MULTIPLE CHOICE

ABDOMEN - MIXED EXAM - ANSWER KEY

1. What is the approximate normal storage capacity of the adult gallbladder?

A. Approximately 50 mL
B. Approximately 250 mL
C. Approximately 500 mL
D. Approximately 5 mL

2. What range of Doppler frequencies is commonly used for color and spectral Doppler during scrotal ultrasound?

A. 10 to 15 MHz
B. 4 to 8 MHz
C. Below 1 MHz
D. 1 to 3 MHz

3. Which clinical features are most typical of medullary cystic disease (nephronophthisis)?

A. Polyuria, salt wasting, anemia, pain, infection, and progressive azotemia with otherwise normal-appearing renal function early in the course
B. Fever, eosinophilia, hematuria, and rash following drug exposure
C. Painless gross hematuria with a large flank mass and weight loss
D. Hypertension, hematuria, and palpable bilateral flank masses in adulthood

4. True or False? A lobar dysmorphism can resemble a mass or a prominent column of Bertin on ultrasound.

A. False
B. True

5. At the renal hilum, the two branches of the renal vein lie in what position relative to the renal artery?

A. Posterior to the renal artery
B. Anterior to the renal artery
C. Superior to the renal artery
D. Medial to the renal artery

6. After the proper hepatic artery accompanies the bile duct and portal vein through the porta hepatis, into which two branches does it typically divide?

A. Right hepatic artery and left hepatic artery
B. Caudate artery and quadrate artery
C. Cystic artery and right gastric artery
D. Common hepatic artery and gastroduodenal artery

7. Alkaline phosphatase is produced by which of the following tissues?

A. Spleen and lymph nodes
B. Liver and pancreas only
C. Kidney and adrenal gland
D. Liver, bone, intestine, and placenta

8. Which Doppler waveform characteristic defines a nonresistive vessel that supplies an organ requiring continuous perfusion?

A. Absent diastolic flow with a sharp systolic peak
B. A high diastolic flow component with continuous antegrade flow throughout diastole
C. Reversed (retrograde) flow throughout diastole
D. A triphasic waveform with a brief diastolic flow reversal

9. Systemic splenic venous congestion is most commonly associated with which cardiac condition?

A. Right-sided cardiac decompensation.
B. Atrial septal defect with left-to-right shunt.
C. Left-sided cardiac decompensation.
D. Aortic stenosis.

10. Which structure is the cup-shaped capsule that surrounds the glomerulus?

A. Renal capsule
B. Bowman's capsule
C. Gerota's fascia
D. Loop of Henle

11. An abnormal increase in the number of circulating red blood cells is called:

A. Thrombocytosis
B. Leukocytosis
C. Polycythemia
D. Erythropenia

12. The splenic parenchyma is composed of which two components?

A. Cortex and medulla
B. Red pulp and white pulp
C. Mucosa and submucosa
D. Cortex and medullary pyramids

13. Which thyroid hormone helps maintain a strong bone matrix by lowering blood calcium levels?

A. Calcitonin
B. Parathyroid hormone (PTH)
C. Triiodothyronine (T3)
D. Thyroxine (T4)

14. The portal vein is located in what position relative to the inferior vena cava?

A. Lateral
B. Medial
C. Posterior
D. Anterior

15. What is the typical sonographic appearance of a simple cystic renal mass?

A. Round or oval, anechoic, with thin smooth well-defined walls and increased posterior acoustic enhancement
B. Spiculated mass with calcifications and disrupted capsule
C. Echogenic mass with low-level internal echoes and decreased through-transmission
D. Heterogeneous mass with irregular borders and posterior shadowing

16. Which structures divide the medial and lateral segments of the left lobe of the liver?

A. Coronary ligament and bare area
B. Falciform ligament and ligamentum teres
C. Main lobar fissure and middle hepatic vein
D. Ligamentum venosum and caudate lobe

17. Where does a DeBakey type I aortic dissection begin?

A. Distal to the left subclavian artery, in the descending aorta
B. Only within the ascending aorta
C. At the root of the aorta, with extension through the arch and into the descending and abdominal aorta
D. Within the abdominal aorta below the renal arteries

18. What is the most common disease process of the spleen?

A. Splenic abscess.
B. Splenomegaly.
C. Primary splenic neoplasm.
D. Splenic infarction.

19. Which set of vessels are the three main branches of the inferior mesenteric artery?

A. Left gastric, splenic, and common hepatic arteries
B. Left colic, sigmoid, and superior rectal arteries

C. Jejunal, ileal, and middle colic arteries
D. Right colic, middle colic, and ileocolic arteries

20. What is the typical sonographic appearance of nephrocalcinosis?

A. Hypoechoic medullary pyramids
B. Multiple anechoic cortical cysts
C. Diffusely hyperechoic cortex with normal-appearing pyramids
D. Echogenic medullary pyramids, with or without posterior shadowing

21. What are the two principal forms of polycystic kidney disease?

A. Autosomal recessive (infantile) and autosomal dominant (adult)
B. Autosomal dominant juvenile and X-linked adult
C. Acquired cystic disease and medullary sponge kidney
D. Multicystic dysplastic kidney and tuberous sclerosis cystic disease

22. Leukocytosis is typically found in which direction with a pancreatic abscess?

A. Increased
B. Variable with no consistent pattern
C. Decreased
D. Unchanged

23. Patients with chronic pancreatitis have an increased risk for which malignancy?

A. Renal cell carcinoma
B. Gastric adenocarcinoma
C. Hepatocellular carcinoma
D. Pancreatic cancer

24. Where in the scrotum do hydroceles, hematoceles, and pyoceles form?

A. Within the seminiferous tubules
B. Between the visceral and parietal layers of the tunica vaginalis
C. Between the dartos and external spermatic fascia
D. Within the tunica albuginea

25. Which vessel marks the start of the blood supply pathway to the nephrons?

A. Interlobular artery
B. Renal artery
C. Aorta
D. Afferent arteriole

26. Which structure receives the major calyces?

A. Renal pelvis
B. Ureter
C. Minor calyces
D. Renal papilla

27. What is the name of the outermost layer of a blood vessel wall?

A. Tunica media
B. Tunica adventitia
C. Tunica intima
D. Tunica externa serosa

28. True or False? Thyroid storm can be life-threatening due to heart failure, hyperthermia, tachycardia, and delirium.

A. True. Thyroid storm can be life-threatening due to heart failure, hyperthermia, tachycardia, and delirium.
B. False. Thyroid storm causes only mild and self-limited symptoms.

29. An interruption in the blood supply to an area of tissue that may lead to necrosis of that area is called:

A. Ischemia
B. Infarction
C. Hemorrhage
D. Embolism

30. By what route does Entamoeba histolytica typically reach the liver to form an amebic abscess?

A. Via the biliary tree in retrograde fashion
B. Via the portal vein from the colon
C. Via direct extension from the diaphragm
D. Via the hepatic artery from systemic circulation

31. A parathyroid adenoma is best characterized as which of the following?

A. A reactive inflammatory lesion
B. A congenital cystic anomaly
C. A benign solid mass
D. A malignant invasive tumor

32. What patient maneuver causes a dilated extrarenal pelvis to decompress, helping to distinguish it from true hydronephrosis?

A. Having the patient void completely
B. Having the patient drink water and rescanning after one hour
C. Placing the patient in the Trendelenburg position
D. Placing the patient in the prone position

33. Which vessel supplies portal venous blood to the left lobe of the liver?

A. Left hepatic artery
B. Right portal vein
C. Left hepatic vein
D. Left portal vein

34. To detect slow flow when evaluating for testicular torsion, color or power Doppler parameters should be optimized in which way?

A. Increase only the pulse repetition frequency while keeping the wall filter unchanged
B. Maximize the color gain only, leaving the wall filter and pulse repetition frequency unchanged
C. Increase the wall filter and increase the pulse repetition frequency
D. Decrease the wall filter and decrease the pulse repetition frequency (scale)

35. Other than an aortic aneurysm, which condition can produce a pulsatile abdominal mass on examination?

A. Acute appendicitis
B. Hepatic hemangioma
C. Enlarged retroperitoneal lymph nodes, a fibroid uterus, or a retroperitoneal tumor lying adjacent to the aorta
D. Cholelithiasis

36. What is the name for a large renal calculus that fills the renal collecting system in a branching pattern?

A. Bladder diverticular stone
B. Staghorn calculus
C. Matrix stone
D. Ureteral stent calculus

37. Which clinical findings are typical for a patient with an inflammatory disease of the liver?

A. Hematemesis with caput medusae
B. Asymptomatic with normal liver enzymes
C. Right upper quadrant pain, fever, and elevated white blood cell count
D. Painless jaundice with weight loss

38. Which paired small arteries arise from the lateral wall of the abdominal aorta to supply the undersurface of the diaphragm?

A. Inferior phrenic arteries
B. Gonadal arteries
C. Lumbar arteries
D. Adrenal arteries

39. Which type of aneurysm is characterized by a circumferential dilation of the vessel with gradual tapering at both ends?

A. Fusiform aneurysm
B. Pseudoaneurysm
C. Saccular aneurysm
D. Dissecting aneurysm

40. Which Doppler waveform characteristic best describes a nonresistive (low-resistance) vessel?

A. Bidirectional pulsatile flow throughout the cardiac cycle
B. High continuous diastolic flow supplying organs that require constant perfusion
C. Little or reversed flow in diastole supplying organs that do not need constant perfusion
D. Continuous low-velocity flow with no systolic peak

41. Which group of muscles is collectively known as the 'strap muscles' of the anterior neck?

A. Mylohyoid, geniohyoid, and stylohyoid
B. Longus colli, longus capitis, and scalene
C. Sternocleidomastoid, platysma, and digastric
D. Sternohyoid, sternothyroid, and omohyoid

42. Which layer of the tunica vaginalis directly surrounds the testis and epididymis?

A. Tunica albuginea
B. Visceral layer
C. Parietal layer
D. Dartos layer

43. Which artery arises from the anterior abdominal aorta inferior to the celiac axis and supplies the proximal half of the colon and the small intestine?

A. Gastroduodenal artery
B. Inferior mesenteric artery
C. Superior mesenteric artery
D. Common hepatic artery

44. True or False: Bladder carcinoma can obstruct the ureteral orifice, causing urine to back up into the ureter and renal pelvis.

A. False
B. True

45. The secretion of glucagon and insulin into the blood is controlled by which pancreatic function?

A. Exocrine function
B. Paracrine function
C. Endocrine function
D. Neurocrine function

46. What is the most common cause of thyroid disorders worldwide?

A. Radiation exposure.
B. Lithium use.
C. Autoimmune thyroiditis.
D. Iodine deficiency.

47. What is the echogenic linear structure seen anterior to the caudate lobe and posterior to the left lobe of the liver?

A. Ligamentum teres
B. Falciform ligament
C. Main lobar fissure
D. Ligamentum venosum

48. Which set of clinical findings is most characteristic of hemorrhagic pancreatitis?

A. Hypotension, severe abdominal pain radiating to the back, shock, and ileus
B. Painless jaundice and a palpable nontender gallbladder
C. Recurrent peptic ulcers with watery diarrhea
D. Episodic hypoglycemia with palpitations and sweating

49. Which layer is the first structure immediately adjacent to the kidney, forming a tough, fibrous covering?

A. Renal capsule (true capsule)
B. Renal parenchyma
C. Perinephric fat
D. Gerota's fascia

50. On a longitudinal (sagittal) scan of the upper abdomen, a circular anechoic structure seen coursing between the superior mesenteric artery and the aorta most likely represents:

A. Common bile duct in cross-section
B. Left renal vein in cross-section
C. Splenic vein in cross-section
D. Right renal vein in cross-section