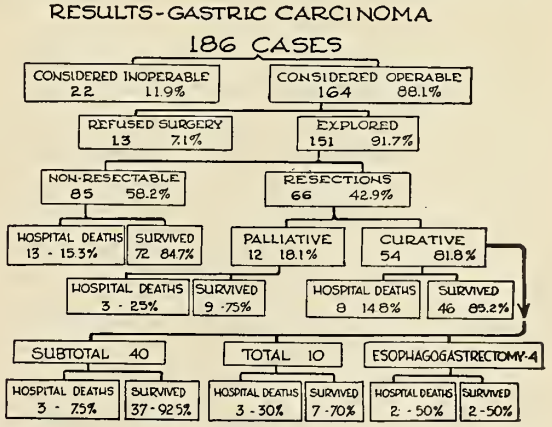

Figure 3. Results obtained from observing 186 cases of gastric carcinoma.

sixty-four (88.1 per cent) were considered operable, of which 13 (7.1 per cent) re-

fused surgery or returned home without therapy. One hundred and fifty-one were explored, in 85 (58.2 per cent) of which the lesion was found to be so far advanced that it could not be resected. Thirteen (15.3 per cent) of those which were explored and not resected died within the hospital. Sixty-six of the 151 explored (42.9 per cent) were resected, of which 12 (18.1 per cent) were done as palliative procedures. A palliative resection of the stomach is one in which there is no gross evidence of extension beyond the stomach or regional lymph nodes, that is, no involvement of the peritoneum or the liver. In many of these the lymph nodes were involved or at least enlarged. Of the 12 cases in which palliative resection was done, 3 (25 per cent) died within the hospital. Fifty-four (81.8 per cent) of those resected had "curative" resections, of which 8 (14.8 per cent) died within the hospital. The curative resections were divided into three groups: 40 in which a subtotal resection was done, 10 in which a total resection of the stomach was done, and 4 in which an esophagogastrectomy was done. Obviously, in the cases in which total gastrectomy and esophagogastrectomy were done, the lesions were much more extensive than in those in which a subtotal resection was done. The hospital mortality rate in the group in which subtotal resection was done was 7.5 per cent. In the cases in which total gastrectomy was done, it was 30 per cent, and in 4 cases in which an esophagogastrectomy was done it was 50 per cent. The high mortality rates in the total gastrectomy group and in the esophagogastrectomy group were the result of the disease and not the type of therapy. To recapitulate, 26.8 per cent of the 186 cases of carcinoma had a palliative operation, 25.2 per cent had exploration and biopsy, 21.5 per cent had curative subtotal resection, in 11.8 per cent the operation was not warranted, in 6.9 per cent the operation was refused, in 5.2 per cent a curative total resection was done, and in 2.1 per cent a curative esophagogastrectomy was done. If one groups these together, it is seen that 28.8 per cent had curative resections, 26.8 per cent palliative operations, 25.2 per cent exploration only, and in 18.7 per cent the operation was not warranted or refused (Fig. 4).

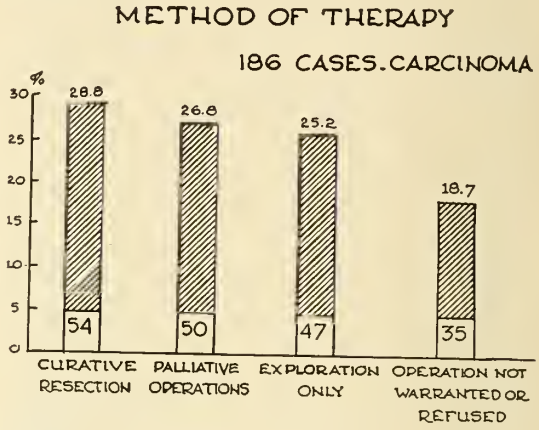

Figure 4. Method of therapy, as grouped together, in 186 carcinoma cases.

In the cases of gastric cancer in which no resection was done but in which either exploration or other palliative procedures were used, 78.3 per cent survived six months; 22.1 per cent, one year; and 4.3 per cent, two years. No patient survived as long as three years (Fig. 5). Palliative

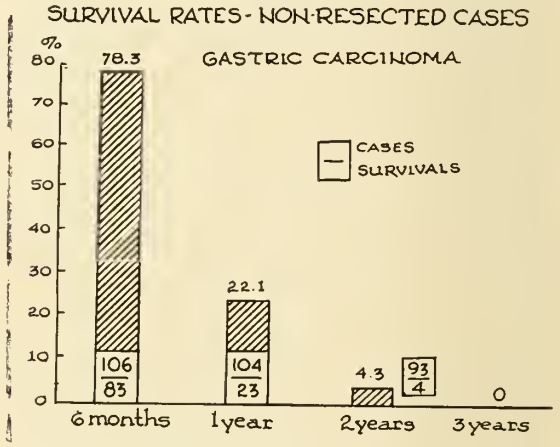

Figure 5. The survival rates of the nonresected cases of gastric carcinoma.

resections were done whenever possible and when curative resections could not be performed. They consisted of performing subtotal resections of the stomach even though there were distant metastases, such as to the liver or to the peritoneum. This procedure was considered justifiable in order to free the patient from the ulcerating, fungating mass in the stomach, and in this way

the remaining days of life were made more comfortable, but it was also hoped that their longevity might be increased. Contrary to results obtained following palliative resection in cancer of the lung and cancer of the colon, there was little effect on longevity following palliative resections of the stomach for carcinoma. Thirty-three per cent were alive at the end of six months, 22 per cent at the end of one year, 12.5 per cent at the end of two years, but no patient survived three years.

Of the cases in which a curvative resection of the stomach was done for carcinoma, the results were very much better. Seventy-six per cent were alive at the end of six months, 63 per cent at the end of one year, 48 per cent at the end of two years, and 36 per cent between five and eight years (Fig. 6). It is of interest that whereas the

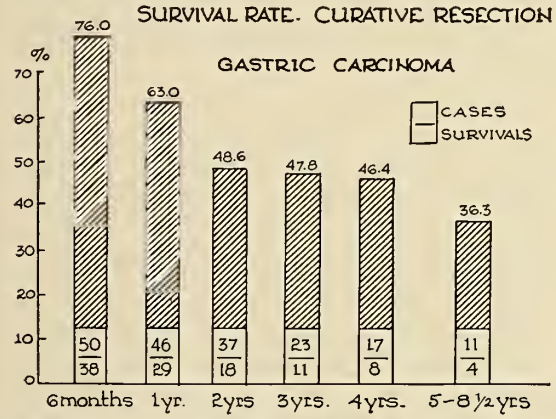

Figure 6. The survival rates of curative resection of gastric carcinoma.

survival rate sharply declines following operation up to the second year, there is relatively little change from the second to the fifth year, which is similar to the curve obtained in the treatment of cancer of the lung and cancer of the colon and suggests that a patient who lives for two years following resection of the stomach for cancer has a fairly good chance of being alive at the end of five years. Even better results were obtained in the survival rate of those patients in whom subtotal resections were done for gastric carcinoma. Survival rates were as follows: six months, 88.8 per cent; one year, 71.4 per cent; two years, 56.6 per cent; three years, 55 per cent; four years, 50 per cent; and five to eight years, 40 per cent (Fig. 7).

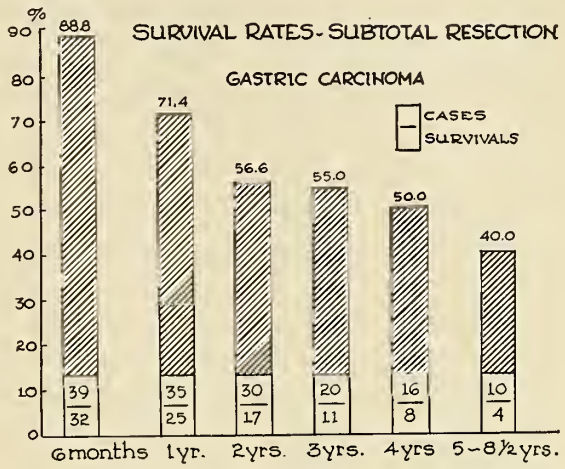

Figure 7. The survival rates of subtotal resection of gastric carcinoma.

As in carcinomas elsewhere, the survival rate depended to a great extent upon the presence or absence of lymph node involvement. In the cases in which there was no nodal involvement, the survival rate between five and eight years was 75 per cent, whereas in the cases with nodal involvement, the five year survival rate was only 16.6 per cent. The survival rate also varied according to the type of lesion. Of the diffuse carcinomas, only 1.5 per cent were alive at the end of five years and over; of the polypoid lesions, 25 per cent were alive at the end of five years, and of the ulcerative lesions, 62.5 per cent at the end of five years.

COMMENT

A 40 per cent five year survival rate following subtotal gastric resection for cancer of the stomach is better than any other statistics that have been reported so far following total gastrectomy for a similar lesion. It further illustrates, we believe, *that a radical subtotal resection of the stomach is as efficacious, if not more so, in curing cancer of the stomach than is total gastrectomy.* The fact, that in most instances subtotal gastrectomy is as efficacious in controlling cancer of the stomach as is total gastrectomy, does not lessen the obligation of the profession to take steps to increase the five-year salvage rates in gastric cancer. As stressed previously, it

is our conviction that the five year salvage rate can be increased only by subjecting patients with gastric cancer to radical subtotal gastric resection at a time when the lesion is still limited to the stomach This usually means that the treatment must be instituted when a diagnosis of cancer cannot be made according to our present clinical methods. Although there was a delay of an average of 8.8 months in this series of cases, something has been accomplished. This is illustrated by the fact that in the 186 cases, 81.1 per cent were explored as compared with 50 per cent which were explored in the collected series; 35.4 per cent were resected as compared with a 20 per cent resectability incidence in the collected series; 29 per cent survived resection as compared with 17 per cent in the collected series, and 8.3 per cent are alive at the end of five years as compared with 5 per cent in the collected series (Fig. 8). Whereas

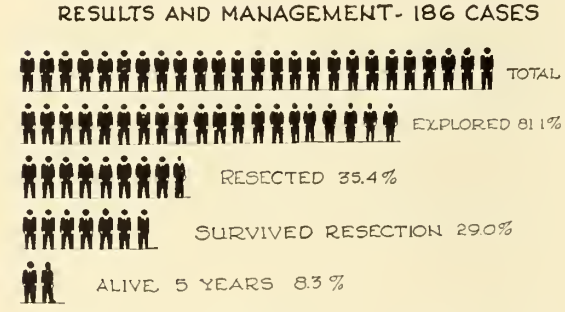

Figure 8. Results obtained in the present series of 186 cases. In contrast to the generally reported results in the better institutions, as illustrated in Fig. 1, 81 per cent were operable instead of the 50 per cent in the reported series. Thirty-five per cent were resected in contrast to the 20 in the reported series. Twenty-nine per cent survived resection as contracted with 17 per cent in the reported series and 8.3 per cent survived 5 years in contrast to the 5 per cent in the reported series.

an increase from 5 per cent to 8.3 per cent in the five year salvage rate might not seem worthwhile, it is better than a 50 per cent improvement and, therefore, is significant. However, a five year salvage rate of only 8.3 per cent is admittedly far too low and must be improved. This can be accomplished, however, only by subjecting cases with gastric cancer to radical extirpation at an earlier time than has been done in the past. Until some clinical method of examination is devised which will permit detection of gastric cancer while it is still limited to the stomach, it is necessary, if the results from the treatment of gastric cancer are to improve, that the patient in whom a diagnosis of gastric cancer cannot be made according to our present methods of diagnosis must be treated for cancer. As emphasized previously, this means surgical extirpation of all gastric ulcers, polypi, and other persistent lesions in the stomach and also abdominal exploration for symptoms only, particularly if symptoms occur in a man who previously had no gastric symptoms, and persist in spite of all conservative therapy.

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THE COINCIDENCE OF TUBERCULOSIS AND DIABETES MELLITUS*

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INTRODUCTION

The appearance of pulmonary tuberculosis as a complication in the control of diabetes has frequently attracted medical attention during the past 100 years. Mark *et al*,[1] in reviewing European literature, found a concurrent incidence of 42 to 50 per cent prior to the turn of the century. Labbe, as late as 1930 to 1932, found tuberculosis in 40 per cent of diabetic deaths in Paris. Such a high coincidence has not been reported in the American literature. Root[2] divided the cases at the Joslin Clinic into three periods. The death rate from pulmonary tuberculosis among diabetics from 1898 until 1922, when the use of insulin was begun, was 7.8 per cent. From 1922 until 1929, when the drug became more generally used, the death rate was 3.7 per cent. From 1929 to 1939, the tuberculosis rate fell among their diabetics to 1.8 per cent. Banyai,[3] in 1931, summarized a large group of reports, totaling 8250 diabetics. Approximately 2.6 per cent had tuberculosis, an incidence three times that expected in the general nondiabetic population. Warren[4] reviewed 300 diabetic autopsies in 1930; 13 of these died with associated tuberculosis, and only 10 were due to tuberculosis alone. This is in sharp contrast with the situation fifty years ago when 50 per cent of the fatal diabetics died from tuberculosis.

COLLECTION OF DATA

To ascertain the coincidence locally, we collected data from two sources. (1) Photofluorographic films were obtained on 205 patients attending the diabetic Out-Patient Clinic of Jefferson Davis Hospital during 1949 to 1951, and questionable cases were checked with the 14 by 17 inch films. Of 205 diabetic clinic patients, 7 (3.4 per cent) had pulmonary tuberculosis. (2) In addition, the files of the City of Houston Tuberculosis Hospital were searched for diabetic patients. In the interval 1940 to 1950 inclusive, 15 diabetics were found among 2366 tuberculosis admissions (0.63 per cent).

TABLE 1
TUBERCULOUS DIABETICS—OUT-PATIENT

Pt. No.	Race	Sex	Age	Daily Insulin	Stage of Tuberculosis
1	W	M	67	32	Moderately adv.
2	W	M	48	15	" "
3	W	M	33	185	Far advanced
4	W	M	18	85	Moderately adv.
5	W	F	76	0	" "
6	W	F	58	35	" "
7	C	M	37	40	Far advanced

ANALYSIS OF DATA

Table 1 shows the color, sex, and age of each tuberculous diabetic out-patient, together with daily insulin dosage and extent of pulmonary disease by x-ray evidence. The relatively high proportion of white, and especially white males in this group, as compared with the color-age-sex distribution in the clinic group as a whole (Table 2) cannot be explained except by the smallness of our tuberculosis sample. None of our cases was so fortunate as to be found with only minimal disease. Our group contained no diabetic children. The only diabetic adolescent also had tuberculosis. Our tuberculosis incidence compares favorably with that found by Root[5] among adult diabetics (2.8 per cent).

Similar individual data on the 15 cases of diabetes in the tuberculosis hospital patients are shown in Table 3. Here the distribution is more evenly spread among the colored, white, and Latin-American racial groups and between males and females. Insulin dosage varied widely, from none to 120 units daily. However, here again, none was found with only minimal tuberculous infection: 8 were moderately advanced, 7 were far advanced. The total diabetes incidence of 0.63 per cent in this hospital is essentially the same as that of Banyai[3] He studied 5000 patients with tuberculosis in Muirdale Sanatorium between 1923 and 1930, and found 31 diabetics (.59 per cent).

*From Department of Medicine, Baylor College of Medicine and Jefferson Davis Hospital, Houston, Texas.

TABLE 2
RACE—SEX—AGE—DISTRIBUTION—DIABETES CLINIC PATIENTS

Race	Sex	Age Groups 0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89
White	M	....	1	....	1	5	5	8	4	1
	F	....	....	3	2	8	19	16	8	....
Negro	M	....	....	1	2	3	3	2	2	1
	F	....	....	6	9	15	22	29	10	....
Latin	M	....	....	....	1	1	1	1	....	....
American	F	....	....	1	1	5	3	5	....	....

TABLE 3
TUBERCULOUS DIABECTICS—HOSPITAL

Pt. No.	Race	Sex	Age	Daily Insulin	Stage of Tuberculosis
1	C	F	53	30	Far advanced
2	C	F	65	45	" "
3	C	M	49	55	Moderately adv.
4	C	M	34	60	" "
5	C	M	30	50	" "
6	W	F	45	100	Far advanced
7	W	F	42	40	" "
8	W	M	26	60	Moderately adv.
9	W	M	21	120	" "
10	LA	F	62	50	Far advanced
11	LA	F	47	0	Moderately adv.
12	LA	M	44	30	" "
13	LA	M	53	40	Far advanced
14	LA	M	44	40	" "
15	LA	M	50	70	Moderately adv.

He and Cadden[6] later (1944) added 5575 more tuberculosis patients (1932 to 1944) with a diabetes incidence of 1.6 per cent. Landis, Funk and Montgomery[7] had found one-third to one-sixth of 1 per cent of tuberculosis patients with associated diabetes in survey data on 31,834 patients in 29 sanitoria (1919). Barach,[8] in 1941 to 1943, found a coincidence of 0.7 per cent in 3406 tuberculosis hospital patients. McKeen, Thosteson and Brooks[9] reported associated diabetes in 1.57 per cent of 15,361 patients with tuberculosis (1929 to 1939).

PATHOLOGY

Although all of our cases of tuberculosis were either moderately or far advanced, such late diagnosis leaves much to be desired. Tardy detection has, however, been the experience of other groups. In 1932 to 1944, 105 of Banyai and Cadden's[10] 125 cases were far advanced on admission to their sanatorium.

Attempts have been made to give the phthisic lesions identifying characters on x-ray. Wilder[11] described the lesion as deep seated, spreading from the hilum to the periphery, usually pneumonic with little fibrosis. He felt justified in assigning the name "Diabetic Tuberculosis" to such findings. He considered pleuritis and pleural adhesions uncommon as did Root[2] and Weiner and Kavee[12]. Melvin and Engelhardt[13] noted the same hilar preference ("butterfly" lesion) but considered pleural adhesions more common than in the nondiabetic. Epstein and Trubowitz[14] found no distinct x-ray finding.

METABOLIC FACTORS

Metabolic factors favoring the development of tuberculosis in diabetics have been considered by Root:[15]

1. Primary tuberculosis infection depends upon contact, a factor no different in diabetics and nondiabetics. However, the lack of resistance to infection among diabetics permits a higher incidence of active tuberculous disease. The sequence of events is usually that the diabetic becomes tuberculous, rather than vice versa. In Root's series, 85 per cent were known to have diabetes prior to their tuberculous infection. Hinsworth[16] noted this order in 26 of his 29 cases (88 per cent), and Mark[1] in 72 per cent of his cases.

The predisposition of diabetics to develop tuberculosis has been shown experimentally by Steinback *et al.*[17, 18] Dogs usually very resistant to tuberculosis, were rendered diabetic by pancreatectomy; they were then far less resistant to known doses of tubercle bacilli. Rats, on being rendered hyperglycemic, developed more extensive tuberculosis than previously, with lesions more conglomerate and widespread and with more acid fast bacilli by count.

2. Childhood and adolescence are predisposing factors. In Root's cases[5], tubercu-

losis was 12 times as frequent among diabetic as in nondiabetic children (age 0 to 15 years) and 16 times as frequent among adolescent diabetics (15 to 19 years).

3. Coma is also predisposing to this coincidence. Root[5] observed the development of tuberculosis within five years in 20 per cent of his diabetic patients who had developed diabetic coma. He estimated the development of phthisis eventually in 50 per cent of all patients who developed acidosis. It is noteworthy that diabetic coma does not signify severe diabetes, but rather an absence of control. Lack of diabetic control increases the chances for the development of tuberculosis, whereas adequate control diminishes the risk. The incidence of tuberculosis among well controlled diabetics is much lower than among uncontrolled diabetic groups. Himsworth[16] contrasted his findings of only 0.7 per cent tuberculosis among well treated diabetics (an incidence no higher than that of the indigenous nondiabetic population) with a rate of 6.5 per cent in his untreated cases (that is, those x-rayed on their first visit to him). Barach[8] found only 4 cases of tuberculosis in 1,000 private cases of diabetes. Treated diabetes is, therefore, no predisposition to the development of tuberculosis.

4. Tuberculosis is more frequent in severe diabetics than in mild or moderate cases. Mark *et al*[1] found 23 per cent of their cases to be among severe diabetics (that is, requiring over 40 units of insulin daily). This is actually a reiteration of the principle given in the preceding paragraph since patients with severe diabetes go uncontrolled more frequently than do mild cases.

PHYSIOLOGIC BASIS FOR ASSOCIATION

Banyai and Cadden[10] have compared the various reasons proposed for the vulnerability of patients with uncontrolled diabetes to tuberculosis: Joslin[19] has stated that high tissue sugar conduces to poor tissue repair and resistance to infection and predisposes to degenerative phenomena. However, Banyai and Cadden[6] insisted the precise opposite: that an elevated blood sugar without glycosuria is not only harmless but even beneficial, promotes utilization of sugar, does not cause degenerative tissue changes or predispose to infection. Pillsbury and Kulchar[20] found no worsening of skin infections in rabbits with elevated blood sugar, but rather an improvement, except with "extreme" hyperglycemia. Keeton[21] has proposed that the basic defect is local tissue acidosis with disturbed electrolyte balance which interferes with water transport. Smithburne[22] has supported this theory by his demonstration that the virulence of acid fast bacilli is increased by increasing the acidity of culture media. Moen and Reimann[23] believe that lowered immunologic response increased suspectibility to infection in diabetes, since they have noted a lowered opsonic index, decreased production of antibodies, and diminished bacteriostatic property of blood in uncontrolled as compared with controlled cases. Long[24] believed that disturbed fat metabolism in diabetics increased the availability of glycerine in the body, one of the best nutrients of acid fast bacilli. In support of this theory, Root[5] found the reticuloendothelial cells of diabetics loaded with fat which he thought diminished their efficiency. Banyai and Cadden[6, 10] have strongly insisted that a deficiency of vitamin A in diabetics, by causing a keratinization of the respiratory mucosa, lowers its resistance to tubercle bacilli. They point to several other workers' findings that diabetics frequently show hypo-A-vitaminosis. A Japanese worker, Fukugita[25] has suggested that diabetes is not due to a deficiency of insulin alone, but also to the effect of an unknown inhibitor of tissue respiration. Both diabetes and tuberculosis sera contain, he states, a substance which interferes with or inhibits tissue respiration. Therefore, in the presence of both diseases, he considers the prognosis very unfavorable.

TREATMENT

The best treatment advantage in either disease is early diagnosis. The symptoms of both diseases may be either absent or quite protean, at times with marked similarity between the two, so that in all cases of one of the diseases, the other should be

excluded. Loss of weight is an especially significant point in both conditions. Each disease may be handled satisfactorily as though by itself alone. Adequacy of nutrition is essential for satisfactory progress in both diseases. Melvin and Engelhardt[13] recommend a diet of 35 to 40 calories per kg. per day. In the Jefferson Davis Hospital Diabetic Clinic we have 5 basic diets, offering varying caloric values, depending upon the activity and previous nutritional state of the patient, each with adequate protein intake to maintain a positive balance and sufficient fat to permit palatability. With standardized caloric intake, glycosuria can be reduced by one of the slow-acting insulins to a reliably minimal amount.

Tuberculosis should be treated without any special modification because of the coincident diabetes. Adequate caloric intake to assure excellent nutritional state has already been considered. The satisfactory response of diabetics to pneumothorax,[10] chest surgery[26], and streptomycin[27] has been well demonstrated. The prognosis of diabetic tuberculosis patients is essentially that of the tuberculosis itself.[13]

SUMMARY

1. In this series of 205 diabetic clinic cases, 7 (3.4 per cent) had pulmonary tuberculosis. Among 2366 admissions to a tuberculosis hospital, 15 diabetics were found (0.63 per cent).

2. Diabetics are predisposed to the development of tuberculosis only if the former disease is uncontrolled. Such a status is especially likely in young diabetics who become acidotic or even comatose, and in older, severe diabetics who are not well regulated.

3. Since the prognosis of the tuberculous diabetic is actually that of the tuberculosis itself, early diagnosis and adequate treatment of this disease are most essential. The clinical signs and symptoms of the disease are patently deceptive; therefore annual chest x-rays are desirable on all diabetics and especially in those more vulnerable groups noted above.

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MATERNAL MORTALITY AT SOUTHERN BAPTIST HOSPITAL

A TWENTY-FIVE YEAR SURVEY*

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Because of advances in obstetrical knowledge, improvements in obstetrical technique, and the development of chemotherapeutic and antibiotic drugs, childbearing has become a progressively safer undertaking during the past twenty-five years. With a view to lowering even further the mortality rate at our hospital, the Southern Baptist Hospital at New Orleans, Louisiana, we have reviewed all the maternal deaths which have occurred in this institution from its opening in April 1926, through April 1951.

The twenty-five year span of this study covers three important periods in the advancement of medical science. The first period, 1926 to 1934, was prior to the advent of the sulfonamide drugs. In the second period, 1935 to 1944, both the sulfonamides and plasma were readily available and in widespread use. From 1945 to the present time, chemotherapy and the use of plasma have been supplemented, and in some instances, replaced by antibiotic therapy and the use of whole blood. In addition, specialized obstetrical advances and improvements in maintenance of normal fluid balance have contributed largely to the steady decrease in maternal mortality throughout the entire twenty-five year period.

The Southern Baptist Hospital is a general hospital for white patients only, its Department of Obstetrics consisting of 11 labor rooms, 3 delivery rooms and 59 postpartal beds. At present these facilities are used by 27 obstetrical specialists and 31 general practitioners.

During the twenty-five year period covered by this report, there were 32,582 deliveries in the hospital, with 46 maternal deaths, an incidence of 1.41 per 1000. By the term "delivery" we mean the birth of a child after at least twenty weeks' gestation. Of course, we have included in our data the cases of maternal death in which the patients were over twenty weeks pregnant but died undelivered. Cases of ectopic pregnancy, early abortion, and hyperemesis gravidarum in early months have been excluded, as have been cases admitted to the hospital following delivery elsewhere.

Most of the patients delivered in this hospital receive excellent prenatal care from their attending physicians, but occasionally a patient not previously seen by a staff member is admitted after complications have arisen. As there is no clinic connected with the obstetrical service of this hospital, only about 2 per cent of the deliveries are performed by the resident staff; all of these deliveries are performed under the immediate supervision of the obstetrical staff. There were no "house cases" among the deaths in this series. Consultation was obtained in the majority of deaths, but no attempt has been made for this report to determine preventability of death in individual cases.

Of the 46 infants in these cases (there were no twins), 17 were stillborn, 3 were not delivered, 1 was a previable premature, and, except for 1 case of Erb's palsy, the remaining 26 survived and were normal when discharged.

TABLE 1
MATERNAL MORTALITY—SOUTHERN BAPTIST HOSPITAL

Period	Total Deliveries	Total Deaths	Deaths/1000 Deliveries
1926-1934	3,063	20	6.5
1935-1944	11,892	21	1.7
1945-1951	17,627	5	0.28
Total	32,582	46	1.41

CERTAIN VARIABLE FACTORS POSSIBLY INFLUENCING INCIDENCE OF MORTALITY

Age. In the group under study the average age of patients dying in childbirth was 31 years, the extremes being 20 and 45 years. Thirteen deaths, or 28 per cent, occurred in patients who were 35 or over. No maternal patient under 20 years of age failed to survive. Thus, our findings in this respect are in agreement in part with

*Presented at Meeting of the New Orleans Gynecological & Obstetrical Society, October 16, 1951.

the recent report of Marchetti and Menaker to the effect that certain complications of pregnancy (notably, toxemia) though more common are less serious in the younger individual.

Parity. As would be expected, death occurs most often at the termination of the first pregnancy. In the 46 cases reported here, 24 were para 0, 8 were para 1, 5 were para 2, 2 were para 3, and 1 each para 5, 7, 8, and 9. In 3 cases no data regarding parity were available. Of the 24 nulliparas, 5 were 35 years old or older.

Anesthesia. Ethylene is the obstetric anesthetic of choice at Southern Baptist Hospital. When deeper anesthesia is needed, it is supplemented with cyclopropane, and occasionally, with ether. In the past five years, saddle block has been used in about 10 per cent of the vaginal deliveries. In cesarean sections, ether was the choice in the first period, cyclopropane in the second, and spinal anesthesia in the third. There were no deaths due to anesthetic accident, nor was anesthesia considered the primary cause of death in any case. Anesthesia was, however, very probably a contributing factor in the death of several patients (see especially case 1 below). In addition, there were no instances of fatal aspiration under anesthesia. We believe these excellent results are due to the following factors:

1. High standards in the technique of anesthesia (most of the anesthetists are doctors).

2. Constant awareness of the possibility of aspiration of vomitus by the patient who eats a hearty, strengthening meal as she prepares to leave for the hospital.

3. Almost exclusive use of ethylene, one of the safest anesthetic gases in a humid climate such as this one, when rigid safeguards are used against explosion.

The following case illustrates some of the problems which confront the obstetrical anesthesiologists:

CASE REPORT

Case No. 1. A 24 year old nullipara with an expected confinement date of February 24, 1941, was admitted March 5, 1941, with pain in the epigastrium and right shoulder. The temperature was 99.4°. There were crepitant rales at the base of the right lung, with flatness on percussion, and x-ray findings of "extensive pneumonia involving the greater part of the right lung." An initial oral dose of 4 gm. of sulfathiazole was given, followed by 1 gm. every four hours.

Labor began early in the morning of March 7, 1941, and continued with moderate contractions throughout the day. Although the temperature did not rise above 100°, the patient became progressively more dyspneic, produced bloody mucopurulent sputum, and developed symptoms of consolidation in the opposite lung. Digitalization had been undertaken and light sedation was accomplished with morphine and scopolamine. Because of cyanosis and rapid respiration (36 per minute), the patient was kept in an oxygen tent throughout the day. Eighteen hours after commencement of labor, the cervix was fully dilated. Following intravenous injection of 6 cc. of evipal, a spinal anesthetic of 140 mg. of metycaine was given. Midforceps were used and the infant was delivered without difficulty, but both patients died during extraction. In retrospect, it appears that pudenal block would have been the anesthesia of choice in this case.

Cesarean section. Of the 46 patients in this series, 18 or 35 per cent were delivered by cesarean section (11 classical, 6 low, 1 postmortal classical). During the entire twenty-five year period, 1,971 cesarean sections were performed, a cesarean rate of 6.0 per cent with a mortality rate of 0.91 per cent. Of the remaining 28 patients, 12 were delivered by forceps (8 low, 3 mid, 1 high), 5 were delivered by version and extraction, 8 delivered spontaneously, and 3 died undelivered.

Table 2 shows by time periods the indications for section and causes of death in the 18 cases of cesarean section. The omission of the last time period from the table is due to the fact that no cesarean deaths occurred during these years.

Four of this group of cesarean sections were performed for placenta praevia; the last one having been in 1944. We find the proportion of abdominal deliveries for this indication has been decreasing during the past few years. The decline in the cesarean section death rate is illustrated by Table 3 and Figure 1.

TABLE 2
MATERNAL CESAREAN DEATHS AT SOUTHERN BAPTIST HOSPITAL

YEAR	INDICATIONS FOR SECTION	CAUSE OF DEATH
1926	Eclampsia	Eclampsia
1926	Contracted pelvis with trial of labor	Hemorrhage
1928	Elderly primipara, breech, pyelonephritis	Pyelonephritis, pneumonia
1928	Eclampsia	Eclampsia and glomerulonephritis
1929	Pre-eclampsia, chronic nephritis	Post-toxemic collapse
1930	Placenta praevia	Hemorrhage and shock
1931	Placenta praevia	Postpartal hemorrhage and shock
1932	Elderly primipara, floating head, flat pelvis	Postpartal hemorrhage
1935	Failed forceps, Dührssen's incision, version and extraction, partial extraction	Puerperal sepsis
1935	Placenta praevia	Intestinal obstruction, wound dehiscence, peritonitis
1936	Not stated	Heart failure
1939	Eclampsia	Peritonitis
1939	Feto-pelvic disproportion	Pneumonia
1941	Hypertensive renal toxemia	Vascular collapse with hypertensive renal disease
1943	Previous section	Paralytic ileus, lobar pneumonia
1943	Heart failure (postmortal section)	Aortic stenosis, interventricular septal defect, ventricular fibrillation.
1944	Abruptio placenta	Hemorrhage, pulmonary embolism, septicemia with septic thrombophlebitis
1944	Marginal praevia	Pneumonia

TABLE 3
DEATHS FOLLOWING CESAREAN SECTION

PERIOD	TOTAL SECTIONS	DEATHS NUMBER	DEATHS PERCENTAGE
1926-1934	98	8	8.2
1935-1944	752	10	1.3
1945-1951	1121	0	0
Total	1971	18	0.91%

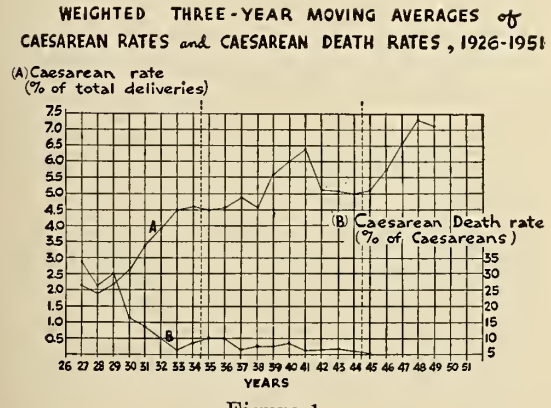

Figure 1

There have been no cesarean deaths at this institution in the last seven years. During this time, 1150 cesarean sections were performed. Not the least of the factors to which this may be attributed is the administration of blood in sufficient quantities. Furthermore, in the last few years obstetricians have increased the number of indications for cesarean section and have performed the operation earlier, before irreversible complications could develop. Of outstanding note is the fact that only 1 elective section done because of previous section appears in this group of 46 deaths. Death was due to pneumonia and occurred before penicillin was generally available. There was 1 case of postmortal section (the true cesarean section in the historical sense). Because of the rarity of such cases, the pertinent facts regarding this one are summarized.

CASE REPORT

Case No. 2. The patient was a 32 year old nullipara with aortic stenosis, congenital interventricular septal defect, and ventricular fibrillation. She had been advised against childbearing, and on becoming pregnant had been urged to submit to therapeutic abortion. This was refused.

The expected date of confinement was January 5, 1944; on November 20, 1943, the patient was admitted to the hospital with signs of congestive failure; digitalization was started immediately. On

the fourth hospital day the membranes ruptured spontaneously and labor ensued. Preparations were made for cesarean section under local anesthesia, but as the patient was being transferred to the operating table, she sat up, complained of shortness of breath, had a convulsive seizure, and the heart beat stopped. Artificial respiration and oxygen were administered while an incision was made. The heart was massaged through the diaphragm without response. A normal, live, 6 pound, 4 ounce, male infant was delivered through the uterine incision.

Since 1945, approximately 80 per cent of the cesarean sections have been of the low type. Spinal anesthesia was used in about 85 per cent. When spinal anesthesia is used, the anesthetist makes every effort to prevent the fall in blood pressure which so commonly occurs with this type of anesthesia in the patient with a large abdominal mass. Blood is used routinely; in all but toxic cases ephedrine in procaine is employed for the skin wheal; adrenalin is frequently given with the anesthetic agent, and neosynephrine is administered for any appreciable decrease in blood pressure.

CAUSES OF DEATH

As improvements in technique and major additions to the medical armamentarium have resulted in a decrease in incidence of maternal death from the three major causes —toxemia, hemorrhage and infection— heart disease has become relatively more important as a cause of death in recent years.

Table 4 shows the number of deaths from these four major causes in each period, though in our series cardiac disease has not shown itself to be numerically significant.

TABLE 4
CAUSES OF DEATH

Period	Toxemia	Infection	Hemorrhage	Heart Disease	Misc.	Total
1926-1934	8	4	6	0	2*	20
1935-1944	8	8	2	2	1†	21
1945-1951	1	0	2	0	2‡	5
Total	17	12	10	2	5	46

*Both from shock and exhaustion
†Pulmonary embolus
‡Both from acute lymphatic leukemia

In most, if not all of these cases, the causes of death were multiple; and the one assigned in each instance was the cause which appeared to be the most important. Toxemia was the most frequent cause of death, followed, in order, by infection and hemorrhage. The larger number of deaths from infection in the second period does not actually represent a proportional increase, since they represent only 1 per 1487 deliveries. Deaths from infection in the period 1926-1934, on the other hand, represent 1 per 766 deliveries.

Of the 17 patients whose deaths were due to toxemia, 8 were actual convulsive eclamptics. Seven patients died of post-toxemic shock and collapse. In the light of our present knowledge of the disease, we would probably reclassify certain of this toxemia group, especially those involving kidney failure. Only 1 patient died of acute yellow atrophy and she has been left in this group as she was considered to have had "eclampsia without convulsions". Only 1 patient was known to have died of a cerebral hemorrhage; this followed a postpartal convulsion.

Of the 12 cases lost from infection, 6 followed cesarean section. The deaths of 6 cases were attributed primarily to pneumonia. The last maternity case dying of pneumonia was in 1944. Only 4 cases in the twenty-five year period were lost due to puerperal sepsis or pelvic thrombophlebitis.

RECOMMENDATIONS

Analysis of the various factors involved in the 46 cases of maternal mortality reported here leads to the following recommendations, which, if adopted, may lead to a still further reduction in the maternal death rate.

1. Facilities for immediate cesarean section should be available in the delivery unit. Delivery room personnel are cognizant of the occasional need for immediate section; the transfer of the patient from one floor to another is time-consuming, and only too often all the operating rooms are in use. In case No. 2 cited above, there was a lapse of two hours and forty-five minutes between the recorded onset of labor and the death of the patient.

2. For extreme emergencies, type O, Rh-negative blood should be kept available on the delivery floor for use until properly matched blood can be obtained. Even in a laboratory we are dealing with human beings who may not function as rapidly or as efficiently at 2 A. M. as at 2 P. M. The obstetrician should always have in mind the possibility of the emergency need for blood, and give the laboratory adequate time for the services it usually renders so satisfactorily. In the last fatality in this series, a case of ruptured uterus and immediate postpartal hemorrhage, there was a forty-five minute delay between the order for blood and the starting of the transfusion. Cross-matched blood should be in the delivery room for every case of polyhydramnios, multiparity, poor intrapartal uterine mechanisms, high or mid-forceps, version and extraction, toxemia, abruptio placenta, and placenta praevia.

3. There should be continuous vigilance in the case of the patient with a full stomach. As has been noted frequently, during labor the emptying time of the stomach is prolonged. Pumping the stomach has been recommended but is seldom done. Administration of apomorphine is probably more practical and more easily accomplished, unpleasant though it be. The use of demerol has, in all likelihood, prevented many aspiration accidents, as its administration together with the progress of labor frequently provokes vomiting. Regional block anesthesia should be considered seriously if delivery is imminent in a patient with a full stomach.

4. The practice of induction of labor by bougie and pack or bag should be discontinued entirely. Ten of the deaths in this series of 46 followed such inductions.

5. The requirement of mandatory consultation in cases of proposed primary cesarean section should be continued. In addition, the attending physician should not hesitate to consult other members of the hospital staff in any other complicated cases.

6. The Department of Obstetrics and Gynecology, a committee thereof, or a regional or state committee should act as a reviewing board for thorough investigation of all fatalities and determination of the possible preventability of each case with respect to hospital, patient, or physician.

SUMMARY

The 46 maternal deaths in 32,582 deliveries at the Southern Baptist Hospital since 1926 have been reviewed. The maternal mortality rate for the entire period was 1.41 per 1000; it has decreased from 6.5 per 1000 in the period 1926-1934 to 0.28 per 1000 in the period 1945-1951.

The relation of age, parity, and anesthesia to maternal death is discussed. One death from a combination of bilateral lobar pneumonia and spinal anesthesia is cited. Eighteen of the patients who died had had cesarean section; they represent 39.5 per cent of the total fatalities. The cesarean death rate has declined from 8.2 per cent in 1926-1934 to 0 per cent in 1945-1951. No deaths following cesarean section have occurred in the last 1,150 such operations.

A table showing distribution of the cases among the major causes of maternal death (toxemia, infection, hemorrhage and heart disease) is presented. Recommendations are made in the light of this study regarding the department's activities which might tend to further lower the maternal mortality rate.

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THE PRESENT STATUS OF THE MEDICAL TREATMENT OF EPILEPSY

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NEW ORLEANS

I

The recognition that epilepsy is a treatable disease is a very recent event in medicine. One hundred years ago the consensus of opinion, both lay and medical, held that seizures were either visitations from God or from the devil. Treatment corresponded, of course, to these conceptions and epileptics were alternately honored as holy men and exorcised as possessed. The few physicians who considered seizures to be due to bodily illness had only the vaguest empirical approaches to offer in therapy. A list of medications which runs the gamut from oil of vitriol to mistletoe, and includes such items as turpentine, indigo, and gold is sufficient indication of the state of affairs in the not too distant past.[1]

The first step toward effective therapy was reported on May 11, 1857, when Sir Charles Lacock mentioned the use of potassium bromide in the treatment of seizures associated with menses in hysterical women. How Lacock came to use bromides is in itself an interesting illustration of the status of therapy at that period. He had noted a report in the German literature that potassium bromide produces impotence. Since major etiologic factors in the production of seizures were considered to be sexual excess and masturbation, Lacock reasoned that an anaphrodisiac would be effective in controlling epilepsy. He used the drug only in the treatment of hysterics where the relation of sexual irregularities to seizures was considered to be particularly clear. In 1859 Wilks demonstrated that bromides are generally effective in controlling seizures.[2]

II

No further advance in the problem of treatment was made until 1912 when Hauptmann[3] introduced phenobarbital, a drug which proved to be both more efficacious and less toxic than bromides.

In the meantime, however, clinical observation had resulted in considerable clarification of the nature of epilepsy and the differentiation of several clinical pictures having in common only the occurrence of episodes of altered behavior. The relation of such episodes to alterations in the function of the brain was demonstrated and it was further shown that the characteristics of any given type of seizure could sometimes be related to some associated pathology in a specific site within the brain. It was also demonstrated that the nature of a convulsive episode bears no relation to its etiologic causes; for example, an inflammation, a tumor, or a scar, all will yield the same convulsive pattern if they involve the same area of the brain. Finally, it was observed that seizures not infrequently occur in the absence of all gross or microscopic evidence of cellular brain pathology and represent a disorder of the function, rather than of the structure of the brain. To this extremely large group of patients the designation "idiopathic epilepsy" was given.

In general three types of convulsive pattern were differentiated. These are:

1. *Grand mal epilepsy*, the classical form of attack. These seizures usually begin with an aura—a sensory experience such as a flashing light, a bizarre taste, a peculiar odor, a feeling of dizziness, or a sensation in the stomach. This is followed by loss of consciousness and marked bodily rigidity, and this in turn by violent clonic movements, which are frequently accompanied by tongue biting and loss of sphincter control. Following such attacks the patient usually sleeps heavily for a considerable period of time. Not infrequently, aborted forms of grand mal epilepsy occur. Only the aura may occur, or the patient may experience only motor phenomena, and these are localized to only a portion of the body.

2. *Petit mal seizures* are temporary lapses of consciousness, lasting but a few seconds. These usually occur in children,

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and most often, either disappear at puberty or become associated with grand mal epilepsy. A child suffering from this condition may have several hundred such spells in the course of a day. Episodic myoclonic jerks, especially of the arms, head nodding attacks, or sudden transitory episodes of loss of muscle tone may occur as part of petit mal.

3. *Psychomotor seizures* are lapses of consciousness or dreamy states lasting anywhere from a few minutes to several hours, and display behavior characterized by repetitive movements and activities which often seem volitional but are actually unconscious. In the course of such attacks individuals may unwittingly commit acts of violence.

The introduction, in 1929, of the electroencephalograph aided considerably in the differentiation and understanding of the various types of seizures outlined above, as well as in the demonstration that certain types of chronic behavior disorder in children are accompanied by changes in the brain function not unlike those occurring in epilepsy. Treatment of such cases with anticonvulsant drugs has often yielded gratifying results.

An important result of electroencephalographic investigation has been the demonstration of highly specific brain wave patterns for petit mal epilepsy. As will be indicated below, petit mal is treated with quite different drugs from those which are effective in grand mal and psychomotor epilepsy.

While the brain wave patterns in psychomotor and grand mal epilepsy are not so clearly distinguishable from one another as they are from petit mal, there are distinguishing features, and also some evidence of selectivity in the response, especially of psychomotor epilepsy, to drugs. Gibbs et al,[4] in 1949, demonstrated the frequent occurrence of anterior temporal lobe abnormalities in psychomotor epilepsy. Recently, Toman[5] suggested that an irritating focus yielding a slow spread of abnormal activity to other regions of the brain might be the essential physiological characteristic of this form of epilepsy.

III

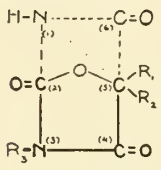
During the twenty-five year period following Hauptmann's introduction of phenobarbital, little advance was made in the treatment of epilepsy. The fact that nervous tissue is more irritable in an alkaline than in an acid environment led to the introduction of the ketogenic diet in 1921; and the observation that fluid retention yields seizures, to the dehydration regime in 1928.[2] These modes of therapy have disappeared with the availability of more effective drug treatment in recent years. They required rigorous regimes, often harder to sustain than the seizures themselves. Today, we occasionally use dehydration of a mild form in the management of seizures occurring in association with the fluid retention of the premenstrual period or pregnancy. Beyond this there is little indication for this form of therapy in routine practice.

In 1937, Merritt and Putnam[6] reported testing some 700 compounds for their anticonvulsant properties. They made these studies with the aid of a device which enabled them to give measured electric shocks to cats. Of the 700, some 70 were able to protect the cats sufficiently to warrant further study. Of these 70, the great majority had to be rejected because of toxicity or unpalatability. Only one compound, diphenylhydantoin sodium (dilantin sodium) was given extensive clinical trial. This was the case largely because the results with dilantin were so rewarding that other drugs were given only to individuals who did not respond to, or had toxic reactions to dilantin. The latter, which includes ataxia, nystagmus, skin, rashes and gastric distress, seems to have been much more common in the past than at the present time. The efficacy of dilantin is largely limited to grand mal seizures. In adequate dosage (0.3 to 0.6 gram per day), it will control completely, or markedly reduce, the incidence of seizures in 60 to 80 per cent of patients newly introduced to therapy. There is some tendency to habituation to this drug and it may have to be given in in-

creasing amounts over the years. The addition of another anticonvulsant such as phenobarbital in full dosage (0.1 to 0.3 gram per day) will considerably improve the efficacy of dilantin.

Recognition of the value of dilantin intensified the study of the anticonvulsant properties of related compounds. Toman and Goodman[7] have recently reviewed the work of the past twelve years. They have shown that all the currently useful anticonvulsant agents can be regarded as derivatives of a common chemical nucleus. As the accompanying figure from their work indicates, these drugs fall into three groups: the barbiturates, the hydantoins, and the oxazolidine-2, 4-diones. The table included in Figure 1 lists the significant members of these groups as well as the forms of epilepsy in which they are effective.

FIGURE 1. — *Relation of Chemical Structure of Clinically Available Antiepileptics to Their Therapeutic Action.*



Bold-face: Common denominator.
Dash-line: Barbituric acid nucleus.
Dotted-line: Hydantoin nucleus.
Thin solid-line: Oxazolidine-2,4-dione nucleus.

NUCLEUS AND DRUG	R_1	R_2	R_3	CLINICAL USE
1. *Barbituric Acid*				
Phenobarbital	C_2H_5	C_6H_5	H	Grand mal
Mebaral	C_2H_5	C_6H_5	CH_3	Grand mal
2. *Hydantoin*				
Diphenylhydantoin	C_6H_5	C_6H_5	H	Grand mal; PsM.
Mesantoin	C_2H_5	C_6H_5	CH_3	Grand mal; PsM.
5,5-phenyl thienyl hydantoin	C_6H_5	C_4H_3S	H	Grand mal
3. *Oxazolidine-2,4-dione*				
Trimethadione	CH_3	CH_3	CH_3	Petit mal
Paradione	C_2H_5	CH_3	CH_3	Petit mal
Epidon	C_2H_5	C_6H_5	H	Grand mal
Phenurone (*)	C_6H_5	H	H	Grand mal Petit mal; PsM.

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It is quite difficult, both from one's own experience and the data in the literature, to evaluate the relative efficacy of these various compounds. The tendency to use well established drugs of low toxicity first and to reserve the relatively new drugs for cases which do not respond to the established agents prejudices the results of any general clinical experience in favor of one or another preferred drug. This is well illustrated in our experience at the Tulane Neurology Clinic in Charity Hospital and the Tulane Epilepsy Clinic. In our series, we have found that phenobarbital alone will control completely, or reduce by at least 50 per cent, the seizures in 86 per cent of patients subjected to this regime. Dilantin alone is similarly effective in 71 per cent of patients. The combination of phenobarbital and dilantin, however, is effective, according to our criteria, in only 59 per cent of cases. The obvious implication is that we supplement either dilantin or phenobarbital only in cases in which we find either drug alone to be ineffective, that is, the more difficult cases.

IV

In view of this consideration it would obviously be misleading for one to attempt to rank the various anticonvulsants in the order of their efficacy. It may, however, be worthwhile to make a few comments on the groups of drugs shown by Toman and Goodman, and on some of the various members of each group.

Barbituric acid derivatives. It must first be emphasized that the mere fact that a drug is a derivative of the nucleus shown in Figure 1 does not make it a good anticonvulsant. This is especially strikingly demonstrated in the case of barbiturates. Quick acting drugs of this group are frequently used in electroencephalographic work to induce seizures patterns. The confusion of sedatives and anticonvulsant is extremely common. The induction of sleep is not the proper technic for stopping a seizure. Indeed, many individuals have seizures only when they sleep. A frequent error in emergency practice is to attempt to interrupt status epilepticus (the occurrence of repetitive seizures) with sodium amytal. This drug is a poor anticonvulsant.

The clinically proven anticonvulsants in this group are phenobarbital and mebaral. These drugs have the virtue of being relatively nontoxic agents with excellent anticonvulsant properties. Their major disadvantage lies in their sedative properties to which, however, most patients soon become habituated. These drugs are effective particularly in grand mal epilepsy. We would,

however, disagree with Toman and Goodman in that we feel them also to be of value in psychomotor seizures. A recent barbiturate, not yet released for general use, is geminal. We have no first hand experience with this drug.

Hydantoin derivatives. There is little to be said about these drugs as a group. Dilantin has already been discussed above. Mesantoin, which stands in the same chemical relation to the hydantoin nucleus as mebaral does to the barbital nucleus, is a drug of excellent anticonvulsant properties. It has value in psychomotor as well as grand mal epilepsy. It is said to be less toxic in general than dilantin. In our experience, however, this has not been the case. In addition, it has several times been implicated in the occurrence of both agranulocytosis and aplastic anemia. In a few instances this has resulted in fatality. Carefully used, however, it is a valuable addition to the anticonvulsant armamentarium. We have had no personal experience with thiantoin (5, 5-phenylthienylhydantoin). It is reported, however, to be a safer drug than mesantoin, but also of considerably less anticonvulsant value. Nuvarone is as yet an experimental hydantoin. It is reported to be of value comparable to that of other members of this group.

Phenurone can be regarded as a derivative of hydantoin in which the ring has been opened at the 1,5 position. This drug is reported to be of value in all forms of epilepsy. It has, however, the disadvantage of quite common toxic manifestations. Most serious are aplastic anemia, psychic disturbances and hepatitis with fatalities. The psychic disturbances occur in approximately 20 per cent of patients and have occasionally led to suicide.

Recently,[9] there has been reported a further aliphatic derivative of the hydantoin nucleus, alpha - phenyl - butynyl - urea (C_2H_5-C(H)(C$_6$H$_5$)-C(O)-N(H)-C(O)-NH$_2$). While this drug was effective in the control of seizures in a small group of institutionalized epileptics, the toxic effects were such as to preclude its continued use.

Oxazolidine-2, 4-dione. Of particular interest in this group are tridione and paradione. These drugs have given new hope to sufferers with petit mal epilepsy for whom they, at present, are the most effective available agents. Prior to their introduction in 1946, petit mal could rarely be ameliorated by such agents as caffeine and amphetamine. Effective control of seizures was nearly unheard of. With these agents, effective therapy can be carried out in a high percentage of cases.

Hibicon (), is a recently prepared drug of particular interest both because it represents a departure from the basic structure outlined in Figure 1, and because it has been observed to exert its maximal anticonvulsant effect in animals when given in the restricted dosage of 25-35 mg. per kilo of body weight. This drug has been studied at the Tulane Epilepsy Clinic.[10] Of remarkably low toxicity, we have given patients as much as 15 grams per day over a two week period with no untoward effects. The anticonvulsant properties of the drug have not seemed to us to be of the same order as those of the agents noted above, whether it is given in maximal doses or doses calculated on the basis of 50 mg. per kilo of body weight.

V

Certain other aspects of the medical management of epilepsy present recurring problems to the physicians dealing with this syndrome. Patients suffering from this condition are the objects of much ignorant prejudice and discrimination. They are marked out by their fellowmen, treated with little consideration, and not uncommonly, with out and out brutality. Suffering as they do with a disorder of brain function, such treatment which obviously is perceived, remembered, and thought about in the brain, inevitably aggravate their tendency to seizures and increases the frequency of attacks. Psychiatric help thus becomes

a necessary part of the treatment of epilepsy.

Among the sedatives which have been found to aggravate epilepsy, none is more effective than alcohol. Thus, it becomes the problem of the physician to persuade his patient to give up this form of pleasant escape from his problem.

Beyond this, the patient with epilepsy is dogged by concern about his ability to work and his fear that to marry and raise a family is to perpetuate his curse. Concerning the former problem, we advise the patient to seek employment in relatively safe places, away from moving machinery, and unprotected heights. Concerning the latter, we point out that while it is true that epilepsy is more frequent in children of epileptics (1 in 40) than in the general population (1 in 200), many extremely useful and outstanding people have suffered with seizures. Epilepsy is neither a hopeless nor an untreatable disease.

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IMPORTED MALARIA

In our community, where fifty years ago every febrile illness was suspected of being connected with malaria, it now becomes necessary to draw the attention of the profession to another malarial problem.

In the year 1950, it is stated on good authority, there were less than 20 proven indigenous cases of malaria recorded for the entire country. On the other hand, in this state and elsewhere in the country, young adult Americans, who have seen service in Korea and have been subsequently discharged from the army, are presenting themselves to physicians with signs of some acute febrile illness. The patients complain of generalized aching, and of feeling hot. The next day, there may be headache and anorexia. On subsequent days, there may be nausea, vomiting, and a chill, followed by temporary improvement. After the first week, there may be a high fever with a prolonged chill. Patients with such a history are apt to be suffering with Korean vivax malaria. This particular variety of malaria, similar to that occurring in Holland, may have an incubation period of many months. For the first two years after a veteran has returned from Korea, the fact of his having been there should be sufficient to arouse a suspicion of malaria with any fever. As is usual in this disease we may expect a considerable number of cases during the summer months.

The limited supplies of quinine, on the one hand, and the widespread exposure of many in the armed forces to malaria of the various varieties in many parts of the globe have contributed to an increased knowledge of this disease, and to conceptions and treatments now which were not thought of fifteen years ago. Increased knowledge of the behavior of the malaria parasites causes the condition to be regarded as two entities: one caused by the falciparum (estivo-autumnal) parasite, and the other by the vivax or quartan infection. The entrance of the falciparum parasite into the red cell causes it to be sticky and to adhere to the walls of the vascular system; so that its further growth and division occur outside of the peripheral circulation. The symptoms of the disease then develop in protean fashion, depending in part on the organ or groups of organs affected by the developing parasites.

The treatment of malaria is different now to what it was on Pearl Harbor Day. Several drugs have come into general acceptance. The best drugs are those in which complete treatment is achieved in the shortest time. Whether due to falciparum, vivax, or quartan, upon the administration of camoquin, chloroquine (aralen), or quinacrine (atabrine), the blood will rapidly become parasite-free and the patient asymp-

tomatic. The duration of treatment with these three drugs is one, three, and seven days, in the order named. Camoquin is administered as tablets, 0.2 gram, three tablets the first day, and this is adequate. Chloroquine is given as 0.25 gram tablet, four tablets on diagnosis, two in six hours, and two a day for two days. Quinacrine is given as a 0.1 gram tablet, three times a day for ten days. The falciparum infection should be cured and relapses, if they are to occur, will be at maximum intervals. In vivax of the Korean and other types, A. J. Walker advises that one or two recrudescences be treated with a short course of drugs, since only a very small percentage have more than two relapses. The patient, however, should be told of the possibility of future relapses. Should they occur, still other drugs are available. At the present time, camoquin is not readily available. Chloroquine and quinacrine are easily obtained.

It is also observed that such malaria as may be imported is coming into what is now a nonimmune population. Its manifestations may be more protean than in the past. But it is fortunate that the physician has improved facilities for treating it.

The time has again come, therefore, for a certain segment of our population that a febrile illness must cause a suspicion of malaria.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

1952 ANNUAL MEETING
ABSTRACTED MINUTES

House of Delegates

ROLL CALL

Ninety delegates, 17 officers and 12 past presidents present.

MINUTES

Minutes of the *1951 meeting of House of Delegates* approved as recorded.

Minutes of meetings of *Executive Committee since 1951* meeting of House of Delegates approved as recorded.

SPECIAL ORDER

Appointment of committees: *Credentials*:—Dr. Wm. H. Roeling, New Orleans, Chairman; Drs. T. B. Tooke, Jr., Shreveport, and J. A. White, Alexandria. *President's Report*:—Dr. Val H. Fuchs, New Orleans, Chairman; Drs. W. M. Boles, New Orleans and D. T. Milam, Monroe. *Resolutions*: Dr. Moss M. Bannerman, Baton Rouge, Chairman; Drs. Theo F. Kirn, New Orleans, and J. E. Knighton, Shreveport.

Address by *Mr. Aubrey D. Gates*, Field Director of the AMA Council on Rural Health on the subject HEALTH IS EVERYBODY'S BUSINESS.

Roll of *members who died since 1951* meeting read.

Approval of *telegram* to be sent to *Dr. P. T. Talbot, Secretary-Treasurer Emeritus* in re inability to be present.

Appointment of *committee to select physicians and laymen* for recommendation to serve on Board of LPS.

Discussion by Dr. Roy B. Harrison in re *activity of State Board of Medical Examiners* in re *practice of chiropractors.*

Talk by Dr. E. M. Toler in re expected *activity in next session of Louisiana Legislature.*

COMMUNICATIONS

Telegram from *Dr. P. T. Talbot* expressing best wishes for a *successful meeting.*

Telegram from Dr. D. A. Hiller, Manager of the *Veterans Administration Hospital* in *Shreveport* extending an *invitation* to members of the Society *to visit the hospital.*

Telegram from *Shreveport District Nurses Association*, extending best wishes for a *successful convention.*

Orleans Parish Medical Society in re *collection of AMA dues*:—Dues to be collected as at present; by parish societies, sent to the Louisiana State Medical Society and forwarded to the AMA by the State Society.

Orleans Parish Medical Society in re *resolution* concerning combining all welfare drives into *federated fund.*—Resolution approved.

Shreveport Medical Society in re *proposed Act* to prohibit anyone, other than *optometrists* to dispense lenses or spectacles or adjust frames:—Referred to Committee on Public Policy and Legislation.

ACTION TAKEN

Appropriation of $2,000.00 for establishment of *Cancer Commission.*

Appointment of special committee to confer with incoming administration of the state *concerning problems having to do with state hospitals;* particular attention being called to the admitting of patients and resident and intern problems, requesting adequate representation on the Boards of the State Hospitals.

Collection of AMA dues by parish societies, sent to the Louisiana State Medical Society and forwarded to the AMA by State Society, approved.

Proposed Act to prohibit anyone, other than *optometrists* to dispense lenses or spectacles or adjust frames—referred to the Committee on Public Policy and Legislation.

Appointment of committee, composed of internists, general surgeons and ear, nose and throat specialists, not members of LPS Board, with complete power to determine *controversial claims,* presented to *LPS.*

Recommendation of following *doctors and laymen* to serve on *Board of LPS*:—Drs. Rhett McMahon, Robyn Hardy, N. J. Tessitore, A. V. Friedrichs, O. B. Owens, W. L. Bendel, George W. Wright, Edwin L. Zander, L. O. Clark, J. W. Faulk, Arthur D. Long, Guy R. Jones, H. Ashton Thomas, Charles B. Odom, C. J. Brown, M. C. Wiginton, Charles McVea, H. W. Boggs, H. H. Hardy. Laymen: Don Ewing, Pat Turner, Frank Lais, Jr., E. H. Curtis, Bill Clark, N. C. McGowan, Jim Bell, John LaNasa, Scott Wilkinson, St. Clair Adams.

Approval of bill to be introduced in the legislature which would *abolish five hundred dollar limit on compensation cases.*

Adoption of following *recommendations* concerning *neuropsychiatric service* rendered at Charity Hospitals: —1. The House of Delegates consider this situation and appoint a committee to make a detailed investigation and recommend steps to correct the conditions that exist and return the neuropsychiatric service of Charity Hospital to its original purpose; that is an acute psychiatric service for the study and temporary care of mentally ill people in order that their condition may be as accurately determined as possible preparatory to their transfer to a more chronic hospital if such is indicated. 2. A survey of all the psychiatric hospitals of the state and recommendations as to their coordination with each other made so that they will function as a service and not individually.

Authorization of Secretary-Treasurer to ascertain *personnel of committee* to which *chiropractic bill* will be referred and transmit this information to members of the Society.

Council authorized to take *appropriate action* as indicated in the By-Laws, concerning action of doctors connected with the Ardoin Sanitarium in connection with charges made for handling insurance cases under the Texas Blue Cross, and Blue Shield Plans and the LPS.

MATTERS DISCUSSED—NO ACTION TAKEN

Activities of Louisiana Physicians Service, Inc. (only action taken in re appointment of committee to consider controversial claims and approval of doctors and laymen for recommendation as members of LPS Board.)

Question of *investigation of problem of persons over 65 years of age* in an effort to assist them in obtaining employment.

Investigation by Committee on Hospitals of *charges made to service men* at the *Charity Hospital in Alexandria.*

RESOLUTIONS APPROVED

Submitted by Orleans Parish Medical Society: WHEREAS the National Foundation for Infantile Paralysis and other national health and welfare foundations have performed a signal public service in combatting poliomyelitis and other disabling diseases; and WHEREAS the important research, medical and education programs of the National Foundation for Infantile Paralysis and other national foundations would be seriously impeded if they were obliged to abandon their separate fund raising appeals and were required to join a united fund; NOW THEREFORE BE IT RESOLVED that the National Foundation for Infantile Paralysis and other independent national health and welfare foundations shall be upheld in their resistance to the formation of a national united fund and shall maintain their current policy of raising funds by appealing for the voluntary support of the people of this country.

Presented by Dr. Edwin H. Lawson: That the House of Delegates reaffirm its approval of the essentials for an approved Examining Board in a Medical Specialty, including the principles that applicants for examination must be graduates of a medical school approved by the Council on Medical Education and Hospitals and must be licensed to practice Medicine; AND BE IT FURTHER RESOLVED, that the House of Delegates of the AMA instruct the Council on Medical Education and Hospitals to limit its approval of Specialty Boards to those which can comply with these essentials, in order to safeguard the interests and welfare of patients.

Resolutions concerning change in *name of the New Orleans Medical and Surgical Journal*—to The Journal of the Louisiana State Medical Society, prepared by the attorney, adopted; details to be handled by the Executive Committee.

AMENDMENTS

Section 3 of Chapter IX of By-Laws to read: The Committee on Congressional Matters shall consist of eight members, one from each Congressional District, appointed by the president for a term of one year. The duties of this committee shall be to keep in touch with congressional bills and legislative matters which pertain to medicine

and public health and inform members of the Society concerning status of same.

Section 4 of Chapter IX of By-Laws to be reworded to conform with resolutions passed concerning change in name of New Orleans Medical and Surgical Journal to The Journal of the Louisiana State Medical Society.

Section to be added to Chapter IX of By-Laws making the Committee on Child Health a standing committee.

Section 1 of Chapter X of By-Laws to read: Active members of the Louisiana State Medical Society who have paid all dues, assessments and other charges assessed or levied by the Louisiana State Medical Society, shall be entitled, on conditions hereinafter specified, to receive legal advice with respect to any claim for damages made by a patient and growing out of medical or surgical services rendered the patient. In the event suit be filed in any Court in the State of Louisiana, subject to the same conditions, the member shall be entitled to have such suit defended by an attorney-at-law in the employ of the Society or otherwise selected by the Committee on Medical Defense. Such services of an attorney to be without personal expense to the member.

Section 4 of Chapter X of By-Laws to read: The Society will not undertake the defense of a member in a suit brought to recover damages claimed to have resulted from services rendered by the member, who is delinquent, or has not paid the annual dues or other assessments prior to the rendering of such services.

Deletion of Section 10 of Chapter X of By-Laws which reads as follows: The defense promised in Chapter X shall apply when the suit is brought by the patient, by the nurse or anyone who claims to have been injured by an act of the doctor at the time the doctor was in the actual performance of his professional duty.

REPORTS WITHOUT RECOMMENDATIONS

Following reports accepted as presented: Secretary-Treasurer; Chairman of Council; Councilors of First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth Congressional Districts; Committees: Advisory to Selective Service, Aid to Indigent Members, Blood Banks, Budget and Finance, Committees, Congressional Matters, Domicile, Grievances, Industrial Health, Lectures for Colored Physicians, Liaison with Louisiana State Nurses' Association, Maternal Welfare, Medical Defense, Medical Education, National Emergency Medical Service, Public Health of the State of Louisiana, Rural and Urban Health, Scientific Work, Woman's Auxiliary; Council on Medical Service and Public Relations; Louisiana Physicians Service, Inc.

REPORTS WITH RECOMMENDATIONS

President:—1. Continue as special committees of the Society, the Committee on Grievances, Committee on Chronic Diseases, Committee on Child Health and Liaison Committee with the Louisiana State Nurses' Association. 2. Appointment of a special committee to cooperate with the American Medical Education Foundation. 3. Study of question of a law to establish standards for nursing homes in the state. 4. Study and prepare a law governing the sale of hypnotic drugs. 5. Foster a bill establishing an annual Doctor's Day. 6. The president of the State Society serve as an ex-officio member with no right to vote and not as an elected member of the Louisiana Physicians Service, Inc. Board. The following report of the Committee on the President's Report was accepted: The Committee on the President's Report wishes to accept the report as a whole and to approve the six recommendations contained in the report.

Council:—After discussion by the Chairman of the Council of charges made by the Ardoin Clinic in connection with insurance cases handled for the Texas Blue Cross and Texas Blue Shield and LPS the case was referred back to the Council with a request that the Council take appropriate action as authorized under the By-Laws in Section 3 of Article VIII.

Committee on Cancer:—1. That a Louisiana State Medical Society Cancer Commission be formed to work with and under direction of the Cancer Committee of the Louisiana State Medical Society; Chairman of the Cancer Committee to act as Chairman of the entire Commission; that $2,000.00 be allocated the Cancer Commission of the Louisiana State Medical Society and any part thereof that goes unused to be returned to the Louisiana State Medical Society; purpose of said Commission being the coordination of all cancer activities. Approved.

Committee on Child Health:—1. Committee on Child Health be made a standing committee of the State Society. Approved. 2. A medical workshop or conference, devoted to problems of school health be sponsored each year by the State Society, through its Committee on Child Health, and that members of the Society be encouraged to attend district workshops sponsored by the State Department of Education. Approved. 3. Component societies be encouraged to appoint local committees on school health. Approved. 4. State Society encourage the Section on Pediatrics to include discussions of child health services engaged in by several divisions of the State Department of Health, as well as other organizations directly interested in the field of child health, on the program for annual meetings. Recommendation withdrawn. 5. Continued cooperation between the Louisiana State Medical Society and organizations mentioned in Section #2 at beginning of report. Approved.

Committee on Chronic Diseases:—Since there is no organized physical restoration program in the State, the Governor be petitioned to appoint a Commission on Chronically Ill Persons for the State of Louisiana; the Louisiana State Medical Society to

be informed as to whom they are so that the Legislative Committee can either work with them or against them, as they see fit. Approved.

Committee on History of the Louisiana State Medical Society:—1. That personnel of this committee be allowed to remain unchanged for the present. Approved.

Committee on Hospitals:—1. Committee on Hospitals for 1952-53 investigate abuses at Independence Charity Hospital with the thought of making specific recommendations after a complete study of the situation. Approved. 2. Investigation be made of hospital bed shortage at Lafayette. Approved.

Committee on Journal:—1. Name of the New Orleans Medical and Surgical Journal be changed to THE JOURNAL OF THE LOUISIANA STATE MEDICAL SOCIETY with notation "Formerly New Orleans Medical & Surgical Journal"; if such recommendation is approved, Section 4 of Chapter IX of the By-Laws be amended accordingly. Approved. 2. That the name NEW ORLEANS MEDICAL AND SURGICAL JOURNAL continue at least through the December, 1952 issue. Approved. Resolutions prepared by attorney in re change of name of journal adopted; details to be handled through the Executive Committee.

Committee on Medical Education:—1. Committee be authorized to go over the curriculum for medical students of the state and hold conferences with the State Board of Medical Examiners and make recommendation in regard to giving students less theory and more contact with sick people. Approved.

Committee on Medical Indigency:—1. Continuance of study of subject of medical indigency and formulation of plans for consideration by the Governor and his associates. Approved.

Committee on Medical Testimony:—1. Investigation by the Society of testimony rendered by both doctors mentioned in report, the doctors being allowed opportunity of a hearing. 2. If the matter is to be pursued further the president directed to appoint a special committee to cooperate with other interested groups in obtaining an improved law which will obviate opportunities of abuse. Subject referred to Council.

Committee on Public Policy and Legislation:—1. Approval of bill requiring premarital examination for venereal disease for both male and female. Approved. 2. No additional charity hospitals built as the present facilities are strategically located and adequate; State continue present contract bed arrangements with only non-profit hospitals. Approved. 3. Act pertaining to office of director or president of the State Board of Health be amended to make it mandatory that this officer be a doctor of medicine. Approved.

Committee on Resolutions:—1. Copy of this report be incorporated in the minutes of this meeting, published in the New Orleans Medical and Surgical Journal and released to the press.

Planning Board in re Survey of Facilities and Personnel for Medical Care:—1. Survey of facilities and personnel for medical care not be undertaken at the present time. Approved.

Louisiana State Board of Medical Examiners:—1. Recommend Dr. E. L. Leckert for reappointment on Board. Dr. E. L. Leckert and Dr. R. T. Lucas recommended for appointment.

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ELECTION OF OFFICERS, COMMITTEES AND DELEGATE AND ALTERNATE TO AMA

President-elect—Dr. P. H. Jones, New Orleans.

First Vice-President—Dr. Ralph H. Riggs, Shreveport.

Second Vice-President—Dr. T. F. Kirn, New Orleans.

Third Vice-President—Dr. D. J. Fourrier, Baton Rouge.

Secretary-Treasurer—Dr. C. Grenes Cole, New Orleans.

Chairman of House of Delegates—Dr. A. V. Friedrichs, New Orleans.

Vice-Chairman of House of Delegates—Dr. W. S. Kerlin, Shreveport.

Councilor, First District—Dr. H. Ashton Thomas, New Orleans.

Councilor, Second District—Dr. Joseph S. Kopfler, Kenner.

Councilor, Fourth District—Dr. Paul D. Abramson, Shreveport.

Councilor, Fifth District—Dr. C. P. Gray, Jr., Monroe.

Delegate to AMA (1953 and 1954)—Dr. Val H. Fuchs.

Alternate to Delegate to AMA (1953 and 1954)—Dr. George H. Hauser.

Committee on Journal—Dr. Sam Hobson, New Orleans and Dr. J. E. Knighton, Shreveport.

Committee on Medical Defense—Dr. J. Kelly Stone.

Committee on Public Policy and Legislation—Dr. Cuthbert J. Brown, New Orleans, Chairman; Drs. J. E. Clayton, Norco; Julius M. Fernandez, Franklin; A. A. Herold, Shreveport; D. T. Milam, Monroe; Henry W. Jolly, Jr., Baton Rouge; E. C. Faulk, Rayne; M. B. Pearce, Alexandria; E. A. Campbell, Homer; William McG. McBride, Alexandria; Felix A. Planche, New Orleans; C. S. Sentell, Minden.

Committee on Scientific Work—Dr. W. H. Gillentine, New Orleans and Dr. M. D. Hargrove, Shreveport.

1953 Meeting

Invitation to meet in New Orleans accepted.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

PHYSICIAN WANTED

Information has been received that a doctor is needed in Sicily Island, Louisiana. The Rotary Club of that town will arrange for a down payment on a house and will build a clinic for the doctor if suitable arrangements can be made with a doctor interested in this location. For further information contact Mr. Sonny Gilbert, Sicily Island.

COMING MEDICAL MEETING

The International Post-Graduate Medical Assembly of Southwest Texas will hold their annual meeting January 27, 28, 29, 1953 in San Antonio, Texas, at the Municipal Auditorium. Dr. John L. Matthews, President, Dr. John M. Smith, Jr., Secretary-Treasurer, San Antonio, Texas.

COST OF SICKNESS

To create a better understanding of one of the major causes of patient-doctor misunderstanding—the cost of illness—a new pamphlet has been designed for public distribution. Entitled "Your Money's Worth in Health," the booklet stresses the various aspects of patients' medical bills and the cost of illness in relation to the national income. The pamphlet shows graphically that the cost of illness has not risen as much are as rapidly as other consumer goods. This illustrated eight-page pamphlet soon will be made available to AMA members and medical societies for distribution to the general public.

EXPENSES OF POSTGRADUATE STUDY

The American Medical Association has taken another step in its long fight to get the Internal Revenue Bureau to permit physicians to deduct expenses incurred in the pursuit of postgraduate study from federal income taxes.

The A. M. A. has been interested in this question for a long time. Thirty years ago the internal revenue commissioner ruled that a doctor's postgraduate expenses were personal in nature and, therefore, not deductible for income tax purposes. On numerous occasions the A. M. A. House of Delegates expressed the viewpoint that this ruling was in error and urged its reversal, but, to date, all efforts have been futile.

Recently, the A. M. A.'s legal department learned that a case was pending before the U. S. Tax Court in Washingtin involving the right of a lawyer to deduct expenses incurred by him in taking a special course on federal taxes. Since the lawyer's problem and that of the physician are identical, the A. M. A. filed a brief as a "friend of the court."

The A. M. A. set out numerous arguments in support of its stand.

BLINDNESS PREVENTION LAW CHANGE CALLED PREMATURE

No radical changes in existing laws or regulations requiring the use of silver nitrate prophylaxis in the eyes of the newborn should be made at this time, it was stated in an editorial in a recent Journal of the American Medical Association.

Recently there have been articles in various publications criticizing silver nitrate as a prophylaxis and urging the use of some form of antibiotic, usually penicillin.

"While there can be no possible objection to the use of penicillin prophylaxis in hospital clinics where its use is well controlled, it would appear that any specific recommendations for changes in the state laws or regulations would at this time be premature," the Journal editorial said.

"It is, however, quite possible that further investigations will permit firm recommendations for a prophylaxis with an antibiotic with a wider spectrum than is possessed by penicillin and without the objections that can now be made against the penicillin procedure."

The objections to the use of penicillin, the editorial stated, include the fact that the drug may deteriorate in time even if refrigerated. Unless it is properly preserved and renewed, the penicillin may become inactive.

Objections to silver nitrate include the fact that it causes a slight inflammation of the eyes in many cases.

At the present time, some form of prophylaxis against blindness in the newborn is required by either law or regulation in all 48 states and the District of Columbia. Thirty-two of the states specify the silver nitrate method, while only one gives penicillin as an alternate procedure.

TRAINING SCHOOL OFFERS PROFESSIONAL INSTRUCTION IN FITTING SURGICAL APPLIANCES

One of the most common problems encountered by physicians in prescribing surgical supports is being solved by the Truform Training School, Cincinnati, Ohio. The entire educational program is designed to equip Truform dealers throughout the country with the technical knowledge required in properly fitting surgical supports in accordance with physicians' prescriptions. Fitters are instructed by a physician in terms of a physician's use of surgical supports as vital aids in his therapy. The school's director and instructor, Dr. Howard L. Bayland, M. D., is a registered physician; he personally conducts all of the classes. The manufacturer of Truform Anatomical Supports is the sole sponsor of the school.

The course offered by the school is intended as a refresher for the experienced fitter, as well as a basic training for the beginner. Many visual-aid teaching technics are used. Educational movies and full-color slides provide interesting, practical instruction. Other educational aids include charts, models, etc. Wherever possible, live models are employed. Every student, whether he be experienced or new in fitting surgical appliances, leaves the school equipped with the theoretical and practical knowledge necessary in properly filling a physician's prescription.

The school is located in Cincinnati, Ohio, where students may familiarize themselves, through observation, with the actual manufacture of surgical appliances in the Truform plant. The school's classes are of two weeks duration and are held periodically throughout the year.

ARMCHAIR REST SPEEDS RECOVERY FROM HEART DISEASE

An armchair, rather than a bed, should be the resting place for those with heart disease.

Armchair rest is more beneficial in promoting rapid recovery from acute coronary thrombosis, in the opinion of two Boston physicians. Coronary thrombosis is the formation of a clot in a branch of the coronary arteries which supply blood to the heart muscle, resulting in obstruction of the artery and death of the area of the heart supplied by the vessel affected.

Strict bedrest is injurious to the patient with congestive heart failure, Drs. Samuel A. Levine and Bernard Lown wrote in a recent Journal of the American Medical Association. The doctors are associated with the Peter Bent Brigham Hospital and the Harvard Medical School, Boston.

The doctors based their conclusions on a study of 81 persons suffering from acute coronary thrombosis. Eight of the patients (9.9 per cent) died, but, according to the doctors, the deaths could not be attributed to any complications arising from the armchair therapy. A certain mortality is to be expected in such heart conditions, irrespective of the type of treatment, they added.

When a heart is diseased, the doctors stated, its load must be diminished. But, in their opinion, recumbency in bed affords less rest to the heart than an inactive position in a chair with the feet down. Lying immobile in bed, they added, permits and encourages the pooling of fluid in the chest and increases the volume of work of the heart, while the sitting position permits gravity to mobilize fluid into the dependent parts of the body. In addition, many complicating, serious side-effects may result from prolonged bedrest, they said.

DICKINSON TESTIFIES BEFORE HEALTH COMMISSION

Testifying before the President's Commission on the Health Needs of the Nation in Washington, Frank G. Dickinson, Ph. D., director of the Bureau of Medical Economic Research of the A. M. A., said that "there has not been to date a realistic study which supports any valid claim that a national doctor shortage is pending."

Dr. Dickinson brought out some good points. He said that "since people need everything, it can be safely assumed that there are unmet needs for medical services, legal services, dental services, Grade A milk, shoes, and any other goods or services which sell for a price. Since all needs are relative, it follows that all unmet needs are relative. Any approach to the study of regionalization will fail at the start if it is based upon the notion that unmet needs are absolute."

Dr. Dickinson pointed out that in recent years two estimates of the doctor shortage for 1960 have been made by the federal government.

"Both of these attempts," he said, "assumed a national shortage rather than bothering to prove a national shortage."

He said further that many factors have been ignored in the two studies for making a reasonable estimate of the surplus or deficit in the 1960 supply of physicians.

"What do physicians do for people? What would more physicians do for people?

"The median age of the dying has jumped from age 30 in 1900 to age 67. Volumes are being turned out currently on the social and medical care of the aged. Although a physician must always try as hard to prolong the life of an 80 year old man as he would to prolong the life of a 10 year old boy, the formulation of national policy on the need for physicians must seriously and sympathetically consider the increasing number and percentage of older people—products of medical progress."

WARNING

We have received warning from Dr. H. S. Pro-

vine of Tallulah, La., that a transient salesman came through Tallulah selling hospital linens and jackets. The period order was never filled and communications to Suite 324, 818 Olive Street, St. Louis 1, Mo., were returned marked "Removed No Address."

BOOK REVIEWS

Surgery: Orthodox and Heterodox: By Sir William Heneage Ogilvie, K. B. E., D. M., M. Ch., F. R. C. S., Hon. F. A. C. S., Hon. F. R. C. S. Canada, Hon. F. R. A. C. S., Springfield, Charles C. Thomas, Publisher, 1948. Pp. 241. Price, $4.00.

This is a collection of addresses and reprinted articles on a wide range of surgical themes. They are, in turn, philosophical, autobiographical and clinical. They are, for the most part, unrelated, as the circumstances of their publication would lead one to expect. They are the work of a distinguished British surgeon, with a wide experience in British surgery in peace and in war, and with a wide knowledge of American surgery and surgeons.

Clinically there is a good deal of interest and value in this book, but there is also some dubious advice. Even an experienced physician could profit from the description of the early manifestations and diagnostic difficulties of carcinoma of the stomach. Most would not agree that the diagnosis of intestinal obstruction can be expedited by giving fluids by mouth. Much of the discussion of acute appendicitis is sound, but it is surprising that this disease is not at least considered in the differential diagnosis of the colicky pain of the young man on page 87. The author accepts, as this reviewer does not, the existence of chronic appendicitis (as distiguished from recurrent acute appendicitis), but softens the lapse by speaking of "facile appendicectomy" for a disease that exists "in the patient's mind or the surgeon's morals."

The author's estimate of American surgeons is stimulating, if not calculated to endear him to his confrères in this country. We lack individuality in our instruments, he says, and apparently in our methods, too, for he finds us set in the Halsted tradition. He regards graduate teaching as better here than in England, but undergraduate teaching as inferior, because it is too systematic and too didactic, as well as not personal enough. Furthermore, the patient is too often used as the text for a lecture, a comment that, if we are honest, we must grant is often well deserved. One of the wisest sentences in the book is that clinical wisdom is in its essence case memory.

About the fairest thing to be said about this book is that well-worn Latin tag, *de gustibus non est disputandum.* This reviewer recommends it, as being one man's meat.

FREDERICK FITZHERBERT BOYCE, M. D.

Roentgen Manifestation of Pancreatic Disease: By Maxwell Herbert Poppel, M. D., F. A. C. R., Springfield, Ill., Illus. Pp. 389, Price, $11.50.

Because it is impossible to visualize the pancreas on the roentgenogram, one must depend upon changes in the other visualized upper abdominal organs produced by pancreatic disease. It is important also to recall the changes produced in the pancreas by disease of the surrounding viscera. More attention is being paid to the pancreatic area and to the presence of calcifications.

This volume consists of twelve chapters, references, and index. The first chapter is devoted to general consideration of pancreatic disease and the second to development and anatomy of the pancreas. The duodenum is considered in Chapter Three, roentgen methods of examination in Chapter Four, and roentgen manifestations in Chapter Five.

The sixth chapter is devoted to calcareous disease of the pancreas. Five types of pancreatic calcifications are considered. These are calcifications (a) in the ducts of parenchyma, (b) in pancreatic cysts, (c) in infarcts, (d) in areas of hemorrhage, and (e) in tumors.

Chapter Seven is concerned with pancreatic tumors and includes a practical working classification. This importance, value, and limitations of the "inverted 3" sign are considered. Pancreatic infections are discussed in Chapter Eight, and pancreatic insufficiency is considered in Chapter Nine. Lesions of the pancreas of secondary origin and differential diagnosis are covered in Chapters Ten and Eleven, respectively. Chapter Twelve is devoted to statistics and is of interest.

The illustrations are excellent and the text is complete and detailed with illustrative case reports. The references are a valuable addition to the text.

J. N. ANÉ, M. D.

Memories, Men and Medicine; a History of Medicine in Sacramento, California, with Biographies of the Founders of the Sacramento Society for Medical Improvement and a few Contemporaries; by J. Roy Jones, M. D. Sacramento, Cal. Sacramento Soc. for Med. Improvement, 1950. Illus. port. pp 505. Price, $5.00.

Latest of the local medical histories, this volume, sponsored by the Sacramento Society for Medical Improvement, deals with one of the most unique and colorful facets of American history, the centennial growth and development of California, beginning with the discovery of gold in 1848. Condi-

tions of health and medical practice are described from contemporary accounts. Evidence of the prowess of California's early physicians are the establishment of a State Board of Health in 1870, A State Board of Medical Examiners in 1876 and the present State Medical Society, organized in 1870.

Interesting to Louisiana physicians is the fact that the first President of the California State Board of Health and of the first permanent medical society was Thomas M. Logan, originally from South Carolina, who practiced in New Orleans from 1841 (not 1843 as stated in this book) until 1849 when he moved to California. Dr. Logan was a brother-in-law of Dr. Erasmus Darwin Fenner, so well known for his many contributions to medicine in this area.

In noting priority in the laws organizing State Boards of Health, it is unfortunate that historians continue to overlook establishment of Louisiana's State Board of Health in 1854, making it the first one in the country. California's State Board of Health established in 1870 followed the Louisiana Board by 16 years, and Massachusetts followed the Louisiana Board by 15 years, although the California Board is noted here as being second only to that of Massachusetts, long considered first. Likewise Louisiana's Board of Medical Examiners, seldom mentioned in such priority lists is one of the earliest if not the earliest. The manuscript record of the Eastern Division of this Board, called *La Comité Medicale de la Nouvelle Orleans*, and appointed by the Governor covers the years 1816-56 and is the authority on which we may base Dr. T. M. Logan's arrival in New Orleans, as he appeared before this board on Dec. 1, 1841, presented his credentials, and without examination was awarded license to practice in Louisiana.

Dr. Jones' volume is a carefully documented history of all medical activities in Sacramento County, with much information concerning the medical history of California. It is an important contribution to local medical history in this country.

MARY LOUISE MARSHALL

Clinical Allergy: By Samuel J. Taub, N. Y. Paul B. Hoeber, Inc., 1951. 2nd. ed. pp. 276. Price $4.50.

The second edition of Dr. Taub's book on clinical allergy has been brought up to date by including new material which has appeared over the last six years. As presently constituted, the book is a practical manual which covers clearly and understandingly the entire field of allergy. Dr. Taub states that his aim has been to provide the general physician with a clear, simple and accurate guide to effective diagnostic and therapeutic measures which he can readily apply in his own practice. the book succeeds in this aim and is recommended.

VINCENT J. DERBES, M. D.

Paul Ehrlich: By Martha Marquardt. New York, Henry Schuman, 1951. pp. 255. Illus., port. Price $3.50.

In this first full length biography of Paul Ehrlich, the author, Martha Marquardt, who was his secretary for thirteen years, tells in dramatic fashion of Ehrlich's discovery of salvarsan (606)—the "Magic Bullet" which was the first effective cure for syphillis. Ehrlich really established the new science of chemotherapy for his contributions to medicine did not end with the discovery of salvarsan forty one years ago. Today the discovery of the antibiotics is the last word in therapeutics for the younger members of the medical profession and this discovery was made possible by following the lead Ehrlich had given and the principles he had laid down. Miss Marquardt has successfully woven together the vital personality of the man with his medical career in spite of the fact that she sometimes makes him almost superhuman. His scientific development began when he was a medical student with his staining experiment on blood cells and lead to the Nobel prize award, and the discovery of salvarsan.

This book would be entertaining reading for public health workers and for high school or college students especially interested in science.

RUTH E. HARLAMERT

Blood Groups in Man: By R. R. Race, Ph.D. and Ruth Sanger, Ph.D. Springfield, Ill., Charles C. Thomas, 1951. pp. 290. tables. Price $6.50.

The detailed and complicated subject of the blood groups has been outlined and discussed in understandable language. The textbook is comprehensive and covers each of the many blood groups, and discusses the inheritances of them. At the end of each chapter, a list of references provides the opportunity for additional study of the subject. Laboratory methods are included. There is no doubt that this book will serve as a basis for practical use as well as research and investigative purposes for years. The book is recommended very highly to all physicians, scientists, and personnel concerned in any manner with blood grouping and blood transfusions.

DANIEL W. HAYES, M. D.

An Atlas of Normal Radiographic Anatomy; by Isadore Meschan, M.A., M.D., W. B. Saunders, Philadelphia, 1951, Illus. Pp. 593. Price $15.00.

The purpose of this work has been to include in a single volume: (1) basic morbid anatomy as it is applicable to radiography; (2) the positions of the patient in making routine roentgenograms; (3) the film obtained; (4) the anatomic parts best visualized on these roentgenograms; (5) changes with growth and development; and (6) the more common variations of the normal.

The book contains ten chapters based upon an anatomical classification into systems and parts. The fundamentals of radiography are considered in the first chapter. The illustrations include: (1)

a line drawing, showing the positions of the x-ray tube, central ray, and anatomical part of the patient; (2) reproduction of the roentgenograms obtained; (3) and a line drawing with labels demonstrating the anatomical structures visualized on the film. Besides the discussion in the text, salient points in the technic of the radiography of the part are outlined on the pages of the illustrations.

As a whole, the text shows considerable attention to detail and time consuming patience to acquire the clarity and accuracy which are evident. The illustrations are of excellent quality and the text is well written. This work should serve teachers of anatomy as a valuable method of correlating dead and living anatomy. It should fulfill the requirements of teachers of clinical radiology for a fundamental text covering the normal before the abnormal or pathological concepts can be understood. It should be available to all physicians who are interested in radiology.

J. N. Ane, M.D.

Pioneer Doctor; by Louis J. Moorman, M.D. Norman, University of Oklahoma Press, 1951. Pp. 252. illus. por. Price, $3.75.

In this volume, Dr. Moorman has given us a story of changing ideas of medical practice rather than of his life alone. Having lived through a momentous period in the development of modern medicine, he illustrates with his own experience in medical education, from a student in Kentucky at the turn of the century, and graduate study in Vienna in 1909, to Dean of the University of Oklahoma School of Medicine in 1931. His experience in medical practice ranged from that of country doctor in Tennessee and general practice on the plains of Oklahoma in its pioneer days, to that of specialist in tuberculosis in later years.

The book is most readable and is replete with the human interest which depicts the true physician. The chapter dealing with what he terms the "socioeconomic leveling process" is worthy of special mention and should be required reading for every medical student.

Mary Louise Marshall.

Post-graduate Lectures on Orthopedic Diagnosis and Indications; by Arthur Steindler. vol. 2. Springfield, Ill., Charles C. Thomas, 1951. illus. Pp. 198. Price $6.00.

This second volume of the series of lectures presented by Dr. Steindler presents the paralytic disabilities, including poliomyelitis, and reconstructive procedures designed to correct postpoliomyelitic deformities, and spastic paralysis, with a review of operative procedures designed to correct typical deformities associated with cerebral palsy. The second section discusses static disabilities and includes low back pain, scoliosis, internal derangement of the knee joint and deformities of the foot and ankle. The sections on low back pain and internal derangement of the knee joint are exceptionally well illustrated and surprisingly concise.

This presentation of Dr. Steindler's material has been used in lectures to postgraduate students and belongs in the library of every orthopedic surgeon and those required to treat lesions of the bone and joint.

Jack Wickstrom, M.D.

Aphorisms of C. H. Mayo and William J. Mayo; collected by Frederick A. Willius. Springfield, Ill., Charles C. Thomas, 1951, pp. 109. Price, $2.75.

This small volume of aphorisms of C. H. Mayo and William J. Mayo is a series of carefully selected quotations from their complete writings. The selection was done by Dr. Frederick A. Willius from their combined bibliographies which comprise 988 written works. They are short and apt and would be of interest to all who know the Mayos or have any medical interest. It is in two sections, one containing the aphorisms of Dr. Charles H. Mayo followed by the references from which they were taken and one containing aphorisms of Dr. William T. Mayo followed by citation to his articles.

Ruth E. Harlamert

Autopsy Diagnosis and Technic; by Otto Saphir, M. D. New York, P. B. Hoeber, Inc., edition 3, 1951. Illus. pp. 471. Price, $6.00.

This is the third edition on autopsy diagnosis and technic by Dr. Saphir, and again we note the value of this book. Further emphasis upon diagnostic features of gross pathology is stressed. Discussion about functional physiological changes in endocrine organs, as well as gross appearance, has been added, and descriptions of some diseases of the osseous system have been rewritten, for example, fibrous dysplasia.

This book is highly recommended, and it is felt that it would be of great value to pathologists as well as to students.

Joseph Ziskind, M. D.

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NEWER DRUGS IN THE MEDICAL MANAGEMENT OF PEPTIC ULCER*

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SHREVEPORT

The medical or conservative treatment of uncomplicated duodenal ulcer is time honored and when properly carried out will relieve symptoms in approximately 90 to 95 per cent of cases. Although over thirty-five years have elapsed since Sippy formulated the basic principles of modern peptic ulcer therapy, only a few modifications of his original regimen have gained wide acceptance in this period. New antacid and antispasmodic drugs have been introduced, diets have been liberalized, but little has been altered in the fundamentals of treatment first proposed by Sippy. Why then, if medical treatment is so successful, is there a need for the present discussion, "Newer drugs in the medical management of peptic ulcer?" Our present plan of medical management, while successful in relieving symptoms in the vast majority of instances, fails to prevent recurrence of ulcer symptoms. The recurrences and complications of the disease that occur with such established methods have emphasized to clinicians the inadequacies of current therapy and have stimulated constant investigation and research for more efficient and effective drugs. Ingelfinger[1] found that one half of his cases relapsed within one year and 85 per cent within two years. At the end of ten years only 1 out of 10 patients remained free from symptoms. He wrote, "The long term medical management in brief is so unsatisfactory as to be virtually nonexistent. Any change could be hardly for the worse." While this attitude may be unduly pessimistic, it does reflect the dissatisfaction felt by the profession at large with our present long term peptic ulcer management. Newer antacid, antispasmodic, and anticholinergic drugs are therefore being constantly introduced in an effort to prevent the inevitable recurrences that accompany this disease.

Based on research and clinical observation, opinion is now rather general that peptic ulcer is associated in origin with a combination of three factors: increased secretion of hydrochloric acid, increased muscular contraction which is termed "spasm," and decreased resistance of the mucosa to these abnormal factors. Jordan[3] wrote, "All therapy of this disease up to the present time is based on this conception of the etiology, even though it is recognized as the secondary etiology. The basic etiology behind these factors remains unidentified". The present discussion will approach the therapeutic problem in this fashion:

I. Measures to control the secretion of hydrochloric acid;

A. Antacid therapy.

B. Antisecretory and cholinergic blocking agents.

II. Measures to relieve muscular spasm in the gastrointestinal tract (antispasmodics).

III. Measures calculated to increase the

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resistance of the gastric and duodenal mucosa to erosion by the digestive juices.

I. MEASURES TO CONTROL THE SECRETION OF HYDROCHLORIC ACID.

A. ANTACID THERAPY.

1. Protein Hydrolysate Therapy:—Protein hydrolysates will initially decidedly reduce the free hydrochloric acid of the stomach but after a period of time, depending on the dose used, the total acidity rises to values above the initial level. Repeated hourly doses of 25 grams of protein hydrolysates eventually cease to neutralize the free acid in the stomach. The length of the neutralizing time depends on the rate of gastric emptying, the longer P. H. remains in the stomach the longer will be the period of neutralization. The larger the dose of P. H. the more prolonged is the gastric emptying time. Amino acids in the upper part of the small intestine apparently stimulate the secretion of hydrochloric acid at a faster rate than it can be buffered by further small doses of P. H. in the stomach. Clinically, pain subsides more slowly when P. H. is used to neutralize acid than when other antacids are used. Pain frequently occurs during continuous intragastric drip treatment which according to Woldman[20] never occurs with aluminum hydroxide drip therapy. Rapid recurrence of ulcer symptoms after treatment has ceased occurs in many cases. Complications such as hemorrhage, perforation, obstruction during treatment have been reported by several investigators. These facts plus unpalatability, and relatively high cost, seriously limit the general application of this form of therapy.

2. Anion Exchange Resins: — Synthetic resins were first shown to be effective agents for reducing gastric acidity by Martin and Wilkinson in 1946.[11] Since then a number of investigators have reported that the resins relieved pain, epigastric distress, and heartburn with an effectiveness superior or comparable to older standard methods of treatment. Subsequent studies indicate that although anion exchange resins may partially reduce gastric acidity they do not appear superior to other antacids and are less effective than either calcium carbonate or aluminum hydroxide. Large amounts of the resins are required to neutralize gastric acidity for one hour. Transient increases of acidity occur in many instances within fifteen minutes after the preparation is taken. Approximately 25 per cent of patients receiving the resin complain of the disagreeable taste and smell of the preparation. Nausea, vomiting, sour stomach, epigastric fullness, constipation, anal and esophageal burning are common side effects. Reduction of gastric acidity, inactivation of pepsin, symptomatic relief and roentgenographic evidence of healing following resin therapy are comparable or inferior to results obtained from conventional plans of treatment. It would appear therefore that anion exchange resins in their present form have little if any advantage over older antacids. Their cost, disagreeable taste and odor, and unpleasant side effects definitely limit their use in any long continued plan of medical management.

3. Detergents:—Sodium alkyl sulphate, a new detergent, eliminates peptic activity of gastric juice in vitro but does not decrease the peptic activity of gastric juice in man, probably because of the blocking effects of certain lipids. Kirsner *et als'* experience with SAS once again was said to demonstrate that results in a test tube or the dog are not automatically transferable to man.

4. Mucigogues:—Recently Bandes[58] and his group have introduced a variation of gastric mucin therapy. These investigators reported their experiences with an aqueous emulsion of a topical mucigogue (eugenol). The technique employed required gastric lavage with eugenol, which was allowed to remain a few minutes and then removed by gastric aspiration. Conclusive evidence of therapeutic effect was lacking. They conclude that the discovery of a mucigogue that does not require aspiration from the stomach may eventually prove of clinical value.

5. Irradiation:—Ricketts[59] and his associates found that the resultant achlorhydria from irradiation lasted from a few days to as long as eight years. Results from x-ray therapy were in general unpredictable and

inconstant. Ulcer pain was said to disappear during the period of achlorhydria and recurred when the acid secretion returned. Achlorhydria of three months duration was invariably followed by ulcer healing. However, there can be no assurance that the stomach may not be seriously damaged by treatment. In general x-ray therapy as a method of reducing gastric acidity seems to have little promise and may seriously injure the stomach.

6. Conventional Antacid Therapy: — None of the available antacids completely neutralizes free gastric acidity in man for prolonged periods. Relatively large amounts of antacid, 10 to 20 times in excess of that necessary in vitro experiments, are required to lower the free acidity in man for even brief periods of time. This is probably because of gastric emptying and the continued secretion of acid. Rebound increases of acidity have been reported with all antacids and further impair the efficiency of antacid therapy. Although a large number of antacid preparations are available, evidence of alleged superiority of any one does not seem conclusive. Apparently, it makes little difference what antacid is used as long as it is given in large doses and at frequent intervals. When antacids are given seems more important than what antacid is administered. Antacid administered three or four times daily is inadequate antacid therapy. There is no point in administering an antacid before or immediately after meals because food itself possesses some buffering and antacid effect and the concomitant intake of antacid would seem unnecessary at this time. Effective antacid treatment comprises the almost continuous administration of antacid, milk and cream, and soft bland foods as originally described in the Sippy program. However, the hourly intake of medication is not practical for prolonged use. The regimen is tedious and patients will not continue such a program over prolonged periods of time. Although this plan of management efficiently controls ulcer symptoms in most cases, recurrences continue to be a major problem. A more attractive and practical plan of treatment would be the effective inhibition of gastric secretion by an orally administered drug.

B. ANTISECRETORY AND CHOLINERGIC BLOCKING AGENTS.

Antihistamines have been suggested as a measure to inhibit gastric secretion of hydrochloric acid by counteracting the effects of endogeneous produced histamine by an antihistaminic agent. These preparations have proved disappointing and are of no value in the management of peptic ulcer.

Tetraethyl ammonium chloride and bromide have been recently used in the treatment of duodenal ulcer. The drugs act by blocking the transmission of both sympathetic and parasympathetic nerve impulses at the ganglia of the autonomic nervous system. These preparations are of limited value in the treatment of peptic ulcer because the duration of their therapeutic effect is so fleeting. Side reactions of mydriasis, dryness of the mouth, and severe orthostatic hypotension limit the use of these drugs to hospital patients. Oral administration is ineffective and further limits the use of these preparations. The most important use of the drugs seems to be in the control of intractable night pain.

Ganglion blocking methonium salts act in the same manner as TEAC and TEAB. Hexamethonium is the most active compound in the series. The drug is given intramuscularly in doses of 100 mg. It inhibits the secretion of hydrochloric acid to the point of achlorhydria for two to three hours and reduces the gastric acidity as long as four hours. Inhibition of both the nocturnal gastric secretion and gastric motility occurs. The vagal phase of gastric secretion is strongly inhibited but the humoral phase is not influenced. Oral hexamethonium depresses acid secretion in doses of 500 mg. but much less consistently than 100 mg. of the drug intramuscularly. As in the case of tetraethyl ammonium compounds, hexamethonium has a marked tendency to produce a sympathetic block with a disturbing postural hypotension. Further research along this line should be to produce preparations that have a strong blocking action at the parasympathetic synapse and

an insignificant action at the sympathetic ganglia. Effective oral compounds should be exceedingly valuable.

Banthine is another quaternary ammonium compound that is receiving extensive clinical trial at the present time. The drug has a marked parasympathetic effect resembling that of atropine, but its action is more marked and prolonged. The associated block at the sympathetic ganglia seems minor as compared to its parasympathetic action. The effect of the drug is noted within twenty to thirty minutes after administration and persists as long as six to eight hours. Reduction in the volume of the twelve hour nocturnal secretion ranging from 30 to 86 per cent has been reported. Gastric secretion and motility are inhibited. Grimson and his associates[52] who introduced the drug in 1950 were so enthusiastic that they believed that banthine would eventually be the sole drug needed in the treatment of peptic ulcer. As is usual with every plan of treatment advocated in peptic ulcer, these therapeutic hopes have not been fulfilled. There is no question as regards the ability of banthine to relieve the pain of an acute peptic ulcer. The relief of pain following banthine in this type of case is dramatic. In the case of chronic peptic ulcer the results of treatment with banthine are much less spectacular and may be even disappointing. The failure rate in complicated ulcer (perforation, hemorrhage, cicatricial pyloric stenosis) is quite high. The more severe the symptoms are the less likely that they will respond to banthine. Banthine as the sole treatment of peptic ulcer is inadvisable. There appears to be some question as regards the efficacy of banthine in the prevention of recurrences when it is used prophylactically in the spring and fall of the year or during periods of emotional stress and nervous tension. The ability of patients with peptic ulcer to continue banthine when they are free from symptoms is seriously doubted. Even though banthine can dramatically relieve the symptoms of peptic ulcer, roentgenographic evidence of ulcer healing may be lacking. Recurrence of ulcer symptoms and complications of peptic ulcer may occur during banthine therapy. Banthine in the opinion of most observers should supplement but never supplant conventional therapy. There is some evidence that a tolerance for banthine can be gradually acquired and subsequent administration of the drug can be relatively ineffective. Recently doubt has been cast on the ability of banthine to control the nocturnal and diurnal secretion of hydrochloric acid both in volume or free acidity. Contraindications to banthine therapy include adynamic ileus, cicatricial pyloric stenosis, glaucoma, hypertrophy of the prostate, cardiospasm, and coronary sclerosis. Undesirable side effects, including blurring of vision, dryness of the mouth, difficulty in voiding, constipation, nausea, and tachycardia, occur in approximately one-third of patients receiving banthine. In only about 11 per cent of this number however, is it necessary to discontinue the drug because of the disagreeable side effects.

Numerous other anticholinergic drugs are in the process of synthesis. Recent ones include prantal methysulphate (Schering) and dibutoline. The effect of these preparations seems much more variable, inferior, and inconstant when compared to that of banthine. No doubt further research and clinical investigation will discover more efficient gastric antisecretory agents than any of the ones we have at the present time. This line of research is the most promising one at the present time.

II. MEASURES TO RELIEVE SPASM IN THE GASTROINTESTINAL TRACT (ANTISPASMODICS).

Synthetic atropine-like compounds such as syntropan, trasentine, bentyl hydrochloride, homatropine methyl bromide, pavatrine, profenil, anethone and dibutoline are less effective and inferior in most instances to belladonna and its alkaloids and have the disadvantage of being more expensive. Amphetamine sulphate (benzedrine) in doses of 15 to 20 mg. depresses gastrointestinal motility but the nervous reactions that follow such large doses contraindicate its use as an antispasmodic. A number of preparations on the market contain several antispasmodics often in combination with phen-

obarbital. These combinations are offered in the belief that the component drugs act synergistically. Such a belief does not appear warranted from the evidence available at the present time. The inclusion of phenobarbital, 30 mg. (½ grain) does not influence the antispasmodic properties of any preparation. Belladonna and its derivatives still remain the most effective depressors of gastrointestinal motility that we possess. To achieve satisfactory clinical results the dose of belladonna and its alkaloids should be the largest amount which barely produces side reactions. As a general rule no more than 1.3 c.c. (minims 20) of tincture belladonna or 0.6 mg. (1/100 grains) of atropine sulphate or bellafoline 0.5 mg. (1/120 grains) should be given at a single dose. More than four such doses should not be given in a twenty-four hour period. Individual variation in response to these doses occurs and adjustment in dosage must be made if too pronounced an atropine action occurs (dilatation of the pupil, blurring vision, cutaneous eruptions, dryness of the mouth, tachycardia, itching and dryness of the nose). Pharmacologically speaking there is little choice between various members of the group. It has been claimed that bellafoline produces fewer side effects than an equivalent dose of atropine but this claim has not been substantiated.

III. MEASURES CALCULATED TO INCREASE THE RESISTANCE OF THE GASTRIC AND DUODENAL MUCOSA TO EROSION BY THE DIGESTIVE JUICES.

Enterogastrone, an extract of hog small intestine was introduced by Ivy and his coworkers[31, 32] in 1937. These investigators reported decreases in gastric secretion and motility following its use. The preparation was thought to prevent the development of ulcer in dogs subjected to the Mann-Williamson operation, for periods of eighteen to thirty months after treatment was discontinued. This, they thought, indicated that enterogastrone increased the resistance of the gastroduodenal mucosa to such a degree that erosion by the gastric juice could no longer occur. Subsequent studies by numerous investigators have almost uniformly failed to confirm these conclusions. Benditt and his associates[42] summarize the present status of enterogastrone therapy as follows:

"Accumulated evidence from the literature suggests that there may be a gastric secretory depressant in extracts from the small intestines of hogs. Preparations of this type have had inconstant and frequently insignificant activity. Before such preparations can possibly be applied to the treatment of peptic ulcer they must have greater potency and more constant activity."

Sandweiss *et als*[43] for some time have been interested in a possible pituitary-gonadal mechanism in the pathogenesis of peptic ulcer. The anterior pituitary hormones (luteinizing and follicle stimulating) the corpus luteum hormone (progesterone) and urine extracts from pregnant and nonpregnant women (uroanthelone) appear to be of significant value in preventing and healing experimental peptic ulcer in the dog. Concentrated extracts from these sources have been limitedly used in the treatment of peptic ulcer with disappointing and inconclusive results. The most recent addition to this type of therapy has been an extract from pregnant mares' urine (kutrol). At the present time conclusive evidence regarding its value or lack of value cannot be determined. It would appear, however, from the evidence available that the preparation is not sufficiently potent and constant in its composition to expect good clinical results.

SUMMARY

The therapeutic aim in peptic ulcer therapy proposed by Sippy in 1915 of "efficiently shielding the ulcer from the corrosive action of gastric juice by maintaining accurate neutralization of all free hydrochloric acid," has not been solved by modern antacid therapy. As far as present day antacids are concerned there seems to be little choice between the numerous preparations now available. As long as the preparation is given at frequent intervals after meals (preferably every hour during the waking hours) it would appear to make little difference as regards the antacid selected. Detergents, mucigogues, and irradiation therapy to date have added little if any to our thera-

peutic hope for a completely successful antacid agent. Anion exchange resins, protein hydrolysates appear to offer no particular advantage over conventional methods of treatment.

Modern antispasmodic drugs such as syntropan, pavatrine, dibutoline, trasentine, homatropine methyl bromide, bentyl hydrochloride, benzedrine sulphate, levorotatory hyoscyamine (bellafoline) have a spasmolytic action in most instances inferior to that of therapeutic doses of belladonna and its alkaloids. They have the disadvantage of being more expensive. To be effective belladonna alkaloids must be given in doses just short of that dose that produces disagreeable side reactions. Correctly used atropine and its derivatives have a therapeutic value equal if not superior to that of any modern antispasmodic drug.

Cholinergic blocking agents, banthine in particular, are the most promising of our modern anti-ulcer drugs. As valuable as banthine probably is, the drug is not to be regarded as a cure all in peptic ulcer. Follow-up studies appear to indicate that the recurrence rate may not be significantly influenced by the drug. Relapses and complications continue even though the preparation is continuously administered. Tolerance to banthine may develop and render further administration ineffective. Side effects of banthine therapy are often quite disturbing in recommended doses. Contraindications are numerous and limit its usefulness. Control of gastric acidity and the nocturnal secretion of acid may be inconsistent. Generally speaking, although banthine is a most valuable therapeutic addition to the therapy of acute ulcer there seems to be much doubt as to its exact position in the management of the chronic and recurrent case.

Enterogastrone, uroanthelone and pregnant mares' urine all represent advances in the proper direction. Efforts to improve the potency of these preparations should be continued. Should such a preparation prove effective in increasing the resistance of the gastroduodenal mucosa to peptic erosion, a therapeutic objective will be attained. In their present form, probably as a result of low potency, they are therapeutically ineffective.

It becomes apparent that modern ulcer therapy has been little changed by our present day drugs. Basically, we have not altered the underlying personality, aggressions, tensions, driving ambitions, frustrations, and inhibitions of the ulcer patient. Even though we know that ulcer exacerbations occur most frequently in the spring and fall of the year, during periods of hard work, emotional tension, or following respiratory infections, there is no reliable evidence that prophylactic diets, banthine, antacid or antispasmodic therapy at these times will be effective in the prevention of recurrences. From a drug standpoint the most promising line of therapeutic advance sems to be along the line of development of more effective anticholingeric drugs and potent preparations that will effectively increase the resistance of the gastrointestinal mucosa to erosion by the acid gastric juice.

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DISCUSSION

Dr. Gordon McHardy (New Orleans): In its comprehensiveness, Dr. Matthew's presentation leaves little for discussion. Primarily, I am in agreement. I shall reemphasize some of his conclusions and add an occasional observation from my experience.

Obviously, successful peptic ulcer therapy requires control of gastric secretion and motility. Dr. Matthews indicates symptomatic relief an easy accomplishment. The medical objective, however, should be achieved and perpetuation of healing with complication prevention, not merely symptomatic relief. Requisites to such accomplishment are patient individualization with thorough examination, adequate control and a reasonable psychosomatic approach by a physician who understands both patient and disease, practical dietary instruction including stimulant abstinence and our pharmaceutical armamentarium: the antacids, secretory inhibitors, antispasmodics and sedatives.

Into this realm under discussion today are introduced each year a variety of products comparable with vitamins in their usefulness. Beyond psychic influence of newness, their principal benefit is income to the manufacturer and distributor. The individual physician must share the responsibility in this patient exploitation. Aside from this responsibility it is the true duty of the physician to adhere to an accepted economic program, schooling his patients against the novelty of a new drug which the patient visualizes as permitting abandon of therapeutic principles.

Dr. Matthews has eliminated antihistamine, enterogastrone, urogastrone and sex hormone from practical applicability. I concur with his conclusion and condemn the use of any of these products other than for experimental purposes. There was properly no mention of ACTH and cortisone; because some individual might think this an omission, I emphasize the established contraindication to cortisone and ACTH in the management of a peptic ulcer patient. Seymour Gray has observed cortisone and ACTH produced gastric and duodenal ulcers concomitant with increase in gastric activity and pepsin to levels usually observed in an active ulcer patient.

I am happy to concur with Dr. Matthews in his conservatism with relation to the anticholinergics. Certainly, however, they have been a stimulation which may bring about a more successful and a more guided management of the ulcer patient. Banthine bromide, of course, led the field. Prantal is a weaker preparation with less side effect but probably of equivalent action though more variable in double the milligram dose of banthine. Trevyl (Schieffelin) seems twice the strength of banthine. In addition, to my knowledge under observation at this time are Upjohn's U-0407, Winthrop's Win-4369, Schering's 1667, and Searle's SC-3171, a banthine-like compound AP 193, 385 and 229. Schering is about to release for experimental clinical study a product superior to prantal. All observations, however, on drugs other than banthine and prantal must await a reasonable period of trial. Regardless, these anticholinergics in their present status seem to have their greatest efficiency in their effect upon gastrointestinal motility. I would tend to agree with Legerton and Ruffin that the antispasmodic action of banthine is probably the source of pain relief because of their findings in addition to the fact that promptness of pain relief certainly cannot mean influence on acidity. The efficiency of each of these drugs is much enhanced by parenteral administration. While orally banthine is not constantly a secretory inhibitor, parenterally and intraduodenally it is. Kirsner feels U-0407 efficient orally in 1/3 of cases with less side effects than banthine. He is also favorably impressed by 385 and 229, neither of which have been available to me. Repeat action prantal seems more efficient than ordinary prantal. Banthine tolerance was an early observation in our studies, denied by Grimson and now being confirmed by time. There may be less tolerance to prantal. There may be value to alternation. Banthine is more rapidly metabolized or excreted than prantal. Excretory studies show prantal 60 per cent excreted unchanged, banthine 15 per cent excreted unchanged. Tolerance may mean more of the banthine molecule is changed into a parasympatholytically inactive substance

As we move along in this field we find that the newer anticholinergics being introduced are apparently safer, can be used in smaller dosage and have less side effect. Progress is being made toward synthesis of an effective gastric secretory inhibitor. To this time, I do not know of any effective anticholinergic, however, that can be used in the presence of glaucoma. In this instance, in addition to avoidance of the anticholinergics, one must not use belladonna, atropine or the other derivatives but it is reasonably safe to use bentyl hydrochloride and some of the other theoretically efficient antispasmodics.

Dr. Matthews has made a worthy statement I often am guilty of neglecting, "It is more important to know when to give an antacid than what antacid to give." Both are important. We should select an antacid which is inexpensive, which can be given with impunity and which can be given freely to reasonably control the gastric secretory function. Beyond this, frequency and administration apart from feedings seems most reasonable to achieve optimum secretory control.

SURGICAL MANAGEMENT OF PEPTIC ULCER*

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INTRODUCTION

The fact that 15 per cent of benign peptic ulcer patients require some form of surgery during the course of their disease establishes the combined medical and surgical aspects of the problem. Whereas in former years the majority of ulcer patients were content to remain under medical management, today, because of improved surgical measures and because of a significantly lower operative mortality, and provided indications for surgery exist, increasing numbers of patients are willing to have surgical therapy.

INDICATIONS FOR SURGICAL INTERVENTION

I. HEMORRHAGE

The proper time to operate on the bleeding peptic ulcer remains unsolved. In my opinion, surgery should be considered in continued massive bleeding which cannot be controlled by blood replacement and in a certain number of patients who bleed slowly for several days. Fortunately, most patients will stop bleeding without surgery.

The theory that the blood should be replaced in these patients just sufficiently to keep up the filtration pressure of the kidneys has long since been discarded. The patient should be maintained at as nearly normal levels of blood pressure and pulse as are possible to achieve.

How are we to determine the site of hemorrhage preoperatively? This may be difficult but there are certain signs and diagnostic aids which are of value. Many patients who have a chronic callused ulcer, and this is the type most likely to bleed, will have already had the diagnosis of ulcer sometime in the past. The value of thin barium in the active bleeder has been proven to outweigh the possibility of increasing the hemorrhage through manipulation at fluoroscopy. The blood in the gastrointestinal tract may at times obscure and confuse the x-ray findings and the benefits of this diagnostic aid will be negated. However, barium by mouth does no harm and should be given if an ulcer is suspected.

Another cause of massive upper gastrointestinal hemorrhage is gastroesophageal varices. The history is often of alcoholism and there may be findings of a nodular liver and palpable spleen. The derangement in the liver profile, if there are a negative history and physical, often indicates the underlying liver disease, and liver function tests, especially the bromsulphalein test which can be done rapidly and easily, should be performed in obscure cases. These cases may also be diagnosed with barium or esophagoscopy. The latter can be done at surgery after the anesthesia has been started and before the abdomen is opened.

There are, of course, many other causes of upper abdominal hemorrhage. Blood dyscrasia may produce serious and fatal hemorrhage as a result of minor ulceration of the gastrointestinal tract. Gastritis, tumors of the stomach and small bowel, and diaphragmatic hernia with ulceration add to the difficulties.

After a period of observation a decision is reached to explore the patient and the diagnosis may or may not have been attained. The same consideration asserts itself here as in severe hemorrhage from war wounds. Sometimes it may be necessary to operate with the patient in shock to stop the hemorrhage.

If on exploration the ulcer is obvious, the primary concern is to attack the bleeding point. This poses a difficult problem. It usually is not feasible to suture the bed of the scarred ulcer and stop the bleeding or to ligate the feeder vessel, most likely the gastroduodenal, because it may be involved in scar tissue to the hepatic artery. The ulcer can be removed with as much dispatch as a compromise procedure and a resection of the stomach can be added without too much loss of time.

What is to be done if after an adequate exploration of the abdomen no gross lesion is found to account for the hemorrhage? The probability of the bleeding point's be-

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ing located in the distal three-fourths of the stomach and the first part of the duodenum is very great, as Stewart has shown, and his view on doing a subtotal gastrectomy in these patients has achieved a certain, if as yet limited support from other surgeons, as was evidenced by the support given it in a panel discussion at the American College of Surgeons' Meeting in November 1951.

II. ACUTE PERFORATIONS OF THE STOMACH AND DUODENUM

Signs and symptoms of acute perforation of the stomach and duodenum as classically observed, a sudden severe pain and board-like abdomen, leave no doubt as to the diagnosis. However, there are a number of patients whose symptomatology is obscure and who are diagnosed by a leak of barium on G. I. series or by air under the diaphragm in an almost incidental x-ray of the chest or abdomen.

To determine free air in the peritoneal cavity it is recommended that the patient be upright ten minutes or more before the x-ray is taken. An alternative procedure when the patient is too ill to be erect is to take the x-ray with the patient in the lateral position, right side up, in order to outline air between the anterolateral abdominal wall and the liver.

Simple closure of the perforation is still the preferred method of treatment of most clinics in this country, for the surgeon's main responsibility is to save life. Two extremes in the treatment of perforated ulcer have been advocated in recent years. The first of these is the conservative or nonoperative method of treatment for perforated ulcer. The second is the primary gastrectomy.

Conservative nonoperative treatment has its present-day advocates. An unusual success has been attained with its proper usage. Originally advocated by Wangensteen, in 1935, for the management of doubtful cases, in the localized perforations (formes frustes type) admitted to the hospital late with evidence of having sealed off, in late cases with no evidence of continued leaking and in poor risk patients, the treatment was then resurrected by Bedford Turner, in 1945, and applied in recent years to the treatment of acutely perforated ulcer. The essentials of this treatment consist of the constant use of an indwelling nasal gastric tube, nothing by mouth, parenteral fluids, sedation and antibiotics. We have used this method on occasion with success, but it is generally agreed that surgery, if available, is still the preferred method of treatment.

Gastrectomy at the time of perforation, especially if performed early, will have an increasing number of advocates, including myself. Most of the patients seen within a short time after perforation will be in good shape with a bland peritoneal contamination which can be adequately handled with antibacterial chemotherapy. It has been shown that resection can be carried out with a very low mortality.

Why is this view taken? In a very interesting study on the follow-up of patients who had surgical repair of the perforated ulcer, Turner[2] discovered that at least 85 per cent of the patients continued to have difficulties, 75 per cent severe difficulty and 40 per cent later had to have additional surgery. The incidence or reperforation was almost 10 per cent. Massive fatal hemorrhages occurred in 5 per cent of cases. It was his conclusion, and one with which we are essentially in agreement, that perforation of a peptic ulcer is proof of the intractability of the ulcer diathesis in that particular patient. We are gradually leaning toward the view expressed by him that in the postoperative period prophylactic surgical therapy is considered for the patient with perforated ulcer if a gastrectomy is not done at the time of perforation.

III. OBSTRUCTION

Clear-cut indications for surgery exist in marked pyloric stenosis and hour glass obstruction.

IV. OTHER INDICATIONS FOR SURGICAL TREATMENT

Not only in the classical indications for operative intervention — namely, hemorrhage, perforation, and obstruction—are we concerned but there also remains an important group in which operation must be considered. Those are the patients who for

one reason or another fail to respond to medical therapy.

The indications for resection as proposed by Maingot[3] are as follows:

1. A benign peptic ulcer not adherent to contiguous structures and not associated with gastric hypersecretion will occasionally fail to respond satisfactorily to a supposedly adequate medical regimen and very often surgical treatment is advised. This is the so-called intractable ulcer.

2. The patient with continuous interdigestive hypersecretion may be considered.

3. The x-ray demonstration of a perforated, walled-off gastric or duodenal ulcer often requires operation. Healing will not usually occur because it is not possible for the ulcer cicatrix to retract owing to attachment of the ulcer base to the pancreas, liver or lesser omentum. If a carefully managed conservative program is carried out, some of these ulcers will heal without surgery. However, the chances of recurrence on the slightest relaxation of the regimen are always present.

4. A duodenal ulcer associated with marked x-ray deformity of the antrum or pylorus may necessitate gastrectomy.

5. Gastric ulcers which because of location or size are very likely carcinomas.

6. Penetrating gastric ulcers which show no healing within three to six weeks under efficient medical treatment.

Moore,[4] in a recent study of 1246 patients with duodenal ulcer treated medically and surgically, has advanced a strong argument for surgical intervention as soon as progressive ulcer disease can be diagnosed. On the basis of the data collected he has formulated a set of primary and secondary criteria for the diagnosis of progressive or virulent ulcer disease.

The criteria for surgery as advocated by Moore are as follows:

Primary

a. One perforation in the past with present ulcer symptomatology.
b. One hemorrhage requiring blood.
c. Progressive pain over a two year period under a physician's care and advice in the patient's normal living environment and at work.

Secondary

a. A male with duodenal ulcer symptoms under a physician's care.
b. A male with recurrence of symptoms prior to the age of 20 or subsequent to the age of 65.

If these two criteria, one of which must be primary, are present, the diagnosis of progressive virulent ulcer disease may be considered established and surgery is recommended. If three criteria are present surgery should be urged. Symptomatic alleviation under hospital conditions does not alter the importance of these criteria. Once established, the outlook for a satisfactory result on nonsurgical management is poor and the intrinsic mortality is elevated.

We have not set forth any rigid criteria in our clinic as to the choice of patients for surgery but in the main are in agreement with the points Moore has outlined.

SURGICAL METHODS

Subtotal gastrectomy is the operation of choice. If this operation cannot be safely accomplished under the conditions prevailing we have no substantial evidence that other operations can replace it. Present day operative mortality for subtotal gastrectomy as performed by most surgeons is, and has been for some years, in the neighborhood of 1 to 5 per cent. Many of these statistics include all varieties of complicating cases, such as secondary resections in patients with stomach ulcer and gastrojejunocolic fistula. Because the mortality rate at Charity Hospital is higher, these figures will be given consideration later on in the discussion.

One of the objects of all partial gastrectomies in the treatment of chronic gastric and duodenal ulcers is to reduce acid production by removing an extensive area of the acid secreting portion of the stomach and the pyloric segment wherein gastrin is thought to be produced, thereby abolishing the initiating factor in the chemical phase of gastric secretion. In most cases, the ulcer can be freed from the adherent pancreas

and excised or it can be left imbedded in the pancreas and the duodenum safely dissected away. The distal line of the resection will be across the duodenum just below the ulcerated area. This is desirable but not always feasible. If the duodenum is so fixed to the pancreas by a deeply penetrating ulcer and inflammatory adhesions that duodenal mobilization will prove too hazardous an undertaking, distal transection must be carried out just below or occasionally through the antrum. When leaving a part of the antrum in place is enforced on technical grounds, removal of the pyloric mucous membrane must be done.

It is important to remove a large segment of the stomach, often as much as 75 to 85 per cent. In the average case the proximal line of transection should extend from a point on the lesser curvature about an inch from the cardiac orifice obliquely across the body of the stomach to a point on the greater curvature opposite the lower pole of the spleen.

The other object of gastrectomy is to make a new opening between the stomach and duodenum or between the stomach and proximal jejunum to restore gastrointestinal continuity and to permit a free admixture of gastric and intestinal contents across the line of the anastomosis. The gastroduodenostomy (Billroth I) is being revived in certain centers in this country.

The other two standard surgical procedures to be considered in the treatment of ulcer are gastroenterostomy and vagotomy, the latter either alone or in combination with gastroenterostomy or some type of pyloroplasty. Gastroenterostomy alone has fallen into disrepute because of the incidence of gastrojejunal ulcers following some years after the original surgery. Gastroenterostomy will occasionally suffice as a definitive procedure in an elderly patient with duodenal ulcer who has little gastric acidity.

My experience with vagotomy is limited. It has been reserved for a small number of cases with specific indications such as gastrojejunal ulcer after adequate gastric resection, in combination with gastric resection in a few patients who have had a high acid value and were of an unstable personality, and in a certain number of highly individualized cases. Walters' clinical study[5] concludes that there is little evidence to indicate that vagotomy adds any effectiveness to gastroenterostomy in the prevention of gastrojejunal ulcer, although it does produce lowering of gastric acidity in almost all, and to an achlorhydric level in some cases. Dragstedt's[6] own studies on the importance of antral mucosa in the production of gastric secretion and Smithwick's[7] demonstration of the ineffectiveness of vagotomy combined with gastroenterostomy to lower the acidity of the gastric contents to a point where peptic activity may be presumed to be minimal are to me strong deterring factors to the use of vagotomy, either alone or in combination with gastroenterostomy as the procedure of choice in the surgical treatment of peptic ulcer.

The chief value of vagotomy lies in its use in the treatment of gastrojejunal ulceration after adequate gastric resection. A secondary gastric resection with vagotomy is another procedure to be considered when gastrojejunal ulcer occurs after inadequate previous gastric resection.

COMPLICATIONS FOLLOWING SUBTOTAL GASTRIC RESECTION

A proponent of vagotomy, Keith Grimson,[8] at Duke University, recently reviewed the complications of resection. The mortality rate from gastrectomy was 4 per cent and deaths during five years from this and related causes was 7 per cent. Serious complications occurred in 16 per cent of the patients postoperatively and 15 per cent of the patients required secondary operations for conditions other than ulcer. The possible recurrence rate was 5 per cent and probable recurrence rate was 9 per cent. Operations for known recurrences were 2 per cent.

The average loss in weight was 12 pounds. Only 60 per cent of the patients were able to work full time, 30 per cent half time, 10 per cent less than half time. Seventy per cent of the patients were able to work better than before operation. Two

per cent had a severe dumping syndrome.

The postprandial syndromes, the early characterized by fullness and abdominal pain immediately after eating, and the late characterized by weakness, pallor, cold sweats and palpitation which occurs one to two hours after eating are present to a mild degree in almost all of the patients. They are usually transient. However, if either the early or late postprandial syndrome continues and is severe, this can be a very serious and incapacitating condition. Various drugs, especially the parasympatheticolytic group, and various operative procedures devised to overcome certain mechanical factors in malfunctioning gastroenterostomies, have been used to overcome these difficulties and have had some measured success.

A STUDY OF PEPTIC ULCERATIONS AT CHARITY HOSPITAL DURING THE YEAR 1950

Two hundred and seven patients in an advanced state of peptic ulceration, admitted to the Charity Hospital of Louisiana in New Orleans during 1950, serve as the material on which this study is based. As is true in any hospital report which draws largely from an indigent population, the disease process is always advanced and mortality and morbidity figures assume very high proportions. In interpretations of these figures I would like to think that these represent the far advanced ulcer state and are a cogent argument for earlier surgery. The figures are sobering from any view.

There were 69 patients with moderate to severe hemorrhage from benign peptic ulcer. Twenty-three were resected during the same period of hospitalization, 6 of whom were for massive bleeding, and 2 of the 6 died. Another patient was explored for the same difficulty, and a large penetrating ulcer onto the head of the pancreas was interpreted by the operator as carcinoma of the pancreas and closed with nothing having been done. The patient died two days later.

All patients who continued to bleed, and these were only 6 during the year as the figures show, were submitted to surgery. Three patients excepted for reasons other than continued hemorrhage were not operated upon and died. One patient was moribund on admission. Another died from a complication of the treatment and a third from an intercurrent disease. The absolute mortality rate was 9 per cent.

Perforation occurred in 65 ulcer patients. Of this group 59 were operated upon and all had the same procedure, closure of the perforation and tacking of the omentum or adjacent tissue over the repair. The operative mortality was 10 per cent. Four were admitted moribund. Two patients were treated conservatively and recovered. The absolute mortality was 15 per cent.

One fourth of the surgically treated perforations developed immediate postoperative complications, chief of which were dehiscences, herniae, thrombophlebitis and infection. One-fourth of the patients had recurrent ulcer symptoms immediately after surgery.

There were 96 subtotal gastric resections. Fifty-six of these patients had no complications and no symptoms. Eight died. Fourteen had various types of digestive disturbances, more especially the dumping syndrome; in 2 of them it was marked. There were 6 wound dehiscences and 3 wound infections.

Of the 8 deaths from subtotal gastric resection 2 followed heroic efforts to staunch bleeding. One duodenal leak and 1 obstruction of a gastroenterostomy stoma were responsible for deaths. A cardiac standstill on the table ultimately led to another patient's death. Three deaths were ascribed to pulmonary complications, 2 of which were primary and 1 secondary.

The type of procedure has special interest from the standpoint of current surgical practice and more particularly of the digestive disturbances following in the wake of each technique. The Hofmeister was the most commonly used procedure. There were 40 retrocolic anastamoses performed and 10 per cent of these patients had some difficulties later. There were 21 antecolic anastamoses and 24 per cent of these patients complained of trouble in digestion. None of the 13 patients with anterior Polya's was

symptomatic. Five of the 22 patients with posterior Polya's were slow in adjusting to the altered physiology of resection.

Seven patients had a variety of procedures carried out on them. One elderly subject with obstruction had a Finney pyloroplasty. Another had a posterior gastroenterostomy for the same reason. Two young unstable individuals had vagotomies combined with gastroenterostomies. One patient developed severe electrocardiographic changes during the phase of opening the abdomen and the patient was closed with no definitive surgery having been effected. One bleeding ulcer patient has been alluded to earlier. Another patient with a bleeding ulcer developed the lesion as a result of nasogastric intubation. The child was operated upon during the bleeding phase, the ulcerated area was sutured and this measure failed to stop the bleeding. The patient was operated upon again and hemorrhage controlled by excising the affected portion of the stomach.

The number of patients who had surgery was 162. There were 96 gastric resections, 7 other gastric procedures of various types and 59 closures of gastroduodenal perforations.

CONCLUSIONS

The management of hemorrhage from peptic ulcer has been discussed. These patients should have adequate blood replacement and maintenance of as nearly normal blood pressure as can be attained. Almost all of them will respond to these measures. If these measures fail, surgery must be undertaken.

Certain classes of ulcer patients, chief of which is the group who perforate, have been delineated. The proof of an intractable ulcer diathesis in these particular patients has been shown by the follow-ups and in order to rehabilitate these patients from an economic and social standpoint, surgical intervention should be considered early in the course of their disease.

An adequate subtotal gastric resection has been proposed as the procedure of choice in patients with chronic peptic ulcer.

Some of the methods and sequelae of gastric surgery have been considered.

Two hundred and seven cases of chronic benign gastroduodenal ulcerations of an advanced complicated nature admitted to Charity Hospital of Louisiana in New Orleans during the year 1950 have been reviewed.

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PSYCHOSOMATIC FACTORS IN THE PEPTIC ULCER CASE*

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SHREVEPORT

Psychosomatic medicine, representing a recent excursion of psychiatry into the domain of internal medicine, is today concerned with basic problems, often of a highly theoretical nature. Peptic ulcer is one of the organic diseases that has been intensively studied from the psychosomatic viewpoint. Causal relationships between emotionality and physiologic function in the stomach are well known and the role of psychic factors in the etiology of chronic gastric and duodenal ulcers is hypothecated. That psychic events, through pathologic emotionality, can specifically initiate major organic disease is an important concept which, if proved and accepted, would necessitate extensive revision in medical thought, practice, and education.

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PSYCHOGENESIS IN PEPTIC ULCER

Alexander and his Chicago group[1] have given much attention to psychosomatics generally and to peptic ulcer in particular. The following is a very excellent summation of the findings of this group, in their own words:

"The basic conflict is between intense receptive-acquisitive wishes ('receiving' tendencies) and their denial by a compensatory 'giving' attitude; the former is guilt-laden and ego-alien and is therefore usually inhibited internally. In some cases, however, the thwarting of dependent needs is not internal (superego) but external (reality). In either case, the conflict between powerful dependent needs and strivings for independence and the regressive solution (to oral receptiveness and oral sadism) of this conflict in the face of frustration of 'receiving' tendencies is of crucial importance. This conflict-situation, as well as this type of conflict-solution, is present in many patients with peptic ulcer. We do not wish to elaborate further on this point except to state that we believe this psychologic constellation (specific conflict and specific solution) to be one factor—among many—which plays a definite role in the pathogenesis of human peptic ulcer."

The work of Alexander and his school has been well received by psychiatrists and certainly represents a moderate psychoanalytic view of the problem. When this highly technical material is utilized by others, however, significant shades of meaning are easily lost. The following is from a recent article[2] on the medical cure of peptic ulcer:

"The present generally accepted concept of the pathogenesis of peptic ulceration is summarized below. The oral passive receptivist (to use the psychoanalyst's shorthand for peptic ulcer personality), frustrated in his need for love, esteem and care, cortically produces vagostimulation. Electroencephalograms have shown alpha wave predominance in peptic ulcer patients, possibly associated with this stimulation. Vagostimulation causes gastric hypertonicity and hypersecretion activities of the stomach which, when sufficiently intense and prolonged, may lead to ulcer formation."

Ivy,[3] at the April 1949 meeting of the Boston Society of Psychiatry and Neurology, discussed in detail the pertinent question, "Do psychic factors operate to cause or merely aggravate the disease?" He outlined three premises which must be established before the psychosomatic theory of the causation of peptic ulcer can be established, as follows: (1) That most ulcer patients possess a characteristic personality pattern or specific conflict situation. (2) That this emotional status is accompanied by hypersecretion and hypermotility of the stomach or affects the hyperacidity of the stomach and duodenum. (3) That hyperacidity of the stomach or the changes induced leads to "chronic peptic ulcer." The first premise, Ivy believes, has not been established, and he calls the literature on the subject "confused and contradictory." He feels that this premise appears to be necessary from a psychoanalytic viewpoint, but may not be from the broad psychosomatic standpoint, since any sustained emotional state may conceivably disturb gastric and duodenal physiology and be the cause of an ulcer. He feels that the second premise is supported by considerable evidence showing that emotional states temporarily affect the stomach and may cause superficial erosive gastritis. However, he feels that no evidence that emotional states affect the duodenal bulb is at hand. The evidence in support of the third premise, he considers to be entirely conjectural as applied to the cause of peptic ulcer, but it is circumstantial and strongly presumptive as applied to the view that it is one of the excitory or contributory causes. He points out that experimental neurosis in animals does not cause peptic ulcer to develop. Again, conflict situations and neurotic traits are more common in patients with psychoneurotic dyspepsia than in patients with peptic ulcer. He also points out that a psychoneurotic may have symptoms simulating in some particulars those of peptic ulcer, without associated lesions in the stomach and duodenum. He does not believe that a tension state or conflict situation alone is enough to develop chronic peptic ulcer. The incidence of complications of peptic ulcer, however, increases in the presence of environmental conditions that harrass many people in a population. Finally, since peptic ulcer does occur with vagus or with the splanchnic nerves cut in man, dog, and rabbit, he believes it very improbable that emotional disturbances are the cause of peptic ulcer.

Kahn and Freyhan[4] note that peptic ulcer

is more strongly associated with psychodynamic concepts than any other physical disease. They take up in turn three claims in current circulation, both in the profession and among the laity: (1) That peptic ulcer has shown an increase in the last few decades; (2) that it is the aggressive-dependent personality that has a particular proneness for peptic ulcer; (3) that "our civilization" breeds peptic ulcer. They could find no reliable statistics for claim number one. They point out certain methodological weaknesses in the argument for claim number two. They consider that it is very premature to postulate a causal relationship between fixed psychodynamic factors and peptic ulcer. In regard to claim number three, they remind us of the almost equal incidence of peptic ulcer in the Chinese and the high incidence among Norwegian fishermen, assumed to be steady and even tempered, whose way of life has changed little with the advance of time. "We are confronted," they conclude, "with a lack of distinction between established fact and impressions. There appears to be acute need for a scientific restraint, or the dissemination of psychosomatic news will acquire an air of propaganda, rather than established truth."

PSYCHOBIOLOGICAL APPROACH

Menninger[5] has summarized the situation well in pointing out that while investigations of the role of emotional factors in a few specific organic diseases have been intensive, the positive data accumulated are minimal. Broad vistas, however, have been opened and he predicts that within the next few decades, thorough psychological investigation of illness, will cause fruitful advances in our understanding of a disease we now term organic. More effective correlations between psychiatry and the biological sciences are certainly needed by physicians working in the psychosomatic field. As Rado[6] has pointed out, there must be improvements in clinical methods with prompt abandonment of obsolete methods and concepts. Semantics and cybernetics should warn us, he continues, that only confusion is communicated by undefined or undefinable language. It is the task of psychiatry "to keep pace with the general advance of science, evolve a sound, consistent, and verifiable conceptual scheme, and keep it continuously up to date." Although we obviously have a long way to go in these matters, we are beginning to see glimpses of the "way out." There is evidence in current neurological and psychiatric literature that the gulf between the organic and the functional is narrowing rapidly. A decade and a half ago, an eminent neurophysiologist[7] spoke of the "enormous gap between the facts of neurophysiology and those of psychology." He gloomily predicted that the prospect of solving any but the simplest psychological problem by physiologic means lay far distant. Very recently, however, a prominent psychoanalyst[8] went so far as to speak of the shades of Harvey Cushing and Sigmund Freud shaking hands over the long-deferred meeting between psychoanalysis and modern neurology and neurosurgery.

Man derives many useful insights about himself and his functioning from the machines he constructs and operates. Now that he is able to make machines utilizing reverberating circuits, scanning, and feedback, he is able to grasp more readily the interrelationship between mechanisms and function at the head end of his own organism. In psychiatry there is renewed interest in pharmacodynamics or the production of psychopathological phenomena by means of drugs modifying personality functions. Man now has the temerity to place himself in the test-tube situation and to submit himself to laboratory control. ACTH, cortisone, and similar potent drugs are among new agents available to the psychiatrist for use in extending the experimental basis of psychophysiology and psychopathology. It has already been noted[9] that perforation of peptic ulcer has been observed sufficiently often during administration of ACTH and cortisone therapy for the association to be regarded as more than coincidental.

New material with suggestive relevance to peptic ulcer is becoming available from

other sources. As an example, fatigue in the autonomic nervous system has recently been investigated[10] by studying pupillary changes in response to stimulating the light reflex to the point of functional extinction. From these experiments on man and animal a general law of fatigue of autonomic nervous regulation has been formulated as follows: "All nervous fatigue is central in origin; the sympathetic centers fatigue sooner than the parasympathetic centers, the cortical sooner than the subcortical." It is quite possible that these findings have pertinence to peptic ulcer with its characteristic parasympathetic predominance.

One has only to accept that peptic ulcer is not a local disease and that life situations are strongly reflected in visceral function to admit the existence of psychosomatic factors in *every* peptic ulcer case. This does not mean that all ulcer patients should be treated by the psychiatrist. Rather, we believe that just as certain cases require surgical management or help, others do better with appropriate psychiatric treatment. The physician treating ulcer patients needs some familiarity with psychiatry if only for deciding which cases to refer. We psychiatrists have long bewailed the lack of interest in, and understanding of, our specialty by our medical colleagues. We have expected others always to bend toward us. Recently Whitehorn[11] has formulated a "Basic Psychiatry in Medical Practice" along psychobiological lines. This appears to be a real start in the unbending of psychiatry toward medicine. A psychobiological approach has certain advantages in the problem of peptic ulcer. The internist of today usually has a better grounding in clinical neurology than in clinical psychiatry. Psychobiology, which views the individual as an organism integrated at various mental and non-mental levels, appears to offer a conceptual scheme well suited to bridge the gap between medical training and psychiatric understanding. Given such a conceptual framework the internist can rather readily appropriate one of the basic techniques of psychiatry—the psychiatrically oriented history. As outlined by the psychobiologists, such a history is so constructed that somatic stresses are related to individual reactions and individual reactions are related to the group.

According to Zane,[12] the psychosomatic history is an important guide to prognosis in any particular case of peptic ulcer. He believes that emotional reactions of the patient to the treatment situation are of greater significance than the matter of a particular diet or the drugs used in treatment. The patient's feeling toward the physician, no matter how unwarranted, and the amount of comfort derived from the hospital environment are most important factors. The physician faces a difficult problem when the patient will not relax and accept treatment and care or when he persists in directing the management of his own illness. Although an adequate comparison between strict and lax management does not appear to have been made, experience indicates that some individuals do better on the one than on the other type of management. It is for the physician, then, to accommodate his mode of treatment to suit the individual needs of the particular ulcer patient.

SUMMARY AND CONCLUSIONS

Psychogenesis in the peptic ulcer has become a focal issue in psychosomatic doctrine, but remains controversial. The influence of emotional factors on the course of peptic ulcer, however, is generally accepted. It follows that there are psychosomatic factors in every ulcer case. These factors are of concern to the internist who usually lacks actual psychiatric training. New concepts and techniques, fortunately, have speeded consolidation in psychiatry so that useful formulation of basic psychiatric principles has become possible. The psychobiological approach appears to offer certain advantages to the internist interested in psychosomatics. It is proposed that he appropriate the psychiatrically oriented history as a first step in including psychic factors in the management of his peptic ulcer cases.

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RADICAL GROIN DISSECTION IN NEOPLASTIC DISEASE*

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NEW ORLEANS

In 1908 Pringle[1] described removal of a malignant melanoma of the thigh with excision of the inguinal, femoral, and iliac glands en bloc; although the lower nodes contained metastases, the patient was reported to be well thirty years later.[2] In spite of this remarkable cure, the procedure has become generally accepted only recently. There are several reasons for this. First, many believe that if the nodes are not enlarged, excision of the growth is sufficient and if the nodes are enlarged, the lesion is too far advanced for surgical cure. Second, because the inguinal nodes are virtual cesspools, draining the feet, perineum, genitals and buttocks, wound infections were common postoperative complications. Finally, since the blood supply to the edges of the skin flaps usually has to be compromised in order to secure the necessary exposure, slough, separation, and delayed healing frequently result. However, we believe that the first objection is unjustified; the second has now been largely overcome with antibiotics and chemotherapy; and delayed healing is a small price to pay for eradication of an otherwise fatal disease.

INDICATIONS

Radical groin dissection is undertaken for the treatment of malignant neoplasms draining primarily into the inguinal nodes. There must be no demonstrable distant metastases and the primary lesion must be controlled or controllable. The general condition of the patient should be such that the risk is not prohibitive, although it has been stated that there is no medical contraindication to an operation for cancer.

Patients with melano-epithelioma, high grade squamous cell carcinoma, or epidermoid carcinoma of the anus fulfilling the foregoing requirements should be treated by radical groin dissection whether clinical lymphadenopathy is present or not. However, those with low grade squamous cell carcinoma should be treated by removal of the primary lesion, but groin dissection should not be done unless nodes are clinically involved. This requires periodic follow-up examinations, as metastases have been known to appear as long as twelve years after removal of the primary lesion.

Primary sarcomas occurring in the inguinal region also require groin dissection or a modification thereof, but this procedure is not generally indicated in the more distally situated sarcomas because of their usual metastases via the blood stream.

Palliative groin dissection has been recommended occasionally. Although local removal of an ulcerated or painful mass may make the patient more comfortable even when the lesion is incurable, the dissection should not be so extensive as in radical groin dissections.

OPTIMUM TIME OF OPERATION

Ideally, the primary tumor should be removed with en bloc dissection of the intervening lymphatic nodes. This is not feasible if the primary tumor is distally sit-

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uated, and it is recommended that an arbitrary interval of from two to six weeks be allowed to elapse between removal of the primary tumor and the dissection. This permits emboli which are in the lymphatics at the time to be trapped in the nodes.

ANATOMY

The anatomy of the lymphatics in the groin will be considered only briefly here. For detailed study of this region several excellent descriptions[3, 4] may be consulted. It will be recalled that afferent vessels from the lower extremity, buttocks, perineum, anus, genitals, umbilicus, and infra-umbilical skin drain into the inguinal nodes and thence to the iliac nodes. The inguinal nodes are divided into a superficial and a deep group, the former being in relationship to the saphenous vein and its tributaries, and the latter with the femoral vessels. The iliac or pelvic nodes are adjacent to the iliac vessels. Whereas metastases usually spread to the superficial glands and from there to the deep inguinal and iliac nodes, primary lesions of the glans penis or clitoris and of the gluteal region may extend directly to the iliac nodes without involving the inguinal groups. Also, there are abundant cross communications of afferent vessels draining areas in or near the midline so that bilateral dissection is required in these cases. Areas which are drained by the short saphenous vein—the lateral part of the foot, heel, and posterior part of the leg—have afferent lymphatics associated with these veins and drain into nodes in the popliteal fossa. These subsequently drain into the femoral group of nodes. Lesions of these areas, therefore, also require popliteal node dissection.

TECHNIQUE

In regard to the operative procedure we believe the dissection should include removal of the superficial lymph-bearing tissue from the inguinal regions and thigh and the deep glands along the femoral vessels, and should extend from the apex of Scarpa's triangle retroperitoneally at least as high as the common iliac artery and preferably to the bifurcation of the aorta. The obturator nodes are removed in this deep dissection.

In order to prevent postoperative lymphorrhea, the lymph vessels should be ligated in the thigh. These can sometimes be definitely identified but, if not, a series of interlocking U sutures should be inserted along the lower margin of the dissection, as suggested by Woodhall.[5]

DISCUSSION OF CASES

Radical groin dissection has been performed on 11 patients seen in the Department of Surgery at the Ochsner Clinic between September 1942, and September 1951, two of whom had bilateral operations, making a total of 13 groin dissections. Lesions of the female and male genitals have not been included, as they are treated in the Departments of Gynecology and Urology in our Clinic.

The *site and nature* of the primary lesion are shown in Table 1. Melano-epithelioma of the lower extremity was the indication for operation in 7 of the 11 patients. It is our belief that in all proved cases of melano-epithelioma in this area the primary lesion should be widely excised followed by groin dissection.

TABLE 1
SITE AND PATHOLOGY IN 11 CASES OF RADICAL GROIN DISSECTION

Pathology	Site	Cases
Melano-epithelioma	Leg	4
	Toe	3
Squamous cell epithelioma	Anus	2
	Foot	1
Fibrosarcoma	Groin	1
Total		11

Squamous cell epithelioma of the lower extremity occurred in only one patient, who had a recurrence after a previous amputation. This lesion is not of such high grade malignancy as a rule, and we have treated patients with small lesions of low grade by simple excision or amputation in the absence of clinically involved nodes. However, squamous cell carcinoma of the anus is usually a high grade malignancy with a poor prognosis and a high incidence of metastases to the inguinal nodes.[6] Therefore, we believe that these patients should be treated by abdominoperineal resection followed by bilateral groin dissection, regardless of the clinical state of the nodes.

A fibrosarcoma of the groin was removed in one patient. Groin dissection was done only because the tumor happened to occur in this location. It is not recommended, as a rule, for the more distal sarcomas.

Amputation—Six patients had amputation of part of the lower extremity combined with groin dissection. Five of these were done because of melano-epithelioma. Two patients had a thigh amputation with groin dissection en bloc at the same time. Two had amputation of a toe with its corresponding metatarsal and groin dissection about four weeks later. One patient had had an amputation of a toe some time before we saw him with a mass in the groin. This practice is in agreement with other opinions that if it is not feasible to do the dissection in continuity with removal of a primary melano-epithelioma, it is best to wait for possible metastases to be trapped by the nodes in the groin.

One patient with squamous cell epithelioma had a transmetartarsal amputation and groin dissection at the same time. This case will be discussed in further detail later.

Clinical evaluation of nodes — Lymph nodes were thought to be involved clinically in 6 patients and metastases were demonstrated microscopically in all of these. One patient exhibited slight inguinal adenopathy, but metastases were not suspected and none were found. The nodes were considered normal in the other 4 patients and microscopic examination failed to demonstrate metastases. This degree of accuracy in this small group is certainly unexpected. As Cohn[7] has demonstrated, a positive clinical diagnosis of neoplastic involvement of lymph nodes usually may be made with confidence. However, the reverse is not true, and it is not unusual at all to find microscopically proved metastases in clinically normal nodes.[8, 9] Therefore, groin dissection is recommended in patients with melano-epithelioma, high grade squamous cell epithelioma, and squamous cell carcinoma of the anus without clinical evidence of metastases. With these lesions, delay until nodes are clinically involved may well deprive the patient of the only chance for complete eradication of the disease.

Complications—The most frequent complication of radical groin dissection has been delayed wound healing, and a rather high percentage of failures to obtain primary healing seems inevitable. To achieve what is considered adequate excision, it is necessary to cut across the superficial blood supply to the area, and to lift wide, thin cutaneous flaps. This, of course, invites necrosis of the cutaneous edges, and also provides a large potential dead space for the accumulation of serum. Despite measures to prevent the latter, such as large pressure dressings and immobilization, prolonged serous drainage occurred in 5 of the 13 wounds in our patients. This, however, was not sufficient to prolong hospitalization excessively. The longest postoperative hospitalization was thirty-two days in the patient who also had a transmetatarsal amputation. The other patients were in the hospital from nine to twenty-four days.

One wound exhibited a slough of the medial flap. This patient underwent a simultaneous thigh amputation, but despite this was able to go home on the twenty-fourth postoperative day.

In one patient who had undergone an abdominoperineal resection fifteen days before bilateral groin dissection, bilateral wound abscesses developed. She was discharged on the nineteenth postoperative day after drainage had been established and the wound was healing satisfactorily.

Four patients in whom the wound healed promptly required hospitalization from eleven to twenty days, averaging eighteen days. Thus, the hospital stay was not considerably prolonged by delay in wound healing. Of course, some of those patients with persistent drainage were allowed to return home before the wounds had completely healed, so that in these the morbidity was further prolonged.

Although prolonged drainage and slough of the cutaneous edges are disturbing, they have not proved to be a serious problem. We do not believe, as has been suggested,[10]

that the dissection should be limited in order to avoid this.

Postoperative edema was noted in the affected extremities of 4 of our patients. Only 1 of these was severe, and it occurred in conjunction with keloids. This has been adequately controlled by the use of compression bandages and the patient is able to do his normal work which requires him to stand on his feet for long periods daily.

A urinary infection and later a nonfatal pulmonary embolus occurred in one other patient, in whom homologous serum jaundice later developed. These complications, of course, may occur after any operation and can not be attributed to the groin dissection itself.

Persistent lymph fistulas may be avoided by careful ligation of the lymphatic trunks or by a series of interlocking U sutures at the lower border of the dissection. These have not been a problem in our experience.

Secondary hemorrhage, particularly after irradiation, and widespread sloughs requiring skin grafting have also been reported but did not occur in any of our cases. We have had no instances of postoperative hernia.

There were no operative deaths in our cases. Pack[11] reported an operative mortality rate of 1.6 per cent and, of course, the risk is greater when the procedure is bilateral or is combined with another operation, such as amputation.

As the period of hospitalization indicates, this procedure is by no means innocuous. The incidence of postoperative complications, particularly delayed wound healing, is fairly high. Nevertheless, these have not proved to be serious and in our experience have produced no lasting disability. In indicated cases the potential benefits far outweigh any disadvantages.

Results—Most of our patients were operated upon too recently for critical evaluation of results. Two of the patients, one with melano-epithelioma and one with squamous cell carcinoma of the anus, have died of the disease (Table 2). Another patient with melano-epithelioma is living nineteen months postoperatively but has proved metastases in both axillas and elsewhere. The patient with squamous cell epithelioma of the foot who had a transmetatarsal amputation and simultaneous groin dissection returned in eight months with multiple recurrences in the leg requiring a low thigh amputation; she now has an abdominal mass presumed to be metastatic. This case illustrates the value of adequate amputation, several weeks before groin dissection, if not done in continuity, and a high groin dissection. In this case, the operation was only carried a little above the inguinal ligament, as no nodes were found to be involved. Although the result may have been the same, these measures would have offered a better chance of cure and the surgeon could not be criticized in the event of a recurrence. The other 7 patients were well five to thirty-three months postoperatively (Table 2).

TABLE 2
RESULTS OF RADICAL GROIN DISSECTION IN 11 CASES

Result	Months Postoperatively
1. Dead	
Melano-epithelioma, leg	12
Squamous cell epithelioma, anus	12
2. Living with metastases	
Melano-epithelioma, leg	19
Squamous cell epitheloma, foot	18
3. Living without known recurrence	
Melano-epitheloma	
Toe	10
Toe	5
Toe	10
Leg	30
Leg	26
Squamous cell epithelioma, anus	24
Fibrosarcoma, groin	33

CONCLUSIONS

1. Groin dissection is indicated for melano-epithelioma of the skin occurring in areas draining into the inguinal, femoral and iliac nodes.

2. High grade or large squamous cell epithelioma of these areas and squamous cell epithelioma of the anus require groin dissection even in the absence of clinically involved nodes.

3. Groin dissection may be postponed in patients with low grade or small squam-

ous cell epithelioma until metastases are clinically evident in the nodes.

4. Certain primary sarcomas of the groin will require at least a modified groin dissection.

5. The mortality rate associated with groin dissection is less than 2 per cent and the morbidity has not been serious enough to limit the extent of the procedure.

6. Although reliable statistics regarding prognosis are not available, it is known that groin dissection in indicated cases is capable of arrest or cure of the neoplasm and, therefore, should not be denied those who present the indications.

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INTERNAL BILIARY FISTULA*

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SHREVEPORT

One of the less frequent but more serious complications of cholelithiasis is the formation of an internal biliary fistula, by ulceration of a gallstone through the wall of the gallbladder into an adjacent hollow viscus. Such fistulas may develop in patients whose gallstones have caused relatively minor symptoms, as well as in those whose clinical course has been marked by severe attacks of acute cholecystitis. In any case, the presence of an internal biliary fistula is likely to cause so much pain and disturbance of biliary tract function that operation is earnestly desired by the patient for relief of symptoms.

ETIOLOGY

The commonest type of this disorder is the fistula between the gallbladder and the duodenum,[1, 2] although fistulas also may develop between the gallbladder and the hepatic flexure of the colon, the stomach, or the common bile duct. Puestow[3] reports the incidence of fistula in biliary tract surgery to be 3.5 per cent; Hicken and Coray[4] have found an incidence of 4 per cent.

The condition typically arises as a result of impaction of a stone in the cystic duct or in the ampulla of the gallbladder, which is followed by acute obstructive cholecystitis. Pericholecystitis then develops, with formation of adhesions between the gallbladder and adjacent structures or organs. Pressure of the impacted stone against the inflamed gallbladder wall results in localized necrosis, with perforation into the structure to which the gallbladder has become adherent. Usually, such perforation occurs either into the liver beneath the gallbladder, into the omentum adherent to the gallbladder, or into the free peritoneal cavity. When perforation in these locations heals under nonoperative management, no fistula develops, but symptoms of right upper quadrant pain and biliary tract dysfunction persist.

In some cases, the inflammatory reaction and localized necrosis occur in a portion of the gallbladder which has become adherent to an adjacent hollow viscus, and perforation occurs between the gallbladder and the adherent organ with formation of a fistula. The newly established opening permits spontaneous internal drainage of the contents of the obstructed inflamed gallbladder and the acute process may subside, with relief of symptoms. Internal biliary fistula also may occur through perforation of a

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gastric or duodenal ulcer into the common bile duct, or as a complication of carcinoma of the gallbladder, following erosion of the neoplasm into an adjacent viscus.

SYMPTOMS

Cholecystoduodenal fistulas are typically accompanied by epigastric and right upper quadrant pain, which may be protracted and severe, and by recurrent bouts of cholangitis as a result of passage of duodenal contents into the biliary system. In some cases, ulceration of an unusually large stone from the gallbladder into the duodenum may be followed not only by the establishment of a fistula but by gallstone ileus, or acute mechanical intestinal obstruction from a stone impacted in the jejunum or ileum. In general, if the stone is passed into the duodenum, the fistula is likely to heal spontaneously, although if the common bile duct is obstructed, the fistula will necessarily remain open, to permit drainage of bile into the intestinal tract.

Formation of a cholecystocholedochal fistula by ulceration of a small stone in the cystic duct or ampulla of the gallbladder into the common bile duct is characteristically followed by recurrent attacks of obstructive jaundice and cholangitis. If the stone is large and remains impacted in the gallbladder at the site of perforation, the subsidence of the acute inflammatory process may relieve the obstruction of the common bile duct and allow relatively normal biliary flow to be resumed. Recurrent attacks of mild inflammation then may produce intermittent obstructive jaundice, with or without pain and cholangitis. As a rule, there are no symptoms characteristic of this type of fistula which serve to distinguish it from chronic cholecystitis with recurrent obstruction of the common bile duct by stone or by inflammatory stricture. Usually, the symptoms are severe and of long duration. This type of fistula is particularly uncommon, 3 cases having been reported by Behrend and Cullen[5] and 2 cases by Patt and Koontz.[6]

DIAGNOSIS

Sometimes the presence of internal biliary fistula can be diagnosed on roentgen examination. While in most instances cholecystography will show simply a nonfunctioning gallbladder, gas may be noted in the gallbladder if a fistula is present between this organ and a portion of the gastrointestinal tract. Reflux of barium into the gallbladder and biliary ducts following a barium meal similarly indicates the presence of such a fistula, most commonly located in the duodenum, but occasionally occurring in the stomach. Reflux of barium into the extrahepatic biliary tract following a barium enema is diagnostic of cholecystocolic fistula.

TREATMENT

Treatment of the condition is surgical. While healing often occurs following spontaneous internal drainage of the acutely inflamed gallbladder through a fistula, the persistence of severe symptoms following subsidence of the acute attack, especially with roentgenographic evidence of an internal biliary fistula, is ample indication for surgical correction. Spontaneous internal fistulas do not provide proper or adequate drainage for the biliary tract and permit either reflux of intestinal contents into the bile ducts or intermittent obstruction to the normal biliary flow.

Cholecystoduodenal fistula is corrected by removal of the gallbladder, repair of the opening in the duodenum, and exploration and T-tube drainage of the common bile duct. Repair of the cholecystocholedochal fistula is more difficult, since this condition is less likely to be diagnosed before operation. In such a case, the common bile duct may be divided inadvertently in the region of the fistula during dissection of the gallbladder. The possibility of this lesion must be kept in mind and the common bile duct identified as a preliminary step in the operation when the gallbladder is found to be densely adherent to the region of the common duct. Following cholecystectomy, the common bile duct is explored, stones are removed, and a T-tube is introduced. Internal biliary fistula secondary to carcinomatous ulceration obviously is not amenable to surgical treatment.

CASE REPORTS

Case No. 1: The patient, a white woman aged 58 years, was admitted to the Physicians & Sur-

geons Hospital on August 12, 1948. According to her history, cholecystostomy had been performed thirty-one years before for indigestion, with temporary relief of symptoms. Mild episodes of epigastric distress appeared from time to time, with typical qualitative dyspepsia following ingestion of fatty foods. These complaints had increased sharply in recent months, and severe attacks of upper abdominal pain with fever and chills had occurred shortly before admission. One significant symptom was the occasional occurrence of sudden violent pains with vomiting immediately following the drinking of liquids. There was no history of jaundice, light stools, pigmented urine, or melena.

Two weeks before admission, acute illness developed with severe epigastric pain, nausea, vomiting, fever, and chills, the temperature rising to 103° F. The upper abdominal pains were sudden, sharp, frequent, and of short duration, radiating straight through to the back, and were relieved temporarily by vomiting.

Upon admission, the patient was not acutely ill and no evidence of jaundice was noticed clinically or by laboratory study.

Examination revealed the abdomen to be moderately obese; a right paramedian incisional scar extended from the xiphoid to a point just below the umbilicus, with herniation throughout its extent.

Fig. 1. Gastrointestinal x-ray series. Barium passes upward from duodenum into biliary tract.

Slight tenderness to pressure was noted over the midepigastrium and gallbladder region, and the liver edge was barely palpable on deep inspiration. Diabetes mellitus and hypertension were present in mild degrees. Physical and laboratory examinations were otherwise of no contributory interest, except for roentgenologic findings.

Cholecystography failed to visualize the gallbladder. Gastrointestinal x-ray series showed the esophagus and stomach to be normal, but the duodenal cap was irregularly outlined and a thin stream of barium was seen to pass from the region of the cap vertically upward, apparently into the biliary tract. A small amount of barium was still present in this area twenty-four hours later, although none remained in the stomach or small intestine.

A diagnosis of cholecystoduodenal fistula was made and operation was advised.

Course: Exploratory laparotomy was performed on August 23, 1948. The hepatic flexure of the colon was found to be densely adherent to the small shrunken fibrotic gallbladder and was freed. The fistula was located between the ampulla of the gallbladder and the adjacent duodenum. These organs were separated and the gallbladder was removed from above downward. No stones were present. The common bile duct was greatly distended and was filled with a mushy mass of soft stones. The duct was explored, and the obstructing soft stones were removed from the entire length of the common duct, and a T-tube was introduced. The opening in the duodenum was closed with two layers of sutures. The incision was closed as usual.

Postoperative course was complicated only by an incisional infection. The T-tube was removed twelve days after operation, following a normal cholangiogram, and the patient was discharged in good condition. She has been completely free of symptoms referable to the gastrointestinal or biliary tracts since operation. Gastrointestinal x-ray series and barium enema on March 14, 1951, were normal.

Case No. 2: The patient, a white woman aged 39 years, was admitted to the Physicians & Surgeons Hospital on April 8, 1949, under the care of Dr. L. K. Mason. She gave a history of minor digestive difficulties, especially with reference to fatty foods, for the preceding year, with recurrent attacks of colicky pain in the right upper quadrant during the preceding six months. On several occasions, these attacks persisted for several days and were sometimes accompanied by fever, chills, and jaundice, with laboratory findings characteristic of extrahepatic biliary tract obstruction. Cholecystography failed to visualize the gallbladder.

Examination upon admission showed the patient to be not acutely ill. The abdomen was flat; moderate tenderness to firm pressure was present in the right upper quadrant. Liver, spleen, and kidneys were not palpable, and no masses could be

felt. A slight degree of jaundice was present; clinical laboratory tests proved it to be of the obstructive type. A diagnosis of cholelithiasis with common bile duct obstruction was made.

Operation was performed by Dr. L. K. Mason on April 11, 1949. The gallbladder was found to be small and scarred, and evidence of subsiding acute inflammation was present. The gallbladder was contracted about a fairly large number of stones and was ulcerated through in one area, adherent to the omentum, and in another area was densely fixed to the hepatoduodenal ligament, with perforation into the common bile duct. A large stone was present at the site of the cholecystocholedochal fistula, obstructing the common duct at this point. Cholecystectomy was performed, the stone was removed from the common bile duct, the common duct was explored, and a T-tube was introduced at the site of perforation. The incision was closed in the usual manner. Convalescence was uneventful and the T-tube was removed after twelve days, following a normal cholangiogram. The patient has had no further symptoms referable to the gastrointestinal or biliary tracts.

DISCUSSION

Two typical cases of internal biliary fistula are reported. The cholecystoduodenal fistula was diagnosed before operation by roentgenography, the gallbladder failing to visualize on cholecystography but showing reflux of barium from the duodenum into the gallbladder following a barium meal. The cholecystocholedochal fistula was not identified preoperatively since the presence of a nonfunctioning gallbladder on cholecystography and the history of symptoms of right upper quadrant pain and recurrent obstructive jaundice could not be regarded as diagnostic of this condition.

The possibility of development of internal biliary fistula, with resultant severe damage to the extrahepatic biliary tract, is another argument in favor of routine cholecystectomy for gallstones, whether or not the stones are producing symptoms at the time of discovery.

SUMMARY

1. Two cases of spontaneous internal biliary fistula are reported.

2. Cholecystoduodenal fistula can be diagnosed preoperatively by x-ray either by the presence of gas in the gallbladder or by reflux of barium into the gallbladder following a barium meal.

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CLINICAL ASPECTS OF CHILDHOOD SCHIZOPHRENIA: VIEWED FROM INTEGRATIVE LEVELS*

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NEW ORLEANS

Because of the variability in reports on childhood disorders, the term "childhood" as used here refers to individuals below twelve years of age.[8] There are psychiatric research reports in which childhood includes age groups all the way up to seventeen and eighteen years of age.[23] The arbitrary age limit of eleven or twelve years would correspond more closely to the concept of physiological puberty and to the conventional demarcation utilized in most of the pediatrics services. Schizophrenia refers here to a disease which interferes with integration in every adaptational area, reflecting itself at all levels of the central nervous system activity, the deeper brain areas with their various important centers and connecting pathways, on through upper brain levels. It follows that there would be metabolic, autonomic, vascular, sensory, motor, emotional, intellectual, and social malfunctioning.[1, 2, 32]

Since childhood is a period of continuous and relatively rapid changes, as new developmental levels are achieved, we would expect differences in the child's reaction dependent upon the time of onset, as well as

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the degree of severity and the course of the illness. Adequate experience and training in child psychiatry is thereby requisite in evaluating the symptomatology and avoiding misdiagnosis. It is well known that there are many disturbances which if evaluated with the criteria for adult behavior, would result in labeling many nonschizophrenic children schizophrenic.

I suspect the reverse is also true, since the difficulties the child experiences in his desperate attempts to adapt arouse intense anxiety which the child attempts to control by utilizing mechanisms of defense similar to those of the neurosis. The biopsychological inhibitions "freeze" learning processes so that future development follows a discordant pathway. Therefore, the clinical disorder is here viewed as a combination of both the underlying biological disturbances and the desperate attempt to adapt in spite of the illness. As you well know, there is a great deal of discussion prevailing as to whether schizophrenia is a clinical entity, genetically predetermined, its appearance dependent upon a variety of factors that may precipitate decompensation,[34] or as others consider it, a disease which may appear in any individual regardless of the genetic or constitutional predisposition. Those believing the former sometimes call the latter "schizophrenic-like" behavior. I hope that the factual explanations of the genesis can perhaps be given us some day by those equipped to do the required multiphasic research.

AREAS OF DISTURBANCE

Let us now consider some of the areas of disturbance. *On the lower brain levels*: Schizophrenic children may show marked instability or lack of responsiveness of the vasomotor system. They may have excessive perspiration or vascular dilatation or appear pale and have cold extremities. Their biological reactions are frequently unpredictable. This has also been seen in the adult cases.[20] The instability of childhood homeostatic mechanisms further accentuates these reactions. Disturbances in the usual rhythm of eating, sleeping, or elimination may be apparent. There are frequently discrepancies in physical growth. Studies at the New York Psychiatric Institute, however, did not reveal any clear relationship between Kretschmerian dysplastic and asthenic types and prognosis, as had the findings of some of the Soviet workers.[28, 37]

Disturbances in the visual-motor pattern may be demonstrated by having the child copy certain gestalt figures.[3, 17] Marked inconsistencies can be seen as primitive vortical movements intermingled with forms that are consistent with their maturational level. There are difficulties in controlling action and boundaries, in particular, marked discrepancies within the parts. One part may be in marked temporal contrast with the remainder. The pathology may be seen in their art productions.[31] The six to twelve year old child may show precocious ability. Their art reflects problems in motility as well as the intense pervasive anxiety and disturbances in body image. Other special talents may be expressed through music, dancing, or verbalization. The discrepancy between the highly developed talent and their other adaptional patterns may be striking.

On the motor level: One sees difficulties in coordination. As an example, there were noticeable differences in observing the schizophrenic children in outdoor play with their nonschizophrenic peers.* Contrast with the others in the group was marked. They are awkward and clumsy and have irregular, unpredictable patterns in the commonly played games. Although one gets the impression of difficulty in coordination when the child has to conform to a set pattern of activity, there may be, one the other hand, very graceful spontaneous dancing. Children from three to six often preoccupy themselves with such motor play. Another activity which has been observed is described as "darting".[2, 4] These are sudden movements, breaking away from the graceful rhythmic activity and considered an expression of the desire to escape from their

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vacillating uncertain center of gravity. There is difficulty in gaining new motor patterns. Mothers frequently remember the difficulty their child had in learning to walk or in manipulating toys. The child's motor retardation may be in contrast with its other development, which can appear normal. These discrepancies are a source of marked anxiety to the parents. They attempt to push his motor development, succeeding only in intensifying their mutual anxiety. Patterns belonging to a previous developmental level may persist into later stages. As an example, the hand play that is so characteristic of infancy may be seen in later childhood as mannerisms, e. g., a four year old Negro boy seen as a diagnostic problem at Charity Hospital, Tulane Pediatrics Service, manifested preoccupation with hand play as one of the evident features along with marked withdrawal, panicky reactions, and inability to distinguish his fantasies from reality. The regressive hand play is easily observed by the Ward Staff and readily distinguished from the usual behavior of the same age group.

Difficulties in ascertaining the position of their facial musculature may be associated with grimacing, or if combined with oral mannerisms may produce unusual vocal noises. Others show relative absence of expression inappropriate to their thoughts and actions. Some show lack of awareness of bodily secretions and excretions, likely overdetermined in origin. In part, this may represent an inability to integrate peripheral perception, as well as emotional, intellectual, and cultural aspects of behavior. In addition, the child exhibits a dramatic plea for help with his dependency needs.

Schilder and Bender have considered certain of the postural reflexes as being almost pathognomonic for childhood schizophrenia.[4, 36, 38] Up to the age of six, the average child normally responds with corrective body movement when you turn his head. The schizophrenic child shows developmental retardation in his neuromuscular responses and can be initiated into whirling movements, apparently accepting the new motor pattern if the turning is continued by the examiner. Whirling activity may be seen as a common form of spontaneous motor play, linked with the child's difficulty in determining his center of gravity, or relating himself to time and space, and in determining the peripheral gestalt of his body. In further efforts to seize upon a dependable center of gravity, he forms intense identifications, attempting to become integrated vicariously. There may be clinging, bodily dependence, and complete motor compliance. The latter can be demonstrated by mutual contact with the palmar surfaces of the hands. Such children can be pushed about with ease or induced into cerea-flexibilitas.

In the emotional sphere: The entire picture is colored with anxiety. The panxiety occurs as a reaction to perceiving danger from a variety of sources. These include: their inability to experience any sustaining pleasure by satisfying bodily needs; inability to maintain stable orientation toward the animate and inanimate environment; fluctuating perceptions and apperceptions; difficulty in ascertaining their ego boundaries with fears of losing identity and being engulfed or controlled by others if they get too close (its prototype usually refers to the mother). On the other hand, they desire close contact to acquire a source of bodily and psychological security to escape the effects of the illness. Desires to escape produce continuous fantasies, such as going to other countries or worlds, changing sex, and becoming another person. As an example, an eleven year old child was actively engaged in attempts to change sex. By self-inflicted wounds, she was preparing herself for a fantasied dangerous career as a male. Similarly, an adult had amputated her own breasts and carried on other actions, such as implanting testicles under her skin, to become a male. This too is overdetermined psychologically; namely, the symbolic acquisition of a penis to obtain strength, protection from attack, and restoration of the fantasied castration damage.

The schizophrenic child shows inability to control the production of his fantasies in

contrast to the healthy child, who tells you he is "making it up". The emotional ataxia in the schizophrenic is in contrast with the individualized constancy of range in the healthy child. Other findings on the comparison between the two reveal the absence of true hallucinatory or delusional attitudes in the fantasies of the two to five year old normal group, and in those instances which might have been considered closest to it, there is always a very strong emotional factor present, similar to that which might initiate the pseudo or true hallucinations in the normal adult, except that the child has greater emotional lability.[5, 14] The most imaginative healthy children are not the ones that more frequently produced the pseudo-hallucinatory or pseudo-delusional experiences. Pseudo-hallucinatory experiences are found to be more dependent upon the intensity of the emotions. Contrary to autistic thinking in the schizophrenic, the healthy child neither believes in his fantasies nor loses active emotional contact with the environment, and maintains an awareness of temporal and spacial relationships in accordance with his developmental level.

The usual sexual problems in childhood may be accentuated and manifested in preoccupation with masturbation and elimination, or in the older group, they may experiment with attempts at obtaining pleasure from a variety of stimuli. Their somatic complaints when present refer to introjected objects, seldom utilizing projective defense mechanisms. The latter may occur, however, in adolesence. Hallucinations of the auditory type are extremely rare and not considered of diagnostic value. They are considered mechanisms similar to those seen in nonschizophrenic children and represent strong emotional reactions to their conscience. They readily disappear with treatment.

Kanner[22] observed 11 children who from infancy manifested extreme autism, obsessive desires for sameness, stereotypy, and echolalia-type reproductions, but felt these were not schizophrenic because they did not fit the criteria of being preceded by two years of essentially average development and were showing some improvement. In the early reported cases of childhood schizoprenia, including those of De Sanctis' dementia praecocissima and Heller's dementia infantilis, their cases were preceded by at least two years of essentially average development; the histories specifically emphasized a gradual deterioration in the patient's behavior. Kanner's have now reached the ages of nine and eleven years. Their basic desire for aloneness has remained essentially unchanged, with a varying degree of emergence from their solitude. He felt these were examples of inborn autistic disturbances of affective contact. It will be interesting to follow these and to see how they will later adapt. I believe there is the possibility that his may be early cases of so called pseudo-neurotic schizophrenia.[19]

Although schizophrenia is not the only disorder that may cause mothers to complain that their child does not relate to them, I always respect and investigate such observations. Attempts to avoid the anxiety associated with the danger of being too close to others intensifies the desire to withdraw into seclusion. It is further overdetermined by the pride associated with their pseudo-independence. They are torn between their need for others to provide security in every area of their functioning and the desire to escape from themselves and their frustrating environment. Their inability to correctly perceive interpersonal emotional reactions further contributes to marked ambivalence in their relationships. Other attempts to avoid anxiety are seen in their desire to deal with only a small part of the object relations in life. They cry at changes in routine and reject new situations. They ritualize their life and further restrict their adaptive capacity.[6]

On the intellectual level: Differences in the effect upon thought and language are expected at various developmental levels. If the disease is evident within the first few years of life, there may be marked speech retardation or evidences of blocking. Prolonged mutism may be an early symptom. The speech may suddenly appear although

the mutism was present for several years. Other manifestations may include distortion in the verbal constructions or revival of earlier speech patterns. Verbalizations may be preoccupied with attempts at orientation towards oneself or the environment. You are all familiar with the way in which adult schizophrenics utilize special signs and symbolizations for language.[24] This is also seen in the childhood disorder. On the other hand, children who begin to suffer from the schizophrenic process after language has developed may show a marked increase in their language ability. The continuous interference with their thought processes, accompanied by the emotional disorganization, may lead them toward experimentation with varying forms of thought, which find expression in what we perceive as fragmentation or other bizarre forms of communication. It is not uncommon to find them preoccupied with numbers or other abstractions that have no particular emotional or intellectual meaning to a young child.[14, 16]

Three to four and one half years of age is considered the most common period of onset. The disruptions of their acquired patterns may be sudden or gradual. The disruptions in the social patterns are foremost; whereas physical and intellectual areas may not appear to be markedly impaired.[2, 11] They show marked anxiety and dependency. It is this group that fit the criteria of De Sanctis and Heller. Children considered to be schizophrenic in the first two years of life usually do not show consistent development at any point. The third period in which the process is commonly recognized is at ten to eleven years. In this age group, differential points are needed to distinguish them from neurotics. They begin to show the projective mechanisms seen in adult paranoids. Many in the group may show acceleration in their language development and confusions in identifications. The disorganization is not just a simple regression according to the developmental levels, but follows a pattern all of its own.[12] Because of the schizophrenic child's specific language and speech disturbances, much is to be gained from more careful investigation of these areas. As an example, dissociation between language sign and language function has been shown to reflect early affective dissociations. The schizophrenic uses words for themselves without employing them for communication and affective relationships.[16] The further these dissociations occur, the greater are the feelings of strangeness, of being isolated and alone, the less the ability to employ affective contact with the environment. Such observations can be of aid in distinguishing severe behavior disorders manifested by marked regressive adaptive patterns. As an example, a boy I treated for two years appeared schizophrenic in manifesting at four years of age intensive impulsive aggressive behavior, regressive habits, hyperactivity, vacillation between excitement and seclusiveness, negativism, and lack of affective contact. His use of language was such as to rule out the diagnosis of schizophrenia. As he gradually improved in therapy, his behavior became integrated and he was able to progress to the developmental level appropriate for his age. The therapist in this instance also treated the mother.

On the interpersonal level: One or both parents may have a severe emotional disturbance. The healthier parent usually suffers intense anxiety, guilt feelings, and confusion, as a result of inability to understand the distortion in their relationship. There is marked difficulty in empathizing with the child and in getting cooperation from the emotionally disturbed parent. The schizophrenic child in the family usually creates a great deal of anxiety in the other children as a reaction to his diffuse anxiety and inadaquate defense mechanisms. They, of course, have the same difficulty in identification and empathy with the schizophrenic sibling. It is for this reason that having a schizophrenic child in a mixed group therapy program requires special skill on the part of the therapist. The anxiety of the schizophrenic child may be a serious disruptive influence upon the group. Although such children can react with feel-

ings of affection for the therapist, it does not appear to facilitate their desire to discuss their feelings and problems. These children frequently manifest a searching, wistful, longing expression in their eyes which appeals very strongly to others for help. The therapist is frequently fooled into feeling that such children merely need a stable affectionate relationship to fulfill the defects apparent in their environment. The girls are frequently frail and often beautiful. Some of the children are extremely suggestible early in therapy; others appear to be unable to relate to anyone,—therapist, social worker, cottage parent, etc. They frequently identify with only one aspect of their parental relationship, namely, the hostile attitude of the parent, and are thus not able to see the warm, affectionate aspects of either their parents or others in their lives. Although many of the mothers may be found to be overprotective or hostile and anxious,[25] we must be cautious in seizing upon this as the causation of childhood schizophrenia. The child's apparent incapacity and peculiar development could easily arouse parental reactions of the above nature. Kallmann's[26] research studies conclusively reveal the presence of genetic predisposition. Thus, it would not be surprising to find a large percentage of their parents with severe personality disturbances. I would agree, however, that in spite of certain genetic predisposition underlying the developmental processes, the hostile, highly ambivalent parental attitudes may well be the precipitating factors for total disorganization in many instances.

DIFFERENTIAL DIAGNOSIS

In the differential diagnosis, we must keep in mind that such symptoms as hyperactivity, marked aggressiveness, hallucinatory episodes, seclusiveness and pseudodelusional material may appear in children with physical illness, severe behavior disorders, neurosis, and organic brain disease. Schilder[35] contributed many descriptions of reactions that resembled schizophrenia but were associated with organic brain pathology. Postencephalitic behavior disorders may also simulate this condition.[7] Mental deficiencies can give the impression of a psychosis.[21] The Rorschach is of marked help in such a differential. Occasionally, mental deficiency may coexist with schizophrenia. However, many workers feel that if the schizophrenic way of reacting is the foremost, then that diagnosis is to be made.[9, 10]

Leitch and Schafer[27] employed a battery of tests at the Menninger Clinic and felt that Murray's thematic apperception test is crucial in differentiating between the schizophrenic and nonschizophrenic child. The disturbance in thought organization, emotion and perception differentiated the former.

It is not felt that cortical electroencephalograms bear any definite relationship to the character or severity of the clinical state. As an example, it has been found that some of those at the deteriorated level show no sign of definite abnormality in the electroencephalogram.[28]

The occurrence of schizophrenia in children has been considered rare. Kasanin and Kaufman twenty-three years ago reported 25 psychotic patients below the age of sixteen out of 6000 consecutive admissions to the Boston Psychopathic Hospital.[23] However, Bender reported a few years ago that more than 100 pre-adolescent children were considered to have schizophrenia in the past ten years at the Bellevue Hospital. Just as there has been an increase in the ability to make the diagnosis of schizophrenia in adults, particularly with the criteria advanced by Hoch and Polatin on pseudo-neurotic schizophrenia,[18, 19] it may be that further contributions will increase the ability to detect schizophrenia in childhood. However, I feel that we should be particularly cautious in so labeling a child. The possibility for error in this age group is much greater. For one, the healthy child's adaptation is in a continuous state of instability as compared to that of an adult. Obviously, early recognition requires a refinement in our means of detection.[15] These children are invariably problems and are brought to the attention of physicians. Nursery teachers recognize the

child's socialization difficulties as an early index of adaptational pathology if these persist after the usual period of "warming up".

THERAPY

With regard to therapy, Bellevue[13] utilizes an intensive program with combined psychotherapy, shock treatment, and a social program. They find that although the outlook is relatively poor compared to other types of childhood disorders, many of the children can be brought to a point where further development can occur. In general, those with the severest disorganization of their acquired patterns, with diminution of anxiety, show very little response to therapy and are difficult to distinguish from the organic dementias. Those showing an accelerated type of response, with a good deal of anxiety, tended to respond to shock therapy and psychotherapy. They compare the results with those in adults, namely, about one-third to one-half will make a fair to good social recovery. In contrast, Potter and Klein[33] and Lurie, Teitz and Hertzman[29] found only 1 in their series of 14 and 10 respectively, made any tolerable adjustment. The prognosis appears to be much worse if the onset is at the three to five year level. Long-range supportive therapy would have to be included in planning for such children. I disagree, however, with those workers in the field who feel that the psychoanalytic type of therapy—in other words, intensive psychotherapy—is required. I am partial to therapy employing a special environment where the child can mix with other children and where the environment is geared to his special problems, plus supportive therapy to diminish the anxiety reaction. Group therapy for the confused, anxiety ridden parents is a valuable aid toward preparing the environment to which the child must later return.[30]

A nihilistic approach to schizophrenia is unwarranted. Recognizing organic brain dysfunction underlying the disturbance should not imply an irreversible, pessimistic conclusion. "Decompensated" cases can be brought back to a satisfactory functioning level in many instances. The therapist and all those in contact with the patient must be aware of the nature of the disease in order to respond with a healthy therapeutic attitude. Psychotherapeutic techniques must necessarily be altered from those used in neurotic or behavior disorders; e. g., a twelve year old girl sat at home, was mute, and engaged in symbolic fantasies and activity, and highly negativistic behavior. At Hawthorne, after a complete study, she was found to be schizophrenic. The author saw her weekly for a year and although she refused to talk for many months, we met regularly, the therapist carried on a monologue and frequently went walking with her. In her recovery, she related specific material from these sessions and pointed out the factors that influenced her desire to accept and communicate with the therapist and the Institute environment.

CONCLUSION

In conclusion, I hope that the days of diagnosing childhood schizophrenia on the negative basis of having eliminated all other possibilities, or through an emotional attitude on the part of the therapist toward the child, will soon be over. I have attempted to review certain recognizable clinical aspects of the disease in contrast with what was at one time considered a nonexistent syndrome in childhood. We must recognize that all mental activity is a product of underlying brain structure. Thus, whether childhood schizophrenia is considered symptomatic or genuine would appear to be dependent upon whether the disturbance is produced by known agents or is due to spontaneous electrochemical changes which can not be demonstrated by the usual methods of investigation. The alterations in brain function may be produced by organic diseases, certain drugs, severe emotional stress affecting the related deep brain pathways in individuals with varying degrees of predisposition, or finally congenital brain hysfunction.

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SERIOUS DEFEAT OF ORGANIZED MEDICINE IN THE PRESENT CONGRESS

On July 5, which was probably the last day of the present Congress, organized medicine suffered the most serious defeat it has ever encountered in its long fight against socialized medicine. This defeat was accomplished so quickly, with such shrewd management, and with such utter deception that few even now know of its extent and its meaning.

In fifty-five days of concentrated effort, the socialists and the forces working for socialized medicine, including Oscar Ewing, were able to accomplish more than they had in the whole four years that State Medicine has been a constant threat and in the ten years that have passed since State Medicine was sponsored by the left wing administration under Roosevelt. The manner of its doing and its possible effects are of serious moment to every physician and to the leaders of organized medicine. It has been repeatedly cautioned by all who know and are alert that the Socialists when defeated in their main efforts to bring in State Medicine as one big achievement in the halls of Congress would pursue a course that gave even some remote promise of establishing their program bit by bit. Our recent defeat is an important stone in the arch of State Medicine and in the edifice that the Socialists would like to build. The chronicle of the circumstances is this:

On May 12, 1952, Congressman Doughton, (Democrat of North Carolina), introduced HR 7800, increasing benefits for Old Age and Survivors Insurance beneficiaries under the Social Security program, and attached to this bill was what is now known as the infamous Section 3, which further provided that the Federal Security Administrator should (1) provide by regulation when and where physical examinations should be taken; (2) be authorized to prescribe the examining physician or agency (including federal installations); and (3) establish the fees. While the bill did not establish permanent and total disability benefits, it did establish a precedent and framework for the adoption of such benefits in the future, and also, for the principle of federal doctors taking care of federal beneficiaries. There were to be free medical examinations under federal control.

The undesirable features of this Bill were perceived and made known by the A.M.A. office in Washington and by Dr. Marjorie Shearon. Five days after the bill was introduced, it was reported out of committee to be taken up by the House under suspension rules with no amendments permitted, a twenty minute debate on each side, and two thirds majority vote required.

No hearings were called. Along with this report from the committee was a fifty-one page report on the Bill, advocating its approval. The report, presumably, was written by the Social Security administration. This report was made on May 16, a Friday evening at about 4:00 P. M., with a vote to be expected on the following Monday morning early. Warning was received by the State Congressional committee, and proper representations were made by the committee to our members in Congress. On short notice, an extraordinary opposition to the Bill was developed which was led by Daniel A. Reed (Republican of New York), on the ground that the proceeding in the Bill was highly irregular and he wished to protest the gag rule, lack of hearings, and was against the attempt to institute a whole new Social Security program under cover of increased old age benefits.

The Bill was defeated in the House, that is, there were only 150 for the Bill and 140 against, and a two-thirds vote was required. This was temporarily a setback for the Bill and the Social Security administration called the vote, "a vote against the aged." Actually, it was a vote against the scheme to foist government controlled medicine on the United States. It was also a vote against irregular parliamentary procedures, against gag rule, and against speedy legislation. In the meantime, Representative Reed introduced a bill which would meet the needs of the nation so far as this particular Social Security problem was concerned without allowing an opening for State Medicine, as did the Doughton bill. The Reed bill never got a chance to have a hearing. However, the defeat,—temporary though it was—of the Ewing and socialized medicine forces, was acclaimed by one of the syndicated Washington columnists as an indication of the A.M.A. having the newest and most powerful lobby in Washington. As subsequent events have shown, the A.M.A. is far from having the most powerful lobby, although that is just the kind of lobby it needs.

Continuing the chronicle of our defeat—The administration forces stirred up as much sympathy and influence as they could bring to bear on the grounds that some Democrats and some Republicans were voting against the interests of the aged. On June 12, it was again brought up for vote under suspension of rules, to be acted upon by the House on June 16. Although there was plenty of time on June 13 and 14 for full debate and amendment, the administration insisted upon gag rule. A forty minute debate was to be permitted. The version of the Bill this time had a few words, phrases, and sentences changed in Section 3. These minor deletions left the way open for the Security Administrator to do what he pleased and the talk about the amended bill having removed the portions objected to by the medical profession was a deception. The Bill passed the House 360 to 22 with our own representatives who had been made aware of its dangers voting for the Bill, feeling that it was not objectionable to organized medicine. As the Bill went to the Senate much opposition was shown to Section 3 all over the nation. Senator George said his committee agreed to delete Sections 3 and 6, pending hearings in January. The Bill was passed *viva voce* at 6:00 P.M. on June 26, few Senators being present. On July 3, 4, and 5, the conferees met to harmonize the differences between the House and Senate bills. They were deadlocked on Section 3. George capitulated with a slightly weakened Section 3, and the atrocious bill passed the House on July 5 on what was probably the last day of the present Congress.

Reconsideration of these events shows how it was done and gives us a warning for the future. This defeat for us was accomplished by the administration exerting all the pressure it had over a fifty-five day period, bringing the bill out late in the week to be acted upon Monday morning without debate, or not sufficient debate, by misrepresentation of the true significance of minor changes, by our representatives in the House and Senators in Congress being willing to accept verbal assurances which are not present in the text of the bill. The immediate effect of this defeat will not be

apparent to the average physician. Its ultimate potentiality for harm to medicine is enormous. It can be clearly seen in the light of these developments that the most powerful lobby in Washington is the administration lobby for State Medicine.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

AMA DUES

Are you on borrowed time? You are if you did not pay your 1952 AMA dues by June 1st. A member is delinquent if his dues were not paid by June first and unless he pays the delinquent dues within thirty days after he receives notice of his delinquency from the Secretary of the AMA he will forfeit his active membership. Our advice is to attend to this at once.

REPORT OF DELEGATES TO AMA 1952 SESSION—Chicago June 9-13

The House was called to order promptly at 10:00 a. m. on Monday, June 9, by the Speaker of the House, Dr. Frank F. Borzell.

The Chairman of the Reference Committee on Credentials reported 185, out of a possible 188 delegates certified. Later report indicated one hundred per cent attendance.

Due to illness the Vice-Speaker, James R. Reuling, was unable to be present and Dr. Vincent Askey was elected Vice-Speaker pro tem.

Dr. Donald C. Balfour, Rochester, Minnesota, Dr. Shields Warren, Boston, and Dr. Paul D. White, Boston, were nominated as recipients of the distinguished service award and Dr. Paul D. White was elected by the House to receive this award.

The Board of Trustees recommended that the annual dues be continued at $25.00 per year and this recommendation was adopted. The Board of Trustees was asked to study the problem of increasing the compensation to state societies for the collection of AMA dues.

Up to the present time efforts are still being made to buy a piece of property in Washington to house the Washington office, however nothing specific has been done so far.

It was agreed that since President Cline is reported to have flown more air miles last year than any other individual in the United States, both the president and president-elect should receive an honorarium of $50.00 per day in addition to their expenses; this to be retroactive to June, 1951.

It was advocated that committees at a state level be formed to promote subscriptions to the American Medical Education Foundation. The Woman's Auxiliary presented the American Medical Education Foundation with a check for $10,000.00 and the American Radiological Society gave a check for $2,000.00

A committee is to be appointed to study internship appointments in hospitals throughout the country.

In regard to the licensing of non-medical personnel by the specialty boards, the Chairman of the Council on Medical Education and Hospitals stated that the rules of the Council do not permit this at this time and it was recommended that the Council make further study of the problem. This is in accord with the resolution which was adopted by the Louisiana State Medical Society at the Annual Meeting in Shreveport and nine other states joined us in presenting this resolution. It must be realized that the Council on Hospitals and Medical Education does not have power to set rules and regulations until approved by the House of Delegates and since no recommendations

were made at this meeting no action was taken to change the present rules.

The question of term of delegates was discussed and it was agreed that any delegate duly elected by his society shall be permitted to serve out his term even though the state membership does not, numerically, meet the requirements for such an appointment.

The House went on record as approving a resolution to limit taxation by the Federal Government, at the same time it does not approve supporting any individual for public office. It was suggested that Congress be petitioned to investigate the treatment of veterans in VA Hospitals with non-service connected disabilities and to disapprove the acceptance of fees by the Government from insurance companies and hospital companies for treatment of veterans in VA Hospitals.

For the first time some recognition is to be given to the alternate delegates by presenting them with a distinctive badge.

Recognition was given to Dr. Walter H. Roehll, of Middletown, Ohio, for his ministration to the passengers on the train stalled for several days in a heavy snow storm in the Sierras last winter.

A committee report was adopted which recommended to the Board of Trustees that a committee be appointed to study and consult with the American Osteopathic Association with regard to Doctors of Medicine being permitted to teach in osteopathic schools.

Mr. Howard Blakeslee was awarded, posthumously, a gold medal for his work as science editor. Mr. Blakeslee was seventy-two years of age and passed away suddenly on May 2 at his home in Port Washington, L. I., N. Y. The last time such an award was made was in 1948 when it was presented to Father Alphonse Schwitalla.

There was considerable discussion concerning the Magnuson Commission in connection with the President's Commission on the Health Needs of the Nation, after which expression of an opinion by the House was postponed.

Dr. Ernest Claxton, assistant secretary of the British Medical Association, London, England, addressed the House and brought greetings from the physicians of England.

At the close of registration on Wednesday evening more than 10,000 physicians were registered.

Election of officers took place on the last day of the meeting and for president-elect Dr. E. J. McCormick, of Toledo, Ohio and Dr. F. F. Borzell, of Philadelphia, were nominated. In the election Dr. McCormick was declared the winner.

Dr. Leo F. Schiff, of New York, was nominated and elected Vice-President.

Dr. George F. Lull, Secretary and Manager, Dr. J. J. Moore, Treasurer, Dr. James R. Reuling, Speaker of the House of Delegates and Dr. Vincent Askey, Vice-Speaker, were elected without opposition.

Dr. Dwight Murray, Nepa, California, was elected to succeed himself on the Board of Trustees. Dr. James R. McVay, of Kansas City, Missouri, was elected to fill the unexpired term of Dr. McCormick.

Dr. Homer L. Pearson, Jr., Miami, Florida, was elected to succeed himself as a member of the Judicial Council.

Dr. Stanley P. Reimann, of Philadelphia, succeeded himself as member of the Council on Scientific Assembly.

Dr. Herman G. Weiskotten, succeeded himself as member of the Council on Medical Education and Hospitals and Dr. John W. Cline, past president, was elected to fill the unexpired term of Dr. Russell L. Haden, deceased. This Council was increased by three members, Dr. Charles T. Stone, of Galveston, Dr. Faulkner and Dr. McKittrick.

On the Council on Medical Service, Dr. Elmer Hess, was re-elected in place of Dr. McGoldrick. Louisiana was honored when Dr. J. Q. Graves was elected to this Council to fill the unexpired term of Dr. McVay.

Dr. James Stevenson was re-elected to the Council on Constitution and By-Laws.

Atlantic City was selected as meeting place for the 1955 Annual Session.

J. Q. GRAVES, M. D.
VAL H. FUCHS, M. D.
Delegates to AMA

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

N. O. GRADUATE MEDICAL ASSEMBLY ELECTS NEW OFFICERS

The sixteenth annual meeting of the New Orleans Graduate Medical Assembly will be held March 2-5, 1953, headquarters at the Municipal Auditorium.

The following officers and members of the Executive Committee have been elected for this year:

Dr. Charles B. Odom, President.

Dr. Andrew V. Friedrichs, President-elect.

Dr. Donovan C. Browne, First Vice-President.

Dr. Max M. Green, Second Vice-President.

Dr. Thomas Findley, Third Vice-President.

Dr. Woodard D. Beacham, Secretary.

Dr. Robert F. Sharp, Treasurer.

Dr. Howard Mahorner, Director of Program.

Dr. Jules Myron Davidson, Assistant Director of Program.

Dr. C. Richard Walters, Assistant Director of Program.

Executive Committee

Dr. W. P. Gardiner

Dr. Edgar Hull

Dr. Philip H. Jones

Dr. James D. Rives

Dr. H. Ashton Thomas

NEWS ITEM

The winner of the 100 volumes display of current medical journals bound by P A B S was Dr. Aaron A. Farbman of Detroit, Michigan, who presented same to the Detroit Memorial Hospital.

TIPS FOR THE DOCTOR'S SECRETARY

Practical public relations techniques for dealing with the doctor's patients are included in two new illustrated booklets which the American Medical Association soon will make available to physicians. A 20-page pamphlet—designed as a brief guide for secretaries—will be sent to all AMA members. Especially valuable as a training guide for girls interested in becoming medical secretaries is the 60-page detailed manual which will be available July 1 to individual physicians through state medical society offices.

TOTAL PHYSICIANS IN U. S. AT ALL-TIME HIGH—211,680

The number of physicians in the continental United States at the end of 1951 stood at an all-time high, 211,680, according to the annual licensure report of the American Medical Association. This represented a net increase of 2,640 doctors in the United States during 1951.

The report, prepared by Dr. Donald G. Anderson, secretary of the A.M.A. Council on Medical Education and Hospitals, and Mrs. Anne Tipner, both of Chicago, was published in the May 31 Journal of the American Medical Association.

Official figures indicated that in 1951 there were 6,282 persons who, for the first time, obtained licenses to practice in the United States. The net gain of 2,640 for the year was after an estimate of the number of deaths of physicians based on reports to the A.M.A.

RECORD TAX BURDEN BRINGS WIDE REACTION TO COST OF GOVERNMENT

Growth of the tax burden to record levels since Korea has stimulated popular reactions to more than ordinary strength and scope of the climbing cost of Government in this country, particularly at the Federal level, reports "Insurance Economics Surveys."

Evidence of the extent of this reaction is found in three major areas. For one, the economy forces in Congress have been gaining support for their drive to make deep cuts in President Truman's proposed expenditures of $85.4 billions for the 1953 fiscal year. Demands for reductions of as much as $10 billions are now heard in influential Congressional quarters. Then, too, the viewpoint is being pressed by economists, bankers and businessmen that the whole basis of a private enterprise system such as ours is seriously endangered when Government takes in taxes more than 25 per cent

of the national income over any extended period. This percentage is now being exceeded.

Spending the Key Factor

A third major manifestation is apparent in a series of moves which seek to curb spending by the purse-string control method. Among these is the drive via the state legislatures to petition Congress to clamp a Constitutional lid on the Federal tax take in peacetime. Of broadly similar nature are resolutions introduced by individual Congressmen which either would set a ceiling on Federal tax rates or would hold the amount of Federal spending to annual revenues.

BROCHURE ON TOXOPLASMOSIS

Toxoplasmosis has been recognized in the last 15 years as the cause of an acute, generally fatal infection in the newborn. The causative agent is commonly regarded to be a protozoal organism. Although the exact mode of transmission of the disease in nature is unknown, arthropod transmission has been suspected.

This report, comprising 105 pages and 91 illustrations, is published by the Public Health Service, Federal Security Agency. It presents clinical histories of five fatal and two surviving cases of toxoplasmosis in infants, along with autopsy findings of four of the fatal cases. The cases described were selected from a group observed during a three-year period in hospitals associated with the University of California Medical School.

BUTAZOLDIN, POTENT NEW ANTI-ARTHRITIC DRUG

Butazolidin, a totally new, synthetic, orally effective agent for the treatment of arthritis and allied disorders, is now being released for general use on physicians' prescription by Geigy Pharmaceuticals.

According to a recent report delivered at the California Medical Association by Dr. Ralph Schaffarzick of Stanford University, Butazolidin is highly effective in many forms of rheumatic disorders. In gout the effects were superior to those of colchicine, the acute symptoms subsiding completely in the vast majority of cases in 2-7 days. In rheumatoid arthritis, osteoarthritis, spondylitis and other arthritic disorders extremely favorable results, amounting to complete remission in some instances were reported. The toxicity was reported as of a low order in comparison with other anti-rheumatic drugs of similar potency.

LIFE EXPECTANCY OF ALCOHOLICS

"The drinker always runs the risk of having a shorter life," is the conclusion drawn from a study of current, scientific findings, released by the American Business Men's Research Foundation.

A study of alcoholic cases and longevity reported by the Ohio State Commission to study Chronic Alcoholism shows that only 52% of all alcoholics live to the age of 50 and over, whereas 85% of all residents live to 50 and older. At the age of 60 and above, the percentages are 21.5% for the alcoholics and 69% for all residents; and at 70 plus, 7.5% and 45% respectively.

RURAL DOCTOR SHORTAGE? OR RURAL PATIENT LACK?

Everybody yearns for the dear old "family doctor" who was physician, friend and father-confessor to the folks in his community. On the surface, it often appears that there aren't enough country doctors anymore. *What is not so obvious is that our gasoline engine and its drivers may be running the country doctor out of business.*

This rural medical promlem is discussed in an article which appeared in the February, 1952 issue of the Mississippi Farm Bureau News, entitled "*Has the Modern Age Overshot the Country Doctor?*" The writer makes the analysis that the patients themselves are driving the country doctor from the American scene!

The article points out that "the lure of the city has bedazzled the patients—and in many cases, the docs alike—and has left rural and semi-rural areas in dire straits." The writer dramatically tells the plight of many rural doctors who are called by local people only in emergencies or at night. They are left behind when the normal, daytime medical care is sought. Even though many new local hospitals have been built in Mississippi, these small but well-equipped institutions are often passed by when local residents need hospitalization.

IN MEMORIAM

Whereas, it has pleased our Heavenly Father to remove from our midst Dr. H. Guy Riche, Sr.; and

Whereas, in the passing of Dr. Riche this Society has lost one of its most esteemed and beloved members; and

Whereas, Dr. Riche's life of unselfish service to his fellow men and his devotion to the highest ideals and principles of the practice of medicine have reflected honor upon the profession; and

Whereas, Dr. Riche's life has been an inspiration to his community and to his colleagues;

Therefore Be It Resolved; That the members of this society express their heartfelt sympathy to the family of Dr. Riche; and that a copy of this resolution be spread upon the minutes of this Society as a tribute to the memory of our deceased confrere.

(S.) John L. Beven, M. D.
(S.) Daniel J. Fourrier, M. D.
(S.) Felix Boizelle, M. D.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ANNUAL MEETING

The annual meeting of the Woman's Auxiliary to the Louisiana State Medical Society was held in Shreveport, April 28-30, 1952, in conjunction with the 72nd annual meeting of the Louisiana State Medical Society.

Registration began on Monday morning at the Washington-Youree Hotel. The preconvention Board meeting was held in the Educational Building of the First Baptist Church, with Mrs. H. Theodore Simon presiding.

Following the meeting a delightful luncheon was held in the Zephyr room of the Washington-Youree Hotel. The Past Presidents of the Woman's Auxiliary to the Louisiana State Medical Society were honored guests at this time. Following the luncheon a beautiful style show was presented.

The first session of the general meeting was then opened. The invocation was given by Rabbi David Lefkowitz. Mrs. W. B. Worley, president of the Woman's Auxiliary to the Shreveport Medical Society, welcomed the visitors to Shreveport. A gracious response to this was made by Mrs. Collins P. Lipscomb. A report of the Woman's Auxiliary to the American Medical Association was given by Mrs. DeWitt T. Milam. She included in her report a splendid resumé of the standings in regard to socialized medicine of the candidates for presidential nomination. A report of the Woman's Auxiliary to the Southern Medical Association was given by Mrs. G. A. Feldner.

Greetings were brought by the following doctors: Dr. Edwin L. Zander, President, Louisiana Medical Society; Dr. W. E. Barker, Jr., President-elect Louisiana State Medical Society; Dr. L. W. Gorton, President, Shreveport Medical Society; Dr. Ralph H. Riggs, Convention Chairman; and Dr. C. Grenes Cole, Secretary, Louisiana State Medical Society. Reports of the State Officers and State Chairmen were received.

The second session of the general meeting was held Tuesday morning in the Educational Building of the First Baptist Church. The In Memoriam was read by Mrs. Arthur Long and the Benediction was given by Dr. M. E. Dodd. It was with deep regret that the group learned that Mrs. Arthur A. Herold, Immediate Past President, Woman's Auxiliary to the American Medical Association, was ill and would not be present to be presented as one of the honored guests. Mrs. Oscar W. Robinson, President, Woman's Auxiliary to the Texas State Medical Society, was presented. Mrs. Robinson brought greetings from her state, and spoke impressively of the opportunity Auxiliary members have in the field of public relations.

Other guests presented were Miss Bobbie Cicardo of Alexandria, and Mr. Aaron Pedigo of Pride, winners of second and third places respectively in the annual Essay Contest on Socialized Medicine. Miss Vivian Adolph of Reserve, winner of first place, and Miss Marilyn Carey of New Orleans, winner of fourth place were unable to attend.

Reports of Parish Presidents and of Special Committees were received.

Then followed the election of officers. They are as follows:

President, Mrs. T. E. Strain, Shreveport; President-elect, Mrs. Edwin Socola, New Orleans; First vice-president, Mrs. A. Scott Hamilton, Monroe; Second vice-president, Mrs. J. E. Sorrells, Lake Charles; Third vice-president, Mrs. Dean Barber, Pineville; Fourth vice-president, Mrs. J. B. Montgomery, Lafayette; Recording Secretary, Mrs. Marion Kopfler, Baton Rouge; Corresponding secretary, Mrs. L. L. Davidge, Shreveport; Treasurer, Mrs. Dorf Bean, Shreveport.

Mrs. A. C. Winters of Alexandria, whose death occurred there unexpectedly on Monday, was the original nominee for the office of third vice-president. Auxiliary members passed a resolution, presented by Mrs. Barber, to send condolences to members of Mrs. Winter's family.

This meeting was followed by a luncheon at the Palmetto Country Club honoring Mrs. H. Theodore Simon, Mrs. Thomas E. Strain, Mrs. Harold F. Wahlquist, Mrs. Louise K. Hundley, and Mrs. Edwin L. Zander. Mrs. C. B. Erickson acted as toastmistress. Mrs. Harold Wahlquist, president of the Auxiliary to the American Medical Association, spoke to the group on "Working Together for Health." Mrs. Louis K. Hundley, treasurer of the Southern Medical auxiliary, discussed "Southern Projects."

Mrs. Aynaud F. Hebert, of New Orleans, installed the newly elected state officers.

That night auxiliary members with their husbands attended the dinner dance in the Crystal Ball Room of the Washington-Youree Hotel.

The Post-Convention Executive Board meeting and school of instruction was held on Wednesday morning in the Educational Building of the First Baptist Church, with Mrs. T. E. Strain presiding. Mrs. Strain outlined a six-point platform of activities for 1952. She said the group will especially emphasize a health and prevention of accidents project, promotion and sponsorship of a statewide Health Day in Louisiana and continued cooperation with the state nurses association in a nurse recruitment campaign which this year will seek to establish Future Nurses Clubs in all Louisiana schools. In addition, she said, the auxiliary will continue to cooperate in the state civil defense program, to encourage registered voters to cast their ballots on election days and to participate in the American Medical Association Auxiliary's program of "Working Together for Health."

Meeting with the auxiliary officers in the Wednesday morning business session were 22 chairmen and eight district counselors, who have been named to serve on the executive board.

The counselors are Mrs. Nathan Polmer of New Orleans, District 1; Mrs. Albert F. Habeeb of New Orleans, District 2; Mrs. Isadore W. Cojan of New Iberia, District 3; Mrs. W. J. Hill of Shreveport, District 4; Mrs. A. G. McHenry of Monroe, District 5; Mrs. Rhodes J. Spedale of Plaquemine, District 6; Mrs. John McLure of Welsh, District 7; and Mrs. D. B. Barber of Pineville, District 8.

The 22 committee chairmen for 1952 are Mrs. C. Grenes Cole of New Orleans, archives; Mrs. Blaise Salatich of New Orleans, bulletin; Mrs. Louis Leggio of New Orleans, cancer control; Mrs. Cyril Yancey of Monroe, commemoration fund; Mrs. George D. Feldner of New Orleans, Doctors' day; Mrs. O. B. Owens of Alexandria, editor of publications; Mrs. H. Theodore Simon of New Orleans, finance; Mrs. Clarence Webb of Shreveport, historian, Mrs. Robert L. Simmons of New Orleans, Today's Health; Mrs. J. E. Carlisle of Shreveport, legislation; Mrs. Leon Gray of Shreveport, press and publicity; Mrs. W. A. McBride of Shreveport, printing; Mrs. F. C. Shute of Opelousas, Red Cross; Mrs. Joseph D'Antoni of New Orleans, romance and research of medicine; Mrs. Wiley A. Dial of Baton Rouge, program; Mrs. DeWitt T. Milam of Monroe, public relations; Mrs. W. B. Worley of Shreveport, revision of by-laws; Mrs. John L. Bevin of Baton Rouge, yearbook; Mrs. Ralph Talbot of Monroe, nurses recruitment; Mrs. M. C. Wigginton of Hammond, Louisiana Health Council, and Mrs. W. A. K. Seale of Sulphur, civil defense.

Heading the activities within the executive board during the year will be an executive committee composed of four Shreveport women and one from Monroe. They are the auxiliary president; Mrs. Dorf Bean, treasurer; Mrs. L. L. Davidge, corresponding secretary, and Mrs. W. B. Worley, all of Shreveport, and Mrs. DeWitt Milam of Monroe. Mrs. Strain, Mrs. Bean and Mrs. Davidge automatically became members of the committee, and Mrs. Worley and Mrs. Milam were elected by the entire board membership.

A school of instruction was led by Mrs. DeWitt Milam of Monroe.

A beautiful tea was held Wednesday afternoon to honor Mrs. Strain. The event, at the home of Mrs. I. F. Hawkins, officially ended the auxiliary convention activities. Following are the chairmen and vice-chairmen to whom a great part of the success of the convention is due.

Mrs. Clarence B. Erickson, General Chairman; Mrs. Arthur A. Herold, Vice-Chairman; Mrs. L. L. Davidge, Vice Chairman; Mrs. C. E. Boyd, Registration; Mrs. J. E. Heard, Information-Tickets; Mrs. Paul D. Abramson, Publicity; Mrs. W. R. Harwell, Transportation; Mrs. W. J. Sandidge, Transportation; Mrs. C. Raymond Mays, Flowers; Mrs. I. F. Hawkins, Tea; Mrs. R. T. Lucas, Monday Luncheon; Mrs. C. R. Gowen, Monday Luncheon; Mrs. W. J. Hill, Jr., Tuesday Luncheon; Mrs. Willis Taylor, Tuesday Luncheon; Mrs. Harold Quinn, Tea Girls; Mrs. C. H. Webb, Printing; Mrs. M. D. Hargrove, Pages; Mrs. Dorf Bean, Finance.

Honorary committee: Mrs. H. Theodore Simon, Mrs. W. B. Worley, Mrs. Edwin L. Zander, Mrs. L. W. Gorton, Mrs. Ralph H. Riggs.

MRS. HEROLD HONORED

Mrs. A. A. Herold of Shreveport, past president of the Woman's Auxiliary to the American Medical Association, was honored at the Official Opening Meeting of the Louisiana State Medical Society.

Mrs. Herold, who was ill was unable to attend the official meeting of the society. A plaque awarded her was accepted by her husband, Dr. A. A. Herold.

Mrs. Herold was president of the American Medical Association auxiliary in 1950-51. She is the only Louisiana physician's wife ever to have held the post. The plaque presented to Mrs. Herold by the society read:

"In recognition of the distinct honor conferred upon Mrs. A. A. Herold by her election as president of the Woman's Auxiliary to the American Medical Association, 1950-51, and in appreciation for services rendered organized medicine. The Louisiana State Medical Society."

ATTENDS MEET IN CHICAGO

Mrs. T. E. Strain, President of the Auxiliary to the Louisiana State Medical Society, attended the 29th annual meeting of the Auxiliary to the American Medical Association held in Chicago, June 8 to 13.

EARLY MEDICAL INSTRUMENTS EXHIBIT

An exhibit of early medical instruments and books is on display at the Louisiana State Exhibit Museum in Shreveport. The exhibit indicates that the treatment of disease must once have been almost as frigtening as the disease itself.

The exhibit was prepared by the committee for the research and romance of medicine of the Woman's Auxiliary to the Shreveport Medical Society. Housed in the art gallery of the museum, it attracted considerable attention from delegates to the annual conventions of the State Auxiliary and State Medical Society.

Successive committees gathered the historical objects over a period of some four or five years. Most of the articles were loaned to the committee by area residents.

The project of the local group is part of a statewide program of the woman's auxiliary to preserve articles dealing with the medical history of this area. Similar exhibits have been shown at the med-

ical schools of Tulane and Louisiana State universities in recent months.

Among the items included in the display are some of the surgical and medical instruments used by doctors who pioneered in the field of medicine in northwest Louisiana.

One resembles nothing more than a pair of pruning shears. Another is similar to the kitchen tongs modern housewives use for removing ears of corn from boiling water. Others look more like pliers than instruments for the treatment and cure of ills.

A pair of saddlebags, loaned by Dr. William Teer of Delhi, give one an idea of the difficulties under which physicians carried on their calling many years ago. As one views the well-worn leather of the bags, he gains a mental picture of the hard working, faithful family doctor riding off on his horse to treat some sick child in the dark hours of the night.

Dr. J. E. Richardson sent a pair of "extracting forceps" for the display. A card fastened to the forceps states that they were used by Dr. W. H. Richardson, father of Dr. Richardson, in his work as a blacksmith and also filled the purpose of pliers in his gunwork later on. Dr. Richardson's first permanent tooth was removed with the forceps.

Also loaned by Dr. Richardson is something labeled a "twister" and allegedly used in extracting teeth in the days when a visit to the dentist was really something to be feared. The instrument is hooked at one end.

One of the first medical satchels owned by the late Dr. J. E. Knighton, Sr., of Shreveport, is also included in the exhibit. The bag torn at one end, contains, among other things, a box labeled "catgut."

"A Treatise on the Nature and Cure of Gout and Rheumatism," dated 1819, is among the rare old medical books on display. A. P. Palmer of 1082 Louisiana Avenue, dealer in old books, loaned the volume.

Anyone wishing to gain a clearer picture of the advances medicine has made in the past 100 or so years might do well to visit the display. He will realize, after studying the various instruments, that he is indeed fortunate to be living in an age when physicians believe in the elimination of pain wherever possible.

BOOK REVIEWS

Surgery of the Stomach and Duodenum; by Claude E. Welch, M. D., Chicago, Illinois. The Year Book Publishers, 1951, pp. 349. Price, $8.50.

The most common and important operations that are performed on the stomach and duodenum have been selected for discussion in this new handbook of operative surgery.

The recommended operations are those currently in use at the Massachusetts General Hospital, but, usually alternative techniques that may be preferred in other clinics are included. The relative merits of these competing methods are briefly considered, and emphasis is placed on the indications for various procedures.

While in most instances the description of operations is rather brief, splendid illustrations are generously used to clearly and accurately portray the important steps in the various procedures.

The author stresses the superiority of transthoracic approaches in certain instances, and, consequently, presents the technique that follows this type of incision as it is applied to the stomach and duodenum.

The book is a well-written and splendidly illustrated practical guide for those interested in surgery of the gastrointestinal tract.

WALTER F. BECKER, M. D.

Battle for Mental Health; by James Clark Moloney, M.D. New York Philosophical Library, 1952. pp105. Price $3.50.

In this small volume a prominent American psychoanalyst first stresses the marked extent and significance of mental illness in the United States and then emphasizes the need for constructive work in this field. It is apparent that the author's cardinal "crusade" is to place the main responsibility for mental illness upon current obstetrical, pediatric, and child rearing methods. Supported by scientific clinical, anthropological, and experimental observations, he urges the adoption of Cornelian Corner (rooming in) procedures and more permissive mother-infant relationships in place of present-day maternity methods.

The section on the emotional needs of the mother and the newborn is excellent, and the compilation of mental health statistics is a valuable source of reference.

Some will dispute the paramount importance that the author places uopn the neonatal period in subsequent mental health. The effectiveness of this book is diminished by Dr. Moloney's somewhat virulent attacks and categorizations of the opponents of his ideas.

Nonetheless, this book should stimulate considerable thought and especially should be read by all those concerned with the controversy over rooming

in procedures and more permissive handling of children.

GENE L. USDIN, M.D.

Visceral Innervation and Its Relation to Personality; by Albert Kuntz, Ph.D., M.D. Springfield, Ill., Charles C. Thomas, 1951, pp.viii and 152, figs. 31. Price $4.50.

The author of this monograph in the series *American Lectures in Anatomy* is widely and favorably known for his investigations on the autonomic nervous system and for his useful reference work, *Autonomic Nervous System.* He is eminently fitted for the task that he set out to do in presenting here a "brief and simple account of the anatomic and the functional relationships of the nerves through which the visceral organs are innervated and the central neural mechanisms which are concerned with visceral functions . . . " This material is provided as background for discussions of the role of the viscera in emotional expression, the influence of visceral stimulations in emotional experience, visceral reactions in emotional states, and emotional reactions to visceral dysfunction.

The coverage of the present volume may be indicated by the sequence of chapter headings: general plan of somatic and visceral innervation; the autonomic nerves; reflex and integrating centers and central conduction pathways concerned in visceral functions; general physiology; innervation of specific viscera; visceral neural factors in personality. A five-page selected bibliography is included.

The book may be recommended to readers desiring an authoritative but succinct account covering the principles of structure and function of the autonomic system.

HAROLD CUMMINS, PH.D.

Essay on the Cerebral Cortex; by Gerhardt von Bonin, M.D. Springfield, Ill., Charles C. Thomas, 1950. 150 pp. illus. Price $3.75.

In contradiction to the statement on the book jacket, the reviewer does not feel that this volume will appeal to the general reader. It is a highly condensed and technical presentation on the structure, connections, and theoretical concepts of functions of the cerebral cortex. The effort to bring the concept of the physiology of the cortex in line with the concept of cybernetics seems to this reviewer to be a laudable one.

D. A. FREEDMAN, M.D.

Callander's Surgical Anatomy; by Barry J. Anson, M.A., Ph.D. (Med. Sc.) & Walter G. Maddock, M.S., M.D., F.A.C.S. Philadelphia, W. B. Saunders Company, 1952. 1074 pp. Price $14.00.

Long a favorite of residents and busy practitioners, eleven years have elapsed since the appearance of the second edition. Due to the death of Dr. Callander, this revision has been carried out at Northwestern University by Dr. Barry Anson, Professor of Anatomy, and Dr. Walter Maddock, Elcock Professor of Surgery.

Subject matter and the order of its presentation have been retained essentially as in the second edition. The orginal plan of orienting anatomical features to certain pathological and clinical considerations has also been preserved, although as the authors have pointed out, detailed surgical technique is not stressed due to the possibility of such technique becoming rapidly obsolete.

The most valuable additions to the new edition are the illustrations reproduced from Anson's numerous articles on surgical anatomy published over a period of years in *Surgery, Gynecology, & Obstetrics.* These cover a very wide range from the otic capsule to the sciatic nerve. Particularly outstanding are the illustrations of radical neck dissection, stellate ganglionectomy, variations in the origin of the bronchial and cervical esophageal arteries, variations in the renal and suprarenal arteries, and variations in the structures of the hepatic pedicle. It will be remembered that Anson collaborated with McVay in the description of the anatomical considerations pertinent to the much discussed McVay operation for inguinal hernia. These considerations are illustrated as well as those bearing on the present trend toward more radical resection in neoplasia of the left half of the colon.

Callander's has always been a standard text; the present revision is well calculated to keep it abreast of modern surgical practice.

H. R. KAHLE, M.D.

The Skull and Brain Roentgenologically Considered; by C. Wadsworth Schwartz, Ph.B., M.D., F.A.C.R. and Lois Cowan Collins, B.S., M.D. Springfield, Ill., Charles C. Thomas, 1951. 386 pp. illus. Price $10.50.

The sole purpose of this volume is to provide a source of ready reference for those who may be called upon to examine roentgenograms of the skull. The authors have collected illustrations of the most frequent conditions and have included rarer types of pathology to be employed in the differential diagnosis.

This volume consists of fifteen chapters and an index. Considerable attention is devoted to technique, the normal skull, and variations of the normal. The illustrations are especially valuable as reference in the differential diagnosis of the more unusual variations of the normal.

The neoplastic diseases are divided into intracranial and those involving skull bones. The meningiomas, gliomas, and tumors of the hypophysis cerebri, and acoustic nerves are considered in separate chapters. Typical lesions of each group are

shown in the illustrations. Miscellaneous tumors, infectious diseases, and miscellaneous diseases of the skull are included in the last three chapters.

This volume should serve as a rapid reference and atlas, as the work is well organized, the text is clear, and the illustrations are excellent.

J. N. Ané, M.D.

Surgery of Peripheral Nerves; by Emil Seletz, M.D., F.A.C.S., F.I.C.S. Springfield, Illinois, Charles C. Thomas, 1951. 212 pp. illus. Price $10.75.

Here is a practical anatomical and surgical atlas for quick reference in diagnosis and repair of peripheral nerve injuries. A short text supplements its most appealing features: 68 original photographs and many original drawings. The former show the superficial appearance and the latter the neuromuscular units involved after peripheral nerve injury. Surgical exposures are generally good and depicted with great care by the artist Jean McConnell.

The author states that he personally observed, repaired, and followed the progress of 2037 peripheral nerve injuries at Wakeman Hospital Center, and that "the majority of them were followed to the point of maximum recovery." Unfortunately, the results in these injuries are not stated. Many sound admonitions and technical notes are briefly given.

The technical innovations most emphasized is the rerouting of nerves in the extremities from deep to superficial paths permitting closure of remarkably wide gaps by stripping motor branches proximally, if they supply proximal muscles, leaving the main nerve trunk free for relocation. The extreme degree to which stripping has been carried is new to the reviewer but appears surgically sound. The importance of early operation is emphasized, with repair of injuries to nerves as soon as the superficial tissues permit.

Related problems in differential diagnosis, plastic repair of deficits and the indications for amputation are not discussed.

Consideration of cranial nerve injuries is less complete than other sections and no mention is made of surgery of nontraumatic lesions of the peripheral nerves or elective section of peripheral nerves.

Annoying confusions occur with functions flexion, abduction and adduction of the thumb. The illustrations amply indicate correct usage, but hurried reference is impaired by reading on page 29 that the action of the volar interossei is "abduction (spread) of fingers;" on page 32 that the adductor pollicis is innervated by the median nerve; on page 46 that the thumb is influenced by the flexors digitorum sublimis and profundis; on page 62 that the test for the palmar interossei is abduction and that the abductor pollicis is innervated by the ulnar nerve. Several typographical errors also occur.

Although the surgical anatomy of peripheral nerve injury is adequately presented there remains a distinct need for a more comprehensive presentation of the scattered studies on the remaining aspects of the problem.

W. Randolph Page, M.D.

Instruments and Apparatus in Orthopaedic Surgery; by E. J. Nangle. Oxford, Blackwell Scientific Publications, 1951. illus. 231 pp. Price 42s.

This book is a well written, well illustrated catalogue of the various orthopaedic appliances as used in the treatment of bone and joint diseases. It reflects many of the modern trends in splinting and bracing, and includes a concise discussion of each of the various types of braces. The section on principles of splinting and plaster of Paris technique are exceptionally well illustrated. Many of the braces illustrated are not commonly used in this country or at least are different from those used in this country. However, the discussion of fitting various types of braces is applicable to any particular model or type of brace. Included is a chapter on plastics by John T. Scales which presents a summary of the various plastics, their chemical composition and their various characteristics and is an excellent reference to the variety of plastics which are being used more and more frequently in the fabrication of braces, supports and splints.

Jack Wickstrom, M.D.

First Annual Report on Stress; by Hans Selye. Acta, Incorporated, Medical Publishers, Montreal, Canada. 1951. illus. 511 pp. Price $10.00.

This book is a compendium with some thousands of references of apparently all that appeared in the literature of the world relative to the over-all problem of stress. Naturally the bulk of the material is referable to pituitary-adrenal physiology. There is a chapter devoted to the stress concept which is probably more digestable to the novice than that given in the original book entitled "Stress".

Albert Segaloff, M.D.

Immortal Magyar; by Frank G. Slaughter. New York, Henry Schuman, 1950. 211 pp. Price $3.50.

The *Immortal Magyar* is the story of Ignaz Philipp Semmelweis, the Hungarian physician who is known as the conqueror of childbed fever. The inspiring story of the dedication of his life to the conquest of childbed fever is told with warmth and insight. His fight against puerperal fever begun in 1846, in a Vienna obstetrical clinic where he

found the doctors and nurses powerless to stop the spread and save the victims of this fever which was raging in the wards. After reading the autopsy report following the death of one of his colleagues from a dissection wound be suddenly realized the fact that the postmortem findings were almost identical to the findings in cases of childbed fever. Full significance of his observation followed careful investigation and led to a remedy. Opposition and obstacles met him on all sides and while he was able to apply his findings successfully at the Vienna clinic, political and personal persecution drove him out of Vienna only to meet more opposition as he continued his life-saving task in Hungarian hospitals. At the age of forty seven he died an embittered and angry man, his contribution to medical science never fully recognized during his lifetime.

RUTH E. HARLAMENT

The Photography of Patients, Including Discussion of Basic Photographic and Optical Principles; by H. Lou Gibson, F.B.P.A., A.P.S.A. Springfield, Ill. Charles C. Thomas Co., 1952. Pl. illus. pp. 118. Price, $5.50.

Particularly welcome is this small monograph on the photography of patients, since it contains material which has been unavailable hitherto. The author is connected with the Medical Division of the Eastman Kodak Company, which has pioneered so successfully in all phases of photographic work. Especially notable is the inclusion of discussion on photography in color. Chapters cover not only fundamentals, but information as to equipment and space; making close-ups with roll-film cameras; lens properties; positioning and lighting; films and filters; printing methods; paper selection, quality control and print quality. The book is well illustrated to clarify the text.

J. A. MEADE.

The Management of Fractures, Dislocations and Sprains; by John Albert Key and H. Earle Conwell. St. Louis, C. V. Mosby company, edition 5, 1951. illus. pp. 1232. Price $16.00.

This revision of this monumental work on fractures is in many ways a distinct improvement over the previous editions with improvement in the quality of illustrations and revision of a majority of the sections presented.

Although there may be certain minor criticisms of the techniques for managing certain fractures, on the whole, this book represents an excellent reference for the management of the ever increasing number of cases resulting from trauma seen in everyday practice. It continues to represent one of the best references published in this country.

JACK WICKSTROM, M. D.

The Neuroses; by Walter C. Alvarez. Philadelphia, W. B. Saunders Company, 1951. pp. x, 667. Price. $10.00.

In this volume a prominent Mayo internist attempts to provide a psychiatric manual for the nonpsychiatrist. Drawing upon his forty-five years experience in medicine, Dr. Alvarez presents his understanding of and advice for the everyday emotional problems seen by all physicians. Unfortunately, too many of the author's conclusions are based on empiricism and intuition. This book is primarily a documentation of his personal experience in which he reasons from a particular case to a general principle in drawing conclusions. Dr. Alvarez places much more evidence on heredity than on environment.

Dr. Alvarez's thesis, that certain superficial forms of psychotherapy can at times best be handled by the general practitioner, is a commendable thesis and one that certainly bears emphasis. However, it seems to this reveiwer, that the author has mainly succeeded in emphasizing that the most valuable psychiatric manual for the nonpsychiatrist remains Levine's *Psychotherapy in Medical Practice.*

GENE L. USDIN, M. D.

PUBLICATIONS RECEIVED

Elsevier Press, Houston: Manual of Electrocardiography, by Benjamin F. Smith, M. D.

W. B. Saunders Company, Phila.: The Principles and Methods of Physical Diagnosis, by Simon S. Leopold, M. D.; Correlative Cardiology: An Integration of Cardiac Function and the Management of Cardiac Disease, by Carl F. Shaffer, M. D., and Don W. Chapman, M. D.

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MEDIASTINAL TUMORS*

JAMES D. RIVES, M. D.†
NEW ORLEANS

Present day usage has changed the meaning of the term mediastinum to some extent and has altered its subdivisions even more. Since the diagnosis of mediastinal tumors depends to a very large extent on the location of the mass, it is necessary that the terms used be clearly understood.

First, it is well to know that the limits of the mediastinum have been extended to include the paravertebral gutter, in which the sympathetic chain lies. Second, the term superior mediastinum is seldom used. Current practice simply divides the mediastinum into two rough divisions, designated as anterior and posterior. Most writers include in the anterior mediastinum the trachea and the hilum of the lung. So when reference is made to the anterior mediastinum in this communication that term will include everything in the mediastinum anterior to a frontal plane lying between the trachea and esophagus. In addition to these two general terms, we shall designate the space immediately behind the sternum as the retrosternal space because certain tumors are peculiar to this location, notably tumors of the thymus.

PATHOLOGY

From a clinical standpoint one cannot hope to make use of the detailed classifications that pathologists use for mediastinal tumors except in retrospect, so we shall reduce the classification to a few groups that one may hope to recognize before or during exploration.

INFLAMMATORY MASSES

Inflammatory masses are not usually demonstrable without exploration but are very common. Acute lymphadenopathies occur in bronchitis and in pneumonitis of any variety with great regularity but are seldom recognized clinically. Suppuration is rare. Tuberculous adenitis is regularly present in pulmonary tuberculosis but does not usually have clinical significance. However, occasionally large tuberculomas develop and may cause tracheal compression, thus assuming an individual clinical significance.

ANEURYSMS

Although large thoracic aneurysms are said to be rare in some parts of the United States, at this time they are still among the most common mediastinal masses seen in New Orleans, and are often hard to differentiate from neoplasms.

METASTATIC NEOPLASMS

Metastatic tumors are undoubtedly the most common neoplasms found in the mediastinum. They are not so reported in hospital records for such records are filed under the primary diagnosis.

Carcinoma of the lungs, the breasts, and the thyroids are the most frequent primary lesions, but many other sources add their quota, including, of course, the esophagus and stomach. It is often difficult, or even impossible to distinguish such metastatic tumors from primary lesions.

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*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 29, 1952.

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SUBSTERNAL GOITRE

Substernal goitres are among the most common mediastinal masses in endemic goitre areas. Since they are almost invariably associated with enlargement of the cervical portion of the thyroid gland they are not often difficult to recognize.

ABERRANT THYROID MASSES

Aberrant thyroid masses almost if not always associated with cervical goitre are rare, but may be found anywhere within the mediastinal area.

PRIMARY MEDIASTINAL TUMORS

Primary mediastinal tumors are quite uncommon but they run almost the entire gamut of neoplasia.

The following simplified classification is an attempt to reduce the complexity of the problem to practical clinical proportions:

A. Cysts and cystic tumors
   1. Teratoid tumors and cysts
   2. Bronchogenic cysts
   3. Esophago-gastro-enteric cysts
   4. Lymphatic cysts
   5. Pericardio-celomic and pleural cysts (mesothelial)

B. Neurogenic tumors
   1. Paravertebral neurogenic tumors (usually originating in the sympathetic chain)
   2. "Dumb-bell" tumors (originating in the spinal nerves)
   3. Miscellaneous neurogenic tumors originating in the vagus or other mediastinal nerves (rare)

C. Thymic tumors

D. Lymphomas

E. Connective tissue tumors
   1. Chondromas (sternum, costal cartilages, vertebrae)
   2. Sarcomas—including osteogenic sarcomas
   3. Giant cell tumors (Epulis type) of ribs or other bones of thoracic cage
   4. Lipomas
   5. Fibromas, etc

F. Aberrant thyroid masses

G. Unidentifiable malignant neoplasms, carcinoma and sarcoma[1]

DIAGNOSIS (GENERAL)

It should be borne in mind that most mediastinal tumors are found accidentally in the course of examinations conducted for other purposes and that examinations for induction into, or separation from, the armed forces have played a very large part in recent years, as have also large scale x-rays surveys, intended primarily for the discovery of tuberculosis. Our concept of the frequency of occurrence of the various types of tumors has been radically changed by the recognition and removal of these symptomless mediastinal masses.

A. *Symptoms and signs* are usually entirely lacking; when present, the most common are:
   1. Substernal discomfort
      a. Tightness or pressure
      b. A lump
      c. Pain
   2. Cough
   3. Vascular murmurs, caused by aneurysms or compression of of the great vessels by neoplasms
   4. Dyspnea
   5. Dysphagia
   6. Distended neck veins
   7. Collateral circulation development on chest wall and neck.
   8. Consolidation in lung fields

B. X-ray

We must accept the fact that not only are most mediastinal tumors discovered by x-ray, but that x-ray examination is worth more in identifying the type of tumor before operation than are all other methods combined. In order to get full value from this facility, a wide variety of methods must be used:

   1. A-P., lateral, and oblique views
   2. Planograms—laminograms
   3. Esophagrams
   4. Angiocardiograms

[1]These probably originate from the thymus, from teratoid tumors, or perhaps other lesions above, such as bronchogenic cysts.

5. Fluoroscopy
   a. Pulsation
   b. Esophagus—barium swallow
   c. Movement of tumor with swallowing (goitre and bronchogenic cysts).
6. Bronchograms
7. Artificial pneumothorax
8. Spine, ribs and sternum
   a. Erosion by aneurysms
   b. Neurogenic tumors (erosion of ribs and/or enlargement of foramina)
   c. Tumors primary in spine, ribs or sternum
9. Therapeutic test by deep x-ray therapy

GENERALIZATIONS ON DIAGNOSIS

1. Tumors that cause severe symptoms are almost certainly either malignant or infected. This is especially true of severe pain, cough, fever, dyspnea, dysphagia, and venous congestion.

2. With the exception of thymic tumors and substernal thyroid masses, benign tumors tend to originate on one side or the other of the mediastinum and, as they grow, seem to be extruded into one or the other lung fields without embarrassment to vital structures. The esophagus and trachea are often displaced, but this takes place slowly, and causes little or no embarrassment to function.

3. In general, benign tumors tend to be sharply defined, smoothly outlined, and either roughly spherical or lobulated.

4. A very large proportion of all mediastinal tumors is made up of a small number of types, most of which are characteristic in location. The remainder is made up of so many varieties, all of which are uncommon or rare, that preoperative diagnosis is virtually impossible.

The following table indicates the types of tumors most commonly found in the various parts of the mediastinal space:

A. The retrosternal position[2]
   1. *Thymic tumors*
   2. *Substernal thyroids*
   3. Tumors of the sternum, and costal cartilages
   4. Lymphomas
B. "Anterior mediastinum"
   1. *Teratoid tumors and cysts*
   2. *Bronchial cysts*
   3. Esophago-gastro-enteric cysts
   4. Lymphomas
   5. Pericardio-celomic cysts
C. "Posterior mediastinum"
   1. *Neurogenic tumors*
   2. Chondromas — usually of the spine
   3. *Esophago-gastric-enteric cysts*
   4. Tumors of ribs—giant cell tumors, osteogenic sarcomas, etc.

TREATMENT

Since most mediastinal tumors are symptomless when first discovered, one may be tempted to say that they require no treatment. This conclusion is unsound for several reasons.

1. Many such tumors are malignant when discovered, and there are no reliable criteria by which this fact can be determined before widespread infiltration has occurred. If any malignant tumors are to be cured, it must be before this has taken place.

2. Several of the most common "benign" tumors are notoriously prone to malignant change. Among these are the neurofibromas, teratoid cysts and tumors, and thymic tumors. Some students of pathology object to the statement that malignant tumors in these groups originate from benign lesions, insisting that they were probably malignant from the beginning. Admitting that this may be true, it is still a fact that

[2]The tumors formerly reported as papillary carcinoma of aberrant thyroid tissue in the mediastinum have now been proven to be actually metastatic carcinoma from the thyroid into mediastinal lymph nodes. Their importance in surgery of the mediastinum lies in the fact that they are of low-grade malignancy and it is, therefore, worthwhile to remove them, which is not true of most other metastatic lesions.

from the clinical standpoint it is often impossible to tell whether a given tumor is malignant or not and we must, therefore, act on the assumption that they are.

It seems probable that some of the anaplastic malignant lesions of the mediastinum, the origin of which cannot be determined, may have originated in symptomless bronchogenic or esophago-gastrointestinal cysts.

3. Benign cysts and mesodermal tumors such as lipomas and fibromas may grow to such great size that they produce pressure symptoms; and when they reach such prodigious proportions removal may be very difficult and dangerous.

4. Neurofibromas originating from the spinal nerves frequently grow into the spinal foramina, producing pressure on the spinal cord.

5. Dermoid cysts, in particular, and less frequently bronchogenic and esophageal or gastrointestinal cysts, become infected and rupture into the bronchi, the lungs, the pleural cavity or the mediastinal space.

It may be stated categorically that no mediastinal tumor can be called harmless with any real confidence. When one adds the fact that practically all noninfiltrating tumors can be removed with a very small operative risk, it becomes apparent that all circumscribed tumors should be removed.

It is also true that a few tumors that appear to be diffuse can also be successfully removed, and since there is no prospect of cure by any other method, one is tempted to agree with Osler Abbott that all mediastinal tumors should be explored. However, the prospects of removal in such cases are small, and since many of them are lymphomas that respond readily, though temporarily, to irradiation, a good many authorities feel that a therapeutic dose of x-ray should be tried as a therapeutic test, especially when the mass is in the anterior mediastinum. It should be remembered, however, that some malignant thymomas that are still intrinsic may be cured by removal and that temporary response to x-ray therapy may delay the attempt with disastrous results.

SURGICAL TREATMENT

Anesthesia.—I am convinced that all mediastinal operations should be conducted under general inhalation anesthesia, administered through an intratracheal tube, since—

1. One or both pleural cavities are usually opened and a certain method of maintaining positive intrapulmonary pressure is essential.

2. Manipulation and compression of the trachea is often necessary in freeing the tumor, especially when it lies in the anterior mediastinum.

Approach.—A few years ago, surgeons were at great pains to approach mediastinal masses extrapleurally, but it has become evident that this is usually unnecessarily difficult and serves no useful purpose except perhaps in centrally placed retrosternal tumors such as thymomas.

A transpleural approach has many advantages:

1. Most of these tumors present on one or the other side of the mediastinum. A transpleural incision exposes one side of the tumor at once and usually makes it possible to determine its relation to the great vessels, the trachea, and adjacent structures, before the dissection is begun.

2. The incision can be made large enough to permit complete visualization as well as bimanual dissection and manipulation.

3. The pleura is usually opened during the course of the "extrapleural" operations anyway, and a small pleural rent often results in tension pneumothorax which may be deadly, even with positive pressure anesthesia. Needless to say, this cannot occur with a wide-open pleural cavity.

When one elects to use a transpleural approach, one has a choice of an anterior or a posterolateral incision. Here we meet a wide divergence of opinion. The following are some of the considerations which may dictate the type of incision best suited to an individual case:

1. The incision should be so placed that it will permit easy visualization of the operative field and large enough to permit adequate exposure for safe and satisfactory dissection.

2. Anteriorly placed tumors above the hilum of the lung are readily approached by an anterior incision, provided they are not of such great size that they block the available opening. Anterior incisions are quite limited in size unless one or more ribs are sacrificed, and the removal of the anterior portion of the ribs produces an unsightly deformity. The area posterior and inferior to the hilum of the lung cannot be satisfactorily exposed from the front until the lung has been removed.

3. In all other cases, and in all cases where there is doubt as to the best approach, the posterolateral incision should be selected. It is not limited as to size and its obliquity makes it possible to expose the mediastinal surface from top to bottom.

4. In case of need, one may resect one or more ribs, since removal of the posterior portions of the ribs produces very little deformity. A posterolateral incision, if extended from the tips of the transverse processes to the sternum provides a very large opening. One or more ribs may be divided anteriorly, posteriorly, or both; this maneuver will provide an opening large enough to remove any tumor that the chest cavity can accommodate.

The Retrosternal Space.—Tumors that are centrally placed immediately behind the sternum constitute a special problem. They are usually of thyroid or thymic origin. The authors have had no experience with the removal of thymomas since every one encountered has been an infiltrating malignant lesion. This is rather remarkable in view of the large number of thymic tumors reported and the fact that our experience includes a wide variety of mediastinal lesions.

It is evident from the literature that, in highly skilled hands, the removal of the thymus, when normal in size or only moderately enlarged, is readily and safely accomplished by a sternum-splitting incision. Three things should be borne in mind, however. (1) This incision is relatively small and has rigid bony margins that cannot be widely retracted. (2) The space is very vascular, and the innominate veins lie behind the tumor and cannot be visualized until the mass has been displaced from its bed, which may be too late. (3) The pleural spaces usually meet, and frequently overlap in front, so both pleural cavities may be entered at the same time. This is not an insuperable problem, but it is not a simple one.

Substernal thyroid masses are usually connected to a cervical goitre and when they are not so connected usually derive their circulation from the inferior thyroid vessels. They can almost always be reached and removed from above. We have had one such tumor that was not connected with the thyroid gland in the neck and which received its blood supply from the aorta. It was calcified and weighed 540 grams after removal. It could not be delivered from above but an anterior transpleural incision in the third interspace with transverse division of the sternum made its removal only moderately difficult.

The literature abounds in reports of fatal results from trans-sternal approaches to such thyroid masses. It is true that most of them have been by surgeons with limited experience in thoracic surgery, but we cling to the belief that large retrosternal masses are more safely approached by the transpleural route. The trans-sternal incision is too blind for our taste.

PROGNOSIS

Malignant mediastinal lesions that have spread beyond the limits of the organ or the benign cyst or tumor in which they originated are rarely if ever cured by any means. Some of them, notably the lymphomas, may be controlled for a few months or years by irradiation or by the nitrogen mustards.

Benign tumors and intrinsic malignant tumors are practically always readily removed and the operative risk is very small. The number of cases reported in recent years is not great enough to permit the reduction of the operative risk to significant percentages, but it may be stated confidently that the operative mortality and morbidity is that of a wide-open thoracotomy rather than that of the removal of the tumor per se. The mortality should not ex-

ceed 2 to 5 per cent, and this figure includes an occasional empyema (usually due to infected cysts).

SUMMARY

1. Mediastinal tumors are uncommon, but include a wide variety of lesions.

2. Most mediastinal lesions are either inflammatory or metastatic.

3. Most curable mediastinal lesions are either asymptomatic or produce very minor symptoms. When severe symptoms occur malignant lesions must be suspected.

4. Accurate diagnosis depends almost entirely upon highly skilled x-ray examinations.

5. All apparently benign mediastinal tumors should be removed, since they may be or may become malignant and because many of the benign lesions tend to become infected or to grow to such large size that they produce serious disability by their presence alone.

6. Most thoracic surgeons now believe that all mediastinal tumors that are not obviously hopeless should be explored because the selection of the methods of treatment depends upon the type of lesion. The therapeutic test of irradiation may lead to disastrous delay in tumors that might be successfully removed.

7. The surgical approach to mediastinal tumors is discussed. A strong preference for wide transpleural incisions is expressed.

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SURGICAL REPAIR OF HERNIA IN CHILDREN*

JOHN A. HENDRICK, M. D.†
SHREVEPORT

There is comparatively little in the literature regarding the surgical treatment of indirect inguinal hernia in infants and children when one considers the large number of articles on inguinal hernia as a whole. There has been some difference of opinion in the past as to the best age for surgical repair, and a tendency to wait until "the child is old enough for surgery," or to see if the hernia will cure itself. Most articles have dealt with high ligation of the sac and some form of reparative procedure in order to strengthen the abdominal wall in this region. Many have advocated the same, or almost the same type of surgical repair as one uses in adults. Since the latter part of 1949, simple high ligation of the sac without any additional reparative precedure has been performed in 51 personal cases. This is admittedly a small series. However, the with which it is performed, the smooth postoperative course, the lack of complications, and the excellent results obtained have been most gratifying.

INDICATIONS FOR SURGERY

The cause of indirect inguinal hernia in infants and children is lack of obliteration of the processus vaginalis which should have been completed during fetal life. The indirect inguinal hernia is not the result of muscular weakness or a defect in the transversalis fascia. Bearing this fact in mind, it seems logical that simple removal of the offending sac is all that is necessary. If this is done without elevating the cord from its bed, there is little likelihood of injuring the delicate spermatic vessels. The muscular development of the inguinal region will also have the opportunity of continuing in a perfectly normal manner. This is probably not the case when additional reparative surgery is done along with high ligation of the sac.

It is the opinion of almost everyone today who deals with inguinal hernias in infants and children that, if a definite diagnosis can be made, surgery is indicated—regardless of the age, and provided the child is otherwise healthy, developing normally, and gaining weight. Removal of the sac can readily be accomplished in the newborn. The parents will often inquire about the possibility of a spontaneous cure. There is no doubt that during the first four months of life, the processus vaginalis may occasionally continue to obliterate itself; the incidence of indirect inguinal hernia later in life in this group of cases is probably quite

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high. One can safely predict that, if the hernia is found after six months of age, there is almost no hope of spontaneous cure either with or without a truss. The use of trusses is mentioned only to be condemned except in cases where surgery is contraindicated from some other cause. There is no reason to subject an otherwise healthy child to the danger of strangulation or incarceration when surgery offers such excellent results.

Incarceration is a real danger; this occurred in 8 cases in this series and in 19 per cent of the infants reported by Potts.[1] Incarceration is much more frequent during the first year of life. Figure 1, shows the age

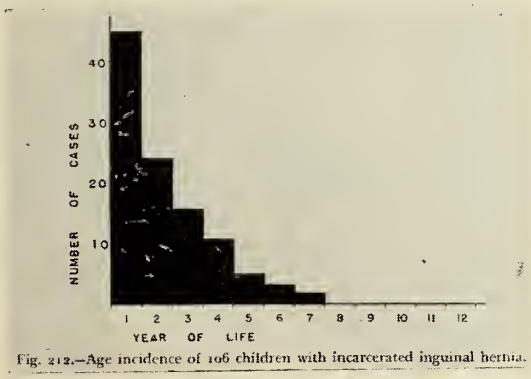

Fig. 212.—Age incidence of 106 children with incarcerated inguinal hernia.

Fig. 1. Age incidence of 106 children with incarcerated inguinal hernia. Ladd & Gross: Abdomdominal Surgery of Infancy and Childhood.—Courtesy W. B. Saunders Co.

incidence of 106 children with incarcerated inguinal hernia. Most incarcerated hernias in infants can be reduced. Our procedure has been to give the baby a pacifier and use gentle pressure over the inguinal region. In cases in which this is not adequate, the child is sedated and the legs are suspended so that only the head and shoulders touch the mattress. Often the relaxation which occurs and the effect of gravity will enable one to obtain reduction of the hernia. Elective surgery is then performed several days later after the edema around the thin sac has disappeared.

TYPES OF SURGERY USED

Simple high ligation with removal of the hernia sac is not new. Ferguson, in 1899, was the first to advise against lifting the cord structures from their normal position, but he did advise a plastic repair of the structures in the inguinal region. Turnner, in 1912, and McLennon, in 1914,[2] advised merely removal of the sac through a small incision over the internal ring. The same point was stressed by Russel,[3] in 1925, Herzfeld,[4] in 1938, Coles,[5] in 1945, and Potts, in 1950, who reviewed 600 cases. Graham has stated that he saw this procedure used over thirty years ago in the outpatient department at the University of Glasgow. Ladd and Gross[6] reported a large series of cases in which a modified Ferguson operation was performed. They stated that transposition of the cord is not to be recommended because of the danger of compression of the delicate spermatic vessels which might bring about atrophy of the testicle. The procedure advocated by them (Fig. 2 and 3) consisted of freeing the sac,

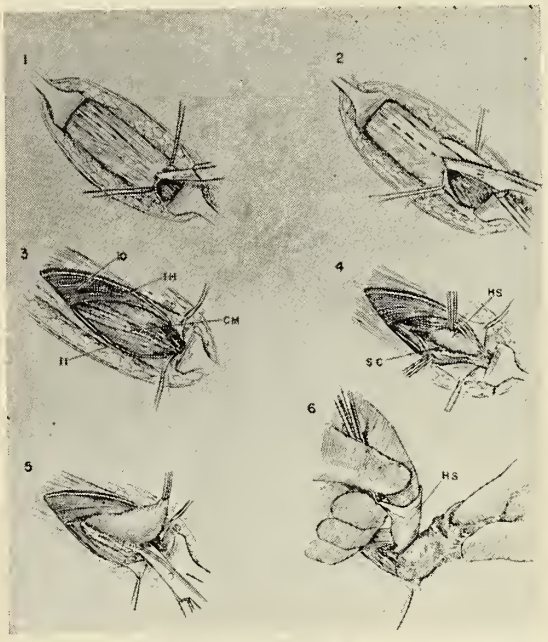

Fig. 2. Steps for inguinal herniorrhopy: modified Ferguson repair. Ladd & Gross: Abdominal Surgery of Infancy and Childhood.—Courtesy of W. B. Saunders Co.

transfixing the neck with a silk suture, and imbricating this beneath the internal oblique muscle. The spermatic cord was allowed to remain in its normal bed; silk sutures were placed through the medial edge of the fascia of the external oblique, the internal oblique muscle, and finally through the shelving edge of the inguinal ligament anterior to the cord. The lower flap of the

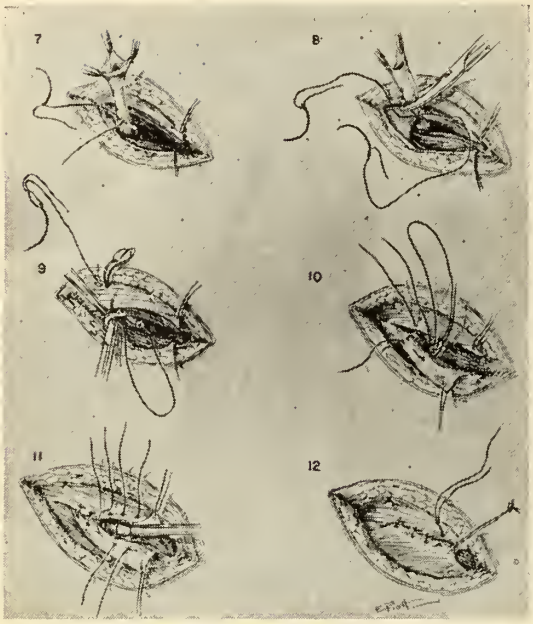

Fig. 3. Continued from Fig. 2.

external oblique was then imbricated upward with interrupted sutures of black silk reconstructing the external inguinal ring. Ladd and Gross state that there was slightly greater incidence of postoperative atrophy of the testicle than of recurring hernia in their series. They stress the importance of carefully preserving the testicular blood supply and also reconstructing an inguinal canal so that it is large enough to accommodate the spermatic cord without undue constriction. Gross[7] has recently reviewed over 8,000 cases in which the modified Ferguson procedure was used. This type of operation was performed until 1949 with very satisfactory results. However, since that time we have followed the procedure as will be described, which in our experience has given excellent results, is much simpler to perform, appears to be more physiological, and we believe decreases the danger of postoperative testicular atrophy.

PROCEDURE USED AT PRESENT

The procedure (Fig. 4), as used at present, consists of an almost transverse incision in the crease of the suprapubic region in infants, and a transverse incision in older children over the level of the internal ring. We feel that an incision of this type is easier to close and heals more rapidly than

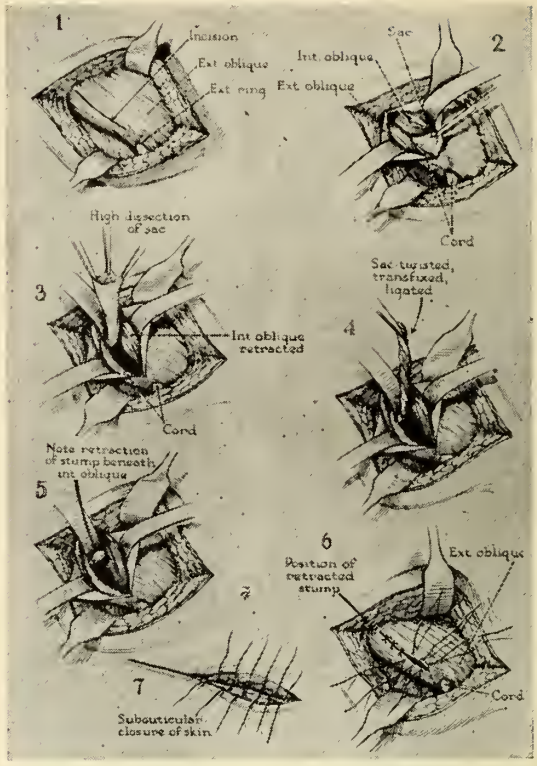

Fig. 4. Technique of repair of hernia.—Courtesy of Potts, Ricker, and Lewis. The Treatment of Inguinal Hernia in Infants and Children. Ann. Surg., 132:566, 1950.

one parallel with the inguinal ligament; that there is less likelihood of infection; and that it leaves an almost invisible scar. The incision is carried down to the external oblique fascia which is opened in line with its fibers to the external ring. In infants it is rarely necessary to carry the incision across the external ring. Usually the sac is easily identified on the anterior and medial aspect of the cord. After separating the fibers of the cremaster muscle, the sac is gently lifted up and the vessels and vas dissected away from it with care. Gentleness is required in dealing with this very thin structure because of the ease with which it is torn. Should tearing occur it may interfere with adequate high dissection and ligation. After it is separated from the structures of the cord to the level of the internal ring, it is opened and inspected for the presence of omentum or intestines. In the female one should look carefully for the presence of the ovary and tube. The sac is then twisted until the properitoneal fat appears or until

the neck has been completely obliterated. It is transfixed high with a silk suture and tied. The excess is cut away and the neck allowed to retract beneath the internal oblique. Twisting before transfixion serves two purposes: it precludes the possibility of incorporating any of the abdominal contents in the transfixion suture and also makes ligation of the very thin sac easy. Suturing the sac without twisting it is quite often difficult because of its fragility. No other reparative surgery is done; the external oblique is closed with several interrupted sutures of number three or four 0 black silk; the subcutaneous tissue is closed with six 0 black silk; and the skin is closed with either a subcuticular six 0 black silk or interrupted end-on mattress sutures. A small piece of elastoplast is placed over the dressing and the patient returned to his room. There are no restrictions placed on the child postoperatively, and he is dismissed the following day, to return to the office in one week for removal of sutures or dressing of the wound. After the child is six years of age, the parents are instructed to restrict activities for approximately three weeks. As a rule these children are admitted the morning of surgery and dismissed the following day.

ANALYSIS OF CASES

Forty-six of the 51 cases reviewed in this series were males and 5 were females. An indirect inguinal hernia occurred in 36 cases on the right side, 13 on the left, and in 1 case was bilateral. A hydrocele was present in 8 of the 51 cases; the tube and ovary were present in the sac in 1 female, age four months. In 8 cases incarceration was or had been recently present. The youngest in the series was an infant of seven weeks, the oldest a child of twelve years. Twenty cases were in children two years of age or younger. The average age for the entire group was 4.1 years. In this series all wounds healed without infection and there were no postoperative complications. In one case only it was necessary to remove a subcuticular fine black silk suture four weeks following surgery. There has been no atrophy of the testicle in any case and there has been no recurrence.

Not included in this series were 3 children in whom additional reparative procedures were used. Two cases were sliding hernias and in another infant the internal ring was so large that several sutures of fine black silk were used to strengthen this region.

CONCLUSION

Indirect inguinal hernia in infants and children should be repaired when the diagnosis is made, unless there is some contraindication to surgery. Age of the child is not a contraindication.

The value of an almost transverse skin incision; and opening the external oblique without extending the incision through the external inguinal ring is stressed.

Simple high ligation of the sac without elevating the spermatic cord from its bed, and the use of no other reparative surgery is advocated.

A brief review of 51 cases in which this procedure was used has been presented with illustrations demonstrating the procedure.

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WHAT IS PSYCHOTHERAPY?*

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NEW ORLEANS

Is psychotherapy a crystal ball, a couch, a magic wand or a genteel third degree? Obviously, it is none of these. It is a method of treatment by which one person is influenced by another in a constructive direction. It is thus a re-educational process. It is something that is worked out with,

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not administered to, the patient and its success depends on certain assets in the patient.

It might be well here to recall that a psychoneurosis is an attempt by the personality to effect an adjustment that will obviate tension and prevent the occurrence of anxiety. Psychoneuroses, then, are ways of reacting. Consequently, we are interested in the *meaning* of a neurosis rather than in its cause.

In no clinical specialty can we practice mechanistic medicine. When a patient walks into a physician's office, he requires two kinds of aid. The first is medical attention and the second is reassurance; in the ordinary consultation, the second is as important as the first.

Sensible manipulation of the environment and the routine of living, occupational therapy, and counselling are often preliminary steps in the approach to a psychotherapeutic problem. They abolish external complications. They effect "cures" when the situation rather than the individual is sick. When they work perhaps it is folly to penetrate deeper, but when they fail it is even greater folly to persist.

Psychotherapy may vary in its goal from an effort to teach patients how to live with some measure of comfort within the confines of their uncured neuroses (palliative psychotherapy) to an attempt to make the patient understand the meaning of his symptoms and the nature of his conflicts (interpretive psychotherapy). The latter is a process of re-education and when successfully accomplished leads to sufficient emotional growth to abolish the necessity for developing symptoms.

TECHNIQUES

The essential psychotherapeutic techniques include: (1) supportive treatment, (2) suggestion and persuasion, (3) ventilation and abreaction, and (4) interpretation. It is of particular importance to know not only the limits of these various forms of psychotherapy but also when to combine them and when to add other therapeutic methods, such as medicinal treatment, the various forms of shock therapy or narcosynthesis. The last method, however, is of limited value in civilian practice.

Supportive treatment: Of most importance is the physician's attitude but this method also includes more direct reassurance, encouragement and explanation. It begins with a thorough physical examination and evaluation. Then by his attitude and actions the physician must make the patient feel that he cares, is interested in and is eager to help him. The verdict of physical health will be acceptable to a patient only if he has been subjected to an examination which he considers thorough. The physician must show the patient that he is not prejudiced, dogmatic, or haughty. We must realize that the emotionally sick, like children, have an uncanny sense of the truth. This is particularly important in dealing with children, who often manifest an amazing ability to evaluate adults accurately. Therefore, true supportive therapy can never be given without the solid foundation of conviction of truth in what the therapist is saying. Also, in supportive psychotherapy, one must help the patient maintain his self-esteem.

Irrespective of whether or not a physician chooses to treat overt psychiatric disorders, there is one field in which he must employ psychotherapy, that is in chronic or incurable physical disease. Many authorities favor telling these patients the truth, but in encouraging terms, because withholding the diagnosis sometimes makes the patient fear a possibility that is even worse than the actual condition. Another important point is to maintain in the patient a feeling that he can do something for himself (a feeling of control), since abandonment to fate constitutes extreme stress which few people can tolerate.

Suggestion and persuasion are far less powerful than commonly assumed, especially in the worst neurotic illnesses; most people are no longer naive. Moreover, the results are usually only temporary. It is important that the suggestion be couched in positive rather than negative language.

Ventilation and abreaction: By this method the patient is allowed to ventilate

his emotions freely in a setting of understanding permissiveness. Once successful ventilation is in progress, the physician should interrupt as little as possible. If ventilation proceeds on a purely intellectual level without associated emotional expression, the therapeutic benefit is frequently minimal or absent. It is then that one must bring about real emotional participation, an emotional reliving of the stress situation for which the word *abreaction* has come into vogue, which literally means to "react off" or to "blow off steam."

Interpretation of the neurosis to the patient requires technical skill and is the most important of these methods. It should not be attempted until a good relationship has been established with the patient and then only if the therapist is sure of the correctness and timing of the interpretation. Results are never as dramatic as the moving pictures and radio would lead one to believe. Rather the process of understanding is slow and can be achieved only by the continued cooperative effort of the physician and the patient. This is the most difficult part of psychotherapy and requires the greatest amount of tact, timing, and skill. It is important to realize that in certain phases of interpretive (or insight) treatment, the patient is not "supported" but on the contrary is "lowered" because he is losing his last defenses against finding out facts about himself which are deeply disturbing and which previously have been unacceptable. Experience is needed in carrying through these phases of treatment, and supportive phases may have to be interpolated in order to make the therapeutic program constructive. An unsatisfactory behavior pattern is first destroyed and then a new and better pattern is fashioned. It is well to keep in mind that in a sense a patient must be made to feel accepted before he can be changed to any significant degree.

Unless the therapist understands psychodynamics, there is little he can do for the patient. Knowledge of unconscious mechanisms enables the physician, without apparent effort, to steer the patient's verbalizations in such a way that he gradually becomes aware of the hidden meaning of his "double-talk" and therefore may deal with it realistically. If the physician attempted to tell him what is wrong in the beginning, the patient would not believe it because development of his symptoms is a protective mechanism and he is unconsciously reluctant to part with them.

PHYSICIAN-PATIENT RELATIONSHIP

Any type of psychotherapy is built around this professional relationship, a mutual interaction of a subtle but powerful force which permeates every phase of the treatment. This desirable attitude of mutual respect, esteem, and candor between the patient and the physician has been aptly described by the French as "rapport." It must be realized that the confidential nature of the relationship and the dependence of patient on physician may favor development in the patient of exaggerated feelings of affection or resentment toward the physician when psychotherapy is prolonged. Such reactions may, of course, occur in any prolonged confidential physician-patient relationship.

In interpretive psychotherapy this relationship provides support which enables a patient to face his difficulties during the therapeutic experience; it also contributes toward the tension under which the therapeutic process advances. In other words, it can be considered the balance between the support and strain necessary for progress of the treatment. Warmth gives support in the development and maintenance of the relationship; whereas, coldness and aloofness may defeat the therapeutic aim. Yet warmth does not imply premature commitments or overemphasis of the purely conventional social interest. The therapist must maintain his objectivity. In insight therapy, unwitting, non-professional participation may interfere with the therapeutic plans and introduce unnecessary complications. It thus becomes important to steer the relationship along professional lines; this is a frequent source of difficulty for the inexperienced therapist. The first axiom of proper psychotherapy is that the

physician never use (consciously or unconsciously) the patient for gratification of his own emotional needs.

The patient may be considered to be the confused child while the therapist's role is that of a mature parent who offers a secure and permissive setting in which the patient explores the unsolved problems of his infancy and childhood. Psychotherapy must offer not only the needed parental substitute but also the honest expression of the psychotherapist's attitude towards the patient's productions during treatment. Of particular interest is the manner in which the therapist responds to the patient and the way his behavior provokes reactions on the part of the patient. Theoretically, a psychotherapist should be able to evaluate his own as well as the patient's psychologic status during the interviews. An impasse in therapy may be due to the therapist's lack of sensitivity and dynamic force, the latter perhaps being impaired by overwork and excessive responsibility, or it may be related to the therapist's own motivation, to change in the meaning of the interview to himself, or to overidentification with the patient in a manner to satisfy the therapist's own emotional needs.

AIM OF PSYCHOTHERAPY

As in any form of treatment one of the aims of psychotherapy is relief of symptoms. In interpretive psychotherapy, major stress is placed on bringing unconscious factors to awareness. However, opinions differ as to whether the uncovering is the cause or the result of the improvement. It may be asked: (a) Does more knowledge about one's self necessarily change anything? (b) Does the physician-patient relationship invariably operate as an incentive to change? Or (c) does realization by the patient that his emotional drives are "irrational" actually enable him to change? It is well known that reason is not an effective agent for combatting emotional forces, and, moreover, self-knowledge in itself is not enough. Undermining the artificial structure of the neurosis will have no therapeutic effect unless at the same time something constructive in the patient starts to grow. Just as there are recuperative physical forces in the body which aid a patient's recovery from a somatic illness, there are healing mental forces which give the psyche resilience; given favorable conditions, the human being has a natural urge to develop his potentialities. It may be said then that the ultimate aim of psychotherapy is to help people achieve a greater inner freedom so that they may grow up emotionally.

DO'S AND DON'TS

In general, no harm can result from a warm supporting attitude and from offering the patient opportunity for ventilation. If ventilation should be associated with pronounced emotional abreaction, one must be sure to maintain one's objective supporting attitude in the face of this abreaction, even if it should include the expression of hostility toward the physician. Only the thoroughly experienced should attempt to interpret; much damage can be done by novices. The less the psychotherapist contributes to the conversation, the more information he will obtain; the less he says, the less he will have to take back later. It is wiser to listen, rather than talk, to patients and not to give advice on such involved emotional matters as marriage and divorce. The psychotherapeutic interview is in a sense a battle of wits between the patient and the physician, with the patient intuitively setting traps for the therapist. The safest reply when the therapist is put "on the spot" is to rephrase the question and have the patient answer it.

It is impossible to over-emphasize the futility and dangers of naive confrontation, which is the most frequent mistake of the immature psychiatrist and the well-intentioned general practitioner who has read psychiatric theory without having sufficient clinical experience in its procedures. Superficial confrontations which merely describe the patient to himself without long and painstaking preparation inevitably precipitate resentment and mobilize the patient's defenses. Premature confrontations which reach to deeper levels, challenging the patient to recognize some of his deeper

yearnings, fears and hates, must either be rejected by the patient as far-fetched or else they will precipitate the patient into unmanageable terror, guilt, or depression. We must recognize that it may be dangerous to attempt to argue a patient out of cherished ideas, even about seemingly impersonal affairs, such as science or politics, since argument may be as dangerous as confrontation. If it succeeds in breaking down the defensive barrier of symptoms, all that can be achieved is a sudden eruption of overpowering emotions.

If the patient improves only at the price of too much dependence upon the therapist, or if he should become dependent upon the therapist without improving, he should then be referred to a physician with more skill and experience in psychiatry.

THE THERAPIST

What are the requirements of a good psychotherapist? To begin with, he should have intuitive understanding of man's deepest needs and conflicts. Next, he should have the desire to do something about these needs and conflicts, together with patience and ability to endure strain and discomfort in a therapeutic situation in order to time one's technique properly. The philosophy of the psychotherapist should embody an abiding respect for the integrity of every individual and awareness of the limitations and potentialities for emotional growth in the patient.

An appropriate psychotherapeutic attitude must be engendered in the general practice of medicine. This consists of the necessary attitude of tolerance and acceptance, of not avoiding unpleasantness, and of not condemning or passing judgment. It is not only one's overt actions that are important but also one's subtle and implicit attitudes, since patients (like children) are extremely sensitive to "psychologic atmospheric changes" regarding the physician (adult) who is involved.

There are two ways of understanding human beings. One is by employing the techniques of logic. The other, which is perhaps even more important, is empathy. Stated simply, this means putting one's self in the other person's place and "feeling with that person"—a process called temporary identification. It is essential to make allowance for the merits of common sense and for the intuitive factors in psychotherapy; although these intuitive or subconscious factors are not yet thoroughly understood, their value to psychotherapy is real.

CANDIDATES FOR PSYCHOTHERAPY

What about the patient? Who are good and who are poor candidates for psychotherapy? In making decisions regarding the suitability of patients for psychotherapy, we must bear in mind that sometimes a neurosis may be the only solution to the patient's difficulties. Often anything but the most superficial emotional support is contraindicated. For interpretive psychotherapy to achieve satisfactory results the patient must come to therapy with certain assets. The therapist must evaluate the patient's (a) level of intelligence, education and sophistication, (b) age, (c) degree of adaptability, (d) ability to assume responsibility, (e) real environmental situation, (f) sincerity, motivation and incentive to change, and (g) degree of secondary gain obtaining from his illness.

Extremely intelligent patients can be as difficult to treat as patients with little intelligence because geniuses often will attempt to turn the therapy into a battle of wits with the physician until it arrives at a complete impasse. Lack of a certain degree of education and sophistication may be a serious barrier to the attainment of suitable insight by the patient. Moreover, the secondary gain from a patient's neurotic illness may be such as to neutralize any incentive to change.

CONCLUSION

In psychotherapy an attempt is made to have the patient "work through" his old stereotyped behavior patterns rather than just re-enact them. This may be possible because the attitudes of the therapist may in due course be emotionally appreciated by the patient as different from those attributed by the patient to early parental figures. Thus helping him, in the process of

this partial repetition, to take account of the differences between past and present may constitute the corrective emotional experience needed to liberate him from the neurotic behavior patterns that failed to solve his problems. In this way, the uncovering of facts is merely a necessary part of a total process of undoing experience and of reconditioning the patient.

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THE ROLE OF THE PHYSICIAN IN THE SCHOOL HEALTH PROGRAM*

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The object of this presentation is to point out some of the opportunities available to the private physician through participation in the school health program, whereby he may fulfill in part his interest and obligation in the prevention of illness and the promotion of an improved health status for the individuals in his community.

An increasing number of physicians are recognizing and acknowledging that they have a responsibility to the communities in which they live and work that extends beyond the previously accepted standard of simply diagnosing and treating disease as it occurs. This expanding concept of the need for supervision and promotion of health in its broadest sense is reflected in the wording of the definition of health as found in the preamble of the constitution of the World Health Organization. This definition is rapidly gaining general acceptance. It is worded as follows: "Health is a state of physical, mental and social well-being and not merely the absence of disease or infirmity."

We are all anxious to improve our personal health, and most of us are interested in the general state of health manifested in our community, state and nation. Our medical profession has justifiable pride in the fact that the United States is considered to be the healthiest of the large nations. It should be kept in mind that our national level of health is a composite picture of the health status of the individuals who make up our communities. The fact still remains that the health of the individual is our ultimate concern, and it is a generally accepted concept that the private physician should and must carry the major responsibility for the preservation and improvement of the health of our individual citizens. When compared with other countries, our achievement in the field of health appears to be very good; however, when compared with a standard based on what could have been accomplished in the light of our greater opportunities and better resources for the improvement of health, we must recognize that there is still a great deal which we have failed to accomplish.

As we become aware of the changes in the types of diseases which have become predominant and the changes in the environmental and social conditions which influence the major portion of our population, we are forced to the realization that no one professional group or type of service can successfully meet the challenge of the variety of influences and circumstances which determine our individual and community health status. It should be evident that a cooperative effort must be developed between the medical profession and the specialized skills in other fields if we ever expect to reach the goal of optimum health in its broadest sense.

As we search for some practical method by which cooperative effort may be applied to meet the health problems of the community, it becomes apparent that the limitations of personnel, resources, physical facilities and available time and money would make it impossible to exert a significant influence on the entire population of a community simultaneously. Several alternative courses of action have been considered. One course, which is believed to have a great deal of promise, is the development of an effective school health program. The term "school health program" has gained con-

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siderable general acceptance because it is brief and because the activities which it brings to mind are associated for the major part with the school. It might be better to use a more descriptive title, or at least to reach a common understanding to the effect that what we are actually dealing with is a program for the supervision of the health of school age children. The shorter terminology will be used here with the understanding that it has the significance indicated. This distinction in terminology is emphasized because it is considered important to realize that a good school health program is much more than some specialized activity that comprises a small portion of the general school program. The school health program is really the application of those individual and group measures which have a particular importance in relation to the health of a certain portion of the population of a community.

IMPORTANCE OF SCHOOL HEALTH PROGRAM

The development of a good school health program is considered to be of special importance for several reasons.

1. In this country, practically everyone who reaches adult status has spent a few, and sometimes many, years of his earlier life under the direct influence of the school system. In this way, the school exerts an influence on a greater portion of the population than any other part of our community structure.

2. The school exerts its influence during a period in life when very important patterns of behavior are being formed.

3. Because the school brings young citizens together for comparatively long periods of time and under reasonably comparable circumstances, it becomes possible for certain influences to be applied to a fairly large portion of the population with a minimum expenditure of time and money, as compared to what would be required if an approach were made to the same population in their individual homes.

4. When the teaching and administrative staff of the school are willing to become an integral part of the personnel who carry on the school health program, and when they assume responsibility for performing certain activities related to the school health program in which they are competent, particularly when given proper professional supervision or guidance by physicians and related health workers, it then becomes possible to provide a relatively personal supervision for the development of proper health habits and activities for an extensive portion of the community on a basis that would be practically impossible, and certainly impractical, if attempted through other means.

Many other examples could be given to illustrate the importance of a school health program as a means for approaching the health problems which involve this portion of the population.

FACTORS ESSENTIAL IN SCHOOL HEALTH PROGRAM

There are other reasons why it is not only important but necessary for the community to provide a program for the supervision of the health of the children who are brought together in the schools. Since children are required by law to attend school, the community is obligated to assume the responsibility of protecting them from the various hazards and harmful influences which may be caused by bringing a large number of individuals together. The following factors should be kept in mind. They represent not only the hazards which must be modified or eliminated, but also, in many instances, opportunities which should be utilized for the improvement of health. These factors will be mentioned briefly here. They have been discussed at greater length in other publications.

1. Supervision must be provided for the environment in which the school child spends a considerable part of his time. This involves proper construction of building and equipment with adequate safety precautions, provision of proper heating and ventilation, as well as proper lighting, supervision of the sanitation of the environment with emphasis on proper excreta disposal, handwashing facilities and sanitation of food services.

2. Experiences in relation to what has come to be known as "group living" are

very important in connection with the circumstances which a child encounters as he enters school. Emotional problems frequently develop in relation to competition between children who formerly led a comparatively sheltered existence within the family circle. "Group living" experiences also involve a change in the relative importance of opportunity for infection with contagious disease. It is granted that a child should have been immunized satisfactorily against diseases such as diphtheria, whooping cough, small pox, and others during the preschool period. Booster injections are indicated just before or at the time the child enters school. There is still an increased hazard from the standpoint of certain parasitic infections and diseases such as the common cold, mumps, measles, and other diseases of similar nature.

3. Attendance at school provides an opportunity for educational experiences related to improvement of health, as well as the acquiring of factual information of general nature. This has been mentioned previously. It should be emphasized here that information relating to health habits should be transmitted by way of example on the part of the teacher, the visiting nurse, and others associated with the health program, rather than by simply presenting an uninspiring course of instruction with the title "Health and Hygiene" or some similar restricted activity. Proper preparation and the development of wholesome attitudes on the part of the teacher and the school nurse are very important factors in transmitting the idea to the student that healthful living is of basic importance and should be practiced consistently.

4. A teacher who has received proper orientation and who is given proper supervision can carry on a very effective program of observation of the pupils in relation to proper patterns of growth and development and the occurrence of illness which in some instances may be of communicable nature. Day to day observation of the pupils by the teacher is much more effective in determining which of the children should receive special medical attention than the periodic long interval examination that is sometimes carried out by the school nurse or by physicians who see the child for a short period of time under isolated circumstances.

RESPONSIBILITY OF PHYSICIAN

The activities emphasized above may seem to indicate that the physician has only an incidental responsibility in relation to the school health program. It is true that much of the basic activity can be carried on by persons with a relatively small amount of technical and professional training, but it must be borne in mind that all of the cooperative effort exerted by the teacher, the nurse and the sanitarian from the health department, the health officer, the parent groups and other related workers depends for its success on the participation and cooperation of the private physician. One of the basic objectives of the program is to develop a relationship between the physicians of the community and the families they serve in which the children of school age, and also other members of the family will receive the specific medical care and guidance that may be indicated on an individual basis and under conditions which will promote the intelligent use of the physician for preventive services throughout the adult years of the citizen as well as during his school period.

Because present day circumstances have made it necessary for the physician to apply his time and effort in such a manner that his skills will not be wasted on activities that can be handled successfully by persons who have a lesser degree of professional training, the school health program comprises the ideal objective of frequent examination of each school child by a physician and offers the alternative of screening and observation procedures carried out by teachers under the supervision of professionally trained persons, such as the public health nurse. Thus, the interval between routine examinations may be extended considerably and still maintain a provision whereby children who develop specific needs for the personal attention of the physician can be referred at the appropriate time. Of course, there will be many instances in which chil-

dren of school age will not receive attention from their family physician in the manner just described. Parents may fail to provide proper medical attention for a number of reasons. They may not be aware that a problem exists. This occurs in the well-to-do families as well as among the indigents. In many instances, the parents may delay action because they are unable to pay for the necessary medical services. In some cases the parents have a neglectful attitude, and feel that it is not really important to consult the physician unless some really serious disease occurs. In situations like these, the educational aspects of the school health program become important in correcting improper attitudes and lack of information. There will probably always be a need for the school or community services to provide for a medical examination of a certain number of students who cannot make satisfactory arrangement on an individual basis.

It is important that each physician in the community participate to some extent in the school health program in relation to providing for the medical needs of the children of families with whom he is associated. This participation will be in the form of carrying out the physical examination and other survey procedures required for each child at the time of admission to school and at subsequent intervals. Also, the immunization procedures required, or found desirable, should be done by the family physician whenever possible. Conference with school authorities concerning special recommendations for certain children under his care in relation to physical training requirements, observation of certain habits and emotional problems, etc., may be indicated in many cases. The family physician should develop an understanding of the methods used by the school for detection of physical impairment and the referral of the child for a medical evaluation. Detection of physical defects and disease in an early stage will be of no value if proper correction is not available through the family physician or some appropriate community facility.

In addition to the relationship mentioned above, the physician also has an obligation to serve as a consultant or counselor on the school health council or similar group which has been formed in many schools. These councils usually consist of representatives from the teaching and administrative staff of the school, the health agencies of the community, the organizations associated with community social and welfare programs, the parent organizations of the school, the personnel who supervise the food service of the school and other related services; and frequently, the group also includes other persons from the community who are interested in the development of better health for the school child as well as on a general community level. All too often, the physician has been invited to participate, but has not considered it important to spend time in this type of activity. Since the basic objective of this group is to determine the local problems and factors that influence the health of the individual children of the school and to plan some action that will help to bring about better health for the individual child, and since it is generally accepted that the private physician should bear a major responsibility in maintaining and promoting the health of the individual citizen in his community, it would seem that the physician has an obligation to lend his professional influence and judgment to groups such as this in order that their planning and action may be done in the proper manner.

A considerable expansion of this topic might be undertaken but for the purpose of this presentation it is best to conclude at this point with the following remarks.

As a result of serious thought and effort which has been applied on a national as well as a state and local basis, a school health program is being developed which will be of increasing benefit in relation to the improvement of health throughout the community as well as in the school age group. An increasing degree of cooperation is being brought about between community minded groups and individuals with each special field of interest coming to realize that no one person or group can do the job alone. School teachers and school adminis-

trators are setting aside specific periods of time in which the teachers receive specific training and orientation in order that they may assume responsibility along with the parent for a more efficient guidance of the school child and the factors that influence his health. A specialized team which provides for the instruction and orientation of teachers and members of school health councils is already active in various areas of the state. Their work has been planned carefully over a period of years before any definite action was begun. A large group of interested and willing workers is available to do something definite about the health problems of the school age child and also to a considerable extent about the health problems of the community in general. In many areas these groups still lack a very important part of their team. They have not been able to gain the proper understanding and participation from their local physicians.

The development of a sound health structure in our communities may be compared to the construction of a building. We may have many workers who possess certain specialized abilities and many who may not be specially trained but are willing to do whatever labor they may be able to provide. The actual construction of the building must be guided by an over-all plan in order that it may be safe, useful, and acceptable. An architect and a construction engineer are necessary to formulate the design and to supervise and integrate the efforts of the various types of workers who do the actual construction.

The school health program is attempting to build a safe, useful, and acceptable structure of community health, beginning with the school age children. The physicians of the community possess the training and skills that are necessary to plan the type of structure that is most effective and desirable and to integrate the efforts of the various groups who are willing and able to do their share of the work. The physicians cannot possibly do the whole job alone. The work needs to be done. There are many who are willing to work but their efforts cannot succeed without the guidance of the physician and the participation of the medical profession. Those who have brought the school health program to its present status not only recognize the need for guidance and participation on the part of the physicians of the community but they also sincerely want the private physician to assume the position of leadership which he should consider to be not only his responsibility but his privilege.

Organized medicine appears to be anxious to preserve the relationship between the private physician and the maintenance and improvement of the health of the individual citizen. A properly organized school health program seems to offer a reasonably effective means whereby the private physician can fulfill a part of his obligation to his community and while serving as an individual he can guide the activities of other individuals and organized groups in a general effort to achieve a status of individual and community health that is compatible with the opportunities and resources which are available in our communities and our nation.

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HEAD PAIN OF NASAL ORIGIN

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The otolaryngologist is confronted with the problem of headache diagnosis many times each day. This stems from the fact that many of the laity still believe so-called "sinus trouble" is the cause of most head pain. Though this is not true, the source of the disturbance so often falls within the realm of the rhinologist that no headache investigation can be called complete without a thorough examination of the nose and paranasal sinuses.

As a result of a survey of over 200 cases

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we have found that most headache of rhinogenic origin arises within the nasal cavity and is not due to "sinus trouble". Furthermore, our studies convince us that headache originates within the nasal cavity more frequently than is generally realized.

There are several good reasons why the rhinogenic origin of headache is frequently overlooked. First, pain originating within the nasal cavity is usually not localized but is referred to other areas about the head and neck. Second, as Wolff[1] has shown, pain originating within the nose may be complicated by pain arising from secondary sustained contractions of the skeletal muscles of the head and neck; this secondary muscular pain may be more severe than and may outlast the primary pain. Third, in some individuals pain of nasal origin may give rise to a secondary vasodilating type of headache; this phenomenon may be confused with migraine, histaminic cephalgia, and other types of vasodilating headaches. Another reason why the nose is overlooked as a source of headache is that the patient frequently does not complain of nasal blockage; there may be only slight stuffiness which is easily ignored or does not seem worthy of mention. Finally, the otolaryngologist frequently dismisses the nose as a source of headache because so-called "cocainization" of the sphenopalatine ganglion has failed to relieve the pain; the fact is ignored that the pain may originate in areas supplied by the ethmoidal nerves or the nasal branches of the anterior superior alveolar nerves.

DIAGNOSIS

The most valuable aid in headache diagnosis is a thorough history. We feel this can be best accomplished by the use of a form as a framework on which the history can be developed. Use of such a form does not mean that individuality need be sacrificed, for the physician can pursue any line of questioning which appears diagnostically promising. Inquiry should be made as to the onset, duration, characteristics, site, and radiation of the pain. In addition, questions concerning associated manifestations in the form of symptoms referable to the ears, nose, and throat should be included. A review of systems and a past history often prove invaluable. Finally, an attempt should be made to determine the state of the patient's mental health.

The physical examination should be equally complete. The ideal situation is to see the patient during an attack. This enables one to better evaluate the physical findings and to employ several valuable diagnostic tests. Each case should have the benefit of nasopharyngoscopy, posterior rhinoscopy, indirect laryngoscopy, a nasal smear for cytologic study, and a gross evaluation of the function of the temporomandibular joint. The blood pressure should be recorded, and a complete blood count and sedimentation rate done. X-ray studies of the paranasal sinuses are invaluable because, in addition to sinus pathology, they often enable one to discover tooth impactions and other abnormalities about the alveolar processes. If mastoid films are indicated, they should include studies of the petrous tips. At times it may be desirable to obtain view of the cervical spine and of the various foramina about the base of the skull and also soft tissue films of the neck.

The neuroanatomical arrangement in the nose is ideal for diagnostic study because the rhinologist is able by selective anesthetization to eliminate any head pain arising within the nasal cavity. As we have mentioned previously, the nasal cavity is supplied with sensory nerves originating from three sources. The largest supply is derived from sensory branches of the maxillary nerve which enter the nose through the sphenopalatine foramen. The remainder is mediated by the anterior and posterior ethmoidal branches of the ophthalmic nerve and by a small nasal branch of the anterior superior alveolar nerve. It is again emphasized that the nasal cavity cannot be ruled out as a source of headache unless all three of these nerves have been blocked and still the pain is unrelieved. It should be further noted that shrinkage alone is often not sufficient to relieve pain of nasal origin; anesthetization is required.

We have previously mentioned that, in

our experience, the vast majority of headaches thought to be due to "sinus trouble" originated, in reality, within the nasal cavity. When sinus disease was the primary factor it could usually be easily proven by mucosal shrinkage and anesthetization that most of the pain arose from concomitant inflammation of the nasal structures. These findings are in agreement with those of McAuliffe, Mueller, and Wolff[2] who investigated the sensitivity of various areas in the nasal and paranasal structures. They considered as a one plus pain the sensation produced on the tip of the tongue by a given amount of faradic stimulation. Their findings as to relative sensitivity in non-inflamed nasal structures were as follows:

Area about the sinus ostia	.6 to 9 plus
Nasofrontal duct	5 to 7 plus
Turbinates	4 to 6 plus
Nasal septum	1 to 2 plus
Lining of the sinuses	1 to 2 plus

When inflammation is present the pain threshold is lowered and the structures become even more pain sensitive.

Most headaches of nasal origin are due to mucosal swelling in areas of the nasal cavity where the anatomic structure is such that a focus of irritation is established. It is important to remember that the swelling need not cause complete nasal blockage; often the patient complains only of stuffiness. The structural variations usually encountered include deviations and thickenings of the nasal septum, increase in bulk or displacement of the turbinates, particularly the middle turbinates, increased volume of the nasal cavity, as in atrophic rhinitis, and new growths. At times mucosal swelling over sinus cells whose location cause narrowing of the nasofrontal duct may be the source of the trouble.

The following is a fairly complete list of the various causes of nasal mucosal swelling:

1. Infection
2. Allergic episodes
3. Inhalation of irritating dusts, fumes, odors
4. Chilling of the body surface or of the nasal mucosa
5. Endocrine changes during the menstrual cycle, pregnancy, puberty, the menopause, hypothyroidism, etc.
6. Psychogenic causes: emotional conflict, anxiety, fear, resentment, frustration, tension.[3]
7. Abnormal air currents[4]
8. Conditions causing increased pulse pressure or congestion of the veins of the head, e.g., hypertension, thyrotoxicosis, coughing, stooping.
9. Decreased vascular tone, e. g., hypotension, fatigue.
10. Miscellaneous conditions such as fever, uremia, imbibition of alcohol.

The fact that we have considered the problem of nasal mucosal swelling at some length does not mean that the paranasal sinuses should be ignored when seeking the cause of headache. It is well known that pain can and does originate in these structures and the usual diagnostic procedures should be carried out.

Mention has been made of the fact that pain of rhinogenic origin may give rise to secondary vasodilating types of headache which mimic migraine and histaminic cephalgia. We should like to briefly discuss this aspect of the problem.

Most commonly these secondary vasodilating headaches follow a more or less prolonged period of aching pain arising from the primary source in the nose or paranasal sinuses. When the vasodilating phase begins, the pain changes from an aching to a pulsating or throbbing type. Later, apparently when edema of the blood vessel walls has occurred, the pain again becomes aching in nature. As can be seen, this sequence of ache-throb-ache resembles migraine. Other factors serve to further confuse the situation. Nausea and vomiting often accompany these headaches; this is probably of neurogenic origin since many people develop these symptoms when they suffer with severe pain. Also, there is the fact that the history often reveals that many members of the patient's family suffer from headaches. This may be of no significance, but, on the other hand, it must be remembered that there is often a fa-

milial tendency towards some of the causes of nasal mucosal swelling, as for example, allergy, endocrine patterns, and psychogenic reactions to stress. Of course, they may be differentiated from migraine quite easily. In the first place, they may be prevented or relieved by nasal shrinkage or anesthetization, whereas this is not possible in migraine. Secondly, the usual prodromata seen with migraine are not present.

On rare occasions these secondary vasodilating headaches begin suddenly and last for variable periods of time. When of short duration they resemble histaminic cephalgia. In the latter instances, there may be such accompanying nasal symptoms as rhinorrhea, stuffiness or blockage of the nose, injection and tearing of the eye, and increased perspiration of the face. Some individuals become nauseated and may vomit. If the headache is prolonged it usually goes on to an aching phase, ostensibly when edema of the blood vessel walls has occurred.

Both types of vasodilating head pain of nasal origin can be relieved by nasal shrinkage and anesthetization provided these measures are used before edema of the blood vessels walls has occurred. Likewise, they can be relieved by any method which causes compression of the proximal portion of the involved vessels or generalized vasoconstriction. The most satisfactory systemic vasoconstrictors now available are the ergotamine derivatives. In this connection it is interesting to note that the effectiveness of these preparations is said to depend on constriction of branches of the external carotid artery. It must be remembered that it is from branches of this artery that the nasal mucosa receives most of its blood supply. One may speculate, with some degree of logic, therefore, that, in some cases at least, the effectiveness of these drugs results not only from vasoconstriction of the extra-nasal branches of the external carotid artery, but also from mucosal shrinkage caused by constriction of its intranasal branches.

Just as is the case in any head pain of rhinogenic origin, these secondary vasodilating headaches, if sufficiently prolonged, may be accompanied by pain arising from secondary sustained contraction of the cervical and cranial muscles. The latter pain may long outlast the pain arising from the primary source and cannot be relieved by shrinkage and anesthetization of the nasal structures. It will persist until the muscles have relaxed or until they have been infiltrated with a local anesthetic.

TREATMENT

Treatment should be dictated by common sense principles. The rhinologist is usually faced with the basic fact that he is dealing with a nose which, because of its anatomic structure, cannot accommodate a certain amount of mucosal swelling without pain being produced; if it could accommodate such swelling, there would be no pain. Two courses may be followed. First, an attempt can be made to prevent mucosal engorgement. If this can be easily accomplished, this course should be followed. On the other hand, when prolonged treatment is required, as in allergic, gynecologic, or psychogenic disturbances, for example, we feel that it is better to correct such nasal disorders as exist so that when mucosal swelling does occur pain will not be produced. Naturally, if the primary factor is of a serious nature, it should be treated; in some instances a combined method of therapy is indicated. There is no place in the treatment of headache for complete reliance on sedatives and analgesics.

Heading the list of medical treatment of head pain of rhinogenic origin is allergic management; this includes avoidance, hyposensitization therapy, and the judicious use of antihistaminics, alone or in combination with vasoconstrictors. The use of nose drops in the Parkinson position is often of value; sometimes they may be beneficially combined with a topical anesthetic. Histamine therapy has been a disappointment to us except in cases of classical histaminic cephalgia; in such instances we have had uniform success with combined subcutaneous and sublingual therapy. Prolonged oral administration of nicotinic acid seems to have been of benefit in some cases due to nasal

allergy, but these results are difficult to evaluate. When sinusitis is present, routine methods of management are effective.

A few words must be said regarding so-called "cocainization of the sphenopalatine ganglion." Doubt exists as to whether the ganglion can be anesthetized by topical anesthesia, and also, whether it plays any part in headache production. However, no one doubts the effectiveness of field block of the nasal branches of the maxillary nerve which enter the nose through the sphenopalatine foramen. This procedure is more important diagnostically than as a therapeutic measure. Sometimes, however, it apparently serves to break a self-perpetuating pain cycle. If a patient requires frequently repeated procedures of this type, some more definitive method of therapy should be used.

The ergotamine derivatives are such important therapeutic agents in the treatment of vasodilating headaches that we should like to report the results of a clinical evaluation of a new dosage form. Thirty patients who had previously been administered these preparations by mouth and hypodermically were asked to compare the results with those obtained when rectal suppositories containing 2 milligrams of ergotamine tartrate and 100 mgm. of caffeine* were used. Without exception, in spite of the method of administration, they preferred the suppositories to other dosage form. They not only believed the suppositories were more effective, but their action seemed more prolonged. Moreover, many who disliked the oral forms because of the accompanying nausea and vomiting were able to use the suppositories with no ill effects; in fact, only one patient claimed the suppositories caused nausea. Hansel[5] reports that the effectiveness of the ergotamine preparations may be considerably enhanced by combining them with ephedrine or propadrine (R) by mouth.

Surgically, a wide range of effective procedures are available. Those most frequently indicated are submucous resection and measures which either displace or reduce the bulk of one of the turbinates. A submucous resection is doomed to failure unless adequately done; this implies that more than septal cartilage be removed. When the ethmoidal nerves are the ones irritated, bone must be resected up to the cribiform plate; at other times it may be necessary to remove bone up to the face of the sphenoid sinus. Lateral or medial displacement of a turbinate by fracture is often of value. An enlarged turbinate may either be crushed or submucousally resected. We have found that many cases of "Sluder's lowerhalf headache" are relieved by lateral displacement of the middle turbinate. At times, crushing or capping of the ethmoidal bulla or cells protruding into the lumen of the nasofrontal duct may be indicated. Sinus surgery of various types may be necessary.

*The suppositories were supplied by Sandoz Chemical Company.

CONCLUSIONS

Since head pain may arise from disturbances in nasal physiology due to such a large variety of environmental and systemic conditions, it is not unlikely that the nose plays a greater part in headache production than is generally realized. Its importance would be better appreciated if more attention were given to a thorough history and nasal examination and if the various phenomena resulting from pain of nasal origin were understood and remembered.

SUMMARY

1. Most pain of nasal origin arises within the nasal cavity and not within the paranasal sinuses.

2. The rhinogenic origin of head pain may be easily overlooked for several reasons.

3. Vasodilating pain secondary to nasal disturbances may simulate migraine and histaminic cephalgia.

4. The cause of rhinogenic pain and its treatment are discussed.

5. It is concluded that the nose plays a greater part in headache production than is generally realized.

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DEVELOPMENT OF BLEEDING GASTRIC ULCER IN A CHILD WITH ACUTE RHEUMATIC FEVER TREATED WITH ACTH AND CORTISONE

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SHREVEPORT

Hench and his co-workers[1] report that the use of ACTH and cortisone in acute rheumatic fever has been of considerable value, especially in cases which fail to respond to salicylates. This has been confirmed by others.[2-5] Thorn[6] reported that peptic ulcer symptoms definitely appear to be accentuated by ACTH and cortisone therapy. Beck and his associates[7] report a 34 year old rheumatoid periarteritis nodosa who had a previous history of gastric fullness. Gastrointestinal x-rays were negative. After seven days of ACTH, 100 mgm. a day, she developed abdominal pain. A laparotomy was performed, and a perforation was found which was felt to be due to an acute duodenal ulcer. Habif, Hare, and Glaser[8] reported a 54 year old woman who had been given ACTH for amyotrophic lateral sclerosis. After thirty-six days of treatment, she developed severe abdominal pain, and roentgenograms revealed free air under the diaphragm. She was given medical management and improved. A gastrointestinal series revealed a deformed duodenal cap and an ulcer crater. Gerry Smythe[9] reports 3 cases of recurrence of peptic ulcer during treatment with pituitary adrenicorticotropic hormone from a total group of 79 cases. Holoubek, Holoubek, and Langford[10] report one case of a recurrent duodenal ulcer after a vagotomy following a course of cortisone treatment.

The incidence of gastric ulcer in children is known to be extremely low.[11-13] Duodenal ulcers are more common and more frequently found in males. Hemorrhage is the most common complication and may be fatal. Pyloric obstruction and perforation do occur and require surgical intervention. These ulcers usually respond to treatment with a bland diet, antispasmodics, and antacids.

CASE REPORT

A 12 year old white male was admitted to the pediatric service of Shreveport Charity Hospital on January 4, 1951, with chief complaint of joint pains and fever. He was in good health until one week prior to admission, when he developed pain in his left ankle. He was unable to walk without marked difficulty, and the ankle had become warm and swollen. The following day he had pain in his right knee, right wrist, and right elbow. There was no swelling of these joints; only pain on movement. His appetite became poor, fever persisted, and he was brought to the hospital. There was no history of sore throat or upper respiratory infection prior to the onset of fever. His sister was treated in this hospital about one year ago for rheumatic fever. Patient had measles, whooping cough, and hookworm in the past. The remainder of the system review was essentially negative.

Physical Examination: On admission revealed a well developed, thin, white boy who appeared acutely ill. Temperature was 102°F. There were enlarged cervical and axillary lymph nodes, bilaterally, measuring up to 1.5 cm. in diameter. The pharynx was mildly injected. Lungs were clear to percussion and auscultation. Blood pressure 120/80. Heart was slightly enlarged to the left. There was a grade two systolic murmur heard at the apex. Heart rate was 120/min. with regular rhythm. Abdomen was negative. The left ankle was hot, swollen, tender, and painful to manipulation. There was also tenderness and pain on movement of the right knee, wrist, and elbow.

Laboratory Work: On admission revealed a hemogram as follows: Hemoglobin 11.5 grams or 74 per cent; red blood cells 4.04 million; white blood cells 15,600 with 89 per cent segmented polymorphonuclears, 2 per cent stabs and 9 per cent lymphocytes. Urinalysis had specific gravity of 1.024, acid reaction, faint trace of albumin, 4-5 WBC, and 1-2 RBC/hpf. Hematocrit 35. Sedimentation rate was 31 mm. in an hour. Electrocardiogram showed a complete A-V dissociation with an electrical axis plus 55 degrees. A repeat

*From the Medical Service, Shreveport Charity Hospital, Shreveport, Louisiana.

electrocardiagram six days later showed prolonged A-V conduction time.

Treatment: Patient was started on aspirin, grains 10, every four hours on admission. His joint pains subsided in two days, but his fever persisted. Temperature remained elevated to 100 to 101° F. for the first week.

On January 12, 1951, patient was started on 50 mgm. of cortisone intramuscularly every twelve hours, and was reduced to 50 mgm. every twenty-four hours on January 19, 1951. The last dose was given on January 23, 1951, as the supply of cortisone was exhausted. The sedimentation rate was not affected and remained 30 mm. per hour. The temperature dropped to 99 to 100° F. during this short course, but a rise immediately followed the withdrawal of cortisone.

A Thorne test with 25 mgm. ACTH was done January 24, 1951, with the following results: eosinophil count before ACTH was 340.6, and four hours later was 309.4. ACTH therapy was started on January 25, 1951, giving 25 mgm. every six hours. This was reduced to 10 mgm. every six hours on January 28, 1951, and the supply was exhausted on January 31, 1951, after a total dosage of 495 mgm. had been given. The temperature dropped to normal, but started to rise when the drug had to be discontinued. The sedimentation rate returned to normal while on ACTH, but two weeks after discontinuation it was 33 mm. per hour. The electrocardiogram continued to show prolonged A-V conduction time.

ACTH was again started on February 13, 1951, at a dosage of 25 mgm. every six hours. The dosage was gradually reduced, but continued every six hours until March 13, 1951, with a total of 820 mgm. being given on the second course. The temperature dropped to normal on the third day of this course of ACTH, and remained normal except for an occasional spike to 100° F. There was no further fever following interruption of the drug. After three days of this course the sedimentation rate became 17 mm. per hour and remained there or less. The electrocardiogram gradually returned to normal, and the patient continued to feel fine.

EPA of chest on February 13, 1951, revealed the cardiac shadow to be almost 20 per cent above normal, having increased in size since the admission film. Another chest plate taken on March 3, 1951, showed the cardiac shadow to be smaller, but still about 10 per cent above normal. A loud systolic murmur was heard on the precordium, loudest at the apex during the entire hosipitalization, and is still present. The patient was discharged from the hospital to the Medicine Clinic on March 31, 1951. He was asymptomatic and afebrile with a normal electrocardiogram and a sedimineation rate of 4 mm. per hour.

On April 22, 1951, the patient was readmitted to the Medical Service with fever and a sore throat of about two days' duration. There were no joint manifestations, and no cardiorespiratory complaints. His temperature was 101° F. on this admission. He had no adenopathy, a very inflamed throat, a systolic precordial murmur was present, but there were no other positive physical findings. Sedimentation rate was 21 mm. per hour, and the electrocardiogram was within normal limits. Hemogram revealed: hemoglobin 12.5 grms. or 80 per cent; red blood cells 4.29 million; white blood cells 21,000 with a differential of 71 per cent segmented neutrophiles, 3 per cent stabs, 15 per cent lymphocytes, 6 per cent monocytes, and 5 per cent eosinophiles. Urinalysis was negative. Fever responded rapidly to penicillin and was normal in twenty-four hours.

On the fourth hospital day he vomited about 500 cc. of old and fresh blood, and became pale, cold, and clammy. There was a slight drop in blood pressure, and tenderness was noted in the epigastrium. He responded to conservative therapy of a bland diet, antispasmodics, and antiacids; and experienced no further abdominal discomfort or hematemesis. A G.I. series was done May 1, 1951, and showed a small penetrating ulcer (Fig. 1) on

Figure 1.—Radiographic study of the stomach with barium showing large ulcer on lesser curvature.

the lesser curvature of the stomach in the region of the pars pylorica.

The patient was discharged asymptomatic on

May 2, 1951, to return to Medicine Clinic. He was seen again on May 21, 1951, and repeat G.I. series (Fig. 2) showed no ulcer or other pathology. He

Figure 2.—Radiographic study of the stomach with barium showing complete healing of ulcer after therapy.

was still asymptomatic, and the physical findings showed no change. The last clinic visit was on July 24, 1951, at which time there had been no recurrence of any G.I. or cardiorespiratory symptoms. Physical examination revealed only an enlarged heart with a grade 3 systolic murmur heard over the precordium, but heard best at the apex.

COMMENTS

This case illustrates the definite value of ACTH in acute rheumatic pancarditis that showed no response to acetylsalicylic acid therapy. However, it also shows the danger of developing acute gastric ulcers, even in a young individual. The acute ulcer may be due to the marked increase of uropepsin excretion following the use of pituitary adrenocorticotropic hormone.[14] The depression of the growth of granulation tissue in wounds may have been an additional factor.[15]

SUMMARY

A case report of the development of a bleeding gastric ulcer in a 12 year old child following ACTH and cortisone therapy for acute rheumatic fever. A six week repeat GI series showed no evidence of a gastric ulcer present, and the patient has continued several months without any suggestive history of gastrointestinal disease.

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ECTOPIC URETERAL ORIFICE

A REPORT OF FIVE CASES*

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Ectopic ureteral orifice usually occurs in the posterior urethra, seminal vesicle, ejaculatory duct, or vas deferens in the male; and in the urethra, vestibule, vagina, or uterus in the female. Treatment depends

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upon site of drainage, and the condition of the kidney, or portion of kidney, which the ectopic ureter drains. The following case reports deal entirely with ectopic ureteral orifices in the urethra.

CASE REPORTS

Case No. 1. M. M., a woman, aged 23, was seen in 1948, because of fever, chills, frequency and burning on urination, and pain in the left kidney area, of two days' duration. She had suffered from repeated similar attacks since early childhood. These attacks subsided after several days of bed-rest, forcing fluids, and urinary antiseptics. On admission, her temperature was 103° F.; WBC 20,000; and the urine was loaded with pus cells and gram negative bacilli. She was placed on bed-rest and a forced fluid regime, and given penicillin-streptomycin mixture, intramuscularly, every four hours. At the end of forty-eight hours, she was afebrile and asymptomatic. Cystourethroscopy, at this time, revealed a normal bladder appearance except for the absence of the left half of the trigone and left ureteral orifice. The right ureteral orifice was perfectly normal. Indigo carmine appeared in three minutes from the right ureteral orifice and was present in excellent concentration in four minutes. A No. 5 ureteral catheter was inserted up the right ureter with ease. The urine from the right kidney was normal. A right retrograde pyelogram was taken and regarded as normal. Urethroscopy revealed a small dimple in the midportion of the urethra, just to the left of the midline on the floor. A No. 4 ureteral catheter entered this dimpled area, which represented the left ureteral orifice. Twenty cc. of urine were withdrawn, which grossly exhibited pus. Indigo carmine did not appear from this catheter after twenty minutes. Retrograde pyelogram was taken. Because of the x-ray appearance of the left kidney, which we interpreted as a partially destroyed, hypoplastic kidney, together with evidence of poor function by indigo carmine, we advised her to have a left nephrectomy. However, she left the hospital and returned to her local doctors for further treatment, and we have not heard from her since.

One could have opened this ectopic ureter back in to the bladder, but we did not feel justified in advising such in the presence of a poorly functioning hypoplastic kidney, together with a normal functioning and appearing kidney on the opposite side.

Case No. 2. G. B., a male, aged 27, was first seen in 1945, because of the recent episodes of pyuria, burning, frequency, and fever, which responded fairly well to urinary antiseptics. The first attack began shortly after an accidental gunshot wound of the lower abdomen and dorsum of the penis. On admission, his temperature was 99.6° F.; WBC 10,000. Urine contained many WBC/HPF. There was a superficial laceration of the dorsum of the penis, and well-healed superficial scars on the belly wall. Otherwise, the physical examination was negative with the exception of the prostate. On rectal examination, the right lobe of the prostate was swollen, tense, and tender. It was felt that he had an acute prostatitis. The prostatic secretion was loaded with pus. He was placed on urinary antiseptics and seemed to respond well.

Intravenous urograms were taken, which revealed good bilateral function, with a moderate hydronephrosis on the left, considered to be due to uretero-pelvic junction stenosis.

Cystourethroscopy was performed. The prostatic urethra was inflamed. The right lobe was bulging slightly. Indigo carmine, given intravenously, appeared from the right ureteral orifice in three minutes, and in excellent concentration in five minutes. The left side of the trigone and ureteral orifice were absent. Right retrograde ureteropyelograms failed to reveal any connection between the right and left side. He was kept in the hospital for three weeks, on urinary antiseptics, frequent prostatic massages, and Sitz baths; and continued to improve. During this period, cystoscopy was performed on three occasions, but no left ureteral orifice could be found. He was discharged, to be massaged and followed at home.

Second admission, when patient was next seen, was two years later, in 1947. He had gotten along fairly well, during the interval, on prostatic massages, and urinary antiseptics for occasional attacks of fever, and pyuria. He was admitted to find the opening of the left ureter. Cystourethroscopy, under anesthesia, finally revealed an opening on the floor of the midportion of the prostatic urethra. This was catheterized, along with the right ureter. Urine from the right kidney was normal. There was 15 cc. of stasis on the left, and the urine from this side was loaded with pus. The pyeloureterogram on the left demonstrated the dilation of the lower ureter before it entered the prostatic urethra. Also, the left ureteropelvic junction stenosis with mild hydronephrosis, was apparent.

Utilizing a wire electrode, made by bending the wire stylet through a No. 4 French, olive-tipped ureteral catheter, which could be passed into the left orifice through a panendoscope, the left ureteral orifice and ureter were opened from origin in the prostatic urethra, through the prostatic urethra, and into the bladder to a corresponding location on the left, to the right orifice. The edges of this wound were cauterized as they were cut. His postoperative course was uneventful, and he was discharged on the eleventh postoperative day.

He was next seen four years later, in 1951. He happened to be in the hospital for a hemorrhoidectomy. During the interval, he had had no symptoms, and no treatment. The urine was normal. He

would not consent, at this particular time, to cystoscopy. An intravenous urogram was taken. The ureteropelvic junction stenosis and hydronephrosis on the left were still apparent. However, no dilation of the lower ureter could be seen on these films. He agreed to future checks on this left kidney and ureter, but so far, we have been unable to have him back for further studies.

Case No. 3. L. J. K., a female, aged 2½ years, was seen in 1944, because of keeping wet most all of the time. She had previously been studied and found to have a normal kidney and ureter on the right side, and a double kidney with two complete ureters on the left side. The ureter from the lower segment emptied into the bladder in a normal fashion, but the ureter from the upper segment emptied into the proximal half of the urethral floor. The upper segment of the left kidney, along with half of its ureter had been removed. Otherwise, this was an apparently normal developing child. Cystourethroscopy revealed a strictured and chronically inflamed posterior urethra. The bladder was quite normal as well as the ureteral orifices on each side. Both normal ureteral orifices were catheterized with ease. The urine from each kidney was normal. The bladder urine contained many pus cells. Retrogrdae pyelograms were taken and were interpreted as normal. It was felt that this girl was wetting primarily because of a strictured and chronically inflamed posterior urethra. Her urethra was dilated and she was placed on urinary antiseptics to control the pyuria. She was allowed to go home and have urethral dilatations.

She was next seen four years later, in 1948, at the age of six years. During the interval, she had recurrent attacks of pyuria, frequency, and wetting. These attacks would clear up fairly well on urinary antiseptics and urethral dilatations. Cystourethroscopy was repeated now, on several occasions, when the patient had attacks of wetting, pyuria, and frequency; and on each occasion, a large bulging mass could be seen blocking the internal urethral orifice. This mass could be made to disappear by catheterizing the ectopic ureteral orifice and removing 20 to 30 cc. of urine filled with pus. It was decided that this distal stump of the ectopic ureter was filling at intervals, causing blockage of the internal urethral orifice, and producing the girl's symptoms. She was admitted to the hospital, and under general anesthesia, a No. 3 French catheter electrode was introduced into the ectopic ureteral orifice. This ureteral sac was then opened up into the bladder almost to the normal positioned left ureteral orifice. The posterior urethra was then lightly fulgurated, in an attempt to destory the chronically inflamed lining. Postoperatively, the patient continued to leak urine. She was discharged from the hospital and seen in the office after one month. She complained of frequency, pyuria, and leakage of urine. Her urethra was dilated and she was given more urinary antiseptics to control the pyuria. She was next seen after two months. She still had some leakage, but was improving. The urine still contained some pus. The urethra was dilated. Cystoscopy revealed the bulging sac had disappeared, and the mucosa was fairly clean. The child was not seen after that visit, but a letter from the mother, two years later, in 1950, stated that the patient was doing fine; did not leak anymore, and had no symptoms.

Case No. 4. L. L. S., a white female, aged 13 months, was first seen in 1948, because of episodes of high fever and pyuria since birth. She was markedly undernourished, weighing 12 pounds and 11 ounces. Temperature was 103° F. Marked pyuria was present. An intravenous urogram revealed a normal right kidney with a moderately dilated and elongated ureter, indicating chronic infection. No dye concentration appeared on the left side. Cystourethroscopy was performed. The bladder urine was full of pus. The right ureteral orifice and right half of the trigone appeared normal. The left half of the trigone and left orifice were absent from the bladder. In visualizing the urethra, the left ureteral orifice was found on the floor, to the left of the midline, in the midportion of the urethra. A No. 4 French catheter was inserted up the right ureter with ease. No stasis was encountered. The urine contained a few pus cells. A No. 4 French catheter was inserted up the left ureter to a distance of 15 cm. Thirty cc. of grossly infected urine were aspirated. Retrograde pyelograms were attempted. The right kidney visualized well, and exhibited an elongated, tortuous ureter. The left catheter had coiled in the lower ureter, but enough dye was injected to outline a lower ureter, which was markedly dilated and tortuous.

An electrode was now made from the catheter, which passed up the left ureter; it was inserted, and the ureter was cut back up into the bladder to where its opening should normally be.

The patient was placed on urinary antiseptics, and fluid and food forced. The temperature curve resumed normal after one week, and this baby began eating ravenously. She began to look healthy. She was discharged after three weeks, remarkably better than on admission. She had gained 3 pounds, or a fourth of her weight on admission.

She was next seen three years later, in 1951, at the age of four years. Her mother brought her in for other complaints. Physically, she had developed in size and nourishment to a normal four-year-old. Since the previous admission, she had no more attacks of pyuria or fever. However, she had marked mental retardation. She had not learned stool habits. She still wore diapers. She could sit by herself and stand by herself, but could not say over one or two words. She was still being bottle-fed. Mongolian tendencies and facies were developing. However, cystoscopy was allowed. The bladder urine contained a few pus cells. The opening of the left

ureter was an elongated slit. Both ureters were easily catheterized. The urine from the right kidney was normal. Urine stasis of 15 cc. from the left catheter contained a few pus cells. The right kidney pelvis and ureter appeared better than previously. Filling of the left side was not complete. Indigo carmine studies were not done. No further treatment was considered in this case. Patient was discharged.

Case No. 5. A. R. C., a white female, aged 20, was first seen in 1949, because of recurrent attacks of fever, pyuria, and pain in the left kidney area for four months. These attacks had always cleared up on urinary antiseptics. She was seen because her doctor had cystoscoped her and could not find the left ureteral orifice. She had pyuria, no fever, and was tender in the left kidney area. Intravenous urograms revealed a moderate hydronephrosis on the right side. No dye appeared on the left side. Cystourethroscopy revealed a normally placed right ureteral orifice. The left half of the trigone and ureteral orifice were absent. The urethra was strictured and chronically inflamed. The left orifice was finally found in the mid-portion of the floor of the urethra, just to the left of the midline. Both ureters were catheterized. The urine from the right side contained a few pus cells. Stasis of 60 cc. was found on the left side and this urine was full of pus. Indigo carmine appeared from the right side in excellent concentration in five minutes. It did not appear from the left side after twenty minutes. Pyelograms were taken. An electrode was made, inserted into the ectopic left ureter, and this ureter was opened back into the bladder to where a normal left ureteral orifice should be. The urethra was dilated. The postoperative course was uneventful. The pain and pyuria disappeared on urinary antiseptics. Although no function was demonstrated on this left side, it was felt that the meatotomy-ureterotomy procedure was simple, and we might salvage some kidney function. She was discharged from the hospital to return for follow-up examination.

She returned after three months. She had no symptoms during the interval. The catheterized urine revealed many pus cells. She had married during the interval and was now six weeks along in her first pregnancy. The posterior urethra was still chronically inflamed and strictured. Both ureters were easily catheterized. Urine from the right side was normal. Thirty cc. stasis from the left side contained marked pus. The urethra was dilated. The obstetrician was advised of this patient's condition. All during her pregnancy, she had pus in her urine, presumably from the left side. Her urethra was kept dilated to a No. 30 French at monthly intervals, throughout the pregnancy. She had no complications during the pregnancy, labor, or postpartal period.

She was next seen in March 1951; one year later. Bladder urine contained a few pus cells. The left ureteral orifice was represented by an elongated slit. Both ureters were easily catheterized. Urine from the right kidney was normal. Stasis of 30 cc. was obtained from the left side. This urine contained many pus cells per high power field. The urethra was still chronically inflamed and needed dilating. However, she had no symptoms. Indigo carmine, given intravenously, appeared in excellent concentration from the right side in five minutes. Indigo carmine appeared from the left side in poor concentration in six minutes, and in fair concentration in ten minutes. A pyelogram was taken. The kidney appeared to be somewhat better than originally, and I am sure the function was better. She was advised to keep her urethra dilated to full caliber at periodic intervals. This she did not do.

She was next seen one year later, because of an acute right pyelonephritis of pregnancy. She had chills, high fever, pyuria, and pain over the right kidney, frequency, and burning on urination. She was seven months along in her second pregnancy. Penicillin and streptomycin brought her symptoms under control after four days. Cystourethroscopy revealed the strictured urethra and chronically inflamed posterior urethra. The ureters were not catheterized. The urethra was dilated to a No. 30 French, and the patient was instructed to be seen after three weeks. Four weeks have now gone by, and she has not been seen.

DISCUSSION

All of the preceding cases of ectopic ureteral orifice, located in the urethra, were treated by transurethral means. By making a cutting and fulgurating electrode out of the catheter, which can be passed into the orifice, the method is extremely simple and efficacious. We do not have cystograms on these patients, demonstrating the presence or absence of regurgitation in the ectopic ureter following this procedure. Heminephrectomy or nephrectomy, as a solution to this problem, should be reserved as a last resort, or for those cases in which there is no hope of preserving kidney function. Case No. 3 illustrates that heminephrectomy with partial ureterectomy does not always provide a remedy, and that the distal end of the ectopic ureter may still cause trouble. Division of the ectopic ureter near the bladder with implantation of the proximal end to the bladder is a major operation attended with all the difficulties and complications of a reimplanted ureter. We feel that it is much more simple, and the results are just as

good, to treat the ectopic ureter, transurethrally, rather than transvesically. In other words, it is not necessary to open the bladder.

SUMMARY

Five cases of ectopic urethral orifice, emptying into the urethra, have been presented. Transurethral treatment of these cases has been described, along with the results obtained to date. Other methods of treatment have been outlined.

CONCLUSION

Ectopic ureteral orifice in the urethra can be managed by transurethral means. The method is simple and efficacious.

DISCUSSION

Dr. W. E. Kittredge (New Orleans): Dr. Mitchell is to be congratulated for his alertness in the discovery of the 5 ectopic ureteral opening described in his presentation, inasmuch as all 5 patients had sphincteric control and no urinary incontinence, which is the one symptom which usually prompts one to search for an ectopic ureteral opening. His experiences well illustrate the necessity for always considering the possibility of an ectopic ureter in any case of unexplained persistent urinary symptoms, with or without evidence of infection.

Ectopic ureteral orifices occur oftener than is generally recognized and a great many are never recognized during life. An incidence as high as one in 1600 is reported by Campbell from autopsy material. The etiology, of course, is faulty embryologic development of the position of the ureteral orifice. The ureteral anlage, which normally originates at the bend of the wolffian or mesenephric duct, may bud higher up. Consequently, the further from the cloaca the anlage is formed, the lower the ureteral orifice will ultimately be shifted when this portion of the wolffian duct later becomes part of the lower urinary tract. In males, the ectopic opening is usually under sphincteric control resulting in symptoms of urethral irritation or urinary infection but not urinary incontinence. In females, who constitute more than half the total number of cases, the majority of the openings are beyond sphincteric control and result in urinary incontinence. The ectopy may involve one or both of completely reduplicated ureters unilaterally or bilaterally, or may involve one or both of single ureters from normal kidneys. In males the opening may be in the posterior urethra, vas deferens, epididymis or seminal vesicle. In females, the opening will be found most often just adjacent to the external urethral meatus or in the first portion of the urethra. More rarely the orifice may be in the vagina, cervix or even the uterus. In these cases the predominant symptom is urinary incontinence associated, however, with normal bladder function. In all cases of incontinence in young females careful study should be made for an ectopic orifice. This should include roentgenographic studies of the upper urinary tract which may demonstrate reduplication on one or both sides, coupled with careful inspection of the urethra and genitals. Indigo carmine, injected intravenously, is often an invaluable aid in locating the orifice as the indigo colored urine is excreted. This will fail to occur, however, in those in whom the involved kidney or portion of the kidney has lost its function, preventing normal excretion of the dye.

Surgical correction depends upon the status of the kidney or portion of the kidney involved. If renal function has been lost, heminephrectomy or nephrectomy as the case may be, with or without complete removal of the involved ureter, is the treatment of choice. In the presence of reasonably good renal function reimplantation of the ureter into the bladder or into the normal ureter may be considered. If there is no infection, simple ligation of the involved ureter brings about permanent loss of function in the involved portion of the kidney but obviates the necessity for nephrectomy. As Dr. Mitchell's cases well show, it is often sufficient to retstablish normal drainage, if possible, for those ectopic openings occurring within sphincteric control.

We have encountered two cases of ectopic ureter in recent years. The first was an 8 year old girl whose chief complaint was urinary incontinence. She also voided normally but was continually wet. The urine was not infected. Intravenous urograms revealed reduplication of the right kidney, the lower half being normal and the upper half showing reduced function and dilatation. With the aid of indigo carmine an ectopic orifice was located just below the normal external ureteral meatus. It was impossible to catheterize this ureter. Because of loss of function already present in the upper pole of this kidney, a heminephrectomy was done. She has had no further trouble.

The second case was a white woman, aged 28 years, who also had complained of incontinence since birth associated with normal urination. The urine was not infected and the ectopic orifice was identified just adjacent to the normal external ureteral meatus. This ureter was catheterized for a distance of 4 inches where obstruction was met. Intravenous and retrograde urograms of the upper urinary tract including injection of dye up the ectopic ureter demonstrated that this ureter drained the upper pole of the left kidney, which was not functioning. Following heminephrectomy she has had no further difficulty.

TREATMENT OF CARCINOMA OF THE BLADDER*

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Carcinoma of the bladder is a complex disease so entangled with unknown factors and so resistant to cure that no mode of treatment has been universally accepted. Until agents are discovered which produce bladder tumors from urothelium, treatment will be based on a practical basis and not a truly scientific one.[1]

The current problems seem to be the recognition between mildly and deeply infiltrating tumors and their treatment. It is debatable whether nonradical treatment is sufficient in the former and radical surgery justified in the latter. The literature does not solve these problems but it does show the lack of a common classification and the scarcity of cases presenting pertinent data on grade, infiltration, size, location, multiplicity, type of treatment, and adequate follow-up.

DIAGNOSIS

There are no classical symptoms of carcinoma of the bladder, but hematuria, gross or microscopic, is of such importance that all such cases should be given a urological examination. An intravenous urogram which includes the bladder may show filling defects, distensibility of the bladder, and evidence of encroachment on the ureters. Cystoscopy locates the tumor, its size, appearance, multiplicity, and enables a biopsy to be taken. Multiple biopsies, including the base of the tumor, should be taken with a biting or cutting instrument. An activated loop distorts the tissue cells but it is sometimes the easiest method of reaching tumors adjacent to the bladder neck.

The fallibility of biopsy was most recently shown by Dean;[2] in 100 cases he found the grade of malignancy in the operative specimen to be higher than that of the biopsy specimen in one half of them.

The finding of carcinoma cells in the urine may help in the diagnosis; Chute and Williams[3] reported three cases in which malignancy of the bladder was first diagnosed by urine smear when the malignancy was only partly suspected.

Bimanual palpation of the bladder under anesthesia is believed by Jewett[4] to be of prognostic value, although he admits that accuracy is impossible when the tumor is behind the pubis or in front of the cervix uteri. In deeply infiltrating tumors of the bladder he found a rubbery or stony, hard mass palpable. In doubtful cases, surgical exploration, as stressed by Thomas,[5] may be a diagnostic aid.

PATHOLOGY

The type and behavior of a tumor is closely related to prognosis. Broders,[6] in 1922, graded tumors according to cell differentiation. Although important, this was not sufficient in predicting the progress of carcinoma. The importance of infiltration in bladder carcinoma has been recognized for many years. In 1931, Aschner[7] classified tumors of the bladder into infiltrating and noninfiltrating, papillary and nonpapillary. He concluded that the presence or absence of infiltration was a reliable guide to the gravity of carcinoma of the bladder. In 1944, Jewett[8] used infiltration as the basis for his three classes; namely, A when the tumor is confined to the submucosa, B when the tumor extends to the musculature but not through it, and C when the tumor invades the entire muscle. Using this classification in 107 autopsy cases Jewett[9] found no metastasis in 3 cases of group A. In 15 cases of group B, there was only 1 case of metastasis and 1 of perivesical lymphatic involvement. In 89 cases of group C, 52 showed metastasis, 6 perivesical lymphatic involvement, and 8 perivesical fixation.

In 1948, Mc Donald and Thompson[10] stressed vascular invasions as well as invasiveness of carcinoma of the bladder. In 243 cases of surgically removed specimens they found that 12.8 per cent fell into Jewett's group A, 53.9 per cent into group B, and 33.3 per cent into group C. Of the cases showing venous and perineural vascular in-

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volvement almost all were found in group C. The five year survival rate without vascular involvement was 37.8 per cent, and 11.6 per cent with vascular involvement. Further study revealed that transitional cell carcinoma offered a better prognosis than squamous cell carcinoma or adenocarcinoma.

It is well known that the most common spread from carcinoma of the bladder is to the regional lymphatics. Yet metastasis occurs without involvement of the regional lymphatics. Leadbetter and Cooper[11] found that perivesical extension and lymph node involvement occurs in 20 to 30 per cent of deeply infiltrating tumors of the bladder. Infiltrative tumors of the bladder were found by Jewett and Strong[9] to metastasize in approximately 50 per cent, but in about 36 per cent of these cases the regional lymph nodes were not involved.

TREATMENT

Transurethral Fulguration: This method is most commonly used for all tumors limited to the submucosa or those showing only slight muscle invasion. Dean[12] limits this method to single or multiple papilloma with a base no larger than 1 cm. and no more than 15 in number. The most popular and, I believe, effective method is transurethral resection of the tumor and fulguration of its base. This permits a more complete destruction and offers material for microscopic study. Flocks[13] feels that tumors located at the anterior bladder neck and fundus of the bladder, or tumors deeply infiltrating the prostate are not suitable for endoscopic treatment. Thompson,[14] however, does not admit such limitation. It would seem that a resectoscope should be used if the tumor is accessible.

Transurethral Implantation of Radon Seeds, with or without Electrocoagulation: Although not so popular as resection and fulguration, radon seeds, when used, are almost always employed in conjunction with these procedures. Dean[12] emphasizes that the resection is for the purpose of removing the bulk of the tumor and for outlining its base. He employs 1.5 millicurie seeds, 1 cm. apart, and to a depth of 0.5 cm. He restricts the method to single papilloma or papillary carcinoma, providing the base diameter is not larger than 2.5 cm. and not infiltrating. The tumor must be 1.5 cm. from a ureteral orifice and visible through a cystoscope. Thompson[14] uses radon seeds in tumors with clean-cut edges and deep x-ray when the edges are poorly defined.

Suprapubic Resection and Fulguration with and without Radon Seed Implantation: This procedure is usually reserved for single tumors too large to resect or located in an area which makes segmental resection difficult. It is also used as a palliative procedure when the tumor has extended beyond the bladder. In papillary carcinomas Crabtree[15] obtained good results by elevating the base between the jaws of a curved clamp, excising it, and fulgurating the base. When suprapubic resection is employed, Dean uses radon seeds but limits their use to a tumor with a base as large as 3 cm. and located 1.5 cm. from a ureteral orifice. He does not employ such treatment when the prostate is invaded or when the tumor extends beyond the bladder wall.

Segmental Resection of the Bladder Wall: This procedure is best suited for tumors limited to the bladder where 1.5 cm. of the normal bladder can be included. The trigone is particularly unsuited for this operation. Although Jewett and Cason[16] feel that the bladder neck and part of the prostate could be removed segmentally, this operation is open to question. Open surgery involving manipulation and opening of the bladder increases the chances of tumor spillage and spread by the lymph and blood streams.

Cystectomy, Including the Prostate, Seminal Vesicles, Uterus, Tubes and Cervix; with Diversion of the Urine to the Sigmoid or to the Skin; Regional Lymph Node Dissection: The indications for radical surgery are not clear-cut, and certainly not universally accepted. In general this procedure, when performed, is done on patients able to tolerate such surgery and those in which there is a reasonable hope of removing carcinoma which could not be controlled by a less radical procedure. It is generally agreed that multiple papilloma or multiple carcinoma limited to the bladder, and repeatedly

recurring low grade lesions offer the best chance of cure by cystectomy. Infiltrating tumors of the trigone, bladder neck, and those adjacent to a ureteral orifice are other indications used as guides to cystectomy. Dean feels that cystectomy is occasionally justified as a palliative measure. Ferris and Priestley,[17] on the other hand, feel that it is rarely, if ever, justified.

The mortality rate of 13 per cent in a large series of cystectomies with transplantation of the ureters, as reported by Ferris and Priestley, does not represent the results of the majority of reported series. This figure in 111 such cases was reduced to 8 per cent in the latter five years of their series.

Transplanting ureters into the bowel is the most popular means of diverting the urinary stream. When the ureters are dilated, and sometimes when they are normal, transplantation to the skin is preferred by some. This latter group feel that it is the safest procedure and that modern devices make it possible to handle the urine with comfort. It can also be said that recurrences can be handled better with the ureter transplanted to the skin.

The high incidence of death from recurrence or metastasis following cystectomy prompted Leadbetter,[11] Kerr,[18] Higgins,[19] and others to advocate regional lymph node dissection. Extensive dissection has been employed by Leadbetter in 15 patients, with 1 postoperative death. This type of surgery is being employed by a number of urologists but the results are too recent to properly evaluate them. Removal of the entire pelvic contents is also being employed, but again, time alone will prove or disprove its merits.

Irradiation: Dean[12] estimates that no more than three-quarters of a curative dose of radiation can be delivered to a bladder tumor by any roentgen unit. Lewis[20] uses radium placed at the center of a Foley balloon catheter in treating multiple noninfiltrating tumors refused by surgery. Deep x-ray has been advocated by Thompson[14] in conjunction with endoscopic treatment of tumors with poorly defined edges.

By and large, deep x-ray is used as a palliative procedure in inoperable cases and sometimes in conjunction with less radical procedures. The use of small doses preoperatively to lessen the dangers of spread caused by manipulation of the bladder in open surgery has been suggested by Flocks.[13]

Palliative Ureterointestinal Anastomosis: The palliative effects of diversion of the urinary stream, whether to the bowel or skin, in inoperable carcinoma of the bladder, with intractible spasms and recurring hemorrhage, have been widely acknowledged. This diversion makes possible the delivery of heavy doses of deep x-ray and it is sometimes used when extensive resection and fulguration involving the ureteral orifice or bladder neck is anticipated.

The urine borne carcinogens may be an influencing factor in diverting the urine. Their presence is suggested by the multiplicity of and the recurrence of bladder tumors in different areas of the bladder as well as by the high incidence of tumors in the bladder of analine dye workers. Although rare, it has been shown by Pearce, Trabucco, Davis, Goldberg and Fort[21-25] that carcinoma regresses following transplantation of the ureters into the sigmoid.

Perhaps the latest approach in the treatment of bladder carcinoma is the use of radioactive isotopes. This mode of therapy, together with radical surgery, is still in the investigative stage.

RESULTS

In spite of the dismal outlook of high grade and infiltrating carcinoma, one is occasionally amazed at the atypical behavior of such tumors.

In a personal case, Mrs. J. E., a grade III squamous cell carcinoma, involving the base and lateral walls adjacent to the bladder neck, was treated by suprapubic fulguration and radium needles (55 mg. for twenty-four hrs.). The patient died seven years later from a cardiac death, apparently free from recurrence. The interesting fact, however, was the cystoscopic fulguration of a cauliflower growth in her bladder twenty-seven years previous to her death.

Evaluation of results of treatment is dif-

ficult. There is no common classification and in many of the cases treated more than one method was employed.

Royce and Ackerman[26] found that the size of the tumor influenced the prognosis. When the tumor was less than 2 cm. the survival rate was four years and two months. Tumors between 2 and 4.9 cms. survived three years and four months, while tumors 5 cm. and over survived one year and six months.

Using endoscopic fulguration the authors obtained a survival average of five years, four months for tumors which were largely grade I. In 100 cases of tumors grade II or more, Waller and Hamer[27] obtained a tumor-free five year survival in 34 per cent. Flocks,[13] employing transurethral resection, in 167 cases of noninfiltrating tumors controlled 77 per cent for five years and in early infiltrating tumors he obtained good results in 50 per cent of the cases.

Barnes[28] reported better results with the use of radon seeds than with resection alone. Using radon seeds on 25 cases, Royce obtained an average survival of three years, one month. The same author in 21 cases treated by open excision and fulguration noted an average survival of two years, six months.

In open excision of 62 cases of papillary carcinoma, Crabtree[15] found that 30.6 per cent survived over ten years and another 20 per cent survived five years, but died of tumor.

In partial or complete cystectomy, McDonald and Thompson[10] found the percentage of five year survivals to be, according to Jewett's classification: 38.3 in group A, 29.6 in group B and 5.2 in group C. Jewett[29] reported 11 of 12 cases of group B surviving five years without recurrence but only 1 in 45 cases of group C survived five years.

In a cystectomy series comprised largely of group B and C tumors, Ferris and Priestley[17] obtained a 19 per cent five year survival, exclusive of hospital mortality cases.

In 1949, I had the opportunity of performing complete cystectomy on 4 cases of carcinoma of the bladder. To date, 2 are alive and show no evidence of recurrence or extension, namely:

L. B., a 63-year-old male with an early group B, grade III, transitional cell carcinoma involving the bladder neck, base and lateral walls.

J. E., a 62-year-old male with an early group B, transitional cell carcinoma involving the bladder neck, base, lateral and posterior walls and left ureteral orifice.

The following 2 cases died:

J. B., a 46-year-old male with a group C, grade III, transitional cell carcinoma involving the base, bladder neck, posterior urethra, and lateral walls. The regional lymph nodes were involved and the patient died four months later from carcinoma.

C. F., a 47-year-old male with a group B, grade III, transitional cell carcinoma with practically the entire bladder involved. One kidney showed no function and the other was hydronephrotic. The patient died elsewhere about twelve months later, presumably from carcinoma.

Perhaps the most significant comparison of the treatment of bladder tumors by cystectomy and methods other than cystectomy is offered by Kerr and Colby.[30] In their two series treated by different methods there were no appreciable differences in the size or grade of malignancy. In the infiltrating tumors the five year survival rate with cystectomy was 8 per cent as compared to 11 with procedures other than cystectomy. In the noninfiltrating tumors, 16 per cent survived cystectomy while all the cases treated by noncystectomy methods survived. The same authors reported 15 cases treated by lymphadenectomy and cystectomy, and of this group 6 showed involvment of the regional lymphatics. Exploration of 4 of these five months later showed recurrence of the tumor in 3. Leadbetter and Cooper have reported a more radical type of lymphadenectomy in 15 cases; 1 died a cardiac death and 3 died of recurrence three months after surgery. One of the living cases showed vertebral metastasis thirty months after surgery.

COMMENTS

The treatment of noninfiltrating and, to an extent, mildly infiltrating tumors of the bladder is fairly well established and the results satisfactory. Deeply infiltrating tumors, however, have not responded well to any form of therapy and the chances of cure are very poor indeed. Radical meas-

ures, including pelvic evisceration, are being tried to overcome the poor prognosis in these latter cases. From the recorded cases in the literataure the lateral sacral lymph nodes were not removed and pelvic evisceration was not performed. However, radical treatment short of these measures was carried out and the results obtained did not seem to justify such procedures. Granting that all the lymph bearing tissue in the pelvis is removed, one cannot ignore the fact that carcinoma spreads by the blood stream without involvement of the regional lymphatics.

Although Jewett has given a lead in predicting the spread of carcinoma beyond the bladder one still cannot measure accurately the depth a tumor can infiltrate before the cells escape from the bladder through the lymph or blood streams. Until a more accurate measure of recognition is at hand, the choice of therapy in cases of borderline infiltration will continue to be problematic.

Radical surgery is still in the trial stage and its possibilities should be fully explored before it is condemned or accepted. Pelvic evisceration must necessarily show an optimistic cure rate to justify the disability, mortality, morbidity, and deranged function associated with such surgery.

CONCLUSIONS

1. Infiltrating carcinoma of the bladder as it extends from a superficial to a deeper type is difficult to recognize.

2. The treatment of deeply infiltrating carcinoma of the bladder is unsatisfactory.

3. Radical surgery for infiltrating carcinoma of the bladder is still in the investigative stage.

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LOUISIANA PHYSICIANS AND THE CHIROPRACTORS

The position taken by those practicing medicine as qualified physicians in Louisiana is that they do not want chiropractors licensed in any form in this State. The entire position in substance is based on admitted facts: (1) That chiropractors are improperly trained in the knowledge of medicine. (2) That they hold a view of causation of the disease processes, which is opposite to all scientific fact and to common sense.

At present, no chiropractor can legally practice in Louisiana unless he passes the State Board of Medical Examiners. Were he able to do this, it is obvious that he would then practice as a physician. There are three other states besides Louisiana which have a similar law. These are Massachusetts, Mississippi, and New York. The situation in other states is not so fortunate. Summarized, it is as follows:

32 States have independent chiropractic licensing Boards and of these 18 have a basic science requirement.

5 States, with the District of Columbia added, have a separate chiropractic Board under a special licensing bureau, and
3 of these have basic science requirements.

3 States have a special licensing Board with no chiropractor representation.

5 States have a licensing Board with a chiropractor on the Board.

As a group, the chiropractors are constantly endeavoring to expand the scope of their interests. In some of the so-called liberal states, an individual with six weeks to a year's training is actually encroaching on some phases of the practice of medicine. In our State, in consequence of the State licensing law, practice and the encroachment which would follow have been prevented since 1922 by the efforts of the Committee on Legislation and Public Policy, ably assisted by Dr. C. Grenes Cole, now Secretary of the State Society, and by Dr. Roy Harrison, Secretary of the State Board of Medical Examiners. The work of this committee has become increasingly difficult, and few physicians who are in the first half of their career of practice realize the value of the heritage which this agency of the State Society has bestowed on them through the years.

Proper representations have been made at hearings of committees in the Louisiana State legislature. Seldom has a vote been

taken on the floor of either chamber. Difficulties of presenting the facts and point of view of legitimate physicians have increased. The efforts of the chiropractors may begin with the campaign in which representatives and senators are elected to the legislature. A prospective and likely successful candidate may be approached, as he opens his campaign, to support the licensing of unqualified persons to practice medicine. However, illogical though the case of the chiropractor may be, it is astounding the amount of support they are able to show in legislature. The doctrine submitted by the proponents is that chiropractic is "the science of things natural." Some of the legislators appear to believe them.

It is understood that each legislator has been served notice by the advocates for the chiropractors that the efforts to promote the passage of another chiropractor licensing bill are starting now and will be presented to each successive meeting of the legislature, including the one of 1954. The spokesman for the chiropractors announced in the committee of the House of Representatives, "We will be back in two years."

In recent prosecutions in this State, sworn testimony by spokesmen for and practicers of chiropractic have stated that they do not believe in the production of disease by germs; that they would treat meningitis and bubonic plague with "adjustments;" diabetics would have the same type of treatment. In brief, that they believe differently from the basic concepts of medicine as represented in the various scientific subdivisions.

It is apparent then that we must present our case more forcibly to the public. We should be definite and persistent in expressing and giving our position on chiropractic doctrine and practice. Our patients should have a clear concept of our reasons for opposition. Forceful prosecutions of violations of the Medical Practice Act are dependent upon information from physicians, and from patients who have sought chiropractic treatment. The position of the Courts is such that paid informers cannot be used. Prosecutions by the State Board of Medical Examiners are possible only when voluntary witnesses give unequivocal evidence. The Medical Practice Act under which we are governed in Louisiana has stood the test of many Court decisions, including those of the Supreme Court. It has been used by many other States. If it is to be maintained intact so that its benefits may accrue to the successive generations of physicians that follow us, a more aggressive attitude against this threatened invasion is imperative on the part of the individual physician.

In the generations just past, the physician was a person of importance in his community. In recent years, organized medicine has contributed greatly to his regaining some of the influence lost. This influence should be exerted, among other aims, in the direction of educating the public against the chiropractors.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

WAKE UP DOCTORS!!

The facts gleaned from reading the following report which, in our opinion, represents a cross section of our state, should open the eyes of our fellow doctors as well as lay voters. This reveals, we feel, just why Mr. Truman was elected President in 1948.

We, as physicians, should wake up and take a more active part in our state and na-

tional elections and use our influence with our patients to register and to exercise their prerogative of voting for candidates who will look after the best interest of our people. Doctors should wield a greater influence and take a greater part in our elections. We are overlooking a good bet to not only look after the people of our state and country but also to show some concern for our own interests.

Our plea to you is to register and vote in all elections. Only in this way can we secure the best officials and protect our people and ourselves in these trying times.

Physicians cannot win their fight by staying away from the polls on election day, Charles S. Nelson, executive secretary of the Ohio Medical Association, said at the Second National Conference on the A.M.A. Education Campaign in Chicago.

Mr. Nelson provided some startling facts which show the medical profession's inertia at election time.

"Let me give you some almost unbelievable data which has been uncovered in Ohio," Mr. Nelson said, adding:

"After the surprise party which Mr. Truman threw in November, 1948, some of the political leaders in Ohio decided to hold a postmortem. They selected one of Ohio's industrial areas—Summit County, including the city of Akron. The records of the county boards of elections were scrutinized. Believe them or not, here are some of the findings:

"18% of the physicians of the county did not vote in the 1948 election—13% of them were not even registered and therefore not eligible to vote.

"22% of the wives of physicians did not vote—16% of them were not registered.

"10% of the members of the Rotary Club did not vote—3% were not registered.

"The tally on Kiwanis Club members was about the same.

"18% of the druggists did not vote—15% were not registered.

"11% of the teachers did not vote—6% were not registered.

"32% of the bank employees, including executives, did not vote—26% were not registered.

"33% of the ministers did not vote—26% were not registered.

"34% of the retail grocers did not vote—29% were not registered.

"Here's one for the books: 21% of the members of the Chamber of Commerce did not vote—15% were not registered."

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1952 - 1953

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J. W. Faulk, M. D., Crowley—Councilor, Seventh District.

H. H. Hardy, M. D., Alexandria—Councilor, Eighth District.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

NATIONAL ASSOCIATION OF CORONERS

The National Association of Coroners will meet at the Roosevelt Hotel, August 26, 27, 28, and 29, with the following speakers participating in the program.

Ben H. Brown, Coroner and Public Administrator, Los Angeles County, California.

Senator Robert A. Ainsworth, Jr.

Mayor deLesseps S. Morrison.

Hon. Fred S. LeBlanch, Attorney General of Louisiana.

Hon. Severn T. Darden, District Attorney, "The Relationship of the District Attorney's Office to the Coroner's Office."

Hon. J. Bernard Cocke, Judge, Criminal District Court, "The Coroner and His Administration of Criminal Justice."

Dr. Charles B. Odom, "Civil Defense".

Dr. Stanley H. Durlacher, "New Test for Determination of Drowning".

Dr. Milton Helpern, Deputy Chief Medical Examiner, NYC, "Sudden and Unexpected Natural Death".

Dr. S. R. Gerber, Coroner, Cuyahoga County, Cleveland, Ohio, "Infant Deaths and Vital Statistics".

Philip J. Schoen, III, Funeral Director, "The Relationship between the Coroner's Office and the Funeral Director."

Capt. William Dowie, Homicide Div., N.O.P.D., "The Relationship of the Homicide Division to the Coroner's Office".

Thomas E. McGuire, Agent in Charge, Federal Narcotics Bureau, "The Use of Narcotics as applied to Juveniles and How it is Combatted".

Dr. E. J. Ireland, Coroner's Toxicologist and Professor of Pharmacology, Loyola University, "A New Test for Morphine".

Dr. John Adriani, Director, Department of Anesthesia, Charity Hospital, "The Effectiveness of Truth Serum in Criminal Cases".

J. M. Lopez, Special Agent in Charge, F.B.I., New Orleans.

Capt. Chas. Kincade, B. of I., N.O.P.D., "The Relationship of the Bureau of Identification to the Coroner's Office."

Dr. Willis P. Butler, Coroner, Caddo Parish, Shreveport, Louisiana, "The New Coroner's Laws in Louisiana."

A. L. Brodie, Coroner, Cook County, Chicago, Ill., "The Modern Coroner".

Discussion of papers led by Capt. David E. Kerr, Consultant in Homicide Investigation for the National Association of Coroners, Chief of Homicide Investigation Unit, Cleveland Police Department, Cleveland, Ohio.

SCHENLEY LABS ANNOUNCES $17,000 RESEARCH GRANT

Schenley Laboratories, Inc., Lawrenceburg, Ind., has announced a grant of $17,000 to the Langbord Virus Laboratory at Hahnemann Medical College and Hospital, Philadelphia, Pa., for anti-virus research. The studies will be made by Dr. B. A. Briody, recently appointed director of the virus laboratory.

LA. CHAPTER, AMERICAN COLLEGE OF SURGEONS TO MEET IN OCTOBER

The Louisiana Chapter of the American College of Surgeons will present a one-day clinical program in New Orleans on Friday, October 24, 1952, at Charity Hospital. There are to be no formal papers but a full day of dry clinics and case presentations, along with summaries of surgical problems under investigation by the medical school faculties in New Orleans. The members of the Louisiana State Medical Society are invited to attend. There will be no registration fee.

The following subjects will be presented:

Bleeding Diverticulitis of the Colon—Dr. William C. Quinn.

Polypoid Disease of the Rectum and Colon—Dr. C. R. Walters.

Diverticulum of the Duodenum, With Perforation and Hemorrhage—Dr. Marshall L. Michel.

Surgical Aspects of Portal Hypertension—Dr. Paul De Camp.

Present Trends in Thyroid Surgery—Dr. Rawley M. Penick, Jr.

Carcinoma of the Stomach—Dr. Frederick F. Boyce.

Stenosis of the Biliary Tract—Dr. Ambrose H. Storck.

The Problem of the Bleeding Nipple—Dr. Robert Lynch.
Diagnosis and Management of Bleeding in the Third Trimester of Pregnancy—Dr. Isadore Dyer.
Lower Abdominal Emergencies of Gynecological Origin—Dr. Conrad G. Collins.
Penetrating Wounds of the Thorax—Dr. John Overstreet.
Conservative Amputation—Dr. L. Sidney Charbonnet, Jr.
Common Errors in Amputation Surgery—Dr. Jack K. Wickstrom.
Clinical Implications of Transplantation of Tumor Tissue to the Animal Cornea—Dr. Edward T. Krementz.
Foreign Body Obstructions and Perforations of the Gastrointestinal Tract—Dr. T. D. Cook.
Acute Cholecystitis as a Postoperative Complication to Incidental Surgery—Dr. W. Leon.
Hepatic Artery Ligation—Dr. I. W. Kaplan.
Effect of Antibacterial Agents on Strangulated Bowel—Dr. Isidore Cohn, Jr.
Hernioplasty in Infants—Dr. Harold Albert.
Anthrodesis for Flat Foot—Dr. Irving Cahen.
Case Presentations—Dr. J. D. Rives and Surgical Staff.
Cardiac Valvulotomy—Dr. W. J. Burdette.
Carcinoma of Esophagus—Dr. L. H. Strug.
Chronic Pancreatitis—Dr. C. Craighead.
Gynecologic Case Presentation—Dr. P. Graffagnino and Staff.

The presentations will be made between 9:30 a. m. and 12:00 noon, and between 2:00 p. m. and 5:00 p. m.

PHYSICIAN NEEDED

The community of Basile, Louisiana is in need of a physician since the recent death of Dr. O. L. Freeman who lived and practiced in the community for approximately thirty-three years. The population of Basile is 1,600 and there are many more citizens in the surrounding farm, cattle and oil country. There is no physician at this time within six miles of the town.

A registered nurse, with military and civilian experience has offered to work at a very nominal fee with any doctor who may come to this community to practice.

For further information contact Mr. Samuel J. Stagg, Stagg's Pharmacy, P. O. Box 473, Basile, Louisiana.

ADVANTAGE SEEN FOR DRUGGISTS BY STRESSING PROFESSIONAL STATUS

The pharmacist who emphasizes his professional as well as his merchandising skill in the operation of a drug store today is more likely to succeed than the druggist who stresses merchandising skill exclusively, Dr. J. Mark Hiebert, executive vice-president of Sterling Drug Inc., declared at the 25th commencement exercises of the New England College of Pharmacy.

"Druggists are the only retailers requiring a college degree in order to engage in retailing," Dr. Hiebert told the graduating class. "A pharmacist who throws away his professional education and training is forfeiting a most valuable competitive asset in this era of giant retailers and giant retailing."

SELF-EXAMINATION BY WOMEN BEST BREAST CANCER CONTROL

If breast cancer is to be detected at an early stage in its development, it is the women themselves who must do it, in the opinion of Dr. C. D. Haagensen, of the Institute of Cancer Research and the department of surgery, College of Physicians and Surgeons, Columbia University, New York.

"In order to be reasonably certain of detecting breast carcinoma at an early stage, the breasts must, in my opinion, be examined at least every two months," Dr. Haagensen wrote in the May 24 Journal of the American Medical Association.

"There are not enough physicians, enough time, or enough money to achieve this, even if women could be persuaded of the desirability of consulting physicians frequently for physical examination.

"I am today firmly convinced that teaching women to examine their own breasts is the best hope of improving our control of breast carcinoma."

In a series of cases where breast cancer was detected before it had spread to the under-arm glands, there was a five year clinical cure rate of approximately 90 per cent, Dr. Haagensen said. However, only 41.3 per cent of those patients in whom cancer had spread to the under-arm glands were found free of cancer for five years.

Women in their early 30's should be introduced to the subject of self-examination by their physicians, he said. This is the age at which breast cancer first begins to have a considerable frequency, a ndit is the earliest age at which women are willing to give thought and attention to such a serious subject as the detection of breast cancer, he added.

DEATHS FROM TUBERCULOSIS

Deaths from tuberculosis have been reduced to about one-tenth of what they were a century ago; but they still cost the U.S.A. 1,000,000 years of future working-life and $350,000,000 a year for medical care and related services. C.-E. A. Winslow, The Cost of Sickness and the Price of Health, WHO Monograph Series No. 7, 1951.

BOOK REVIEWS

A Translation of Galen's Hygiene: By Robert Montraville Green. 304 pages. Charles C. Thomas, Springfield, 1951. Price $5.75.

This is a delightful volume and Dr. Green is to be congratulated on having achieved such a readable and natural translation. As Dr. Sigerist points out in his introduction to the volume, "Galen has been greatly underestimated in recent years. This is partly due to his style, to the bulk of his work, to the lack of available editions and perhaps we unconsciously still resent the fact that he dominated medicine authoritatively in the East and in the West for centuries. *"De Sanitate Tuenda"* consists of 6 books: (1) The Art of Preserving Health; (2) Exercise and Massage; (3) Apotherapy, Bathing and Fatigue; (4) Forms and Treatment of Fatigue; (5) Diagnosis, Treatment and Prevention of Various Diseases and (6) Prophylaxis of Pathological Conditions.

Galen was a follower of Hippocrates and borrowed many concepts from him such as the concept of the four cardinal humors, blood, phlegm, yellow bile, and black bile, as well as the concept of elementary qualities, hot, cold, dry, moist. When the humors are in the right quantity and mixture, then the individual is in good health. The goal of the hygienist is to maintain the correct balance of humors and qualities by prescribing the correct kind and amount of food, drink, sleep, exercise, massage, etc. The physician in prescribing a hygienic mode of living must take into account the patient's constitution and age, as well as the climate and season. Thus he "must endeavor to correct the disorders of health, making moister those conditions which are too dry, and making drier those which are too moist; and similarly purging the excess of those which are too warm and restraining the excess of those which are too cool." The reader will find much of interest in Galen's suggestions. They concern a highly developed and sophisticated personal hygiene. The reader will also appreciate one of the concluding paragraphs "For, as I said, some men are greatly injured and some remain uninjured by the same thing until old age. These two classes are rare, however, those that are greatly injured and those that are never injured. But the intermediate range of more or less extends to the great majority of men. To the educated, therefore, for the rest will not read this, I recommend to observe by what things they are benefited and injured; for thus it will befall them to have little need of doctors, so long as they are well."

A brief but excellent account of the life of Galen by Dr. Sidney Licht is also invluded.

H. S. Mayerson, Ph.D.

From a Doctor's Heart: By Eugene F. Snyder, M. D., with a foreword by Paul D. White. New York, Philosophical Library, 1951. pp. 251. illus. Price $3.75.

The author of this book was born in Russia and after spending twenty-one years in Russia and Czechoslovakia he came to the United States just in time to escape the bloody revolutions in Europe. He found peace in the U. S., opened an office in Chicopee Falls, Massachusetts, and then narrowly escaped death from the No. 1 killer of the middle aged—coronary thrombosis. This book is the story of his experiences during and following his heart attack and is written from the heart, to the heart and about the heart. Dr. Snyder answers many questions pertaining to mental and physical health and points out the necessity of a search for all prophylactic measures and clues against the hazard of coronary heart disease. He also seeks to better human relationship throughout the world and touches on national, racial, and political problems of the day. In the book discussions between the author, his wife, who is also a physician and their teen-age son play a large part. This is an account of pain, despair, courage and hope well written from a personal standpoint.

Ruth E. Harlamert

PUBLICATIONS RECEIVED—

The C. V. Mosby Co., St. Louis: The Oculorotary Muscle, by Richard G. Scobee, B. A., M. D., F. A. C. S.; Studies in Visual Optics, by Joseph I. Pascal, B. S., M. A., O. D., M. D.; Synopsis of Genitourinary Diseases, by Austin I. Dodson, M. D., F. A. C. S.

W. B. Saunders Co., Phila.: Culdoscopy: A New Technic in Gynecologic and Obstetric Diagnosis, by Albert Decker, M. D., D. O. G., F. A. C. S.; The Treatment of Injuries to the Nervous System, by Donald Munro, M. D., F. A. C. S.

Charles C. Thomas, Publisher, Springfield, Ill.: Roentgenology in Obstetrics and Gynecology (2nd Edit.), by William Snow, M. D.; Rare Manifestations of Metabolic Bone Disease, by I. Snapper, M. D.; Battle Casualties, by Gilbert W. Beebe, Ph.D. and Michael E. De Bakey, M. D.

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INTERPRETATION OF THE SEROLOGIC TEST FOR SYPHILIS*

R. H. KAMPMEIER, M. D.†

NASHVILLE, TENNESSEE

Without fear of contradiction it may be said that the most difficult problem facing the physician in the field of syphilis is the interpretation of serologic tests as these relate to diagnosis. The blood tests are of inestimable value in determining the incidence of syphilis in the population and in case finding, particularly in that great majority of patients who are in the latent stage. However, in the evaluation of a positive reaction in the individual patient it loses its statistical feature and involves at times a nicety of judgment which taxes the physician to the utmost.

For more than a decade blood tests for syphilis have become commonplace in examinations for marriage, foodhandlers, and in industry. It is certain that no physician has escaped the problem of making the decision as to whether a positive reaction in a given person justifies a diagnosis of syphilis or whether it is a false positive test. It is a foregone conclusion that hundreds of thousands of persons have received antisyphilitic treatment because of one positive or doubtful test, a diagnosis of syphilis having been erroneous.

At the present time, the ease with which syphilis may be treated by penicillin and the relative innocuosness of such treatment has led to great carelessness in the proper evaluation of the positive blood test. I shudder at the flippancy with which doctors justify their course of action in the face of positive blood tests of unknown significance. Their reasoning so often follows a line I have heard expressed to me verbally, "Maybe the positive blood tests do not mean syphilis, but I don't know; and giving some penicillin isn't going to hurt the patient. So I am going to treat them." Such malpractice seems a simple answer, but the experienced physician will agree when I warn concerning the far reaching serious consequences of making a diagnosis of syphilis. Granted, in many there is no mental trauma, but the consultant who has interest in syphilis can cite example upon example in which the diagnosis of syphilis has left a mental scar which cannot be eradicated either by the passage of years or by the repeated reassurance of physician after physician. The embarrassment and guilt, and the phobia of possible late manifestations of syphilis, so frequently discussed in the lay press and magazines, are so impressive that many patients can never shake themselves loose from fear. After repeated negative spinal fluid examinations, some of these patients still go from doctor to doctor begging for "just one more" lumbar puncture in order to be reassured that no disease is present in the nervous system. Time and again, I have refused to perform another lumbar puncture after the patient has shown me negative reports from good laboratories. Time and again, one sees a patient who has been adequately treated for syphilis, or who

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possibly did not have syphilis, who goes from doctor to doctor, year in and year out begging for treatment saying, "I have bad blood and syphilis but never had very much treatment and want more treatment." (This occurs in the late latent, serofast syphilitic as well as in the ones who have had false positive tests.)

Since this is the picture, the diagnosis of syphilis must not be given lightly, to be shrugged off with penicillin which "will do no harm." It must be emphasized that it is not the treatment which does the harm,—it is the diagnosis which is the serious thrust. So often the patient who has the false positive test is not a promiscuous individual (he may have had only one sexual experience with a deep sense of guilt) and he is therefore least likely to shrug off the diagnosis of syphilis. Imagine then the results in such a patient who, having had a biologically false positive blood test and a diagnosis of syphilis, has received penicillin therapy. If it is an inherently false positive test which he carries with him all his life, and repeated tests are done he is almost certain to anticipate the late manifestations of syphilis and to feel that his treatment was ineffectual. If the patient had a false positive test because of intercurrent infection or other reason, which will appear later, and receives penicillin and subsequently is seronegative, he will carry with him always the fact that he had a diagnosis of syphilis. The moral connotation and guilt, even though the blood is negative, may be with him always.

It is quite obvious, therefore, that the physician who makes the diagnosis of syphilis on the basis of a positive blood test alone, without giving any thought to the patient's background, to his past history of promiscuity or absence of sexual exposure, the familial background and other factors, may be setting off iatrogenic disease from which the patient may never recover. The physician may thereby color the patient's life and actions for the remainder of his life. Marriage plans may be postponed; pregnancies may be avoided; anxiety states and psychoneuroses be established for life.

On the other hand, what of the status of the test in the patient who has syphilis. All too frequently a physician may disregard a doubtful test as being of no significance; whereas some careful history taking and physical examination may reveal that it is indicative of the presence of disease. This doubtful test properly evaluated may prevent future disability through treatment. It may give the clue to syphilis of the central nervous or cardiovascular system.

NATURE OF THE SEROLOGIC TESTS

There are two types of tests used in the serodiagnosis of syphilis. The first and original complement fixation test, the Wassermann reaction, is used as the Kolmer or Eagle modification. Years after the introduction of this reaction, flocculation reactions came into use because of their greater ease and rapidity of performance. These are the Kline, Mazzinni, Eagle, Hinton, Kahn, and VDRL tests. All tests for syphilis are dependent upon the use of an antigen prepared from beef heart and thus bear no relationship to the infecting organism. The several tests vary in the preparation of the antigen. The most recent addition to the group is the VDRL test (Venereal Disease Research Laboratory) utilizing the cardiolipin antigen which is supposed to have increased sensitivity without loss of specificity. The antibody of the blood which reacts with the antigen is not known; it has been designated for years by the term "reagin".

Kahn,[1] with current studies, may be on the road to clarifying the mechanism involved in the serologic tests for syphilis. He has found that all persons in health show a serologic response which he calls the *universal reaction* (present in all warm blooded animals). This universal reaction may undergo changes in the presence of disease and extraneous factors, such as the injection of foreign substances or by irradiation, returning to normal upon recovery. It seems the universal reaction is a lipid antigen-antibody reaction suggesting a sim-

ilarity between it and the serodiagnostic test used for syphilis.

Kahn feels that in normal catabolism lipids released from dying cells render them foreign or antigenic to the body. In health this catabolic process, with its antigenic lipids and the resulting antibodies, is constant, accounting for the consistent serologic pattern of an individual during health month after month. A pattern of lipid antigen-antibody reactivity is not limited to the serodiagnosis of syphilis, occurring also in malaria, yaws, leprosy, tuberculosis, and cancer. With improvement from disease the universal reaction changes more towards the normal pattern.

Tests for the universal reaction are set up similarly to the quantitative Kahn test except that the test is carried out with different dilutions of sodium chloride solutions. Precipitation results are read at the end of the test, again after refrigeration at 5°C, at four and at twenty-four hours. Normal individuals vary in the degree of precipitation in the various dilutions. Those individuals who have a tendency to false positive reactions in the tests for syphilis are persons who have universal reactions of marked degree. Thus, if an individual gives a precipitation in the universal reaction without incubation in the quantitative set-up with 0.9 per cent sodium chloride, a false positive reaction will appear when a serodiagnostic test for syphilis is done with this blood.

It is Kahn's belief that the Kahn antigen and alcoholic extract of beef heart contain many different antigenic lipids with which different antibodies may react, syphilitic antibodies reacting only with their homologous lipids, those of leprosy with theirs, and so on. The universal reaction, a new concept in the field of serodiagnosis, provides an understanding of both serologic testing and the false positive reactor.

In the evaluation of any test two features are to be considered,—(1) the sensitivity and (2) the specificity of a test. *Sensitivity* maye be defined as the percentage of true positive reactions in bloods of known syphilitic donors. *Specificity,* on the other hand, is that percentage of negative reactions on bloods from presumably nonsyphilitic persons. Laboratories using the same tests vary greatly in the results obtained. Under the auspices of the U. S. Public Health Service periodic nationwide evaluation of state laboratories along with the laboratories of the original investigators are carried out. In general the tests are found to be highly specific. Though it might seem that the incidence of false positive tests would be low, this is not true, since in this type of evaluation the nonsyphilitic bloods outweigh the syphilitic, and thus, the high specificity may be more reassuring than actual.

With increased sensitivity there is a loss of specificity. Kahn in emphasizing that high specificity is more important than sensitivity gives the following hypothetical example. If 40,000 hospital admissions had 1200 cases of treated or untreated syphilis among them, an increase of 1 per cent sensitivity would pick up 12 additional cases of treated or untreated syphilis. On the other hand, if there is a 1 per cent increase in nonspecificity there would be 400 nonsyphilitic patients who would be reported as positive. High sensitivity, therefore, indicates the shortcomings of the sensitive so-called "exclusion" and "presumptive" tests, which were advanced as screening only and not as diagnostic tests.

Usually flocculation tests are more sensitive than the complement fixation tests, though the latter are likely to be more specific. (Therefore more errors occur in the use of flocculation than with complement fixation tests.) With a small amount of antibody present a positive test is more likely with the flocculation reaction than a complement fixation test. There is a small group of patients, however, in which there is the paradoxical finding of a positive complement fixation test even though the precipitation test is negative. This occurs more often in the late or treated case.

Another fact difficult of understanding is the finding of a wide discrepancy at times in the results in several tests (as Kahn, Kline and VDRL) with the same

specimen of blood. This does not necessarily mean that the blood is falsely positive, and syphilis cannot be ruled out on this basis as is done by some physicians. Strongly positive bloods react with all antigens in the battery of tests. Nevertheless, in weakly positive sera as well as in falsely positive sera the results may be irregular. Thus some weakly positive syphilitic sera may react consistently with one or more of a battery of tests; whereas others may not react in this way.

Serial dilutions may be used in the evaluation of complement fixation and flocculation tests for *quantitative usage*. The quantitation of tests may be important not only diagnostically in syphilis, but also in the diagnostic evaluation of false positive tests. The quantitative tests also are of great value in the evaluation of short-term treatment as will appear below.

SEROLOGIC TESTS IN SYPHILIS

1. After the appearance of the *chancre* there is a phase during which the blood tests are negative, — the seronegative stage of primary syphilis, a time during which the lipid antigen-antibody reaction is at a subthreshhold level. (Here the darkfield examination is the diagnostic tool.) In most instances by the time the chancre has been present for about two weeks the blood tests will begin to become positive. At first the more sensitive flocculation tests become positive, to be followed some days later by positive complement fixation tests. Rarely, the blood may remain seronegative even as long as a month after the appearance of the primary lesion.

2. The *secondary stage* of syphilis is characterized by positive complement fixation and flocculation reactions in 100 per cent of instances, and with all tests if a battery of tests is used. The diagnosis of secondary syphilis cannot be made in the presence of repeated (to rule out laboratory error) negative blood tests no matter how certainly a rash may suggest secondary syphilis.

3. *Late syphilis* is not characterized by any consistency in blood tests either negative or positive, or on a quantitative basis. It is true that late benign lesions, such as gummas of bone, skin, and the like practically always show positive reactions both with the complement fixation and flocculation tests, though at times one may encounter a doubtful reaction in either or both. This is to be expected in light of Kahn's studies. Gummas, being accompanied by destruction of tissue, would be expected to liberate antibody stimulating lipids. On the other hand, in the presence of the minimal lesions of aortitis, negative blood tests are encountered not too infrequently, though pathologic studies in such instances may reveal active inflammation in the aortic wall. In the case of late neurosyphilis the reactions are variable. Tabes dorsalis notoriously is accompanied by negative serologic reactions in as many as a third of the patients consulting the physician because of clinical manifestations, and this in the absence of previous treatment. With the more widespread parenchymatous involvement of general paresis, one anticipates and finds almost universally strongly positive reactions for syphilis in the blood. During the early years of symptomless infection the reacting substance is present in such quantity that all the tests applied will be found to be positive. As the years pass and the titer drops, either the complement fixation or flocculation test or both are completely negative. As in tabes dorsalis and in cardiovascular syphilis, so too in late asymptomatic neurosyphilis, the blood may be negative though the spinal fluid is positive.

Table 1 summarizes what may be anticipated in the various stages of syphilis in positivity and in titer of the quantitative test, thereby expressing the degree of positivity which may be encountered as well as negative reactions. Diminishing titer commonly is progressive with the years. But in addition, it is shown that in manifestations of late syphilis, in which there is parenchymatous involvement and probably more tissue breakdown and liberation of antigenic lipids, the blood tests will be

TABLE 1
POSITIVE BLOOD IN UNTREATED SYPHILIS

CLINICAL STATE	PERCENT	KAHN UNITS (APPROXIMATE)
Seronegative primary	0	0
Seropositive primary	100	4 - 120 or more
Secondary, early	100	80 - 1280 or more
Secondary, late	100	20 - 240 or more
Early latency	100	20 - 80
Late latency	?	4 - 10 or more
Late benign	98	4 - 80
Cardiovascular	85	0 - 20
Neurosyphilis*		
Acute meningitis	100	as in secondary stage
Early asymptomatic	100	as in secondary stage
Late asymptomatic	?	0 - 120
Meningovascular	?	0 - 120
Tabes dorsalis	66	0 - 120
General paresis	98-100	40 - 120 or more

*The higher blood Kahn titers are present if the spinal fluid is "active" in terms of increased cells, elevated protein and first zone colloidal curve.

found to be of higher titer,—as in gummas of viscera and in paresis.

Treatment, of course, may modify the reactions a great deal. This is quite obvious in early cases and hardly needs mention, since everyone is familiar with the fact that adequate treatment in the primary or secondary case will eventuate in most instances in a negative blood. If therapy so controls the disease that there is no further stimulation to antibody formation the titer drops and eventually becomes negative. On the other hand, if the disease has been established for such a long period of time that antibody production has become constant, the blood may remain positive in spite of treatment (in possibly some 70 per cent of late cases) resulting in so-called serofastness. Of course it is well known by now that adequate treatment may eventuate in a good clinical result, in that the patient never develops late manifestations though the blood remains serofast. No further treatment is necessary in such cases since *one does not treat a blood test.*

In the days of prolonged treatment of syphilis, qualitative tests were adequate since the bloods of patients with early syphilis were found gradually to reach the negative level in from two to six or even more months after treatment was begun. After therapy was completed and seronegativity attained, one anticipated a 12 to 15 per cent failure rate in terms of serorelapse or infectious relapse. With the use of rapid treatment methods it is obvious that treatment is completed before antibody production ceases. Rapid treatment therefore demands a means whereby the clinician will know whether treatment has been satisfactory, and that the subsequent course of the patient is one of improvement or one of serorelapse. The quantitative evaluation of syphilitic blood thus became essential.

The seronegative primary case of syphilis should remain negative during treatment and subsequently. In some instances the blood may become positive for a brief period after the institution of treatment since some antibodies were formed. They would have led to a positive test very shortly; treatment probably set free more antigen and therefore stimulated a rise in antibodies. (See Fig. 1) Here, however, the blood should promptly return to a seronegative level. In seropositive primary and in secondary syphilis the definitely positive serologic tests should become negative, as in the days of chemotherapy, in six months more or less. If, subsequent to treatment, the quantitative tests reveal a constantly dropping titer, the physician may be satisfied. However, if he finds that the titer does not drop to low levels, the progress of the case is unsatisfactory and retreatment may be necessary. Another type of unsatis-

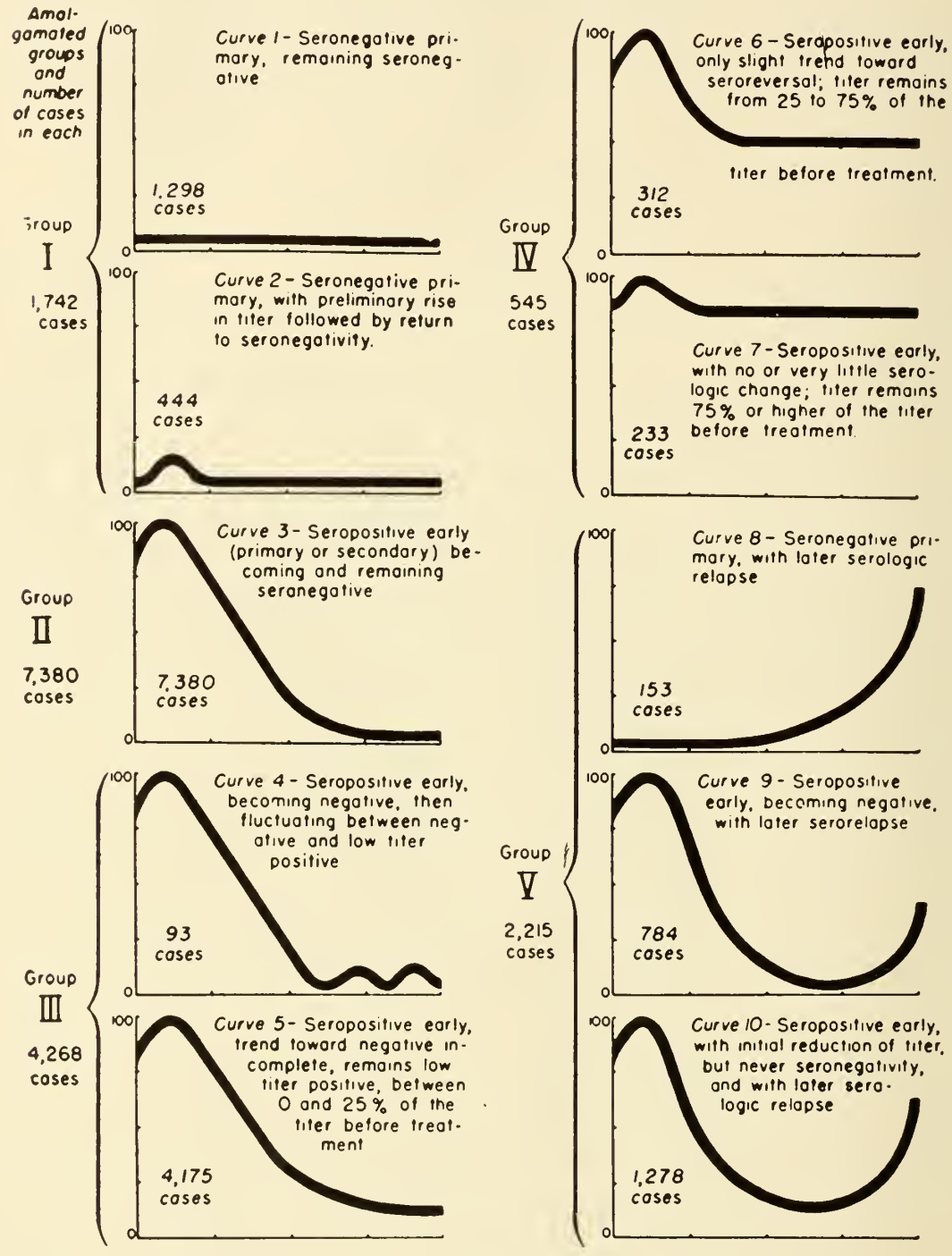

Figure 1.—From Symposium on Current Progress in the Study of Venereal Disease, U. S. Public Health Service, 1949.

factory response is one in which the blood level has either reached a negative level, or a low titer, and then begins to rise. This represents *serorelapse* and occurs probably in some 6 to 10 per cent of adequately treated cases of secondary syphilis. Figure 1 illustrates these items graphically, showing the serologic response in 16,150 cases studied in the Central Statistical Unit for cooperative study on the use of penicillin. (Our own cases studied at Vanderbilt University Hospital provide a portion of these cases.)

One phase of the serologic tests, in either the late untreated patient, or more commonly in the treated case, which bothers the clinician is the fluctuating results of blood tests from time to time. As the result of such fluctuation some patients unfortunately are unnecessarily re-treated, sometimes over and over and over again. By variation or fluctuation in the serologic test I mean that the patient occasionally may have a doubtful test, again a positive test and occasionally a negative test. This is very frequent in the treated syphilitic patient. For many years it was accepted that this probably represented varying amounts of "reagin" or antibody in the blood stream possibly dependent upon activity, now and then, in syphilitic foci. Though this may be true at times it probably is uncommonly so, and there are better explanations for such fluctuations in tests or titer.

It has been shown that these variations do not represent a fluctuation in antibody titer but actually are a reflection of the variations in antigen sensitivity which occur daily in the laboratory. This has been proven by such studies as splitting each sample of blood from a given patient taken over a six-month period, testing half of the sample at once and quick freezing the other half. At a later date all the frozen samples accumulated over a six-month period were tested at one time. Though the samples which were examined upon being drawn represented fluctuations from negative to positive, all those saved for six months and examined on one day consistently were either negative, positive or doubtful.

I would speculate on another possibility in light of Kahn's universal reaction. Recalling the pattern of the universal reaction of the potential false reactor and of the syphilitic patient, it seems very possible that, after improvement in the latter, though there is a drop in the reaction in the range of the 0.6 to 1.2 per cent sodium chloride concentration, he does not reach the normal level. It is here that intercurrent disease and other factors—(immunizations etc.) might cause a temporary rise of the lipid antibody to above the threshhold level where it will respond in the usual manner. In other words, it might represent a false positive test temporarily because of some intercurrent infection or other antibody stimulating factor. This would explain a fact long known, that antibody formation (anamnestic reaction) may occur in treated syphilitics under the stimulus of specific and nonspecific antigens,—foreign proteins, such as typhoid vaccine, milk, malarial parasites and even by the hypertherm.

FALSE POSITIVE REACTIONS

As was pointed out earlier, the serologic tests for syphilis are extremely helpful as a screening mechanism in mass surveys. When one applies the reaction to the individual patient, the problem at times is not nearly so simple. It is here that a doubtful or a positive reaction, in a person with no history of syphilis or clinical evidence of disease, offers the physician his most serious problem in the field of syphilis. I say this advisedly since it is a much more difficult matter to settle than are treatment, treatment reactions and diagnostic features in clinical syphilis.

This whole question actually was opened up only fifteen years ago when mass surveys began. The seriousness of this problem of the positive blood test is well shown in several studies. Zellermayer,[2] for ex-

ample, in a study of 5,000 army inductees with a diagnosis of syphilis on the basis of positive blood tests reclassified 570 or 11.4 per cent as being nonsyphilitic. A positive blood test had been present in these cases and subsequent study eventually revealed consistent seronegativity. Shaffer[3] found in a group of 150 military separatees, without a history of syphilis or antisyphilitic therapy, no evidence of syphilis except a positive blood test at the time of discharge. He proved 43 per cent as being nonsyphilitic, 40 per cent continuing to show conflicting tests. In only 17 per cent could he establish a diagnosis of syphilis. Similar reports came from other students of the disease. Stokes and James[4] point out that biologic false or nonspecific positives may approach 40 per cent in a series of routine positive tests, though probably make up only 1 in 700 of serologic surveys including negatives as well as positives.

False positive tests may be encountered for a variety of reasons.

1. *Errors in technic.* As long as human beings handle, label and identify blood specimens and the results of tests there will be errors. In any clinic where numbers of bloods are drawn, it is almost certain that at some time the blood sample and the requisition slip will be mismatched. In the laboratory there are technical errors which should not, but are almost certain to, occur at one time or another. Glassware not chemically clean may be a cause of false positive tests. More commonly they are a reflection of the technician's errors in reading results. This is especially true of beginners who tend to report more doubtful tests since they fear they may not recognize frankly positive reactions. Then there is the potent source of error which results from the antigens themselves, since batches of antigen vary one from the other.

2. *False positive tests in normal persons.* From the discussion of Kahn's universal reaction, it was learned that all warm-blooded animals have a positive reaction in sodium chloride concentrations which are utilized in doing the Kahn test. Furthermore, a certain proportion of human beings have higher reactions in certain concentrations. Thus it is quite obvious that an occasional person will give a reaction with the saline concentration used in performing the routine tests, and it would seem that such an individual would need only a slight stimulus of infectious or of other nature to accentuate his reaction in the critical salt dilution. It is fortunate for the value of the serologic test for syphilis that those persons who are potentially false reactors constitute a small percentage of the population. This may even be a familial trait.[5] It is estimated from past studies that this group may be as small as less than 1 per cent of the population. However, the fact that such biologic false positive reactions do occur must be in the physician's mind, when he is faced by a positive reaction in an individual who is otherwise healthy and whose history reveals no possible exposure to syphilitic infection.

Case No. 1.—A 29 year old nurse had the following findings: From 1936 to 1939 she had negative tests every six months, required at place of employment. In 1940 at the Mayo Clinic the Kahn, Kline, Hinton were positive. The spinal fluid was negative. At Vanderbilt University Hospital the following were found:

	WASSERMANN	KAHN
September 1944	Pos.	Dbtf.
October 1944	Neg.	Dbtf.
October 1944	Pos.	Dbtf.
March 1945	Neg.	Neg.
March 1945	Dbtf.	Dbtf.
November 1945	Pos.	Dbtf.
November 1945	Pos.	Dbtf.

In October 1944, Kahn's Laboratory reported the verification test as "general biologic—false positive".

Comment. The patient was classified as having biologic false positive tests.

Case No. 2.—A 19 year old white woman gave no history of syphilis, or of premarital or extramarital exposure. There were no stigmata of congenital syphilis. Her 12 siblings and the parents were living and well. The following tests were obtained on the ward and in the clinic of Vander-

bilt University Hospital. Antisyphilitic therapy was never used.

	Wassermann	Kahn
January 28, 1944	Neg.	Neg.
May 2	Neg.	Neg.
October 10	Neg.	Pos.
	Healthy child born	
December 2	Neg.	Pos.
December 12	Neg.	Pos.
January 3, 1945	Neg.	4 units
January 13	Neg.	Pos.
February 2	Neg.	Pos.
February 2		Pos. (Tenn. State Lab.)
February 22	Neg.	4 units
March 29	Neg.	4 units
April 19	Neg.	Pos.
May 17	Neg.	Pos.
Verification test—"False positive" (Kahn's Lab.)		
July 19	Neg.	Pos.
October 9	Neg.	Neg.
October 9		Neg. (Tenn. State Lab.)
February 9, 1946	Neg.	Dbt.
June 6	Neg.	Neg.
June 20	Neg.	Dbt.
November 21	Pos.	3 units
February 20, 1947	Neg.	0 units
April 10	Neg.	0 units

Comment. This is an example of an inherent biologically false positive test.

3. *False positive tests in nonsyphilitic diseases.* In the routine use of serologic tests for syphilis in persons who are ill, it must be constantly in mind that the disease process in itself may be the cause of a false positive test. Major diseases which can give false positive tests in most instances distinguishable from the *T. pallidum* morwill fall into the protozoan or viral groups. Rickettsial infection (typhus) may also lead to seropositive tests, but bacterial infections rarely do so. In addition there are a number of miscellaneous pathologic conditions which may provoke a false positive test.

Diseases due to protozoan infection. Three diseases, having positive tests for syphilis, found in the tropics but of no interest to the physician within the confines of the United States are yaws, pinta, and bejel, each due to a spirochete which is inphologically. Two other tropical diseases, kala-azar and trypanosomiasis, also may show positive reactions.

In this country there are several protozoan diseases which, though not common, may be encountered by any of us in our practice at some time. *Relapsing fever* is a spirochetal disease occasionally encountered in some sections of the country; positive reactions occur in a large percentage of instances. Weil's disease, or *spirochetal jaundice,* is another encountered more frequently in our practice and showing a high incidence of false positive tests. Similarly, positive tests have been reported in *rat-bite fever* whether due to the *Spirillum muris* or to the *Streptothrix muris-ratti* (not protozoan).

A protozoan disease of greater significance to us in the South is that of malaria which has been shown repeatedly to give rise to false positive reactions. This was first clearly recognized in 1939 and confirmatory evidence was supplied by the vast experience with malaria in the armed services in the Pacific during World War II. A controversy as to whether malaria might be the cause of false positive tests was definitely settled by those studies. Rosenberg[6] showed that mixed infections with *P. falciparum* and *P. vivax* gave the highest incidence of positive tests, and that the most consistent, clearcut serologic reactions occurred in from seven to ten days after the first paroxysms. He found that positive tests might persist from four to six weeks after the onset. The frequency of such false positive tests reported in several series varied from 20 to 30 per cent of active cases. The point to be emphasized is that the false positive reactions are encountered only in *active* malaria, and are lost when the infection loses its clinical manifestations. In other words, a false positive test as the result of malaria is *not* a lasting abnormality. Therefore, the presence of positive reactions in a person giving a history of malaria in the past does not invalidate their importance as probable evidence that syphilis is present.

Diseases of viral origin. It is in this group of diseases that the false positive tests for syphilis are probably encountered most frequently and which present the most pressing problem to the physician, since they are so universal. Attention was first

attracted to this group by studies in 1937 or 1938 in which false positive results were encountered in groups of young persons. (Actually it was these findings which led to the study of false positive tests for syphilis and the growth of our knowledge on the subject in the last fifteen years.) In certain student health services of large universities in the North it was found that positive tests temporarily appeared in some young persons. At about the same time Rothbart[7] reported 12 instances of children who had for a time false positive tests and in whom the parents were negative. It is very probable that these false positive tests which were first recognized in young people were related to intercurrent viral diseases.

Case No. 3.—A 33 year old physician sustained a puncture wound of the finger in March 1946, while operating on an untreated syphilitic who had had a recent rash. On August 10, 1946, he developed pharyngitis and malaise lasting four days. As a donor for blood, a positive Kahn was found on September 6, 1946. On October 25, 1946, he noted cervical lymphadenopathy. PBO 300,000 units were given on November 3 and 5. Heterophile tests were negative as were blood smears. During November he had herpetic stomatitis; in December erythema nodosum. Serologic tests were as follows:

	Wassermann	Kahn	Kahn (State Lab.)
Oct. 30, 1946	Pos.	Pos.	
Nov. 21	Pos.	40 Units	80 Units
Nov. 27	Pos.	120 U.	40 U.
Dec. 4	Pos.	160	40
Dec. 16	Pos.	80	20
Dec. 27	Pos.	80	20
Jan. 14, 1947	Pos.	20	4
Jan. 30	Pos.	4	4
Feb. 11	Neg.	Neg.	3
Feb. 27	Pos.	4	4
Mar. 18	Pos.	4	10
June	Neg.	Neg.	
Aug.	Neg.	Neg.	

The blood has been consistently negative since the summer of 1947.

Comment. Did this physician contract syphilis d'emblée in March, 1946? If so he escaped secondary manifestations, for the pharyngitis in August and cervical lymphadenopathy of October appeared too late to represent secondary syphilis. Furthermore, 600,000 units of penicillin in beeswax and oil would not reverse the blood in well established early syphilis. It seems instead that this physician was suffering almost constantly all fall with viral disease of one type or another.

Case No. 4.—A 22 year old white woman was admitted in childhood to the Pediatric Ward of Vanderbilt University Hospital in 1938. At this time the Kahn test was negative. She married in July 1949; premarital tests on both spouses were negative. She was divorced a year later. There were no premarital exposures. Coitus occurred once with her ex-husband in July 1951. On November 26, 1951, appendectomy was done at Vanderbilt University Hospital and 600,000 units of penicillin were given postoperatively from November 26 to 28. Because the Kahn test was positive she was followed in the syphilis clinic where serologic tests were reported as listed below.

On Dec. 14, 1951, spinal fluid examination was negative.

Comment. This represents temporary false positive tests. If she had acquired syphilis from her ex-husband in July 1951 she would have had well established syphilis by November which would not have responded to 600,000 units of penicillin in so short a time. Futhermore, the Wassermann test was never positive. The appendix showed little acute inflammation. Did she have some type of viral infection manifested by fever and abdominal symptoms?

Of the group of viral diseases the one most notoriously accompanied by false positive tests has been *infectious mononucleosis.*

Case No. 4	Wassermann	Kahn	VDRL	Unknown test
Nov. 26, 1951		Pos.	Neg.	
Dec. 10				Pos. (Georgia State Lab.)
14	Neg.	Dbt.	Pos.	
22	Neg.	Dbt.	Neg.	
29	Neg.	Dbt.	Neg.	
Jan. 4, 1952	Neg.	Dbt.	Neg.	
26	Neg.	Dbt.	Neg.	
Mar. 22	Neg.	Neg.	Neg.	

Case No. 5.—A 22 year old white Vanderbilt medical student was admitted to the hospital in January 1939, because of severe infectious mononucleosis. His serologic course was as follows:

	WASSERMANN	KAHN
1937 (Clinic)	Neg.	Neg.
1938 Hospital	Neg.	Neg.
1939 Hospital		
Jan. 18	Neg.	Dbt.
24	Pos.	Pos.
25	Pos.	Pos.
29	Pos.	Pos.
Feb. 6	Neg.	Dbt.
Mar. 7	Neg.	Neg.
Apr. 15	Neg.	Neg.

Comment. Consistently positive complement fixation and flocculation tests due to infectious mononucleosis.

This is very important since the clinical manifestations of the disease may superficially suggest secondary syphilis. With sometimes mild to moderate constitutional symptoms of fever, arthralgias, generalized aching and the like, a generalized lymphadenopathy, at times a macular rash, sore throat, a palpable liver and spleen and positive blood tests,—what more could be desired for a diagnosis of secondary syphilis in a young man? Bernstein[8] first called attention to the matter in 1938. Since then infectious mononucleosis has been well studied from the standpoint of false positive tests, and many papers have appeared on the subject. In various series it has been found to be associated with false positive tests in from 10 to 60 per cent of cases. Since in false positive tests there is great variability from day to day, this great discrepancy in the incidence may readily be understood. If serologic tests are done frequently during the course of infectious mononucleosis, a higher incidence of false positive tests will be found than if the test is only done once or twice in a given case. Incidentally the false positive reaction bears no relationship to the heterophile agglutination reaction, at times appearing before the agglutination test becomes positive and at times being absent while it is still strongly positive.

Another viral disease of importance is *vaccinia*. The occurrence of false positive tests in those having vaccinia first became known in 1940.[9] Subsequent studies, particularly in the Army during World War II, have indicated the importance of this disease as the cause of false positive tests. In some 10 to 15 per cent of those having "takes" following vaccination for smallpox there will develop positive or doubtful reactions with the flocculation tests for syphilis. In those in whom vaccinoid reactions occur the incidence of positive tests is less. Occasionally false positive reactions may be encountered in closely related viral diseases such as the herpetic ones.

Viral pneumonia. In the past fifteen years, since the recognition of first so-called "atypical pneumonia", now recognized as pneumonia of viral origin, there has come the knowledge that this type of viral infection may be accompanied by false positive tests for syphilis. (This was recognized in 1932 in Sweden.) Clifton and Heinz[10] called attention to false positive tests during upper respiratory infections in infants. Many papers on false seropositivity have appeared subsequently. The incidence of false positive tests in this disease is found to be about 20 per cent.

Case No. 6.—A 21 year old white student nurse developed viral pneumonia. Her blood tests at Vanderbilt University Hospital were:

	WASSERMANN	KAHN
Nov. 14	Pos.	Pos.
19	Pos.	200 units
22	4+ in 0.005cc	240+ units
Dec. 1		120 units
17	Neg.	2 units
28	Neg.	Neg.

Comment. False positive tests for syphilis due to viral pneumonia. No antibiotics or other drugs were used. The high titers are most unusual.

Case No. 7.—Mrs. D, a 34 year old white woman had been followed on the Vanderbilt University Hospital wards and in the clinics from 1937 to 1950, mainly for pregnancies and delivery. Wassermann and Kahn tests were negative in 1937, 1942, 1944, 1945, 1947, 1948, 1949. She was admitted to the medical ward, January 17, 1950, because of chest pain, cough, bloody sputum; temperature 100.4°; white blood cells 8000; x-ray diagnosis—"bronchopneumonia, left base." From January 17 to 21, she received 2,900,000 units of penicillin. Because of positive blood tests she was referred to the syphilis clinic. The following is the serologic course. No further treatment was given.

	Wassermann	Kahn (VUH)	Kahn (State)	VDRL
Jan. 17, 1950	Pos.	Pos.		
20	Pos.	120 units	20 units	
Feb. 3	Pos.	120 U.	2 U.	
11	Pos.	4 U.	Dbt.	
Mar. 6	Pos.	Dbt.	Neg.	
Apr. 1	Pos.	Dbt.	Neg.	
May 20	Dbt.	Neg.	Neg.	
Aug. 12	Neg.	Neg.		
Nov. 4	Neg.	Neg.		
Dec. 9	Pos.	Neg.		Neg.
Mar. 10, 1951	Neg.	Neg.		Neg.
May 5	Neg.	Neg.		Neg.
Oct. 20	Neg.	Neg.		Neg.
Mar. 8, 1952	Neg.	Neg.		Neg.

The husband, a patient in the Vanderbilt University Hospital Diabetic Clinic for years had negative Wassermann and Kahn tests in 1943. He was brought in for tests because of his wife's findings on February 17, 1950, and was found to be negative, as well as in July 1950, and June 1951.

Comment. Did this woman have syphilis with seronegativity as the result of penicillin given for pneumonia? If so, it would represent a very rapid response. It is probable that this stable mother of several children, who denied extramarital exposures, and whose husband denied the same and was seronegative, had false positive tests due to viral pneumonia.

Mumps and Measles. There is accumulating knowledge that false positive tests may occur in these diseases. Chicken pox has been accompanied by positive tests for syphilis.

Case No. 8.—An 18 year old negress was admitted to the Vanderbilt University Hospital ward on May 26, 1941, because of oophoritis and leptomeningitis due to mumps. Serologic course was as follows:

	Wassermann	Kahn
1928 (Clinic)	Neg.	Neg.
1935 (Hospital)	Neg.	Neg.
1941 (Hospital)		
May 26	Dbt.	Pos.
27	Dbt.	Pos.
27 (Spinal fluid)	Neg.; Cells 216; Glob. Pos.	
29 (Spinal fluid)	Neg.; Cells 52; Glob. Pos.	
June 6	Neg.	Pos.
17	Neg.	Pos.
20	Neg.	Dbt.
24	Neg.	Pos.
July 14	Neg.	Neg.
Aug. 18	Neg.	Neg.

Comment. False positive tests due to viral infection (mumps).

Lymphopathia Venereum. Here is a viral disease which is of particular interest to physicians in the South because it is limited almost entirely to the colored race. Furthermore, it is important to recognize that falsely positive tests may occur in a disease usually beginning as a genital infection. The genital lesion, inguinal adenopathy, before it breaks down, and a positive serologic reaction certainly sets the stage for the diagnosis of syphilis. I recall now that fifteen years ago, before the extent of our present knowledge of false positive tests, I treated a couple of patients with positive tests in the presence of lymphopathia venereum with the idea that they probably had latent syphilis also; subsequently these patients developed darkfield positive syphilis.

Leprosy. This is the only bacterial disease not uncommonly attended by false positive tests. It has been shown that in as high as from 30 to 60 per cent of cases the blood tests may be positive. And curiously enough it is the complement fixation test which is more likely to be falsely positive than the flocculation test.

Miscellaneous Conditions. A number of other conditions coming to the attention of the physician may be associated with false positive tests. During World War II, it was found that "booster" doses of tetanus toxoid may be followed by false positive flocculation tests for syphillis.[11] This does not occur with the original immunization with the toxoid. False positive tests have also been reported occasionally in patients who have received horse serum antitoxins and also immunization of one type or another.

Month	Laboratory	Wassermann	Kahn	Kline	Unknown Test
March	State	Dbt.	Neg.	Pos.	
April	State	Neg.	Neg.		
June	Private				Pos.
June	Private				Pos.
August	State	Dbt.	Neg.	Pos.	
	Spinal fluid negative.				
October	Vanderbilt	Neg.	Neg.		
October	Vanderbilt	Neg.	Neg.		
October	State		Neg.		
December	State		Neg.		
December	Vanderbilt	Neg.	Neg.		

Case No. 9.—A 28 year old physician, health officer, was immunized for yellow fever. He had had negative tests for five years. A list of his blood tests is given above.

Comment. False positive tests due to immunization against yellow fever.

The diseases characterized by *hyperglobulinemia* have been shown at times to be accompanied by false positive tests, particularly of the flocculation variety. In disseminated lupus a variable per cent of patients have false positive tests. Occasionally Boeck's sarcoid, multiple myeloma, and portal cirrhosis also have been shown to have positive tests.

Case No. 10.—Mrs. A. B. was a 49 year old white woman who gave a three-year history of recurrent skin lesions of the face, neck and arms, of recurrent swelling of joints, general malaise and weight loss, and of febrile periods. There was no history of acute syphilis. Three pregnancies terminated in the birth of well infants. Her husband, age 40, was seronegative. A son, age 14 was seronegative. Biopsy of skin:—lupus erythematosis.

	Wassermann	Kahn	
Aug. 27, 1941	Pos.	Pos.	(Serum albumin 2.82 gm. %)
Aug. 29	A.C.	Pos.	(Serum globulin 4.20 gm. %)
Nov. 21	A.C.	Pos.	
Jan. 23, 1942	Pos.	Pos.	

On September 1, 1941 the spinal fluid was negative. There was no change in the clinical course under bismuth therapy.

Comment. False positive tests due to lupus and possibly the hyperglobulinemia. The anticomplementary Wassermann tests should be noted.

Case No. 11.—A 50 year old negress was observed because of Laennec's cirrhosis with hyperglobulinemia. The history was negative for syphilis. A number of children were seronegative. The serologic findings were the following:

	Wassermann	Kahn	Serum Globulin
April 12	Anticomp.	Pos.	4.12 GM.%
17	Anticomp.	Pos.	4.42
May 7	Anticomp	Pos.	4.4.
15	(State)	Pos.	
July 20	Anticomp.	Pos.	
26	Anticomp.	Pos.	
Nov. 7	Pos.	Pos.	
22	Pos.	Pos.	

In October the spinal fluid was negative.

Comment. The persistently anticomplementary Wassermann reactions accompanied by positive flocculation tests in the presence of hyperglobulinemia point to false positive tests for syphilis.

At the conclusion of the last World War it was divulged that in some clinics, blood donors after repeated donations developed temporary seropositivity. This finding was denied in other clinics where similar studies were made.

CHARACTERISTICS OF FALSE POSITIVE REACTIONS FOR SYPHILIS

From the foregoing discussion it is quite obvious that a physician will find among his patients at times individuals who have false positive tests. It may be said by a physician that he has never encountered these circumstances. But he must recall

how infrequently he has done blood tests for syphilis at a time when a positive test might be anticipated. All of us have treated malaria, infectious mononucleosis, viral pneumonia, and the like without having these tests done. It is only by studies as carried out in the Army, in teaching and in other large hospitals, that the incidence of false positive tests in diseases other than syphilis has been brought to light. The significant thing, however, for the practitioner is to recognize *that these circumstances do exist*. In those instances in which a blood test is done on one of his patients during the course of some disease and is returned positive, he must ask himself, "Does this represent syphilis, or is it due to the disease for which I am treating him at the moment?" Since every physician will encounter such circumstances at some time (these will occur much more frequently with the increasing trend to hospital practice) he must be aware of the characteristics of the false positive tests. The following generalization may be stated:

1. The inherently biologic false positive test (of Kahn's high titer universal reaction type) is a normal pattern which will be with the patient all his life.

2. Positive reactions due to the diseases mentioned usually appear from seven to twenty-one days after the onset of the disease. This suggests that a positive reaction of blood taken on the first or second day of the disease probably is not related to the disease in question.

3. In general there is a great tendency to fluctuation in the degree of positivity in the false positive case. Instead of being consistently positive or of a consistent titer, the pattern is more likely to be, on successive blood tests made at one or two-day intervals, a doubtful, a positive, a negative, a positive, a doubtful and so on. If quantitative tests are done, great fluctuations in titer appear from day to day. This explains, as was commented upon earlier, why the incidence of false positive tests varies so greatly as among different series of cases. For example, if a physician limits himself to a Kahn or other test, in infectious mononucleosis on the first day he sees the patient, he will not find the 40 to 50 per cent incidence of false positive tests which others have found upon doing tests daily or every other day.

4. In practically all instances the false positive test will not persist for more than ninety, or at most one hundred and twenty days. This fact emphasizes the point that if there is a strong suspicion that a positive test during the course of an acute disease may be falsely positive, antisyphilitic treatment should not be begun. Instead the patient's course should be followed to the point of spontaneous seronegativity.

5. In general, the false positive tests are of lower titer than would be expected in syphilis. This statement cannot be made without qualifications. Thus Case No. 6 is an instance to the contrary. (On the other hand, late latent syphilis, as we have shown, is characterized by a test of low titer, especially in the person who has had syphilis of many years' duration.)

6. As has been indicated, the false positive tests are more likely to be encountered with the more sensitive tests, the flocculation tests, and less commonly with the more specific complement fixation tests. Therefore, the more common finding is a positive Kahn, VDRL or Kline test and a negative or an anticomplementary (no antigen in the tube) Wassermann test. Another point of importance is that if a battery of flocculation tests is utilized for testing in these cases, one will find a less consistent pattern of positivity than in syphilis,—that is, there may be negative, doubtful or positive results scattered among the tests rather than consistent positivity in each of the tests.

To date there is no serologic test which is a dependable test in terms of unquestioned specificity or sensitivity. The VDRL test is supposed to be more sensitive and more specific but cannot be expected to be free of false positive reactions as was shown in the 1949 National Serologic Evaluation Survey.[12] Careful studies have been going on for a decade by Neurath on serum fractionation in the hope of separating the syphilitic from the false positive sera. Act-

ually to date the only method of proving that a positive test is due to syphilis is the use of a laboratory technic so limited in its use that it can only be used in experimental work at the present time. This is the immobilization test of Nelson, whereby the actual *T. pallidum* is immobilized by the serum of a person infected with syphilis. Since the organism cannot be grown, it involves the use of many infected animals in order to have sufficient treponemata available for such a test.

THE DIAGNOSIS OF SYPHILIS BASED ON SEROLOGIC TESTS

Thus it appears that the interpretation of doubtful or positive tests for syphilis, in persons having no history or clinical evidence of syphilis, presents a most troublesome problem to the doctor.

Moore[13] points out that on clinical grounds a physician is certainly justified in suspecting a false positive reaction if it appears in one of at least two groups of patients. The first consists of young girls or women with no history of syphilitic infection, and who show no evidence of acquired or congenital disease, and who have not been demonstrably sexually exposed, as in the case of virgins, for example. The second group are those of any sex or age who give no history or physical evidence of syphilis, and who have positive tests for the first time after having had previously negative tests, and who have had no exposure in the interim.

In addition one can certainly say that a physician is justified in suspecting a test to be falsely positive in a patient who lacks historical or clinical evidence of infection or treatment, and who has doubtful or weakly positive tests with conflicting results with different techniques or in different laboratories. This is more applicable to *younger* individuals, in their teens, twenties, or thirties. It is admitted, as indicated previously, that persons with syphilitic infection of duration for decades may have this type of serologic response, but they fall in an *older* age group.

Since it is obvious that the physician must be ready to question positive tests for syphilis, he must approach the problem with a definite plan. This should include the following items depending upon circumstances.[13]

1. A careful history is of course important in terms of intercurrent or recent infections, vaccination for smallpox, "booster" doses of tetanus toxoid and other types of therapy of a biologic nature, such as sera.

2. A careful physical examination which might give information of acute infection, particularly with reference to lymph nodes, spleen, and lungs.

3. If there is any reason to suspect the possibility of malaria, for geographic reasons, a thorough search of blood smears for malaria is essential.

4. Study of blood smears for evidence of infectious mononucleosis and the test for the heterophile antibodies is essential. (This is especially true in younger persons.)

5. The repetition of serologic tests for syphilis using several different techniques, that is, a battery of tests, including both complement fixation and flocculation tests, should be helpful. This is particularly true if quantitative tests are also carried out.

6. The tests should be repeated numbers of times. It is worthwhile to use different laboratories if one has some question about technical abilities available in a given laboratory.

7. If congenital syphilis is a possibility, as in some young persons, the examination of other members of the family may be most helpful. Of course if there has been sexual exposure, the sex contacts should be investigated, if possible.

8. Examination of the cerebrospinal fluid can be most helpful, since the incidence of false positive tests in the spinal fluid is negligible. *A positive spinal fluid reaction therefore is strong evidence for syphilis.*

9. Certainly it is apparent that *antisyphilitic treatment must be withheld until a diagnosis of syphilis is established.* I wish to emphasize again the importance of this statement, even though many physicians consider penicillin an innocuous method of treatment that will do no harm. I again

wish to emphasize that the psychic trauma of making a diagnosis of syphilis is something which must be avoided. If antisyphilitic treatment is carried out, and subsequently the blood becomes spontaneously negative, having been falsely positive, the patient will always carry with him for the remainder of his life the mental scar that he has had syphilis and was treated for it.

One may approach the problem from a *positive* viewpoint somewhat as follows,—given a patient who has had the opportunity of acquiring syphilis but presenting a negative history for it or previous antisyphilitic treatment, and presenting on physical examination no evidence for syphilis, and in whom a negative spinal fluid is found. It also is assumed in this case that examination of family or sex contacts was either negative or they were unavailable for examination. Furthermore, it is assumed that the history and examination reveal none of the diseases or conditions which might give rise to a false positive test. It is also assumed that no negative tests have been reported by a reputable laboratory in recent years.

1. The presence of persistent and repeatedly positive reactions in both the complement fixation and flocculation tests then are accepted as making the diagnosis of syphilis and treatment then is given. (By *persistently* and *repeatedly* I mean the taking of blood tests for weeks or months as may be indicated in the given case. In this type of case one obviously is not dealing with acute or infectious syphilis, and if one is dealing therefore with latent syphilis no emergency is present which requires the immediate establishment of the diagnosis and antisyphilitic treatment.)

2. If the flocculation tests are persistently and repeatedly positive and complement fixation tests are doubtful, they are considered to represent syphilis if the patient has admitted to repeated sexual exposure.

3. Persistently and repeatedly positive flocculation tests with negative complement fixation tests are accepted by us as indicating the presence of syphilis in persons who have been sexually promiscuous for many years. This implies that with the passage of years the complement fixation test may have become negative, the flocculation test remaining positive. This suggests that one is dealing with persons who, having been promiscuous, might have been infected twenty or thirty years before. (These circumstances would not obtain in persons of such an age group that they would have been infected within the previous ten to twenty years. In such instances the complement fixation test would also be positive.)

4. In the presence of fluctuating flocculation tests and with negative, or possibly an occasional doubtful complement fixation test, the test can not be accepted as indicating syphilis.

It is apparent that no set of rules can be established which will cover all circumstances. These rules for evaluating the serologic tests for syphilis are suggestions *only*, and each practitioner must in the end use his own clinical judgment in the individual case in arriving at a decision. This is as true of the interpretation of the test for syphilis as of the "nonfilling gall bladder," the electrocardiogram with minor ST-segment or T-wave changes, and the like. In all these the ancillary methods of diagnosis must be correlated with the patient's history and physical examination. Clinical judgments can only be based upon a full knowledge of the biology of the syphilitic infection and the serologic changes related to it.

CONCLUSIONS

Though the serologic tests for syphilis are of inestimable value in mass surveys, positive reactions, in a goodly percentage, may not be indicative of syphilis. The past decade has shown an increasing and accumulating knowledge of the factors which may cause false positive tests. *Since the treatment of syphilis should mean the treatment of a disease and not the treatment of a blood test*, careful study is required in the evaluation of any positive test in the absence of overt manifestations of syphilis. *Treatment must be withheld until the diag-*

nosis is established. The psychoneuroses and anxiety states resulting from a diagnosis of syphilis are second to none in severity and far-reaching effects.

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MEDULLARY FIXATION OF FRACTURES OF THE LONG BONES*

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Medullary fixation of the long bones was first attempted many years ago, only to be discarded for other methods, for reasons which are not entirely clear at this time. During the past ten years the method has been improved and standardized, until at present it is regarded as a sound and comparatively safe procedure, commonly employed by orthopedic surgeons in many parts of the world.

Medullary fixation by pin or nail combines four principles of fracture treatment which, particularly in fractures of the femur, cannot be accomplished as well by any other means:

1. Simplicity, adaptability, and safety to the patient during application of the technique.
2. Accurate reduction of the fracture.
3. Good, reliable, anatomical reduction of the fragments, with dependable maintenance of position, without distraction, and with provision for impaction of the ends of the fragments through exercise and weight bearing.
4. Early postoperative use of the muscles and joints, and early weight-bearing.

In fractures of the femur, medullary fixation has notable advantages. As external fixation, traction, splints, plaster casts, or bed traction are not required postoperatively in most cases treated by this method, frequently, the patient may begin actively moving the part on the second or third postoperative day. When medullary fixation of the femur is accomplished soon after the occurrence of the fracture, exercise of the limb with full range of motion in all joints of the extremity may be undertaken in bed on the first or second postoperative day. In other cases, bed exercises may be started between the third and seventh days, depending on the needs and limitations of the individual patient. It is desirable for many to begin ambulation with crutches on the fifth or sixth day, and light weight-bearing with crutches after the seventh or eighth day. Thus, the usual muscle wasting and atrophy are avoided, and the possibility of joint fibrosis, or stiffness, is eliminated. The function of the limb is fully maintained while healing takes place, and the early weight-bearing with support (such as crutches) causes impaction of the ends of the bones, which actually hastens healing.

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The enormous benefits and advantages to the patient are self-evident.

Medullary fixation is less strongly indicated in fractures of the other long bones, but may be quite usefully employed under certain circumstances described later herein.

Successful application of the technique in all cases is dependent upon care in the selection of the patient, accuracy in the preparation of materials, proper surgical procedures for insertion of the nail, and appropriate postoperative management. Conservatively and carefully handled, this method is as safe, or safer, than other methods for the treatment of fractures in normal, or abnormal bones.

The purpose of this presentation is to summarize our experiences in treating fractures by means of this procedure since we first employed medullary fixation early in 1947, in a case of nonunion of a fracture of the femur.

Fig. 1A—Fracture of the femur through upper third of shaft in above-knee amputee.

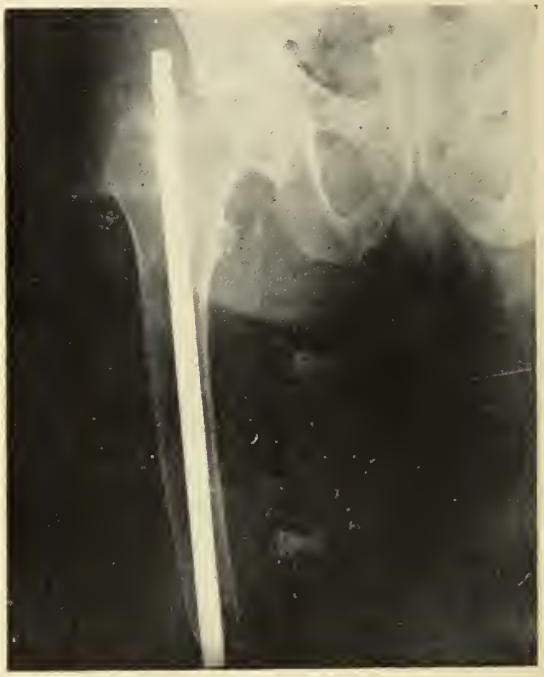

Fig. 1B—Same case postoperatively. Fixation of fracture of the femur in above-knee amputee, with Kuntscher nail.

MEDULLARY FIXATION FOR FRACTURES OF THE FEMUR

The advantages of medullary fixation in treating fractures of the femur have been most clearly demonstrated in those patients with whom other methods have failed. The technique has been extremely beneficial in cases of malunion, delayed union, and nonunion of the femur, with or without loss of portions of the shaft. It has been equally useful in patients for whom bone plates and screws, or bone grafts, had been unsuccessfully employed.

Medullary fixation has been successfully utilized in many cases of pathological fractures of the shaft of the femur caused by primary bone disease, such as osteogenesis imperfecta, bone cysts, fibrous dysplasia, or Paget's disease.

The method has been used with equal success in metastatic carcinoma and other generalized diseases. Fractures through metastatic carcinomatous lesions have undergone bony union following medullary fixation and supplementary radiation.

Medullary fixation has been used to great advantage in fractures of the femur in below-knee, or above-knee, amputees (Figs. 1A and 1B, and 5A and 5B.) This obviates the necessity of plaster cast immobilization and allows free joint motion and early use of the prosthesis.

The advantages of the technique in fixa-

Fig. 2A—Femoral shortening operation on 16 year old male, showing fixation with Kuntscher nail, and chip grafts obtained from 1 5/8 inch of bone removed. (For equalization of leg length)

tion for femoral shortening, in rotation and angulation osteotomies, and in arthrodesis of the knee are well known.

Medullary fixation for fracture of the femur in association with fracture of the patella on the same side, and in the presence of other serious fracture dislocations, results in such great benefit to the patient that this method is incomparably useful and advantageous to all concerned. In association with paraplegia, or extensive burns, medullary fixation of the femur is equally beneficial.

This procedure, of course, cannot be used routinely in all fractures of the femur. Medullary fixation is contraindicated in young children; however, it may have a place in the treatment of adolescents, particularly for femoral shortening (Figs. 2A, 2B) and shaft osteotomies. Recently, it has been employed for pathological conditions of the bones in older children, such as in osteogenesis imperfecta in which multiple osteotomies have to be done to straighten the bones.

Indications for use of the method in the treatment of compound fractures are limited. Generally, when medullary fixation is to be used for compound fractures, it should be delayed until the wound has had time to heal. The technique is not recommended generally for open fractures, and when undertaken in these cases must be used with the same great care that is exercised in the use of any other type of internal fixation of compound fractures. The difficulties encountered are well known and need not be explained here.

Medullary pinning of femoral shaft fractures is generally limited to the two central

Fig. 2B—Same case showing status of healing five months after insertion. Ready for extraction of pin.

Fig. 3A—Fracture of the femur in a young adult female.

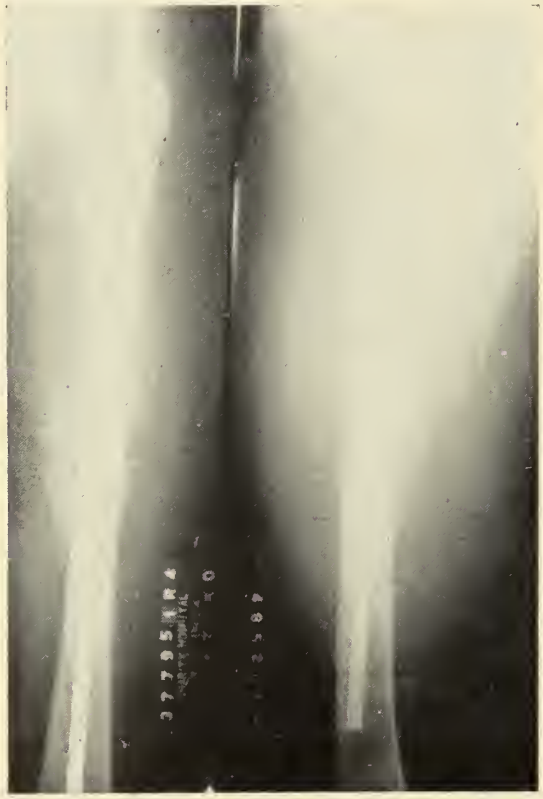

Fig. 3B—Same case, showing fixation with Kuntscher nail, two months postoperatively. Note callus.

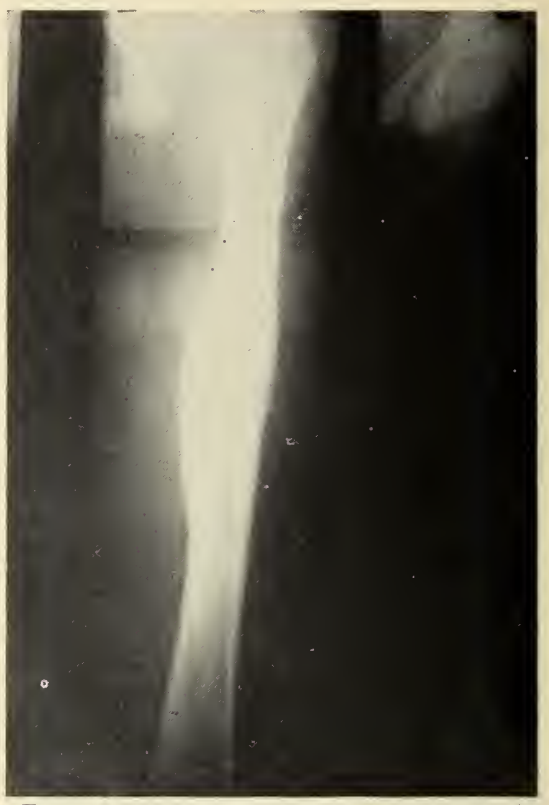

Fig. 3C—Union of fracture of the femur when Kuntscher nail was removed ten months after insertion.

Fig. 4A—Fracture of the femur in a 56 year old male.

Fig. 4B—Same case, showing fixation with Kuntscher nail, and status of healing four months after fracture. (Iliac bone chips had been placed around the fracture site.)

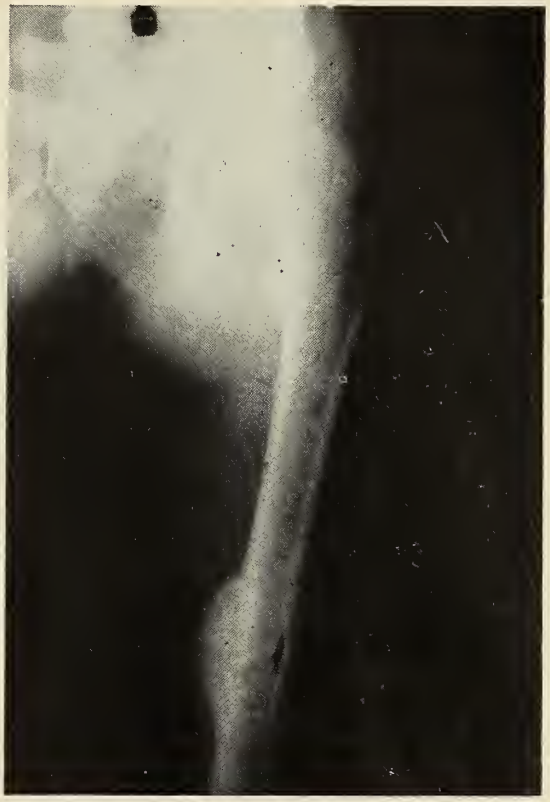

Fig. 4C—Union of fracture of the femur when Kuntscher nail was removed ten months after insertion.

quarters of the shaft (Fig. 3A, 3B, 3C; Fig. 4A, 4B, 4C). If the pin is used in fractures too near the trochanter, or too near the condyles of the femur, fixation may not be mechanically sound enough to justify the selection of this method.

Formerly it was thought that use of the medullary pin, or nail, should be limited to relatively transverse fractures in the middle third of the shaft of the femur. However, we have found that it may be employed to advantage in oblique fractures and even in comminuted fractures. Additional internal fixation, accomplished with metal plates, screws, or wire loops around the fragments, is used to reinforce the pin in the medullary shaft. (Fig. 5A and 5B). The medullary nail may be employed for the fixation of fractures at two or more different levels of the femur. The routine use of iliac cancellous bone chip grafts about the fracture site was instituted sev-

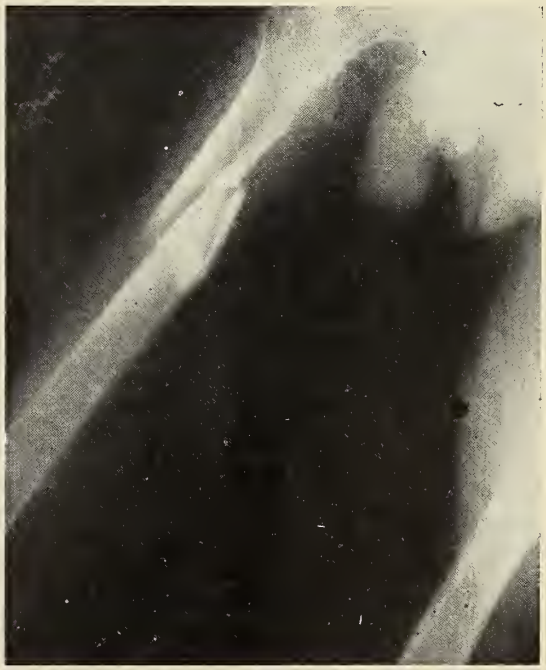

Fig. 5A—Spiral fracture of the femur with butterfly fragment.

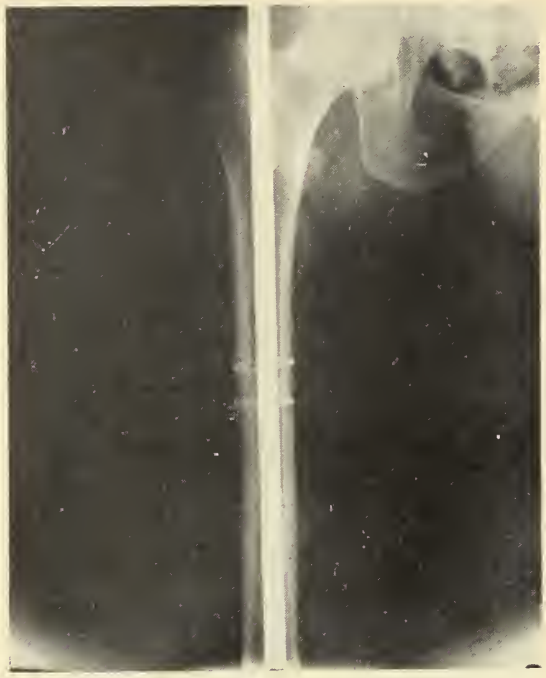

Fig. 5B—Same case, after fixation of fracture of the femur with Kuntscher nail and wire loops to hold loose fragment in place. (Patient has amputation below the knee.)

eral years ago and seems to hasten bone union.

TECHNIQUE

Materials: Various types of nails, pins, and accessory equipment are available. The open-sided, partial metal tube of the so-called clover leaf shape on cross section, with an eye near the proximal end for extraction, was used by Kuntscher and is still the nail most commonly used in this country and abroad. While the Kuntscher nail serves most of our general needs, we have occasionally used others. The diamond-shaped solid metal pin of Hansen and Street has been successfully applied in many cases. We used it considerably in the early days of medullary fixation. This pin does not require a wire guide for placement in the medullary canal. Other types include solid round rods, solid round tubes, and the three-flange nail, or pin, similar to the Smith-Petersen nail for the hip. It probably makes little difference which type of nail, or pin, is used—the more important factor being the method of application.

Measurement of the Nail, or Pin: The determination of the length and diameter of the medullary nail required in each case is of paramount importance. The more accurately this can be done, the better will be the result. The safest and simplest way to determine the length is first to take the measurement of the normal femur from the trochanter to the knee joint. From this measurement, the exact length of the nail needed for the individual patient can be calculated, allowing only the eye of the nail to protrude above the greater trochanter of the femur, for later extraction. The nail should not extend beyond one inch proximal to the knee joint, in most cases.

To determine the diameter of the nail, one should test the estimated diameter at the time of operation by inserting the nail into the open end of the bone fragment that contains the narrowest portion of the medullary canal. The nail should then be test-driven into one fragment; or, if there is any question, into both fragments and then extracted before it is finally inserted in the usual manner, depending upon the type of nail used and the technique employed. This method of determining the diameter avoids the possibility of insertion of a nail so large that it becomes inextricably jammed in the medullary canal; or of one so small that fixation of the fragments will be inadequate.

Other methods for determining the length and diameter of the nail are sometimes employed, for example, the procedure of strapping a notched, graduated metal rod to the center of the thigh and taking anteroposterior x-ray views of the rod and the femur on the same x-ray plate. We have not found this, or any other method, to be as accurate or as simple as the technique described above.

Insertion and Fixation: All fractures of the femur are surgically opened and exposed through the anterolateral, the lateral, or the posterolateral approach, depending on the site of the fracture. In the distal portion of the femur, the anterolateral approach, or the lateral approach through the vastus muscles, serves satisfactorily in our experience. In the middle and upper portions of the femur, a lateral approach di-

rectly through the vastus lateralis muscle, or a posterolateral approach posterior to the vastus lateralis muscle, is eminently satisfactory.

After the fracture has been exposed, if the Kuntscher clover-leaf type of nail is to be used, the nail previously estimated to be of proper length and diameter is fitted into the medullary canal of the fragment containing the narrowest portion of the canal —or into both fragments, if the fracture is through the narrowest portion of the canal. The nail is then driven well past the narrowest point of the medullary canal, and if the nail is determined to be too small, sizes 1 mm. larger in diameter are tried until a snug fit is obtained. The metal pin guide is then driven up the medullary canal of the proximal fragment and out through the trochanter, and through an incision above the trochanter. It may, or may not, be necessary to use a reamer over the protruding sharp end of the pin to start the medullary nail on the pin guide. If the end of the pin is sharpened, it can be driven over the nail without reaming out of the point of entrance of the nail. If it is not sharpened, particularly where nails are used which are sawed off to length at the time of operation, reaming over the guide pin may be helpful in starting the nail. The nail of proper length and diameter is then passed over the guide pin and driven into the medullary canal of the proximal portion of the femur. Gradually, as the nail is driven down, the pin guide is extracted to avoid the possibility of the open portion of the nail closing down on the pin guide, necessitating a difficult extraction procedure. After the pin is well started, or when the end of it appears at the open end of the proximal fragment at the fracture site, the guide pin is completely extracted; and then with the fracture held accurately reduced, the medullary nail is driven on into the distal shaft to the desired length.

In some cases, it may be advisable to withdraw the guide pin completely and reinsert it through the nail from the proximal end until the nail is driven for a distance of three to six inches past the fracture site. In fractures of the middle of the shaft of the femur, it is advisable to hyperextend slightly the fracture site, so that the nail will not protrude through the anterior cortex of the femur at the distal end near the knee joint. X-ray control of the level of the pin at the distal end of the femur should be routinely carried out at operation.

Oblique fractures should be circled with wire loop sutures, or in some cases, transfixed with additional screws to prevent rotation. Generally, wire sutures, or loops, are preferable. Comminuted portions of the bone may be fixed in any feasible manner by these methods. Bone plates and screws may be used in any except the more comminuted fractures.

When the Hansen-Street nail is used, no guide pin is necessary. Thus, the technique of inserting the pin is considerably simplified. The pin itself is driven through the medullary canal of the proximal fragment until the upper end of the pin is driven through the end of the proximal fragment. Following this, the fracture is reduced and held while the protruding metal nail is driven down into the distal fragment.

The entire operation of medullary fixation can be carried out by the skilled surgeon with less difficulty and in less time than required to fix the bone with the usual plate and screws. This, of course, is based on the assumption that the surgeon is sufficiently experienced in the technique to avoid some of the well known pitfalls. The hazard to be particularly avoided is the possibility of getting the pin so tightly wedged in the medullary canal that it cannot be extracted. Using the technique advocated here, we have not encountered any such difficulties.

MEDULLARY FIXATION FOR PATHOLOGICAL CONDITIONS OF THE FEMUR

We have used the medullary nail to advantage in various pathological conditions of the femur. In one case (Fig. 6) a young man with osteogenesis imperfecta had suffered about 32 fractures to the shafts of both femora. There was severe anterolateral bowing of the shafts. The patient had sustained a fracture through the middle

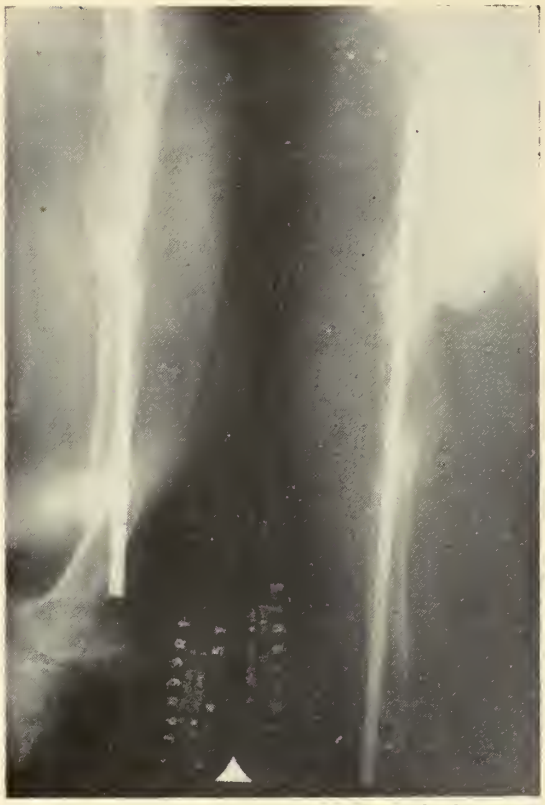

Fig. 6—Osteogenesis imperfecta with fractured shaft (upper fracture) and osteotomy done to thread segments over the nail. Excellent result.

Fig. 7A—Pathologic fracture of the femur in association with metastatic carcinoma of the breast.

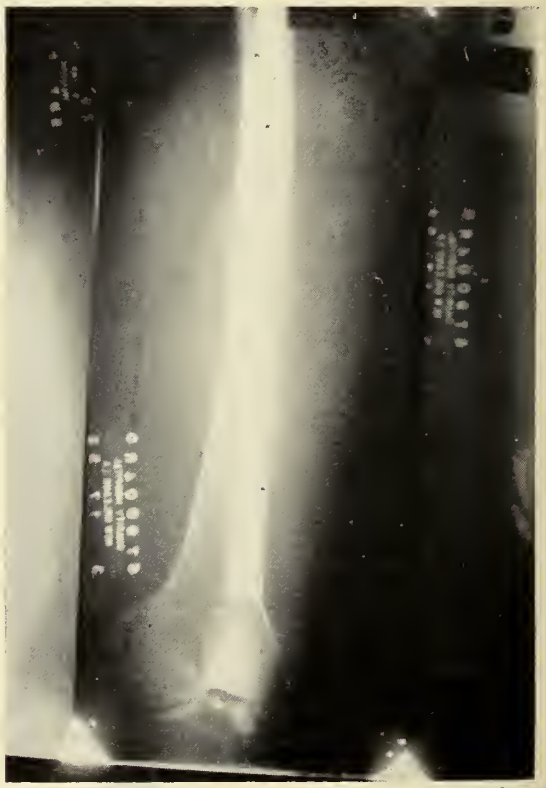

Fig. 7B—Same case after fixation with Kuntscher nail. Union of fracture after x-ray treatment.

third of the shaft of one femur below the point of the main bend in the shaft. The fracture was opened in the usual manner, but the curve above the fracture in the proximal fragment was so great that it could not be transfixed with the nail until osteotomy was done at the point of the greatest curvature of the shaft. This was done and the nail was then passed throughout the distance of the shaft, through the loose middle portion of the shaft of the femur, which had resulted from osteotomy and fracture at two different levels. Fixation of the two fractures was adequate and the fracture of the distal third of the shaft incident to the nailing healed in satisfactory position and alignment. (The result was so good that the patient wanted the other side straightened and treated in a similar manner.)

We have had occasion to treat several pathological fractures of the shaft of the femur caused by metastatic carcinoma. In one case, the medullary fixation procedure was carried out on the day the fracture oc-

curred. Radiation therapy was given afterward and satisfactory solid bony healing resutled (Fig. 7A, 7B). Similar results have been obtained in other patients when radiation therapy was given before medullary fixation. In still another patient, a metastatic carcinomatous lesion in the femur was discovered before the fracture occurred. Radiation therapy had already been administered before medullary fixation was carried out. In this case the nail was inserted from the trochanteric region without opening the site of the carcinomatous lesion.

In our experience, the use of the medullary nail in very obese patients with fracture of the femur, especially in association with other injuries, has incomparable advantages. In paraplegics with fracture of the femur, the obvious advantages are so great that this method should be employed whenever at all possible.

MEDULLARY FIXATION OF THE FEMUR FOR NONUNION WITHOUT LOSS OF THE SHAFT

In cases of nonunion of the shaft of the femur, with or without loss of the shaft of the bone, we have obtained union with the use of the medullary nail in several cases in which other methods have failed. The use of multiple, small cancellous bone chips from the ilium packed into the defect around the nail, or about the site of nonunion, gives the earliest and best results. In some cases, it is apparently possible to obtain earlier union by this method in old fractures than in fresh fractures of the femur. Some of these cases have already been reported.[1]

POSTOPERATIVE CARE

The postoperative management depends, of course, upon the nature of the fracture, the effectiveness of the internal fixation used in the individual case, and upon the general condition and temperament of the patient. In the average case of fracture of the femur, after medullary fixation has been accomplished, the patient is sent back to bed with a pressure dressing on the leg, to remain in bed for a few days. No suspension traction or other fixation is used. After a few days active motions are started. Then the patient is encouraged to get up and support his weight with crutches, as soon as his condition indicates that it is possible and safe for him to do so. Weight-bearing on crutches is started as early as is safe in the individual case, and full active use of the part is then insisted upon.

CALLUS FORMATION AND HEALING TIME

While we do not believe that the use of the medullary nail hastens callus formation and healing time in the average case, apparently this does occur in some cases (Fig. 8A, 8B), while in others the process may be delayed. For this reason, in recent years we have, whenever possible, routinely placed cancellous bone chips from the ilium around the fracture site in femoral fractures. We have had no case of established nonunion following the use of the medullary nail; and thus far, no femoral fracture treated in this manner has failed to unite within the period of a year. Some have healed within three months, including fractures in which nonunion and even loss of a part of the shaft existed. As yet, we are

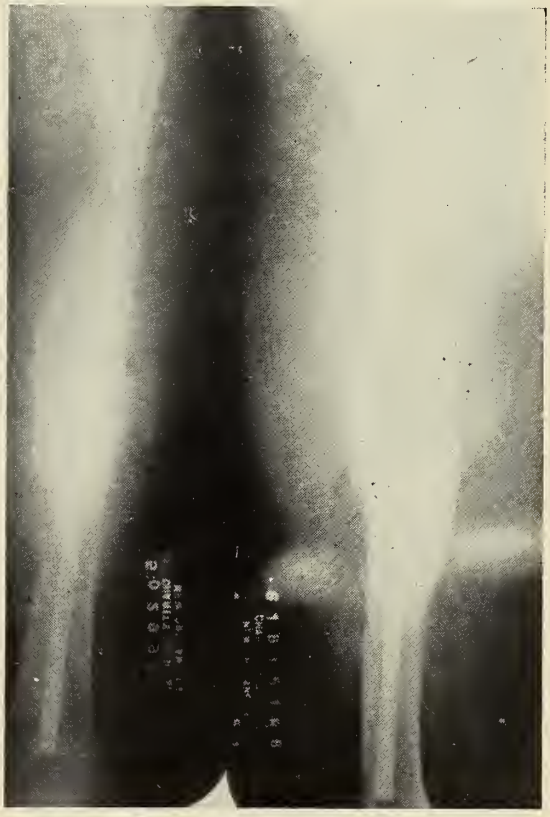

Fig. 8A—Fracture of the femur in a 19 year old male, seven months after operation. Solid bone union. (Anteroposterior and lateral views.)

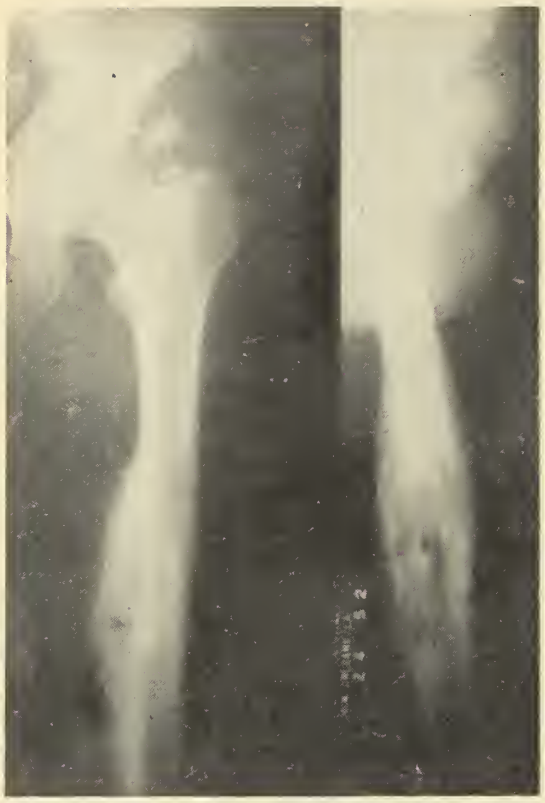

Fig. 8B—Union of fracture of the femur when Kuntscher nail was removed eight months after insertion. Shows bony "cap" over the site of protruding end of the nail, which was asymptomatic.

unable to compare the time required for solid bony union after medullary fixation with the time required after other methods of treatment. Certainly, it is our feeling that in most cases union takes place sooner after medullary fixation than it would following other methods of treatment.

COMPLICATIONS AND ERRORS IN TECHNIQUE

Errors in technique and resulting complications are associated with incomplete adherence to the precision requirements of the method, and can be minimized or eliminated almost completely if medullary fixation is carried out under the circumstances outlined. These technical errors and complications are so well known that it is not our purpose to review them here.

In our experience, we have had no serious complications. We have had no infections, not a single case of fat embolism, nor a death from the use of this method. It is believed that the same happy experience can be achieved by anyone who will adhere carefully to the same general rules and principles that have been previously laid down by others, and by us in this presentation.

MEDULLARY FIXATION FOR FRACTURES OF THE TIBIA AND FIBULA

Although medullary fixation of the tibia for fractures of the tibia and fibula seems to have certain advantages in selected cases, the technique has not been used as widely in these cases as in fractures of the femur. We have used it in only a few patients having tibial fractures and our experience in this field is therefore limited. Recent reports on the use of the method in such cases have been encouraging, however, and more and more enthusiasm is becoming evident for medullary fixation of the tibia.

As in medullary fixation for fractures of the femur, there are various techniques that may be employed. Some of these have been published and some have not. Thomsen,[2] Lottes,[3] and Vom Saal[4] have each recently reported their experiences, and the results of their work will undoubtedly go a long way toward wider and more extensive use of the method for the tibia.

Special medullary pins of various types have been designed for the tibia. Insertion is made from the proximal end of the tibia, either by open reduction of the fracture site, or by closed reduction and blind nailing with x-ray control. The advantages seem to be chiefly more accurate reduction and earlier weight-bearing in plaster, with consequent earlier union in the cases reported. This method appears to be especially advantageous in segmental or multiple fractures of the shaft of the tibia and fibula.

After open or closed nailing, weight-bearing is started in a long-leg plaster cast, in most cases apparently earlier than it could be begun following most other methods of internal fixation.

Our own experience in this field is so limited that we are hesitant to give any impressions of the advantages or disadvantages of medullary fixation of the tibia.

MEDULLARY FIXATION OF THE HUMERUS

Medullary fixation of the humerus has been rather loosely employed, and frequently where it was not indicated. This has

been particularly true in cases in which the patients were children, but also in adults, for whom simpler nonoperative methods could well have been utilized. We feel that there is little need for medullary fixation in fresh fractures of the shaft of the humerus. Certainly there is no place for its use in children. Unfortunately, some advocates of the method have used medullary fixation where it was not indicated, to the eventual discredit of the method. This is especially true of the methods advocated by some who have developed special pins and techniques.

We have had one case of pathological fracture of the humerus due to metastatic carcinoma of the lung, which we believed was more advantageously fixed with a medullary pin than by any other procedure, inasmuch as union could not otherwise have been expected in the presence of this particular type of radiation resistant carcinoma (Fig. 9A, 9B).

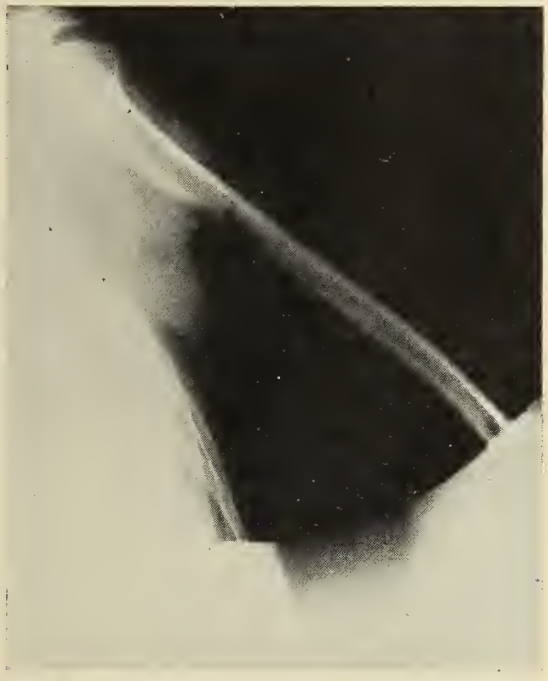

Fig. 9A—Metastatic bronchogenic carcinoma of the humerus.

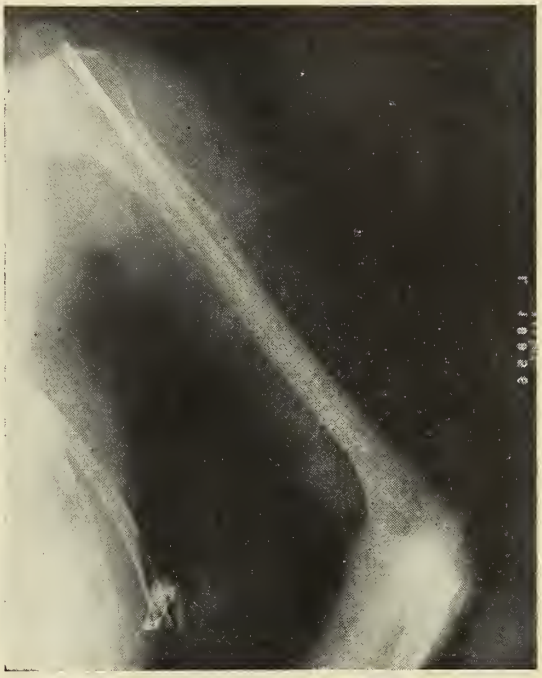

Fig. 9B—Metastatic bronchogenic carcinoma of the humerus after fixation with V nail.

MEDULLARY FIXATION FOR FRACTURES OF THE FOREARM BONES

Fractures of both bones of the forearm, and in some patients one forearm bone, have for a good many years been treated and fixed by medullary fixation. The radius is always entered from the distal end and the fracture site is usually opened. The pin, or pins, are driven well across the fracture site. Here again, there are various methods of fixation, some of which are more effective than others. Medullary fixation of the ulna has been carried out from either end, usually with open exposure of the fracture site for transfixion of the fracture (Fig. 10A, 10B; Fig. 11A, 11B).

We have not had sufficient experience with medullary fixation of the bones of the forearm to be in a position to give a final opinion as to the indications for this method, and the type of fixation to be used. The technique is being used more and more, but it will be several years apparently before anyone can be sure of the various aspects of medullary fixation to be considered in treating fractures of the forearm bones.

SUMMARY

We have summarized our experience with the use of medullary fixation for fractures and certain conditions of the femur and the other long bones, over a period of six years. Medullary fixation of the long bones is a highly technical, precision type of procedure, which is potentially attended by probably more difficulties and errors than any

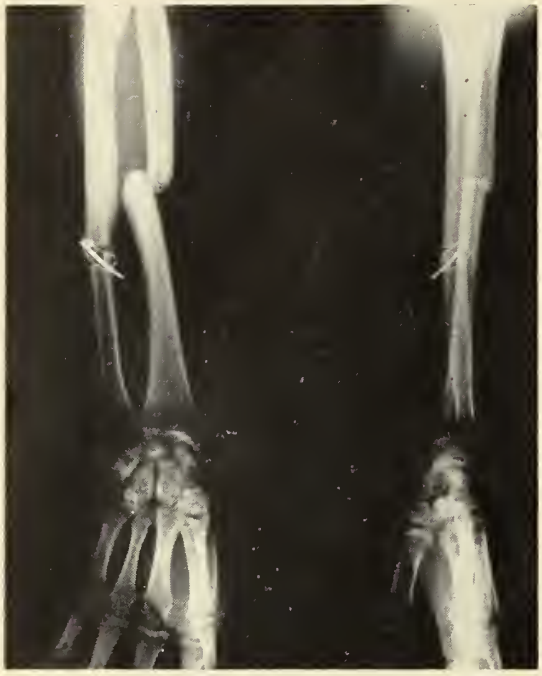

Fig. 10A—Compound fracture of the radius and ulna with loss of all of extensor muscles and skin on dorsum of the forearm. The ulna was temporarily fixed with a Kirchner wire and loop.

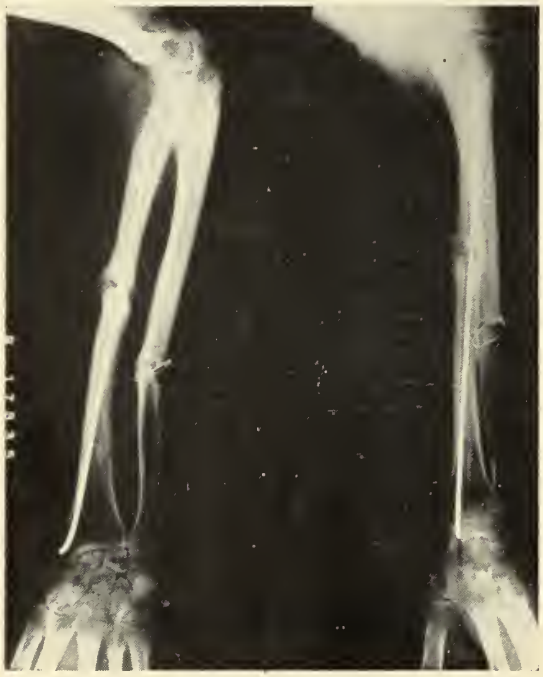

Fig. 10B—Compound fracture of the radius and ulna with intramedullary pin fixation of the radius, and iliac bone grafting of fracture site, showing status of healing six months after insertion.

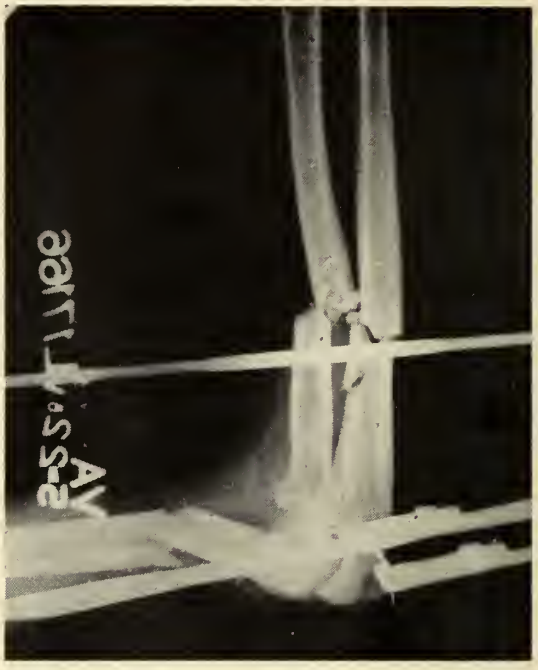

Fig. 11A—Compound fracture of the humerus, radius and ulna, treated in traction.

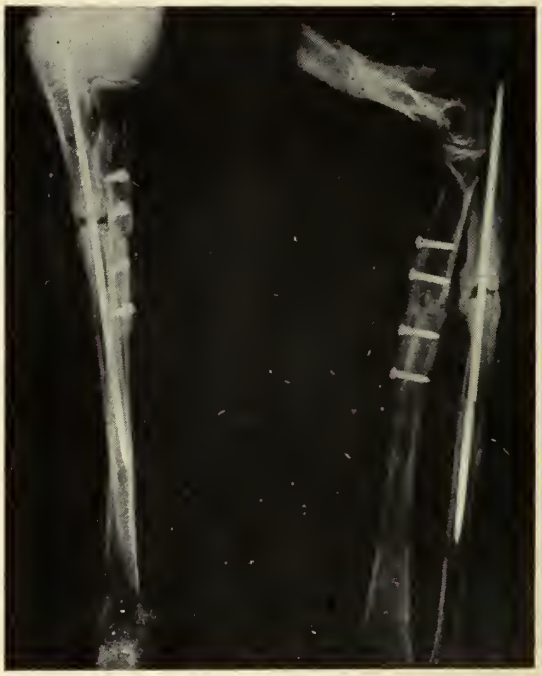

Fig. 11B—After the humerus healed, intramedullary pin fixation of ulna, chip grafting to ulna, and onlay graft to the radius.

other method used since internal fixation was first introduced into surgery. It hardly seems necessary to say that the procedure should be undertaken only by physicians who are experienced in the surgical care and treatment of fractures, and only in hospitals where the special facilities necessary

for the management of such cases are readily available.

When undertaken without complete understanding of the principles involved, and without proper execution of the details of the technique, medullary fixation invites disaster. But when the procedure is properly carried out, from the primary consideration of selecting the patient, to the final details of postoperative care, the patient may derive greater benefits from this method than from any other for the treatment of fractures of the long bones, particularly fractures of the femur.

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INGUINAL HERNIA*

WALTER MOSS, M. D.
LAKE CHARLES

Inguinal hernia as defined by Watson is a protrusion of abdominal viscera through the anterior abdominal wall in the inguinal region. Direct and indirect varieties occur. The direct hernia is one which comes through the abdominal wall medial to the deep epigastric vessels, which in turn are medial to the internal inguinal ring. The indirect hernia is one which passes successively through the internal ring, inguinal canal, and external ring, where it becomes superficial and often extends into the scrotum in the male, or into the labia in the female.

The inguinal canal contains the ilioinguinal nerve, genital branch of the genitocrural nerve, and the spermatic cord in the male, and the round ligament in the female. The boundaries of the inguinal canal consist of the external oblique aponeurosis throughout and the lower fibers of the internal oblique (outer third) anteriorly; posteriorly, the triangular ligament of the abdominal wall and the conjoined tendon and transversalis fascia; superiorly, the arched fibers of the internal oblique and transversalis muscles; inferiorly, the inguinal ligament and the lacunar ligament.

In the absolute normal the inguinal canal is a closed passage, the anterior and posterior walls lie in apposition except for the space occupied by the cord or round ligament. The rings both external and internal are not open but are mere slits in the muscle and fascial supports of the area.

The congenital type of inguinal hernia is the indirect type and the sac is always adherent to the cord structures.

Acquired inguinal hernia is the direct type and includes the traumatic varieties. The sac is not closely associated with the cord or its structures.

ETIOLOGY

It is universally agreed that a defect exists before strain can effect the formation of hernia. In industry it is more or less generally accepted that strain is a causative factor regardless of the well known fact that there must be a predisposing factor.

The cause of inguinal hernia has always been under contention, particularly from the medicolegal aspect. We know that weakness in the structures immediately surrounding the rings and canal predisposes to inguinal hernia. Increase in intra-abdominal tension, theoretically, causes the slitlike canal to close tighter but the presence of a preformed sac or weakness in the transversalis fascia with increase in tension from coughing or intra-abdominal pressure from other causes, will allow a knuckle of bowel to enter the ring and proceed down the canal.

It enters the internal ring through the pre-existing persistent opening of the vaginal process. This vaginal process becomes the hernial sac and is a portion of the peritoneal covering which comes down the inguinal canal with the testis in its normal descent.

A break or gradual weakening of the transversalis fascia between the rectus

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sheath and the deep epigastric artery where there is no conjoined tendon or muscle is the point of occurrence of the direct hernia which with progression protrudes into the external ring.

DIAGNOSIS

I find the diagnosis of inguinal hernia difficult in some cases. Frequently the patient is requested to return after four to seven days for a second examination. On several occasions a different conclusion was reached. The patient is disrobed and is carefully inspected while standing erect. He is requested to cough and strain. In some cases a weakness in one or both inguinal regions can be detected by simple inspection.

On inspection, the direct hernia is globular in shape and lower in position than the indirect hernia. This follows unless the hernia has progressed to the scrotal area. However, especially in thinner individuals, the funnelled portion of the sac of the indirect hernia can often be detected in contrast to the globular formation of the direct.

Either the index or middle finger is used to pick up the skin of the upper scrotum invaginating it cephalad. The finger follows the spermatic cord up the inguinal canal until it no longed palpates the cord. If the internal ring is open the end of the examining finger encounters a void which represents the abdominal cavity. (This is better demonstrated with the patient lying down). If the finger enters the ring, coughing or straining must produce an impulse or protrusion of a sac past the plane of the internal ring before the diagnosis of hernia can be made. Straining by the patient is the more satisfactory element in this maneuver if one can be certain that the patient is genuinely straining. I was once misled in a pre-employment examination by depending entirely on straining. This individual returned after working one day with a well developed hernia. I had examined him partially disrobed and in a stooped position. How he hid that big a hernia I never was able to explain to the insurance company. This was a number of years ago and I have forgotten which of my colleagues fell heir to their work.

When the dimple in the muscles of the posterior boundary of the canal can be palpated and the cord is found to disappear therein, there is no hernia. The open ring will on occasions admit the finger tip and then straining or coughing will force the finger out and a strong muscular closed ring is palpated as long as the strain is effective. If there is no palpable impulse to the tip of the finger and no structures follow the finger tip with its extrusion, there is no hernia.

The weak open ring which does not close on straining or coughing should not be classed as a hernia unless a strong impulse or beginning sac formation can be detected. The category of potential hernia has been thrust on us by industry in its pre-employment examinations. This term is used for the case with the weak ring and mild impulse with no definite sac. Potential hernia is also a term we use when we cannot decide whether a patient has or has not a hernia. That second or third examination, when possible, will often preclude the necessity of using the term.

With the examination still in progress palpation of the area medial to the ring should be done to determine whether a direct hernia exists or co-exists as the case might be. Further confirmation of whether the hernia is direct or indirect can often be made by palpating the deep epigastric vessels.

Lipoma or large collections of normal fat in the inguinal canal will often confuse the examiner. Hydrocele of the cord can be ruled out by transillumination. In evaluating the symptom of pain in suspected cases of inguinal hernia I wish to emphasize the necessity for rectal examination. Prostatitis with vesiculitis and associated vasitis are aften overlooked. Neuromyositis due to prostatitis is often the reason for pain in the inguinal region. Vasitis or neuromyositis, or both, following surgery, frequently cause the patient to have pain in the operative area. The occurrence of this symptom is always a reason for deep concern to the

patient as well as to the surgeon.

In six individuals, I have observed an area 2 to 4 centimeters lateral to the internal inguinal ring where a split in the external oblique, internal oblique, and transversalis has occurred. There was a definite sac and the area was tender and painful. The hernia occurred in each case with a history of unusual strain followed by burning pain in the area, which was persistent. One of these cases was found to exist in a patient who had been operated on for an inguinal hernia of the indirect type. All of these individuals had a noticeable bulge in this area lateral to the inguinal ring when straining while standing. Curiously enough, a number of thin individuals have been observed to have a bulging in this area on straining or coughing when no such hernia exists.

Interstitial hernia, as described by Watson, is a hernia that lies in one or the other of the planes of the abdominal wall. Bartholin observed the first recorded case in 1661 and called it "bubonocele rara" (Watson). This was a large mass dissecting between planes of the abdominal wall toward the spleen. Lower and Hickens described these an interparietal hernias.

There are four varieties of interstitial hernia (Interparietal): (1) Properitoneal, (2) intermuscular, (3) inguinosuperficial, (4) external supravesical.

The occurrence of strangulation and the presence of multilocular sacs are the important factors in treatment of these hernias.

I thought that this atypical hernia might be classified as an interstitial hernia but the definition of interstitial hernia implies dissection by the sac between the planes of the abdominal wall and this hernia apparently comes directly through the fibers of the transversalis, the internal oblique and then through a split in the external oblique and is found as a direct protrusion under the skin in a globular form. It reduces easily; in fact, as soon as strain is removed or the patient lies down. In the supine position the opening can be palpated and impulse can be felt by the examining finger when the patient strains. These could be early inguino-superficial hernias.

TREATMENT

The treatment of inguinal hernia consists of the repair of torn structures or substitution of material either autogenous or foreign to replace nonexistent or weakened structures which no longer are capable of withstanding the intra-abdominal pressure into the preformed sac.

High ligation of the sac is of primary importance in proper repair of any hernia. Careful attention must be paid to the layer of sutures used in approximating the transversalis to the inguinal ligament. This is more important than approximating the conjoined tendon to the inguinal ligament. Frequently, especially in fat individuals, the transversalis is deficient in this area and the conjoined tendon must be used. The most desirable technique is to fix both the transversalis and the conjoined tendon to the inguinal ligament with separate layers of sutures.

Transplantation of the cord is a very important maneuver in the proper correction of hernia. The tight closure of muscles about the cord which then runs between internal and external oblique muscles is a stronger buttress against possible recurrence than is the cord in its normal position. Some authors argue the unimportance of this maneuver.

Suture materials vary with some variation in the results. At present, more satisfactory results are obtained with the use of nonabsorbable material. Catgut still has its proponents and many surgeons adhere to its use. Silk and cotton are popular in different sections of the country.

Recently, we find that metal wire is becoming more and more popular (Babcock). As suggested by Elmquist, absorbable suture material can be used in the same wound with metal wire with no deleterious effect. Wire, number 32 to 35, is used, one length to each suture and the knots are stable. The wire is cut on the knot and is stronger than other suture material. The wire is cut right at the knot to avoid over-extending wire

ends. There is no slough and no sinuses occur.

Fascial transplants by employing the use of rectus sheath fascia or fascia lata as interlacing weaving type sutures have been used since they were popularized by Gallie and others. Koontz discovered that ox fascia preserved in alcohol could be used where deficiency in fascia existed. These transplants are found to be better than fascia placed on tension, as sutures cut through and cause slough.

Where extensive fascial and muscular deficits exist tantalum mesh is recommended by Koontz and steel mesh by Babcock. I have had no experience with the use of this material but recent reports of the use of metal mesh as substituting material are encouraging.

The injection treatment, which consists of injecting sclerosing solutions into the sac, is mentioned for two reasons. First for the historical significance because of its use by Velpean in 1835 and Pancoast in 1836. It was discarded after surgical methods were introduced by both Bassini and Halsted. The work of these surgeons is well known to all. The second reason for mentioning the injection treatment is to call your attention to the excellent treatise on the subject by Koontz in Lewis' *Practice of Surgery*. He recommends its use in selected cases in which surgery is contraindicated or not justified for other reasons. One important point that he emphasizes is that injection treatment should be used only by surgeons who have adequate knowledge of the anatomy of the area which they have learned through the experience of many surgical procedures for hernia. It is not used in complicated hernias such as the irreducible variety.

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RECENT DEVELOPMENTS IN THE DIAGNOSIS OF RENAL TUMORS*

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Tumors arising from the kidney are predominantly malignant and, therefore, must be considered as such unless conclusive evidence to the contrary can be established. This is not always an easy undertaking. In fact, to ascertain conclusively that the kidney harbors a tumor at all, at least one in an early stage, may be a difficult and painstaking task.

Pain, abdominal tumor, and hematuria constitute the principal symptoms that attract attention to the urinary tract. Pain may be of two types: (a) sharp and colicky due to the passage of a small calculus, or (b) dull and aching in character. In one of our cases, the diagnosis of carcinoma of the kidney was established from a pyelogram made routinely following the passage of a small calculus.

In order to study an abdominal tumor, the urinary tract is visualized as the first step in the examination. Several advantages accrue from this action. It is one of the easiest procedures, and frequently gives valuable information even when the tumor arises from structures outside of the urinary system. Pyelograms may indicate the approximate site of origin, and indicate whether the tumor arises from within the peritoneal cavity or from the extraperitoneal space. If the intestine is studied first,

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a delay of several days may be caused by barium remaining in the bowel.

Hematuria is a most important symptom. The urgency of investigating the cause of all instances of blood in the urine, whether gross or microscopic, cannot be exaggerated. In our experience, a malignant tumor somewhere in the urinary tract is found in about one-half of all patients presenting themselves because blood had been noted in the urine. It may even be a capricious symptom appearing once, never to recur.

In discussing the newer adjuncts to the diagnosis of renal tumors, it may be stated at once that they do not replace or supplant pyelography. The majority of diagnosis of renal tumor can be made from a good retrograde pyelogram. The newer methods are supplementary, and are used only in obscure cases when the diagnosis cannot be established definitely by less elaborate procedures. They are:

1. *Exfoliative cytology,* or the study of the cellular constituents of urine.

2. *Perirenal insufflation,* or the introduction or injection of air, oxygen, etc. into the retroperitoneal space, thereby aiding in the delineation of the kidneys and adrenals.

3. *Translumbar arteriography,* or the injection of a radiopaque medium into the aorta, which has the effect of visualizing the great vessels of the abdomen in general and specifically the vascular pattern of the kidneys.

1. EXFOLIATIVE CYTOLOGY

In instances of renal hematuria, when the malignancy is present in an early form and is not large enough to produce distortion of the pyelogram, a study of the cell content of the urine may be of great value. This modality has recently received impetus through the work of Papanicolaou and his associates. It is based on the knowledge that the rate of exfoliation of cells is more rapid from a malignant process than from normal epithelium. Care must be taken in the collection of the specimens as the cells in urine deteriorate rapidly. A freshly voided specimen may be used, or a large ureteral catheter may be passed to the renal pelvis of the kidney under suspicion, and washings with sterile physiologic saline solution made. The urine or washings obtained are immediately mixed with an equal quantity of alcohol, 70 per cent, and delivered to the laboratory without delay. The most important member of the team making this type of study is the pathologist who must recognize the presence of malignant cells. Large numbers of pus or blood cells may add to the difficulties of examining the specimen.

It may be fortunate if a piece of tissue becomes caught in the eye of the catheter; the actual cell pattern may then be examined. An instance of this type occurred recently. A white man aged 22, entered the Veterans Administration Hospital with the chief complaint of hematuria, an episode having been noted for the first time five months prior to admission. During cystoscopic examination, blood was seen to be emerging from the right ureteral orifice. A ureteral catheter was passed to the right renal pelvis, a specimen collected, and a pyelogram made. On withdrawing the catheter, a small piece of tissue was seen to be caught in the eye of the catheter.

Exfoliative cytology, in certain instances such as that just related, has been of inestimable value and may be credited with making a diagnosis otherwise impossible (Fig. 1). A failure to find malignant cells obviously cannot be interpreted as evidence that malignancy is not present, as cells would be present in the urine in only a relatively small percentage of cancers of the kidney, namely, those that arise from the epithelium of the renal pelvis or those arising in the parenchyma and involving the epithelium by extension.

2. PERIRENAL INSUFFLATION

The second modality for discussion is the injection of air into the tissues surrounding the kidneys. This is of value in determining their size and shape when disease in the parenchyma is suspected or known to exist. It may also be useful as an aid in the visualization of adrenal glands or tumors arising from any of the retroperitoneal structures. The shadows cast by X-rays indicate the varying densities of the body, so that air in

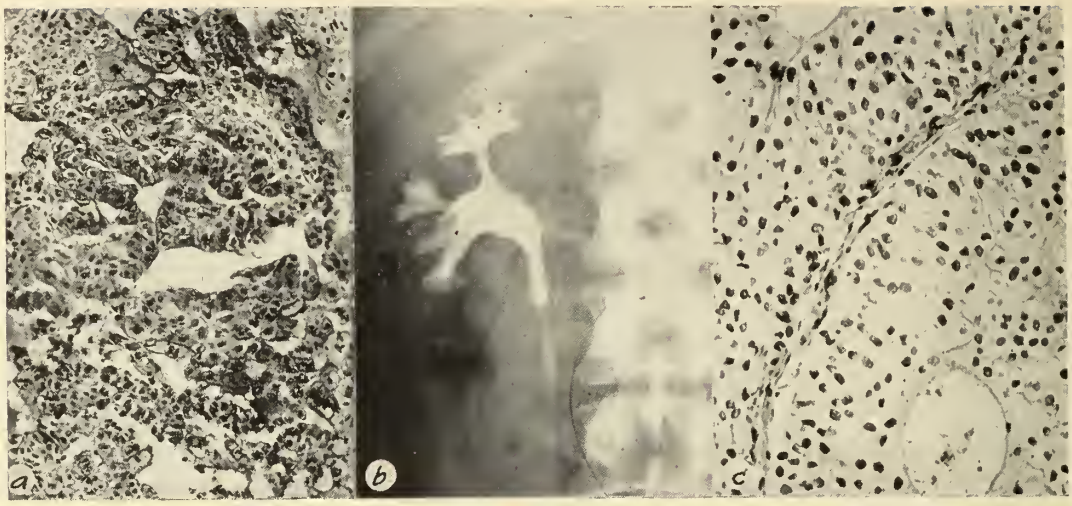

Fig. 1. (a) A biopsy specimen of tissue caught in the eye of the catheter. (b) Pyelogram: arrow points to affected calyx. (c) Microscopic section of lesion obtained by nephrectomy.

the retroperitoneal tissues will usually demonstrate sharply an irreguarity of renal outline. This procedure was introduced by Carelli, in 1920, and revived by Cahill in 1935, in the course of his investigation of adrenal tumors. Between the years, it had been all but discarded because of untoward reactions such as air embolus, pneumothorax, and paroxysmal coughing.

As the technique was used originally, a long needle was inserted through the lumbar area directly into the perinephric tissues, and approximately 500 cc. of air or oxygen injected. Although this procedure was of value as an aid in outlining the renal shadow, it was approached with a feeling of uneasiness due to the hazard accompanying the injection of air into an area containing large and important blood vessels.

During the past year, we have used a technique of injecting air anterior to the coccyx; it is simple, apparently without danger, and requires no special equipment. However, a knowledge of regional anatomy is important. The rectum is approximately 5 inches long. It begins at a point opposite the center of the sacrum, follows the curve of the sacrum and coccyx, and ends about an inch beyond the tip of the latter. Peritoneum covers the anterior surface and sides of the upper one-third, but covers only the anterior surface of the middle one-third. It is reflected on to the bladder or vagina, forming the bottom of the rectovesical or rectovaginal pouch. The lower one-third of the rectum is situated below the level of the peritoneum, imbedded in fat and fascia. In this area, which contains no important blood vessels or nerves, the needle may be inserted without fear of damage.

To employ the method of injecting air anterior to the coccyx, the patient is placed on his abdomen and the sacrococcygeal area, along with the medial portions of the buttocks, are prepared in an aseptic manner. The index finger of the left hand (in a right-handed individual) is introduced into the rectum, the tip of the digit being approximately at the midcoccygeal area. Gentle pressure is applied to the posterior wall of the rectum in order to feel the point of the needle at all times. After a local anesthetic has been injected, an 18-gauge spinal needle is inserted at the level of the palpating finger tip in the rectum which will be a point about 1½ inches from the midline. The needle is directed anteriorly and medially until the lateral surface of the coccyx is encountered, and is then continued anteriorly along the side of the coccyx until it rests between the rectum and the bone in the midline. In this position, the tip of the needle can be palpated easily through the wall of the rectum thus avoiding perforation of this structure while the air is being injected.

A three-way valve is attached to the

needle, followed by a 75 cc. syringe and a piece of tubing connecting with the oxygen supply. After the final precaution of aspiration, oxygen is injected. By using about 1000 cc., gratifying results have been obtained. On the roentgenogram, the oxygen is seen to extend from the region of the sacrum up both sides of the retroperitoneum. The advantages of bilateral visualization over the more serious unilateral technic are obvious (Fig. 2).

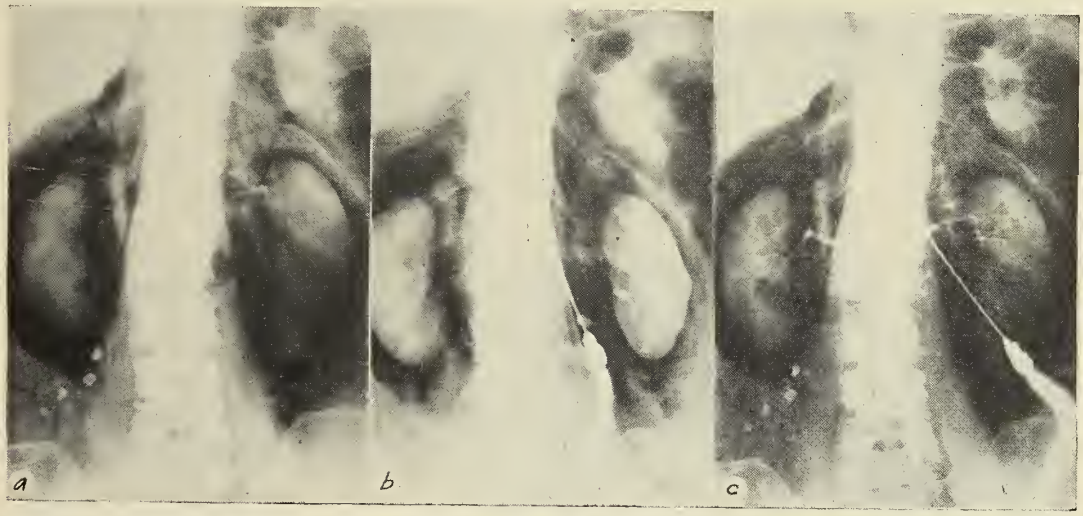

Fig. 2. (a) Bilateral simultaneous perirenal insufflation by the paracoccygeal route. (b) Demonstration of "nephrogram effect" in combination with arteriography (same case). (c) Demonstration of arteriogram (same case). Note double renal arteries on both sides.

While this procedure is not original with us, having been introduced by Rivas, we feel that we have increased its value by the accurate placement of the needle made possible by the continuous guidance of the finger in the rectum. In our experience, its greatest usefulness has been in combination with translumbar arteriography. It has been used in more than 120 cases without a serious accident.

3. TRANSLUMBAR ARTERIOGRAPHY

This represents a new approach to the study of renal disease by allowing roentgenographic observation of the external and internal renal vascular pattern. The procedure is not new in the sense that it has recently come into existence, since it was originally introduced by dos Santos in 1929. In the early days of its usage, the employment of toxic contrast media such as sodium iodide, followed by complications which were sometimes fatal, eventually caused the method to fall into disrepute. Recently, however, Smith and his associates, utilizing newer and less toxic contrast media, have given impetus to the revival of this diagnostic procedure. It has proved useful and without serious effects, at least, none has been encountered to date.

The necessary equipment is simple, consisting of the following:

(a) One 6 inch, 16 F needle with stylet.

(b) Approximately 18 inches of pressure resistant rubber tubing with an adapter firmly secured at either end. One end is attached to the needle after it has been introduced into the aorta.

(c) A suitable syringe of sturdy construction.

(d) Radiopaque solution, 75 per cent.

(e) Materials for aseptic preparation and draping of the patient.

The patient is placed on his abdomen, and a plain roentgen film is taken to determine the accuracy of the position. As a preliminary measure, one-half of 1 cubic centimeter of the contrast media is injected intravenously to test for possible sensitivity. If no toxic manifestations develop, the patient is anesthetized with intravenous anesthesia. The lumbar and lower thoracic regions are then prepared and draped in an aseptic fashion. A point is marked under the lower border of the twelfth rib, approxi-

mately eight centimeters from the vertebral spine for the insertion of the needle which is directed anteriorly, medially and cephalad until the body of the vertebra or the transverse process is encountered. It is then withdrawn for a short distance and reintroduced with a slight backward and forward motion until the tip slides off the ventrolateral edge of the vertebral body. The stylet is then removed, and the needle is slowly moved forward until there is a sudden release of resistance, signalling entrance into the aorta. Entrance is easily recognized by the characteristic spurt of blood. The syringe with the attached tubing having been previously filled with about 20 cc. of iodine medium, 75 per cent, is then attached to the needle. A column of blood entering the syringe is assurance that the tip of the needle is still within the aorta. The contents of the syringe and the tube are rapidly injected into the aorta, completing the injection in two or three seconds. The roentgen exposure should be made as the last few cubic centimeters of fluid are injected. It is important that the firing of the x-ray tube should be independent of the rotating anode so that the former is at the operator's split-second control.

Practiced teamwork is required for smooth operation. After the original exposure, following the injection of the contrast medium, the cassette is changed, and another exposure is made as rapidly as possible in order to record the nephrogram effect. As soon as the injection is completed, the stylet is replaced in the needle. The films are rapidly processed; if they do not prove satisfactory we repeat the injection if there is no contraindication. The needle is then removed.

Interpretation of the roentgen findings depends on repeated experience with the procedure. While all of the branches of the abdominal aorta which emerge below the diaphragm are not always outlined by the contrast medium, a thorough knowledge is essential of the position and course of the vessels which may be visualized. In the study of translumbar arteriograms, attention is centered on the renal vascular architecture. The renal vessels branch from the aorta approximately at right angles near the level of the second lumbar vertebra, the left is usually at a slightly higher level than the right. The first division of each renal artery occurs close to or within the hilum of the kidney, and from this point branches spread throughout the kidney with diminishing caliber, the end branches forming the so-called fanlike arrangement. The presence of more than one renal artery is not uncommon. Correlation of the vascular pattern with the nephrogram, in which the functioning renal parenchyma is opacified, completes the arteriographic study.

Arteriography probably serves its most useful purpose in the differentiation of renal cysts, simple and polycystic, and renal tumors. A cyst of the kidney is avascular. It overlies or displaces renal parenchyma. The arteriographic study, therefore, would be expected to disclose any or all of the following:

(a) Irregularity of outline of the kidney, or a displacement of the intrarenal vessels adjacent to the parenchymal portion of the mass.

(b) A relatively clear or avascular area corresponding to the area of the mass adjacent to the opacified parenchyma on the nephrogram.

(c) No collection of contrast medium within the area of the mass.

These features are demonstrated in Fig. 3.

The majority of renal tumors, on the other hand, are richly vascular, and there is characteristic "puddling" and "laking" of the contrast medium in the area of the mass. The vessels adjacent to the mass may be displaced, but branches are usually seen to enter it (Fig. 4).

No serious complications have been encountered, although inadvertently the contrast medium has been injected directly into the celiac axis, the superior mesenteric artery and the left renal artery. Intramural and extramural extravasation of the contrast medium has been observed without sequelae. One instance of mild pneumothorax cleared spontaneously.

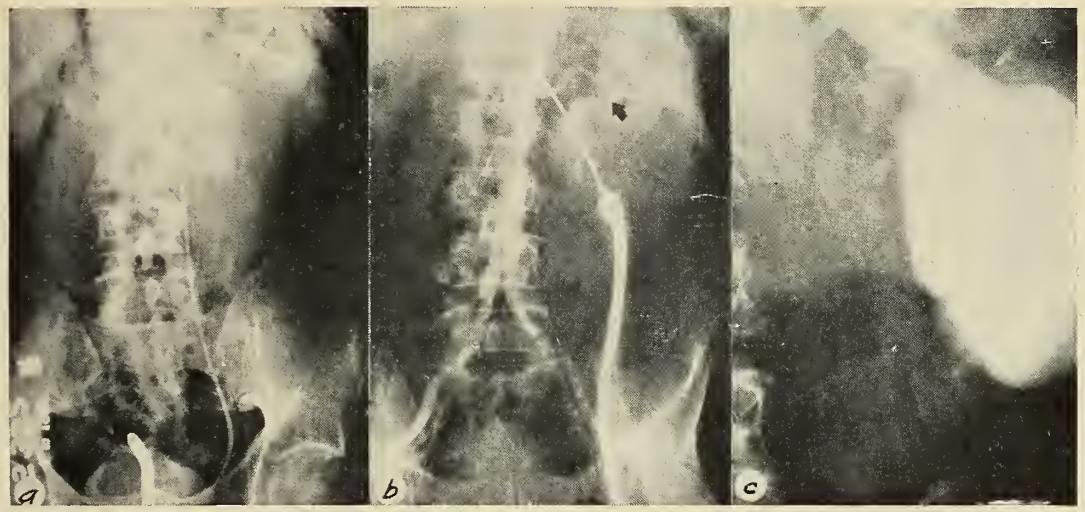

Fig. 3. Renal cyst. (a) Pyelogram displaced by mass arising from lower pole of kidney. (b) Arteriogram (came case). Arrow points to renal vessels surrounding mass. Avascular area in the lower pole of the kidney is characteristic of solitary cyst. (c) Contents of cyst have been aspirated through a needle and replaced by radiopaque medium.

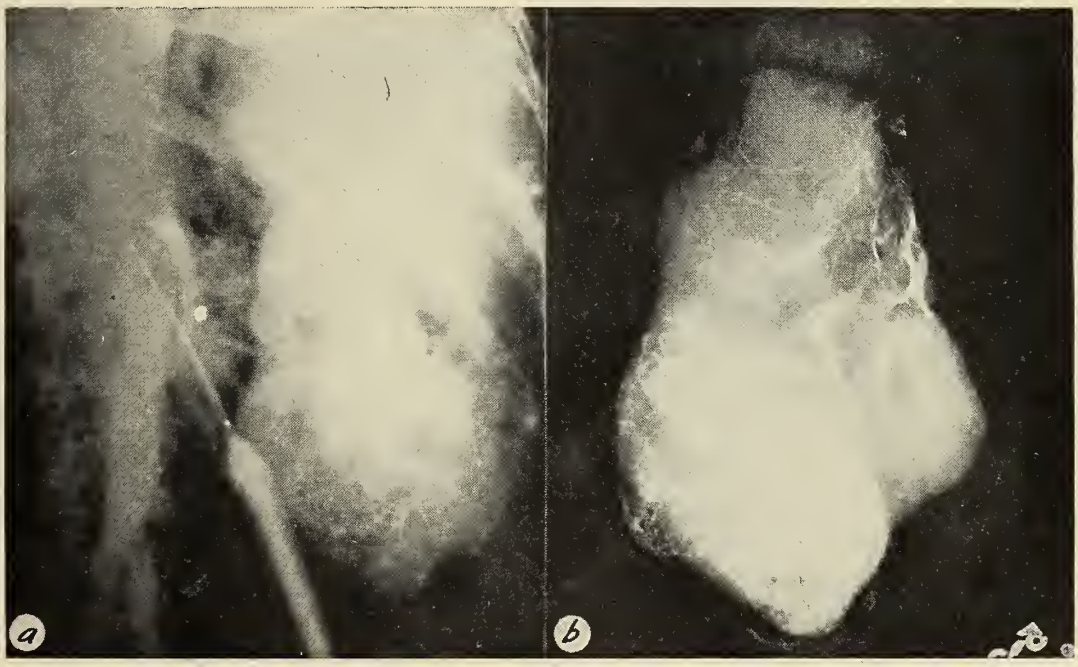

Fig. 4. (a) Arteriogram demonstrating characteristic "puddling" and "laking" of contrast medium in a case of renal malignancy. (b) Roentgenogram of kidney removed by nephrectomy. Arterial system of specimen has been injected with an opaque medium.

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EFFECTS OF CALCIFIED LYMPH NODES PERFORATING THE BRONCHIAL TREE*

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Calcified lymph nodes are seen at the pulmonary vascular roots on many chest x-ray films. When the calcific nucleus of one of these nodes migrates through the adjoining bronchial wall toward the lumen, it produces effects which become clinically apparent. The wandering calculus is called a broncholith and the disease which it produces is termed broncholithiasis. This paper will be concerned with the principal effects of these stones upon the bronchi, lungs, and pleura.

Increased interest has developed in recent years concerning this subject because of advances in roentgen diagnosis and thoracic surgery, and several large series of cases have been reported.[1-4] It is now evident that broncholithiasis is not an uncommon disease and that its early recognition is important if prolonged bronchial obstruction leading to pulmonary and pleural suppuration is to be avoided. With prompt relief of bronchostenosis, the morbidity and mortality associated with broncholithiasis should be reduced and the indications for pulmonary resection, which may be difficult and extensive in this disease, should become less frequent.

MATERIAL

This paper is based upon a series of 65 cases gathered over a period of twenty years at the Mount Sinai Hospital of New York.[4] Stones were recovered from 33 of these patients; the diagnosis of broncholithiasis was made in the remaining cases since they presented the same clinical and roentgenographic features as the proven group. Most of the patients in both groups were in the cancer age; only 4 were less than 20 years of age. No difference in sex incidence was noted.

PATHOGENESIS

Before considering the effects of eroding broncholiths, their origin will be briefly discussed. The development of broncholithiasis and its most frequent locations are determined by the relations of the bronchopulmonary lymph nodes and the segmental and lobar bronchi. Nelson[5] and Head and Moen[1] demonstrated that lymph nodes were constantly present near the origins of the middle lobe and lingula bronchi and of the anterior segmental bronchi of the upper lobes but were only irregularly associated with the other segmental branches. The designated bronchi are the principal sites for perforating caseous and calcific lymph notes in the adult.

The development of broncholiths in these positions is favored by several factors. Lymph nodes are constantly present at these points. These nodes are focal points for the drainage of infection from the lung toward the mediastinum. The middle lobe and lingula nodes drain the right middle and the lower lobes while the glands in relation to the anterior divisions of the upper lobe bronchi drain the upper lobes. Tuberculous lymphadenitis secondary to primary foci within the lungs will involve these nodes.

The proximity of these nodes to the bronchi makes it possible for caseous tuberculosis to spread through the capsule of the lymph node and invade the bronchial wall. Such involvement of bronchi of varying caliber has been noted frequently in patients with active primary complexes. Since the bronchi of children are smaller and weaker than those of the adult, perforation of main and lobar bronchi by caseous lymph nodes is far more common in the young. In the adult, tuberculous lymph nodes usually perforate into the small anteriorly situated segmental bronchi.

Though caseous disease is responsible for the original damage to the bronchial wall in broncholithiasis, active tuberculosis is

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rarely present when the calculus perforates the bronchial wall. After healing of the tuberculous process has taken place, the bronchial wall remains permanently weakened and migration of the calcified core of the diseased lymph node toward the lumen is favored by the respiratory motion of the bronchus.

It is not necessary for the calculus to penetrate the mucous membrane to produce bronchial obstruction with its pulmonary and pleural complications. The calcification is often confined to the bronchial wall while an overlying inflammatory stricture narrows the lumen. By bulging toward the lumen the calcified mass may increase the obstruction caused by the stricture. Erosion by the stone or vascularity of the inflammatory stricture is responsible for hemoptysis in this disease.

In summary, the development of broncholithiasis is determined by the presence of fixed groups of lymph nodes which are frequently involved by caseous tuberculosis. The high incidence of the disease in the middle lobe and the anterior segmental bronchi depends upon these anatomical and pathological facts.

THE EFFECTS OF BRONCHOLITHIASIS

Bronchial obstruction is the most common effect of perforating lymph nodes. Its presence is suggested by the presence of a contracted segment or lobe on the roentgen film and is usually confirmed by bronchoscopic examination. Table 1 lists the bronchoscopic findings in our series.

TABLE 1
BRONCHOSCOPIC FINDINGS
54 CASES

Stones removed	14	39
Strictures and bulges	22	
Thickened spur	2	
Ulcer	1	
Pus from segmental bronchus	12	15
Negative	3	

5 patients spat up stones after bronchoscopy
Bronchoscopic confirmation of clinical diagnosis in 39 of 54 cases = 76%

Where the obstruction lay outside the bronchoscopic field, it was usually demonstrated by lipiodol instillation. In several patients who had expectorated stones previously, bronchostenosis could not be demonstrated. Obstructing stones were found at autopsy in 2 patients who died of unrelated disease. The presence of obstruction could not be verified in several patients under treatment for other diseases, whose condition made bronchoscopy and bronchography inadvisable.

The close association of bronchial involvement and chronic coughing was again noted in our series. Only 3 cases, all unproven, lacked persistent cough. In the other patients it was usually one of the first symptoms. Cough was productive of purulent sputum in 46 of the 65 cases. Foul sputum was present in 9 cases; stones were recovered from 8 of these patients.

Hemoptysis was a very common symptom; it was present in 45 cases. It was the first symptom in one-third of the patients. Twenty patients had large hemorrhages; these patients usually had calculi obturating the bronchial lumen. Their case histories suggested that massive bleeding often occurred at the time that the stone was extruded into the lumen.

Atelectasis was almost invariably present in our patients. At least one zone of contracted lung was seen on the films of 63 of our patients; 1 of the remaining patients had a tracheolith and the other showed involvement of the right anterior segmental bronchus.

Table 2 demonstrates that segmental collapse was far more common than lobar or whole lung involvement. It also shows that the middle lobe and anterior segmental bronchi are predominantly damaged by this disease.

TABLE 2
SITES OF ATELECTASIS—65 CASES*

Middle lobe	29	Most common	
Anterior upper lobe and lingula	18	47	74%
Posterior upper lobe	4		
Apex lower lobe	2		
Anterior basal	2	9	Other segments
Lateral basal	1		
Upper lobe	4		
Lower lobe	3	8	Larger bronchi
Main bronchus	1		

*(One patient with 2 segments involved)

Severe and recurrent infection of the lung distal to the point of obstruction is

extremely common in broncholithiasis. The 33 proven cases will be used to illustrate these effects since inflammatory changes were more severe in this group and were often verified at operation and autopsy. Twenty-two of the proven cases had chronic or recurrent infection. In 6 instances lung abscesses were demonstrated. Bronchiectasis was present in 5 other cases. Severe pulmonary suppuration and lung destruction are frequent complications of prolonged bronchial obstruction. The findings in our series suggest that destructive changes are more marked when the broncholith lies within the bronchial lumen.

Since the entire pulmonary zone supplied by the obstructed bronchus is usually infected, inflammation of the pleura and empyema will often develop. Four of our patients were admitted with obscure empyemas and a fifth case was complicated by a sympathetic pleural effusion. An underlying lung abscess was present in 3 of these cases. In one instance the abscess ruptured into the pleura, producing a pyopneumothorax which was further complicated by the development of suppurative pericarditis.

Besides these serious effects upon bronchus, lung, and pleura, calcified lymph nodes may damage other intrathoracic structures. In 1 of our cases, carinal nodes produced esophageal stenosis. Eroding broncholiths may produce esophagobronchial fistula as reported by Maier.[6] The common association of inflammatory stricture of the middle lobe bronchus with traction diverticula of the esophagus has been recently reported by Katz.[7]

Since the calcified lymph nodes are also intimately related to the pulmonary arteries at the lung roots, the vascular wall may become adherent to the eroding broncholith. Soave[8] has reported the occurrence of a fistula between the middle lobe bronchus and a branch of the right pulmonary artery produced by an adherent anthracotic lymph node. Arnstein[9] has collected a number of cases in which calcified and anthracotic lymph nodes eroded pulmonary arteries in older patients and caused death by hemorrhage and asphyxia. The matting together of the root structures in this disease often makes surgical treatment difficult and makes segmental excision especially hazardous. Two of our patients underwent pneumonectomy because arteries were torn in the course of middle lobe and segmental resections.

DIAGNOSIS

The diagnosis of broncholithiasis must be considered when dealing with the problems of hemoptysis, chonic cough, recurrent pulmonary infection and empyema of unknown origin. Under such circumstances, the demonstration of lymph node calcification on the x-ray film should raise the suspicion that broncholithiasis exists. If doubtful radiological shadows are present, films should be taken with the Bucky or tomographic techniques to determine if calcium is present.

A presumptive diagnosis of broncholithiasis can be made if the roentgen views demonstrate that the calcification lies at the root of an atelectatic segment or middle lobe. Films in appropriate projections, lateral and oblique, must be taken to demonstrate this relationship because the middle lobe and the segments are often difficult to define on the conventional posteroanterior view. Calcification at the root of a contracted lobe or lung is not a good basis for the presumptive diagnosis of broncholithiasis; other lesions produce lobar and multilobar atelectasis far more frequently and the calcified node is often coincidental in such cases.

The diagnosis of broncholithiasis is usually confirmed by the finding of bronchostenosis at bronchoscopy. Where the obstruction is beyond the bronchoscopic field, it can be demonstrated by lipiodol instillation. However, bronchoscopic confirmation is more reliable than that furnished by bronchography for the operator will take a biopsy from the area of stenosis and will often remove the stone. Repeated biopsies from the zone of narrowing which show no neoplastic tissue effectively exclude the presence of malignant and benign bronchial tumor.

Bronchographic confirmation of broncholithiasis is reinforced if the patient's symp-

toms are of long duration or if old films are available which show the same pattern of calcification and segmental or middle lobe atelectasis. A benign bronchial tumor is not excluded by these findings.

The diagnosis of broncholithiasis is established when a broncholith is recovered. Before the development of bronchoscopy and modern thoracic surgery, stones were obtained only by expectoration and removal post mortem. Table 3 indicates that almost half of our stones were obtained at bronchoscopy or were expectorated following bronchoscopic manipulation.

TABLE 3
INDICATING MANNER IN WHICH BRONCHOLITHS WERE FIRST OBTAINED

Bronchoscopy	11
Surgical resection	8
Autopsy	6
Expectoration post bronchoscopy	4
Expectoration before bronchoscopy	4
	33 cases

In several cases, repeated bronchoscopic examinations were required before the broncholith was removed. In other cases, multiple fragments were present which made repeated operations necessary. The presence of additional calculi can be detected on overexposed x-ray films.

The patient should be questioned concerning the expectoration of stones when first seen. Head and Moen,[1] Brock,[3] and Rabin[4] have all treated patients who failed to volunteer that they had coughed up stones. Brock's patient produced a match box full of calculi when he was directly questioned. Since the diagnosis can be established through the history at the first meeting, information concerning the expectoration of calculi should be explicitly sought for.

The presence of reactivated tuberculosis within the calcified lymph node is uncommon; it occurred in only one of our cases. It will usually be discovered on routine smears for acid-fast bacilli or when a bronchoscopic biopsy is taken from the stenotic lesion.

The presence of bronchostenosis will exclude nonobstructive bronchiectasis and aspiration lung abscess. Biopsies taken from the stenotic area which contain no neoplastic tissue effectively exclude malignant and benign tumor since adequate samples taken from these lesions are invariably positive.

TREATMENT

Broncholithiasis is a disease which produces serious complications and carries a definite mortality. Eight of our 33 proven cases died of causes related to broncholithiasis. Massive hemorrhage, gangrenous pneumonia, pyopneumothorax, and suppurative pericarditis were among the causes of death and indicate the necessity for early diagnosis and treatment for this disease.

Early treatment will aim at relieving the obstruction of the bronchus, and preventing pulmonary suppuration and destruction. Early bronchoscopic examination is essential in this disease if pulmonary tissue is to be conserved.

Pulmonary resection is indicated in those cases in which the lung is irreparably damaged and in patients subject to massive life-endangering hemorrhages. Patients with empyema will require surgical drainage before the underlying pulmonary lesion can be treated.

Pulmonary resection or pleural drainage was necessary in 14 of our 33 proven cases. This represents a high incidence of severe complications of broncholithiasis, which is in part accounted for by the long duration of symptoms and the large number of intraluminal stones in our series. It is to be hoped that earlier diagnosis of this condition and prompt relief of bronchial obstruction will result in fewer cases which require surgical treatment.

SUMMARY

1. Broncholithiasis is an important cause of hemoptysis and pulmonary and pleural suppuration.

2. Broncholiths arise from calcified post-tuberculous lymph nodes which erode the bronchial wall.

3. Anatomical relationships favor the erosion of the calculi into the bronchi of the anteriorly located segments and the middle lobe.

4. A presumptive diagnosis of broncholithiasis is based upon the roentgenographic

demonstration of a calculus at the root of a collapsed segment or middle lobe.

5. The diagnosis is most frequently confirmed and verified at bronchoscopy.

6. Early treatment aims at the relief of bronchial obstruction and the conservation of pulmonary tissue.

7. Surgical therapy is indicated for recurring large hemorrhages and pulmonary and pleural suppuration.

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Note: I take this opportunity to express my gratitude to Dr. Coleman B. Rabin of the Mount Sinai Hospital, New York, who originated and directed this study, for his kindness in giving permission for the publication of this paper.

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Medical and Surgical Journal

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THE PHYSICIAN AND THE RELATION BETWEEN MEDICINE AND THE PRESS

Over a matter of generations the attitude of the physician toward the press has undergone an evolution through stages of indifference, antagonism, tolerance, and more recently—active cooperation. The attitude of cooperation has been engendered through the realization of the need for the health education of the public, of the need for improved public relations on the part of medicine as a whole, and more recently, by the realization that in the National Educational campaign undertaken by the American Medical Association more than 99 per cent of the papers of the country were with the medical profession against compulsory health insurance and against any of the indirect advances of communism that might threaten the freedom of the press, as well as the freedom of medicine. The attitude of the average doctor towards the press, in the abstract, may be crystallized by his most recent contact with some phase of newspaper activity, which may be either one of admiration for the service of the press in focusing public opinion on an important topic, or of antagonism for publicity in which the individual physician or the profession as a whole was held at fault.

In a recent address by Dr. Louis H. Bauer, President of the American Medical Association, it was stated: "We are proud to have the press as our ally in our fight for freedom. We are proud to be your allies in defending freedom of expression in our country."

With this in mind, it will become a source of some concern to realize that in a survey in one of the western states by the press association, it was finally stated that the greatest barriers to news were the doctors and hospitals. The reasons for physicians assuming the attitude of obstruction to news are understandable. Many doctors have been embarrassed by having the first news of an important drug or discovery presented to them in the form of a question by a patient, who had just read of it in the newspaper or a national weekly the hour before. Many physicians, also, resent the unfavorable display of a circumstance, in which one doctor may have been delinquent, in such a way as to cast reflection on the activities of the profession as a whole.

The explanation for such seemingly unhelpful types of medical publicity as these is worthy of consideration. In the first instance, there is keen public interest in all matters that concern medicine, and there is strong desire on the part of the public for knowledge of the progress of medical science. This has been intensified in recent years by what seemed to be startling and rapid advances. Actually, there is no way to prevent medical news delivered in address-

es or in publications from being disseminated. Medical meetings are open and libraries are open. Exclusion of reporters from medical meetings would only result in their having recourse to journals. As will be presented in this discussion, reporters should have medical assistance when they are considering an address or consulting an article.

In the second instance in which unfavorable comment causes resentment, the press is not actually responsible. The press would not present circumstances in a derogatory light if they were not satisfying the public's appetite for something of a defamatory character. This is due to our bad public relations in the past. This attitude was made possible by the fact that no organized effort has been made to improve them. By way of contrast, it should be remarked that adverse publicity is not suffered by members of the ministerial profession. The newspaper that would make a display of an exceptional case would be so criticized as to bring reflection on itself. We must then realize that newspaper and other publishing is a highly technical business which is competitive in the extreme, and is most susceptible to public opinion. And while newspapers may do much to mold opinion, they are also molded by it. Physicians must also come to learn that what the public knows and how the public feels towards the medical profession depends to a large extent on sources of information and how facts are presented. Accordingly, if we make desired medical information available to the press, we can avoid, in some measure, public ignorance and public misunderstanding. The "Principles of Medical Ethics of the American Medical Association" state in this connection:

> "The medical profession considers it ethical for a physician to meet the request of a component or constituent medical society to write, act, or speak for general readers or audiences. The adaptability of medical material for presentation to the public may be perceived first by publishers, motion picture producers or radio officials. These may offer to the physician opportunity to release to the public some article, exhibit, or drawing. Refusal to release the material may be considered a refusal to perform a public service, yet compliance may bring the charge of self-seeking or solicitation. In such circumstances the physician should be guided by the decision of official agencies established through component and constituent medical organizations."

Recognizing the importance of full cooperation between physicians and the press, many of the state and county societies have adopted a Code of Cooperation, setting forth a workable policy on medical news which would satisfy both sides. The Colorado State Medical Society's Code, which has served as a model for Codes adopted in many of the other states, sets up a system of official spokesmen for each county society—usually the president, secretary, and publicity chairman. The thought along these lines is that the average physician will sooner or later have occasion to meet with the press. That the physician may have adequate guidance in such contacts, and that the reporter may have sufficient assistance to present the medical point of view, is the reason for setting up such a committee. It is desirable that these committees have the authority to act quickly. In some instances, it has been found best that there should be a sort of medical public relations interpreter. It may be a physician with knowledge of press matters, or it may be a newspaper man of experience, who has familiarized himself with the medical point of view. In these connections, it is practically essential from the point of view of the newspaper to lend authenticity to a statement that the physician, or someone in authority, should be quoted. In such circumstances, the action of the spokesman "shall not be considered by their colleagues as a breach of the time-honored practice of physicians to avoid personal publicity, since it is done in the best interests of the public and the profession." Anonymous pro-

nouncements fall flat where the medical education of the public is concerned. It has appeared desirable in the handling of state and national meetings that special plans be made in order that science writers and medical reporters may have adequate contact with the essayists and opportunity to review the papers. In some instances, mimeographed copies are supplied; in others, abstracts. In either case, it seems necessary that the medical organization should provide an interpreter whose business it is to assist the reporters in getting an understanding of the medical point of view.

Where an interview is sought, or a photograph desired, there is some hesitation on the part of the essayist in acceding to these demands. The best thought on the subject is that, under such circumstances when there is some doubt, the physician could have recourse to the listed chairman of the organization or to the regulations chairman of the medical society in the local city.

It is considered unethical for a physician to furnish a story or picture on his own initiative to newspapers or magazines, as this smacks too much of self-seeking publicity. On the other hand, if data have been or are being presented publicly in lay or scientific meetings, it is considered ethical if the physician works through the publicity committee or public relations man of his local society. In that way, his colleagues are his judges and, in abiding by their judgment, he cannot be accused of being a publicity seeker.

With these considerations in mind, it is seen that with the demands of the public for medical knowledge and with the necessity for better public relations on the part of the profession as a whole, every effort should be made to see that the public gets accurate knowledge and gets the physician's point of view.

—o—

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

1953 ANNUAL MEETING

Dr. Cuthbert J. Brown has been appointed chairman of the Committee on Arrangements for the 1953 Annual Meeting which will be held in New Orleans May 7-9 and he will appoint chairmen of the various subcommittees within a short while.

It is desired that plans for the scientific program for this meeting be initiated as soon as possible and the president of the Society has appointed the following sectional chairmen to arrange the program. Any member who wishes to participate in the program or to offer suggestions or recommendations concerning the program should contact the chairman of the respective section in which he is interested or Dr. C. Grenes Cole, 1430 Tulane Avenue, New Orleans, who is chairman of the Committee on Scientific Work.

ALLERGY—Dr. N. K. Edrington, New Orleans
BACTERIOLOGY & PATHOLOGY—Dr. John L. Beven, Baton Rouge
CHEST—Dr. Dwight S. Danburg, Greenwell Springs
DERMATOLOGY—Dr. M. T. VanStuddiford, New Orleans
DIABETES—Dr. Arthur A. Herold, Shreveport
EAR, NOSE AND THROAT—Dr. John J. Irwin, New Orleans
EYE—Dr. L. W. Gorton, Shreveport
GASTROENTEROLOGY—Dr. Daniel N. Silverman, New Orleans
GENERAL PRACTICE—Dr. Theo F. Kirn, New Orleans
GYNECOLOGY—Dr. Walter Levy, Jr., New Orleans
HEART—Dr. Edgar Hull, New Orleans
MEDICINE—Dr. Richard E. Selser, Baton Rouge
NEUROPSYCHIATRY—Dr. E. M. Robards, Jackson
OBSTETRICS—Dr. Simon V. Ward, New Orleans
ORTHOPEDICS—Dr. Lyon K. Loomis, New Orleans
PEDIATRICS—Dr. Roy E. de la Houssaye, New Orleans
PUBLIC HEALTH—Dr. S. J. Phillips, New Orleans
RADIOLOGY—Dr. Joseph P. Tomsula, Baton Rouge
UROLOGY—Dr. Eugene C. St. Martin, Shreveport

HEALTH INSURANCE PLANK REPUBLICAN PARTY PLATFORM

The following will inform you as to the position of the respective Republican and Democratic parties regarding their stand against and for Voluntary and Compulsory Health Insurance Plans.

We feel that the platform adopted by the Republican Party merits our consideration when we go to the polls in November.

"We recognize that the health of our people as well as their proper medical care cannot be maintained if subject to federal bureaucratic dictation. There should be a just division of responsibility between government, the physician, the voluntary hospital, and voluntary health insurance. *We are opposed to federal compulsory health insurance with its crushing cost, wasteful inefficiency, bureaucratic dead weight, and debased standards of medical care.* We shall support those health activities by government which stimulate the development of adequate hospital services without federal interference in local administration. We favor support of scientific research. We pledge our continuous encouragement of improved methods of assuring health protection."

HEALTH INSURANCE PLANK DEMOCRATIC PARTY PLATFORM

We will continue to work for better health for every American, especially our children. We pledge continued and wholehearted support for the campaign that modern medicine is waging against mental illness, cancer, heart disease and other diseases.

Rsearch: We favor continued and vigorous support, from private and public sources, of research into the causes, prevention and cure of disease.

Medical Education: We advocate federal aid for medical education to help overcome the growing shortages of doctors, nurses, and other trained health personnel.

Hospitals and Health Centers: We pledge continued support for federal aid to hospital construction. We pledge increased federal aid to promote public health thru preventive programs and health services, especially in rural areas.

Cost of Medical Care: We also advocate a resolute attack on the heavy financial hazard of serious illness. We recognize that the costs of modern medical care have grown to be prohibitive for many millions of people. We commend President Truman for establishing the non-partisan commission on the health needs of the nation to seek an acceptable solution of this urgent problem.

SUGGESTED HEALTH PLANK FOR DEMOCRATIC PARTY PLATFORM, 1952 BY ORGANIZED MEDICINE

We recognize that the Nation's Voluntary Health Insurance Plans during the past four years have made remarkable progress in their efforts to provide the American people with sound, low-cost protection against the major costs of illness and accident. We also are cognizant of the fact that the majority of the American people, from all indications at the present time, does not favor a system of National Compulsory Health Insurance. We, therefore, in the interest of public welfare and in deference to public opinion, urge the maximum growth and development of Voluntary Health Insurance, and we hope that continued progress in that direction will prove conclusively that compulsory methods are unnecessary in the field of personal health care.

—o—

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

NEW RULING BY NARCOTICS BUREAU

We have just been informed that the Federal Bureau of Narcotics has sent out a new ruling on telephone orders. The ruling is as follows:

"*Article 172—Bureau of Narcotics Regulations No. 5.*

Telephone Orders: The furnishing of narcotics pursuant to telephone advice of practitioners is prohibited, whether prescriptions covering such orders are subsequently received or not, except that in an emergency a druggist may deliver narcotics through his employee or responsible agent pursuant to a telephone order, provided the employee or agent is supplied with a properly prepared prescription before delivery is made, which prescription shall be turned over to the druggist and filed by him as required by law."

All druggists are being alerted to this new regu-

lation and we in turn are giving you the information because it will make a difference to you in your practice.

SOME MOLES POTENTIALLY DANGEROUS

Although more than 99.9 per cent of all moles are harmless, some may turn into the worst kinds of cancer—highly malignant, very invasive and promptly fatal—Dr. Albert P. Seltzer, of Philadelphia, warned.

"Many people feel that just because a mole or other growth has been present since birth, it will never cause trouble," Dr. Seltzer wrote in Today's Health, published by the American Medical Association. "This is wishful thinking. We are all born with teeth, with tonsils, with an appendix. Yet frequently these organs become diseased and must be removed. The same is true of the common mole.

"Should every mole be removed? The answer is no. Most moles need no treatment except for cosmetic reasons. But certain kinds of moles are dangerous. A mole that increases in size, a mole that bleeds readily, a mole that becomes irritated or inflamed may already have become cancerous and certainly should come out at once."

Dr. Seltzer pointed out that black moles, particularly blue-black, green-black or slate colored ones, are prone to become malignant. Moles on the foot are quite dangerous and should be removed, as should moles in places exposed to constant irritation or chafing, such as along the collar line, in the shave area of the face, on the lips of a pipe smoker, along the belt line or in the armpit.

On the other hand, he added, cancer seldom originates in a mole that is brown or has hairs growing from it.

YOUR MONEY'S WORTH IN HEALTH

A new pamphlet entitled, "Your Money's Worth in Health," will be distributed soon to each member of the A.M.A., from the Public Relations Department of the national headquarters. It is an excellent explanation of some of the money troubles plaguing your patients and what part of his dollar goes for medical attention. The pamphlet points out that today a patient spends only 4% of his income for medical care (the same as his parents), while the percentage of his dollar that goes for other things is greatly increased. It also points to the fact that the doctors' share of a patients medical dollar is actually less than in 1935-1939, due to a sharp rise in other medical costs but only a minor increase in doctors' fees. Additional copies of "Your Money's Worth In Health," will be available from the Public Relations office of the State Society.

NEW DESSERTS REMOVE EXCESS SALT

At the recent convention of the American Medical Association, visiting physicians made thousands of taste tests of cookies into which there had been baked a mixture of unflavored and finely ground sodium-removing resins. The doctors approved the medicated cookies for taste; many believed they compared favorably with grandma's best. Cookies are but one foodstuff into which the housewife may blend this new form of an already established agent which removes excess sodium from the bodies of patients who suffer from heart disease, cirrhosis of the liver, edema of pregnancy, or hypertension. Fruit juices, milk, fudge, cake, and flavored gelatin are some of the other nutriments which will hold and disguise the new medication. Now patients with excessive sodium retention can actually enjoy taking a medicine which allows other items in their diet to be seasoned more liberally and tastefully with once-forbidden salt. Eli Lilly and Company will supply physicians with books of various kitchen-tested recipes which may be given to patients.

ANNOUNCEMENT OF VAN METER PRIZE AWARD

The American Goiter Association again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association, which will be held in Chicago, Illinois, May 7, 8 and 9, 1953, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy in duplicate sent to the Corresponding Secretary, Dr. George C. Shivers, 100 East Saint Vrain Street, Colorado Springs, Colorado, not later than February 15, 1953. The committee who will review the manuscripts is composed of men well qualified to judge the merits of the competing essays.

A place will be reserved on the program of the annual meeting for the presentation of the Prize Award Essay by the author, if it is possible for him to attend. The essay will be published in the annual Proceedings of the Association.

FISKE FUND PRIZE DISSERTATION

The Trustees of the Caleb Fiske Fund of the Rhode Island Medical Society announce the following subject for the prize dissertation of 1952:

"The Present Status of Anti-Coagulant Therapy"

For the best dissertation a prize of $200 is offered. Dissertations must be submitted by December 1, 1952, with a motto thereon, and with it a sealed envelope bearing the same motto inscribed on the outside, with the name and address of the author within. The successful author will also agree to read his paper before the Rhode Island Medical Society at its Annual Meeting on May 7,

1953. Copy must be typewritten, double spaced, and should not exceed 10,000 words. For further information write the Rhode Island Medical Society, 106 Francis Street, Providence 3, R. I.

INTERNATIONAL MEETING ON RABIES CALLED BY WHO

The first international meeting on rabies called by the World Health Organization will take place in Coonoor, India, from 14 to 28 July.

Important rabies carriers are dogs, cats, wolves, jackals and foxes, as well as the mongoose, meercat and genet in South Africa, and the vampire bat in South and Central America.

Recent important advances in the study of rabies include the introduction of the mouse as an experimental animal for detecting the virus, the development of new and potent vaccines, and the use of hyper-immune serum in the prevention of the disease.

WHO has sponsored a series of rabies surveys in different countries, aided Israel in the vaccination of dogs, and assisted Mexico in a project involving vampire bats. As a follow-up to the Coonoor conference, the various discussion leaders will visit laboratories and give technical advice in Indonesia, Thailand, Burma, Malaya, India and Iran.

In preparation for the conference, a Reference Manual on Rabies has been prepared by WHO with the help of these experts. The manual contains detailed descriptions of laboratory techniques as well as methods of field control. Demonstration material and standard virus strains will be distributed to the participants.

SURGICAL ASSOCIATION OF LA. CHANGES MEETING DATE

The Surgical Association of Louisiana will hold its annual meeting at the St. Charles Hotel, New Orleans, on Sunday, November 16. An excellent scientific meeting is being planned. Please remember the date and enjoy good food and an all-round good time.

BOOK REVIEWS

Atlas of Genito-Urinary Surgery: By Philip R. Roen. New York, Appleton-Century-Crofts, Inc. 1951. illus. pp. 325. Price $8.00.

To my knowledge no atlas of genitourinary surgery existed prior to the publication of this book. For this reason alone, it would appear that this work represents a very worthwhile contribution to the literature.

As the word atlas implies the book is made up chiefly of illustrations. With each operative procedure there is a brief word description in outline form. The volume is divided into nine sections or chapters covering all phases of genitourinary surgery.

In the introductory chapter the author comments upon general surgical and urological principles with special emphasis being given to the preparation of the patient for surgery. He also mentions some very important postoperative principles that are worthwhile.

Sections two, four and five deal with surgery of the kidney, ureter, and bladder, respectively. Each section covers its field rather completely, an where variations in techniques are justified, each technique is illustrated. In dealing with ureteral surgery emphasis is placed on the various routes and techniques for ureteral transplants.

Section three is devoted to the surgical considerations of the adrenal gland. Techniques for perirenal air insufflation and pneumoretroperitoneum are also outlined.

Prostatic surgery is covered in section six and operations on the scrotum and testicles are considered in section seven. Surgery of the urethra and penis is covered in the last two sections. Special attention, showing several different techniques, is given to the surgical correction of hypospadias.

Each urologist has developed certain surgical techniques and certain minor variations in standard techniques, so it is not within the scope of this review to comment on any specific operative methods. As a general comment, however, I should like to say that in many of the procedures details in anatomy and technique are missing. I realize the author has sacrificed such details for brevity and conciseness, and for this he is to be commended. However, for one who is not familiar with a certain procedure this atlas in itself does not appear to be the answer to the entire problem.

It is felt that this atlas represents a very important part of any urological library. I believe its use in conjunction with other urological texts and operative descriptions will be very beneficial to anyone interested in genitourinary surgery.

R. P. Morrow, Jr., M. D.

PUBLICATIONS RECEIVED

Medical Research Press, N. Y.: The Low Fat Diet Cook Book, by Dorothy Myers Hildreth, Dietitian, and Eugene A. Hildreth, M. D.

W. B. Saunders Company, Phila.: Pharmacology in Clinical Practice, by Harry Beckman, M. D.

Charles C. Thomas, Publisher, Springfield, Ill.: Diabetic Glomerulosclerosis; The Specific Renal Disease of Diabetes Mellitus, by Harold Rifkin, M. D., Louis Leiter, M. D., Ph.D., and James Berkman, M. D.; Disorders in Perception, by Morris B. Bender, M. D.

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SYMPOSIUM ON DIABETES MELLITUS

STATISTICS FROM OUR LADY OF THE LAKE SANITARIUM, BATON ROUGE, LOUISIANA

JOSEPH P. TOMSULA, M. D.
BATON ROUGE

INTRODUCTION

This symposium is a duplication of our prior efforts at the regular Medical Staff Meeting at Our Lady of the Lake Sanitarium in Baton Rouge, Louisiana.

We are not following the usual procedural pattern of reporting cases and then adding our summaries to the already vast total present in contemporary writings. On the contrary, this symposium originated because of the cases found at Our Lady of the Lake Sanitarium over a twenty-three month period from January 1950, through November 1951. (see Table 1).

TABLE 1
PERIOD COVERED: JANUARY 1950, THROUGH NOVEMBER 1951

Charts surveyed	20,000
Cases found	178
Primary condition	81
Associated condition	97
Average age	54 years
Youngest 7 years	
Eldest 88 years	

A total of 20,000 hospital admission charts were reviewed. Approximately 1 per cent, (178 cases), either had diabetes mellitus listed as the primary (81 cases) or associated (97 cases) cause for admission during this period. Females outnumbered males by slightly better than a 2:1 ratio. The average age was 54 years, with the youngest being 7 years of age and the eldest 88 years of age.

Table 2 lists the surgical admissions according to specialties concerned. General surgery, (primarily vascular), and ophthalmologic surgery, (primarily lens) outnumber the gynecologic and obstetrical cases as one would expect from the advanced average age previously noted.

TABLE 2
SURGICAL ADMISSIONS

General surgery	19
Ophthalmology	10
Gynecology	4
Obstetrics	3

Table 3 shows that acidosis or coma or both are not too common. It is of interest to note the number of patients having associated cardiac conditions. It is more interesting to note that despite the original 2:1 female to male ratio noted, cardiac complications affected 40 per cent of the males and 39 per cent of the females.

TABLE 3
MEDICAL COMPLICATIONS

Acidosis	10
Coma	7
Acidosis and coma	2
Associated cardiac condition (40% males, 39% females)	70

Table 4 gives the total mortality for the 178 cases found for this survey. Complications produced by the disease are apparently three times more deadly than diabetes mellitus itself.

TABLE 4
MORTALITY

Total deaths	17
Diabetes mellitus—primary cause	4
Diabetes mellitus—secondary cause	13

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

PATHOGENESIS OF DIABETES*

ALBERT L. McQUOWN, M. D.†

BATON ROUGE

The exact mechanisms of human diabetes are at present unknown and any discussion of them is by necessity speculative.

In experimental diabetes the manifestations are a reflection of the state of the beta cells of the islands of Langerhans. This type of diabetes may be produced in five ways: (1) partial pancreatectomy;[1] (2) injection of anterohypophyseal extract (A.P.E.);[2] (3) partial pancreatectomy followed by administration of thyroid extract;[3] (4) administration of alloxan;[4] and (5) injection of large amounts of glucose.[5] In these cases the beta cells undergo degranulation followed by hydroptic change, cytolysis and disintegration of the cell.

In human diabetes, by the use of special stains, Bell[6] has demonstrated complete degranulation of beta cells in 25 per cent of cases and a partial degranulation in an additional 35 per cent. Equally important is that 40 per cent of the cases show no alterations from normal. Hydroptic changes do not follow degranulation in human diabetes, and cytolysis has not been demonstrated. Diabetic cases are seen in which hyalinization of the islands has occurred (50 per cent) and Opie[7] believes this to be the lesion specific for human diabetes. This hyaline material is deposited intercellularly and is not formed in the islet cells. This hyalinization is often associated with arteriosclerosis and is found in the older age group of diabetics.

In human diabetes the average pancreatic insulin content is 0.4 units per gram. The normal average pancreas contains 1.7 units of insulin per gram. The diabetic pancreatic values vary from 0.03 to 1.9 units per gram and the normal pancreas values vary from 0.6 to 3.8 units per gram.[8] When divided into age groups and with comparison of granulation of beta cells, a direct correlation of the insulin content and state of granulation is seen (Table 1).

TABLE 1
INSULIN CONTENT COMPARED WITH DEGREE OF GRANULATION

Age Group	U/gm. Insulin	Avg. degree of Gran. of beta cells
1 - 30 yrs.	0.07 u/gm	0 - 1
30 - 60 yrs.	0.45 u/gm	1 - 2
60 - over	0.544 u/gm	2 - 3*

* = complete granulation.

With this information, we can compare experimental and human diabetes (Table 2).

As seen from Table 2 there can be no true comparison between experimental and human diabetes. Consequently we must look further for the cause and consider the endocrine glands.

In relationship to insulin and the pancreas, three possibilities exist; (1) insulin is not being formed in adequate amounts by the beta cells (degranulated); (2) normally formed insulin is not released from the pancreas in adequate amounts (fully granulated); or (3) normally formed and normally delivered insulin is neutralized or excessively metabolized after reaching the general circulation (degranulation due to overstimulation).

When the liver of a previously depancreatized dog is removed there is just as rapid a fall in the blood sugar level as following hepatectomy in a normal dog (Fig. 1).[10] This fact tends to substantiate the overproduction theory of diabetes against the nonutilization theory. This is visually illustrated in figure 2[11] where hepatectomy would produce hypoglycemia in 4 (a) and 4 (c) but not in 4 (b).

A deficiency of anterior pituitary hormone will produce a hypoglycemia, and conversely, administration of anterior pituitary extracts will maintain a high blood sugar level.

The adrenal cortex and thyroid gland, like the pituitary from which their action is separated with difficulty, will in turn lower or raise the blood sugar level similar to the pituitary gland.

The relationship then of the pancreas, pituitary, adrenal cortex and thyroid gland

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

†Codirector, Department of Pathology, Our Lady of the Lake Sanitarium, Baton Rouge, La., and Clinical Assistant Professor, Louisiana State University School of Medicine, New Orleans, La.

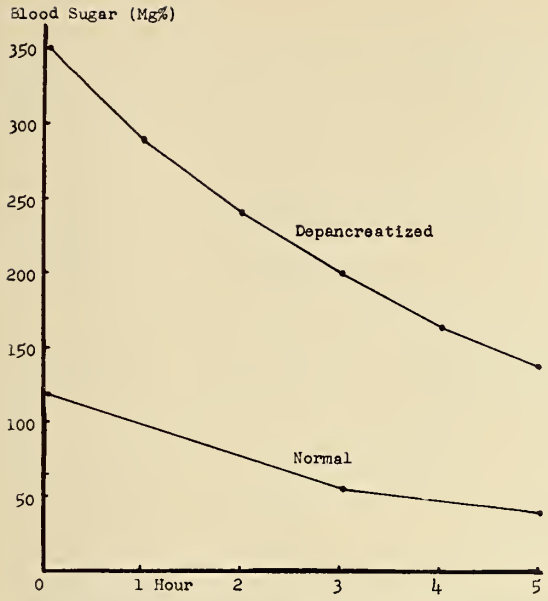

Figure 1.—Blood sugar level in normal and depancreatized dog. (From Mann, F. C., and Magath, T. B.: Arch. Int. Med. 31:797, 1923).

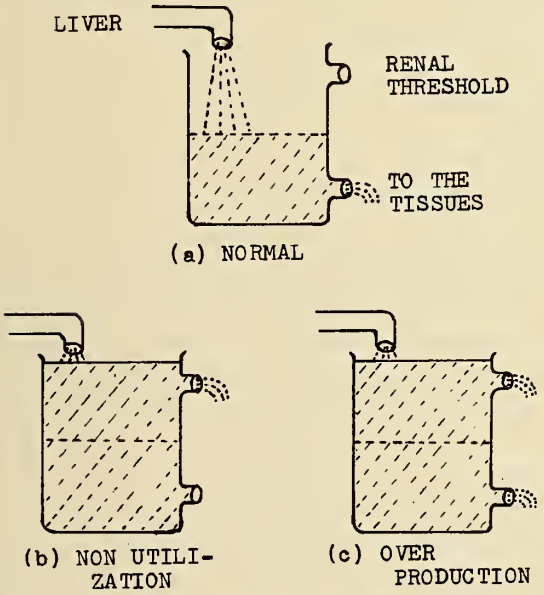

Figure 2.—Theories of diabetes (graphic) (From Soskin, S.: The endocrines in diabetes, Am. Lect. Series, No. 19).

to carbohydrate regulation and to each other is a finely balanced adjustment to supply the correct amount of glucose that is being utilized by the tissues. This is illustrated in figure 3.[11] A weakening in any direction will produce the diabetic syndrome. It may be corrected by adjustment in the opposite gland or administration of the specific deficiency, be it insulin, thyroid, adrenal, or pituitary extract.

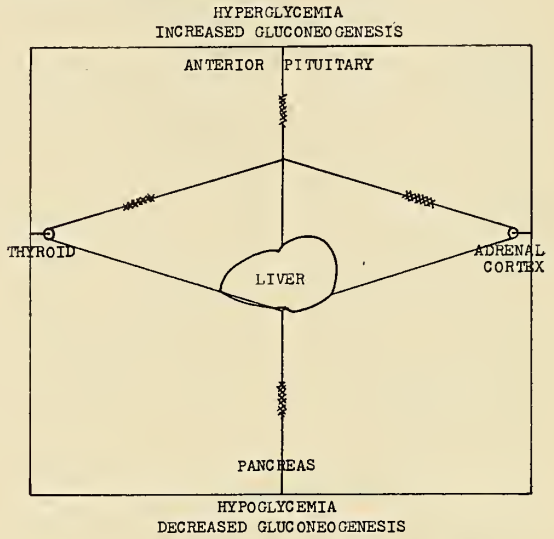

Figure 3.—Carbohydrate metabolism regulation. (From Soskin, S.: The endocrines in diabetes, Am. Lect. Series, No. 19).

SUMMARY

In summary, the condition of diabetes mellitus is a complex hormonal interplay of carbohydrate metabolism and not a simple pancreatic change producing hypoinsulinism. This understanding is essential for the modern day treatment of diabetes and it is not too much to hope that as our knowledge of these basic hormone activities and interrelationships increases the reason for the widespread incidence of diabetes in man will be revealed.

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TABLE 2
MORPHOLOGIC COMPARISON OF EXPERIMENTAL AND HUMAN DIABETES

Experiment	Beta Granulation	Beta Cells	Insulin Content	Probable Mechanism
Non-Diabetic:				
Fasting			Reduced	Resting
Fat-feeding	Reduced	Degranulation only	Reduced	Resting
Insulin inj.			Reduced	Resting
Glucose I.V.			?	Exhaustion
Temp. Diabetic:				
Hypophyseal (A.P.E.)	Reduced	Degranulation Hydropic Degen.	Reduced	Exhaustion + toxic
Thyroid				
Perm. Diabetic:				
Meta-pancreatic				Exhaustion
Meta-hypoph.	0	Necrotic Disappear	Reduced	Exhaustion + toxic
Meta-thyroid				Exhaustion + toxic
Meta-alloxan				Toxic
Meta-glucose?	Reduced	Degranulation Hydropic degen. Cytolysis	?	Exhaustion
Human Diabetes	Normal —40% Reduced—35% 0 —25%	Degranulation only No hydropic. degen. No cytolysis	¼ of normal	?

(After Peterson, C. A.: Bul. Univ. Minnesota Hosp. & Med. Found., 21:18, 1949)

DIABETES MELLITUS; OPHTHALMOLOGICAL ASPECTS

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The disease complex known as diabetes mellitus may be accompanied by pathological manifestations in almost any of the structures of the eye. For reasons of simplicity these will be treated in three groups: (1) the lens, (2) the retina, and (3) all others.

THE LENS

In spite of considerable confusion to the contrary the only type of cataract that justifies the term "diabetic cataract" is a rapidly progressive one, found in people less than forty years of age and whose onset is characterized by the presence of a layer of small punctate opacities in the anterior and posterior cortex. The great majority of the cataracts seen in diabetes are of the senile variety and are associated with diabetes only by chance. It has been repeatedly pointed out that a large percentage of apparently normal people over sixty years of age have some type of lens change. Therefore, it is difficult or impossible to evaluate the role of diabetes in the production of senile changes. However, it is the feeling of most observers that senile cataract occurs more frequently at an earlier age and progresses more rapidly to maturity in the diabetic than in the otherwise normal individual.

It will be interesting, I believe, to look at some figures on the occurrence of cataract in diabetes. In his monolithic work on cataract Kirby quotes some figures that were earlier compiled by himself. Thirty-five per cent of diabetics of all ages had clear lenses, the remaining 65 per cent hav-

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ing some variety of lens opacity. Seventy per cent of these were of the senile cortical type, 21 per cent nuclear, 7 per cent posterior cortical, and 2 per cent subcapsular. The severity of the diabetes made little difference in the incidence, cataract actually being more frequent in the moderate than in the severe cases. Approaching these figures from the standpoint of duration of the disease it is found that in diabetes of one year's duration 22 per cent had cataract, of two years' standing 62 per cent, three years' 44 per cent, four years' 63 per cent, five years' 40 per cent and over five years' 70 per cent. Also it was found that 16 per cent of diabetics less than thirty-three years of age had lens changes.

Before leaving the subject of cataract I would like to speak a word for the intense cooperation that must be obtained between the clinician and the ophthalmologist when a diabetic goes to cataract surgery. The two main things to be borne in mind are that too intense insulin therapy leads to hemorrhage, while insufficient insulin predisposes to infection. I would also like to mention the bizarre and evanescent refractive changes that occasionally occur in diabetes. All of us who do refractions have encountered the sudden loss of hypermetropia or increase of myopia that obtains at times in our diabetic patients. Various explanations have been offered. Among these are subclinical lenticular changes, changes in refraction in other ocular media, and accommodative paresis.

THE RETINA

The existence of specific changes in the fundi of diabetics was first described by Jaeger in 1856, and ever since then there has been considerable argument as to whether these changes are really specific to the disease or not. These characteristic changes are usually bilateral and are found in the area between the upper and lower temporal vessels of the retina and in the region surrounding the optic nerve head. Here numerous hemorrhages of all sizes are found. The one most often seen is small, round, and deeply situated. Also, there are exudative spots that are sharply demarcated, white or yellowish, lustrous, and give the appearance of hardness. The discs are normal and there is an absence of retinal edema. In longer standing cases there is retinitis proliferans, vitreous hemorrhage with massive organization and subsequent retinal detachment, and also, secondary glaucoma. In younger people particularly, all the changes seem to be out of proportion with the changes seen in the blood vessels.

The incidence of diabetic retinopathy has been variously reported. Elwyn quotes the statistics of Waite and Beetham who examined slightly under four thousand diabetics with visible fundi. They found deep retinal hemorrhages in 18.6 per cent, waxy exudates 10.7 per cent, nerve fiber layer hemorrhages 5 per cent, cotton-wool exudates 4.3 per cent, iridescent crystals 0.7 per cent, and proliferation of capillaries in retina 0.7 per cent. I feel that the high incidence of cotton-wool exudates, 4.3 per cent, is ample evidence to give credence to the view that arteriosclerosis as such has a large part to play in the production of so-called diabetic retinopathy. I might also note that Joslin found vascular damage in 70 per cent of 250 patients whose diabetes began in youth.

Which diabetics develop retinopathy? The older authors, and the Europeans, still emphasize that it affects the older patients only, particularly those in the 50 to 55 age group. Most American investigators do not correlate the incidence of retinopathy with either age or severity of the disease but state rather that it is seen more often in the person with mild diabetes who has had hyperglycemia for a long time. The explanation for this is the supposed chronic state of stasis due to the dilatation of the precapillary arterioles, capillaries, and postcapillary venules of the retina.

What can be done for the retinopathy? Treatment of the diabetes as such has very little effect on the retinal disease. Rutin has been advocated as a measure to diminish capillary fragility, and consequently, reduce the number of retinal hemorrhages. While used frequently the results have been

disappointing. An interesting observation was made by a group at the Cleveland Clinic. They found that patients with retinopathy have normal or slightly reduced plasma proteins with a relative decrease in albumin and increase of beta globulin. Sixteen patients were observed over a period of two to three and one-half years and given 100 to 200 grams of protein per day in an attempt to decrease the tendency to exudation and hemorrhage. Of these the plasma protein pattern was corrected and recurrent hemorrhages disappeared in 6 and decreased in 1.

OTHER MANIFESTATIONS

As stated earlier diabetes may affect any of the ocular structures. One manifestation frequently described is recurrent hordeola or even carbuncles of the lid in young unrecognized diabetics. Also there are iris changes including iritis, atrophy, rubeosis, and changes in the pupillary border. Another condition of the fundus that should be mentioned is lipemia retinalis which is associated with generalized lipemia. Finally, extra-ocular muscle palsies have been reported and also asthenopia.

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DIABETIC COMA*

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DEFINITION

Diabetic coma is a first rank medical emergency in which there is an acute insulin deficiency with resultant inability of the tissue to oxidize carbohydrate. When carbohydrate utilization is reduced to a degree which causes an increase of great magnitude of fat metabolism, ketone bodies (acetone, diacetic acid and beta-hydroxybuturic) are produced at a rate which exceeds the ability of the body to complete their oxidation. They accumulate in the blood in large quantities, and diabetic acidosis makes itself apparent.

ETIOLOGY AND PREDISPOSING CAUSES

1. *Omission of insulin* is an important cause of diabetic coma. It has been ably stated that "the diabetic who knows the most lives the longest." Every patient with diabetes, whether mild or severe, should be carefully instructed as to the benefits of insulin in order that he may recognize the urgent need for its use should his carbohydrate tolerance suddenly become impaired by infection, surgery, trauma, or an acute gastrointestinal upset. He should be cognizant of the fact that in such cases his insulin may have to be doubled or trebled instead of omitted.

2. *Infection.*—Acute infection is prone to aggravate the severity of diabetes and may precipitate diabetic coma by reducing carbohydrate tolerance and increasing fat metabolism.

Even a "trifling cold" or an upper respiratory infection may interfere with carbohydrate tolerance. A diabetic who has been maintained sugar-free on diet alone may have to take insulin in the presence of infection to avoid a serious catastophe. Therefore, I feel that the diabetic should have thorough knowledge of his disease. In order that he may do so, I furnish him with an abundance of literature on diabetes as well as inform him that he is actually his own doctor and any errors he makes will simply be chalked up as negligence or ignorance.

In the presence of infection, the urine should be examined several times daily, not only for sugar but for acetone and diacetic acid. There seems to be no need for carbohydrate restriction when infection is present, but proteins and fats should be reduced to prevent excess ketone body production.

3. *Trauma.* — Trauma very frequently has been found to precipitate diabetic coma. This is especially true in head injuries and fractures of long bones. Injuries directly

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to the pancreas sufficient to interfere with insulin production have been spoken of, but play a minor role in the incidence of coma.

4. *Vomiting and Diarrhea.*—Any diabetic patient with vomiting and diarrhea, whether mild or otherwise, is certainly a good candidate for diabetic coma. One invariably finds that such patients will omit insulin under these circumstances, when actually it may be needed more at that particular time, not only in the amounts usually taken but even doubled to prevent a ketosis.

5. *Hyperthyroidism and pregnancy* are two separate entities that have been known to predispose not only to diabetes but to diabetic coma. The presence of either in a diabetic patient should serve as ample warning that the patient should be carefully watched for a gradual increase in blood sugar levels to the precoma and coma state.

6. *Dietetic Imbalance.*—There is evidence that production of acetone bodies will be accelerated whenever the hepatic glycogen concentration falls to subnormal levels, and such production of acetone bodies can be inhibited by any factor which will enable the liver to retain adequate stores of glycogen. The timeworn statement "fat burns in the flame of carbohydrates" has been replaced by "the flames of carbohydrate extinguish those of fat." When the physician provides the diabetic with an adequate amount of carbohydrate, he affords him his greatest insurance against coma.

7. *Insulin Resistance.*—One must remember that the diabetic whose urine is sugar-free is almost never in danger of acidosis; but in rare cases, patients have been found to be resistant to insulin, making it rather difficult at times to control diabetes with diet alone.

SYMPTOMS AND SIGNS

The symptoms of diabetic acidosis are divided into (1) early and (2) late, depending on the severity of the acidosis present. It is not uncommon to find a patient with a blood sugar of 300 to 400 mg. per 100 cc. of blood, and yet tests for ketone bodies in both the urine and plasma are negative. Therefore, one must remember, in order to avoid errors in diagnosis of coma, that the diabetic is subject to any and all of the diseases that may affect any nondiabetic. The diabetic patient may be unconscious from a fractured skull, from acute intoxication, cerebral hemorrhage, from drugs or meningitis, or from shock. All of these may alter carbohydrate metabolism.

Therefore, may I reiterate that an unconscious patient with an elevated blood sugar in the absence of ketosis should be carefully studied to determine the cause of his coma.

The early symptoms are usually vague. Acidosis should be suspected when any unusual symptoms or signs appear in a known diabetic. The most frequent early symptoms are weakness, headache, thirst, loss of appetite, vomiting, drowsiness, and neuritic pains.

The late symptoms are much more characteristic; namely, dehydration, Kussmaul breathing, somnolence, coma, and acetone odor to the breath. The cheeks are flushed, respirations are deep and rapid, the skin and mouth are dry, and the eyeballs are soft. The late symptoms begin to manifest themselves when the CO_2 combining power falls below 40 volumes per cent, and they are pronounced if the CO_2 combining power falls below 20 volumes per cent.

PATHOLOGIC PHYSIOLOGY

Before we discuss the treatment of diabetic coma, it is always wise to understand the nature of diabetic coma.

Diabetic ketoses occur when utilization of carbohydrate is reduced to a degree which causes an increase of great magnitude in the metabolism of fats. This results in the production of ketone bodies (acetone, diacetic acid, and beta-hydroxybuturic acid). They are produced at a rate which exceeds the ability of the body to complete their oxidation, and the excess, in the early stages, is excreted in the urine. As this process progresses, a 1 plus reaction for acetone in the urine is replaced by a 2 plus, 3 plus, and finally, a 4 plus reaction. Then the production exceeds the functional capacity of the excretory mechanism of the kidneys and the lungs, and then ketone bodies accumulate in the blood. At first, this stage is detectable by the appearance of a

trace of acetone in the blood plasma; but barring correction, 2 plus, 3 plus, and finally, 4 plus reactions for plasma acetone are observed. It is not until 4 plus reactions for acetone in the urine are observed for variable periods of time that amounts of acetone increase in the plasma to a sufficient concentration to be detected by the usual tests used. Hence, a 3 plus or 4 plus reaction for acetone in the plasma shows a much more advanced degree of ketosis than do similar reactions obtained on examination of the urine.

CRITERIA FOR DIAGNOSIS

It has been ably stated by Duncan, Carey and Hudson, that an acutely ill patient having a 4 plus glycosuria and acetonuria and a 4 plus reaction for plasma acetone fulfills the chemical criteria necessary to make a diagnosis of diabetic coma. With this in mind, they have instituted treatment fully one hour before blood sugar determinations were obtained from the laboratory. When one considers that the mortality rate increases with every additional hour of coma, it is imperative that we institute prompt treatment so as not to have avoidable deaths.

A plasma acetone test is simple and can be done in ten to fifteen minutes. Withdraw 5 cc. blood, allow to stand for ten minutes, take 2 or 3 drops of plasma, place on a pinch of Denco-Reagent.* In the presence of acetone, a shade of purple will develop in thirty seconds; a trace of acetone will result in a light lavender color, and with increasing amounts of acetone the color will be darker; a dark blue indicating a 4 plus reaction. In the absence of acetone a grayish yellow color will result.

The following chemistry would be noted in a patient with diabetic coma: a 4 plus glycosuria and acetonuria; blood sugar 300 mg. per 100 cc. blood or over; CO_2 combining power 25 volumes per cent or below.

TREATMENT

The treatment of diabetic acidosis has been controversial. Story and his associates state that alkalies, plasma, and potassium preparations are not necessary in the treatment of diabetic coma if adequate insulin dosage is given early. On the other hand, Duncan, Carey, and Hudson state that alkalies, plasma, and potassium are definitely of value in the treatment of diabetic coma along with adequate insulin dosage if the mortality rate is to be reduced still more.

I believe that there is little doubt at present that large doses of insulin given early in the treatment of diabetic coma have reduced the mortality rate considerably. Each case must be individualized. There are cases in which alkalies, plasma, and potassium are not necessary, and cases in which they are necessary, and their judicious use will be life-saving in severe diabetic acidosis.

Be that as it may, the following method of treatment of diabetic coma has proved satisfactory:

I. A. Secure the following studies immediately:

1. Blood sugar, acetone bodies, hematocrit, CO_2 combining power, specific gravity (of whole blood) urea determinations, and serum potassium.

2. Urine for culture and routine chemical analysis.

B. Subsequent studies:

1. Urine should be examined at hourly intervals for sugar and acetone.

2. Blood specimens should be taken at two and three hour intervals for sugar, acetone, CO_2 and specific gravity of whole blood until the patient is conscious and retaining nourishment by mouth.

II. Insulin:

The insulin dosage may vary, depending on the severity of the coma, but a patient wtih a CO_2 combining power below 25 volumes per cent and a blood sugar above 400 mg. per 100 cc. blood and a 4 plus acetonuria should be given 40 units of regular insulin, intravenously, and 60 units of regular insulin, subcutaneously, immediately. Then insulin is given at half-hour intervals, 50 units, subcutaneously, until there is a

*Denco-Reagent contains sodium bicarbonate, ammonium sulphate and sodium nitro-prusside in anhydrous form (Gradwall).

satisfactory reduction of plasma acetone, or increase in the CO_2 combining power, or a reduction of blood sugar below 200 mg. per 100 cc. blood. If after six hours, no appreciable change is noted in either the plasma acetone, the CO_2 combining power or the blood sugar, each succeeding dose of insulin should be increased by 25 units until such change is noted. Using insulin in such tremendous dosage is not without danger, so in order to prevent a hypoglycemia it is wise to give the patient 1000 cc. of a 5 per cent glucose solution. This should be begun four hours after treatment has begun. When there is an appreciable reduction of plasma acetone and an appreciable increase of CO_2 combining power to 30 volumes per cent and a reduction blood sugar below 200 mg. per 100 cc. blood, one should recognize the fact that there will be a lessened resistance to insulin, and the physician should be on the alert and watch for a rapidly developing hypoglycemia.

When the clinical condition and the laboratory findings indicate that the patient shows satisfactory improvement, insulin may be given on an hourly basis, then on a three hour schedule, using the following guide:

4 plus glycosuria—30 units
3 plus glycosuria—20 units
2 plus glycosuria—10 units
1 plus glycosuria—omit dose
0 plus glycosuria—omit dose and give 20 gm. carbohydrate

When evidence of ketosis has subsided and the patient is taking nourishment orally, he is put on a six hour schedule using the above scale.

III. Fluids and Chlorides:

Low blood pressure, hemoconcentration, dehydration, dryness of the skin, and soft eyeballs are indicative of the shock syndrome in severe diabetic coma. Restoration of the electrolyte balance of the patient in coma is an essential factor and should not be delayed. Therefore 2000 cc. of normal saline are given rapidly, 15 to 20 cc. per minute if the systolic pressure is below 90 mm. of mercury. This should be given within the first two hours. Further administration is given freely while the specific gravity (of whole blood) remains above 1.055, while the hematocrit values remain above 50 per cent, and the systolic blood pressure remains below 90 mm. mercury.

As soon as the patient's condition permits, broth, ginger ale, and later carbohydrate-containing fluids, strained cereals, gruel, sweetened tea, and fruit juices may be given.

Accurate records of fluid intake and output are essential.

IV. Secure an electrocardiogram as early as is practicable and repeat every four hours for twenty-four hours. More frequent tracings are indicated to guide therapy in cases of hypopotassemia. Careful evaluation of the electrocardiogram is considered by Nadler and his co-workers to be a much simpler method of detecting a hypopotassemia than quantitative analysis of the serum potassium. It is difficult to get a quantitative potassium analysis under six hours; whereas an electrocardiographic tracing can be obtained immediately.

V. Carbohydrates:

One should always keep hypoglycemia in mind when giving large doses of insulin. Careful observation by the physician, not by the nurse, and repeated urinalysis and blood chemistry are the only means of assurance that the patient is progressing satisfactorily. Therefore, it is advisable to give 1000 cc. of 5 per cent glucose four hours after therapy has begun. This should be repeated after six hours if the patient is not taking nourishment by mouth.

VI. Alkalies:

The administration of alkalies has been controversial. I do not believe that a patient with severe diabetic acidosis can be harmed by the administration of sodium R-Lactate solution. I do not hesitate to give these patients 600 cc. of 1/6 molar solution.

VIII. Potassium:

Because of the role of potassium in the treatment of diabetic coma and of the ill effects of hypopotassemia, I think one

should familiarize himself with the clinical physiology of potassium. The average concentration of serum potassium in the normal blood is from 4.0 to 5.4 milli-equivalents per liter or 16 to 21 milligrams per 100 cc. blood. The intra-cellular potassium is about 23 times that of the serum. During the development of acidosis much of the fixed base as well as potassium is lost.

During the treatment of diabetic coma, the extracellular fluid is expanded and the serum potassium level falls. Urinary excretion produces further loss of potassium. This continues until the potassium falls to a level producing respiratory paralysis and cardiac damage. That is why a number of patients in deep diabetic coma have improved at first then suddenly became worse and died. This catastrophe can be avoided by the judicious use of potassium when indicated. Potassium chloride should be given orally or by stomach tube, 1 to 2 grams at a time and repeated every four hours for 4 doses. For intravenous use, 100 to 500 cc. of a 1.14 per cent potassium chloride are administered. One must remember that it should not be given with poorly functioning kidneys.

VIII. Gastric Lavage and Enema:

The stomach should be emptied of its contents in case of abdominal distention, abdominal pain, or vomiting and 8 ounces of warm normal saline solution are left in the stomach. An enema is indicated in nearly every case of coma. It may be delayed until improvement in the patient's condition is noted.

IX. Diet:

When evidence of acute ketosis has subsided, a liquid diet is followed for twelve to twenty-four hours, and thereafter a diabetic diet of the same values totaling, for example: protein, 110 grams; fat, 65 grams; and carbohydrates, 250 grams or 2000 calories. The diet is given in four equal feedings, one every six hours; and finally, when complete recovery from the attack, the diet and insulin regimes as for the uncomplicated diabetic patients are resumed.

CONCLUSION

In closing may I state that there are several important factors in the treatment of diabetic coma: (1) Early recognition; (2) early administration of insulin in large doses; (3) early correction of blood chemistry by means of sufficient fluids and alkalis; (4) a careful watch for hypopotassemia, and hypoglycemia; (5) return of patient to oral medication as soon as possible; (6) careful search for the condition that precipitated the coma.

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DIABETICS IN PREGNANCY*

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Diabetes is a serious complication of pregnancy in that the fetal mortality is much higher than in normal pregnancy. Before 1940, fetal mortality rates ranged from 30 per cent to 50 per cent. However, in the past decade, the growing awareness and combined efforts of the internist, pediatrician and obstetrician have been re-

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

warded with a much lower fetal mortality rate. In fact, so much so, that today the physician may conscientiously assure the average diabetic that pregnancy may be undertaken with a good chance of delivering a living healthy infant.

General experience has shown that the diabetic of long standing (juvenile) with severe and diffuse vascular disease, hypertension, retinopathy and albuminuria has a much poorer chance of obtaining a living infant than a mild diabetic of short duration. However, regardless of severity certain complications occur with alarming frequency. These are:

1. Keto-acidosis—often with or secondary to upper respiratory infection or urinary tract infection.
2. Pre-eclampsia.
3. Progression of pre-existing hypertension with albuminuria and retinopathy.
4. Excessive edema with hydramnios.
5. Obstetrical complications, due to large babies, poor labor, and high incidence of breech presentation.
6. Physiological immaturity of infant, in spite of excessive size. These complications may result in fetal death at three periods:

1. (a) intrauterine death after thirty-two weeks' association with a maternal toxemia; (b) progressive hypertension, renal failure, etc.; (c) edema, hydramnia and hypertension; (d) keto-acidosis.
2. Intrapartum deaths due to accidents associated with delivery of extra large babies, stuck shoulders, and excessive traction.
3. Neonatal deaths due to (a) traumatic delivery, (b) prematurity, (c) and physiological immaturity of infants of diabetic mothers. Prenatal care should be undertaken only with the full realization that constant weekly supervision by both obstetrician and internist is the only way any degree of success can be attained. Successful control is based on:

a. Freedom from symptoms of diabetes.
b. Maintenance or average weight gain.
c. Freedom from keto-acidosis.

At each visit a complete urinalysis for sugar, acetone, and albumin should be done. In addition to the usual blood pressure and weight recordings, the abdomen should be palpated for size, position, and presentation, and the fetal heart tone checked on each visit. Eye grounds should be examined every week for evidence of vascular disease. Frequent blood chemistries, at least every two weeks up to thirty-two weeks and then every week, should be done. Because of the tendency to retain fluid even in the absence of true toxemia of pregnancy, patients should be given ammonium chloride daily with salt restriction after the sixteenth week.

Routine hospital admission at the thirty-fifth week for careful evaluation as to time and mode of delivery is advised.

The treatment of the complicated diabetic concerns itself with the management of the four previously mentioned conditions predisposing to intrauterine death, primarily after the thirty-second week.

The pre-eclamptic should be hospitalized immediately regardless of length of gestation, and pregnancy terminated if the infant is considered viable. There should be no hesitancy to terminate gestation as early as the thirty-fourth week if toxemia exists.

In the diabetic with established hypertension, probably the best criteria for progression are retinal changes. However, increases in blood pressure, albuminuria and nitrogen retention are indications for premature termination of pregnancy.

Those patients who develop excessive edema and hydramnios, even in the absence of hypertension, should be hospitalized and x-rays of the abdomen taken in an attempt to demonstrate fetal edema as represented by an area of translucency about the head and small parts, commonly referred to as a "halo". Ammonium chloride and mercurial diuretics are given to reduce edema of the mothers, but have little effect on the infant. Therefore, premature termination of pregnancy should be effected as soon as possible.

Keto-acidosis is prone to be associated with or follow upper respiratory infection or pyelitis, and is also noted more frequently

in those patients whose insulin requirements suddenly increase. These patients should be hospitalized immediately, seen in consultation with the internist, and measures instituted to control the acidosis. Pregnancy should be terminated as soon as possible after the condition is controlled.

In making the decision to terminate pregnancy prematurely in the diabetic, the obstetrician must weigh the hazards of prematurity against the dangers of intrauterine death.

Termination of gestation should be by cesarian section, or induction of labor, if conditions exist that would indicate a short easy labor could be anticipated. The shorter the duration of pregnancy the more likely a cesarean section will be needed. However, in a multipara with a soft, dilatable cervix an attempt at induction of labor should be made.

The excessive sized infant of diabetic mothers is an obstetric problem. There is a tendency to underestimate fetal size due to hydramnios and/or edema of the abdominal wall. It is wise to use x-ray as an adjunct in determining fetal size as well as for fetopelvic disproportion. Cesarean section should be done, preferably under local or spinal anesthesia, in all cases in which excessive fetal size exists, or when labor is prolonged, or difficult delivery is anticipated. The employment of cesarean section under these circumstances will, of course, tend to lower the incidence of intrapartum fetal death.

Since there is a high incidence of primary atelectasis, followed often by pneumonia, the immediate neonatal period should be attended with tracheal catheterization, repeated at intervals to remove mucus and amniotic fluid. This is attendant with the administration of oxygen and heat control in an incubator. Further neonatal care is administered by the pediatrician.

A discussion of diabetes in pregnancy would not be complete without mention of the controversial question of hormone replacement therapy. The use of estrogen and progesterone as advanced by Priscilla White is predicated on the basis that their use will correct low serum estrogen and low pregnandiol excretion as well as high gonadotropic level in diabetic women.

Other workers do not use hormones, stating that it is difficult to see how such therapy could prevent intrapartum death due to trauma. Although White's reported fetal mortality rate is a low 10 per cent, no other group of workers has been able to approach a figure this low with or without hormone therapy.

In conclusion, it should be remembered that there is no single therapeutic agent which can be used to substantially lower the fetal mortality. Meticulous care, and frequent consultation between obstetrician, internist, and pediatrician are essential.

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DIABETES IN CHILDHOOD*

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Holt and McIntosh's[1] textbook of pediatrics, published in 1939, opens its discussion of diabetes mellitus with the statement: "Diabetes mellitus is an uncommon disease of childhood." Subsequent experience is indicating with increasing evidence the inaccuracy of this statement. Diabetes can and does become overt at any age in life, from infancy to senility. And, either through greater awareness of this fact or through the increasing tendency on the part of physicians to include urinalyses as part of routine examination, more and more diabetics are being discovered during their pediatric years. It is currently estimated that from 5 to 8 per cent of all diabetic patients are children.[2] This is of particular importance in that it brings the patient to medical attention before the attrition of long-standing uncontrolled, or inadequately controlled, disease has made its inroads. The incidence of childhood diabetes approaches its peak as the child approaches adolescence. Five per cent of all cases occur in the first decade of life and about 12 per cent before the age of twenty years.[3]

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From the viewpoint of the geneticist, it is interesting to note that the disease may be diagnosed in the child before becoming apparent in the parent or older sibling.

MODE OF ONSET AND COURSE

With respect to pathologic physiology, there are no essential differences between the disease as it appears in adulthood and in childhood. However, there are variations in its mode of onset and its course which pose particular problems during the early years. Briefly and generally speaking, diabetes of children seems to be more abrupt in onset, more severe in its nature, and more erratic in its course. This is probably due more to the child than to the disease itself, and reflects the fact that during these years metabolic activity is at its peak. The anabolic processes of growth and development, as well as the extreme physical activity of the growing child, create a high energy demand which taxes to the utmost the integrity of the systems involved in digestion, absorption, conversion, and utilization of foodstuffs and, in doing so, tend to aggravate greatly any endocrine imbalance that may exist. It is all too true that anything that subjects the diabetic child to unusual stress, either physical or emotional, will be reflected in an increase in the severity of his disease. For this reason, children often first come to the attention of their physicians in ketosis, acidosis, or even coma. The premonitory signs of polydipsia, polyuria, and lassitude are mild and apt to go unnoted. The obesity which so classically brings the disease to mind in adulthood is characteristically lacking. The child may very likely be considered a behaviour problem because of his rather sudden change from a happy, energetic individual to a lethargic and irritable one. This idea may be further enhanced if, as is likely, there is a regression to nocturnal eneuresis in a child who had previously achieved efficient sphincter control. In this latent stage of the disease, the patient develops an upper respiratory episode or a similar mild infection which previously he would have been able to handle without difficulty, and his diabetes becomes rampant, resulting in the rapid onset of acidosis and coma and bringing him to medical attention as an emergency. It has been estimated that approximately 10 per cent of diabetic children are first seen in a state of coma. Because of this fact and the brevity and mildness of the prodromal period, physicians should be constantly on the alert for the existence of diabetes. Urinalysis should be a routine procedure, and any child who is brought to the office because of lassitude, failure to gain weight, developmental arrest or retardation, frequent recurrence of minor infections (particularly those of the skin such as impetigo, pyodermia, or furunculosis), or a return of nocturnal eneuresis should be thoroughly investigated with the possibility of diabetes in mind.

TREATMENT

In most instances the treatment of childhood diabetes involves two distinct phases: (1) the initial treatment of acidosis and electrolyte imbalance; (2) the long-term management of the child. Restoration of hydration and repair of the extracellular and intracellular spaces must be accomplished immediately. Adequate attention to the potassium deficiency, which is almost inevitable, is mandatory. During this phase, most practitioners will find the use of crystalline insulin most efficacious, though some workers claim advantages for the initial stabilization on protamine zinc or globin insulin.

The adequacy of long-term treatment of childhood diabetes will depend primarily on close cooperation among the parents, the physician, and the child. It has been said that the prognosis of diabetes is directly proportional to the willingness of the patient to learn all there is to know about the disease. During the early years the physician will be handicapped by the lack of mature judgment on the part of the patient, but this handicap will gradually diminish as the patient grows older. Early efforts at control must be rather exacting and discipline rather rigid; check-ups for the purpose of evaluation must be frequent. Later, as the patient becomes able to assume more and more responsibility, the trips to the

doctor's office and to the hospital may become less and less frequent. Long-term management must be fourfold in its objectives. In addition to the maintenance of chemostasis to as high a degree as possible, it must be concerned with the maintenance of normal growth and development, the avoidance or deceleration of degenerative changes, and the fostering of emotional health.

Initial regulation, even of the milder cases, must of necessity be a hospital procedure, and will be accomplished by determination of proper insulin dosage based on twenty-four-hour quantitative urinary sugar values. Refinement of dosage, spacing of injections, and the choice of insulin preparations will be dictated by fractional urine studies throughout the twenty-four hours. In the hospital and at home with children under the age of three years, diet can be controlled with relative accuracy. Above the age of three, this control will be difficult, following discharge from the hospital. For this reason, considerable support has been developed for control on an unrestricted diet. The wisdom of this is not entirely apparent and may not stand the test of time. Recent studies indicate that of the two factors involved in degenerative changes, i.e., adequacy of control and duration of disease, the former is the dominant. Therefore, it would seem that the establishment of a favorable dietary regime, though difficult to maintain, would be well worth the effort. The recognition of the difficulty in establishing a rigid dietary regime with children should prompt the physician to be as liberal as possible without sacrificing adequate control. The diet should contain all of the essential substances and adequate allowances for growth and activity. Most of the basic diets will adhere to the formula of 1.5 grams protein per pound of body weight per day for children under three years of age and 1 gram protein per pound for children over three years of age.[3] The remainder of the daily caloric requirement is equally divided between carbohydrates and fat. It is to be remembered that the onset of febrile illness increases sharply the daily caloric requirement and causes a temporary deterioration in the degree of glucose tolerance. For this reason every effort should be made to support the general health of the patient and cut down on the frequency of infection. The slightest infection, when it does occur, should be the signal for immediate and competent medical attention.

One of the less dramatic but nonetheless important aspects of long-term treatment is concerned with the emotional health of the child. Parents are extremely anxious and fearful and need constant reassurance. They are apt to be overprotective and solicitous, which is in its way just as detrimental to the child's developing personality as would be neglect. The patient himself does not want to feel that he is a "special case" and different from his playmates. He resents the rigid control to which he is subjected and may react violently with unacceptable symptomatic behaviour. These problems can and should be successfully met with patience and understanding on the physician's part. The diabetic child with proper care can lead a normal life and enjoy the pleasures of childhood to which he is entitled. He should not be kept from attendance at gatherings where occasional breaks in control are to be expected, such as birthday parties, Easter-egg hunts, and picnics. These activities, though perhaps temporarily detrimental to his diabetes, are very important to him as a person and contribute greatly to his emotional maturation and socialization. Athletics are not barred to him, nor is any activity that other young people enjoy. He must learn to accept his disease and live with it. Modern industry is finding that diabetes does not prevent full utilization of these patients, even under the unsatisfactory situation of shift-work. It is this adjustment of the patient to his diabetes for which the pediatrician must lay the ground work.

For those relatively few who can afford it, there are throughout the country a number of well managed summer camps for diabetic children which offer the child an opportunity for emotional growth and so-

cialization in addition to giving the parents a welcome respite from responsibility of their every-day care.[4]

NEWBORN OF DIABETIC MOTHERS

No discussion of childhood diabetes would be complete without mention of a problem that is the joint responsibilty of the obstetrician and pediatrician; that is, the newborn of diabetic mothers. Neonatal mortality is high, varying from 12 to 20 per cent in series in which maternal prenatal care was considered adequate to 60 to 70 per cent in series in which the care was not adequate. The incidence of congenital anomalies among these children is greater than in the general population. The explanation for this difficulty is not satisfactory. The babies tend to be large and postmature and, consequently, have a more difficult and dangerous journey down the birth canal. They have an unusal amount of respiratory distress with dyspnea and cyanosis for which there is no adequate explanation. There is an excessive amount of hemopoetic tissue and erythroblastosis is present often. Because of the frequency of convulsions and unexplained muscular twitchings, they were for a long time thought to be hypoglycemic. But recent studies, controlled by newborns of nondiabetic mothers, reveal that their blood sugar level is not excessively low.

At present, in view of our inadequate knowledge of the subject, the best we can offer is very careful observation of the newborn and a state of readiness to meet any difficulty which might arise. All deliveries should take place within a hospital; oxygen should be available; and tracheal suction should be resorted to if excessive mucous tends to occlude the airway. Glucose solution is frequently used if hypoglycemia is suspected.

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SURGERY IN DIABETES*

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As the years pass by, we of the surgical profession, find that surgery in diabetic patients is definitely on the increase. For this apparent increase it is felt that three reasons contribute largely to the more frequent use of surgery in the diabetic patient.

First, the lives of patients suffering from diabetes have been prolonged as a result of the more efficient manner in which the disease has been appraised and treated; so that many more diabetic patients are living to the ages in which surgical conditions develop or become acquired. Second, the incidence of diabetes, especially in patients above forty years of age seems to be definitely on the increase. Third, many improvements in surgical technique, preoperative and postoperative care, establishment of blood banks, and better anesthetic methods make it possible for many more elective procedures to be safely carried out in diabetic patients than was formerly possible.

As an illustration of this fact, as far back as the year 1947, the Mayo Clinic reported 477 surgical procedures carried out upon diabetic patients of all ages, with a hospital death rate of 12. This is a calculated mortality of 2.5 per cent. These surgical procedures comprised approximately 50 per cent of the major and 50 per cent of the minor type. This would indicate that surgery in the diabetic patient is not prohibitive and is well within the realm of reasonable safety. Diabetes can no longer be considered grounds for denying a patient the benefits of surgery and the decision to operate can now be based upon essentially the same criteria as among nondiabetic patients. However, the potential danger of

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surgical intervention in the presence of diabetes is as great as ever. The occurrence of acidosis and coma is still a possibility that can be prevented by close cooperation of the surgeon, internist, anesthetist, dietitian, and nursing staff.

COMPLICATIONS AND SEQUELAE

There are some common complications and sequelae that may follow surgery on the diabetic patient. In addition to the diabetic's carbohydrate intolerance he is further handicapped by the presence of arteriosclerosis, principally of the coronary and renal arteries. He also has a greater susceptibility to infection both in the operative wound and in the urinary tract. We must also consider the effect that acute or prolonged sepsis has upon the diabetic state, and also postoperatively, the frequency with which pressure, even of such degree as is of little consequence to the nondiabetic, produces decubital ulcers, and areas of necrosis particularly over the heels and the sacrum.

Infections, furuncles and carbuncles are probably the most common of diabetic complications that face the surgeon of today. These infections contributed largely to the mortality and the morbidity of the disease; however, since the advent of the antibiotics the prognosis of these conditions has been improved to a large degree. In the treatment of these conditions, adequate incision and drainage are still a sine qua non to be used in conjunction with adequate antibiotic therapy, covering the spectral range of organisms involved in the infectious process. An alternate procedure of aspiration of the pus cavity with instillation of penicillin has not gained general favor. In all possible circumstances, the diabetes should be adequately controlled to a satisfactory degree before any surgery is done.

Next in importance is gangrene, a common and frequent disabling complication of diabetes, and which constitutes a serious threat to the life of the elderly patient. In diabetic gangrene we recognize two factors as primarily responsible for the disability: First, there is present an ischemia, with a more or less advanced arteriosclerosis; anoxia and diminution in the effective circulation. Second, infection begins and progresses by the introduction of infection through abrasions or minor wounds of the skin with subsequent thrombosis in already diseased vessels. These two factors may combine to make gangrene unamenable to any form of treatment except radical surgical intervention. It has been stated that there is usually some degree of arteriosclerosis present, and this arterial insufficiency may be associated with cellulitis, lymphangitis, infection, or uncontrollable pain, so that amputation at a level where the circulation is adequate is inescapable. Since antibiotics have come into general use, in such conditions as cellulitis, lymphangitis, or infections, other than the gas producing ones, amputation may be delayed until these infections are greatly improved, by an effort to stabilize the diabetic state, with intensive antibiotic therapy, and dietary control. Likewise, if the gangrene is extensive there is little to be gained by procrastination. The two most essential features of the preoperative treatment of infected extremities are rigid control of the diabetes, and extensive antibiotic therapy. If the diabetes is not under control the amputation should usually be delayed until this has been achieved.

To illustrate the present day mortality in diabetic gangrene, I would like to quote the results of the Montefiore Hospital in New York City, 1950. In 196 patients, 213 midleg amputations were done. Of these 172 were done for diabetic patients with a mortality rate of 9.7 per cent; and 41 were done for arteriosclerosis obliterans with a mortality of 9.7 per cent. Reamputation was necessary in 4.7 per cent of the cases.

Lumbar sympathetic block in incipient gangrene, by the use of 1 or 2 per cent procain injected paravertebrally into the area of the sympathetic ganglia and chain has been used in an effort to increase the efficiency of the circulation and obviate the vasospasm that is present. Lumbar sympathectomy may be used and is a surgical block of the sympathetic pathway to the lower limbs. Some gratifying results have

been achieved by these methods, by delaying the immediate need for amputation, or by allowing amputation at a lower level than was previously anticipated.

Ulcers and other sores that constitute lesions of the feet that are not accompanied by any gross impairment of the circulation are caused as a rule by trauma and infection. They include infected corns, callouses, ulcers, burns, frostbite, varicose ulcers and abrasions. The diabetic patient should learn to consider all abrasions seriously, and to stay off his feet and meticulously attend to the cleanliness and care of them.

The ischemic ulcers that result mainly from local arterial insufficiency are classified into two groups. First, arteriosclerotic or diabetic ulcers, and second, decubitus ulcers. The localized areas of necrosis of the skin which occur on the extremities of patients with arteriosclerosis or diabetes are usually the result of anoxia following obliteration of the arterioles by thrombosis. From the standpoint of cellular pathology there is no difference between the ischemic ulcer of arteriosclerosis and diabetes. Uncontrolled diabetes, however, favors the spread of infection in such poorly nourished tissues. Physical, chemical, or thermal trauma to the skin may precipitate arteriolar thrombosis with subsequent ulceration of the skin. Decubitus ulcers or bed sores, are the result of abnormal sustained pressure over the bony prominences. They usually occur in patients whose general state of health and nutrition is below normal. General supportive and preventive measures are of paramount importance in dealing with this type of lesion. Surgical excision of these necrotic areas together with primary skin graft has been done with good results, provided that the diabetic state and infection have been adequately controlled. General supportive measures postoperatively, such as frequent change in position, and early ambulation constitute formidable preventive measures against decubitus ulcers.

CONCLUSIONS

In a general way, in considering surgery in the diabetic patient, we may conclude:

1. It seems to be definitely on the increase in occurence, and is probably due to the factors mentioned.

2. A determined effort should be made to stabilize the diabetic state, to correct the fluid and electrolyte balance, combat anemia and hypoproteinemia, if present, and to replenish the blood volume before elective surgery is done.

3. In acute abdominal conditions this evaluation may not be possible due to existing circumstances, and in these cases it seems wiser to operate and treat the diabetes later.

4. Lumbar sympathetic block with procain and lumbar sympathectomy are methods of salvaging in some instances a part of a limb that would otherwise be sacrificed, and are worthy of consideration.

5. In general, it may be stated that though the mortality rate for surgery remains higher in the diabetic than in the nondiabetic for comparable conditions, surgery is by no means a prohibitive venture and can be suggested to the patient with a reasonable assurance of safety, provided all of the preoperative requisites are satisfactorily met, and the postoperative therapy is adequate.

6. The patient should be followed by the internist both preoperatively and postoperatively, and therapy of the diabetic state in the convalescent and subsequent periods should be maintained by the internist.

SOME MEDICAL COMPLICATIONS OF DIABETIC ACIDOSIS*

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PERIPHERAL VASCULAR COLLAPSE

Peripheral vascular collapse is a rather common complication of severe diabetic acidosis. It is primarily due to dehydration and to vasodilatation produced by changes in blood chemistry. Since this complication materially worsens the prognosis it is important to correct it early. Rapid and sus-

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tained elevations of the blood pressure may often be brought about by the judicious use of vasopressor agents such as l-norepinephrine. Permanent correction may require, in addition to the usual therapy with normal saline, plasma or whole blood.

MYOCARDIAL INFARCTION

Myocardial infarction occurs not infrequently. The diabetic state predisposes to early coronary sclerosis; peripheral vascular collapse further diminishes the coronary flow; and hypoglycemia due to overtreatment, of itself, may lead to this complication. In this connection, it is well to emphasize the great value of obtaining at least one electrocardiogram in every patient in coma, as well as to suggest the value of oxygen therapy throughout the coma period. Treatment, under the circumstances, involves meticulous control of anticoagulant therapy—which indeed may even be contraindicated—because of frequently coexisting hepatic or renal disease. In addition, the aglycosuric state should be avoided. Finally, it is necessary to use opiates and barbiturates only with great discretion.

CEREBRAL VASCULAR ACCIDENTS

Cerebral vascular accidents, for similar reasons, may complicate diabetic acidosis. Thus, it is important to repeat the neurological examination at intervals, and at times to repeat the lumbar puncture in comatose patients. These procedures have special value inasmuch as a developing meningitis might have been the precipitating cause of the acidosis, and again because occasionally a simple cerebral apoplexy may mimic diabetic acidosis.

CONGESTIVE HEART FAILURE

Congestive heart failure may occur against a background of preexisting heart disease, when the mycocardial reserve is depressed further by dislocation of electrolytes and nutrients, and it may be precipitated by myocardial infarction, or excessive administration of parenteral fluids, or both. In this situation the effects of digitalis are somewhat less predictable than usual. Also, the potassium therapy which is so widely used is fraught with added hazard since it has been reported that in the presence of heart failure the renal clearance of potassium is markedly reduced even when the urinary volume is normal.[1]

RENAL COMPLICATIONS

Among the renal complications of diabetes the Kimmelstiel-Wilson syndrome is of interest. It is characterized by hypertension and marked albuminuria occurring in relatively mild diabetes of long standing; renal function may be grossly impaired and nephrotic syndrome may occur. Arteriosclerotic renal disease is, of course, common in diabetes. The presence of impaired renal function greatly worsens the prognosis in diabetic acidosis. Such impairment may be due also to chronic pyelonephritis, and acute episodes of this condition may in turn precipitate, or complicate diabetic acidosis. The advantages of early and repeated microscopic examination of the urine—in contrast to following only the chemical tests—are therefore apparent. Functional renal impairment with oliguria and azotemia may arise in consequence of hypovolemia and peripheral vascular collapse, and is correctible by restoration of the circulation. Acidosis *per se* tends to diminish the kidneys' ability to conserve base, thus furthering progression of the acidosis. This situation may require the administration of alkali, such as sodium bicarbonate.

ALTERATION OF POTASSIUM METABOLISM

Alteration of potassium metabolism in diabetic acidosis is now widely recognized as a factor of great clinical significance.[2] Early in the development of acidosis potassium is lost from the cells into the extracellular fluid, and, with the diuresis of hyperglycemia, is lost in the urine, thus tending to deplete the body stores of potassium, while the serum potassium concentration is not greatly altered. However, in the presence of renal impairment, and in those diabetics who become oliguric, the serum potassium may actually rise. A more frequent cause of hyperkalemia is the injection of excessive amounts of this ion in the course of treatment. Transient paresthesias, neurological changes, weakness of various muscle groups, have all been described as symp-

toms of potassium intoxication, but none of them consistently. Arrhythmias may be detected clinically; however, the electrocardiogram offers the surest guide to the presence of this syndrome. Changes described include high narrow T-waves; broad, slurring QRS complexes; absence of P-waves; irregular undulations of low voltage leading to cardiac arrest.[3-6] Of these, the high, narrow, T-wave is the most consistent and most definite change. The serum potassium determination, while useful when available, does not necessarily reflect the clinical status, since the clinical effect of potassium alterations is modified by the levels of other cations. Treatment of hyperkalemia is initiated by the use of insulin and glucose which drives potassium into the cells; sodium and calcium antagonize to some extent the effects of potassium; and supportive measures designed to restore urinary output facilitate the elimination of this ion. The artificial kidney is reported to be of great value in this syndrome,[3] but is unfortunately not generally available; however, continuous gastric lavage is capable of removing moderate amounts of potassium, and it might be tried should the situation appear to warrant a measure which is beset with the difficulty of controlling concomitant changes in other ion concentrations.

Hypokalemia, or low serum potassium, is more common in the course of diabetic acidosis. In the presence of low body stores of potassium, continued diuresis resulting from hyperglycemia, fostered by acidosis, and increased by rehydration, coupled with the hemodilution of rehydration and the reentry of potassium into the cells under the influence of glucose and insulin, all conspire to diminish markedly the level of circulating potassium. Clinical signs of hypokalemia include muscular weakness, frank paralysis, abdominal distention, cardiac dilatation, systolic murmurs, and cardiac arrhythmias. The electrocardiogram, again, is most useful in evaluating the net effect of the altered potassium levels. A great many changes have been described in hypokalemia.[6-9] Of these the most consistent is the finding of wide, rounded, low T-waves. The prolonged Q-T interval which is described is the result of the increased duration or width of the T-wave. (It is to be differentiated from the prolonged Q-T interval of hypocalcemia which is the result of increased duration of the S-T segment.)[7] The T-wave in hypokalemia may also be inverted, and it may be associated with a depressed S-T segment, and with prominent U-waves. Here again the serum potassium level may be helpful, but is not essential, nor does it consistently reflect the net effect of the patient's potassium status. This level may be normal despite severe depletion of the body potassium stores. The critical factor appears to be the effective concentration of the ion at the surface of the cell membrane. Treatment of hypokalemia consists in the administration of potassium salts in quantity sufficient to improve the patient, rather than to restore the serum level to theoretical normal. The oral route is to be preferred whenever possible, and one gram of potassium chloride at hourly intervals for four doses is often sufficient to tide the patient over until normal feedings—which is the best source of potassium —can be started. In emergency, it may be necessary at times to give potassium salts parenterally. Darrow's solution is generally available and may be used, diluted with an equal volume of glucose solution to yield a fluid containing 17.5 milliequivalents of potassium per liter. Whatever solution is used, the important thing is to give it slowly, and preferably to follow the patient with electrocardiograms throughout this critical period.

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TREATMENT OF FRACTURES OF THE HIP*

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SHREVEPORT

The term "broken hip" is commonly used to designate fractures of the femur in the region of the neck and the greater and lesser trochanters. Fractured "hips" have been variously classified in the past. We have classified such injuries into two major groups: from the standpoint of prognosis in healing, and also, from the standpoint of method of internal fixation. The two major groups thus designated are:

1. Intracapsular fractures of the neck of the femur, i.e., fractures through the narrow portion of the neck.

2. Trochanteric fractures, i.e., fractures involving the region of the greater and lesser trochanters.

The above injuries have been observed most frequently in individuals who are considered "elderly" by most of us. It is generally recognized that prolonged confinement to bed and inactivity in this age group hastens debilitation and often makes it impossible to restore the patient to activity that is normal for him.

HISTORY OF TREATMENT

In 1902, Royal Whitman, of the Hospital for Ruptured and Crippled, presented his new method of treatment of fractured hips. This consisted of reduction of the fracture site by abduction and internal rotation under anesthesia followed by the application of a long plaster spica extending from the toes on the affected side to the nipple line. He demonstrated on the cadaver and in the operating room that this method was adequate to obtain reduction. This method was designed especially for intracapsular fractures of the neck of the femur and constituted the first major advance in the treatment of this condition.

In 1927, Wikie described a well leg traction system. In 1932, Roger Anderson devised a well leg traction splint that held the affected extremity in internal rotation. In this method of treatment each lower extremity was incorporated in plaster and allowed the patient to sit up.

The evolution of the surgical treatment of fresh fractures of the hip is also interesting. In 1850, Langenbeck attempted to insert a nail through the trochanter and into the head. This was repeated by Konig in 1875, by Trendelenburg in 1878, and by Nicolayesen in 1897. Different types of nails were used. In 1907, Lambotte and Delbert used ordinary screws. In 1919, they reported one successful case. This was not sufficient to justify general use of the method. In 1911, Borelius used bone pegs as internal fixation. In 1912, Albee used a similar method. These methods were found to be ineffective, chiefly because of inadequate reduction and unsatisfactory placement of the nail, and also, because the nail or screw did not prevent rotation of the head on the nail or screw. In 1925 Smith-Petersen devised a triflanged nail that would prevent rotation of the head. The nail was inserted under direct vision by open reduction. This added to the success of internal fixation. In 1932, Johansson of Sweden and Westcott of Virginia, working independently, reported "blind nailing" using x-ray as a guide.

In 1934, Henderson of the United States and King of Australia independently cannulated the Smith-Petersen nail that was inserted following correct positioning of a guide wire. In 1937, Thornton devised a plate to be attached to the Smith-Petersen nail and extend along the femoral shaft. The latter was used in trochanteric fractures. Many modifications of this plate have since been devised.

In 1938, the most important of contribu-

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tions was made by Venable and Stuck. This followed their study of reaction of body tissues and fluids with metals. It was determined that metals that cause electrical potentials when applied to bone and covered with soft tissue cause necrosis and absorption of bone, and therefore, become loosened. An alloy that had recently been used in dental prosthesis was studied. The alloy was composed of cobalt, chromium, and molybdenum and had been given the name vitallium by the manufacturer. It was found that this alloy possessed the least electrolytic coefficient when in contact with human tissues. It therefore became established that the use of nonelectrolytic metals in all bone surgery was essential. Following this, 18-8 SMO stainless steel was developed and also found to be practically inert, and thus, suitable as internal fixation.

PREOPERATIVE MEASURES

In fractures of the hip, as in other surgical conditions, the preoperative condition of the patient must be considered. A complete blood count and urinalysis are obtained. If the patient is anemic, he is typed and cross matched for transfusions. As a rule, the older group of patients are anemic and need blood because of that. If the anemia is not too marked the blood is given at the time of operation. At times marked anemia demands that blood also be given prior to surgery. A urinalysis is done chiefly for the sake of determining if the patient has sugar in the urine. If so, a blood sugar is obtained and appropriate steps are taken by the internist prior to surgery. Other pathological findings in the urine should be treated postoperatively.

The question asked us most often by relatives of the patient is, "Is the patient's heart good enough to stand the operation?" Our opinion is that if the patient is ambulatory and does not show signs of congestive heart failure, his heart is good enough to carry on during surgery. We never minimize the risk of anesthesia or surgery, regardless of age, but impress upon those concerned that there is always a risk to all surgery. However, we believe that delay in surgery for more than one or two days after the injury is detrimental to the older age group of patients.

Another point that should be stressed is avoidance of over-sedation. Again, since this type of injury is more frequent in older people, it should be emphasized that oversedation slows the patient's heart and respiration so as to increase surgical risk sufficiently to justify postponement of surgery. This avoidable delay of surgery is detrimental to the patient.

METHOD OF TREATMENT

A brief outline of our method of treatment is as follows:

Preoperative sedation is slight or none at all. We prefer to use an anesthesiologist to give the anesthetic for our patients. The anesthesia used in practically all cases is sodium pentothal and nitrous oxide. Care is always exercised to keep the patient under "light" anesthesia. The hip is then manipulated and each lower extremity immobilized on the orthopedic table. Two portable x-ray machines are placed in position, one for the anteroposterior view and one for the lateral view of the hip. Having two x-ray machines and a developing room adjacent to the operating room is a very important factor in saving time in this operation. An anteroposterior and lateral x-ray is then taken to verify reduction of the fracture. By the time the films have been developed the surgeons have scrubbed and the operative site has been prepared. As a rule, an incision about 3 inches in length is made along the long axis of the thigh through the skin, deep fascia and underlying tensor fascia femoris at the level of the base of the greater trochanter. Several guide wires of equal length are at hand. One of these wires is drilled through the long axis of the neck of the femur into the head. The correct position of the guide wire is then verified by an AP and lateral x-ray of the neck of the femur. The correct length of the cannulated Smith-Petersen nail to be used is determined by comparing the inserted guide wire with the uninserted guide wire of equal length. The nail is then threaded over the wire and

TABLE 1

Hips	No.	Per Cent	Average Age	Male No.	Male Per Cent	Female No.	Female Per Cent
Intracapsular	100	47.4%	68 yrs.	13	13 %	87	87 %
Trochanteric	111	52.6%	73 yrs.	26	23.5%	85	76.5%
TOTAL	211	100 %	70.5 yrs.	39	18.4%	172	81.6%

driven into place. At this stage of the operation, if we are treating a trochanteric fracture, the skin incision must be prolonged and the vastus lateralis reflected from the femur to allow for attachment of the Thornton plate to the Smith-Petersen nail and the distal fragment of the femur. The reason for the delay in making an adequate incision, so as to be able to apply the Thornton plate, is to avoid undue bleeding. When the vastus lateralis is reflected, or its fibers separated, there are often multiple minute bleeding points that continue to ooze while the fibers are separated or the muscle retracted. The oozing promptly stops on return of the muscle to anatomical position and with slight pressure. Following hemostasis the wound is closed in layers. The patient should be waking up at the end of the operation. On return to the room, deep breathing is encouraged and the patient is turned frequently. The following day the patient is placed in a wheel chair. This is done once or twice daily. Quadriceps exercise is started on each lower extremity to prevent muscular weakness. Care must be taken to see that the patient voids and defecates normally. The patient usually returns to the care of the family physician by the end of one week. If the patient is strong enough he may walk with crutches or a walker without weight bearing. The fracture site is observed by x-ray every six weeks until healing takes place or in unfortunate cases, until it is ascertained that further surgery is indicated.

ANALYSIS OF CASES

In this study we have reviewed the cases treated beginning January 1946, until about the middle of 1951, a period of five and one-half years. We have been able to obtain adequate follow-up study on 211 hips. The method used in treating all of these cases is that of internal fixation. The cannulated Smith-Petersen nail was used in the intracapsular fractures and the Thornton plate was added to this in the trochanteric fractures.

Table 1 shows that 100 or 47.4 per cent of the 211 cases were intracapsular fractures. The average age of this group of patients was 68 years. Thirteen per cent of the cases were males and 87 per cent were females. The trochanteric fractures numbered 111, being 52.6 per cent, with the average age of 73 years. Of this group 23.5 per cent were males and 76.5 per cent were females. The average age of the 211 cases, or the entire group, was 70.5 years, these being 18.4 per cent males and 81.6 per cent females.

TABLE 2

FOLLOW-UP STUDY OF INTRACAPSULAR AND TROCHANTERIC

Period	Hips Number	Hips Per Cent
Less than 1 year	25	11.8
1 to 2 years	72	34.1
Over 2 years	91	43.1
Deaths	23	10.9
TOTAL	211	99.9

The period of follow-up study has varied from about eight months to over two years. This is shown on Table 2.

TABLE 3

MORTALITY — INTRACAPSULAR

Age	Number of Hips	Deaths Number Within 1 Month	Deaths Number Within 1 Year	Deaths Per Cent Within 1 Month	Deaths Per Cent Within 1 Year
Under 40	3	0	0	0	0
40 - 49	4	0	0	0	0
50 - 59	15	0	0	0	0
60 - 69	24	0	0	0	0
70 - 79	32	0	3	0	9.4%
80 and over	22	2	2	9.1%	9.1%
TOTAL	100	2	5	2.0%	5.0%

The intracapsular fractures will first be considered as a separate group of patients. In Table 3 the mortality as to age group is

given. It is noted that only 7 of the 100 cases is under 50 years of age and only 22 under 60 years of age. In the older group of cases 2 deaths occurred during the month following operation. The cause of death in one case was uremia and the cause in the other was coronary occlusion. Five additional deaths occurred in the two older age groups during the year following operation. Two of these occurred six weeks after operation and were due to cardiac failure. The remaining 3 died the latter part of the year, 1 of cerebral hemorrhage, 1 of cerebral arteriosclerosis and 1 of uremia. Considering only the 2 cases dying within the month following surgery, there is a mortality of 2 per cent. Considering the entire group dying during the year following surgery there is a mortality of 7 per cent.

Practically all patients were returned to the care of the family physician by the end of one week after operation. Therefore, it must be said that no doubt other deaths occurred in other cases not considered here that we were unable to follow.

Two of the cases dying in the latter part of the year following operation had union of the fracture site. The remaining 5 cases died before sufficient time elapsed for union to take place. This leaves a total of 95 cases to be considered in further study. Table 4 presents the number of hips and percentage of union and nonunion according to decades. It is noted that 90 cases or 94.7 per cent of the cases obtained union and 5 or 5.2 per cent of the cases went on to nonunion.

In the 100 cases of intracapsular fractures studied the nail slipped out of the head of the femur in 3 cases. Two of these cases refused further treatment and are included in the cases of nonunion.

TABLE 4

INTRACAPSULAR FRACTURES

Age	Union		Non-Union	
	No. of Hips	Per Cent	No. of Hips	Per Cent
Under 40	2	66.6	1	33.3
40 - 49	4	100	0	0
50 - 59	15	100	0	0
60 - 69	23	95.8	1	4.1
70 - 79	29	96.6	1	3.3
80 and over	17	89.4	2	10.5
TOTAL	90	94.7	5	5.2

In the group of 90 cases in which union occurred, 7 cases or 7.7 per cent developed moderate aseptic necrosis of the head of the femur. These patients complained of pain in the hip on motion. The condition was shown on x-ray examination as some increased density of the head with mild to moderate roughening of the articular surface of the head. It was noted in one case in the fifth decade, 3 cases in the sixth decade, and 3 cases in the eighth decade. The above symptoms and signs were usually noted by the end of one year. However, one case developed a painful hip and the roughening of the head of the femur was noted two years following surgery.

The incidence of painful hips following an intracapsular fracture is greater than the mortality or the incidence of nonunion, and in the future may offer an increasing problem.

TABLE 5

MORTALITY — TROCHANTERIC

Age	Number of Hips	Deaths			
		Number		Per Cent	
		Within 1 Month	Within 1 Year	Within 1 Month	Within 1 Year
Under 40	2	0	0	0	0
40 - 49	8	0	0	0	0
50 - 59	7	1	0	14.2	0
60 - 69	21	2	2	9.5	9.5
70 - 79	40	2	5	5.0	12.5
80 and over	33	0	4	0	12.1
TOTAL	111	5	11	4.5	10.0

The trochanteric fractures are presented in Table 5 as to age and number of hips, according to decades and the mortality occurring in each decade. It is noted that only 10 fractures, or 9.0 per cent, occurred in patients under 50 years of age. The one death in the sixth decade occurred because of pulmonary embolism two weeks following surgery. In the seventh decade, 2 cases died before the end of one month. One died on the day of the operation from shock and the second died fifteen days after the operation from pulmonary embolism. The re-

maining two deaths occurring in this decade were at the end of four months from thrombosis of the inferior vena cava and at the end of six months from diabetes. In the eighth decade 2 deaths occurred at the end of one month following surgery, 1 as the result of pneumonia, and the other as the result of uremia. The remaining 5 deaths occurred at the end of three to six months and resulted from cardiorenal failure, uremia, cerebral hemorrhage, and pneumonia. In the ninth decade no deaths occurred in the month following operation; however, four cases died during the following four months as the result of cardiac failure, debility, pneumonia, and cerebral hemorrhage.

It is interesting to note that of the 211 cases of broken hips presented, only 1 died of shock immediately following the operation. We believe that this probably could have been prevented, had better nursing care been available at the time.

In all cases of trochanteric fractures, bony union occurred. In no case did aseptic necrosis of the head of the femur take place.

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TOXIC REACTION FROM GOLD APPEARING DURING ACTH ADMINISTRATION*

REPORT OF A CASE

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The statement has appeared in recent months[1-3] that cortisone and corticotropin are superior to BAL in the treatment of toxic reactions resulting from the adminsistration of gold compounds in rheumatoid arthritis. The following is an interesting example of a severe gold reaction occurring while the patient was receiving ACTH simultaneously, and which cleared up following a course of treatment with BAL.

CASE REPORT

B. K., a 36 year old unmarried white male, was first seen at the Browne-McHardy Clinic on August 31, 1950. The chief complaint was that of bilateral shoulder pain of a dull, aching type, appearing about ten days previously. Three days later there was an increase in the shoulder pain on awakening, accompanied by swelling and pain in the third, fourth, and fifth metacarpal phalangeal joints of both hands. A physician was consulted and it was suggested that the symptoms were on an allergic basis. Treatment consisted of the administration of sodium salicylate and pyribenzamine, with gradual disappearance of his complaints. Fifteen years previously there had been a nonspecific type of rheumatic difficulty in the right knee with no acute manifestations. This had apparently cleared up in a short time and left no residuum. An additional complaint when first seen by us was that of epigastric discomfort off and on for about two years. This was accompanied by acid regurgitation which was relieved by food.

The past history was essentially negative except for gonorrhea in 1934, and appendectomy for a ruptured appendix in 1932. A positive serology for syphilis appeared shortly after a severe reaction to an injection of tetanus antitoxin in 1935. The patient had been checked repeatedly by physicians in New York City and elsewhere without establishing the presence of a luetic infection. He denied having a primary or secondary lesion and the general conclusion reached was that the reaction was a "false positive" one.

Physical examination at the time he was first seen by us revealed him to be a well developed, well nourished, somewhat nervous white male. There were no positive joint findings at this time and the examination was otherwise essentially negative except for a small rectal polyp which was cauterized. When examined pathologically, malignant degeneration at the tip was reported.

Initial laboratory studies revealed a hemoglobin of 15.2 grams, red blood count 5,290,000, white blood count 11,600, with a differential of 76 neutrophiles, 1 eosinophile, 22 lymphocytes and 1 monocyte. The sedimentation rate was 45 mm./hr. by the Westergren method. Serologic tests were reported as follows: Kahn doubtful, Kolmer negative and Kline positive. X-ray of the chest revealed slight fibrosis at the right apex and calcified hilar nodes. Gastrointestinal series revealed a diffuse gastritis and slight irritability in the second portion of the duodenum.

Other than the rectal polyp and the gastritis, no positive diagnosis was established at this time, especially in the absence of objective joint manifestations. The gastrointestinal symptoms responded to a program of medical management. The

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patient was not seen again until January 20, 1951. He stated that he had begun to have aching and stiffness in the left wrist, elbow, and shoulder about ten days previously. This had cleared up but was followed by pain in the left knee and the left third metacarpal phalangeal joint, as well as by backache. Objectively, there was grade 2[1] swelling and tenderness of the left third metacarpal phalangeal joint. The joints were otherwise within normal limits objectively. The sedimentation rate, however, had increased to 75 mm./hr. and it was felt that the diagnosis at that time was early rheumatoid arthritis. He was advised to take aspirin and apply heat to the affected joints, and then was not seen again until April 11, 1951. He stated that he had continued to have pain and stiffness in both wrists and hands. His job had kept him traveling over parts of the country where he consulted numerous physicians and had two teeth extracted, as well as treatment directed toward correction of a pyorrheal condition without improvement of the basic process. He was referred at this time for arthritic consultation where the diagnosis of early rheumatoid arthritis with minimal fibrositic component was concurred in. Objectively, there was grade 2 synovitis and tenderness of the left wrist with considerable pain on movement. There was 1– synovitis of the left third metacarpal phalangeal joint and the grip was weak in both hands. There was no other involvement objectively. The sedimentation rate at that time was 59 mm/hr. A full conservative program of treatment was outlined. This included extra rest, both physical and mental, high caloric, high vitamin diet with daily multivitamin supplement, aspirin as needed, and physical therapy measures for the left wrist and hand including the use of contrast baths and muscle strengthening exercise within the limits of tolerance. X-ray of the left hand and wrist on May 2, 1951, showed soft tissue swelling about the interphalangeal joints and definite destructive arthritic changes in the carpal, scaphoid, and semilunar bones, especially about contiguous articular surfaces. There were small cystic areas near the articular cortex of some of the other carpal bones. The changes in the carpal bones were felt to be definitely rheumatoid in nature.

Cooperation on the part of the patient in treatment was not optimal and the rheumatoid process continued active. Despite a considerable degree of disability and his inability to carry on his work, he seemed unable to accept the diagnosis and offered this as an excuse for not carrying out recommended treatment measures. On July 10th, there was a flare-up in both knees for the first time and the left shoulder became quite stiff. He reacted with a considerable degree of panic, especially over possible implications regarding his ability to continue work. Consequently, it was decided to supplement the above program with a course of gold (gold sodium thiomalate or myochrysine). The sedimentation rate at that time was 68 mms./hr. by the Westergren method; there was moderate activity in the shoulders, elbows, and ankles, as well as in the wrists and hands.

Routine checks done prior to gold administration were within normal limits except for 5 per cent retention of bromosulphalein at the end of thirty minutes. At the time this was not believed to be of significance, especially in the absence of a history of previous liver disease and it was felt that there were no contraindications to gold therapy. The initial dose of myochrysine on July 13, 1951, was 10 mgms. followed by 25 mgms. the following week, and then a weekly maintenance dose of 50 mgms. A total of 435 mgms. was reached on September 7, at which time the drug was discontinued (Fig. 1).

On July 27, 1951, the patient developed a rather severe flare-up with pain and stiffness in the neck and temperomandidibular joints. For several days he was unable to open his jaw more than 1/4 inch. This cleared gradually but there was continued pain and stiffness in the shoulders and right elbow, as well as in the wrists and hands. The grip remained exceptionally weak and muscle strengthening exercises were quite painful. Because of his downhill course he was admitted to Touro Infirmary, New Orleans, Louisiana, on August 28, 1951, for a short course of ACTH in an effort to determine if this would supplement the gold effect. Dosage of myochrysine had reached 335 mgm. at that time. The ACTH[2] was administered as follows: 25 mgms. every six hours for five days, at which time dosage was gradually tapered off over a four day period. Total dosage was 800 mgm. There was excellent response within forty-eight hours and at time of discharge on September 7, 1951, there was only minimal (1–) tenderness over the head of the left ulna. No pain or stiffness was present in other joints and the hands and wrists had regained almost all of their normal strength. There had been no evidence of gold toxicity either from a clinical or laboratory standpoint until this time.

The patient returned to work the following day, stating that he felt better than he had in many months. He was sufficiently strong to embark on a road trip for his employer, the first such assignment in approximately five months. On September 11, he telephoned from Houston, Texas, and stated that his mouth had become quite sore and painful over a three day period, and on consulting a physi-

[1]Findings in the joints were graded on a basis of 1 to 4, 4 plus being maximal involvement.

[2]ACTHAR C—Supplied by Dr. Harley M. Cluxton, Director of Medical Research, the Armour Co., Chicago.

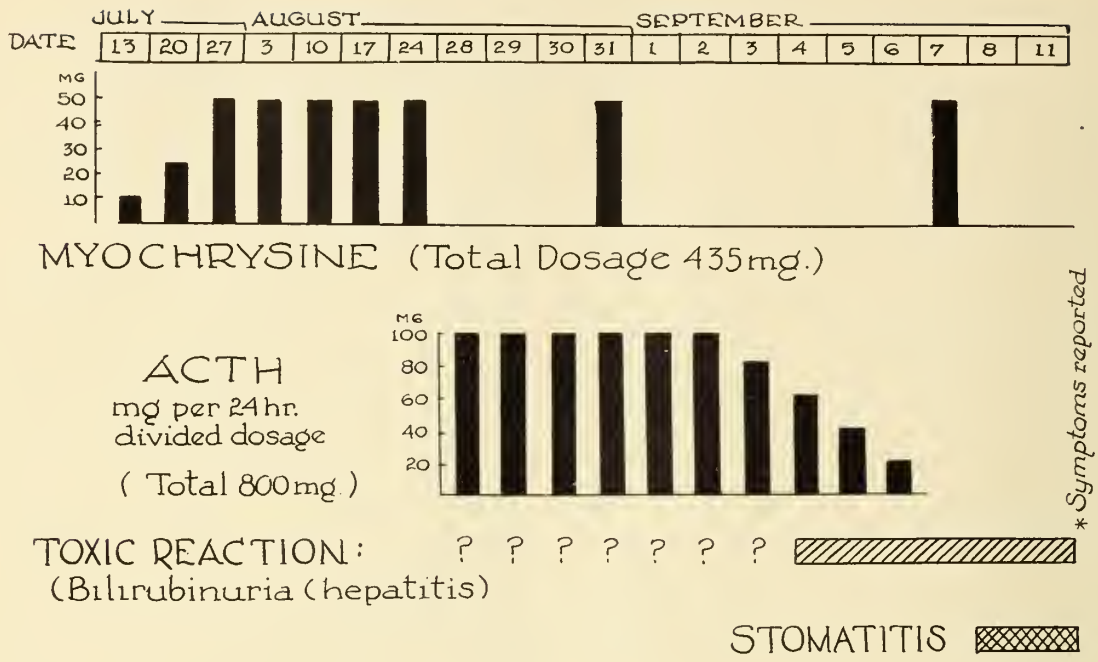

Figure 1.

cian there, he was found to be jaundiced. In retrospect, he reported that his urine had been quite dark for at least a week (*i.e.*, during the period while he was still receiving 9CTH) but he neglected to report this while in the hospital, thinking it of no significance. Routine urinalysis prior to the last injection of myochrysine on September 7, 1951, had been reported as negative, unfortunately. The presence of bile was apparently overlooked. He was advised to return to New Orleans where he was hospitalized immediately. On examination he stated that he felt nauseated, and that his hands shook continuously. His mouth was quite sore and examination revealed many small aphthous ulcers. He was obviously jaundiced and the liver edge was palpable but the spleen could not be felt. Laboratory work at that time was as follows:

On September 12, 1951, red blood cells 4,320,000 cu/mm; white blood cells 10,000 cu. mm.; neutrophils 70; eosinophils 3; lymphocytes 24; monocytes 4; blood platelets 190,000 cu/mm; urine—positive for bile; urobilinogen positive in dilution 1/160; serum bilirubin 7.95 mgm. per cent; total serum proteins 6.0 gm. per cent; albumin 4.2 gm. per cent; globulin 1.8 gm. per cent; thymol turbidity 7 units (normal 0-4); cephalin cholesterol flocculation 3 plus (normal 0-1).

September 14, 1951, prothrombin time 15.7 sec.—97 per cent.

September 18, 1951, serum bilirubin 6.3 mgm. per cent.

September 22, 1951, liver biopsy reported as follows: Bile thrombi within the mid and central portions of the lobules consistent with a cholangiolytic hepatitis due to gold therapy (Sections reviewed by Dr. A. J. Hertzog, Pathologist, Touro Infirmary, New Orleans).

September 24, 1951, serum bilirubin 4.9 mgm. per cent; alkaline phosphatase 11.1 Bodansky units; prothrombin time 16.1 sec. –87 per cent; total serum proteins 6.6 gm. per cent—albumin 4.5 gm. percent; globulin 2.1 gm per cent; thymol turbidity 7 units; cephalin cholesterol flocculation –4 plus.

September 28, 1951, serum bilirubin 3.1 mgm. per cent.

The second period of hospitalization extended from September 12, to October 5, 1951, during which time he developed a full-blown gold dermatitis of the exfoliative type as well as the hepatitis and stomatitis. After consultation with Dr. Howard Polley of the Mayo Clinic, it was felt that the toxic reaction should be treated with BAL, especially since the toxic manifestations had come on while the patient was receiving ACTH. The preparation of BAL used was one of 10 per cent BAL and 20 per cent benzylbenzoate in peanut oil given according to the schedule recommended by Eagle; namely, 3 mgms./kg. every four hours on the first and second day, every six hours on the third and fourth day, and then twice daily on the fifth and sixth days. The drug was discontinued at this time because of an extremely satisfactory response on the part of the patient. Specific therapy was supplemented by a high carbohydrate, high protein, low fat, liver type diet, daily glucose infusions with large doses of vitamin B and C added, a preparation containing the lipotropic fac-

tors including choline, methionine and isotol, and multivitamin supplements. The patient was kept at strict bed rest and likewise received symptomatic treatment to the mouth and skin as needed. He responded nicely to this program and was discharged from the hospital about October 5, 1951, at which time he returned to his home in New York City to convalesce. Interestingly enough, the joint symptoms remained in complete abeyance during this period and had not returned at the last time he was seen for a check-up on Jan. 25, 1952. Significant laboratory studies at this latter date were a serum billirubin of 0.9 mgms. per cent, bromsulphalein dye retention of 5 per cent at the end of thirty minutes (essentially the same as at the onset of the illness) and a thymol turbidity of 4 units. Urine was negative for bile; sedimentation rate was 41 mms./hr.

COMMENTS

Reference to the diagram will illustrate graphically the onset of the gold reaction during the administration of ACTH. It is interesting to speculate as to the possibility of latent liver damage in this patient which might have accounted for the probable false positive serology and bromsulphalein dye retention of 5 per cent which had been noted prior to the use of gold. Many authorities[4] feel that previous kidney or liver disease is not a contraindication to gold therapy unless they seriously impair the function of these organs. Even then the danger is not that toxicity is more apt to occur but rather that if severe toxicity from gold is encountered, the summation of difficulties may produce serious consequences.

It is obvious from the data that the gold reaction was first apparent at about the time the doses of ACTH were reduced with the idea of tapering it off gradually, although it may have been developing subclinically for some time before. Whether the reaction would have been prevented if ACTH had been continued in full dosage for a longer period of time is, of course, unknown. Since the reaction was not anticipated, however, and the main purpose of the first hospitalization had been an effort to determine the possible effectiveness of ACTH in supplementing gold effects, studies of adrenocortical function had not been done at that time. All of these factors led to the decision to use BAL in the treatment of the reaction.

SUMMARY

1. A case is presented in which a toxic reaction to a gold salt (myochrysine) apeared while the patient was receiving ACTH. The reaction consisted in the development of a hepatitis of the cholangiolytic type, stomatitis, and exfoliative dermatitis.

This reaction was treated with BAL and responded very well.

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THE CARE OF INFANTILE ECZEMA*

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There are many forms of therapy for eczema of infancy. In this outline an attempt has been made to present the more important and most practical features of all treatments. No effort has been made to go into any detail concerning the skin lesions or the handling of any complications.

SEBORRHEIC ECZEMA OR DERMATITIS

This is not a true allergic disease. It usually begins in the scalp and spreads to the face, involving the posterior aspect of the cheeks and the eyebrows. The lesions have yellow, greasy scales.

There is not a high incidence of allergy in the family; the cutaneous allergy tests are seldom positive, and the child does not develop other allergic manifestations later in life.

The skin may be cleansed with allercreme detergent oil, while liquid germicidal detergent (Parke Davis & Co.) or phisoderm with hexachlorophene (Winthrop) works well in the scalp. Boric acid ointment has been used on the face and scalp

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but often it is not completely satisfactory, and the following may be tried:

℞ Resorcinal ..... 0.6 gm.
Velvachol ..... 60.0 gm.
(Texas Pharm. Co.)

℞ Salicylic-sulfur Ung. ..... 30.0 gm.
Velvachol ..... 30.0 gm.

℞ Vioform 3 per cent cream or ointment ..... 60.0 gm.

Diet is not important, although some investigators have suggested a reduction of fat. Skimmed evaporated milk is good. Dryco (Borden) or Alacta (Mead) have been used. Lately, Dalactum (Mead) has become quite popular.

ATOPIC ECZEMA OR ALLERGIC DERMATITIS

This allergic condition begins on the flushing areas of the cheeks and may spread to the forehead, ears, neck and extremities where it later is most marked in the cubital and popliteal folds. First, there is erythema, to be followed by papulovesicular eruption which itches. Scratching leads to oozing and crust formation.

The family history is usually positive for allergy. Cutaneous tests reveal positive reactions in approximately one-half of the cases. Egg white may be the only positive reactor. More often egg white and other foods, such as milk, rice, wheat, potato, tomato, or orange, give positive reactions. Occasionally, egg white does not react. In these cases, any positive reacting allergens are of clinical significance. One-third of the children with atopic eczema develop respiratory allergy (allergic rhinitis and/or asthma).

The skin may be cleaned with soap and water, *not an oil*. Lowila cake (Westwood Pharm. Co.) is preferred. However, phisoderm with hexachlorophene also may be employed.

When a cream or ointment is prescribed, orders should be given to apply them in the form of a thin layer, many times a day. As often as the infant rubs the preparations off, more is applied. This involves, in some instances, as many as ten applications in one day. The following have given good results:

℞ Bland cream ..... 60.0 gm.
(Dermovan of Texas Pharm. Co.)

℞ Calamine lotion (plain) ..... 120.0 cc

℞ Liquefied phenol ..... 0.1 to 0.5 cc.
Calotex (Texas Pharm. Co.) ..... 120.0 cc.

℞ Burrow's solution (Liq. alumin. acetate) prepared from domeboro tablets or powders and used as a continuous moist pack.

℞ Burrow's solution ..... 20 cc.
Velvachol ..... 20 to 30 gm.
Zinc paste (Lassar's) q. s. 60 gm.
} Modified Rosen's ointment

℞ Carbonis detergens cream of the Texas Pharm. Co. ..... 60 gms.

or

℞ Crude Coal tar ..... 0.5 to 1.0 gm.
Modified Rosen's Unq. ..... q. s. 60.0 gm.

℞ Crude coal tar ..... 0.5 to 1.0 gm.
Zinc oxide ..... 12.0 gm.
Amyli ..... 12.0 gm.
Velvachol ..... q. s. 60.0 gm.

Occasionally an infant will react to any tar preparation. This requires the substitution of naftalan

℞ Menthol ..... 0.6 gm.
Naftalan ..... 3.0 gm.
Burrow's solution ..... 15.0 gm.
Aquaphor, or Velvachol ..... 15.0 gm.
Zinc paste (Lassar's) ..... 60.0 gm.

℞ Icthyol ..... 4.0 gm.
Naftalan ..... 20.0 gm.
Aquaphor, or Velvachol ..... 50.0 gm.
Zinc paste ..... q. s. 100.0 gm.

Contact with certain allergens is significant. Woolen clothing is not permitted and woolen blankets and other woolen bedding cannot be used. No feather stuffed pillows or mattresses are allowed. The mother should be instructed to keep the infant away from feather pillows on beds or couches about the home. Animals (cat and dog) should not come near the child. In this connection, some observers have stated that it is difficult to treat eczema on a farm. Dusty things must be avoided.

Trauma must be reduced. Cuffs may prevent the infant from bending the arms at the elbow and scratching the face. Sometimes further restraints are temporarily necessary. The arms and legs are then held outstretched by means of strips of cloth extending from the wrists and ankles to the bars on the crib. The skin at the wrist and ankle is well protected with cotton. If the child rubs the face on the bedclothes, a sheet of heavy weight plastic ma-

terial can be employed. A piece about 2 feet square is fastened to the bed under the infant's head by strips of adhesive tape.

Sedation is important. Elixir nembutal (Abbott) or amytal (Lilly) may be tried by giving one fourth teaspoonful every four to six hours, as necessary. Somnos (Sharpe & Dohme) has been most helpful. Occasionally, it becomes necessary to use chloral hydrate by rectum. The dose is 5 to 10 grains.

Antihistamines may act as sedatives. Syrup of histadyl, syrup of decapryn, and elixir benadryl have been worthwhile in some cases. To each dram of the latter may be added 1/8 of a grain of phenobarbital. This combination has been effective in the very irritable child.

The diet must not be forgotten:

1. *Breast fed infants*—The mother may omit all eggs and wheat (especially cereals) as much as possible, and reduce milk in her diet. Calciphos can be given to furnish a sufficient amount of calcium. All foods which cause gastrointestinal distress or urticaria must be avoided. The eczematous infant is fed every four hours, and 5 times in twenty-four hours, usually at only one breast, in order to prevent too rapid a gain in weight. Fat babies do not respond satisfactorily to present day methods of treatment.

2. *Artificially fed infants*—Again, the four hour schedule is followed. Evaporated milk formulas may be tried. If progress is not good, the feeding may be changed to evaporated goat's milk, nutramigen (Mead) or mull-soy (Borden). There is also Rowe's so-called meat milk.

Recently, much emphasis has been placed on the soy bean preparations which are usually well taken by infants and young children. Occasionally, there may be some gastrointestinal distress but this is overcome by adding 1 to 2 teaspoonfuls of kaopectate (Upjohn) or pectocel (Lilly) to each feeding.

3. *Elimination of certain food allergens* is essential. No infant should receive egg or egg products. Further removal of foods may be made on the basis of experience or may depend on the results of the cutaneous tests. Vitamins must be added in the form of adsorl and cecon (Abbott) or vi-penta (Hoffman-LaRoche). Iron is often necessary and it may be administered as zymatinic (Upjohn) or fer-in-sol (Mead) drops.

The treatment is broadened still more by the addition of lard or soybean oil. The oral administration of these fats increases the concentration of the serum unsaturated fatty acids and results in some cases in an improvement of the eczema. Offer 1 to 3 teaspoonfuls of the lard or 1 to 3 drams of the oil with each feeding.

ICHTHYOTIC TYPE OF ECZEMA OR GENERALIZED SEBORRHEIC DERMATITIS

This disease is confused with erythroderma desquamativum (Leiner's disease). There is little involvement of the face, much of the extremities, and some of the trunk. Redness, thickening. induration, and scaliness are present. The scales are white and dry. Allergy may be present in the family. Positive cutaneous allergy tests are obtained. ACTH or cortisone may be used temporarily to clear the skin for skin testing. It must be remembered that these preparations cure nothing. Reactions to egg, milk, fish, and later in childhood, to nuts, are quite frequent. Some of the children develop respiratory allergy from the fish and nut sensitivity.

The skin should not be cleansed with mineral oil. Instead allercreme detergent oil or phisoderm with hexachlorophene may be employed. The sulfonated oil (Almay) without or with tar (5 per cent juniper tar) works well if there is much itching. The Almay tar bath, also, can be tried. It is better than the old colloidal baths. All ointments should contain very little petrolatum and the following topical therapy is suggested:

℞	Menthol	0.1 to 0.3 cc.
	Phenol	1.0 to 2.0 cc.
	Zinc oxide powder	10.0 gm.
	Lime water and oilve oil in equal parts to make	120.0 cc.
℞	Menthol	0.1 to 0.3 cc.
	Phenol	1.0 to 3.0 cc.
	Lubriderm (Texas Pharm. Co.)	120.0 cc.

℞	Phenol	1.2 cc.
	Zinc oxide	6.0 gm.
	Pulv. calamine	8.0 gm.
	Glycerine	10.0 cc.
	Milk of magnesia q. s. ad.	120.0 cc.
℞	Vioform cream (3 per cent)	60.0 gm.

℞ Olive oil with little chlorophyll, velvachol (Texas Pharm. Co.), geralatum (Almay), or aquaphor may keep the skin in good condition once the acute stage has subsided. Frequent application is necessary.

Itching is a prominent feature. It leads to much scratching with trauma, which greatly retards satisfactory progress. Creams and lotions containing antihistiminics are of little value. However, gelotion (Maroc Co.) has been helpful in some cases.

Diet regulation is important. Not only should egg be eliminated, milk substitutes employed, and other foods reduced, but fish and fish products avoided. Plenty of vitamins, especially A and D are indicated.

PYOGENIC OR INFECTIOUS ECZEMA

This resembles impetigo. Areas of eczema of a mild to moderate degree, located especially on the face, arms, and legs, have become infected. Very few pustules are present for the majority have been destroyed by scratching, and as a result there is much crusting.

Treatment is directed toward clearing-up of the infection. Years ago, the crusts were removed with a saturated solution of boric acid as a continuous wet pack, but now potassium permanganate in dilutions of 1-5000 to 1-10,000 is most popular. Following this procedure, aureomycin or terramycin ointment is indicated for a few days, after which bacitracin or tyroderm cream may be employed as long as necessary.

When the infection is gone, the eczema usually heals spontaneously. In this connection, it must be remembered that in the care of all eczemas, "Cleanliness is next to godliness."

ADDRESS OF THE PRESIDENT SURGICAL ASSOCIATION OF LOUISIANA 1950-1951

JAMES Q. GRAVES, M. D.

MONROE

It is with great pleasure and pride that I speak to you this evening as I relinquish the Presidency of this strong young Society into the capable hands of Dr. Jimmy Rives.

In these troubled times I have often liked to speculate as to the future of our profession, the profession of surgery. And like Patrick Henry, "I know of no way of judging the future but by the past." Let us look backward for a moment and see, in the perspective of time, where we, as surgeons, stand in the conflicting ideologies of today.

The discovery of anesthesia, in 1846, and asepsis, in 1867, made the surgeon a key figure in the great technologic development which followed during the last half of the nineteenth century. These two pivotal discoveries travelled to the four corners of the earth unimpeded by iron or silken curtains. New surgical techniques were developed by men of all nations, enriching all biological science. Pavlov was thus able to construct his gastric pouch, Sherrington to explore the nervous system, and Eck to devise his fistula.

The threshold of the twentieth century saw basically three categories of operative procedure: First, there were operations which had existed for centuries, such as vascular ligations, amputations of extremities, trephining and drainage of empyema, (ablations of superficial tumors, amputations of the breast, release of strangulated hernia, removal of vesical calculi.) Asepsis reduced the mortality rate of these procedures from 50 per cent to 1 to 2 per cent.

Second, were those surgical procedures which had been conducted from time to time but which were too dangerous before the advent of asepsis, such as ovariotomy, splenectomy, nephrectomy, operations for goiter, and plastic procedures, (intestinal

Address delivered at the Annual Meeting of the Surgical Association of Louisiana, New Orleans, November 11, 1951.

suture, opening of joints, repairs of non-strangulated hernia).

Third, were operations newly devised at the end of the nineteenth century, such as osteotomy, exploratory laparotomy, suture of the heart, and total hysterectomy, (laminectomy, transperitoneal nephrectomy, pyelotomy nephropexy).

Surgeons of the twentieth century have greatly extended the scope of operative surgery. So many changes have been made in old techniques and so many new techniques have been developed that only a few of the most outstanding ones can be mentioned here.

The most noteworthy advances in operative techniques have been in cardiovascular, pulmonary, and esophageal surgery. Other notable advances have been achieved in peripheral vascular surgery, plastic surgery, autonomic nervous system surgery, and in neurosurgery, especially of the brain.

The surgical procedures to correct congenital anomalies of the heart and major blood vessels probably should be placed at the top of the list. The results following operations on many disabling lesions are most promising. The correction of ductus arteriosus—a persistent patency of the vessel between the pulmonary artery and aorta as seen in blue babies—by ligation or division of this vessel has resulted in remarkable improvement in the condition of patients. Coarctation of the aorta—a narrowing or stricture of a portion of the thoracic aorta—is another anomaly which is now attacked by surgeons. In this operation the constricted area is resected and the normal vascular channel is restored or a bypass is established by anastomosing an adjoining blood vessel to the distal segment beyond the site of obstruction.

Surgical procedures have been developed also to repair defects in the septum of the heart. Patients with mitral stenosis can now be greatly improved by an operation in which a portion of the mitral valve is divided or resected, thereby creating a larger opening through which the blood flows from the auricle to the ventricle.

The most outstanding advance in general surgery during the past six years is the treatment of carcinoma of the thoracic esophagus and cardia of the stomach. Heretofore, the excision of a lesion in this portion of the esophagus resulted in a large defect which could not be bridged by any surgical procedure; the patient had to live as best he could with one end of his esophagus attached to the skin at the base of his neck.

At the present time the operation for carcinoma of the thoracic esophagus at any level is performed without hesitation. The continunity of the food passage is accomplished by bringing a portion of the stomach or the entire stomach through an incision in the diaphragm into the left pleural cavity and anastomosing the stomach to the divided end of the proximal esophagus. In low lying lesions this anastomosis can be accomplished below the transverse arch of the aorta; in high lying lesions the stomach is brought above and in front of the aorta and then the anastomosis is performed. In a few instances, in high lying lesions, the stomach has been brought completely up through the left chest and anastomosed to the esophagus just above the left clavicle in the base of neck.

The tremendous impetus to surgical technologic advance, begun in the last half of the nineteenth century has reached its culmination now. In twentieth century surgery, the emphasis is on sound, competent technology and, even more important, on the maintenance of the humanitarian qualities that are treasured so highly by responsible members of a great profession. The characteristic feature of the modern surgeon is his re-establishment as a biologist and as a physician in the broad sense of one skilled in the healing art. We are witnessing the beginning of the end of the sterile isolation of the surgeon at the operating table. We see the surgeon travelling in the company of others such as the internist, the physiologist, the chemist. We behold a common quest for elucidating unsolved problems in a free and democratic society.

Without restraint, modern surgery has advanced to where every cavity of the body is now accessible. Surgical skill, like sur-

gical science has made unparalleled progress second to no other science of this age.

But, what the next half century holds is now difficult to visualize. Due to the possibility of socialization, an interference, which is a factor for consideration, the perplexities of the future may be changed, not to the best interest of advanced surgery.

It would be rash, indeed, to try to foretell the progress of surgery for the next fifty years. In our zeal to fight the menace of socialization, the statism, we must not succumb to the danger of resisting all changes. We can lose this battle in the long run, if we fail to adopt a sound advance. Nothing in life stands still, we must march forward with progress or slide backward.

Progress is possible, only in a free society, rooted deep in democracy. If the responsibility for professional care should pass from the hands of the trained surgeon to the laymen, the status of the surgeon would inevitably be lowered to something resembling that of a hired technician. There would be no reward for skill, perseverance, and kindliness, nor for success in diagnosis and procedure. The motive, that now provides a positive incentive for higher quality of performance, would be turned in a negative direction.

We, surgeons of Louisiana, justly feel proud of the accomplishments achieved by science and join with the surgeons of the nation to prevent any political interference on the part of the evil of totalitarianism to destroy our freedom, for an uninterrupted interference, for the continuance of American progress, in surgery.

In the arena of medicine, as in industry, we have proved that the American way—the way of enterprise—worked best. If you allow that to be destroyed or weakened, through socialization, we will become as weak as Great Britain, France and Italy, which at one time were the most powerful nations on earth. Then, surely, we will be easy prey for Russia.

When the state enters the field of private activity, that field turns into a battleground of organized pressure groups, political and professional.

If we remain free and unrestrained in our scientific study to pursue the unsolved and intricate problems of surgery, there will be still greater benefits achieved for the betterment of the human race.

Gentlemen, in this changing world, the future of surgery lies in the hands of destiny. To safeguard its future is a challenge that we accept with full responsibility, without compromise.

NEW ORLEANS
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SOCIALIZED MEDICINE AS A CAMPAIGN ISSUE

State medicine is again an issue which is being discussed by the American public. It is fortunate that the sharp decision has been made possible. Democratic administration has been, and continues to advocate compulsory sickness insurance, which is State Medicine under another name. The Democratic platform says, in part, that the party advocates "federal aid for medical education to help overcome the growing shortages of doctors, nurses, and other trained health personnel." The party recognizes that "the costs of modern medical care have grown to be prohibitive for many millions of people. We commend President Truman for establishing the non-partisan commission on the health needs of the nation to seek an acceptable solution of this urgent problem."

From these and other statements, it is clear that the committee regards the field of medicine as legitimate ground for government direction and ultimately bureaucratic control. The statements of the Democratic party nominee give further credence to the belief that he advocates just such a program.

On the contrary, the Republican party platform gives the following statement:

> "We recognize that the health of our people as well as their proper medical care cannot be maintained if subject to federal bureaucratic dictation. There should be a just division of responsibility between government, the physician, the voluntary hospital, and voluntary health insurance. *We are opposed to federal compulsory health insurance with its crushing cost, wasteful inefficiency, bureaucratic dead weight, and debased standards of medical care.* We shall support those health activities by government which stimulate the development of adequate hospital services without federal interference in local administration. We favor support of scientific research. We pledge our continuous encouragement of improved methods of assuring health protection."

In accordance with the party platform, and obviously, his own belief in the matter, on September 14, General Dwight D. Eisenhower spoke emphatically against socialized medicine leading towards assembly line treatment of patients. He pointed out that the American people have the best medical care in the world today and indicated it would be a foolish experiment to attempt to nullify what our present system has already achieved. General Eisenhower further stated that he was opposed to a federally operated and controlled system of medical care, which is what the administra-

tion's compulsory health insurance scheme is in fact. He stated in so many words that we must "preserve the completely voluntary relationship between doctor and patient" with no intermediary, which is what the government would be if it paid the doctor. In his summary, he said:

> "Experience has shown that American medicine outstripped the world on a voluntary basis and on that basis—plus voluntary insurance plans, together with locally administered indigent medical care programs for those unable to participate—the needs of Americans will be most adequately met."

It is clear from this expression of thought that the Republican candidate has aligned himself clearly with the position on this issue which has long been that advocated by leaders of organized medicine.

The interests of the physicians as a whole over the nation, and particularly those in Louisiana, are at stake. The Louisiana primary law does not bind a party member in a national election. Every physician has the legal right to cast his vote for the national candidate of his choice. Physicians are urged to register, and urged equally strongly to vote so that there will not be an almost 20 per cent staying away from the polls as happened in 1948 in Louisiana.

The individual voter, in some instances, modestly seems to think that his vote does not count. Such self effacement seems to be mounting and riding at the heels of lethargy. Let us reflect that in recent years national legislation and even vicious trends in social and economic developments have been repeatedly put into being by compact, resourceful and aggressive minority groups. These movements would be powerless except for the apathy of the citizen. As a corollary to this, if the doctor is to maintain his right to practice he must no longer restrict himself to consideration of the affairs of the leukocytes, the antibiotics, and the disease pictures, but must assert himself as a citizen and as a member of organized medicine in every facet where his life touches that of the community. Reflection of this nature should leave no doubt as to what the physician should do as a citizen for the community and in the interests of better medicine.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

EXCERPT FROM ADDRESS BY PRESIDENT OF A. M. A.

Addressing the national convention of the American Legion in New York this week, Dr. Louis H. Bauer, president of the AMA, said it was heartening in this critical year of 1952 "to see that both of our major political parties—one of them directly and the other by implication—have recognized that great upsurge of public opinion on the issue of socialized medicine.

"The health plank in the Republican party platform," he continued, "includes the outright statement that 'We are opposed to Federal Compulsory Health Insurance with its crushing cost, wasteful inefficiency, bureaucratic dead weight, and debased standards of medical care.'

"The Democratic party platform—adopted by a convention representing the views of the party rank-and-file, in contrast to the views of a handful of planners in the executive department of the federal government—contains no endorsement of Compulsory Health Insurance, as has been the case with previous platforms, but simply urges a resolute attack against the financial problems involved in serious illness.

"In view of what has been happening during the past three or four years, both party actions confirm the validity of the medical profession's case against socialized medicine. The two party platforms also give reason for hope that never again will the people's health be used as a football in the political arena. Above all, however, they constitute a timely tribute to the forces of an aroused public opinion.

"The American Medical Association and the American Legion have much in common," he said. "Not only are they jointly interested in the health and welfare of the veteran, but they also have provided the main leadership in the drive against the socialism which is steadily creeping over this country."

Dr. Bauer said that American physicians will be forever grateful to the Legion for its early, vigorous and continued support against socialized medicine.

However, Governor Stevenson, in press conference and in public political addresses has stated that he has great confidence in Dr. Magnusson, his personal friend and Chairman of Mr. Truman's committee to study the subject of medical care in this country, and would await their report before stating his final opinion as to his stand on this subject. You can well appreciate, in advance, that this committee's report will to a certain degree, at least, be favorable to the wishes and feelings of Mr. Truman, who has consistently recommended and fought for socialized medicine. Beware of snares and traps.

General Eisenhower has expressed himself in unmistakable language that he is against socialized medicine. Why should we take chances or have any doubts when we go to the polls in November?

COMMISSION ON ACCREDITATION OF HOSPITALS

The new office of the Joint Commission on Accreditation of Hospitals at 660 Rush Street, Chicago, opened on September 1. Dr. Edwin L. Crosby, former superintendent of Johns Hopkins Hospital, Baltimore, is director of the Commission, which will assume responsibility for the hospital standardization program formerly carried out by the American College of Surgeons.

WAGE STABILIZATION

One of five physicians who practice medicine in a partnership and employ six persons to do office work inquired recently if the partnership was subject to restrictions imposed by Wage Stabilization.

Attorney T. V. McDavitt, director of the Industrial Relations department of the AMA, replied that under the circumstances, the partnership is not subject to Wage Stabilization and "the matter of wages and salaries paid to your employees is entirely within the discretion of the partners." He added that small business firms generally —those employing a total of eight or less persons in all branches—are exempt from wage and salary controls under the recent amendments to the Defense Production Act.

READING MATERIAL IN DOCTORS' OFFICES

Timothy Turner, columnist for the Los Angeles Times, wrote an article recently about the reading material usually found in doctors' offices. He studied the subject in detail and then came up with some ideas.

He said magazines for doctors' offices should be the ones that have short stories or articles. Continuing, he said:

"This leaves out such publications as the Saturday Evening Post and Collier's, for they have full-length articles and long short stories. One may have to wait for the doctor an hour or more, but hope springs eternal that he will not have to wait long, so he does not want to start a long story, for he may not be able to finish it.

"Here is my list: Newsweek, Reader's Digest, Life, Holiday, National Geographic, Harper's Bazaar, Vogue, Seventeen, Business Week, New Yorker, Esquire, and Today's Health (formerly Hygeia) an American Medical Association magazine."

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SYMPOSIUM ON CHILD HEALTH

A Symposium on Child Health will be held in Shreveport, November 15, 1952, from 9 A. M. to 12 Noon, at the Washington Youree Hotel. This will be held on the final day of the 1952 Annual Meeting of the Louisiana Health Council with the Caddo Health Council as host. The theme of the Health Council Meeting will be "Louisiana Plans for the Future of Public Health."

The Symposium will concern itself with "Advances in Medicine of General Interest in Regard to Children of School Age", with the folowing subjects being presented:

1. Nutrition.
2. Poliomyelitis.
3. Contagious Disease.
4. Accident Prevention.

A cordial invitation is extended to all doctors to attend the entire meeting, especially doctors from rural parishes and the smaller cities as the program is planned entirely for their benefit.

POST-GRADUATE COURSE ON THE CARE OF PREMATURES

A Post-Graduate Course on the Care of Prematures is being offered at the Charity Hospital of Louisiana, the Premature Infant Center, November 5-9, 1952. Registration is limited to ten and there will be no tuition fees. This course is open to all physicians and should be of particular interest to pediatricians and public health officers. Applications and request for further information may be addressed to :Dr. Elaine Allen, Premature Infant Center, Charity Hospital, New Orleans, La.

NEW LABORATORY OPENED

A new laboratory for testing devices submitted to the A.M.A. Council on Physical Medicine and Rehabilitation has been opened at A.M.A. headquarters. Most of the laboratory's work, done by Dr. Frederic T. Jung, is concentrated on testing the actual mechanics of new devices submitted by manufacturers to the Council. This supplements the clinical testing.

NEW OFFICE OPENS SEPT. 1

The new office of the Joint Commission on Accreditation of Hospitals, at 660 Rush Street, Chicago was opened on September 1. Dr. Edwin L. Crosby, former superintendent of Johns Hopkins Hospital, Baltimore, is director of the Commission, which will assume responsibility for the hospital standardization program formerly carried out by the American College of Surgeons.

SURGICAL ASSOCIATION OF LOUISIANA

The following program has been planned by the Surgical Association of Louisiana which will meet Sunday, November 16, 1952, at the St. Charles Hotel, New Orleans:

Dr. Cushman D. Haagensen, Institute of Cancer Recearch, Columbia University, College of Physicians and Surgeons, New York, New York—"Breast Cancer".

Dr. Willis J. Potts, The Children's Memorial Hospital, Chicago, Illinois—"Common Surgical Problems in Children".

Dr. W. R. Mathews, Shreveport Charity Hospital, Shreveport, La.—"Carcinoid Tumors of the Rectum".

Dr. Charles R. Walters, New Orleans, La.—"Problem in Diagnosis and Management of Gastrointestinal Bleeding".

Dr. Claude C. Craighead, New Orleans, La.—"Duodenal Fistula".

Business Meeting, Cocktails, Banquet.

INFORMATION REGARDING NEW ANTI-ARTHRITIC DRUG BUTAZOLIDIN®

(phenylbutazone)

At the meeting of the American Rheumatism Association held in Chcago June 6th and 7th, the first national reports were made on BUTAZOLI-

DIN (phenylbutazone) an important new agent for the relief of arthritis and allied disorders. As this meeting was open to the lay press, information about these reports was made available to reporters by the Committee on Public Relations of the Association, with the consequence that news items about the drug have appeared in certain periodicals. Care with regard to side effects was advised. The drug is contraindicated in severe renal, cardiac or hepatic disease.

RAPID STRIDES MADE IN EMERGENCY MEDICAL CALL PLANS

Rapid strides have been and are being made in the development of emergency medical call systems, the Council on Medical Service of the American Medical Association reported.

Today, approximately 80 per cent of the country's large medical societies have such plans, the council reported. In 1948, it pointed out, only about 60 medical societies reported having a formal plan for handling emergency and night calls. In 1949, the number of such plans rose to between 100 and 120.

At the end of 1951, 364 emergency medical call systems were in operation, according to the council. Of the 40 medical societies with 200 to 300 members, 29 had such plans, while 63 of the 71 medical societies with a membership in excess of 300 had such systems.

Despite such impressive progress, the council urged all counties where such plans were not in operation to begin developing one immediately.

"Development of an efficient emergency call plan is an important step any medical society can take toward assuring the public that medical care will be available when needed," it stated.

"While every county or city has real emergency cases, not every county medical society needs a formal or organized program for handling emergencies."

PARENTS MUST CONDITION CHILD EMOTIONALLY FOR OPERATION

Preparation of a child for surgery must begin in the home by the provision of an environment of love, trust and security if the child is to survive the operation without suffering emotional injury.

This conclusion was expressed in an article in the Journal of the American Medical Association written by Katherine Jackson, M. D.; Ruth Winkley, A. B.; Otto A. Faust, M. D., and Ethel G. Cermak, M. D., all of Albany, N. Y. Drs. Jackson, Faust and Cermak are associated with the departments of pediatrics and anesthesiology, Albany Medical College.

"Our experience has shown that the child best able to meet the hospital-anesthesia-surgery situation is the child who is able to trust the physicians and nurses to treat him fairly," the authors stated. "He assumes that painful procedures are necessary, are for his own good, and are not punitive."

ONE OUT OF THREE BOXERS MAY HAVE BRAIN DISORDER

One out of every three boxers medically examined under Colorado state athletic commission regulations was found to have abnormal brain wave recordings, possibly indicative of brain damage, according to a report in the August 23 Journal of the American Medical Association.

The compulsory brain examinations, by means of an electrical brain wave recording apparatus (an electroencephalograph), had been ordered by the commission as another move to prevent serious injury or death from the sport.

During a year's time, 24 boxers underwent such examinations in Colorado. The electroencephalogram records of four boxers showed severe disturbances and five showed moderate disorders, a total affected rate of 37.5 per cent, according to Drs. Elwald W. Busse and Albert J. Silverman, of Denver. The doctors are associated with the Colorado Psychopathic Hospital.

THIS IS THE RECORD

When it comes to exercising their voting privileges, the citizens of many other nations are way ahead of those of the United States. The percentage who went to the polls is revealed by these startling and astonishing facts:

In Belgium, March, 1950, 90 per cent.

In Italy, April, 1948, 89 per cent.

In England, October, 1951, 83 per cent.

In Canada, June, 1949, 75 per cent.

In Israel, July, 1951, 72 per cent.

In Sweden, September, 1951, 80 per cent.

In France, October, 1945, 75 per cent.

In Japan, June, 1950, 71 per cent.

In the United States, in the last presidential election, only 51 per cent of the eligible voters went to the polls; Forty-nine per cent of those eligible did not take the trouble to vote!

This is a year of decision. Every man or woman who is eligible to vote is urged to exercise his high privilege as a citizen—and vote.

VOTE AS YOU PLEASE . . .BUT PLEASE VOTE

From The Missouri Pacific Lines "News Reel"

PRIMAQUINE, NEW DRUG, PREVENTS MALARIA RELAPSE

Announcement is made in the August 23 issue of the Journal of the American Medical Association of the development of a new antimalarial, primaquine, which destroys the parasite causing relapsing malaria and is cited by U. S. Army medical authorities as the most effective preparation known for the prevention of relapses.

Reports on the new compound and on its therapeutic efficacy are contained in a series of four papers in the AMA Journal. The reports cover studies conducted by teams of malaria experts working under the sponsorship of the Office of the Surgeon General, U. S. Army, and the U. S. Public Health Service.

IN MEMORIAM

Whereas, Dr. John G. Snelling was a member in good standing in the Ouachita Parish Medical Socity.

Whereas, he was a valuable asset to the medical profession and whereas he was a valuable citizen in our community.

Be it therefore resolved that the Ouachita Parish Medical Society has lost a valuable member.

Further be it resolved that the society wishes to express our sincere sympathy and deep regrets to the family of Dr. John G. Snelling as a result of his passing.

William L. Bendel, M. D.
Chairman of Committee
Ben Cobb, M. D.
Roy A. Kelly, M. D.

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WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

AUXILIARY TO SHREVEPORT MEDICAL SOCIETY

The annual meeting of the Woman's Auxiliary to the Shreveport Medical Society was held May 14, 1952, in the home of Mrs. R. T. Lucas.

The main item of business was the election and installation of the following officers:

President, Mrs. Paul D. Abramson; President-elect, Mrs. C. E. Boyd; First vice-president, Mrs. G. A. Creel; Second vice-president, Mrs. J. E. Knighton, Jr.; Recording Secretary, Mrs. J. E. Carlisle; Corresponding Secretary, Mrs. C. S. Holt; Treasurer, Mrs. E. Clay Edwards.

Mrs. Worley, retiring president, presented the gavel to Mrs. Abramson, recalling that the gavel had been presented to the Auxiliary, in 1943, by a former president, Mrs. B. C. Garrett. The names of each succeeding president were read. Mrs. Abramson graciously received the gavel,—and reported on the chairmen of committees for the coming year.

A most pleasant social hour was enjoyed, and the group adjourned to meet again in October.

LAFAYETTE PARISH MEDICAL AUXILIARY

Mrs. Thomas A. Kimbrough was installed as president of the Lafayette Parish Medical Auxiliary at the May luncheon meeting of the group at Jacob's Four Corners restaurant.

Other officers for the coming year are: president-elect, Mrs. J. R. Ferguson; secretary, Mrs. D. N. Chesson; treasurer, Mrs. Paul Kurzweg, Jr.

Mrs. L. B. Long, retiring president, thanked each officer and all the members for their work and fine cooperation during the past year.

Mrs. Kimbrough named all the committees for the coming year. She also made a report on the state medical convention recently held in Shreveport. It was announced that Mrs. J. Boring Montgomery of the Lafayette auxiliary was elected fourth vice-president of the State Medical auxiliary.

It was announced that representatives from the Lafayette Parish Medical auxiliary are now visiting all of the high schools in the parish in the interest of nurse recruitment.

The president announced that this was the last meeting of the auxiliary until September.

Other members present in addition to the new officers were Mrs. L. B. Long, Mrs. Michael Boustany, Mrs. M. E. Saucier, Mrs. Thomas Latiolas, Mrs. L. A. Prejean, Mrs. Ralph Bourgeois, Mrs. Edward Harrell, Mrs. Edward Wynne, Mrs. C. K. Oliver, Mrs. J. O. Duhon, Mrs. James Gilly, Mrs. Henry Voorhies, Mrs. W. L. Zinc, Mrs. John Miles, Mrs. F. H. Davis, Mrs. L. O. Clark, Mrs. Sidney Hernandez, Mrs. Mims Mitchell, Mrs. J. B. Montgomery, and Mrs. J. J. Burdin.

Honorable metnion was given three Lafayette parish high school students in the state judging of an essay contest sponsored by the American Medical Association. Students given honorable mention were Miss Joy Phillips, Lafayette High School, Miss Martha Briggs, Mt. Carmel High School, and Miss Shirley Billeaud, St. Cecilia High School of Broussard. The title of the essays was "Why the Private Practice of Medicine Furnishes this County with the Finest Medical Care." The essay contest sponsored by the American Medical Association was handled by the Lafayette parish Medical Auxiliary.

OFFICERS AND CHAIRMEN — WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY 1952-53

OFFICERS

President—Mrs. T. E. Strain, 743 Thora, Shreveport.

President-Elect—Mrs. Edwin Socola, 1216 Broadway, New Orleans.

1st Vice-President—Mrs. A. Scott Hamilton, 1300 Island Drive, Monroe.

2nd Vice-President—Mrs. J. E. Sorells, 115 College St., Lake Charles.

3rd Vice-President—Mrs. D. B. Barber, Box 446, Pineville.

4th Vice-President—Mrs. J. Boring Montgomery, 402 Jefferson Blvd., Lafayette.

Recording Secretary—Mrs. M. E. Kopfler, 750 Moore St., Baton Rouge.

Treasurer—Mrs. Dorf Bean, 615 Oneonta, Shreveport.

Corresponding Secretary—Mrs. Lucius L. Davidge, 4141 Richmond, Shreveport.

Parliamentarian—Mrs. A. A. Herold, 731 Oneonta, Shreveport.

CHAIRMEN

Archives—Mrs. C. Grenes Cole, 4938 Ct. Charles, New Orleans.

Bulletin—Mrs. Blaise Salatich, 24 Warbler, New Orleans.

Cancer Control—Mrs. Louis Leggio, 8300 Sycamore, New Orleans.

Commemoration Fund—Mrs. Cyril T. Yancy, 1704 N. Fourth, Monroe.

Doctor's Day—Mrs. P. R. Gilmer, 851 Olive St., Shreveport.

Editor of Publications—Mrs. O. B. Owens, 1026 Bolton, Alexandria.

Finance—Mrs. H. Theodore Simon, 1300 Third St., New Orleans.

Historian—Mrs. Clarence Webb, 3904 Creswell, Shreveport.

Today's Health—Mrs. Robert L. Simmons, 35 Fontainbleau Dr., New Orleans.

Legislation—Mrs. J. E. Carlisle, 358 Albany Ave., Shreveport.

Press and Publicity—Mrs. Leon Gray, 1901 Centenary, Shreveport.

Printing—Mrs. W. A. McBride, 213 Pennsylvania, Shreveport.

Essay Contest—Mrs. F. C. Shute, Opelousas.

Red Cross—Mrs. Jacob O. Hoth, 1378 Richland, Baton Rouge.

Romance and Research of Medicine—Mrs. James W. Warren, 470 Audubon Blvd., New Orleans.

Program—Mrs. Wiley A. Dial, 1137 Park Blvd., Baton Rouge.

Public Relations—Mrs. DeWitt T. Milam, 1704 Island Dr., Monroe.

Revision of By-Laws—Mrs. W. B. Worley, 558 Longleaf Dr., Shreveport.

Year Book—Mrs. John L. Beven, 783 Lakeland Dr., Baton Rouge

Nurse Recruitment—Mrs. Ralph Talbot, 200 Arkansas, Monroe.

La. Health Council—Mrs. M. C. Wigginton, Hammond.

Civil Defense—Mrs. W. A. K. Seale, 221 W. Elizabeth St., Sulphur.

COUNCILORS

First District—Mrs. Nathan Polmer, 2207 Carondelet, New Orleans.

Second District—Mrs. Albert F. Habeeb, 178 W. Oakridge, New Orleans.

Third District—Mrs. Isadore W. Gajan, New Iberia.

Fourth District—Mrs. W. J. Hill, 725 Erie, Shreveport.

Fifth District—Mrs. A. G. McHenry, 1810 Riverside Dr., Monroe.

Sixth District—Mrs. Rhodes J. Spedale, Plaquemine.

Seventh District—Mrs. John G. McLure, Welsh.

Eighth District—Mrs. D. B. Barber, Box 446, Pineville.

PARISH PRESIDENTS 1952-53

First District—Orleans

Mrs. Louis Leggio, 8300 Sycamore St., New Orleans.

President-Elect—Mrs. Edwin R. Guidry, 720 Broadway, New Orleans, to take office in January.

Second District

Mrs. J. J. Massony, Westwego, La.

Third District

Lafayette

Mrs. Thomas Kimbrough, 306 St. Thomas St., Lafayette.

Lafourche

Mrs. Thomas B. Ayo, Raceland, La.

Terrebonne

Mrs. Buford J. Autin, 235 Sunset Avenue, Houma, La.

Fourth District—Caddo

Mrs. Paul D. Abramson, 704 McCormic, Shreveport, La.

Fifth District—Ouachita

Mrs. J. W. Schonlau, 1507 Spencer Street, Monroe, La.

Sixth District—East Baton Rouge

Mrs. Henry W. Jolly, Jr., 1420 Stanford Avenue, Baton Rouge

Iberville

Mrs. Rhodes Spedale, Plaquemine, La.

St. Tammany

Mrs. H. E. Cannon, Covington, La.

Tangipahoa

Mrs. I. I. Rosen, Amite, La.

Washington

Mrs. Lamar Lancaster, 621 Huron, Bagalusa, La.

Seventh District—Beauregard

Mrs. Luke Marcell, 602 S. Royal Street, DeRidder, La.

Calcasieu

Mrs. Walter Moss, 2002 Drew Park Drive, Lake Charles, La.

Jefferson Davis

Mrs. L. E. Shirley, Jennings, La.

Iberia

Mrs. L. M. Villien, Jeanerette, La.

St. Landry

Mrs. S. J. Rozas, Opelousas.

Eighth District—Rapides

Mrs. N. N. Brian, Jr., 2000 Donahue Ferry Rd., Pineville, La.

SOUTHERN MEDICAL AUXILIARY INVITES WIVES TO MIAMI

The Southern Medical Association meets in Miami, Fla., November 10-13, 1952, and all indications are that it will be a meeting to be long remembered. The hospitable Miamians are planning a delightful social program for the ladies.

(A tentative) Auxiliary program is as follows:

Sunday, Nov. 9—Special Executive Committee meetings.

Monday, Nov. 10—Luncheon for Past Presidents. Luncheon for Councilors.

Tuesday, Nov. 11—Executive Board Breakfast; General Session; Doctors Day Luncheon; Other social activities, including a fish fry on the beach.

Wednesday, Nov. 12—General Sessions; Luncheon honoring the president, Mrs. V. Eugene Holcombe, the President-Elect, Mrs. Richard F. Stover and visiting State Presidents and Charter Members.

Thursday, Nov. 13—Executive Board Banquet.

The Auxiliary to the American Medical Association will furnish two of the speakers. Mrs. Ralph B. Eusden, President of the Auxiliary to the A. M. A., will discuss the aims and general program of the Auxiliary and Mrs. John McCuskey, a vice Chairman, will speak on nurse recruitment.

Wives attending the Southern Medical Association meeting with their husbands are cordially invited to attend all activities of the Auxiliary.

All reservations should be made early.

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

A notice from the Auxiliary to the Southern Medical Association states that the auxiliary is proud to have on its Executive Board this year the following outstanding members from Louisiana:

Mrs. Wiley R. Buffington, New Orleans; Mrs. Arthur A. Herold, Shreveport; Mrs. R. M. Simonton, State Councilor, Monroe; Mrs. Dewitt Milam, State Vice Councilor, Monroe.

BOOK REVIEWS

Surgical Practice of the Lahey Clinic: By the Staff of the Lahey Clinic. Philadelphia. W. B. Saunders Company, 1951. pp. 1014. Price $15.00.

In this second edition of the Surgical Practice of the Lahey Clinic are explained and demonstrated in 1,014 pages and 784 illustrations the operative techniques currently in use at the Lahey Clinic. Fully as valuable as the description of operative procedures is the thorough discussion of current diagnostic methods, preoperative and postoperative care, anesthetic procedures, concurrent medical treatment, and evaluation of end-results.

The wide variety of topics considered are: Thyroid and Neck (172 pages); Thoracic Surgery (93 pages); Abdominal Surgery (233 pages); Breast (10 pages); Gynecology (29 pages); Bones and Joints (33 pages); Neurosurgery (90 pages); Anesthesia (58 pages); and Miscellaneous Subjects (48 pages).

WALTER F. BECKER, M. D.

Brain Tumors of Childhood: By Henry M. Cuneo, M. D., and Carl W. Rand, M. D. p. 224. Charles C. Thomas, Publisher, 1952. Price $5.75.

This clearly printed monograph of the American Lecture Series presents a compact, well illustrated summary of current opinion on diagnosis, life history and treatment of most of the intracranial tumors occurring under 13 years of age. It is directed to both neurosurgeons and pediatricians and follows the pattern set by Cushing in presenting 2000 tumors in 1932. In a sense, it is a short sequel to the more encyclopedic presentation in 1939 by P. Bailey, D. N. Buchanan and P. C. Bucy. Discussion of the pathology of gliomas is brief, but other lesions are discussed more fully.

Eighty intracranial tumors encountered at the Children's Hospital in Los Angeles in the past decade were analysed together with three eosinophilic granulomas of the calvarium seen with them. The usual incidence of 74 per cent gliomas was reported among the intracranial lesions. Sixty-eight were operated upon with 19 deaths related to operation either immediately or in the next few weeks. No deaths occurred from ventriculography, but emphasis is laid upon 6 deaths arising from the consequences of failing to employ this study and the attendant erroneous exploration of the posterior fossa for a third ventricle tumor. Thirteen died with unfavorable lesions either from the point of view of position or histopathology. No deaths occurred among 3 infectious granulomas, and 1 optic nerve glioma. Among 17 cerebellar astrocytomas there was no immediate operative mortality al-

though one of these died two months postoperatively of streptococcus meningitis. An additional case of ependymoma also died of postoperative infection.

Five year cures were fewer than expected from previous experience particularly with cerebellar astrocytomas. The five year survivals reported included 1 infectious granuloma, 1 of 13 surviving with medulloblastoma, 2 of 9 surviving operation with craniopharyngioma and 3 patients with cerebellar astrocytoma of 16 surviving operation. Unfortunately, 26 of 49 patients surviving operation were lost from observation so that the results were incomplete. Of these, 10 were cerebellar astrocytomas. In view of 15 five year cures among 39 similar cases reported by Cushing in 1930 (28 patients were still living at the time of the report) it seems likely that many of the 10 cases lost track of survived five years at least. Recurrence and reoperation were not reported. This might be attributed to complete removal of mural nodules which is more common since Cushing emphasized its importance.

W. Randolph Page, M. D.

Clinical and Roentgenologic Evaluation of the Pelvis in Obstetrics; by Howard C. Moloy, M. D. Philadelphia, W. B. Saunders Co., 1951. pp. 119. illus. Price $2.50.

This is the first of a series of monographs designed to present in a somewhat condensed form some of the practical results of research in special fields of medicine. The author is an expert in roentgenologic pelvic mensuration and its obstetrical interpretation. The subject is presented in 116 pages of easily readable material with numerous explanatory diagrams, photographs, and pelvic x-rays.

A fine effort has been made in the description of pelvic morphology, including a complete but concise analysis of all anatomic types and their variations. The relationship to constitutional habitus is covered and a complete pelvic classification is presented.

A clinical pelvic examination is included, in addition to basic summaries of fetal relationship, mechanism of labor, forceps problems and breech delivery.

The various roentgenologic techniques and their interpretations are then described and the methods given for quantitative estimation of cephalopelvic disproportion.

This monograph seems primarily designed for the students of obstetrics but is certainly a valuable aid to the obstetric practitioner. Of course, the majority of obstetric opinion still holds that there is no substitute for clinical judgment and experienced obstetric intuition, and that it can never be replaced by x-ray analysis. However, expert roentgenologic aid has certainly been proven a worthwhile adjunct in combating the problem of difficult labor.

George T. Schneider, M. D.

Chronology of Ophthalmic Development; by Arthur H. Keeney, M. D. Springfield, Ill., Charles C. Thomas, 1951, pp. 32, charts 3, figs. none. Price $2.00.

This publication in the *American Lecture Series* (Ophthalmology, ed. Donald J. Lyle) is aptly described by its subtitle: "An outline summary of the anatomical and functional development of the visual mechanism before and after birth." The main part of the work consists of three large folding charts which list the time-tables of development of the principal ocular and accessory structures: orbit and general considerations; extra-ocular vascular system; nerve supply and extra-ocular muscles; lens and capsule; optic nerve; hyaloid system and retinal circulation; vitreous and suspensory ligament; retina; macula; choroid; lids and lacrimal apparatus; cornea; iris and ciliary body; sclera and Schlemm's canal. Two charts are devoted to the prenatal stages and the third carries on the development from the neonatal period through twenty to twenty-five years. The format of the charts is convenient for reference, with vertical columns for the structures named above and horizontal divisions for the successive ages. The descriptive entries are concise. As the preface states, "An understanding both of the general processes of embryology and of the organogenesis of the eye is presupposed." With such background, however, or while gaining it, this monograph provides a time-table summary that will be useful. It should be of particular service in considering congenital developmental faults.

Harold Cummins, Ph.D.

Amenorrhea; by Lawrence M. Randall, M. D. and Thomas W. McElin, M. D. Springfield, Ill., Charles C. Thomas, 1951. pp. 81. Price $2.25.

This monograph is one of a series of lectures covering the entire field of endocrinology and is edited by Willard O. Thompson. The subject of amenorrhea is covered more or less completely by the authors in that they have reviewed the entire literature on the subject during the years 1945 to 1949, inclusive.

The presentation is divided into sections, including a classification and definition of terms, a discussion of the phenomena of war amenorrhea with its hypothalamic and nutritional influences, and a broad review of treatment. In the latter is included a discussion of the use of thyroid, estrogen, progesterone, gonadotropins, x-ray, and various miscellaneous factors.

The authors express very little of their own opinion regarding their preferences in treatment and the reader is allowed to draw his own conclusions. For this reason, the monograph will be of small

practical value to the practitioner; but to the individual who is interested specifically in the various world viewpoints of the etiological background and the modern therapeusis of amenorrhea, it is of inestimable value.

GEORGE T. SCHNEIDER, M. D.

Doctors Differ; by Harley Williams. Springfield, Ill., Charles C. Thomas, 1952. 239 pp. illus. Price $7.50.

Five physicians, John Elliotson, Hugh Owen Thomas, James Mackenzie, William Macewen and R. W. Philip are presented in this study in contrasts. The author shows in an authoritative, but nontechnical way why doctors differ from one another and how new approaches, ideas, and methods of treatment came out of this difference and clash in personality. This is a book of individual biographies and shows that differing among doctors arises practically from differences in human make-up.

Chapters are devoted to John Elliotson, a London professor who quarrelled with other doctors over mesmerism and became the unacknowledged pioneer of psychological healing in this country; Hugh Owen Thomas, who founded modern orthopedics; Sir James Mackenzie, the heart specialist in contrast to Sir William Osler; Sir William Macewen in contrast to Sir Victor Horsley a brilliant pair of opposites who brought brain surgery to success; and lastly, Robert William Philip and Edward Livingstone Trudeau in the conquest of tuberculosis.

The book comes to a close with the epilogue: Rembrandt's picture, a sombre painting called "The Anatomy Lesson" by Dr. Nicholas Tulp. Our five doctors are watching this demonstration each thinking his own thoughts and representing five different philosophies each one true.

This book is well written and well worth reading.

RUTH E. HARLAMERT.

Doctors in Blue; a Medical History of the Union Army in the Civil War; by George Worthington Adams. New York, Henry Schuman, 1952. pp. 253. illus. Price $4.00.

It is interesting that this study on the Medical Service of the United States Army in the War between the States, should have been written by a Professor of History, rather than a physician. Dr. Adams has taught at Massachusetts Institute of Technology and at Harvard University. He is presently at Colorado College.

Dealing with the period 1860-65, the book describes the dire emergency presented to a small and poorly organized medical service, by the outbreak of this War. Medical knowledge and techniques are of course those of the period and are known to physicians; new and timely, however, is the story of the development and organizational plan of the Medical Service, from which has come the unexcelled health care given our soldiers today. The book is a valuable addition to American medical history.

MARY LOUISE MARSHALL.

Neurosurgery: An Historical Sketch; by Gilbert Horrax, M. D., Sc. D. Illus. Charles C. Thomas, Springfield, Ill. pp. 135. Price $3.75.

Few neurosurgeons are as well qualified as the author to present such an intimate view of the specialty. As one who has devoted a profitable lifetime to the field after long association with Harvey Cushing, he uses his broad background of personal experience to advantage. An authoritative view of many of the trends in the field is provided from the earliest knowledge to the present. It is lucidly written and of considerable general interest. Neurological will find much interesting and essential material although progress of the past decade is surveyed briefly.

W. R. PAGE, M. D.

PUBLICATIONS RECEIVED

Doubleday & Company, Inc., N. Y.: Living with Cancer, by Edna Kaehele.

Paul B. Hoeber, Inc., N. Y.: Cardiac Therapy, by Harold J. Stewart, M. D.; Physical Foundations of Radiology, by Otto Glasser, Edith H. Quinby, Lauriston S. Taylor, and J. L. Weatherwax (2nd Edit.).

Lange Medical Publications, Los Altos, Calif.: Physician's Handbook, by Marcus A. Krupp, M. D., Norman J. Sweet, M. D., Ernst Jawetz, M. D., and Charles D. Armstrong, M. D., (7th Edit.).

J. B. Lippincott Company, Phila.: Essentials of Dermatology, by Norman Tobias, M. D., (2nd Edit.); Medical Licensure Examinations, edited by Walter L. Bierring, M. D., (7th Edit.); Viral and Rickettsial Infections of Man, edited by Thomas M. Rivers, M. D., (2nd Edit.).

Medical Research Press, N. Y.: Sex After Forty, by S. A. Lewin, M. D., and John Gilmore, Ph. D., with Introduction by The Rev. Dr. Russell L. Dicks.

W. B. Saunders Co., Phila.: Gynecologic and Obstetric Pathology, with Clinical & Endocrine Relations, by Emil Novak, M. D., (3rd Edit.).

Charles C. Thomas, Publisher, Springfield, Ill.: Sterility, its Cause and its Treatment, by J. Jay Rommer, M. D.; Intracranial Aneurysms, by Wallace B. Hamby, M. D.

Von Hoffmann Press, Inc., St. Louis: Research in Endocrinology, by August A. Werner, M. D., and Associates, edited by Al. R. Schmidt.

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CARDIAC ENLARGEMENT*

JAMES H. SHIPP, M. D.†
M. D. HARGROVE, M. D.‡
SHREVEPORT

Enlargement of the heart is present in heart disease more often than any other physical finding. An enlarged heart is a diseased heart, or at least a heart working under an added load or strain.

Because of the importance of cardiac enlargement, we felt that it would be of interest and instructive to review a group of enlarged hearts. We have gone over the autopsy material at the Shreveport Charity Hospital from December 1, 1948, to June, 1950, classifying all hearts weighing 350 grams and over as enlarged. We recognize that a 350 gram heart may be within normal limits for a large individual, but generally the normal range is between 250 and 350 grams, or 0.40 to 0.50 per cent of the body weight. The Conference Group on Pathology of the National Research Council gave the range of the normal heart as 275 to 325 grams. There were 200 cases with hearts weighing 350 grams or more in 574 consecutive autopsies, or approximately 35 per cent were enlarged. Table 1 gives the division according to sex and color of the material studied in this series. Our group includes 46 white males, 13 white females, 94 colored males and 47 colored females.

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

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‡Chief of Medical Service, Shreveport Charity Hospital.

TABLE 1

1. Number of cases reviewed				574
2. Division according to sex and color:				
White male	116	White female		60
Colored male	240	Colored female		158
3. Number of cases weighing over 350 grams				200
4. Division according to sex and color:				
White male	46	White female		13
Colored male	94	Colored female		47
5. Division according type disease and heart weight				
	350-450	450-550	550-650	650 & up
Hypertensive	76	33	19	8
Syphilitic	5	4	1	1
Coronary disease	18	5	5	1
Calcific aortic dis	2	4	2	1
Myocarditis	..	2	2	..
Miscellaneous	5	4	..	1
Total	106	52	30	12

ETIOLOGICAL CLASSIFICATION

Table 2 gives the etiological classification of the 200 large hearts. As was to be expected, hypertensive cardiovascular disease accounts for the majority of the cases, 136, or 68 per cent. The heart weight in this

TABLE 2
CLASSIFICATION OF HEARTS

			WEIGHT RANGE
1.	Hypertension	136	400-740 gms.
2.	Arteriosclerotic	29	350-700
3	Calcific aortic stenosis	10	400-700
4.	Luetic heart disease	11	360-700
5.	Myocarditis	4	520-630
6.	Bacterial endocarditis	2	400-700
7.	Cor pulmonale	2	400-450
8.	Anemia	3	410-540
9.	Thyrotoxicosis	1	360
10.	Pericarditis (Tbc)	1	520
11.	Congenital	1	500
	TOTAL	200	

group ranged from 400 to 740 grams. Next in frequency was coronary heart disease, or arteriosclerotic heart disease with 29, or 14.5 per cent, the weight ranging from 350 to 700 grams. Calcific aortic stenosis accounted for 10, or 5 per cent, the weight ranging from 400 to 700 grams. Syphilis accounted for 11, or 5.5 per cent. Myocarditis accounted for 4, or 2 per cent, the weight ranging from 520 to 630 grams. The remaining 10 cases, or 5 per cent, were divided between anemia, bacterial endocarditis, cor pulmonale, thyrotoxicosis, pericarditis, and congenital heart disease.

Rheumatic heart disease is actually so designated only once, and that in the group of myocarditis. A large percentage of the cases of calcific aortic stenosis were on the basis of rheumatic heart disease. In the hypertensive group, there were a number of cases with slight to moderate involvement of the mitral valve that were also probably rheumatic in origin. The 2 cases of bacterial endocarditis had aortic valvular disease which may also have been rheumatic in origin. We did not attempt to classify rheumatic valvular disease as a specific group.

The 2 cases of cor pulmonale were in middle aged white males. One had extensive pulmonary tuberculosis and fibrosis, the other had diffuse lymphatic carcinomatosis of the lungs secondary to a small gastric cancer. The thyrotoxic patient was a young colored female who died in congestive failure from thyrotoxic heart disease. The tuberculous pericarditis was in an 18 year old colored male who also had a considerable degree of myocarditis. He, too, died in congestive failure. The congenital heart in this group was that of a 12 year old white female who had arachnodactylia, a dilated aortic valvular ring and a moderate coarctation. She died suddenly, presumably from a cardiac arrhythmia.

The hypertensive group has been further classified as in Table 3. Of the 136 cases in this group, 83 or approximately 61 per cent were classified as essential hypertension. There were 15 cases of malignant hypertension, approximately 11 per cent of the group. Their ages varied from 29 to 68

TABLE 3
HYPERTENSIVE HEARTS

	W. M.	W. F.	C. M.	C.F.
1. Entire group	46	13	94	47
2. Hypertensive	27	7	68	34

		Age Range	Weight Range
3. Malignant Hypertension	15	29-68	400-740 gms.
4. Renal Hypertension			
a. Pyelonephritis or pyonephrosis	30	41-78	400-620
b. Polycystic Kidney	3	46-77	460-520
c. Intracapillary Glomerulosclerosis	4	32-67	360-440
d. Periarteritis Nodosa	1	32	650
5. Essential Hypertension	83		
TOTAL	136		

years, 6 of them falling between 40 and 50 years. All were in colored patients, 9 males and 6 females. The heart varied from 400 to 740 grams, and there were 8 cases with hearts weighing 600 grams or more. The enlargement was predominantly of the left ventricle.

There were 38 cases, or 28 per cent, in the hypertensive group that were classified as renal hypertension. Of these, 30 were due to pyelonephritis or pyonephrosis. Their ages varied from 41 to 78 years, and the heart weight was from 400 to 620 grams.

There were 3 cases of polycystic kidney disease. Their ages were 46, 74, and 77 years, and the heart weight 400, 520, and 520 grams. There were 4 cases of intracapillary glomerulosclerosis, or Kimmelsteil-Wilson disease, varying in age from 32 to 67 years. The heart weight varied from 360 to 440 grams. One patient had periarteritis nodosa, a late development in his hypertensive disease. He was 32 years of age and the heart weighed 650 grams.

CAUSE OF DEATH

Table 4 lists the cause of death in the hypertensive group. In the malignant hypertensive group 11 died from uremia and 4 from cerebrovascular accidents. In the renal and essential hypertension group, 26 died from cerebrovascular accidents and 16 from uremia. Twenty died in congestive

TABLE 4
CAUSE OF DEATH IN THE HYPERTENSIVE GROUP

1.	Malignant Hypertension	15
	a. Uremia	11
	b. C. V. A.	4
2.	Renal and Essential Hypertension	121
	a. Uremia	16
	b. C. V. A.	26
	c. Congestive Failure	20
	d. Sudden Cardiac Death	7
	e. Pulmonary Emboli	7
	f. Pneumonia	9
	g. Miscellaneous	36
	TOTAL	136

failure, and there were 7 sudden deaths, probably due to cardiac arrhythmia.

It is of interest to note the distribution of the entire hypertensive group according to color. Seventy-two per cent of the enlarged hearts in the colored group were due to hypertension, while only 57 per cent of the hearts in the white group were due to hypertension. The higher incidence of hypertensive disease in the colored race has been noted in the hospital population for many years.

There were 29 cases of coronary artery disease, which are further subdivided in Table 5. There were 12 cases of severe coronary sclerosis, and 11 coronary artery occlusions with myocardial infarction. It is to be noted that there were 4 myocardial infarctions without coronary occlusion, on the basis of myocardial anoxia. They all had marked coronary sclerosis and large hearts, 450, 530, 550 and 550 grams each. Three also had hypertension. One died from cerebral hemorrhage, 1 during an operation, 1 from postoperative pulmonary embolus, and 1 from congestive failure. There were 2 coronary occlusions without infarctions, both in white men, age 65 and 82 years. Probably they had developed over the years a good collateral circulation. (Table 6) One had a complete occlusion of the right coronary about 2 cm. from its orifice, and the other an occlusion of the left anterior descending coronary. One died suddenly. The other also had purulent pericarditis and died from toxemia and congestive failure.

It is also interesting to note that 23 or 79 per cent of this group were over 60 years

TABLE 5
CORONARY ARTERY DISEASE

			Weight	Age
1.	Severe coronary sclerosis	12	350-440 Gm.	42-82
2.	Coronary occlusion with infarct	11	370-700	36-78
3.	Infarction without occlusion	4	450-550	40-80
4.	Cor. occlusion without infarct	2	380-400	65-82

PERCENTAGE OF THE ENTIRE GROUP HAVING CORONARY ARTERY DISEASE

1. 18 of the 46 white males or 39%
2. 4 of the 13 white females or 30.8%
3. 3 of the 94 colored males or 3.2%
4. 4 of the 47 colored females or 8.5%

PERCENTAGE OF THE TOTAL WHITE AND COLORED WITH INFARCTION

1. 13 of the 59 white males and females or 22%
2. 2 of the 141 colored males and females or 1.4%

AGE GROUPS

30 to 40	1
41 to 50	3
51 to 60	2
61 to 70	14
71 to 80	5
81 & up	4
TOTAL	29

TABLE 6
CAUSE OF DEATH IN CASES OF CORONARY ARTERY DISEASE

CORONARY OCCLUSION AND INFARCTION

1.	Sudden death	6
2.	Shock	4
3.	Congestive failure	4
4.	Pulmonary embolus	1
5.	Miliary tuberculosis	1
6.	Cerebral hemorrhage	1
	Total	17

CORONARY SCLEROSIS

1.	Sudden death	2
2.	Congestive failure	1
3.	Pulmonary embolus	1
4.	Subarach. hemorrhage	1
5.	Miliary tuberculosis	1
6.	Pneumonia	2
7.	Pyelonephritis	2
8.	Carcinoma	1
9.	Ruptured aneurysm (cardiac tamponade)	1
	Total	12

of age. Of the 15 with infarcts there were 10 or 66.7 per cent over 60 years of age. In the entire group there were 22 or 76 per cent in the white race, and 7 or 24 per cent in the colored race. When they are divided according to color and sex, we find that 18 of the 46 white males, or 39 per cent, and 4 of the 13 white females, or 30.8 per cent, had coronary artery disease as compared to 3 of 94 colored males or 3.2 per cent, and 4 of 47 colored females or 8.5 per cent. In the myocardial infarction group there was only 1 colored male and 1 colored female. The preponderance of coronary occlusions and myocardial infarction in the white race in the hospital population has been repeatedly noted on the wards and at autopsy. There were 13 of the 59 white patients who had myocardial infarction or 22 per cent as compared to 2 of the 141 colored patients, or 1.4 per cent. Table 6 gives the cause of death in those with coronary sclerosis and those with infarction.

There were 10 cases of marked calcific aortic stenosis. (Table 7) Seven were in colored males, 2 in white males, and 1 white female. In 5 cases hypertension was present and 9 cases had varying degrees of coronary sclerosis. Five of the group died from congestive heart failure. The 1 white female was 49 years of age, 1 colored male was 52 and 1 was 56 years of age. The remainder were all 65 years and older, one being 95 years of age with a heart weighing 500 grams. This group illustrates the fact that cardiac hypertrophy is compatible with good function for years. Table 8 lists the 11 syphilitic hearts.

TABLE 7
CALCIFIC AORTIC STENOSIS

1.	Number of cases	10
	Colored male—7, White male—2, White female—1.	
2.	Age range 49 to 95, Six over 60 years old.	
3.	Heart Weight—400 to 700 Gms., Six over 500 Gms.	
4.	Cause of death: Congestive failure	5
	Pneumonia	2
	C. V. A.	3
5.	Number with associated hypertension	5
6.	Number with associated coronary sclerosis 9 Moderate—6, Severe—3	

TABLE 8
SYPHILITIC HEART DISEASE

Syphilitic aortitis and valvulitis	11
Associated aneurysms	4
Narrowing of coronary ostia	4
Coronary arteriosclerosis	5
Associated hypertension	1
Weight range	360-700 grams
CAUSE OF DEATH	
Congestive failure	7
C. V. A.	1
Tuberculosis	1
Ruptured aneurysm	1
Accidental	1

Table 9 lists the 4 cases of myocarditis, 1 rheumatic without valvular disease, and 3 of Fiedler's myocarditis. They all had very large hearts and died in congestive failure. One of the Fiedler's myocarditis cases was a colored male who had had heart disease for several years, thought to be rheumatic, but at autopsy proved to be Fiedler's. The other 2 Fiedler's were in young colored women, 21 and 24 years. One was definitely postpartal and the other probably so. Every heart weighed over 500 grams, showing both hypertrophy and dilatation. This group offers a striking contrast to the preceding group with calcific aortic stenosis. They all had large hearts, were relatively young, and were in congestive failure. The hypertrophy and dilatation were due to impaired functional capacity of the myocardium. Congestive failure occurred early in the course of the disease, and was persistent.

There were 2 cases due to sickle cell

TABLE 9

	MYOCARDITIS		
1.	Rheumatic myocarditis	1	Colored Male
	Heart weight 600 gms. Valves normal		
	Died in acute congestive failure		
2.	Fiedler's myocarditis	3	1 CM, 2 CF
	Weights—520, 540, 600 grams		
	Expired suddenly	3	
	ANEMIA		
1.	Sickle cell	2	1 CM, 1 CF
			Age 18 Age 46
	Heart weight		540 410 gms.
	Cause of death: Sickle Cell Crisis		2
2.	Pernicious Anemia	1	WM age 77
	Weight		420 grams
	Cause of Death: Congestive failure & pneumonia		

anemia, 1 colored female 46 years of age, and 1 colored male 18 years of age. The hearts weighed 540 and 410 grams. The myocardium was described as reddish brown color without scarring. The coronary arteries were patent in both cases; there was a mural thrombus in the right auricular appendage in one with pulmonary infarction. They both died in sickle cell crises, one about nine hours and the other about forty-eight hours after admission.

The cardiac involvement in sickle cell anemia, according to Margolis[6] can be explained on the basis of four factors, or a combination of them: (1) Chronic anoxia of the myocardium because of severe anemia of long duration. (2) Circulatory stasis, producing thrombosis of the small and medium sized arteries of the lungs, which progress to an organized state. This may increase the pressure in the pulmonary arteries and lead to right ventricular enlargement (cor pulmonale) and right heart failure. (3) Circulatory stasis producing thrombosis of the coronary arterioles, resulting in damage and consequent scarring of the myocardium. (4) The severe anemia which produces a chronic anoxia of the body tissues and increases the demand for more oxygen, and thus leads to an increase in cardiac output, which may cause the myocardium to hypertrophy and dilate.

There was 1 case of pernicious anemia in a white man 77 years of age, whose red cell count was 3,160,000 with 9 grams of hemoglobin on admission. The heart showed moderate hypertrophy, weighing 420 grams. The left ventricular wall measured 1.5 cm. and the right 0.5 cm. He also had pneumonia, chronic active pyelonephritis, early lower nephron nephrosis, and chronic passive congestion of the liver.

All of the aneurysms have been grouped in Table 10. There were 4 luetic and 8 arteriosclerotic. Of the arteriosclerotic there were 4 dissecting and 4 fusiform. Of the 4 dissecting aneurysms, 2 were patent and the patients died of cerebral hemorrhage. The other 2 died from rupture of the aneurysm, 1 into the pericardium with cardiac tamponade, and 1 into the left pleural cavity. Four of the group died from congestive failure.

TABLE 10
ANEURYSMS

1. Luetic	4	Ruptured	1
2. Arteriosclerotic—			
a. Dissecting	4	Ruptured	2
		Patent	2
b. Fusiform	4	Ruptured	1

WEIGHT RANGE

Luetic—360-370-450-500 grams
Dissecting—400-440-500-700 grams
Fusiform—400-420-450-700 grams

CAUSE OF DEATH

Ruptured aneurysm	4
Congestive failure	4
Cerebral hemorrhage	2
Pneumonia	1
Tuberculosis	1

In Table 11 we have listed all of the hearts weighing 550 grams and over. There were 42 in the group, 27 of which were due to hypertensive disease, 6 to coronary artery disease, and 4 to calcific aortic stenosis. There were two of the cases of myocarditis with hearts weighing over 550 grams. Of this group of 42 very large hearts, 15 died from congestive heart failure, and 6 died sudden cardiac deaths. Of the 9 cases dying in uremia, 8 were in the malignant hypertensive group.

TABLE 11
HEARTS WEIGHING 550 GRAMS AND OVER

1. Hypertensive	27
2. Coronary artery disease	6
3. Calcific aortic stenosis	4
4. Bacterial endocarditis with aortic valvular disease	1
5. Syphilitic heart disease	2
6. Myocarditis	2
TOTAL	42

CAUSE OF DEATH IN THIS GROUP

1. Congestive failure	15
2. Sudden cardiac death	6
3. Cerebro-vascular accident	5
4. Pulmonary emboli	3
5. Uremia	9
6. Miscellaneous	4

CARDIAC COMPENSATORY MECHANISMS

There are 3 cardiac compensatory mechanisms: acceleration of the beat, dilatation, and hypertrophy. The acceleration of the beat, or tachycardia, is usually a transient compensatory mechanism. Dilatation and hypertrophy, which augment the total

output by increasing the output per beat, provide a more efficient and more permanent means of compensation.

Cardiac enlargement is the result of a combination of dilatation and hypertrophy. Usually, dilatation precedes hypertrophy and in very large hearts accounts for the major increase in size. It actually denotes an increase in the capacity of the heart chambers and is the commonest manifestation of any cardiovascular disease which tends to impair the cardiac output.

Cardiac dilatation, according to Freidberg,[2] results from: (1) mechanical lesions which tend to increase the diastolic volume and thereby cause cardiac dilatation by (a) increasing the venous return to the heart, e.g., in cases of arteriovenous aneurysm; (b) increasing the resistance to output from one of its chambers, e.g., mitral or aortic valve stenosis or hypertension; (c) permitting a reflux of blood into chamber after it is ejected, e.g., in aortic valvular insufficiency; (2) myocardial lesions which tend to impair cardiac contraction and diminish cardiac output while the inflow is temporarily unchanged. This causes an increase in the diastolic volume and cardiac dilatation, e.g., myocardial infarcts secondary to coronary occlusion, and rheumatic myocarditis.

Cardiac dilatation is a compensatory mechanism in accordance with Starling's Law of the Heart: "Within physiologic limits the larger the volume of the heart, the greater is the energy of its contraction, and the amount of chemical change at each contraction." It is largely specific in that the entire heart is not involved, but chiefly that side or chamber upon which the load has been increased.

The third compensatory mechanism of the heart is hypertrophy, which is usually preceded by dilatation. It is also selective in that it develops in the chamber or chambers of the heart that have been placed under an added load or strain. Hypertrophy results from increased work, or as stated by Fishberg,[1] the mass of the myocardium is a function of the work it performs, with the limitation that the work must be considered in relation to the functional fitness of the myocardium. The increase in mass, or hypertrophy, results when the work of a cardiac chamber is increased in an absolute sense, such as one sees in hypertension and valvular defects. Secondly, hypertrophy may develop when the functional capacity of the myocardium is impaired, even though the work it is called upon to perform is not elevated. There results a relative increase in work, in that the work performed approaches more closely to the maximum of which the heart is capable. Hypertrophy of this nature is seen in the various forms of myocarditis, rheumatic or nonspecific, and in degenerative lesions resulting from coronary arteriosclerosis.

Fishberg[1] states that hypertrophy follows: (1) In health, when as a result of physical exertion the work of the heart is increased. (2) When the resistance to the expulsion of the blood is increased by valvular stenosis or hypertension. (3) When in addition to expelling the blood, the heart has to drag the chest wall with it during systole, as occurs in some cases of adhesive mediastinopericarditis. (4) When the volume of blood expelled per stroke is increased, as in valvular insufficiency, and some instances of Grave's disease and anemia. (5) When the functional capacity of the myocardium is decreased for a considerable time, as a result of inflammatory or degenerative lesions.

Hypertrophy is accomplished by an actual increase in muscle mass, due to an increase in the thickness of the individual muscle fibers, and not from an increase in number of muscle fibers. Normally, the average diameter of the muscle fiber is between 15 and 20 microns. In the hypertrophied heart, it is generally above 25 or 28 microns. With increase in size of the individual muscle fibers, there is not an increase in the number of capillaries, and as a result, an actual decrease in concentration of capillaries results. Therefore, each capillary is called upon to supply a larger mass of muscle, and this mass increases proportionally with the weight of the heart. As the thickness of the individual muscle

fibers is increased, it requires a longer time for completion of the metabolic exchanges with blood. This decrease in capillary muscle ratio is certainly one of the main factors responsible for the inefficiency of the large hearts.

Cardiac hypertrophy is a compensatory mechanism which permits the heart to maintain a normal circulation despite a cardiovascular lesion and also to retain an adequate reserve for unusual circulatory demands. This has been frequently illustrated in this series by the number of large hearts resulting from hypertension and calcific aortic disease in individuals who have lived to be 60 or more years of age. In other words, hypertrophy without myocarditis or degenerative changes from coronary disease is compatible with years of normal activity.

Cardiac dilatation and hypertrophy are reversible. It has been frequently noted that cardiac enlargement from dilatation and hypertrophy has regressed with removal or correction of the cause. Such has been observed (1) after surgical correction of an arteriovenous aneurysm, patent ductus arteriosus, coarctation of the aorta, and hyperthyroidism; (2) sympathectomy in hypertensive heart disease; (3) correction of anemia; (4) adequate thyroid administration in myxedema; (5) vitamin B in beriberi heart disease.

It is important that we diligently search for cardiac enlargement and more specifically for the individual chamber or chambers that are enlarged. The accuracy of our diagnosis rests in a large degree upon this examination. We have at our disposal three common methods of examination: physical examination, x-ray examination, and the electrocardiogram. The first of these is the least spectacular, but is always with us, requires no special apparatus, and can be done at home or in the hospital. A careful physical examination for determination of heart size should be assiduously practiced. It should not become a lost art.

SUMMARY

1. We have presented a statistical study of 200 cases of cardiac enlargement occurring in 574 consecutive autopsies at the Shreveport Charity Hospital.

2. The percentage of cases with hypertensive disease in the colored race is significantly higher than in the white race, while the percentage of cases with coronary artery disease in the white race is far greater than in the colored.

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PAROXYSMAL TACHYCARDIA*

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SHREVEPORT

The term paroxysmal tachycardia embraces that group of so called cardiac arrhythmias characterized by excessively high rate, regular rhythm, usually with a sudden onset, and frequently, with an abrupt return to normal. In the broad sense it includes auricular fibrillation and flutter, and ventricular fibrillation, but these are excluded from this discussion. The condition results from a succession of premature or ectopic beats arising from a focus in the auricular, A-V nodal, or ventricular tissue. The point of origin of the extra systoles determines the type of tachycardia, and,

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with few exceptions, it is necessary to rely on the electrocardiogram to establish the type. Most writers now differentiate only between ventricular and supraventricular types of tachycardia. This is the only basis on which there are differences in the etiology, clinical picture, and treatment of the condition.

Paroxysmal tachycardia is said to be a rare condition: Leaman reports only 17 instances in 3000 consecutive electrocardiograms. Perhaps it is the difficulty, and even anxiety, experienced by the writer in several recent cases which creates for me the illusion of frequency. These factors have undoubtedly led me away from the widely held feeling that paroxysmal tachycardia is a simple, innocuous disturbance which requires little or no treatment. It is the desire to share these experiences with you, which prompted the selection of this title.

CASE REPORTS

The youngest of our patients was only eight days of age when his tachycardia developed. He was a well formed infant of normal weight and was delivered normally. There was no evidence of cardiac disease or anomaly. Tachycardia was supraventricular in type with a rate in excess of 200. Reversion to normal sinus mechanism followed administration of digitoxin. Tachycardia recurred but subsided after the dose of digitalis was increased. The process covered a period of about twenty-four hours.

An emergency call late one afternoon revealed a prominent business executive, 48 years of age in acute distress with tachycardia of only ten minutes duration. He was in good general health, and had no organic heart disease. There had been one previous episode of tachycardia about three years ago. Prior to this attack he had been working strenuously and long, and much of the overtime work had been in the nature of entertaining visiting business associates. The patient was prostrate and pale, the lips and nails cyanotic. The heart rate was about 180 per minute and the blood pressure measured 84/80. Carotid pressure produced no appreciable change in cardiac rate, nor did left ocular pressure. Just as the attempt was about to be abandoned, (because of inability of the patient to tolerate the severe pain), pressure on the right eye resulted in a sudden drop in heart rate to normal and rise in blood pressure to 130/80. These changes were associated with complete clearing of all symptoms and signs of cardiovascular disturbance. A period of hospitalization followed, and all examinations revealed normal findings.

It was at first thought that this might be a case of ventricular tachycardia but the fact that ocular pressure brought relief classifies it as supraventricular in type. It affords evidence that supraventricular tachycardia may be a serious condition, for with a pulse pressure of only 4 millimeters of mercury there is, obviously, a marked deficiency in circulation. The possible complications and sequelae in an episode of this type are much more formidable than with those in which the blood pressure remains at a reasonable level, but even under such conditions myocardial injury may occur. The case of a young adult is recalled wherein supraventricular tachycardia persisted for more than forty-eight hours. There was little discomfort and little disturbance of circulation but the electrocardiogram retained inverted T-waves for more than a week after normal mechanism was reestablished.

A fatal outcome was barely avoided in the case of Mr. C. G. H., a 52 year old automobile salesman. He came to the hospital at 2:30 A. M., on February 11, 1952, and had to be assisted into the examining room. He had been awakened from sleep shortly after 10 P. M. by severe epigastric pain and nausea. He had vomited several times. Suspecting the presence of a surgical condition he had called a surgeon, who promptly asked for medical consultation. Morphine and atropine had been given with some degree of relief of the epigastric pain and oxygen therapy had been started. The patient was ashy in color, with profuse perspiration and the temperature was 97° F. There was no palpable pulse and no measurable blood pressure. The cardiac rate was very rapid (220 per minute) and perfectly regular. Carotid pressure produced no change in the picture. Ocular pressure caused a temporary minimal degree of slowing of the heart rate. An electrocardiogram was made then, and revealed ventricular tachycardia. Pronestyl was administered intravenously in glucose, and after 250 mgms., it was discontinued when slight slowing of the heart rate and alteration of the electrocardiographic pattern was noted. This effect was very transient, however, and twenty minutes later another dose of 250 mgms. was given with practically no result. By this time, 3:45 A. M., the patient had become comfortable but there was still no palpable pulse or audible blood pressure. He was moved to his hospital room, oxygen continued, and was given 3 grains of

quinidine. Following the slight exertion of the move the cardiac rate returned to its original extremely high level. At 5:00 A. M. a 500 mgm. dose of pronestyl was given. The rate dropped to 160 per minute and the radial pulse became perceptible with every second or third systole. Improvement in the color of the skin was noted also, and it was felt that progress was being made. Quinidine was continued, 3 grains every two hours until five doses were given. It was then after noon and the tachycardia had again resumed its rate of 220 per minute. The condition of the patient was unchanged except that he was fairly well under barbiturate sedation and was not apprehensive. At 4:00 P. M. another injection of 500 mgs. of pronestyl was given with no response. After the passing of another hour it was felt that something had to be done, and despite the fact that it is usually of no avail in such cases digitalis was given. This was administered in the form of digitoxin, 0.8 mgm. in glucose, intravenously. This resulted in no immediate slowing of the rate. No further medication was given that evening except sodium luminal. At 11:00 P. M. the pulse was found to be 74 per minute, and the blood pressure 142/90. Digoxin 0.25 mgm. was given twice on the following day, then discontinued. On this date, February 12, there was a loud pericardial friction rub beneath the sternum. It persisted throughout the day but was not heard at any later time. During this day, there was troublesome hiccough but this disappeared with the friction rub. Mild precordial pain was noted at intervals through February 15, but after this there were no symptoms or complications.

An electrocardiogram on February 13, showed inversion of T waves in the conventional leads and in V-6. T. waves in lead 1 and V-6 have since become upright, but the findings of posterior infarction have persisted. During the acute phase the leukocyte count rose to 17,000 with 80 per cent neutrophiles, but there was no febrile rise above 99° F.

Patients who present the Wolff-Parkinson-White syndrome of short P-R interval with wide QRS complex are particularly subject to attacks of paroxysmal tachycardia. In most instances the episodes are supraventricular in type, a few are of ventricular origin, but it is rare to find an individual who at different times presents both types of tachycardia. This is illustrated by the following case.

Miss L. L. was eleven years of age when seen in August 1949, with her first attack of rapid heart action. She was in good general health and had always led an active life. Examination was normal except for the heart rate which was counted to be approximately 280 per minute. Carotid pressure did not slow the rate. As the patient was not in distress, she was given sodium luminal and urged to sleep. Spontaneous emesis after a short while resulted in normal heart action. An electrocardiogram was not obtained during this episode, but one made several days later revealed the findings of the Wolff-Parkinson-White syndrome.

A second attack of tachycardia occurred in January 1950. With this, there was pallor, cyanosis and shock. The rate was 240 and the blood pressure was 88/80. Quinidine and phenobarbital were given by mouth but nausea and vomiting forced temporary withdrawal of these drugs. Digitoxin was given parenterally, then quinidine used again with dosage reduced to 1-1/2 grains every two hours. The duration of this attack was twenty-six hours. During and following this episode there were fever and chest findings which were the result of atypical pneumonia or pulmonary thrombosis.

On March 7, 1950, the child was brought to the hospital from school, again having tachycardia. She was tense, anxious, complained of tightness in the chest, and nausea was present. Emesis followed each oral dose of quinidine. Sodium luminal was given by needle until sedation was evident and anxiety disappeared. The electrocardiogram had demonstrated ventricular tachycardia with a rate of 240. Quinidine for intravenous administration was being prepared, when the heart rate dropped to 160, so its use was delayed. About two hours later normal findings were present. Quinidine was then given by mouth, was well tolerated and was continued for several days.

In June 1950, tachycardia developed while swimming. There were few subjective symptoms, and no anxiety. This was of supraventricular type with a rate of 180 per minute. Rest and increased doses of quinidine and phenobarbital resulted in cessation of tachycardia after a period of about two hours.

No further difficulty was experienced until February 22nd, 1951. While at school just before lunch a few short runs of extrasystoles were noted. The meal was eaten, but not heartily, and shortly thereafter tachycardia ensued. At the clinic it was found that this was ventricular tachycardia with the rate again 240 and the blood presure 80/70. She was pale, the skin moist and the pupils dilated. She was given 2 grains of sodium luminal by needle, then 200 mgms. of pronestyl by intravenous injection. Within 90 seconds after receiving this medication the rate had dropped to 120 per minute and there had been a sudden transition to the normal mechanism.

One of the first holiday dances in December 1951, was interrupted for this young lady, now 13 years of age, by the onset of another episode of ventricular tachycardia. The clinical picture was

the same as on previous occasions, with mild shock, blood pressure 80/70 and the rate 250 per minute. Two injections of pronestyl were given within thirty minutes with the total dose of 500 mgms. Each of the injections produced definite slowing of the rate with alteration of the electrocardiogram, but an additional 50 mgms. per hour for three doses was needed to produce complete control of the tachycardia. There has been no recurrence, but on two occasions pronestyl has been taken by mouth when the presence of extra systoles has been noted. It is anticipated that elimination of the factors of adolescence, increased emotional stability, and the ability to recognize premonitory signs may all be helpful in avoiding these disabling seizures in the future.

The fact that supraventricular tachycardia is usually found in individuals with hearts which are organically sound does not preclude the possibility of its association with cardiac disease. This is demonstrated by Mr. F. S. who is sixty-three years of age with quite marked generalized arteriosclerosis. Although he had never had tachycardia prior to eighteen months ago, he is at present hospitalized for the sixth time since June 1951, for treatment of supraventricular tachycardia or because of myocardial failure following such an episode. With the added appearance of anginal pain even while at rest the outlook is far from bright.

TREATMENT

This discussion has presented only the gloomy side of the picture, but it is a fact that the sun is brighter on the upper side of the cloud. From that vantage point we see that ventricular tachycardia is infrequently encountered and that the supraventricular episodes are usually easily controlled. With the latter group success will result more often than failure if carotid sinus pressure is applied properly to first one side and, if necessary, to the other. Ocular pressure will produce reversion to normal mechanism in a fair percentage of the cases not relieved by carotid stimulation. It should be pointed out that this maneuver calls for real pressure on the eye ball, and that no result may be expected unless this is carried to the point of marked discomfort to the patient. Ocular pressure can be applied best with the thumb, carotid pressure with the fingers, while standing on the opposite side of the patient and reaching across. In either case, the patient should be supine, and my preference is for the head to be in the midline. Neither of these procedures is carried out by the writer without the stethoscope on the precordium of the patient and pressure is released with the very first suggestion of change in mechanism. Even so the period of cardiac inactivity during reversion often "sounds" long, and the first normal systole has a beautiful tone.

For those cases, which do not respond to the above procedures, many things have been advocated. Induced vomiting is the most simple, but except in the first episode of tachycardia, will probably have been tried before the patient seeks medical aid. Mecholyl will undoubtedly control most of these attacks but the severe side effects and the danger attendant to its use have dissuaded me from its employment. In the instances in which intravenous neo-synephrine might have been used there have been other factors in my cases which seemed to constitute contraindications. Quinidine is the drug of choice, but the dosage must be adequate. If this fails digitalis should be employed, and always if there is associated myocardial failure. Digitalization may need to be complete and urgency may indicate the intravenous route using either cedilanid or one of the new glycosides. It is fortunate that in the majority of instances the general condition of the patient is such that great haste is not necessary, and with these individuals the more simple of the above measures together with sedation, rest, and time will result in reversion before there is any real damage.

CONCLUSION

In conclusion it may be stated again that while most cases of paroxysmal tachycardia are relatively benign and easily controlled affairs, there are those of both ventricular and supraventricular type which may produce many anxious moments for both patient and physician. Several cases of the latter group have been reported, and general measures in the treatment of these conditions have been discussed.

THE DIAGNOSIS OF CORONARY PAIN*

MANUEL GARDBERG, M. D.†
NEW ORLEANS

One of the most common and at the same time one of the most difficult problems which the physician encounters is that represented by the patient whose symptoms suggest that coronary insufficiency may be present. The complaints are often such that a variety of conditions must be considered such as neurosis, diaphragmatic hernia, cervical arthritis, mediastinal disease, pericarditis, gallbladder disease, and diseases of various other upper abdominal organs. The essential difficulty, however, resides in the fact that it is so often not easy to know whether coronary disease is present or not.

DIAGNOSIS

In our attempt to learn whether or not a patient's discomfort is due to coronary disease we employ three methods:

1. History
2. Electrocardiographic studies
3. Response to nitroglycerine.

When the patient's symptoms follow one of the typical descriptions found in the literature there is seldom much doubt about the diagnosis. If, in addition, there is a prompt response to nitroglycerine there is no doubt about the diagnosis. Unfortunately, in a great number of cases the symptoms do not follow the description furnished in the literature, and it is with these cases that we have so much difficulty.

The electrocardiogram has furnished one means by which these cases can be investigated, but it must be used properly if we are not to be misled. In most instances the electrocardiogram is perfectly normal between attacks. Therefore, attempts must be made to make electrocardiograms while the attack is present. In a patient whose attacks are not frequent this may involve considerable difficulty. It involves racing to the patient at all hours of the day and night with a portable apparatus often arriving when the attack is over. However, I have done a great deal of this and I consider the time and the energy well spent, for the returns in diagnostic accuracy have been great. However, in order to facilitate the method I began some seventeen years ago to employ measures to precipitate attacks. The first of these was exercise. Of course exercise electrocardiograms are of no value unless the exercise is sufficiently vigorous. I have found 15 to 20 deep knee bends an excellent exercise for this purpose. It is to be remembered, however, that a normal exercise electrocardiogram alone does not rule out coronary disease. Later I learned that the characteristic electrocardiographic changes at times do not occur immediately after the exercise but may be delayed by some five to ten minutes or more, so that at the present time I make it a practice to repeat the after exercise electrocardiogram after an interval of five minutes and again at ten minutes in many cases.

Another method which I have used has consisted of reproducing, in the office whenever possible, the identical conditions under which the attacks occur spontaneously. For example, if the patient's attacks occur immediately after a meal, or upon walking after a meal, or upon lying down after a meal, I order lunch in the office for the patient and have him walk or lie down and electrocardiograms are made as soon as the discomfort begins and, or course, even if it fails to appear. In this manner I have been able to make electrocardiographic studies during attacks which otherwise could not have been made. At times even though the patient cannot be observed during an attack, or no sharp changes occur during an attack, serial tracings made over a period of a few days of recurring attacks will show progressive changes. This makes it unquestionable that the attacks are of coronary origin. An unchanging electrocardiogram even if abnormal does not warrant a conclusion.

In 1940, I added to these methods the

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anoxia test of Robert Levy but found it too time consuming and too cumbersome to justify the results obtained. I am now attempting to evaluate the ballistocardiogram as a method applicable to this problem.

At this point it is necessary to call attention to the fact that even over a period of several weeks' observation one may fail to have the opportunity of making electrocardiograms during an attack, one may fail to find electrocardiographic changes during an attack, one many fail to find electrocardiographic changes after exercise, or after reproducing the conditions under which the attacks occur, and one may find a normal ballistocardiogram, and yet the patient's attacks may still be proven to result from coronary insufficiency at subsequent studies.

Everyone will agree that it is desirable to avoid the delay of diagnosis as much as possible in these cases. The two, three, or four weeks of repeated study represents a most unsatisfactory period of anxious uncertainty for the patient and yet, for obvious reasons, one cannot make the diagnosis of coronary disease or rule it out lightly.

During the investigation of the many such cases which I have had the opportunity to study I have observed a few things which I feel are frequently of value in reaching a conclusion. These observations relate to the patient's description of his attacks.

First of all, it seems to me that the published descriptions of the attacks are woefully inadequate, in that they are much too limited in every way. Many cases are missed because coronary disease is not suspected in patients with pain in locations other than those which are commonly described.

SYMPTOMATOLOGY

I should like to record here the symptomatology of coronary insufficiency as I have seen it in patients with electrocardiographically proven coronary insufficiency.

The description of the discomfort is divided into four categories: (1) Quality. (2) Duration. (3) Location. (4) Circumstances under which it occurs.

The *quality* of the discomfort varies considerably. The following sensations are described in any of the locations discussed later: (1) pressure, (2) constriction, (3) dull ache, (4) burning, (5) numbness and tingling, (6) sharp pain. Any combination of these may occur. Common combinations are numbness and tingling accompanied shortly afterward by any of the other sensations. Anxiety, nausea, feeling like belching, sweating, and dizziness have accompanied any of the above sensations during an attack. Rarely is discomfort described as "sticking" in character, even in cases in which it is rather sharply localized.

LOCATION PATTERN OF PAIN

The *location* of the discomfort varies greatly from patient to patient. However, there is a marked tendency for the location of the discomfort to remain the same with every attack in the same patient, although it often *extends* to wider areas during prolonged attacks. The discomfort may be confined to the upper, mid, or lower sternal or epigastric regions. It may be confined to the little finger of either hand or the little finger of both hands and the same applies to the wrists, forearms, elbows, arms and shoulders. When in the shoulder the discomfort may be felt in the joint, or anterior to it or posterior to it. In the rest of the upper extremity it may be described as on the "inner" surface or deep, or the "outer" surface or all three. Frequently, discomfort in the extremities tends to spread proximally during the progress of an attack; e.g., pain in the wrist spreads to the forearms, then to the elbow, arm, shoulder, and finally, into the chest as the attack continues. In other cases the spread is in the reverse direction, pain beginning in the chest and spreading to the little finger. In its extension up or down the extremity or extremities the pain may skip over any of these locations; e.g., beginning in the chest it may then be felt next in the elbow, later in the forearm and wrist, skipping the shoulder and arm. Often when both extremities are involved, the manner of spread is symmetrical. However, one extremity, usually the left, often becomes

painful before the other and if the attack does not last the symmetry is not attained. The manner of spread of the location of the discomfort is usually characteristic for each patient.

The discomfort may be confined to the throat; to the lower jaw usually the left, or both lower jaws; to the ear, usually the left, or to both ears. Again, it may begin in the throat and spread up the neck to the jaw, or ear, or to the jaw and then to the ear. It may begin in the chest and spread to the neck and thence to the jaw and ear. In this spread it may skip regions as was described for the extremities. Also, as was described for the extremeities, it may begin in the more distal location (the ear) and reach the chest last.

The discomfort may be confined to the upper left pectoral area or to the lower left pectoral area. It may be confined to both upper or both lower pectoral areas. It may consist of a vicelike band of constriction about the whole chest at either the upper or lower levels. Less often it is confined to the right upper or lower pectoral area. As in other locations, it may begin on one side and extend to the opposite side, to the extremity areas, or to the head areas or to both, unilaterally or bilaterally.

The discomfort may be confined to the interscapular area, or beginning here may penetrate the chest to reach the sternal areas and thence elsewhere. Again, the reverse direction of spread is common. It may be confined to either or both scapular areas or suprascapular areas. Beginning here it spreads commonly to the extremity or extremities. Occasionally from the scapular area the pain spreads to the hypochondrium of the same side and to the shoulder area.

It is clear from the above that the pain of coronary insufficiency may occur in almost any part of the upper half of the body, either primarily or as immediate or later radiation. While this simple statement will hardly help a great deal in the recognition of this disorder a deeper realization of its truth may prevent us from making the errors involved in pronouncing too freely diagnoses such as globus hystericus, neuralgia, bursitis, cardiospasm, etc. Furthermore, in reviewing the great irregularity encountered in the quality and location of the symptoms of coronary insufficiency we encounter certain patterns which because they recur every now and again, deserve notice. I refer here to the recurrence in the above description of certain radiation patterns. In addition to the classic description of pain in the chest radiating to the left arm or both arms, there is the pain in the throat or neck with spread to the jaws, teeth and ears (in which any one or two of the named areas may be skipped). Seldom are paroxysmal attacks of pain following this pattern due to any disease but coronary insufficiency. Another phenomenon worth notice is the manner of progression of radiation of the pain during each attack which recurs with considerable regularity in the above discussion. Repeatedly, we encounter a regular distal or reverse progression of the "radiated" pain which takes place in stages (which may succeed one another with greater or lesser rapidity) during the progress of the attack and in a manner which tends to be characteristic for the individual. One is reminded of the spread of "radiated" pain from the lower quadrant to the renal, testicular, thigh, and knee areas which occurs as an attack of renal colic progresses. In the upper half of the body such stagelike progression of pain repeated regularly in paroxysmal attacks seldom occurs except in coronary insufficiency. And, although the locations may be bizarre, the stagelike progression during repeated paroxysms, particularly, if it is *regularly* from proximal areas to distal areas or in the reverse direction, is strongly suggestive of coronary insufficiency. I have not seen this phenomenon in diaphragmatic hernia, mediastinal disease, and spinal arthritis. Something close to it can occur as a hysterical conversion but here the progression of the discomfort is apt to be irregular instead of regular. Pain can occur and progress in a regular manner as a result of spastic colitis. The pain may begin in the right arm or shoulder, move to the mid-

sternum or manubrial area, then to the left shoulder and finally into the left arm. It is almost as if the radiation of the pain follows a perististalitic wave traversing the transverse colon from right to left. Most frequently in such attacks the pain in following this path moves as stated above; it does not spread to include more areas. However, occasionally it does spread and then we have a difficult distinction to make.

CIRCUMSTANCE PATTERN OF PAIN

The circumstances under which the discomfort of coronary insufficiency occurs also vary considerably, but here again there is a tendency for a particular pattern to be characteristic for the individual.

It is commonly stated that the discomfort frequently follows exertion and this is true. However, I should like to qualify this by reviewing certain observations which are interesting and which may be important diagnostically. Pain on walking one or two blocks is a fairly common complaint. If we crossexamine the patient we expect to find that similar or greater exertions other than walking also cause pain, but frequently we find an amazing incongruity. I have frequently seen persons who complain of pain on walking one half to one block and yet who have no difficulty in climbing stairs, and who say that they can do it "all day long". There is not time here for further illustrations but I have seen this disproportionate effect of various kinds of physical effort sufficiently often to be impressed by it and to avoid being misled by it. This is very easy to do if the other characteristics of the attacks are not "typical". Actually hysterical persons anxious about their hearts may develop pain following walking as well as any other kind of exertion; if they complain of pain on walking they will seldom fail to complain of pain on climbing a flight of stairs. Therefore, when a patient tells me he has pain on walking, but *not* on climbing stairs, I do not feel disposed to ascribe his complaints to anxiety.

It is important to note that persons who complain of pain on walking one block are frequently able to walk about the house or the office, or department store where they are employed without having attacks.

The attacks often occur following meals. This commonly occurs after a large meal. Some patients have attacks following meals, who do not have attacks on exertion and vice versa. The value of such histories in diagnosis is not so great. However, not too infrequently we find a patient who has no pain on eating, no pain on walking, but suffers pain if he walks after he eats. As a regularly recurring phenomenon I have not encountered this in any disease other than coronary insufficiency.

Another frequent circumstance under which the pain occurs is the assumption of the horizontal position. The patient complains that he gets an attack just as he lies down to go to sleep. Most frequently, the single attack occurs and once relieved the patient can lie down again and sleep all night. This is another phenomenon which does not occur regularly in conditions other than coronary insufficiency.

Again, occasionally a patient states that he does not have pain after he eats unless he lies down after eating. He has discovered that if he sits up for one-half to one hour after eating the attack can be avoided. The pain in such cases starts within a few seconds of assuming the horizontal position after eating a meal. Sitting up brings relief. This is another phenomenon which does not occur regularly in conditions other than coronary insufficiency, except possibly for occasional simulation by hiatus hernia. Lying down again brings the pain back. It is a reproducible phenomenon.

Emotional tension, best exemplified by sudden anger, is very commonly given by the patient as a circumstance under which attacks occur and this history is frequently furnished spontaneously. It can often be elicited that the attacks are more likely to occur with emotional upset following a meal than on an empty stomach. Continuing and unconscious tensions unquestionably increase the frequency of attacks under whatever circumstances they occur.

Occasionally pain occurs during sexual intercourse but this, in my experience, has

been an uncommon occurrence. I make it a practice to obtain information on this point in each case. Most who have pain on intercourse continue intercourse in spite of the pain, often after a brief pause. In my opinion the sexual act, though it may have fallen into disrepute in certain other respects, remains relatively innocent as regards the precipation of attacks of the pain of coronary insufficiency.

Attacks of pain occur commonly during sleep and usually awaken the patient. Actually sleep must be regarded as one of the commonest circumstances under which the pain occurs. The attacks during sleep are distinguished from the decubitus attacks by the fact that in those patients in whom they are frequent they occur even if the patient sleeps sitting up. In many such patients it is easy to prove that such pains occur at the climax of a particularly exciting dream. These attacks are, then, related to the emotional tension of the patient which, of course, is responsible for dreams of this kind.

The pattern may be only pain on walking or any one of the other circumstances above described. Commonly it consists of two or more, although one may be and often is quantitatively the more important. There is a tendency for the pattern of precipitating circumstances to remain characteristic for each case just as was found for the pattern of location.

DURATION OF PAIN

The duration of the discomfort in coronary insufficiency varies considerably. It may last, (without nitroglycerine) as long as several hours but generally when it occurs in repeated paroxysms it lasts a much shorter period of time, seldom longer than thirty to forty minutes. If pain characteristically occurs during a certain activity, such as walking, its duration may be determined by the patient's decision as regards the continuation of that activity. Generally, when the activity is stopped, discomfort begins to subside and may be gone within a minute. Occasionally, it lasts several minutes. If the activity is resumed the discomfort may return in the same period of time that it required for its development before. At times, it requires progressively less time, and occasionally, paradoxically, it does not return even with a prolonged period of the same activity. At times, the discomfort disappears even if the activity which precipitated it is not discontinued at all (even without the use of nitroglycerine).

Although in most cases the attacks last from three to twenty minutes, it is not rare for them to last only one to two minutes or less. I have seen one patient whose attacks lasted eight to ten seconds.

There is a tendency for the duration of the attacks to remain the same for each patient.

Then, we find in studying the circumstances under which the symptoms occur and their duration a wide variability, embracing even certain phenomena which appear incongruous and paradoxical. Our recognition of this variability and of the incongruous and paradoxical behavior may prevent us from falling into the error which is made through the expectation of a more classical and more understandable response to exercise, rest and other circumstances. Furthermore here again, we find amidst a wide variability certain recurring patterns and characteristics other than the classical which deserve notice. The patterns deserving notice have been pointed out already, but I should like to call attention to the observation that there is a tendency for the various patterns to remain constant, the location pattern, the circumstance pattern and the duration all tend to remain constant in each case. It is these phenomena which in many cases lead to the recognition of coronary insufficiency. A person may have pains in the chest; he may have pains in the chest after various exercises; and he may have pains in the chest after exercise which lasts anywhere from five to twenty minutes. Such a patient may or may not suffer with coronary insufficiency. But if a patient has pains in the chest which are always in or begin in the *same area,* even if it is the suprascapular region, and if it usually comes on after the same exercise,

as when walking to the carline, and they always last four or five minutes, then he almost certainly has coronary insufficiency. If in addition, there is a spread to other areas in the same manner in each attack the evidence is even stronger. In other words, the tendency toward constancy of the location and of the circumstances, and to some extent, of the duration of the pain should help considerably in the recognition of the disease regardless of how bizarre or atypical the location, the circumstances, and the duration may be. One patient had pain only in the throat, only on cleaning the table after mid-day meal, and it usually lasted ten minutes. These phenomena occur in no other disease with which I am familiar. Of course, it is important to remember that many cases do not exhibit this regularly. Its absence does not rule out coronary insufficiency.

SUMMARY AND CONCLUSIONS

1. The symptomatology of coronary insufficiency has been described as it has been encountered by the author.

2. Paroxysmal attacks of pain occuring in the upper half of the body, which in every attack begin in the same area, *and* which in every attack progress in stages to other areas which are also always the same and are in every attack reached in the same order, are almost certainly due to coronary insufficiency, regardless of how "atypical" in location these areas may be. If in addition, the attacks are relieved within 3 to 4 minutes by nitroglycerine the diagnosis is unquestionable. Gall bladder colic is the only exception to this rule and it does not respond dramatically to nitroglycerine.

3. Pain in the chest or epigastrium which does not occur simply on walking or after a meal, but which does occur on walking after a meal is presumably due to coronary insufficiency. Response to nitroglycerine makes the diagnosis certain.

4. Pain in the chest, mid epigastrium, both arms, or left arm on lying down after a meal which does not occur if patient sits up after a meal is almost certainly due to coronary insufficiency. If the patient does not have a diaphragmatic hernia the diagnosis is unquestionable.

5. Pain occuring regularly when patient first (within a few seconds to three minutes) lies down in bed at night is presumptive evidence of coronary insufficiency. Response to nitroglycerine or avoidance by taking nitroglycerine just before going to bed makes the diagnosis unquestionable.

I should like to apologize for having the temerity in this day and age to present a paper which pretends that history taking may at times yield more information than a gadget or a laboratory test.

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POSTCORONARY SYNDROMES*

BERNARD M. KALSTONE, M. D.
SHREVEPORT

This paper will not be an attempt to discuss every complication or aftermath of an attack of coronary disease but will be confined to two syndromes. One is well known and is labeled the "shoulder-hand syndrome". The second condition, although I am certain that all of you are aware of it, has rarely been discussed in detail in the literature. Yet it is a most practical one as it deals with the patient's ability to earn a livelihood following a heart attack. It is chiefly a symptom complex which Flaxman[1] termed the "postcoronary syndrome."

SHOULDER-HAND SYNDROME

The shoulder-hand syndrome is a complication that usually develops three to four weeks following an acute coronary attack. In practically all cases this comes after a myocardial infarction rather than an uncomplicated coronary insufficiency. This is not an absolute prerequisite, however, as it has been reported following severe coronary disease without clinical or laboratory manifestations of an infarct.[2] These individuals complain of pain usually in the shoulder with radiation to the hand or to a concomitant pain in the hand. Many patients when the persistent pain develops in the shoulder, first interpret the symptom as

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

having resulted from some further injury to the heart.[3] The shoulder disability most often precedes that of the hand. The left shoulder is the one generally involved. In some cases the pain alternates from one shoulder to the other.[4] The pain has been described variously as burning or aching or wrenching. Frequently, there is a trigger point or zone on the shoulder or over the scapula. Pressure applied to this area will reproduce the symptoms complained of by the patient. The pain is usually continuous often with exacerbations and attenuations. Whenever the hand is affected, in addition to the presence of pain, the hand is generally swollen and frequently discolored. The average case develops no further than this, and then gradually, from a few weeks to several years, makes a complete recovery. Usually the shoulder pain leaves first with slower improvement of the hand.[5]

There are some unfortunates that go on to a more advanced stage characterized by limited and painful movements of the fingers and a contracted shoulder. The muscles become atrophic and the bones of the hand or of the shoulder-end of the humerus may exhibit trophic changes on x-ray. Some individuals in this stage may yet have a partially reversible pathology.[2] Most of those, however, who are hapless enough to reach this stage have a permanent disability with crippling of the shoulder and a contracted, clawlike hand. A Dupuytren-like contracture may result.[6] Although remarkable trophic changes are apparent, the pulsations of the arteries of the affected extremities are normal. Trophic ulcers of the fingers[7] and a "sclerodactylic" hand[8] have been reported.

If the pain of the myocardial infarct does radiate to a particular shoulder or arm, it does not necessarily predispose that same side if the shoulder-hand syndrome later develops. The occurrence of this syndrome bears no relationship to the anatomic location of the myocardial infarct. Hilker[2] feels that there is a direct ratio between the severity of the infarction and the development of this reflex-dystrophy and further, that it develops only in those with left heart failure and prolonged hypotension. He also states that if the myocardium heals, the syndrome is interrupted, but if the myocardium remains incompetent, the shoulder-hand effects will continue.

The etiology of the shoulder-hand syndrome is not completely understood. The most favored theory is concerned with a disturbance of the so-called internuncial pool. This pool as described by Steinbrocker *et al.*[9] consists of an extensive network of interconnecting neurones in the central gray matter extending over many segments of the spinal cord. At these levels potential connecting pathways are formed between incoming impulses and motor neurones of either the sympathetic (posterolateral) or the anterior horn cells. The afferent stimuli arise from an area of injury, either trauma or a physiologic irritation. In the case of a myocardial infarction these stimuli are carried by the cardiac nerves and enter the spinal cord at the level of T_1 to T_4 (Figure 1). Here they stimulate the internuncial pool of those segments. The anterior horn cells are affected and a disability of the shoulder muscles ensues. The lateral horn cells are also irritated with resultant changes in the fingers and

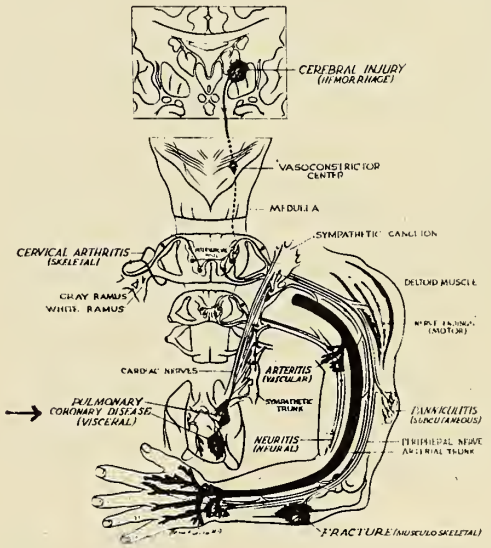

FIG. 1. A diagrammatic representation of current neurophysiologic concepts applied to the shoulder-hand syndrome and some of its causes.

(*After Steinbrocker et al*[9]).

hand. As has been pointed out[9] there must be continuous activity of the internuncial pool with a self-exciting, self-perpetuating mechanism. Anoxia with defective local tissue nutrition might be the stimulus that prolongs the condition and its subsequent correction would then be responsible for interrupting this cycle and reversing the process.[2] The osteoporosis that develops is that type of bone atrophy that follows a prolonged, deep hyperemia. Those interested in the etiology of this syndrome admit that the aforementioned theory does not answer all questions but that it appears to best fit all the facets of the shoulder-hand syndrome.

The treatment of the shoulder-hand syndrome in brief is: (1) Physiotherapy—this is strictly palliative; (2) Radiation; this is usually ineffective. (3) Block therapy. Paravertebral and brachial plexus block have been beneficial in some cases. The shoulder disability is more apt to respond than is that of the affection of the hands. Sympathetic block in the presence of a myocardial infarction, however, is not without danger. (4) Surgery has been used with moderate success, the procedures varying from periarterial sympathectomy to chordotomy.

Before concluding the discussion of this syndrome, it should be mentioned that it appears unlikely that the prolonged period of absolute bed rest enforced by many physicians in the treatment of coronary disease has any bearing upon the subsequent development of the shoulder-hand syndrome. This syndrome is not one of the evils of strict bed rest which were so well presented by Dr. Samuel Levine.[10]

SECOND SYNDROME

The second syndrome to be discussed occurs in the so-called recovery stage following coronary disease. This is the period when the patient begins to be more active physically or perhaps when he first returns to work. This syndrome is not as generally recognized as is the shoulder-hand syndrome. It is chiefly concerned with a series of peculiar chest sensations. The most common of these, in my experience, is a feeling of the patient whereby he claims that he cannot get his breath below a certain level of his chest, usually indicating the third interspace of the anterior chest as the lowest point that air will reach. This is often associated with a "tight feeling" of the thorax and oftentimes the patient declares that the sensation resembles that of a band drawn taut around the chest. The soreness or tightness of the chest is not relieved by nitroglycerin. The aforementioned symptoms are not unlike those complained of by anxious individuals who are unknowingly hyperventilating. Fatigue and weakness are prominent complaints. These symptoms are representative of a critical stage in the recovery of the patient as he begins to fear that he will never again be able to do a day's work. He also fears that his discomfort is a permanent one. Consequently, it is important for the physician to recognize his plight and to offer the patient the firm reassurance that it is only a temporary phase in his postcoronary course. Time and continued activity will see the end of this peculiar feeling in his chest. Do not put the patient back to bed or markedly restrict his activity at this point. Give him repeated reassurance. You must point out to the individual that he is not experiencing true angina nor is this a warning of impending coronary occlusion. It is simply a common postcoronary occurrence that will disappear.

Failure to appreciate the significance of this syndrome and, more especially, failure to reassure the patient and to adequately explain his symptoms may inadvertently lay the ground work for a pronounced cardiac neurosis. Advise the patient to continue his activities and remove the constant dread that his symptoms may be due to a permanently damaged heart.

In a study made by us[11] of 120 cardiacs who survived an acute attack of coronary disease we found that after a reasonable convalescence, severe restriction of physical activity beyond the requirement imposed by limited cardiac cardiac reserve affords little or no protection to the patient

who has survived the acute attack. (Figure 2).

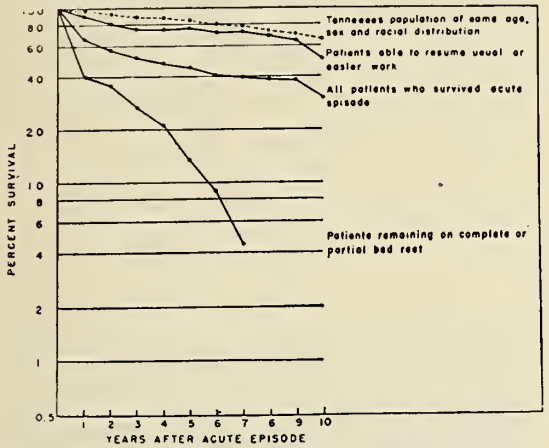

Figure 2.—Myocardial infarction — Survival rates; survival curves plotted on logarithmic scale. The slope of a line segment is a measure of the mortality rate during the period in question. Parallel slopes indicate similar mortality rates. Computed from mortality rates published by U. S. Bureau of the Census. (*After Billings et al*[11]).

It is advisable for the physician not to be too free in the recommendation to the patient that he quit work permanently or for a prolonged period subsequent to a coronary attack. Unless that person has a very poor cardiac reserve or severe angina he will likely be able to return to his former activity. Be optimistic to the patient and give him encouragement in the face of this postcoronary syndrome. Reassurance at this stage in the patient's recovery can assist him in making a satisfactory adjustment to his situation. In a paper several years ago, Auerback and Gliebe[12] discussed iatrogenic heart disease, that is, heart disease produced by doctors. A patient exhibiting anxiety symptoms can very easily become a cardiac neurotic because of a careless phrase or a mild warning of his physician. It is the same with these "postcoronary" patients. They can be transformed into lifelong invalids if at this stage in their postcoronary recovery thay are not encouraged concerning the temporary and relatively mild nature of their complaints. It must be mentioned that definite cardiac failure can occur and the recognition of the postcoronary syndrome must not blind one to the possibility of true cardiac failure or of poor cardiac reserve.

SUMMARY

The shoulder-hand syndrome frequently follows a myocardial infarction. Most cases eventually recover but a few go on to permanent atrophy of the hand or shoulder. This syndrome bears no relationship to the radiation of the pain or to the anatomic site of the causal myocardial infarction. The mechanism of the shoulder-hand syndrome is best explained on the theory of traumatic cardiac stimulation to the spinal cord through an internuncial pool and via the cardiac nerves. This initiates a vicious circle resulting in a reflex-dystrophy that is probably maintained by the anoxia and the defective local nutritional status of the heart muscle. The syndrome apparently is not caused by the prolonged bed rest with limitation of motion of the extremities in the treatment of the coronary attack.

A second postcoronary syndrome has been described. This is characterized by tightness of the chest, difficulty in breathing and weakness. The syndrome occurs when the patient attempts to resume his usual activities. The symptoms tend to disappear as the individual continues his work. Wholehearted reassurance to the patient is most necessary at this stage of his postcoronary recovery and continued activity should be encouraged and not discouraged. The outlook for the patient with this postcoronary syndrome is good.

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DIAPHRAGMATIC HERNIA SIMULATING THE PAIN OF HEART DISEASE*

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RICHARD B. LANGFORD, M. D.
G. M. RILEY, M. D.

SHREVEPORT

There have been several articles[1-5] in recent medical literature discussing the importance of diaphragmatic hernia in the differential diagnosis of coronary artery pain. We wish to report a few of the patients seen in our office over the period of the last two years which emphasized this diagnostic point.

All of these patients were either referred to us, or came to us, with a diagnosis of coronary artery disease. We were called out to see several during an acute attack and hospitalized them for observation for coronary occlusion. All of the patients had complete histories, physical examination, and laboratory studies, including hemogram, urinalysis, and serology. Electrocardiograms were taken repeatedly on all patients and usually the exercise test was done with tracings taken before and after the test. Gastrointestinal roentgenograms were done by two of us (G. M. R. and W. H. C.). In every case, during fluoroscopy, the patient was placed in the Trendelenburg position and the Valsalva maneuver was performed immediately after swallowing barium.

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 29, 1952.

CASE REPORTS

Case No. 1: White female, age 65. This patient suddenly developed severe pain in the substernal region which radiated to her left shoulder. There was no dyspnea or shock. The blood pressure remained at 160/90. An opiate was given. She was hospitalized and repeated electrocardiograms were negative. The history revealed that she had had recurrent similar attacks of substernal pain radiating down the left arm occurring usually after exertion, but frequently at night. She had been told she had heart disease by a physician, but there were never any electrocardiographic findings. She learned by experience that if she ate very lightly for her evening meal she would not have an attack at night. She was discharged. Following

Figure 1—Case No. 1

this, she had many similar attacks that usually required morphine, demerol, or pantapon for relief. There was never any shock or change in blood pressure. She had had two roentgenological studies of the gastrointestinal tract and these were reported completely negative. She finally complained of difficulty in swallowing. She stated that there was a lump present in her substernal region every time she would swallow. On August 12, 1949, a recheck gastrointestinal series was done, and a hiatus hernia of moderate size was found. Since that time she has been on antispasmodics, sleeping in a semireclining position, and has been advised not to eat for several hours before retiring for the night. Repeated electrocardiograms have still been normal. She has had occasional pain, but now she does not become alarmed about heart disease whenever she has it. Occasionally, when she is lying down flat, she has substernal pain.

Case No. 2: White male, age 28, physician. This patient gave a history of having had an appendectomy in December, 1943, while he was in the Navy. This was followed by a pulmonary embolus. A short while later he developed pain starting in the substernal region, radiating up the left shoulder after exertion. This was considered secondary to precordial adhesions. Repeated electrocardiograms and x-rays of the chest were completely normal. He continued to have pain on exertion; or mild activity, particularly after a full meal, would bring on the pain. He developed hepatitis in May, 1949, and recovered. He had a recurrence of his hepatitis in March, 1950. Icterus index was 11.6.

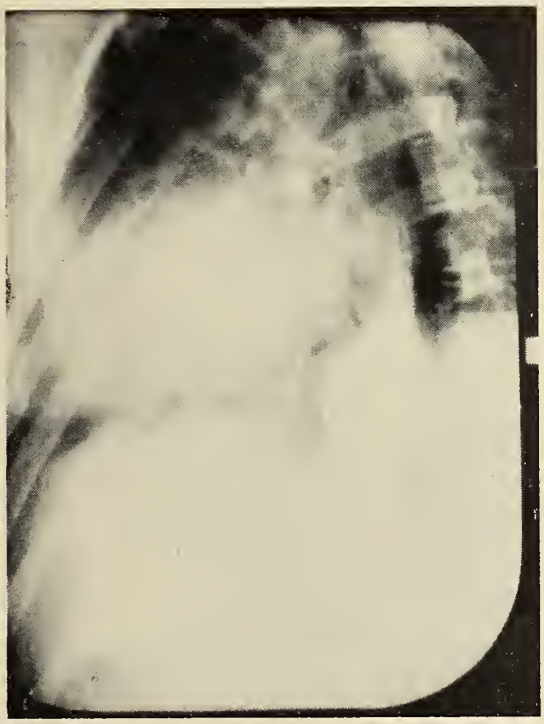

Figure 2—Case No. 2

There was slight tenderness in the epigastrium. Hemogram and urinalysis were normal. A cholecystogram was done later, which was normal. A gastrointestinal series was done and a large diaphragmatic hernia was found. After adequate rest he recovered from his hepatitis. It was felt that his substernal pain was secondary to his diaphragmatic hernia. He understood the situation and stated that he did not wish to have recurrent severe pain in the heart region, and, therefore, requested repair. A transthoracic surgical repair was done. He had a very smooth postoperative course. There have been no further symptoms of substernal or cardiac pain.

Case No. 3: While male, age 66, priest. This patient gave a history of having had recurrent substernal pain, radiating up the left shoulder whenever he would walk up a hill after a full meal. This had been coming intermittently for the past few months. History revealed that he was able to rake his yard and work without any pain, but as soon as he would walk after a full meal he would develop the attack. Nitroglycerine did not seem to relieve it. He was obese. He had no other digestive symptoms, shortness of breath or any cardiovascular symptoms. Physical examination revealed a well developed, obese, short sthenic individual. Examination of eyes, ears, nose and throat was essentially negative. Blood pressure was 120/80. Examination of the heart and lungs was normal. Repeated electrocardiograms were taken and revealed no abnormalities whatsoever. Gastrointestinal series revealed a fair sized diaphragmatic hernia. He was placed on a bland diet with antispasmodics and told to sleep in a semi-reclining position. Since that time he has had no pain whatsoever.

Case No. 4: A white male, age 39, oil field worker, was seen in November, 1950, complaining of pain around the heart. This was characterized as intermittent in character, located in the substernal region and radiating through to the back. There was no shock associated with it. The pain would last a few minutes and then disappear. Activity would not usually bring it on. The patient had had morning vomiting for ten years. Physical examination was negative. Hemogram and urinalysis were negative. An electrocardiogram was completely normal. Roentgenographic views of the chest revealed peribronchial thickening in both lung fields. Studies of the gastrointestinal tract revealed a hiatus hernia with an ulcer. He was placed on supportive medication of antispasmodic therapy and diet and the symptoms cleared.

Case No. 5: A white female, age 42, housewife. The patient had had frequent attacks of substernal pain, radiating up behind the sternum. It came on at various intervals, with or without exercise, and not particularly associated with eating. She felt she had heart disease. She had had repeated electrocardiograms taken and they were always negative. In September 1951, she suddenly developed a severe gastrointestinal hemorrhage, requiring transfusions. The substernal pain was present at this time. She was hospitalized and an electrocardiogram was negative. After one week, a gastrointestinal series revealed a diaphragmatic hernia. After being placed on symptomatic treatment and a bland diet, she has had no further so-called "heart pains."

Case No. 6: A 48 year old white male, a grocer, gave a history of having had intermittent pain in the left upper quadrant, radiating up the left shoulder and down the left arm of several weeks' duration. He stated it felt like gas and came on after he ate. Sweet milk and belching seemed to relieve it. Occasionally he noticed it when he would lie down at night. Often the pain would

start in the left costal margin and spread up the left shoulder and down the medial aspect and the ulnar region of the left arm. There was no shock connected with the pain. Physical examination revealed a well developed, well nourished individual, with no indigestion. Blood pressure was 130/80. Heart and lungs were negative. There was slight tenderness in the left costal margin. The liver was just palpable. Repeated electrocardiograms were completely negative. A gastrointestinal series revealed a small hiatus hernia. After giving him antispasmodics and a bland diet and advising him not to eat at night, his pain subsided. He has had no further pain.

Case No. 7: A white male, age 65, businessman, gave a history of recurrent attacks of rather severe pain in the left upper quadrant and the left lower chest. This was severe and constant and became localized at the apex of the heart. This usually occurred at night. There seemed to be no particular relation to exercise or to eating. There was no shock. Physical examination revealed a slender, asthenic individual. The heart and lungs were essentially negative. The blood pressure was 130/80. The liver was palpable but not tender. Roentgenograms of the chest revealed a thickened pleura at both bases with bronchiectasis at the right base. There was a large esophageal hiatus hernia. The stomach and the remainder of the gastrointestinal series and barium enema were negative. He was advised to rest in a semisitting position, given antispasmodics, placed on a bland diet and he had no further symptoms.

Case No. 8: A 65 year old white male, executive, was seen on November 5, 1951, with severe pain over the xiphoid process. He had been out at his camp on a Sunday and after dinner developed a severe pain below the xiphoid process. It was acutely severe, lasted about an hour, after that it cleared. Following this it again recurred and he appeared in a shocklike state. He came to the hospital. No particular abnormalities were found on examination except for pain in the lower substernal region. Electrocardiogram was taken, which was normal. There was no temperature elevation or shocklike state. He was rechecked the following day. At this time the abdomen was soft and there was no evidence of any blood pressure changes. A gastrointestinal series revealed an enormous hernia of the esophogeal hiatus, slight deformity of the duodenal cap with no evidence of an ulcer. There was some spasm throughout the colon with irregularity of the sigmoid colon with small diverticula present. He was put on antispasmotics and a bland diet, and told to sleep in a semisitting position. He has been essentially symptom free since that time.

Case No. 9: A white male, salesman, age 34, was seen on August 25, 1951. He gave a history of having epigastric fullness for several weeks prior to this, with pain in the left lower chest, usually after driving a long period of time and after excessive fatigue. This would produce a tachycardia and aggravate his nervousness. He also developed tightness in the neck with a pulling pain in the left shoulder. Further history revealed that he had bloating and pain in the left pectoral region after eating. Physical examination revealed a well developed, slightly obese individual with a blood pressure of 120/80. Electrocardiogram was repeatedly negative. A gastrointestinal series revealed a small esophageal hiatus hernia, no other significant abnormalities. There were diverticula in the colon. He is essentially symptom free on supportive treatment.

Case No. 10: A 35 year old white female nurse gave a history of having recurrent attacks of substernal pain, well localized, occurring after eating. It would last a few minutes and then disappear. There were no other cardiovascular symptoms. Examination revealed a slender, asthenic individual with no other particular abnormalities. An electrocardiogram was negative. A gastrointestinal series revealed a small hiatus hernia. The patient was placed on antispasmodics and small feeding and the symptoms cleared.

Case No. 11: A white male dentist, age 55, gave a history of having had recurrent substernal pain occurring after he would walk to his quarters after a full meal. This became progressively worse and he felt he had heart disease. Electrocardiograms were taken and were completely normal. A diaphragmatic hernia was found on x-ray. He was seen three years later and had no further symptoms except when he would overload his stomach.

Case No. 12: A white male farmer, 55 years old, complained of severe recurring attacks of pain to the right of the sternum of one week's duration. He had been a hypertensive for years and thought that this was his heart. There was no aggravation with exercise. He had had indigestion for the past few years. Physical examination revealed a well developed, obese, hypersthenic individual with a blood pressure of 180/90. Repeated electrocardiograms were normal. Roentgenogram of the chest revealed a transverse heart with no definite enlargement. A gastrointestinal series revealed a small diaphragmatic hiatus hernia. Gall bladder series was negative. He has been asymptomatic since then on supportive therapy.

Case No. 13: A white male, age 40, refinery worker, was seen on May 4, 1950. He gave a history of having had pain in the epigastrium, intermittently since 1936, relieved by milk. Physical examination revealed a tall, asthenic individual with tenderness in the epigastrium. The remainder of the examination was negative. A gastrointestinal series revealed definite deformity in the region of the bulb, which was believed to be residual scarring due to an ulcer. His symptoms

improved on banthine and he was symptom free for several months. He was again seen eighteen months later with similar pain. At this time he also complained of some pain in the chest and substernal region. He was worried about his heart at that time. Electrocardiogram had been completely normal. A gastrointestinal series revealed a moderate sized hiatus hernia, slight deformity of the duodenal cap. X-ray of the chest was essentially negative. There was thickened pleura at the right base. He is again asymptomatic on banthine, sedatives, and a bland diet.

Case No. 14: A white male refinery worker, age 45, complained of precordial fullness and pain for the past five years which came on suddenly, associated with the feeling that he could not catch his breath. This would last one-half to one and a half hours and occurred two to three times a week. Most of the symptoms occurred at night. An electrocardiogram was taken and revealed a midline heart, no evidence of ischemia or any other abnormalities. A gastrointestinal series revealed a small hiatus hernia. He was placed on sedatives and antispasmodics and reassured that he did not have heart trouble.

Fourteen patients have been reported in detail, and 13 others have been found which have been diagnosed as coronary artery disease but the pain was actually due to diaphragmatic hernia. Careful history will usually reveal that the pain usually occurs at rest and after a full meal. Sitting in a cramped position, such as in driving a car, or wearing a tight abdominal binder, usually precipitates the pain. The majority of patients complained of pain occurring whenever they would lie down and turn on the left side. Exercise does not usually bring on the pain, but it may aggravate it after a heavy meal.

The majority of the patients are males, hypersthenic and obese and between 23 and 73 years of age. Electrocardiographic changes attributed to the hiatus hernia consisted of transient low T-waves in lead 1. These were interpreted as due to temporary local ischemia due to vasospasm due to pressure. No electrocardiographic changes were ever observed after exercise tests. Associated symptoms of indigestion were present in many patients. Three patients were subjected to surgical correction of the defect. The symptoms have not recurred. The majority of patients can be treated medically by weight loss, antispasmodics, small meals, and lying in a semisitting position.

CONCLUSIONS

Esophageal hiatal hernia can produce symptoms similar to those due to coronary disease. Fluoroscopic study for this defect should be an integral part of a diagnostic study for any type of substernal pain. The presence of a hiatal hernia does not in itself signify that it does cause the substernal pain. Careful history and laboratory study must be done along with clinical observation in order to arrive at the correct etiological factor.

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THE CARDIAC PATIENT AS A SURGICAL RISK*

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NEW ORLEANS

The surgical risk in cardiac patients is probably as old a problem as surgery itself. So much so, in fact, that fear of the heart is still often based more on tradition than on established scientific fact. There still exists in some quarters an unwarranted fear of performing any kind of surgery on people with heart disease. Although there are relatively few comprehensive statistical studies on the subject, practically all investigators have reached optimistic conclusions

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regarding the ability of the heart to withstand anesthesia and surgery. One of the earliest surveys of this sort was done by Butler, Feeney, and Levine, in 1930, who reviewed 414 cases subjected to 494 operations. Their mortality at that time was 6.3 per cent, which led to the conclusion that, as a group, patients with heart disease undergo surgery fairly well. Since that time other authors have repeatedly shown that an anesthetic or surgical procedure imposes little or no added burden on the heart; and if patients with heart disease are properly evaluated and managed, they can undergo major surgical procedures with little or no added risk. As a matter of fact, known cardiac patients often receive more attention than usual and may even be "especially safe because they are considered especially unsafe."

In recent years the mortality and morbidity rate of patients with heart disease who undergo surgery has been on the decline. This is due in part to the closer collaboration among internist, anesthetist, and surgeon. As evidence of this fact, 80 per cent of all patients in this study were seen in consultation or were studied by the medical service in preparation for surgery. It has been stated that the choice of anesthetist is of greater importance than the anesthetic agent—a truism which can hardly be denied. With improvement in technique of administration of anesthetic agents, the skill of the anesthetist is added to the calculated appraisal and preoperative preparation of the cardiac patient by the internist. The triad is completed by the surgeon who performs his task with a minimum of delay and who exercises more than usual precautions in avoiding shock and anoxemia.

The internist is often placed in the position of rendering an opinion as to whether or not a given patient is able to survive an operation. He should be able to give an intelligent answer to such a request—neither denying surgery to all patients with heart disease nor permitting surgery on everyone without consideration of the many factors that may alter the outcome. We have adopted a liberal policy based on earlier experience and on observation at the Veterans Administration Hospital since 1946. Very few patients who require surgery are refused, although they may have what some authors consider to be absolute contraindications. Actually, there are very few surgical conditions that cannot wait a few hours during which time the cardiac status can be evaluated and properly managed. With the advent of rapidly acting digitalis or strophanthin preparations and the availability of intravenous or intramuscular quinidine or pronestyl, congestive failure and cardiac arrhythmias can usually be controlled in a very short time. There are, as far as we are concerned, no absolute contraindications to emergency surgery and few, if any, contraindications to elective surgery. It must be remembered that every operation carries with it a certain element of danger and that not every patient who dies on the operating table or shortly thereafter does so because of heart disease.

It is true that the heart is involved in every death—the cessation of the heart beat is the ultimate criterion of death—but the heart need not be implicated in every postoperative fatality. It is with this thought in mind that we emphasize that these statistics are not inflexible and are therefore subject to appraisal on an approximate basis. No statistics can include such intangibles as the will to live or die, or measure the human frailties that may mean the difference between life and death. We offer these figures as a fact accomplished for whatever they are worth.

This particular study was undertaken primarily to determine the mortality rate of cardiac patients operated upon at the Veterans Administration Hospital at New Orleans during the past six years and to determine what factors, if any, influenced significantly the mortality and morbidity rate.

There were 500 operations performed on 334 patients. Twenty-three of these patients died, giving a total mortality of 4.6 per cent. Nine of these died an "inevitable" death, that is, patients who would have died in a reasonably short time if surgery had

not been performed and in whose death the cardiac factor played a secondary role. For example, a palliative colostomy or jejunostomy in a patient with inoperable carcinoma who died two to three weeks later is considered an inevitable death. Fourteen of the patients died an "unexpected" death, that is, patients who died or whose lives were shortened as a result of the operation. The unexpected mortality rate was a low 2.8 per cent. All future references in this paper apply to unexpected deaths unless otherwise specified. A further analysis of the mortality rate for the different types of heart disease may be found in Figure 1.

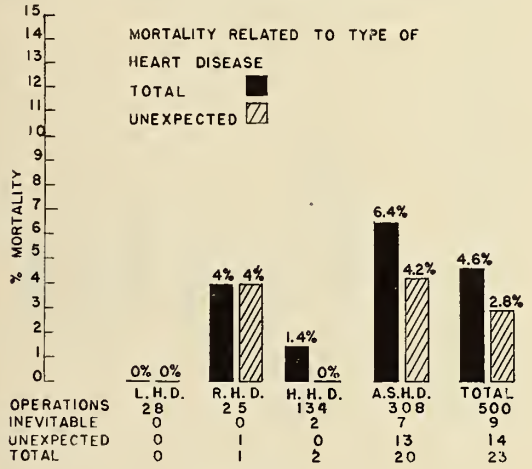

Figure 1

MORTALITY RELATED TO TYPE OF HEART DISEASE

There were 28 operations on patients with syphilitic heart disease and no deaths —a mortality rate of zero. There were no complications in this group. Syphilitic aortitis, aortic regurgitation, and aortitis with angina have been said to increase the risk considerably. All of these patients had aortitis with aortic regurgitation, and 5 had angina. This is admittedly a small number, but nevertheless, none died.

Twenty-five operations were performed on patients with rheumatic heart disease with 1 unexpected death, a mortality rate of 4 per cent. This patient expired on the second postoperative day of atelectasis, pneumonia, and bilateral hydrothorax following a thoracotomy for bronchogenic carcinoma. The procedure lasted over two hours and was performed with cyclopropane anesthesia.

In the hypertensive group, 139 operations resulted in 2 inevitable deaths with a mortality rate of 1.4 per cent and no unexpected deaths—a mortality rate naturally of zero. This supports the almost unanimous opinion that hypertension per se contributes nothing to the element of risk.

The arteriosclerotic group comprised the largest number of operations and resulted in the greatest number of deaths. Arteriosclerotic heart disease understandably presents the gravest risk of all forms of heart disease. It occurs in the older age group, arrhythmias are often irreversible, congestive heart failure is present in large number, and the surgical condition is often of a malignant nature. Furthermore, it is difficult, if not sometimes impossible, to make an accurate diagnosis of coronary arteriosclerosis. In spite of statements to the contrary, not many patients die of a coronary occlusion following operation. Only 1 of the 308 patients with arteriosclerotic heart disease out of the entire 500 operations in this study resulted in death due to coronary occlusion. In 308 operations there were 20 deaths with a total mortality of 6.4 per cent. Thirteen of these deaths were unexpected, giving a mortality of 4.2 per cent. Three were due to congestive heart failure, 2 were due to shock and pneumonia, 1 each was due to cerebrovascular accident, pulmonary embolism, cardiac arrest, and coronary occlusion. One death was unexplained.

The total mortality in 500 operations on patients with all types of heart disease was 4.6 per cent. The unexpected mortality was 2.8 per cent.

The presence of hypertension in patients with arteriosclerotic heart disease increased the mortality rate slightly but not significantly (Figure 2). There were 197 operations on patients with arteriosclerotic heart disease without associated hypertension resulting in 7 deaths, a mortality of 3.6 per cent. There were 6 deaths in 111 operations in patients with arteriosclerotic heart disease with associated hypertension, resulting in a mortality of 5.4 per cent.

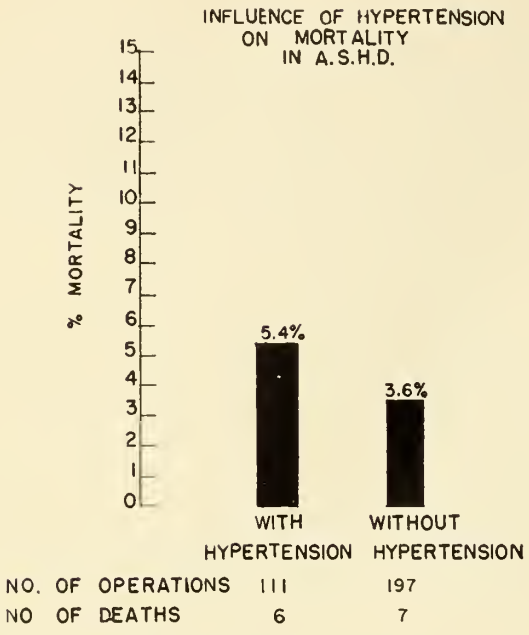

Figure 2

MORTALITY RELATED TO AGE AND RACE

All of these patients were males over 20 years of age, the majority being between 50 and 70, although 60 patients were over 70 years of age (Figure 3). There were 2

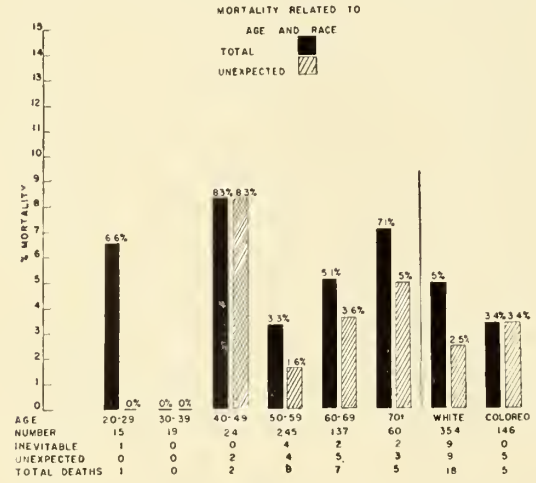

Figure 3

deaths in the 40 to 49 group with a mortality of 8.3 per cent; except for this, there was a progressive increase in mortality with age. There was less than 1 per cent difference in mortality between white and colored patients . There was no opportunity to study the difference in mortality according to sex; but in a previous unpublished study by one of us (J.E.G.), it was shown that colored females withstand surgery best, followed by white females, with white and colored males being about equal.

MORTALITY RELATED TO ORGANIC CARDIAC DEFECTS

In an effort to determine the effect of various organic cardiac abnormalities on the mortality rate, the influence of congestive heart failure, murmurs, cardiac enlargement, conduction defects, the presence of angina or previous coronary thrombosis, and the functional classification were all separately evaluated (Figure 4).

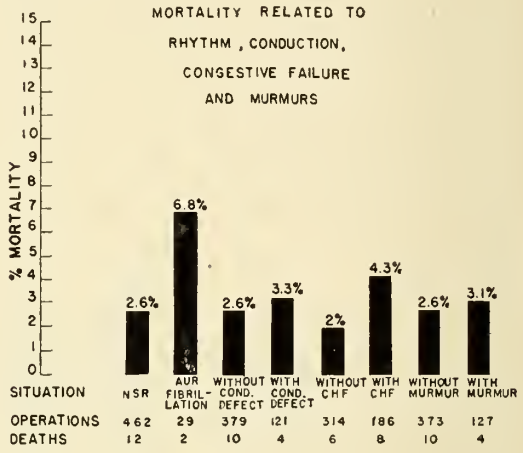

Figure 4

AURICULAR FIBRILLATION

In 29 patients operated upon with auricular fibrillation there were 2 deaths, a mortality of 6.8 per cent compared to 2.6 per cent of 462 cases with normal sinus rhythm. Auricular fibrillation thus can be seen to alter significantly the mortality rate. Even though this total number was rather small, other investigators are also cautious in regard to fibrillation and would prefer reversion to sinus rhythm before surgery if possible or reduction of the ventricular rate to 90 or less. Auricular fibrillation should not per se contraindicate surgery.

CONDUCTION DEFECTS

Of 121 patients with conduction defects (bundle branch block, delayed intraventricular conduction, and auriculoventricular block), only 4 died—a mortality of 3.3 per cent compared to 2.6 per cent mortality in 379 cases with normal conduction. It thus can be said that in this series conduction de-

fects had no bearing on the ultimate outcome.

CONGESTIVE HEART FAILURE

Congestive heart failure contributed 8 deaths in 186 operations, a 4.3 per cent fatality. This compares to a 2 per cent mortality in 314 operations in patients with compensated heart disease. All of these patients in failure were receiving digitalis and or salt free diet and were therefore considered to be compensated before surgery was performed. The degree of myocardial reserve is the most important single factor in determining the mortality and morbidity in patients with heart disease who undergo surgery. With the proper use of oubain and strophanthin and or digitalis, patients can be readied for surgery even in the most urgent circumstances. Congestive heart failure, untreated, adds considerably to the surgical risk. Even when adequately treated, congestive heart failure constitutes a definite hazard to an operation; and it is here, more than anywhere else, that choice of anesthesia and anesthetist is of utmost importance.

MURMURS

Murmurs per se played an insignificant role in the mortality statistics. In 127 patients with organic murmurs there were 4 deaths (3.1 per cent mortality) compared to 10 deaths in 373 operations (2.6 per cent mortality) in patients without organic valvular lesions. Only 1 of these deaths was in rheumatic heart disease with mitral and aortic stenosis. The others were in arteriosclerotic heart disease with aortic stenosis and mitral insufficiency. It is generally conceded that inactive or chronic valvular defects do not alter the mortality rate.

CARDIAC ENLARGEMENT

Cardiac enlargement (Figure 5) not only did not increase the mortality rate but actually was associated with a lower incidence of fatalities (1.6 per cent) than patients with a normal sized heart (4.4 per cent).

ANGINA AND CORONARY THROMBOSIS

Patients with a history of angina are probably considered by many as extremely poor surgical risks; whereas, the mortality rate in 99 operative procedures in this series was only 2 per cent (Figure 5). The occa-

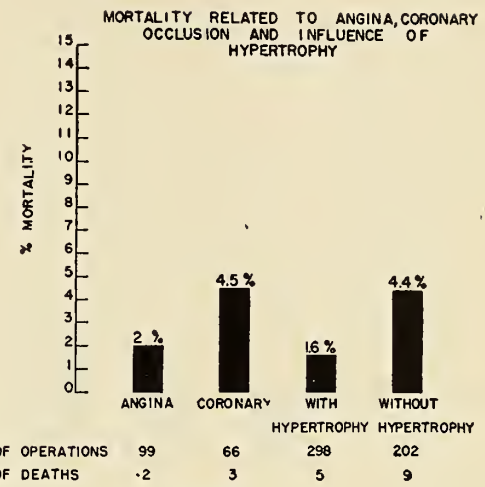

Figure 5

sional viewpoint of prohibiting all except the most urgent emergency surgery in patients with angina cannot be confirmed by this study. It is wise, however, to treat anginal symptoms with great respect and to ignore such pseudocriteria as the electrocardiogram in favor of clinical judgment. Unless a patient is having angina decubitus or status anginosis, this syndrome should not in itself contraindicate necessary surgery, whether emergency or elective. Patients who have had coronary occlusion with infarction can also tolerate surgery fairly well. There were only 3 deaths in 66 operations, a mortality of 4.5 per cent. Common sense dictates waiting three to four months or longer after acute coronary occlusion if at all possible before attempting elective surgery. La Due *et al* report a mortality of 5.8 per cent in 58 patients with healed myocardial infarcts undergoing major surgical procedures. They concluded that a healed myocardial infarction is not a contraindication to surgery and that the surgery had no adverse effect on the heart disease.

MORTALITY RELATED TO FUNCTIONAL CAPACITY

All patients were classified as to their functional status (Figure 6) in accordance with the criteria set forth by the American Heart Association, namely: Class I—Patients with a cardiac disorder without limitation of physical activity; ordinary physical activity causes no discomfort. Class II —Patients with a cardiac disorder with

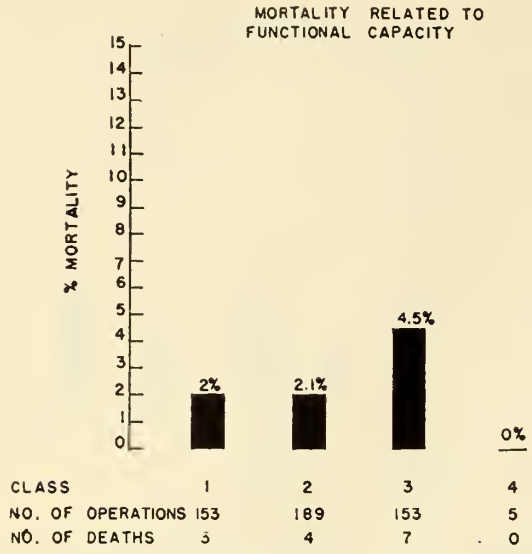

Figure 6

slight to moderate limitation of physical activity; ordinary physical activity causes discomfort. Class III—Patients with a cardiac disorder with moderate to great limitation of physical activity; less than ordinary physical activity causes discomfort. Class IV—Patients with a cardiac disorder unable to carry on any physical activity without discomfort.

Generally speaking, the mortality was directly proportional to the functional class, being 4.5 per cent in the Class III category as compared to 2 per cent in Class I.

MORTALITY RELATED TO TYPE AND DURATION OF OPERATION

The 500 operations which formed the basis for this study consisted of numerous types of surgical procedures (Figure 7).

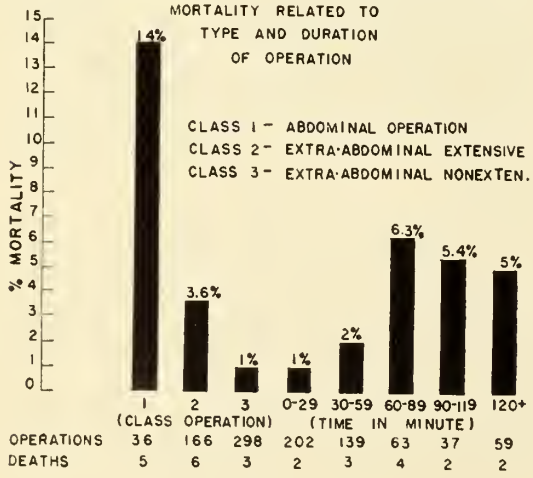

Figure 7

In order to avoid the misleading terms "major" and "minor" surgery, these operations were divided into three groups—Group I comprised all intra-abdominal procedures. Group II consisted of all extra-abdominal extensive procedures and Group III included all extra-abdominal nonextensive operations. Group I, or the abdominal group, had an unusually high mortality figure (14 per cent) but consisted of the smallest number of cases (36). Group II operations resulted in a 3.6 per cent mortality and Group III, 1.0 per cent. In a further analysis of these procedures, the length or duration of the operation bore a definite relationship to the death rate, there being a progressive increase up to sixty to eighty-nine minutes and a leveling off after one and one-half hours. It would seem, therefore, from these figures that patients requiring abdominal surgery are subjected to a somewhat greater risk than those undergoing nonabdominal procedures whether the operation is of a so-called "major" or "minor" nature, and that the risk is greater in operations lasting over sixty minutes.

MORTALITY RELATED TO ANESTHETIC AGENT

The anesthetic agent has a definite bearing on the ultimate outcome, although no deaths in this series of cases could be directly attributed to the type of anesthetic agent employed (Figure 8). In this series

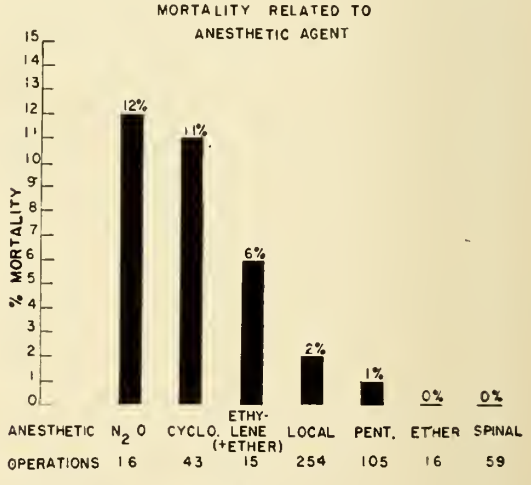

Figure 8

of cases the human factor was rather constant, inasmuch as the same anesthestist or group of anesthestists administered or

supervised the administration of anesthesia in almost all of these surgical procedures. The different agents are listed in the accompanying table according to their relative safety, with spinal, ether, pentothal, and local heading the list. These figures are based on the primary anesthetic agent used although in some instances a combination of agents was employed. Spinal is usually condemned for its hypotensive effect and consequent danger of peripheral vascular collapse and diminished coronary blood flow, although Master and Jaffe actually recommend spinal anesthesia for its peripheral vasodilatory effect. We merely point out that in 59 operations where patients received spinal anesthesia, the mortality was nil. There were no deaths with ether when used alone in 16 cases and only 1 death in 105 patients who were given pentothal. Ethylene alone or combined with ether resulted in 1 death out of 15 cases, resulting in a mortality of 6 per cent. Cyclopropane contributed 5 deaths in 43 operations for a mortality of 11 per cent. Nitrous oxide also had a high fatality with 2 of 16 procedures proving fatal, a mortality of 12 per cent.

COMPLICATIONS

The complications and causes of death are listed in Figure 9. Shock, pneumonia, and congestive heart failure comprised over 60 per cent of these complications, the remainder being pulmonary embolism, atelectasis, pleural effusion, congestive heart failure, coronary occlusion, thrombophlebitis, acute renal failure, and auricular fibrillation.

COMPLICATIONS

SHOCK	14
PNEUMONIA	7
HEART FAILURE	6
PULMONARY EMBOLISM	3
ATELECTASIS	2
THROMBOPHLEBITIS	2
C V A	1
CARDIAC ARREST	1
APNEA	1
CORONARY OCCLUSION	1
PLEURAL EFFUSION	1
AUR FIBRILLATION	1
ACUTE RENAL FAILURE	1

Figure 9

CONCLUSIONS

1. Generally speaking, patients with heart disease withstand surgery and anesthesia with a minimum of additional risk.

2. Proper evaluation and management of the cardiac patient is essential.

3. Factors increasing the mortality in this series were the presence of arteriosclerotic heart disease, congestive failure, auricular fibrillation, coronary thrombosis, functional capacity, type of surgical procedure, duration of operation, and the anesthetic agent.

4. No appreciable increase in mortality was observed in this series in the presence of syphilitic, rheumatic, and hypertensive heart disease. Race, conduction defects, murmurs, cardiac enlargement, and angina likewise resulted in no increase in mortality rate.

5. Serious cardiac complications, e.g., acute coronary occlusion and cardiac arrest are rare as a result of surgery.

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PERICARDIAL EFFUSION FOLLOWING VIRUS PNEUMONIA

A CASE REPORT

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The occurrence of pericardial effusion as a complication of atypical pneumonia is uncommon. In 1938, Willius[4] stated that 68 per cent of pericardial effusions were due to acute infectious types of diseases and occurred secondary to other intrathoracic infections. In 1941, Willius[5] reported a case of acute serofibrinous pericarditis following acute pharyngitis. Nathan and Dathe[1] reported on pericarditis with effusion following apparently trivial upper respiratory infections. Wolff[6] has reported 3 cases (cases 2, 4, and 5) in which primary atypical pneumonia was complicated by acute pericarditis without effusion. In their series of cases of acute pericarditis, Nay and Boyer[2] reported 1 case (case number 42) in which pericardial effusion occurred in the course of atypical pneumonia. Two cases (numbers 1 and 2) of acute pericarditis described by Taubenhaus and Brams[3] may have had virus pneumonitis concomitantly which was not recognized. Probably many more cases of "idiopathic" pericarditis, with or without effusion, have occurred as a result of atypical pneumonitis which was not recognized.

Since the advent of the antibiotics, the treatment of pneumonia has resulted in more cures and less of the complications such as empyema, pericarditis, and pericardial effusion, with their attendant high mortality. With the discovery of the newer broad spectrum antibiotics and their beneficial effect on the recently recognized virus pneumonia, the treatment of chest infections has been greatly simplified and this may result in some degree of complacency on the part of the physician. The diagnosis of virus pneumonia is being made more frequently and one should be aware of the possible complications. The following case is presented with this in view.

CASE REPORT

Mrs. W. S., a 35-year-old white female, was first seen on October 4, 1951. At that time she was complaining of a dry hacking cough and pain in the chest posteriorly on deep inspiration. There were no other symptoms. Past history was noncontributory and there was no history of tuberculosis, rheumatic fever, malaria, or typhoid. Her temperature was 98.8 F°; blood pressure was 120 mm. Hg. systolic and 75 mm. Hg. diastolic; pulse rate was 76/min. regular and full; respiratory rate was 20/min. On examination she was found to have some fine rales in the left chest posteriorly. The rest of the physical examination was negative. A diagnosis of virus pneumonia was made and she was treated with chloromycetin, 500 mgm. stat and then 250 mgm. every four hours thereafter.

She responded very well to treatment and was so much improved that after three days she required no further treatment.

On the evening of October 10, 1951, her husband returned home to find her sitting up in bed struggling for breath and unable to speak. On examination in the home at 11:00 P.M., the patient was sitting in the bed upright, unable to speak, orthopneic, dyspneic, apprehensive and apparently unaware of her surroundings. Her face was greyish-blue, the finger and toenails were blue, the skin was cool, the neck veins were engorged. Temperature was 99 F°. Blood pressure was 90 mm. Hg. systolic and 40 mm. Hg. diastolic; pulse was 130/min. regular, rapid and faint, respiratory rate was 30/min. short and labored.

The pertinent findings on physical examination were: Marked facial weakness bilaterally, paralysis of the glossopharyngeal nerves, inability to protrude the tongue, inability to phonate. There was marked generalized weakness of the limbs, there was no hypotonia or atrophy, the sensory system

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could not be examined; reflexes were normal bilaterally. The chest was clear. The apical impulse could not be felt, the heart was apparently not enlarged on percussion. The heart sounds were faint, distant, rapid and regular at 130/minute; there were no murmurs. The liver edge was palpable on inspiration and tender.

She was immediately given coramine and transferred to a local hospital where she was placed in an oxygen tent and given intravenous fluids. Chest x-ray on admission (Figure 1)* showed an area

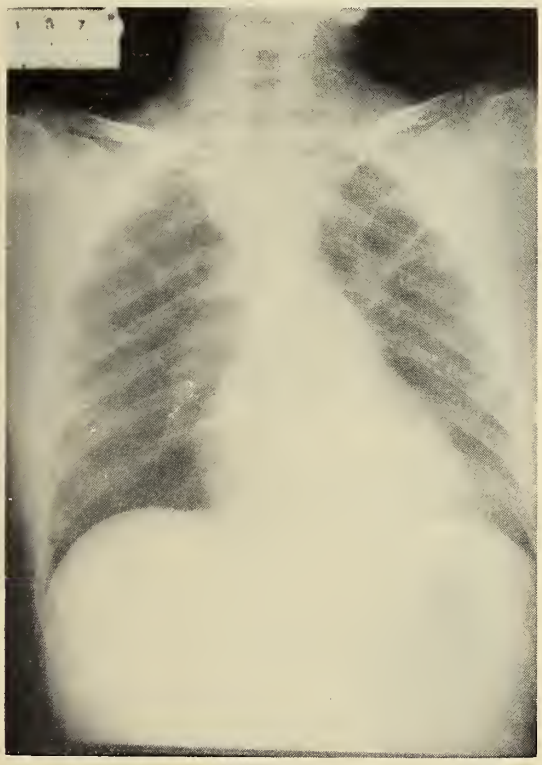

Fig. 1.

of increased density in the left lower chest which was in keeping with her pneumonitis. The cardiac shadow was markedly enlarged; the cardiodiaphragmatic spaces were almost obliterated; the edges of the cardiac shadow were rounded and enlarged to the right and the left. This picture was taken with a portable machine at the bedside. Flouroscopic examination was not done because of the patient's poor condition.

On re-examination the area of cardiac dullness was enlarged to the right and left; the area of dullness was larger in the second and third interspaces bilaterally with the patient flat in bed; with the patient erect, the area of dullness in these spaces was smaller but was increased in the right and left fourth and fifth spaces-shifting cardiac dullness.

These further signs on examination, along with the clinical and x-ray findings were taken as evidence of pericardial effusion rather than acute dilatation of the heart.

Laboratory data: Red blood cell count—4.4 million; Hemoglobin—86% (12.2 gms.); White blood cell count 11,400; Differential—neutrophiles 48%; lymphocytes 52%. Urinalysis—specific gravity—1.026; negative for albumin; negative for sugar; microscopic negative. Stool—negative for ova and parasites. Serology—(Kahn reaction)—negative.

Pericardiocentesis was considered but since she was not becoming worse and was apparently comfortable in the oxygen tent, the hazards of the procedure were thought to outweigh the benefits she might derive, and therefore, aspiration was not done.

Since the original infection was of virus origin and had caused a pericardial effusion, it was thought she might have a pericarditis and a pericardial effusion due to the same virus. Therefore treatment was begun on October 12, 1951, with chloromycetin, 500 mgm. every four hours. Later that same day she regained her speech, was able to protrude her tongue, and the weakness of the facial and glossopharyngeal nerves was decreased. However, she complained of pain and tightness in the centre of her chest which were increased by movement, respiration, and coughing—substantiating the presumptive diagnosis of pericarditis.

The next day she seemed further improved, having no chest complaints, and was very comfortable in the oxygen tent. She was allowed out of the tent for one half hour twice that day; this resulted in dsypnea and slight cyanosis; therefore, she was kept in continuous oxygen.

Despite these improvements following chloromycetin therapy, the physical findings of an increased area of cardiac dullness and enlarged liver remained unchanged. On October 16, the chloromycetin was discontinued since it was an economic strain on the patient. She was then fully digitalized with digitoxin to relieve the right-sided mechanical congestive failure due to tamponade. Two days later the area of cardiac dullness was apparently of normal size on percussion and the liver was not enlarged.

By then the facial and glossopharyngeal weakness had completely disappeared; her pulse and respiratory rates had returned to normal; she could tolerate being out of oxygen tent and she was allowed to be out of it for increasing periods of time.

A portable chest plate on October 19, 1951, (Figure 2) showed the cardiac shadow to be decreased in size with less convexity along each of its borders, apparently the result of absorption of the fluid.

On October 23, digitoxin was discontinued. By then she had no complaints and physical examination was normal. She was discharged on October

*The author wishes to express his grateful appreciation to Dr. Louis Raider, Radiologist, Mobile, Alabama, for his invaluable assistance.

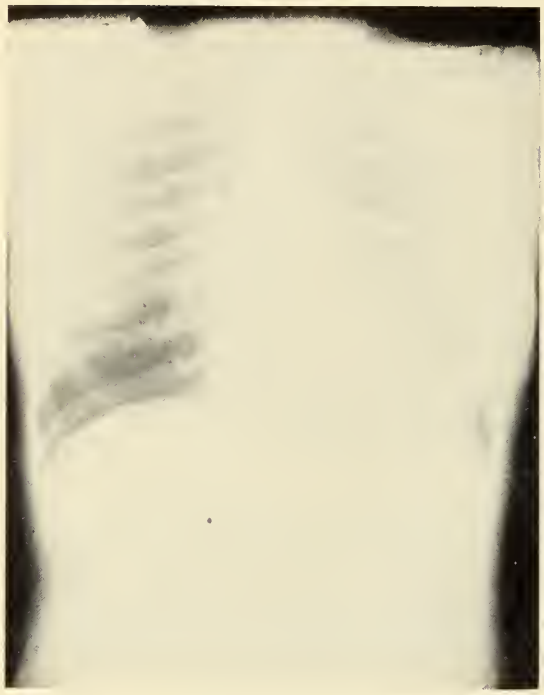

Fig. 2.

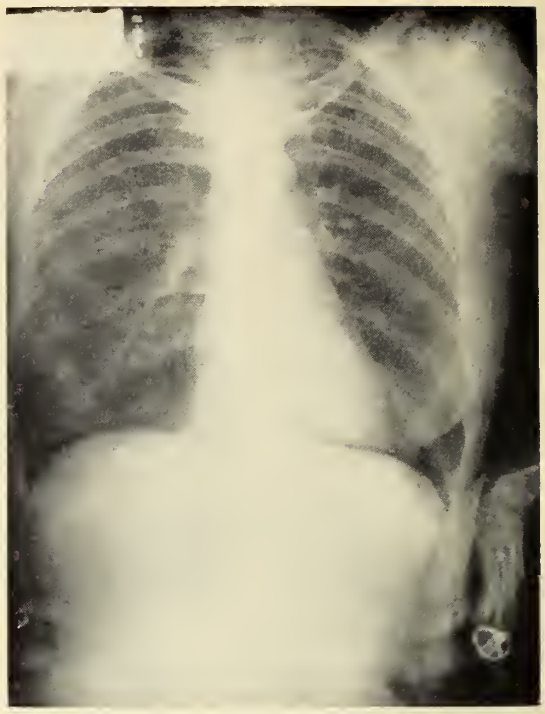

Fig. 3.

25 to convalesce at home and all medication was discontinued.

Throughout the hospital stay her temperature was normal; her blood pressure rose gradually and was 106 mm. Hy. systolic and 80 mm. Hg. diastolic on discharge.

On November 29, 1951, she was seen in the office for a check-up and she had no complaints. She remembered nothing about her recent illness until she awoke in the hospital on October 12. She stated that she remembered hearing her husband say, "The doctor is coming," but she could not see her husband although he was standing at her bedside in their home shortly after the onset of her dyspnea and cyanosis of which she was unaware and did not understand why the doctor was coming. This incident had occurred several minutes before the patient was seen in her home and by then she was unaware of her surroundings and could not speak. Physical examination was negative and she was discharged.

On January 12, 1952, she was seen for other complaints and at that time re-examination showed no findings relative to her illness in October, 1951. Upright chest plate on January 14 showed a normal chest and a normal cardiac shadow. (Fig. 3).

COMMENT

This case is unusual in that very few cases of pericarditis and pericardial effusion have been reported following virus pneumonia. In addition, temporary nerve paralysis as a result of these complications has not been reported in the available literature. The mechanism of the paralysis, as hypothesized by the author, may have occurred as follows: the pericardial effusion caused decreased return of blood from the great veins due to cardiac tamponade, resulting in decreased flow of blood to the great vessels, leading to relative anoxemia, cyanosis, and cerebral anoxia. The cerebral anoxia resulted in aphonia, temporary facial and glossopharyngeal paralysis through temporary damage due to lack of oxygen to the cortical cells or the nerve ganglia. It it interesting that her visual centre lost its function before the auditory centre, and that she has a memory gap for a period of about thirty-six hours.

SUMMARY

A case of pericarditis and pericardial effusion resulting in cerebral anoxia and temporary nerve paralysis is presented as a rare complication of virus pneumonia. It is suggested that some cases of "idiopathic" pericarditis and pericardial effusion are probably complications of virus pneumonitis.

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ADDRESS*

LOUIS J. BRISTOW, D. D.

NEW ORLEANS

I am not a doctor, but for more than forty years I have worked with them, and always with increasing admiration because of their readiness to serve, with or without compensation, in any case of sickness or accident to which they may be called. My field has been in hospital administration, and through the years there has been a mutual understanding of our respective problems, mutual sympathy and close co-operation. In this day of complex and ever multiplying demands upon his profession, the doctor is well-nigh helpless without the hospital, and it is certain the hospital could not function without the cooperation of the doctor; and I have had ample opportunity to learn the doctor will give his best to make the hospital what it ought to be if he is permitted to do so. I gladly pay them the well deserved tribute of my gratitude for their loyalty and helpfulness in giving whatever measure of success may have attended my efforts in the hospital field.

One who knows doctors well cannot but like them and have a tender feeling for them. The very nature of their work appeals to one. It has well been said that "physicians have undoubtedly helped to put a kindlier spirit into humanity." That testimony is true, and if there were no other reason, that alone should give them a secure place in the hearts of their fellow men. But the doctor is not dependent upon that claim to the affectionate regard of men. Other reasons abound. His service to the race has been and is inestimable. The roster of the world's great men is incomplete without the names of many distinguished doctors.

In my judgment doctors have not been given their proper place in history. Long it has been a matter of wonder to me that our schools give such disproportionate attention to the great warriors of the past, while those who have served mankind in the quieter, gentler realms of peace are generally neglected. Every school child early is made familiar with the Alexanders, the Caesars, the Napoleons, the Wellingtons, and the Hitlers of history; men whose way to greatness has been made hideous with the dead and mangled bodies of the slain over which they have marched. The smoke of destruction has darkened their paths and above the acclaim of their victorious hosts is heard the wail of suffering from multitudes of new-made widows and orphans.

I believe our children should be taught something of the work of those whose lives have been devoted to the service of mankind in the gentler arts of healing. I believe school pupils should be made familiar with the names of those who have employed their talents and their energies to heal rather than to hurt. The boys and girls of today should be taught the history of those whose efforts have been not to destroy life, but to preserve it. The doctor:

> "I reckon him greater than any man
> That ever drew sword in war;
> I reckon him nobler than king or khan,
> Braver and better by far."

I assert without fear of successful contradiction that Harvey, who demonstrated the circulation of the blood, was a greater benefactor of the race than Napoleon with all his invasions; that Long, in his discovery of anesthesia, rendered a greater service to the world than Alexander the Great by all his conquests; that Joseph Lister in giving us the method of antiseptic treatment of wounds, did a greater work for humanity than did his illustrious fellow Englishman Oliver Cromwell, in dethroning Charles I; that Professor Koch of Berlin, when he isolated the tuberculosis bacteria, served mankind better than did the German statesman Bismarck.

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 28, 1952.

Why should we acclaim the virtues of war and fail even to mention the marvelous achievements of peace? In reality, doctors have been man's greatest benefactors—greater than inventors, and discoverers, and statesmen, and diplomats, and artists. In their dissecting rooms and laboratories they have fought the battles of peace for the healing of humanity's hurt. In their workshops they have invented instruments and implements for the relief of suffering. They have discovered methods of treatment of sickness and accident whereby men have been blessed immeasurably. All these have been victories of peace; and uet us not forget that it was the Divine Physician who Himself was called the Prince of Peace.

The healing art has made men compassionate in their ministries to the sick. An indelible pattern of human unity has been woven into the fabric of medical life. In a world of ruthless violence and confusion, by their practice doctors constanly have reaffirmd their undiscourageable belief in the ultimate triumph of friendliness amongst men. Theirs is the task to keep alive in the human breast a hope of relief from pain and the cure of disease. Statesmen of the world long have been trying to bring about international unity, which is an end much to be desired. Language and customs have isolated nations into independent units. Only the healing art is definitely internationalized. It is in the realm of physical healing that the best example of international cooperative life is seen. Contributions of American doctors have been many and varied. But also have been the contributions of Russians, Englishmen, Japanese, Germans, Frenchmen, Austrians, and Canadians. I could call names, but you already are more familiar with them than I. These men did not think in terms of national boundaries, but the whole world was their field. They have sought to serve all mankind. The finest products of their minds and of their labors always have been made available to serve without regard to race or color or nationality or creed. Statesmen may labor to achieve unity in political and economic life and their efforts may be futile. But in the realm of healing already it is a fact. The healing of humanity's hurt cannot be hedged in by geographical boundaries, or governed by commercial advantage; and we owe this to doctors.

Of all men, doctors should be religious folk. Many of them are indeed deeply spiritual. The ethics of Judaism and the principles of Christianity are their guiding stars. It is the doctor who witnesses the coming into the world of new life. He stands daily face to face with this miracle, and can but turn his thoughts to the Author of life. It is the doctor who is in daily contact with physical ills, diseased and distorted bodies, who witnesses the miracle of healing; which he can explain only by referring it to the Author of health. It is the doctor who accompanies his patient to the very edge of the grave, who looks on in utter helplessness as the spirit leaves the body—the mystery and miracle of death. Surely his daily experiences are such that he is constantly brought to face the question of another world, of life beyond the grave. If he is a thoughtful man, he must needs think on the deep things of life, even spiritual things. How often does he need the counsel and aid of the Great Physician! And the truly wise doctor seeks His guidance and blessing.

No one knows better the relation of religion and health. He knows the physical effect of spiritual life. He knows that soul and body react upon each other, and that health is largely dependent upon mind, or spirit. It is well known among doctors that there are physical diseases that cannot be understood or cured unless the spiritual factors in the history of the case are taken into account. Hence, the psychiatrist with his splendid contribution to healing in the realm of personality or emotional disorders. I could enlarge upon this thought; but suffice it to say that man's love of his fellowman is well illustrated by the accomplishments of the various departments of medicine in these modern times. Not a few doctors have literally given their lives in devotion to their tasks of research, as you well know. Moreover these research men and

women attribute to God their discoveries respecting disease, their cause, their cure, and their prevention. A well known illustration of this is seen in the reaction of Sir Ronald Ross, who, after long, unremitting toil, found conclusive proof of the causal relation of a certain type of mosquito to malaria. Dr. Ross wrote:

"This day relenting God hath placed within my hand
A wondrous thing: and God be praised: at His command
Seeking His secret deeds with tears and toilsome breath
I find thy cunning seeds, O, million-murdering death.
I know this little thing a myriad men will save;
O Death, where is thy sting, thy victory, O Grave!
Before Thy feet I fall, Lord, who made high my fate,
For in the mighty small is shown the mighty great."

Sir Ronald's "fate" indeed was made high, for his name is inscribed among the illustrious ones who have served humanity well through self-sacrificing labor. He is for all time famous because he forgot himself "with tears and toiling breath"; and the results of his work have saved a "myriad" from the "million-murdering" insect's bite. We have it upon Supreme Authority that "Whosoever shall seek to save his life shall lose it; and whosoever shall lose his life shall preserve it." Sir Ronald's name will not perish.

Through many centuries the priest or preacher and the healer was one and the same person. The minister of religion was also the minister of medicine. In early American history the minister often practiced medicine, and the names of some illustrious men adorn the roster of such practitioners. Advancing complexities of civilization, and increasing knowledge had a tendency to cause men to become specialists. Some were better qualified to preach while others were more interested in ministering to the sick. Indeed the Divine way is for men to specialize. The inspired Apostle tells us:

"There are diversities of gifts, but the same Spirit . . . For to one is given by the Spirit the word of wisdom, to another the word of knowledge by the same Spirit . . . to another gifts of of healing by the same Spirit . . . dividing to every man severally as He will" (I. Cor. 12:8-11).

But certain men in high places are trying to limit the freedom and control the activities of doctors in this country, under the guise of public benevolence. Call it planned economy, or the Welfare State, or by whatever term you may, socialized medicine is an attempt to reverse and to repudiate the time-honored, time-tested philanthropic service of the medical profession. It is a contradiction of the Christian concept upon which this nation was founded and under which it has reached a place of world leadership. The spirit which has inspired and made possible the amazing achievements of the medical profession is the right of the individual to make his own decisions, to accept the responsibility for them, and the consequence of them.

Will the federalization of medical service improve it? Heretofore the initiative for such service has been found in the loftiest of all human impulses—that of the personal will to serve one's fellows. Within the last week we have seen in the public press two typical illustrations of that fact. Dr. W. L. Ervin of Inverness, Miss., was a man who practiced in a rural community for half a century, never declining to respond to a call, who never sent a bill to a patient for his services. As he lay upon his deathbed and the story of his long, self sacrificing life was published in the daily press, letters from every State in the Union were received testifying to his humanitarianism in serving the writers in their time of need. The old man died poor in this world's goods, but rich in the affections of those whom he had loved and served. The other case was that of Dr. John Wesley Simpson of Parrish, Ala., another country doctor, who observed his eightieth birthday by cancelling every account due to him by his patients—a sum aggregating nearly forty thousand dollars. In the light of such instances, I repeat my question: Will the federalization of medical service improve it? Federalization cannot supply the motive necessary to give efficient service. The

thought that the Government through mechanical perfection can ever take the place of service prompted by an enlightened Christian humanitarianism is a glittering illusion held out by self seeking individuals or misguided politicians. The decision of the Supreme Court of the United States, written by Justice Brewer, handed down nearly a generation ago, that this is a Christian nation, still stands. We are basically Christian. Evidence of this is seen in the reaction of press and pulpit and the man in the street to the recent exposures of corruption in the Government at Washington, the income tax scandals, to the cheating at West Point, the scandals among college athletic teams, and wrongdoing in other places. That reaction affirms that ours *is* a religious people; and I assert that we are endowed of God with individual dignity and independence and responsibility. The concept of an all-powerful Welfare State is pagan, and contravenes the Christian idea of life. Doctors and hospitals through the Blue Shield and the Blue Cross systems are offering a better medical plan—a plan which promotes individual personal dignity and responsibility.

In the preamble to the constitution of this country, the founding fathers declared that document was ordained and established to "secure the blessings of liberty to ourselves and our posterity." We cherish with high veneration and grateful appreciation the memory of our fathers. Both the ties of nature and the dictates of policy demand this; but we are today witnessing a vandal spirit of innovation and overthrow of long established and successful customs. Eternal vigilance is the price of liberty, and we should not relax our opposition to the efforts which are being made to socialize your profession. The proponents of such an idea may be quiet now, but they have not surrendered or given up hope.

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1952 DIABETES DETECTION DRIVE

The American Diabetes Association will launch its fifth nationwide Diabetes Detection Drive during the week of November 16-22. With the assistance given by the Association, utilizing the facilities of organized medicine, the opportunity will be presented to the individual physician to do distinct service to the community and to the individuals in his practice.

About 30 State and nearly 700 County medical societies throughout the nation will participate in the program this year. The drive is a nonfund-raising, educational, and case-finding program. It is directed exclusively through the medical profession. The membership in the American Diabetes Association is limited to physicians. Detailed surveys in certain localities, and the experience of the past four years have indicated that there are probably one million diabetics under treatment in this country, and yet another million who are suffering from diabetes, undetected, and therefore, untreated.

The control of diabetes can only begin when it is detected. Control means better health for the patient, and, very often, for the family group. The objectives of the American Diabetes Association are:

To find the greatest number possible of yet undiscovered diabetics.

To assist diabetics in their efforts to lead normal lives.

To improve the treatment of diabetes.

To bring the newest information about the disease to all interested physicians.

To encourage and support research on diabetes.

To promote public knowledge about diabetes and understanding of the individual diabetic's problem.

The efforts of the Association are focused on the Detection Drive. Each physician can help.

—o—

WHAT CONSTITUTES ADEQUATE CONTROL OF DIABETES

The physician who has diabetics under his care must inquire what constitutes adequate control of the condition. The Diabetes Guide Book of the American Diabetes Association states that from the physiological point of view the objective of treatment is to keep the urine sugar-free and the blood sugar normal. Further objectives from the physical standpoint are:

To relieve symptoms.

To restore and maintain normal vigor and optimal body weight.

Also from a personal viewpoint of the patient:

To enable him to share as completely

as possible in the normal enjoyment of living.

There seems to be no disagreement on any of these objectives except the first. The opinion varies on this point with various grades of procedure and regulation. The conservative writers state that they strive for normoglycemic control and aglycosuria. The liberals advocate a free diet and disregard all but symptoms, acidosis, and weight status. Between these two points of view is a great gulf fixed, and into this gulf has stepped the average diabetic with a syringe full of insulin and a desire to eat a so-called normal diet.

The survey by Beaser[1] from a questionnaire sent to 300 physicians of the American Diabetes Association demonstrates the diversity of opinion. Two hundred and twenty-five replies were received from these representative members of the association. The aim of therapy was normoglycemia among 70 per cent, aglycosuria among 23 per cent, and glycosuria permitted by 7 per cent. There seems to be reasonable consensus of opinion that the majority who advocate normoglycemia recognize special situations in which reluctant compromise is necessary from a practical point of view. There seems to be fair agreement that the diabetic should be slightly under his theoretical normal weight. It appears that a minimal protein need of 1 gram per kilogram is necessary and some advocate 1.5 grams. The allowance of fat is to be less than 120 grams. The allotment of carbohydrate is varied according to the necessities indicated by the changes in weight. Most diabetics are felt to require only relative constancy of the daily dietary intake within plus or minus 10 to 15 per cent.

The desirability of maintaining as precise control as practical applications of diabetic principles will permit is shown by the following survey: A group of 247 patients whose diabetes had started between the ages of 18 months and 30 years, and who had had the disease for from ten to thirty-four years, was studied by Wilson, Root, and Marble.[2] Particular effort was made to study the development of degenerative lesions in the kidneys, retina, and blood vessels. These were studied by radiograms of the abdomen and legs, renal function tests, and funduscopic examinations. No patient with good control of diabetes had advanced calcification or retinitis. All but 5 of the patients with moderate to severe retinal lesions had had fair to poor control. Of the 62 patients who had diabetic nephropathy, all had maintained poor to fair control. Control was considered to be more significant than duration or severity of diabetes in preventing vascular lesions. Patients who had lived on a measured diet with constant use of insulin and careful control of glycosuria were regarded as having had good control.

The prevalent opinion seems to be that blood sugar examinations are the only adequate guide for the control of abnormal hyperglycemia.

John[3] reported in a study of 6000 diabetics that glycosuria occurred in 6.3 per cent of these diabetics at a time when the blood sugar level was 120 milligrams per cent or less, and that the renal threshold may be found anywhere from 50 to 600 milligrams per cent of blood sugar. In 8.2 per cent the renal threshold was above 200 milligrams per cent. Accordingly, glycosuria can only be used as a guide to the existence of an abnormal hyperglycemia after the renal threshold has been determined. John[4] uses a restrictive qualitative diet of 2000 to 2500 calories and allows hyperglycemia two hours after each meal or about 25 per cent of the twenty-four hours, which he considers occurs in a normal and constitutes good control. Duncan[5] stresses that

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[1]Beaser, Samuel B.: New England J. Med. 244: 714 (May 10) 1951.

[2]Wilson, J. L., Root, H. F., and Marble, A.: Am. J. M. Sc. 221:479, 1951.

[3]John, H. J.: Ann. Int. Med. 33:925, 1950.

[4]John, H. J.: Ann. Int. Med. 35:1318, 1951.

[5]Duncan, G. G.: Diabetes Mellitus; Principles and Treatment, W. B. Saunders Co., Philadelphia, 1951, pp. 112-116.

there should be uniformity; that is, the food values for breakfast, lunch, and dinner should be the same day after day.

Adequate control of the diabetic thus appears to be obtained by those who aim at normoglycemia and depend upon blood sugars for the estimation of insulin dosage and the routine regulation of the diet.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

SEVENTH ANNUAL NATIONAL AND LOCAL ESSAY CONTEST

We should all show greater interest and encourage more pupils in our schools to participate in the 1953 A.A.P.S. essay contest sponsored by county and state medical societies, auxiliaries and schools. The subject, as you know, is, "Why the Private Practice of Medicine Furnishes this Country with the Finest Medical Care." We should be ever ready and willing to enlighten our students in this wonderful educational undertaking, which is more or less continuous and endless as we are presented each year with a new crop of high school students who are eager to secure knowledge and should be informed on this most important question of our time: Freedom versus Socialism.

It is very essential that these young people be properly advised against the pitfalls of socialized medicine and the many advantages of the free enterprise way of life to be enjoyed in the private practice of medicine as we have it in this country at the present time. You must realize that the high school girls and boys of today are the voters of tomorrow, and unless we intelligently educate them against this present day trend of socialism and correct the misconception of some of this younger group who might believe in or favor socialized medicine, we might wake up some bright morning to find that these grown-up people have voted us into socialized medicine.

We find that this essay contest has been our greatest asset in educating these young students against the evils of socialism. It also, at the same time, helps their parents to think in the right direction.

There are grand local and national prizes offered the winners of this contest, and from an educational standpoint, it merits the support and approval of our state and parish medical societies.

Why not talk to your Parish Superintendent of Education or to the principals of the schools, eliciting their cooperation in getting more of these essay contests started in your community? This would be a wonderful public relations program for the good of all. For your information, Dr. Edwin L. Zander, our immediate Past President, is National Chairman of the 1953 Essay Contest Committee sponsored by the Association of American Physicians and Surgeons with the cooperation of the American Medical Association, state and parish medical societies and the woman's auxiliaries of these respective organizations.

Why not start a crusade to enlist more of our people in becoming interested in this most worthy undertaking?

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VOTE

Your vote is extremely important as is shown in the following message brought to our attention by the National Association of Manufacturers.

All efforts should be made to convince each voter of our state of the great importance of his or her vote in the elections to be held at an early date. You have only a few days to perform this most urgent task.

Let us not fail to show a high percentage of votes cast by our physicians in the coming elections.

It is our opinion that a greater number of our doctors should take a more active part in local, state and national politics for the good of the profession. However, it seems that a few of our members evidently think that we should sit idly by and watch our house burn down.

One Vote never seems important—*before* an election.

But on the day *after*—on November 5, this year—someone, somewhere will be saying: "If we'd only had *one more vote!*"

It may happen in a "little" election—for township trustee, or a county officer, or a rural school board member—or for the Presidency of the United States.

It *has* happened, many times in our short history.

One vote cast by a voter who left his sick bed to go to the polls gave victory to an Indiana Congressman . . .

One vote cast by this same Congressman, in 1876, made Rutherford B. Hayes President of the United States . . .

One vote cast by a miller in DeKalb County, Indiana, in the 1840's, elected a certain man to the state legislature . . .

One vote cast by this same legislator, sent Edward A. Hannegan to the United States Senate . . .

One vote cast by the same Edward Hannegan, admitted Texas to Statehood—for which U. S. and Mexico *went to war* . . .

One vote admitted California, Idaho, Washington and Oregon to the Union . . .

One vote in the U. S. Senate denied this statehood to Alaska . . .

One vote more in each California precinct in 1916 would have defeated Woodrow Wilson, and given victory to Charles Evans Hughes . . .

One vote more in each of Ohio's and California's precincts would have tied the electoral race between Dewey and Truman in 1948 . . .

One vote in November could change world history . . .

Will it be *yours?*

"Worth Thinking About"

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PHYSICIANS URGED TO MAKE RESERVATIONS IMMEDIATELY FOR A.M.A. MEETING

Physicians who expect to attend the clinical sessions of the American Medical Association to be held in Denver, Tuesday-Friday, December 2-5, should make their reservations at an early date. You will find in the A.M.A. Journal hotel reservation and advance registration forms for your convenience.

Meetings of some special groups will be held prior to the regular meeting, which will open Tuesday morning, December 2, in Denver's newly enlarged Municipal Auditorium, housing the scientific exhibits, medical motion pictures and technical exhibits.

Registration will also take place in the Auditorium.

Interesting colored television with general lectures and clinical presentations will be on the same floor with the exhibits.

These meetings are extremely instructive and cover a wide range of approximately 200 lectures on vital subjects of the day in all branches of medicine.

Due to the setup of restaurant facilities in the Auditorium you will be able to spend an entire day, taking advantage of the many splendid programs prepared for you.

Social functions and entertainment programs have been arranged for your evening enjoyment.

Will expect you in Denver on above dates.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

In order to assist specialty groups in selection of dates for meetings and for information of the doctors of the state, information concerning scheduled meetings will be carried in this section of the Journal. Officers of specialty groups are therefore requested to furnish information in this regard.

FELLOWSHIPS GIVEN BY NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

The National Foundation for Infantile Paralysis announces the availability of a limited number of additional postdoctoral fellowships to candidates whose interests are research and teaching in medicine and the related biological and physical sciences. The purpose of these National Foundation fellowships is to increase the number of professional workers qualified to give leadership in the solution of basic and clinical research problems of poliomyelitis and other crippling diseases.

The fellowships cover a period of from one to five years. Stipends to Fellows range from $3,600 to $7,000 a year, with marital and dependency status considered in determining individual awards. Institutions which accept Fellows receive additional compensation for expenses incurred in relation to their training programs.

Complete information concerning qualifications and applications may be obtained from: Division of Professional Education, The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

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THE INTERNATIONAL ACADEMY OF PROCTOLOGY 1952 AWARD CONTEST

The International Academy of Proctology takes pleasure in announcing its Annual Cash Prize and Certificate of Merit Award Contest for 1952-1953. The best unpublished contribution on Proctology or allied subjects will be awarded $100.00 and a Certificate of Merit. Certificates will be awarded also to physicians whose entries are deemed of unusual merit.

This competition is open to all physicians in all countries, whether or not affiliated with the International Academy of Proctology. The winning contributions will be selected by a board of impartial judges, and all decisions are final.

The formal award of the First Prize, and a presentation of other Certificates, will be made at the Annual Convention Dinner Dance of the International Academy of Proctology in May of 1953.

The International Academy of Proctology reserves the exclusive right to publish all contributions in its official publication, "The American Journal of Proctology and Gastroenterology."

All entries are limited to 5,000 words, must be typewritten in English, and submitted in five copies. All entries must be received no later than the first day of April, 1953. Entries should be addressed to the International Academy of Proctology, 43-55 Kissena Blvd., Flushing 55, New York.

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VA COURSE IN PSYCHIATRY AND NEUROLOGY

The Veterans Administration is instituting a four-month intensive training course in psychiatry and neurology to fit the needs of physicians without such previous training who are assigned to duty in 22 predominantly psychiatric hospitals. Physicians who have been engaged in general practice may request this training upon applying for a position at one of these hospitals.

The course will be held at the VA Hospitals in Coatesville, Pennsylvania; Palo Alto, California; and a joint Downey-Hines, Illinois, program near Chicago, Illinois. Physicians will be employed at salaries commensurate with their training and experience (salary range: $5,500 to $11,800 per annum) and assigned to the course with travel and per diem for the four-month period.

Information and applications may be obtained from your nearest VA Hospital or Regional Office, or by writing to the Chief Medical Director, Veterans Administration Central Office, Washington 25, D. C.

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TELLS DANGERS TO 25,000,000 OVERWEIGHT PERSONS IN U. S.

Obesity is America's number one public health problem.

Approximately 25,000,000 persons in the United

States are overweight to some extent, and at least 5,000,000 adults are seriously obese, according to Louis I. Dublin, Ph.D., New York, statistician for the Metropolitan Life Insurance Company. The problem of overweight affects more people than any other impairment or disease, and is at the root of the high prevalence of the degenerative diseases in this country, he stated.

"Because overweight predisposes these large numbers of people to heart disease, diabetes, liver disorders, and other serious complications, it cannot be ignored by the general public or the medical profession," Dr. Dublin wrote in the current Today's Health, published by the American Medical Association. "The solution of this problem is vitally important for further progress in the health of the nation."

REPORTS NEW METHOD OF TREATING BELL'S PALSY

A new, rapid way of treating Bell's palsy, by local anesthetization with procaine hydrochloride of a small group of sympathetic nerve cells in the neck, was reported in the September 6 Journal of the American Medical Association.

Bell's palsy, a usually innocuous but psychologically distressing disease, is the distortion of the face as a result of paralysis of the muscles on one side of the face. The cause of most cases of the disease is unknown, and treatment has been generally unsuccessful. Although recovery is usually spontaneous, it is long delayed in many instances, causing psychological and economical difficulties.

BOOK REVIEWS

Surgical Treatment of the Motor-Skeletal System; edited by F. W. Bancroft and H. C. Marble, 2 vols., illus. Philadelphia. J. B. Lippincott & Co., ed. 2, 1951. Price $24.00.

This 2nd edition has been edited by Henry Marble who replaced Dr. Clay Ray Murray. There are certain notable general improvements in the second edition. The inclusion of a chapter on bone healing by Marshall Urist, and the revision of certain other chapters notably that on internal derangements of the knee and the chapter on sprains are distinct improvements. However, it is impossible in a book of 1303 pages with 46 contributors dealing with a total of 44 varied sections to maintain continuity of thought or excellency in preparation throughout the book.

It will continue to serve as a useful reference book for those who occasionally must treat orthopedic lesions. It is the reviewer's opinion that although the revision of the text and material have been extensive much material remains which seems to warrant more thorough and complete revision.

JACK WICKSTROM, M. D.

Let's Cook It Right; by Adelle Davis. Harcourt, Brace and Company, New York, 1951. pp. 626. Price $3.00.

Here is a book to excite the reviewer's taste buds, at the same time upsetting some old ideas and throwing new light upon the preparation of food. Although tremendous strides have been made in the science of nutrition, the author feels that the application of this knowledge "has lagged decades behind the progress made in nutritional research." She states that the main purpose of her book, written after thirty years' cooking experience, is "to help build health through applied nutrition which, if successfully applied, makes good cooking a necessity". Loss or destruction of health-building proteins, vitamins, and mineral, results from lack of knowledge of the fundamental of nutrition and she hopes to rectify this condition by presenting "scientific procedures designed to save maximum nutritive value". Tried and recommended basic recipes and their variations are given with thrift and economy stressed. The book, primarily for the housewife, is a readable and enjoyable guide to good cooking and how to avoid "culinary crimes".

Foods that have the greatest concentration of vitamins, minerals and proteins are frequently those which Americans rarely eat, and she points out that "dislike for health-building foods is undoubtedly the greatest single cause of sickness".

MARY LOUISE MARSHALL

PUBLICATIONS RECEIVED

Lange Medical Publications, Los Altos, Calif.: Correlative Neuroanatomy and Functional Neurology, by Joseph J. McDonald, M. D., and Joseph G. Chusid, M. D. (6th Edit.).

The Metropolitan Life Insurance Co., N. Y.: A 40 Year Campaign Against Tuberculosis.

The C. V. Mosby Company, St. Louis: Synopsis of Pathology, by W. A. D. Anderson, M. D., (3rd Edit.).

Charles C. Thomas, Publisher, Springfield, Ill.: Infrared Photography in Medicine, by Leo C. Massopust, Sr.; This is your World, by Harry A. Wilmer, M. D., Ph. D.; Physiological Bases of Gynecology and Obstetrics, by S. R. M. Reynolds, M. A., Ph. D., D. Sc.; Kitchen Strategy, the Family Angle on Nutrition, by Leona M. Bayer, M. D., and Edith Green; The Moral Theory of Behavior, a New Answer to the Enigma of Mental Illness, by Frank R. Barta, M. D.; Finality and Form, by Warren S. McCulloch, M. D.; Neurosurgery in General Practice, by Adrien ver Brugghen, M B.

The Viking Press, Inc., New York: Brain Surgeon, the Autobiography of Dr. William Sharpe.

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OBSTRUCTION OF THE COLON*

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TEMPLE, TEXAS

Acute obstruction of the colon continues to be associated with a high mortality. The conviction that a better comprehension of the etiology, the diagnostic criteria, the pathology, and the proper methods of treatment when instituted early would lessen this mortality is the primary reason for choosing this subject for presentation. The mortality of acute occlusions of the large bowel ranges from 15 to 40 per cent or more. Michel and McCafferty,[11] in a review of 103 cases, reported a mortality of 29.1 per cent. Cutler,[3] in a survey of 123 case records of patients over 60 years of age, records a mortality of 56.9 per cent. Dennis,[4] in a study of 54 cases, reports a mortality of 15.1 per cent, and Hunt,[10] in 20 cases of obstruction due to cancer, states that there was a mortality of 26.6 per cent. In a series of 34 acute obstructions of the colon due to carcinoma seen at Scott and White Hospital and previously reported by the author, the surgical mortality was 7 deaths or 20.6 per cent. Certainly something should be done to improve the results of treatment of this disease.

The incidence of obstruction of the colon is difficult to determine. Statistical data indicate that the ratio of small to large bowel obstructions is about four to one. Due to this fact, when occlusion of the intestine occurs, first thought is given to small bowel obstruction. Burgess[2] reports that 18 per cent of 1,278 cases of obstruction were in the colon. Graham,[7] in a study of 104 cases of acute intestinal occlusion, found 77 per cent involving the small bowel and 23 per cent involving the colon. Pool and Dunavant,[12] in a study of 522 case records of intestinal obstruction, write that 48 or 9.2 per cent were in the colon.

The obstruction may be acute or chronic, complete or incomplete. The nature and degree of the obstruction is important, for it will modify the symptoms presented and will have a direct bearing upon the treatment of the patient. Acute obstruction is interpreted by Gruenfeld[9] as complete stoppage of the intestinal flow, and we consider his opinion logical. Furthermore, on the basis of clinical history, he divides the obstructions into unheralded acute obstructions, acute obstructions superimposed on chronic obstructions, and transitory acute obstructions. Recognition of these types of acute occlusion will aid in the study of this problem. The classification of many cases relative to the degree of obstruction is naturally somewhat arbitrary. This is illustrated by statistics from the following authors referable to what percentage of cases of carcinoma of the colon produce acute obstruction. The number reported by Rankin as having acute obstruction was 5 per cent; Dennis 9.54 per cent; Campbell over 30 per cent; and Hunt 20 per cent; whereas, in a series of 190 cases of cancer of the colon which we surveyed, 20.6 per cent were regarded as having acute obstruction.

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*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 29, 1952.

†From the Surgical Section of Scott and White Clinic, Temple, Texas.

From this statistical data and my clinical observation, it seems logical to conclude that 10 per cent or more of carcinomas of the colon produce obstruction.

ETIOLOGY

It is important to give proper consideration to the varied etiology of colonic obstruction since the cause of the occlusion frequently modifies treatment. Obstructions here are produced by anomalous developments, nonspecific tumefactions, such as diverticulitis, tuberculosis, amebiasis, lymphopathia venereum, sometimes by volvulus, intussusception and extrinsic tumors, metastatic carcinoma, (See Fig. 1) post-

Figure 1.—This portrays an obstruction of the sigmoid due to metastasis from a carcinoma of the pancreas. It should be recognized that extrinsic tumors and metastatic carcinomas do produce obstructions of the large bowel.

irradiation changes, occasionally by benign tumors, and the most frequent of all causes, a malignant lesion. A fact worthy of emphasis is that 80 per cent or more of all acute obstructions of the colon are due to cancer. Dennis[4] found this incidence to be 65 per cent. Bruusgaard[11] reported 71.8 per cent; whereas Wangensteen[14] writes that 90 per cent of obstructions of the large bowel are due to cancer. Volvulus is the etiological factor in about 8 per cent of occlusions of the colon. Dixon and Miller[5] report that 11.6 per cent were caused by this condition. Griffin, Barton, and Meyer[8] found that 8 per cent of colon obstructions were due to volvulus of the sigmoid. Gerwig[6] states that in a survey of 100 obstructions of both small and large bowel, there will be 7 obstructions due to volvulus, and 3 of these will be in the colon. Diverticulitis is probably the third most frequent cause of obstruction of the large intestine (See Fig. 2). From the above data, it is

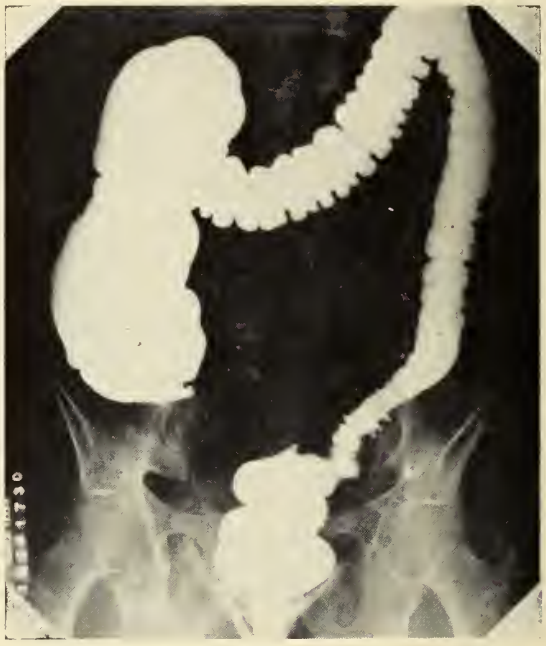

Figure 2.—Patient admitted with large mass in the left pelvis with obstruction of the sigmoid due to diverticulitis, decompressed by colostomy, adequate lumen re-established. Resection of lesion was not performed. A majority of these should have resection some two months later.

seen that cancer, volvulus, and diverticulitis produce more than 90 per cent of all the obstructions of the colon. This fact should be borne in mind when dealing with this problem. However, the less frequent causes of obstruction cannot be overlooked.

SYMPTOMS

Only a brief discussion of the clinical aspects will be made; however, some factors pertaining to clinical features deserve emphasis. Intestinal colic is invariably present. The pain is usually below the umbilicus. Peristalsis is not quite so frequent nor

pain so intense as that which occurs in obstruction of the small bowel. A majority of obstructions of the colon are in its distal portion and produce a rather general distention. This distention tends to be more around the periphery of the abdomen, and a notable late feature is a marked distention of the cecum. However, early in the left colic occlusion, distention is not so pronounced and occurs primarily just proximal to the lesion. During this stage of an occlusion of the left colon, the peristaltic rushes may occur at intervals of ten to twenty minutes, but later, after the entire colon has become distended, the interval between intestinal contractions is shorter, it now having the time interval of contraction waves of the ileum. The distention is due in part to continued emptying of the ileum into the colon through a competent ileocecal valve; therefore, a majority of the obstructions of the large intestine are in the nature of a closed loop obstruction. However, there are a definite number of colon obstructions which are not of this nature, for Dennis[4] reported a competent ileocecal valve in only 61 per cent of his cases. The most pronounced distention is seen in cases of volvulus of the sigmoid. In such instances, the patient has a large, localized, tympanitic mass extending from the lower left to the right upper abdomen, accompanied by acute tenderness and abdominal rigidity. The higher the obstruction is located in the intestinal tract, the more copious will be the vomiting; therefore, vomiting is not a pronounced symptom in obstruction of the colon. However, the serious condition of the patient should not be minimized because of its absence.

A cessation of action of the bowel is to be expected in obstruction of the large intestine; however, one should not fail to recognize an obstruction because of some return of flatus and feces following an enema. Sometimes the peristalsis is so pronounced that it can be seen. The recognition of visible peristalsis is modified by the completeness and duration of the obstruction, the thinness of the abdominal wall, and the intensity of the peristalsis. In some cases slight tension in the proximal coil of the intestine can be detected by general palpation. Frequently, the movements of gas can be felt and a slight peristaltic wave can be elicited even when there is no visible peristalsis. Metallic tinklings and the rumbling of gas synchronous with the attacks of pain can be heard by auscultation. This is further proof of the existence of intestinal colic.

An important fact is that simple intestinal obstruction does not cause abdominal tenderness and rigidity. Their presence denotes peritoneal irritation; and this usually demands immediate resort to surgical measures. The marked biochemical changes which occur rapidly in obstruction of the small bowel are not seen in obstructions of the colon. These alterations which accompany obstructions in the colon develop slowly and seldom are pronounced. Due to the manner in which high and low obstructions influence metabolic changes, the patient will tolerate an occlusion of the colon much longer than he will that of the small intestine.

While it is true that the clinical features of obstruction develop more slowly in occlusion in the large intestine than those which develop in the small bowel, notwithstanding this fact, if the obstruction has persisted long enough so that the blood supply of the intestine is impaired, the patient will frequently pass rapidly into a serious state and in a question of hours, the condition may become hopeless. Also, due to the nature of the blood supply and the thinness of the wall of the colon, perforations occur more often in the large than in the small bowel.

The diagnosis of the obstruction will be evident in come cases, while in others, it may prove to be a problem. The clinical history and physical findings are helpful. A scout film of the abdomen is a most important diagnostic aid. It will show distention of the colon from the cecum to the point of obstruction. The roentgenologist can determine usually whether or not an obstruction is present, and if so, whether in the small or large bowel. Gas shadows around the periphery of the abdomen are usually in

the colon. Centrally placed gas is more likely to be in the small intestine. When dealing with obstruction of the large bowel, the dilated loops tend to be in a vertical plane, the haustra produce a wave outline to the shadow, and there are no straight line edges. When present, the fluid levels are wide, due to the larger calibre of the bowel. In the small intestinal occlusions, the distended coils form a transverse pattern, the loops are smaller in calibre, and the mucosal folds cause a feather-like appearance on the film.

It is always injudicious to give barium by mouth to a patient in whom obstruction of the intestinal tract is considered likely. Sometimes in a suspected obstruction of the colon, a small barium enema is permissible. This usually will enable the roentgenologist to confirm the diagnosis, determine the location of the obstruction, and frequently ascertain the nature of the pathologic condition producing the occlusion. However, it needs to be remembered that a barium enema sometimes will convert an incomplete into a complete obstruction. The final diagnosis is dependent on a correlation of the history, the physical findings, and the report of the roentgenologist.

TREATMENT

The proper treatment for obstruction of the large intestine is determined by the nature of the pathologic condition producing the occlusion. Obstructions due to bands usually demand only the severance of the bands. When the occlusion is due to benign stricture, some type of entero-anastomosis around the obstructed segment will usually be found an adequate method of treatment, and extensive stricture of the rectum may require a sigmoidostomy. The treatment of volvulus of the cecum consists usually in an untwisting of the volvulus and a cecostomy. However, a volvulus of the cecum is rarely seen. Sometimes the volvulus of the sigmoid shortly following its development can be deflated by passage of a colon tube into the obstructing loop from below by the aid of a sigmoidoscope. However, for most cases, immediate surgery is indicated, at which time the extent of the operation should consist only of untwisting of the volvulus if the bowel is viable. An elective resection of such a sigmoid should be done some eight weeks later. When the loop of bowel involved in the volvulus is gangrenous, a primary resection is obligatory, and a Mikulicz exteriorization is the procedure of choice. (See Fig. 3). It is vital to recognize that cecostomy or a transverse colostomy cannot decompress a volvulus of the sigmoid.

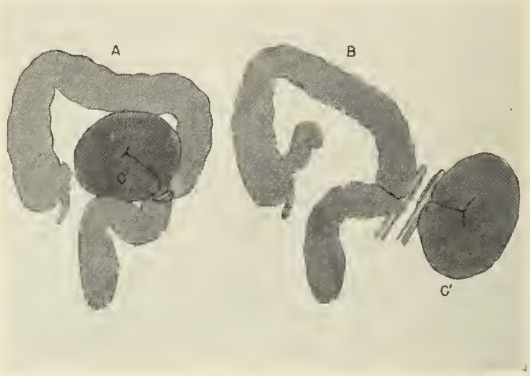

Figure 3.—This diagram portrays a modified Mikulicz type resection for volvulus of the sigmoid.

A diverticulitis seldom produces a complete obstruction. The partial occlusion which it causes can usually be treated satisfactorily by medical management; however, there is an occasional case of diverticulitis in which the disease is so pronounced that it produces an acute obstruction. Practically all occlusions due to diverticulitis are located in the region of the sigmoid. Usually a mass can be palpated which is larger, more tender, smoother, less mobile, and not as firm as a malignant tumor. The roentgenologist can often determine the probable true character of the lesion. Furthermore, it is an important fact that coincidence of the two, carcinoma and diverticulitis, may occur. A transverse colostomy should be done to decompress an obstruction due to a diverticulitis. Most patients with a diverticulitis so pronounced as to produce an obstruction should be advised to have this segment removed later. This resection is usually performed some two months following the colostomy. Fibrous changes with resulting narrowing of the lumen of

the colon often result from the inflammation associated with a diverticulitis; therefore, as a means of maintaining ample calibre of the bowel following resection of the diseased segment, it is best to do a lateral anastomosis of the proximal sigmoid to the open end of the upper rectum. (See Fig. 4). Practically all cases with obstruction of the left colon due to an inflammatory condition or one associated with a perforation should be decompressed by a transverse colostomy. Surgical judgment should determine the proper plan of management for an obstruction of the large intestine due to the less frequent pathologic entities.

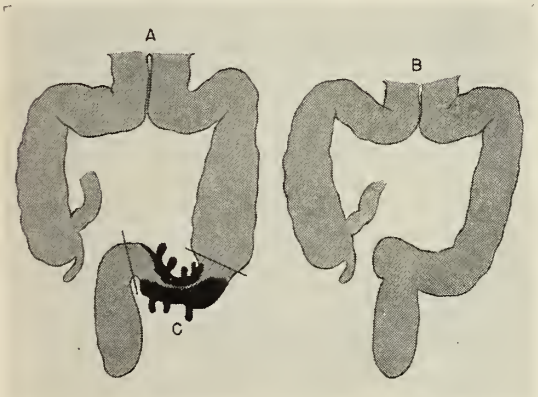

Figure 4.—This diagram demonstrates a lateral to end anastomosis of the proximal sigmoid to the open end of the upper rectum.

Eighty per cent or more of obstructions of the large intestine are due to malignancy, and 7 out of 8 of these are in the left colon; therefore, the predominating question concerns the preferable regimen for a patient with an occlusion of the colon caused by a malignant tumor. (See Fig. 5 and 6). To cure such a patient, it is necessary to resect the obstructing lesion widely. (See Fig. 7). Experience has proved that a primary resection of the colon never should be done in the presence of an acute obstruction caused by a neoplasm because it is unnecessary, and the mortality is prohibitive. Statistical data show that the mortality is more than doubled if operation is performed when the bowel is acutely obstructed. It is vitally important to evaluate the two conditions. The carcinoma is a slow growing, chronic lesion which has been present for months; whereas, the obstruction is an acute process of only hours' dura-

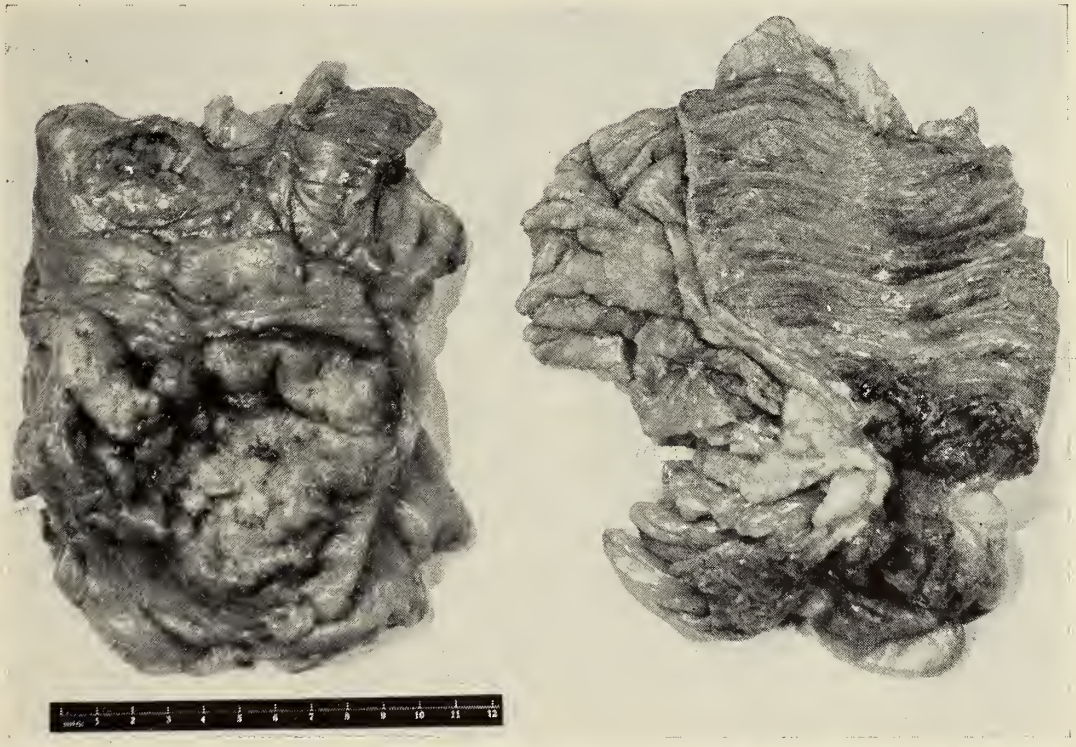

Figure 5.—Two carcinomas of the cecum. The one on the left is the predominating type of lesion of the right colon and is one reason accounting for the fact that only a few cancers of the right colon produce obstructions. The lesion on the right is an obstructing lesion of the cecum.

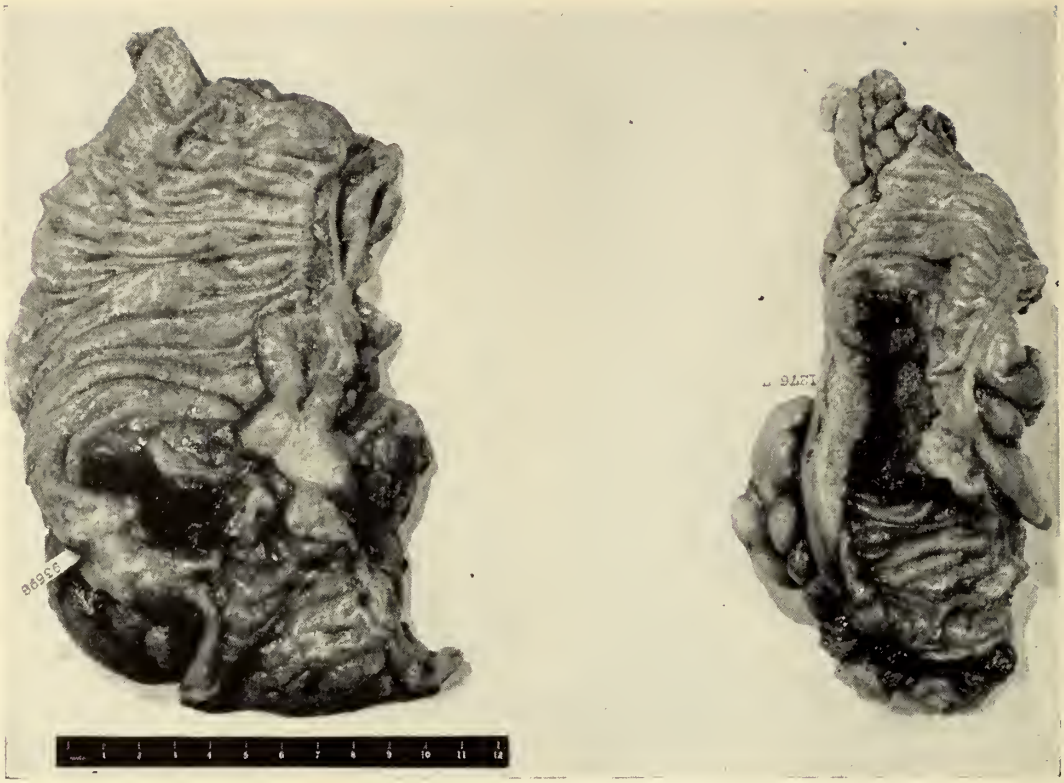

Figure 6.—Two separate carcinomas of the sigmoid. Observe the type of lesion which predominates in the left colon. This accounts for the fact that 7 out of 8 of all obstructions of the colon due to carcinoma occur in the left colon.

tion which could soon prove fatal. The only rational procedure, therefore, is to relieve the obstruction, ignoring for the time the existence of the malignancy. Evidently, the imperative need of such a patient with this condition is a decompressing procedure to relieve the distention.

When proper evaluation is made of what a surgical decompression does for such a patient, the rationale of the procedure becomes apparent, for it will relieve the distention and then normal blood supply to the bowel will be restored. The infection within the intestinal wall will subside. The number and virulence of the bacteria in the lumen will diminish greatly. The ulcers on the mucosal surface will heal and the edema of the intestinal wall will disappear, frequently restoring a patent lumen at the point of the constriction. When this occurs, it will permit cleansing of the colon by a through-and-through irrigation. The general effects obtained are that the biochemical changes will become normal and the nutritional status of the patient will again be restored.

DECOMPRESSION

An ileotransversostomy can be used for most cases to decompress an occluding lesion of the right colon because the ileum will be anastomosed to the transverse colon beyond the point of the obstruction where there will be a normal intestine. (See Fig. 8). Furthermore, if the obstructing lesion of the right colon has not produced material changes in the terminal ileum, a primary resection can be safely performed usually, since the anastomosis will be made in relatively healthy intestine. Occasionally when the right colon lesion completely occludes the lumen of the bowel and the ileocecal valve is competent, it is then necessary to do a cecostomy to decompress such a bowel. This occurs only rarely. Sometimes it may be found desirable even to do an ileostomy and then decompress the cecum by passing a catheter through the ileostomy into the cecum. An obstructing car-

Figure 7.—An obstructing carcinoma of the splenic flexure with metastasis to renal pedicle. Colon was decompressed by cecostomy, and later, a resection was done. This illustrates the fact that a fair number of carcinomas of the bowel involve contigious structures which necessitates their removal at the time of resection of a segment of the colon.

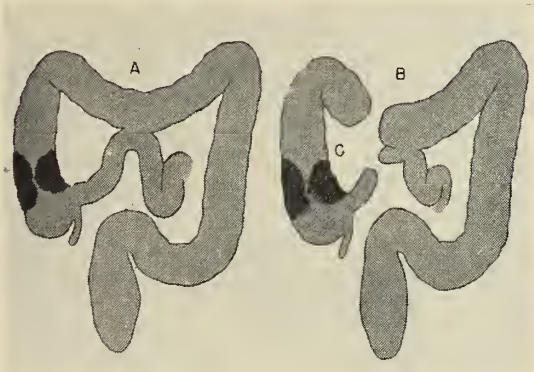

Figure 8.—This portrays an ileotransversostomy which is used as a decompressing procedure for most occluding lesions of the right colon. Usually a resection of the right colon is performed some three weeks following the ileotransversostomy.

cinoma of the left colon should be decompressed by one of two procedures, a cecostomy or a transverse colostomy. A cecostomy is advised when the patient is admitted with an acute obstruction of short duration. Such cases may be regarded as unheralded acute obstructions. The distention of the colon is often pronounced in such cases and is due largely to gas. The symptoms are of a fulminating nature and the patient may rather rapidly pass into a serious state. A cecostomy performed under local anesthesia will usually adequately decompress such a colon. (See Fig. 9). In a previous paper,

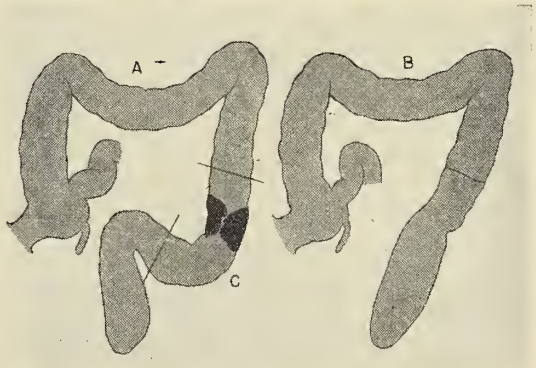

Figure 9.—This diagram portrays a cecostomy performed for obstructing lesion of the left colon.

we reported 46 cecostomies performed for obstructing carcinomas with a mortality of 8.7 per cent. During the past eight years,

90 decompressing procedures of the colon have been done with only 4 deaths, a mortality of 4.4 per cent. The technique used in performing a cecostomy is very important. It is done after the following procedure. A rather free right muscle splitting incision is made under local anesthesia. Usually a distended cecum will protrude in part through the incision. If it does not, then the cecum can be mobilized readily by severing the tissues lateral to it. An endeavor is made to deliver a portion of the cecum some 7 cm. or more in diameter and 3 or 4 cm. above the abdominal wall. It is vital that no sutures be placed in the cecum to anchor it in position. Sometimes a few stitches are taken in tabs of tissue or bands that are attached to it; however, the cecum is largely held in place by vaseline gauze applied snugly around it. The incision is closed with the cecum protruding well above. Now the wound is packed off and the cecum is deflated with a large needle before introducing a catheter into it. A pursestring suture inverts the cecum around the catheter and anchors it in the bowel. There is no contamination of the peritoneal cavity or the abdominal incision by this technique. Usually after some three or four days, the catheter is removed and the cecum is widely incised.

A transverse colostomy is advised when the patient is admitted with a chronic type of obstruction of the left colon which has gradually become more pronounced over a period of days. This type of colon is filled with semisolid content rather than gas. The patient with such an obstruction is usually not so gravely sick and his physical status is such as to permit the performance of a transverse colostomy which is necessary for the decompression of this type of colon. A loop colostomy is done, (See Fig. 10) for it is simple in execution and will prove adequate for the relief of the obstruction, and also, for the preparation of the bowel for resection later. The necessity for the complete diversion of the intestinal content in preparing the bowel for resection later has been overemphasized. It has been stressed repeatedly by many surgeons that a small

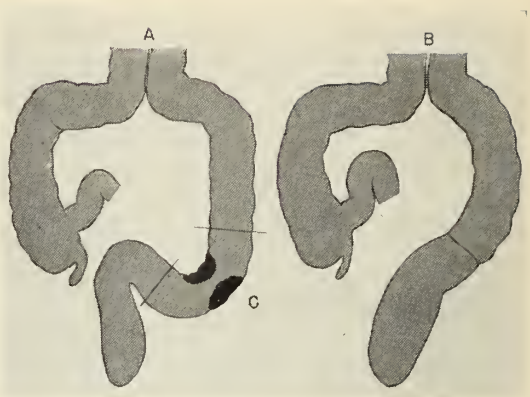

Figure 10.—This diagram portrays a transverse colostomy which is the procedure used most often for the decompression of the colon due to an obstructing lesion in the left segment. Usually a resection of the carcinoma of the left colon is performed some two or three weeks following the primary transverse colostomy.

amount of soiling such as occurs in performing an open anastomosis does not cause peritonitis, but that peritonitis is due to the continued or repeated contamination of the peritoneum. Likewise, if a small amount of bowel content does pass into the distal loop, it adds but little if any hazard to the subsequent resection. A sigmoidostomy should be done for an obstructing, inoperaable neoplasm in the rectosigmoid and rectum. (See Fig. 11).

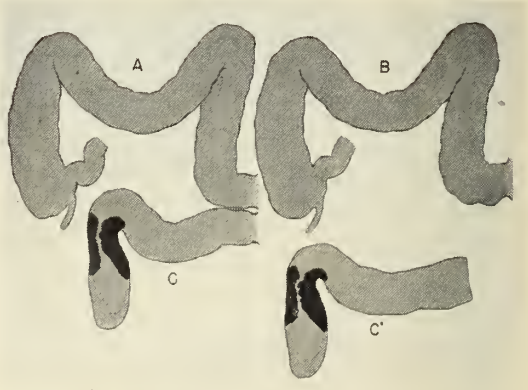

Figure 11.—This diagram portrays a sigmoidostomy which is indicated for obstructing, inoperable neoplasms of the rectosigmoid and rectum.

CONCLUSIONS

It seems logical in concluding this discussion to emphasize some things to do and others not to do in treating an obstruction of the colon. When due consideration is given to the several factors which contribute to the high mortality of obstruction

of the colon, this mortality will become less. The failure to recognize promptly an existing obstruction definitely increases the mortality. It is vital to recognize that a small bowel and a colon obstruction are two distinct diseases. The etiology, the resulting physiologic changes, and the proper treatment are quite different for the two types of obstruction. It needs to be appreciated that a majority of the obstructions of the colon are in the nature of a closed loop and that the primary factor threatening the viability of the intestine with this condition is the increased intraluminal tension. A closed loop obstruction is a potentially strangulated obstruction and should be considered an urgent surgical emergency. It is important to recognize that a long tube introduced into the small intestine cannot decompress an obstructed colon. The imperative need of such a patient is a surgical decompression which is the only therapy that will relieve this distention. A prolonged clinical study of these cases before instituting surgical decompression is not justified, for the delay incurred definitely adds to the mortality. Barium meals and the injudicious use of barium enemas aggravate the obstruction and tend to increase the mortality. Temporizing measures and continued attempts to relieve this condition by medical treatment frequently will force such a patient to accept a hazardous rather than a relatively safe surgical decompression. Unquestionably the delay occurred by an attempt to decompress the obstructing colon by a long tube and the late institution of surgical decompression are two primary factors definitely contributing to the high mortality of occlusion of the large bowel. The choice of the surgical procedure for the decompression and the technique of its execution are of much importance. As a rule, the simplest procedure which will relieve the intestinal distention and the one involving the least handling of the intestine is the procedure of choice. The supplementing of a decompression procedure by abdominal exploration should not be done, for it will definitely increase the over-all mortality of this disease. Experience has proved that a primary resection of the colon with anastomosis should never be done in the presence of acute obstruction, for it is unnecessary, and the mortality is prohibitive. Let it be recognized that when strangulation obstructions are excluded, the chief factor affecting the viability of the intestine in the majority of the obstructions of the large bowel is the increased intraluminal pressure from colonic distention. This can be relieved only by a surgical decompression, and when this is done promptly, with little manipulation and without exploration, it will usually prove life saving.

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INCIDENCE AND TYPES OF SALMONELLA INFECTIONS IN LOUISIANA*

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NEW ORLEANS

Our present day knowledge of the antigenic structure of the Salmonella organisms and the serologic variation to which they are subject now makes it possible to identify and classify over two hundred species, and each year new ones are being added. Many of the species are pathogenic for man and/or animals and quite a few are known to be transmissible from one to the other. However, unusual though it may seem, several of the species that have been isolated from normal healthy animal carriers have now been described as the causative agents of infections in man.

In 1942, an outbreak of food poisoning was reported by us[1, 2] in which *Salmonella berta* was described as a "new etiological agent". *S. berta* was recovered from the stools of six of the patients and from a sample of pork sausage which they had eaten. Up to that time, pathogenicity of this particular species for man had not been recorded. It had been isolated by Hormaeche, Salsamendi and Peluffo[3, 4] from mesenteric glands of normal pigs in Montevideo, Uruguay. Since this report it has been found to be the causative agent in several other outbreaks of food poisoning in other parts of the country.

The conquest of salmonellosis of human origin, especially that caused by the familiar typhoid and paratyphoid species, is probably one of the greatest public health achievements of modern times. Yet, by far the majority of the Salmonella group of bacteria are of animal origin. Many question the public health significance of these species and the necessity for identifying them with certainty. Such a fallacy originates from a failure to fully realize their clinical significance. It is an accepted fact that infections caused by those of animal origin are no longer limited to mild cases of gastroenteritis. Many cases of severe and fatal types of disease, especially in infants, young children, and the aged have been reported. It is further known that these organisms may invade any tissue or organ of the body and are not confined to the enteric tract as previously believed.

TYPING SERVICES

Accurate laboratory diagnosis is necessary for the identification of the various species of Salmonella. Serologic type-diagnosis by means of an analysis of the somatic (0 and Vi) and the flagellar (H) antigens of the Salmonella bacteria, and additional typing of *S. typhosa* by bacteriophage with specific Vi-phage preparations along with a few biochemical tests are the only reliable and consistent laboratory methods of species identification. Although these methods have been used on a limited basis in our laboratories for some time, it was not until 1950 that complete typing services were established in the Central Laboratory of the Louisiana State Department of Health. Since then, these services have been available to all laboratories in the state through our branch laboratories situated at strategic points throughout the state and the Central Laboratory in New Orleans. The Central Laboratory has also been designated as a regional laboratory for bacteriophage typing of *S. typhosa* serving Mississippi, Arkansas, and Louisiana.

These complete typing services have been made available mainly through the assistance of Dr. P. R. Edwards of the Communicable Disease Center in Atlanta, Georgia. Specific typing antisera, bacteriophage preparations and authentic cultures were furnished through the Communicable Disease Center, and several of our technologists have been especially trained in the correct performance of these tests by Dr. Edwards and his staff. Consultation service is available at the Communicable Disease Center at all times and all questionable cultures are checked and identified by them.

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During the past two years, 260 cultures of Salmonella have been typed and classified in our laboratory according to the Kauffmann-White schema. This systematized plan of classification is now universally used, and was evolved from the efforts of many workers, but especially from the comprehensive and complex studies of White[5, 6] and Kauffmann.[7] Prior to adoption of this schema, much confusion in identification of Salmonella organisms existed. Each worker in the field had his own system of identification, classification, and nomenclature, and often the work of one could not be duplicated by others.

According to the schema which White and Kauffmann set up, an antigenic formula was arbitrarily given to each species of Salmonella. Roman numerals were assigned to the somatic antigens and the Salmonella strains were divided into large groups on the basis of a common somatic antigen. Small Roman letters and Arabic numerals were assigned to the flagellar antigens. The large groups were then subdivided into species according to the antigenic variations of their flagellar antigens. By means of agglutination tests with specific antisera each component can be identified separately and then classified according to the schema.

INCIDENCE AND TYPE IN LOUISIANA

Table 1 lists the various types, antigenic structure, and the frequency of the Salmonellae isolated in Louisiana during 1950-51. The table represents a complete analysis of all cultures isolated from specimens of active cases, carriers and food handlers by the Division of Laboratories. It also includes a number of cultures sent in from

TABLE 1
FREQUENCY OF SALMONELLA TYPES ISOLATED IN LOUISIANA 1950-51

Kauffmann-White Group	Types	O Antigen	H Antigen Phase I	H Antigen Phase II	No. of Cases	No. of Carriers	Other Sources	No. of Cultures
B	*S. bredeney*	I, IV, XXVII, XII	l, v	1, 7	1			1
	S. derby	I, IV, XII	f, g	.....	3			3
	S. paratyphi B	I, IV, V, XII	b	1, 2	1			1
	S. typhimurium	I, IV, V, XII	i	1, 2	14		1	15
C_1	*S. bareilly*	VI, VII	y	1, 5	5		2	19
	S. cholorae-suis	VI, VII	c	1, 5	2			2
	S. oslo	VI, VII	a	e, n, x	1			1
	S. paratyphi C	VI, VII, Vi	c	1, 5	2			2
	S. montevideo	VI, VII	g, m, s	.....	9		4	19
	S. tennessee	VI, VII	z_{29}	.....	5			5
	S. oranienburg	VI, VII	m, t	.....	6			6
C_2	*S. kentucky*	(VIII), XX	i	z_6	1			1
	S. manhattan	VI, VIII	d	1, 5	1			1
	S. muenchen	VI, VIII	d	1, 2	8			13
	S. newport	VI, VIII	e, h	1, 2	10			10
D	*S. berta*	IX, XII	f, g, t	.....	1			1
	S. enteritidis	I, IX, XII	g, m	.....	1			1
	S. javiana	I, IX, XII	l,z_{28}	1, 5	1			1
	S. panama	I, IX, XII	l, v	1, 5 or 1, 11	1			1
	S. typhosa	IX, XII, Vi	d	.....	81	25		149
E_1	*S. anatum*	III, X	e, h	1, 6	1			1
	S. give	III, X	l, v	1,7	2			2
E_2	*S. newington*	III, XV	e, h	1,6	1			1
G	*S. mississippi*	I, XIII, XXIII	b	1, 5	1			1
I	*S. gaminara*	XVI	d	1,7	1			1
Further Groups	*S. inverness*	XXXVIII	k	1, 6	1			1
	S. urbana	XXX	b	e, n, x	1			1
Total					162	25	7	260

New Orleans Charity Hospital and a few from other sources. Approximately 30 per cent of the cultures studied were isolated from hospitalized patients. This gives some idea of the severity of diseases that these bacteria are capable of producing.

Analysis of the table will show that a total of 27 serological types were identified. Of the cultures 97.9 per cent were members of the first five serological groups of the Kauffmann-White classification. Excluding *S. typhosa*, the largest number of cases was due to *S. typhimurium*, while infections due to Group C far outnumbered those of any other group. This type distribution closely approximates that found in other parts of the United States as reported by Edwards and Bruner[8] (1943) and Seligmann, Saphra, and Wassermann[9] (1946).

BACTERIOPHAGE TYPING

In addition, *S. typhosa* can be subdivided into subtypes by means of the bacteriophage method of typing. Bacteriophage typing of *S. typhosa* with specific Vi-phage preparations was introduced by Craigie and Yen[10] (1938), and its great value in the control of typhoid has been attested by many workers. It is of invaluable aid to the epidemiologist in the study of sporadic cases, outbreaks, and the relation of cases to carriers. A typhoid carrier can only be incriminated in cases of typhoid fever in which a Vi-phage type is recovered similar to the strain which is being excreted by him. In other words, a carrier excreting Type C organisms is not responsible for cases in which Type B organisms are isolated.

Successful typing can only be accomplished by using a standardized technique with specific phage preparations. In 1950, the United States Public Health Service set up a National Typing Center at the Enteric Bacteriology Laboratories, Commnunicable Disease Center, Atlanta. The United States and its possessions were arbitrarily divided into 14 areas. In each area one laboratory with personnel especially trained was designated as a regional center to serve one or more states. A set of standardized Vi-phage preparations was furnished through the Communicable Disease Center to each regional laboratory. As previously stated, the Central Laboratory of the Louisiana State Department of Health was designated to serve Louisiana, Mississippi, and Arkansas.

Table 2 lists the various Vi-phage types which were identified during 1950-51 in Louisiana and the frequency with which they occurred. From 81 cases, 12 different

TABLE 2
VI-PHAGE TYPES OF *SALMONELLA TYPHOSA* FROM CASES AND CARRIERS IN LOUISIANA—1950-51

VI-PHAGE TYPE	NUMBER OF CASES	NUMBER OF CULTURES	NUMBER OF CARRIERS	NUMBER OF CULTURES	TOTAL	
					CASES & CARRIERS	%
A	2	6	0	0	2	1.9
B_1	5	8	2	4	7	6.6
B_2	5	6	3	7	8	7.5
C	8	8	4	4	12	11.4
C_2 (Desranleau)	3	3	0	0	3	2.8
D_1	5	5	3	5	8	7.5
D_5	1	1	0	0	1	.95
E_1	27	30	4	14	31	29.2
F_1	3	3	1	1	4	3.9
F_2	5	6	0	0	5	4.7
N	0	0	1	1	1	.95
T	1	1	1	1	2	1.9
Wform	3	6	2	4	5	4.7
Degraded Vi	5	6	1	1	6	5.7
Untypable	8	13	3	5	11	10.3
Total	81	102	25	47	106	100%

phage types were isolated and from 25 carriers, 8 phage types were recognized. Of the cultures 25 (16.7 per cent) were untypable and 10 (6.7 per cent) were W forms. Buckle[11] in his analysis of typing of 2,297 cultures of typhoid cultures found 21.96 per cent untypable and 5.1 per cent W forms.

In studying Salmonella infections, it is obvious that the only satisfactory method is the identification and typing (serological and phage) of the organisms. The improved differential, selective and enrichment media now being used in the isolation of enteric bacteria from feces and urine make it possible for all laboratories to greatly increase their number of isolations. It is impossible to attempt to state the best procedure to use, as much depends upon facilities and available personnel in the individual laboratory. "An Outline of the Procedure for the Isolation and Identification of Salmonella and Shigella" which has been prepared for our branch laboratory personnel possibly could be adopted in full or part by other laboratories in the state. Copies of the outline and arrangements for training of technologists in this specialized field may be had upon request.

Complete typing service cannot be furnished by every laboratory, as it requires experienced and specially trained personnel and also a complete standardized set of antisera and Vi-phage preparations. These services are available in the Central Laboratory of the Louisiana State Department of Health, New Orleans, La. It is our desire to extend these services and eventually to have all laboratories throughout the state send in their cultures for confirmation and identification. Many laboratories, because of limited facilities, still depend on biochemical tests or agglutination tests with inferior antisera for identification of species. Reports on this basis are inaccurate and seriously handicap the health authorities in follow-up investigations.

At the present time, it is difficult to determine even the relative incidence of Salmonella infections in Louisiana. Aside from typhoid and paratyphoid fevers, these infections are not even reportable. According to the statistical report of the Louisiana State Department of Health, 143 cases of typhoid and 35 cases of paratyphoid fevers were reported during 1950-51. The authenticity of diagnosis, even in these reportable diseases, may be questioned. Diagnosis, too often, is based upon a wrong interpretation of agglutination tests of the patient's serum rather than by isolation and identification of an organism. Failure in the past to carry out a detailed study of the sporadic cases or even to distinguish the cases from carriers, seemed to be due to a lack of uniformity in the epidemiological services. However, with the advent of changes in procedure recently made by the Epidemiology Section of the Louisiana State Department of Health, it is felt that every reported case of communicable disease will be studied in detail. A questionnaire has been prepared to obtain pertinent information concerning the source of cultures which are sent to the laboratory for identification.

The clinician is not usually concerned with knowing exactly which of the more than 200 of this constantly increasing Salmonella group is causing the infection. He knows that the severity of the attack, the prognosis and the treatment do not depend on any one species. However, if control of Salmonellosis is to be accomplished, it is necessary that all epidemiological aspects of the disease be studied in detail and with accuracy.

SUMMARY

It is apparent that Salmonella infections in Louisiana are far more common than shown by statistical analysis of the reports of the Louisiana State Department of Health. It is difficult to eradicate a disease in which the organisms are so widely distributed in nature. To institute proper control measures a study of all epidemiological aspects of the disease will be necessary. This can be accomplished only in connection with the services of a well equipped and operated laboratory.

The laboratory must be in a position to furnish complete typing services through the assistance of a National Typing Center

and to have all other laboratories in the state cooperate with it. The Central Laboratory of the Louisiana State Department of Health has been in a position to furnish such service since 1950. The results of the service thus far show that 260 cultures from 162 cases and 25 carriers have been analyzed by serologic type diagnosis. A total of 27 serotypes have been identified. Further bacteriophage typing of 149 cultures of *S. typhosa* showed 12 different phage types. The 149 cultures were from 81 cases and 25 carriers.

With the adoption of new procedures to coordinate the epidemiological services of the Louisiana State Department of Health, organized services for studying Salmonella infections have been set up. To carry out the program, cooperation of the physician with public health authorities, and cooperation of hospital and other laboratories with the public health laboratory are necessary.

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THE MANAGEMENT OF ACUTE ANKLE FRACTURES*

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The progress in the treatment of injuries can be measured by the decrease in the morbidity associated with these injuries. We have seen this rather well demonstrated in the advance in the treatment of fractures of the femur by the use of intramedullary pins, the use of Smith-Peterson nails and their modification, about the hip, and the use of other measures designed to permit the patient to get along more comfortably and keep his hospitalization down to a minimum.

Relatively little progress has been made along these lines in the treatment of ankle injuries. It is true that those requiring open reduction can be undertaken with less hazard, because of the use of antibiotics; but there still remains, quite frequently, a morbidity out of proportion to the injury received. In addition, often the results obtained from the treatment of ankle fractures leave considerable to be desired in the matter of function and motion.

NECESSITY OF PROMPT DIAGNOSIS

This is due chiefly to the anatomy involved in this particular area. As you are quite aware, all the main structures in the form of blood vessels, tendons, and nerves, are all funneled around the ankle below the medial malleolus to supply the foot. These are covered with rather strong ligaments, the deltoid on the inner, and the fibula ligaments on the outer aspect of the ankle. When injury occurs, there is relatively little room left for swelling, so that as a result blister formation and skin deterioration are quite frequent. These lead quite often to a considerable delay before immmobilization can be applied; and in those cases requiring surgery, there is frequently prolonged delay necessary in order to allow the skin damage to right itself before any attempt of restoration of bony structure is carried out.

Since little can be done, insofar as the change in the construction of the ankle anatomically is concerned, it is necessary to use every means to forestall those elements which add to a prolonged morbidity and a poor result. These can best be alleviated by treating ankle injuries as an emergency. These cases should, therefore, be accurately diagnosed as soon as possible after injury, and the proper treatment instituted at that time. We have found that a delay of twelve to twenty-four hours from the time of injury until the time of definitive treatment will lead, in many cases, to an additional

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three to four weeks' hospitalization, and that the results obtained on this type of injury are not entirely satisfactory. One of the chief reasons for this is the fact that the bone around the ankle joint is a spongy type of bone which does not lend itself readily to accurate replacement after it has lost its initial strength. This same bone, when initially injured, can quite frequently be replaced accurately and held, either by plaster fixation or by open reduction as might be necessary; whereas, this cannot be done nearly so well in surgery or closed reduction carried out some two or three weeks later. This is particularly true in those injuries in which the articular surface is involved. There is frequently associated with this a rather severe damage to the articular cartilage, which is not visible by x-ray and which is not reflected entirely in any of the usual methods of examination. Further, as has been mentioned by several writers in this regard, diagnosis of a tear of the lower tibial fibula ligament, which results in a diastasis of the ankle, can be made rather easily when suspected early; whereas, after the ankle is swollen, this is much more difficult to determine. This, if undiagnosed, can frequently give a rather prolonged morbidity and a poor result.

TREATMENT

Because of the above mentioned factors, that is, the closed space type of the injury, the softness of the bone, and the frequent association of ligamentous injury, it is felt that these fractures should be accurately evaluated early, within several hours after the injury, by the usual methods of examination and by special x-rays, when such are indicated. Immediate closed reduction, in those cases where applicable, should be carried out with proper immobilization. The accurate reduction of the fracture tends to minimize the amount of bleeding which will occur and prevents the formation of clots between the bone fragments, which cause inaccurate approximation if reduction is carried out at a later date. Closed reduction should be checked by x-ray in those cases involving the joint itself with the ankle taken out of plaster, in order to assure one's self that the reduction is anatomically satisfactory. This is particularly necessary, because a slight irregularity in reduction will result in a traumatic arthritis involving the joint which cannot be well rectified by subsequent surgery.

In those cases in which there is any doubt about the accuracy of the reduction, where the weight-bearing surface of the bone is involved, surgery is resorted to as an emergency when the patient is seen. We have found that doing an open reduction on these cases within six to eight hours after injury has given uniformly satisfactory results. At least a part of these good results are due to the removal of blood and the opening of the closed spaces incident to reduction. All of these bleed rather freely following application of the cast and removal of the tourniquet. By closing tissues loosely but accurately the blood is able to escape to the outside without stretching the tissues and interfering with venous return. Routinely, in both open and closed reductions, a long leg cast is applied with the knee flexed about 45 degrees which further relieves the circulation so that in almost half the cases bivalving the cast is not necessary.

In addition, early open reduction has resulted in many unusual findings. In several instances, large portions of the articular cartilage have been found to be completely detached from their beds within the joint, or held by a very small attachment. These are usually associated with a small fragment of bone which can be visualized in a direct x-ray, but which are entirely invisible on an x-ray taken through a plaster cast. These cartilagenous portions can frequently be re-apposed at the time of surgery or, if they are not of particular size, can be removed with the expectation of a normal ankle resulting. Detached bone fragments also are encountered considerably displaced from their normal position, interfering with joint motion. Delayed restoration is usually unsatisfactory because of the increased damage to the remaining cartilage and degeneration of the loose fragments.

It is not the purpose of this paper to give

all the criteria for open reduction of the ankle. Three, however, must be emphasized. First, we consider those fractures involving more than one-third of the weight bearing surface. These are usually fractures of the posterior lip of the tibia, and frequently are associated with a fracture of the medial and lateral malleolus. It is necessary that the tri-malleolar fractures be held by internal fixation to give a satisfactory result, and to prevent further subluxation of the ankle. Occasionally, the anterior lip is involved, which usually is not materially displaced at the time first seen. However, apparently the pull of the anterior tibial muscle is sufficient to increase this displacement as time goes on.

Occasionally, some of the simpler injuries give difficulty and require fixation, although they do not appear to be particularly severe. In the very severely comminuted fractures of the ankle, it is difficult in any instance to obtain a satisfactory result. These frequently require fusion, but sometimes one can be salvaged if early treatment is instituted. Plating of the fibula, to serve as a splint and maintain length, is a considerable aid in this type of injury since firm restoration of the tibia itself is impossible.

In those cases with associated severe multiple injuries of the head, chest, or abdomen, which prevent early reduction, snug binding with an elastic bandage before application of adequate splinting will prevent excessive swelling and permit adequate treatment as soon as the patient improves. Sympathetic blocks and elevation are also of value in these cases.

SUMMARY

The observations herein apply in a large measure to all acute joint injuries. Four facts, however, bear re-emphasis.

First, the anatomy of the ankle area gives it many of the features of a closed space. Second, the changes due to excessive hemorrhage are not completely reversible. This is well illustrated by the prolonged and resistant swelling following "simple" sprains. Third, the cancellous bone in this area rapidly softens, and recoalesces by callous formation so that hairline anatomical reduction is extremely difficult. Finally, the function of any joint, particularly the ankle, is dependent on the regularity of its articular surface.

Let me commend to you an early accurate diagnosis of ankle injuries together with the rapid institution of necessary treatment, be it closed or otherwise. Only by treatment along these lines can we hope to decrease the morbidity involved and get the result which will make the patient as normal as possible as soon as possible, and as economically as possible.

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RADIATION THERAPY IN CARCINOMA OF THE CERVIX*

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ALEXANDRIA

The relative five-year cure rate for all cases of cancer of the uterine cervix is 30.9 per cent.[1] This figure is compiled from numerous centers in many countries, and many different methods of using radiation therapy are represented. When one realizes that this figure includes all stages of development from the rarely found cancer-in-situ to the farthest advanced Stage IV, and that Stage III numerically contains the greatest number of patients, one can appreciate the fact that this is an admirable cure rate compared to that achieved in numerous other forms of cancer. The really important point to be gleaned from any perusal of these statistics, however, is that eight out of ten early cases can be cured with adequate therapy.[2]

Adequate therapy in this instance means minute attention to detail above all things. It requires careful pretherapeutic evaluation of the patient, as well as astute intermingling of intracavitary radium and external x-ray therapy. Radium remains the keystone of our treatment, as it is only in Stages III and IV that the addition of external roentgen therapy produces any in-

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crease in the salvage rate,[3] although it is difficult at times to withhold its use from the individual patient because of mass statistics.

The addition of intravaginal roentgen therapy to the armamentarium has produced no increase in results in the early stages, and the cure rate drops to 9.3 per cent in Stage III and 0.0 per cent in Stage IV,[4] as compared to 22.9 per cent and 6.2 per cent with conventional therapy.[1] This method of treatment is not entirely to be disregarded, however, as there are several indications for its use: notably in the situations where there is a large fungating mass occupying the vagina, or where excessive blood loss requires rapid hemostasis. Moreover, it may well be the treatment of choice in cancer of the cervical stump.

MODE OF GROWTH

In order to approach intelligently the treatment of carcinoma of the cervix it is necessary to visualize its pathologic anatomy in three-dimensional terms. This disease is wonderfully uniform in its mode of growth. It involves radially the cervical canal, the face of the cervix, and extends up into the body of the uterus. The fornices are then affected. From there spread occurs distally down the vaginal mucosa and most frequently into the loose areolar tissue between the leaves of the broad ligament. Not all of these points may be affected in any individual patient, but for purposes of treatment (but not staging!) it is safest to assume that they are. This situation is graphically demonstrated in Figure 1.

Anterior spread is blocked temporarily at least by the extremely tough fibers of the vesicovaginal septum. The same situation is present posteriorly where spread in that direction is impeded by the rectovaginal septum.

This means then that the lines of least resistance are followed. The mode of spread is upward, downward, and laterally. We are not concerned in the immediately salvageable patients with possible anterior or posterior spread. Our aim resolves itself, therefore, into delivering a cancericidal dose of radiation to the periphery of a three-dimensional volume which in the coronal plane is three-pronged but is flattened in its anteroposterior diameter. Figure 2 shows this volume to be treated.

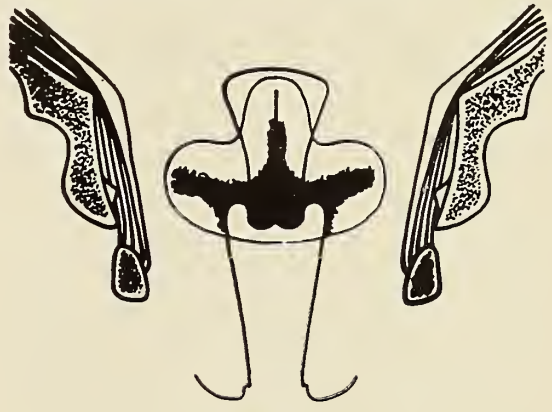


Figure 2

METHOD OF RADIATION

The method of achieving this irregular volume of radiation is a practical application of the physical laws of radium. Figure 3 depicts a linear source of radium, such as

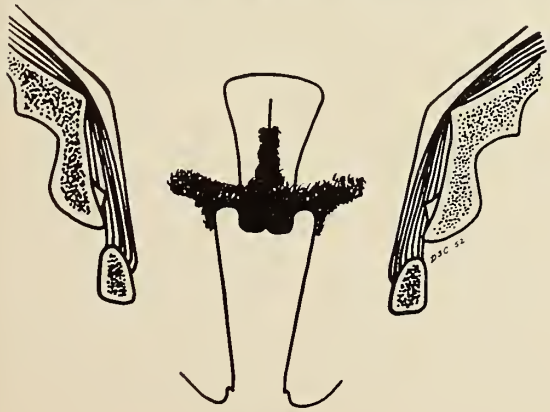


Figure 1

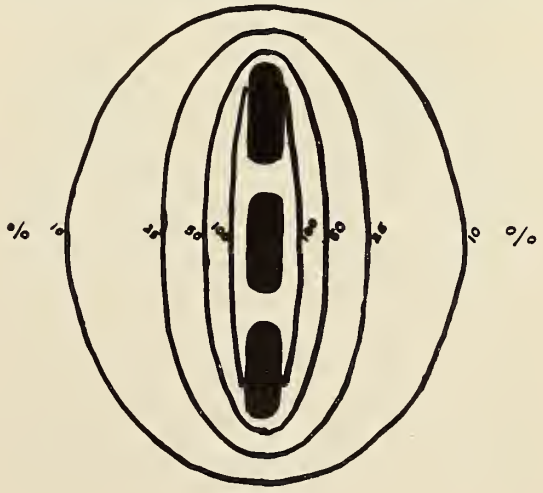
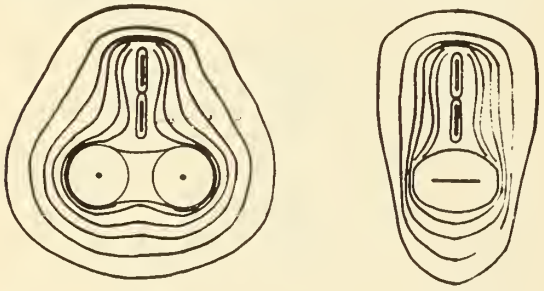


Figure 3

a cervical tandem, along with its pattern of surrounding radiation, represented by isodose lines. Each of these lines connects points where the amount of radiation is equal. Note that the highest concentration of radiation is always on a line extending laterally from the midpoint of the tandem. Note also that the amount of radiation emanating from either end of the tandem is virtually insignificant. It is obvious that such a tandem inserted into the cervix will not produce a pattern of radiation which will coincide with the pattern of the disease to be treated. Moreover, using such a tandem, if a dose is given which is sufficient to produce a cancerocidal effect at the lateral periphery of our disease, it also follows that a similar dose will be delivered to the urinary bladder and the rectum. Such a dose to these organs is not only unnecessary but is very dangerous. Conversely, using such a tandem, if we limit our dose to the bladder and rectum to a safe level, we are failing to deliver an effective dose to the parametria.

Some means must be found then to extend the radiation pattern laterally without adding to the level of radiation anteriorly or posteriorly. This can be accomplished by the addition of radium sources placed in the vagina. These are spread as far laterally as the anatomic conditions will permit, and they must be placed so that their long axes are in an anteroposterior plane. The radiation pattern produced by such an arrangement is shown in Figure 4. Note



Coronal Sagittal

Figure 4

that it fulfills all the criteria that were set up in the discussion of the disease pattern: it is three-pronged in the coronal plane, it extends for an ample distance down the vaginal mucosa, and it is flattened anteroposteriorly. Superimposition of the radiation pattern upon the disease pattern is shown in Figure 5.

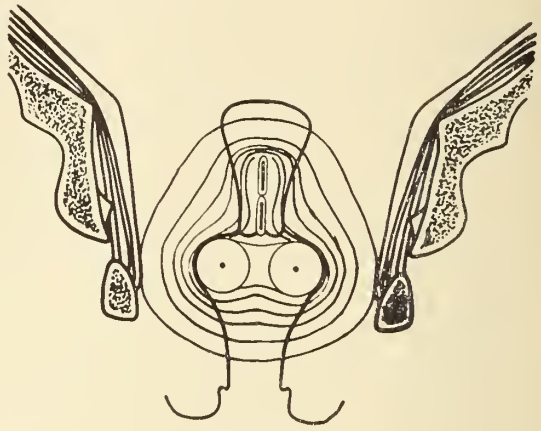


Figure 5

The arrangement of radium sources shown is of course the basic set-up. This arrangement must be varied according to the size of the uterus, the distensibility of the fornices, and the extent of vaginal spread of the disease. Variation in the mechanical arrangement of the radium sources must be accompanied by a compensating variation in the amount of radium placed in each source in order to maintain this basic pattern of radiation. These various arrangements have been worked out in adequate detail and are readily available for study and use.[5, 6, 7]

Various applicators are available which suit the requirements of this mode of treatment. Those devised at the Holt Radium Institute in Manchester, England, afford by far the greatest degree of adaptability. They must be obtained in Britain, however. The colpostat used at the Institut du Radium of Paris fulfills the criteria and is commercially available in this country. Its accurate use though requires rather exacting roentgenographic measurements of the degree of spreading of the vaginal sources, and consequently, their dose contribution to the parametria. The Ernst applicator is a relatively recent American contribution which is satisfactory in many instances. However, it lacks adaptability and fails to maintain sufficient distance between the

vaginal radium and the vaginal wall. Its chief advantage is the fact that it is in one piece which greatly facilitates application and removal.

PRETHERAPEUTIC EVALUATION

The pretherapeutic evaluation of the patient is of the utmost importance. The extent of disease, the patient's age and general physical condition, and the presence of infection are some of the more important matters to be considered. There is nothing to be gained by finding a carcinoma of the cervix among one's office patients one afternoon, rushing her into the hospital that evening, and throwing in some radium the following morning. A simple excisional biopsy can be obtained in the office without anesthesia and without pain in practically every instance. The finding of a squamous cell carcinoma microscopically adequately excludes the possibility of endometrial origin. Treatment can then be planned on a considered, rational basis. Decision can be made as to the sequence of radium and external roentgen therapy, and an arrangement of radium to suit the individual need can be planned.

Certainly this is preferable to the last minute rush in the operating room following a diagnosis of carcinoma from a frozen section, with the instrument nurse fumbling as she hurriedly attempts to make up some form of radium applicator which will fit the need more or less. Not only does this not benefit the patient, but the operator and the entire operating room personnel are needlessly exposed to radiation. The place to make up the applicator is in the radiology department or anywhere else where proper precautions have been set up, and it should be made up according to the specifications determined at the original pelvic examination. It can then be sterilized in advance and brought into the operating room only at the instant it is needed.

It is an established fact that anemia produces an adverse effect upon the radiosensitivity of a tumor.[8] In terms of cancer of the cervix, this means that if the patient's red blood cell count is below 3.0 million, definitive treatment must be deferred until the count can be brought up to at least 3.5 million. This can be accomplished rapidly in two ways. Whole blood transfusions can be given. If there is appreciable blood loss from the tumor, a hemostatic dose of x-rays administered either externally or intravaginally should be considered.

The presence of infection should also be determined at the original examination. Its presence is an indication for preliminary external x-ray therapy, which properly applied, will result in a relatively clean cervix and uterus, rendering the application of radium simpler and more effective. The result in regard to possible morbidity is obvious.

Except for the special indications listed above, the use of external x-ray therapy must be considered as supplementary to the effects produced by intracavitary radium. It is used to bring the radiation dose in the lateral aspects of the parametria up to cancerocidal levels. Its need is evident in all patients classified as Stage III or IV. Its use in the earlier stages must be considered on an individual basis. It should be noted that, inasmuch as bowel sensitivity to radiation rather than skin sensitivity is the limiting factor in roentgen therapy, the higher voltage x-ray machines in this instance have no advantage. Equal results can be obtained using the conventional 200-250 kilovolt machines, which are in common usage. Adequate treatment of carcinoma of the cervix does not require the services of a large medical center.

DOSAGE

No hard and fast rule can be made concerning dosage. The dose to be given depends on many factors. It is influenced by the sequence of radium and external radiation, by the method of their application, and by the rapidity of their application. Age of the patient is a factor in determining dosage also. These many variations place a definitive discussion of dosage outside the realm of this paper, and reference is made to the many excellent and detailed works on this subject.[2, 5-7] One important generalization can be made, however. Any expression of dosage in terms of milligram-hours

means absolutely nothing, unless it is accompanied by a description of the position of each source of radium and the amount of radium in each source. Reference to the foregoing discussion of radiation pattern should reveal the fact that 75 mg. of radium, for example, can be distributed betwen a tandem and colpostats in many different ways, and that each different way of distribution will produce an entirely different radiation pattern. Yet each of these variations left in place for a period of seventy-seven hours results in 5000 mg.-hours of exposure. Dosage must be expressed in terms of the amount of radiation reaching a given point. Otherwise it is meaningless.

CONCLUSION

The treatment of carcinoma of the cervix is a matter for considered judgment and careful evaluation, rather than haste. Attention to detail, as well as the patient's whole problem, will result in making the treatment fit the disease, thereby curing more women.

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EFFECT OF HYALURONIDASE ON PROTECTIVE URINARY COLLOIDS AND ITS SIGNIFICANCE IN TREATMENT OF RENAL LITHIASIS*

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When one considers the physicochemical relationships existing in urine, it is surprising that formation of urinary calculi is not more common. The solubility of some of the stone-forming salts is relatively low, particularly at the pH that may exist in the urine. Urine is a highly saturated solution of extremely complex composition in which the concentration of electrolytes, as well as nonelectrolytes, often exceeds the limit of solubility in pure water. An essential factor in maintaining this mechanism in the normal individual is the presence of sufficient protective urinary colloids.

Among the earliest observations concerning the modification of crystal habit is that of Boyle, 1666,[1] who noted that the normal shape of many crystals is changed by the "addition of other bodies". Rome de Lisle, 1783,[2] showed that sodium chloride grown in the presence of fresh urine formed octahedral crystals. Fourcroy and Vauquelin[3] 1810, produced octahedral crystals of sodium chloride from solutions containing urea. Ord[4-6] was the first investigator to use the term "colloid" in connection with crystallization, although not in its modern sense. Lichtwitz[7] and Schade,[8] 1909, concluded that the unusual solubility of stone-forming salts in the urine depends upon the presence of certain colloids which prevents precipitation, agglomeration and conglomeration of salts and other colloids.

Systematic colloid-chemical studies of

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urine which included surface tension determinations, ultramicrographic examinations, electrophoretic studies and chemical analyses offer definite proof that the urine of individuals with renal calculi is deficient in protective colloids.[9-18]

It is generally accepted, although not definitely established, that kidney stones may result from a crystalloid-colloid imbalance. The development of renal calculi may be brought about either by the growth of crystals from a highly concentrated electrolyte solution, or by the agglomeration of the dispersed phase of inorganic colloids, due to a reduction of their zeta potential in the presence of a high concentration of counter ions. In the presence of hydrophilic colloids, the electrolytes are thought to bring about gelation, thus embedding the inorganic matter in the gel. Stone formation is prevented in the normal individual by sufficient concentration of hydrophilic colloids in the urine. Presumably, the higher the concentration of protective urinary colloids, the less likely is stone formation; the lower the concentration, the greater the possibility of stone formation. The hydrophilic colloid, if capillary-active, acts as a peptizing agent and protective colloid, thereby preventing growth or agglomeration of crystalloids. Thus the use of strong peptizing agents may reduce stone formation.

In patients receiving hyaluronidase for clysis, it was observed that clarification of cloudy, pathologic urines occurred in assocoation with the administration of this enzyme.[10, 11] The clarifying effect usually became manifest within thirty minutes after the enzyme was injected and persisted for twenty-four to seventy-two hours. Since the effect was not produced by the direct addition of hyaluronidase to cloudy voided urine, Seifter[15-17] suggested that hyaluronidase acted indirectly by the release of hyaluronic acid at the site of injection with subsequent excretion in the urine. This hypothesis has been confirmed by Hauser's studies,[12-18] including ultramicroscopic observations that (1) potassium hyaluronate added to voided urine acts as a powerful dispersing or peptizing agent, and that (2) the subcutaneous injection of hyaluronidase, mixed with physiologic sodium chloride solution, results in the release of a protective colloid into the urine which inhibits the formation of new crystalline material and disperses crystalline matter already present. Injection of hyaluronidase thus appears to alter the colloidal state of the urine.

Hyaluronidase is an enzyme having the property of softening hyaluronic acid, the mucopolysaccharide which is an essential component of the intercellular "ground substance" or "cement substance" of tissue. When hyaluronidase is brought into contact with hyaluronic acid, either in the test tube or by subcutaneous injection into tissue, the viscosity of the hyaluronic acid is diminished. Hyaluronidase releases hyaluronic acid at the site of injection, in this case the skin and subcutaneous tissues. The weakened barrier begins to reconstitute itself shortly after the hyaluronidase action has been dissipated. Soon after the time of injection and during the period of repair, excess hyaluronic acid, or a substrate is present in the urine and is excreted in the urine and acts as an excellent protective colloid. The effect of hyaluronidase on the protective urinary colloids and its significance in the treatment of renal lithiasis has been studied in a series of patients previously suffering from rapidly recurring stone formation.

Observations to date indicate that patients vary widely in the quantity of hyaluronidase required to clarify pathologic clouded urine. Such clarification is the most convenient clinical method of determining response to this treatment. The results reported here have been obtained with dosages ranging from 150 turbidity reducing units (T. R. units) subcutaneously two or three times a week, to 600 T. R. units daily. Injection sites were rotated. In the presence of residual urinary tract infection, the hyaluronidase requirements may be increased. (If the hyaluronidase used is standardized in terms of other units, their relation to turbidity reducing units must

be determined. For example, 500 viscosity units are approximately equivalent to 150 turbidity reducing units). The lyophilized hyaluronidase should be reconstituted with sterile saline rather than with distilled water, in the proportion of 150 to 300 turbidity reducing units to 1 cc. of saline. When prepared with strict aseptic precautions, such solutions are stable without refrigeration for two weeks.

The effect of hyaluronidase on urine may be conveniently followed in a series of uncentrifuged specimens taken before and during hyaluronidase therapy. In such a series, the turbidity and sediment usually begin to diminish in specimens obtained about thirty minutes after the injection. When turbidity increases in successive four hour specimens, another dose of hyaluronidase is needed. If no decrease in turbidity and sediment is observed, the dose of the enzyme should be increased and/or given more frequently. As a supplement to this testing procedure, the response may also be studied by comparing the rate of formation of deposits on indwelling catheters during alternate periods with and without hyaluronidase injections. This effect is most pronounced in nephrostomy drainage tubes and least in catheters draining the bladder, with intermediate effectiveness in ureteral catheters. If the urine is initially clear, surface tension determinations, employing the pendant drop method, are used.[19] We have found that the average surface tension of urine in white males and females is approximately 65 and 60 dynes per centimeter, respectively. Following injection of sufficient dosages of hyaluronidase, the surface tension decreases from 8 to 14 dynes per centimeter as long as the effect of hyaluronidase is being maintained. Reduction in surface tension closely correlates the clearing of turbidity and sediment if these are present initially.

An adequate dosage of hyaluronidase is essential for successful therapy because inadequate dosage may result in exact reversal of the intended purpose. If the concentration of protective colloid is insufficient, the crystal nuclei are sensitized and stone formation may be accelerated.

Contraindications to the use of hyaluronidase are sensitivity to the drug and reduced renal function. In the presence of infection or of obstructive uropathy, the usual corrective procedures are carried out and all other methods usually employed for combatting renal lithiasis are utilized.

Hyaluronidase therapy has been used in 24 patients suffering from rapidly recurring renal calculi. They had passed numerous stones at regular intervals over a period of years or new stones were developing within a period of weeks or a few months. No form of treatment had been effective in reducing the formation or recurrence of stone before hyaluronidase was used. Dosages used were 150 to 600 turbidity reducing units, repeated on the average of twenty-four to seventy-two hours. In 19 patients, no new stone formation or increase in size of existing stones occurred during a period of eleven to twenty-one months, as demonstrated by x-rays taken at thirty to sixty day intervals. In 4 of the 24 patients, there was evidence of reduction in size and density of the stones. In 1 case, there was complete disappearance of multiple, bilateral small calyceal stones. Generally, the smaller the stone initially, the more effective hyaluronidase therapy is in preventing its growth.

Protective colloids, like hyaluronic acid, which pronouncedly reduce interfacial tension, will not only coat the surface of matter, but also have the tendency to penetrate into any available interstices. In so doing, they will then be adsorbed on the surface of those agglomerated particles, and due to their hydration, as well as their electric charge, tend to overcome the Van der Waals forces and push the particles apart. The peptizing action of some protective colloids is the result of the fact that they not only reduce the surface or interfacial tension, but also impart charges on the surface of the particles to be peptized.

There is also another factor which is very important in reduction in size and density of stone following hyaluronidase therapy. Benjamin, et al,[20] used radio-active phosphorus (P_{32}) to study phosphate exchange between urine in the renal pelvis and renal

calculi containing phosphate as PO_4. Following administration of radio-active phosphorus, it was found that a highly radio-active phosphate passed by the non-active phosphates from the urine replacing non-active phosphate on the surface of the stones. This lowers the specific activity of the newly-formed urine reaching the renal pelvis and imparts radio-activity to the stones. Later as the activity of the newly-formed urine falls below the activity of the stones, the reverse process takes place, the stones contributing radio-active phosphates for the nonisotopic phosphates, and thus producing an elevated activity. If precipitation of salts onto the stone can be prevented, and the concentration of salts in the urine kept low, then the release of salts from the stone will reduce its size and density.

Only hyaluronidase therapy was used when attempting to determine the effectiveness of this drug alone. Now again, we employ all of the usual accepted measures for combatting stone formation. In a small group of patients, we have found basaljel to be a distinctly beneficial adjunct in the treatment of stone when the patient is receiving hyaluronidase. Small doses of basaljel, two teaspoonfuls four times a day, will moderately reduce the phosphorus excretion in the urine; however, the reduction is not such that there will be a compensatory rise in the calcium output.

It has been observed in 10 of the 24 patients (40 per cent) who received large doses of hyaluronidase (300 to 600 T.R. units daily) for a period of several months, that their skin becomes softer and smoother and the subcutaneous tissue more pliable. This is due to a vast increase in hyaluronic acid, an essential component of the "ground substance", which is being produced as a result of hyaluronidase administration.[17] Finally, it has been observed that patients who receive large doses of hyaluronidase for a period of months have a sense of well being which cannot be ascribed solely to a general improvement in health. The cause for this is being further investigated and no conclusions can be reached at this time. Prolonged administration of hyaluronidase does not alter the total twenty-four hour urinary output and there is no change in the sodium, chloride, or potassium excretion.

SUMMARY

The abnormal solubility of stone-forming salts in the urine is largely a consequence of the presence of certain protective colloids. When the protective colloid is insufficient, urinary crystals are "sensitized" and stone formation begins or is accelerated. Parenteral injection of hyaluronidase, mixed with physiologic saline, pronouncedly increases the protective urinary colloids. Methods of determining the protective urinary colloids are outlined and a regime of hyaluronidase therapy for stone formers is presented. The average dosage of hyaluronidase ranges from 150 to 600 turbidity reducing units every twenty-four to forty-eight hours. Hyaluronidase therapy has been effective in preventing calculous formation or reformation during a period of fourteen to twenty-four months in 19 of 24 patients, who had previously formed stones at a rapid rate.

CONCLUSIONS

The implication of each of the many different factors responsible in stone formation remains intensely controversial as demonstrating a single cause. Perhaps failure to reach accord is the fact that we have placed too great emphasis on the pleomorphism of stone and failed to recognize a more basic biopathological mechanism as it comes into play in each case. Thus, we must revert to the concept that calculous disease is only one of the many types of crystalloid-colloid deposition in human organs. Renal calculus is not a disease entity, per se, but represents a variable physical form of concrement building, which may result from an equally variable type of pathology regardless of its location in the body.

The phenomenon of releasing hyaluronic acid, an essential component of the "ground substance," at the site of injection by hyaluronidase and subsequent production of large amounts of hyaluronic acid with ex-

cretion into the urine, has proven to be a very helpful adjunct in treatment of renal lithiasis. Also it opens a new field for further research into the stimulatingly interesting and highly important field of the intercellular "ground substance".

Addendum—Since presentation of this paper, we have found that larger doses of hyaluronidase, 300, 600, 900 T. R. units daily, are more effective than previously prescribed dosages.

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THE VALUE OF BRONCHOGRAPHY*

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Bronchography, or roentgen-ray examination of the bronchial tree after the injection of a contrast medium, has long had an important place in the diagnostic armamentarium of the radiologist. Whereas many thoracic lesions present a characteristic appearance in the plain roentgenogram of the chest, there are others of a more obscure nature which require bronchography for accurate diagnosis. Among these are many suppurative and neoplastic lesions. With the recent advances in thoracic surgery, bronchography is today assuming ever increasing importance. Lobectomy, pneumonectomy and the recently developed segmental lobar resections have made accurate localization of thoracic lesions imperative. No longer can we be content with instilling a small amount of lipiodol into the bronchial tree and focusing our attention entirely on the lesion in question. The diagnostic value of bronchography is well appreciated but its contribution to the therapeutic approach to the lesion has not been sufficiently stressed. It has become necessary to outline the entire bronchial tree with lipiodol in order to help the surgeon plan the type or extent of resection in those patients with thoracic diseases amenable to surgical treatment.

TECHNIQUE

The technique used in obtaining bronchograms is of utmost importance. Several methods have proved satisfactory and each investigator advocates the method with

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which he has had most success. In my experience with over 1000 bronchograms, the intratracheal catheter method has proved most satisfactory. It permits visualization of the entire bronchial tree rather than just several parts. Moreover, it can be performed quickly and without significant discomfort to the patient.

As in any method, it is an absolute essential, in using the intratracheal catheter method, to secure as complete anesthesia as possible; this cannot be overemphasized. It can be stated with almost equal truth that poor bronchograms are due mainly to inadequate anesthesia.

The patient is given 1½ grains of seconal; this allays nervousness and acts as a specific prophylactic antidote to cocaine hypersensitivity. Postural drainage is then instituted to relieve the bronchial tree of as much secretion as possible. About one hour after administration of the seconal the oropharynx and laryngopharynx are carefully sprayed at intervals with a solution of 1 per cent tetracaine (pontocaine) to which 1:1000 epinephrine has been added. The anesthetic solution is finally dropped on the vocal cords and into the trachea. The involuntary cough reflex is thus abolished so that the catheter can easily be passed through the nasal fossa and glottis into the trachea. The patient then lies on the roentgenoscopic table, and under direct fluoroscopic vision lipiodol is injected while the catheter is being manipulated into the proper bronchial divisions. During the procedure the patient is rotated in many positions to insure proper filling of all the bronchial divisions, anterior as well as posterior, upper lobes as well as lower. About 20 cc. of lipiodol is all that is required. More would produce flooding of lipiodol in the alveolar spaces which would not only obscure the bronchial tree but also favor retention of the oil for a longer period of time. This could make interpretation of future follow-up roentgenograms troublesome. The bronchial tree is filled with lipiodol as quickly as possible; roentgenograms are then made in the posteroanterior, and right and left anterior oblique views, preferably with the patient in the erect position at 6 feet. A Bucky diaphragm is used for greater clarity. The resultant three bronchograms are sufficient for detailed study in several planes of the entire bronchial tree.

NOMENCLATURE

The problem of correctly naming the tracheobronchial subdivisions has become increasingly important as techniques of bronchography and pulmonary resection have appeared and improved. Adams and Davenport[1] proposed a classification designed to meet the practical needs of internists, radiologists, bronchologists, and surgeons. Jackson and Huber[2] have also suggested a classification of practical interest. Regardless of the classification used, the radiologist, internist and surgeon should have a common knowledge of one classification to use for a working basis.

THE NORMAL BRONCHOGRAM

The normal bronchogram shows bronchial divisions which possess a smooth contour with uniform but almost imperceptible diminution in caliber as the bronchus progresses from the main trunk to the small bronchioles at the periphery of the lung (Figs. 1 and 2.) Di Rienzo[3] has dem-

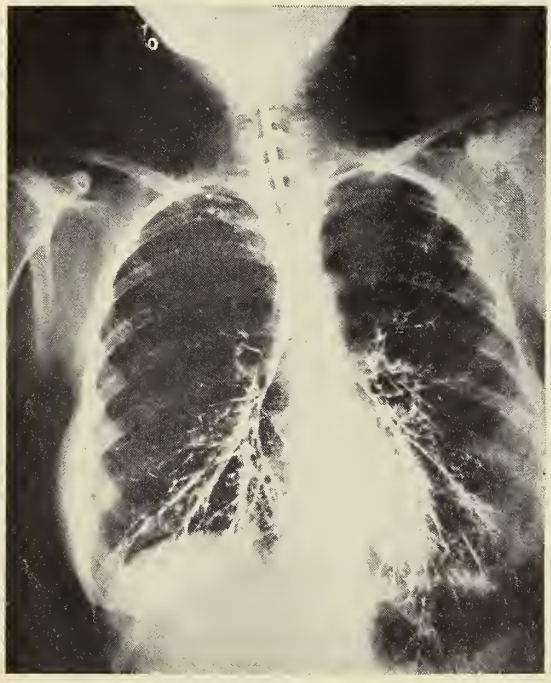

Figure 1.—Normal bronchogram in posteroanterior projection.

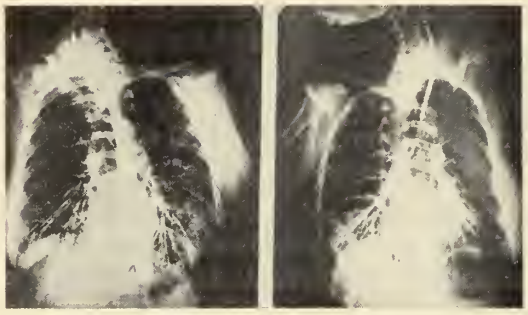

Figure 2.—Normal bronchograms. (A) Left anterior oblique view. (B) Right anterior oblique view.

onstrated that occasionally if the area has not been completely anesthetized or if a patient is asthmatic, the lipiodol will act as an intrabronchial foreign body which intensifies the tone of the elastic and muscular fibers surrounding the bronchus producing sphincters at the point where the bronchial branches originate. This is sometimes interpreted incorrectly as being due to an organic contraction and explains many cases of reversible bronchiectasis (Fig. 3).

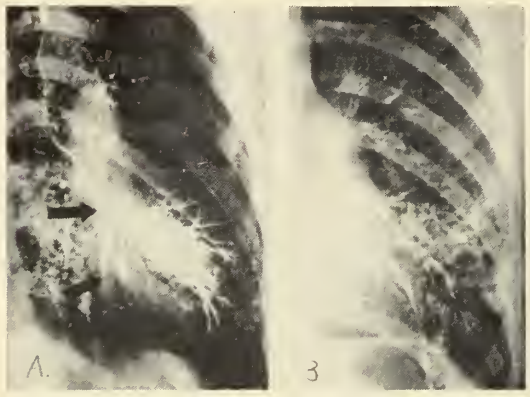

Figure 3.—(A) Transient bronchospasm resembling bronchiectasis. (B) Same patient at a later date without bronchospasm and showing no bronchietasis. Epinephrine was injected prior to the second examination.

SOME APPLICATIONS OF BRONCHOGRAPHY

With the picture of an adequate and normal bronchogram in mind, it becomes easy to detect abnormalities that appear in the bronchial tree. *Bronchiectasis* is the most commonly encountered pathologic alteration in bronchograms. The bronchial divisions are dilated and many divisions are beaded or possess saccular dilatations due to destruction of portions of the bronchial wall. As important as the diagnosis is determination of the extent of the bronchiectasis. Properly made bronchograms will accurately localize the disease and thus establish which lobes or segments of lobes need be removed. Physical examination is notoriously unreliable in revealing the extent of bronchiectasis; signs may be entirely lacking except in the most grossly involved areas. Routine roentgenograms are equally ineffectual in localizing the bronchial dilatations. Figure 4 illustrates the extent of bronchiectasis in a man aged 45 years, who had a severe productive cough for twenty-seven years. In this instance the lingular division of the left upper lobe and the left lower lobe were involved. Obviously, if poorly made bronchograms had shown bronchiectasis in the lower lobe only, owing to nonfilling of the lingula, left lower lobectomy would have failed to cure the disease, producing at best amelioration of the symptoms. Myers and Blades[4] reported that in 57 per cent of the patients with left lower lobe bronchiectasis the lingula of the left upper lobe was also diseased. Likewise, right middle lobe bronchiectasis was demonstrated in 59 per cent of right lower lobe bronchiectasis. Figure 5 illustrates upper lobe bronchiectasis with normal lower lobes showing the need for always filling the superior bronchial tree as well as the inferior.

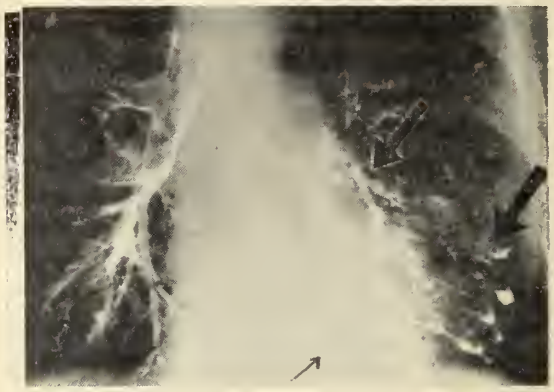

Figure 4.—Upper arrows show bronchiectasis of lingular division of left upper lobe. Lower arrow points to bronchiectasis of divisions of left lower lobe.

Dormer and associates[5] have emphasized the value of bronchography in *pulmonary tuberculosis*. They observed that in pa-

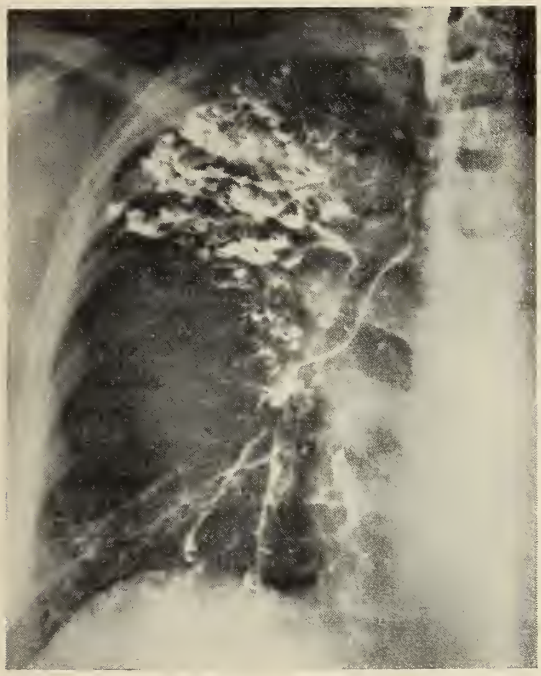

Figure 5.—Saccular bronchiectasis confined to divisions of right upper lobe bronchus. This demonstrates need of filling upper lobes as well as lower.

tients with positive sputum whose plain roentgenograms showed nothing abnormal or were questionable the bronchograms would nearly always indicate the early tuberculous lesion as bronchiectasis or a dilated bronchus terminating in a cavity.

Gordon and coworkers[6] considered bronchography a valuable aid in planning surgical treatment of pulmonary tuberculosis. For example, when thoracoplasty is considered, bronchography will provide information which proves helpful in deciding how extensive a procedure should be planned. Bronchograms frequently show evidence of pronounced structural changes in areas where "clearing" has taken place as interpreted in routine roentgenograms of the chest. Without evidence of these structural changes, the surgeon might not do a thoracoplasty which is extensive enough; as a consequence, an unsuccessful result will be obtained. Also, when decortication is considered to allow a "non-reexpansible" lung under pneumothorax to expand once more, bronchography gives the best information available as to the extent of the structural changes present in the collapsed lung and thus helps the surgeon decide whether the lung is healthy enough to make decortication advisable.

A *pulmonary abscess* cavity is not easily filled with lipiodol because of the presence of secretions and swelling of the mucosa of the bronchial division leading to the abscess. However, demonstration and identification of the blocked bronchus will indicate the exact segment of the lung in which the abscess is located. It has been pointed out by Myers and Blades that bronchography is of prognostic value in chronic abscess of the lung. The longer the duration of the abscess, the greater is the likelihood of development of secondary bronchiectasis. The coexistence of bronchiectasis and pulmonary abscess, recognized only when lipiodol is used, renders complete symptomatic cure following simple surgical drainage less likely and the probability that lobectomy may eventually be required is at once suggested.

Intrabronchial tumors may be easily diagnosed by bronchoscopy if they are in the larger bronchi but if they are in the smaller bronchi beyond the reach of the bronchoscope, bronchography is again valuable in demonstrating the bronchial block or deformity. Figure 6 illustrates such a case in which bronchogenic carcinoma infil-

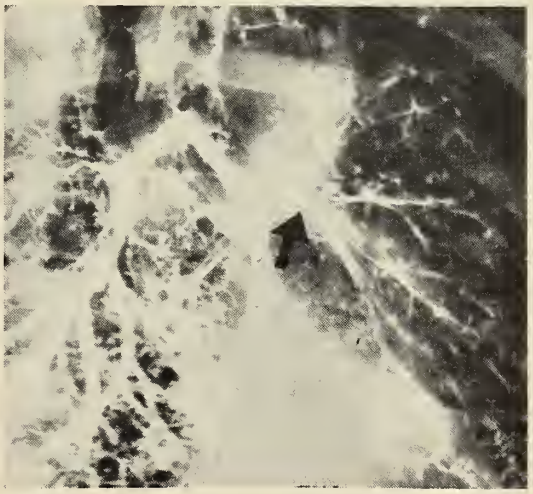

Figure 6.—Arrow points to minor irregularity of proximal portion of lingular division in a patient who had hemoptysis for three weeks. It represented a carcinoma infiltrating the bronchial wall which was beyond the reach of the bronschoscope.

trating the wall of the proximal portion of the lingular division of the left upper lobe produced a minor irregularity; this suggested the correct diagnosis whereas the lesion could not be seen through the bronchoscope because of its distal position. Intraluminal tumors, if large enough, will produce atelectasis, abscess, bronchiectasis, pneumonitis or obstructive emphysema distal to the obstruction (Fig. 7). Bronchography will indicate whether or not an intraluminal tumor is the cause of such alterations.

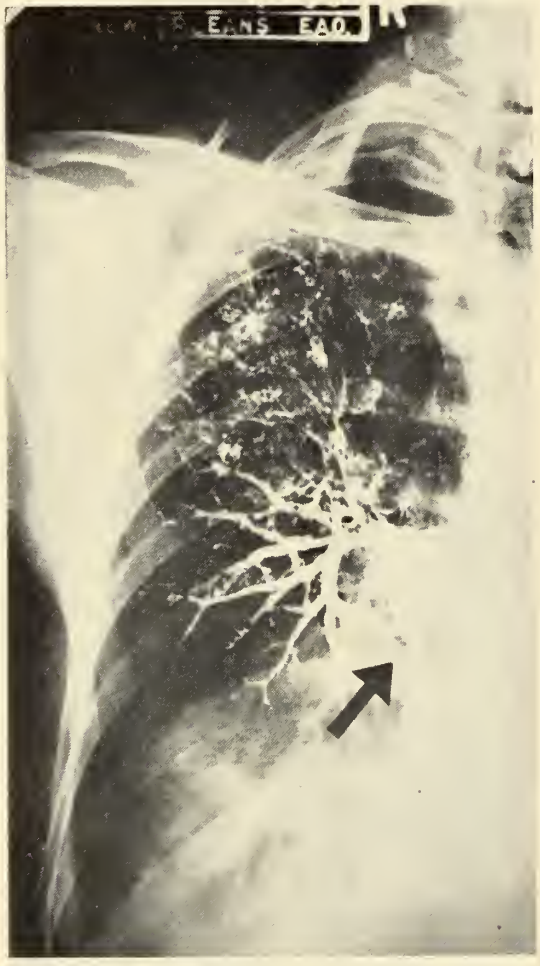

Figure 7.—Occlusion of intermediate bronchus on right by intraluminal carcinoma. The triangular shadow at right pulmonary base is due to atelectasis of right middle and lower lobes in association with pulmonary abscess, chronic bronchiectasis, and organizing pneumonitis.

Occasionally, it will be difficult to determine whether a large mass seen in a roentgenogram of the chest is intrapulmonary or extrapulmonary. The latter type of mass would displace the bronchial tree, as outlined by lipiodol, away from it, proving its nature.

THE FUTURE

Lipiodol has been the medium of choice for bronchography. Unfortunately, it is sometimes slowly eliminated and rarely may produce a lipoid granuloma. Investigations are now under way to find a more suitable medium which is rapidly eliminated. Present studies revolve around water soluble iodine preparations, such as ioduron B, introduced to take advantage of rapid absorption. Such a preparation mixes better with secretions. It is absorbed within several hours; the rapidity of elimination restores the airways to prebronchographic conditions making surgical treatment feasible within twenty-four hours, rather than the interval of several days or weeks required after injection of lipiodol. Being hypertonic, ioduron B is more irritating than lipiodol and less opaque to the roentgen ray. If such a water soluble medium can be made less irritating, it will hold great promise for the future.

CONCLUSIONS

Bronchography has proved of definite value not only in the diagnosis of many suppurative and neoplastic diseases of the chest but also in determining the precise location of a lesion amenable to surgical treatment. In this way, it has provided information which helps the surgeon plan his procedure beforehand. The success of bronchography depends upon a good technic which will provide adequate visualization of the entire bronchial tree. Present investigations to develop a more satisfactory opaque medium for bronchography appear to have great promise for the future.

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ROLE OF THE PRIVATE PHYSICIAN IN TUBERCULOSIS CONTROL

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The control of tuberculosis depends largely upon two major activities: research and medical education. It is the opinion of many observers that medical education is woefully lacking in a large number of medical colleges. Research on tuberculosis received a boost in the past two years by receiving 1 per cent of seal sale money as a direct allocation. The success of research is assured by a solid organization and adequate support. A program for medical education is most desired and must be strengthened by the personal efforts of *each of you* interested in tuberculosis control.

MEDICAL SCHOOL EDUCATION ON TUBERCULOSIS

Why have the authorities in charge of medical colleges been at least reluctant, if not actually negligent, in the omission of a good course of instruction on tuberculosis in the curricula? Is it the fault of people like those in this audience? Have we decreased their interest by overemphasis on declining death rates and so forth? Is it primarily the fault of the Deans of Medical Colleges?

Our medical research program is greater in import, scope, and effectiveness than that of medical education. It is our duty to correlate the research information with that of education. Within the past few years progress in the refinements of diagnosis, and the methods of treatment of tuberculosis have been rapid and significant. Progress must continue if we are to control tuberculosis. As changes take place and our course of treatment is altered, new procedures are introduced. To quote Dr. John H. Skavlem on the up to date information that is needed:

"Our medical education program has not kept abreast of our program in medical research. Within the past ten years, the advancements in the refinements of diagnosis and the methods of treatment of tuberculosis have been rapid and significant. Such changes will continue. The older methods are being altered or changed in importance and new procedures are introduced. The medical students and the physician, be he teacher, research worker, general practitioner, or specialist, must be kept authoritatively informed of the progressive changes. For example, the present day usage of pneumothorax, pneumoperitoneum and phrenic nerve paralysis; the importance and place of the tuberculin test; and judicious use of BCG; the necessity and choice of surgical procedures, such as thoracoplasty and resection, are all questions of pressing significance. The answer to such questions are changing from year to year and month to month as research contributes new knowledge and experience. The physician should and does look to the American Trudeau Society for rules and guidance, because we as an organization sponsor and promote the largest program of research in tuberculosis in the world. We cannot be deficient in our program to spread and guide the knowledge given by such research."

Would it not be a policy of wisdom for the local tuberculosis association, and the local and state medical societies to assert themselves and urge the medical colleges to endeavor to teach a good course in the diagnosis and treatment of tuberculosis?

Medicine and surgery offer so much in modern treatment of tuberculosis. Never before have there been the many and varied opportunities for the local tuberculosis association to team up with the other community organizations such as the medical school, hospital, and local medical societies. It is so evident they have much to offer each other.

In these changing times these kindred interests must work together if they are to hold public confidence and continue to do effective work. I maintain that until every graduate of medicine has some basic working knowledge of tuberculosis, a control program is almost static. Every doctor, be he specialist, or not has a place in a control program. He *must* get his fundamentals in the medical school.

For every medical student to gain this

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knowledge that we discuss, ways and means of supporting an expanding program of medical education should be studied. Now is the time, and the place is very obvious. Of course, the needs vary in different localities. The urgency and importance of obtaining aid in the solution of this problem should be an incentive, also good reason for obtaining the support of local tuberculosis associations, medical societies, and medical colleges.

ROLE OF THE FAMILY DOCTOR

A program to educate doctors is legitimate, it is logical, and should be a choice of activity. Let me repeat a quotation from Dr. Herman E. Hilleboe:

"The average patient has a great deal of confidence in his private physician, and expects him to treat tuberculosis much as he would accept other family emergencies. Psychological factors make this desirable, and practical considerations make it feasible, especially if this physician possesses sufficient broad understanding of tuberculosis and modern therapeutic methods. Sanatorium care is no longer the only method of tuberculosis control. Many minimal lesions and a limited number of inactive advanced lesions are amenable to out-patient supervision under strict medical care. This supervision and care can often be rendered by the alert general practitioner who possesses modern knowledge of the diagnosis and treatment of tuberculosis."

To again emphasize the great importance of the role of the family doctor in tuberculosis control, your attention is directed to the various groups of patients that could and do come under his care.

First—The ever increasing numbers on the waiting list for admission to the sanatorium.

Second—The group that is discharged with consent and are in need of further treatments and follow-up care.

Third—That much too large contingent that leave the sanatorium against advice, but must be treated.

Fourth—Those that refuse to enter hospitals for various reasons.

Fifth—Those rejected for various reasons, as hopelessness, old age, and so forth.

Sixth—Those patients that are diagnosed by the family doctor.

A working knowledge of diagnosis and treatment, good judgment and discretion by the family doctor may often prevent a catastrophic result. For instance, the period of two to eight weeks waiting period may mean life or death depending on advice given by the family doctor. If the physician is qualified, or refers patient to the specialist, he may institute the proper collapse procedure. He may judiciously use chemotherapy, especially in hemoptysis and other severe complications requiring active treatment. The advantage of such care is very manifest in the response achieved in many cases. It fills the gap of time with action, which every one sick needs and desires.

CONCLUSION

It is our anticipated hope that the knowledge acquired by research will be to promote the dissemination of knowledge into useful effective channels of practice. This will aid the student who graduates in medicine. When proper facilities are available and used to promote postgraduate education for the family doctor and general practitioner of medicine they will have reached a pinnacle in the control of tuberculosis. Those of us that spent our efforts will have the satisfaction and knowledge that the goal of control of tuberculosis has been approached, if not obtained, to the fullest extent. To quote H. McLead Riggins:

"Thoughtful, determined, and cooperative effort by medical educators and tuberculosis associations can remedy the flaws in medical education in tuberculosis."

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THE FIELD OF GENERAL PRACTICE

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MEMPHIS, TENNESSEE

With renewed interest in the general practitioner becoming apparent in all segments of American Medicine, the field of general practice becomes a consideration for definition. Just what shall the general practitioner do? Just how far shall he go in the care of patients? This, of course, must remain an individual matter and depends very largely upon individual training. One fact, however, that is frequently missed in discussing such a problem is the fact that 80 per cent of diseases prevalent

in America today are of simple, uncomplicated nature and respond well to exhibition of the remedies known to all physicians.

PSYCHOSOMATIC ASPECT OF GENERAL PRACTICE

One should admit that the majority of diagnoses are easily made. There is a third factor, too, that becomes important in considering the field of general practice. Many people come to their physician for relief of fear and relief of worry. No thinking physician who has had experience in practice would deny for a minute that the majority of American medical practice is psychosomatic. To those of us who have spent a few years dealing with the public, the term "psychosomatic" frequently takes on a connotation akin to "worried people."

In the writer's own general practice, approximately 60 per cent of the patients seen had little or no organic pathology but the problems of everyday living; the problems that occur to all of us during our lives, were the things that brought them to the doctor. They sought not organic medical care but friendship and understanding and appreciation of their problems.

If these facts be true—and they are nearly universally agreed upon—then the field of the general practitioner encompasses from 80 to 90 per cent of the medical problems of any community. Any physician worthy of the name will refuse to care for disease beyond his ken and will seek the advice of better trained men whenever necessary. It is, however, an undeniable fact that young men have been encouraged to seek help perhaps too much. In the training of physicians we have frequently emphasized the organic, the difficult, the complex, the unusual, to the point where the physician comes to doubt the very existence of the simple, the everyday entities of general practice. The writer does not mean that a physician will doubt these entities after having been in practice. Referral here is to young and recently graduated physicians.

FEAR OF GENERAL PRACTICE

At the University of Tennessee where an intensive undergraduate program is now being carried on for the purpose of training young men for general practice, we have come to believe that the average student shuns such practice not because he does not like the conditions under which the general practitioner works, but because he is afraid that he is not capable adequately to care for the population of the small town. This, we believe, is not true.

All too frequently, the young man enters the small town afraid of the implications of practice and afraid to trust his own judgement. By the very nature of such practice he is forced to trust his own judgement; he is forced to trust occasionally his surgical technique and he finds that the results are quite good. Then, all too often, he lets all bars down and tries anything and everything. This is not proper and should not be condoned by the medical profession, but we believe it is less the fault of the young man than the fault of his training.

RETURN OF THE FAMILY DOCTOR

Fortuitously, most of the more progressive medical schools of the United States are beginning intensive programs to fit the young man for general practice in rural communities. It would be the contention of all of us that the field of general practice offers more service opportunities to the young doctor than any other field. It has been statistically proven that the worst served area is that area in which no general practitioner is located, and it is being proven daily that the American public demands return of the family doctor. This is not to say that the public demands the standards of medical care that existed thirty years ago, but that they demand the relationship that existed between the family doctor and his patients.

This relationship is difficult of analysis. There are probably no words which can explain the deep and abiding trust and affection that has existed and sometimes exists today between the family doctor and his patients. This ephemeral quality has been and probably will continue to be the greatest reward for the physician. We believe that young men should be taught that their greatest opportunity to serve the pub-

lic lies in this field of general practice and the family doctor relationship.

Several means have been adopted with the view of accomplishing this including the preceptorship and including the general practice clinics of the University of Tennessee. There can, of course, be no agreement as yet as to which means of instruction is best. As a matter of fact, doubt might even be cast that it is possible in any brief period of time to teach a man how to be a doctor. Nonetheless, definite progress has been made and it is our belief that further advance should be encouraged.

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CRIMINAL ABORTION*

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NEW ORLEANS

Because of the number of criminal abortions admitted to Charity Hospital, our interest has been aroused in the complications, morbidity, and mortality in induced abortions. There has been no recent paper dealing with criminal abortions per se except for occasional case reports or as a subtopic of other studies of abortions.

The legal definition of criminal abortion in the State of Louisiana is as follows: Abortion is the performance of any of the following acts, for the purpose of procuring premature delivery of the embryo or fetus: (1) administration of any drugs, potions, or any other substance to a pregnant female; or (2) use of any other means whatsoever on a pregnant female.

MATERIAL

This paper deals with the criminal abortions admitted for treatment on the Louisiana State University Gynecological Unit of Charity Hospital for a period of forty-eight months, ending December, 1951. Since a history of instrumentation or interference is often difficult to obtain, the incidence of criminal abortions cannot be inferred from this study. This study necessarily includes suspected as well as admitted criminal abortions. (Table 1).

TABLE 1
TYPES ACCORDING TO COLOR IN 581 ABORTIONS JANUARY 1, 1948, THROUGH DECEMBER 31, 1951

TYPES	NEGRO	WHITE	TOTAL
Spontaneous			
Nonseptic			
Incomplete	208	143	351
Complete	39	21	60
Septic			
Incomplete	45	29	74
Complete	11	4	15
Criminal			
Nonseptic	10	14	24
Septic	18	25	43
Suspected Criminal			
Nonseptic	2	3	5
Septic	8	1	9

Of the total number of patients admitted for abortions, 13 per cent were criminal.

Previous Pregnancies: The data indicate that most of these abortions were induced during the third, fourth, and fifth pregnancies. The distribution of parity of criminal abortion is shown in Table 2. Of the entire series of 80 cases, 42 were white and 38 were colored.

TABLE 2
PARITY OF CRIMINAL ABORTIONS

Primigravida	9
Secundigravida	14
Tertigravida	12
Quadrigravida	24
Grandmultipara	21

Duration of Gestation: Most of the criminal abortions (81 per cent) were induced during the first trimester of pregnancy. The duration of gestation in weeks is shown in Table 3.

TABLE 3
INCIDENCE OF CRIMINAL ABORTIONS ACCORDING TO WEEKS OF GESTATION

WEEKS OF GESTATION	NUMBER	PER CENT
4	6	7.50
6- 8	33	41.25
8-12	26	32.50
12-16	7	8.75
16-20	5	6.25
20-24	3	3.75

Type of Instrumentation: About two-thirds of the abortions were induced with a catheter, pack, or both. In no patient was the criminal abortion induced by a physi-

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

From the Department of Obstetrics and Gynecology of Louisiana State University School of Medicine, and Charity Hospital of Louisiana at New Orleans.

cian. Fifty-five were performed by midwives and 11 were self induced. Of the latter, 7 were white and 4 were colored cases. The numerous devices used to induct abortions are shown in Table 4.

TABLE 4
TYPE OF INSTRUMENTATION—SELF INDUCED OR ASSISTED

TYPE	NUMBER
Catheter, pack or both	47
D & C	3
Slippery elm	4
Plastic needle	1
Wire & lysol douches	1
Syringe	1
Type unknown	9

Duration of Illness Prior to Admission: Fifty-five cases (69 per cent) were admitted for treatment within forty-eight hours after instrumentation as shown in Figure 1.

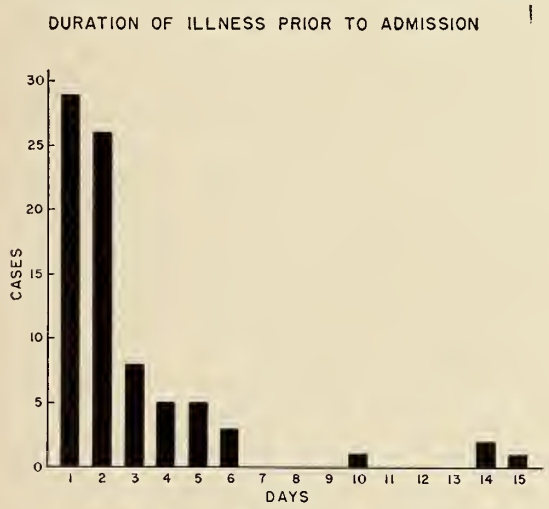

Figure 1

Sepsis: Fifty-one cases or 64 per cent were septic. The criterion for sepsis was a temperature of 101° F. at any time or a temperature of 100.4 on any two successive days.

Anemia: Twenty cases, or 25 per cent, had hemoglobin or hematocrit below 10 gms. per cent or 30 mm., respectively, on admission. Forty patients (50 per cent) required blood transfusions in amounts ranging from 500 cc. to 4000 cc., as shown in Table 7.

TABLE 5
BLOOD AND CERVICAL CULTURES

	TOTAL CULTURES	POSITIVE	NEGATIVE
Blood	47	11	36
Cervix	33	28	5

TABLE 6
ANTIBIOTICS AND CHEMOTHERAPEUTIC AGENTS

AGENTS	NUMBER
Sulfonamides	55
Penicillin	67
Streptomycin	41
Aureomycin	10
Terramycin	1
Chloromycetin	3

The most commonly employed combinations were penicillin and sulfonamides; penicillin and streptomycin; and sulfonamides, penicillin and streptomycin.

TABLE 7
BLOOD TRANSFUSION

AMOUNT	NUMBER
500 cc.	14
1000 cc.	15
1500 cc.	4
2000 cc.	3
3000 cc.	3
4000 cc.	1

Complications: The complications of criminal abortions are hemorrhage and sepsis and decretory conditions thereof as shown in Table 8.

TABLE 8
COMPLICATIONS

TYPE	NUMBER OF CASES
Pelvic peritonitis	8
Pelvic cellulitis	7
Cul-de-sac abscess	3
Perforation of uterus	2
Tubo-ovarian abscess	1
Subhepatic abscess	1
Suppurative pelvic thrombophlebitis	1
Thrombophlebitis of lower extremity	1
Pulmonary infarct	1

Surgical Intervention: Nine cases or 10.1 per cent required some type of surgical intervention. Five cases required dilatation and curettage because of persistent excessive bleeding. Two of these dilatation and curettage were done by physicians prior to admission. As a rule dilatation and curettage is not done in infected patients until the signs of sepsis have subsided and then only if the bleeding is severe. There were 4 other cases which required surgical intervention; the first case required a colpotomy; the second case an extraperitoneal drainage; the third case in-

cision and drainage of subhepatic abscess; and the fourth case a ligation of the inferior vena cava and ovarian veins for a suppurative pelvic thrombophlebitis.

Duration of Hospitalization: Sixty-two patients were discharged within five days—the shortest duration being one day and the longest, fifty-eight days.

MORTALITY

In this series of 80 cases there were 4 deaths, making the mortality rate 5 per cent. It is interesting to note that these 4 deaths comprise all of the deaths from all types of abortions during period of this study. (Table 1)

Case No. 1: Admitted in 1948, in shock, one day after instrumentation, with a letter from a physician that a curettage was done because of excessive bleeding. An exploratory laparatomy was done because of blood obtained from a cul-de-sac puncture. The uterus was found to have two perforations on the posterior surface and there was serosanguineous fluid in the abdomen. The patient died twenty-four hours after admission. Cause of death was diffuse generalized peritonitis, bronchopneumonia, and septicemia.

Case No. 2: Admitted in 1949, two days after instrumentation, died twenty-five hours after admission. Cause of death was perforation of the uterus with intra-abdominal hemorrhage and septicemia.

Case No. 3: Admitted in 1949, two days after instrumentation, died ten hours after admission. The cause of death was *E. coli* septicemia and circulatory collapse.

Case No. 4: Admitted in 1951, six days after instrumentation, died ten hours after admission. The cause of death was septicemia, pneumonia, and acute hepatitis.

TREATMENT

In accordance with staff policy all criminal abortions are admitted to the hospital. After the admission history and physical examination, the vagina is inspected under sterile conditions with bivalve speculum; any pieces of tissue or blood clots in vaginal canal are removed; those in the cervical canal are extracted gently with sponge forceps—the cervical canal is not entered except to obtain a cervical culture. In addition to complete blood count and urinalysis, blood cultures and cervical cultures are taken. All cases routinely have chest x-rays for pneumoperitoneum or pulmonary diseases including infarcts or pneumonia and also for future reference should any complications arise at a later date. Oxytocics, usually ergotrate and pitocin or pituitrin, are given intramuscularly.

Mixed serum (tetanus and gas bacilli antitoxin) is given intramuscularly to all patients. None of the cases in this study had or developed tetanus or Welchii infections. Those patients who were in shock or anemic received blood transfusions. Curettage is reserved for those patients who continue to have persistent excessive vaginal bleeding. The most commonly employed chemotherapeutic and antibiotic agents were sulfonamides, penicillin and streptomycin.

Bacteriological studies are very important because the offending organisms can be identified and the proper drug instituted as determined by sensitivity studies.

DISCUSSION

Inasmuch as the four deaths discussed have been associated with septicemia, it is obvious that the number one cause of death in criminal abortion is still sepsis, and more specifically, overwhelming septicemia. In an effort to attack this problem more rationally, we emphasize the need for bacteriological studies. Cervical and blood cultures should be done on admission to obtain the offending organisms, and the drug of choice should be determined by sensitivity studies. With the newer intravenous antibiotics (terramycin and aureomycin) it is possible to obtain immediate therapeutic blood levels. Such therapy might have prevented at least 2 of the deaths discussed.

All patients should be given mixed serum. None of our cases developed tetanus or Welchii infections.

Patients admitted in shock or with anemia should be transfused immediately with whole blood to combat the shock, anemia, and infection. Fifty percent of the cases reviewed required blood transfusions.

The complications incident to instrumentation are perforation of the uterus, intra-abdominal hemorrhage, peritonitis, pelvic cellulitis, cul-de-sac abscess, tubo-ovarian asbscess, subhepatic abscess, suppurative pelvic thrombophlebitis and pulmonary emboli. Whenever the infection localizes and points, proper surgical drainage is necessary. One patient developed a sup-

purative pelvic thrombophlebitis which was successfully treated by ligation of the inferior vena cava and ovarian veins. Only 2 of our cases received dicumarol, the first for a thrombophlebitis of the lower extremity, and the second, prophylactically.

It is very distressing to note that the majority of abortions were induced in the third, fourth, and fifth pregnancies. Similar observations have been made by Collins and others. Only 9 of the 80 patients attempted interruption of their first pregnancy. All of the deaths occurred in women who had families of several living children, in 2 the abortion was attempted for the eighth gestation.

SUMMARY

In spite of the moderate advances in medicine, criminal abortion is still an extremely hazardous undertaking for the pregnant woman. Of 80 patients admitted to Louisiana State University Gynecological Unit of Charity Hospital 4 died. Most of these women have had several children. Only 10 per cent were primigravida. The major problem continues to be sepsis, particularly overwhelming septicemia.

Instrumentation and perforation of the uterus, whether done by the abortionists or by the physician called to care for the patient, is also a hazardous procedure.

In the future increased attention must be given to bacteriological studies of the offending organism so that prompt and proper antibiotic therapy can be instituted.

REFERENCE

1. Louisiana Criminal Code. Art. 43, 1942. Amended regular session, 1948. Art. 87, Sect. C.

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POSTPARTUM ECLAMPSIA*†

HOWARD J. TATUM, PH. D., M. D.
NEW ORLEANS

Postpartum eclampsia is a relatively rare complication of pregnancy. For this reason there are limited critical data in the literature concerning this disease, and those reports which are available consist primarily of individual cases.

Because of the large obstetric service in Charity Hospital of Louisiana at New Orleans, it has been possible to assemble a series of 36 cases manifesting postpartum eclampsia. These cases occurred within the five year interval, from 1947, through 1951. During this time there were 51,903 deliveries giving an overall incidence of slightly more than 6 cases of postpartum eclampsia per 10,000 deliveries. The primary object of this study is to analyze these data to ascertain whether or not anticipation, and hence prevention of such a complication may be possible.

Postpartum eclampsia was preceded by some type of prenatal toxemia in 29 or 80 per cent of these cases. There were 25 cases preceded by pre-eclampsia alone, and 4 cases preceded by hypertensive disease with superimposed pre-eclampsia.

It is of considerable interest that 12 of the 36, or 33 per cent, were delivered by operative procedures. These procedures consisted of 10 forceps deliveries and 2 cesarean sections.

The time relationship between the delivery and the first convulsion is tabulated in Table 1 and represented graphically in Figure 1. One quarter of these patients convulsed within two hours after delivery and more than one-half convulsed within eight hours. Thirty-one, or 86 per cent, of the patients had their first convulsion within the first twenty-four hours following de-

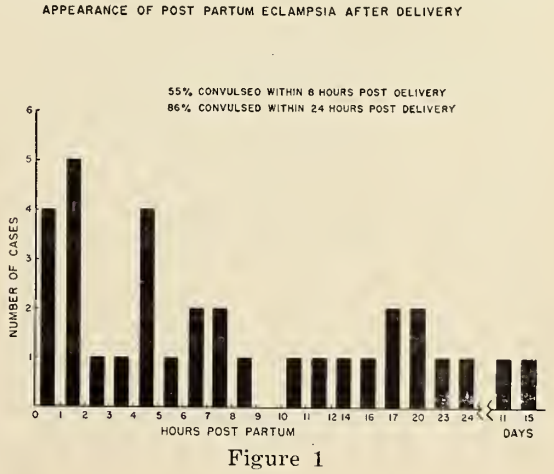

Figure 1

*Presented at the Seventy-second Annual Meeting of the Louisiana State Medical Society, Shreveport, April 30, 1952.

†Aided in part by the Edward G. Schlieder Educational Foundation of New Orleans, Louisiana.

From the Department of Obstetrics and Gynecology of Louisiana State University School of Medicine and Charity Hospital of Louisiana at New Orleans.

TABLE 1

TIME RELATIONSHIP BETWEEN THE FIRST POSTPARTUM CONVULSION AND DELIVERY

Time After Delivery Hours	Days	Number of Cases
1		4
1-2		5
2-3		1
3-4		1
4-5		4
5-6		1
6-7		2
7-8		2
8-9		1
9-10		1
10-11		1
13-14		1
15-16		1
16-17		2
19-20		2
22-23		1
23-24		1
24-48		1
	3-4	1
	6	1
	11	1
	15	1
	TOTAL	36

livery. The remaining patients had convulsions which appeared at varying intervals ranging from twenty-five hours to fifteen days after delivery. The latter case which has been described in detail elsewhere by this author[1] will be presented later in this paper.

The most important and most interesting data which came to light during this study portray the relationship between postpartum eclampsia and the amount of sedation employed prior to the onset of convulsions. Of the 36 patients, 28, or 78 per cent had received no sedation prior to the appearance of convulsions. Graphic representation of this appears in Figure 2. It also becomes apparent from Figure 2, that there has been no significant change in the yearly incidence of postpartum eclampsia occurring in Charity Hospital during this study interval.

More than one-half of the patients presented here were primiparae, 20 years of age or less.

Some type of prenatal care had been rendered to 69 per cent of the patients, al-

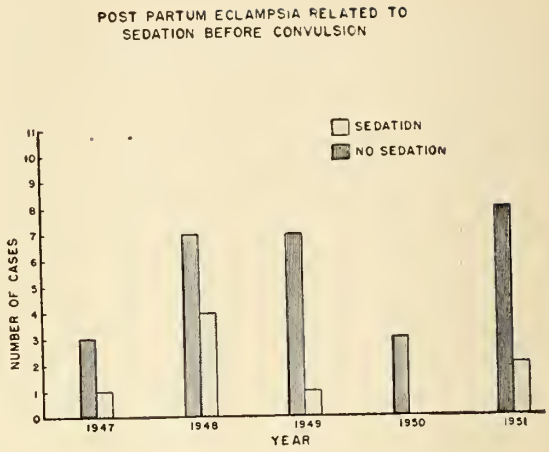

Figure 2

though in 55 per cent, each of the patients received no more than two months of prenatal care.

There was one maternal death in this series. This patient was a para 6-0-6 who was a known hypertensive with superimposed pre-eclampsia. She delivered uneventfully and was discharged on the second postpartum day. Six days after delivery, while at home, she had three severe convulsions and was admitted to the hospital in a state of profound coma. She presented characteristic signs of intracranial hemorrhage and expired within twenty-four hours of admission. The request for a complete postmortem examination was refused.

The most remarkable case study in this series is of the patient who had her first convulsion on the fifteenth postpartum day. This patient had made frequent visits to the prenatal clinic. At no time during her prenatal course or during her admission for labor and delivery was there any hypertension. She did, however, manifest some proteinuria during the three weeks prior to delivery. She had an uncomplicated labor and delivery and was discharged on the second postpartum day. Thirteen days later she began to complain of headaches, and at that time, noted some swelling of her face. These symptoms became more severe and on the fifteenth postpartum day, while at home, she had a generalized convulsion. She was promptly readmitted to the hospital in a semicomatose state. Her blood pressure was 180/120. Several hours later she had

a second generalized convulsion. The routine laboratory data and clinical findings, as well as special diagnostic procedures, including lumbar puncture, electroencephalography, and therapeutic trial with tetraethylammonium chloride were in every way consistent with the diagnosis of eclamptogenic toxemia. This patient has been seen at frequent intervals in the postpartum clinic for a period of more than nine months and repeated clinical and laboratory data indicate complete recovery.

DISCUSSION

In the analysis of the data presented, those factors which may enable us to anticipate postpartum eclampsia become very important, since prediction must necessarily precede prevention.

Of these 36 patients, 80 per cent manifested some type of toxemia prior to delivery. This figure is significantly higher than that reported by Stander *et al*[2]. In his series of 24 patients, only 11, or 46 per cent, had signs of toxemia during the prenatal period. By combining these two series we may conclude that the diagnosis of some form of toxemia during the prenatal course was made in 66 per cent of the patients.

It has been frequently and conclusively demonstrated that careful prenatal care with particular emphasis on diet and salt intake can almost completely prevent pre-eclampsia. Similarly, once pre-eclampsia develops it can be effectively treated in the vast majority of the cases, provided the disease is recognized during the incipient stage, and provided active therapeutic means are instituted without delay. It then becomes apparent that in this series where 55 per cent of the patients received no more than two months of prenatal care, prevention was effectively neglected. This neglect must be directly attributed to the patient, since prenatal care was sought so late in pregnancy.

The excitation incident to labor and delivery can and frequently does set off the trigger mechanism which initiates the transition from pre-eclampsia to eclampsia. It is well known that sedation provided by the opiates and barbiturates can very effectively prevent or control the convulsive episodes of eclampsia. The significance of this became apparent when it was found that in this series, 80 per cent of the patients had received no sedation prior to the onset of convulsions. The great importance of the adequate sedation of a toxemic patient following delivery cannot be overemphasized. During the past five years in Charity Hospital there has been no postpartum eclampsia occurring during the first twenty-four hours following delivery in a patient who manifested some type of toxemia prior to delivery and who had received sedation promptly following delivery and for the first twenty-four hours of the puerperium. Since 86 per cent of the patients convulsed within the first twenty-four hours of the puerperium, it is safe to assume that very effective prevention would result if the sedation of toxemic patients following delivery was continued for this length of time.

There remains a certain group of patients who present no signs or symptoms of toxemia throughout pregnancy and labor, but who convulse sometime during the early puerperium. It is very doubtful that any of these patients progress to this extreme without first manifesting some signs or symptoms of toxemia. The appearance for the first time of hypertension during the puerperium has been reported by Meyer[3] and Kaltreider.[4] The patient in this present series who convulsed on the fifteenth postpartum day may belong to this general category.

It then becomes mandatory that more careful and prolonged observation during the early puerperium must be available to the patient if this type of postpartum eclampsia is to be prevented.

CONCLUSION

1. In this series, 80 per cent of the cases manifested signs of toxemia prior to delivery.

2. Convulsions occurred within eight hours after delivery in 55 per cent, and within twenty-four hours after delivery in 86 per cent of the cases.

3. The earliest postpartum convulsion

occurred twenty-five minutes after delivery and the latest occurred on the fifteenth postpartum day.

4. Postpartum eclampsia can be prevented in the majority of cases by means of sedation of toxemic patients by opiates and barbiturates for a minimum of twenty-four hours after delivery.

5. Postpartum eclampsia occurring in patients who did not manifest signs of toxemia during pregnancy and labor can in all probability be prevented by more careful and more prolonged puerperal care.

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NEW ORLEANS
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THE ROAD AHEAD FOR MEDICINE

The road ahead for organized medicine and for professional independence of the physician will not be easy. In the last twelve years, the affairs of medicine have progressed from one uneasy crisis to another. In the last four years, as the result of a magnitude of effort never before exerted in its behalf, organized medicine has temporarily overcome the enactment of laws to establish state medicine. On top of this, as a result of the recent election, we are assured of a government coming into power under the leadership of General Eisenhower that is opposed to state medicine, guised or disguised, in any form whatsoever.

Reflecting on this turn of events, we, as doctors, may have a tendency to feel that our battle is won, and that this projection of socialism into our midst need concern us no more. Such is not true. It is well to pause and reflect on the difficulties with which we may be faced, on the insecurities of our position in certain respects, and on the manner in which we may be vulnerable to guerilla tactics on the highway. We must remember that our enemies are defeated only in a formal battle. Their forces have not been annihilated nor their fanaticism diluted. The powerful bureaucratic group which is largely responsible for the organized effort of the Democratic party to foster state medicine will remain in Washington as civil servants. The socialistic group, who have captured the thinking of the Democratic party, will continue to guide its political thinking and action. The C. I. O. Political Action Committee in a recent pamphlet attempts to put the American Medical Association in a slanderous light. It says: "The A. M. A. and the conservation coalition will not even tolerate support of state and local Public Health Services." And further, General Eisenhower ran ahead of his party. This means that his tremendous majority was the result only partly of the trend away from socialistic thinking. The recent victory gives organized medicine an opportunity to take stock, and having done so, it should pursue a steady program.

It is our duty to secure our position against the uncertainties of the past. Continued vigilance is needed to prevent the enactment of legislation, piece by piece, which would eventually mean the establishment of state medicine. In addressing ourselves to secure these ends it is well to consider the organization and the individual standpoint.

The central point of the problem of organized medicine is the improvement of public relations and the impact of medical society action on the public. Relations with the press should be put on a basis satisfactory to both, and for this to be accomplished

certain concepts of the past will have to be altered. The position which doctors hold in social controversies must be explained to representatives of the press. The reluctance of the society or of the physician to appear in print leaves the field to our enemies, or at least to self appointed guardians.

The public has come to look upon our group as condoning fees that certain patients consider unreasonable. The basis for fees should be discussed, and rational comparisons made with fees in other fields. Medical mediation committees are now functioning in all states. This is the result of a four year campaign for the creation of such patient-physician relations bodies. These committees investigate complaints concerning the professional conduct and the ethical deportment of individual physicians, and attempt amicable adjustments. The existence of such committees, on the one hand, acts as a potential restraint on the occasional physician; and on the other hand, it gives the public an added sense of security when it is realized that the collective effort of the profession is directed towards their consideration.

Further assistance to medical education is vital to our efforts for freedom and to the scientific needs of medicine. The National Fund for Medical Education is launching a $5,000,000 industry-wide solicitation campaign in support of medical education in the United States. If this campaign succeeds, industry and finance will be carrying the torch for the cause of freedom in the medical schools. We owe them all possible support.

Community Health Councils have been organized in more than a thousand localities. They serve as a meeting ground where the capacities of the profession can be adapted to the health needs of the community. When such an understanding is established, the plea of the malcontents for medicine by statute loses its force. These Councils depend for their initiation and maintenance upon the support of the profession. In such ways, the ammunition of our critics is vitiated.

The payment of hospital and sickness insurance has grown in the past twenty years to where approximately 80,000,000 of our population have some form of such insurance. In effect, this spreads the cost of insurance through the whole population. In order for this insurance to expand and to continue to be effective, sympathetic assistance for its honest operation must be given by the profession.

The relation that the individual physician has to the road that medicine will follow in the years ahead is equally as important as that of his organization. Each one of us is a public relations agent for our organization and for medicine's future welfare. As such, physicians should make themselves available as speakers when information is needed on matters that concern medicine. The physician should make himself known as a party member and as a part of his precinct organization. He should be available to serve on boards of medical welfare. He should be conscious of his position as a citizen in the community as well as a servant in a noble profession.

Centuries ago Plato said: "The penalty that good men pay for refusing to take part in government is to live under the government of bad men." Recently, the president of the A. M. A., Louis H. Bauer, said: "Democracy works only when all the people take part in it. When only 51 per cent of the electorate exercise their right of franchise, as was the case in 1948, we are governed by 26 per cent of the population. This means we are no longer a democracy but an oligarchy." As an organization, we can work for our needs and fight for our principles. As individuals, we can follow the dictates of good citizenship, and spread the doctrine that state medicine is only the beginning of a socialist program; that every welfare state becomes a police state and that private enterprise and individual freedom are destroyed by either. The challenge to organized medicine and to the freedom of the individual physician is as important now as it was noisy in 1948.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

LOOKING FORWARD

Now, that the National Election is over, the physicians of our state should feel relieved and grateful to know that we will have in the White House, for the next four years, a President who will see eye to eye with those of us who believe in the free enterprise way of the practice of medicine.

We should, however, not reduce our interest or efforts toward keeping organized medicine on a high plane of efficiency and free from all parts or counterparts of socialized medicine. There has been some damage done already by our enemies, Mr. Truman and Mr. Ewing and their henchmen, who have tried to exploit our profession and force socialized medicine down our throats for the past number of years. Let us ever be on the alert and watchful for any opportunity to correct the evils of the past administration and to look forward to a brighter future, when we can continue to give the best of medical service to the public without interference from Washington.

We should do everything within our power to prevent the loss of our freedom through and by the signing of detrimental treaty agreements with other nations, fostered by some members of the United Nations organization, which treaties will transcend our Constitution and will deprive us of the privileges and advantages formerly enjoyed by the constitutional rights granted by this most cherished and revered document.

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"THE 40,000,000 GIRLS AND BOYS"

An exciting series of four dramatic radio broadcasts on the health of America's children—with a direct personal challenge to every parent, every teacher, every man or woman who wants the kids in his community to have the best possible protection, the best possible chance for long and active lives is presented jointly by the National Broadcasting Company and Health Information Foundation.

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December 13

How can you find out what lies behind a child's fears? What methods do experts use to bring those fears into the open? The dramatic story of doctors and parents working to fight off the shadows which can cloud a child's mind and damage his physical health.

December 20

What are our schools doing to safeguard the health of young children? And why is it up to you to make these programs work? Hear what happened in town after town when parents made up their minds to have their children treated for the physical defects detected in school health examinations.

December 27

Are you making full use of all the different kinds of help your family doctor can offer as your child grows up? Do you know when and how to use him? How best to cooperate with him in long-range plans as well as in time of illness?

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STUDENT AMA

The Student American Medical Association is offering honorary membership to physicians, and is encouraging them to

join their organization. The dues for this type of membership are $5.00 per year and entitle the physician to a subscription to the 72-page monthly journal of this Association, participation in the annual convention and other activities of the Association. Those physicians and friends who are interested in the welfare of our medical students and wish to become honorary members may do so by writing Mr. David Buchanan, Student AMA, 535 North Dearborn Street, Chicago 10, Illinois.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

In order to assist specialty groups in selection of dates for meetings and for information of the doctors of the state, information concerning scheduled meetings will be carried in this section of the Journal. Officers of specialty groups are therefore requested to furnish information in this regard.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The sixteenth annual meeting of The New Orleans Graduate Medical Assembly will be held March 2-5, headquarters at the Municipal Auditorium.

Eighteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners. In addition, the program will include a symposium on "The Value of Newer Drugs," daily demonstrations of medical and surgical procedure in color television, clinicopathologic conferences, medical motion pictures, over 100 technical exhibits and three roundtable luncheons.

Guest speakers participating are as follows:

DERMATOLOGY—J. Lamar Callaway, M. D., Durham, North Carolina.

GASTROENTEROLOGY—A. H. Aaron, M. D., Buffalo, New York.

GYNECOLOGY—Herbert E. Schmitz, M. D., Chicago, Illinois.

HEMATOLOGY—Carl V. Moore, M. D., St. Louis, Missouri.

INTERNAL MEDICINE—Rudolph H. Kampmeier, M. D., Nashville, Tennessee.

INTERNAL MEDICINE—Henry A. Schroeder, M. D., St. Louis, Missouri.

NEUROSURGERY—Guy L. Odom, M. D., Durham, North Carolina.

OBSTETRICS—Andrew A. Marchetti, M. D., Washington, D. C.

OPHTHALMOLOGY—Harold F. Falls, M. D., Ann Arbor, Michigan.

ORTHOPEDIC SURGERY—J. Vernon Luck, M. D., Los Angeles, California.

OTOLARYNGOLOGY—G. Edward Tremble, M. D., Montreal, Canada.

PATHOLOGY—Arthur P. Stout, M. D., New York, New York.

PEDIATRICS—Waldo E. Nelson, M. D., Philadelphia, Pennsylvania.

RADIOLOGY—Edward B. D. Neuhauser, M. D., Boston, Massachusetts.

SURGERY—George Crile, Jr., M. D., Cleveland, Ohio.

SURGERY—Robert E. Gross, M. D., Boston, Massachusetts.

SURGERY—Charles W. Mayo, M. D., Rochester, Minnesota.

UROLOGY—Wyland F. Leadbetter, M. D., Boston, Massachusetts.

The Assembly has planned another interesting postclinical tour to follow the 1953 meeting in New Orleans. On Saturday, March 7, a party composed of doctors and their families will leave New York for Europe on the great new superliner, S. S. United States. The itinerary includes England, France, Switzerland and Italy, and arrangements have been made for medical programs in these countries. The tour ends in Rome and the group will return to New York on March 31 by Pan American World Airways, President Special.

Details of the New Orleans meeting and the postclinical tour are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

CLINICAL CONFERENCE OF THE CHICAGO MEDICAL SOCIETY MARCH 3-6, 1953

March 3, 1953, will be the opening day of the 9th annual Clinical Conference of the Chicago Medical Society. This Conference is designed to be of interest to both the specialist and the general practitioner. It will be held at the Palmer House in Chicago and will present a variety of subjects setting forth the latest information available to the medical profession.

Conducting the Conference will be a faculty ranging from 35 to 40 outstanding speakers each offering a presentation relating to their specialty. In addition another group will give daily teaching demonstrations which will include the presentation of patients. They will emphasize the actual technique to be employed in handling orthopedic, medical and pediatric problems. In addition to holding these demonstrations each day, there will be a panel discussion at a round table luncheon presenting topics of timely interest.

This is an activity of the Chicago Medical Society for its membership to whom no fee is charged. Those who are not members of the Chicago Medical Society are asked to register for the four days at the nominal fee of $5.00.

AS YOU LIKE IT

Perhaps you've known someone who had tuberculosis . . . possibly a member of your own family was spared a long and anxious hospital stay because me learned in time that he had TB . . . or maybe you just believe that an ounce of prevention is worth a pound of cure.

When you buy Christmas Seals, you buy them for your own reason. Nobody tells you that you *have* to support this fight against tuberculosis. The Tuberculosis Association is a "voluntary" organization, which means that it is supported by people giving of their own free will.

When you get your seals every Christmas, you buy them, or return them, or throw them into the wastepaper basket. It is in the privacy and convenience of your own home that you are asked to consider support of this anti-tuberculosis program.

Prevention is the Association's chief aim and it works in that direction by case-finding assistance, research grants, education of the public and promotion of legislation, including that which would provide better facilities for treatment of the tuberculous. That is a monumental task, but it can be accomplished with your help.

RESULTS OF 23-YEAR STUDY OF ANGINA PECTORIS VICTIMS

A 23-year study of 6,882 persons suffering from angina pectoris associated with coronary sclerosis was presented in the September 27 Journal of the American Medical Association.

The study, the largest and longest ever undertaken, disclosed that 58.4 per cent of those persons suffering from this form of heart trouble survived five years, as compared with the survival rate of 86.9 per cent for the normal population. The 10-year survival rate for the series was 37.1 per cent, against the normal rate of 70.4 per cent. Survival studies showed that mortality was greatest in the first year, about 15 per cent, and that it was approximately 9 per cent per year thereafter.

The minimal follow-up period of the patients reported on in the study was five years, and the maximal period, 23 years. The average age at diagnosis of the disease was 58.8 years, 58.5 years for the males and 60.1 for the females. Average duration of symptoms prior to diagnosis was 2.5 years.

EXTENDED REST MAY BE DESIRABLE IN MEASLES

An extended period of rest may be desirable following measles, especially for children under eight years of age. This is indicated in a study by Ross* of electrocardiographic records of 71 children hospitalized with the disease.

Although clinical observation of these patients revealed little evidence of cardiac abnormalities, the ECG's showed "probably abnormal" findings in a significant proportion of the group.

The children ranged in age from four to 14 years, with a higher incidence of electrocardiographic disturbances in the group under eight years of age. There was no history of previous cardiac disease, rheumatic fever, or diphtheria so far as could be ascertained. While it was not possible to perform serial ECG's to determine the time required for the tracings to return to normal, follow-up examinations in a few children showed that all the abnormalities had not yet disappeared when the children resumed their full activity after having had the measles.

NEW ANTIBACTERIAL DRUG, FURADANTIN, REPORTED CLEARING UP RESISTANT URINARY INFECTIONS

Use of a new broad-spectrum chemotherapeutic agent, Furadantin, has cleared up certain kidney and bladder infections that were unresponsive to intensive treatment with antibiotics, Dr. Charles E. Friedgood of Brooklyn reported recently to the American College of Surgeons, meeting at the Hotel Waldorf-Astoria.

The drug is the first of the nitrofuran family to be developed for systemic use in human beings. The report covered 22 patients who were treated for cystitis (inflammation of the bladder) and

*Ross, L. J.: Am. J. Dis. Child. 83:282 (Mar.) 1952.

pyelonephritis (a kidney inflammation). Clinical and laboratory cures were reported in 14 instances and cure of symptoms in the other 8. There were no failures. In each instance, the infecting bacterium was the Proteus organism.

"The results of this study," said the physician, "indicate Furadantin to be a safe and effective drug, giving relief of all urinary symptoms without any toxic effects. No cases of sensitization to Furadantin occurred."

BOOK REVIEWS

Hormones and Body Water; by Robert Gaunt, Ph.D., James H. Birnie, Ph.D. Springfield, Charles C. Thomas, 1951. pp. 57. Price, $2.25.

This is a brief, but excellent, review of the role of the various hormones in the regulation of water in the body. Each gland is considered separately and its known effects interrelated with those of the other endocrine glands. Current theories are presented and their limitations discussed. Each chapter contains excellent diagrams and summaries of the material under consideration. The 132 references have been carefully chosen and should be valuable to the interested reader. Chapters on the role of endocrines in water distribution in toxemias of pregnancy and water intoxication are also included, as are discussions on the effects of the liver and the adaptation syndrome, and water metabolism of the newborn. In connection with the latter problem, the authors point out that the pattern suggests endocrine insufficiency insofar as the water metabolism is concerned. An especially interesting chapter is the succinct discussion of "evolutionary considerations" in which the authors conclude that "the comparative physiologist has an inviting task before him—that of writing the role of endocrine agents in this panoramic series of evolutionary events. At this moment it is, except as regards the posterior pituitary, essentially an untold story."

H. S. Mayerson, Ph.D.

Clinical Heart Disease; by Samuel A. Levine. Philadelphia, W. B. Saunders, 1951. edition 4, pp. 555, illus. Price $7.75.

This volume is organized and the material is presented very much the same as in the previous editions. It is not encyclopedic in the field of cardiology, nor was it intended to be. The various subjects are presented in unrelated chapters. Though not encyclopedic the subject of each chapter is adequately discussed.

This volume is easy to read and the author's ideas are interestingly presented. The principal emphasis throughout the book is on bedside diagnosis by careful physical examination rather than by laboratory methods. Principles which are easy to apply to clinical diagnosis and management as well as the recognition of reversible types of heart disease are stressed.

The chapter on congenital heart disease is somewhat disappointing in that diagnosis by physical examination is not as adequately emphasized as in the remainder of the book.

The chapter on electrocardiography has been expanded considerably. The remainder of the book is intended for the beginner, but this chapter is not so designed. The plates are numerous and fairly well reproduced, although some of the tracings are technically inadequate. The discussion in this chapter is more of clinical cardiology than electrocardiography.

This fourth edition represents a continued contribution in the field of clinical heart disease by the author.

C. T. Ray, M D.

PUBLICATIONS RECEIVED

J. B. Lippincott Co., Phila.: Bacterial and Mycotic Infections of Man, edited by René J. Dubos, Ph.D. (2nd Edit.).

The C. V. Mosby Company, St. Louis: Synopsis of Obstetrics, by Jennings C. Litzenberg, B. Sc., M. D. (4th Edit.), revised by Chas. E. McLennan, M. D.

W. B. Saunders Co., Phila.: Standard Values in Blood, edited by Errett C. Albritton, A. B., M. D.; Ophthalmic Pathology, an Atlas and Textbook; Electrocardiography in Practice by Ashton Graybiel, M. D., Paul D. White, M. D., Louise Wheeler, A. M., and Conger Williams, M. D. (3rd Edit.); Diseases of Metabolism, edited by Garfield G. Duncan, M. D. (3rd Edit.); Nutrition and Diet in Health and Disease, by James S. McLester, M. D., and William J. Darby, M. D., Ph.D. (6th Edit.); Practical Dermatology for Medical Students and General Practitioners, by George M. Lewis, M. D.

Charles C. Thomas, Publisher, Springfield, Ill.: Acute Peripheral Arterial Occlusion, by William D. Holden, M. D.; Essentials of Infant Feeding for Physicians, by Herman Frederic Meyer, M. D.; Radiologic Diagnosis of the Lower Urinary Tract, by Donald E. Beard , M. D., William E. Goodyear, M. D., and H. Stephens Weens, M. D.; Post-Graduate Lectures on Orthopedic Diagnosis and Indications, by Arthur Steindler, M. D.

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