

超音波測驗

Ultrasonography

2018 年 8 月 26 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 1"000**" 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。 請將測驗卷 Q1 的答案填入答案卷的解答番號 1。Q2 = 解答番號 2， Q3 = 解答番號 3...Q90 = 解答番號 90。

Q1. Which of the following is the correct description about the frequencies of ultrasonic waves?

- 1) >2KHz 2) >10KHz 3) >20KHz 4) >100KHz 5) >200KHz

Q2. Which of the following is the wrong description about an advantage of ultrasonography ?

- 1) There is no radiation exposure, which is harmless to the human body.
2) Cost is low compared with CT and MRI. And there is in portability
3) It is possible to observe in real-time
4) It is possible to blood flow measured by Doppler method
5) It is possible to observe any part of the whole body

Q3. Which of the following is the wrong description about an disadvantage of ultrasonography ?

- 1) air 2) bone 3) blind spot
4) ultra high-speed blood flow measurement
5) examiner ability

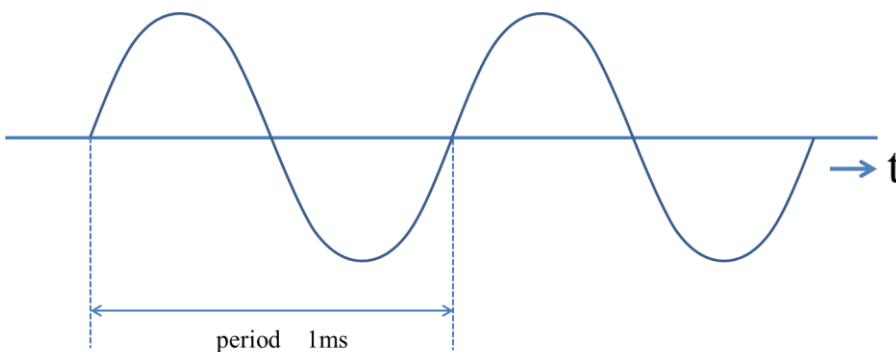
Q4. Which of the following is correct of characteristic ultrasound ?

- 1) The more wavelength is longer, the more attenuation gets large
2) The speed of sound is different with medium and temperature
3) Frequency is product for sound speed and wavelength
4) Acoustic impedance is inverse proportion to the sound speed of the medium
5) It attenuates at the interface where the difference in acoustic impedance is large

Q5. The ultrasonic device is based on the assumption that sound velocity is constant. Nearest speed, Choose from the following ?

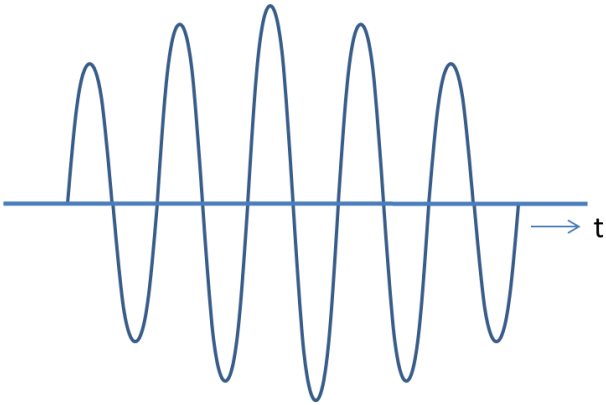
- 1) 1230m/s 2) 1330m/s 3) 1530m/s 4) 1630m/s 5) 1730m/s

Q6. Which of the following is the correct value about frequency of the display of the waveform?



- 1) 10Hz 2) 100Hz 3) 1,000Hz 4) 10,000Hz 5) 100KHz

Q12. Which of the following is the correct distance resolution of 5MHz in the display of the waveform ?



- 1) about 0.015mm 2) about 0.075mm 3) about 0.15mm
 4) about 0.75mm 5) about 1.5mm

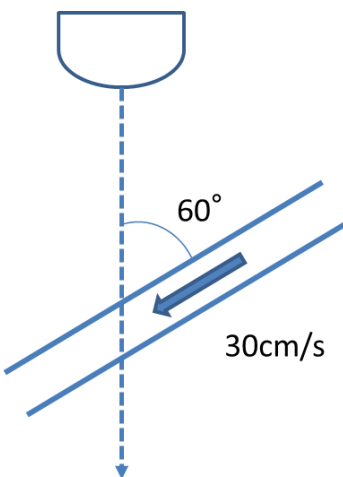
Q13. There is an observation apparatus capable of up to depth 8cm at the center frequency 3.5MHz. Which of the following is the correct value in observation depth at 5MHz? Decay rate is a 1db / cm · MHz

- 1) about 4.0cm 2) about 4.5cm 3) about 5.0cm
 4) about 5.5cm 5) about 6.0cm

Q14. A pulse repetition frequency of the device was set to 3KHz. Which of the following is the correct depth of field? However, the speed of sound in the body is defined as the 1500m / s.

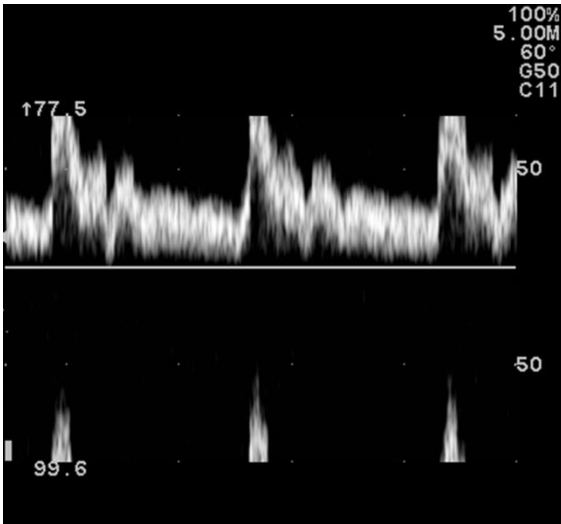
- 1) 5cm 2) 10cm 3) 20cm 4) 25cm 5) 50cm

Q15. The flow of blood is flowing in the 30cm / s. The center frequency is set to 3MHz. Which of the following is the correct as the Doppler shift frequency? However, the speed of sound is defined as the 1500m / s.



- 1) 0.2KHz 2) 0.3KHz 3) 0.4KHz 4) 0.5KHz 5) 0.6KHz

Q16. At Doppler examination showed the Doppler waveform (image). Choose this phenomenon from the following ?



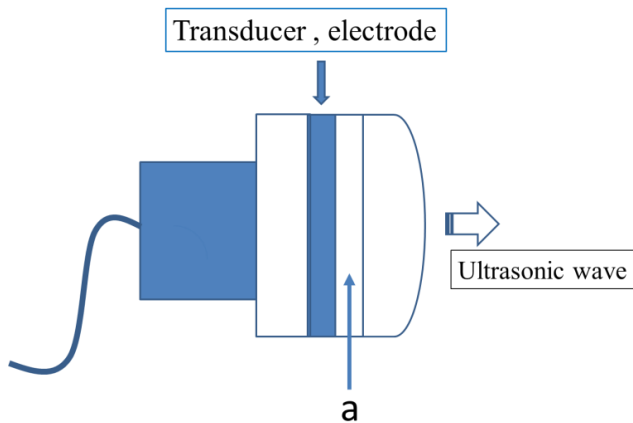
- 1) mirror effect
- 2) side lobe
- 3) main lobe
- 4) aliasing
- 5) multiple reflection

Q17. The following image, Choose what you did adjustment of the device?



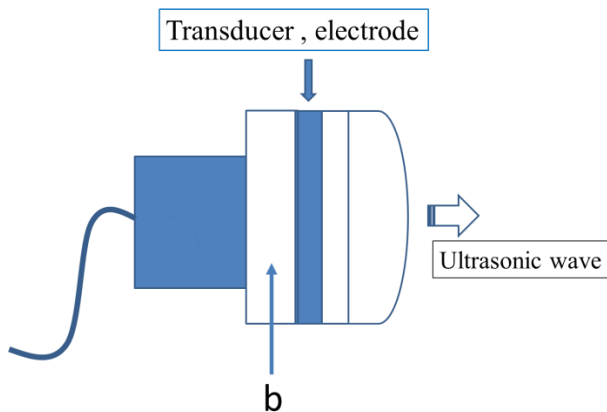
- 1) gain
- 2) center frequency
- 3) STC (sensitivity time control), TGC (time gain control)
- 4) dynamic range
- 5) focus

Q18. Figure shows the structure of a probe (non-semiconductor type). Choose from the following about the structure a?



- 1) backing material
- 2) acoustic lens
- 3) attachment
- 4) acoustic matching layer
- 5) digital scan converter

Q19. Figure shows the structure of a probe (non-semiconductor type). Choose from the following about the structure b ?



- 1) backing material
- 2) acoustic lens
- 3) attachment
- 4) acoustic matching layer
- 5) digital scan converter

Q20. Which of the artifacts occur in color Doppler?

- 1) Chemical shift
- 2) Aliasing
- 3) Beam hardening
- 4) Ring Artifacts
- 5) Halation

Q21. Which of the following is the wrong in the characteristics of the pulsed Doppler?

- 1) transmission and reception can be performed in the same element.
- 2) intermittently to transmit and receive in one direction.
- 3) there is a position information (such as any of the depth can measure the flow of a particular site).
- 4) can respond to the measurement of the high flow rate.
- 5) can real-time display superimposed on the B-mode image.

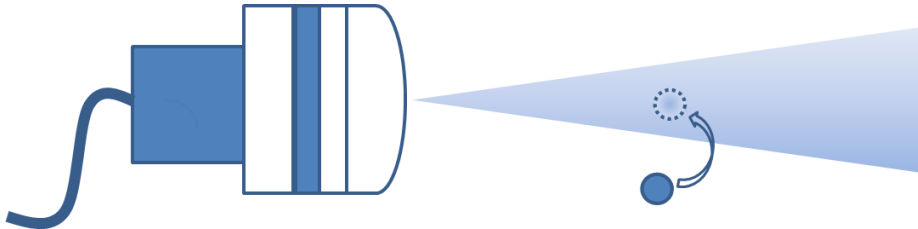
Q22. Which of the following is the wrong in the characteristics of the continuous wave Doppler?

- 1) transmission and reception can be performed in the same element.
- 2) intermittently to transmit and receive in one direction.
- 3) there is a position information (such as any of the depth can measure the flow of a particular site).
- 4) can respond to the measurement of the high flow rate.
- 5) can real-time display superimposed on the B-mode image.

Q23. Which of the following is the wrong in the characteristics of the color flow mapping?

- 1) transmission and reception can be performed in the same element.
- 2) intermittently to transmit and receive in one direction.
- 3) there is not a position information (such as any of the depth can not measure the flow of a particular site).
- 4) can respond to the measurement of the high flow rate.
- 5) can real-time display superimposed on the B-mode image.

Q24. Choose What are the artifacts shown in the figure below ?



- | | | |
|------------------|------------------------|--------------|
| 1) grating lobe | 2) side lobe | 3) main lobe |
| 4) mirror effect | 5) multiple reflection | |

Q25. Choose What are the artifacts shown in the figure below?



- | | | |
|------------------|------------------------|--------------|
| 1) grating lobe | 2) side lobe | 3) main lobe |
| 4) mirror effect | 5) multiple reflection | |

Q26. Choose What are the artifacts shown in the figure below?



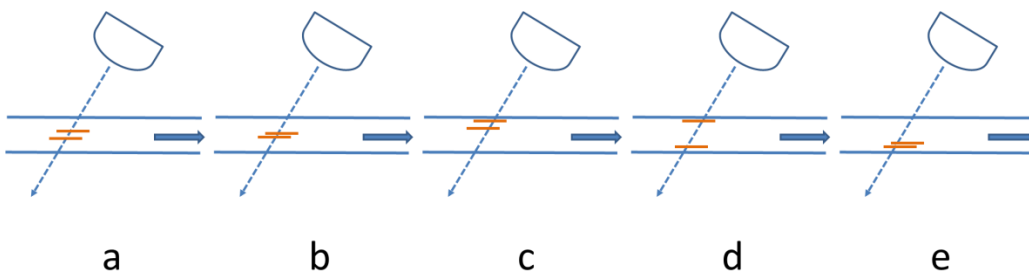
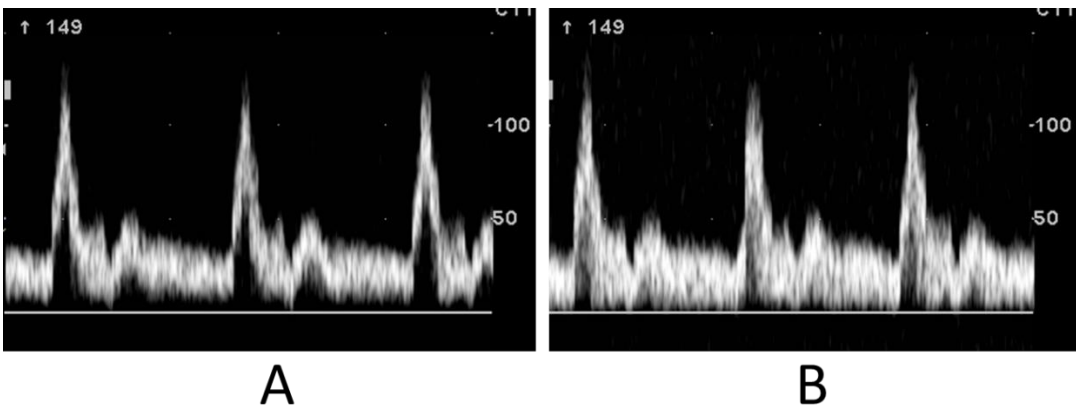
- 1) grating lobe
- 2) side lobe
- 3) main lobe
- 4) mirror effect
- 5) multiple reflection

Q27. Choose What are the artifacts shown in the figure below?



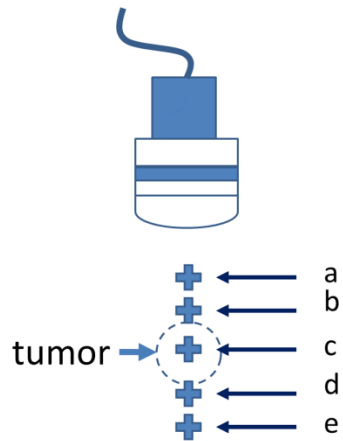
- 1) grating lobe
- 2) side lobe
- 3) main lobe
- 4) mirror effect
- 5) multiple reflection

Q28. The image A is an appropriate doppler waveform. Which of the following is the setting of sample volume for image B?



- 1) a 2) b 3) c 4) d 5) e

Q29. Which of following point is an appropriate focus point?

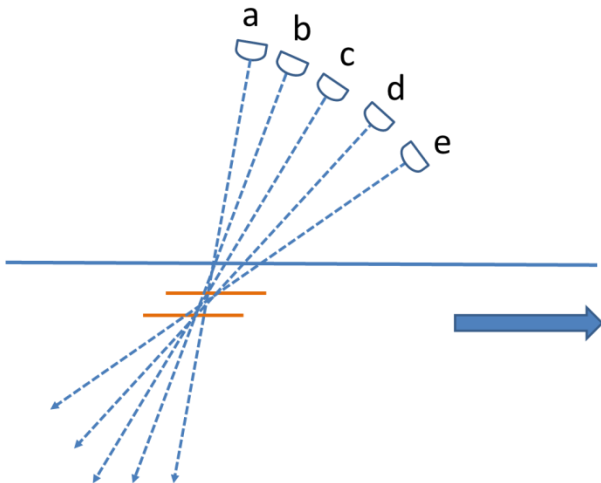


- 1) a 2) b 3) c 4) d 5) e

Q30. By harmonic imaging effect, which of following is relieved?

- 1) grating lobe 2) side lobe 3) main lobe
 4) mirror effect 5) multiple reflection

Q31. About angle correction of doppler, which point of probe do you get the smallest error?



- 1) a 2) b 3) c 4) d 5) e

Q32. Which of following is the correct sentence about pulse propagation?

- 1) The more frequency is high, the more a wavelength gets longer.
- 2) At the pulse wave with the same frequency, the more pulse length gets shorter, the more bandwidth becomes narrower.
- 3) The more frequency of pulse wave is high, the more attenuation gets less.
- 4) At a pulse wave of low frequency, an amplitude is small.
- 5) At a pulse wave of low frequency, an amplitude is big.

Q33. Which of the following, posterior echo enhancement is less likely to occur.

- 1) mucus 2) blood 3) water 4) air 5) abscess

Q34. When it is able to observe to depth of 15 cm, What times transmit and receive is it able to get per 1 sec? The speed of sound within an organism is 1500 m/s.

- 1) 100 times 2) 500 times 3) 1,000 times
4) 5,000 times 5) 10,000 times

Q35. Choose the correct one for the ultrasound device?

- 1) Acoustic lens uses glass
- 2) The acoustic impedance is affected by the density of a substance
- 3) the speed of sound in the same substance change with frequency
- 4) High frequency probe (transducer) can get the fine imaging of deep part.
- 5) MI is an abbreviation for maximum index

Q36. When an ultrasound image (B mode) gets dark as a deep part, which of following is appropriate adjustment of ultrasound machine?

- 1) gain
- 2) STC
- 3) frame rate
- 4) contrast
- 5) acoustic power

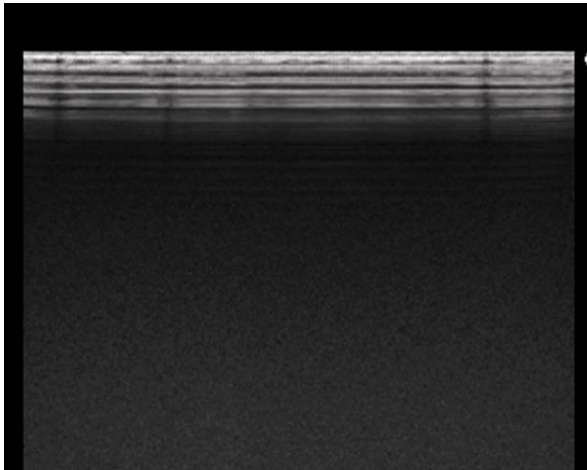
Q37. Which of following is correct method of getting frame rate higher?

- 1) It increases repetition frequency.
- 2) It increases line density.
- 3) It makes observation depth shallow.
- 4) It makes field of view widely..
- 5) It increases transmit frequency.

Q38. With color doppler method, Which of following is correct adjustment for coloration by motion artifact?

- 1) frame rate
- 2) gain
- 3) STC
- 4) MTI filter
- 5) acoustic power

Q39. The image is monitor image of linear probe. Which of following is correct reason of breakdown?



- 1) One part of monitor device won't turn on.
- 2) One part of probe is destroyed.
- 3) STC
- 4) receiving circuit
- 5) artifact

Q40. Which of following is the main reason of using jelly in ultrasound examination?

- 1) For protection from the generation of heat from probe
- 2) For increasing the sensitivity
- 3) For deadening the vibrations
- 4) For clearing the air gap between probe and patient surface
- 5) For decreasing the surface roughness

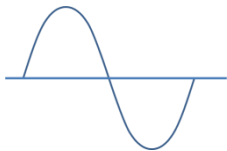
Q41. Which of the following materials (A to D) is the unnecessary material for start-up inspection? A. power cord B. probe C. monitor D. jelly

- 1) A
- 2) B
- 3) C
- 4) D
- 5) There is NOT the unnecessary material in A to D.

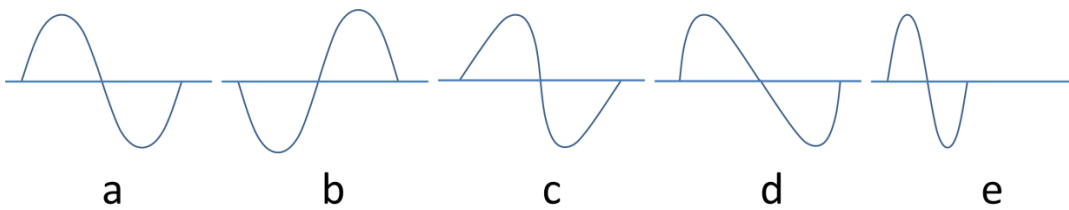
Q42. With cardiac ultrasonography, which method is appropriate method of blood flow measurement for high grade stenosis of valve?

- 1) pulsed wave Doppler
- 2) continuous wave Doppler
- 3) color Doppler
- 4) power doppler
- 5) M-mode

Q43. Which waveform is with the highest similar receiving waveform from the transmitter waveform?



transmitter waveform



- 1) a
- 2) b
- 3) c
- 4) d
- 5) e

Q44. Using color Doppler with vascular ultrasonography, it gets mosaic echo in center of vascular. Which of following is correct?

- 1) An establishment of color gain is high.
- 2) The incident angle of ultrasound with the direction of blood flow is similar to 90°
- 3) A velocity in center of vascular is late.
- 4) It is noise.
- 5) It springs up a turbulent flow.

Q45. Which of following dose it have high ability to absorb?

- 1) calculs
- 2) bone
- 3) air
- 4) metal
- 5) calcification

Q46. Which tumor is easy to get lateral shadow?

- 1) A margin of tumor is flat, and it has coat.
- 2) A margin of tumor is flat, and it doesn't have coat.
- 3) A margin of tumor is irregular, and it doesn't have coat.
- 4) A hard tumor
- 5) A soft tumor

Q47. Which of following is correct for second harmonic of 4MHz?

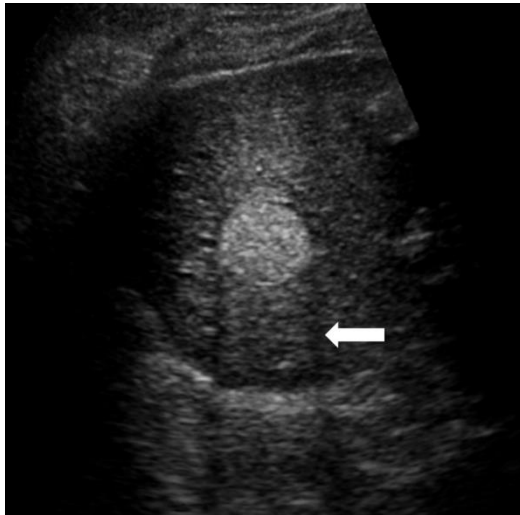
- 1) 2MHz
- 2) 4MHz
- 3) 6MHz
- 4) 8MHz
- 5) 16MHz

Q48. Which of following is NOT correct factor influencing to ultrasound heat effect?

- 1) transmission output (acoustic power)
- 2) pulsed repetition frequency (PRF)
- 3) pulse range
- 4) gain
- 5) examination time

Q49. In this image, What is the black shadow (indicated by the white arrow)

- 1) posterior echo enhancement
- 2) boundary shadow
- 3) surrounding echo
- 4) lateral shadow
- 5) marginal echo



Q50. Choose what can be thought of as the cause of deeper calculus larger than it actually is?

- 1) grating lobe
- 2) side lobe
- 3) main lobe
- 4) mirror effect
- 5) multiple reflection

Q51. The following ultrasound image shows the gallbladder . Which of the following is not correct description?



- 1) Stone is seen in the gallbladder.
- 2) Stones are depicted accompanied by acoustic shadow
- 3) Mass lesion seen in the gallbladder.
- 4) There is no thickening on the gallbladder wall.
- 5) Debris (biliary sludge) is not found in the gallbladder.

Q52. The following image shows the gallbladder . Which of the following is correct description?



- 1) There is no abnormal findings in the gall bladder .
- 2) It is not necessary to check the mobility by a change in posture.
- 3) Evaluation of Doppler is not necessary .
- 4) Gallbladder cholesterol polyps are always seen stems .
- 5) Acknowledge the hyperechoic lesion in the gallbladder .

Q53. The following ultrasound image shows the gall bladder. Choose the most likely disease?



- 1) Gall bladder cancer
- 2) Acute cholecystitis
- 3) Cholelithiasis .
- 4) Gallbladder adenomyosis
- 5) Biliary sluge

Q54. The following ultrasound image shows the gallbladder. Which of the following is not correct description?



- 1) It is necessary to check the mobility of sluge by a change in posture.
- 2) Seen sludge in the gallbladder
- 3) Gallbladder wall has thickened
- 4) Acute cholecystitis is a negative.
- 5) Gallbladder has been enlarged

Q55. The following image shows the gallbladder .Which of the following is not correct description?



- 1) Low echo of the body to bottom is hyperplasia of Rokitanski-Aschoff sinus (RAS) with the surrounding smooth muscle (fibrous muscle tissue) can be considered .
- 2) RAS is not in normal gallbladder mucosa .
- 3) Acknowledge the low echo in thickened body to bottom .
- 4) Acknowledge the localized wall thickening in gallbladder body to bottom .
- 5) Acknowledge the comet -like echo in the gallbladder body to bottom .

Q56. Choose the disease with the low frequency as the cause of cholangiectasis?

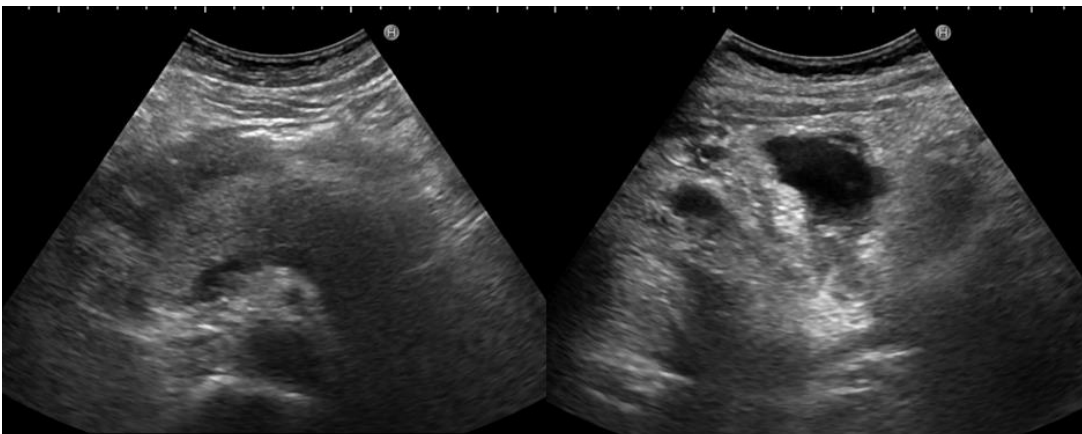
- 1) Malfusion of pancreaticobiliary ducts
- 2) Intraductal papillary neoplasm of bile duct (IPNB)
- 3) Bile duct stone
- 4) Cholangiocarcinoma
- 5) Gallbladder adenomyosis

Q57. The following image that depicted the pancreas · Which of the following is not correct description?



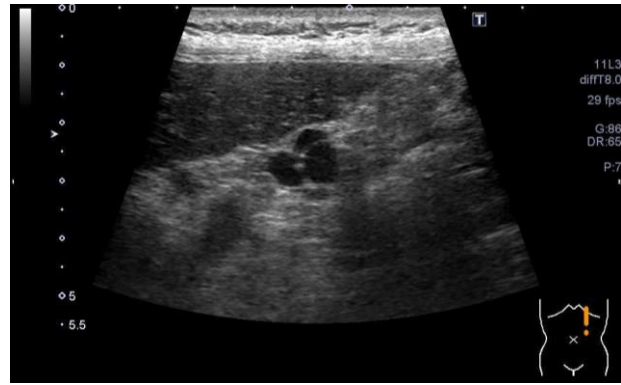
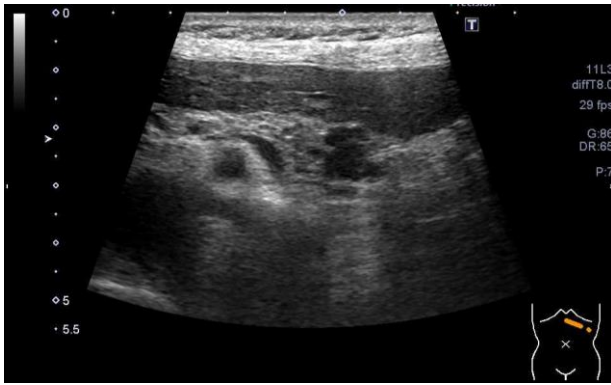
- | | |
|---|---|
| 1) Autoimmune pancreatitis is suspected . | 2) Acknowledge the swelling of pancreas. |
| 3) Measurement of IgG4 is not effective . | 4) Diffuse pancreatic cancer is suspected . |
| 5) There is not main pancreatic ductal dilation | |

Q58. The following image shows the pancreas · Which of the following is not correct description?



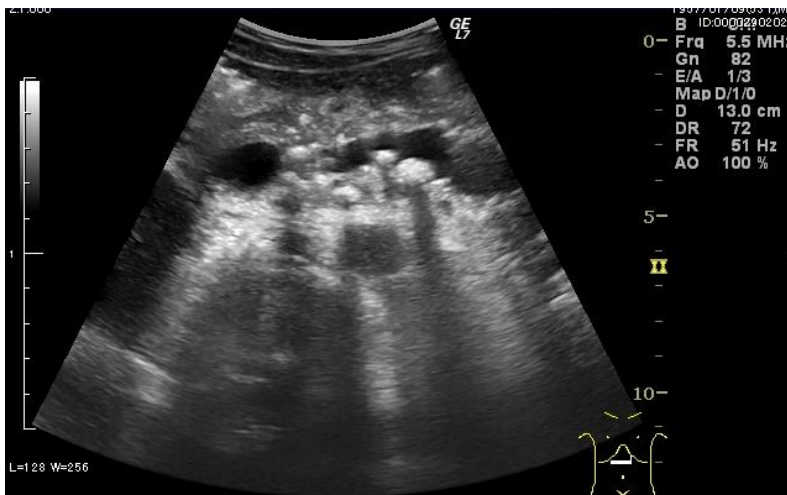
- | | |
|---|-----------------------------------|
| 1) Liquid is not recognized around the pancreas . | 2) The pancreas is swelling . |
| 3) Brightness of the pancreas is a hypoechoic | 4) Suspected Chronic pancreatitis |
| 5) The contour of the pancreas is not clear. | |

Q59. The following image shows the pancreas · Which of the following is not correct description?



- 1) Mucinous cystic neoplasm (MCN)
- 2) Main ductal type IPMN
- 3) Branch ductal type IPMN
- 4) Pseudocyst
- 5) Serous cystic neoplasm (SCN)

Q60. The following image shows the pancreas · Which of the following is not correct description?



- 1) Pancreatic parenchyma there is atrophy .
- 2) Acknowledge the stones in the main pancreatic duct .
- 3) Chronic pancreatitis is a negative .
- 4) There is an extension to the main pancreatic duct .
- 5) Acknowledge the calcification in the pancreatic parenchyma .

Q61. The following image shows the pancreas · Which of the following is not correct description?



- 1) Tumor boundary is clear .
- 2) In the case of invasive pancreatic cancer it is necessary to check the infiltration of perivascular .
- 3) Invasive pancreatic cancer may be considered .
- 4) Acknowledge a neoplastic lesion in the head of the pancreas .
- 5) Neoplastic lesions are hypoechoic .

Q62. Which is wrong as the cause of splenomegaly ?

- | | | |
|-----------------------|------------------------|---------------------|
| 1) Leukemia | 2) Ageing | 3) Hemolytic anemia |
| 4) Malignant lymphoma | 5) Cirrhosis hepatitis | |

Q63. The following image shows the spleen · Which of the following is correct description?

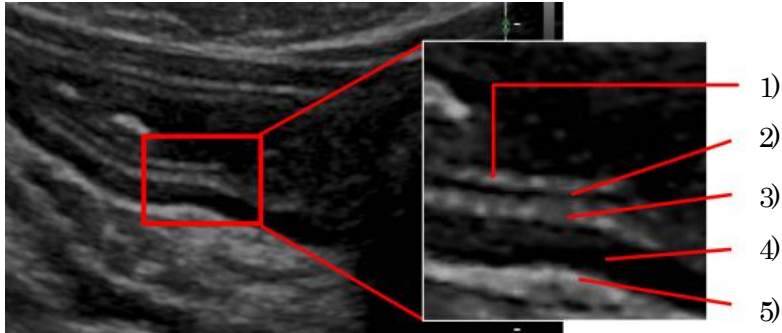


- | | |
|------------------------|------------------------------|
| 1) Splenic abscess | 2) Spleen malignant lymphoma |
| 3) Splenic Hemangioma. | 4) Splenic hematoma |
| 5) Splenic cyst | |

Q64. Choose the disease with the low frequency as the cause of epigastricgia?

- 1) Duodenal ulcer
- 2) Acute cholecystitis
- 3) Renal carcinoma
- 4) Gastric ulcer
- 5) Appendicitis

Q65. The following image shows gastrointestinal tract. Which of the following image is correct description?



- 1) mucous membrane
- 2) muscularis mucosa
- 3) Submucosa
- 4) subserosa
- 5) muscularis propria

Q66. The following image shows the appendix. Which of the following is correct description?



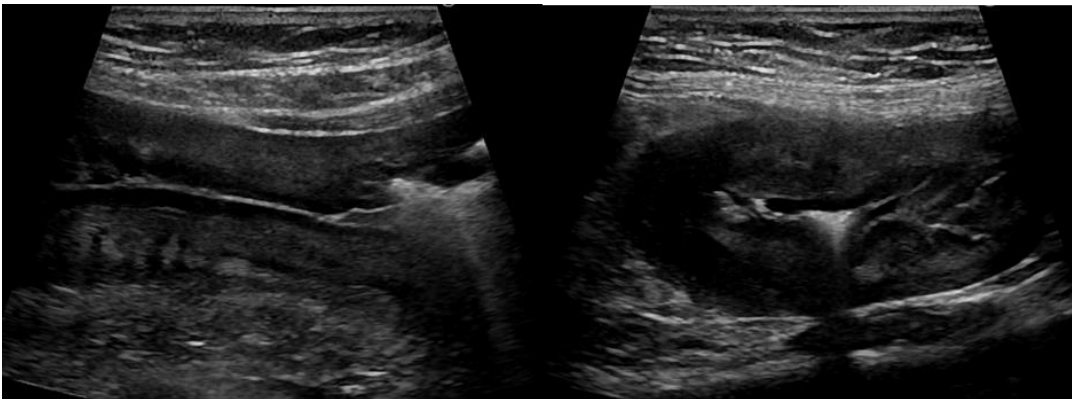
- 1) Appendix swelling is 3mm or more.
- 2) Appendix diverticulum can not be observed in an extracorporeal ultrasonic examination
- 3) Appendicitis sometimes hyperechoic zone is observed around the appendix.
- 4) Fecalith is not seen in the appendix.
- 5) Layer structure of the appendix will be observed in the three layers.

Q67. The following image shows the Umbilical region · Which of the following is not correct description?



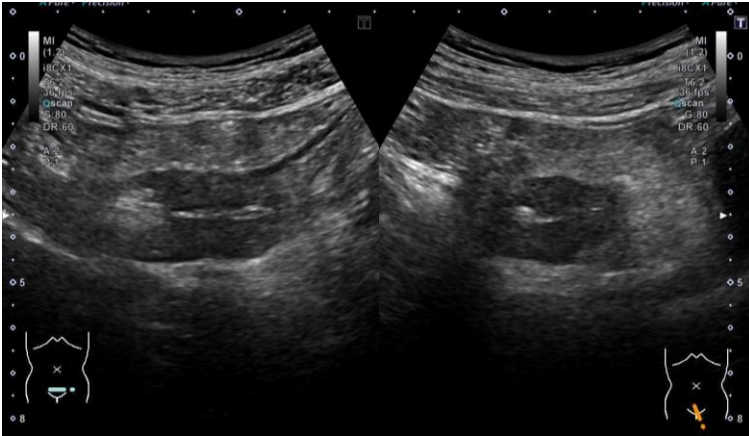
- 1) It is not necessary to perform a blood flow evaluation in Doppler .
- 2) Umbilical hernia is considered .
- 3) There is an expansion in the intestinal tract , which is continuous with the umbilical region .
- 4) If it is detected blood flow signal , intestinal ischemia can not be denied completely .
- 5) Acknowledge the ascites hernia sac .

Q68. The following image shows the stomach · Which of the following is not correct description?



- 1) Type 4 advanced gastric cancer is suspected
- 2) Reflux esophagitis is suspected
- 3) To confirm the dietary history for differentiating anisakiasis .
- 4) AGML is suspected
- 5) Stomach anisakiasis is suspected

Q69. The following image shows the sigmoid cplon · Which of the following is not correct description?



- 1) The layer structure Disappearance.
- 2) To confirm the presence or absence of liver tumor lesions.
- 3) Wall thickening admit the entire circumference.
- 4) Type 1 advanced colorectal cancer is suspected.
- 5) To observe the presence or absence of lymph node enlargement.

Q70. The following image shows the Pelvic cavity · Which of the following is not correct description?



- 1) Water species can be seen in the uterus (Hydrometra)
- 2) Douglas fossa exist in men.
- 3) Acknowledge the residual urine in the bladder.
- 4) A large amount of ascites in Douglas fossa.
- 5) In the standing and supine position, Douglas fossa is at the bottom of the peritoneal cavity.

Q71. Ultrasound image shows right lobe the liver. Which of the following is the correct description?



- 1) AC sing
- 2) parallel channel sign
- 3) chameleon sign
- 4) cluster sign
- 5) target sign

Q72. Which of following is not correct description of cirrhosis of the liver?

- 1) atrophy of the right hepatic lobe and swelling the left hepatic lobe
- 2) narrowing of the hepatic vein
- 3) thickening of the gallbladder wall
- 4) atrophy of the spleen
- 5) the liver surface is irregular and rough

Q73. Choose those that are not typical ultrasound finding of acute hepatitis.

- 1) atrophy of the liver
- 2) gallbladder wall thickening
- 3) splenomegaly
- 4) reduction of the liver parenchyma echo level
- 5) periportal edema

Q74. Choose those that are typical ultrasound findings of fatty liver.

- 1) attenuation of the liver parenchyma echo level
- 2) darker than renal parenchyma
- 3) intrahepatic vascular is not clarity
- 4) drinking is irrelevant
- 5) it is not the cause of hepatocellular carcinoma

Q75. Choose the correct description in following ultrasound image



- 1) penetrating duct sign
- 2) parallel channel sign
- 3) pseudo parallel channel sign
- 4) shotgun sign
- 5) target sign

Q76. Which choose symptoms occur when following image



- 1) abdominal pain
- 2) back pain
- 3) stomach pain
- 4) stool
- 5) hematuria

Q77. Which of following is not correct description of hydronephrosis

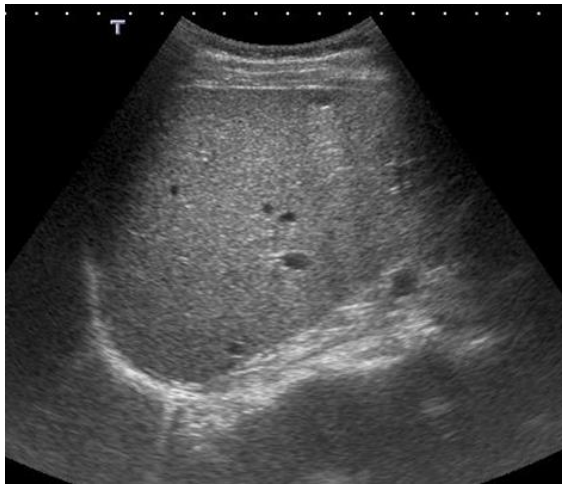
- 1) ureter stone
- 2) benign prostate hyperplasia
- 3) renal tuberculosis
- 4) inflammatory abdominal aortic aneurysm
- 5) bladder tumor

Q78. Ultrasound image shows a midline horizontal scanning. Which of the following is a correct description?



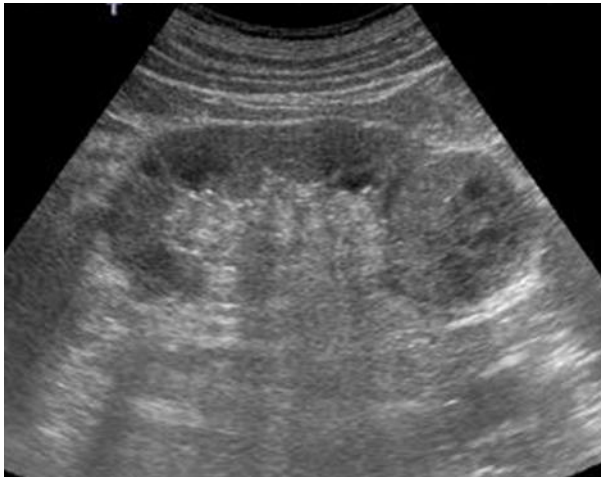
- 1) acute pancreatitis
- 2) mantle sign
- 3) duodenal wall thickening
- 4) transvers colon wall thickening
- 5) horseshoes kidney

Q79. Ultrasound image shows right lobe the liver. Which of the following is correct description?



- 1) normal
- 2) liver cyst
- 3) liver abscess
- 4) liver hemangioma
- 5) free air

Q80. Ultrasound image shows the right kidney. Which of the following is correct description?



- 1) hydronephrosis
- 2) renal pelvic tumor
- 3) benign tumor
- 4) post kidney biopsy complication
- 5) A case is often accompanied by renal vein thrombosis and IVC thrombosis.

Q81. Which of following is not correct description of liver tumor?

- 1) mosaic pattern
- 2) disappearing sign
- 3) marginal strong echo
- 4) bull's eye sign
- 5) triangle sign

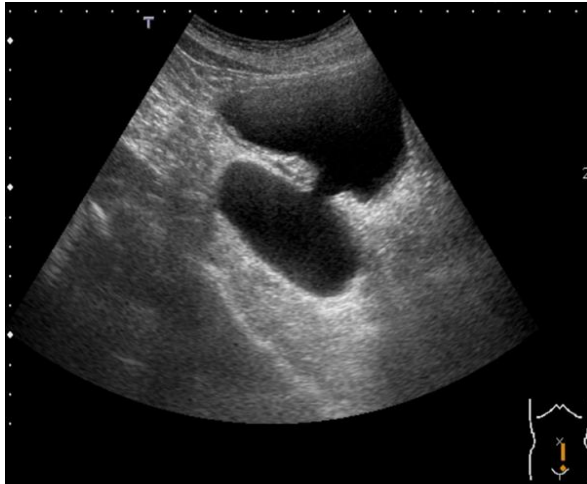
Q82. Which of the following is the not correct combination ?

- 1) hemangioma – bright loop pattern
- 2) liver cirrhosis – portal hypertension
- 3) Wilson disease – inborn error of copper metabolism
- 4) FNH – spoke-wheel pattern
- 5) Obstructive jaundice – parallel channel sign

Q83. Which of following is not correct description of portal hypertension?

- 1) esophageal varices are often rupture
- 2) with splenomegaly
- 3) consequence include portosystemic encephalopathy.
- 4) causes caused only liver cirrhosis
- 5) a case is often accompanied bloody stool

Q84. Which of the following is the correct description of the ultrasound image?



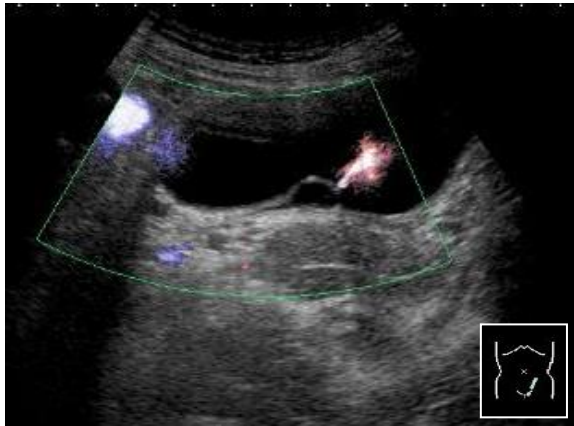
- 1) ovarian tumor
- 2) rectovesical fistula
- 3) bladder diverticulum
- 4) bicornuate uterus
- 5) inguinal hernia

Q85. Which of the following is the correct description of the ultrasound image?



- 1) benign prostate hyperplasia
- 2) serous cystadenoma
- 3) bladder tumor
- 4) uterine leiomyoma
- 5) malignant lymphoma

Q86. Which of the following is the correct description of ultrasound image ?



- 1) a case is male patient
- 2) ureterocele
- 3) Suspected of ruptured aneurysm
- 4) No abnormal findings
- 5) more men than women

Q87. Which of following is correct description of renal tumor?

- 1) There is no metastatic tumor.
- 2) All hypoechoic tumors are cancer suspect.
- 3) All hyperechoic tumors are benign.
- 4) There are also cancers derived from cyst.
- 5) Renal cell carcinoma can be distinguished by ultrasound.

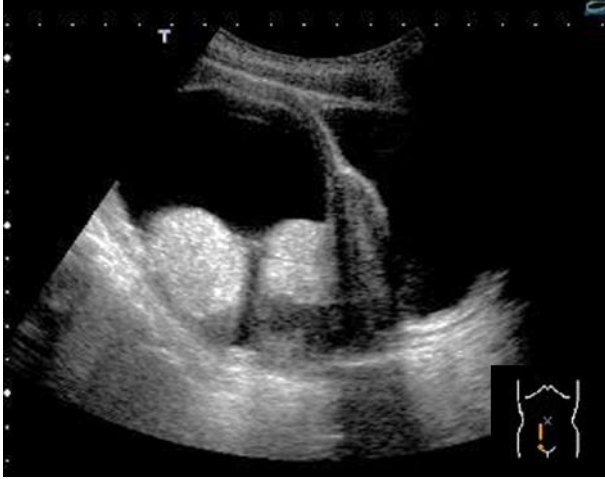
Q88. Abdominal ultrasonography was performed with hypertension. Choose a disease that does not qualify for differentiation.

- 1) Stenosis of renal artery
- 2) Pheochromocytoma
- 3) Chronic kidney disease
- 4) Primary aldosteronism
- 5) Budd-Chiari syndrome

Q89. Which of the following is generally hypovascular tumor?

- 1) hepatocellular carcinoma
- 2) cholangiocellular carcinoma
- 3) hepatocellular adenoma
- 4) focal nodular hyperplasia
- 5) liver metastases from gastric cancer

Q90. Ultrasound image is 9yer girl with right lower quadrant abdominal pain. Which of the following is correct?



- 1) Ovarian torsion
- 2) Intussusception
- 3) Gangrenous appendicitis
- 4) Ectopic pregnancy
- 5) Meckel's diverticulum