Liver SBA Questions

Questions were made by students on behalf of The Peer Teaching Society. We hope there are no mistakes but are not liable for any false or misleading information.

1. A 58-year-old man presents to A&E with severe epigastric pain radiating to his back. He has been vomiting for the past hour and is sat forward. He tells you that he binge drank last night and has a history of gallstones.

   What is the first line investigation?

   a) CRP
   b) Chest x-ray
   c) Abdominal ultrasound
   d) Serum amylase
   e) Faecal elastase

2. A 29-year-old man presents to GP as they have noticed their skin becoming increasingly itchy. On examination you discover that the whites of their eyes are yellow, and they have 'track marks' up their arms.

   What is the most likely diagnosis?

   a) Hepatitis A
   b) Hepatitis B
   c) Hepatitis C
   d) Gallstones
   e) Pancreatic adenocarcinoma

3. A 45-year-old woman presents to GP having noticed itchiness, gradual yellowing of her skin and of the whites of her eyes, malaise, anorexia and nausea. Investigative bloods are ordered, and they show raised serum bilirubin, raised AST, raised ALT, raised ALP, raised IgG, and a positive ASMA.

   What is the first line treatment?

   a) Prednisolone
   b) Azathioprine
   c) Prednisolone and azathioprine
   d) Ciclosporin
   e) Liver transplant

4. A patient with chronic ascites presents to hospital with fever, nausea and vomiting, abdominal pain and confusion. Paracentesis is carried out and shows increased neutrophils. Some of the fluid is sent off to be cultured and is found to be a gram-positive bacterium that is a coagulase positive.

   Which bacteria is most likely to be the cause?

   a) Streptococcus pyogenes
   b) Klebsiella pneumoniae
   c) Escherichia coli
   d) Staphylococcus aureus
   e) Streptococcus viridans

5. A 25-year-old man presents in your GP clinic complaining of feeling tired, and itchy all of the time. Upon looking at him he appears yellowish, so you perform some liver function tests which show normal unconjugated bilirubin, increased conjugated bilirubin and but you cannot read the urobilinogen as it has been missed off. Blood tests reveal that he is negative for AMA and positive for pANCA.

   What is the pathophysiology of the most likely condition?

   a) Inherited abnormality of immunoregulation leads to a T lymphocyte mediated attack on bile duct epithelial cells
   b) Fibrosis destroying the intrahepatic and extrahepatic ducts
   c) Pre-hepatic obstruction of portal vein
   d) Intra-hepatic obstruction of portal vein architecture
   e) Venous blockage outside of the liver

6. (Same stem as Q5.)

   What other conditions are associated with this disease?

   a) Cholangiocarcinoma
   b) Rheumatoid arthritis
   c) Hepatocellular carcinoma
   d) Pancreatitis
   e) Sjogren's syndrome

7. (Same stem as Q5.)

   Which of the following would you not expect to see with the most likely diagnosis?

   a) Jaundice
   b) Xanthelasma
   c) Pruritus
   d) Fatigue
   e) Irritable bowel symptoms

8. (Same stem as Q5.)

   Given the type of jaundice the patient is suffering from, what would you expect his urine and stools to look like?

   a) Normal urine, pale stools
   b) Dark urine, pale stools
   c) Normal urine, normal stools
   d) Light urine, pale stools
   e) Light urine, normal stools

9. A 45-year-old man presents to A&E drunk and with a broken hip. On questioning, it is revealed that he consumes around 60 units of alcohol per week. He does not have access to alcohol for his long-term stay in hospital.

   What is the first line medication?

   a) Furosemide
   b) Chlordiazepoxide
   c) Thiamine
   d) Vitamin K
   e) Vitamin B12

10. What is the most common cause of liver cirrhosis?

   a) Hepatitis C
   b) Non-alcoholic fatty liver disease
   c) Wilson's disease
   d) Chronic alcohol abuse
   e) Ascending cholangitis

11. Which of these is a complication of ascites?

   a) Bacterial peritonitis
   b) Cirrhosis
   c) Wernicke's encephalopathy
   d) Pyelonephritis
   e) Fatty liver

12. Which of these is not a risk factor for developing a hernia?

    a) Lifting heavy weights
    b) Previous abdominal surgery
    c) Steroid use
    d) Chronic cough
    e) Straining whilst defecating

13. A 35-year-old woman presents to A&E with a temperature and feeling unwell. On examination the doctor notices that she is febrile, slightly jaundice and has a tender abdomen underneath the ribs on the right side. She has a history of gallstones and was scheduled for a cholecystectomy in 2 weeks. She has been taking paracetamol and ibuprofen to deal with the pain.

    What is the most likely diagnosis?

    a) Gilbert's syndrome
    b) Ascending cholangitis
    c) Drug-Induced hepatitis
    d) Cholecystitis
    e) Peptic ulcer

14. A 22-year-old woman has a chronic productive cough, dyspnoea which is worse on exertion. She has no other symptoms. She denies ever smoking. There is no blood in her sputum and no history of weight loss or night sweats. Her records show that as a child she had a documented history of hepatomegaly, but this was never followed up.

    Which of the following is false about her diagnosis?

    a) She has a genetic misfolding in the SERPINA1 gene
    b) Her chest x-ray would show emphysema and a flattened diaphragm consistent with COPD
    c) Elastin is broken down in the alveolar structure
    d) She is at increased risk of developing hepatitis
    e) She should be referred to the asthma clinic

15. What causes median arcuate ligament syndrome (MALS)?

    a) Compression of the coeliac artery
    b) Compression of the inferior mesenteric artery
    c) Compression of the superior mesenteric artery
    d) Occlusion of the superior mesenteric artery
    e) Occlusion of the coeliac artery

16. A 50-year-old woman presents to her GP for recurrent right upper quadrant pain. She reports 20-minute episodes of pain after meals, especially with fatty food. She has not had any fevers or chills, and her episodes always resolve. Her past medical history includes hyperlipidaemia, morbid obesity, and polycystic ovarian syndrome, for which she takes oral contraceptives.

    What is the most likely diagnosis?

    a) Primary biliary cholangitis
    b) Peptic ulcer disease
    c) Gallstones
    d) Pyelonephritis
    e) Pancreatitis

Liver SBA Answers

Question	Answers
1. D	a) Used to monitor progression of acute pancreatitis. b) Erect chest X-ray may be done to exclude gastroduodenal perforation, but not first line for acute pancreatitis. c) Done to check for gallstones; not first line. d) In acute pancreatitis, pancreatic enzymes (amylase and lipase) are inappropriately activated and cause inflammation and oedema of the pancreas. e) Done in chronic pancreatitis.
2. B	a) Same symptoms, but hepatitis A is contracted through faeco-oral spread. b) Hep B is spread parenterally and presents with jaundice. c) Spread parenterally but is asymptomatic. d) Gallstones are asymptomatic unless the gallbladder becomes inflamed, then they would present with pain. e) Same symptoms, but no other indicators.
3. A	a) First line treatment of autoimmune hepatitis to initiate immunosuppression. b) Used to maintain remission, not first line. c) Gold standard, but not first line - azathioprine is added after starting prednisolone. d) Another immunosuppressant drug. Used when prednisolone is not responded to/intolerated. e) Done in decompensated cirrhosis or if there is failure to respond to medication. Not first line.
4. D	a) Infections begin in skin/throat (e.g. strep throat). Gram positive, β-haemolytic. b) Gram negative bacteria, lactose fermenter (pink on MacConkey agar). Does cause spontaneous bacterial peritonitis though. c) Gram negative bacteria, lactose fermenter (pink on MacConkey agar). Does cause spontaneous bacterial peritonitis though. d) Correct classification and a cause of spontaneous bacterial peritonitis. e) Causes infective endocarditis. Gram positive, α-haemolytic.
5. B	The most likely condition is primary sclerosing cholangitis. This is a rare, chronic, cholestatic liver disorder characterized by multifocal biliary strictures and progressive liver disease. Onset is usually insidious and presents with jaundice, pruritus, fatigue +/- irritable bowel symptoms. Inherited abnormality of immunoregulation leads to a T lymphocyte mediated attack on bile duct epithelial cells → PBC Fibrosis destroying the intrahepatic and extrahepatic ducts → PSC Pre hepatic obstruction of portal vein → pre hepatic portal hypertension Intra hepatic obstruction of portal vein → intra hepatic distortion of the liver architecture Venous blockage outside of the liver → post hepatic portal hypertension
6. A	Cholangiocarcinoma → PSC Rheumatoid arthritis → PBC Hepatocellular carcinoma → PBC Pancreatitis – unrelated Sjogren's → PBC Primary biliary cholangitis (PBC) is a granulomatous autoimmune condition resulting in the destruction of interlobular bile ducts.
7. B	PBC presents with jaundice, pruritus, fatigue +/- irritable bowel symptoms.

8. B

Types of jaundice	Pre hepatic	Hepatic	Post hepatic
Type of bilirubin elevated	unconjugated bilirubin	Both conjugated & unconjugated bilirubin	conjugated bilirubin
Serum bilirubin - Van den Bergh test	Indirect positive	Biphasic	Direct positive
Urine ✓ Conj.Bilirubin ✓ Urobilinogen ✓ Bile salt	 Absent +++ Absent	 ++ + early, obst.-dec. +	 +++ Absent ++
Urine color	Normal-**Acholuric**	Dark - **Choluric**	Dark - **Choluric**
Stool color	Dark brown colour	N /decreased	Clay colored stools
AST & ALT	Normal	Very high	inc.
ALP Levels	Normal	2-3 times increased	10-12 times inc.

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9. B

Chlordiazepoxide is the first line treatment for alcohol withdrawal.
Furosemide is a loop diuretic. This may be warranted if he had ascites from liver problems and fluid needed to be loss.
Alcohol abuse tends to cause malabsorption of vitamins as energy intake is made up of alcohol instead of eating. Thiamine and vit B12 can be given to replace deficiencies but do not help with withdrawal. Vitamin K can be given as they might be deficient. The liver may also be compromised and not able to produce clotting factors as easily. Vitamin K is utilised in the clotting factors X, IX, VII, and II (1972)

10. D

Chronic alcohol abuse is the most common cause of liver cirrhosis

11. A

Bacterial peritonitis
Cirrhosis is a cause of ascites
Wernicke's is caused by a lack of vit B1 which is common in people who drink alcohol in excess
Wilson's is the accumulation of copper in the body and can lead to liver cirrhosis
Hepatitis C can cause liver cirrhosis but is not as common

12. C

Steroid use
Lifting heavy weights increases your intra-abdominal pressure and puts stress on the abdominal wall.
Previous surgery weakens your abdominal wall muscles.
Chronic cough puts persistent and intense pressure on your muscles and can cause a hiatus hernia.
Straining on defecating increases intra-abdominal pressure which puts stress on the abdominal wall.

13. B

Gilbert Syndrome is a mild non-haemolytic, unconjugated hyperbilirubinemia, defined as bilirubin levels of <6 mg/dL. Inherited disorder in which decreased levels of the enzyme UDPGT result in impaired conjugation of bilirubin. Conjugated bilirubin gives urine a dark colour and pale stools. Liver aminotransferases tend to be normal in Gilbert syndrome.

Ascending Cholangitis – is infection of the biliary tree in the setting of obstruction or stasis. It has the classic presentation of Charcot's Triad (RUQ pain, jaundice and fever). Gallstones are a risk factor which she has a recurring history of hence the cholecystectomy. The infection causes fever.

Drug-induce hepatitis - NSAIDs, paracetamol, statins, methotrexate, antibiotics etc. are all known to cause drug-induced hepatitis. She started taking the medication to deal with the pain so it cannot have caused hepatitis.

	Cholecystitis – this is acute gall bladder inflammation. Murphey's sign is positive when palpation of the RUQ causes pain on inspiration, this occurs in cholecystitis. Jaundice is not typically seen, typically nausea and vomiting. Peptic ulcers – erosion and defects of the mucosal lining of the stomach, there is upper quadrant pain that is often whilst eating or when hungry. It can be caused by NSAIDs but these were only started after the pain did so cannot of caused. Jaundice and fever are not seen with peptic ulcers.
14. E	She has alpha 1 anti-trypsin deficiency. A1A is a protease inhibitor which inactivates elastase (which normally breaks down elastin). This particularly affects the lungs and liver. If there is a lung infection, neutrophils migrate to the area and release neutrophil elastase to break down the bacteria. This is normally inactivated by A1A before it damages the lung tissue. In deficiency this does not occur and the elastin in the alveolar is damaged. a. She has a genetic misfolding in the SERPINA1 gene b. Her chest x-ray would show emphysema and a flattened diaphragm consistent with COPD c. Elastin is broken down in the alveolar structure d. She is at increased risk of developing hepatitis e. She should be referred to the asthma clinic
15. A	The median arcuate ligament is under the diaphragm and connects the right and left cura of the diaphragm. MALS is compression of the coeliac artery. A rare condition characterised by abdo pain, this may be related to meals. The coeliac artery (or trunk) is the first major artery of the abdominal aorta (T12). 3 major divisions: left gastric artery, common hepatic artery, splenic artery. Provides oxygenated blood to the liver, stomach, abdo oesophagus, spleen and superior half of the duodenum and pancreas (foregut). The inferior mesenteric artery is the 3rd branch of the abdominal aorta which arises at L3. It supplies the large intestine from the distal transverse colon to the upper part of the anal canal. The IMA has 3 branches: left colic artery, sigmoid branches, superior rectal artery. Superior mesenteric artery arises from the anterior surface of the abdominal aorta just inferior to the origin of the coeliac trunk. It supplies the intestine from the lower part of the duodenum through 2/3rds of the transverse colon.
16. C	a) Primary biliary cholangitis – presents with Charcot's triad. b) Peptic ulcer disease – pain is worse on before food or during. c) Gallstones – pain is worse after eating as the gallbladder is stimulated to deposit bile to break down fatty foods. d) Pyelonephritis – would have fever e) Pancreatitis – no fever and no relationship to food intake

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