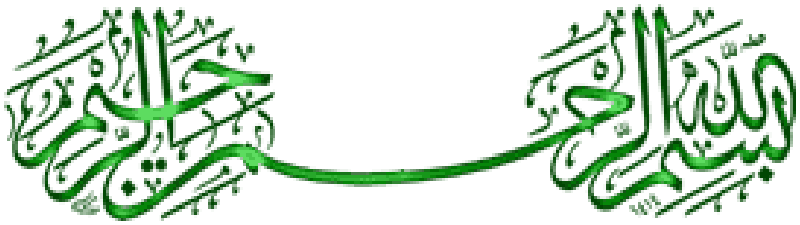

Comprhensive

"AIO"

Revision

On

SURGERY

2008

By/

Dr.Adel Abdel Hamid

CONTENTS

-This book contains

1-All surgery past year exams classified according to chapters

2-It contains all specified questions for the last year final written exam.

3-it contains MCQs on all surgery chapters.

4-Oral questions.

5-Clincal questions.

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MCQs

Revision

On

SURGERY

2008

By/

Dr.Adel A. El-Nasiery

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BREAST

1. After intraductal papilloma, unilateral bloody nipple discharge from one duct orifice is most commonly caused by which of the following pathologic conditions?
A. Paget's disease of the nipple.
B. Intraductal carcinoma.
C. Inflammatory carcinoma.
D. Subareolar mastitis.
Answer: B

2. Which of the following conditions is associated with increased risk of breast cancer?
A. Fibrocystic mastopathy.
B. Severe hyperplasia.
C. Atypical hyperplasia.
D. Papillomatosis.
Answer: C

3. Which of the following breast lesions are noninvasive malignancies?
A. Intraductal carcinoma of the comedo type.
B. Tubular carcinoma and mucinous carcinoma.
C. Infiltrating ductal carcinoma and lobular carcinoma.
D. Medullary carcinoma, including atypical medullary lesions.
Answer: A

4. Which of the following are the most important and clinically useful risk factors for breast cancer?
A. Fibrocystic disease, age, and gender.
B. Cysts, family history in immediate relatives, and gender.
C. Age, gender, and family history in immediate relatives.
D. Obesity, nulliparity, and alcohol use.
Answer: C

5. Which of the following pathologic findings is the strongest contraindication to breast preservation (lumpectomy with breast radiation) as primary treatment for a newly diagnosed breast cancer?
A. Grade 3, poorly differentiated, infiltrating ductal carcinoma.
B. Extensive intraductal cancer around the invasive lesion.
C. Tumor size greater than 3 cm.
D. Positive surgical margin for invasive cancer.
Answer: D

6. Axillary lymph node dissection is routinely used for all of the following conditions except:
A. 2-cm. pure comedo-type intraductal carcinoma.
B. 1-cm. infiltrating lobular carcinoma.
C. 8-mm. infiltrating ductal carcinoma.
D. A pure medullary cancer in the upper inner quadrant.
Answer: A

7. Failure to perform radiation after wide excision of an invasive cancer risks which of the following outcomes?
A. Recurrence of cancer in the ipsilateral breast.
B. Shorter survival time.
C. Regional nodal recurrence.
D. Greater chance of breast cancer mortality.
Answer: A

8. Which of the following treatments should never be recommended to a patient with purely intraductal carcinoma?
A. Modified radical mastectomy.
B. Lumpectomy to clear surgical margins, followed by observation.

C. Incisional biopsy with an involved margin, followed by radiation.
D. Excisional biopsy to clear margins, followed by radiation.
Answer: C

9. The proper treatment for lobular carcinoma in situ (LCIS) includes which of the following components?
A. Close follow-up.
B. Radiation after excision.
C. Mirror-image biopsy of the opposite breast.
D. Mastectomy and regional node dissection.
Answer: A

10. Which of the following statements most accurately reflects the findings of large overview analyses of clinical trials in which adjuvant chemotherapy for early-stage breast cancer was compared to a control group treated only with surgery?
A. The benefit of adjuvant therapy is confined to young patients.
B. Adjuvant therapy benefits all patients and is independent of age or node status.
C. Adjuvant therapy does not work in estrogen-positive patients.
D. The magnitude of benefit is very large.
Answer: B

11. Which of the following statements are true about reconstruction of the breast following mastectomy?
A. A permanent prosthesis or tissue expander may be inserted at the time of the ablative surgery.
B. If the patient requires adjuvant chemotherapy or radiation therapy, reconstruction of the breast is delayed until completion of the treatment.
C. Extensive postmastectomy defects require the use of a flap.
Answer: ABC

12. Which of the following statements are true about the management of mammary hyperplasia?
A. Reduction mammaplasty can be performed only on women younger than 40 years.
B. Removal of breast tissue to reduce size of the breast is usually predicated on the use of a nipple, areola, and dermal pedicle flap.
C. If removal of 2000 gm. of breast tissue is needed, breast amputation with immediate free nipple-areola grafting is performed.
Answer: BC

13. Which of the following statement(s) is/are true concerning the anatomy of the breast?
a. About 25% of the lymphatic drainage of the breast courses to the internal mammary nodes
b. Nerves within the axillary fat pad include the intercostal brachial nerve, the long thoracic nerve, and thoracodorsal nerve
c. Fascial bands projecting through the breast to the skin form a supporting framework known as Cooper's ligaments
d. The ductal system of the breast from the alveoli to the skin are lined with columnar epithelium
Answer: b, c

14. Which of the following statement (s) is/are true concerning the recurrence of breast cancer?
a. The majority of patients recur within five years of diagnosis
b. More than 70% of breast cancer recurrence involve distant metastases
c. Pulmonary metastases are the most common initial site of distant recurrence
d. The local recurrence rate following breast-conserving procedures varies from 10% to 40% whether or not radiation was used
e. Recurrent disease will be seen in at least 35% of node-negative patients undergoing appropriate primary breast therapy
Answer: a, b, d

15. Which of the following statement(s) is/are true concerning mammography?
a. Up to 50% of cancers detected mammographically are not palpable
b. One third of palpable breast cancers are not detected by mammography
c. The sensitivity of mammography increases with age

d. The American Cancer Society currently recommends routine screening mammography beginning at age 40
e. Only about 10% of nonpalpable lesions detection mammographically are found to be malignant at biopsy

Answer: a, c, d

16. A 35-year-old woman, who is currently breast-feeding her firstborn child, develops an erythematous and inflamed fluctuant area on breast examination. Which of the following statement(s) is/are true concerning her diagnosis and management?

a. The most common organism which would expect to be cultured is Staphylococcus aureus
b. Open surgical drainage is likely indicated
c. Breast-feeding absolutely should be discontinued
d. If the inflammatory process does not completely respond, a biopsy may be indicated

Answer: a, b, d

17. Which of the following statement(s) is/are true concerning the surgical staging of breast cancer?

a. All biopsy specimens should be transported to pathology in formalin within 24 hours of the procedure
b. Removal of only level I axillary lymph nodes may understage breast cancer in up to one-fourth of patients
c. Level III axillary lymph nodes should be removed in all axillary lymph node dissections
d. A clinically negative axilla will be found to have histologically positive metastasis in approximately one-third of patients

Answer: b, d

18. Which of the following statement(s) is/are true concerning the effect of various hormones on breast physiology?

a. Estrogen receptors are present only in breast cancer cells
b. Mammary ductal dilatation and differentiation of alveolar epithelial cells and secretory cells are the result of rising progesterone levels
c. The early first trimester breast changes are primarily due to the increased progesterone effects of pregnancy
d. Milk production and secretion after childbirth are maintained by ongoing secretion of prolactin by the anterior pituitary gland

Answer: b, d

19. A pre-menopausal woman three years after mastectomy for breast cancer presents with pulmonary metastases. Which of the following statement(s) is/are true concerning her management?

a. If the patient has received adjuvant therapy, her response is likely to be better
b. If the patient is ER-positive, hormonal therapy should be the first line of treatment
c. The response to chemotherapy will likely be dose-dependent
d. Combination chemotherapy will likely work better in this patient than a woman who is post-menopausal

Answer: b, c, d

20. Which of the following statement(s) is/are true concerning intraductal papilloma?

a. This lesion is the most common cause of bloody nipple discharge
b. Serous non-bloody discharge is unlikely to be due to an intraductal papilloma
c. A nonpalpable lesion can often be diagnosed with ductography
d. An isolated lesion is considered premalignant

Answer: a, c

21. A 21-year-old woman presents with an asymptomatic breast mass. Which of the following statement(s) is/are true concerning her diagnosis and treatment?

a. Mammography will play an important role in diagnosing the lesion
b. Ultrasonography is often useful in the differential diagnosis of this lesion
c. The mass should always be excised
d. The lesion should be considered pre-malignant

Answer: b

22. Which of the following are factors associated with an increased risk for developing breast cancer?

a. Nulliparity
b. Oophorectomy before age 35
c. Use of oral contraceptives
d. High-fat, high-caloric diet
e. Post-menopausal use of conjugated estrogens

Answer: a, d

Which of the following chromosomal and/or genetic abnormalities is/are associated with the development of breast cancer?

f. Mutations in the p53 tumor suppressor gene
g. A mutation in the short arm of chromosome 2
h. The presence of a BRCA 1 gene on chromosome 17
i. The presence of the BRCA 2 gene on chromosome 13

Answer: a, b, c, d

23. A 45-year-old woman presents with a weeping eczematoid lesion of her nipple. Which of the following statement(s) is/are true concerning her diagnosis and management?

a. Treatment is with warm compresses and oral antibiotics
b. Biopsy of the nipple revealing malignant cells within the milk ducts is invariably associated with an underlying invasive carcinoma
c. The appropriate treatment is mastectomy
d. The lesion always represents a high-risk disease with a significant risk of subsequent metastatic disease

Answer: c

24. Which of the following treatment(s) is/are of proven benefit in the treatment of mastodynia associated with fibrocystic breast disease?

a. Avoidance of methylxanthine compounds, particularly caffeine
b. Cessation of smoking
c. Vitamin E
d. Danazol

Answer: a, b, d

25. Which of the following statement(s) is/are true concerning breast reconstruction?

a. The timing of breast reconstruction is of no oncologic significance
b. Breast reconstruction may interfere with detection of local recurrence of breast cancer
c. Maintenance of an effective subpectoral pocket for a breast implant requires preservation of the pectoralis fascia
d. Because of its complexity, the TRAM flap is seldom used for primary breast reconstruction

Answer: a, c

26. Which of the following statement(s) is/are true concerning the histologic variants of invasive breast carcinoma?

a. The presence of an in situ component with invasive ductal carcinoma adversely affects prognosis
b. Medullary carcinomas, although often of large size, are associated with a better overall prognosis than common invasive ductal cancers
c. Mucinous or colloid carcinoma is one of the more common variants of invasive ductal cancer
d. Invasive lobular carcinoma is associated with a higher incidence of bilateral breast cancer

Answer: b, d

27. Which of the following statement(s) is/are correct concerning cystosarcoma phyllodes?

a. The tumor is most commonly seen in post-menopausal women
b. Total mastectomy is necessary for all patients with this diagnosis
c. Axillary lymph node dissection is not necessary for malignant cystosarcoma phyllodes
d. Most patients with the malignant variant of cystosarcoma phyllodes die of metastatic disease

Answer: c

28. Which of the following statement(s) is/are true concerning local recurrence of breast cancer?

a. The percentage of patients with chest wall recurrence as their initial site of failure following mastectomy is similar for node-negative and node-positive patients

b. Most patients with local-regional recurrence of their disease will eventually die of metastatic disease
c. The treatment of local recurrence following mastectomy includes local radiation therapy and systemic chemotherapy
d. In-breast recurrence following breast conserving surgery is not a negative prognostic factor
e. Regional lymph node recurrence following axillary node dissection is rare

Answer: a, b, c, e

29. Which of the following statement(s) is/are correct concerning prognostic factors for breast carcinoma?

a. Prognosis is improved with estrogen or progesterone receptor positivity
b. Increased thymidine labeling index, a measure of the proportion of cells in the DNA synthetic phase (S-phase), is associated with improved survival
c. High tumor levels of cathepsin D are associated with an improved prognosis
d. Immunohistochemical demonstration of active angiogenesis correlates with increased metastatic potential and poor prognosis

Answer: a, d

30. Which of the following statement(s) is/are true concerning adjuvant systemic therapy?

a. Adjuvant tamoxifen in post-menopausal, node-positive, ER-positive women is equivalent to cytotoxic chemotherapy
b. Tamoxifen clearly improves survival in all hormonal receptor-positive patients
c. CMF is associated with improved overall survival in both pre-menopausal and post-menopausal node-positive patients
d. There is no evidence to suggest a role for chemotherapy in node-negative patients

Answer: a

31. Which of the following statement(s) is/are true concerning tissue sampling techniques for breast masses?

a. The sensitivity of fine needle aspiration biopsy is such that mastectomy can be performed in the case of malignant diagnosis
b. The accuracy of mammographic-directed fine needle aspiration biopsy is comparable to that achieved for that of palpable lesions
c. Core-needle biopsy showing normal breast tissue is an acceptable diagnosis
d. The technique of core-needle biopsy is not applicable to radiographically detected lesions

Answer: b

32. A 42-year-old woman undergoes her first mammogram. Clustered microcalcifications are seen but there is no mass palpable. Which of the following statement(s) is/are true concerning this patient's diagnosis and management?

a. A needle localization and excision of the mass is necessary to establish the diagnosis
b. Frozen-section examination is particularly useful in the diagnosis of this lesion
c. Intense interlobular fibrosis and proliferation of small ductules with loss of orientation of lobules and epithelial cells may suggest carcinoma
d. This finding is associated with an increased risk of cancer

Answer: a, c

33. Which of the following conclusion(s) can be drawn from the results of the NSABP prospective randomized trials completed in the 1970's and 1980's?

a. Delay of axillary node dissection until there is clinical evidence of disease does not influence overall survival
b. Removal of clinically negative nodes has no therapeutic benefit
c. Breast irradiation reduces both local recurrence and overall survival
d. Modified radical mastectomy offers no advantage of lumpectomy with axillary node dissection

Answer: a, b, d

34. Which of the following statement(s) is/are true concerning non-invasive breast carcinoma?

a. Ductal carcinoma in situ (DCIS) is associated with a significant risk of development of invasive ductal carcinoma in the same quadrant of the same breast as the initial lesion
b. DCIS should not be treated with breast conservation therapy
c. Lobular carcinoma in situ (LCIS) is the most common form of non-invasive breast cancer

d. When LCIS is found, there is an up to 50% chance of lobular carcinoma in situ of the contralateral breast
e. About one-third of patients with biopsy-proven LCIS develop invasive cancer, always of the same breast

Answer: a, d

35. A 33-year-old woman is referred with nipple discharge. Which of the following statement(s) is/are true concerning her diagnosis and management?

a. Bilateral galactorrhea is suggestive of an underlying endocrinopathy
b. Brownish discharge is usually suggestive of old blood and is worrisome for an underlying breast cancer
c. Expressible bloody nipple discharge should be evaluated with a ductogram
d. Milky breast discharge would not be expected one year after discontinuation of breast feeding

Answer: a, c

36. Clinical features of breast cancer which are associated with a particularly poor prognosis include:

a. Edema of the skin of the breast
b. Skin ulceration
c. Lateral arm edema
d. Dermal lymphatic invasion

Answer: a, b, c, d

37. Which of the following statement(s) is/are associated with gynecomastia?

a. If the disease is unilateral, it is unlikely drug-related
b. The standard surgical treatment is subcutaneous mastectomy
c. The presence of gynecomastia is often associated with the subsequent development of breast cancer
d. A formal endocrine evaluation is indicated in most patients with gynecomastia

Answer: b

ENDOCRINE

1. When progressive enlargement of a multinodular goiter causes symptomatic tracheal compression, the preferred management in otherwise good-risk patients is:

A. Iodine treatment.
B. Thyroid hormone treatment.
C. Surgical resection of the abnormal thyroid.
D. Radioactive iodine treatment.

Answer: C

2. The most precise diagnostic screening procedure for differentiating benign thyroid nodules from malignant ones is:

A. Thyroid ultrasonography.
B. Thyroid scintiscan.
C. Fine-needle-aspiration biopsy (FNAB).
D. Thyroid hormone suppression.

Answer: C

3. The preferred operation for initial management of a thyroid nodule that is considered suspicious for malignancy by FNAB is:

A. Excision.
B. Partial lobectomy.
C. Total lobectomy and isthmusectomy.
D. Total thyroidectomy.

Answer: C

4. Advantages of total thyroidectomy for management of papillary carcinomas of the thyroid larger than 1.5 cm. include:

A. Possibility of using radioactive iodine postoperatively to identify and treat metastases.
B. The ability to use thyroglobulin levels as a marker for recurrence.

C. Lower overall recurrence rate.
D. Lower risk of hypoparathyroidism.
Answer: ABC

5. Which of the following statements about follicular carcinoma is/are true?
A. It presents at a later age than papillary carcinoma.
B. It disseminates via hematogenous routes.
C. It is the most common type of well-differentiated thyroid carcinoma.
D. Extensive angioinvasion portends a poor prognosis.
E. Follicular carcinomas are frequently multicentric.
Answer: ABD
6. A familial form of medullary thyroid carcinoma (MTC) should be suspected whenever:
A. The tumor is multifocal.
B. The tumor is bilateral (foci of tumor are present in both thyroid lobes).
C. Pathologic examination of the resected thyroid gland reveals the presence of C-cell hyperplasia in areas of the gland adjacent to foci of MTC.
D. All of the above.
Answer: D

7. All of the following are components of the MEN type 2B syndrome except:
A. Multiple neuromas on the lips, tongue, and oral mucosa.
B. Hyperparathyroidism.
C. MTC.
D. Pheochromocytoma.
Answer: B

8. MEN 2A and MEN 2B syndromes are associated with germline mutations in:
A. The p53 tumor suppressor gene.
B. The H-ras gene.
C. The N-myc gene.
D. The RET proto-oncogene.
Answer: D

9. Which of the following are true concerning islet cell neoplasms of the pancreas in patients with MEN type 1?
A. Islet cell neoplasms in patients with MEN 1 are characteristically multicentric.
B. The most common islet cell neoplasm in patients with MEN 1 is gastrinoma.
C. Islet cell neoplasms in patients with MEN 1 may be malignant.
D. All of the above.
Answer: D

10. Which of the following statements about the differential diagnosis of hypercalcemia is/are correct.
A. Malignant tumors typically cause hypercalcemia by ectopic production of parathyroid hormone (PTH).
B. The diagnosis of primary hyperparathyroidism is supported by these serum levels: calcium, 10.8 mg. per dl.; chloride, 104 mmol. per liter; bicarbonate 21 mmol. per liter; phosphorus, 2.4 mg. per dl.; elevated parathyroid hormone.
C. Familial hypocalciuric hypercalcemia is distinguished from primary hyperparathyroidism by parathyroid imaging.
D. Although serum albumin binds calcium, the measured total calcium value is usually unaffected in patients with severe hypoproteinemia.
E. Thiazide diuretics are a good treatment for hypercalcemia and can be given to patients with apparent hypercalcemia of malignancy.
Answer: B

11. Indications for operation in a patient with previously asymptomatic hyperparathyroidism include:
A. Age older than 60.
B. Nephrolithiasis.
C. A substantial decline in renal function.
D. A substantial decline in bone mass.

E. Depression and fatigue.
Answer: BCDE

12. The parathyroid glands:
A. Develop from the second and third pharyngeal pouches, along with the palatine tonsil and the thymus.
B. Migrate caudally in the neck in normal development but can be found anywhere from the pharyngeal mucosa to the deep mediastinum.
C. Secrete PTH and calcitonin to manage calcium homeostasis.
D. Usually number four, but frequently number only two or three.
E. Contain enzymes that catalyze the conversion of 25(OH) vitamin D 3 to 1,25(OH) 2 vitamin D 3.
Answer: B

13. Hyperparathyroidism can affect which of the following organs and body systems?
A. Gastrointestinal tract.
B. Kidneys.
C. Skeleton.
D. Neuromuscular system.
E. Cardiovascular system.
Answer: ABCDE

14. Secondary hyperparathyroidism:
A. Is a metabolic disease in which the primary abnormality is decreased glomerular filtration rate.
B. Is best treated initially by subtotal parathyroidectomy.
C. Is caused by increased production of 1,25(OH) 2 vitamin D 3, causing increasing intestinal calcium absorption and hypercalcemia.
D. Can have severe effects on bones exacerbated by aluminum contained in phosphate binders and dialysate water.
E. Is best treated initially by total parathyroidectomy with autotransplantation.
Answer: AD

15. Hypoparathyroidism:
A. Is most commonly encountered as a postviral syndrome.
B. Can be associated with marked hypocalcemia after parathyroidectomy in patients with bone disease.
C. Can cause anxiety, depression, or confusion.
D. Can cause physical signs such as Chvostek's and Trousseau's signs.
E. Is treatable acutely with intravenous calcium salts and chronically with oral calcium and vitamin D.
Answer: BCDE

16. True statements about pituitary anatomy and physiology include:
A. The pituitary has dual embryonic origin: the anterior pituitary arises from embryonic ectoderm; the posterior pituitary, from the diencephalon.
B. The hypophyseal portal system integrates function of the anterior and posterior pituitary.
C. Adrenocorticotropin (ACTH), formed by posttranslational processing of the precursor POMC, is normally controlled by hypothalamic CRF but may be released by immune-related mechanisms.
D. Growth hormone (GH) directly stimulates longitudinal growth of the skeleton and growth of muscles.
E. Cell types of the anterior pituitary are classified by their position in the anterior pituitary and by their staining characteristics with histologic dyes.
Answer: AC

17. Antidiuretic hormone (ADH):
A. Is related to oxytocin, and both are released from the posterior pituitary in conjunction with neurophysins.
B. Is released into the circulation by the posterior pituitary in response to a rise in plasma osmolality above 285 mOsm. or a decrease in circulating blood volume.
C. May be stimulated by catecholamines and inhibited by phenytoin, alcohol, and lithium.
D. In excess, may produce a syndrome of euvolemic hyponatremia with inappropriately concentrated urine that is responsive to free water restriction.
E. Deficiency causes prolonged polyuria and polydipsia and may be diagnosed by a combination of high plasma osmolality and low urine osmolality following water deprivation.
Answer: ABCDE

18. Signs and symptoms of acute pituitary apoplexy include:
A. Severe headache.
B. Meningismus.
C. Vision loss.
D. Shock.
E. May be relieved by emergent transsphenoidal decompression of the sella turcica.
Answer: ABCD

19. Prolactinomas of the pituitary:
A. Most often produce dysfunctional uterine bleeding in women.
B. Most commonly produce infertility in men.
C. When asymptomatic, are best treated surgically early in the microadenoma stage.
D. May enlarge during pregnancy, requiring treatment with bromocriptine or surgery.
E. Commonly occur in patients with MEN 2.
Answer: D

20. Hypercortisolism:
A. Is most often ACTH-dependent, owing to an ACTH-producing pituitary adenoma.
B. Is best diagnosed by measurement of cortisol from a serum sample collected at 8 A.M.
C. Is attributable to an adrenal source if the basal serum ACTH level is above 10 pg. per ml., if the hypercortisolism is suppressed by high-dose dexamethasone, and if an adrenal tumor is visualized radiographically.
D. May be caused by small cell carcinoma of the lung, carcinoid tumors, tumors of the endocrine pancreas, pheochromocytoma, or medullary thyroid carcinoma (MTC).
E. In children is most often caused by adrenocortical neoplasia.
Answer: ADE

21. Primary aldosteronism:
A. Produces a syndrome of diastolic hypertension, hypokalemia, and edema.
B. Is suggested by findings of serum potassium less than 3.5 mEq. per liter, urinary potassium excretion greater than 30 mEq. per day, upright plasma renin below 3 ng. per ml., and a plasma aldosterone concentration–plasma renin activity ratio greater than 20:1.
C. Is most often due to an aldosterone-producing adrenal adenoma, which may be distinguished from idiopathic adrenal hyperplasia by its sensitivity to diurnal changes in ACTH and insensitivity to changes in posture.
D. May be diagnosed in hypertensive patients by demonstration of an adrenal mass larger than 1 cm. on computed tomography alone.
E. Is best treated surgically if it is due to either aldosteronoma or idiopathic adrenal hyperplasia.
Answer: BC

22. Adrenocortical carcinoma:
A. May be suspected in a patient with rapidly progressive Cushing's syndrome and virilizing features or in asymptomatic patients with adrenal tumors larger than 6 cm on CT.
B. Most often is diagnosed early in its course when disease is confined to the adrenal gland.
C. Is differentiated from benign adrenocortical adenoma by tumor necrosis, hemorrhage, and cellular features of large hyperchromatic nuclei and more than 20 mitoses per high-power field.
D. Should be resected only if disease is localized to the adrenal gland; otherwise treatment with mitotane is indicated.
E. Carries a poor prognosis: overall 5-year survival less than 25%.
Answer: AE

23. Addisonian crisis, or acute adrenocortical insufficiency:
A. Occurs only in patients with known adrenal insufficiency or in those receiving long-term supraphysiologic doses of exogenous steroids.
B. Can mimic an acute abdomen with fever, nausea and vomiting, abdominal pain, and hypotension.
C. May cause electrolyte abnormalities, including hypernatremia, hypokalemia, hypoglycemia, and hypercalcemia, as well as eosinophilia on peripheral blood smear.
D. Should be diagnosed with the rapid ACTH stimulation test before steroid replacement is instituted.
E. May be effectively treated with intravenous "stress-dose" glucocorticoid and mineralocorticoid replacement.
Answer: B

24. Preparation for surgical removal of a pheochromocytoma includes:
A. Beta-adrenergic blockade followed by alpha-adrenergic blockade.
B. Hydration.
C. Alpha-adrenergic blockade, with or without beta-adrenergic blockade.
D. Preoperative Swan-Ganz monitoring in all patients.
E. Planning removal through an anterior, posterior, or laparoscopic approach based upon tumor localization with CT, magnetic resonance imaging (MRI), and/or 131I-MIBG.
Answer: BCE

25. Indications for surgical adrenalectomy include:
A. An adrenal mass larger than 6 cm.
B. Hypertensive patients with aldosteronism that is ACTH insensitive and posture sensitive and who also have multiple adrenal nodules on CT.
C. Cushing's syndrome secondary to adrenal neoplasms or to persistent ectopic ACTH syndrome when the primary tumor is inoperable.
D. Pheochromocytoma in adults and children.
E. Congenital adrenal hyperplasia secondary to 21-hydroxylase deficiency.
Answer: ACD

26. Incidental adrenal masses:
A. May be seen in as many as 10% of abdominal CT studies.
B. Most commonly represent pheochromocytoma; adrenocortical adenoma, adrenocortical carcinoma, and metastases from other primary cancers occur less frequently.
C. May represent adrenocortical carcinoma if greater than 6 cm. in diameter.
D. Should be routinely evaluated by measurement of 24-hour urine levels of catecholamines and their metabolites, cortisol, and aldosterone plus fine-needle aspiration.
E. Should be resected if biochemically active, if greater than 6 cm., or if they grow over six months' follow-up.
Answer: CE

27. Which of the following statements is true about the synthesis of thyroid hormone and its physiology?
A. The iodine utilized in hormone synthesis is derived principally from dietary sources.
B. The role of thyroid-stimulating hormone (TSH) in thyroid physiology is limited to regulation of the release of thyroid hormone in plasma.
C. Enough thyroxine (T 4) is stored in the normal thyroid to provide a euthyroid state for 3 weeks despite absence of iodine intake.
D. The regulation of thyroid function involves pituitary, but not hypothalamic, input.
Answer: AC

28. Correct statements about thyroid function tests include which of the following?
A. Contraceptive pills and pregnancy increase the amount of thyroxin-binding globulin (TBG), and, consequently, the total T 4 level.
B. Anticonvulsive medications and chronic debilitating illnesses decrease the amount of TBG and, consequently, the total T 4 level.
C. Intravenous pyleography can lower the rate of active iodine uptake by the thyroid.
D. A triiodothyronine (T 3) suppression test that demonstrates nonsuppressibility of thyroid function is compatible with the diagnosis of Graves' disease, toxic adenoma, or functioning carcinoma.
E. An increased serum cholesterol level in a hypothyroid patient indicates a thyroid cause.
Answer: ABCD

29. Hyperthyroidism can be caused by all of the following except:
A. Graves' disease.
B. Plummer's disease.
C. Struma ovarii.
D. Hashimoto's disease.
E. Medullary carcinoma of the thyroid.
Answer: E

30. Which of the following is true about the use of radioiodine to treat hyperthyroidism?
A. If hyperthyroidism is secondary to radioiodine use, it will occur within 2 years of treatment.
B. There is a markedly increased risk of future thyroid cancer following radioiodine therapy.
C. The risk of leukemia following radioiodine therapy is approximately 10%.

D. Mutation abnormalities occur in 15% of fetuses in utero following internal treatment of the mother with radioiodine during pregnancy.
E. Radioiodine may pass through the placenta and lactating breast to produce hypothyroidism in a fetus or infant.
Answer: E

31. Arrange the following complications of thyroid surgery (bilateral subtotal thyroidectomy) in decreasing order of incidence in patients with Graves' disease.
A. Laryngeal nerve paralysis.
B. Hypoparathyroidism.
C. Hypothyroidism.
D. Recurrent hyperthyroidism.
Answer: CDAD

32. The most common cause of goitrous hypothyroidism in adults is:
A. Graves' disease.
B. Riedel's thyroiditis.
C. Hashimoto's disease.
D. de Quervain's thyroiditis.
Answer: C

33. Therapy for Hashimoto's disease includes:
A. Radioiodine.
B. Antithyroid medications.
C. Subtotal thyroidectomy.
D. None of the above.
Answer: D

34. Indications for surgical thyroidectomy for Graves' disease include which of the following?
a. Ocular involvement
b. Symptomatic large goiter
c. Women of childbearing age
d. Concomitant thyroid nodule
e. All of the above
Answer: b, c, d

35. Which of the following statements regarding anatomic relationships of the thyroid gland are true?
a. The middle thyroid artery is intimately related to the superior laryngeal nerve
b. The superior thyroid artery is usually the first branch of the external carotid artery
c. Thyroidea ima arteries are found in approximately 20% of individuals
d. The parathyroid glands may lie within the pretracheal fascia
Answer: b, d

36. Radioactive iodine is effective treatment for metastatic lung disease for which of the following thyroid neoplasms?
a. Hürthle cell carcinoma
b. Papillary carcinoma
c. Follicular carcinoma
d. Medullary carcinoma
e. Anaplastic carcinoma
Answer: b, c

37. The types of thyroiditis that can cause abnormalities of surgical significance are which of the following?
a. Chronic lymphocytic thyroiditis (Hashimoto disease)
b. Riedel struma
c. Acute (viral) thyroiditis
d. Granulomatous (subacute) thyroiditis
Answer: a, b, d

38. The principal blood supply to the parathyroid glands is which of the following?
a. Superior thyroid arteries
b. Inferior thyroid arteries
c. Thyroidea ima arteries
d. Parathyroid arterial branches directly from the external carotid artery
e. Highly variable
Answer: b

39. Which of the following statements regarding papillary thyroid carcinoma are true?
a. Seventy to 80% of new cases of thyroid carcinoma in the United States are of the papillary type
b. Total ipsilateral lobectomy and isthmus resection are adequate therapy for minimal thyroid carcinoma
c. Microscopic evidence of multicentric disease is present in 70% to 80% of cases
d. Nearly all patients less than 15 years of age have metastatic disease in local lymph nodes
Answer: a, b, c, d

40. A 30-year-old female presents for evaluation of a palpable thyroid nodule. Technetium-99m (99mTc) scan demonstrates a single cold nodule. The differential diagnosis includes which of the following?
a. Carcinoma
b. A nonfunctioning adenoma
c. A thyroid cyst
d. A colloid nodule
e. An autonomous nodule
Answer: a, b, c, d

41. Which of the following pharmacologic agents can be used in the treatment of thyrotoxicosis to block the production of thyroid hormone?
a. Propylthiouracil
b. Propranolol
c. Methimazole
d. Carbimazole
e. Iodine
Answer: a, c, d, e

42. A 45-year-old woman has a solitary, nonfunctioning thyroid nodule and fine needle cytology is nondiagnostic. Which of the following is the initial surgical procedure of choice?
a. Total extracapsular thyroidectomy
b. Subtotal thyroid lobectomy and resection of the isthmus
c. Total extracapsular thyroid lobectomy, resection of the isthmus, and modified unilateral neck dissection
d. Total extracapsular thyroid lobectomy and resection of the isthmus
Answer: d

43. Which of the following statements regarding fine needle aspiration cytology of a thyroid nodule are true?
a. It differentiates neoplastic and nonneoplastic nodules in most cases
b. It does not allow differentiation of papillary, medullary and anaplastic carcinoma
c. It cannot differentiate malignant and benign follicular or Hürthle cell neoplasms
d. It is not recommended when a patient has a history of head and neck radiation
Answer: a, c, d

44. Hyperthyroidism results from all of the conditions noted below. Of the following which commonly require surgical management?
a. Graves' disease
b. Struma ovarii
c. Functioning metastatic thyroid carcinoma
d. Toxic diffuse goiter
e. Single toxic thyroid nodule
Answer: a, d, e

45. Which of the following statements regarding medullary carcinoma of the thyroid are true?
a. Approximately 75% of all cases are hereditary
b. The overall 10-year survival rate is less than 10%
c. Medullary carcinoma of the thyroid is associated with both multiple endocrine neoplasia IIa (MEN IIa) and multiple endocrine neoplasia IIb (MEN IIb) syndromes
d. Prophylactic total thyroidectomy is recommended for MEN IIa and MEN IIb patients after the age of 10 years
Answer: c

46. Which of the following statements regarding thyroid physiology are true?
a. Normally about 20% of T3 is secreted directly from the thyroid gland
b. The thyroid gland is the only endogenous source of T4
c. Excess thyroid hormone results in an increase in the number of ATP-dependent sodium pumps on the cell membrane
d. The majority of thyroid hormone in circulating plasma is bound to albumin, thus limiting the availability of the metabolically active form
Answer: a, b, c

47. The definitive treatment of choice for toxic multinodular goiter is?
a. Total thyroidectomy
b. Bilateral subtotal thyroidectomy
c. Unilateral total lobectomy on the side of dominant disease
d. 131I treatment
Answer: b

48. A 50-year-old male has undergone an ipsilateral thyroid lobectomy and isthmus resection for what appeared on frozen section to be a benign nodular lesion 2.0 cm in diameter. Seventy-two hours later the final pathology returns and the diagnosis is a high-grade angioinvasive follicular carcinoma. What do you recommend?
a. 99mTc bone scan to rule out occult bone metastases
b. Ipsilateral radical neck dissection
c. Total thyroidectomy
d. Observation with sequential 131I scans every 3 months
Answer: c

49. In 1990 a National Institutes of Health Consensus Development Conference reviewed the available evidence regarding the management of asymptomatic primary hyperparathyroidism. The panel concluded that surgical intervention was indicated for which of the following indications?
a. Age less than 50 years of age
b. Reduced creatinine clearance
c. Presence of kidney stone(s) (as detected by abdominal radiograph)
d. Substantial reduced bone mass as determined by direct measurement
e. Markedly elevated 24-hour urinary calcium excretion
Answer: a, b, c, d, e

50. Which of the following statements regarding medullary carcinoma of the thyroid are true?
a. Bilateral medullary carcinoma of the thyroid occurs in every patient with multiple endocrine neoplasia 1, 2a or 2b
b. Medullary carcinoma of the thyroid accounts for approximately one-third of all thyroid malignancies
c. 20% of medullary carcinoma of the thyroid cases are familial
d. Provocative testing with pentagastrin and calcium infusion for family members at risk for medullary carcinoma of the thyroid is diminished in importance by the recent development of specific genetic testing
Answer: a, c, d

51. While awaiting surgery on a HMO waiting list, a 50-year-old female with primary hyperparathyroidism is admitted to the hospital with oliguria, confusion, nausea and vomiting, muscle weakness and a serum calcium of 13.5 mg/dL. Of the treatment options below, which one is the most appropriate?
a. Administer 1 gm of hydrocortisone STAT
b. Begin an IV EDTA (chelating agent) infusion STAT
c. Administer IV Mithramycin and calcitonin concurrently and proceed to ICU for cardiac monitoring
d. Begin a normal saline infusion at 2X maintenance volume followed by 1mg/kg furosemide IV

e. None of the above

Answer: d

52. Which of the following conditions are associated with hypercalcemia?

a. Hyperthyroidism
b. Thiazide diuretics
c. Terminal ileal resection
d. Breast cancer
e. All of the above

Answer: a, b, d

53. A 40-year-old male undergoes an apparently uneventful total thyroidectomy for follicular carcinoma of the thyroid. 48 hours later he develops circumoral numbness, followed by laryngospasm, and then has a generalized seizure. Of the following, which is the first priority?

a. Proceed to OR for exploration of the operative site
b. Administer 25 ml of 10% calcium gluconate intravenously
c. Obtain a serum magnesium measurement and administer intravenous magnesium chloride STAT
d. Obtain a CT scan of the head to evaluate the possibility of brain metastases

Answer: b

54. On routine life insurance screening, an asymptomatic 45-year-old male is found to have a serum calcium level of 12.5 mg/dL. Serum is obtained for immunoreactive parathyroid hormone level and this is 400 mEq/mL (normal range < 64mEq/mL). These findings are most consistent with a diagnosis of which of the following?

a. Primary hyperparathyroidism
b. Secondary hyperparathyroidism
c. Tertiary hyperparathyroidism
d. Ectopic hyperparathyroidism

Answer: a

55. A 50-year-old female is referred for treatment of a serum calcium of 11.5 mg/dL one year after resection of a right superior parathyroid adenoma. The right and left inferior glands were normal at the initial neck exploration. The left superior gland was not visualized. Which of the related statements below are true?

a. Recurrent postoperative hypercalcemia occurs in approximately 20% of patients with this clinical scenario
b. Localization studies via selective angiography are successful in 50% to 80% of these patients
c. The risk of permanent hypoparathyroidism is approximately 10% to 20% following reexploration in this setting
d. Surgical reexploration by an experienced endocrine surgeon has a success rate of less than 50% in this circumstance

Answer: b, c

56. Which of the following statements regarding calcium and phosphate metabolism are true?

a. Parathyroid hormone excess produces a net increase in daily urinary calcium excretion
b. Calcitonin is essential for the normal control of calcium metabolism in adult humans
c. Parathyroid hormone is the single most important regulator of calcium and phosphate metabolism in humans
d. 1,25 dihydroxyvitamin D3 (calcitriol) is the active form of vitamin D in humans

Answer: a, c, d

57. Multiple Endocrine Neoplasia (MEN) 2b is characterized by which of the following findings?

a. Medullary carcinoma of the thyroid, pheochromocytoma, mucosal neuromas, and a distinctive marfanoid habitus
b. Parathyroid hyperplasia, pancreatic islet cell tumors, and pituitary adenomas
c. Medullary carcinoma of the thyroid, pheochromocytoma, and parathyroid hyperplasia
d. Parathyroid carcinoma, pheochromocytoma and chronic pancreatitis

Answer: a

58. Which of the following signs/symptoms are pathognomonic of hyperparathyroidism?

a. Pathologic fractures of the metacarpals
b. Calcium oxalate nephrolithiasis

c. Hypercalcemia causing mental status changes
d. Atrophy of Type II muscle fibers
e. Osteitis fibrosa cystica

Answer: e

59. The causes of Cushing syndrome may include which of the following?
a. Posterior pituitary adenoma
b. Adrenal hyperplasia
c. Small cell lung carcinoma
d. Pheochromocytoma
e. Adrenal carcinoma

Answer: b, c, e

60. Which of the following are normal systemic effects of glucocorticoids?
a. Enhanced proteolysis
b. Increased gluconeogenesis
c. Diminished lipolysis
d. Decreased rate of intestinal epithelial replication

Answer: a, b, d

61. A 10-year-old child presents with hypertension, tachycardia, nervousness and sweating. The best initial diagnostic evaluation is which of the following?
a. Magnetic resonance imaging of the adrenal gland
b. MIBG (131I-Methaiodobenzylguanidine) scintigraphy
c. Measurement of catecholamines and their degradation products in a 24-hour urine specimen

Answer: d

62. A 25-year-old male has been taking 40 mg of prednisone PO qod for ulcerative colitis for 5 years. He undergoes an uneventful colectomy with endorectal pull-through and an ileoanal anastomosis. Which of the following statements regarding steriod management are correct?
a. On the day of surgery he should receive 100 mg hydrocortisone IV q6h
b. The postoperative steroid dose should be halved q 12 hours to reduce the risk of infectious complications and improve would healing
c. Prophylactic treatment with a somatostatin analogue will reduce the risk of postoperative pancreatitis
d. Exogenous steroid replacement can be stopped after 3 months

Answer: a

63. Imaging of the adrenal gland is best achieved with which of the following techniques?
a. Ultrasound
b. Computed tomography (CT)
c. Arteriography
d. Scintigraphy with 131I-6 b-iodomethyl-19-norcholesterol (NP-59)
e. Scintigraphy with 131I-methaiodobenzylguanidine (MIBG)

Answer: b

64. A 45-year-old female is found to have a 2 cm solid nodule in her right adrenal gland at the time of an abdominal CT scan following an auto accident. With regard to the adrenal lesion, she is asymptomatic and it is found to be nonfunctional on evaluation. You would recommend which of the following?
a. Extraperitoneal right adrenalectomy through either a flank of posterior approach
b. Suppression with 5 mg prednisone PO qod
c. Followup CT scan in 1 to 3 months
d. Excisional biopsy via laparaoscopic approach

Answer: c

65. A 20-year-old male with a 10 cm left adrenal mass is found to have 10 mg of norepinephrine in a 24-hour urine collection and a plasma 18 hydroxycorticosterone level of 50 mg/dL. Initial reoperative preparation should include which of the following?
a. Treatment with spironolactone
b. Intravenous potassium-loading to prevent intraoperative hypokalemia
c. Treatment with phenoxybenzamine
d. Treatment with labetalol

Answer: c

66. Which of the following diagnostic tests will differentiate between the pituitary and adrenal gland as the cause of hypercortisolism?
a. High dose dexamethasone suppression test
b. CRH stimulation test
c. Low dose dexamethasone test
d. AM and PM plasma cortisol determination
Answer: a, b

67. Which of the following statements regarding androgens and estrogens in the fetus are true?
a. The development of normal female external genitalia requires estrogen production by the ovary
b. A female with congenital adrenal hyperplasia is likely to be masculinized in appearance
c. The development of normal male external genitalia requires adrenal androgen production
d. A male with congenital adrenal hyperplasia is likely to be feminized in appearance
Answer: b, c

68. Which of the following statements regarding the physiology of the adrenal gland are true?
a. Release of CRH is regulated principally by negative feedback by ACTH
b. Plasma 17-ketosteroid levels reflect the degree of adrenal cortisol production
c. Renin undergoes enzymatic cleavage in the lung to angiotensin I
d. The plasma half-life of ACTH is relatively long (> 24 hrs)
e. None of the above
Answer: e

69. The approximate 5-year survival rate for adrenocortical carcinoma is which of the following?
a. 0%
b. 20%–25%
c. 50%–60%
d. Nearly 100%
Answer: b

70. Which of the following statements is true with respect to pheochromocytoma?
a. Pheochromocytoma associated with MEN IIa is usually unilateral and rarely malignant; therefore, unilateral exploration through a posterior flank incision is usually sufficient
b. Clonidine fails to suppress basal plasma-catecholamine levels in patients with pheochromocytoma
c. NP-59 (131I-6 b-iodomethyl-19-norcholesterol) is taken up as cholesterol by the adrenal medulla
d. The ratio of plasma 3,4-dihydroxyphenoglycol (DHPG) to norepinephrine is generally elevated in patients with pheochromocytoma compared to patients with essential hypertension
Answer: b, d

71. Which of the following statements regarding aldosterone are true?
a. Its secretion is directly related to the serum potassium concentration
b. Angiotensin II is a more potent regulatory factor than ACTH
c. Primary hyperaldosteronism is characterized by hyperkalemia
d. Secondary hyperaldosteronism occurs with renal artery stenosis
Answer: a, b, d

72. A term neonate is noted to have ambiguous female genitalia. This infant is at risk for which of the following potentially life-threatening problems?
a. Cardiomyopathy with congestive heart failure
b. Sodium wasting nephropathy with hypovolemia
c. Respiratory failure from surfactant deficiency
d. Spontaneous hemorrhage from thrombocytopenia
e. Pulmonary embolus from a hypercoaguable state
Answer: b

73. Which of the following adrenal lesions can be treated definitively by medical means?
a. Benign functional adrenocortical adenoma
b. Adrenocortical carcinoma

c. Congenital adrenal hyperplasia
d. Cushing disease
e. Pheochromocytoma

Answer: c

74. Which of the following statements regarding the pituitary gland are true?
a. ADH is a product of the neurohypophysis
b. The preferred surgical approach to the pituitary gland is via the sphenoid sinus
c. Growth hormone, ACTH, LH, FSH and serotonin are products of the adenohypophysis
d. The adenohypophysis is regulated by neurotransmitters released by the supraoptic hypophyseal tract

Answer: a, b

75. Which of the following statement(s) is/are true with respect to growth hormone secreting pituitary adenomas?
a. Fewer than 50% of patients will have growth hormone levels over 10 ng/mL
b. Oral glucose administration suppresses growth hormone levels in patients with acromegaly
c. Over 80% of growth hormone-secreting microadenomas can be cured with transphenoidal resection
d. Preoperative treatment of macroadenomas with a somatostatin analogue may improve postoperative remission rates

Answer: c, d

76. A 30-year-old woman presents with amenorrhea, headache and bitemporal hemianopsia. Appropriate diagnostic tests include:
a. Cerebral angiography
b. Serum prolactin levels
c. Magnetic resonance imaging of the brain
d. Abdominal and pelvic CT scan

Answer: b, c

77. Which of the following condition(s) is/are associated with hyperprolactinemia?
a. Chronic renal failure
b. Exogenous estrogen administration
c. Diabetes mellitus
d. Cirrhosis

Answer: a, b, d

78. Pituitary adenomas are best classified according to functional hormone output. This information may be derived from which of the following?
a. Hematoxylin and eosin staining
b. Immunohistochemical staining of pituitary tissue
c. In situ hybridization studies
d. Selective venous sampling from the inferior petrosal sinuses

Answer: b, c, d

79. Which of the following statements is true with respect to Cushing Disease?
a. Pituitary microadenomas are often small and deep within the gland itself
b. The treatment of choice for hypercortisolism due to a pituitary adenoma in women of childbearing age is transsphenoidal total hypophysectomy
c. Patients who fail to remit with both surgery and radiation to the pituitary require either medical or surgical adrenalectomy
d. The long-term recurrence rate after resection of an ACTH-producing pituitary microadenoma is approximately 40%

Answer: a, c

80. A 45 year-old woman presents for evaluation of hypertension, recent onset obesity, hirsutism and depression. Cerebral MRI does not show a pituitary lesion. Evaluation may include determination of which of the following?
a. AM serum cortisol levels after low dose dexamethasone suppression
b. Simultaneous serum ACTH measurement in peripheral and inferior petrosal sinus sites
c. Chest and abdominal CT scan

d. Urinary free cortisol excretion

Answer: b, c, d

81. The most common mass lesion in the sella turcica is which of the following?

a. Craniopharyngioma
b. Aneurysm
c. Benign pituitary cyst
d. Pituitary adenoma

Answer: d

82. Pharmacologic treatment of growth hormone (GH) excess secondary to a pituitary adenoma may include the use of which of the following?

a. Bromocriptine
b. Vasopressin
c. Octeotide
d. Prednisone

Answer: a, c

ABDOMINAL WALL (HERNIA) & ACUTE ABDOMEN

1. The most common hernia in females is:

A. Femoral hernia.
B. Direct inguinal hernia.
C. Indirect inguinal hernia.
D. Obturator hernia.
E. Umbilical hernia.

Answer: C

2. Which of the following statements regarding unusual hernias is incorrect?

A. An obturator hernia may produce nerve compression diagnosed by a positive Howship-Romberg sign.
B. Grynfeltt's hernia appears through the superior lumbar triangle, whereas Petit's hernia occurs through the inferior lumbar triangle.
C. Sciatic hernias usually present with a painful groin mass below the inguinal ligament.
D. Littre's hernia is defined by a Meckel's diverticulum presenting as the sole component of the hernia sac.
E. Richter's hernia involves the antimesenteric surface of the intestine within the hernia sac and may present with partial intestinal obstruction.

Answer: C

3. Staples may safely be placed during laparoscopic hernia repair in each of the following structures except:

A. Cooper's ligament.
B. Tissues superior to the lateral iliopubic tract.
C. The transversus abdominis aponeurotic arch.
D. Tissues inferior to the lateral iliopubic tract.
E. The iliopubic tract at its insertion onto Cooper's ligament.

Answer: D

4. The following Nyhus classification of hernias is correct except for:
A. Recurrent direct inguinal hernia—Type IVa.
B. Indirect inguinal hernia with a normal internal inguinal ring—Type I.
C. Femoral hernia—Type IIIc.
D. Direct inguinal hernia—Type IIIa.
E. Indirect inguinal hernia with destruction of the transversalis fascia of Hesselbach's triangle—Type II.
Answer: E

5. Which of the following statements about the causes of inguinal hernia is correct?
A. Excessive hydroxyproline has been demonstrated in the aponeuroses of hernia patients.
B. Obliteration of the processus vaginalis is a contributing factor for the development of an indirect inguinal hernia.
C. Physical activity and athletics have been shown to have a protective effect toward the development of inguinal hernias.
D. Elevated levels of circulating serum elastalytic activity have been demonstrated in patients with direct herniation who smoke.
E. The majority of inguinal hernias are acquired.
Answer: D

6. The following statements about the repair of inguinal hernias are true except:
A. The conjoined tendon is sutured to Cooper's ligament in the Bassini hernia repair.
B. The McVay repair is a suitable option for the repair of femoral hernias.
C. The Shouldice repair involves a multilayer, imbricated repair of the floor of the inguinal canal.
D. The Lichtenstein repair is accomplished by prosthetic mesh repair of the inguinal canal floor in a tension-free manner.
E. The laparoscopic transabdominal preperitoneal (TAPP) and totally extraperitoneal approach (TEPA) repairs are based on the preperitoneal repairs of Cheattle, Henry, Nyhus, and Stoppa.
Answer: A

7. Which of the following statements concerning the abdominal wall layers are correct?
A. Scarpa's fascia affords little strength in wound closure.
B. The internal abdominal oblique muscles have fibers that continue into the scrotum as cremasteric muscles.
C. The transversalis fascia is the most important layer of the abdominal wall in preventing hernias.
D. The lymphatics of the abdominal wall drain into the ipsilateral axillary lymph nodes above the umbilicus and into the ipsilateral superficial inguinal lymph nodes below the umbilicus.
Answer: ABCD

8. Which of the following congenital abnormalities are correctly defined?
A. Omphalocele represents a defect in the abdominal wall lateral to the umbilical cord.
B. The herniated viscera associated with omphaloceles are usually covered with a membranous sac.
C. An umbilical polyp is a small excrescence of omphalomesenteric duct mucosa that is retained in the umbilicus.
D. Meckel's diverticulum results when the intestinal end of the omphalomesenteric duct persists and represents a true diverticulum.
Answer: BCD

9. The following statement(s) is/are true concerning the indications for treatment of an inguinal hernia.
a. Most adult hernias will remain stable in size, therefore delay seldom affects the technical aspects of a surgical repair
b. There is a direct correlation between the length of time that a hernia is present and the risk of major complications
c. The morbidity and mortality associated with emergent operation due to hernia complications is significantly greater than for elective repair of the identical hernia
d. A truss maintains a hernia in the reduced state, therefore, minimizing the risk of incarceration and strangulation
Answer: b, c

10. Which of the following statement(s) is/are true concerning the diagnosis and management of epigastric hernias?

a. A large peritoneal sac containing abdominal viscera is common
b. At the time of surgical repair, a careful search for other defects should be performed
c. Recurrent epigastric hernias after simple closure is uncommon
d. Patients with symptoms of a painful midline abdominal mass frequently will contain incarcerated small bowel

Answer: b

11. The following statement(s) is/are true concerning neurovascular structures in the inguinal region.

a. The inferior epigastric artery and vein run upward in the preperitoneal fat posterior to the transversalis fascia close to the lateral margin of the internal inguinal ring
b. The iliohypogastric and ilioinguinal are motor and sensory nerves in the inguinal region which lie beneath the external oblique aponeurosis
c. The ilioinguinal nerve runs anterior to the spermatic cord in the inguinal canal and at the superficial inguinal ring, branches into the sensory supply to the pubic region and the upper scrotum or labium majoris
d. The genital branch of the genitofemoral nerve is a sensory nerve only to the upper thigh and genital area

Answer: b, c

12. In advising a patient preoperatively of potential complications of operative treatment of an inguinal hernia, which of the following statement(s) is/are true?

a. Severe symptoms due to sensory nerve entrapment or injury can occur
b. The most common vascular structure injured during the course of a groin hernia repair is the femoral artery
c. Recurrent hernia after primary groin repair should occur in less than 10% of cases
d. Wound infection increases the risk of recurrent hernia

Answer: a, c, d

13. Chylous ascites is the accumulation of chyle within the peritoneal cavity. Which of the following statement(s) is/are true concerning chylous ascites?

a. The cisterna chyli lies at the anterior surface of the first and second lumbar vertebrae and receives lymphatic fluid from the mesenteric lymphatics
b. Chylous ascites is most commonly associated with abdominal lymphoma
c. Paracentesis and analysis of chylous fluid typically reveals elevated triglycerides, protein, and leukocyte levels with cytologic analysis reflecting the underlying presence of malignancy
d. Treatment of chylous ascites with dietary manipulation will be successful in most cases
e. The mortality rate in adults with chylous ascites is in excess of 50%

Answer: a, b, e

14. Which of the statement(s) is/are true concerning laparoscopic hernia repair?

a. General anesthesia is required
b. Either an abdominal or preperitoneal approach is possible
c. The use of prosthetic mesh is required in all variations
d. Long-term results suggest that the laparoscopic approach is equal or better than traditional repairs

Answer: a, b, c

15. A 28-year-old woman with a history of an appendectomy presents with a nontender palpable mass in the right lower quadrant abdominal incision. The following statement(s) is/are true concerning the diagnosis and management of this patient.

a. The best diagnostic test involves imaging of the abdominal wall by either CT or MRI
b. Resection of the mass with a 2 cm margin is usually adequate
c. Low dose radiation is a suitable alternative to surgery for primary treatment
d. Re-resection for recurrence will likely have a higher rate of recurrence than for primary resection

Answer: a

16. Which of the following statement(s) is/are true concerning repair of inguinal hernias?

a. The Bassini repair approximates the transversus abdominis aponeurosis and transversalis fascia and the shelving edge of the inguinal ligament.
b. The Bassini repair is an adequate repair for a femoral hernia

c. A relaxing incision is important for repairs of direct and large indirect inguinal hernias to prevent excessive tension in the closure
d. An advantage to the use of prosthetic material is the mesh incites formation of scar tissue to further increase tensile strength provided by the mesh alone

Answer: a, c, d

17. The following statement(s) is/are true concerning the epidemiology of inguinal hernias.
a. Inguinal hernias occur with a male-to-female ratio of about 7:1
b. Femoral and umbilical hernias are more common in women, with a female-to-male ratio of 4:1
c. The frequency of inguinal hernias increases with age
d. Almost all umbilical hernias occur in the pediatric age group

Answer: a, c

18. A 77-year-old multiparous female presents with a bowel obstruction. She has no previous abdominal operations and no abdominal wall hernias can be detected. In addition to her abdominal symptoms, she reports pain in her right medial thigh. The following statement(s) is/are true concerning her diagnosis and management.
a. Expectant management with nasogastric suction and IV fluid replacement is indicated
b. A right groin approach is indicated for exploration and repair of the presumed hernia
c. The use of a polypropylene mesh will likely be necessary for repair
d. A correct diagnosis can usually be made by visualizing an external mass in the upper, medial thigh

Answer: c

19. The following statement(s) is/are true concerning umbilical hernias in adults.
a. Most umbilical hernias in adults are the result of a congenital defect carried into adulthood
b. A paraumbilical hernia typically occurs in multiparous females
c. The presence of ascites is a contraindication to elective umbilical hernia repair.
d. Incarceration is uncommon with umbilical hernias

Answer: b

20. Retroperitoneal fibrosis is a fibrosing condition of retroperitoneum, which is of significance as it generally encompasses the ureters and eventually causes hydronephrosis and kidney damage. Which of the following statement(s) is/are true concerning this condition?
a. The majority of cases are idiopathic in nature
b. A history of use of methysergide for treatment of migraine headaches would be significant
c. There is no known association of malignancy with retroperitoneal fibrosis
d. The disease occurs more commonly in women than in men

Answer: a, b

21. The following statement(s) is/are true concerning the anterior abdominal wall musculature.
a. The lateral musculature of the abdominal wall consists of three muscle layers. These are, from external to internal, the external oblique, the transversus abdominis, and the internal oblique muscles
b. The transversalis fascia lies on the deep side of the transversus muscle and extends to form an essentially complete fascial envelope of the abdominal cavity
c. Above the semicircular line, the internal oblique aponeurosis splits into posterior and anterior laminae
d. The rectus abdominis muscles originate on the ribs superiorly and on the pubis inferiorly and are clearly distinct throughout their entire length

Answer: b, c

22. A 48-year-old woman maintained on Warfarin for a history of cardiac valvular replacement and a history of recent upper respiratory infection presents with severe abdominal pain exacerbated by movement. Her physical examination shows tenderness in the right paramedian area with voluntary guarding but no peritoneal signs. The following statement(s) is/are true concerning the diagnosis and management of this patient.
a. Urgent laparotomy should be performed because of concern for arterial mesenteric embolus
b. The correct diagnosis could likely be made by CT scan and operation avoided
c. The status of her anticoagulation should be checked and if her prothrombin time is excessively prolonged, correction is necessary
d. If untreated, hemodynamic instability is common

Answer: b, c

23. True statements concerning the diagnosis and management of retroperitoneal fibrosis include:
a. Most patients present with dull, non-colicky back, flank, or abdominal pain
b. Evidence of impaired renal function with an elevated blood urea nitrogen is common
c. The diagnosis is most commonly suggested by intravenous pyelography although contrast studies with CT scan or MRI are useful in further defining the disease
d. Most patients can be managed nonoperatively
e. The prognosis for nonmalignant retroperitoneal fibrosis is grim with progression of disease until death occurring in most patients
Answer: a, b, c

24. The following statement(s) is/are true concerning incarceration of an inguinal hernia.
a. All incarcerated hernias are surgical emergencies and require prompt surgical intervention
b. Attempt at reduction of an incarcerated symptomatic hernia is generally considered safe
c. Vigorous attempts at reduction of an incarcerated hernia may result in reduction en masse with continued entrapment and possible progression to obstruction or strangulation
d. Incarcerated hernias frequently cause both small and large bowel obstruction
Answer: b, c

25. A careful history is necessary in all patients being considered for inguinal hernia repair. Symptoms which deserve investigation and appropriate treatment prior to proceeding with inguinal hernia repair include:
a. Chronic cough
b. Urinary hesitancy and straining
c. Change in bowel habit
d. A specific episode of muscular straining with associated discomfort
Answer: a, b, c

26. The following statement(s) is/are true concerning abdominal incisional hernias.
a. Large incisional hernias are associated with a high recurrence rate when closed primarily
b. A large potential space remains anterior to the abdominal wall closure in most patients indicating a need for postoperative wound drainage
c. The use of prosthetic mesh can often be avoided by employing relaxing incisions in the anterior fascia parallel to the midline
d. Incisional hernias are frequently associated with a tissue deficit either due to chronic retraction and scarring or the result of tissue necrosis from either infection or tension at the initial closure
Answer: a, b, c, d

27. Which of the following structures are derived from the external oblique muscle and its aponeurosis?
a. The inguinal or Poupart's ligament
b. The lacunar ligament
c. The superficial inguinal ring
d. The conjoined tendon
Answer: a, b, c

28. A number of special circumstances exist in the repair of inguinal hernias. The following statement(s) is/are correct.
a. Simultaneous repair of bilateral direct inguinal hernias can be performed with no significant increased risk of recurrence
b. The preperitoneal approach may be appropriate for repair of a multiple recurrent hernia
c. A femoral hernia repair can best be accomplished using a Bassini or Shouldice repair
d. Management of an incarcerated inguinal hernia with obstruction is best approached via laparotomy incision
Answer: b

29. Which of the following statements concerning intraperitoneal fluid collections are correct?
A. Ascites occurs when either the peritoneal fluid secretion rate increases or the absorption rate decreases.
B. Accumulation of lymph within the peritoneal cavity usually results from trauma as tumor involving the intra-abdominal lymphatic structures.

C. Choleperitoneum (intraperitoneal bile) generally occurs following biliary surgery, but spontaneous perforation of the bile duct has been reported.
D. The most common cause of hemoperitoneum is trauma to the liver or spleen.
Answer: ABCD

30. The following statement about peritonitis are all true except:
A. Peritonitis is defined as inflammation of the peritoneum.
B. Most surgical peritonitis is secondary to bacterial contamination.
C. Primary peritonitis has no documented source of contamination and is more common in adults than in children and in men than in women.
D. Tuberculous peritonitis can present with or without ascites.
Answer: C
31. True or false?
A. Mesenteric cysts are most often due to congenital lymphatic spaces that gradually fill with lymph.
B. Mesenteric cysts usually present as abdominal masses accompanied by pain, nausea, or vomiting.
C. Mesenteric cysts are best treated by marsupialization.
D. Omental cysts are frequently asymptomatic unless they undergo torsion.
Answer: A-TRUE, B-TRUE, C-FALSE, D-TRUE
32. Which of the following statements about acute salpingitis are true?
A. The disease rarely occurs after menopause.
B. Gonococcal infection is most common.
C. There is minimal cervical tenderness to palpation.
D. Vaginal discharge occurs rarely.
Answer: AB
33. Acute appendicitis is most commonly associated with which of the following signs?
A. Temperature above 104° F.
B. Frequent loose stools.
C. Anorexia, abdominal pain, and right lower quadrant tenderness.
D. White blood cell count greater than 20,000 per cu. mm.
Answer: C

34. Which of the following most often initiates the development of acute appendicitis?
A. A viral infection.
B. Acute gastroenteritis.
C. Obstruction of the appendiceal lumen.
D. A primary clostridial infection.
Answer: C

35. The diagnosis of acute appendicitis is most difficult to establish in:
A. Persons aged 60 and older.
B. Women aged 18 to 35.
C. Infants younger than 1 year.
D. Pregnant women.
Answer: C

36. Once a diagnosis of acute appendicitis has been made and appendectomy decided upon, which of the following is/are true?
A. Prophylactic antibiotics should be administered.
B. Prophylactic antibitics are not necessary unless there is evidence of perforation.
C. If the appendix is not ruptured and not gangrenous, antibiotics may be discontinued after 24 hours.
D. Multiple antibiotics are in all cases preferable to a single agent.
Answer: AC

37. The best type of x-ray to locate free abdominal air is:
A. A posteroanterior view of the chest.
B. A flat and upright view of the abdomen.
C. Computed tomograph (CT) of the abdomen.
D. A lateral decubitus x-ray, right side up.
Answer: D

38. The most helpful diagnostic radiographic procedure in small bowel obstruction is:
A. CT of the abdomen.
B. Contrast study of the intestine.
C. Supine and erect x-rays of the abdomen.
D. Ultrasonography of the abdomen.
Answer: C

39. The most commonly used imaging method for diagnosis of acute cholecystitis is:
A. CT of the abdomen.
B. Ultrasonography of the gallbladder.
C. Oral cholecystogram.
D. Radionuclide (HIDA) scan of the gallbladder.
Answer: B

40. Acute salpingitis occurs most often:
A. After menopause.
B. In patients with unilateral lower abdominal pain.
C. During the menstrual cycle.
D. In patients with cervical tenderness and vaginal discharge.
Answer: D

41. Meckel's diverticulitis most often occurs in the:
A. Proximal jejunum.
B. Distal jejunum.
C. Proximal ileum.
D. Distal ileum.
Answer:D

42. A patient is seen in the emergency room with reproducible right lower quadrant tenderness. The approximate incidence of finding a normal appendix on right lower quadrant exploration in similar nonselected patients is which of the following:
a. 5%
b. 10%
c. 20%
d. 40%
Answer: c

43. Of adult patients presenting to the emergency room for evaluation of acute abdominal pain, which one of the following answers includes the most common diagnoses?
a. Urologic problems, cholelithiasis, pelvic inflammatory disease
b. Mittelschmerz, appendicitis, ureterolithiasis
c. Nonspecific abdominal pain, appendicitis, intestinal obstruction
d. Appendicitis, pelvic inflammatory disease, perforated ulcer
Answer: c

44. Nonsurgical causes of acute abdominal pain may include which of the following?
a. Hyperthyrodism
b. Adrenal insufficiency
c. Pneumonia
d. Diabetic ketoacidosis
Answer: b, c, d

45. Which of the following cause visceral pain from the abdominal organs?
a. Stretching and contraction
b. Traction, compression, torsion
c. Cutting
d. Certain chemicals
Answer: a, b, d

46. Factors which may influence the clinical presentation of intraabdominal pathology include which of the following?

a. Pregnancy
b. Oral anticoagulants
c. Age
d. HIV infection

Answer: a, b, c, d

47. Prospective studies have shown incidental appendectomy to be advantageous in which of the following patient groups?

a. Children undergoing staging laparotomy for malignancy who are then to enter chemotherapy
b. HIV infected patients
c. Patients over 50 years of age
d. Patients with spinal cord injuries
e. None of the above

Answer: e

48. Visceral pain is typically:

a. Well localized
b. Sharp
c. Mediated via spinal nerves
d. Perceived to be in the midline

Answer: d

49. True statements regarding the pathophysiology of acute appendicitis include which of the following:

a. Fecaliths are responsible for the disease process in approximately 30% of adult patients
b. Lymphoid hyperplasia is a rare cause of appendicitis in young patients
c. Clostridium difficile is implicated as a pathogenic organism
d. Carcinoid tumors account for approximately 5% of all cases of acute appendicitis

Answer: a

50. A 26-year old woman in her first trimester of pregnancy presents with a 2-day history of right lower quadrant pain and fever. Physical examination reveals a tender, palpable, right lower quadrant mass. There is no evidence of peritonitis or systemic sepsis. Laboratory evaluation is remarkable for mild leukocytosis, and abdominal ultrasound demonstrates an inflammatory mass but no evidence of abscess. As the surgeon on call, your recommendation would be:

a.
b. Intravenous hydration, antibiotic prophylasis, and urgent appendectomy
c. Intravenous hydration, antibiotics, bowel rest, and interval appendectomy in 4 to 6 weeks
d. Intravenous hydration, antibiotics, and appendectomy if no improvement in 12 to 24 hours
e. Intravenous hydration, antibiotics, and interval appendectomy when fever has subsided, leukocyte count has returned to normal, and the patient is pain free
f. Emergent obstetrical consultation for evaluation and treatment of possible ectopic pregnancy

Answer: a

51. True statements regarding appendiceal neoplasms include which of the following?

a. Carcinoid tumors of the appendix less than 1.5 cm are adequately treated by simple appendectomy
b. Appendiceal carcinoma is associated with secondary tumors of the GI tract in up to 60% of patients
c. Survival following right colectomy for a Dukes' stage C appendiceal carcinoma is markedly better than that for a similarly staged colon cancer at 5 years
d. Mucinous cystadenocarcinoma of the appendix is adequately treated by simple appendectomy, even in patients with rupture and mucinous ascites
e. Up to 50% of patients with appendiceal carcinoma have metastatic disease, with the liver as the most common site of spread

Answer: a

ESOPHAGUS, STOMACH & DUODENUM

1. Which of the following statements about the anatomic course of the esophagus is correct?
A. The cervical esophagus passes behind and to the right of the trachea.
B. The thoracic esophagus enters the posterior mediastinum anterior to the aortic arch.
C. The thoracic esophagus passes behind the right mainstem bronchus and the pericardium.
D. The esophagus enters the diaphragmatic hiatus at the level of T8.
E. The esophagus deviates anteriorly and to the left as it enters the abdomen.
Answer: E

2. Which of the following statements about esophageal anatomy is correct?
A. The esophagus has a poor blood supply, which is segmental in distribution and accounts for the high incidence of anastomotic leakage.
B. The esophageal serosa consists of a thin layer of fibroareolar tissue.
C. The esophagus has two distinct muscle layers, an outer, longitudinal one and an inner, circular one, which are striated in the upper third and smooth in the distal two thirds.
D. Injury to the recurrent laryngeal nerve results in vocal cord dysfunction but does not affect swallowing.
E. The lymphatic drainage of the esophagus is relatively sparse, localized primarily to adjacent paraesophageal lymph nodes.
Answer: C

3. Which of the following statements about the lower esophageal sphincter (LES) mechanism, or high-pressure zone (HPZ), is true?
A. The LES is a circular smooth muscle ring that is 3 to 5 cm. long.
B. In assessing esophageal manometric data, mean HPZ pressure less than 6 mm. Hg or overall length less than 2 cm. is more likely to be associated with incompetence of the LES and gastroesophageal reflux.
C. Esophageal manometry and the acid perfusion (Bernstein) test reliably identify the patient with an incompetent LES mechanism.
D. Distal HPZ relaxation occurs within 5 to 8 seconds of initiating a swallow.
E. Twenty-four–hour distal esophageal pH monitoring is achieved with an intraesophageal pH electrode positioned at the esophagogastric junction.
Answer: B

4. Which of the following statements about esophageal motility is/are true?
A. The act of swallowing initiates UES relaxation, which persists until the bolus of food passes the LES.
B. The primary peristaltic wave normally propels the swallowed bolus through the esophagus in 4 to 8 seconds.
C. Normally, a progressive peristaltic contraction (primary wave) follows 50% of all swallows, the remainder being secondary or tertiary contractions.
D. Secondary peristalsis is initiated when the entire swallowed bolus of food fails to empty from the esophagus into the stomach.
E. Tertiary esophageal contractions are high-amplitude progressive peristaltic contractions that produce the "corkscrew" appearance of esophageal spasm on barium esophagography.
Answer: BD

5. Which of the following statements about UES dysfunction are correct?
A. This condition is diagnosed by the characteristic manometric findings of UES spasm.
B. Typical symptoms include cervical dysphagia, expectoration of saliva, and hoarseness.
C. The classic finding on barium esophagogram is a posterior cricopharyngeal bar.
D. Medical or surgical therapy of gastroesophageal reflux may be curative.
E. A cervical esophagomyotomy for UES dysfunction should be limited to 2 to 3 cm. in length so that normal muscle is not damaged.
Answer: BCD

6. Which of the following statements about achalasia is/are correct?
A. In most cases in North America the cause is a parasitic infestation by Trypanosoma cruzi.
B. Chest pain and regurgitation are the usual symptoms.
C. Distal-third esophageal adenocarcinomas may occur in as many as 20% of patients within 10 years of diagnosis.
D. Manometry demonstrates failure of LES relaxation on swallowing and absent or weak simultaneous contractions in the esophageal body after swallowing.
E. Endoscopic botulinum toxin injection of the LES, pneumatic dilatation, and esophagomyotomy provide highly effective curative therapy for achalasia.
Answer: D

7. Which of the following statements about diffuse esophageal spasm is/are true?
A. Chest pain due to esophageal spasm is readily differentiated from angina pectoris of cardiac origin.
B. Bouts of esophageal obstruction and regurgitation of food are characteristic.
C. Associated psychiatric disorders are common.
D. During manometric assessment, unless the patient is having pain there may be no detectable multiphasic, high-amplitude, simultaneous esophageal contractions.
E. The treatment of choice is a long esophagomyotomy from the aortic arch to the esophagogastric junction.
Answer: CD

8. Which of the following statements about epiphrenic diverticula of the esophagus is/are correct?
A. They are traction diverticula that arise close to the tracheobronchial tree.
B. They characteristically arise proximal to an esophageal reflux stricture.
C. The degree of dysphagia correlates with the size of the pouch.
D. They are best approached surgically through a right thoracotomy.
E. The operation of choice is a stapled diverticulectomy, long esophagomyotomy, and partial fundoplication.
Answer: E

9. Which of the following statements about Schatzki's ring is correct?
A. The ring represents a panmural fibrotic stricture resulting from gastroesophageal reflux.
B. Dysphagia occurs when the ring diameter is 13 mm. or less.
C. The ring occurs within 1 to 2 cm. of the squamocolumnar epithelial junction.
D. Schatzki's ring indicates reflux esophagitis.
E. Schatzki's ring signifies the need for an antireflux operation.
Answer: B

10. Choose the distance in centimeters from the upper incisor teeth at which the following radiographically identified esophageal lesions would be encountered endoscopically:

A. 10 cm.	1. Zenker's diverticulum
B. 15 cm.	2. Traction diverticulum
C. 25 cm.	3. Tumor 10 cm. proximal to the esophagogastric junction
D. 30 cm.	
E. 40 cm.	

Answer: 1-B, 2-C, 3-D

11. Which of the following statements about pathology encountered at esophagoscopy is/are correct?
A. Reflux esophagitis should be graded as mild, moderate, or severe, to promote consistency among different observers.
B. An esophageal reflux stricture with a 2-mm. lumen is not dilatable and is best treated with resection.
C. A newly diagnosed radiographic distal esophageal stricture warrants dilation and antireflux medical therapy.
D. In patients with Barrett's mucosa, the squamocolumnar epithelial junction occurs 3 cm. or more proximal to the anatomic esophagogastric junction.
E. After fasting at least 12 hours, a patient with megaesophagus of achalasia can safely undergo flexible fiberoptic esophagoscopy.
Answer: D

12. Which of the following statements about the diagnosis and treatment of esophageal leiomyomas is/are correct?
A. The majority are diagnosed after they cause dysphagia and chest pain.
B. Biopsy is indicated at the time of esophagoscopy, to rule out carcinoma.
C. Full-thickness elliptical excision of the esophageal wall is the preferred surgical approach.
D. Endoscopic ultrasonography is a reliable means of following leiomyomas conservatively.
E. Recurrence of resected leiomyomas is minimized by wide local excision.
Answer: D

13. Which of the following statements regarding the pathology of esophageal carcinoma is/are correct?
A. Worldwide, adenocarcinoma is the most common esophageal malignancy.
B. Squamous cell carcinoma is most common in the distal esophagus, whereas adenocarcinoma predominates in the middle third.

C. Patients with Barrett's metaplasia are 40 times more likely than the general population to develop adenocarcinoma.
D. Metastases from esophageal carcinoma are characteristically localized to regional mediastinal lymph nodes adjacent to the tumor.
E. Achalasia, radiation esophagitis, caustic esophageal stricture, Barrett's mucosa, and Plummer-Vinson syndrome are all premalignant esophageal lesions that predispose to the development of squamous cell carcinoma.
Answer: C

14. Which of the following statements about the surgical treatment of esophageal carcinoma is/are correct?
A. The finding of severe dysphagia in association with Barrett's mucosa is an indication for an antireflux operation to prevent subsequent development of carcinoma.
B. Long-term survival is improved by radical en bloc resection of the esophagus with its contained tumor, adjacent mediastinal tissues, and regional lymph nodes.
C. The morbidity and mortality rates for cervical esophagogastric anastomotic leak are substantially less than those associated with intrathoracic esophagogastric anastomotic leak.
D. The leading complications of transthoracic esophagectomy and intrathoracic esophagogastric anastomosis are bleeding and wound infection.
E. Transhiatal esophagectomy without thoracotomy achieves better long-term survival than transthoracic esophagectomy.
Answer: C

15. The best management for a 48-hour-old distal esophageal perforation is:
A. Antibiotics and drainage.
B. Division of the esophagus and exclusion of the perforation.
C. Primary repair with buttressing.
D. Resection with cervical esophagostomy, gastrostomy, and jejunostomy.
E. T-tube fistula and drainage.
Answer: C

16. A 50-year-old patient develops sudden left lower chest pain and epigastric pain after vomiting. The patient shows diaphoresis, breath sounds are decreased on the left, and there is abdominal guarding. The most appropriate diagnostic test is:
A. Aortography.
B. Esophagoscopy.
C. Electrocardiogram.
D. Film of the chest.
E. White blood count.
Answer: D

17. The following statements about the influence of diet and lifestyle on lower esophageal sphincter (LES) function are true except one. Identify the incorrect statement.
A. A high-protein diet increases LES pressure.
B. A fat meal results in sustained decrease in LES pressure.
C. Chocolate ingestion causes a decrease in LES pressure.
D. Peppermint produces a transient decrease in LES values.
E. Cigarette smoking produces no significant changes in LES pressures.
Answer: E

18. When a stricture is present in association with gastroesophageal reflux, each of the following is an acceptable repair for reflux control except one. Identify the poorest repair.
A. Intrathoracic total fundoplication.
B. Lengthening gastroplasty with total fundoplication.
C. Total fundoplication.
D. Lengthening gastroplasty with partial fundoplication.
E. Partial fundoplication.
Answer: E

19. When assessing gastroesophageal reflux disease by manometry each of the following statements is correct except one. Identify the incorrect one.
A. Absent or extremely low LES pressures have predictive value in identifying more severe reflux.
B. Peristaltic dysfunction increases with increasing severity of esophagitis.
C. With established reflux disease the UES is hypertensive.
D. Esophageal functional changes are worst in patients with a circumferential columnar-lined esophagus.
E. Absence of peristalsis may be associated with more severe forms of reflux disease.
Answer: C

20. The presence of a nonmalignant mid- or upper esophageal stricture always indicates the presence of:
A. Alkaline reflux esophagitis.
B. Barrett's esophagus.
C. Idiopathic reflux disease.
D. Mediastinal fibrosis.
E. Scleroderma.
Answer: B

21. Which of the following is most reliable for confirming the occurrence of a significant esophageal caustic injury?
A. History of the event.
B. Physical examination of the patient.
C. Barium esophagraphy.
D. Endoscopy.
Answer: D

22. Indications for surgical reconstruction of the esophagus include which of the following?
A. Continuing requirement for frequent dilation of an extensive esophageal stricture for a minimum of 2 years.
B. Failure or refusal of the patient to comply with a treatment regimen of regular dilation.
C. Development of a fistula between the esophagus and tracheobronchial tree.
D. Iatrogenic perforation of the esophagus during attempted dilation.
Answer: BCD

23. First-line therapy for routine peptic duodenal ulcer disease includes:
A. Vagotomy and antrectomy.
B. Upper endoscopy and biopsy to rule out tumor.
C. Evaluation for Helicobacter pylori.
D. Serum gastrin determination.
E. Cream or milk-based "Sippy" diet.
Answer: C

24. Appropriate management of severe vomiting associated with gastric outlet obstruction from peptic ulcer disease includes all of the following except:
A. Nasogastric suction.
B. Intravenous hydration.
C. Nutritional assessment; upper endoscopy to rule out malignancy.
D. Intravenous H 2 antagonist.
E. Oral antacid therapy.
Answer: E

25. All of the following are complications of peptic ulcer surgery except:
A. Duodenal stump blowout.
B. Dumping.
C. Diarrhea.
D. Delayed gastric emptying.
E. Steatorrhea.
Answer: E

26. The presentation of Zollinger-Ellison syndrome includes all of the following except:
A. Hyperparathyroidism in patients with multiple endocrine neoplasia type 1 (MEN 1) syndrome.
B. Diarrhea.
C. Migratory rash.
D. Jejunal ulcers.
E. Duodenal ulcers.
Answer: C

27. All are true about the dumping syndrome except:
A. Symptoms can be controlled with a somatostatin analog.
B. Diarrhea is always part of the dumping syndrome.
C. Flushing and tachycardia are common features of the syndrome.
D. Separating solids and liquids in the patient's oral intake alleviates some of the symptoms of the syndrome.
E. Early postoperative dumping after vagotomy often resolves spontaneously.
Answer: B

28. In patients with bleeding duodenal ulcers, the endoscopic finding associated with the highest incidence of rebleeding is:
A. Visible vessel.
B. Cherry-red spot.
C. Clean ulcer bed.
D. Duodenitis.
E. Shallow, 3-mm. ulcer.
Answer: A

29. All of the following are contraindications for highly selective vagotomy except:
A. Intractable duodenal ulcer disease.
B. Peptic ulcer disease causing gastric outlet obstruction.
C. Fundic peptic ulceration.
D. Cigarette chain smoking.
E. Perforated peptic ulcer disease with more than 24 hours' soilage.
Answer: A

30. All the following are true of omeprazole except:
A. It is the only drug available that has the potential to achieve pharmacologically induced achlorhydria.
B. It works by blocking the hydrogen-potassium ATPase in the parietal cell.
C. It is parietal cell specific.
D. It has a short half-life (about 90 minutes) when taken orally.
E. It has been associated with gastric neoplasm in a rat model.
Answer: D

31. All of the following statements about gastrin-releasing peptide (GRP) are true except:
A. In species other than man and dog GRP is commonly referred to as bombesin.
B. GRP serves as a neurotransmitter.
C. GRP inhibits pancreatic secretion when given intravenously.
D. GRP stimulates gastric acid secretion when given intravenously.
E. GRP is released in response to cholinergic stimulation of the parietal cells to stimulate release of gastrin.
Answer: C

32. Cholecystokinin (CCK) is believed to function in all of the following processes except:
A. It physiologically delays gastric emptying.
B. It appears to have a role in satiety regulation.
C. It contracts the gallbladder.
D. It stimulates pancreatic secretion.
E. It is important in the control of the anal sphincter.
Answer: E

33. All of the following measures have been recommended for control of acid secretion in patients with Zollinger-Ellison syndrome except:
A. Antrectomy.
B. Highly selective vagotomy.
C. Total gastrectomy.
D. Vagotomy and pyloroplasty.

E. Medical therapy with Prilosec (omeprazole).
Answer: A

34. All of the following contribute to peptic ulcer disease except:
A. Cigarette smoking.
B. Nonsteroidal anti-inflammatory drugs.
C. Helicobacter pylori.
D. Gastrinoma.
E. Spicy foods.
Answer: E

35. Which of the following statements about gastric polyps is/are true?
A. Like their colonic counterparts, gastric epithelial polyps are common tumors.
B. They are analogous to colorectal polyps in natural history.
C. Endoscopy can uniformly predict the histology of a polyp based on location and appearance.
D. In a given patient, multiple polyps are generally of a single histologic type.
E. Gastric adenomatous polyps greater than 2 cm. in diameter should be excised because of the risk of malignant transformation.
Answer: DE

36. Which of the following statements about gastric leiomyomas is/are true?
A. They are the most common type of gastric tumor of the stomach at autopsy.
B. The leiomyoblastoma cell type reflects malignant transformation of gastric leiomyomas.
C. A conservative surgical approach is indicated for their resection since regional lymphadenectomy has not been proved reliable even when they turn out to be malignant.
D. Severe hemorrhage may occur from deep ulcerations overlying the intramural tumor.
Answer: ACD

37. The sine qua non of the histologic diagnosis of a gastric pseudolymphoma is:
A. Extragastric extension of the gastric lesion.
B. Nodal involvement beyond the immediate stomach.
C. A germinal center in the gastric lesion.
D. Extension into esophagus and duodenum.
E. Unresponsive to conservative gastric resection.
Answer: C

38. All of the following statements about surgical management of gastric lymphomas are true except:
A. Stage I gastric lymphomas (small lesions confined to the stomach wall) can be cured completely with surgical therapy alone.
B. Extensive gastric lymphomas that initially are treated with radiation and/or chemotherapy occasionally perforate during treatment and require secondary resection.
C. Patients explored with a presumptive diagnosis of gastric lymphoma should undergo an attempt at curative resection when this is safe and feasible.
D. Without a preoperative diagnosis resection for gastric mass should not be attempted unless lymphoma can be excluded.
E. Appropriate staging for primary gastric lymphoma includes bone marrow biopsy.
Answer: D

39. Which of the following risk factors have been shown to increase significantly the incidence of gastrointestinal bleeding from stress gastritis in intensive care unit (ICU) patients?
A. Glucocorticoid administration.
B. Respiratory failure.
C. Coagulopathy.
D. Organ transplantation.
E. Jaundice.
Answer: BC

40. Which of the following measures are effective in preventing stress gastritis bleeding in critically ill patients?
A. Improving systemic circulation by correcting any shocklike state resulting from blood loss or sepsis.
B. Correcting systemic acid-base abnormality.
C. Maintaining adequate nutrition.

D. Reducing intragastric acidity by either antacid titration or H 2 antagonists.
Answer: ABCD

Which of the following have been used successfully to treat patients with vascular compression of the duodenum?
A. Subtotal gastrectomy and Roux-en-Y gastrojejunostomy.
B. Total parenteral nutrition.
C. Division of the ligament of Treitz and duodenal mobilization.
D. Percutaneous endoscopic gastrostomy.
E. Duodenojejunostomy.
Answer: BCE

41. Which of the following statements about the anatomic basis for the syndrome of vascular compression of the duodenum are true?
A. The duodenum is obstructed in its distal third as it crosses over the lumbar vertebral column.
B. Structures crossing beneath the superior mesenteric artery include the duodenum, the uncinate process of the pancreas, and the left renal vein.
C. Hyperextension of the back allows the angle of origin of the superior mesenteric artery to widen, lessening the obstruction of the duodenum.
D. Patients are at significant risk for vascular compression of the duodenum if the angle between the takeoff of the superior mesenteric artery and the aorta is less than 45 degrees.
E. Arteriographic studies show a typical area of extrinsic compression and narrowing of the arterial lumen due to duodenal pressure.
Answer: AB

42. Numerous epidemiologic associations have been made between (1) environmental and dietary factors and (2) the incidence of gastric cancer, including all except:
A. Dietary nitrites.
B. Dietary salt.
C. Helicobacter pylori infection.
D. Dietary ascorbic acid.
Answer: D

43. All of the following benign conditions are associated with increased rates of gastric cancer except:
A. Pernicious anemia.
B. Multiple endocrine neoplasia type I (MEN 1).
C. Adenomatous polyps.
D. Chronic atrophic gastritis.
Answer: B

44. Which of the following statements concerning the pathology of gastric cancer is true?
A. Distal gastric cancers are becoming more common.
B. Intestinal-type gastric tumors resemble colon carcinomas and have a better prognosis than diffuse type.
C. Early gastric cancers are confined to the mucosa and are lymph node negative.
D. Broders' histologic grading system correlates well with survival: patients with grade IV tumors have 5-year survival rates around 65%.
Answer: B

45. An 80% distal gastrectomy is performed for a 6-cm. antral cancer with extension to the muscularis propria and three positive lymph nodes less than 3 cm. from the tumor. The stage of this tumor was:
A. Stage I.
B. Stage II.
C. Stage III A.
D. Stage III B.
Answer: B

46. Which of the following statements about the surgical treatment of gastric cancer is false?
A. Patients with tumors of the middle and proximal thirds should undergo total gastrectomy.
B. Adenocarcinoma of the cardia-gastroesophageal junction may require reconstruction in the abdomen, chest, or neck.
C. Palliative resection yields better results than palliative bypass.
D. Japanese patients who undergo gastric resection are, on average, 10 years younger and much leaner than their Western counterparts.
Answer: A

47. Which of the following measures of obesity correlates best with mortality?
A. The 1983 Metropolitan Life Insurance Company tables for ideal body weight.
B. Hydroimmersion measurements of body fat composition.
C. Body mass index (BMI).
D. Skinfold thickness.
E. Waist to hip ratios (WHR).
Answer: C

48. The most effective therapy for morbid obesity, in terms of weight control, is:
A. Intensive dieting with behavior modification.
B. A multidrug protocol with fenfluramine, phenylpropanolamine, and mazindol.
C. A gastric bypass with a 40-ml. pouch, a 10- to 20-cm. Roux-en-Y gastroenterostomy.
D. A gastric bypass with a 15-ml. pouch, a 40- to 60-cm. Roux-en-Y gastroenterostomy.
E. Daily exercise with strong emphasis on utilizing all four limbs.
Answer: D

49. Which of the following statements about intestinal bypass is/are correct?
A. The operation produced weight loss similar to that of the gastric bypass.
B. The operation produced severe metabolic disturbances, including hypocalcemia, increased bile salts and glycine synthesis.
C. Bacterial overgrowth in the bypassed segment led to liver failure.
D. The operation demonstrated that an adult human could survive with 40 to 50 cm. of small intestine.
Answer: ABCD

50. Which of the following is/are contraindications to gastric bypass surgery?
A. Diabetes mellitus.
B. Hypertension.
C. Pickwickian syndrome.
D. Failure to agree to long-term follow-up.
E. Sleep apnea.
Answer: D

51. A 34-year-old morbidly obese diabetic woman underwent a gastric bypass about 12 hours ago. The operation was technically difficult but finally went well. You are called because she now has a temperature of 99.2° F, pulse of 134, and some pain in her incision and her back. She looks well; the incision is clean; and her examination is otherwise negative. A bolus of 500 ml. of dextrose/lactated Ringer's did not change her vital signs, except that her pulse rose to 140 without an increase in urine output. Your next step should be:
A. Another bolus of crystalloids.
B. Posterioanterior and lateral chest films.
C. Obtain white cell count, differential count, and electrolyte values.
D. Call the operating room and warn them that you need to re-explore for a leak.
E. Increase her pain medication.
Answer: D

52. Metabolic complications of subtotal gastrectomy with Billroth I or Billroth II reconstruction include:
A. Hypothyroidism.
B. Anemia.
C. Reactive hypoglycemia.
D. Dumping syndrome.
E. Metabolic bone disease.
Answer: BCDE

53. Which of the following statement(s) concerning the surgical options for an anti-reflux operation is/are true?
a. A patient with normal esophageal length and esophageal body motility is best served by laparoscopic Nissen fundoplication
b. A patient with a low peristaltic amplitude of the distal third of the esophagus is a candidate for an open Nissen fundoplication

c.A Collis gastroplasty is an additional procedure that can be added in patients with extensive esophageal shortening

d. End-stage reflux disease such as an undilatable stricture or Barrett's esophagus with high grade dysplagia is best managed by a colon interposition

Answer: a, c, d

54. Factors associated with the development of complications of gastroesophageal reflux disease include:

a. The presence of a defective lower esophageal sphincter

b. Inadequate esophageal clearance

c.The presence of a hiatal hernia

d. The presence of an alkaline component of the reflux material

Answer: a, b, c, d

55. Fundamental to understanding disorders of esophageal function is the measurement of the contractility of the esophageal body and sphincters. Which of the following statement(s) is/are true concerning esophageal manometry in the investigation of benign esophageal disease?

a. A defective sphincter is predictive of poor long-term response to medical therapy, but a good response to surgery

b. Esophageal manometry can determine the resting pressure and the overall length of the sphincter but not its abdominal length

c.The LES pressure normally drops to gastric baseline immediately after a swallow before the peristaltic wave reaches the lower esophagus

d. A Vector Volume below the fifth percentile of normal is the most sensitive measure of mechanical deficiency of the LES

e. There is no correlation between defects in LES with the severity of gastroesophageal reflux disease

Answer: a, c, d

56. Which of the following statement(s) is/are true concerning the diagnosis and management of the patient whose barium esophogram is shown in Figure 18-29?

a. The condition is due to neuronal generation of the myenteric plexus in the lower esophageal sphincter

b. The patient will report symptoms of vomiting of sour or bitter material

c.Despite the impressive radiologic picture, passage of the endoscope through the area of narrowing will likely be possible

d. Manometry and 24 hour pH monitoring should be performed for confirmation of the diagnosis

Answer: c

57. Which of the following statement(s) is/are true concerning other tests available for investigation of esophageal disease?

a. A 24 hour pH monitoring is currently the principal method in making the diagnosis of gastroesophageal reflux disease (GERD)

b. Acid reflux episodes are defined as periods when the esophageal pH is less than 2

c.Twenty-four pH monitoring is only useful in the detection of acid reflux disease

d. The Bernstein test continues to be an important tool in the diagnosis of acid reflux disease

e. Delayed gastric emptying may be an important etiologic factor in patients with GERD

Answer: a, e

58. The results for anti-reflux surgery are generally good, however, patients who have failed anti-reflux procedures constitute a particularly challenging group. Which of the following statement(s) is/are true concerning failed anti-reflux repairs?

a. A Slipped Nissen is usually the result of an operative technical mistake

b. Disruption of a fundoplication is more prone to occur with a Nissen fundoplication because of the use of the gastric wall in the repair

c.Postoperative dysphagia in a patient with normal preoperative motility is usually due to a secondary motility disorder

d. Colonic replacement, although technically challenging, usually has superior long-term results when compared to esophageal replacement with the stomach

Answer: a, d

59. A number of diagnostic modalities exist for investigation of structural abnormalities of the esophagus. Which of the following statement(s) is/are true concerning the use of these investigative studies?

a. Endoscopy should be the first investigation in any patient with foregut symptoms

b. Barrett's esophagus is suggested when the squamo-columnar junction is more than 2 cm above the gastroesophageal junction on endoscopic examination

c.There are three areas of esophageal narrowing which can be noted on both barium esophogram and endoscopy

d. The CT appearance of the esophagus is normally a flattened, hollow structure with a thin wall

Answer: b, c, d

60. Which of the following patient scenarios would be best managed with anti-reflux surgery?

a. A patient with heartburn but normal 24 hour pH monitoring and an intact lower esophageal sphincter

b. A patient with primarily respiratory manifestations of gastroesophageal reflux

c.A patient with increased acid exposure and a mechanically defective sphincter who responds well to medical therapy but requires continued long-term medication for continued relief

d. A patient with gastroesophageal reflux but excessive complaints of epigastric pain, nausea, vomiting, and loss of appetite

Answer: b, c

61. Which of the following statement(s) concerning pharyngoesophageal disorders is/are true?

a. In neuromuscular diseases, dysphagia is often worse for liquids than for solids

b. Cricomyotomy may be indicated for a wide variety of neuromuscular disorders involving the pharyngoesophageal phase of swallowing

c.Excision of a Zenker's diverticulum is indicated to prevent malignant change in the sac

d. Complications of all operations on the cervical esophagus include hematoma formation and recurrent nerve paralysis

Answer: a, b, d

62. Barrett's esophagus is a complication of gastroesophageal reflux disease. Which of the following statement(s) is/are true concerning this condition?

a. The histologic hallmark is the presence of "specialized" columnar epithelium regardless of how far it extends into the esophagus

b. Barrett's epithelium will frequently regress with medical therapy or anti-reflux surgery

c.High grade dysplasia will frequently be associated with foci of invasive carcinoma

d. Patients with adenocarcinoma arising in Barrett's esophagus have a high incidence of p53 gene mutations

Answer: a, c, d

63. Which of the following statement(s) is/are true concerning the blood supply and lymphatic drainage of the esophagus?

a. The thoracic esophagus receives no direct branches from the aorta therefore allowing the technique of transhiatal (blunt) esophagectomy

b. Bleeding esophageal varices are most prominent in the mid-esophagus

c.Lymphatic drainage of the lower third of the esophagus goes entirely to the abdominal lymphatic system

d. Nodal involvement in esophageal cancer is quite common even if the tumor is limited to the level of the submucosa

Answer: d

64. Which of the following statement(s) is/are true concerning the process of swallowing and esophageal transit of food?

a. Injury to the recurrent laryngeal nerves can cause motility problems of the cervical esophagus and resulting aspiration

b. Esophageal reflux does not lead to impaired esophageal motility

c.Relaxation of the LES is mediated via inhibitory neurons

d. The overall length of the LES is the only factor influencing the pressure gradient of the sphincter

e. A mechanically defective sphincter is always associated with increased esophageal acid exposure

Answer: a, c

65. Which of the following statement(s) is/are true concerning the management of this patient?

a. The risk of perforation of the esophagus associated with balloon dilatation may be as high as 10%

b. An anti-reflux procedure should be universally performed for any operative myotomy

c.Successful relief of dysphagia can be achieved in up to 90% of patients with a single pneumatic dilatation

d. Thoracoscopic myotomy is associated with significantly poorer results than the open procedure

e. Prospective randomized studies and retrospective data appear to support a surgical approach for achalasia

Answer: a, e

66. Which of the following statement(s) is/are true concerning the surgical anatomy of the esophagus?

a. Surgical exposure of the cervical esophagus is best gained via the right neck

b. Spontaneous esophageal perforation tends to be associated with leakage into the left chest

c.Access to the entire thoracic esophagus can be obtained only via the left chest

d. The lower esophageal sphincter can be recognized distinctly by inspection of the gastroesophageal junction

Answer: b

67. Which of the following statement(s) is/are correct concerning the patient whose barium esophogram is shown below?

a. The patient's complaint would be primarily chest pain and to a lesser degree dysphagia

b. The pathognomic feature of manometry is the presence of prolonged high amplitude waves

c.The patient will likely experience nutritional problems

d. The first line of treatment for this patient is surgical myotomy

Answer: a, b

68. Which of the following statement(s) is/are true concerning tracheoesophageal fistulas?

a. The majority of acquired tracheoesophageal fistulas are due to malignant disease

b. A water-soluble contrast esophogram should be obtained for diagnosis

c.Malignant tracheoesophageal fistulas represent one of the few indications for an endoesophageal prosthesis

d. A benign tracheoesophageal fistula from an endotracheal intubation injury often requires a thoracotomy for repair

Answer: a, c

69. Esophageal cysts arise as outpouchings of the embryonic foregut. Which of the following statement(s) is/are true concerning esophageal cysts?

a. The cyst lining will be lined only by stratified squamous epithelium

b. Most esophageal cysts cause symptoms in the first year of life

c.An asymptomatic esophageal cyst can be managed conservatively

d. The diagnosis of an esophageal cyst is usually made radiographically

Answer: b, d

70. Which of the following statement(s) is/are true concerning infectious esophagitis?

a. Candida albicans is not normally found in the mouth but results from the overgrowth of this fungus in patients on broad spectrum antibiotics

b. Candida esophagitis is usually self-limited and is seldom associated with chronic problems

c.Systemic therapy is seldom indicated

d. Small ulcers on barium esophogram in a transplant patient complaining of dysphagia and odynophagia are likely due to herpes simplex viral infection

Answer: d

71. Which of the following statement(s) is/are true concerning the pathology of squamous cell carcinoma of the esophagus?

a. Carcinoma in situ will gradually progress to invasive squamous cell carcinoma over a period of two to four years

b. The most common location for squamous cell carcinoma of the esophagus is the upper and mid-thoracic segment

c. Esophageal carcinoma tends to be multifocal

d. Macroscopically, ulcerative lesions with extensive infiltration of the adjacent esophageal wall are most common

e. Lymph node metastases are present in at least 75% of patients at the time of initial diagnosis

Answer: a, b, d, e

72. A 54-year-old woman experiences pain in both the anterior and posterior left chest and the epigastrium following balloon dilatation performed for achalasia. Which of the following statement(s) is/are true concerning this patient's diagnosis and management?

a. A normal chest x-ray will rule out an esophageal perforation

b. Barium should never be used in performance of a contrast study with a diagnosis of esophageal perforation

c.Conservative, nonoperative treatment may be indicated

d. If surgical repair is necessary, the patient should undergo esophagomyotomy and a partial gastric fundoplication

Answer: c, d

73. Which of the following statement(s) is/are correct concerning the diagnostic studies for esophageal carcinoma?

a. A chest and upper abdominal CT scan is useful for both staging and predicting resectability

b. A barium swallow is an unnecessary test in a patient with dysphagia

c.Bronchoscopy should be performed in all patients with carcinoma of the upper and middle thirds of the esophagus

d. Bone and brain scans should be obtained routinely to rule out distant metastasis

e. Endoscopic ultrasound is a potentially sensitive examination for the staging of esophageal cancer

Answer: c, e

74. Which of the following conditions are associated with the development of esophageal carcinoma?

a. Caustic esophageal stricture

b. Achalasia of the esophagus

c.Plummer-Vinson syndrome

d. Esophageal diverticula

Answer: a, b, c, d

75. Which of the following statement(s) is/are correct concerning the options for resection of esophageal carcinoma?

a. The development of reflux esophagitis seldom occurs following intrathoracic resection due to the limited life expectancy of these patients

b. Transhiatal esophagectomy, although conceptually sound, is not technically possible in most patients with esophageal carcinoma

c. Transhiatal resection, although less morbid, has unfavorable survival statistics compared to transthoracic resection

d. Radical transthoracic esophagectomy with en bloc dissection of continuous lymph node bearing tissues has not been shown to improve survival over transhiatal esophagectomy

Answer: d

77. The incidence of adenocarcinoma of the esophagus is increasing at a very rapid rate, which is largely the result of the growing prevalence of adenocarcinoma arising in Barrett's mucosa. Which of the following statement(s) is/are true concerning adenocarcinoma of the esophagus?

a. Barrett's mucosa with specialized columnar epithelium characterized by veliform folds, lined by secreting columnar and goblet cells has the highest association with carcinoma of the esophagus

b. Less than 5% of patients with Barrett's mucosa will harbor adenocarcinoma

c. Severe dysplasia of Barrett's mucosa requires frequent reexamination and biopsy

d. Adenocarcinoma of the esophagus has a less aggressive behavior than squamous cell carcinoma

Answer: a

78. Which of the following statement(s) is/are true concerning esophageal diverticula?
a. A Zenker's diverticulum characteristically occurs in older patients
b. Mediastinal granulomatous disease usually results in a mid-esophageal traction diverticulum which is usually asymptomatic
c. An epiphrenic diverticulum that presents to the right of the esophagus should be managed via left thoracotomy
d. Minimally symptomatic epiphrenic diverticula should not be operated upon

Answer: b, c, d

79. Which of the following statement(s) is/are true concerning caustic injury to the esophagus?
a. Alkaline injury is more destructive than acid injury
b. Acid ingestion is not injurious to the stomach due to its normal acidic pH
c. Ingested caustic agents rapidly pass through the esophagus and stomach into the small intestine
d. Unless perforation occurs, clinical manifestations resolve quickly with initial clinical improvement noted
e. Children are less likely to form a late esophageal stricture than adults

Answer: a, d, e

80. Which of the following statement(s) is/are true concerning nonresectional therapy for esophageal carcinoma?
a. Radiation therapy can be associated with five-year survival rates equal to surgery
b. Esophageal intubation to provide palliation for esophageal cancer is associated with minimal morbidity and mortality
c. Endoscopic laser fulguration is successful in up to 75% of patients
d. There is little or no role for surgical bypass for unresectable esophageal carcinoma

Answer: c, d

81. Benign tumors of the esophagus are rare constituting less than 1% of esophageal neoplasms. Which of the following statement(s) is/are true concerning benign esophageal neoplasms?
a. Most esophageal polyps are located just above the gastroesophageal junction
b. Malignant degeneration of leiomyomas of the esophagus is a frequent occurrence
c. An asymptomatic leiomyoma can be safely observed and followed with periodic barium esophograms and endoscopic ultrasonography
d. Most leiomyomas of the esophagus require esophagectomy

Answer: c

82. In an effort to improve survival following esophageal resection, trials of multi-modality therapy in combination with surgery have been completed. Which of the following statement(s) is/are true concerning such treatment?
a. Therapy appears to be indicated in squamous cell carcinoma but not adenocarcinoma
b. No residual carcinoma may be found in the resected specimen in up to 20% of patients
c. Nonrandomized trials would suggest improved survival compared to patients receiving surgery alone
d. Perioperative morbidity is increased due to preoperative radiation and chemotherapy

Answer: b, c,

83. Which of the following statement(s) is/are correct concerning the management of a patient with a caustic esophageal or gastric injury?
a. Corticosteroids should be administered immediately
b. Complete endoscopic examination of the esophagus and stomach should be completed
c. Patients requiring operative intervention are best explored through the abdomen
d. If organ resection is indicated, restoration of alimentary continuity should be deferred until the patient has recovered from the acute insult
e. In patients with esophageal stricture following second and third degree burns, dilatation therapy should be instituted as soon as possible after the injury

Answer: b, c, d

84. In regard to the arterial blood supply to the stomach, which of the following statement(s) is/are true?
a. The right gastric artery, a branch of the superior mesenteric artery, supplies the gastric antrum

b. Because of rich intramural collaterals, gastric viability may be preserved after ligation of all but one major artery
c. In cases of celiac artery occlusion, gastric viability is maintained collaterally via pancreaticoduodenal arcades
d. The left gastroepiploic artery is a branch of the celiac trunk

Answer: b, c

85. At a cellular level, the major stimulant(s) of acid secretion by the gastric parietal cell is/are:
a. Histamine
b. Prostaglandin E2
c. Acetylcholine
d. Gastrin
e. Norepinephrine

Answer: a, c, d

86. Which of the following statement(s) regarding the vagus nerves is/are true?
a. The right and left vagus nerves derive from a nerve plexus inferior to the tracheal bifurcation
b. The posterior vagus nerve is closely applied to the intrathoracic esophagus
c. The anterior vagus supplies a hepatic division which passes to the right in the lesser omentum
d. Approximately 90% of vagal fibers are afferent, transmitting information from the gastrointestinal tract to the central nervous system
e. The vagus nerves transmit gastroduodenal pain sensations associated with peptic ulceration

Answer: a, c, d

87. Important stimulants of gastrin release from endocrine cells in the antrum include:
a. Acidification of the antral lumen
b. Small peptide fragments and amino acids from luminal proteolysis
c. Locally released somatostatin
d. Dietary fats

Answer: b

88. Which of the following statements regarding human gastric acid secretion is/are true?
a. Fasting acid secretion, normally 2 to 5 mEq/h, is due to ambient vagal tone and histamine secretion
b. Truncal vagotomy decreases basal secretion by 80%
c. Histamine2 receptor antagonist administration can decrease basal acid secretion by 80%
d. Fasting acid secretion, normally 5 to 10 mEq/h, is due to circulating levels of gastrin

Answer: a, b, c

89. As a meal is emptied from the stomach, gastric acid secretion gradually returns to baseline. Which of the following statements correctly characterize control of gastric acid secretion?
a. In humans, the most important inhibitory influence on gastrin release is exposure of the gastric mucosa to luminal acid
b. Acidification of the antral lumen causes reciprocal increases in somatostatin release and decreases in gastrin secretion
c. Antral distension stimulates gastric acid secretion
d. Acidification of the duodenal bulb inhibits gastric acid secretion
e. Exposure of the duodenum to hyperosmolar solutions inhibits acid secretion

Answer: a, b, d, e

90. Which of the following statements correctly characterizes gastric motor activity associated with ingestion of a meal?
a. Ingested gastric volumes are accommodated with little increase in pressure by reflex relaxation of the proximal stomach
b. Receptive gastric accommodation is unaffected by proximal gastric vagotomy
c. In humans, liquid emptying occurs more quickly than solid emptying
d. Gastric emptying of liquids is not affected by proximal gastric vagotomy

Answer: a, c

91. It is widely agreed that the gastric mucosa secretes bicarbonate in addition to acid. Gastric secretion of bicarbonate is correctly characterized by which of the following statements?
a. Bicarbonate is secreted by chief cells within gastric crypts
b. Gastric bicarbonate secretion is stimulated by acetylcholine
c. Gastric bicarbonate secretion during fasting results in luminal pH above 6 in normal individuals

d. Prostaglandin E2 is a potent stimulant of gastric bicarbonate secretion

Answer: b, d

92. Gastric mucosal blood flow is regulated by neural, hormonal, and locally active influences. Which of the following statements correctly characterizes gastric blood flow?

a. Stimulation of sympathetic nerves supplying the stomach is followed by gastric mucosal hyperemia and increased total gastric blood flow

b. Vagal nerve stimulation is accompanied by decreased gastric mucosal blood flow

c. Stimulants that increase acid secretion increase mucosal blood flow

d. In humans, prostaglandins increase mucosal blood flow at doses that inhibit gastric acid secretion

Answer: c, d

93. Which of the following statements regarding intrinsic factor is/are correct?

a. Intrinsic factor is produced in chief cells located in the gastric fundus

b. Total gastrectomy is followed by folate deficiency due to vitamin malabsorption secondary to intrinsic factor deficiency

c. Intrinsic factor secretion, like that of acid, is stimulated by gastrin, histamine, and acetylcholine

d. Intrinsic factor deficiency accompanies H pylori-caused antral gastritis

Answer: c

94. A 24-year-old woman develops epigastric pain and has a diagnosis of duodenal ulcer confirmed by esophagogastroduodenoscopy. The patient is in the third month of a pregnancy. The most appropriate treatment would be:

a. Proximal gastric vagotomy

b. Misoprostol 400 mg b.i.d.

c. Sucralfate 1 gm q.i.d.

d. Cimetidine 400 mg b.i.d.

Answer: c

95. Helicoabacter pylori has been investigated as a possible etiologic agent in duodenal ulceration. Which of the following statement(s) regarding H pylori infection in humans is/are correct?

a. H pylori may be isolated from antral gastric mucosa in nearly 100% of patients with active duodenal ulceration but only 1–2% of normal volunteers

b. H pylori possess cell surface receptors that bind to small intestinal mucous cells

c. Therapeutic regimens for duodenal ulcer that eliminate the organism are associated with lower ulcer recurrence rates than those in which the organism persists

d. The incidence of the organism in the normal population increases with age

e. Antral gastritis is associated with development of duodenal ulcer

Answer: c, d, e

96. A 40-year-old male undergoes treatment of acute duodenal ulceration with cimetidine 400 mg b.i.d. and has resolution of symptoms by 6 weeks. The medication is continued as a nocturnal maintenance dose at the end of a three month treatment course. Recurrent symptoms develop 6 months after initial diagnosis and repeated endoscopic examination reveals recurrent ulceration. Biopsies of antral mucosa demonstrate moderate gastritis and the presence of H pylori. Medical management designed to eradicate H pylori and heal ulceration should include which of the following agents?

a. Cimetidine

b. Bismuth subcitrate

c. Amoxicillin

d. Metronidazole

e. Vancomycin

Answer: a, b, c, d

97. Development of duodenal ulceration is dependent upon gastric acid secretion. Which of the following statements correctly characterizes acid secretion in duodenal ulcer patients?

a. Groups of duodenal ulcer patients demonstrate decreased basal acid secretion

b. Maximal acid output to histamine averages 40 mEq/h in duodenal ulcer patients, twice that of normal

c. Tissue gastrin levels, on average, are twice normal in patients with active ulceration

d. Exogenously administered somatostatin is ineffective in suppressing acid secretion in patients with active ulceration

Answer: b

98. A 45-year-old man undergoes proximal gastric vagotomy for treatment of intractable duodenal ulceration. What physiologic alterations might be anticipated as a consequence of the operation?

a. Reduction of basal acid secretion by approximately 25%
b. Accelerated gastric emptying of liquids
c. Accelerated gastric emptying of solids
d. Fasting hypergastrinemia
e. Postprandial hyperinsulinemia

Answer: b, d

99. Which of the following statements regarding postoperative rates of recurrent ulcer and dumping is/are correct?

a. Truncal vagotomy and antrectomy is associated with persistent dumping in 10–15% of patients
b. Recurrent ulceration following truncal vagotomy and pyloroplasty is observed in 25% of patients within 10 years of operation
c. Patients that undergo proximal gastric vagotomy have a risk of recurrent ulcer of 10–15% and a risk of persistent dumping approximating 1%
d. Recurrent ulceration occurs in 5% of patients that undergo truncal vagotomy and antrectomy

Answer: a, c

100. Which of the following statement(s) is/are correct with regard to pyloric obstruction secondary to peptic ulceration?

a. Pyloric obstruction is suggested by hypochloremic hyponatremic alkalosis
b. Pyloric obstruction is suggested by hypochloremic hypokalemic alkalosis
c. Approximately 80% of patients with benign gastric outlet obstruction obtain permanent relief of symptoms by endoscopically-directed balloon dilatation
d. The lifetime risk of pyloric obstruction in peptic ulcer patients is 40%

Answer: b

101. A 42-year-old man with a recently diagnosed duodenal ulcer develops melena and near-syncope. After fluid resuscitation, upper gastrointestinal endoscopy is performed. During the examination, a 1 cm ulcer is noted in the proximal duodenum. A fresh clot is observed within the ulcer and blood is noted to be oozing around the clot. Optimal therapy would consist of which of the following?

a. Angiographic embolization of the gastroduodenal artery
b. Irrigation of the clot followed by endoscopic application of a heat probe
c. Transfusion and intravenous cimetidine
d. Angiographic infusion of vasopressin into the gastroduodenal artery
e. Transfusion and oral omeprazole

Answer: b

102. A 50-year-old patient has undergone truncal vagotomy and antrectomy with Billroth II reconstruction two years ago. The patient now complains of recurrent postprandial pain, nausea, and vomiting. Endoscopic examination reveals bile in the stomach; endoscopic biopsies demonstrate histologic evidence of moderately severe gastritis. No other endoscopic abnormalities are noted. Appropriate therapy could include:

a. Octreotide administration
b. Total gastrectomy
c. Conversion of Billroth II gastrojejunostomy to Billroth I gastroduodenostomy
d. Conversion of Billroth II gastrojejunostomy to Roux-en-Y gastrojejunostomy
e. Roux-en-Y hepaticojejunostomy

Answer: d

103. A 50-year-old male with a 2 year history of duodenal ulceration develops sudden, severe epigastric pain 4 hours prior to evaluation. Physical examination reveals T 101° F, pulse 80, BP 125/90, diminished bowel sounds, and abdominal muscular rigidity. An upright chest x-ray reveals pneumoperitoneum. At laparotomy, an anterior perforation in the first portion of the duodenum is observed. Optimal treatment would include:

a. Omental patch of the perforation followed by truncal vagotomy and antrectomy after 8 weeks
b. Omental patch of the perforation followed by truncal vagotomy and pyloroplasty after 8 weeks
c. Omental patch of the perforation followed by chronic cimetidine administration

d. Omental patch of the perforation plus proximal gastric vagotomy
e. Omental patch of the perforation only

Answer: d

104. Which of the following clinical circumstances have been identified as predisposing factors for the development of stress ulceration?

a. Intraperitoneal sepsis
b. Hemorrhagic shock
c. Isolated tibial fracture
d. 50% total surface area second degree burn
e. Adult respiratory distress syndrome

Answer: a, b, d, e

105. Type I gastric ulcers are located in the gastric body, usually along the lesser curvature. Which of the following statements correctly characterize type I gastric ulcers?

a. Normal to low acid secretion
b. Associated duodenal ulceration
c. High frequency of blood group A
d. Associated hypergastrinemia frequent

Answer: a, c

106. Which of the following statement(s) is/are correct regarding gastric ulcers greater than 3 cm in size?

a. Giant gastric ulcers occur in 30–40% of cases along the greater curvature
b. The risk of malignancy increases with increasing size of the ulcer
c. The treatment of choice for giant gastric ulcer is resection to include the ulcer
d. Giant gastric ulcer is a complication of intraarterial hepatic chemotherapy

Answer: b, c

107. With regard to benign gastric ulceration, the most common location of disease is which of the following?

a. Along the greater curvature
b. Immediately distal to the esophagogastric junction along the lesser curvature
c. In the area of the incisura angularis along the lesser curvature
d. Within the gastric antrum

Answer: c

108. Which of the following statement(s) regarding gastric mucosal defense is/are correct?

a. Gastric mucus, produced by the surface epithelial cells, forms an unstirred layer over the gastric surface
b. Gastric parietal cells produce a bicarbonate-rich fluid
c. Production of gastric bicarbonate is stimulated by prostaglandins and inhibited by non-steroidal antiinflammatory drugs (NSAIDs)
d. Gastric mucus provides substantial buffering capacity that maintains near-neutrality near the epithelial surface

Answer: a, c

109. A 35-year-old smoker is involved in a house fire and receives a 45% total surface area burn. One half of the burned surface appears to be third degree. On the third post-burn day, the patient is noted to have bloody drainage from a nasogastric tube and a decrease of 5% in his hematocrit. Appropriate management should include which of the following?

a. Urgent upper gastrointestinal contrast study to delineate site of bleeding
b. Immediate selective arteriography via the left gastric artery to diagnose and treat presumed stress ulceration
c. Urgent esophagogastroduodenoscopy to diagnosis the cause of bleeding
d. Urgent intravenous infusion of vasopressin at 0.2–0.4 IU/min

Answer: c

110. Agents demonstrated to have an efficacy of greater than 90% for prophylactic treatment of stress ulceration include which of the following?

a. Antacids
b. H2 receptor antagonists
c. Sucralfate
d. Misoprostil

Answer: a, b, c

111. A 45-year-old male presents with symptoms of epigastric pain, worsened with ingestion of food. Physical examination is normal. Upper abdominal ultrasonography is unremarkable. Contrast radiography reveals a 2 cm ulcer in the gastric fundus along the lesser curvature. Therapy with omeprazole 20 mg per day is begun but symptoms persist 3 weeks later. Appropriate management includes which of the following?

a. Increase in omeprazole dose to 40 mg per day
b. Addition of sucralfate 1 gm every 8 hours
c. Addition of cimetidine 200 mg b.i.d.
d. Esophagogastroduodenoscopy with biopsy of ulceration

Answer: d

112. A 52-year-old woman is hospitalized with acute upper gastrointestinal hemorrhage. Endoscopic examination reveal a 2.5 cm ulcer in the area of the incisura angularis. The remainder of the endoscopic examination is normal. Continued bleeding requires operative therapy. Optimal therapy consists of which of the following?

a. Gastrotomy with oversewing of the bleeding site
b. Distal gastrectomy including the area of ulceration
c. Proximal gastric vagotomy and oversewing of the bleeding ulcer
d. Truncal vagotomy, pyloroplasty, and oversewing of the bleeding ulcer

Answer: b

113. A 25-year-old man is involved in an automobile accident with resultant injuries including bilateral closed femur fractures, left pulmonary contusion, and closed head injury. On post-injury day 4, significant upper gastrointestinal hemorrhage begins. Endoscopic examination reveals an area of confluent ulceration with bleeding in the gastric fundus. Endoscopic hemostasis fails. Appropriate immediate management includes:

a. Lavage of gastric contents with iced saline
b. Urgent total gastrectomy
c. Selective arterial infusion of vasopressin via the left gastric artery
d. Insertion of Sangstaken-Blakemore balloon

Answer: c

114. Which of the following statements regarding gastroplasty and gastric bypass for morbid obesity is/are correct?

a. Horizontal gastroplasty techniques that rely on a single horizontal application of a stapling device are associated with weight loss "failure" rates of 40% to 70%
b. Gastric bypass is followed by progressive weight loss over a period of 36 months
c. Gastric bypass is associated with a "failure" of weight loss in 10 to 15% of patients
d. With three superimposed applications of a stapling device, gastric bypass staple line dehiscence occurs in less than 2%

Answer: a, c, d

115. Severe obesity is associated with a large number of associated problems that form the basis of the term morbid obesity. Documented causes of excess mortality in severely obese patients include:

a. Coronary artery disease
b. Hypertension
c. Adult-onset diabetes mellitus
d. Obesity hypoventilation and sleep apnea
e. Pulmonary embolization

Answer: a, b, c, d, e

116. Jejunoileal bypass was formerly performed as a weight reduction procedure. The operation has now been abandoned due to the development of serious long-term complications associated with the procedure. Which of the following statements correctly characterize results following jejunoileal bypass?

a. Kidney stones occur with increased frequency due to increased absorption of pyruvate from the colon
b. The most serious complication of jejunoileal bypass is development of cirrhosis due to protein calorie malnutrition
c. Bacterial overgrowth in the bypassed segment can be treated with oral vancomycin
d. Rapid weight loss following jejunoileal bypass is associated with development of gallstones

Answer: b, d

117. Which of the following statements is correct with regard to gastric bypass for obesity?

a. Rapid weight loss following successful gastric bypass for obesity is associated with an increased risk of developing cholelithiasis
b. Marginal ulcer develops in 25% of gastric bypass patients
c. Vitamin B12 deficiency is a potential complication of gastric bypass due to gastric mucosal atrophy
d. Anastamotic leak after gastric bypass is often heralded by bradycardia

Answer: a

118. With regard to operative treatment of gastric carcinoma, which of the following statements is/are correct?

a. Resectional margins of 2 cm are necessary to prevent recurrence due to intramural metastases
b. Prophylactic splenectomy has been shown to improve outcome in similarly staged patients
c. Extended lymphadenectomy including nodes along the aorta and esophagus has not been shown to improve survival in North American trials
d. Long-term survival is rare if adjacent organs must be resected to achieve local control

Answer: c, d

119. Which of the following statement(s) characterizing gastric lymphoma is/are correct?

a. More than half of gastrointestinal lymphomas occur in the stomach
b. The peak incidence of gastric lymphoma is in the 2nd and 3rd decade
c. Endoscopic biopsy is positive diagnostically in 90% of cases
d. Gastric perforation occurs in 40% of patients treated with cytolytic agents instead of gastrectomy

Answer: a, c

120. A patient with gastric adenocarcinoma undergoes subtotal gastrectomy. Pathological examination reveals that the tumor penetrates to the serosa. Regional lymph nodes are not involved. Distant metastases are not detected. What is the correct tumor stage and 5-year survival rate?

a. Stage I: 90% 5-year survival
b. Stage II: 45% 5-year survival
c. Stage III: 15% 5-year survival
d. Stage II: 15% 5-year survival
e. Stage III: 2% 5-year survival

Answer: b

121. Which of the following conditions is considered to increase the risk of gastric cancer?

a. Pernicious anemia
b. Prior partial gastrectomy
c. Gastric hyperplastic polyps
d. Gastric adenomatous polyps

Answer: a, b, d

122. A 55-year-old male is evaluated because of symptoms of epigastric pain and anorexia. Physical examination is normal except for guaiac positivity of stool. Upper endoscopic examination reveals a 1.5 cm ulcer along the lesser curvature of the stomach proximal to the incisura angularis. Optimal management consists of which of the following:

a. Sucralfate 1 gm q.i.d. for 8 weeks
b. Endoscopic biopsy of the ulcer rim
c. Endoscopic cautery of the ulcer base

d. Endoscopic biopsy of the ulcer base
e. Misoprostol 400 mg b.i.d. for 8 weeks

Answer: b

123. Which of the following statement(s) regarding gastric leiomyosarcoma is/are correct?

a. Leiomyosarcomas occur with peak frequency in the 2nd and 3rd decades
b. The primary histological indicator of aggressive behavior is the number of mitoses per microscopic field
c. Leiomyosarcomas are usually radiosensitive
d. Lymphadectomy is not indicated during resection because metastases are usually hematogenous

Answer: b, d

SMALL INTESTINE

1. The most common site of adenocarcinoma of the small intestine is the:
A. Duodenum.
B. Jejunum.
C. Ileum.
Answer: A

2. The most common benign tumor of the small intestine is:
A. Adenoma.
B. Hemangioma.
C. Leiomyoma.
Answer: C

3. Vigorous bleeding from a small bowel lesion is most likely caused by:
A. Adenocarcinoma.
B. Arteriovenous malformation.
C. Leiomyoma.
Answer: C

4. The lamina propria between the intestinal epithelium and the muscularis mucosae contains:
A. Blood and lymph vessels.
B. Undifferentiated epithelial cells.
C. Nerve fibers.
D. Enterochromaffin cells.
E. Macrophages.
F. Connective tissue.
Answer: ACEF

5. The intestinal epithelial cells, 22 to 26 mm. tall, exhibit a striated luminal border (brush border). The brush border microvilli:
A. Produce the brush border appearance.
B. Contain amylase.
C. Contain dissacharidases.
D. Increase absorptive area.
E. Play an important role in digestion.
F. Contain trypsinogen.
Answer: ACDE

6. Which of the following statements about carbohydrate digestion are true?
A. Amylopectin has 1-4 straight chains and 1-6 side chains.
B. Amylase has 1-4 straight chains and 1-6 side chains.
C. Amylase breaks 1-4 glucose linkages.
D. Amylase breaks 1-6 side chains.
E. An adult may ingest about 350 gm. of carbohydrate daily.
F. Dietary starch contains two glucose polymers, amylopectin and amylase.
Answer: ACEF

7. Which of these statements about the digestion of fat are true?
A. Micellar solution provides an optimal environment for the action of pancreatic lipase.

B. Decreasing the pH below 5.5 increases the effectiveness of pancreatic lipase in hydrolyzing fat.
C. Co-lipase blocks triglyceride hydrolysis.
D. Lipase catalyzes the hydrolysis of dietary triglyceride into 2-monoglyceride and fatty acids.
E. Fatty acids and 2-monoglyceride are held in micellar solutions.
F. Fatty acid and 2-monoglyceride enter the intestinal cell by active transport.
Answer: ADE

8. Complete mechanical small bowel obstruction can cause dehydration by:
A. Interfering with oral intake of water.
B. Inducing vomiting.
C. Decreasing intestinal absorption of water.
D. Causing secretion of water into the intestinal lumen.
E. Causing edema of the intestinal wall.
Answer: ABCDE

9. History and physical examination permit the diagnosis of intestinal obstruction in most cases. Which of the following are important for the clinical diagnosis of small bowel obstruction?
A. Crampy abdominal pain.
B. Fever.
C. Vomiting.
D. Abdominal distention.
E. Leukocyte count above 12,000.
F. Abdominal tenderness.
Answer: ABCDF

10. Patients with established, complete, simple, distal small bowel obstruction usually have the following findings on plain and upright abdominal radiographs:
A. Distended small bowel identifiable by the valvulae conniventes.
B. Multiple air-fluid levels.
C. Modest amount of gas in the pelvis.
D. Peripheral, rather than central, distribution of gas.
E. Prominent haustral markings.
F. Free air.
Answer: AB

11. All of the following statements about the embryology of Meckel's diverticulum are true except:
A. Meckel's diverticulum usually arises from the ileum within 90 cm. of the ileocecal valve.
B. Meckel's diverticulum results from the failure of the vitelline duct to obliterate.
C. The incidence of Meckel's diverticulum in the general population is 5%.
D. Meckel's diverticulum is a true diverticulum possessing all layers of the intestinal wall.
E. Gastric mucosa is the most common ectopic tissue found within a Meckel's diverticulum.
Answer: C

12. Meckel's diverticulum most commonly presents as:
A. Gastrointestinal bleeding.
B. Obstruction.
C. Diverticulitis.
D. Intermittent abdominal pain.
Answer: A

13. Which of the following statements about the surgical treatment of carcinoid tumors are true?
A. Carcinoid tumors should be treated by resection, regardless of the presence of metastases.
B. Appendiceal tumors larger than 1.5 cm. should be treated by ileocolectomy.
C. Local excision with margins is adequate for a rectal carcinoid of any size.
D. Carcinoid tumors are associated with a large percentage of other synchronous or metachronous neoplasms.
Answer: ABD

14. Which of the following statements about carcinoid syndrome are true?
A. Carcinoid syndrome occurs only when hepatic metastases are present.
B. Serotonin is thought to be responsible for the diarrhea, cardiac lesions, and flushing in patients with carcinoid syndrome.
C. Foregut carcinoid tumors cause atypical carcinoid syndrome; hindgut tumors are rarely, if ever, associated with the syndrome.
D. The long-acting somatostatin analog provides the best symptomatic treatment for carcinoid syndrome.
Answer: CD

15. Simple screening tests for malabsorption include:
A. Microscopic examination.
B. D-xylose absorption.
C. A 72-hour stool collection for fats.
D. Small bowel x-ray series.
Answer: ABD

16. Extensive resection of the small bowel, leaving only 2 or 3 feet beyond the ligament of Treitz anastomosed to the transverse colon, can lead to the following metabolic complications:
A. Gastric hyperacidity and hypersecretion.
B. Hyperoxaluria.
C. Hypermetabolic response.
D. Fat-soluble vitamin deficiency.
Answer: ABD

17. Which of the following physical factors of irradiation is/are related to the potential for radiation injury?
A. The dimension of the radiation portals.
B. The number of portals.
C. The number of fractions.
D. The total amount of irradiation.
E. All of the above.
Answer: E

18. For which of the following consequences of radiation injury of the intestine is urgent laparotomy required?
A. Small bowel obstruction.
B. Colonic perforation.
C. Rectovaginal fistula.
D. Malabsorption and diarrhea.
E. Rectal stenosis.
Answer: B

19. In addition to its absorptive and digestive roles, the small bowel also plays a significant role in the body's immune system. Gut-associated lymphoid tissue (GALT) represents a major division of the immune system. Which of the following statement(s) is/are true concerning the immunologic functions of the small intestine?
a. The B lymphocytes of the small intestine do not produce immunoglobulin A (IgA)
b. Peyer's patches, an example of an aggregated cellular portion of the gut-associated lymphoid system tissue, are large collections of lymphoid follicles found on the antimesenteric border of the ileum
c. The major immunoglobulin of the intestinal immune system is IgM
d. IgA produced by the intestinal immune system produces the classic Fc-mediated inflammatory reactions to antigen stimulus
Answer: b

20. During the fasting state, a well-defined pattern of small bowel electrical activity occurs which is known as the interdigestive myoelectric complex or the migrating motor complex (MMC). Which of the following statement(s) is/are true concerning the MMC?
a. This complex consists of a cyclic pattern of spike bursts and muscular contractions that migrate from the duodenum to the terminal ileum and can be divided into four phases
b. The major activity during the MMC occurs during phase I

c. In humans the MMC usually lasts less than one hour
d. Blood levels of the GI peptide, motilin, correlate closely with MMC activity and exogenous motilin can induce the MMC front

Answer: a, d

21. Which of the following statement(s) is/are true concerning the anatomy of the small intestine?

a. The second (descending), third (transverse) and fourth (ascending) portions of the duodenum lie in the retroperitoneum and are mobilized for surgical procedures via the Kocher maneuver
b. The identification of the superior mesenteric vein and artery can be facilitated by an extensive Kocher maneuver mobilizing the transverse portion of the duodenum and exposing the vessels as they course over the duodenum and under the neck of the pancreas
c. In only the minority of patients can the accessory pancreatic duct (the duct of Santorini) be seen on endoscopic exam entering the duodenum
d. The ileum is the widest portion of the small intestine, with the diameter of the small bowel progressively increasing as the ileocecal valve is approached

Answer: a, b

22. Historically, the small intestine was presumed to have only digestive and absorptive function. However, in the last decade the small intestine has become recognized as the body's largest endocrine organ, producing a number of hormones, neurotransmitters, and paracrine substances. Which of the following statement(s) is/are true concerning small bowel hormones?

a. Cholecystokinin (CCK) is produced from cells in the mucosa of the duodenum and jejunum and is released in response to luminal fats and proteins
b. Secretin is released in response to rising intraduodenal pH, resulting in inhibition of pancreatic secretion
c. Motilin is a 22-amino acid peptide released during the fasting state with increased levels corresponding with the onset of the migrating motor complex (MMC)
d. Neurotensin is produced primarily in the duodenal mucosa and its release is stimulated primarily by carbohydrates and proteins

Answer: a, c

23. The enterohepatic circulation refers to the circular flow of bile through the small intestine and liver. Which of the following statement(s) concerning the absorption of bile salts is/are correct?

a. The enterohepatic circulation is highly efficient with 80% to 90% of secreted bile salts reabsorbed and returned to the liver through the portal circulation
b. The reabsorption of bile is entirely an active process
c. The small amount of bile escaping in the colon is deconjugated by bacteria, promoting lipid solubility and passive colonic absorption
d. Ileal resection results in presenting high concentrations of bile salts to the colon which promotes diarrhea by bacterial overgrowth

Answer: a, c

24. The most obvious function of the GI tract is digestion and absorption of food for continued growth and survival of the organism. Which of the following statement(s) is/are true concerning small bowel absorption?

a. The jejunum is the site of maximum absorption for most ingested materials with almost all jejunal absorption performed via active transfer mechanisms
b. Eighty percent of water presented to the gastrointestinal system is reabsorbed by the small bowel
c. The absorption of carbohydrates requires digestion of large starch molecules by salivary and pancreatic amylase, therefore presenting smaller oligosaccharides to the brush border of the jejunum to complete the digestion and absorptive process
d. Dietary fiber represents poorly digestible carbohydrates which can absorb organic materials such as bile salts and lipids

Answer: b, c, d

25. Which of the following statement(s) is/are true concerning the pathophysiology of small bowel obstruction?

a. Most of gas seen on plane abdominal radiographs is produced by gas forming microorganisms
b. Elevation of luminal pressure contributes to fluid accumulation in the small bowel in closed loop but not open loop small bowel obstructions
c. Intestinal blood flow initially increases to the bowel wall in early bowel obstruction
d. In the face of obstruction, myoelectrical activity of the bowel is consistently increased

Answer: b, c

26. A 45-year-old man with a history of previous right hemicolectomy for colon cancer presents with colicky abdominal pain which has become constant over the last few hours. He has marked abdominal distension and has had only minimal vomiting of a feculent material. His abdomen is diffusely tender. Abdominal x-ray shows multiple air fluid levels with dilatation of some loops to greater than 3 cm in diameter. The most likely diagnosis is:

a. Proximal small bowel obstruction
b. Distal small bowel obstruction
c. Acute appendicitis
d. Closed-loop small bowel obstruction

Answer: b

27. In the patient described above, the following statement(s) is/are true concerning the possible etiology of bowel obstruction.

a. Simple obstruction secondary to an adhesion is most likely to resolve nonoperatively
b. It is most likely that the patient's obstruction is secondary to recurrent malignancy
c. A history of colon cancer makes carcinomatosis the most likely diagnosis
d. Lower abdominal procedures are more likely to result in obstructive adhesions than are upper abdominal procedures

Answer: a, d

28. Which of the following statement(s) is/are true concerning laboratory tests which might be obtained in the patient discussed above?

a. The presence of a white blood cell count > 15,000 would be highly suggestive of a closed-loop obstruction
b. Metabolic acidosis mandates emergency exploration
c. An elevation of BUN would suggest underlying renal dysfunction
d. There is no rapidly available test to distinguish tissue necrosis from simple bowel obstruction

Answer: d

29. The patient discussed above was admitted to the hospital and after 24 hours remained distended with no evidence of resolution. Which of the following radiographic studies would be considered appropriate at this time?

a. Contrast enema
b. Enteroclysis study with dilute barium
c. CT scan with dilute barium oral contrast
d. None of the above

Answer: a, b, c, d

30. A 75-year-old woman is hospitalized after a fall in which she has experienced a hip fracture. Several days after her surgical procedure, progressive painless abdominal distension is noted. Which of the following statement(s) is/are true concerning her diagnosis and management?

a. Colon distension with a cecal diameter in excess of 12 cm should indicate the need for urgent operation
b. Endoscopic decompression may be attempted but seldom is successful
c. After successful colonoscopic decompression, recurrence is unlikely
d. A rectal tube as the primary treatment is generally not successful

Answer: d

31. Which of the following statement(s) is/are true concerning the etiology of intestinal obstruction?

a. In the United States, peritoneal adhesions account for over half of the cases of small bowel obstruction
b. A leading cause of bowel obstruction is early postoperative adhesions
c. Bowel obstruction cannot occur with a Richter's hernia
d. Ninety percent of adult cases of intussusception are associated with a pathologic process, most commonly a tumor

Answer: a, d

32. Which of the following statement(s) is/are true concerning postoperative ileus?

a. The use of intravenous patient-controlled analgesia has no effect on return of small bowel motor activity

b. The presence of peritonitis at the time of the original operation delays the return of normal bowel function
c. The routine use of metoclopramide will hasten the return of small intestinal motor activity
d. Contrast radiographic studies have no role in distinguishing early postoperative bowel obstruction from normal ileus

Answer: b

33. The initial management of this patient should consist of:
a. Fluid resuscitation with D5 half normal saline with 40 mEq of potassium chloride/liter
b. Placement of an indwelling urinary catheter
c. Nasogastric decompression with a nasogastric tube
d. Immediate surgery
e. The patient should be begun on broad spectrum antibiotics at the time of admission

Answer: b, c

34. An 82-year-old female nursing home resident is admitted with massive abdominal distension and constant abdominal pain with diffuse tenderness. Abdominal x-ray shows a massively distended loop of colon with a characteristic "bent inner tube" appearance. The management of this patient should include:
a. Urgent laparotomy because of the massive colon distension
b. An attempt at endoscopic decompression with a flexible sigmoidoscope
c. Elective laparotomy and sigmoid resection should follow if endoscopic decompression is successful
d. If at urgent laparotomy resected bowel is present, colon resection with primary anastomosis is in order

Answer: b, c

35. A common manifestation of Crohn's disease is perianal disease, including anal fistulas with extension to adjacent organs and soft tissue regions, fissures, and perirectal abscesses. Which of the following statement(s) is/are true concerning perianal disease with Crohn's disease?
a. Perianal disease is the initial mode of presentation in the majority of patients
b. The prevalence of perianal disease is increased in patients with either ileocolitis or isolated colonic involvement
c. Metronidazole has been shown to be effective in the treatment of perianal disease secondary to Crohn's
d. An aggressive surgical approach is appropriate in most cases due to the frequent rapid progression of perianal disease

Answer: b, c

36. Nongastrointestinal complications of Crohn's disease include:
a. Renal calculi
b. Cholelithiasis
c. Arthritis
d. Anemia

Answer: a, b, c, d

37. Which of the following points is/are true concerning the diagnosis of Crohn's disease?
a. Recurrent disease on contrast radiographs frequently lags behind the development of clinical signs and symptoms
b. In 10% of cases, Crohn's disease cannot be distinguished from chronic ulcerative colitis based on clinical, radiologic, and pathologic criteria
c. Although no specific laboratory tests exist for Crohn's disease, the erythrocyte sedimentation rate has evolved as a useful measure of disease activity
d. Specific endoscopic features encountered in Crohn's disease which allow differentiation from ulcerative colitis include aphthous ulcers, cobblestoning, and skip areas

Answer: b, c, d

38. The following statement(s) is/are true concerning the surgical management of Crohn's disease.
a. Strictureplasty, although offering short-term benefits, is associated with a higher rate of recurrence when compared to resection
b. Frozen section examination of the margin of resection is essential to prevent both recurrent disease and early anastomotic complications
c. Conservative margins of resection are appropriate, resecting only grossly involved segments of bowel

d. Patients with Crohn's disease confined to the colon may be treated with total proctocolectomy with construction of an ileal-anal pouch anastomosis

Answer: c

39. The etiology of Crohn's disease is unknown, although two major hypotheses have evolved: an infectious and an immunologic theory. The following statement(s) is/are true concerning the possible etiology of Crohn's disease.

a. The leading infectious agent thus far suggested is infection with a Mycobacterium species
b. Strong evidence linking viral pathogens to Crohn's disease has been developed
c. Although many alterations in cellular and immune functions in patients with Crohn's disease have been observed, no primary defect in the immune system has yet been identified
d. The identification of antibodies to enterocytes provides strong support for the theory that Crohn's disease is an autoimmune process

Answer: a, c

40. Crohn's disease is an incurable disease, therefore recurrence after surgical resection is likely. Which of the following statement(s) regarding the recurrence of Crohn's disease is/are accurate?

a. Endoscopic evidence of recurrence is present in less than 50% of patients at five years
b. Radiographic or endoscopic evidence of recurrence is frequently not accompanied by symptoms
c. Clinical recurrence of Crohn's disease is seen in 20% of patients at two years, and 40–50% at four years after surgery
d. Reoperation for Crohn's disease is necessary in the majority of patients by five years
e. No solid evidence demonstrating prolongation of remission can be seen with corticosteroids, sulfasalazine, or antibiotics

Answer: b, c, e

41. Which of the following statement(s) is/are true concerning drug therapy for Crohn's disease?

a. Corticosteroids have been demonstrated to effectively treat acute exacerbations and to prolong remission in patients with Crohn's disease
b. Sulfasalazine is indicated primarily for the treatment of patients with acute exacerbations of Crohn's disease involving the small bowel
c. Azathioprine, an immunosuppressant, has been shown to be effective in maintaining remission of Crohn's disease
d. Low dose cyclosporine has significant therapeutic benefit for patients with both low and high disease activity

Answer: c

42. Which of the following are predominant histologic features of Crohn's disease?

a. The presence of granulomas involving the bowel wall and mesenteric lymph nodes
b. Transmural inflammation
c. Fissures and ulceration extending into the muscularis propria
d. Chronic fibrotic changes

Answer: a, b, c, d

43. The following statement(s) is/are true concerning the epidemiology of Crohn's disease.

a. Crohn's disease has an age distribution with peaks between the ages of 15 and 30 years and 65 and 75 years
b. There is a definite female predilection for Crohn's disease
c. The disease is equally prevalent in industrialized versus underdeveloped countries
d. First and second generation relatives with Crohn's disease have an increased prevalence when compared to the general population

Answer: d

44. The management of adenocarcinoma of the small intestine depends primarily on tumor location. Which of the following statements concerning surgical management are true?

a. Radical pancreaticoduodenectomy (Whipple resection) is necessary for resection of most duodenal adenocarcinomas
b. Adenocarcinomas of the jejunum or ileum are managed by limited segmental resection including resection of the mesentery down to the first vascular arcade

c. Distal ileal carcinomas are best managed by right hemi-colectomy to include lymph node chains along the ileo-cecal blood supply
d. Small invasive adenocarcinomas of the ampulla and peri-ampullary duodenum can frequently be managed by local excision

Answer: a, c

45. The management of carcinoid tumors must be individualized based on the findings at surgery. Which of the following is/are components of optimal care?

a. Limited segmental resection without lymphadenectomy
b. Careful exploration of the remaining small bowel and colon
c. Non-anatomic resection of small multiple liver metastases
d. Postoperative adjuvant chemotherapy for all carcinoid tumors regardless of size or level of invasion

Answer: b, c

46. An increased evidence of adenocarcinoma of the small intestine has been established with which of the following conditions?

a. Peutz-Jegher Syndrome
b. Crohn's disease
c. Simple tubular adenomas of the small intestine
d. Colon carcinoma

Answer: b

47. A 60-year-old male presents with nonspecific symptoms of fatigue, malaise, weight loss and abdominal pain. Barium small bowel series shows a limited segment of small intestine with thickened mucosal folds and partial obstruction. CT scan confirms small intestinal wall thickening and suggests the presence of bulky mesenteric lymph nodes. Which of the following is/are components of optimal care?

a. Attempts at percutaneous biopsy of the mesenteric mass
b. Surgical exploration with aggressive resection of the localized disease including wide, en bloc lymphadenectomy
c. Liver biopsy and sampling of periaortic and mesenteric lymph nodes outside the field of resection
d. Splenectomy

Answer: b, c

48. Malignant neoplasms of the small bowel tend to have a characteristic anatomic distribution. Which of the following statements are true?

a. Adenocarcinomas of the small intestine show a distinct polarity with decreasing frequency from duodenum to ileum
b. Adenocarcinoma of the small intestine associated with Crohn's disease occurs primarily in the ileum
c. Lymphomas of the small intestine arise primarily in the jejunum
d. The vast majority of carcinoid tumors of the small intestine occur in the ileum

Answer: a, b, d

49. Small intestinal carcinoids may present in a multitude of fashions. Which of the following may be seen as a presentation of carcinoid tumors of the small intestine?

a. Intestinal obstruction
b. Gastrointestinal bleeding
c. Small intestinal infarction
d. Asymptomatic

Answer: a, b, d

50. With regard to benign neoplasms of the small intestine, which of the following are true statements?

a. Many are asymptomatic and only found as incidental findings
b. Leiomyomas are the most common symptomatic benign neoplasm and may present with gastrointestinal bleeding
c. Villous adenomas carry a distinct malignant potential and occur most commonly in the periampullary duodenum
d. Peutz-Jegher Syndrome is associated with multiple adenomatous polyps throughout the small intestine

Answer: a, b, c

51. Primary gastrointestinal lymphomas involving the small bowel are uncommon accounting for less than 5% of all lymphomas. Conditions associated with small intestinal lymphomas include which of the following?

a. Acquired immune deficiency syndrome (AIDS)
b. Celiac disease
c. Crohn's disease
d. Rheumatoid arthritis

Answer: a, b, c, d

LARGE INTESTINE

1. Which answers are true? In contrast to ulcerative colitis, Crohn's disease of the colon:

A. Is not associated with increased risk of colon cancer.
B. Seldom presents with daily hematochezia.
C. Is usually segmental rather than continuous.
D. Has a lower incidence of perianal fistulas.
E. Never develops toxic megacolon.

Answer: BC

2. Which answers are true? Options to consider when operating for Crohn's disease of the large intestine include:

A. Colectomy and ileorectostomy.
B. Colectomy, closure of the rectal stump, and ileostomy.
C. Colectomy and continent ileostomy (Kock pouch).
D. Proctocolectomy and ileostomy.
E. Proctocolectomy and ileal pouch–anal canal anastomosis.

Answer: ABD

3. Crohn's disease:

A. Is caused by Mycobacterium paratuberculosis.
B. Is more common in Asians than in Jews.
C. Tends to occur in families.
D. Is less frequent in temperate climates than in tropical ones.
E. Is improved by smoking.

Answer: C

4. Recurrence after operation for Crohn's disease:

A. Occurs after operations for ileal Crohn's but not colonic Crohn's.
B. Is usually found just proximal to an enteric anastomosis.
C. Rarely requires reoperation.
D. Occurs in 1% of patients at risk per year during the first 10 years after the operation.
E. Is prevented by maintenance therapy with corticosteroids.

Answer: B

5. Excision rather than bypass is preferred for surgical treatment of small intestinal Crohn's because:

A. Excision is safer.
B. Bypass does not relieve symptoms.
C. Excision cures the patient of Crohn's disease but bypass does not.
D. Fewer early complications appear with excision.
E. The risk of small intestine cancer is reduced.

Answer: E

6. Which statements about anorectal Crohn's disease are true?

A. It may be the only overt manifestation of Crohn's disease.
B. It accompanies large intestine Crohn's more often than small-intestine Crohn's.
C. It subsides when associated small intestinal Crohn's is excised.
D. It should not be treated operatively.
E. It may subside in response to metronidazole, 250 mg. q.i.d.

Answer: ABE

7. The most common indication for operation in Crohn's disease of the colon is:

A. Obstruction.

B. Chronic debility.
C. Bleeding.
D. Perforation.
E. Carcinoma.
Answer: B

8. Which of the following statements about surgical anatomy of the colon and rectum is/are correct?
A. The cecum has the largest inner diameter of all segments of the colon (13 to 15 cm.).
B. The rectosigmoid junction is situated at approximately 15 to 18 cm. from the anus.
C. The rectum is entirely an intraperitoneal organ.
D. The ileocolic, right colic, and middle colic arteries are branches from the inferior mesenteric artery.
E. The arterial arcade created by communicating vessels at 1 to 2 cm. from the mesenteric is called the artery of Drummond.
Answer: BE

9. Which of the following statements about surgical procedures on the colon and rectum is/are correct?
A. Successful healing of colonic anastomoses depends on the adequacy of the blood supply.
B. In excising part of the colon containing cancer, the lymphatics should be avoided by dividing the mesentery close to the wall of the colon.
C. Despite complete removal of the colon and rectum, transanal fecal flow can be preserved by means of an ileal pouch–anal anastomosis.
D. When a colostomy is created it cannot be reversed.
E. Colostomy can be life saving in patients with colonic perforation or obstruction.
Answer: ACE

10. Which of the following statements about colon physiology is/are correct?
A. Colonic recycling of urea is accomplished by the splitting of urea by bacterial ureases.
B. Fermentation by colonic bacteria may rescue malabsorbed carbohydrates.
C. The preferred fuel of the colonic epithelium is glucose.
D. Absorption by the colonic mucosa is a passive process.
E. Insoluble fibers create bulk in the stool.
Answer: ABE

11. Which of the following statements about colonic motility is/are true?
A. Mass contractions involve only the rectum.
B. "Antiperistaltic" contractions occur in the descending colon.
C. The rectum can accommodate stool by receptive relaxation.
D. Stool in the colon is propelled by tonic contractions.
E. Defecation involves both sensory and motor pathways.
Answer: ADE

12. Which of the following statements about diagnostic studies for the colon and rectum is/are true?
A. Acetylcholinesterase staining of rectal biopsies is unreliable for the diagnosis of Hirschsprung's disease.
B. Cinedefecography is useful for detecting "hidden" prolapse or rectal intussusception.
C. A negative osmotic gap in stool is indicative of secretory diarrhea.
D. A colonic transit time study involves serial abdominal x-rays after ingestion of radiopaque markers.
E. Carcinoembryonic antigen (CEA) is useful for monitoring patients after resection for colon cancer.
Answer: BCDE

13. Which of the following statements about anorectal functional testing is/are true?
A. Anorectal manometry is often performed through open-tipped multilumen catheters perfused with fluid.
B. Anorectal manometry can differentiate between segmental and global defects of the anal sphincter in patients with incontinence.
C. Electromyography can demonstrate persistent contraction of the pubis rectalis muscle during defecation, which is diagnostic of paradoxical pelvic floor contraction.
D. Measurement of sensory thresholds may reveal insensitivity in patients with chronic constipation.
Answer: ABCD

14. Which of the following statements about the microbiology of the colon is/are true?
A. The colon contains no more bacteria than the stomach.
B. The predominant bacteria in the colon are aerobic.
C. Nearly one third of the dry weight of feces is bacteria.
D. Common bacteria in the colon are Bacteroides, Bifidobacterium, and Enterobacterium species.

E. The colonic microflora is relatively stable.
Answer: CDE

15. Which of the following statements about bowel preparation for colon surgery is/are true?
A. Bowel preparation is accomplished by a combination of mechanical cleansing and nonabsorbable antibiotics.
B. Three days of clear liquids provides sufficient mechanical cleansing.
C. Commercial electrolyte-polyethylene glycol solutions provide mechanical cleansing without inducing electrolyte imbalance.
D. Nonabsorbable antibiotics such as neomycin and erythromycin base are administered the day before the operation in three doses.
E. Intravenous antibiotics are also administered the day before surgery.
Answer: ACD

16. Which of the following patients generally does not require surgical intervention as a consequence of acute diverticulitis?
A. A 35-year-old man with no history of diverticulitis.
B. A 68-year-old man status 2 weeks post–renal transplantation.
C. A 55-year-old woman with hypertension and diabetes mellitus.
D. A 50-year-old man with pneumaturia.
E. A 46-year-old man with right-sided diverticulitis.
Answer: C

17. The test with the highest diagnostic yield for detecting a colovesical fistula is:
A. Barium enema.
B. Colonoscopy.
C. Computed tomography (CT).
D. Cystography.
E. Cystoscopy.
Answer: E

18. Which of the following is not true of diverticular disease:
A. It is more common in the United States and Western Europe than in Asia and Africa.
B. A low-fiber diet may predispose to development of diverticulosis.
C. It involves sigmoid colon in more than 90% of patients.
D. Sixty per cent develop diverticulitis sometime during their lifetime.
E. It is the most common cause of massive lower gastrointestinal hemorrhage.
Answer: D

19. The most common indication for surgery secondary to acute diverticulitis is:
A. Abscess.
B. Colonic obstruction.
C. Colovesical fistula.
D. Free perforation.
E. Hemorrhage.
Answer:A

20. Which of the following is/are true about colorectal polyps?
A. Familial juvenile polyposis is associated with an increased incidence of colon cancer.
B. Although the propensity for development of malignancy is related to the size of a neoplastic polyp, those with mixed tubulovillous histologic appearance are most likely to develop malignant changes.
C. The loss of a single tumor suppressor gene such as p53 is sufficient to lead to the development of malignancy in colorectal neoplastic polyps.
D. Endoscopic polypectomy results in a decreased incidence of carcinomas of the colon and rectum.
Answer: AD

21. Which of the following statements about familial adenomatous polyposis (FAP) is/are true?
A. Inherited in an autosomal-dominant manner, this genetic defect is of variable penetrance, some patients having only a few polyps whereas others develop thousands.
B. The phenotypic expression of the disease depends mostly on the genotype.
C. Appropriate surgical therapy includes total abdominal colectomy with ileorectal anastomosis and ileoanal pull-through with rectal mucosectomy.
D. Panproctocolectomy with ileostomy is not appropriate therapy for this disease.
E. Pharmacologic management of this disease may be appropriate in some instances.
Answer: C

22. Which of the following statements about the etiology of chronic ulcerative colitis are true?
A. Ulcerative colitis is 50% less frequent in nonwhite than in white populations.
B. Psychosomatic factors play a major causative role in the development of ulcerative colitis.
C. Cytokines are integrally involved in the pathogenesis of ulcerative colitis.
D. Ulcerative colitis has been identified with a greater frequency in family members of patients with confirmed inflammatory bowel disease.
E. Ulcerative colitis is two to four times more common in Jewish than in non-Jewish populations.
Answer: ACDE

23. Surgical alternatives for the treatment of ulcerative colitis include all of the following except:
A. Colectomy with ileal pouch–anal anastomosis.
B. Left colectomy with colorectal anastomosis.
C. Proctocolectomy with Brooke ileostomy or continent ileostomy.
D. Subtotal colectomy with ileostomy and Hartmann closure of the rectum.
Answer: B

24. The initial management of toxic ulcerative colitis should include:
A. Broad-spectrum antibiotics.
B. 6-Mercaptopurine.
C. Intravenous fluid and electrolyte resuscitation.
D. Opioid antidiarrheals.
E. Colonoscopic decompression.
Answer: AC

25. Which finding(s) suggest(s) the diagnosis of chronic ulcerative colitis as opposed to Crohn's colitis?
A. Endoscopic evidence of backwash ileitis.
B. Granulomas on biopsy.
C. Anal fistula.
D. Rectal sparing.
E. Cobblestone appearance on barium enema.
Answer: A

26. An 80-year-old man who has been bedridden for many years following a stroke presents with acute onset of abdominal distention, obstipation, and colicky abdominal pain. Abdominal x-rays reveal dilated loops of small bowel and a dilated sigmoid colon resembling a bent inner tube. Examination reveals distention with mild direct tenderness but no rigidity or rebound tenderness. Initial management should consist of:
A. Barium enema examination.
B. Laparotomy with resection of descending colon and descending colostomy.
C. Multiple cleansing enemas to remove impacted feces.
D. Rigid sigmoidoscopy and decompression of the sigmoid colon.
Answer: D

27. Axial twisting of the right colon or cecal volvulus has been shown to be associated with each of the following except:
A. A history of abdominal operation.
B. A mobile cecum.
C. An obstructing lesion in the transverse or left colon.
D. Inflammatory bowel disease.
Answer: D

28.Sigmoid volvulus has been associated with each of the following except:
A. Chronic constipation and laxative abuse.
B. Chronic rectal proplapse.
C. Chronic traumatic paralysis.
D. Medical management of Parkinson's disease.
Answer: B

28. Which of the following statements is not true about inhereted susceptibility to colon cancer?
A. There is no known genetic susceptibility to colon cancer.
B. There are known genetic susceptibilities to colon cancer, but they are always associated with multiple adenomatous polyps.
C. There are known genetic susceptibilities to colon cancer, but they are always associated with specific ethnic or racial groups.
D. None of the above.
Answer: D

29. Which of the following recommendations for adjuvant chemotherapy of colorectal carcinoma are true?
A. Patients with Stage I or Dukes A and B1 disease should receive adjuvant treatment for 1 year with levamisole combined with 5-FU.
B. Patients with Stage III or Dukes C disease should receive adjuvant treatment for 1 year with levamisole combined with 5-FU.
C. There is no role for adjuvant therapy for colon cancer at any stage.
D. Adjuvant chemotherapy is active in colon cancer only when combined with radiotherapy.
Answer: B

30. Optimal front-line treatment of squamous cell carcinoma of the rectum includes:
A. Abdominal perineal resection.
B. Low anterior resection when technically feasible.
C. Radiation therapy.
D. Chemotherapy.
E. Combined radiation and chemotherapy.
Answer: E

31. Which of the following statement(s) is/are true about the maintenance of continence?
A. It depends on both the internal and external sphincters as well as the puborectalis.
B. Resting pressure offers a high-pressure zone that increases resistance to the passage of stools.
C. Maximal squeeze pressure can last no more than 1 minute.
Answer: ABC

32. Which of the following statement(s) about complete rectal prolapse, or procidentia is/are true?
A. Rectal prolapse results from intussusception of the rectum and rectosigmoid.
B. The disorder is more common in men than in women.
C. Continence nearly always is recovered after correction of the prolapse.
D. All of the above are true.
Answer: A

33. Which of the following statements about hemorrhoids is/are not true?
A. Hemorrhoids are specialized "cushions" present in everyone that aid continence.
B. External hemorrhoids are covered by skin whereas internal hemorrhoids are covered by mucosa.
C. Pain is often associated with uncomplicated hemorrhoids.
D. Hemorrhoidectomy is reserved for third- and fourth-degree hemorrhoids.
Answer: C

34. The widely accepted treatment of most localized epidermoid, cloacogenic, or transitional cell carcinoma of the anal canal is:
A. Surgical resection.
B. Chemotherapy alone.
C. Radiotherapy alone.
D. Combined chemoradiation.
Answer: D

35. Which statement(s) is/are true about hidradenitis suppurativa?
A. It is a disease of the apocrine sweat glands.
B. It causes multiple perianal and perineal sinuses that drain watery pus.
C. The sinuses do not communicate with the dentate line.
D. The treatment is surgical.
E. All of the above.
Answer: E

36. Which of the following statements regarding the vasculature of the colon and rectum is/are correct?
a. The middle colic artery is a branch of the superior mesenteric artery
b. The inferior mesenteric artery supplies the descending and sigmoid segments of the colon
c. An complete anastomotic arcade paralleling the colon wall is present in only 15 to 205 of individuals
d. The middle colic artery is a branch of the inferior mesenteric artery
Answer: a, b, c

37. Which of the following agents have been proposed as sensory neurotransmitters for the colon?
a. Acetylcholine
b. Substance P
c. Calcitonin gene-related peptide
d. Bradykinin
e. Somatostatin
Answer: b, c

38. How much of the daily insensible water loss is due to loss in stool?
a. 200 ml
b. 400 ml
c. 600 ml
d. 800 ml
e. 1000 ml
Answer: a

39. A 52-year-old woman is involved in an automobile accident and sustains an open fracture of the fight femur, compression fractures of the 10th and 11th thoracic vertebrae and right pulmonary contusion. On the fourth day after injury, her abdomen is noted to be distended, tympanitic and diffusely tender. Abdominal radiographs reveal gaseous distension of the ascending and transverse segments of the colon. The cecum is 13 cm in greatest diameter. Appropriate management includes which of the following as the next step?
a. Right hemicolectomy
b. Operative cecostomy
c. Colonoscopy
d. Contrast enema
e. Observation
Answer: c

40. Which of the following features is/are consistent with a diagnosis of colonic inertia?
a. Alternating episodes of severe constipation and normal bowel activity
b. Total bowel transit time of 24 hours
c. Total bowel transit time of 48 hours
d. Total bowel transit time of 96 hours
e. Marfinoid habitus
Answer: d

41. Which of the following statements regarding the myenteric plexus of the colon is/are correct?
a. The myenteric plexus is located between the longitudinal and circular layers of the bowel wall
b. The myenteric plexus contains only sensory neurons
c. The density of neurons with the colonic plexuses decreases along the length of the bowel
d. Neurons of the myenteric plexus control the motor function of the colon
Answer: a, c, d

42. Which of the following ocular manifestations of ulcerative colitis respond to therapy with steroids or immunosuppressive agents?

a. Iridis
b. Uveitis
c. Retrobulbar neuritis
d. Ulcerative panophthalmitis

Answer: a, b, c

43. Which of the following statements regarding the risk of cancer in the context of ulcerative colitis is/are correct?

a. After 10 years of active disease, the risk of cancer approximates 20% to 30%
b. After 10 years of active disease, the risk of cancer approximates 2% to 3%
c. The risk of colon cancer in ulcerative colitis is identical to controls
d. After 20 years of disease activity, the risk of colon cancer approximates 80%

Answer: b

44. Which of the following features would be more consistent with Crohn's disease than with ulcerative colitis?

a. Transmural inflammation
b. Microscopic evidence of granulomas within mucosal biopsies
c. Microscopic evidence of submucosal thickening and fibrosis
d. Microscopic evidence of submucosal inflammation

Answer: a, b, c, d

45. A 19-year-old male is seen in consultation with complaints of bloody diarrhea (10 bowel movements per day), and weight loss (10 pounds). Physical examination reveals the presence of two circular, 4 cm erythematous lesions on the trunk. Each lesion has an area of necrosis in the center. The abdominal examination reveals mild hypogastric tenderness. The stool is guaiac positive. The most appropriate next diagnostic step includes which of the following?

a. Barium enema
b. Flexible sigmoidoscopy
c. Liver biopsy
d. Chest x-ray

Answer: b

46. Which of the following statement(s) regarding ulcerative colitis is/are correct?

a. The most common age of onset for ulcerative colitis is in early adulthood
b. Approximately 25% of cases of ulcerative colitis occur after the age of 60
c. Males are affected approximately twice as frequently as females
d. Approximately 10% to 25% of patients with ulcerative colitis have first degree relatives with the disease

Answer: a, d

47. Many patients with ulcerative colitis are operated upon electively with total abdominal colectomy, rectal mucosectomy, formation of a small intestinal reservoir, and ileoanal anastomosis. The most common postoperative complication after this operation is which of the following?

a. Enterocutaneous fistula
b. Small bowel obstruction
c. Pulmonary embolism
d. Urinary retention

Answer: b

A 25-year-old woman with known ulcerative colitis presents to the emergency room with a 24-hour history of abdominal pain, distention, and obstipation. Physical examination reveals a temperature of 38.6° C, abdominal distention, and diffuse abdominal tenderness. Abdominal x-rays show marked colonic dilatation, most pronounced in the transverse colon. Laboratory examination reveals a white blood count of 19,000/mm3. Over the first 24 hours of hospitalization, symptoms are progressive in spite of intravenous fluid resuscitation, nasogastric suctioning, and intravenous antibiotics. The most appropriate management for this patient would include which of the following?

e. Decompressive colonoscopy
f. Proctocolectomy with formation of end ileostomy
g. Total abdominal colectomy with formation of Hartmann pouch and end ileostomy
h. Cecostomy

Answer: c

48. The most common postoperative complication after formation of a continent ileostomy (Kock pouch) is which of the following?

a. Nipple valve failure
b. Small bowel obstruction
c. Pancreatitis
d. Ischemic necrosis of the pouch

Answer: a

49. One year following ileal pouch-anal anastomosis, the mean 24-hour stool frequency is which of the following?

a. Two to three
b. Five to six
c. Eight to nine
d. Eleven to twelve

Answer: b

50. A 30-year-old male two years postoperative after total abdominal colectomy with ileoanal anastomosis reports a sudden increase in stool frequency, nocturnal leakage, and low-grade fevers. Physical examination is unremarkable. Flexible endoscopic examination of the small intestinal pouch reveals a friable erythematous mucosa. Biopsies of the mucosa are obtained. While awaiting biopsy results, which of the following is the most appropriate empiric therapy?

a. Oral corticosteroids
b. Oral vancomycin
c. Oral metronidazole
d. Corticosteroid enema

Answer: c

51. A 72-year-old man returns to the hospital 2 weeks following right hip arthroplasty with complaints of 48 hours of mucoid diarrhea, fever, and crampy abdominal pain. Physical examination reveals dehydration, diffuse abdominal tenderness, and a temperature of 102°F. Outpatient medications have included digoxin, propranolol, and cephalothin. If antibiotic-associated colitis is suspected, which of the following is/are appropriate diagnostic tests?

a. Fecal leukocyte smear
b. Stool culture for C difficile
c. Measurement of C difficile toxin in stool
d. Barium enema
e. Computed topography of abdomen

Answer: a, b, c

52. For the patient in the preceding question, after obtaining diagnostic samples, the most appropriate management would include which of the following?

a. Oral metronidazole
b. Intravenous metronidazole
c. Oral vancomycin
d. Intravenous vancomycin
e. Oral bacitracin

Answer: c

53. A 72-year-old woman undergoes anterior resection for a rectal cancer located 7 cm proximal to the anal verge. Pathologic examination of the resected specimen reveals invasion of the tumor into the muscularis propria. Five of 8 lymph nodes contain microscopic tumor. There is no evidence of disseminated disease. Appropriate subsequent management includes which of the following?

a. Postoperative radiation plus intravenous 5FU
b. Postoperative radiation alone
c. Observation

d. Postoperative radiation plus intravenous adriamycin

Answer: a

54. Which of the following are tumor suppressor genes that have been associated with the development of colorectal cancer?

a. The DCC gene
b. The APC gene
c. The P53 gene
d. The Rb gene

Answer: a, b, c

55. Which of the following statement(s) is/are correct with regard to the use of carcinoembryonic antigen (CEA) determinations in management of colorectal cancer?

a. CEA determination has 95% specificity when used for screening for colon cancer development in patients with ulcerative colitis
b. CEA levels are increased in 20% of patients with local recurrence after resectional therapy
c. CEA measurements are increased in 90% of patients with disseminated disease
d. CEA levels are increased in 90% of patients with local recurrence after resectional therapy

Answer: b, c

56. The most common oncogene abnormality observed in association with colorectal cancer is which of the following?

a. Overexpression of the N-myc oncogene
b. Amplification of the K-ras oncogene
c. Suppression of the erbB oncogene
d. Amplification of the L-myc oncogene

Answer: b

57. Which of the following types of colonic polyps is associated with the highest incidence of malignant degeneration?

a. Tubular adenoma
b. Tubulovillous adenoma
c. Villous adenoma
d. Hamartomatous polyp

Answer: c

58. A 52-year-old man undergoes a right hemicolectomy for a carcinoma of the ascending colon. Pathological examination of the resected specimen reveals invasion of the tumor to the level of the muscularis propria. Three of 17 lymph nodes contain microscopic tumor. What is the correct Dukes classification (Aster-Coller modification) and associated 5-year survival for this lesion?

a. Dukes C2, 45% 5-year survival
b. Dukes B1, 75% 5-year survival
c. Dukes C1, 45% 5-year survival
d. Dukes B3, 65% 5-year survival

Answer: c

59. An pedunculated polyp, discovered incidentally at colonoscopy, is removed by snare polypectomy from the ascending colon. Invasive cancer to the level of the submucosa is identified histologically within the polyp. The lesion is well-differentiated. No lymphatic or vascular invasion is noted. The cauterized margin is negative for neoplasm. Appropriate subsequent management includes which of the following?

a. Repeat endoscopy at 6 months
b. Right hemicolectomy
c. Subtotal colectomy
d. Repeat endoscopy with fulguration of the polypectomy site

Answer: a

60. Dietary risk factors thought to play a causative role in development of colorectal cancer include which of the following?

a. High fat intake
b. Low fiber intake
c. High smoked food intake
d. High vegetable intake

Answer: a, b

61. Which of the following statements with regard to resection of rectal cancers is/are true?

a. A distal margin of 5 cm should be obtained because 42% of patients have microscopic evidence of intramural spread beyond 3 cm from the palpable tumor
b. A distal margin of 3 cm should be obtained because only 3% of patients have microscopic evidence of intramural spread beyond 2 cm from the palpable tumor
c. Local recurrence rates correlate strongly with distal margins less than 4 cm
d. There is no correlation between local recurrence and distal margins beyond 2 cm

Answer: b, d

62. A 58-year-old male undergoes resection of a Dukes C2 colon cancer via right hemicolectomy. Three years postoperatively, rising CEA levels prompt evaluation including abdominal computed tomography. Two lesions, each measuring 2 cm, are noted in the right hepatic lobe. No other abnormalities are noted. A right hepatic lobectomy is performed without complication. Which of the following most closely approximates anticipated 5-year survival?

a. 85–90%
b. 65–70%
c. 45–50%
d. 25–30%

Answer: d

63. An asymptomatic 52-year-old man is undergoing screening sigmoidoscopy. In the rectum, at 6 cm from the anal verge, a 2 cm yellow, submucosal nodule is noted. Deep endoscopic biopsies are consistent with carcinoid. Appropriate management includes which of the following?

a. Observation
b. Transanal excision
c. Low anterior resection
d. Abdominoperineal resection

Answer: b

64. A 72-year-old woman complains of anal itching and burning. Physical examination reveals an erythematous, scaly lesion, 3 cm in circumference, within the anal canal. The intersphincteric groove can not be appreciated in the area of the lesion. The remainder of the physical examination is normal. Appropriate initial management includes which of the following?

a. Acyclovir 200 mg QID for 10 days
b. Hydrocortisone cream 0.1% topically for 14 days
c. Incisional biopsy
d. Metronidazole 250 mg PO QID for 14 days

Answer: c

65. For the patient in the preceding question, biopsy revealed an invasive apocrine gland neoplasm. The deep margins included striated muscle infiltrated by neoplastic cells. Appropriate management includes which of the following?

a. Primary radiation
b. Abdominoperineal resection with bilateral inguinal lymph node dissection
c. Abdominoperineal resection only
d. Carbon dioxide laser fulguration

Answer: c

66. A 43-year-old woman presents with complaints of anal pain and spotting of blood with defecation. Physical examination reveals a 2 3 cm area of ulceration within the anal canal. The remainder of the physical examination is normal. Incisional biopsy is positive for squamous cell carcinoma. Appropriate management includes which of the following?

a. Abdominoperineal resection
b. Wide local excision, skin grafting, proximal diverting colostomy
c. Primary radiation therapy
d. Local excision and primary closure

Answer: c

67. Recurrent episodes of sigmoid colonic diverticulitis prompt operative therapy. Which of the following describe the appropriate margins for resection?

a. Proximal margin, splenic flexure; distal margin, rectosigmoid junction
b. Proximal margin, descending colon; distal margin, rectosigmoid junction
c. Proximal margin, descending colon; distal margin, mid-rectum
d. Proximal margin, transverse colon; distal margin, mid-rectum

Answer: b

68. An elderly man presents with complaints that he is passing gas with urination. The past medical history is positive for one episode of diverticulitis, treated medically, transurethral resection of the prostate for benign prostatic hypertrophy, and diabetes. Which of the following diagnostic tests is most appropriate initially?

a. Computed tomography of the abdomen and pelvis
b. Cystoscopy
c. Barium enema
d. Intravenous pyelography

Answer: a

69. For the patient in the preceding question, a colovesical fistula originating from the sigmoid colon is demonstrated. Colonoscopy reveals diverticula and excludes carcinoma. During laparotomy, a thickened sigmoid colon is found to be adherent to the dome of the bladder. A definite fistula is not observed. Appropriate operative management includes which of the following?

a. Sigmoid resection, primary colonic anastomosis, catheter drainage of bladder
b. En-bloc resection of sigmoid colon and adjacent bladder wall, primary colonic anastomosis, suprapubic cystostomy
c. En-bloc resection of sigmoid colon and adjacent bladder wall, formation of descending colostomy and Hartmann's pouch, suprapubic cystostomy
d. Sigmoid resection, primary colonic anastomosis, bilateral percutaneous nephrostomies

Answer: a

70. A 65-year-old woman develops obstipation, lower abdominal pain, and fever. Physical examination reveals a temperature of 38.5°C, left lower quadrant tenderness, and an ill-defined lower abdominal mass. White blood count is 17,500 per mm3. Intravenous hydration, broad spectrum antibiotics, and analgesics are ordered. After 48 hours, symptoms have not improved. Appropriate management includes which of the following?

a. Barium enema
b. Computed tomography of the abdomen
c. Immediate laparotomy
d. Intravenous pyelogram

Answer: b

71. Which of the following statement(s) relating to anal sphincteric function is/are correct?

a. When the rectum is distended, the internal anal sphincter relaxes and the external anal sphincter contracts
b. When the rectum is distended, the internal anal sphincter contracts and the external anal sphincter relaxes
c. The external anal sphincter is responsible for resting anal pressure
d. The internal anal sphincter is responsible for resting anal pressure

Answer: a, d

72. The most common complication after hemorrhoidectomy is which of the following?
a. Urinary retention
b. Rectal bleeding
c. Incontinence
d. Wound infection
Answer: a

73. Appropriate treatment of chlamydial proctitis includes which of the following?
a. Tetracycline 500 mg QID
b. Metronidazole 250 mg QID
c. Acyclovir 200 mg QID
d. Erythromycin 500 mg QID
Answer: a, d

74. A 65-year-old man presents with complaints of mucous discharge and perianal discomfort. Physical examination reveals a fistulous opening lateral to the anus. Anoscopic examination permits passage of a probe through the fistula tract. The fistula traverses the internal anal sphincter, the intersphincteric plane, and a portion of the external anal sphincter. The fistula is categorized as which type?
a. Intersphincteric
b. Transsphincteric
c. Suprasphincteric
d. Extrasphincteric
Answer: b

75. For the patient in the preceding question, appropriate management includes which of the following?
a. Division of the tissues over the probe with electrocautery, leaving the wound open to heal by secondary intention
b. Division of the tissues over the probe with electrocautery, closing the wound using a pedicled skin flap
c. Division of the internal anal sphincter using electrocautery, encircling the external sphincter with a seton
d. Proximal diverting colostomy and antibiotics
Answer: c

HEPATOBILIARY & PANCREASE

1. Which of the following statements about the segmental anatomy of the liver are not true?
A. Segments are subdivisions in both the French and American systems.
B. Segments are determined primarily by the hepatic venous drainage.
C. The French anatomic system is more applicable than the American system to clinical hepatic resection.
D. Segments are important to the understanding of the topographic anatomy of the liver.
Answer: D

2. Which of the following anatomic features of the biliary system are important considerations in operative cholangiography?
A. The left hepatic duct comes off farther anterior than the right one.
B. At the confluence there may be more than just a right and a left hepatic duct.
C. Dissection of the triangle of Calot is more important than cholangiography in preventing bile duct injury.
D. Segments V, VII, or VIII sometimes join the biliary system below the confluence.
Answer: ABCD

3. The hepatic artery:
A. Supplies the same amount of blood to the liver as the portal vein.
B. Provides more blood to the bile ducts than the portal vein.
C. Is autoregulated just as the portal vein is.
D. Supplies most of the blood to hepatic metastases.
Answer: BD

4. Bile formation is:
A. An active secretory process.
B. Determined at two sites principally.
C. Regulated physiologically by hormones.
D. Largely determined by the intactness of the enterohepatic circulation (EHC).
Answer: ABCD

5. Generally, the two most important hepatic functions to consider after hepatic resection are:
A. Hepatic synthetic function.
B. Glucose metabolism.
C. The liver's role in lipid metabolism.
D. The liver's role in vitamin metabolism.
Answer: AB

6. Which of the following statements about pyogenic abscess of the liver are true?
A. The right lobe is more commonly involved than the left lobe.
B. Appendicitis with perforation and abscess is the most common underlying cause of hepatic abscess.
C. Mortality is largely determined by the underlying disease.
D. Mortality from hepatic abscess is currently greater than 40%.
Answer: AC

7. Which of the following statements most accurately describes the current therapy for pyogenic hepatic abscess?
A. Antibiotics alone are adequate for the treatment of most cases.
B. All patients require open surgical drainage for optimal management.
C. Optimal treatment involves treatment of not only the abscess but the underlying source as well.
D. Percutaneous drainage is more successful for multiple lesions than for solitary ones.
Answer: C

8. Which of the following statements characterize amebic abscess?
A. Mortality is higher than that for similarly located pyogenic abscesses.
B. The diagnosis of amebic abscess may be based on serologic tests and resolution of symptoms.
C. In contrast to pyogenic abscess, the treatment of amebic abscess is primarily medical.
D. Patients with amebic abscess tend to be older than those with pyogenic abscess.
Answer: BC

9. Which of the following statement(s) is/are true about benign lesions of the liver?
A. Adenomas are true neoplasms with a predisposition for complications and should usually be resected.
B. Focal nodular hyperplasia (FNH) is a neoplasm related to birth control pills (BCPs) and usually requires resection.
C. Hemangiomas are the most common benign lesions of the liver that come to the surgeon's attention.
D. Nodular regenerative hyperplasia does not usually accompany cirrhosis.
Answer: A

10. Which of the following statement(s) about malignant neoplasms of the liver is/are true?
A. Hepatocellular carcinoma is probably the number 1 cause of death from cancers worldwide.
B. The most common resectable hepatic malignant neoplasm in the United States is colorectal metastasis.
C. Hepatoma has at least one variant that has a much more benign course than hepatomas in general.
D. Hepatomas are generally slower growing than was formerly believed.
Answer: ABCD

11. Which of the following statement(s) is/are true about bile duct cancers?
A. If resected, proximal lesions are usually curable.
B. The more proximal the lesion, the more likely is resection to be curative.
C. Radiation clearly prolongs survival.
D. Transplantation is usually successful if the lesion seems confined to the liver.
E. None of the above is true.
Answer: E

12. Echinococcosis liver disease caused by Echinococcus granulosus:
A. Is not a neoplasm.
B. Is endemic to parts of Europe, but not the United States.
C. Is usually curable by resection.
D. Is more deadly than in its Echinococcus multilocularis form.
Answer: ABC

13. Which of the following statements about hemobilia are true?
A. Tumors are the most common cause.
B. The primary treatment of severe hemobilia is an operation.
C. Percutaneous cholangiographic hemobilia is usually minor.
D. Ultrasonography usually reveals a specific diagnosis.
Answer: C

14. Ligation of all of the following arteries usually causes significant hepatic enzyme abnormalities except:
A. Ligation of the right hepatic artery.
B. Ligation of the left hepatic artery.
C. Ligation of the hepatic artery distal to the gastroduodenal branch.
D. Ligation of the hepatic artery proximal to the gastroduodenal artery.
Answer: D

15. Which of the following is the most common acid-base disturbance in patients with cirrhosis and portal hypertension?
A. Metabolic acidosis.
B. Respiratory alkalosis.
C. Metabolic alkalosis.
D. Respiratory acidosis.
Answer: C

16. A portal venous pressure of 30 mm. Hg (elevated) and a hepatic venous wedge pressure of 5 mm. Hg (normal) may be associated with which of the following causes of portal hypertension?
A. Portal vein thrombosis.
B. Alcoholic cirrhosis.
C. Schistosomiasis.
D. Alcoholic hepatitis.
Answer: AC

17. Which of the following is the most effective definitive therapy for both prevention of recurrent variceal hemorrhage and control of ascites?
A. Endoscopic sclerotherapy.
B. Distal splenorenal shunt.
C. Esophagogastric devascularization (Sugiura procedure).
D. Side-to-side portacaval shunt.
E. End-to-side portacaval shunt.
Answer: D

18. Which of the following treatments most effectively preserves hepatic portal perfusion?
A. Distal splenorenal shunt.
B. Conventional splenorenal shunt.
C. Endoscopic sclerotherapy.
D. Side-to-side portacaval shunt.
Answer: C

19. Which of the following veins is preserved in performing the extensive esophagogastric devascularization procedure described by Sugiura?
A. Left gastric (coronary) vein.
B. Short gastric vein.
C. Splenic vein.
D. Left gastroepiploic vein.
Answer: A

20. Which of the following complications of portal hypertension often require surgical intervention (for more than 25% of patients)?
A. Hypersplenism.
B. Variceal hemorrhage.
C. Ascites.
D. Encephalopathy.
Answer: B

21. Which of the following effects are advantages of combined vasopressin and nitroglycerin intravenous infusion, as compared with vasopressin infusion alone, in controlling acute variceal bleeding?
A. Lower frequency of encephalopathy.
B. Lower incidence of vasopressin side effects.
C. More effective control of bleeding.
D. Less "rebound effect" when discontinuing the infusion.
Answer: BC

22. Which of the following statements about the peritoneovenous shunt (PVS) is/are correct?
A. For cirrhotic patients with intractable ascites, the LeVeen shunt is an effective "bridge" to liver transplantation.
B. Replacement of ascites with saline or lactated Ringer's solution reduces the coagulopathy following PVS.
C. For patients with cirrhotic ascites, the survival using repeated paracentesis with 5% albumin infusion is equivalent to that with the PVS.
D. Oliguria (less than 25 ml. per hour) in the immediate postoperative period following PVS should be treated with a 5% albumin infusion.
E. The transjugular intrahepatic portacaval shunt with stent (TIPSS) works on the same principle as the PVS.
Answer: BC

23. Which of the following clinical situations are considered good indications for PVS?
A. A 50-year-old cirrhotic man had an emergency portacaval shunt for bleeding varices and postoperatively had an ascites leak and mild superficial wound infection.
B. A 57-year-old woman with primary biliary cirrhosis (PBC) has difficult to control ascites and diuretic-induced encephalopathy.
C. A 46-year-old resistant alcoholic has chronic ascites uncontrolled by diuretics combined with repeat paracentesis.
D. A 34-year-old woman taking BCPs had rapid onset of ascites and is found to have hepatic vein thrombosis causing the Budd-Chiari syndrome.
Answer: C

24. Which of the following explanations account(s) for the fact that hepatitis C is the most common cause of posttransfusion hepatitis?
A. There are more carriers of hepatitis C virus (HCV) in the normal population who serve as blood donors.
B. Blood infected with hepatitis B virus (HBV) is eliminated through routine testing, leaving only HCV as the other blood-borne pathogen.
C. Current serologic tests for HCV antigen do not exclude carriers.
D. Questions designed to eliminate risk groups for HCV from the normal donor population may not be as specific as would be desirable.
E. Hepatitis C is a more virulent form of viral hepatitis, so it is expected that more cases of posttransfusion hepatitis would occur.
Answer: BD

25. True or false: HBV infections:
A. Are usually asymptomatic.
B. May not be clinically recognized but may lead to chronic hepatitis.
C. Reliably protect against subsequent HBV infection regardless of the measured antibody titer to hepatitis B surface antigen (HBsAg).
D. Are completely prevented by postexposure administration of HBIg hepatitis B immunoglobulin (HBIg).
E. Preclude subsequent infection with HDV.
Answer: TRUE: BC, FALSE ADE

26. Which of the following statements about choledocholithiasis are correct?
A. Common duct stones can originate in the gallbladder and migrate to the common duct, and stones can form de novo in the duct system.

B. Calcium bilirubinate stones are associated with the presence of bacteria in the duct system.
C. Common duct stones discovered at laparoscopic cholecystectomy should be treated by postoperative endoscopic extraction.
D. The serum bilirubin value is usually greater than 15 mg. per dl. in the patient with a symptomatic common duct stone.
Answer: ABC

27. A benign biliary duct stricture:
A. Need not be treated unless it causes clinical jaundice.
B. Should always be treated by percutaneous balloon drainage.
C. Is prone to recur after treatment with biliary-enteric anastomosis.
D. When due to chronic pancreatitis should be treated by side-to-side choledochoduodenostomy.
Answer: CD

28. Which statements about extrahepatic bile duct cancer are correct?
A. Cholangiography is essential in evaluating patients for resectability.
B. The prognosis is excellent when appropriate surgical and adjuvant therapy are given.
C. The location of the tumor determines the type of surgical procedure.
D. The disease usually becomes manifest by moderate to severe right-side upper quadrant pain.
Answer: AC

29. Which of the following statements about biliary tract problems are correct?
A. Choledochal cyst should be treated by Roux-en-Y cystojejunostomy.
B. Sclerosing cholangitis is characterized by long, narrow strictures in the extrahepatic biliary duct system.
C. Operative (needle) cholangiography is indicated in patients who at operation appear to have no gallbladder.
D. The long cystic duct, which appears to be fused with the common duct and enters it distally, should be dissected free and ligated at its entrance into the common duct.
Answer: C

30. Which of the following statements about the diagnosis of acute calculous cholecystitis are true?
A. Pain is so frequent that its absence almost precludes the diagnosis.
B. Jaundice is present in a majority of patients.
C. Ultrasonography is the definitive diagnostic test.
D. Cholescintigraphy is the definitive diagnostic test.
Answer: AD

31. Which statements about acute acalculous cholecystitis are correct?
A. The disease is often accompanied by or associated with other conditions.
B. The diagnosis is often difficult.
C. The mortality rate is higher than that for acute calculous cholecystitis.
D. The disease has been treated successfully by percutaneous cholecystostomy.
Answer: ABCD

32. True statements about the surgical management of patients with acute calculous cholecystitis include:
A. Operation should be performed in all patients as soon as the diagnosis is made.
B. Antibiotic therapy should be initiated as soon as the diagnosis is made.
C. Dissection of the gallbladder is facilitated by decompression of the organ with the use of a trocar.
D. An operative cholangiogram should be done in every patient.
Answer: BC

33. Which of the following are indications for cholecystectomy?
A. The presence of gallstones in a patient with intermittent episodes of right-side upper quadrant pain.
B. The presence of gallstones in an asymptomatic patient.
C. The presence of symptomatic gallstones in a patient with angina pectoris.
D. The presence of asymptomatic gallstones in a patient who has insulin-dependent diabetes.
Answer: A

34. Which of the following statements about laparoscopic cholecystectomy are correct?
A. The procedure is associated with less postoperative pain and earlier return to normal activity.
B. The incidence of bile duct injury is higher than for open cholecystectomy.

C. Laparoscopic cholecystectomy should be used in asymptomatic patients because it is safer than open cholecystectomy.
D. Pregnancy is a contraindication.
Answer: AB

35. Which of the following statements about cholangitis are correct?
A. Charcot's triad is always present.
B. Associated biliary tract disease is always present.
C. Chills and fever are due to the presence of bacteria in the bile duct system.
D. The most common cause of cholangitis is choledocholithiasis.
Answer: BCD

36. Recurrent episodes of cholangitis:
A. Suggest the presence of undetected or overlooked bile duct pathology.
B. Occur frequently in patients who have indwelling biliary tubes or stents.
C. May be ameliorated by long-term administration of antibiotics.
D. May be associated with the development of secondary biliary cirrhosis.
Answer: ABCD

37. The initial goal of therapy for acute toxic cholangitis is to:
A. Prevent cholangiovenous reflux by decompressing the duct system.
B. Remove the obstructing stone, if one is present.
C. Alleviate jaundice and prevent permanent liver damage.
D. Prevent the development of gallstone pancreatitis.
Answer: A

38. The clinical picture of gallstone ileus includes which of the following?
A. Air in the biliary tree.
B. Small bowel obstruction.
C. A stone at the site of obstruction.
D. Acholic stools.
E. Associated bouts of cholangitis.
Answer: ABCE

39. Which of the following statement(s) about gallstone ileus is/are not true?
A. The condition is seen most frequently in women older than 70.
B. Concomitant with the bowel obstruction, air is seen in the biliary tree.
C. The usual fistula underlying the problem is between the gallbladder and the ileum.
D. When possible, relief of small bowel obstruction should be accompanied by definitive repair of the fistula since there is a significant incidence of recurrence if the fistula is left in place.
E. Ultrasound studies may be of help in identifying a gallstone as the obstructing agent.
Answer: C

40. Which of the following lesions are believed to be associated with the development of carcinoma of the gallbladder?
A. Cholecystoenteric fistula.
B. A calcified gallbladder.
C. Adenoma of the gallbladder.
D. Xanthogranulomatous cholecystitis.
E. All of the above.
Answer: E

41. The preferred treatment for carcinoma of the gallbladder is:
A. Radical resection that includes gallbladder in continuity with the right hepatic lobe and regional lymph node dissection.
B. Radiation therapy.
C. Chemotherapy.
D. Combined treatment involving surgical therapy, chemotherapy, and radiation.
E. None of the above.
Answer: E

42. Which of the following statement(s) about pancreatic embryonic malformations is/are correct?
A. Pancreas divisum can be a cause of gastrointestinal bleeding.
B. Heterotopic pancreatic tissue predisposes to pancreatic adenocarcinoma.
C. Annular pancreas may cause gastrointestinal obstruction in children or in adults.
D. Relative obstruction to the flow of pancreatic juice through the minor papilla appears to be the cause of pancreatitis in some patients with pancreas divisum.
Answer: CD

43. The pancreas occupies a retroperitoneal position in the upper abdomen. Which statement(s) is/are correct?
A. The superior mesenteric vein and the splenic vein join to form the portal vein posterior to the neck of the pancreas.
B. The uncinate process of the pancreas extends posterior to the inferior vena cava.
C. The tail of the pancreas extends to the left of the aorta, toward the splenic hilum.
D. The head of the pancreas is jointly supplied by arterial blood from the celiac axis and the superior mesenteric artery.
Answer: ACD

44. Both endocrine and exocrine tissue comprise the pancreas. Which statement(s) is/are true?
A. The islets of Langerhans total 1 million per gland and drain their secretions via intercalated duct cells through the ampulla of Vater.
B. Islet alpha cells produce glucagon.
C. Islet sigma cells produce somatostatin.
D. The acini and ductal systems constitute the exocrine portion of the pancreas.
Answer: BD

45. Pancreatic exocrine secretory products include a bicarbonate-rich electrolyte solution as well as digestive enzymes. Which of the following statement(s) is/are true?
A. Cholecystokinin (CCK) is the most potent endogenous stimulant of pancreatic enzyme secretion.
B. The chloride and bicarbonate concentrations of pancreatic juice vary and depend on the secretory flow rate.
C. Secretin is the most potent endogenous stimulant of pancreatic water and electrolyte secretion.
D. The peptidases synthesized by acinar cells are released into the pancreatic duct system in active form.
Answer: ABC

46. Which of the following parameters is/are not included in the Ranson's prognostic signs useful in the early evaluation of a patient with acute pancreatitis?
A. Elevated blood glucose.
B. Leukocytosis.
C. Amylase value greater than 1000 U per dl.
D. Serum lactic dehydrogenase (LDH) greater than 350 IU per dl.
E. Alanine aminotransferase greater than 250 U per dl.
Answer: CE

47. Standard supportive measures for patients with mild pancreatitis include the following:
A. Intravenous fluid and electrolyte therapy.
B. Withholding of analgesics to allow serial abdominal examinations.
C. Subcutaneous octreotide therapy.
D. Nasogastric decompression.
E. Prophylactic antibiotics.
Answer: A

48. Which of the following statements about chronic pancreatitis is/are correct?
A. Chronic pancreatitis is the inevitable result after repeated episodes of acute pancreatitis.
B. Patients with chronic pancreatitis commonly present with jaundice, pruritus, and fever.
C. Mesenteric angiography is useful in the evaluation of many patients with chronic pancreatitis.
D. Total pancreatectomy usually offers the best outcome in patients with chronic pancreatitis.

E. For patients with disabling chronic pancreatitis and a dilated pancreatic duct with associated stricture formation, a longitudinal pancreaticojejunostomy (Peustow procedure) is an appropriate surgical option.
Answer: E

49. Which of the following statements about pancreatic ascites is/are correct?
A. Patients typically present with painful ascites, reflecting the release of toxic pancreatic enzymes into the peritoneal cavity.
B. The standard evaluation of a patient with new-onset ascites includes abdominal paracentesis. In cases of pancreatic ascites, the peritoneal fluid contains high concentrations of both amylase and protein.
C. Pancreatic ascites can follow an episode of acute pancreatitis.
D. Patients with pancreatic ascites may fail to improve with nonoperative therapy and require surgical procedures. At abdominal exploration an acceptable approach to the pancreatic duct disruption involves suture ligation with omental patching.
Answer: BC

50. Which of the following statements about adenocarcinoma of the pancreas is/are correct?
A. It is the fifth most common cause of cancer death in the U.S.
B. Most cases occur in the body and tail of the pancreas, making distal pancreatectomy the most commonly performed resectional therapy.
C. For cancers of the head of the pancreas resected by pancreaticoduodenectomy, prognosis appears to be independent of nodal status, margin status, or tumor diameter.
D. The most accurate screening test involves surveillance of stool for carbohydrate antigen (CA 19–9).
Answer: A

51. A 35-year-old woman presents with episodes of obtundation, somnolence, and tachycardia. An insulinoma is suspected based on a random serum glucose test value of 38 mg. per dl. Which of the following statements is/are true?
A. The most important diagnostic study for insulinoma is an oral glucose tolerance test.
B. It may be helpful to perform ERCP in an effort to localize the tumor.
C. Most patients with insulinoma present with extensive disease, rendering them only rarely resectable or curable.
D. An important component of the preoperative evaluation in patients with presumed insulinoma involves confirming elevated C-peptide or proinsulin levels and screening for anti-insulin antibodies.
Answer: D

52. Which of the following statements about gastrinoma (Zollinger-Ellison syndrome) is/are correct?
A. As many as 75% of gastrinoma patients have sporadic disease; 25% have gastrinoma associated with multiple endocrine neoplasia type 1 (MEN 1).
B. Extrapancreatic gastrinomas are common, and exploration should include careful assessment of the duodenum and peripancreatic lymph nodes.
C. Diarrhea may be a prominent presenting feature of some patients with gastrinoma.
D. Before elective operation acid-reducing medications such as omeprazole should be administered.
Answer: ABCD

53. With regard to the control of pancreatic exocrine function, which of the following statement(s) is/are correct?
a. Cholecystokinin, a hormone released from the duodenal mucosa, is the predominant stimulus for pancreatic enzyme secretion
b. Gastrin is a major stimulant for pancreatic bicarbonate secretion
c.Secretin is released from the duodenum upon mucosal acidification and stimulates pancreatic bicarbonate secretion
d. Acetylcholine, released from pancreatic nerves, stimulates enzyme secretion
Answer: a, c, d

54. In the performance of a pancreaticoduodenectomy (Whipple procedure), the superior mesenteric vein is an important landmark. Which of the following statements is/are true with regard to the superior mesenteric vein?
a. Small venous branches enter the superior mesenteric vein anteriorly as it courses beneath the neck of the pancreas

b. The superior mesenteric vein joins the splenic vein at the superior border of the pancreas to form the portal vein

c.Small venous branches enter the superior mesenteric vein laterally as it courses beneath the neck of the pancreas

d. The superior mesenteric vein courses anterior to the neck of the pancreas

Answer: b, c

55. Pancreas divisum results from incomplete fusion of the ventral pancreatic duct with the dorsal pancreatic duct during embryologic development. Which of the following statements correctly describes pancreas divisum?

a. The body and tail of the pancreas drain via an accessory ampulla distal to the ampulla of Vater. The uncinate process drains via the ampulla of Vater

b. The entire pancreatic ductal system drains via the ampulla of Vater

c.The entire pancreatic ductal system drains via an accessory ampulla proximal to the ampulla of Vater

d. The body and tail of the pancreas are absent. The uncinate process drains via the ampulla of Vater

Answer: c

56. Which of the following statements is/are correct with regard to the blood supply of the pancreas?

a. The inferior pancreaticoduodenal artery, a branch of the celiac artery, divides into anterior and posterior branches to supply the pancreatic head

b. The body and tail of the pancreas are supplied by branches of the splenic artery

c.The superior pancreaticoduodenal artery is a branch of the gastroduodenal artery

d. The body and tail of the pancreas are supplied by branches derived from the left renal artery

Answer: b, c

57. Orally administered glucose provokes a greater insulin response than an equivalent amount of intravenously administered glucose. The incremental response to ingested glucose is due to the effects of which of the following hormones?

a. Gastric inhibitory peptide

b. Somatostatin

c.Pancreatic polypeptide

d. Secretin

Answer: a

58. The islets of Langerhans contain four major endocrine cell types that secrete which of the following hormones?

a. Insulin, somatostatin, glucagon, secretin

b. Insulin, somatostatin, cholecystokinin, pancreatic polypeptide

c.Insulin, somatostatin, glucagon, pancreatic polypeptide

d. Insulin, secretin, glucagon, cholecystokinin

Answer: c

59. A 50-year-old man develops acute pancreatitis due to alcohol abuse. Hyperamylasemia resolves by the third day after admission. By the eighth hospital day, the patient is noted to have recurrent fever (38.5°C), progressive leukocytosis (18,500 WBC/mm3), and tachypnea. The most appropriate management includes which as the next step?

a. Laparotomy with pancreatic debridement

b. CT guided aspiration of peripancreatic fluid collections

c.ERCP with sphincterotomy and placement of biliary stent

d. Intravenous amphotericin B

Answer: b

60. The patient in the above question is treated by observation for 8 weeks. He continues to be symptomatic with epigastric pain. A repeat abdominal CT scan reveals a persistent 6 cm pseudocyst in the region of the body of the pancreas. The pseudocyst is unilocular and demonstrates a well-defined rim of fibrous tissue. The gastric antrum is displaced anteriorly. Using CT guidance, 300 ml of fluid is aspirated from the lesion which is shown to be collapsed radiographically. No further intervention is performed. What is the risk of pseudocyst recurrence after simple aspiration?

a. 80–85%
b. 60–65%
c. 40–45%
d. 20–25%
Answer: d

61. In prospective, randomized trials which of the following agents or therapeutic measures has/have been demonstrated to accelerate recovery from acute pancreatitis?
a. Peritoneal lavage
b. Anticholinergic blockade
c.Octreotide
d. H2 receptor blockade
e. None of the above
Answer: e

62. Which of the following medical procedures has/have been associated with an increased risk of post-procedure acute pancreatitis?
a. Common bile duct exploration
b. Endoscopic retrograde cholangiopancreatography
c.Coronary bypass grafting
d. Distal gastrectomy
Answer: a, b, c, d

63. Which of the following is/are prognostic signs reported by Ranson to predict outcomes associated with acute pancreatitis?
a. Age greater than 60 years
b. Hematocrit decrease of 105 within 48 hours of hospital admission
c.Serum amylase value greater than 4 times upper limit of normal
d. Serum glucose greater than 200 mg/dL on admission
e. Ca2+ level less than 8 mg/dL within 48 hours of hospital admission
Answer: b, d, e

64. A 36-year-old woman is admitted to a the hospital with upper abdominal pain, hyperamylasemia, elevation of serum alkaline phosphatase and ultrasound evidence of cholelithiasis. With intravenous hydration and analgesia, symptoms rapidly resolved. After 48 hours, serum amylase and alkaline phosphatase values had returned to normal and physical examination revealed lessening tenderness in the right upper quadrant of the abdomen. Appropriate management consists of which of the following as the next step?
a. Cholecystectomy and intraoperative cholangiography before hospital discharge
b. Elective cholecystectomy at approximately 8 weeks
c.Endoscopic sphincterotomy before discharge followed by cholecystectomy at approximately 8 weeks
d. Observation
Answer: a
Answer: b

65. With regard to acute pancreatitis: which of the following statements is/are correct?
a. The majority of patients presenting with acute pancreatitis of biliary type are female
b. The majority of patients presenting with acute pancreatitis of alcoholic type are female
c.The most common cause of acute pancreatitis in the United States is alcohol use
d. Patients with alcohol-induced pancreatitis tend to be older than those with biliary-induced disease
Answer: a, c

66. Which of the following statement(s) relating to chronic pancreatitis is/are correct?
a. In the United States, the most common cause of chronic pancreatitis is alcohol abuse
b. Approximately 50% of chronic alcoholics develop chronic pancreatitis
c.Clinically significant chronic pancreatitis develops on average after five years of alcohol abuse in men
d. The risk of alcohol-induced chronic pancreatitis can be decreased by consumption of a high-protein diet
Answer: a

67. The most appropriate test to confirm a clinical diagnosis of early chronic pancreatitis is which of the following?

a. Serum amylase determination
b. Calculation of urinary amylase clearance
c. Measurement of para-aminobenzoic acid absorption
d. Endoscopic retrograde cholangiopancreatography

Answer: d

68. A 52-year-old male, known to be alcoholic, is evaluated because of chronic abdominal pain. The clinical diagnosis of chronic pancreatitis is supported by ERCP findings of pancreatic ductal ectasia with alternating areas of stricture and dilatation. Several pancreatic ductal stones are also noted. With chronic pain as the operative indication, the most appropriate procedure would be:

a. 80% distal pancreatectomy with splenectomy
b. Longitudinal pancreaticojejunostomy
c. Distal pancreatectomy with end pancreaticojejunostomy
d. Total pancreatectomy

Answer: b

69. For the patient in the preceding question, the most appropriate long-term management is which of the following?

a. Endoscopic stenting of the distal common bile duct
b. Choledochoduodenostomy
c. Pancreaticoduodenectomy (Whipple procedure)
d. Percutaneous transhepatic drainage of the common hepatic duct

Answer: b

70. Which of the following is the most common cause of obstructive jaundice in patients with chronic pancreatitis?

a. Adenocarcinoma of the head of the pancreas
b. Choledocholithiasis
c. Fibrotic stricture of the common bile duct
d. Pancreatic pseudocyst formation

Answer: c

71. Alcohol-induced and hereditary chronic pancreatitis are the two most common etiologies observed in North American patients. Most of the remaining patients fall into which of the following categories?

a. Chronic pancreatitis secondary to hyperparathyroidism
b. Chronic pancreatitis caused by protein-calorie malnutrition
c. Chronic pancreatitis secondary to congenital pancreatic ductal obstruction
d. Idiopathic chronic pancreatitis

Answer: d

72. Which of the following statements regarding prognosis in chronic pancreatitis is/are correct?

a. Patients with chronic pancreatitis have decreased long-term survival compared with the general population
b. Patients with chronic pancreatitis exhibit no excess mortality relative to the general population
c. Excess mortality in patients with chronic pancreatitis is related to cancers of the aerodigestive system, complications of diabetes, and complications of cirrhosis
d. Excess mortality in patients with chronic pancreatitis is due to development of adenocarcinoma of the pancreas and to the complications of recurrent pancreatitis

Answer: a, c

73. Which of the following is the most common clinical manifestation of chronic pancreatitis?

a. Epigastric pain with radiation to the hypogastrium
b. Diabetes mellitus
c. Steatorrhea
d. Epigastric pain with radiation to the upper lumbar vertebrae

Answer: d

74. For the patient in the preceding question, appropriate management includes which of the following?

a. Distal pancreatectomy
b. Cystjejunostomy
c. Percutaneous drainage
d. Primary radiotherapy and chemotherapy

Answer: a

75. A 72-year-old man develops jaundice and is demonstrated to have a 2.5 mass in the pancreatic head by computed tomography. There are no signs of unresectability on CT examination. Fine needle aspiration cytology is positive for adenocarcinoma. Which of the following intraoperative findings would indicate unresectability?

a. Fibrotic reaction in the body and tail of the pancreas
b. Microscopic tumor cells in perigastric lymph nodes on frozen section
c. Inability to develop an avascular plane anterior to the superior mesenteric vein
d. Cholelithiasis

Answer: b, c

76. A 67-year-old male presents with complaints of itching, dark urine, and epigastric pain. Physical examination reveals jaundice. Initial laboratory tests show total bilirubin of 6.5 mg/dL, alkaline phosphatase elevated at 3 the upper limit of normal, and mild elevations in serum transaminases. Appropriate management includes which diagnostic test next?

a. Abdominal ultrasonography
b. Computed tomography of the abdomen
c. Magnetic resonance imaging of the abdomen
d. Endoscopic retrograde cholangiography

Answer: a

77. Which of the following statements regarding ductal adenocarcinoma of the pancreas is/are correct?

a. For ductal adenocarcinoma, 60–70% of tumors arise in the head of the gland, 15% in the body, and 10% in the tail, the remainder are diffuse
b. Fifty percent of pancreatic adenocarcinomas involve the gland diffusely at the time of diagnosis
c. For ductal adenocarcinomas, tumors of the body and tail are usually larger at the time of diagnosis than those arising in the head of the gland
d. Pancreatic adenocarcinomas occur with equal frequency within the head, body, and tail of the gland

Answer: a, c

78. The most common cause of death in the postoperative period following pancreaticoduodenectomy is which of the following?

a. Myocardial infarction
b. Intraperitoneal hemorrhage
c. Pulmonary embolism
d. Pneumonia

Answer: b

79. For the above patient, ultrasonography reveals dilated extrahepatic and intrahepatic bile ducts and the absence of gallstones within the gallbladder. A 2 cm mass within the pancreatic head is visualized. Computed tomography of the abdomen is performed. Which of following CT findings indicate probable unresectability?

a. Common bile duct diameter of 2 cm
b. Ascites
c. Infiltration of the transverse colonic mesentery
d. Dilatation of the main pancreatic duct to 1.5 cm

Answer: b, c

80. Which of the following have been shown to be risk factors for development of adenocarcinoma of the pancreas?

a. Cigarette smoking
b. Coffee drinking

c.Adult-onset diabetes mellitus
d. Chronic coumadin usage
e. Prior gastrectomy

Answer: a, e

81. Which of the following surgical procedures has the lowest incidence of recurrent jaundice when used in the context of unresectable carcinoma of the head of the pancreas?

a. Choledochoduodenostomy
b. Cholecystojejunostomy
c.Cholecystoduodenostomy
d. Choledochojejunostomy

Answer: d

82. A 45-year-old woman is evaluated for epigastric and back pain. Physical examination is normal. Computed tomography of the abdomen reveals a 8 cm cystic lesion in the region of the tail of the pancreas. The cyst demonstrates internal septations and papillary projections from its walls. Which of the following diagnoses is most likely in this patient?

a. Pancreatic lymphoma
b. Retroperitoneal liposarcoma
c.Pancreatic pseudocyst
d. Pancreatic mucinous cystadenoma

Answer: d

83. A 45-year-old woman develops upper gastrointestinal hemorrhage. Evaluation by upper endoscopy reveals three ulcers in the second portion of the duodenum. Bleeding is controlled using an endoscopic heat probe. Further investigation reveals a serum gastrin value of 240 pg/mL. Which of the following would support the presumptive diagnosis of gastrinoma?

a. An increase of 320 pg/mL in serum gastrin upon intravenous infusion of secretin
b. Gastric acid analysis demonstrating fasting acid secretion of 3 mEq/h
c.Enlarged gastric rugae on upper gastrointestinal contrast study
d. An increase of 150 pg/mL in serum gastrin upon intravenous infusion of cholecystokinin

Answer: a, c

84. For the patient in the preceding question, an insulin/glucose ratio of 0.5 was documented at 28 hours of fasting. Symptoms of mental obtundation developed concurrently and were reversed by oral glucose administration. Endoscopic ultrasonography demonstrated a 1.2 cm mass in the head of the pancreas. Appropriate management consists of which of the following?

a. Surgical enucleation of the tumor
b. Total pancreatectomy
c.Long-term octreotide administration
d. Primary radiotherapy

Answer: a

85. A 35-year-old woman is evaluated for seizure disorder, mental obtundation, and personality change. Physical examination is normal. Fasting serum glucose is 44 mg/dL. Other serum values are normal. Subsequent investigations should include which of the following?

a. Oral glucose tolerance test
b. Determination of fasting insulin/glucose ratios
c.Assay of serum C-peptide levels
d. Determination of serum prolactin levels

Answer: b, c

86. The most common location(s) for development of gastrinoma is/are which of the following?

a. Pancreas to the right of the superior mesenteric vein
b. Pancreatic body and tail
c.Gastric antrum
d. Duodenum

Answer: a, d

87. Neoplastic hypersecretion of the hormone vasoactive intestinal peptide is associated with which of the following features?

a. Hypokalemia, hypochlorhydria, diarrhea
b. Hyperglycemia, necrolytic rash, hypoaminoacidemia

c.Constipation, gallstones, hyperglycemia
d. Hyperkalemia, necrolytic rash, diarrhea

Answer: a

88. A patient with biochemically confirmed gastrinoma undergoes computed tomography for tumor localization. CT reveals a 2 cm mass in the head of the pancreas and multiple nodules within right and left lobes of the liver. Appropriate management includes which of the following?

a. Omeprazole administration
b. Radiotherapy
c.Pancreaticoduodenectomy
d. Proximal gastric vagotomy

Answer: a

89. The following statement(s) is/are true concerning the widely accepted French or Couinaud's nomenclature for liver anatomy.

a. The liver is divided into eight discrete segments based on portal pedicle branches and hepatic venous drainage
b. This anatomy is particularly useful in allowing less than lobar segmental anatomical resections that minimize blood loss and loss of hepatic reserve
c.Enumeration of the system begins from right to left
d. Segments II and III are synonymous with the left lateral segment based on English nomenclature

Answer: a, b, d

90. In the patient described above, which of the following are important operative steps in the performance of a right hepatic lobectomy?

a. The use of an ultrasonic dissector is essential for division of the hepatic parenchyma
b. If temporary portal inflow occlusion is used (Pringle maneuver), it is not necessary to reestablish blood flow during the course of the parenchymal division
c.The greater omentum may be used to buttress the transected liver edge
d. Control of the main right hepatic vein should eliminate all forms of venous drainage

Answer: c

91. Intraoperative ultrasound is now commonly used by the hepatic surgeon. Which of the following statement(s) is/are true concerning intraoperative ultrasound and hepatic surgery?

a. An intraoperative ultrasound offers no advantage to conventional transcorporial ultrasound in detection of hepatic lesions
b. Portal structures can be differentiated from hepatic veins by the extension of Glisson's capsule surrounding these structures
c.It is difficult on ultrasound to differentiate a vascular structure from a mass
d. The short hepatic veins are difficult to detect with intraoperative ultrasound

Answer: b

92. The following statement(s) is/are true concerning hepatic anatomical nomenclature.

a. In the traditional English system, the right lobe is divided into anterior and posterior segments by an intersegmental line with no topographic landmarks or interparenchymal septi
b. The caudate lobe in the French or Couinaud's nomenclature is referred to as segment I
c.The right lobe of the liver by English nomenclature is subdivided in the French system into segments V–VIII
d. In the English system, the left lobe of the liver is divided into the medial segment and lateral segment by the falciform ligament

Answer: a, b, c, d

93. A 57-year-old man with a history of Duke's C colon cancer is being evaluated for a rising CEA. Which of the following statement(s) is/are correct concerning the use of CT scanning for this indication?

a. Conventional CT scanning will detect lesions well below 1 cm in size
b. CT arterio-portography involves immediate CT scanning after direct injection into both the common hepatic artery and superior mesenteric artery
c.A double helical (spiral) CT scan may eliminate the need for invasive angiography

d. Magnetic resonance imaging of the liver will add little to the workup of this patient

Answer: b, c, d

94. A solitary 6 cm lesion is identified in the right hepatic lobe in the patient described above. Which of the following statement(s) is/are true concerning the initial operative management?

a. To facilitate mobilization and assessment with intraoperative ultrasound, complete mobilization including dividing the left and right triangular ligaments would be necessary

b. In dividing the right triangular ligament, care must be taken to avoid injury to accessory right hepatic veins draining directly into the vena cava

c.Unless a considerable length of hepatic vein is found outside the hepatic parenchyma, early hepatic vein ligation should be avoided

d. Ligation of the portal arterial structures is always necessary before proceeding with hepatic lobectomy

Answer: a, b, c

95. Which of the following statement(s) is/are true concerning the arterial venous anatomy of the liver?

a. Most commonly, the right, left, and middle hepatic veins join the inferior vena cava as a separate trunk

b. Most frequently, the entire length of each hepatic vein is within the parenchyma of the liver

c.A replaced right hepatic artery may be placed in jeopardy during performance of a pancreaticoduodenectomy

d. There is little collateral arterial circulation between the right and left hepatic lobes

Answer: b, c

96. The liver plays a vital role in carbohydrate metabolism and regulation of blood glucose. The following statement(s) is/are true concerning carbohydrate metabolism by the liver.

a. Glycogen, a complex polymer of glucose, is synthesized by the hepatocyte in a remarkably energy efficient process

b. Glucagon stimulates glycogenesis

c.Glycolysis, the process by which glucose is converted to two molecules of pyruvate, occurs in the liver mitochondria

d. If glycogen stores become depleted, the liver is capable of synthesizing new glucose by the process of gluconeogenesis, which is stimulated by insulin

Answer: a

97. Transport of substances from the blood into the hepatocyte occurs through the sinusoidal membrane. The following statement(s) is/are true concerning this plasma membrane.

a. The high lipid content of this phospholipid bilayer allows lipid-soluble molecules to enter the cell by simple diffusion

b. Carrier proteins within the phospholipid bilayer bind to a solute in blood and by conformational change allow it to be transported into the cell

c.Large glycoprotein molecules of the sinusoidal membrane known as receptors always transport the binding ligand into the cell

d. The transmission of a signal to the interior of the cell by receptor-ligand binding which generates intracellular second messengers is known as signal transduction

Answer: a, b, d

98. The liver is an important site of protein metabolism. Which of the following statement(s) is/are true concerning protein metabolism by the liver?

a. Amino acids are taken up by hepatocytes by active transport mechanisms and are generally stored long-term for later synthetic activity

b. Under certain conditions the amine group is removed from the amino acids in the liver and the carbon chain used for carbohydrate, lipid, or nonessential amino acid synthesis

c.The most important route of detoxification of ammonia formed as the result of deamination of amino acids is via excretion of ammonia into the urine

d. Proteins synthesized by the liver include albumin, transferrin, fibrinogen, and apolipoproteins

e. Albumin is a sensitive indicator of hepatic synthetic function

Answer: b, d

99. The following statement(s) is/are true concerning hepatic blood flow.

a. Although constituting only 2.5% of total body weight, the liver receives 25% of the cardiac output

b. Hepatic blood flow is equally derived from the portal vein and hepatic artery

c.The liver serves as a physiologic blood reservoir either releasing blood back into the systemic circulation at times of acute blood loss or in situations of volume overload serving as a site of extra blood storage

d. An important function of the liver is to filter particulate debris which is performed by phagocytic Kupffer cells which line the hepatic sinusoidal endothelium

Answer: a, c, d

100. The liver synthesizes key metabolites essential for the production of fuel substrates for other organs. These key metabolites include:

a. Glucose-6-phosphate (G6P)

b. Acetyl CoA

c.Pyruvate

d. Oxaloacetate

Answer: a, b, c

101. The following statement(s) concerning hepatic bile formation/secretion is/are true.

a. The adult human liver secretes less than 1000 cc of bile daily

b. Most bile is secreted by hepatocytes (canalicular bile)

c.Primary bile acids include cholic acid, chenodeoxycholic acid, and deoxycholic acid

d. The enterohepatic circulation is tremendously efficient in reabsorption of intestinal bile acids

e. Bile acids are the primary determinant of bile flow

Answer: b, d, e

102. The following statement(s) is/are true containing lipid metabolism in the liver.

a. Hepatic mitochondrial hydrolysis of fatty acids is a tremendous source of ATP

b. Significant hepatic storage of triglyceride or fatty infiltration can cause hepatic fibrosis or necrosis

c.Approximately 90% of cholesterol synthesis occurs in the liver

d. Most cells in the body are capable of phospholipid synthesis, therefore the liver plays a minimal role in this process

Answer: a, c

103. Hepatic biotransformation is defined as the intracellular metabolism of endogenous and exogenous organic compounds. Which of the following is/are enzyme families responsible for hepatic bile transformation?

a. Cytochromes P-450

b. UDB-glucuronyl transferases

c.Glutathione-transferases

d. Sulfotransferases

Answer: a, b, c, d

104. The following statement(s) is/are true concerning the differential diagnosis between an amoebic and a pyogenic liver abscess.

a. The clinical presentation is often clearly distinguishable

b. A history of travel or origin from a high risk area might suggest an amebic liver abscess

c.Routine liver chemistries frequently can distinguish pyogenic from amoebic liver abscess

d. Serologic testing for the presence of antibody to entamoeba histolyctica is the only specific and sensitive way to confirm the diagnosis of amoebic liver abscess

e. Distinguishing pyogenic from hepatic abscesses preoperatively is not important since surgical drainage is imperative for both

Answer: b, d

105. A patient is found to develop evidence of hepatitis approximately eight weeks after receiving blood transfusions during a surgical procedure. Which of the following statement(s) is/are true?

a. The virus responsible is most likely hepatitis C

b. A chronic carrier state will ultimately develop in most patients

c.There is no role for interferon in the treatment of chronic hepatitis C viral infection

d. Chronic infection with hepatitis C is not associated with an increased risk of developing hepatocellular carcinoma

Answer: a, b

106. A surgeon is suspected of having contacted hepatitis B virus via needle stick. Which of the following statement(s) is/are true concerning his diagnosis and outcome?

a. Incubation of hepatitis B virus is about two weeks

b. Jaundice is the first serologic indicator of hepatitis B infection

c.The patient has about a 10% chance of developing a chronic carrier state

d. All susceptible household or sexual contacts of the surgeon should receive hepatitis B viral vaccine

e. The surgeon should receive hepatitis B immunoglobulin as soon as possible after the ***accidental needle stick***

Answer: c, d, e

107. The following statement(s) is/are true concerning the diagnosis and treatment of hydatid cysts.

a. Percutaneous aspiration is an important aspect of diagnosis and treatment of a hydatid cyst

b. CT scan will oftentimes show the classic findings of a cystic liver lesion with a calcific rim

c.At operation, care must be taken to protect the operative field from spillage of the cyst fluid

d. The use of a scoleocide has become obsolete with current surgical techniques

Answer: b, c

108. Which of the following statement(s) is/are true concerning treatment of pyogenic liver abscess?

a. Antibiotic therapy alone may be advisable in patients with multiple small abscesses

b. Percutaneous drainage provides comparable results to surgical drainage in patients with unilocular large abscesses

c.Sufficient antibiotic coverage for most hepatic abscesses includes coverage for gram-positive aerobic bacteria only

d. In patients with a primary biliary origin for the hepatic abscess, treatment must also be addressed at underlying biliary pathology such as choledocholithiasis or biliary ductal obstruction

Answer: a, b, d

109. Which of the following statement(s) is/are true concerning acute, fulminant hepatic failure?

a. The most frequent cause of acute hepatic failure world-wide is hepatitis B infection

b. Higher grades of encephalopathy are associated with a worse prognosis

c.Hypoglycemia is a common complication of all liver diseases

d. Liver transplantation would appear indicated in all patients with hepatic coma secondary to acute liver failure

Answer: b

110. Which of the following statement(s) is/are true concerning the natural history and clinical features of alcoholic cirrhosis?

a. In patients with compensated cirrhosis, the probability of survival at 10 years approaches 50%

b. The development of clinical evidence of hepatic decompensation reduces five year survival to less than 20%

c.Continued consumption of alcohol worsens prognosis

d. The risk of death after variceal hemorrhage depends more on the severity of underlying liver disease than the type of therapy

Answer: a, b, c, d

111. Which of the following statement(s) is/are true concerning the morphologic and histologic findings of cirrhosis?

a. Micronodular cirrhosis is a pattern typical of chronic alcoholic liver disease

b. Mallory bodies and megamitochondria are typical findings of alcoholic cirrhosis

c.Bile leaks caused by rupture of bile ducts with extravasation of bile into portal triads is a common finding in post-necrotic cirrhosis secondary to hepatitis

d. Large regenerating nodules separated by coarse irregular scars in piecemeal parenchyma necrosis is common in liver disease secondary to chronic active hepatitis

Answer: a, b, d

112. The following statement(s) is/are true concerning the management of ascites associated with chronic liver disease.

a. Spontaneous bacterial peritonitis is an insignificant complication

b. Large volume paracentesis is unsafe due to excessive volume loss from the intervascular space

c.Peritoneovenous shunting is a trivial surgical procedure with minimal perioperative morbidity and mortality

d. Transjugular intrahepatic portosystemic shunts (TIPS) can effectively treat ascites in patients refractory to conventional medical therapy

Answer: d

113. Which of these statement(s) is/are true concerning the etiologic factors in the development of cirrhosis?

a. Viral hepatitis of any type (A, B, or non-A, non-B) can all progress to cirrhosis

b. Acetaminophen can cause acute liver failure and necrosis but will not lead to cirrhosis

c.Alcohol exerts toxic effects on the liver via reactive intermediates such as acetaldehyde

d. Long-standing congestive heart failure can lead to cirrhosis secondary to centrilobular congestion, hemorrhage, and necrosis

Answer: c, d

114. Important spontaneous portosystemic collaterals which develop in the face of portal hypertension include:

a. The hemorrhoidal veins

b. Left renal vein

c.The paraumbilical venous plexus

d. The coronary, short gastric, and paraesophageal veins

Answer: a, b, c, d

115. Which of the following statement(s) is/are true concerning the pathophysiology of variceal hemorrhage?

a. All patients with portal hypertension will develop esophageal varices

b. All patients with esophageal varices eventually bleed

c.Variceal size can predict the incidence of variceal hemorrhage

d. Control of acid secretion by H2 blockade can decrease the incidence of rebleeding after esophageal hemorrhage

e. None of the above

Answer: e

Answer: c

116. Hepatic encephalopathy is a common systemic manifestation of chronic liver disease. Which of the following statement(s) is/are true concerning this condition?

a. Blood ammonia levels correlate well with the stage of hepatic encephalopathy

b. Alterations in central nervous system neurotransmitters such as the neurotransmitter g-aminobutyric acid (GABA) have been proposed in the pathogenesis of hepatic encephalopathy

c.Lactulose can be used to decrease intestinal ammonia absorption

d. Patients can be expected to have an increased sensitivity to benzodiazepines

Answer: b, c, d

117. Which of the following statement(s) is/are true concerning the management of gastroesophageal variceal hemorrhage?

a. Vasopressin decreases portal pressure through the process of splanchnic vasoconstriction

b. Somatostatin is as effective as vasopressin but without the cardiac side effects

c.Balloon tamponade provides good long-term control of bleeding esophageal varices

d. Endoscopic sclerotherapy is more effective than conservative medical therapy in the treatment of bleeding esophageal varices

e. Sclerotherapy, although excellent for the control of bleeding short-term, does not prolong overall survival

Answer: a, b, d

118. Which of the following statement(s) is/are true concerning the surgical management of bleeding esophageal varices.

a. A side-to-side portacaval shunt may be associated with the development of hepatofugal blood flow

b. Selective shunts preserve prograde (hepatopedal) blood flow while decompressing esophageal varices or reducing portal pressure

c.The presence of intractable ascites is a contraindication to the Warren shunt

d. If the patient is considered a liver transplant patient, an interposition mesocaval shunt is a suitable alternative

Answer: a, b, c, d

119. Which of the following statement(s) is/are true concerning the results of portosystemic shunting?

a. When comparing shunts with nonshunting procedures, only minor differences in long-term survival are reported, but the mode of death usually changes

b. Distal splenorenal shunts are associated with the development of less hepatic encephalopathy

c.Survival statistics following distal splenorenal shunt in good risk patients (Child's Class A) are in excess of 80%

d. None of the above

Answer: a, b, c

120. Which of the following statement(s) is/are true concerning radiologic examinations used for the assessment of hepatic neoplasms?

a. Magnetic resonance imaging is considered the test of choice for distinguishing hemangiomas from other mass lesions

b. Dynamic CT scanning is the dominant imaging modality for routine screening and diagnosis

c.Radionucleotide imaging plays an important role in modern screening and detection for liver lesions

d. CT angio-portography (CTAP) is the gold standard for early detection of metastatic hepatic lesions

Answer: a, b, d

121. A 45-year-old woman undergoes an ultrasound because of vague right upper quadrant pain and epigastric fullness. A 7 cm cystic lesion is detected. Which of the following statement(s) is/are true concerning the patient's diagnosis and management?

a. Simple aspiration is indicated for treatment and diagnosis

b. Bile stained fluid suggests underlying biliary pathology

c.The cyst is likely lined by cuboidal epithelium

d. Laparoscopic unroofing of the cyst can provide satisfactory treatment

Answer: c, d

122. Which of the following statement(s) is/are true concerning biopsy techniques for hepatic masses?

a. A fine needle aspiration (FNA for cytology is contraindicated for patients with hypervascular masses)

b. Percutaneous biopsy should be performed only if results may obviate the need for exploratory laparotomy

c.Needle track seeding of tumor is not a risk associated with percutaneous biopsy

d. Laparoscopy and biopsy play little role in the management of liver lesions

Answer: b

123. A 55-year-old woman presents with vague right upper quadrant pain and a palpable liver. Laboratory tests are normal and a noncontrast CT scan (patient has a history of contrast allergy) reveals an 8 cm right hepatic mass. Which of the following statement(s) is/are correct concerning the patient's diagnosis and management.

a. A gadilinium-enhanced MRI would be indicated to define the extent of the lesion and confirm the diagnosis of hemangioma

b. A fine needle aspiration should be performed regardless of radiographic workup

c.Hepatic embolization is the treatment of choice

d. The lesion should be resected because of concern for malignant degeneration

Answer: a

124. Which of the following statement(s) is/are true concerning the pathogenesis of hepatocelluar carcinoma?

a. Hepatocellular carcinoma is associated with infection with hepatitis A, hepatitis B, and hepatitis C

b. The risk of developing hepatocellular carcinoma related to hepatitis B viral infection is related to the chronicity of the infection

c.Hepatocellular carcinoma only develops in cirrhosis associated with hepatitis

d. Alfatoxin B1 is a potent carcinogen in the development of hepatocellular carcinoma

Answer: b, d

125. A 38-year-old woman with a 17 year history of oral contraceptive use presents with right upper quadrant pain. A CT scan demonstrates a 4 cm lesion in the right lobe of the liver. Which of the following statement(s) is/are true concerning the patient's diagnosis and management?

a. The lesion is likely premalignant

b. A 99mTc sulfur colloid scan will distinguish this benign lesion from a malignant hepatoma

c.The lesion, although benign, may be associated with life-threatening hemorrhage

d. The lesion would be expected to be hypervascular on angiographic study

Answer: c, d

126. Which of the following statement(s) is/are true concerning focal nodular hyperplasia (FNH)?

a. The lesion predominantly affects young women

b. The lesion is associated with the use of oral contraceptives and other estrogens

c.Radionucleotide scanning can be useful in the specific diagnosis of FNH

d. Excisional biopsy is indicated in almost all cases because of the risk of bleeding

Answer: a, c

127. Which of the following statement(s) is/are true concerning the prognosis of patients with hepatic metastases and colorectal carcinoma?

a. Over half of these patients will survive one year without treatment

b. Five year survivals following hepatic resection for an isolated metastasis is in excess of 25%

c.Survival beyond five years after resection suggests a high probability of cure

d. Survival rates are improved with a margin of resection greater than 1 cm

e. The size of a liver metastasis is not a significant factor in predicting recurrence if adequate margins can be obtained

Answer: b, c, d, e

128. Which of the following statement(s) is/are true concerning the treatment and prognosis of hepatocellular carcinoma?

a. The fibrolamellar variant of hepatocellular carcinoma has a distinctly better prognosis than other forms of the disease

b. Patients with untreated hepatocellular carcinoma rarely survive a year

c.Multiagent chemotherapy is extremely effective in hepatocellular carcinoma and should be considered for the treatment for most patients

d. Hepatic artery ligation or embolization has been demonstrated to be highly effective for hepatocellular carcinoma

Answer: a, b

129. The following statement(s) is/are true concerning the relationship of the biliary tree and the hepatic artery and portal vein.

a. The common hepatic and common bile duct lie immediately anterior to the portal vein

b. The cystic artery, which usually arises from the right hepatic artery, crosses behind the hepatic duct in most cases

c.A replaced right hepatic artery arising from the superior mesenteric artery system will run to the right of the common bile duct

d. The arterial supply of the extrahepatic biliary ducts is derived from major trunks running along the medial and lateral walls of the common duct at the 3 o'clock and 9 o'clock position

Answer: a, b, c, d

130. An understanding of the anatomy of the extrahepatic biliary tree is essential in performing biliary tract surgery. Which of the following statement(s) is/are true concerning biliary ductal anatomy?

a. The majority of patients have the "classic" anatomical description
b. The common hepatic duct unites with the cystic duct to form the common bile duct
c. An accessory right hepatic duct occurs in 5% of patients
d. A common channel or "Y" configuration of the distal bile duct and pancreatic ducts occur in approximately 70% of patients

Answer: b, c, d

131. A 35-year-old female presents with typical biliary colic symptoms, however her sonogram shows no gallstones. Which of the following statement(s) is/are true concerning her diagnoses?

a. Chronic acalculous cholecystitis or gallbladder dyskinesia is seldom associated with classic biliary colic symptoms
b. The most specific test for diagnosing gallbladder dyskinesia is CCK-enhanced cholescintigraphy with assessment of gallbladder ejection fraction
c. An ejection fraction greater than 75% is considered abnormal and indicative of gallbladder dyskinesia
d. Cholecystectomy is not indicated for chronic acalculous cholecystitis

Answer: b

132. The following statement(s) is/are true concerning the embryology of the biliary tree.

a. The primordial anlagen of the liver and biliary tract arises from the entoderm
b. Superior and inferior caudal buds form as the hepatic diverticulum develops
c. The development of the liver is a separate process from that of the gallbladder and distal biliary tree
d. The biliary tree develops in association with the dorsal pancreas

Answer: a, b

133. The following statement(s) is/are true concerning biliary motor function.

a. The contracted sphincter of Oddi impairs bile flow into the duodenum and directs it into the gallbladder
b. In the postprandial state about 70% of hepatic bile flows into the gallbladder before reaching the duodenum
c. During the interdigestive period, only a small fraction of gallbladder bile enters the duodenum
d. Gallbladder emptying during fasting is associated with phase III of the interdigestive migrating motor complex (MMC)
e. After a meal, the gallbladder empties by a steady tonic contraction thought to be due to release of endogenous motilin from the mucosa of the small intestine

Answer: a, b, c

134. The following statement(s) is/are true concerning the anatomy of the gallbladder.

a. The gallbladder lies between the right, left, and quadrate hepatic lobes or hepatic segments IV and V
b. The cystic duct contains the spiral valve of Heister which serves an important valvular function for the gallbladder
c. The cystic artery arises from the right hepatic artery in 95% of cases
d. The cystic artery crosses anterior to the hepatic duct in the majority of cases

Answer: a, c

135. The gallbladder plays an important role in altering bile composition by absorption and secretion. Which of the following statement(s) is/are true concerning this mucosal function?

a. The absorption of water by the gallbladder can result in concentration of the solute components of bile from 2-to 10-fold
b. Gallbladder mucosal absorption can occur by both active and passive mechanisms
c. Cyclic adenosine monophosphate (cAMP) stimulates NaCl-coupled transport and may also influence tight junction permeability
d. Secretory products of the gallbladder include bicarbonate and glycoproteins

Answer: a, b, d

136. Abnormalities of the sphincter of Oddi have been recently recognized to cause symptoms which are referable to the biliary tree or pancreas. The following statement(s) is/are true concerning sphincter of Oddi motor function.

a. The sphincter's basal resting pressure is 10 to 15 mm Hg above duodenal pressure
b. Contraction of the sphincter occurs with CCK stimulation
c. Vagal stimulation results in relaxation of the sphincter
d. Manometry of the sphincter of Oddi may be performed at the time of ERCP to characterize basal pressure, amplitude, frequency of contraction, and direction of propagation of contractile waves
e. Stenosis of the sphincter of Oddi is characterized by abnormally elevated basal pressure on sphincter of Oddi manometrics

Answer: a, c, d, e

137. A 32-year-old woman with symptomatic gallstones wishes to discuss nonsurgical options for her gallstones. Which of the following statement(s) are true?

a. The best commercially available oral dissolution agent, ursodeoxycholic acid, is associated with a complete dissolution rate of less than 50%
b. If the gallstones dissolve, there is minimal risk of gallstone recurrence
c. Contact dissolution is applicable regardless of stone type
d. Extracorporial shock wave lithotripsy (ESWL) in combination with oral dissolution agents is an appropriate technique for most patients and can result in complete stone fragment clearance in over 90% of patients by one year

Answer: a

138. A 48-year-old woman presents with several hours of acute right upper quadrant pain, low grade fever, and nausea and vomiting. Which of the following statement(s) is/are true concerning her diagnosis and management?

a. A mild elevation of her bilirubin (< 3 mg/dl) would strongly suggest a common bile duct stone
b. A positive bile culture can be expected in virtually 100% of patients with this scenario
c. Laparoscopic cholecystectomy is clearly contraindicated
d. Appropriate antibiotic coverage should include coverage for gram-negative aerobes

Answer: d

139. Laparoscopic cholecystectomy has become the procedure of choice for the management of symptomatic gallstones. Which of the following statement(s) is/are true concerning laparoscopic cholecystectomy?

a. Injury to biliary tree occurs more frequently with laparoscopic cholecystectomy than open cholecystectomy
b. Laparoscopic cholecystectomy is contraindicated in patients with acute cholecystitis
c. Bile duct injuries are more likely to occur during the surgeon's early operative experience with the procedure
d. Previous upper abdominal surgery is an absolute contraindication to laparoscopic cholecystectomy

Answer: a, c

140. Which of the following statement(s) is/are true concerning gallstone ileus?

a. The diagnosis may be suggested by plain abdominal radiograph
b. Primary surgical management consists of relief of obstruction and cholecystectomy
c. Gallstone ileus accounts for less than 5% of all causes of intestinal obstruction
d. Typical patients are elderly with long-standing gallstone disease

Answer: a, c, d

141. The pathogenesis of cholesterol gallstones is multifactorial. A number of key processes, however, appear to interact closely in the formation of cholesterol gallstones. These include:

a. Cholesterol supersaturation
b. Gallbladder stasis
c. Accelerated nucleation
d. High bilirubin concentration

Answer: a, b, c

142. Which of the following statement(s). is/are true concerning the diagnosis of biliary tract disease?

a. Nonvisualization of the gallbladder on oral cholecystogram is diagnostic of biliary calculous disease

b. Ultrasonography has a diagnostic accuracy and sensitivity for cholelithiasis in excess of 95%

c.Ultrasonography is the preferred test to distinguish chronic from acute cholecystitis

d. Hepatobiliary scintigraphy is primarily indicated to confirm the clinical diagnosis of acute cholecystitis

Answer: b, d

143. Which of the following statement(s) is/are true concerning the solubilization of cholesterol in bile?

a. Cholesterol is highly soluble in both serum and bile

b. Mixed micelles are the primary transport mechanism for biliary cholesterol

c.Most cholesterol found in bile is the result of excretion from serum

d. Biliary vesicles are composed primarily of biliary phospholipid

Answer: d

144. Appropriate options for management of common bile duct stones identified at laparoscopic cholecystectomy include:

a. Conversion to open cholecystectomy and common duct exploration

b. Transcystic duct dilatation and exploration

c.Laparoscopic choledochotomy

d. Complete the laparoscopic cholecystectomy with postoperative ERCP and stone removal

Answer: a, b, d

145. Risk factors associated with development of gallstones include:

a. Increasing age

b. Obesity

c.Rapid weight loss

d. Cirrhosis

e. Diabetes mellitus

Answer: a, b, c, d, e

146. Which of the following statement(s) is/are true concerning a 35-year-old woman found to have asymptomatic gallstones?

a. The patient should undergo attempts at medical dissolution

b. Cholecystectomy should only be performed if the laparoscopic technique is an available option

c.The patient has less than 10% chance of developing significant symptoms over the next five years

d. The risk of gallbladder cancer with stones detected at such a young age, warrants cholecystectomy

Answer: c

147. In which of the following clinical situations is pigment rather than cholesterol gallstones a more common problem?

a. Alcoholic cirrhosis

b. Morbid obesity

c. Diabetes mellitus

d. Hereditary spherocytosis

e. Biliary tract infection

Answer: a, d, e

148. The following statement(s) is/are true concerning the mode of spread of gallbladder cancer.

a. The most common mode of spread for gallbladder cancer is to the liver by hematogenous spread

b. Lymphatic drainage of the gallbladder can extend from the cystic duct lymph node to periportal lymph nodes and the celiac and superior mesenteric lymph nodes

c.Gallbladder cancers rarely extend past the cystic duct

d. Direct extension to the liver, particularly liver segments IV and V, is the most common mode of spread for gallbladder cancer

e. Most patients with gallbladder cancer present with a very limited extent of disease

Answer: b, d

149. A 55-year-old woman undergoes cholecystectomy for symptomatic gallstones. The final pathology returns one week after the operation showing gallbladder carcinoma. Which of the following statement(s) is/are true concerning this patient's prognosis and management?

a. If the gallbladder carcinoma is limited to the mucosa and/or submucosa, cholecystectomy alone is adequate treatment

b. If the carcinoma involves deeper layers of the gallbladder wall, the prognosis will be significantly worse

c.If reoperation is performed, the chance of finding residual disease will be low

d. If a full thickness tumor had been recognized at the time of cholecystectomy, an "extended cholecystectomy" may have been appropriate

Answer: a, b, d

150. Gallbladder cancer accounts for 3% to 4% of all gastrointestinal tumors. Which of the following statement(s) is/are true concerning the incidence of gallbladder cancer?

a. Gallbladder cancer is much more frequent in men

b. Southwest Native Americans, Alaskans, Mexicans, and Hispanics have a greater incidence of gallbladder cancer than the general population

c.The majority of patients with gallbladder cancer have gallstones

d. The association of gallstones with gallbladder cancer is greater in patients with multiple small stones

Answer: b, c

151. The following statement(s) is/are true concerning the prognosis for gallbladder cancer.

a. Average survival is in the range of one year

b. Five year survival rates approach 50%

c.The combination of postoperative adjuvant radiation and chemotherapy have been associated with overall improved survival

d. For most patients, the goal of treatment is palliation

Answer: d

152. Which of the following statement(s) is/are true concerning gallbladder polyps?

a. Sonographic findings of a gallbladder polyp include a filling defect which does not move with change in position

b. Benign gallbladder polyps can cause symptoms similar to those caused by gallstones

c.Ultrasonography can readily distinguish benign from malignant gallbladder lesions

d. An asymptomatic gallbladder polyp 1 cm in size can usually be followed with serial ultrasounds and does not require cholecystectomy

Answer: a, b

153. The following statement(s) is/are true concerning the surgical therapy of cholangiocarcinomas.

a. A resectable distal bile duct carcinoma is best treated by a Whipple procedure

b. Klatskin tumors may require hepatic resection in attempt for potential cure

c.Regardless of the surgical resection for proximal biliary tumors, stenting of the biliary anastomosis is important

d. Complete hepatic resection with hepatic transplantation has been associated with overall good results

Answer: a, b, c

154. The following statement(s) is/are true concerning carcinoma of the bile ducts.

a. Carcinoma of the bile ducts is more common than gallbladder carcinoma

b. Similar to gallbladder cancer, bile duct cancer is more common in females

c.Unlike gallbladder cancer, there is no association of bile duct cancer and gallstones

d. Ulcerative colitis is associated with an increased incidence of bile duct cancer

e. Choledochal cysts may be associated with the development of bile duct cancer

Answer: d, e

155. Which of the following statement(s) is/are true concerning the association of gallstones with gallbladder cancer?

a. The association of gallbladder cancer with gallstones is such that young patients with asymptomatic gallstones should undergo routine cholecystectomy

b. Calcification of the wall of the gallbladder is associated with an increased incidence of gallbladder cancer

c.Larger gallstones are associated with a greater risk of gallbladder cancer than smaller gallstones

d. The 20 year risk of developing gallbladder carcinoma in patients in the general population with gallstones is approximately 1%

Answer: b, c

156. Benign gallbladder and bile duct tumors are extremely rare. Which of the following statement(s) is/are true concerning benign biliary tumors?

a. Cholesterol polyps are due to foamy macrophages filled with cholesterol

b. Inflammatory polyps and cholesterol polyps are not considered to be premalignant

c.Gallbladder adenomas, like adenomas in other gastrointestinal organs, are considered premalignant

d. Most gallbladder adenomas are associated with gallstones

e. An adenomyoma is a mucosal lesion of the gallbladder not considered to be premalignant

Answer: a, b, c

157. Which of the following statement(s) concerning bile duct strictures due to chronic pancreatitis is/are true?

a. Most patients present with progressive jaundice

b. Strictures are classically long and tapered involving the entire intrapancreatic bile duct

c.Patients may be asymptomatic and diagnosed only by persistent elevation of serum alkaline phosphatase

d. An excellent option for surgical management is choledochoduodenostomy

Answer: b, c, d

158. If a bile duct injury is suspected at laparoscopic cholecystectomy, appropriate management includes which of the following?

a. Conversion to open cholecystectomy and intraoperative cholangiography

b. Small ducts (< 3 mm) demonstrated by cholangiography to drain a single liver segment can be ligated

c.If the injured segment is greater than 1 cm. in length an end-to-end ductal anastomosis is the procedure of choice

d. Postoperative external drainage should be avoided

Answer: a, b

159. Which of the following statement(s) is/are true concerning the incidence of bile duct injury following cholecystectomy?

a. Data from the pre-laparoscopic cholecystectomy era would suggest the incidence of bile duct injury during open cholecystectomy to be 0.1–0.2%

b. The current incidence of bile duct injury during laparoscopic cholecystectomy is greater than 1%

c.The experience of the surgeon performing laparoscopic cholecystectomy can be correlated with the incidence of bile duct injury

d. Intraoperative cholangiography during laparoscopic cholecystectomy will prevent bile duct injury in virtually all cases

Answer: a, c

160. Primary sclerosing cholangitis has a number of treatment options—both medical and surgical. Which of the following statement(s) is/are true?

a. A number of immunosuppressive oral agents can provide specific effective treatment for primary sclerosing cholangitis

b. Biliary reconstruction with long-term transanastomotic stents can be useful in selected patients with focal strictures at the hepatic duct bifurcation

c.Biliary reconstruction should be reserved only for patients with established biliary cirrhosis

d. Hepatic transplantation for primary sclerosing cholangitis can be associated with survival rates similar to other indications for transplantation

Answer: b, d

161. The following statement(s) regarding the elective repair of a bile duct stricture is/are true:

a. A transanastomotic stent is necessary for a successful result

b. Long-term stenting for approximately one year is necessary for an anastomosis performed at the distal common hepatic duct

c.A Roux-en-Y hepaticojejunostomy provides the best route for restoring biliary-enteric continuity

d. Preoperatively-placed biliary catheters facilitate dissection and identification of the stricture and are useful in placement of transanastomotic stents when employed

Answer: c, d

162. The vast majority of benign bile duct strictures occur following operations in or near the right upper quadrant. Other causes of benign bile duct strictures include:

a. Chronic pancreatitis

b. Ulcerative colitis

c.Primary sclerosing cholangitis

d. Intrahepatic arterial infusion of 5-fluorouracil

Answer: a, c, d

163. A 37-year-old female presents with obstructive jaundice due to a mid-bile duct stricture four months after laparoscopic cholecystectomy. Which of the following statement(s) are true:

a. Surgical reconstruction is the only option for management of this patient

b. Excellent long-term results can be expected in approximately 80% of patients following surgical biliary reconstruction

c.One year follow-up after successful repair is satisfactory regardless of the method of management

d. Surgical reconstruction offers a better chance of long-term success than either percutaneous or endoscopic dilatation

Answer: b, d

164. Most patients with postoperative bile duct strictures after cholecystectomy present early after their initial operation. Patients may present in which of the following manner(s)?

a. Obstructive jaundice

b. An external biliary fistula

c.Progressive accumulation of bile in the peritoneal cavity (bile ascites)

d. Biliary cirrhosis

Answer: a, b, c

165. Nonoperative dilatation, performed either endoscopically or percutaneously, can be successfully employed in which of the following etiologies of bile duct strictures?

a. Postoperative bile duct strictures following a hepaticojejunostomy used for reconstruction during a Whipple procedure

b. Complete transection of the bile duct during laparoscopic cholecystectomy (the so-called "classic laparoscopic cholecystectomy injury")

c.Primary sclerosing cholangitis

d. Oriental cholangiohepatitis

Answer: a, c

166. The management of a suspected bile duct injury depends on a number of factors, most importantly the mode and timing of presentation. Which of the following statement(s) is/are true concerning a patient presenting with a suspected bile leak after laparoscopic cholecystectomy?

a. Laparotomy should be performed immediately

b. Cholangiography should be performed to determine the nature of the injury

c. Operatively-placed drains should be removed to allow the fistula to close

d. The patient should be discharged to home to allow the leak to close spontaneously

Answer: b

SPLEEN

1. As the functional anatomy of the spleen is divided into red pulp, white pulp, and marginal zone, what function is incorporated into the anatomy of the cortical zone that relates to infection control?
A. Filtration of red cells, encapsulated bacteria, and other foreign material.
B. Red pulp for formation of red cells.
C. White pulp for its role in formation of granulocytes.
D. Gray areas, so formed because of the production of platelets.
E. Fibrous trabeculae.
Answer: A

2. During the evolution of the understanding of hematologic diseases, the indications for splenectomy have changed. The most common indications for splenectomy are, in descending order of frequency:
A. Traumatic injury, immune thrombocytopenia, hypersplenism.
B. Immune thrombocytopenic purpura, traumatic injury, hypersplenism.
C. Hypersplenism, traumatic injury, immune thrombocytopenia.
D. Immune thrombocytopenia, hypersplenism, traumatic injury.
E. None of the above.
Answer: A

3. Useful methods for detection of splenic injury, in descending order of sensitivity, are:
A. Diagnostic peritoneal lavage.
B. CT.
C. Ultrasonography.
D. Isotope scan.
E. Magnetic resonance imaging (MRI).
Answer: B

4. The following statements about splenosis are correct:
A. Autotransplantation of splenic tissue is an etiology.
B. May protect against OPSS.
C. May over time be "born again" and regain some immune function.
D. May produce tuftsin and properdin.
E. All of the above.
Answer: E

5. The following comments about immune thrombocytopenic purpura (ITP) are accurate:
A. Platelet count is low.
B. Circulating antiplatelet factor is present.
C. Antiplatelet factor is immunoglobulin G (IgG) antibody.
D. Purpura is directed against a platelet-associated antigen.
E. May be fatal.
F. All of the above.
Answer: A

6. ITP:
A. Is most common in men in their 20s.
B. Is frequently cured in adults by corticosteroid administration.
C. Usually requires splenectomy in children.
D. Is most common in the sixth decade of life.
E. Is in remission in more than 80% of patients with splenectomy.
Answer: E

7. Splenectomy and perioperative therapy for ITP:
A. Follow successful steroid therapy.
B. Respond permanently to high-dose intravenous gamma globulin.

C. Are best preceded by polyvalent vaccines for Pneumococcus, Haemophilus influenzae, and Neisseria meningitidis.
D. Cannot be done laparoscopically.
E. Are associated with splenomegaly.
Answer: C

8. Thrombotic thrombocytopenic purpura (TTP) is a syndrome characterized by all of the following except:
A. Thrombocytopenia.
B. Microangiopathic hemolytic anemia.
C. Deposition of platelet microthrombi.
D. Fluctuating neurologic abnormalities.
E. Renal failure.
F. Afebrile.
Answer: F

9. Which of the following comments does not describe hypersplenism?
A. It may occur without underlying disease identification.
B. It may be secondary to many hematologic illnesses.
C. It is associated with work hypertrophy from immune response.
D. It requires evaluation of the myeloproliferation.
E. It is associated with antibodies against platelets.
Answer: E

10. Hyposplenism is a potentially lethal syndrome. Which of the following statements is incorrect?
A. It is confirmed by isotope scan.
B. It is always associated with an atrophic spleen.
C. It may be associated with overwhelming post-splenectomy sepsis syndrome (OPSS).
D. It is associated with thyrotoxicosis, corticosteroid administration, and some contrast agents.
E. It may be associated with ulcerative colitis or sickle cell anemia.
Answer: B

11. Hodgkin's disease is a malignant lymphoma with four histologic subtypes. Which of the following is not one of the subtypes?
A. Lymphocyte predominance.
B. Nodular sclerosis.
C. Mixed cellularity.
D. Lymphocyte depletion.
E. Leukocyte-lymphocyte dominance.
Answer: E

12. Which of the following statements about lymphatic capillaries are true?
A. These vessels have delicate tricuspid valves every 2 to 3 mm.
B. Lymphatic capillaries are more permeable than blood capillaries.
C. Lymphatic capillaries are less permeable than blood capillaries.
D. Lymphatic capillaries contain gaps large enough to admit particles as large as lymphocytes.
Answer: CD

13. Which of the following forces do not promote the formation of interstitial fluid?
A. Increased venous pressure.
B. Constrictive pericarditis.
C. Hypernatremia.
D. Hypoproteinemia.
Answer: C

14. The most frequent cause of primary lymphedema is:
A. A deficiency of transporting lymphatic channels.
B. Valvular incompetence in lymphatic channels.
C. Obstruction or removal of regional lymph nodes.
D. Thrombosis of lymphatic channels.
Answer: A

15. Most patients with lymphedema can be managed by:
A. Pedicle transfer of lymphatic bearing tissue into the affected area.

B. Elevation, elastic support garments, and massage therapy or mechanical pneumatic compression.
C. Lymphatic bypass using an autogenous vein graft.
D. Excision of hypertrophic scarred fibrotic skin and subcutaneous tissue down to muscle fascia and coverage with split-thickness skin grafts.
Answer: B

16. Which statements about lymphangiomas are true?
A. Most lesions appear during puberty.
B. These lesions frequently respond to small doses of radiation therapy.
C. The lesions usually grow slowly but may infiltrate local tissues.
D. Malignant transformation is frequent.
Answer: C

17. The two primary causes of death from sickle cell disease in the first decade of life are which of the following?
a. Sepsis
b. Splenic sequestration crisis
c. Acute chest syndrome
d. Heart failure
Answer: a, b

18. The best therapy for a patient with thrombotic thrombocytopenic purpura is which of the following:
a. Plasmapheresis
b. Corticosteroids
c. Splenectomy
d. Intravenous immune globulin
Answer: a

19. Which of the following statements regarding post splenectomy sepsis are true?
a. The incidence in children is generally reported as less than 5%
b. Haemophilus influenzae, Streptococcus pneumoniae and Neiseria meningitidis are the most common causative organisms
c. Autotransplantation techniques eliminate this risk
d. The mortality rate is now approximately 50%
e. The incidence in adults in approximately 1%
Answer: a, b, d, e

20. You are consulted regarding a 50-year old male with Laennec's cirrhosis, portal hypertension and hypersplenism. He has no history of gastrointestinal bleeding. You would recommend which of the following?
a. Splenectomy
b. Prophylactic sclerotherapy for esophageal varices
c. Portosystemic shunt
d. Observation
Answer: d

21. Glucose-6-phosphate dehydrogenase (G6PD) deficiency is an abnormality of erythrocyte metabolism associated with hemolytic anemia. Pharmocologic agents which induce hemolysis include which of the following?
a. Acetylsalicylic acid
b. Vitamin E
c. Sulfamethoxazole
d. Desferrioxamine
e. Nitrofurantoin
Answer: a, c, e

22. Hypersplenism is associated with which of the following diseases?
a. Portal hypertension
b. Lymphoma

c. Mononucleosis
d. Systemic lupus erythematosus
e. Gaucher disease

Answer: a, b, c, d, e

23. A 40-year old woman with chronic immune thrombocytopenic purpura (ITP) is refractory to corticosteroids. The approximate likelihood she will benefit from a splenectomy is approximately which of the following?

a. Less than 20%
b. 40%
c. 60%
d. 80%

Answer: c

24. Which of the following statements regarding splenic function in humans are true?

a. The specific immune function of the spleen is principally related to its antigen processing role
b. The spleen is the major site of synthesis of complement pathway proteins
c. The spleen is more efficient than the liver at removing bacteria with a high density of surface opsonins
d. The spleen serves as a principal source of nonspecific opsonins

Answer: a, d

UROLOGY

1. The most ominous sign or symptom of urinary system disease is:

A. Urinary frequency.
B. Pyuria.
C. Pneumaturia.
D. Dysuria.
E. Hematuria.

Answer: E

2. A patient with acute urinary tract infection (UTI) usually presents with:

A. Chills and fever.
B. Flank pain.
C. Nausea and vomiting.
D. 5 to 10 white blood cells per high-power field (hpf) in the uncentrifuged urine specimen.
E. Painful urination.

Answer: E

3. Renal adenocarcinomas:

A. Are of transitional cell origin.
B. Usually are associated with anemia.
C. Are difficult to diagnose.
D. Are extremely radiosensitive.
E. Frequently are signaled by gross hematuria.

Answer: E

4. Ureteral obstruction:

A. Is associated with hematuria.
B. Is associated with deterioration of renal function and rising blood urea nitrogen (BUN) and creatinine values.
C. Is commonly caused by a urinary tract calculus.
D. Usually requires open surgical relief of the obstruction.
E. Is usually associated with infection behind the obstruction.

Answer: C

5. Stress urinary incontinence:
A. Is principally a disease of young females.
B. Occurs only in males.
C. Is associated with urinary frequency and urgency.
D. May be corrected by surgically increasing the volume of the bladder.
E. Is a disease of aging produced by shortening of the urethra.
Answer: E

6. Which of the following is/are true of blunt renal trauma?
A. Blunt renal trauma and penetrating renal injuries are managed similarly.
B. Blunt renal trauma with urinary extravasation always requires surgical exploration.
C. Blunt renal trauma must be evaluated by contrast studies using either IVP or CT.
D. Blunt renal trauma requires exploration only when the patient exhibits hemodynamic instability.
E. Any kidney fractured by blunt renal trauma must be explored.
Answer: D

7. Carcinoma of the bladder:
A. Is primarily of squamous cell origin.
B. Is preferentially treated by radiation.
C. May be treated conservatively by use of intravesical agents even if it invades the bladder muscle.
D. May mimic an acute UTI with irritability and hematuria.
E. Is preferentially treated by partial cystectomy.
Answer: D

8. The major blood supply to the testes comes through the:
A. Hypogastric arteries.
B. Pudendal arteries.
C. External spermatic arteries.
D. Internal spermatic arteries.
Answer: D

9. Patients who have undergone operations for benign prostatic hypertrophy or hyperplasia:
A. Require routine rectal examinations to detect the development of carcinoma of the prostate.
B. Do not need routine prostate examinations.
C. Have a lesser incidence of carcinoma of the prostate.
D. Have a greater incidence of carcinoma of the prostate.
Answer: A

10. The male contribution to a couple's infertility is approximately:
A. 10%.
B. 25%.
C. 50%.
D. 75%.
Answer: C

11. To maximize fertility potential, orchidopexy for cryptorchidism should be done before:
A. Age 15 years.
B. Age 12 years.
C. Marriage.
D. Age 2 years.
Answer: D

12. Within the age group 10 to 35 years, the incidence of carcinoma of the testis in males with intra-abdominal testes is:
A. Equal to that in the general population.
B. Five times greater than that in the general population.
C. Ten times greater than that in the general population.
D. Twenty times greater than that in the general population.
Answer: D

13. The appropriate surgical treatment for suspected carcinoma of the testis is:
A. Transscrotal percutaneous biopsy.
B. Transscrotal open biopsy.
C. Repeated examinations.
D. Inguinal exploration, control of the spermatic cord, biopsy, and radical orchectomy if tumor is confirmed.
Answer: D

14. If torsion of the testicle is suspected, surgical exploration:
A. Can be delayed 24 hours and limited to the affected side.
B. Can be delayed but should include the asymptomatic side.
C. Should be immediate and limited to the affected side.
D. Should be immediate and include the asymptomatic side.
Answer: D

15. Epididymitis, either unilateral or bilateral, in a prepubertal male:
A. Is a frequent diagnosis.
B. Can be dealt with on an outpatient basis.
C. Is a major scrotal problem in this age group.
D. Is a rare phenomenon.
Answer: D

16. Patients with prostatitis, especially acute suppurative prostatitis:
A. Should have residual urine measured by intermittent catheterization.
B. Should have bladder decompression by urethral catheter.
C. Should have repeated prostatic massage.
D. Should have no transurethral instrumentation if possible.
Answer: D

17. Benign prostatic hypertrophy with bladder neck obstruction:
A. Is always accompanied by significant symptoms.
B. Is best diagnosed by endoscopy and urodynamic studies.
C. Is easily diagnosed by the symptoms of frequency, hesitancy, and nocturia.
D. Is always accompanied by residual urine volume greater than 100 ml.
Answer: B

18. Which of the following statements are true concerning male infertility?
a. Although 15% of couples in the United States are affected by infertility, the male rarely contributes to the problem
b. A varicocele can be associated with diminished sperm motility and abnormal sperm morphology
c. Complete testicular failure will usually respond to systemic testosterone administration
d. Anti-sperm antibodies are an important cause of infertility which may be treated successfully with corticosteroid administration
Answer: b, d

19. A 65-year-old male is diagnosed as having prostatic cancer based on transrectal biopsy of a 1 cm palpable nodule. Which of the following statement(s) are true concerning his management?
a. If the tumor is confined within the prostatic capsule (stage A or B), radical prostatectomy is an appropriate option
b. If positive lymph nodes are detected on laparoscopic pelvic lymph node dissection (stage DI), radical prostatectomy is indicated
c. Radical prostatectomy is invariably associated with impotence
d. External beam radiation is an appropriate treatment if the tumor is confined to the prostate
e. There is currently no role for orchiectomy in the management of prostatic cancer
Answer: a, d

20. Extracorporeal shock wave lithotripsy (ESWL) has had a dramatic effect on the management of urinary stones. Which of the following statement(s) are true concerning shock wave lithotripsy of urinary stones?
a. The basic principle of lithotripsy involves the generation of shock waves which are focused fluoroscopically on the calculus and are delivered to the patient who is submersed in a water bath
b. The most common complication after lithotripsy is ureteral obstruction secondary to stone fragments

c. ESWL can be associated with stone-free rates ranging between 60%-95% at six months for renal and proximal ureteral stones
d. The combination of ESWL with percutaneous nephrolithotripsy improves the results for stone clearance in patients with large or branched stones such as staghorn calculi

Answer: a, b, c, d

21. Which of the following statement(s) are true concerning bladder carcinoma?

a. Epidemiologic studies have implicated cigarette smoking as a risk factor
b. If cystoscopy demonstrates a bladder carcinoma as the cause of painless hematuria, no further evaluation is necessary
c. Multi-focal and recurrent bladder tumors are usually treated with transurethral resection and intravesical chemotherapy
d. The results of treatment for locally advanced bladder tumors are similar with either radical cystectomy or radiation therapy

Answer: a, c

22. The most common malignant neoplasm of the kidney is the hypernephroma or renal cell carcinoma. Which of the following statement(s) are true concerning renal neoplasms?

a. Renal cell carcinomas can produce a variety of hormone or hormone-like substances
b. Bilateral multifocal renal cell cancers can be associated with the multiple endocrine neoplasia syndrome
c. A "tumor deformity" on IVP is diagnostic of a renal cell carcinoma
d. Early control of the renal pedicle is an important aspect of surgical management of renal cell carcinoma
e. Patients with renal cell carcinoma in a solitary kidney will inevitably require total nephrectomy and long-term dialysis for the resultant renal failure

Answer: a, d

23. A 28-year-old white male presents with asymptomatic testicular enlargement. Which of the following statement(s) is/are true concerning his diagnosis and management?

a. Tumor markers, b-fetoprotein (AFP) and ك-human chorionic gonadotropin (HCG) will both be of value in the patient regardless of his ultimate tissue type
b. Orchiectomy should be performed via scrotal approach
c. The diagnosis of seminoma should be followed by postoperative radiation therapy
d. With current adjuvant chemotherapy regimens, retroperitoneal lymphadenectomy is no longer indicated for non-seminomatous testicular tumors

Answer: c

24. Which of the following statement(s) is/are true concerning benign prostatic hypertrophy (BPH)?

a. Prostatic size has no consistent relationship to urethral obstruction
b. Renal failure secondary to obstructive uropathy occurs as bladder pressure rises and is eventually transmitted proximally to the renal pelvis
c. Hormonal treatment for BPH involves treatment with a 5 a-reductase inhibitor which blocks the conversion of testosterone to the dihydrotestosterone
d. Intermittent catheterization, although a temporizing measure, is not an effective treatment for relief of symptoms of BPH

Answer: a, b, c

25. A 55-year-old male presents with severe flank pain radiating to the groin associated with nausea and vomiting. Urinalysis reveals hematuria. A plain abdominal film reveals a radiopaque 5 mm stone in the area of the ureterovesical junction. Which of the following statement(s) is/are true concerning this patient's diagnosis and management?

a. A likely stone composition for this patient would be uric acid
b. The stone will likely pass spontaneously with the aid of increased hydration
c. Stone analysis is of relatively little importance
d. Patients with a calcium oxalate stone and a normal serum calcium level should undergo further extensive metabolic evaluation

Answer: b

26. Which of the following statements are true concerning male impotence?

a. Psychologic factors account for less than half the cases of male impotence
b. Vascular testing for vasculogenic impotence may include Doppler determination of penile systolic blood pressure and super selective pelvic arteriography

c. Penile implants are the first line treatment for patients with impotence due to diabetes or vascular dysfunction
d. Impotence associated with abdominal perineal resection is due to direct trauma to pelvic nerves and may be improved with papaverine injection

Answer: a, b, d

27. Which of the following statement(s) are true concerning the detection and diagnosis of prostatic cancer?

a. An elevation of prostate specific antigen (PSA) is highly sensitive and specific for prostatic carcinoma
b. American blacks have an increased risk of prostatic carcinoma
c. Autopsy series would suggest that 10% of men in their 50's will have small latent prostatic cancers
d. Transrectal prostatic biopsy is indicated for a palpable 1 cm prostate nodule
e. Serum prostatic acid phosphatase remains the most useful tumor marker for prostatic carcinoma

Answer: b, c, d

ORTHOPEDICS

1. Which of the following statements about open fractures is/are correct?

A. Intravenous antibiotics should be administered as soon as possible.
B. They should be regarded as an emergency.
C. Wound closure is necessary within 8 hours.
D. Systematic wound débridement and irrigation should be performed.
E. They most often result from low-energy injuries.

Answer: ABD

2. The goals of proper fracture reduction include which of the following?

A. Providing patient comfort and analgesia.
B. Allowing for restoration of length of the extremity.
C. Correcting angular deformity and rotation.
D. Enabling immediate motion of all fractured extremities.
E. Providing a foundation for bone healing and union.

Answer: ABCE

3. Which statement is true about the "three-column concept" of spinal fracture stability?

A. An unstable spine consists of bone or soft tissue injury in a single column.
B. An unstable spine involves injury to all three columns.
C. Instability results from injury to two columns plus evidence of compression of the dural tube.
D. Instability results from significant bone and/or soft tissue injury in two columns.

Answer: D

4. All of the following statements are true of Jefferson's fracture of the atlas except:

A. The injury results from an axial load to the cervical spine.
B. The fracture fragments characteristically displace into the spinal canal.
C. Neurologic injury is uncommon.
D. Computed tomography (CT) best demonstrates the fracture's configuration.

Answer: B

5. Which of the following statements about burst fractures of the thoracolumbar spine are correct?

A. The injury most often occurs at the thoracolumbar junction.
B. The injury results from axial loading of the spine, often with concomitant flexion.
C. Anterior and middle column failure are always present in this injury.
D. Laminectomy provides satisfactory decompression.

Answer: ABC

6. The neurovascular structure most commonly injured as a result of an anterior dislocation of the shoulder is the:

A. Musculocutaneous nerve.

B. Axillary nerve.
C. Axillary artery.
D. Median nerve.
Answer: B

7. The classification of fractures of the proximal humerus is based on:
A. The number of fracture segments and amount of displacement.
B. The mechanism of injury.
C. Presence or absence of associated dislocations.
Answer: A

8. The radial nerve is at greatest risk for injury with which fracture?
A. Fracture of the surgical neck of the humerus.
B. Fracture of the shaft of the humerus.
C. Supracondylar fracture of the humerus.
D. Olecranon fractures.
Answer: B

9. The best method of treating a supracondylar fracture of the humerus in a child that is unstable when the elbow is flexed to 90 degrees is:
A. Hyperflexion of the elbow to 130 degrees and casting.
B. Open reduction and internal fixation.
C. Percutaneous pinning.
Answer: C

10. Both-bone forearm fractures in adults are best managed by:
A. Closed reduction and casting.
B. Closed reduction and application of an external fixator.
C. Open reduction and placement of intramedullary rods.
D. Open reduction and internal fixation with compression plates.
Answer: D

11. The most consistent sign of a fracture of the carpal scaphoid is:
A. Wrist pain during attempted push-ups.
B. Diffuse swelling on the dorsum of the wrist.
C. Localized tenderness in the anatomic snuffbox.
D. Wrist popping on movement.
Answer: C

12. A patient describes a fall on the outstretched hand during sports activities. Multiple radiographic views show no distinct fracture. He is tender to palpation in the anatomic snuffbox. The most suitable method of management is:
A. Diagnose "sprained wrist" and apply an elastic bandage.
B. Diagnose suspected scaphoid fracture and apply a short-arm cast to include the thumb.
C. Apply a canvas wrist splint for immobilization.
D. Prescribe salicylates and permit continued activity.
Answer: B

13. Median nerve compression syndrome in which the patient has motor weakness of the flexor pollicis longus and the flexor digitorum profundus of the index finger without alteration in sensibility is due to:
A. Compression of the median nerve at the elbow by the lacertus fibrosus.
B. Compression of the median nerve in the axilla.
C. Compression of the anterior interosseous nerve by the arcade of Frohse.
D. Compression of the anterior interosseous nerve by an aberrant accessory forearm muscle.
Answer: D

14. Total interruption of the radial nerve at midarm produces specific findings on physical examination. The most complete description of the neurologic deficit includes:
A. Paralysis of the thumb extensors, interphalangeal joint extensors, extensor carpi radialis, and extensor carpi ulnaris.
B. Paralysis of the extensor carpi radialis longus and brevis, abductor pollicis longus, extensor pollicis brevis, and extensor pollicis longus.
C. Paralysis of the brachioradialis, extensor carpi radialis longus and brevis, extensor carpi ulnaris, thumb extensors, and metacarpophalangeal (MCP) joint extensors, and loss of cutaneous sensibility at the dorsal aspect of the thumb and index fingers.

D. Paralysis of the brachioradialis, extensor carpi radialis longus and brevis, radialis, thumb extensors, finger MCP joint extensors, and flexor carpi radialis, and loss of sensation in the cutaneous distribution over the dorsal aspect of thumb and index fingers.
Answer: C

15. The most common physical findings in a patient with median nerve compression at the wrist (carpal tunnel syndrome) are:
A. Diminished two-point discrimination and dryness of the index and long fingers.
B. Atrophy of the abductor pollicis brevis and opponens pollicis.
C. A positive percussion test at the wrist and a positive wrist flexion test producing paresthesias at the thumb, index, and long fingers.
D. A weak grip in addition to hand cramping and difficulty writing.
Answer: C

16. Which of the following describes the most desirable position in which to immobilize the hand?
A. Wrist is flexed, MCP joints are extended, and IP joints are flexed.
B. Wrist is flexed, MCP joints are flexed, and IP joints are extended.
C. Wrist is extended, MCP joints are extended, and IP joints are flexed.
D. Wrist is extended, MCP joints are flexed, and IP joints are flexed.
E. Wrist is extended, MCP joints are flexed, and IP joints are extended.
Answer: E

17. An early sign of compartment syndrome in the hand includes:
A. Pain with passive stretch of the digits.
B. Absent radial pulse.
C. Motor paralysis.
D. Swelling of the digits.
E. Stiffness of the digits.
Answer: A

18. Palmar dislocation of the PIP joint with fracture:
A. Is more common than dorsal dislocation.
B. Is treated by splinting with the PIP joint in flexion.
C. Is treated by splinting with the PIP joint and DIP joints in extension.
D. If not splinted properly, will cause a boutonniere deformity.
E. If not splinted properly will cause a swan neck deformity.
Answer: D

19. Fracture of the fifth metacarpal neck:
A. Usually requires open reduction and internal fixation.
B. Must be reduced anatomically and stabilized with pins.
C. Is called a "boxer's fracture."
D. Will result in significant functional disability if angulated 30 degrees dorsally.
E. Is uncommon.
Answer: C

20. A Bennett's fracture is:
A. An extra-articular fracture of the base of the thumb metacarpal.
B. Displaced by the pull of the abductor pollicis longus and adductor pollicis.
C. Displaced by the pull of the abductor pollicis longus and extensor pollicis longus.
D. Usually successfully treated with closed reduction and casting.
E. A comminuted T-type fracture of the base of the thumb metacarpal.
Answer: B

21. A 39-year-old male presents in the emergency room after a high-speed motor vehicle accident. The patient has been intubated by paramedics at the scene and is on assisted ventilation. He is unconscious. Physical examination reveals a distended abdomen, and initial screening x-rays reveal a displaced fracture of the pelvic ring. Initial evaluation should include which of the following?
A. Fluid resuscitation and establishment of venous access.

B. Diagnostic peritoneal lavage.
C. Thorough physical examination, including evaluation of the urinary and lower gastrointestinal tract.
D. Emergent application of external fixation.
E. CT of the abdomen.
Answer: ABC

22. A patient sustains a displaced fracture of both columns of the acetabulum with extension into the sciatic notch. The patient is initially placed in traction. After treatment of other associated injuries, pre-operative evaluation should include which of the following?
A. CT evaluation of the acetabular fracture.
B. Aspiration of the hip joint.
C. Pelvic arteriography.
D. Preoperative ventilation-perfusion lung scan.
E. Prolonged bed rest.
Answer: AC
23. Which of the following statements about the blood supply to the hip are true?
A. The medial femoral circumflex artery circles around to the posterior aspect of the hip, where it becomes confluent with the retinacular blood vessels.
B. A small portion of the blood supply of the femoral head is provided by the obturator artery via the ligamentum teres.
C. Displacement of a femoral neck fracture can disrupt the branches of the medial femoral circumflex artery.
D. The retinacular vessels are supplied by the lateral femoral circumflex artery, which takes a posterior course.
E. Muscular attachments to the periarticular bone structures provide blood supply to the femoral head.
Answer: ABC
24. A 24-year-old woman presents to the emergency room with a dislocated knee. In transferring the patient from stretcher to examining table, the knee is spontaneously reduced. Physical examination reveals no palpable or "Dopplerable" pulses in the foot on the affected side and booming pulses in the foot on the nonaffected side. Proper treatment would include which of the following?
A. Doppler evaluation of the arteries in the lower extremity followed by arteriography if the Doppler study was abnormal.
B. Magnetic resonance imaging (MRI) of the affected leg.
C. Close follow-up examination.
D. Emergent transfer to the operating room for exploration of the popliteal artery.
E. Immobilization of the knee with gentle warming of the extremity and elevation.
Answer: D

25. The Ilizarov device aids in management of tibial fractures because of its ability to:
A. Stabilize acute fractures.
B. Correct angular deformities in cases of malunion.
C. Transport bone by distraction callotasis.
D. Noninvasively provide fixation for juxta-articular fractures, such as the tibial plateau and pylon.
E. All of the above.
Answer: E

26. An 8 cm. by 10 cm. soft tissue defect over the proximal third of the tibia with exposed bone devoid of periosteum is best treated with:
A. Skin graft.
B. Gastrocnemius rotational myoplasty.
C. Soleus rotational myoplasty.
D. Free tissue transfer.
Answer: B

27. Prognosis of healing in tibial fractures correlates best with:
A. Energy absorption at the time of fracture.
B. Amount of soft tissue damage.
C. Location of the fracture (i.e., in the proximal, middle, or distal third).
D. Age of patient.
Answer: A
28. Management of a III-b tibia fracture is best treated initially by:

A. Plaster immobilization.
B. Immediate plating.
C. Reamed intramedullary nailing.
D. External fixation.
Answer: D

29. The most frequent forces acting on the foot that cause ankle fractures are:
A. External rotation.
B. Internal rotation.
C. Plantar flexion.
D. Dorsiflexion.
Answer: A

30. Patients who have abduction injuries to the foot are prone to injure the following structures:
A. Medial malleolus and deltoid.
B. Lateral malleolus and deltoid ligament.
C. Interosseous ligament.
D. Posterior tibiofibular ligament.
Answer: A

31. Of the following bones in the foot, the tarsal bone that is most prone to vascular compromise is the:
A. Calcaneus.
B. Navicular.
C. Talus.
D. Cuboid.
Answer: C
32. A Lisfranc fracture is a fracture-dislocation involving:
A. Calaneocuboid joint.
B. Tarsometarsal joint.
C. Metatarsophalangeal joint.
D. Talocalcaneal dislocation.
Answer: B

33. The most common reason for surgical amputation in the general population is:
A. Trauma.
B. Tumor.
C. Infection.
D. Congenital deformity.
E. Ischemia.
Answer: E
34. The level of amputation in a dysvascular extremity is determined by:
A. Clinical inspection.
B. Xenon skin clearance.
C. Doppler systolic blood pressure ratios.
D. Transcutaneous oxygen measurements.
E. Nutritional competence and immunocompetence.
Answer: ABCDE
35. Knee disarticulation has the following advantages over above-knee amputation:
A. Longer lever arm.
B. Better cosmetic result.
C. Easier prosthetic fitting.
D. End-bearing stump.
E. Supracondylar suspension.
Answer: ADE
36. Hematogenous osteomyelitis most frequently affects:
A. The diaphysis of long bones.
B. The epiphysis.
C. The metaphysis of long bones.
D. Flat bones.

E. Cuboidal bones.
Answer: C

37. A 5-year-old child presents with a 2-day history of the atraumatic onset of pain, erythema, and swelling of the right knee joint. The child is febrile with an elevated white blood cell count. The differential diagnosis includes:
A. Acute rheumatic fever.
B. Leukemia.
C. Scurvy.
D. Acute septic arthritis.
E. Acute juvenile rheumatoid arthritis.
Answer: ABCDE

38. Skeletal tuberculosis is:
A. Of historical interest only.
B. Increasing in association with patients with human immunodeficiency virus (HIV) infection.
C. Most frequently encountered at the thoracolumbar junction.
D. Seen in the absence of visceral tubercular infection.
Answer: BC

39. A radical margin in the resection of a musculoskeletal tumor removes:
A. The entire limb.
B. A 5-cm. margin of normal tissue around the neoplasm.
C. The anatomic compartment in which the tumor arises.
D. The joint adjacent to the neoplasm.
E. The reactive capsule around the tumor.
Answer: C

40. The appropriate surgical procedure for the treatment of an osteosarcoma is based on:
A. Staging information.
B. The age of the patient.
C. The response of the lesion to neoadjuvant chemotherapy.
D. The radiographic aggressiveness of the lesion.
Answer: AC

41. Which of the following statements about selection of an amputated part for replantation is/are correct?
A. A good choice for replantation is an amputated thumb at the level of the proximal phalanx of the dominant hand of a 35-year-old salesman.
B. The index finger should be replanted in an adult male if the amputation is at the base of the proximal phalanx.
C. In a 12-year-old child with an arm amputated above the elbow by an avulsion injury, replantation should be attempted.
D. In a 42-year-old male accountant with a complete amputation of the leg just below the knee, replantation should be attempted.
E. Replantation is advisable for a 20-year-old male with a complete amputation at the proximal forearm with 11 hours of warm ischemic time.
Answer: AC

42. Which of the following statements about preservation of a completely amputated digit is/are correct?
A. The amputated digit should be wrapped in a sterile, dry cloth and kept at body temperature.
B. The amputated digit should be wrapped in a cloth moistened with saline or Ringer's lactate solution and kept at body temperature.
C. The amputated digit should be wrapped in a clean cloth and placed directly on ice.
D. The amputated digit should be placed in a plastic bag containing Ringer's lactate or saline solution, and the plastic bag placed on ice.
E. The amputated digit should be wrapped in a cloth or sponge moistened with Ringer's lactate or saline solution and placed in a plastic bag to rest on ice.
Answer: DE

43. Which of the statements about major limb replantations (amputation proximal to the hand or foot) is/are correct?
A. Bone shortening is usually necessary.

B. If the amputation occurred more than 6 hours before arrival in the operating room some type of temporary vascular shunting is indicated.
C. Primary closure of all of the skin is generally recommended.
D. Myonecrosis is a common cause of failure of the replantation.
E. There are few indications for replantation of the lower extremity in adults.
Answer: ABDE

44. The most crucial elements of the flexor retinacular or pulley system needed for full digital flexion include which annular pulleys?
A. A 1.
B. A 2.
C. A 3.
D. A 4.
E. A 5.
Answer: BD

45. Continuous passive mobilization following flexor tendon repair of Zone II injuries produces:
A. Increased total arc of digital range of motion.
B. Decreased incidence of poor results.
C. Increased incidence of postoperative tendon rupture.
D. Increased incidence of infection.
Answer: AB

46. Isolated flexor digitorum superficialis tendon function is determined by assessing:
A. Flexion of the metacarpophalangeal joint.
B. Flexion of the proximal interphalangeal joint with the adjacent digits held in extension.
C. Flexion of the distal interphalangeal joint.
D. Flexion of the proximal interphalangeal joint.
Answer: B

47. The zone of flexor tendon injury that carries the poorest prognosis following injury and repair is:
A. Zone I.
B. Zone II.
C. Zone III.
D. Zone IV.
E. Zone V.
Answer: B

48. The contraindications to primary repair of a flexor tendon injury are:
A. Contaminated wound.
B. Severe soft tissue trauma.
C. Inexperienced surgeon.
D. Compromised general condition of the patient prohibiting prolonged anesthetic.
Answer: ABCD

49. Principles to be considered when using open reduction and internal fixation include which of the following ?
a. Anatomic reduction and fixation stability
b. Maintenance of maximal soft tissue coverage and interposition between the device and skin surface
c. Creation of fixation constructs that minimize load shielding of the underlying bone
d. Maximal maintenance of periosteal and vascular tissue without compromising stability
Answer: a, b, c, d

50. Serum proteins that have been demonstrated to influence bone induction include:
a. Platelet-derived growth factor
b. Transforming growth factor-b
c. Osteogenin
d. Fibroblast growth factor
Answer: a, b, c, d

51. Which of the following statement(s) is/are true concerning the treatment of diaphyseal fractures?
a. The use of intramedullary rods allows early weight bearing and minimal immobilization
b. The infection rate using intramedullary fraction fixation devices is minimal

c. Results for the use of intramedullary rods are better for fractures of the femoral shaft than the tibia
d. Loss of limb length is inevitable with segmented or comminuted fractures

Answer: a, b, c

52. Which of the following statement(s) is/are true concerning the biologic mechanisms of fracture repair?
a. The mechanisms involved depend primarily on the stability of the fracture
b. The first material formed by osteoblasts at the fracture site is woven bone
c. Callus increases the cross-sectional area of the injury therefore weakening the structure
d. Woven bone provides a permanent microstructure in the area of a fracture

Answer: a, b

53. The most important structural component of connective tissue is collagen. Which of the following statement(s) is/are true concerning types of collagen?
a. All collagen is fiber forming
b. Type 1 collagen is the most abundant in the human body
c. Type 2 collagen is found in cartilage
d. The basement membrane collagens, type 4 and 5, do not form regular fibers

Answer: b, c, d

54. Which of the following statement(s) is/are true concerning soft tissue repair?
a. The first stage involves a formation of granulation tissue
b. The initial pattern of collagen fibers and the degrees of waviness is random and therefore not as functional as the normal structure
c. Early immobilization, regulated physical stimuli, and good vascular supply are beneficial to healing
d. Normal physiologic loading conditions impair wound remodeling

Answer: a, b, c

55. Which of the following statement(s) is/are true concerning types of bone found in the human body?
a. Trabecular and cortical bone differ in their chemical, molecular and cellular components
b. Primary bone must be formed on existing surfaces
c. Woven bone reflects a highly organized microstructural organization
d. Secondary osteonal bone is the primary constituent of adult cortices

Answer: b, d

56. Which of the following statement(s) is/are true concerning operative arthroscopy?
a. Arthroscopy is unquestionably the most effective method for diagnosis and treatment of knee ligament injuries
b. Arthroscopic repair allows almost immediate rehabilitation
c. Despite advances an anterior cruciate ligament tear will essentially end any high level sports activity
d. The presence of loose osteochondral fragments requires open arthrotomy

Answer: a, b

57. Which of the following statement(s) is/are true concerning bone remodeling?
a. Remodeling can occur only on the surface of trabeculi
b. The remodeling process takes approximately 120 days in an adult
c. Trabecular bone remodeling occurs up to 10 times faster than cortical bone remodeling
d. Bone modeling involves bone formation without resorption

Answer: b, c, d

58. Which of the following statement(s) is/are correct concerning total joint replacement arthroplasty?
a. Total knee and hip prostheses have a life expectancy of approximately 10 years
b. The major failure of total joint arthroplasty is aseptic mechanical loosening at the interface between the bone, cement, and implant
c. Biologic tissue ingrowth into a prosthesis worsens long-term results
d. Rigid fixation at the time of implantation is important to secure tissue ingrowth

Answer: b, d

NEUROSURGERY

1. Which of the following are true about the history of neurosurgery?
A. The history of trepanation dates back to the Neolithic period.
B. The earliest known writing dealing with surgical topics is the Ebers papyrus.
C. The writings of Hippocrates contain the first recorded descriptions of trepanation.
D. The three key developments that were necessary to permit successful intracranial and intraspinal surgery were anesthesia, asepsis, and the concept of localization of different functions in different areas of the nervous system.
E. Victor Horsely of London was the first surgeon to specialize in neurosurgery.
Answer: ACDE

2. The neurosurgeon who has had the most profound influence on the development of neurosurgery is:
A. Fedor Krause of Germany.
B. William Macewen of Scotland.
C. Harvey Cushing of the United States.
D. Egas Moniz of Portugal.
E. Goeffrey Jefferson of England.
Answer: C

3. Which of the following conditions can be evaluated by magnetic resonance imaging (MRI)?
A. Stroke is suspected in a patient with a cardiac pacemaker.
B. Computed tomography (CT) shows a skull base tumor.
C. A coma patient with CT-demonstrated subarachnoid hemorrhage and an aneurysmal clip.
D. A patient with intractable complex partial seizure.
E. A lung cancer patient whose plain film of the lumbar spine shows a compression fracture of the L2 vertebral body.
Answer: BDE

4. Which of the following statements about neuroradiologic imaging modalities is/are correct?
A. Diffusion-weighted MRI can differentiate tumor from edema and identify the nonenhancing part of the tumor.
B. For evaluating the stenosis of the carotid bifurcation, MR angiography (MRA) is the most accurate imaging modality.
C. Myelography is still useful in detecting some diffuse spinal disease such as cerebrospinal fluid (CSF) seeding.
D. For evaluating the bony detail of patients with facial trauma, CT is a better imaging modality than MRI.
E. Decreased amount of N-acetyl aspartate (NAA) and increased amount of lactate can be shown in the MR spectroscopy (MRS) of a patient with acute stroke.
Answer: ACDE

5. Which of the following are true about intracranial tumors?
A. The most common location of brain tumors of childhood is the posterior cranial fossa.
B. With few exceptions, examination of the CSF is of no value in the diagnosis of an intracranial tumor.
C. Even the most malignant of primary brain tumors seldom spread outside the confines of the central nervous system (CNS).
D. The majority of astrocytomas can be cured surgically.
E. Primary neoplasms of astrocytic, oligodendroglial, or ependymal origin represent gradations of a spectrum from slowly growing to rapidly growing neoplasms.
Answer: ABCD

6. The intracranial tumor most likely to be encountered in a middle-aged man with the acquired immunodeficiency syndrome (AIDS) is:
A. Glioblastoma multiforme.
B. Ependymoma.
C. Meningioma.
D. Oligodendroglioma.
E. Lymphoma.
Answer: E

7. Patients who have survived a subarachnoid hemorrhage from a ruptured intracranial aneurysm are at risk for:
A. Rehemorrhage.

B. Cerebral artery vasospasm.
C. Ischemic stroke.
D. Hydrocephalus.
Answer: ABCD

8. Intracranial hemorrhages resulting from chronic arterial hypertension:
A. Most often originate in the basal ganglia.
B. Most often originate in the subarachnoid space.
C. Can present as an enlarging cerebellar mass.
D. Should not be treated surgically when they occur in the cerebellum.
Answer: AC

9. The physician is most effective in treating:
A. Cerebral contusions.
B. Epidural hematomas.
C. Cerebral lacerations.
D. Hypoxia.
Answer: BD

10. The evaluation of a comatose patient with a head injury begins with:
A. The cardiovascular system.
B. Pupillary reflexes.
C. Establishment of an airway.
D. Computed tomography (CT) of the brain.
Answer: C

11. An epidural hematoma:
A. Is usually arterial in origin.
B. Is usually accompanied by a skull fracture.
C. Should be suspected only in comatose patients.
D. Can be diagnosed from a brain CT scan.
Answer: AB

12. Which of the following statements is/are true?
A. Cranial osteomyelitis most frequently arises from the spread of bacteria through the bloodstream from an infection elsewhere in the body.
B. Subdural empyema is ordinarily treated by administration of antibiotics without the need for surgical drainage.
C. Bacterial meningitis may lead to the development of hydrocephalus.
D. A bacterial brain abscess commonly presents as a mass lesion of the brain, without systemic signs of infection such as fever or leukocytosis.
E. Bacterial brain abscesses are difficult to visualize by CT.
Answer: CD

13. Complete excision of a brain abscess used to be the preferred method of treatment, and it is still performed occasionally today. Most commonly, now, a brain abscess is treated by:
A. Systemic antibiotic administration.
B. Aspiration and drainage of the abscess through a small opening in the skull.
C. Injection of antibiotics into the abscess.
D. Aspiration and drainage of the abscess plus systemic antibiotic administration.
E. Marsupialization of the abscess.
Answer: D

14. Which of the following statements are true?
A. Extradural neoplasms are usually benign.
B. A typical type of intramedullary tumor is a meningioma.
C. An intradural extramedullary neoplasm is ordinarily treated by a combination of surgical resection and radiotherapy.
D. Extradural neoplasms are usually malignant.
E. A hemangioblastoma is a benign intramedullary tumor that has the potential for surgical cure.
Answer: DE

15. Which of the following statements about intraspinal dermoid and epidermoid tumors and lipomas are true?
A. They are benign lesions.
B. They can be found within the spinal subarachnoid space.
C. They can be found within the spinal cord.
D. They are most common in the lumbosacral area.
E. They are at times associated with spinal dysraphism.
Answer: ABCDE

16. Which of the following statements are true?
A. The usual symptomatic lumbar disc herniation occurs in a posterolateral direction.
B. Approximately 95% of lumbar disc herniations occur at the L5–S1 or L4–L5 level.
C. Sciatica is a term used to denote pain felt along the distribution of the sciatic nerve.
D. Weakness of dorsiflexion of the foot is a mechanical sign of a lumbar disc herniation.
E. X-ray films of the lumbosacral spine are obtained to demonstrate the presence and location of a lumbar disc herniation.
Answer: ABC

17. A right-sided disc herniation at the L5–S1 level typically may cause:
A. Low back pain and right sciatica.
B. Weakness of dorsiflexion of the right foot.
C. A diminished or absent right ankle jerk.
D. Diminution of sensation over the medial aspect of the right foot, including the great toe.
E. Weakness of dorsiflexion of the left foot.
Answer: AC

18. Which of the following statements are true?
A. A symptomatic cervical disc herniation usually occurs in an anterolateral or anterior direction and can be removed by a surgical approach through the front of the neck.
B. Cervical spondylosis represents a combination of degenerative disc disease and osteoarthritis in the cervical spine.
C. The joints of Luschka are the main spinal facet joints.
D. The term cervical myelopathy refers to pain and/or neurologic dysfunction in the distribution of one or more cervical nerve roots.
E. Full neck extension frequently accentuates the neck and arm pain of a patient with a cervical disc herniation.
Answer: BE

19. A 36-year-old man developed neck and left arm pain. He noted paresthesias in the left index and long fingers. He was found to have weakness of the left triceps muscle and a diminished left triceps jerk. His left-sided disc herniation is most likely to be at:
A. C3–C4.
B. C4–C5.
C. C5–C6.
D. C6–C7.
E. C7–T1.
Answer: D

20. Which of the following statements are true?
A. The fascicles in a peripheral nerve divide and recombine along their course.
B. Neurapraxia is a type of nerve injury in which the nerve is still in continuity but individual axons are disrupted.
C. Recovery from neurotmesis requires surgical repair.
D. Axonal sprouting begins 1 to 2 months after transection of a peripheral nerve.
E. The patient's age influences the rate and success of nerve regeneration.
Answer: ACE

21. Which of the following statements are true?
A. The Hoffmann-Tinel sign localizes the level of a nerve injury.

B. Causalgia is a term used to denote the etiology of pain.
C. Secondary repair of a lacerated nerve 3 to 8 weeks after injury has several advantages.
D. A surgeon who finds at delayed (3 to 8 weeks) exploration that a clinically nonfunctioning nerve is in continuity should resect the injured portion of the nerve and suture together the ends.
E. If a nerve is found to be disrupted at delayed (3 to 8 weeks) exploration, the surgeon should find the two ends of the nerve and suture them together.
Answer: C

22. Which of the following lesions is not one of the cutaneous stigmata of occult spinal dysraphism?
A. Midline lumbar capillary hemangioma.
B. Focal hairy patch over the thoracolumbar spine.
C. Dermal sinus located above the midsacrum.
D. Midline subcutaneous lipoma.
E. Café-au-lait spot over the thoracolumbar spine.
Answer: E

23. Myelomeningoceles are congenital malformations of the spinal cord. Which of the following findings are not commonly associated?
A. Hydrocephalus.
B. Chiari II malformation.
C. A midline dorsal spinal mass easily noted at birth.
D. Skin, bone, and dural defects superficial to the neural placode.
E. Mandatory urinary incontinence.
Answer: E

24. Which of the following signs does Horner's syndrome include?
A. Ptosis.
B. Facial hyperhidrosis.
C. Miosis.
D. Exophthalmos.
E. Mydriasis.
Answer: AC
25. Cordotomy results in which of the following?
A. Contralateral loss of pin appreciation.
B. Vagal instability.
C. Contralateral loss of temperature appreciation.
D. Ipsilateral loss of pin and temperature appreciation.
E. Contralateral loss of two-point discrimination.
Answer: AC
26. Surgical therapy for epilepsy should be considered in patients with:
A. Seizures poorly controlled with antiepileptic medications.
B. A single epileptic focus.
C. Seizures arising from multiple areas of cerebral cortex.
D. Seizures arising within the cortical motor strip.
Answer: AB
27. The epileptogenic area of cerebral cortex is localized by:
A. Direct identification.
B. Observing the patient's seizures.
C. Electroencephalography.
D. Visualizing cortical abnormalities on cerebral imaging studies.
Answer: BCD
Which of the following stereotactic procedures would be performed primarily to alter the function of the brain?
A. Stereotactic biopsy of a brain tumor in the right posterior thalamus.
B. Stereotactic radiotherapy of an arteriovenous malformation in the right ventrolateral thalamus.
C. Stereotactic radiofrequency lesion of the right ventrolateral thalamus for Parkinson's disease.
D. Stereotactic craniotomy for excision of arteriovenous malformation in the right posterior thalamus.
Answer: C

29. What is the critical difference between frame-based and frameless stereotactic procedures?
A. The use of digitized imaging studies such as CT and MRI.
B. The use of rendered three-dimensional images and a three-dimensional digitizer.
C. Rigid fixation of the patient's head to the operating room table.
D. The presence of a lesion in the brain on digitized imaging studies.
E. The absence of a lesion in the brain on digitized imaging studies.
Answer: B

30. A 54-year-old patient with a history of successful renal transplantation is hospitalized with a diverticular abscess. Surgical exploration and drainage of the abscess with a Hartmann's procedure is eventually required. Although the patient's septic appearance resolves, the patient complains of severe headache and altered mental status is observed. A grand mal seizure follows. Which of the following statement(s) is/are true concerning this patient's management?
a. An intracranial epidural abscess is the likely diagnosis
b. A bacterial brain abscess secondary to hematogenous spread from the pericolonic infection is the likely diagnosis
c. The abscess expected in this case is usually solitary
d. Appropriate parenteral antibiotic treatment should be sufficient in this high risk patient.
e. Despite aggressive surgical and medical management, mortality rates associated in this patient may exceed 30%
Answer: b, d, e

31. All intracranial nervous system tumors can be malignant in behavior due to their location. Which of the following tumor(s) is/are usually considered to be histologically benign?
a. Astrocytoma
b. Meningioma
c. Schwannoma
d. Medulloblastoma
e. Craniopharyngioma
Answer: b, c, e

32. A 54-year-old physician with a history of lung cancer presents after a grand mal seizure with a several month history of increasing headaches. Which of the following statement(s) is/are true concerning this patient?
a. Lung cancer as well as breast, kidney, testicular and colon cancer are the most common primary sites to metastasize to the brain
b. A symptomatic, solitary metastatic brain lesion should be removed if surgically accessible
c. If excision is complete, no further chemo-or radiation therapy is indicated
d. Symptoms of cranial nerve palsies, radiculopathies and nuchal rigidity are suggestive of meningeal carcinomatosis
e. Cytologic examination of CSF is almost always positive with meningeal metastasis
Answer: a, b, d

33. The management of a skull fracture is highly dependent on the type and location of the fracture. Which of the following statement(s) is/are true concerning skull fractures?
a. A simple nondepressed linear skull fracture is of no significant consequence
b. Most depressed skull fractures require surgery to elevate the depressed bone fragment regardless of neurologic status
c. Basal skull fractures involve the base of the calvarium and may be suggested by bruising about the eye or behind the ear
d. CSF rhinorrhea associated with a basal skull fracture requires prompt surgical exploration and repair of the defect
e. Prophylactic antibiotics are indicated in all basal skull fractures associated with CSF rhinorrhea or otorrhea
Answer: b, c

34. Which one or more of the following statement(s) is/are true concerning spinal cord injuries?
a. Incomplete spinal cord lesions may result in the Brown-Sequard syndrome which is manifest by contralateral loss of motor function and position-vibratory sensation with ipsilateral loss of pain and temperature sensation below the level of the injury

b. The presence of hypotension associated with a cervical spine injury following blunt trauma would suggest invariably the presence of blood loss in association with the neurologic injury
c. Cervical spine malalignment can almost always be reduced by skeletal traction
d. An indication for early operation following spinal cord injury is neurologic deterioration in a patient with initially incomplete cord lesion
e. The natural history of a cord injury in which some function is preserved immediately after the injury is progressive loss of function despite appropriate treatment

Answer: c, d, e

35. A 48-year-old man presents with chronic back pain with radiation into the buttock, posterior thigh, and calf. Which of the following statement(s) is/are true?

a. In the lumbar spine, more than half of clinical problems arise from L-2 to L-3 and L-3 to L-4 intervertebral discs
b. Imaging studies with CT or MRI followed by myelography is necessary for the diagnosis in most patients
c. Initially, medical management is indicated in all patients who do not have neurologic deterioration
d. Surgical treatment is reserved for the patient with acute or progressive neurologic deficit, chronic disabling back pain, or both
e. Anal sphincter muscle disturbances can be expected in most patients and are of no clinical significance

Answer: c, d

36. Which of the following statement(s) is/are true concerning intracranial aneurysms?

a. Over 85% of cerebral aneurysms occur in the carotid or anterior circulation
b. Most intracranial aneurysms are congenital
c. Up to 20% of patients with cerebral aneurysms have multiple aneurysms
d. Most patients with intracranial aneurysms present with signs and symptoms of subarachnoid hemorrhage with severe headache followed by neck stiffness and photophobia
e. Once the diagnosis of aneurysmal rupture is confirmed, surgery should be performed immediately

Answer: a, b, c, d

37. The severity of a brain injury reflects the result of both the primary injury and resulting complications constituting the secondary injury. Which of the following statement(s) concerning brain injury is/are true?

a. Increased intracranial pressure (ICP) contributes to secondary brain injury by reducing cerebral perfusion pressure producing cerebral ischemia
b. Intracranial hypertension is one of the most important factors affecting outcome for brain injury
c. In using the Glasgow Coma Scale (GCS), the higher the score, the poorer the neurologic status
d. Comatose patients who require emergent surgery for other injuries should have their ICP monitored
e. Corticosteroids are the first line treatment for elevation of ICP

Answer: a, b, d

38. A 15-year-old boy is struck by a baseball in the side of the head. He briefly looses consciousness but quickly returns to a lucid state. Which of the following statement(s) is/are true concerning his subsequent course.

a. The initial neurologic finding may be dilatation of the ipsilateral pupil
b. If the patient has a normal neurologic examination at the time of emergency room assessment, he can be discharged safely to home
c. A head computed tomography (CT) scan should be performed regardless of the current neurologic examination
d. The likely mechanism of injury arises from a tear of a branch of the middle meningeal artery as it courses through a grove in the skull at the area of impact
e. If, after an initial lucid interval, a rapid progression to coma with fixed and dilated pupils and decerebration occurs, the most likely CT finding would be a subdural hematoma

Answer: a, c, d

39. Which of the following statement(s) is/are true regarding peripheral nerve injuries?

a. Neuropraxia is temporary loss of function without axonal injury; structure damage does not occur
b. Axonotmesis is disruption of the axon and axon sheath associated with traumatic injury
c. Neurotmesis is disruption of the axon with preservation of the axon sheath which usually preserves sensory and motor function
d. Electromyography (EMG) is useful in the early assessment of nerve injuries
e. Regeneration in a peripheral nerve occurs at a rate of 1 mm/day, so improvement may not be obvious for many months

Answer: a, e

THORACIC

1. The bronchial circulation:
A. Is the blood supply to the conducting airways.
B. Drains into a peribronchial venous network that may expand considerably with conditions such as bronchiectasis and chronic obstructive pulmonary disease.
C. Is an especially important consideration in pulmonary transplantation.
D. All of the above.
Answer: D

2. Clearance of mucus produced in the tracheobronchial tree in chronic bronchitis secondary to smoking may:
A. Be hampered by the fact that the amount of mucus is increased by the number of mucus-producing cells at the expense of ciliated cells.
B. Be slowed if patients have decreased lung volume and are therefore unable to generate a vigorous cough that would cause an inflammatory process.
C. Cause a decrease in diffusion capacity and associated hypoxemia.
D. All of the above.
Answer: A

3. The pulmonary circulation:
A. Is the only vascular system in which the veins do not have the same course as the arteries.
B. Has a direct connection of vein to adjacent lung tissue by connective tissue fibers, making the diameter of the tissue fibers dependent upon lung volume.
C. Supplies the metabolic needs of the alveoli.
D. All of the above.
Answer: C

4. Which of the following screening tests are important for preoperative evaluation of pulmonary function?
A. History and physical examination.
B. Room air arterial blood gases.
C. Chest film.
D. Vital capacity and forced expiratory volume in 1 second (FEV 1).
E. Cardiopulmonary exercise testing.
Answer: ABCDE

5. Carbon monoxide diffusion capacity (DLCO) has been shown to correlate with:
A. The thickness of the alveolar lining membrane.
B. The permeability of the erythrocyte to carbon dioxide.
C. Pulmonary emboli.
D. Total alveolar-capillary capacity.
Answer: ABCD

6. The closing volume is:
A. The volume remaining in the lung at the end of expiration below which alveolar collapse begins to occur, resulting in physiologic shunting.
B. Higher in young persons.
C. Not changed during surgery.
D. Relative to the oxygen content of mixed venous blood.
Answer: AC

7. The effect of high positive end-expiratory pressures (PEEP) on cardiac output is:
A. None.
B. Increased cardiac output.
C. Decreased cardiac output because of increased afterload to the left ventricle.
D. Decreased cardiac output because of decreased effective preload to the left ventricle.
Answer: D

8. Weaning patients from maximum ventilator support usually involves:
A. Weaning PEEP first, tidal volume second, and the fraction of inspired oxygen (FIO 2) third.
B. Weaning FIO 2 first, ventilator rate second, and PEEP third.

C. Weaning FIO2 first, PEEP second, and tidal volume third.
D. Weaning FIO 2 first, PEEP second, and ventilator rate third.
Answer: D

9. Which of the following statements about bronchoscopy is false?
A. The morbidity and mortality are approximately 0.2% and 0.08%, respectively.
B. The most common complications of bronchoscopy are related to premedication of patients.
C. Adjunctive cancer therapy such as laser treatment and brachytherapy may be administered via this route.
D. A chronic cough and unilateral wheezing are accepted indications for bronchoscopy.
E. Early postoperative bronchoscopy for atelectasis is contraindicated following pulmonary resection.
Answer: E

10. Flexible bronchoscopy is preferred over rigid bronchoscopy for all of the following except:
A. Patients with cervical spine injuries requiring intubation.
B. The evaluation of a smoke inhalation injury.
C. Transcarinal needle aspiration of an enlarged subcarinal lymph node.
D. The removal of a bronchus intermedius foreign body from an infant.
E. A cost-effective evaluation of mild hemoptysis.
Answer: D

11. Which of the following approaches is/are currently acceptable for the management of spontaneous pneumothorax?
A. Chest tube replacement alone for the patient with a first episode.
B. Operation on presentation for any patient with a first episode.
C. Video-assisted thoracic surgery (VATS) bleb excision and pleurodesis for recurrent pneumothorax on the same side.
D. Thoracotomy with bleb excision and pleurodesis for unilateral recurrent pneumothorax.
E. Operation after a first episode in an airline pilot.
Answer: ACDE

12. For which patient(s) with a pulmonary infiltrate of uncertain cause would you favor VATS over open wedge excision?
A. An AIDS patient with a diffuse infiltrate who is ambulatory but requires supplemental oxygen. Bronchoalveolar lavage is negative.
B. A 64-year-old previously healthy man with increasing shortness of breath, a diffuse infiltrate, and restrictive lung disease as shown by pulmonary function studies.
C. A 74-year-old diabetic woman with a rapidly progressing process throughout the right lung who is ventilator- and pressor-dependent.
D. A 44-year-old man with fever, left-sided infiltrate, and shortness of breath.
E. A 79-year-old man on a ventilator for right lower and middle lobe pneumonia which has been culture negative.
Answer: ABD

13. Which of the following statements about the cause and prevention of postintubation tracheal stenosis are correct?
A. Postintubation airway stenosis can largely be avoided by providing assisted ventilation via endotracheal tube rather than tracheostomy tube.
B. Postintubation tracheal stenosis at the cuff level results, more or less equally, from low blood pressure, advanced age, steroids, high intracuff pressure, sensitivity to tube materials, gas sterilization elution products, and systemic disease.
C. In women and smaller men large endotracheal tubes can produce lesions of the glottis and subglottis that can progress to stenosis.
D. Stomal stenosis is due principally to cicatricial closure of large stomas resulting from removal of a disk or segment of tracheal wall during tracheostomy.
E. A large-volume tracheostomy tube cuff such as that now used on most available tubes can become a high-pressure cuff if filled beyond its resting maximal volume.
Answer: CE

14. Which of the following statements about the treatment of postintubation airway stenosis are correct?
A. Emergency management of airway obstruction due to stenosis at the level of a prior tracheal stoma is best accomplished by establishing a new tracheostomy in normal tracheal tissue just below the scar of the old stoma.
B. Radial lasering and dilatation usually leads to permanent resolution of postintubation tracheal stenosis.
C. Splinting of a cervical trachea with a silicone T-tube for 6 to 8 months generally leads to permanent resolution of stricture.
D. Postintubation tracheal stenosis that extends into the subglottic larynx is treated by resection of a cylindrical sleeve of stenotic airway and end-to-end reconstruction.
E. Acquired tracheoesophageal fistula due to intubation injury is corrected by surgical closure of the fistula concurrent with resection and reconstruction of the damaged trachea.
Answer: E

15. Which of the following statements are true?
A. Pyogenic lung abscess occurs most frequently in the lower lobe of the left lung.
B. Anaerobic bacteria are commonly present in pyogenic lung abscess.
C. Operation is usually required to eradicate a pyogenic lung abscess
D. Penicillin is the treatment of choice for lung abscess.
Answer: BD

16. Amphotericin B is effective for the following lung infections:
A. Histoplasmosis.
B. North American blastomycosis.
C. Aspergillosis.
D. Mucormycosis.
E. Sporotrichosis.
Answer: ABD

17. The following statements are true.
A. A distinguishing roentgenographic appearance of lung abscess, the air-fluid level can be seen only on roentgenograms obtained in the upright or lateral decubitus position.
B. The fungus ball characteristic of aspergillosis can be seen roentgenographically in either the upright or recumbent position.
C. Actinomycosis and nocardiosis are both fungal diseases of the lung that respond to treatment with the newer azole antifungal agents.
D. The commonest fungal lung infection in the United States is due to Histoplasma capsulatum.
Answer: ABD

18. Pneumocystis pneumonia is an opportunistic infection caused by Pneumocystis carinii. Which of the following statements are true?
A. P. carinii is a fungus.
B. Pneumocystis pneumonia is the most common opportunistic infection in patients with AIDS.
C. The diagnosis of Pneumocystis pneumonia depends on the demonstration of P. carinii organisms in lung tissue.
D. There is no effective treatment for Pneumocystis pneumonia.
Answer: BC

19. Which of the following statements are true?
A. The pleural space does not extend into the neck.
B. Positive intrapleural pressures as high as 40 cm. H 2O and negative pressures as low as -40 cm. H 2O are possible.
C. The pleural cavities cannot absorb more than 500 ml. of fluid per day.
D. All pleural effusions are of clinical significance and should be investigated.
Answer: BD

20.Which of the following statements are true?
A. Chylothorax, or chyle in the pleural cavity, usually is not a serious condition.
B. Chyle is easily identified by its milky appearance, which looks like no other kind of pleural effusion.
C. The commonest causes of chylothorax are trauma and tumor.
D. The thoracic duct can be ligated with impunity.
Answer: CD

21. Which of these statements about pleural tumors is/are true?
A. The commonest type of pleural tumor is primary pleural mesothelioma.
B. Exposure to asbestos dust is causally related to the development of malignant mesothelioma.
C. Localized benign mesotheliomas are asymptomatic.
D. Complete pleurectomy for malignant mesothelioma usually results in cure.
Answer: B

22. Which of the following correctly describe a patient with spontaneous pneumothorax?
A. The patient is almost always elderly and debilitated.
B. An unsuspected primary or metastatic lung tumor may be present.
C. The administration of supplemental oxygen is of little benefit to the patient.
D. The patient should always be treated with an intercostal tube and closed pleural drainage.
E. Video-assisted thoracic surgery (VATS) should be considered for persistent air leak in patients with secondary spontaneous pneumothorax.
Answer: BE

23. Which of the following statements about spontaneous pneumothorax (PSP) is/are correct?
A. The risk of recurrence after resolution of the first episode of PSP or secondary spontaneous pneumothorax (SSP) is 35% to 45%.
B. Patients with PSP are typically tall, thin, young adult males with a history of smoking.
C. Secondary spontaneous pneumothorax is associated with family history in 10% of cases.
D. For bleb resection and pleurodesis thoracoscopic thoracotomy and open thoracotomy provide similar cure rates for patients with primary spontaneous pneumothorax.
E. Causes of secondary pneumothorax include trauma and iatrogenic needle puncture.
Answer: ABD

24. Which of the following are relative contraindications for surgical management of emphysema?
A. Rapidly progressive dyspnea.
B. Bullae occupying less than one third of a hemithorax on plain chest radiography.
C. Elevated room air PCO 2.
D. "Pink puffer" patients.
E. FEV 1 less than 35% of predicted value.
Answer: BCE

25. Which of the following treatments would be appropriate therapy for symptoms that persist on medical therapy and bronchiectasis involving, in order of decreasing severity, the left lower lobe, the right middle lobe, and the left upper lobe?
A. Left pneumonectomy.
B. Wedge resection of the left lower lobe.
C. Left lower lobectomy.
D. Simultaneous left lower lobectomy and right middle lobectomy.
Answer: C

26. Which of the following would not be acceptable sequences of preoperative studies in a patient being prepared for lingulectomy for bronchiectasis?
A. CT alone.
B. CT, bronchoscopy, bronchography.
C. Bronchoscopy alone.
D. Bronchoscopy, bronchography.
Answer: C

27. Which of the following statements about pulmonary mycobacterial infection is/are correct?
A. Worldwide, tuberculosis no longer represents a significant public health problem.
B. Mycobacterium tuberculosis is responsible for the majority of cases of pulmonary mycobacterial disease.
C. Mycobacterium kansasii pulmonary infection almost always requires surgical treatment.
D. Atypical mycobacteria are never primary pulmonary pathogens in humans.
E. Mycobacterium avium-intracellulare is generally resistant to most antimycobacterial drugs in vitro.
Answer: BE

28. Which of the following chemotherapeutic regimens are currently recommended for the treatment of pulmonary infection caused by M. tuberculosis?
A. Isoniazid, rifampin, pyrazinamide, and streptomycin for 24 months.
B. Isoniazid for 9 months with ethambutol for the first 3 months.
C. Isoniazid and rifampin for 6 months with pyrazinamide added for the first two months.
D. Isoniazid alternating with rifampin at 3-month intervals for 12 months.
E. Isoniazid and rifampin for 9 months.
Answer: CE

29. Which of the following are appropriate indications for pulmonary resection for mycobacterial disease?
A. Localized pulmonary disease caused by M. avium-intracellulare.
B. Advanced lobar tuberculous pneumonia with massive hilar lymphadenopathy and bronchial obstruction in a young child.
C. Localized pulmonary disease due to multiple drug–resistant M. tuberculosis.
D. An asymptomatic tuberculous cavity greater than 12 cm. in diameter.
E. Massive hemoptysis from a right upper lobe cavity occurring during an appropriate course of chemotherapy for pulmonary tuberculosis in a sputum-negative patient.
Answer: ACE

30. Which statements about squamous papillomatosis of the trachea is/are correct?
A. It is the most common type of benign tracheal tumor in adults.
B. It is the most common type of benign tracheal tumor in children.
C. Most are treated with segmental tracheal resection.
D. There is no risk of malignant degeneration.
E. It is associated with a herpesvirus.
Answer: A

31. Which of the following statements about pulmonary hamartomas is/are true?
A. Hamartomas are benign chondromas.
B. Most are located in the conducting airways.
C. Wedge resection is curative.
D. A lobectomy is necessary to obtain draining hilar lymph nodes.
E. Hemoptysis is common.
Answer: C

32. Which of the following statements about typical carcinoid tumors are true?
A. They make up the majority of bronchial adenomas.
B. They frequently have lymph node metastases.
C. The carcinoid syndrome is observed in 33%.
D. Overall survival at 5 years is 90%.
E. Overall survival at 5 years is 50%.
Answer: AD

33. Which is/are true of adenoid cystic carcinoma?
A. It is a common type of salivary gland tumor.
B. Another name is cylindroma.
C. Most patients are completely resected for cure.
D. Different histological types have different prognoses.
E. Tissue invasion is rare.
Answer: ABCD

34. A solitary pulmonary nodule is discovered in an asymptomatic 55-year-old smoker with no evidence of extrathoracic dissemination. The most appropriate management would be to:
A. Obtain serial chest films every 3 months to determine the growth potential of the nodule.
B. Perform transthoracic needle aspiration (TTNA) before considering pulmonary resection to confirm malignancy.
C. Conduct an extensive systematic evaluation to exclude the possibility that the nodule represents a metastatic lesion.

D. Proceed with pulmonary resection after ascertaining that the patient would tolerate removal of the requisite amount of lung.
E. Obtain baseline serum levels of carcinoembryonic antigen and p53.
Answer: D

35. After thoracotomy, pulmonary resection, and mediastinal lymph node dissection, a patient is determined to have a squamous cell carcinoma 2 cm. in diameter, located 1 cm. from the carina along the right mainstem bronchus. Three peribronchial lymph nodes are positive for cancer, and all other lymph node stations are negative. The correct stage, according to the TNM system, is:
A. T1N0M0 Stage I.
B. T1N1M0 Stage II.
C. T2N1M0 Stage II.
D. T3N1M0 Stage IIIa.
E. T2N3M0 Stage IIIb.
Answer: C

36. After complete resection of Stage I non-small cell lung cancer (NSCLC), the role of adjuvant therapy is best summarized thus as:
A. Postoperative radiation therapy improves disease-free survival.
B. Postoperative radiation therapy improves overall survival.
C. Postoperative chemotherapy improves disease-free survival.
D. Postoperative chemotherapy improves overall survival.
E. Adjuvant therapy is not indicated after complete resection of Stage I NSCLC.
Answer: E

37. Compared to segmentectomy or wedge resection, lobectomy for NSCLC is associated with:
A. Similar operative morbidity but higher operative mortality.
B. Similar operative mortality but higher operative morbidity.
C. More severe postoperative pulmonary dysfunction.
D. Lower incidence of locoregional recurrence.
E. Equivalent locoregional recurrence.
Answer: D

38. In contrast to NSCLC, small cell lung cancer (SCLC) is characterized by:
A. Greater response rate to chemotherapy.
B. Inability to achieve surgical cure.
C. Less frequent association with paraneoplastic syndromes at the time of diagnosis.
D. Lower likelihood of metastases present at the time of diagnosis.
E. Slower growth.
Answer: A

39. Which of the following statements about the diagnosis and staging of mesothelioma is/are correct?
A. Fluid obtained by thoracentesis is usually adequate for accurate diagnosis.
B. Open biopsy or thoracoscopy should be performed to obtain tissue for diagnosis.
C. Immunohistochemistry should be performed in all cases of suspected mesothelioma.
D. Chest CT and/or magnetic resonance imaging (MRI) are useful in the staging of mesothelioma.
E. Head CT and bone scans are useful in the staging of mesothelioma.
Answer: BCD

40. Which of the following statements about therapy for malignant pleural mesothelioma is/are correct?
A. The role of surgery is confined to biopsy for diagnosis and pleurodesis for palliation of effusion.
B. Extrapleural pneumonectomy involves resection en bloc of the lung, visceral and parietal pleura, pericardium, and diaphragm.
C. If a lesion is unresectable by extrapleural pneumonectomy, pleurectomy/decortication is contraindicated.
D. Neither surgery, chemotherapy, nor radiation therapy as a single therapy improves survival.
E. Multimodality therapy, combining surgery, chemotherapy, and radiation therapy may improve survival in select patients.
Answer: BDE

41. All of the following may be acceptable operative approaches to management of the thoracic outlet syndrome except:
A. Scalenectomy.
B. Excision of a cervical rib.
C. Thoracoplasty.
D. First rib resection.
E. Division of anomalous fibromuscular bands.
Answer: C
42. Initial conservative (nonsurgical) management of the thoracic outlet syndrome may include all of the following except:
A. Weight reduction.
B. Improvement of posture.
C. Exercises to strengthen the muscles of the shoulder girdle.
D. Pentoxifylline.
E. Avoiding hyperabduction.
Answer: D
43. Which of the following statements about pectus excavatum are correct?
A. It is the most common congenital malformation of the chest wall.
B. The most frequent presenting complaint is the cosmetic deformity.
C. The manubrium and first and second costal cartilages typically are involved in the deformity.
D. It may be associated with cardiac defects and other skeletal defects such as scoliosis.
E. Restrictive alterations in chest wall mechanics and abnormalities in pulmonary function tests have been documented.
Answer: ABDE
44. Surgical correction of pectus excavatum is characterized by which of the following?
A. Significant cosmetic improvement initially but a high incidence of recurrence of the defect on late follow-up.
B. An increase in exercise tolerance and respiratory reserve postoperatively.
C. Improvement in FEV 1, vital capacity, and total lung capacity.
D. Improvement in maximal ventilatory volume, total progressive exercise time, and maximal exercise capacity.
E. Prevention of the development of "thoracogenic scoliosis."
Answer: BDE
45. Which of the following statements about the diagnosis of chest wall tumors is/are correct?
A. Pain is a common presenting symptom.
B. Firmness and fixation to underlying bone and muscle are important to note in the physical examination as aids to diagnosis.
C. In general, chest wall tumors are slow growing and produce symptoms late in their course.
D. CT is the most useful imaging study for making the diagnosis and for planning surgical resection of chest wall tumors.
E. Angiography should be performed routinely.
Answer: BCD
46. Which of the following statements about chest wall resection and reconstruction is/are correct?
A. Most tumors of soft tissue and bone require 4-cm. margins to be adequately resected.
B. At least one normal rib above and below the primary tumor should be included in the resection.
C. Techniques of chest wall reconstruction are directed at the prevention of paradoxical chest wall movement with respiration.
D. Soft tissue defects are most conveniently addressed by stretching the existing skin over the defect under tension.
E. Chest wall defects that are covered by the scapula require no special reconstructive procedures, even if the defects are quite large.
Answer: ABCE
47. Prolonged extracorporeal membrane oxygenation (ECMO):
A. Is highly successful in the treatment of severe respiratory failure in newborn infants.
B. Is contraindicated in adult respiratory distress syndrome (ARDS).
C. Causes hemolysis and renal failure.
D. Requires total systemic heparinization (activated clotting time longer than 500 seconds).
E. Is identical to heart/lung bypass for cardiac surgery.
Answer: A

48. Indications for ECMO include:
A. Newborn infants with pulmonary hypoplasia secondary to congenital diaphragmatic hernia.
B. Meconium aspiration syndrome in full-term babies (at least 35 weeks).
C. Children with pulmonary infection after bone marrow transplantation.
D. Adults with acute viral pneumonia.
E. Adults requiring mechanical ventilation and 100% oxygen for 2 weeks or longer.
Answer: BD

49. Venovenous ECMO:
A. Avoids major arterial access.
B. Provides cardiac and pulmonary support.
C. Can be accomplished via cannulation at separate venous sites or at a single venous site using a double-lumen catheter.
D. Provides greater venous drainage than venoarterial ECMO.
E. Maintains the normal pulsatile blood flow to the systemic circulation.
Answer: ACE

50. As compared with venovenous ECMO, venoarterial ECMO:
A. Requires cannulation of a major artery and vein.
B. Provides both cardiac and respiratory support.
C. Can be performed with less anticoagulation.
D. Usually maintains a normal pulse pressure.
Answer: AB

51. A 24-year-old male has new onset of chest pain. Chest films demonstrate a large anterosuperior mass. Appropriate evaluation should include:
A. CT of the chest.
B. Measurement of serum alpha-fetoprotein and beta–human chorionic gonadotropin.
C. A barium swallow.
D. A myelogram.
Answer: AB

52. Systemic syndromes frequently associated with mediastinal tumors include:
A. Myasthenia gravis.
B. Hypercalcemia.
C. Malignant hypertension.
D. Carcinoid syndrome.
Answer: ABC

53. A 36-year-old female developed dyspnea on exertion that has progressed over 3 months. Chest film reveals a left anterior mediastinal mass with evidence of elevated left hemidiaphragm. CT indicates probable invasion of the pericardium. Paratracheal or subcarinal adenopathy is not identified. Appropriate intervention in this patient would include:
A. A median sternotomy with radical resection of the tumor, sacrificing the left phrenic nerve and excising the involved pericardium.
B. A mediastinoscopy with biopsy.
C. A left anterolateral thoracotomy or median sternotomy with generous biopsy of the tumor.
D. Observation with repeat chest radiography in 3 months.
Answer: C

54. An 18-year-old male presents with a history of increasing shortness of breath that worsens in the recumbent position. On physical examination, the neck veins are noted to be distended, with facial plethora that is accentuated by lying the patient down. A 2.5-cm. left supraclavicular lymph node is palpable. Chest film reveals an extensive right anterosuperior mediastinal mass. Appropriate intervention may include:
A. An urgent biopsy of the mediastinal mass under general anesthesia with subsequent initiation of therapy.
B. CT.
C. Pulmonary function testing in the sitting and supine positions.
D. A biopsy of the right supraclavicular lymph node under general anesthesia.
E. A biopsy of the supraclavicular lymph node under local anesthesia.
Answer: BCE

55. A 42-year-old male who is scheduled to undergo elective knee surgery has a preoperative chest film that demonstrates a 5-cm. posterior mediastinal mass. The patient denies any neurologic symptoms and physical examination fails to elucidate any neurologic deficit. CT confirms the presence of a 5-cm. mediastinal mass in the left costovertebral gutter with minimal enlargement of the seventh thoracic foramen. Appropriate intervention includes:
A. Resection of the posterior mediastinal mass using a standard posterolateral incision.
B. A CT with myelography or magnetic resonance (MR) imaging.
C. Two-stage removal of the tumor, performing the resection of the thoracic component first with subsequent removal of the spinal column component at a later date.
D. One-stage removal of the dumb-bell tumor, excising the intraspinal component prior to resection of the thoracic component.
Answer: BD

56. True statements regarding patients with a mediastinal mass include:
A. Asymptomatic patients have a benign mass in over 75% of cases.
B. Symptomatic patients are more likely to have a malignant lesion than a benign lesion.
C. In a patient with a chest film demonstrating a mediastinal mass, a Tru-cut needle biopsy is a safe procedure.
D. Seminomas usually produce alpha-fetoprotein.
Answer: AB

57. Which of the following would be the least appropriate in the management of acute suppurative mediastinitis?
A. Wide débridement.
B. Irrigation under pressure.
C. Topical antibacterials.
D. Long-term systemic antibacterials.
E. Closure with muscle flaps.
Answer: D

58. Each of the following is appropriate for managing acute suppurative mediastinitis except:
A. Alloplastic material and skin flaps.
B. Rectus abdominis muscle flaps.
C. Omentum.
D. Pectoralis major muscle flaps.
E. Rigid internal fixation.
Answer: A

59. Clinical features suggestive of myasthenia gravis include all of the following except:
A. Proximal muscle weakness.
B. Diplopia.
C. Sensory deficits of the extremities.
D. Dysphagia.
Answer: C
60. The diagnosis of myasthenia gravis can be confirmed most reliably using:
A. Anti–acetylcholine receptor antibody titers.
B. The Tensilon test.
C. Electromyography (EMG).
D. Single-fiber EMG.
E. Physical examination.
Answer: D
61. All of the following statements are true about the pathogenesis of myasthenia gravis except:
A. The number of functional acetylcholine receptors at the motor end plate is reduced.
B. An autoimmune mechanism involving antibodies to the acetylcholine receptor has been proposed.
C. Complement system involvement has been demonstrated.
D. A nonspecific "thymitis" may initiate the autoimmune response.
E. Clinical improvement following thymectomy is correlated with decreased acetylcholine receptor antibody titers.
Answer: E

62. Which of the following statements about the relationship of the thymus and myasthenia gravis is/are true?
A. Thymic abnormalities are present in up to 80% of patients with myasthenia gravis.
B. Thymoma is present in up to 20% of patients with myasthenia gravis.
C. Myasthenia gravis will occur in up to 60% of patients with thymomas.
D. Myasthenia patients with thymoma respond more favorably to thymectomy.
E. Thymoma is the most common abnormality of the thymus in patients with myasthenia gravis.
Answer: ABC

63. Which of the following statements about the results of thymectomy for myasthenia gravis are true?
A. Patients with ocular symptoms experience clinical improvement in 90% of cases.
B. Clinical remission can be expected in 90% of cases.
C. The response rate to thymectomy for patients with generalized symptoms is 90%.
D. Patients with thymoma experience improvement in 75%.
E. Continued medical therapy is required in 75%.
Answer: C

64. All of the following are true of the treatment of myasthenia gravis except:
A. The transcervical approach to surgical thymectomy is less likely to benefit the patient with myasthenia gravis.
B. Corticosteroids result in improvement in 80% of patients.
C. Plasma exchange is associated with improvement in up to 90% of patients.
D. Medical therapy with Mestinon (pyridostigmine) is associated with remission in approximately 10% of patients.
E. Surgical thymectomy, regardless of the approach, is associated with improved remission and response rates as compared with medical therapy.
Answer: A

65. Which of the following is/are acceptable alternatives in the management of malignant pericardial effusion?
A. Pericardiocentesis.
B. Subxiphoid pericardiotomy ("pericardial window").
C. Thoracotomy with pericardiectomy.
D. Instillation of tetracycline or bleomycin into the pericardial space.
E. Treatment of the underlying malignancy.
Answer: ABCDE

66. Which of the following statements about cardiac tamponade is/are correct?
A. At least 500 ml. of fluid must be present in the pericardium of an adult to cause symptoms of tamponade.
B. A drop in systemic blood pressure of greater than 20 mm. Hg during inspiration (pulsus paradoxus) is a finding specific to cardiac tamponade.
C. The vast majority of patients with cardiac tamponade demonstrate a low QRS voltage, nonspecific ST T-wave abnormalities, and electrical alternans (alternation of QRS amplitude) on the electrocardiogram.
D. In trauma victims with cardiac tamponade, the three components of "Beck's triad" (hypotension, elevated jugular venous pressure (JVP), and muffled heart sounds) are almost always present.
E. When the diagnosis is made, treatment must be instituted rapidly and may include pericardiocentesis, creation of a pericardial window, and identification and treatment of the underlying cause.
Answer: E

67. Which of the following statements about constrictive pericarditis is/are correct?
A. Most patients who develop constrictive pericarditis after cardiac operation present with symptoms within 6 months of the procedure.
B. Results of pericardiectomy for constrictive pericarditis are worse in patients who develop constriction after mediastinal irradiation.
C. Drainage of asymptomatic pericardial effusions arising from acute pericarditis is advised to prevent development of constrictive pericarditis.
D. If surgical treatment is planned for constrictive pericarditis it should involve total or complete pericardiectomy.
E. Echocardiography can usually make the diagnosis by imaging a thickened pericardium.
Answer: BD

68. The relationship between small-cell and non-small cell lung cancers can be described by the following:
a. They differ by histology, clinical behavior and cell of origin
b. Of all lung cancers, approximately 80% are non-small cell and 20% are small cell
c. Both cell types are predictably responsive to chemotherapy
d. The International Staging System can be applied to both tumor types
e. The majority of non-small cell cancer patients vs. the minority of small cell cancer patients are candidates for pulmonary resection
Answer: b

69. A 62-year-old male smoker presents with right anterior chest pain. There is a 3 cm mass attached to the chest wall with radiographic evidence of rib erosion and positive cytology for non-small cell carcinoma. Which of the follow is/are true:
a. The patient is inoperable due to tumor size and chest wall involvement
b. Radiation therapy is the preferred initial treatment
c. Operative resection should be performed with en bloc removal of the tumor and adjacent chest wall as well as a mediastinal lymph node resection
d. Positive mediastinal nodes will have little effect on survival
e. The patient would be classified Stage IIIa
Answer: c, e

70. For the patient in the pervious question to become an operative candidate which of the following must be met?
a. Extrathoracic metastases must be able to be controlled by another modality, e.g. radiotherapy
b. Tumor doubling time must exceed 40 days
c. If there is recurrence at the primary site, it must be treated before the metastatic disease
d. Even if effective systemic therapy is available, resection of metastases is preferred
e. If pulmonary reserve is marginal, resection of the maximal number of metastatic foci should be performed
Answer: c

71. Biopsy of the lesion in the previous question is reported as "bronchial carcinoid with no signs of atypia." Which of the follow is/are true?
a. Sleeve resection of the bronchus would be appropriate
b. Lymph node biopsy at time of resection is unnecessary
c. Associated carcinoid syndrome is very unlikely
d. If carcinoid syndrome were found in a tumor this size, hepatic metastases would be likely
e. When bronchial carcinoid syndrome occurs, right-sided cardiac valves are affected
Answer: a, c, d

72. In the evaluation and preparation of a 55-year-old smoker for resection of a 3 cm pulmonary adenocarcinoma, the following is/are true:
a. Preoperative cessation of smoking does not reduce postoperative pulmonary complications
b. Resting $PaCO_2$ is of more value than PaO_2
c. FEV1 is of more value than measured vital capacity
d. Diffusion capacity should be measured routinely
e. V/Q lung scan is useful when pulmonary reserve is marginal
Answer: b, c, e

73. Following resection of a T1N1 squamous cell cancer in a 47-year-old male, the following is/are true:
a. There is a higher risk of local recurrence than with any other histologic type of non-small cell cancer
b. The greatest risk to the patient is a distant metastasis
c. Of all metastatic sites, liver is most likely
d. If the patient survives five years, there is a greater risk of a new lung cancer than recurrence
e. To improve survival, the patient should be considered for adjuvant chemotherapy
Answer: a, b, d

74. A 42-year-old woman with hemoptysis is seen to have a 2 cm mulberry appearing polypoid lesion in the left mainstem bronchus suspicious for bronchial adenoma. The differential diagnosis includes which of the following:

a. Mucoepidermoid carcinoma
b. Plasma cell granuloma
c. Carcinoid tumor
d. Adenoid cystic carcinoma
e. Mucous gland adenoma

Answer: all of the above

75. A 42-year-old man has a solitary "coin lesion" 2 cm in diameter in the area of the right upper lobe on a routine chest radiograph. Which of the following is/are true?

a. A previous radiograph from five years prior showing the lesion to be 1.2 cm in diameter indicates malignancy
b. If a CT scan shows mediastinal adenopathy, mediastinoscopy is preferable to thoracotomy
c. In the absence of previous radiographs, the lesion should be followed by serial films at 6 month intervals
d. Calcification in a concentric or "popcorn" configuration denotes a benign lesion
e. Needle aspiration showing "chronic inflammatory cells" denotes a benign lesion

Answer: b, d

76. A 2 cm peripheral squamous cell carcinoma in the lung of a 60-year-old male with a pleural effusion positive for malignant cells would be classified as:

a. T1N0M1
b. T3N0M0
c. T3N0M1
d. T4N0M0
e. T4N0M1

Answer: d, e

77. A 53-year-old woman who had a malignant tumor removed 2 years ago presents with a solitary lung nodule 1.5 cm in diameter. The following is/are true:

a. If the primary tumor originated in the breast, the lesion is most likely to represent a new primary lung cancer.
b. If the primary tumor was melanoma, the lesion is most likely to be metastatic
c. If the remainder of the lung fields are clear, a CT scan is unnecessary
d. If the primary tumor was in the GI tract, there is very little chance that the lesion is a new primary lung cancer
e. Fine needle aspiration should always be performed prior to resection of the lung lesion

Answer: a, b

78. A 61-year-old male presents with a painful mass 3.5 cm in diameter below the clavicle and attached to the chest wall. The following is/are true:

a. A CT scan is the best study to determine rib destruction
b. The lesion should be removed enbloc without biopsy to minimize the chances for local recurrence
c. The chances are approximately 40% that the lesion is metastatic
d. If it is metastatic, the most likely primary tumor is in the lung or pancreas
e. Fortunately, less than 50% of chest wall tumors are malignant

Answer: c

79. Concerning the sternum, the following is/are true:

a. The xiphoid process is the anterior border of the thoracic outlet
b. Gladiolus is the body of the sternum
c. The angle of Louis is at the level of the 2nd costal cartilage
d. The 11th rib is attached via costal cartilage to the xiphoid
e. The sterno-manubrial junction is at the level of T4 posteriorly

Answer: a, b, c, e

80. A 22-year-old woman recovering from a traumatic head injury is noted to have bright red bleeding when her tracheostomy is suctioned. The following is/are true statement(s):

a. Antibiotics should be administered to treat the bronchitis
b. Deflation of the tracheal tube cuff is a useful diagnostic maneuver
c. If massive bleeding occurs, a finger should be used to compress the innominate artery against the sternum

d. Operative treatment of a tracheoinnominate fistula includes resection and prosthetic replacement of the innominate artery
e. Tracheal resection is usually required for a tracheoinnominate fistula to prevent recurrence

Answer: b, c

81. A 52-year-old alcoholic with fever and a cough productive of purulent sputum is found to have the opacity on chest film as shown (Fig. 62-15). The following is/are true statement(s):

a. The findings suggest a parapneumonic empyema
b. If pus is found on aspiration of the pleural space, a chest tube should be placed
c. If pus is found on aspiration, bronchoscopy is a necessary part of the patient's evaluation
d. In this situation, rib resection for drainage is preferred to a large-bore chest tube
e. Decortication of the lung should be considered if the lung fails to expand within 4 weeks

Answer: a, b, c

82. The lesion shown (Fig. 62-6) was found on a 32-year-old male on a routine chest film required for his employment. Which of the following is/are true?

a. The stippled calcification and intact cortex of the rib are characteristic of osteochondroma
b. The stippled calcification is characteristic of osteogenic sarcoma
c. If the lesion is osteogenic sarcoma, the optimal treatment is resection and radiation therapy
d. If the lesion is an osteochondroma, it need not be resected in this age group
e. The radiographic picture is typical for Ewing sarcoma

Answer: a

83. To resect a chondrosarcoma of the chest wall in a 42-year-old man, ribs 2–4 were removed, leaving a defect 8 x 8 cm. For reconstruction, the following is/are true:

a. If this were to be posterior, beneath the scapula, reconstruction would not be required
b. If this defect is anterior, the primary benefit of reconstruction is an improved cosmetic result
c. Whenever chest wall reconstruction is considered, it should be delayed 6–12 months to allow detection of recurrent tumor
d. If Marlex is used for reconstruction, no wound drainage tube is necessary
e. If PTFE is used for reconstruction, both pleural and wound tubes should be used

Answer: a, d, e

84. An upright chest film of a cachectic, homeless 47-year-old woman shows blunting of the right costophrenic angle. The following is/are true:

a. A lateral decubitus film should be obtained to confirm the presence of fluid rather than a CT scan
b. Tuberculous effusion can readily be identified by stain and culture of aspirated fluid
c. A pleural fluid glucose level lower than in the serum is diagnostic of empyema
d. Bloody pleural effusion in this patient is diagnostic of an underlying malignancy
e. Pleural fluid cytology report of lumphoma should be viewed with skepticism

Answer: a, e

85. The pectoralis major muscle is available and innervated by the medial and lateral pectoral nerves so named because it describes their relationship to the pectoralis minor

a. The serratus anterior muscle is available since its absence has no functional significance
b. There is no serratus posterior muscle
c. The latissimus dorsi muscle is available and supplied by the thoracodorsal artery
d. The latissimus dorsi is innervated by the thoracodorsal nerve with fibers from C6, C7 and C8

Answer: d, e

86. A 38-year-old man presents with facial and upper extremity edema, venous distention in the neck and arms and a cyanotic appearance. The following is/are true statement(s):

a. The most likely cause of the problem is mediastinal granulomatous disease
b. A venogram should be obtained to confirm the diagnosis
c. Mediastinoscopy for diagnosis is contraindicated
d. If a malignancy is identified, resection is indicated for palliation
e. If the etiology is benign disease, gradual improvement without operation is to be expected

Answer: e

87. A 39-year-old woman with hypertension and radicular chest wall pain was found to have the lesion seen on chest radiograph (Fig. 63-23). The following is/are true statement(s):

a. The location of the lesion suggests a teratoma
b. High urinary vanillylmandelic acid levels would indicate that the lesion is a paraganglioma
c. If the lesion was seen on a film 5 years earlier, resection would not be indicated
d. A neurosurgical consultation should be obtained
e. Vasoactive intestinal polypeptide level elevation suggests a ganglioneuroma

Answer: d, e

TRANSPLANTATION

1. The "father of experimental surgery" who performed pioneering research, including several transplantation procedures, was:

A. Homer, the Greek who described the Chimaera in his Iliad.
B. Gasparo Tagliacozzi, the Italian who described a method of reconstructing the nose.
C. John Hunter, the Scot who performed autografts and xenografts.
D. Emrick Ullmann, the Austrian who performed the first successful renal allograft.
E. Alexis Carrel, the Franco-American who described a successful technique for vascular anastomosis.

Answer: C

2. Transplantation terminology contains terms to describe the relationship of the graft donor to the graft recipient. Historical terms such as "homograft" and "heterograft" have been replaced by less ambiguous terms. The correct modern terminology for a graft between genetically nonidentical members of the same species is:

A. Allogeneic graft.
B. Autogeneic graft.
C. Isogeneic graft.
D. Syngeneic graft.
E. Xenogeneic graft.

Answer: A

3. The modern era of clinical organ transplantation began with the advent of chemical immunosuppression. The important drug discovery that produced the initial success of cadaveric transplantation was:

A. Cyclophosphamide.
B. Azathioprine.
C. Cyclosporine.
D. Antilymphocyte serum.
E. Monoclonal antibody OKT3.

Answer: B

4. Which of the following statements correctly characterize the genetic basis of histocompatibility?

A. Histocompatibility is determined by a series of genes inherited as a complex and subject to the mendelian rules that characterize recessive traits.
B. Histocompatibility depends in part on the inheritance of histocompatibility genes and in part on the inheritance of T-cell receptor genes.
C. Major histocompatibility genes are polymorphic.
D. Histocompatibility genes are independently segregating and co-dominant.
E. Histocompatibility is learned.

Answer: CDE

5. The major histocompatibility complex (MHC) includes genes that encode which of the following proteins?

A. HLA-A.
B. HLA-DR.
C. TAP-1.
D. 21-Hydroxylase.
E. HLA-L.

Answer: ABCD

6. Which of the following distinguish MHC class I from MHC class II antigens?
A. MHC class I and class II antigens are encoded in different regions of the MHC complex.
B. MHC class I antigens are expressed on specialized antigen-presenting cells, whereas MHC class II antigens are expressed on all cells.
C. MHC class I and class II are members of different supergene families.
D. MHC class I are considered to be the major histocompatibility antigens and MHC class II the minor histocompatibility antigens.
E. MHC class I is recognized by the CD8 glycoprotein, whereas MHC class II is recognized by the CD4 glycoprotein.
Answer: AE

7. Which of the following characterize the role of the major histocompatibility antigens in immune responses?
A. The major histocompatibility antigens are critical in antigen processing and presentation.
B. Major histocompatibility antigens contribute to the maturation of T cells in the thymus.
C. T cells recognize only foreign antigens that are complexed with major histocompatibility antigens.
D. Expression of major histocompatibility antigens is increased in inflammation.
E. Recognition of major histocompatibility antigens is critical to the development of tolerance.
Answer: ABCDE

8. The unusual intensity of alloimmune responses reflects which of the following characteristics?
A. The presence of a peptide-binding groove in the MHC molecule.
B. Recognition of the native structure of allogeneic MHC molecules.
C. The high frequency of T cells able to recognize directly allogeneic MHC antigens.
D. Stimulation of many T-cell receptors during the interaction of a T cell with an antigen-presenting cell.
E. The high frequency of antigen-presenting cells able to be recognized by T cells.
Answer: BCDE

9. Which of the following statements correctly characterize the role of histocompatibility typing in transplantation?
A. Histocompatibility typing must be carried out before transplantation can safely be undertaken.
B. The "rules" of histocompatibility were established shortly after the advent of immunosuppressive therapy made transplantation feasible.
C. Histocompatibility typing may involve serologic, cellular, and molecular procedures for typing.
D. The role of histocompatibility matching in transplantation is controversial.
E. The cross-match test is carried out to determine whether a potential graft recipient has antibodies against the donor.
Answer: CDE

10. Activation of T cells requires:
A. Stimulation of the antigen receptor.
B. Stimulation of the MHC antigen.
C. Co-stimulation.
D. Anergy.
E. CD3.
Answer: ACE

11. Which of the following statements characterize the biology of allotransplantation?
A. The rejection response is systemic.
B. The rejection response is learned.
C. The rejection response involves a constellation of immunologic and environmental factors.
D. Allotransplantation evokes a cellular immune response.
E. Allotransplantation evokes a humoral immune response.
Answer: ABDE

12. Allograft rejection may involve which of the following?
A. Helper T cells.
B. Veto cells.
C. Cytotoxicity.
D. Cytokines.
E. The Arthus reaction.
Answer: ACD

13. Which of the following statements about allograft rejection are true?
A. In the absence of immunosuppression, the time and intensity of rejection of transplants between unrelated donors and recipients is highly variable.
B. Allograft rejection may be mediated by antibodies or by cells.
C. Allograft rejection is thought to be caused by Th2 cells.
D. Acute cellular rejection is the major cause for loss of clinical organ transplants.
E. An individual with "tolerance" is unable to reject an allograft.
Answer: B

14. The presence of donor-reactive lymphocytotoxic antibodies in the serum of a potential kidney transplant recipient:
A. Can be detected by in vitro testing with recipient leukocytes and donor serum.
B. Is a contraindication to kidney transplantation.
C. Can be found in all male patients older than 20 years.
Answer: B

15. Utilization of a living related donor instead of a cadaver donor is no longer an advantage in renal transplantation because:
A. Public recognition of transplantation as a successful therapy has facilitated obtaining family permission for recovery of transplantable organs. Thus, because sufficient kidneys are available from "brain-dead" accident victims, there is no need to use related donors.
B. Cyclosporine therapy after cadaveric renal transplants has improved their outcome, which is now comparable to related-donor transplants.
C. Modern preservation techniques can maintain viability of kidneys from cadaver donors for many hours, consistently allowing their early function to be as good as that of kidneys from living donors.
D. None of the above.
Answer: D

16. Large volumes of urine in the early postoperative course of renal transplant patients:
A. Result from osmotic stimuli to diuresis.
B. May signify reversible polyuric acute tubular necrosis.
C. Should be replaced by administration of equal volumes of crystalloid.
D. Facilitate the diagnosis of rejection and obstruction of the renal artery and/or collecting system.
Answer: ABCD

17. As compared with the early immunosuppressive drugs (azathioprine, steroids, antilymphocyte serum) some newer agents have the following specific advantages:
A. Cyclosporine, which interferes with lymphokine production, exhibits neither bone marrow nor renal toxicity.
B. Monoclonal antibody (OKT3) is more available and has greater specificity and fewer side effects than antilymphocyte serum.
C. Tacrolimus (FK506) has properties similar to those of cyclosporine but is especially valuable for rescue of grafts that are failing on cyclosporine therapy.
D. None of the above.
Answer: C

18. Survival rates for patients on dialysis are better than those for patients receiving renal allografts in the following circumstances:
A. A living related donor is available.
B. A cadaver donor must be used.
C. The recipient's renal failure is secondary to diabetes.
D. None of the above.
Answer: D

19. Posttransplantation hypertension can be caused by:
A. Rejection.
B. Cyclosporine nephrotoxicity.
C. Renal transplant artery stenosis (RTAS).

D. Recurrent disease in the allograft.
Answer: ABCD

20. Which of the following statements about posttransplantation malignancy is correct?
A. Certain immunosuppressive agents increase the incidence of malignancy in transplant recipients, whereas others do not.
B. Those malignancies most commonly seen in the general population (breast, colon) are substantially more common in transplant recipients.
C. Lymphoproliferative states and B-cell lymphomas are associated with Epstein-Barr virus.
D. None of the above.
Answer: C
21. One week after receiving a cadaver renal allograft, the recipient remains oliguric and dialysis dependent. Ultrasonography reveals a larger perigraft fluid collection. Your next step in management includes:
A. No further investigations (since perigraft collections are fairly common after renal transplantation).
B. Aspiration of the perigraft fluid collection and instillation of a fibrosis-inducing agent to obliterate the dead space.
C. Angiography for localization of a bleeding site in the renal allograft.
D. Aspiration of the perigraft fluid collection for chemical analysis.
Answer: D
22. Regarding access for hemodialysis, which of the following statements is/are incorrect?
A. Some patients are not candidates for hemodialysis.
B. Some complications can lead to exsanguination.
C. The best access to place for a patient beginning dialysis is a leg polytetrafluoroethylene (PTFE) graft from the femoral artery to the saphenous vein.
D. First of all one should attempt to create a Brescia-Cimino fistula.
E. The leading complication of PTFE grafts is infection.
Answer: CE
23. Access to the peritoneal cavity for peritoneal dialysis can be gained:
A. Percutaneously.
B. Surgically.
C. Using laparoscopy.
D. Only using general anesthesia.
Answer: ABC
24. Which of the following are true concerning immunosuppression?
A. Current immunosuppressive agents function in a nonspecific manner to suppress rejection.
B. The use of immunosuppressive agents is associated with an increased rate of opportunistic infections.
C. An increased rate of malignancy is not associated with the use of immunosuppressive agents.
D. In almost all cases, the graft is rejected if immunosuppression is discontinued.
Answer: ABD
25. Which of the following is true for hyperacute rejection?
A. It is mediated by preformed cytotoxic antibody.
B. It occurs late in the life of the graft.
C. It is usually reversible with a bolus of steroids.
D. None of the above.
Answer: A

26. The major components of the immune system include which of the following?
A. T lymphocytes.
B. B lymphocytes.
C. Cytokines.
D. Macrophages.
Answer: ABCD
27. The most common types of immunosuppressive agents used clinically include which of the following?
A. Antimetabolites.
B. Alkylating agents.
C. Inhibitors of helper T-cell activation.
D. Irradiation.
E. Lymphocyte depletion compounds.
Answer: ABCDE

28. Which of the following is/are true of the antiproliferative agents?
A. They act by preventing the differentiation and division of the immunocompetent lymphocyte after it encounters antigen.
B. The antimetabolites in this group have a structural similarity to cell metabolites and either inhibit enzymes of a metabolic pathway or are incorporated during synthesis to produce faulty molecules.
C. The most frequently used antiproliferative agent is azathioprine.
Answer: ABC

29. Which of the following is the one true statement about acute rejection.
A. Acute rejection is mediated by T lymphocytes.
B. Acute rejection is mediated by preformed cytotoxic antibody.
C. Acute rejection most frequently occurs over months.
Answer: A

30. Which of the following are true of cyclosporine?
A. It was the first immunosuppressive agent to be used clinically.
B. It acts selectively on T cells to suppress rejection.
C. Toxic effects include hirsutism, hypertension, nephrotoxicity, and increased risk of opportunistic infections.
Answer: BC
31. Which of the following are true of OKT3?
A. It is not a monoclonal antibody.
B. It binds to the T-cell receptor and inactivates T-cell function.
C. It is the monoclonal antibody most frequently used in clinical transplantation.
Answer: BC
32. Hypothermia (0° to 4° C) is a critical component of successful organ cold storage because:
A. Oxygen is more soluble in cold solutions and provides a continual supply for energy metabolism.
B. There is no way to suppress microbial growth except by cooling and slowing the growth rate.
C. Hypothermia diminishes energy requirements and allows the limited energy reserve to keep the organ alive.
D. It slows metabolism and the enzymic processes that would destroy the cell.
Answer: D
33. Is the following statement true or false? Organs should be preserved only for short periods of time (4 to 8 hours) because longer periods lead to too many complications, and even loss of the organ.
Answer: FALSE

34. Which of the following statements about hepatic artery thrombosis following liver transplantation is/are correct?
A. Thrombosis of the hepatic artery following liver transplantation is more common in children than in adult patients.
B. Thrombosis of the hepatic artery usually occurs several weeks after transplant as a result of arteriosclerosis.
C. Thrombosis of the hepatic artery in the early days following transplantation is a serious complication leading to death unless retransplantation can be performed within 36 to 72 hours.
D. Late thrombosis of the hepatic artery may present as biliary complication or intrahepatic abscesses.
E. Thrombosis of the portal vein is more frequent than hepatic artery thrombosis following liver transplantation.
Answer: ACE

35. Which of the following statements about fulminant hepatic failure (FHF) is/are correct?
A. Fulminant hepatic failure can occur in the setting of pre-existing chronic liver disease.
B. Coagulopathy and coma are important findings in patients with FHF.
C. Liver transplant should not be attempted in patients with FHF because of the high mortality rate, regardless of the treatment used.
D. The main cause of death in these patients is cerebral edema.
E. One of the most important factors in prognosis of FHF is the cause of liver disease.
Answer: BDE

36. Which of the following statements about immunology in liver transplantation is/are correct?
A. Good human leukocyte antigen (HLA) matching between recipient and donor is mandatory for a good outcome for liver transplantation.

B. Hyperacute rejection is almost nonexistent following liver transplantation.
C. Acute rejection occurs in more than 50% of patients and is reversible in most patients with large doses of steroids.
D. Acute rejection is very rare later than 2 months after liver transplantation unless the patient is inadequately immunosuppressed.
E. Chronic rejection is different from acute rejection, is usually irreversible, and often requires retransplantation.
Answer: BCDE

37. An elevated serum amylase level following pancreas-kidney transplantation may be due to:
A. Preservation/procurement injury.
B. Rejection.
C. Reflux pancreatitis.
D. Duodenal segment leak or bladder leak.
E. Native pancreatitis.
F. Constipation.
Answer: ABDEF

38. Complications of a pancreas transplant drained into the bladder include:
A. Duodenal segment leak.
B. Recurrent urinary tract infections.
C. Recurrent hematuria.
D. Urethritis.
E. Refractory loss of bicarbonate.
Answer: ABCDE

39. Patient selection criteria for simultaneous pancreas-kidney transplantation should include:
A. Type I diabetes mellitus.
B. Type II diabetes mellitus.
C. Dialysis dependence.
D. Renal dysfunction with a creatinine value greater than 3.0.
E. Minimal extrarenal morbidity related to diabetes.
Answer: ADE

40. Criteria for a pancreas donor include:
A. No history of diabetes.
B. No liver donation.
C. No replaced hepatic artery vessels arising from the superior mesenteric artery (SMA).
D. No previous splenectomy.
E. No pancreatitis.
Answer: AE

41. For which of the following clinical scenarios would cardiac transplantation be an appropriate therapeutic modality?
A. A 50-year-old man with angina pectoris, three-vessel coronary artery disease, and a left ventricular ejection fraction of 25%.
B. A 75-year-old woman with irremediable heart failure secondary to critical aortic stenosis.
C. A 25-year-old male athlete with insidious onset of heart failure secondary to idiopathic dilated cardiomyopathy.
D. A 55-year-old woman who is status post two previous surgeries for coronary artery revascularization, now presenting with heart failure in the absence of angina, left ventricular ejection fraction of 15%, and insufficient target coronary arteries for a third bypass procedure.
E. A newborn infant with hypoplastic left heart syndrome and no other congenital anomalies.
F. A 30-year-old woman who develops irremediable heart failure due to postpartum cardiomyopathy after giving birth.
Answer: CDEF

42. Suitable donors for heart transplantation have which of the following characteristics?
A. Normal electrocardiogram (ECG).
B. Normal echocardiogram.
C. Positive serology for HIV or hepatitis B or C.
D. Patient requiring high-dose epinephrine to maintain a systolic blood pressure of 90 mm. Hg.

E. Age over 70 years.
Answer: AB

43. Heart-lung transplant is currently the therapy of choice for which of the following conditions?
A. Primary pulmonary hypertension with reasonably well-preserved right ventricular function.
B. Eisenmenger's syndrome due to single ventricle and truncus arteriosus.
C. Validated cardiomyopathy in a patient with cystic fibrosis and end-stage lung disease.
D. Cystic fibrosis and end-stage lung failure with normal heart function.
E. Eisenmenger's syndrome due to an atrial septal defect.
F. End-stage lung disease secondary to emphysema.
Answer: BC

44. Both single and bilateral lung transplantation are suitable technical alternatives for which of the following conditions?
A. Obstructive lung disease (chronic obstructive pulmonary disease, emphysema).
B. Restrictive lung disease (pulmonary fibrosis).
C. Primary pulmonary hypertension.
D. Cystic fibrosis.
Answer: ABC

45. Which of the following are contraindications to lung transplantation?
A. Age 65 years or older.
B. Current corticosteroid therapy.
C. History of thoracotomy.
D. Ventilator-dependent respiratory failure.
Answer: D

46. Which of the following is the single most useful approach for diagnosing acute lung allograft rejection?
A. Clinical diagnosis.
B. Decline in spirometry and oxygenation.
C. Chest radiographic abnormalities.
D. Fiberoptic bronchoscopy with transbronchial lung biopsy.
Answer: D

47. Advantages of split-thickness skin grafts over full-thickness skin grafts include:
A. Split-thickness grafts include only part of the epidermis and none of the dermis.
B. Split-thickness grafts offer better pigment matching.
C. Split-thickness grafts offer better resistance to contraction.
D. Split-thickness grafts offer better resistance to infection.
E. Split-thickness grafts survive better on surfaces with compromised blood supply.
Answer: DE

48. The most commonly used substitutes for peripheral arteries are:
A. Dacron grafts.
B. Expanded polytetrafluoroethylene (Gore-Tex) grafts.
C. Internal, external, and/or common iliac artery autografts.
D. Bovine carotid artery xenografts.
E. Saphenous vein autografts.
Answer: E

49. Endocrine autografts were among the first successful transplantation procedures. The demonstration by Berkhold in 1849 that autotransplanted testes led to the acquisition of secondary sexual characteristics in castrated cocks marked the beginning of experimental endocrinology. Endocrine autografts used successfully in modern surgical practice include:
A. Adrenal medulla to the brain.
B. Thyroid to the forearm.
C. Parathyroid to the forearm.
D. Testicle to the scrotum.
E. Pancreatic islets to the liver.
Answer: CDE

50. Several types of gastrointestinal autografts have been used to replace the esophagus after extirpation of carcinomas. Successful reconstructions have been achieved most frequently with:
A. Stomach.
B. Jejunum.
C. Ileum.
D. Ascending colon.
E. Descending colon.
Answer: A

51. Which of the following statement(s) is/are true concerning the options for managing the exocrine secretions following pancreatic transplantation?
a. Ductal ligation is associated with no adverse effects to pancreatic parenchyma
b. Drainage of the pancreatic ductal system into the bladder is useful in the early diagnosis of rejection
c. All pancreatic grafts should be placed in a retroperitoneal position
d. Complications following enteric drainage of the pancreas (without the duodenum) are primarily associated with anastomatic leakage
Answer: b, d

52. The term "tolerance" refers to responses observed which include long-term graft acceptance without the need for chronic immunosuppression. There are a variety of specific ways in which T and B lymphocytes can be tolerant or nonresponsive to antigen. Which of the following is/are mechanisms of tolerance?
a. Clonal abortion
b. Clonal deletion
c. Clonal anergy
d. Suppression
Answer: a, b, c, d

53. Which of the following statement (s) is/are true concerning currently approved immunosuppressant agents?
a. Azathioprine (Imuran) is useful in the treatment of acute ongoing rejection
b. Methylprednisolone is particularly useful in immunosuppression as it has lesser toxicity than Prednisone
c. Cyclosporine blocks transcription of several early T-cell activation genes
d. FK-506 is both more potent and less toxic than cyclosporine
e. The monoclonal antibody OKT3 interferes with T-cell antigen recognition function
Answer: c, e

54. Which of the following patients would be a candidate for a liver transplant?
a. A 48-year-old man with end-stage liver disease secondary to non-A, non-B hepatitis
b. A 35-year-old man with both primary sclerosing cholangitis and ulcerative colitis and end-stage liver disease
c. A 22-year-old woman with fulminant hepatic failure secondary to acetaminophen overdose
d. A 4-year-old child with congenital biliary atresia having failed a previous Kasai procedure
e. A 48-year-old patient with alcoholic cirrhosis and a 2.5 cm central unresectable hepatoma
Answer: a, b, c, d, e

55. Which of the following statement(s) is/are true concerning changes in physiology following lung transplant?
a. In patients with pulmonary hypertension, changes in right ventricular function and pulmonary artery pressure takes weeks to months to resolve
b. In single lung transplantation, changes in pulmonary function are seen almost immediately following transplantation
c. Patients with double lung transplants have both better pulmonary function studies as well as better exercise capabilities
d. After single-lung transplant, ventilation perfusion mismatch persists and carbon dioxide retention is seen
Answer: b

56. Current clinical protocols determine a limited number of variables and parameters for matching and allocation of donor organs to potential recipients. Which of the following statement(s) is/are true concerning aspects of immunity important for clinical transplantation?

a. HLA matching is important for kidney, pancreas, and liver transplantation
b. A cross match assay determines if there are preformed antibodies in the recipient's serum which will react with antigens on the cell surface of the potential donor's lymphocytes
c. A patient with a history of multiple transfusions or previous transplant will have a high panel reactive antibody (PRA)
d. A normal heterozygous individual with a complete donor-recipient match will have a four-antigen match

Answer: b, c

57. T-lymphocytes are divided into two main sub-classes: CD4+ and CD8+. Which of the following statement(s) is/are true concerning these classes of T-cells?

a. CD4+ T-cells are restricted to recognizing antigens of the class II major histocompatibility complex (MHC)
b. CD8+ T-cells perform primarily cytotoxic functions
c. CD4+ 8+ double positive cells are well-differentiated mature cells
d. CD4+ T-cells also perform suppressor functions

Answer: a, b, d

58. Correct statement(s) concerning postoperative complications after hepatic transplantation include:

a. Primary nonfunction occurs in 5 to 10% of transplanted livers in the immediate postoperative period
b. A biliary leak, although a common complication, is usually of minimal clinical importance
c. Portal vein thrombosis occurs much more commonly than hepatic artery thrombosis
d. If postoperative bleeding is encountered, immediate return to the operating room is indicated

Answer: a

59. Which of the following statement(s) is/are true concerning renal transplantation?

a. Living-related donor transplants typically can be expected to have one-year graft survival rates of over 90%
b. Preconditioning of the recipient with the use of donor-specific blood transfusions from their living donor improves graft survival and therefore should be used routinely
c. Pre-transplant blood transfusions result in improved graft survival following cadaveric renal transplant in the cyclosporine era
d. Age of the recipient over 50 years is generally associated with a poorer outcome due to graft rejection

Answer: a

60. Which of the following statement(s) is/are true concerning clinical syndromes of rejection?

a. Hyperacute rejection occurs with kidney, heart, liver and lung transplants
b. The histologic characteristics of acute rejection include lymphocyte infiltration accompanied by plasma cells, eosinophils, or neutrophils
c. Vascular atherosclerosis and obliteration are characteristic of chronic rejection
d. Transplantation across major ABO incompatibility will result in hyperacute rejection of a renal or cardiac transplant

Answer: b, d

61. Which of the following statement(s) is/are true concerning techniques for multiple organ procurement and preservation?

a. The liver and pancreas are generally removed en bloc and separated as a bench procedure
b. Renal allograft function is improved by the use of machine perfusion
c. UW (University of Wisconsin) cold storage solution is the method of choice of most programs for hepatic and pancreatic transplantation
d. Cardiac allografts have the shortest limit of cold ischemia

Answer: a, c, d

62. Which of the following statement(s) is/are true concerning the outcome of renal transplantation?

a. Two-thirds of all graft losses alone (without death) occur from one to six months after transplantation
b. The most common cause for graft loss after one year following transplantation is patient death

c. Most patient deaths following transplantation are related to immunosuppression
d. An acute rejection episode in a renal allograft recipient is the most important clinical event, determining both short-term and long-term graft survival
e. The period between the six months and one year following transplantation is the most critical time period following renal transplant

Answer: a, b, d

63. Which of the following characteristics or conditions will exclude a patient as a suitable cadaveric organ donor?
a. Active systemic bacterial infection
b. Primary CNS malignancy
c. Age over 65
d. History of prior cholecystectomy for a possible hepatic donor

Answer: a

64. Which of the following statement(s) is/are true concerning associated renal and pancreatic transplantation?
a. The most important advantage is the use of renal function as an early indicator of pancreatic graft rejection
b. After renal transplant, there is no additional risk associated with immunosuppression
c. A major disadvantage of simultaneous renal/pancreatic transplant is the potential adverse effect on renal allograft as the result of a pancreatic complication
d. A diabetic with a renal transplant continues to be at risk for diabetic nephropathy

Answer: a, b, c, d

65. There are numerous toxicities and adverse effects associated with immunosuppression. Which of the following statement(s) is/are true concerning complications of immunosuppression?
a. Transplant recipients are susceptible primarily to infections with unusual organisms (fungus, virus, atypical bacteria)
b. Immunosuppressive agents may blunt the inflammatory response to infection leading to a late presentation of an infectious process
c. The development of malignancy appears primarily due to direct mitogenic effects of the agent
d. Lymphomas are the most common malignant tumors developing in the transplant patient
e. Graft-vs-host disease is a progressive condition and extremely difficult to treat

Answer: b

66. Which of the following statement(s) is/are true concerning the results of lung transplantation?
a. One year survival following single lung transplant is significantly better than following bilateral transplant
b. The worst survival is seen in patients with pulmonary hypertension
c. Patients with cystic fibrosis have a markedly poorer result than do patients with emphysema
d. Infection is a common cause of mortality in both the early and late post-transplant period

Answer: b, d

67. Categories of patients in which pancreatic transplantation is applicable includes:
a. Diabetics with a functioning renal transplant
b. Diabetic patients with end-stage renal disease requiring renal transplantation
c. Nonuremic diabetics with other complications of their disease
d. Well-controlled adult onset diabetics

Answer: a, b, c

68. Which of the following statement(s) is/are true concerning the results of cardiac transplantation?
a. Overall one-year survival is approximately 80%
b. Survival following transplant in the pediatric age group is significantly worse than in adults
c. There is no difference in survival when cardiac transplantation is performed in a heterotopic position versus an orthotopic position
d. The survival rate for retransplantation is approximately 50%

Answer: a, d

TRAUMA & BURNS

1. Nasotracheal intubation:
A. Is preferred for the unconscious patient without cervical spine injury.
B. Is preferred for patients with suspected cervical spine injury.
C. Maximizes neck manipulation.
D. Is contraindicated in the patient who is breathing spontaneously.
Answer: B

2. Cardiac contusions caused by blunt chest trauma:
A. Are fairly easy to diagnose.
B. Occur in up to 20% to 40% of patients with major blunt thoracic trauma.
C. Do not usually cause right ventricular dysfunction.
D. Demonstrate arrhythmia as the most common complication.
Answer: BD

3. According to the recommendations of the American College of Surgeons Committee on Trauma, which of the following patients should be transported to a trauma center?
A. Fifty-year-old female who fell 8 feet from a step ladder, with isolated hip fracture and normal vital signs.
B. Fifteen-year-old bicyclist with closed head injury and Glasgow Coma Scale score of 12.
C. Twenty-three-year-old male assault victim with stab wound to the back, normal vital signs, and respiratory distress.
D. Three-year-old infant passenger (restrained) in motor vehicle accident with normal vital signs and no apparent injuries except abdominal wall contusion.
Answer: BCD

4. Which of the following statements about head injuries is/are false?
A. The majority of deaths from auto accidents are due to head injuries.
B. Head injury alone often produces shock.
C. A rapid and complete neurologic examination is part of the initial evaluation of the trauma patient.
D. Optimizing arterial oxygenation is part of initial therapy.
Answer: B

5. Which of the following statements about maxillofacial trauma is/are false?
A. Asphyxia due to upper airway obstruction is the major cause of death from facial injuries.
B. The mandible is the most common site of facial fracture.
C. The Le Fort II fracture includes a horizontal fracture of the maxilla along with nasal bone fracture.
D. Loss of upward gaze may indicate either an orbital floor or orbital roof fracture.
Answer: B

6. What percentage of patients with thoracic trauma require thoracotomy?
A. 10%–15%.
B. 20%–25%.
C. 30%–40%.
D. 45%–50%.
Answer: A

7. The radiographic findings indicating a torn thoracic aorta include:
A. Widened mediastinum.
B. Presence of an apical "pleural cap."
C. First rib fractures.
D. Tracheal deviation to the right.
E. Left hemothorax.
Answer: ABCDE

8. Which of the following statements about diagnostic peritoneal lavage (DPL) is/are false?
A. DPL is the diagnostic procedure of choice for gunshot wounds to the abdomen with no obvious intra-abdominal injuries.
B. The average reported incidence of false-positive DPL in patients with significant pelvic fractures is 20% to 30%.
C. Accuracy rates for DPL have generally been reported between 95% and 97%.
D. DPL has been entirely replaced by computed tomography as the diagnostic procedure of choice following blunt abdominal trauma.
Answer: AD

9. A 28-year-old male was injured in a motorcycle accident in which he was not wearing a helmet. On admission to the emergency room he was in severe respiratory distress and hypotensive (blood pressure 80/40 mm. Hg), and appeared cyanotic. He was bleeding profusely from the nose and had an obviously open femur fracture with exposed bone. Breath sounds were decreased on the right side of the chest. The initial management priority should be:
A. Control of hemorrhage with anterior and posterior nasal packing.
B. Tube thoracostomy in the right hemithorax.
C. Endotracheal intubation with in-line cervical traction.
D. Obtain intravenous access and begin emergency type O blood transfusions.
E. Obtain cross-table cervical spine film and chest film.
Answer: C

10. True or False?
A. Trauma is second only to congenital heart disease as the leading cause of death in children.
B. Each year in the United States, approximately 50,000 people die from injuries.
C. Motor vehicle accidents (MVAs) involving intoxicated drivers are responsible for 50% of all MVA fatalities.
D. Active prevention strategies (e.g., seat belts, helmets) have not proved effective in reducing injuries and fatalities.
E. Falls and diving accidents comprise approximately 30% to 40% of cervical spine injuries.
Answer: TRUE C; FALSE ABD

11. Regarding the diagnosis and treatment of cardiac tamponade, which of the following statements is/are true?
A. Accumulation of greater than 250 ml. of blood in the pericardial sac is necessary to impair cardiac output.
B. Beck's classic triad of signs of cardiac tamponade include distended neck veins, pulsus paradoxicus, and hypotension.
C. Approximately 15% of needle pericardiocenteses give a false-negative result.
D. Cardiopulmonary bypass is required to repair most penetrating cardiac injuries.
Answer: C

12. Which of the following statements or descriptions typically characterizes the syndrome of overwhelming postsplenectomy sepsis?
A. A syndrome of fulminant gram-negative bacteremia and septicemia in asplenic individuals, characterized by the presence of as many as 10 6 bacterial organisms per cu. mm. circulating in the bloodstream.
B. A syndrome caused primarily by impaired host ability to mount an effective humoral (immunoglobulin) response to infection.
C. A syndrome that occurs in 5% to 7% of patients following traumatic splenectomy.
D. A syndrome of rapidly appearing septic shock unresponsive to antibiotic therapy, with an average mortality of 50%.
E. The syndrome may be prevented by preserving as little as 15% of splenic mass in adult trauma victims.
Answer: D

13. Trauma deaths most commonly occur at three distinct time periods after injury. Which of the following statement(s) is/are true concerning the time pattern of trauma mortality?
a. Only 10% of trauma deaths occur within seconds or minutes of the injury
b. A second mortality peak occurs within hours of injury with deaths in this time period being markedly reduced with the development of trauma and rapid transport systems
c. Death one day to weeks after the injury are almost entirely due to infection and multiple organ failure

d. Late mortality in trauma patients, occurring days to weeks after the injury, has not been affected by better trauma delivery systems

Answer: b

14. Which of the following statement(s) is/are true concerning the epidemiology of trauma?

a. Trauma is the leading cause of death of individuals less than 44 years of age
b. Trauma follows only cancer and heart disease as leading causes of productive life lost
c. Motor vehicle accidents are the most common cause of traumatic death in young males of all ethnic groups
d. Young males are the population at highest risk for trauma death

Answer: a, d

15. Which of the following statement(s) is/are true concerning the biomechanics of blunt trauma?

a. A small child and a large adult have a markedly different level of energy transfer in a high speed vehicular collision
b. Shear strain injuries result from rapid acceleration or deceleration
c. Tensile strain results from direct compression of tissues
d. The tolerance of biologic tissue to trauma injury is directly proportional to the elasticity of the organ

Answer: b, c, d

16. The patient described above has also suffered major facial trauma. Which of the following statement(s) is/are true?

a. A frontal bone fracture and injury to the frontal sinus is a common facial injury in a young adult
b. The optic nerve can be injured in a LeFort type II fracture
c. A facial nerve injury may occur with the fracture of the temporal bone
d. Coronal CT scan images can be a useful adjunct to the evaluation of the patient with facial and head injuries

Answer: c, d

17. There are a number of options for resuscitative fluids. Which of the following statement(s) is/are true concerning fluids used for resuscitation of shock?

a. Resuscitation with crystalloid requires volume replacement in a ratio of 1:1 to volume lost
b. The literature strongly supports the use of colloid as being superior to crystalloid in the resuscitation of shock
c. Risks of autotransfused blood include disseminated intravascular coagulation and activation of fibrinolysis
d. Hypertonic saline solution results in volume expansion, an increase in left ventricular performance, decreased peripheral resistance, and redistribution of cardiac output to kidneys and viscera
e. The use of perfluorocarbons as an experimental resuscitative fluid has been demonstrated to stimulate the immune system

Answer: c, d

18. Hemorrhage initiates a series of compensatory responses. Which of the following statement(s) is/are true concerning the physiologic responses to hemorrhagic shock?

a. An immediate response is an increased sympathetic discharge with resultant reflex tachycardia and vasoconstriction
b. Transcapillary refill is a response serving to restore circulating volume
c. Extracellular fluid becomes increasingly hyperosmolar
d. Adrenergically mediated vasoconstriction is well maintained at the arteriolar and precapillary sphincters

Answer: a, b, c

19. Which of the following steps is/are part of the primary survey in a trauma patient?

a. Insuring adequate ventilatory support
b. Measurement of blood pressure and pulse
c. Neurologic evaluation with the Glasgow Coma Scale
d. Examination of the cervical spine

Answer: a, b, c

20. Immediate life-threatening injuries that preclude air exchange which can be treated in the field include which of the following?

a. Tension pneumothorax
b. Massive open chest wounds
c. Sucking chest wounds
d. Tracheal disruption

Answer: a, b, c

21. Which of the following statement(s) is/are true concerning the diagnosis of a peripheral vascular injury?

a. The presence of a Doppler signal over an artery in an extremity essentially rules out an arterial injury
b. Doppler examination is a valuable tool in the diagnosis of venous injuries
c. A gunshot wound in the proximity of a major vessel is an absolute indication for arteriography
d. Both the sensitivity and specificity of arteriography of the injured extremity approaches 100%

Answer: d

22. A 22-year-old male is hospitalized with multiple extremity fractures including a comminuted fracture of the femur and multiple rib fractures. Which of the following statement(s) is/are true concerning his hospital course?

a. Low-dose heparin should not be employed during his hospital stay
b. Acute respiratory failure associated with petechiae of the head, torso, and sclerae would suggest a pulmonary embolism
c. Early fracture fixation would decrease the incidence of fat emboli
d. The placement of a Greenfield filter should be avoided due to the risk of lower extremity edema

Answer: c

23. A middle-aged construction worker had a significant fall on the job and presents with obvious high cervical spine injury. Which of the following statement(s) is/are true concerning his diagnosis and management?

a. A paradoxical breathing pattern in which the abdomen protrudes on inhalation may be observed
b. If the patient appears well compensated on initial evaluation, intubation is unlikely to be necessary
c. The presence of hypotension strongly suggests significant blood loss from associated injury
d. The patient's extremities are likely to appear warm and well perfused despite the presence of hypotension
e. The use of methylprednisolone beginning 24 hours after the injury will be indicated

Answer: a, d

24. Which of the following statement(s) is/are true concerning Emergency Room thoracotomy?

a. Overall survival rates approach 25%
b. Blunt trauma patients without signs of life upon arrival in the Emergency Room are candidates for Emergency Room thoracotomy
c. All patients with penetrating trauma to the chest and the absence of vital signs are candidates for ER thoracotomy
d. None of the above

Answer: d

25. An untreated or an unrecognized compartment syndrome produces nerve and muscle damage and prevents good functional recovery despite the patency of vascular repair. Which of the following factors suggests the need for a fasciotomy?

a. A period of 6 hours or more between injury and restoration of perfusion
b. Combined arterial and venous injuries
c. Postoperative signs of muscle pain or pain on passive stretch
d. Elevated compartment pressures

answer: a, b, c, d

26. Which of the following statement(s) is/are true concerning the consequences of vascular injuries?

a. Outcome is time-dependent
b. Further injury can take place after restoration of blood flow
c. Acute acidosis, hyperkalemia and myoglobin-induced renal failure can be consequences of severe extremity ischemia

d. Ischemia to peripheral nerves and muscles can be tolerated to up to four hours without permanent injury

Answer: a, b, c, d

27. Which of the following statement(s) is/are true concerning the surgical management of vascular injuries?

a. A direct approach through the site of injury is often effective as the initial step
b. Systemic heparinization must be avoided in patients with multiple injuries
c. Reversed saphenous vein from the same extremity is the first choice as an interposition graft for extensive arterial injuries
d. Venous repair should not be attempted in a hemodynamically unstable patient

Answer: b, d

28. Penetrating injuries to the pancreas and duodenum are uncommon occurring in 4% and 6% of patients, respectively. Which of the following statement(s) is/are true concerning the management of pancreaticoduodenal injuries?

a. The Kocher maneuver is essential for providing exposure for the duodenum
b. A large injury of the duodenum which cannot be closed primarily will always require a pancreaticoduodenectomy
c. Pyloric exclusion involves suture or staple closure of the pylorus, gastrojejunostomy, tube decompression of the duodenum, and placement of a T-tube in the common bile duct
d. Class III injuries of the head of the pancreas should be treated with simple external drainage rather than resection

Answer: a, d

29. A CT scan is performed on this patient. Which of the following statement(s) is/are true concerning the findings on CT scan and the patient's management?

a. The CT finding that correlates most significantly with intracranial hypertension is compression or obliteration of the basilar cisterns
b. Intracranial pressure monitoring is indicated immediately in any patient with cisternal compression.
c. A brain contusion appears as a very homogeneous high density area in the cerebral cortex
d. Intracerebral hematomas are routinely treated with craniotomy

Answer: a, b

30. Which of the following statement(s) is/are true concerning the management of chest trauma?

a. The majority of injuries to the chest require surgical intervention
b. The posterior lateral thoracotomy is the optimal approach for emergency thoracotomy
c. Either computed tomography or angiography are suitable methods for detecting aortic disruption in a patient with an abnormal chest x-ray
d. Persistent bleeding associated with a penetrating injury to the chest is often due to injury to an artery of the systemic circulation

Answer: d

31. The anterior neck is divided into three zones defined by horizontal planes. Which of the following statement(s) is/are true concerning penetrating injuries to the anterior neck?

a. Penetrating injuries to Zone I carry the highest mortality
b. Injuries to Zone II are the most common and the mortality rate is second only to those of Zone I
c. Exposure of Zone III for detection of injuries to the distal carotid artery and pharynx can be quite difficult
d. All hemodynamically stable patients with penetrating injuries to Zone I should have angiography
e. Most vascular lesions in Zone III are best treated by surgical exploration

Answer: a, c, d

32. Which of the following statement(s) is/are true concerning the definitive management of neck injuries?

a. Patients with evidence of an acute stroke following penetrating injury involving the carotid artery should be managed with arterial ligation
b. Unilateral vertebral artery occlusion usually results in a clear neurologic deficit and therefore revascularization is indicated
c. The combination of esophography and endoscopy improves the accuracy of detecting esophageal injury with penetrating trauma
d. External drainage is an important aspect of the surgical management of an esophageal injury

e. Arterial dissection secondary to blunt trauma is best managed by operative exploration and resection of the dissection

Answer: c, d

33. A 25-year-old male is involved in a motor vehicle accident with a significant head injury. Which of the following statement(s) is/are true concerning his injury and management?

a. A single episode of systolic blood pressure < 90 mm Hg occurring during the early period after injury significantly increases the chances of mortality and morbidity
b. Systemic hypertension should be avoided to reduce the risk of intracranial hemorrhage
c. The patient should be vigorously hyperventilated to reduce $PaCO_2$
d. The patient should be heavily sedated and pharmacologically paralyzed after the initial neurologic examination

Answer: a

34. Which of the following statement(s) is/are true concerning the biomechanics of penetrating injuries?

a. Stab wounds are associated with significant cavitation
b. A hollow point bullet is associated with an enlarged area of injury
c. A high velocity gunshot wound creates a vacuum pulling clothing, bacteria, and other debris into the wound
d. The frontal area of impact of a bullet is determined by the caliber of the bullet

Answer: b, c

35. In which of the following clinical situations is peritoneal lavage indicated?

a. A patient with suspected intraabdominal injury who will undergo prolonged general anesthesia for another injury outside the abdomen
b. A patient with a high velocity abdominal gunshot wound
c. A patient with an abdominal knife wound
d. A hemodynamically unstable patient with a high suspicion of intraabdominal hemorrhage
e. A patient with major noncontiguous injuries (i.e., chest and lower extremity)

Answer: a, c, e

36. Physiologic responses to hypothermia include:

a. Tachycardia regardless of core temperature
b. Tachypnea regardless of core temperature
c. Pupillary dilatation and loss of cerebral autoregulation at temperatures below 26°C
d. A cardiac rhythm contraindicates cardiopulmonary resuscitation even in the absence of a palpable pulse

Answer: c, d

37. Which of the following statement(s) is/are true concerning the injury pattern in patients with blunt versus penetrating injuries?

a. Solid organs are most frequently injured following blunt trauma
b. The liver is the most frequently injured organ in both penetrating and blunt trauma
c. Major vascular injuries occur much more commonly in penetrating trauma than with blunt abdominal trauma
d. Injury patterns for blunt abdominal trauma in children are different than adults whereas with penetrating trauma no such difference exists

Answer: a, c, d

38. An 18-year-old male suffers a gunshot wound to the abdomen, resulting in multiple injuries to the small bowel and colon. Which of the following statement(s) is/are true concerning this patient's perioperative management?

a. A multi-agent antibiotic regimen is indicated
b. Antibiotics should be continued postoperatively for at least 7 days
c. Laparotomy, as a diagnostic test for postoperative sepsis, should be considered
d. The incidence of postoperative wound or intraabdominal infection would be increased in association with a colon injury

Answer: d

39. A middle-aged man is undergoing laparotomy for blunt abdominal trauma. The spleen and liver are both found to be injured. Which of the following statement(s) is/are true concerning the management of these injuries?

a. If the patient has multiple other abdominal injuries and hypotension, splenic salvage should not be attempted
b. The incidence of life-threatening sepsis in the adult following splenectomy is no greater than in the normal population
c. All liver injuries regardless of their depth require external drainage
d. The Pringle maneuver should control all bleeding from hepatic parenchymal vessels
e. If concern for a biliary fistula from the liver parenchyma exists, a T-tube should be placed even if the common bile duct is otherwise normal

Answer: a

40. Which of the following conclusions can be drawn from prospective randomized studies involving restoration of circulation in the field?

a. Pneumatic anti-shock garment is of benefit only in patients with a field blood pressure less than 50
b. Patients with major vascular injury should not receive intravenous fluid infusion until bleeding can be controlled in the operating room
c. Hypertonic saline, used as resuscitation fluid, provides no benefit to patients
d. Hypertonic saline has been shown to exacerbate bleeding and precipitate coagulopathy

Answer: a, b

41. Which of the following statement(s) is/are true concerning hypothermia following traumatic injury?

a. The majority of patients presented to a level I trauma center are hypothermic at some time
b. The initial temperature for trauma-associated hypothermia is associated with no seasonal variation
c. Moderate levels of hypothermia (34°–32°C) has no effect on mortality in the trauma patient
d. The coagulation system is most affected in hypothermic patients who have sustained major trauma

Answer: a, b, d

42. Which of the following statement(s) is/are true concerning injuries to the chest wall?

a. The mortality rate currently associated with sternal fractures is as high as 25–30%
b. The severe ventilatory insufficiency associated with a flail chest is due to the paradoxical motion of the involved segment of chest wall
c. In most cases of an open pneumothorax, or sucking chest wound, surgical closure is necessary
d. Persistent chest tube bleeding at a rate greater than 200 ml/hour for four hours, or greater than 100 ml/hour for eight hours is an indication for thoracotomy for control of hemorrhage
e. A 20% incidence of splenic injury is associated with fractures of ribs 9, 10 and 11 on the left

Answer: c, d, e

43. A 22-year-old male driving a car at a high speed and not wearing a seatbelt, leaves a road and crashes with a full frontal impact into a tree. Which of the following injury patterns may be predictable from this type of motor vehicle accident?

a. Orthopedic injuries involving the knees, femurs, or hips
b. Laceration to the aorta
c. Hyperextension of the neck with cervical spine injury
d. Diaphragmatic rupture due to marked increase in intraabdominal pressure

Answer: a, b, c

44. Which of the following statement(s) is/are correct concerning the pathophysiology of frostbite?

a. Frostbite injury may have two components: initial freeze injury and a reperfusion injury that follows during rewarming
b. The formation of extracellular ice crystals in the tissue begins to occur at -10°C
c. The release of oxygen free radicals and arachidonic acid metabolites aggravates vasoconstriction and platelet and leukocyte aggregation
d. Experimental evidence suggests that a substantial component of severe cold injury may be mediated due to platelet aggregation

Answer: a, c

45. The management of a patient with frostbite includes:

a. Gradual spontaneous warming

b. Emersion of the tissue in a large water bath with a temperature of 40–42˚C
c. Immediate initiation of prophylactic antibiotics
d. Systemic anticoagulation with heparin
e. Immediate debridement of necrotic tissue

Answer: b

46. There are a number of injuries associated with common orthopedic injuries. Which of the following diagnosed orthopedic injuries is associated with the injury listed?

a. Sternal fracture—cardiac contusion
b. Posterior dislocation of the knee—popliteal artery thrombosis
c. Pelvic fracture—ruptured bladder or urethral transection
d. Posterior dislocation of hip—sciatic nerve injury

Answer: a, b, c, d

47. Correct statement(s) concerning cold injury include:

a. Chilblain is a form of local cold injury characterized by pruritic papules, macules, or plaques on the skin associated with repeated exposure to cold temperatures
b. Trenchfoot is a freeze injury of the hands or feet due to chronic exposure to cold, wet conditions below freezing
c. Frost nip is reversible with warming of the tissue and will result in the return of sensation and function with no tissue loss
d. Characteristic large blisters can be seen with all degrees of frostbite

Answer: a, c

48. A 37-year-old man driving an automobile travelling at a rapid speed hits a tree. At arrival to the Trauma Center, aortic disruption is suspected. Which of the following statement(s) is/are true concerning the patient's diagnosis and management?

a. If undiagnosed, a thoracic aortic disruption is associated with a 50% mortality within the first 24 hours
b. Transesophageal echocardiography is a promising new modality for the diagnosis of aortic injury
c. Repair of aortic disruption is best completed with cardiopulmonary bypass
d. Pharmacologic control of blood pressure with sodium nitroprusside should be used routinely in the preoperative management

Answer: a, b

49. Which of the following statement(s) is/are true concerning endotracheal intubation at the site of injury?

a. Bag valve mask systems are equally as efficient as endotracheal intubation for early management of the trauma patient
b. Paramedic intubation in the field is successful in over 90% of cases
c. Indications for intubation in the field include respiratory distress, significant head injury, severe chest injury and hypovolemic shock
d. If patients clench their teeth violently, endotracheal intubation is impossible without the use of paralytic agents

Answer: b, c

50. Which of the following statement(s) concerning the operative approach to abdominal trauma is/are correct?

a. Pelvic hematomas associated with pelvic fractures should be explored
b. Central retroperitoneal hematomas should be explored after control of other injuries within the peritoneal cavity
c. Stable hematomas in the perinephric space lateral to the midline should be explored to rule out renal injury
d. The initial approach is control of hemorrhage by packing and controlling ongoing contamination from enteric injuries

Answer: b, d

51. Which of the following statement(s) is/are true concerning trauma involving children?

a. The greater head/body ratio in children compared to adults leads to a higher frequency of head injuries in children
b. Unfused cranial sutures and open fontanels serve as a protective mechanism against intracranial hemorrhage

c. A greater propensity to hypothermia is seen in children
d. A propensity to single organ system injury is seen in the child

Answer: a, c

52. Indications for Cesarean section during laparotomy for trauma include:
a. Maternal shock after 28 weeks gestation
b. Unstable thoracolumbar spinal injury
c. Mechanical limitation for maternal repair
d. Maternal death if estimated gestational age is at least 28 weeks

nswer: b, c, d

53. A 75-year-old man is involved in a motor vehicle accident. Which of the following statement(s) is/are true concerning this patient's injury and management?
a. Acceptable vital sign parameters are similar across all age groups
b. Hypertonic solutions should not be used for resuscitation due to concerns for fluid overload
c. The patient would be more prone to a subdural hematoma than a younger patient
d. There is no role for inotropic agents in the management of this patient

Answer: c

54. Important physiologic alterations of pregnancy which may alter the injury response include:
a. Increased cardiac output
b. Expanded plasma volume
c. Decreased fibrinogen and clotting factors
d. Partial obstruction of the inferior vena cava

Answer: a, b, d

55. A number of systems have been developed in an effort to allow comparison of trauma injuries and trauma patients among institutions. Which of the following statement(s) is/are true concerning trauma scoring systems?
a. The Revised Trauma Score uses the physiologic parameters of blood pressure, heart rate, and head injury to mathematically assess injury severity
b. The Abbreviated Injury Scale (AIS) is a specific anatomic index
c. The Injury Severity Score (ISS) correlates not only the severity of the injury but adjusts for patient age and comorbid risk factors
d. The Triss System is the most complete system in combining trauma score and anatomic component as well as patient age

Answer: a, b, d

56. Alterations in the immunologic response after a major trauma include:
a. Decreased CD3 and CD4 population
b. Depression of neutrophil antimicrobial functions including chemotaxis and phagocytosis
c. Decreased levels of pro-inflammatory cytokines including tumor necrosis factor, interleukin-1, and interleukin-6
d. Impaired macrophage receptor expression and antigen presentation

Answer: a, b, d

57. Which of the following statement(s) is/are true concerning penetrating injuries to the colon and rectum?
a. A patient with 2 or more additional organs injured, significant fecal spillage, preoperative hypotension, or intraperitoneal hemorrhage exceeding 1 liter should not have a primary repair of a colon injury
b. If rectal injury is documented, a loop colostomy provides adequate decompression.
c. Irrigation of the rectal stump should be avoided to prevent contamination via the site of injury
d. The rectal wall should be repaired in all cases

Answer: a

58. Genitourinary injuries are common with both blunt and penetrating trauma. Which of the following statement(s) is/are true concerning genitourinary trauma injuries?
a. All patients with microscopic hematuria and blunt trauma should be evaluated with an intravenous pyelogram
b. The indications for radiographic assessment of renal injury in the face of blunt trauma is more liberal than penetrating trauma
c. CT scan is the current imaging technique of choice for suspected renal trauma

d. Perinephric hematomas occurring after either penetrating or blunt trauma should not be explored
e. Extraperitoneal bladder ruptures can often be treated nonoperatively using urethral catheter drainage alone

Answer: c, e

59. In children who sustain multiple trauma, 25% have serious intraabdominal injuries. Which of the following statement(s) is/are true concerning blunt abdominal trauma in children?

a. Peritoneal lavage plays an important role in the evaluation of the patient
b. Most pediatric trauma patients will be hemodynamically unstable at the time of admission
c. Splenic salvage can be achieved in 90% to 100% of patients
d. The indications for laparotomy for splenic injury include refractory hypotension or transfusion requirement in excess of 50% of blood volume within the first 24 hours
e. Unlike splenic injury, hepatic injury will frequently require exploratory laparotomy

Answer: c, d

60. Which of the following statement(s) is/are true concerning the diagnosis and management of pelvic fractures secondary to blunt trauma?

a. Most pelvic fractures are apparent on the basis of physical examination
b. An infra-umbilical approach to peritoneal lavage in a patient with a major pelvic fracture may yield a false-positive rate approaching 50%
c. If a large expanding pelvic hematoma is found at surgery, the intraabdominal injury should be dealt with, and the hematoma explored
d. The application of pelvic external fixation may be used as the initial step in control of hemorrhage from pelvic fractures
e. A urethral catheter should be placed immediately in patients with suspected pelvic fracture to allow early peritoneal lavage

Answer: b, d

61. Which of the following statement(s) is/are true concerning the Advanced Trauma Life Support (ATLS) classification system of hemorrhagic shock?

a. Class I shock is equivalent to voluntary blood donation
b. In Class II shock there will be evidence of change in vital signs with tachycardia, tachypnea and a significant decrease in systolic blood pressure
c. Class III hemorrhage can usually be managed by simple administration of crystalloid solution
d. Class IV hemorrhage involves loss of over 40% of blood volume loss and can be classified as life-threatening

Answer: a, d

62. Which of the following statement(s) is/are true concerning traumatic pericardial tamponade?

a. The condition only develops in cases of penetrating trauma
b. Beck's triad, consisting of muffled heart sounds, decreased pulse pressure, and jugular venous distention can be seen in most patients
c. Two-dimensional echocardiography has replaced diagnostic pericardiocentesis in most hemodynamically stable patients
d. The majority of patients with a small injury to a single chamber of the heart arriving with vital signs at the hospital will die of their injuries

Answer: c

63. The intravenous fluid that a 60 kg., 30-year-old woman with an 80% burn should be given in the first 24 hours following burn injury is:

A. 19.2 liters of 5% glucose in lactated Ringer's.
B. 14.4 liters of lactated Ringer's.
C. 9.6 liters of hypertonic salt solution (sodium concentration 200 mEq. per liter).
D. 7.2 liters of 5% albumin solution.
E. 5.5 liters of the pentafraction component of hydroxyethyl starch.

Answer: B

64. Indications for escharotomy of a circumferentially burned right lower limb include all of the following except:
A. Progressively severe deep tissue pain.
B. Coolness of the unburned skin of the toes of the right foot.
C. A pressure of 40 mm. Hg in the anterior compartment of the distal right leg.
D. Edema of the unburned skin of the right foot.
E. Absence of pulsatile flow in the posterior tibial artery.
Answer: BD

65. Which of the following is/are true about inhalation injury in burn patients?
A. A chest x-ray obtained within 24 hours of injury is an accurate means of diagnosis.
B. Its presence characteristically necessitates administration of resuscitation fluids in excess of estimated volume.
C. When moderate or severe, it exerts a comorbid effect that is related to both extent of burn and the age of the patient.
D. It increases the prevalence of bronchopneumonia.
E. Prophylactic high-frequency ventilation reduces the occurrence of pneumonia and the mortality in burn patients with inhalation injury.
Answer: BCDE

66. Adequacy of fluid resuscitation in burn patients is indicated by which of the following?
A. Urine output of 45 ml. per hr. in a 70-kg. 30-year-old man with flame burns involving 55% of the total body surface.
B. Hourly urine output of 7 ml. in a 7-kg. 15-month-old child with burns involving 40% of the total body surface.
C. A pulmonary capillary wedge pressure of 17 to 20 mm. Hg.
D. Hourly output of 40 ml. of port wine–colored urine in an 80-kg. male who has severe high-voltage electric injury of the right arm and left leg.
E. A urinary sodium concentration of 4 mEq. per liter.
Answer: ABC

67. Common electrolyte changes during and after resuscitation in a patient with a burn of 65% of the total body surface include:
A. A serum sodium concentration of 128 mEq. per liter following 48 hours of resuscitation fluid therapy.
B. A serum sodium concentration of 152 mEq. per liter on the fifth postburn day in a 75-kg. male with a 75% burn who has received only calculated maintenance fluids each day following successful resuscitation.
C. A serum potassium concentration of 5.7 mEq. per liter as a consequence of the destruction of red cells and other tissues in a patient with high-voltage electrical injury.
D. Hypokalemia due to the kaliuretic effect of 0.5% silver nitrate soaks.
E. Hypocalcemia with a low ionized calcium level on the third postburn day as a consequence of dilution and hypoalbuminemia.
Answer: ABC

68. The clinical and histologic signs of invasive burn wound infection include which of the following?
A. Focal dark red or dark brown discoloration of the eschar.
B. Delayed separation of the eschar.
C. Conversion of an area of partial-thickness burn to full-thickness necrosis.
D. The presence of micro-organisms in the unburned subcutaneous tissue in a burn wound biopsy specimen.
E. Perineural and perivascular microbial migration through the eschar with proliferation of micro-organisms in the subeschar space.
Answer: ACD

69. The treatment of invasive burn wound infection may include which of the following?
A. Subeschar infusion of half the daily dose of a broad-spectrum penicillin suspended in 1 liter of normal saline.
B. Use of 0.5% silver nitrate soaks for topical therapy.
C. Specific systemic antibiotic therapy.
D. Excision and immediate autografting.
E. Amputation when the infection has extended to involve underlying muscle.
Answer: ACE

70. The treatment of patients with high-voltage electric injury differs from that of patients with conventional thermal injury with respect to the need for:
A. Fasciotomy.
B. Hemodialysis.
C. Amputation.
D. Pulse oximetry.
E. Prehospital cardiopulmonary resuscitation.
Answer: ABCE

71. Therapeutic interventions needed for specific chemical agents include which of the following?
A. Prolonged saline irrigation of eyes injured by concentrated sodium hydroxide using a scleral lens with an irrigating sidearm.
B. Administration of an emetic agent as immediate treatment following lye ingestion.
C. Intra-arterial infusion of calcium gluconate for relief of refractory deep tissue pain due to hydrofluoric acid injury.
D. Use of propylene glycol to remove residual phenol following water lavage.
E. Application of 5% copper sulfate solution soaks to areas of embedded particles of white phosphorus.
Answer: ACD

72. Characteristics of the hypermetabolic response to burn injury include:
A. Elevation of core temperature, skin temperature, and core-to-skin heat transfer.
B. Ambient temperature dependency of metabolic rate.
C. A marked increase of blood flow to the burn wound.
D. A curvilinear relationship to the extent of burn.
E. Oxidation of stored lipid as the major source of metabolic energy.
Answer: ACE

73. A 32-year-old mountain climber who struck his head in a fall lay in the snow overnight before he could be rescued and brought to the hospital. Upon admission he is semicomatose and not shivering, with a pulse rate of 48 beats per minute and a blood pressure of 80/50 mm. Hg. His rectal temperature as measured by a standard thermometer is reported as 34° C. All the digits on both feet appear to be frozen. Treatment for this patient should include:
A. Administration of inotropic and chronotropic vasoactive agents.
B. Intra-arterial infusion of vasodilating agents.
C. Infusion of lactated Ringer's solution warmed to 40° C.
D. Immersion in a circulating water bath heated to 40° C.
E. Excision of damaged tissue within 48 hours after thawing.
Answer: CD

74. Valid points in the management of burns on special areas include:
The large majority of genital burns are best managed by immediate excision and autografting
a. All digits with deep dermal and full-thickness burns should be immobilized with six weeks of axial Kirschner wire fixation
b. Deep thermal burns of the central face are best managed with immediate excision and autografting
c. Burns of the external ear are commonly complicated by acute suppurative chondritis if topical mafenide acetate is not applied
Answer: d

75. The hypermetabolic response seen in patients with large burns, who are successfully resuscitated, is thought to be driven by which of the following factors?
a. Deficient gastrointestinal barrier function
b. Bacterial contamination of the burn wound
c. Evaporative heat loss
d. Changes in hypothalamic function
Answer: a, b, c, d

76. Which of the following statement(s) is/are true concerning inhalation injury?
a. The physiology of these injuries include upper airway obstruction secondary to progressive edema, reactive bronchospasm from aerosolized irritants, and microatelectasis from loss of surfactant and alveolar edema

b. Endotracheal intubation is indicated immediately in all patients with suspected inhalation injury
c. Distal airway injuries are usually caused by heat injury
d. Peak inspiratory pressures of > 40 cm of water are indicated to maintain functional residual capacity

Answer: a

77. Which of the following statement(s) is/are true concerning the initial fluid resuscitation of a burn patient?

a. Rigid adherence to the Modified Brooke formula is advised
b. In general, children require less fluid than that predicted by standard formulae
c. Patients with inhalation injuries require less fluid than predicted by standard formulae
d. Dextrose should not be given as the primary resuscitative fluid for any age group
e. Most resuscitative formulae withhold colloid solutions until 24 hours post-injury

Answer: e

78. Which of the following statement(s) is/are true concerning techniques of burn excision, and temporary and definitive wound closure?

a. Techniques to conserve blood include subeschar injection of dilute epinephrine solution, exsanguination of the extremity and inflation of a pneumatic tourniquet
b. Fresh or cryopreserved human allograft is usually rejected within 2 to 4 weeks
c. A common use for human allograft is as a physiologic cover for selected clean superficial wounds as they epithelialize
d. A donor site can only serve as a single source for autograft

Answer: a, b

79. Which of the following statement(s) is/are true concerning topical antimicrobials in common use in the United States today?

a. Of the common topical antimicrobials, only mafenide acetate is painful upon application
b. The use of 0.5% silver nitrate is associated with trans-eschar leeching of sodium and potassium from the wound
c. Silver sulfadiazine has the best eschar penetration
d. Silver sulfadiazine, mafenide acetate, and 0.5% silver nitrate all have a broad spectrum activity, however, only silver nitrate has anti-fungal activity

Answer: a, b, d

80. The anthropometric changes observed as a patient progresses from infancy to adulthood include which of the following statement(s)?

a. The major anthropometric changes involve the head and torso
b. A decrease in the relative size of the head from 18% to 9% of the body's surface area occurs
c. The total surface area of the legs increases from 14 to 18%
d. The upper extremities increase to 12% of the body surface area

Answer: b, c

81. Arguments in favor of early wound excision include which of the following statement(s)?

a. Enhanced survival is seen in patients with large burn injuries
b. Hospital stays can be shortened with this technique
c. Early burn excision results in fewer painful dressing changes
d. A decrease in duration and intensity of the hypermetabolic response is observed

Answer: a, b, c, d

82. Which of the following are accepted adjuncts in the management of hypertrophic scar?

a. Local steroid injection
b. Compression garments
c. Topical silicone
d. Release or excision with autografting
e. Topical platelet-derived growth factor

Answer: a, b, c, d

83. Which of the following statement(s) is/are true concerning carbon monoxide and cyanide exposure?

a. A normal oxygen saturation by standard transmission pulse oximetry precludes the possibility of significant carboxyhemoglobinemia

b. Most patients with cyanide exposure require administration of sodium thiosulfate

c. The half-life of carbon monoxide is reduced by a factor of 5 with ventilation with 100% oxygen

d. Even if fire victims are well ventilated with high concentrations of oxygen by emergency response personnel from the time of extrication, carboxyhemoglobin values are frequently greater than 10% on initial evaluation

Answer: c

84. Valid points concerning the initial physical examination in a burn patient include which of the following statement(s)?

a. Patients should be examined in a warm environment to prevent hypothermia

b. All corneal injuries are obvious on initial physical examination

c. Inhalation injury is suggested by the presence of singed facial hair and nasal vibrissae, carbonaceous sputum, and a hoarse voice

d. Blistering in or around the mouth may suggest hot liquid aspiration in small children

Answer: a, c, d

85. The systemic response to a significant burn includes accelerated fluid losses. Which of the following statement(s) is/are true concerning tissue edema following a burn?

a. Edema in tissue immediately surrounding the burn is secondary to local disruption of the capillary bed

b. Edema in tissue immediately surrounding the burn is secondary to the local release of vasoactive mediators such as prostaglandins, thromboxane A2, and reactive oxygen radicals

c. Tissue edema following a burn occurs only in the tissues at or immediately adjacent to the burn

d. Pulmonary changes following a burn occur only secondary to excessive fluid administration

Answer: b

86. A patient sustains a high voltage electrical injury to the upper extremity. Which of the following statement(s) is/are true concerning peripheral perfusion to the injured arm?

a. Evidence of peripheral ischemia would be evident within the first few hours after injury

b. Physical signs of diminished blood flow include a progressive increase in the extremity's consistency and a decrease in distal temperature

c. A bedside escharotomy is an appropriate treatment

d. An immediate fasciotomy performed in the operating room may be necessary

Answer: b, d

ONCOLOGY

1. Cytotoxic T cells (CTL) are capable of recognizing:

A. Peptide antigens associated with major histocompatibility complex (MHC) molecules.
B. Membrane-bound antigens.
C. Cytoplasmic antigens.
D. Nuclear antigens.
E. All of the above.

Answer: E

2. Adoptive immunotherapy with lymphokine activated killer cells (LAK) and tumor infiltrate (TIL) cells are characterized by:

A. Nonspecific stimulation of effector cells.
B. Expansion ex vivo of large numbers of lymphocytes.
C. Infusion with interleukin 2 (IL-2).
D. Significant toxicity at high doses.
E. All of the above.

Answer: E

3. Previous clinical studies with cancer vaccines have:
A. Clearly demonstrated induction of tumor-specific immune response.
B. Repeatedly demonstrated clinical response to large tumor burden.
C. Not clearly demonstrated induction of tumor-specific immune response.
D. Not been performed to date.
Answer: C

4. Which of the following statements is/are true of the epidemiology and etiology of melanoma?
A. Most patients are diagnosed after age 60 years.
B. Skin color has no association with risk of melanoma.
C. Sun exposure is the only risk factor for melanoma.
D. The per capita incidence of melanoma is highest in Australia.
Answer: D

5. Which of the following variables best predicts prognosis for patients with a recent diagnosis of cutaneous melanoma and no clinical evidence of metastatic disease?
A. Breslow thickness.
B. Clark's level.
C. Ulceration.
D. Gender.
E. Celtic complexion.
Answer: A

6. A 38-year-old man presents with a melanoma on the skin of the right calf measuring 5 mm. in thickness. Several large nodes are palpable in the right inguinal region. Which of the following statements about the appropriate management of this clinical problem is false?
A. In the absence of systemic disease, the primary melanoma of the right calf should be excised with at least a 2-cm. margin.
B. Complete right inguinal node dissection should be performed if there is no evidence of systemic metastasis.
C. If further work-up reveals multiple lung metastases of melanoma, they should be excised as soon as possible.
D. Chemotherapy for melanoma is primarily palliative; so surgical therapy is preferred if there is no evidence of metastatic disease beyond the inguinal region.
E. If the nodes do not contain metastatic disease but are simply reactive, the chance of 5-year survival is 50% or less.
Answer: C

7. A 42-year-old woman presents with an 8 cm. × 6 cm. × 4 cm. mass in the posterior thigh. Incisional biopsy reveals a high-grade liposarcoma. Her management should include:
A. High thigh amputation.
B. Extracompartment excision with negative margins.
C. Complete excision with negative margins.
D. Adjuvant radiation therapy.
E. Adjuvant chemotherapy.
Answer: CD

8. Biologic features of adult soft tissue sarcomas include the following:
A. Mutations of p53 in metastatic liposarcoma.
B. A low (less than 1%) risk of metastasis for small, low-grade lesions.
C. Recurrent disease in at least 33% of patients.
D. Lymph node metastasis in less than 3% of patients.
E. Mutations of p53 in Li-Fraumeni syndrome.
Answer: BCDE

9. Which of the following statements describes an ideal tumor marker?
A. The ideal tumor marker should be tumor specific; that is, in the normal population or patients with benign diseases, false-positive test results are rare.
B. The ideal marker must have a low false-negative rate; that means that all patients with a particular type of cancer should test positive.

C. The circulating level of an ideal tumor marker should correlate directly with the amount of viable tumor and be a measure of the response to therapy.
D. The ideal tumor marker should act as a prognostic indicator.
E. All of the above.
Answer: E

10. A marker for the diagnosis of pancreatic cancer is:
A. CA 15-3.
B. CA 19-9.
C. Alphafetoprotein (AFP).
D. Carcinoembryonic antigen (CEA).
E. CYFRA 21-1.
Answer: B

11. Which of the following tumors may cause elevated CEA levels?
A. Breast cancer.
B. Colorectal cancer.
C. Gastric cancer.
D. Lung cancer.
E. All of the above.
Answer: E

12. The presence of which marker is a significant poor prognosis variable for patients with breast cancer:
A. CEA.
B. C-erb B-2.
C. AFP.
D. Human chorionic gonadotropin (hCG).
E. RB-1.
Answer: B

13. The most useful circulating marker for patients with hepatocellular carcinoma is:
A. CA 50.
B. Levels of vitamin B 12.
C. CEA.
D. AFP.
E. hCG.
Answer: D

14. In patients with colorectal cancer the serum CEA level is a clinically useful measure for all reasons except:
A. Prognosis.
B. Detection of recurrence.
C. Guiding second-look operations.
D. Following treatment response.
E. Early diagnosis.
Answer: E

15. Which serum markers are useful in the management of patients with testicular cancer?
A. hCG.
B. AFP.
C. CA 15-3.
D. Two of the above.
E. None of the above.
Answer: D

16. Which tumor marker is useful for the management of patients with breast cancer?
A. CA 125.
B. Inhibin.
C. CA 19-9.
D. CA 15-3.
E. CEA.
Answer: D

17. A new marker that has possible utility in the management of patients with non–small-cell lung cancer (NSCLC) is:
A. Calcitonin.
B. Neuron-specific enolase.
C. CYFRA 21-1.
D. Glucagon.
E. Chromogranin A.
Answer: C

18. A circulating marker that may be useful in the management of patients with any neuroendocrine tumor is:
A. Chromogranin A.
B. Neuron-specific enolase.
C. hCG.
D. Two of the above.
E. None of the above.
Answer: D

19. A 65-year-old man is seen two years following right hemicolectomy for a Duke's B-2 carcinoma of the cecum. Although asymptomatic, the CEA level has risen four-fold from a value obtained six months previously. Computed tomography reveals a single, 3 cm lesion in the right hepatic lobe. There is no evidence of extra-hepatic metastatic disease and the patient undergoes right hepatic lobectomy. Which of the following correctly represents the chance of overall 5 year survival?
a. 15%
b. 33%
c. 50%
d. 66%
Answer: b

20. The most serious long-term side effect of bleomycin therapy is which of the following?
a. Pulmonary fibrosis
b. Cataract formation
c. Cardiomyopathy
d. Aplastic anemia
Answer: a

21. Which of the following malignancies have declined in incidence in the United States over the past two decades?
a. Breast carcinoma
b. Gastric carcinoma
c. Endometrial carcinoma
d. Prostate cancer
e. Carcinoma of the uterine cervix
Answer: b, c, e

22. Oncogenes have been implicated in the development of a number of human neoplasms. Oncogene activation is believed to be required for oncogenesis. Which of the following potential mechanisms are relevant to these processes?
a. Chromosome translocation
b. DNA point mutation
c. Amplification
d. Gene deletion
Answer: a, b, c

23. A 45-year-old woman undergoes excision of a 1 cm breast mass. Histologic examination reveals invasive ductal carcinoma. Flow cytometric analysis is also performed which determines that a fraction of the tumor cells are "aneuploid". The patient asks for an explanation of this term. Which of the following is/are correct?
a. The cells have a DNA content 1 times the baseline content
b. The cells have hyperchromatic nuclei
c. The cells have a DNA content 2 times the baseline content
d. The cells have squamous morphology
e. The cells have a DNA content not an even multiple of baseline content
Answer: e

24. A 45-year-old man with long-standing gastroesophageal reflux undergoes upper endoscopy that reveals patchy areas of epithelium resembling gastric mucosa extending 5 cm proximal to the esophagogastric junction. Biopsies are obtained. The pathologic report describes "Barrett's epithelium". Which of the following processes does this finding represent?

a. Cellular hyperplasia
b. Cellular hypertrophy
c. Metaplasia
d. Carcinoma in situ

Answer: c

25. Which of the following statements regarding the inherited form of retinoblastoma is/are correct?

a. Retinoblastoma results from amplification of the H-ras oncogene
b. Clinical disease results after chromosomal loss in a retinal cell after birth
c. Retinoblastoma results from the loss of a tumor suppressor gene
d. Clinical disease results from chromosomal translocation

Answer: b, c

26. Analysis of metastatic tumor cells has revealed expression of factors promoting tissue invasion. Which of the following is/are among such factors?

a. Collagenase
b. Plasminogen activator
c. Fibroblast growth factor
d. Interleukin-2

Answer: a, b

27. The most common complication that requires alteration of planned chemotherapy regimens is which of the following?

a. Pulmonary fibrosis
b. Gastrointestinal ulceration
c. Hematologic suppression
d. Hepatotoxicity

Answer: c

28. Resistance of tumors to multiple chemotherapeutic agents is often due to the MDR (Multiple Drug Resistance) gene. This gene encodes a protein that acts by which of the following mechanisms?

a. As a transmembrane efflux pump for chemotherapeutic agents
b. As a DNA repair molecule
c. As an isoform of superoxide dismutase
d. As a membrane stabilizer

Answer: a

29. The high incidence of hepatitis B infection in Africa and parts of Asia is thought to be causally associated with increased incidence of which of the following malignancies?

a. Hepatocellular carcinoma
b. Esophageal cancer
c. Burkitt's lymphoma
d. Gastric carcinoma

Answer: a

30. Workers exposed to asbestos are at increased risk for which of the following tumors?

a. Thoracic mesothelioma
b. Bladder carcinoma
c. Laryngeal carcinoma
d. Testicular carcinoma
e. Non-Hodgkin's lymphoma

Answer: a, b, c

31. The Lynch Syndrome is also known as hereditary non-polyposis colorectal cancer. Which of the following is/are features of this syndrome?
a. Left sided colon cancers
b. Autosomal dominant inheritance
c. Multiple polyps beginning in adolescence
d. Multiple cutaneous nevi
Answer: b

32. A number of clinical factors have been noted to decrease sensitivity of tumors to the effects of ionizing radiation. Which of the following is most important in this regard?
a. Increased tissue vascularity
b. High tumor mitotic rate
c. Tissue hypoxia
d. Subcutaneous tumor location
Answer: c

33. Brachytherapy involves the delivery of radiation therapy locally via specially designed catheters placed in direct apposition to the treated tissue. The most common radioisotope used in this application is which of the following?
a. 125I
b. 14C
c. 3H
d. 34P
Answer: a

34. Patients that have acquired immunodeficiency syndrome are at increased risk for which of the following neoplasms?
a. Colorectal cancer
b. Meningioma
c. Kaposi's sarcoma
d. Hepatocellular carcinoma
e. Esophageal carcinoma
Answer: c

35. DNA viruses have been implicated as etiologic agents in several human tumors. Evidence for a causative role exists for which of the following neoplasms?
a. Burkitt's lymphoma
b. Testicular carcinoma
c. Cervical carcinoma
d. Osteogenci sarcoma
e. Esophageal carcinoma
Answer: a, c

36. When a chemotherapeutic agent is stated to have caused a partial response this implies what degree of reduction in measurable tumor volume?
a. 0–9%
b. 10–29%
c. 30–49%
d. 50–99%
Answer: d

37. Which of the following represent obstacles to the use of retroviruses in therapeutic gene transfer?
a. Viral receptors may not be present on target cell membranes
b. For integration, the host cell must undergo mitosis
c. Virus particles are labile
d. Viral purification is difficult
Answer: a, b, c, d

38. Which of the following statements regarding alpha-1-antitrypsin deficiency is/are correct?
a. Alpha-1-antitrypsin is a plasma elastase inhibitor
b. Most homozygous patients develop chronic obstructive pulmonary disease
c. The spleen is the primary site of alpha-1-antitrypsin synthesis

d. Intracellular accumulation of abnormal protein occurs in hepatocytes

Answer: a, b, d

39. Which of the following statements regarding retroviruses is/are correct?

a. The genetic material contained within a retrovirus is RNA
b. Inside the host cell the viral RNA is converted to single-stranded DNA
c. Proviral DNA is integrated into the host chromosome
d. Retroviruses can be used to transfect both replicating and non-replicating cells

Answer: a, c

40. Which of the following statements relating to adenoviruses is/are correct?

a. Adenoviral infection is a common cause of upper respiratory tract infection
b. Adenoviral genetic material consists of double-stranded DNA
c. Adenovirus can be produced in large quantity and easily purified
d. Adenoviral infection requires host cell mitosis

Answer: a, b, c

41. Which of the following statement relating to cystic fibrosis is/are correct?

a. Cystic fibrosis is inherited as an X chromosome-linked recessive trait
b. Cystic fibrosis is caused by a defective chloride channel
c. Cystic fibrosis is caused by defective acetylcholine receptors
d. Cystic fibrosis is inherited as an autosomal recessive trait

Answer: b, d

42. Hemophilia B has been treated in a pre-clinical model by gene transfer for which deficient clotting factor?

a. Factor II
b. Factor VII
c. Factor IX
d. Factor X

Answer: c

43. Familial hypercholesterolemia has been proposed as a disease to be treated by gene therapy. The molecular basis of familial hypercholesterolemia is which of the following?

a. Absence of hepatic low density lipoprotein receptors
b. Overproduction of high density lipoprotein
c. Absence of lipoprotein lipase
d. Overproduction of hepatic ornithine transcarbamylase

Answer: a

44. Antisense oligodeoxynucleotides have been proposed as agents for cancer-directed gene therapy. When delivered intracellularly, antisense molecules act to block which of the following?

a. Transcription
b. Translation
c. Post-translational processing
d. Ribosylation

Answer: b

45. Which of the following viruses is/are considered to be neurotropic?

a. Adenovirus
b. Herpes simplex virus
c. Retrovirus
d. Adeno-associated virus

Answer: b

PEDIATRIC SURGERY

1. Polyhydramnios is frequently observed in all of the following conditions except:
A. Esophageal atresia.
B. Duodenal atresia.
C. Pyloric atresia.
D. Hirschsprung's disease.
E. Congenital diaphragmatic hernia.
Answer: D
2. Which of the following statements about Hirschsprung's disease is/are true?
A. There are no ganglion cells seen in Auerbach's plexus.
B. There is an increased incidence of Down syndrome.
C. It is more common in girls.
D. It may be associated with enterocolitis.
E. It may involve the small intestine.
Answer: ABDE

3. Which of the following statements is/are true of infants with gastroschisis?
A. It is associated with malrotation.
B. There is a high incidence of associated anomalies.
C. There is prolonged adynamic ileus following repair.
D. It is complicated by intestinal atresia in 10% to 12% of cases.
E. It is associated with chromosomal syndromes.
Answer: ACD

4. In neonates with congenital diaphragmatic hernia, which of the following statements is true?
A. The defect is more common on the right side.
B. Survival is significantly improved by administration of pulmonary vasodilators.
C. An oxygen index of 20 is an indication for extracorporeal membrane oxygenation (ECMO).
D. Oligohydramnios is a frequent occurrence.
E. Mortality is the result of pulmonary hypoplasia.
Answer: E
5. Which of the following statements are true regarding the premature neonate?
A. A 15% to 20% right-to-left shunt occurs across the foramen ovale and patent ductus arteriosus.
B. Surfactant levels are normal after 30 weeks' gestation.
C. Fluid requirements are higher than in a full-term baby.
D. Rectal temperature is the best indicator of core body temperature.
E. They are more at risk for infection than the full-term infant.
Answer: ACE

6. In neonates with necrotizing enterocolitis, which of the following findings is an indication of significant bowel ischemia?
A. Increased gastric residuals.
B. Septic shock.
C. Cardiac failure due to a patent ductus arteriosus.
D. Elevated platelet count.
E. Erythema of the abdominal wall.
Answer: E
7. The treatment of choice for neonates with uncomplicated meconium ileus is:
A. Observation.
B. Emergency laparotomy, bowel resection, and Bishop-Koop enterostomy.
C. Intravenous hydration and a gastrografin enema.
D. Emergency laparotomy, bowel resection, and anastomosis.
E. Sweat chloride test and pancreatic enzyme therapy.
Answer: C
8. The pentalogy of Cantrell includes all of the following except:
A. Epigastric omphalocele.
B. Sternal cleft.

C. Intracardiac defect.
D. Pericardial cyst.
E. Ectopia cordis.
Answer: D

9. In infants with duodenal atresia all the following statements are true except:
A. There is an increased incidence of Down syndrome.
B. Duodenal atresia can be detected by prenatal ultrasound examination.
C. It may occur in infants with situs inversus, malrotation, annular pancreas, and anterior portal vein.
D. It is best treated by gastroenterostomy.
E. There is a high incidence of associated cardiac defects.
Answer: D

10. The initial treatment of choice for a 2.5-kg. infant with a 20.0-cm. long proximal jejunal atresia and 8.0 cm. of distal ileum is:
A. Laparotomy, nasogastric suction, proximal dilatation to lengthen the atretic jejunum, total parenteral nutrition, and delayed anastomosis.
B. Laparotomy and proximal end-jejunostomy.
C. Laparotomy and immediate small bowel transplantation.
D. Laparotomy and double-barrel enterostomy (jejunum and ileum), with refeeding of jejunal contents into distal ileum and delayed anastomosis.
E. Laparotomy, tapering jejunoplasty, and end-to-oblique jejunoileal anastomosis.
Answer: E

11. A 2.8-kg. neonate with excessive salivation develops respiratory distress. Attempts to pass an orogastric catheter fail because the catheter coils in the back of the throat. A chest film is obtained and shows right upper lobe atelectasis and a gasless abdomen. The most likely diagnosis is:
A. Proximal esophageal atresia without a fistula.
B. Proximal esophageal atresia with a distal tracheoesophageal (TE) fistula.
C. "H-type" TE fistula.
D. Esophageal atresia with both proximal and distal TE fistula.
E. Congenital esophageal stricture.
Answer: A

12. Neonates with NEC may demonstrate all of the following findings on abdominal films except:
A. Pneumatosis intestinalis.
B. Portal vein air.
C. Pneumoperitoneum.
D. Colovesical fistula.
E. Fixed and thickened bowel loops.
Answer: D

13. The most common type of congenital diaphragmatic hernia is caused by:
A. A defect in the central tendon.
B. Eventration of the diaphragm in the fetus.
C. A defect through the space of Larrey.
D. An abnormally wide esophageal hiatus.
E. A defect through the pleuroperitoneal fold.
Answer: E

14. The calorie-nitrogen ratio for an infant should be maintained at:
A. 75:1.
B. 100:1.
C. 50:1.
D. 150:1.
E. 25:1.
Answer: D

15. All of the following conditions are derived from the primitive embryonic foregut except:
A. Bronchogenic cyst.
B. Cystic adenomatoid malformation.
C. Gastric duplication.
D. Mesenteric cyst.
E. Pulmonary sequestration.
Answer: D

16. For a 22-kg infant, the maintenance daily fluid requirement is approximately which of the following?

a. 1100 ml
b. 1250 ml
c. 1550 ml
d. 1700 ml
e. 1850 ml

Answer: c

17. Which of the following statements regarding nutritional requirements in infants are true?
a. The total daily water requirement is estimated to be 100 ml/100 kcal ingested
b. The resting energy expenditure is approximately twice that of an adult
c. The highest rate of nitrogen retention with parenteral nutrition occurs in infants given approximately 40% of the calories as carbohydrate and the remainder as fat
d. The protein requirement for a newborn infant is approximately 2.5 g/kg/day

Answer: a, b, c, d

18. A term infant 48 hours of age suddenly develops hypoxemia, irritability, and glucose and temperature instability. Which of the following statements are true?
a. Empiric antibiotic coverage for b-hemolytic Streptococci and Escherichia coli should be initiated
b. An intravenous infusion of prostaglandin E1 should be initiated immediately
c. Exogenous surfactant should be given immediately
d. The mortality rate for this child is approximately 50%

Answer: a,d

19. Which of the following statements about pulmonary surfactant are true?
a. Endogenous surfactant deficiency is the key physiologic problem in preterm infants with the infant respiratory distress syndrome
b. Surfactant function can be restored to normal using aerosolized phosphatidylcholine administration
c. Exogenous surfactant replacement has been shown to reduce mortality in preterm infants with the infant respiratory distress syndrome
d. Surfactant is produced by Type I alveolar epithelial cells

Answer: a, c

20. Which of the following statements regarding premature infants are true?
a. Complications of prematurity account for approximately 85% of fetal deaths
b. Prematurity is defined by the World Health Organization as birth prior to 35 weeks gestation
c. Infants with intrauterine growth retardation have physiologic problems which are more dependent on the birth weight than the gestational age
d. Preterm infants are at increased risk for hypocalcemia and hypoglycemia when compared to term infants

Answer: a, d

21. Other than the history and physical exam, which of the following tests is considered an essential feature of the preoperative evaluation of a patient with a suspected thyroglossal duct cyst?
a. Cervical ultrasound
b. Thyroid scan
c. Serum T3 and T4 levels
d. Needle aspiration
e. None of the above

Answer: e

22. Suppurative cervical lymphadenitis in a 3-year-old child is commonly related to which of the following organisms?
a. Staphylococcus aureus
b. Atypical mycobacterial organisms
c. Streptococcal organisms
d. Lymphoma with secondary pyogenic organisms
e. Cat scratch
Answer: a, c

23. Branchial cleft remnants most often present with which of the following clinical problems?
a. Airway obstruction
b. Hemorrhage
c. Malignant degeneration
d. Pain
Answer: a

24. Proximity to which of the following structures places it at risk during surgical excision of a second branchial cleft remnant?
a. Internal carotid artery
b. External carotid artery
c. Hypoglossal nerve
d. All of the above
e. None of the above
Answer: d

25. Standard therapy for acute epiglottitis in a child is:
a. Tracheostomy
b. Intravenous antibiotic treatment in an ICU setting
c. Endotracheal intubation in the operating room and intravenous antibiotic therapy
d. Indirect laryngoscopy and intravenous antibiotics
e. Intravenous steroids and antibiotics
Answer: c

26. Which of the following statements regarding congenital diaphragmatic hernia are true?
a. The incidence of right and left-sided lesions is equal
b. Malrotation is to be expected
c. Left-to-right shunting via a patent ductus arteriosus is a serious but expected physiologic consequence of pulmonary hypoplasia
d. Survival rates of 75% are reported in several contemporary series
e. Congenital heart disease is present in approximately 20% of these infants
Answer: b, d, e

27. Of the following cystic malformations of the tracheobronchial tree, which is most likely to be asymptomatic when discovered?
a. Intralobar pulmonary sequestration
b. Extralobar pulmonary sequestration
c. Congenital cystic adenomatoid malformation
d. Congenital lobar emphysema
Answer: b

28. Infants with a double aortic arch most commonly present with which of the following problems?
a. Dysphagia
b. High output cardiac failure related to a patent ductus arteriosus
c. Positional hyperemia and edema of the right upper extremity
d. Symptomatic tracheal compression
Answer: d

29. Which of the following is most common after primary esophagostomy for esophageal atresia with a distal tracheoesophageal fistula?
a. Anastomotic leak

b. Esophageal stricture
c. Recurrent tracheoesophageal fistula
d. Gastroesophageal reflux
e. Tracheomalacia requiring aortopexy

Answer: d

30. Which of the following is the most common primary lung tumor in infants and children?

a. Pulmonary blastoma
b. Squamous cell carcinoma
c. Endobronchial carcinoid
d. Leiomyoma
e. Metastatic osteogenic sarcoma

Answer: c

31. Which of the following statements regarding congenital chest wall deformities are true?

a. Children with pectus excavatum deformities typically have physiologically insignificant limitation of exercise tolerance
b. The rate of recurrence after operative repair of a pectus excavatum deformity is between 5% and 10%
c. Pectus carinatum is the most common congenital chest wall defect
d. The most common indication for operative repair of congenital chest wall deformities is cosmesis

Answer: a, d

32. The definitive evaluation of a child with a suspected congenital cystic abnormality of the tracheobronchial tree is best done using which of the following?

a. Rigid bronchoscopy
b. Computerized tomography or magnetic resonance imaging
c. Chest x-ray
d. Angiography
e. Barium esophagogram

Answer: b

33. A newborn infant develops coughing, choking and cyanosis with his first feeding. He is noted to have excessive drooling. What are the important associated anomalies that must be screened for prior to surgical intervention?

a. Right-sided aortic arch
b. Hydrocephalus
c. Genitourinary obstruction
d. Congenital heart disease

Answer: c

34. Which of the following ventilation strategies is the best initial approach for a neonate with a left congenital diaphragmatic hernia and the following post ductal arterial blood gases: PaO2 50 mm Hg, PaCO2 60 mm Hg, pH 7.35?

a. High-frequency jet ventilation
b. Permissive hypercapnia with convential pressure controlled ventilation
c. Extracorporeal membrane oxygenation (ECMO)
d. Induced respiratory alkalosis
e. Inhaled nitric oxide with conventional volume controlled ventilation

Answer: b

35. There is an emerging consensus that the surgical repair for congenital diaphragmatic hernia is best done:

a. Emergently at the bedside, eliminating the risks of transporting an unstable neonate
b. While on extracorporeal membrane oxygenation
c. When the infant is potentially extubatable
d. Within the first 48 to 72 hours of life

Answer: c

36. Meckel's diverticulum may present with which of the following signs or symptoms?

a. Hemorrhage
b. Intussusception
c. Volvulus
d. Patent omphalomesenteric duct
e. Right lower quadrant peritoneal findings

Answer: a, b, c, d, e

37. A 3-week old infant has a barium upper gastrointestinal series to evaluate vomiting. The duodenojejunal flexure is found to be to the right of the midline as well as more caudal and anterior than a normal ligament of Treitz. The child is seen to reflux barium spontaneously to the level of the mid-thoracic esophagus. You would recommend which of the following?

a. Barium enema
b. Emergency laparotomy
c. A trial of H2, blockade and cisapride therapy
d. Upper gastrointestinal endoscopy
e. Overnight pH probe analysis

Answer: b

38. Which of the following statements regarding duodenal atresia are true?

a. 20% to 40% of these infants have Trisomy 21
b. When associated with an annular pancreas, division of the pancreas at the site of obstruction is curative
c. Bilious vomiting is typical because the obstruction is usually distal to the ampulla of Vater
d. Reconstruction is best achieved with Roux-en-Y duodenojejunostomy

Answer: a, c

39. A 1500-gram, 30-week gestation neonate is fed at 2 weeks of age. He develops abdominal distention, bilious vomiting and guaiac-positive stool. A plain film of the abdomen demonstrates pneumotosis intestinalis. Which of the following related statements are true?

a. An emergency barium upper GI series should be done to rule out malrotation
b. The child should have a nasogastric tube placed, broad spectrum intravenous antibiotics begun, and sequential abdominal films obtained.
c. The likelihood of intestinal perforation is in excess of 50%
d. The expected survival rate is in the range of 70%

Answer: b, d

40. The most common cause of pyogenic liver abscess in children today is which of the following?

a. Perforated appendicitis
b. Blunt liver injury
c. Immunocompromised host
d. Percutaneous liver biopsy
e. Omphalitis

Answer: c

41. Which of the followings statements regarding an infant with meconium ileus are true?

a. The probability is 100% that he will have cystic fibrosis
b. Nonoperative therapy resolves this problem in approximately two-thirds of patients
c. The average life expectancy is approximately 26 to 28 years for this infant at present
d. The finding illustrated below on plain film is an absolute operative indication (Figure 103-23A)

Answer: a, b, c, d

42. You are asked to recommend therapy for an asymptomatic 2 year old who swallowed a small alkaline watch battery 4 hours ago. A plain film shows the intact battery in the intestine beyond the stomach. The best course of therapy is?

a. Immediate laparotomy, enterotomy and removal of the battery
b. Enteroscopy with extraction
c. Laparoscopy with ultrasound localization and extraction
d. Cathartics and a follow-up plain film in 48 hours if the child remains asymptomatic

Answer: d

43. A jaundiced 6 week old infant has biliary atresia. Which of the following statements are true?

a. Portoenterostomy is the initial procedure of choice
b. Primary liver transplantation using either a reduced sized cadaveric graft or a living related graft is now the procedure of choice
c. Approximately two-thirds of patients managed with portoenterostomy will develop chronic liver disease sufficient to indicate liver transplantation

d. Because biliary atresia has pathogenic components of acute and chronic inflammation, antiinflammatory therapy is known to delay onset of liver failure

Answer: a, c

44. Of the following, which is the most likely cause of hemodynamically significant lower gastrointestinal bleeding in a 6 month old male child?

a. Meckel diverticulum
b. Henoch-Schonlein purpura
c. Intussusception
d. Crohn's colitis
e. Hemolytic uremic syndrome

Answer: a, c

45. Which of the followings statement regarding Hirschprung's disease are true?

a. Suction rectal biopsy is virtually always diagnostic if the specimen includes submucosa
b. Hirschprung's disease is the result of a sex linked dominant gene
c. The endorectal pullthrough is demonstrably superior to other forms of surgical construction
d. Ninety percent or more of patients have an excellent or good functional result following reconstructive surgery
e. The important cause of mortality in contemporary practice is enterocolitis

Answer: a, d, e

46. The operative procedure of choice for managing the most common type of choledochal cyst is which of the following?

a. Cyst gastrostomy
b. Cyst jejunostomy
c. Excision with Roux-en-Y hepaticojejunostomy
d. Transduodenal marsupialization
e. Endoscopic sphincterotomy

Answer: c

47. Which of the following is the most common liver tumor of childhood?

a. Hemangioma and hemangioendothelioma
b. Hepatoblastoma
c. Hepatocellular carcinoma
d. Mesenchymal hamaratoma

Answer: b

48. The risk of biliary tract adenocarcinoma developing in a patient with a choledochal cyst left in situ is approximately which of the following?

a. Less than 1%
b. 3% to 5%
c. 10% to 15%
d. Greater than 25%

Answer: b

49. The most common cause of acute pancreatitis in childhood is which of the following?

a. Pancreas divisum
b. Cholelithiasis
c. Trauma
d. Valproic acid
e. Annular pancreas

Answer: c

50. Which of the following statements regarding gastroschisis are true?

a. Primary fascial closure can be achieved in only about 25% of these infants
b. These infants have an incidence of approximately 40% to 50% of associated anomalies
c. Overall survival is approximately 80% to 90%
d. When the diagnosis is known prenatally, planned cesarean section is the safest method of delivery

Answer: c

51. Which of the following are typical causes of neonatal intestinal obstruction?
a. Intussusception
b. Meconium ileus
c. Hirschprung's disease
d. Meckel's diverticulum
e. Incarcerated hernia

Answer: b, c, e

52. A 6-week-old child presents with generalized seizures, a serum glucose of 30 mg/dL and concurrent hyperinsulinemia. This child's first priority is which of the following?
a. Permanent central venous access and glucose infusion
b. Administration of cortisone and adrenocorticotropic hormone
c. Computerized tomographic scan of the abdomen to look for an islet cell adenoma
d. Urgent pancreatic resection

Answer: a

53. At what age is surgical orchiopexy recommended for a child with a unilateral undescended testis?
a. Promptly upon discovery, regardless of age
b. 1 year
c. 5 to 6 years
d. Any time prior to puberty

Answer: b

54. An infant is noted to have a left flank mass shortly after birth and an ultrasound examination demonstrates left hydronephrosis. The most common cause of this finding is which of the following?
a. Neonatal Wilm's tumor
b. Congenital ureteropelvic junction obstruction
c. Multicystic dysplastic kidney
d. Vesicoureteral reflux

Answer: b

55. The medical indications for circumcision include which of the following?
a. Infants with a history of urinary tract infection
b. Hypospadias
c. Phimosis
d. Enuresis
e. Vesicoureteral reflux

Answer: a, c, e

56. Which of the following statements regarding neuroblastoma are true?
a. Neuroblastoma is the most common abdominal malignancy of childhood
b. Approximately 80% of neuroblastoma patients are diagnosed prior to age 4 years
c. N-myc oncogene copy number in neuroblastoma tissue is inversely related to survival probability
d. Trk proto-oncogene expression in neuroblastoma tissue is inversely related to survival probability
e. All of the above

Answer: a, b, c

57. Which of the following are considered low risk features for neuroblastoma patients?
a. Age less than one year
b. Stage 2A and 2B disease (International Staging Criteria)
c. Stage 4S disease (International Staging Criteria)
d. Neuron specific enolase plasma level less than 100 ng/ml
e. None of the above

Answer: a, b, c, d

58. A one month old female infant is brought to you for evaluation of afriable polypoid mass prolapsing through the vaginal introitus. Your presumptive diagnosis is which of the following?
a. Ectopic ureterocele
b. Rectal prolapse
c. Congenital adrenal hyperplasia with ambiguous genitalia
d. Embryonal rhabdomyosarcoma

Answer: d

59. Which of the following approaches is considered standard care for most Wilms' tumor patients in the United States today?

a. Adriamycin and vincristine therapy followed by surgical resection
b. Needle biopsy followed by either chemotherapy or resection depending upon the histology
c. Primary surgical resection followed by chemotherapy
d. Radiation therapy if judged unresectable on CT or MRI imaging

Answer: c

60. Which of the following statements regarding rhabdomyosarcoma are true?

a. Surgical resection of the primary tumor results in cure of approximately 80 to 90% of all patients
b. Currently recommended therapy includes complete resection of primary tumors prior to chemotherapy for small noninvasive lesions, or after documented response with more formidable primary tumors
c. Alveolar histology is a favorable prognostic finding
d. Overall survival of all patients is now approximately 50%

Answer: b, d

61. Patients with Wilms' tumors most frequently present with which of the following?

a. Bilateral metachronous lesions
b. Bilateral synchronous lesions
c. An extrarenal primary
d. A multicentric primary lesion
e. A unifocal, unilateral lesion

Answer: e

62. Hepatoblastomas are childhood liver tumors characterized by which of the following features?

a. Multicentricity
b. Cirrhosis in the uninvolved liver
c. Unresectable tumors subjected to cytoreductive chemotherapy may be resected with long-term survival
d. Jaundice

Answer: c

63. Common sites of neuroblastoma metastasis are which of the following?

a. Lung
b. Regional lymph nodes
c. Bone marrow
d. Cortical bone
Liver

Answer: b, c, d

64. Which of the following statements regarding renal tumors of childhood and adolescence are true?

a. Clear cell sarcoma is presently considered a variant of Wilms' tumor with a poor prognosis
b. Clear cell sarcoma of the kidney has a high rate of metastasis to bone
c. Rhabdoid tumors may arise in the kidney, mediastinum or brain
d. Childhood rhabdoid tumors of the kidney carry an excellent prognosis

Answer: b, c

65. Which of the following syndromes are associated with the development of Wilms' tumor?

a. Beckwith-Wiedemann Syndrome (hemi-hypertrophy, macroglossia, aniridia)
b. Neurofibromatosis
c. Denys-Drash syndrome (pseudohermaphroditism, glomerulopathy)
d. Gonadal dysgenesis
e. Hemolytic uremic syndrome

Answer: a, b, c, d

"ORAL QUESTIONS IN CLINICAL SURGERY"

Q. What is your diagnosis?
A. Subcutaneous lipoma.
Q. Why this is a lipoma?
A. Because it is a very slowly growing swelling which is soft, pseudofluctuant with a slippery edge.
Q. Why the edge of the lipoma is slippery ?
A. Because it is present within a very loose capsule so that pressure on one edge moves the swelling within the capsule.
Q. Why the lipoma is pseudofluctuant ?
A. Because the fat globules constituting the lipoma are very soft in consistency.
Q. How do you elicit fluctuation in a very small swelling ?
A. By Paget's test; the swelling is fixed by the index and thumb of the left hand and pressure is applied on the center of the swelling by the indexof the right hand. If there is yeilding in the center of the swelling, it is considered fluctuant.
Q. Why this is a subcutaneous and not a subfascial lipoma ?
A. Because it is attached to the skin at multiple sites while in subfascial lipoma the skin is not attached to the swelling at all. Also, making the fascia tense does not make the swelling smaller.
Q. How did you detect the skin attachment ?
A. There are two methods to detect skin attachment; either by pinching or by gliding
Q. Mention the different sites of lipoma ?
A. 1. Subcutaneous lipoma
2. Subfascial lipoma,
3. Intermuscular lipoma
4. Intramuscular lipoma
5. Subperiosteal,
6. Subserous lipoma,
7. Extradural lipoma
8. Retroperitoneal lipoma
9. Subsynovial
10. Intraglandular
Q. Which site is famous for being precancerous ?
A. Retroperitoneal lipoma.
Q. What are the multiple skin swellings ?
A. 1. Multiple Lipomata
2. Multiple Sebaceous Cysts
3. Multiple Naevi
4. Multiple Haemangiomata
5. Multiple Lymphangiomata
6. Multiple Neurofibromata
7. Multiple Papillomata
8. Multiple Warts
9. Multiple Keloids
10. Multiple Boils
11. Multiple Skin Metastases
Q. What is the commonest multiple skin swelling ?
A. Multiple naevi.
Q. How do you treat this patient ?
A. The treatment of lipoma is usually conservative.
Excision is indicated if 1) cosmetically annoying the patient , 2) complicated, 3) painful, or 4) causing pressure on a surrounding structure.

Q. What are the complications of a lipoma ?
A. Pressure on a surrounding structure e.g. a retroperitoneal lipoma compressing the ureters, hindering the movement of a nearby joint, calcification, myxomatous degeneration, and very rarely malignant transformation (liposarcoma).
Q. What is Dercum's disease ?
A. It is a painful lipoma, also called "adipose dolorosa".
Case 2. HAEMANGIOMA
Q. What is your diagnosis ?
A. Cavernous haemangioma of the .....(mention the site).....
Q. Why this is a haemangioma ?
A. Because it is a skin swelling dating since birth (may be shortly after), it is pink in color and compressible.
Q. Why the haemangioma is compressible ?
A. Haemangioma consists of multiple blood-filled vascular spaces. These spaces communicate with the surrounding veins. Haemangioma is compressible because its contained blood empties into the veins communicating with the haemangioma.
Q. What are the compressible swellings you know ?
A. Haemangiomas, lymphangiomas, aneurysms, pharyngeal pouch, saphena varix, varicocoele, pneumatocoele, laryngeocoele, tracheocoele and hernias.
Q. What is the commonest site of a haemangioma ?
A. The head and neck region.
Q. Does it affect internal organs ?
A. Yes, for example the liver and spleen.
Q. What are the different types of haemangioma you know ?
A. The different types of haemangioma are :
1. Capillary Haemangioma :
Port wine stain, Strawberry angioma, Salmon patch, Spider naevi
2. Venous Haemangioma (Cavernous haemangioma)
3. Arterial Haemangioma (Circoid aneurysm)
Q. What is the commonest complication of a haemangioma ?
A. Haemorrhage.
Q. What is the treatment of a cavernous haemangioma ?
A. The different lines of treatment are :
1. Injection of a sclerosant material
2. Embolization injection
3. Surgical excision
4. Laser radiation
Q. As regards injection sclerotherapy, what is the commonest material to be used ?
A. Ethanolamine oleate.
Q. What do you mean by embolization injection ?
A. That is the injection of some material into the feeding artery of the haemangioma through angiography to produce occlusion of this artery and so necrosis of the haemangioma.
Q. What are the famous materials to be used in this regard ?
A. Gelfoam, alcohol foam and silicon particles.

Q. What is a hamartoma ?
A. A hamartoma is "a developmental tumour-like malformation characterized by being formed of the same tissues particular to the part of their origin and these tissues are arranged in a haphazard fashion. It is also characterized by a rate of growth similar to the surrounding structures".
Q. Mention the different types of hamartomas you know ?
A.
1. Haemangiomas 2. Lymphangiomas
3. Neurofibromas 4. Benign naevi.
Q. What are the types of lymphangioma ?
A. There are two types :
1. Capillary lymphangioma (lymphangioma circumscriptum)
2. Cavernous lymphangioma (cystic hygroma)
Q. What is the commonest site of a cystic hygroma ?
A. The neck.
Q. Is lymphangioma compressible or not ?
A. Lymphangioma is partially compressible.
Q. A cavernous lymphangioma in the neck has a character that differentiates it from other neck cysts, what is this character ?
A. It is the only translucent neck cyst.
Q. When does it become opaque ?
A. When it becomes infected
Q. What are the types of neurofibroma ?
A.1. Solitary neurofibroma
2. Generalized neurofibromatosis (von Recklinghausen's disease of nerves)
3. Molluscum fibrosum
4. Plexiform neurofibroma (pachydermatocoele)
5. Elephantiasis neuromatosa
Q. Mention the types of benign pigmented naevi (moles) ?
A. Benign pigmented naevi include the following types :
1. Intradermal naevus
2. Junctional naevus
3. Compound naevus
4. Blue naevus
5. Juvenile naevus
6. Congenital giant naevus
7. Halo naevus
8. Spindle cell naevus
9. Naevus of Ota
10. Naevus of Spilus
11. Lentigo
Q. At what age do benign pigmented naevi start to appear ?
A. They present in childhood and adolescence, rarely they present at birth.
Q. What are the characteristic features of congenital giant naevus ?
A. It is present since birth, may occupy very large areas of the body, usually hairy, and what is more important is that it is precancerous in about 15% of the cases.

Oral Questions on a Case of Hernia

Case 1. INGUINAL HERNIA

Q. What is your diagnosis ?
A. Rt. oblique inguinal hernia, uncomplicated, containing intestine (omentum), no other hernias, no predisposing factors.
Q. Why this is a hernia ?
A. Because 1) It is a swelling, 2) At the anatomical site of a hernia, 3) Gives an impulse on cough, and 4) It is (or was) reducible on lying down and by the patient fingers.
Q. Why inguinal and not a femoral hernia ?
A. Because 1) the hernia is above the inguinal ligament and not below it, and 2) the neck of the hernia is above and medial to the pubic tubercle and because the hernia descends into the scrotum.
Q. Why oblique and not direct ?
A. Because 1) it descends into the scrotum, 2) Ondoing the internal ring test, there was no swelling to appear on coughing, and 3) the patient is a young male.
Q. Describe how did you do the internal ring test ?
A. After reduction of the hernia, the patient is asked to stand while occluding the internal ring (by pressing the finger 1/2 an inch above the mid inguinal point), the patient is then asked to cough, observing the appearance of any inguinal swelling.
Q. Why you did not do the external ring test ?
A. Because it is painful.
Q. Can a direct hernia descend into the scrotum ?
A. A direct hernia can reach the scrotum very rarely.
Q. Where is the defect in oblique inguinal hernia ?
A. In the internal ring.
Q. Where is the defect in direct inguinal hernia ?
A. The posterior wall of the inguinal canal (Hasselbach's triangle).
Q. What are the boundaries of Hasselbach's triangle ?
A. Lateral border of the rectus abdominis muscle medially, the inferior epigastric artery laterally and the inguinal ligament inferiorly.
Q. What are the subdivisions of the Hasselbach's triangle ?
A. Hasselbach's triangle is subdivided into medial and lateral parts by means of the medial umbilical ligament.
Q. What are the common contents of a hernia in general ?
A. Intestine, omentum and fluid.
Q. Mention the clinical types of oblique inguinal hernias ?
A. 1) Bubonocoele, 2) Funicular type and 3) Scrotal (complete) type
1. Bubonocoele = Hernia is only in the groin.
2. Funicular type = Hernia descends into the scrotum but the testis is felt separate from the hernial sac.
3. Scrotal (complete) type = Hernia descends into the scrotum and the hernial sac surrounds the testis which is not felt through the contents of the hernia.

Q. What is hydrocoele of the hernial sac ?
and what is hernia of hydrocoele ?!
A. Hydrocoele of the hernial sac : Part of the sac near its neck becomes encysted by a piece of omentum and accumulates fluid.
A. Hernia of hydrocoele : In cases of vaginal hydrocoele, a defect occurs in the dartos fascia of the scrotum through which a part of the hydrocoele herniates.
Q. What are the causes of residual swelling after reducing the hernia ?
A. 1) Sliding hernia , 2) incomplete reducibility due to adhesions between the contents and the sac , 3) hydrocoele of the hernial sac and 4) associated lipoma of the cord
Q. How would you clinically differentiate between obstructed and strangulated hernias ?
A.
• # This is difficult because both are very acute conditions with the hernia being painful, irreducible & tender.
• # Impulse on cough is preserved in obstructed but is lost in strangulated hernias.
• # The hernia is tense in strangulation but not in obstruction.
• # Symptoms and signs of intestinal obstruction are present in obstructed hernias and maybe present in strangulated hernis
• # The degree of shock and toxaemia are more severe in strangulated hernias.
• # However, both conditions are considered surgical emergencies and necessitate an urgent interference to relieve the cause of strangulation and to deal with the contents.
N.B. An enterocoele can be obstructed and can be strangulated while an omentocoele can only be strangulated as it has no lumen to be obstructed.
Q. What are the conditions that you may find strangulation without obstruction ?
A. If the content of the hernia is one of the following :
1. Omentum
2. Part of the circumference of the intestinal lumen (Richter's hernia)
3. Michael's diverticulum (Littre's hernia)
4. Fallopian tube & ovary
5. Intestine, but there is an associated mesenteric vascular occlusion
Q. What is the treatment of this case of oblique inguinal hernia ?
A.
• O.I.H. in children and adolescents ——— > Inguinal herniotomy
• O.I.H. in adults ——————> Inguinal herniorrhaphy
• O.I.H. in elderly and recurrent cases ——— > Inguinal hernioplasty
Q. What is the principle of operation for inguinal hernia in children & adolescents ?
A. Inguinal herniotomy, that is excision of the hernial sac. They do not need repair as they have very good muscles

Q. What is the principle of operation for O.I.H. in adults?
A. Excision of the sac + repair of the defect
Q. What are the principles of such repair ?
A. Repair of the defect is done either by the local tissues (herniorrhaphy) or by adding a graft of tissue (hernioplasty).
The principles in both herniorrhaphy and hernioplasty, in general, are the following ;
1. Narrowing the internal ring,
2. Repair of the fascia transversalis, and;
3. Reinforcement of the posterior wall of the inguinal canal.
Q. What is the most popular type of repair ?
A. Bassini repair.
Q. What is its principle ?
A. Suturing the conjoined muscle to the inguinal ligament.
Q. What are the causes of recurrence of a hernia ?
A.
- 1. Untreated preoperative condition : Chronic straining (asthmatic bronchitis, prostatic enlargement ....etc.), debility, obesity
- 2. Intraoperative causes: Improper haemostasis, tense repair, lax repair, repair with absorbable suture material
- 3. Postoperative causes : Haematoma,infection, early return to hard work
-

Case 2. PARAUMBILICAL HERNIA

Q. What is your diagnosis ?
A. Paraumilical hernia, uncomplicated.
Q. What are the types of umbilical hernias you know ?
A.
1. True umbilical hernias :
i) Congenital umbilical hernia (exomphalos major and minor)
ii) Infantile umbilical hernia (from weak umbilical cicatrix)
iii) Adult umbilical hernia (from increased intrabdominal pressure)
2. Paraumilical hernias : due to defect in linea alba close to umbilicus:
1) Supraumbilical
2) Infraumbilical
Q. Is it common for patients with PUH to complain of dyspepsia ?
A. Yes.
Q. Why ?
A. Due to traction on the greater omentum which is commonly the content of such a hernia.
Q. What is the commonest complication of paraumbilical hernia ?
A. Irreducibility, due to marked adhesions between the contents.
Q. What is the danger of such irreducibility ?
A. It predisposes to obstruction and strangulation.
Q. What is the treatment of this case ?
A. Herniorrhaphy.
Q. What type of repair do you do ?
A. It varies according to the size of the defect as follows :
- Very small defect ——> Anatomical repair
- Small to Moderate defect ——> Mayo's repair
- Moderate to Large defect ——>Hernioplasty (prolene mesh graft)

Q. How do you clinically differentiate between a paraumbilical and an epigastric hernia ?
A. In paraumbilical hernia, the defect is close to the umbilicus so that the umbilicus forms a crescent at the edge of the sac, while in epigastric hernia, there is a bridge of normal abdominal muscles between the defect and the umbilicus. Besides, epigastric hernia could be multiple
Q. What are the causes of incisional hernia
A. There are;
• 1. Untreated preoperative condition : Chronic straining (asthmatic bronchitis, prostatic enlargement ....etc.), debility, obesity
• 2. Intraoperative causes: Improper haemostasis, tense repair, lax repair, repair with absorbable suture material
• 3. Postoperative causes : Haematoma, infection, early return to hard work

Scrotal Swelling

Case 1. PRIMARY VARICOCOELE

Q. What is your diagnosis ?
A. Left primary varicocoele.
Q. Why this is varicocoele ?
A. Because there is an inguinoscrotal swelling characterized by ;
* By inspection : Varicose veins are seen just beneath the skin of the scrotum (bag of worm appearance)
* By palpation : There are multiple soft, compressible swellings with impulse and thrill on cough. They decrease in size on lying down and disappear on elevation of the scrotum.
Q. What is the definition of varicocoele ?
A. It is dilatation, elongation, and tortuosity of the pampiniform plexus of veins.
Q. What are the types of varicocoele ?
A. Primary and secondary varicocoele.
Q. How does hypernephroma produce secondary varicocoele ?
A. By extension of tumour thrombus into the renal vein leading to obstruction of the testicular vein.
Q. On which side is 2ry varicocoele more common and why ?
A. On the left side, because the left testicular vein drains into the renal vein, while the right testicular vein drains into the inferior vena cava. So, 2ry varicocoele on the left side occurs when there is tumour thrombosis of the left renal vein, whereas on the right side, thrombosis should extend to the IVC to occlude the right testicular vein.
Q. Why 1ry varicocoele is more common on the left side ?
A. Because of the following reasons :
1. 1. The left testicular vein is longer than the right one (left testis lies at a lower level than the right one)
2. 2. The left testicular vein opens at right angle into the left renal vein and no protective valve at this site
3. 3. The left testicular vein lies beneath the sigmoid colon and may be liable to compression
4. 4. The left renal vein passes in the angle between the aorta and the superior mesenteric vein and this angle may be narrow and acts as a nutcracker causing compression of the vein.
5. 5. The left common iliac vein is crossed bythe right common iliac artery
Q. What are the complications of 1ry varicocoele ?
A. 1. Recurrent attacks of thrombophlebitis.

2. 2ry hydrocoele.
3. Infertility (if there is serious depression of sperm count).
4. Neurosis (pain).
5. Testicular atrophy (from prolonged congestion).

Q. What are the different lines of treatment of 1ry varicocoele ?

A. 1. Conservative treatment for all cases.
2. Operative treatment for some cases.

Q. What are the indications for surgery in 1ry varicocoele ?

A. 1. Serious depression of spermatic count (oligospermia).
2. Big painful varicocoele.
3. Employment and acceptance in military & police academies.

Q. Do you know the different approaches for varicocoele ?

A. Yes, there are 4 approaches :
1. Scrotal 2. Inguinal
3. Pelvic (Palomo op.) 4. Laparoscopic

Case 2. VAGINAL HYDROCOELE

Q. What is your diagnosis ?

A. Rt. primary vaginal hydrocoele.

Q. What are the types of hydrocoele ?

A. 1. Congenital hydrocoele 2. Infantile hydrocoele
3. Vaginal hydrocoele 4. Encysted hydrocoele of the cord
5. Hydrocoele of the canal of Nuck 6. Hydrocoele of hernial sac

N.B. The so called diffuse hydrocoele of the cord is one of the forms of chronic filarial funiculitis. It is not a true hydrocoele but it is just a lymphoedema of the cord making it soft gelatinous in consistency.

Q. What is vaginal hydrocoele ?

A. It is accumulation of serous fluid between the two layers of the tunica vaginalis.

Q. What are its types ?

A. It is of two types :
1. 1ry vaginal hydrocoele : of unknown aetiology
2. 2ry vaginal hydrocoele : 2ry to any disease of the testis, epididymis or spermatic cord.

Q. How did you know that it is purely scrotal ?

A. By grasping the neck of the scrotum by two fingers; the thumb infront and the index finger behind the neck, it was found that the swelling is completely below the fingers.

Q. How did you know that it is a cystic swelling ?

A. By doing the bipolar fluctuation test ; One hand's fingers are placed around the neck of the scrotum, and the other hand's fingers hold the bottom of the swelling. The latter squeezes the swelling where an impulse is perceived by the other hand's fingers at the top of the swelling.

Q. What are the values of transillumination in hydrocoele ?

A. It differentiates between hydrocoele which is translucent and other opaque cysts. It also localizes the testis in case of vaginal hydrocoele.

Q. What is the value of localizing the site of the testis in hydrocoele ?

A. To avoid its injury if aspiration is done. The shape and size of the testis also could be assessed

Q. How can you detect secondary vaginal hydrocoele ?

A. By pinching the tunica vaginalis.

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Q. What are the other intrascrotal cysts you know ?
A. Spermatocoele, Pyocoele, Acute heamatocoele, Encysted hydrocoele of the cord, Cystic teratoma, Breaking down gumma, Cysts of embryonic remnants of the epididymis.
Q. What is spermatocoele ?
A. It is a retention cyst situated in the head of the epididymis due to obstruction of the vasa efferentia.
Q. What do you mean by transillumination is opalescent in spermatocoele ?
A. This word means that the cyst is a midway between translucent and opaque.
Q. How can you explain this type of transillumination in spermatocoele ?
A. It is due to its content of sperms.
Q. What are the complications of hydrocoele ?
A. complications of hydrocoele include :
1. 1. Rupture by severe trauma
2. 2. Haematocoele (spontaneous, trauma, aspiration)
3. 3. Infection (—> pyocoele)
4. 4. Calcification of the sac
5. 5. Atrophy of the testis (in long standing cases)
6. 6. Hernia of the hydrocoele (in long standing cases, through dartos muscle as a result of high tension)
Q. What are the lines of treatment of 1ry vaginal hydrocoele ?
A. 1. Operation : The ideal treatment
2. Aspiration : In unfit patients
Q. What are the operations you know for 1ry vaginal hydrocoele ?
A. 1. Excision of the tunica (if very large, thickened or calcified)
2. Evertion of the tunica (if not large, thickened or calcified)
3. Lord's operation (if not large, thickened or calcified)
Q. What are the complications of aspiration ?
A. 1. Recurrence (100%).
2. Infection.
3. Haemorrhage.
4. Puncture of the testis.

Oral Questions on a Case of Goitre
Case 1. SIMPLE NODULAR GOITRE
Q. What is your diagnosis ?
A. Simple nodular goitre.
Q. Why this is a goitre ?
A. Because there is a swelling in the lower part of the front of the neck which is the anatomical site of the thyroid gland, having the shape of the thyroid gland (butterfly) and this swelling moves up and down with deglutition.
Q Why does a goitre move up and down with deglutition ?
A. Because the thyroid gland is enclosed within the pretracheal fascia which is attached to the thyroid cartilage and hyoid bones.
Q. Mention other swellings that move up and down with deglutition.
A. Subhyoid bursitis, prelaryngeal L.Ns., thyroglossal cyst, ectopic thyroid gland, pretracheal L.N., cold abscess of the larynx, parathyroid gland tumours, laryngocoele and tracheocoele.

Q. When doesn't the goitre move up and down with deglutition ?
A. In 1) Huge goitre, 2) Malignant goitre and 3) Retrosternal goitre.
Q Why this is a simple goitre ?
A. Because there are no manifestations suggestive of thyrotoxicosis, no manifestations suggestive of malignancy and no manifestations suggestive of inflammation.
Q. What are the manifestations suspicious of malignancy in a goitre ?
A.
• From history : Short duration or long duration with recent rapid enlargement in size, pain referred to the ear, hoarseness of voice, symptoms of distant metastases.
• From examination : Hardness, fixity to the trachea, fixity to sternomastoid, attachment to the skin overlying, absent carotid pulse (Berry's sign), enlarged deep cervical lymph nodes, signs of distant metastases.
Q. How would you elicit fixity to the trachea ?
A. By fixing the trachea by one hand and trying to move the gland up and down with the other hand, normally there is a slight range of movement.
Q. How do you elicit fixity to the sternomastoid ?
A. By asking the patient to swallow while pinching the relaxed sternomastoid, normally I do not feel something pulling on the sternomastoid between my fingers.
Q. Can the cervical L.Ns. develop secondaries from a thyroid carcinoma while the 1ry is not felt clinically ?
A. Yes, in occult papillary carcinoma of the thyroid gland. This was thought in the past as some form of ectopic thyroid gland and was called "lateral aberrant thyroid".
Q. What are the manifestations suspicious of an inflammatory goitre ?
A.
• In acute and subacute thyroiditis : Short duration, pain, may be fever (with or without chills), warmth and tenderness over the gland.
• In Hashimoto thyroiditis : Locally the gland is very similar to S.N.G. but the course of the disease is characteristic; early there is thyrotoxicosis which is followed by hypothyroidism.
• In Riedle's thyroiditis : The gland is irregularly enlarged, hard, fixed to skin, trachea, and sternomastoid i.e. very similar to anaplastic carcinoma of the thyroid gland.
Q. What is the aetiology of simple goitre ?
A. Simple goitre is due to stimulation of the thyroid gland by increased level of circulating T.S.H. secondary to low levels of circulating thyroid hormones secondary to either iodine deficiency or defective synthesis of thyroid hormones.
Q. What are the causes of iodine deficiency ?
A.
• 1) Decreased intake as in endemic areas,
• 2) Increased demands as in periods of stress in the females (puberty, pregnancy, lactation),
• 3) Decreased absorption from the G.I.T.
Q. What are the causes of defective synthesis of thyroid hormones ?
A. 1) Enzymatic deficiency, and 2) Goitrogens (Cabbage, P.A.S., antithyroid drugs and iodides in large amounts "iodide goitre")
Q. What is Pendred's syndrome ?
A. This is a cretinoid goitre associated with deafness.
Q. What is the cause of this goitre ?
A. Congenital deficiency of peroxidase enzyme.
Q. What are the types of simple goitre ?
A. 1. Simple diffuse goitre (Physiological goitre)
2. Simple nodular goitre (S.N.G.).

Q. Which of them is reversible ?
A. Physiological goitre can be reversible if the cause of iodine defeciency is eliminated.
Q. What are the complications of simple nodular goitre ?
A. 1) Pressure on surrounding structures (dyspnoea and dysphagia), 2) Disfigurement, 3) 2ry toxic goitre (30%), 4) Haemorrhage in a cyst, and 5) Malignant transformation (1/2%), {Follicular Type}.
Q. How does a patient with a haemorrhage in a cyst present ?
A. Sudden onset of dyspnoea.
Q. What is the cause of dyspnoea in such cases ?
A. Sudden enlargement of the gland and moreimportant is the reflex spasm of the pretracheal muscles.
Q. How do you manage such a patient ?
A. Emergency needle aspiration.
Q. What investigations do you want to do for this patient with a goitre ?
A. In addition to the routine laboratory investigations, we do thyroid function tests.
Q. What are the complications of subtotal thyroidectomy for S.N.G.?
A. Complication of subtotal thyroidectomy for S.N.G. include :
- 1. Tension haematoma (due to slipped ligature from the superior thyroid artery),
- 2. Dyspnoea
- 3. Injury to the related nerves : 1) recurrent laryngeal nerve, and 2) external laryngeal nerve
- 4. Hypoparathyroidism (due to accidental removal of the parathyroid glands),
- 4. Hypothyroidism (if the gland was removed near totally and no postoperative replacement by thyroxin was given),
- 5. Recurrent goitre (if no postoperative thyroxin was given),

Q. What is the danger of haematoma after thyroidectomy ?
A. It can lead to suffocation as it is enclosed within the pretracheal muscles.
Q. How do you treat it ?
A. First, urgently, while the patient is in bed, the sutures are cut to relieve the tension and the patient is taken to the theatre to deal with the bleeder.
Q. What are the causes of dyspnoea after thyroidectomy ?
A. 1) Tension haematoma, 2) Laryngeal oedema due to rough manipulations during the operation, 3) Bilateral recurrent laryngeal nerve injury, and 4) Tracheomalacia (very rare).
Q. What are the effects of RLN injury ?
A.
&Unilateral RLN injury ————> hoarseness of voice which is improved by time due to compensatory crossing of the contralateral cord to the other side.
&Bilateral RLN injury ————> Suffocation which should be treated at once by emergency tracheostomy.
Q. What is the effect of external laryngeal nerve injury ?
A. Loss of high pitched voice due to paralysis of cricothyroid muscle..

Case 2. TOXIC GOITRE

Q. What is your diagnosis ?
A1. Toxic diffuse goitre (1ry toxic goitre)
A2. Toxic nodular goitre (2ry toxic goitre)
Q. Why this is a goitre ?
A. Because there is a swelling in the lower part of the front of the neck which is the anatomical site of the thyroid gland, having the shape of the thyroid gland (butterfly) and this swelling moves up and down with deglutition.
Q. Why it is toxic ?
A. Because the patient has manifestations of thyrotoxicosis in the form of:
- From history : Palpitation, nervousness, irritability, intolerance to hot weather, increased appetite associated with loss of weight ,
- From general examination : Tachycardia, arrhythmia, tremors, eye signs of thyrotoxicosis

• From local examination : Dilated veins, expansile pulsations, warmth, palpable thrill, audible bruit..

Q. What are the eye signs of thyrotoxicosis ?

A.

1. Infrequent blinking (staring look)
2. Apparent rim of sclera above the cornea.
3. Lid lag : the upper lid does not follow the eyeball on looking down.
4. Absence of forehead corrugation on looking upwards
5. Absence of convergence on looking to anear object
6. Exophthalmos : A. Apparent exophthalmos B. True exophthalmos
7. Tremors of the eyelids

Q. What is the pathogenesis of each of these eye signs ?

A.

Infrequent blinking, apparent rim of sclera above the cornea, lid lag and apparent exophthalmos are all due to upper eyelid retraction which is caused by spasm of MullerÕs muscle (thyroxine makes this muscle oversenstised to the effect of circulating catecholamines).
Absence of forehead corrugation is caused by true exophthalmos.
Absence of convergence on looking to a near object is due to paresis of the medial recti.
True exophthalmos is due to exophthalmos producing substance which causes deposition of oedema fluid and round cell infiltration in the retro-orbital space.

Q. How to differentiate between true & apparent exophthalmos ?

A. By 1) Naffziger's test; 2) Frazer's test; 3) Ruler test (See clinical notes for details of these tests)

Q. Define hyperthyroidism and thyrotoxicosis.

A. Hyperthyroidism is the term referred to the manifestations caused by the increased level of circulating thyroid hormones. Thyrotoxicosis is a syndrome consisting of manifestations caused by the increased level of circulating thyroid hormones as well as others that are not due to increased level of circulating thyroid hormones (Exophthalmos and Pretibial myxoedema).

Q. What are the types of toxic goitre ?

A. There are three types

1) Toxic diffuse goitre (1ry toxic goitre) (Grave's disease)
2) Toxic nodular goitre (2ry toxic goitre) (Plummer's disease)
3) Toxic nodule.

Q. Are there other causes of thyrotoxicosis ?

A. Yes. the following are rare causes of thyrotoxicosis :

1. Thyrotoxicosis factitia : Due to intake of thyroxine (e.g. for weight reduction)
2. Infantile thyrotoxicosis : A baby born to a thyrotoxic mother
3. Jod Basedow disease : Due to high intake of iodides in a colloid goitre
4. De Quervain thyroiditis (in some cases)
5. Hashimoto thyroiditis (in early cases)
6. Some tumours secrete thyroxine e.g. struma ovarii.

Q. How do you treat a case of toxic nodular goitre (2ry toxic goitre) ?

A. Subtotal thyroidectomy.

Q. How would you prepare a case of toxic goitre for operation ?

A. 1. Antithyroid drugs e.g. Neomercazole until the patient is euthyroid,
2. Propranolol (Inderal) for regulation of heart rate,
3. Lugol's Iodine

Q. When do you contraindicate antithyroid drugs in preop. preparation ?

A. In retrosternal goitre.

Q. Why ?

A. Because antithyroid drugs cause enlargement of the thyroid gland which may lead to mediastinal syndrome.

Q. What is Lugol's iodine ?

A. It is 5% iodine and 10% KI in water.

Q. What is its mechanism of its action ?
A. 1) Inhibition of protease enzyme which releases thyroid hormones from thyroglobulin,
2) Inhibition of organic iodine formation,
3) Prevention of the stimulant effect of TSH on adenyl cyclase enzyme.
Q. What is the principle of subtotal thyroidectomy in toxic goitre ?
A. Subtotal Thyroidectomy = Removal of both lobes + Isthmus, Leaving postero-medial part of the lobes on each side to protect the recurrent laryngeal nerve and parathyroid glands.
Q. What are the complications of subtotal thyroidectomy for toxic goitre ?
A. 1. Tension haematoma (due to slipped ligature from the superior thyroid artery).
2. Dyspnoea.
3. Injury to the related nerves : i) recurrent laryngeal nerve, and ii) external laryngeal nerve .
4. Thyrotoxic crisis.
5. Hypoparathyroidism (due to accidental removal of the parathyroid glands).
6. Hypothyroidism in 20-30% (if the gland was removed near totally).
7. Recurrent thyrotoxicosis in 5-10% (If no adequate excision is done).
Q. What is thyrotoxic crisis ?
A. It is an acute exacerbation of hyperthyroidism. It occurs if the patient is not adequately prepared for thyroidectomy.
Q. What are the manifestations of thyrotoxic crisis ?
A. Hyperpyrexia, restlessness, severe tachycardia, and dehydration.
Q. Is it a dangerous condition ?
A. Yes it is. Severe tachycardia may lead to heart failure and hyperpyrexia may lead to brain damage.
Q.What are the indications of antithyroid drugs in toxic nodular goitre ?
A.
1. 1. Preoperative preparation.
2. 2. Children and adolescents (high incidence of recurrence if operated upon).
3. 3. Refusal for surgery.
4. 4. General contraindication for surgery.
Q. Does radio-iodine has a role in the treatment of toxic nodular goitre ?
A. No, radio-iodine is ineffective in toxic nodular goitre because of the fibrosis present in the gland.
Q. How do you treat a case of toxic nodule ?
A. Surgery (hemithyroidectomy) is the main line of treatment. Medical treatment is indicated in preoperative preparation, in young patients and in patients refusing surgery or unfit for surgery. Radio-iodine can be given to patients over 45 years as an alternative to surgery.
Q. What is the mechanism of action of radioactive iodine in the treatment of toxic goitre ?
A. Radioactive iodine emits beta rays which destroys the thyroid cells without affecting much the surrounding tissue due to their low penetrability.
Q. What type of radioactive iodine is given in the treatment of toxic goitre ?
A. I 131.
Q. Why I131 and not I123 ?
A. Because I131 can emit beta rays while I123 can emit only gamma rays which are ineffective.
Q. What is the dose of radioactive iodine in treatment of toxic goitre ?
A. 10 uCi (10 micro Curi).
Q. What are the disadvantages of radioactive iodine ?
A. 1. Isotope facilities must be present.
2. Indefinite follow up is essential.
3. Thyroid insufficiency in 80% after 10 years.
4. Recurrence of toxicity if low dose is given.
5. Risk of inducing carcinoma in adults if given in childhood or adolescence (that is why it is not given for patients below 45 years).
6. Risk of hypothyroidism and foetal anomalies if given in pregnancy.

Q. What are the contraindications to radioiodine ?
A. 1. During pregnancy (risk of foetal anomalies and foetal hypothyroidsm).
2. During lactation (risk of hypothyroidsm to the baby).
3. Young age (risk of inducing thyroid carcinoma).
4. Toxic nodular goitre (ineffective). 5. Iodine allergy.
Q. What is the advantage of radio-iodine in a case of toxic nodule ?
A. No, because the thyroid tissue surrounding the toxic nodule is suppressed and so will not uptake iodine.

Oral Questions on a Case of Leg Ulcer
Case 1. POST-TRAUMATIC LEG ULCER

Q. What is your diagnosis ?
A. A chronic post-traumatic (non-specific) leg ulcer in the (mention the region) of the Rt./Lt. leg.
Q. Why did you diagnose it non specific ulcer ?
A. Because it has the following characters (in addition to a history of severe trauma) :
- Site : It is commonest over shin of tibia
- Size : Any size
- Shape : Rounded, oval or irregular
- Edge : Sloping edge
- Floor : shows healthy or unhealthy granulations which may be raised, flat or below surface
- Base : Indurated, may be fixed to the underlying bone
- Margin : May be pigmented
- Discharge : Serous or pus discharge
- Draining LNs. : Usually show secondary lymphadenitis

Q. What is the aetiology of this type of ulcers ?
A. It is caused by wounds, burns, corrosives, radiation or traumatic gangrene including bedsore (decubitus ulcer), plaster sores and direct crushes.
Q. Why this type of ulcer has the tendency to become chronic ?
A. It becomes chronic being maintained by repeated trauma, pyogenic infection and poor blood supply from congestion caused by long sitting or standing.
Q. What is indolent ulcer ?
A. In very chronic ulcers with excess fibrosis base and edge become hard (callous) and such an ulcer resists healing and is called indolent ulcer.
Q. What are the investigations required in this case ?
A. Plain X ray tibia to show any bony involvement, culture and sensitivity to give the specific antibiotic, Biopsy from the edge to confirm the diagnosis. This is in addition to the routine investigations.
Q. What is the treatment of this case ?
A.
1. Conservative treatment : This is indicated in small ulcers, provided that they are not indolent. (i.e. not callous). Conservative treatment includes : rest, elevation of foot, avoid long sitting or standing, frequent dressings, pressure bandage, and antibiotics if indicated (according to culture and sensetivity).
2. Surgery : It is indicated in 1) large ulcers, 2) indolent ulcers. Surgery includes excision of the ulcer and covering the defect by a skin flap.
Q. Why do you prefer a skin flap as the method of coverage ?
A. Because skin grafts in the leg have the tendency to re-ulcerate (venous congestion, poor blood supply, frequent traumata,...)
Q. What are the characters of venous ulcer ?
A. Over the medial malleolus; surrounded by pigmentation, dermatitis, scaly skin and leg oedema; sloping edge; floor shows healthy or unhealthy granulations which may be raised, flat or below surface; indurated base, and serous or pus discharge.

Q. What is the aetiology of this type of ulcers ?
A. It is caused by 1ry or 2ry varicose veins but more commonly with 2ry V.V (in postphlebitic limbs following D.V.T.).
Q. What are the trophic ulcers ?
A. These are ulcers due to impaired nutrition of the skin. They include both ischaemic ulcers and neurotrophic ulcers.
Q. What is chronic osteomyelitis ulcer ?
A. It Develops at outer opening of osteomyelitis sinuses. There are multiple sinuses discharging sequestra.
Q. What are the malignant ulcers that can develop in the leg ?
A. Malignant leg ulcers include :
• a. Primary Skin Cancer : squamous cell carcinoma, melanoma
• b. Marjolin's Ulcer : Squamous cell carcinoma in chronic ulcer, osteomyelitis sinus or old scar. It is a slowly growing malignancy
• c. Ulcerating Deep Cancer as osteosarcoma, fibrosarcoma of bone or muscle
Q. Is it common to find distant metastases in Marjolin ulcer ?
A. This is very rare because of the severe fibrosis surrounding the ulcer

Oral Questions on a Case of Cleft Lip & Palate

Case 1. CLEFT LIP

Q. What is your diagnosis ?
A. Unilateral incomplete simple cleft lip not associated with cleft palate.
Q. What do you mean by incomplete ?
A. The cleft is not reaching the nostril floor.
Q. What do you mean by simple ?
A. There is no associated cleft of the alveolar margin.
Q. Did you hear about cleft lower lip ?
A. It is an extremely rare anomaly it is characterized by being median in position.
Q. What are the types of cleft palate you know ?
A. Cleft uvula, cleft soft palate, incomplete cleft palate (Cleft soft and hard palate not reaching the alveolar margin), Complete cleft palate. Incomplete and complete cleft palate could be unilateral or bilateral.
Q. What do you mean by uni or bilateral cleft palate ?
A. It depends on whether the mouth cavity is communicating with one or the two nasal cavities.
Q. When do you repair cleft lip ?
A. At about the age of 3 months.
Q. Why this age specifically ?
A. It is preferred not to do the operation before this age because at that age the Hb% is almost 10 gm% and the weight of the child is almost 10 bounds and this is optimum and safe for anasthesia (in other words, the operation before this age is rather risky).
On the other hand, the operation is preferred not to be delayed after that age for the following reasons : 1) for the proper development of teeth,
2) for psychological relief of the parents' worry about their child and 3) for proper suckling (although the role played by the lip in suckling is not that considerable if compared with that of the palate).
Q. What is the principle of any operation described for the repair of cleft lip ?
A. The principles for any repair of cleft lip are :
1. To bypass the defect : by suturing the muscles, skin and mucous membrane (3 layer closure)
2. To lengthen the lip : by interpositioning of flaps
from both sides adjusting all esthetic points.
Q. What is the commonest operation for the repair cleft lip ?
A. Millard repair.
Q. Why not to do freshening and direct suture without the need to do rotation and advancement flaps ?
A. This direct suture would produce what is called "a lip notch" because of the shortening of the lip

at the edges of the cleft.

Q. What are the complications of cleft palate ?

A. 1) Malnutrition due to improper suckling.
2) Repeated chest infection due to aspiration from regurgitated food and water
3) Speech abnormalities
4) Otitis media due to Eustachean tube obstruction by oedema around its mouth.

Q. What is the cause of improper suckling in cleft palate ?

A. Failure to create an intraoral negative pressure.

Q. What are the speech abnormalities encountered in cleft palate ?

A. 1) Nasal tone of speech (Rhinolalia) and 2) Inability to pronounce some syllables like K, L, Q.

Q. At what age do you prefer to repair cleft palate ?

A. The repair of the most anterior palate can be done during the same operation of repair of the cleft lip, while the remaining posterior palate is repaired at about the age of 11/2 to 2 years.

Q. Is it preferred to postpone the operation after the age of 2 years ?

A. No, because the speech abnormalities of the cleft palate become irreversible (Imprinted in the brain).

Q. So, you mean if the patient presents to you at a later age, you do not recommend to do the operation ?

A. No, the operation is still recommended as it would prevent nasal regurgitation and might improve the nasal tone of speech.

Oral Questions on a Case of Hypospadias

Case 1. DISTAL SHAFT HYPOSPADIAS

Q. What is your diagnosis ?

A. Distal shaft hypospadias.

Q. What other types of hypospadias do you know ?

A. Glandular, coronal, midpenile, posterior penile, penoscrotal, scrotal and perineal hypospadias.

Q. What are other deformities that can be seen in the penis ?

A. 1) The prepuce is incomplete on the ventral aspect, being represented as a dorsal hood,
2) Chordee may be present especially in the posterior types.
3) There may be meatal stenosis.
4) The penis may be smaller in size (microphalus)
5) May be deviation of the median raphe.

Q. What are the associated anomalies that can be seen in the testis and scrotum ?

A. 1) Incompletely descended testis.
2) Split scrotum.

Q. What is chordee ?

A. It is the ventral curvature of the penis on erection.

Q. What is the principle of treatment of hypospadias ?

A. Two things : 1) To correct (to release) the chordee (if present) by excision of the fibrous tissue causing this chordee. 2) To replace the missing urethra (urethroplasty)

Q. When do you prefer to repair hypospadias ?

A. Before school age, between 4 to 5 years.

Q. Why this age in particular ?

A. The repair is better not to be delayed after the age of school because the child develops psychological disturbances if he was admitted to school while he has hypospadias. On the other hand, before this time, the penis is not that developed to allow the operation to be done easily.

Q. How do you explain the psychological disturbances in hypospadias in school age children ?

A. Due to the abnormal direction of the stream of urine, the child sprays urine on his clothes which makes him feels guilty and shy.