

## GI 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 34-year-old PhD student has returned from his year abroad in India. During his stay he visited various religious institutes, stayed with locals, and ate local food. During his year he was infected with malaria twice, diarrhoea and a UTI. When arriving back he described chronic diarrhoea which increased after the intake of milk. There was also abdominal pain. His blood results showed decreased haemoglobin and increased mean corpuscular volume (MCV). He had multiple stool examinations that all came up negative. He is also HIV negative. His blood IgA Ttg was also negative.

Given his result which of the following would be a suitable investigation in diagnosing this patient?

- a) Small intestine aspirate culture
- b) Colonoscopy
- c) Small intestine biopsy
- d) Lactose breath test
- e) Serum B12 levels

2. A 42-year-old man presents with a 2-month history of epigastric pain and weight loss. He mentions antacids giving him relief, but the pain has gotten worse. He went to the GP after realising he lost 5kg. He denies vomiting or loose stools. He has no significant history of GI pain and no family history of GI conditions. An endoscopy and biopsy are performed showing active inflammation.

Given this information which of the following is the most likely diagnosis?

- a) Duodenal ulcer
- b) Invasive carcinoma
- c) Gastrointestinal stromal tumour
- d) Ulcerative colitis
- e) *Helicobacter pylori* gastritis

3. A 54-year-old man underwent endoscopy for suspected gastritis. The endoscopy reached the oesophageal-gastric junction and entered the stomach.

Which of the regions of the stomach is closest to this junction?

- a) Body
- b) Fundus
- c) Cardia
- d) Pyloric antrum
- e) Pyloric canal

4. A 62-year-old woman has noticed small amounts of fresh red blood in her stools. There has also been a small amount of mucous in the stool. She denies pain during defecation. She says her anus has felt itchy and sore over the last week. Previous to this she was quite constipated for months.

There is no weight loss and her BMI is currently 35. She has a history of COPD and hypercholesterolaemia. She is also recently recovering from a low respiratory tract infection, having almost finished a 7-day course of amoxicillin.

What is the most likely cause of the rectal bleeding?

- a) Haemorrhoids
- b) Diverticulitis
- c) Anal fissure
- d) Ulcerative colitis
- e) Colon cancer

5. A 72-year-old man has presented to A&E with quite intense abdominal pain and bleeding from the rectum. He says he has not opened his bowels in 6 days and when you go to see him on the ward, he says he has been vomiting today and his abdomen is distended.

Given this information what is the most likely diagnosis?

- a) Small bowel obstruction
- b) Gastritis
- c) Adhesions
- d) Large bowel obstruction
- e) Crohn's disease

6. A 45-year-old female present to the GP with the following symptoms.

Which symptom would cause you to order urgent investigations?

- a) Abdominal pain relieved by defecation
- b) Change in bowel habit
- c) Rectal bleeding
- d) Abdominal distention
- e) Passage of mucous

7. A 60-year-old man is referred for an upper GI endoscopy by his GP due to longstanding GORD which has failed to improve on antacids and PPIs. A biopsy is taken, and histological changes indicate Barrett's oesophagus.

Which of the following is the most appropriate description of Barrett's oesophagus?

- a) Metaplasia of the columnar epithelium of the lower third of the oesophagus to squamous epithelium
- b) Metaplasia of the squamous epithelium of the lower third of the oesophagus to columnar epithelium
- c) Metaplasia of the squamous epithelium of the middle third of the oesophagus to columnar epithelium
- d) Metaplasia of the columnar epithelium of the upper third of the oesophagus to squamous epithelium
- e) Metaplasia of the squamous epithelium of the upper third of the oesophagus to columnar epithelium

8. A 40-year old man, who has a diagnosis of ulcerative colitis, complains of recent-onset itching and fatigue. On examination, his serum alkaline phosphatase level was found to be high. Barium radiography of the biliary tract showed a 'beaded' appearance.

What is the likely diagnosis?

- a) Primary biliary cholangitis
- b) Primary sclerosing cholangitis
- c) Haemochromatosis
- d) Ascending cholangitis
- e) Mirizzi's syndrome

9. A 55-year-old female is diagnosed with osteomyelitis and prescribed two antibiotics for 6 weeks. A few days after starting the course of antibiotics she complains of abdominal pain and diarrhoea. Stool samples are taken and are found to be positive for *Clostridium difficile* toxins. She is diagnosed with pseudomembranous colitis and treated with metronidazole.

Which antibiotic is most likely to have caused the *C.difficile* toxins?

- a) Doxycycline
- b) Metronidazole
- c) Vancomycin
- d) Clindamycin
- e) Trimethoprim

10. Pamela, a 65-year-old female, presents to her GP with diarrhoea and bloating. On questioning, she also states that she has lost weight recently and is feeling fatigued most of the time. She has no blood in her stool. The GP arranges for coeliac antibody tests to be done. The antibody blood test comes back suggesting coeliac disease.

What is the next investigation that should be done?

- a) Endoscopy with ileal biopsy
- b) Colonoscopy with biopsy
- c) Endoscopy with duodenal biopsy
- d) Trial of gluten-free diet
- e) Endoscopy with jejunal biopsy

11. Ollie, a 60-year-old male, is sent a bowel cancer screening home-test kit.

What is the name of this screening test?

- a) Heel prick test
- b) Serum alpha-fetoprotein test
- c) Faecal calprotectin test
- d) Faecal immunochemical test
- e) Smear test

12. John, a 45-year-old male, presents to A&E with haematemesis following excessive vomiting after an alcohol binge. An endoscopy was carried out which confirmed the diagnosis of a Mallory-Weiss tear.

Where in the GI tract do Mallory-Weiss tears occur?

- a) Gastro-duodenal junction
- b) Gastro-oesophageal junction
- c) Ileo-caecal junction
- d) Pyloric sphincter
- e) Upper oesophageal sphincter

13. Jane, a 57-year-old female, presents to her GP with recurrent, burning, epigastric pain. The pain is worse when she is hungry and relieved by eating and antacids. She states that the pain is also accompanied by nausea. Jane is a businesswoman who admits that she never finds time to relax. She is also a smoker and drinks 2 glasses of wine most evenings. The GP suspects a duodenal ulcer and arranges further tests.

Which of the following is not a cause of peptic ulcers?

- a) Omeprazole
- b) NSAIDs
- c) Helicobacter pyloric infection
- d) Haemodynamic shock
- e) Stress

14. A 57 year old man presents with constipation, severe sharp left lower quadrant pain, fever and nausea. On examination he has abdominal tenderness and guarding on the left side and is tachycardic. A diagnosis of acute diverticulitis is made.

What is the gold standard investigation for diagnosing acute diverticulitis?

- a) CRP
- b) Colonoscopy
- c) Abdominal x-ray
- d) Contrast CT colonography
- e) Barium enema

15. Which of these is not a red flag symptom of oesophageal cancer?

- a) Weight loss
- b) Cervical lymphadenopathy
- c) Sudden onset dysphagia of solids and liquids
- d) Anorexia
- e) Vomiting

16. Which of these is not a sign of chronic liver disease?

- a) Malar flush
- b) Palmar erythema
- c) Clubbing
- d) Dupuytren's contracture
- e) Spider naevi

17. Which of these is the commonest cause of oesophageal varices in the UK?

- a) Right heart failure
- b) Splenic vein thrombosis
- c) Schistosomiasis
- d) Hepatic vein occlusion
- e) Liver cirrhosis

18. Which of these surface markings coincides with the position of the appendix?

- a) Umbilicus
- b) Transpyloric plane of Addison
- c) Midaxillary line
- d) McBurney's point
- e) Subcostal plane

GI SBA Answers

Question	Answers
1. C	<p>The key in the history is the diarrhoea. Recent travel with chronic diarrhoea following an episode of diarrhoea abroad suggests this could be a parasitic infection or tropical malabsorption. He is also IgA Ttg negative ruling out coeliac. A biopsy will allow diagnosis of parasite and will also diagnose villous atrophy suggesting tropical malabsorption. A) This would be done if bacterial overgrowth is suspected, which is more likely post intestinal surgery or in motility disorders, which aren't mentioned in the history. B) Colonoscopy would not help in the investigation of malabsorption. C) Although the history is suggestive of lactose intolerance, this can occur in infections or tropical malabsorption. A lactose breath test would only diagnose a lactase deficiency and not the aetiology in this patient. E) Serum B12 would only diagnose the deficiency of the vitamin but would not tell us why it is deficient.</p>
2. E	<p><i>H. pylori</i> gastritis is super common in adults suffering from dyspepsia and epigastric pain. It is a G-ve bacteria and can cause gastritis and form peptic ulcers, the latter of which would have been seen on endoscopy. A) It could be a duodenal ulcer due to <i>H. pylori</i> infection. However, this would have been picked up on endoscopy. B) Although weight loss and recent onset symptoms might suggest an invasive cancer it is unlikely. This patient has no other red flag symptoms e.g. such as anaemia, melaena, haematemesis etc. In addition, no carcinoma was found on biopsy. C) a stromal tumour also would have been confirmed with the endoscopy. D) UC a form of IBD usually presents with diarrhoea and abdominal pain which this patient did not have. There was also no extraintestinal features.</p>
3. C	<p>The cardia of the stomach surrounds the opening of the oesophagus into the stomach. It is adjacent to the fundus and lies with the body. A) The body is the largest region and is between the fundus and the pyloric antrum. B) the fundus is the region above the cardiac orifice that is in contact with the inferior surface of the diaphragm. D) The pylorus is the distal part of the stomach, lying between the body and the duodenum. The antrum is the proximal part of it. E) The canal is the distal part of the pylorus; it leads to the pyloric sphincter.</p>
4. A	<p>There are multiple risk factors for haemorrhoids, obesity, chronic constipation (causing straining), coughing (likely due to LRTI). There are also classic symptoms of fresh red blood and mucous in the stool, an itchy anus, and soreness around the anus. B) Although fresh red blood occurs in diverticulitis, there are other symptoms that would be associated such as vomiting, pyrexia, abdominal pain, etc. C) Anal fissures do have fresh blood in stools and are also associated with chronic constipation, but these are associated with a sharp anal pain when passing stools. D) Ulcerative colitis can have blood and mucous there are other prominent symptoms such as weight loss, diarrhoea, anaemia, fatigue etc. E) Colon cancer is less likely. Even though cancer causes a change in habit and blood, it does not usually have an itchy, sore anus. If there as no evidence of haemorrhoids on examination, it would be recommended to rule out cancer using a colonoscopy.</p>
5. D	<p>Large bowel obstruction presents with constipation before vomiting due to it being more distal in the tract. A) Small bowel obstruction usually occurs with a shorter history of constipation and the vomiting occurs before the constipation. B) Whilst some symptoms are here e.g. blood in stool, vomiting the pain would more likely be epigastric and constipation would be unusual. C) Adhesions are a cause of small bowel obstruction. E) Although some symptoms are present there is no mention of things such as weight loss, fever, or extraintestinal signs. He is also not within in the peak incidence age groups. (The older group that is often stated isn't actually universally demonstrated).</p>
6. C	<p>Rectal bleeding is a red flag symptom that would cause you to run further tests such as a colonoscopy. Change in bowel habit is also considered to be a red flag symptom, but only in patients over the age of 50. Abdominal pain relieved by defecation, abdominal distension (bloating), and passage of mucous are all symptoms of IBS so would not be a cause for concern themselves.</p> <p>Other red flags for GI cancer include:</p>

	<ul style="list-style-type: none"> <li>● Unexplained weight loss</li> <li>● Anaemia</li> <li>● Melaena (blood in faeces)</li> <li>● Nocturnal symptoms - waking up at night with diarrhoea / pain</li> <li>● Rectal or abdominal mass</li> <li>● Family history of GI cancer</li> </ul>
<b>7. B</b>	<p>With longstanding GORD, the lower third of the oesophagus is subjected to recurrent acid reflux from the stomach. This results in squamous epithelium being replaced by metaplastic columnar mucosa - columnar epithelium protects the oesophagus from the acid. This metaplasia is a premalignant state - there is a 40 fold increased risk of developing adenocarcinoma of the oesophagus in patients with Barret's oesophagus.</p>
<b>8. B</b>	<p>The key to answering this question is remembering that UC is associated with primary sclerosing cholangitis - more than 75% of patients with PSC have UC. Primary sclerosing cholangitis is characterized by patchy inflammation, fibrosis, and strictures in intra- and extrahepatic bile ducts. Symptoms include pruritus and fatigue.</p> <p>Primary biliary cholangitis - progressive destruction of small bile ducts. More common in women. Raised ALP and symptoms of pruritus and jaundice like PSC. Associated with conditions such as Rheumatoid Arthritis and Thyroiditis instead of UC.</p> <p>Haemochromatosis - inherited disorder of iron metabolism. ALP normal. Slate grey skin pigmentation.</p> <p>Ascending cholangitis - infection of biliary tree secondary to a CBD obstruction by gallstones. Charcot's triad: jaundice, fever and RUQ pain. Raised ALP.</p> <p>Mirizzi's syndrome - presents like ascending cholangitis, but Mirizzi's syndrome is common hepatic duct obstruction caused by extrinsic compression from a large impacted stone.</p>
<b>9. D</b>	<p>Diarrhoea is a common side effect of antibiotic treatment, occurring in 2–25% of people taking antibiotics, and depends on a range of factors including the antibiotic. The most common cause of antibiotic-associated diarrhoea is disruption of the usual gut flora; around 20–30% of cases are caused by Clostridium difficile infection. The most common antibiotics causing C.diff infections are clindamycin, cephalosporins, quinolones, co-amoxiclav and aminopenicillins.</p> <p>Doxycycline - can cause photosensitivity and is teratogenic  Metronidazole - treatment for C.diff!  Vancomycin - causes red man syndrome  Trimethoprim - can cause hyperkalemia and is teratogenic</p>
<b>10. C</b>	<p>Blood tests for coeliac antibodies (IgA-tTG ± IgA-EMA) are done to give an indication of whether a biopsy is needed. However, negative serology does not necessarily rule out coeliac disease. It is the duodenal biopsies that are the gold standard investigation for diagnosis.</p> <p>4 biopsies are taken from the duodenum via endoscopy. The histology of the biopsies is investigated, looking for: villous atrophy, crypt hyperplasia and intraepithelial lymphocytosis (proliferation &amp; invasion of lymphocytes).</p> <p>The 'Marsh Scale' is used to grade the histological findings from I-IV with most coeliac's falling into the III category.</p> <p>Note: IgA-tTG = anti-tissue transglutaminase antibody and IgA-EMA = anti-endomysial antibody. Labs often do either IgA-tTG or IgA-EMA and then do the other if one is vaguely positive.</p> <p>Answers B, C, and E are incorrect as it is duodenal mucosa that is affected the most in coeliac disease and therefore exhibits the classical histological signs.</p>

	<p>Answer D is incorrect as a biopsy must be done for a definitive diagnosis to be made. Topic = Coeliac disease - GI</p>
<p><b>11. D</b></p>	<p>Faecal immunochemical tests (FIT), a type of faecal occult blood test, are designed to detect small amounts of blood in stool samples using antibodies specific to human haemoglobin. Sometimes, blood in stools is not visible (faecal occult blood) so tests are used to detect its presence. Home-testing FIT kits are sent to everyone aged 60-74 every 2 years to screen for bowel cancer. These faecal occult blood tests can also be used in primary care to assess people who are at a low risk of colorectal cancer to help determine whether they should be referred for further investigations where they do not meet the criteria for a suspected cancer pathway referral*.</p> <p>Option A - C are incorrect as the heel prick test screens for 9 diseases in newborns (sickle cell disease, cystic fibrosis, congenital hypothyroidism, &amp; 6 inherited metabolic diseases); serum alpha-fetoprotein is a glycoprotein that is a biomarker in hepatocellular carcinoma &amp; non-seminomatous testicular cancer; and faecal calprotectin is a protein biomarker present in the faeces when there is intestinal inflammation present e.g. IBD.</p> <p>Option E is incorrect as a smear test is used to screen for human papillomavirus and assess the health of the cervix. It is offered to all women aged 25-64 (every 3-5yrs depending on age).</p> <p>*Refer people using a suspected cancer pathway referral (for an appointment within 2 weeks) for colorectal cancer if:</p> <ul style="list-style-type: none"> <li>they are aged 40 or over with unexplained weight loss and abdominal pain or</li> <li>they are aged 50 or over with unexplained rectal bleeding or</li> <li>they are aged 60 or over with: <ul style="list-style-type: none"> <li>iron-deficiency anaemia or</li> <li>changes in their bowel habit, or</li> <li>tests show occult blood in their faeces.</li> </ul> </li> </ul> <p>Topic = Colorectal cancer - GI</p>
<p><b>12. B</b></p>	<p>A Mallory-Weiss tear is a linear mucosal tear occurring at the gastro-oesophageal junction. It occurs due to a sudden increase in intra-abdominal pressure Topic = Mallory-Weiss tear - GI</p>
<p><b>13. A</b></p>	<p>Omeprazole is a PPI (proton pump inhibitor) and is actually part of the treatment of peptic ulcers – to reduce the amount of acid produced by the stomach. PPIs are also used as prevention of peptic ulcers when patients are on long term NSAID or antiplatelet treatments.</p> <p>Option B is incorrect as NSAIDs cause peptic ulcers because they inhibit the COX-1 enzyme, which is needed for prostaglandin synthesis, which in turn is needed for mucous secretion to protect the stomach lining.</p> <p>Helicobacter pylori is a Gram-negative bacterium. It is adapted to the stomach environment and inhabits the mucous layer. Here it destroys the protective mucin layer and also causes a decrease in duodenal HCO<sub>3</sub><sup>-</sup>. The bacteria also secrete urease which splits urea into CO<sub>2</sub> and ammonia which neutralises stomach acid causing the cells in the stomach to produce more acid to compensate. These factors increase the acidity of the stomach and duodenum, leaving them vulnerable to ulcer formation. So C is incorrect.</p> <p>D is incorrect because haemodynamic shock causes a lack of blood flow to the mucosal of the duodenum or stomach and therefore causes mucosal ischaemia. The lack of blood (&amp; reduced production of mucin to protect the gastric cells) to the cells results in a micro-ulcer. Once this breach in the mucosal surface occurs, acid can get into this space and damage neighbouring cells from their sides. This results in the growth of the ulcer.</p> <p>E is incorrect because stress can cause increased acid production. Too much acid overwhelms the mucin &amp; bile and results in ulceration. Topic = Peptic ulcers - GI</p>

<b>14. D</b>	<p>A: C-Reactive Protein (CRP) is a substance produced by the liver in response to inflammation. It can be measured during a Full Blood Count (FBC) blood test. A high CRP is therefore a marker of inflammation marker of inflammation. However, it is not specific for any disease and only shows that there is inflammation somewhere in the body. A high CRP would raise the suspicion of acute diverticulitis but not diagnose it.</p> <p>B: Colonoscopy is used to look for areas of diverticular disease in patients without any clinical signs or symptoms, but as it is an invasive test it is not used in someone with an acute attack due to the risk of causing perforation and bleeding.</p> <p>C: An abdominal X-Ray can be used to identify bowel obstruction and perforation (looking for free air)</p> <p>D: Contrast CT colonography is the gold standard investigation for acute diverticulitis. Colonic wall thickening and diverticula will be seen, and the test isn't invasive like colonoscopy is.</p> <p>E: A barium enema can clarify the diagnosis in patients with abdominal pain and altered bowel habit, but is not the gold standard</p>
<b>15. C</b>	<p>The majority of patients with oesophageal cancer have no clinical symptoms or signs, meaning when it is found it is often extremely advanced. However, possible clinical features include weight loss, bleeding, anorexia, vomiting, lymphadenopathy, and progressive dysphasia (initial difficulty in swallowing solids, that progresses into difficulty in swallowing liquids AND solids after a period of several weeks). The dysphasia is gradual in onset, sudden onset dysphasia of solids and liquids from the start indicated benign disease.</p>
<b>16. A</b>	<p>Malar flush is a sign of mitral stenosis, it is a plum-red discolouration of the cheeks caused by vasodilation from CO<sub>2</sub> retention. Answers B-E are all signs of chronic liver disease</p>
<b>17. E</b>	<p>A: Right heart failure is a post-hepatic cause of oesophageal varices.</p> <p>B: Thrombosis in either the hepatic portal vein or the splenic vein is a pre-hepatic cause of varices.</p> <p>C: Schistosomiasis is a parasitic flatworm infection, and is a hepatic cause of varices. It is the commonest cause worldwide, but is rare in the UK.</p> <p>D: Obstruction of the hepatic vein is called Budd-Chiari syndrome, and is a post-hepatic cause of varices. Obstruction can be due to thrombosis or a tumour.</p> <p>E: Liver cirrhosis is a complication of chronic liver disease, and leads to liver failure. Normal liver tissue is replaced by scar tissue, this prevents the liver from working properly, causing portal hypertension. It is therefore a hepatic cause of oesophageal varices, and is the commonest cause of this in the UK</p>
<b>18. D</b>	<p>The appendix lies at McBurney's point, which is 2/3rds of the distance from the umbilicus to the anterior superior iliac spine</p>

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