# 超音波測驗
# Ultrasonography

2025 年 8 月 24 日星期日

1. 除題意不清楚或是圖片有問題，禁止詢問與試題有關的問題。
2. 應答時禁止使用任何文件。
3. 請在電腦答案卡上圈選作答

| **項目** | **填寫內容** |
|---|---|
| 姓名 | 您的中文與英文姓名 |
| 試題名稱 | US Test |
| 項目 | 不用填寫 |
| 科目 | 不用填寫 |
| 受試者識別代碼 | 您的准考證號碼後五碼：24XXX<br>將您選定之數字的圓圈塗滿。 |
| 科目代碼 | 不用填寫 |
| 地點代碼 | 不用填寫 |
| 作答方式 | 本測驗共有 90 題問題。請使用 1 到 90 作答欄位。<br>請將測驗卷 Q1 的答案填入答案卷的答案選擇 1。Q2 = 答案選擇 2，Q3 = 答案選擇 3…Q90 = 答案選擇 90。 |

1. Select the best answer based on this coronal axis clip of the RUQ (Fig 1).

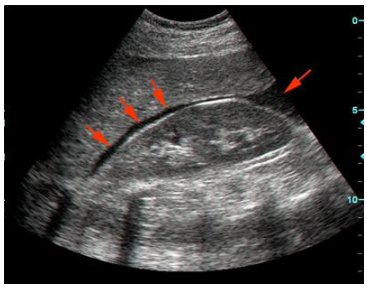

Fig.1

(A) Free intraperitoneal fluid
(B) Liver cyst
(C) This image shows hepatized lung and a pleural effusion
(D) Liver abscess
(E) This image rules out ascites

2. The green mosaic signal (Fig 2.) in the Doppler indicates:

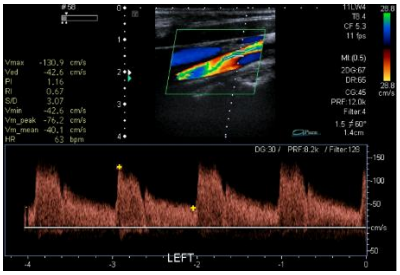

Fig 2.

(A) Reverberation
(B) Aliasing
(C) Flow reversal
(D) Blooming
(E) Mirror

3. On transverse scans, what is the course of the left renal vein?
(A) Posterior to the aorta
(B) Posterior to the inferior vena cava
(C) Between the superior mesenteric artery in the aorta
(D) Between the superior mesenteric vein and inferior vena cava
(E) Anterior to the superior mesenteric artery and posterior to the inferior vena cava

4. Which is not possible artifact in Color Doppler?
(A) Color flash
(B) Mirror image
(C) Aliasing artifact
(D) Twinkling artifact
(E) Acoustic shadowing

5. Which ultrasound finding is indicative of hepatic steatosis?
(A) Decreased echogenicity
(B) Isoechoic echogenicity
(C) Increased echogenicity

(D) All of the above
(E) None of the above

6. Which of the following is associated with the twinkling artifact?
(A) Bladder stone
(B) Bladder mass
(C) Renal cyst
(D) Renal abscess
(E) RCC

7. The normal thickness of the gallbladder wall is:
(A) 9 mm
(B) 5 mm
(C) 3 mm
(D) 2 cm
(E) 5 cm

8. A 40-year-old obese female presented to the Emergency Department with right upper quadrant (RUQ) pain. Fig 3 was one of the images obtained during the scan. What is the possible diagnosis?

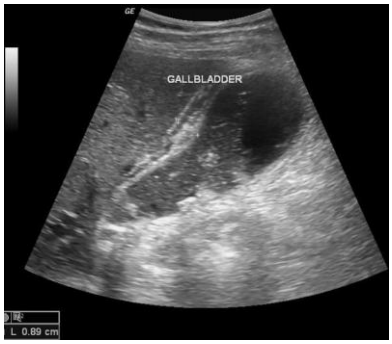

Fig 3

(A) Acute calculous cholecystitis
(B) Porcelain gallbladder
(C) Gallbladder polyps
(D) Abscess
(E) Gallbladder carcinoma

9. A 60-year-old female complained occasional pain in the right upper quadrant of the abdomen. An ultrasound exam was performed (Fig 4). The possible diagnosis might be

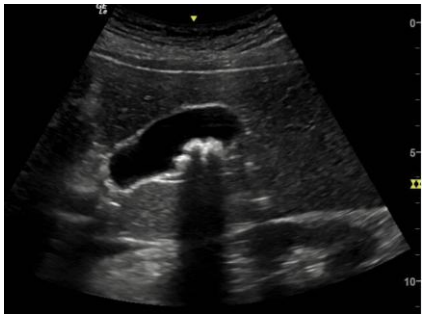
Fig 4

(A) Acute Cholecystitis

(B) Gallbladder Carcinoma
(C) Gallbladder Adenomyomatosis
(D) Chronic Cholecystitis
(E) Multiple gallstones

10. 35-year-old female complained of right lower quadrant (RLQ) and periumbilical pain along with nausea, vomiting, and fever for the past 2 days. What is the most likely diagnosis (Fig 5)?

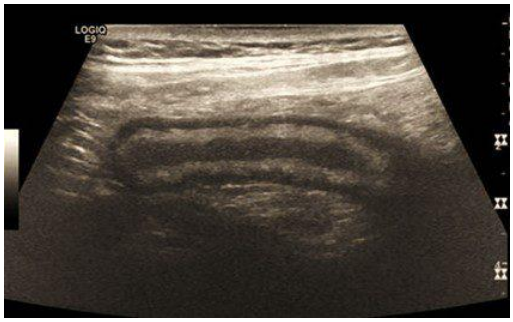

Fig.5

(A) Small bowel obstruction
(B) Appendicitis
(C) Diverticulitis
(D) Polyp
(E) None of the above

11. Which of the following cannot find in the region of cyst?
(A) echo-free
(B) well-defined margin
(C) comet-tail
(D) acoustic enhancement
(E) All of the above

12. Which transducer is recommended for performing a POCUS transthoracic cardiac examination?
High frequency linear transducer
(A) Low frequency linear transducer
(B) Low frequency phased array transducer
(C) Low frequency curvlinear transducer
(D) All of the above

13. The arrow (Fig 6) indicates:


Fig.6

(A) Portal vein
(B) IVC
(C) SMA
(D) Hepatic artery
(E) Celiac artery

14. Obstructive jaundice may be diagnosed sonographically by demonstrating
(A) a mass on the head of the pancreas with a dilated common bile duct
(B) an enlarge liver
(C) a fibrotic and shrunken liver
(D) cholangitis
(E) All of the above

15. Which of the following properties of ultrasound forms the basis for intermittent imaging with contrast agents?
(A) Harmonic scattering from microbubbles
(B) Solid
(C) Nonlinear propagation
(D) Stress/strain of tissue
(E) All of the above

16. The upper limits of the normal intraluminal diameter of the CBD should not exceed.
(A) 2 mm
(B) 4 mm
(C) 7 mm
(D) 10 mm
(E) 12 mm

17. Which of the following cannot eliminate the aliasing artifact?
(A) Shift baseline
(B) Increase PRF
(C) Increase Doppler angle
(D) Using update
(E) Increase power setting by 3 dB

18. Which of the following properties of ultrasound forms the basis for elastic imaging?
(A) Harmonic scattering from microbubbles
(B) Tissue-dependent attenuation
(C) Nonlinear propagation
(D) Stress/strain of tissue
(E) Doppler effect

19. The ultrasound image shows two acoustic parameters displayed on the image. They are MI and TI. What do TI and MI stand for?
(A) TI = Thermal Index; MI = Motion Index
(B) TI = Thermal Index; MI = Mechanical Index
(C) TI = Temporal Index; MI = Motion index
(D) TI = Temporal Index; MI = Mechanical Index

(E) All of the above

20. In adult-type polycystic kidney disease, cysts may be found in
(A) the liver
(B) the pancreas
(C) the spleen
(D) All of the above
(E) None of the above

21. What structure is indicated by the arrow (Fig 7)?

Fig 7

(A) Left atrium
(B) Inferior wall of left ventricle
(C) Right atrium
(D) Anteroseptal wall of LV
(E) Inferolateral wall of LV

22. What does this image demonstrate (Fig 8)?


Fig 8

(A) Renal cyst
(B) Mild hydronephrosis
(C) Renal abscess
(D) Moderate-severe hydronephrosis
(E) Ascites

23. What do B and C correspond to (Fig 9)?

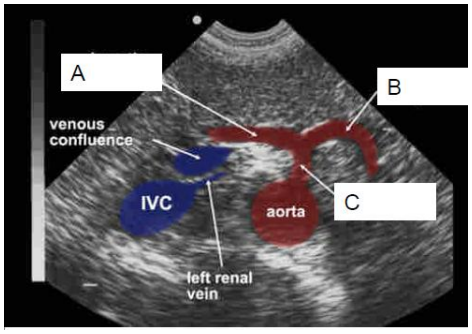

Fig 9

(A) B = celiac axis (trunk), C = splenic vein
(B) B = portal vein, C = splenic vein
(C) B = common hepatic artery, C = splenic artery
(D) B = splenic artery, C = celiac axis (trunk)
(E) B = common hepatic artery, C = SMA

24. What is possible diagnosis at the sonography image on arrow B (Fig 10)?

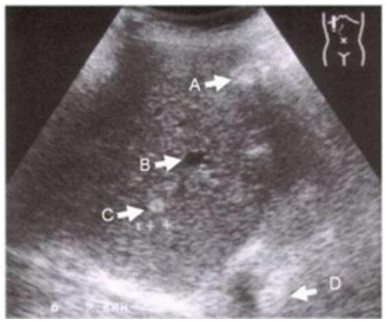

Fig.10

(A) liver cyst
(B) hemangioma
(C) HCC
(D) metastasis
(E) normal cyst

25. Compare the echogenicities of the following structures and place them in decreasing echogenic order.
(A) renal sinus > pancreas > liver > spleen > gallbladder
(B) pancreas > liver > spleen > renal sinus > gallbladder
(C) renal parenchyma > spleen > liver > pancreas > renal sinus
(D) renal sinus > pancreas > spleen > liver > renal medullar
(E) renal parenchyma > pancreas > liver > spleen > renal sinus

26. An abscess may appear sonographically:
(A) Echo free with well-defined borders
(B) Solid with smooth borders
(C) A variable echo texture with irregular borders
(D) Hyperechoic with well-defined borders
(E) Hyperechoic with ill-defined borders

27. The image below (Fig 11) shows a transverse view through the body of the gallbladder. What are the two yellow arrows pointing to?

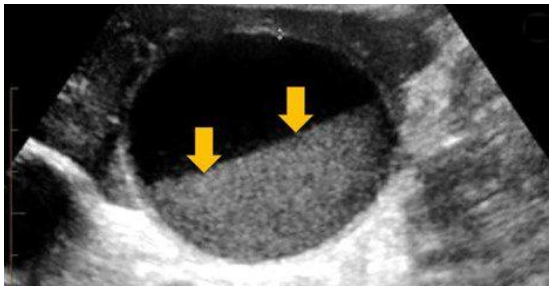

Fig 11

(A) Gallbladder polyp
(B) Gallbladder sludge
(C) Gallbladder calculi
(D) Acute cholecystitis
(E) Carcinoma

28. What are the artifacts shown in figure 12?

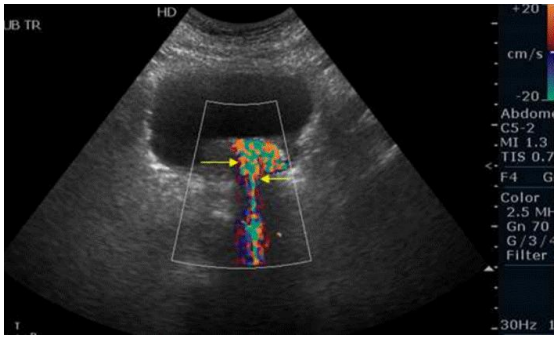


Fig.12

(A) Grating lobe
(B) Side lobe
(C) Comet tail artifact
(D) Mirror artifact
(E) Twinkling artifact

29. The possible diagnosis in Fig 12 (Q28) might be
(A) cystitis
(B) cyst
(C) carcinoma
(D) bladder stone
(E) cannot be diagnosed

30. If the prostate is found to be enlarged, one should be also check the
(A) spleen for enlarge
(B) scrotum for hydrocele
(C) kidneys for hydronephrosis
(D) liver for metastasis
(E) bladder for stone

31. Sonography is helpful in the evaluation of the transplanted kidney. Anechoic masses that occur around a renal transplant include
(A) urinoma
(B) lymphocele
(C) hematoma

(D) abscess
(E) all of the above

32. Ultrasonography of the urinary bladder is helpful in detecting
(A) bladder masses
(B) bladder calculi
(C) foreign bodies
(D) bladder diverticula
(E) all of the above

33. What are the artifacts shown in figure 13 (a)?

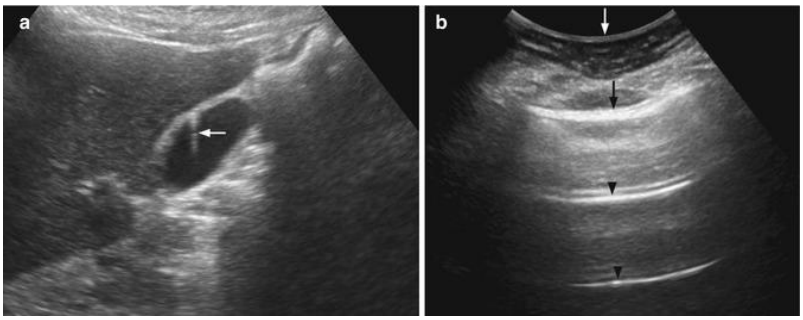

Fig 13

(A) comet-tail
(B) side lobe
(C) acoustic enhancement
(D) acoustic shadowing
(E) reverberation

34. What are the artifacts shown in figure 13 (b)?
(A) comet-tail
(B) side lobe
(C) acoustic enhancement
(D) acoustic shadowing
(E) reveberation

35. What three structures comprise the portal triad?
(A) Portal vein, bile duct, hepatic artery
(B) Portal vein, bile duct, hepatic vein
(C) Bile duct, hepatic vein, hepatic artery
(D) Hepatic vein, hepatic artery, lymph node
(E) Hepatic vein, hepatic artery, portal vein

36. When scanning a patient for lymphadenopathy, one should check the
(A) pelvis
(B) portal hepatis
(C) retroperitoneum
(D) perirenal area
(E) All of the above

37. During ultrasound evaluation of the liver, a bull's eye or target lesion is identified in the anterior right lobe. The most likely etiology of this mass is:

(A) Liver abscess
(B) Hepatic adenoma
(C) Focal nodular hyperplasia
(D) Hepatocellular carcinoma
(E) Liver metastasis

38. An angiomyolipoma is
(A) benign tumor
(B) fatty tumor
(C) usually seen in middle-aged women
(D) all of the above
(E) none of the above

39. An 80 year old man presents with back pain. Which of the following is the correct description for the image (Fig 14)?

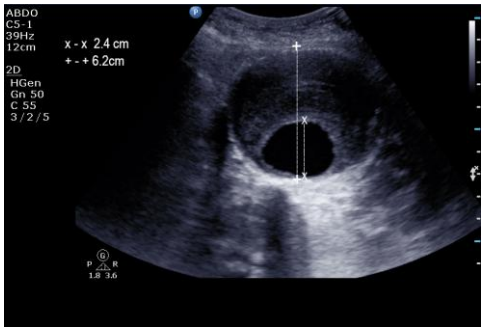

Fig 14.

(A) there is 6 cm aneurysm
(B) the aorta is 2.4 cm diameter
(C) there is right-side heart failure
(D) all of the above
(E) none of the above

40. All of the following are typical of long-standing cirrhosis EXCEPT
(A) a small liver
(B) an enlarged liver
(C) a nodular outline to the liver
(D) increased echogenicity
(E) hepatofugal flow of the portal veins

41. Power Doppler and color Doppler modes show that hypoechoic areas are more vascular than hyperechoic areas. The possible diagnosis in Fig 15 might be?

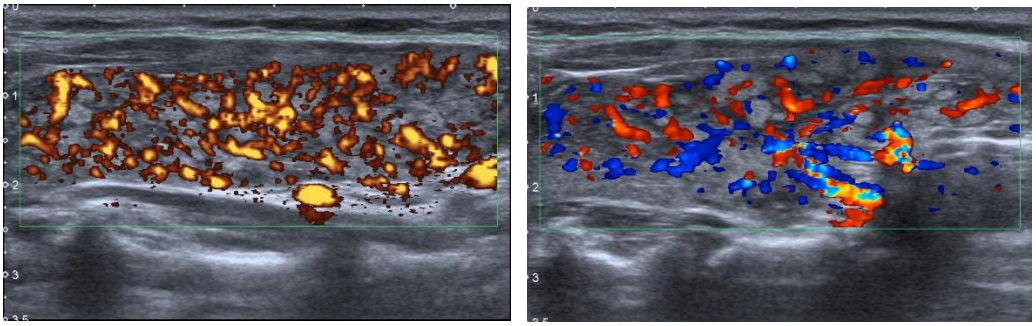
Fig.15

(A) Thyroid cyst
(B) Adenoma
(C) Thyroid abscess
(D) Hashimoto thyroiditis
(E) Goiter

42. Which landmark is most associated with the pancreatic neck?
(A) hepatic artery
(B) SMV
(C) porta hepatis
(D) SMA
(E) all of the above

43. Fig 16 is the " Barrel shotgun sign". What is the most likely diagnosis?

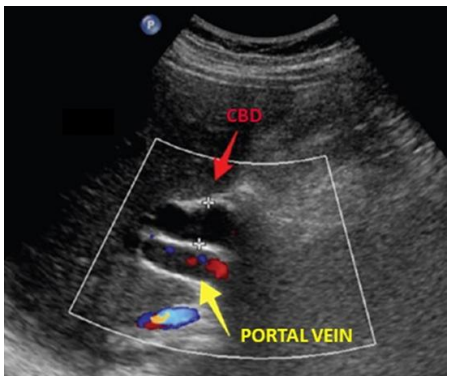

Fig.16

(A) Gallbladder carcinoma
(B) Gallstone
(C) Acute cholectstitis
(D) Dilated common bile duct
(E) HCC

44. This bidirectional, turbulent, swirling blood-flow pattern known as the “yin-yang” or "pepsi" sign (Fig 17) is characteristic of:

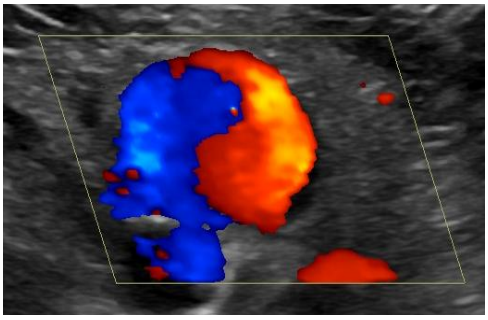
Fig 17

(A) AVF thrombosis
(B) Aliasing
(C) Pseudoaneurysm
(D) Outflow stenosis
(E) Arteriovenous malformation

45. The causes of a large gallbladder include all of the following EXCEPT

(A) adenomyomatosis
(B) cystic duct obstruction
(C) pancreatic carcinoma
(D) a fasting patient
(E) common duct obstruction

46. Which is hyperechoic during scanning pancreas?
(A) acute pancreatitis
(B) adenocarcinoma
(C) pseudocyst
(D) chronic pancreatitis
(E) young patients

47. Select the best answer based on this spleen sagittal image (Fig 18).


Fig 18

(A) lymphoma
(B) accessory spleen
(C) pancreatic carcinoma
(D) all of the above
(E) none of the above

48. What is possible diagnosis at the sonography image (Fig 19)?

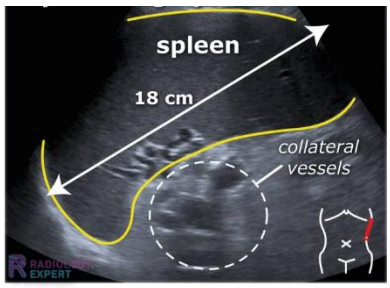


Fig 19

(A) Metastasis
(B) Splenomegaly
(C) Accessory spleen
(D) Splenic abscess
(E) Lymphoma

49. A 55-year-old patient presents with bilateral enlarged kidneys with increased echogenicity and loss of corticomedullary differentiation. Which of the following is the most likely diagnosis?
(A) Acute pyelonephritis
(B) Autosomal dominant polycystic kidney disease (ADPKD)

(C) Chronic kidney disease (CKD)
(D) Renal infarction
(E) Hydronephrosis

50. Which of the following is the incorrect description for the image (Fig 20)?

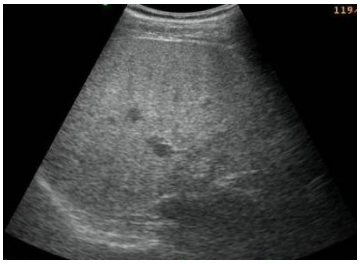

Fig 20

(A) Liver Steatosis (fatty liver)
(B) Cyst
(C) Stone
(D) Calcification
(E) HCC

51. Which of the following renal pathologies typically appears as a solid, hypoechoic mass on ultrasound?
(A) Simple renal cyst
(B) Renal angiomyolipoma
(C) Renal cell carcinoma
(D) Hydronephrosis
(E) Pyelonephritis

52. What is the typical ultrasound appearance of a simple renal cyst?
(A) Complex mass with calcifications
(B) Hypoechoic lesion with septations
(C) Anechoic lesion with posterior enhancement
(D) Hyperechoic lesion with shadowing
(E) Irregular solid mass with vascularity

53. Which area of liver is showed on this sonogram of B (Fig 21)?

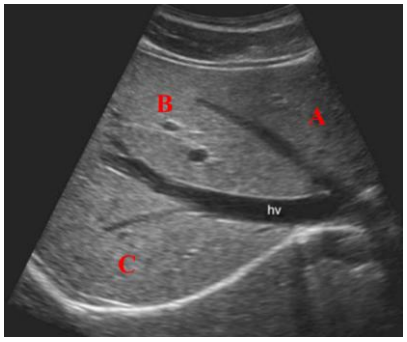


Fig.21

(A) 1
(B) 2
(C) 4
(D) 6
(E) 8

54. What is possible diagnosis at the sonography image (Fig 22)?

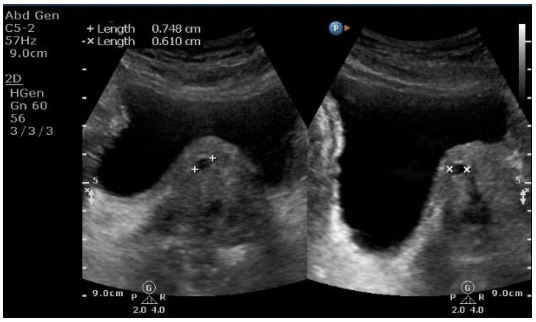

Fig.22

(A) Bladder stone
(B) Prostatitis
(C) Prostatic carcinoma
(D) Ureteric stone
(E) BPH

55. Which ultrasound feature best differentiates a simple cyst from a complex cyst?
(A) Echogenicity
(B) Posterior acoustic shadowing
(C) Internal echoes and septations
(D) Size of the lesion
(E) Location within the kidney

56. Which liver lesion is characterized by a central scar and is typically isoechoic or slightly hypoechoic on ultrasound?
(A) Hemangioma
(B) Focal nodular hyperplasia
(C) Hepatocellular carcinoma
(D) Liver cyst
(E) Metastasis

57. A 3-year-old boy presents with hematuria and a palpable left flank mass. This finding would most likely represent
(A) hypernephroma
(B) Wilm’s tumor
(C) neuroblastoma
(D) polycystic kidney disease
(E) renal stone

58. Which ultrasound feature is most suspicious for malignancy in a thyroid nodule?
(A) Cystic composition
(B) Hyperechoic appearance
(C) Microcalcifications
(D) Smooth margins
(E) Comet-tail artifact

59. A thyroid nodule that is taller-than-wide on transverse ultrasound suggests:
(A) Benign lesion

(B) Malignant potential
(C) Colloid cyst
(D) Hot nodule
(E) Parathyroid adenoma

60. In acute deep vein thrombosis (DVT), proximal to the level of obstruction, the Doppler flow will be
(A) increase
(B) decrease
(C) absent
(D) continuous and unaffected by respiration
(E) all of the above

61. According to ACR TI-RADS, what is the appropriate next step for a 1.5 cm nodule classified as TIRADS 5?
(A) No follow-up
(B) Serial imaging
(C) Fine-needle aspiration biopsy
(D) Radioiodine therapy
(E) Surgical removal

62. Triphasic flows are seen in:
(A) hepatic veins
(B) portal veins
(C) hepatic artery
(D) superior mesentery Artery
(E) aorta

63. Which of the following is true about Sonographic character of late chronic pancreatitis?
(A) Echo of pancreas increase
(B) The boundaries of the pancreas clearly shows
(C) Pancreatic duct dilatation due to pancreatic duct stone
(D) There is no change in the size of the pancreas
(E) All of the above

64. An increased resistivity index (RI) in the common carotid artery may indicate
(A) stenotic disease proximal to the sample size
(B) stenotic disease distal to the sample size
(C) disease at the sample site
(D) sample volume placement too close to the arterial wall
(E) all of the above

65. Which of the following ultrasound findings suggests a benign thyroid cyst?
(A) Hypoechoic solid mass
(B) Anechoic with posterior acoustic enhancement
(C) Microcalcifications
(D) Irregular margins
(E) Hypervascular solid nodule

66. What ultrasound feature is typical of lymph nodes suspicious for metastasis?
(A) Oval shape with fatty hilum
(B) Central echogenic hilum present
(C) Long/short axis ratio > 2
(D) Loss of fatty hilum and round shape
(E) Peripheral calcifications only

67. Nonshadowing, nonmobile, echogenic foci seen within the gallbladder are most likely
(A) polyps
(B) calculi
(C) carcinoma
(D) sludge balls
(E) jaundice

68. What is the most specific ultrasound feature for a malignant breast mass?
(A) Hyperechoic echotexture
(B) Spiculated margins
(C) Parallel orientation
(D) Well-circumscribed border
(E) Posterior acoustic enhancement

69. Which description best characterizes a fibroadenoma on ultrasound?
(A) Irregular, spiculated, hypoechoic mass
(B) Elliptical, wider-than-tall, hypoechoic with thin echogenic capsule
(C) Solid cystic mass with thick walls
(D) Hyperechoic lesion with posterior shadow
(E) Complex cyst with internal debris

70. What ultrasound feature is typical of an intraductal papilloma?
(A) Broad-based posterior enhancement
(B) Anechoic, simple cyst
(C) Solid mass within a dilated duct, possibly causing nipple discharge
(D) Spiculated hypoechoic mass
(E) Fat-containing hyperechoic mass

71. What frequency range is most commonly used for TCD transducers?
(A) 0.5–1 MHz
(B) 2.0–3.5 MHz
(C) 5–7 MHz
(D) 7–10 MHz
(E) 10–15 MHz

72. Which acoustic window is primarily used to assess the middle cerebral artery (MCA)?
(A) Suboccipital
(B) Orbital
(C) Transtemporal
(D) Submandibular
(E) Supraorbital

73. Which condition is TCD most frequently used to monitor after subarachnoid hemorrhage?
(A) Elevated intracranial pressure
(B) Vasospasm
(C) Micro-embolic signals
(D) Cerebral aneurysm
(E) Intracerebral hemorrhage

74. Which statement about transorbital insonation is TRUE?
(A) It uses the same power settings as transtemporal scans
(B) It cannot visualize the ophthalmic artery
(C) Power must be reduced to avoid retinal injury
(D) It provides the best view of MCA
(E) It evaluates vertebral arteries

75. What is the recommended transducer frequency for scrotal ultrasound to optimize resolution?
(A) 2–4 MHz
(B) 5–10 MHz
(C) 10–15 MHz
(D) 15–20 MHz
(E) 20–30 MHz

76. The arrow in fig 23 indicates:

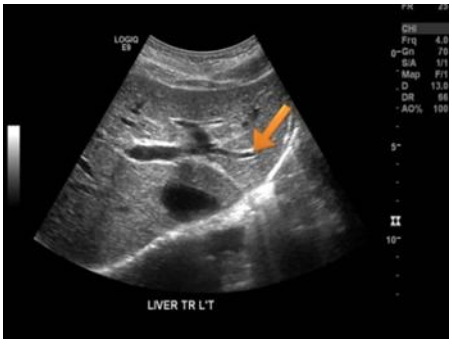

Fig 23

(A) left main branch of portal vein
(B) left hepatic vein
(C) segment-3 branch of left portal vein
(D) segment-2 branch of left portal vein
(E) segment-2 branch of left hepatic vein

77. Which scrotal ultrasound finding is most suggestive of testicular torsion?
(A) Homogeneous testis with normal flow
(B) Heterogeneous testis with absent blood flow
(C) Anechoic hydrocele
(D) Hyperechoic epididymal cyst
(E) Dilated pampiniform plexus seen in Valsalva

78. Which ultrasound technique is used to evaluate the prostate and seminal vesicles?
(A) Transabdominal scrotal scan

(B) Transvaginal ultrasound
(C) Transrectal ultrasound (TRUS)
(D) Transtemporal ultrasound
(E) Transperineal brain scan

79. The arrow in Fig 24 indicates:

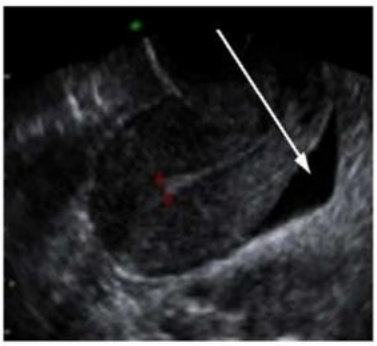

Fig 24

(A) Morison's pouch
(B) Pararectal recess
(C) Cul-de-sac
(D) Urinary bladder
(E) Hepatorenal recess

80. The possible diagnosis in the liver image (Fig 25) is:

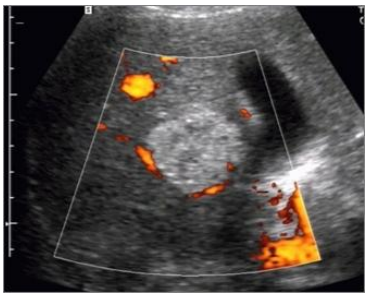

Fig 25

(A) Hemangioma
(B) HCC
(C) Metastasis
(D) Focal nodular hyperplasia
(E) Focal fatty sparing

81. What is the optimal acoustic window for imaging the IVC?
(A) Subcostal 4-chamber
(B) Transhepatic coronal
(C) Suprasternal notch
(D) Transthoracic parasternal
(E) Transorbital

82. What is the normal maximum diameter of the main portal vein?
(A) 0.3 cm
(B) 0.5 cm
(C) 1.3 cm

(D) 2.0 cm
(E) 3.0 cm

83. The minimum diameter to diagnose appendicitis on ultrasound is:
(A) 4 mm
(B) 6 mm
(C) 8 mm
(D) 10 mm
(E) 12 mm

84. The possible diagnosis in the gallbladder image (Fig 26) is:

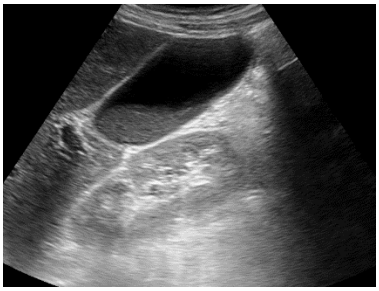

Fig 26

(A) Adenomyomatosis
(B) Cholesterol Polyps
(C) Gallbladder CA
(D) Cholelithiasis
(E) Sludge

85. To optimize image quality, which setting should be adjusted to ensure structures of interest are clearly visualized?
(A) Gain
(B) Frequency
(C) Depth
(D) Focus
(E) All of the above

86. Which of the following indicates poor image quality during an abdominal ultrasound?
(A) Clear visualization of structures with minimal artifacts
(B) Presence of noise and inability to distinguish structures
(C) Proper depth and focus settings
(D) Uniform brightness across the image
(E) All of the above

87. To minimize musculoskeletal strain, sonographers should:
(A) Maintain static and awkward postures
(B) Use excessive force when applying the transducer
(C) Adjust equipment to promote neutral body positions
(D) Perform scans without breaks
(E) All of the above

88. Which echocardiographic technique is preferred for assessing left ventricular dyssynchrony in patients with heart failure?
(A) Tissue Doppler imaging
(B) Speckle tracking echocardiography
(C) Intravascular ultrasound
(D) Intracardiac echocardiography
(E) Magnetic resonance imaging

89. The possible diagnosis in this right upper abdominal image (Fig 27) is:

Fig 27

(A) Ascites
(B) Cyst
(C) CBD dilatation
(D) Hydronephrosis
(E) Pleural effusion

90. Acute cholecystitis is associated with
(A) Murphy's sign
(B) RUQ pain
(C) stone impacted within the cystic duct
(D) fever
(E) all of the above