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.
   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 not use thyroglobulin levels as a marker for recurrence.
   C. don't Lower overall recurrence rate.
   D. Lower risk of hypoparathyroidism.
   Answer: A
5. Which of the following statements about follicular carcinoma is/are false?
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: E

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.
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 except:
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: a
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't 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: A

15. Hypoparathyroidism all are true except:
A. Is most commonly encountered as a post viral 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: a

16. 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 (T4) is not 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: A

17. Incorrect 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 T4 level.
B. Anticonvulsive medications and chronic debilitating illnesses decrease the amount of TBG and, consequently, the total T4 level.
C. Intravenous pyleography can lower the rate of active iodine uptake by the thyroid.
D. A triiodothyronine (T3) 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: E

18. 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

19. 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

20. less complications of thyroid surgery (bilateral subtotal thyroidectomy) in patients with Graves' disease.
A. Laryngeal nerve paralysis.
B. Hypoparathyroidism.
C. Hypothyroidism.
D. Recurrent hyperthyroidism.
Answer: d

21. 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

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

23. Indications for surgical thyroidectomy for Graves’ disease include which of the following except?

   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

24. 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 skin

Answer: b

25. Radioactive iodine is effective treatment for metastatic lung disease for which of the following thyroid neoplasms?

   a) Hürthle cell carcinoma
   b) Papillary carcinoma
   c) squamous carcinoma
   d) Medullary carcinoma
   e) Anaplastic carcinoma

Answer: b
26. The types of thyroiditis that can cause abnormalities of surgical significance are which of the following except?

a) Chronic lymphocytic thyroiditis (Hashimoto disease)
b) Riedel struma
c) Acute (viral) thyroiditis
d) Granulomatous (subacute) thyroiditis
Answer: C

27. The principal blood supply to the parathyroid glands is which of the following?

e) Superior thyroid arteries
f) Inferior thyroid arteries
g) Thyroidea ima arteries
h) Parathyroid arterial branches directly from the external carotid artery
i) Highly variable
Answer: b

28. Which of the following statements regarding papillary thyroid carcinoma are true?

a. Seventy to 80% of new cases of thyroid carcinoma 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
e. all of the above

Answer: e
29. 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 except?

a. Carcinoma  
b. A nonfunctioning adenoma  
c. A thyroid cyst  
d. A colloid nodule  
e. An autonomous nodule

Answer: E

30. Which of the following pharmacologic agents can't 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: b

31. 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
32. Which of the following statements regarding fine needle aspiration cytology of a thyroid nodule are false?
   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: B

33. Hyperthyroidism results from all of the conditions noted below. Of the following which commonly not require surgical management?
   a. Graves’ disease
   b. 2nd Toxic goiter
   c. Functioning metastatic thyroid carcinoma
   d. Toxic diffuse goiter
   e. Single toxic thyroid nodule
   Answer: c

34. 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

35. Which of the following statements regarding thyroid physiology are false?
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: d

36. 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

37. 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

38. 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 not 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 decreased 24-hour urinary calcium excretion  

Answer: e

39. Which of the following statements regarding medullary carcinoma of the thyroid are false?

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: b

40. 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

41. Which of the following conditions are not associated with hypercalcemia?
42. 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

43. 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

44. 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 not 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: c

45. Which of the following statements regarding calcium and phosphate metabolism are false?

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: b

46. 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
47. 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

48. The diagnosis of primary hyperparathyroidism is most strongly suggested by

a. Serum acid phosphatase above 120 IU/L
b. Serum alkaline phosphatase above 120 IU/L
c. Serum calcium above 11 mg/dL
d. Urinary calcium below 100 mg/day
e. Parathyroid hormone levels below 5 pmol/L

The answer is c.

49. Which statement concerning radiation-induced thyroid cancer is true?

a. It usually follows high-dose radiation to the head and neck
b. A patient with a history of radiation is safe if no cancer has been found 20 years after exposure
c. Approximately 25% of patients with a history of head and neck irradiation develop thyroid cancer
d. Most radiation-induced thyroid cancers are follicular
e. The treatment of choice is a near-total

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(or total) thyroidectomy

The answer is e.

50. The course of papillary carcinoma of the thyroid is best described by which of the following statements?
   a. Metastases are rare; local growth is rapid; erosion into the trachea and large blood vessels is frequent
   b. Local invasion and metastases almost never occur, which makes the term carcinoma misleading
   c. Bony metastases are frequent and produce an osteolytic pattern particularly in vertebrae
   d. Metastases frequently occur to cervical lymph nodes; distant metastases and local invasion are rare
   e. Rapid, widespread metastatic involvement of the liver, lungs, and bone marrow results in a 5-year survival rate of approximately 10%

The answer is d.

Items 51–52
A 53-year-old woman presents with complaints of weakness, anorexia, malaise, constipation, and back pain. While being evaluated, she becomes somewhat lethargic. Laboratory studies include a normal
chest x-ray; serum albumin 3.2 mg/dL; serum calcium 14 mg/dL; serum phosphorus 2.6 mg/dL; serum chloride 108 mg/dL; BUN 32 mg/dL; and creatinine 2.0 mg/dL.

51. Appropriate initial management would include
   a. Intravenous normal saline infusion
   b. Administration of thiazide diuretics
   c. Administration of intravenous phosphorus
   d. Use of mithramycin
   e. Neck exploration and parathyroidectomy
   The answer is a.

52. After appropriate immediate management, the patient’s symptoms resolve. Diagnostic tests to perform at this point would include which of the following?
   a. Abdominal angiogram
   b. Measurement of serum gastrin hormone levels
   c. Kveim test
   d. Serum and urine protein electrophoresis
   e. Neck exploration
   The answer is d.

53. Of the common complications of thyroidectomy, the one that may be avoided through prophylaxis is
   a. Injury to the recurrent laryngeal nerve
   b. Injury to the superior laryngeal nerve
   c. Symptomatic hypocalcemia
   d. Thyroid storm
   e. Postoperative hemorrhage and wound hematoma
   The answer is d.
54. Following correction of the patient’s hypercalcemia with hydration and gentle diuresis with furosemide, the most likely therapeutic approach would be
a. Administration of maintenance doses of steroids
b. Radiation treatment for bony metastases
c. Neck exploration and resection of three out of four parathyroid glands
d. Neck exploration and resection of a parathyroid adenoma
e. Avoidance of sunlight, vitamin D, and calcium-containing dairy products
The answer is d.

55. This 30-year-old woman presented with weakness, bone pain, an elevated parathormone level, and a serum calcium level of 15.2 mg/dL. Skeletal survey films were taken, including the hand films and chest x-ray shown. The most likely cause of these findings is
a. Sarcoidosis
b. Vitamin D intoxication
c. Paget’s disease
d. Metastatic carcinoma
e. Primary hyperparathyroidism
The answer is e.

56. A 36-year-old woman, 20 wk pregnant, presents with a 1.5-cm right thyroid mass. Fine-needle aspiration is consistent with a papillary neoplasm. The mass is “cold” by scan and solid by ultrasound. Which method of treatment would be contraindicated?
a. Right thyroid lobectomy
b. Subtotal thyroidectomy
c. Total thyroidectomy
d. Total thyroidectomy with lymph node dissection
e. 131I radioactive ablation of the thyroid gland

The answer is e.

57. Correct statements concerning Hürthle-cell carcinoma of the thyroid include which of the following?
a. It is a form of anaplastic thyroid cancer
b. It metastasizes via the lymphatics to regional lymph node basins
c. Treatment consists of a near-total (or total) thyroidectomy
d. Microscopically, it consists of clusters of cells separated by areas of collagen and amyloid
e. Once treated appropriately, it has a low rate of recurrence

The answer is c.

58. A 28-year-old man presents with a 2.5-cm mass in the anterior triangle of the left neck. The mass moves with swallowing and has slowly enlarged over the past 1–2 years. The patient’s past medical history is notable for high-dose irradiation to the chest and abdomen for Hodgkin’s lymphoma 8 years prior to presentation. Thyroid scan shows a “cold” lesion. Fine-needle aspiration cytology is
“suspicious.” Core-needle biopsy shows features suggestive of a follicular neoplasm. True statements regarding this patient’s condition include:

a. Thyroid nodules in men are rarely malignant
b. Prior radiation to the chest, if anything, would diminish the risk of subsequent thyroid cancer
c. In the setting of abnormal cytology, an initial course of TSH suppression by thyroid hormone is recommended
d. In the setting of a possible follicular neoplasm, radioactive iodine (131I) ablation is recommended
e. Total thyroidectomy is an acceptable treatment for this patient

The answer is e.