

A 31-years-old male teacher attends clinic with his partner who tells you that he has memory problems. The only other symptom is intermittent diarrhoea over the preceding four months.

He has limited vertical eye movements and exhibits rhythmic simultaneous eye and mouth movements.

Which pathogen is most likely to be the cause of his symptoms?

(Please select 1 option)

<input type="radio"/>	<i>Clostridium botulinum</i>
<input type="radio"/>	HIV
<input type="radio"/>	Prion protein
<input type="radio"/>	<i>Salmonella enteritidis</i>
<input type="radio"/>	<i>Tropheryma whipplei</i>

(Please select 1 option)

<input type="radio"/>	<i>Clostridium botulinum</i>	
<input type="radio"/>	HIV	
<input checked="" type="radio"/>	Prion protein	Incorrect answer selected
<input type="radio"/>	<i>Salmonella enteritidis</i>	
<input type="radio"/>	<i>Tropheryma whipplei</i>	This is the correct answer

### Key Learning Points

Gastroenterology, Neurology

- Whipple's disease is caused by *Tropheryma whipplei*.

### Explanation

This is a tough question.

The suggestion here is that the patient has Whipple's disease, due to intestinal infection with *Tropheryma whipplei*.

Non-neurological manifestations of Whipple's disease are more common and include chronic diarrhoea, malabsorption with steatorrhoea, and associated abdominal distension and tenderness.

Neurological manifestations involve a chronic progressive impairment of higher mental function in association with seizures, myoclonus ataxia and [oculomasticatory myorhythmia](#), found uniquely in Whipple's.

The diagnosis is made by duodenal or jejunal biopsy and demonstrating the bacilli within the mucosa on PAS staining.

Characteristically, there is accumulation of glycoprotein and fat filled (PAS +ve) macrophage within the lamina propria.

[Botulism](#) does not produce this clinical picture.

An AIDS-related dementia is possible, but abnormal facial movements would be unusual.

Creutzfeldt-Jakob disease (CJD) could also produce this picture, although myoclonus is usually more of a feature and cognitive impairment is more generalised and acute.

*Salmonella enteritidis* usually causes only an acute diarrhoeal illness but may lead to bacteraemia and chronic long-term carriage and excretion.

A 49-year-old woman with a previous history of IV drug abuse comes to the clinic for review. Over the past few months she has suffered fitting joint pains and increasing fatigue. She has also developed a purpuric rash affecting her arms and legs and suffered from two transient episodes of Vllth nerve palsy in the past year. On examination her BP is 122/82, pulse is 80 and regular. You confirm the purpuric rash and evidence of small joint synovitis. There are a number of spider naevi over the upper body and some small palpable lymph nodes in both axillae.

Investigations:

Hb	118g/l	115-160
WCC	$9.2 \times 10^9/l$	6-10
PLT	$138 \times 10^9/l$	150-400
Na	138 mmol/l	135-145
K	3.8 mmol/l	3.5-5.5
Cr	98 $\mu\text{mol/l}$	60-90
Glucose	5.9 mmol/l	<7.0
ALT	150 U/l	7-56
Alk phos	215 IU/l	44-147
Bilirubin	18 $\mu\text{mol/l}$	<22
Cryoglobulins	0.03g/l	<0.01
CXR	Normal film	

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Autoimmune hepatitis
<input type="radio"/>	Hepatitis B
<input type="radio"/>	Hepatitis C
<input type="radio"/>	Non-Hodgkin's lymphoma
<input type="radio"/>	Primary biliary cirrhosis

Please select 1 option

<input type="radio"/>	Autoimmune hepatitis
<input type="radio"/>	Hepatitis B
<input type="radio"/>	Hepatitis C <b>This is the correct answer</b>
<input type="radio"/>	Non-Hodgkin's lymphoma
<input checked="" type="radio"/>	Primary biliary cirrhosis <b>Incorrect answer selected</b>

## Key Learning Points

### Gastroenterology

- Hepatitis C is closely associated with previous IV drug abuse, and can present with deranged LFTs and cryoglobulinaemia.

## Explanation

The answer is Hepatitis C. The history of previous drug abuse, with raised LFTs, should lead to consider viral hepatitis as a cause of her symptoms, and it is **Hepatitis C** which is most commonly associated with cryoglobulinaemia. Anti-virals +/- B cell targeting agents such as rituximab are the mainstay of intervention.

Cryoglobulins are also described in association with both **autoimmune hepatitis** and primary biliary **cirrhosis**, although both are less likely diagnoses given the previous history of IV drug abuse. Although there are some small palpable lymph nodes, more marked changes including potentially enlarged hilar lymph nodes on the CXR would be expected in patients with non-Hodgkin's lymphoma.



Which of the following gut hormones stimulates acid secretion in the stomach?

(Please select 1 option)



Cholecystokinin (CCK)



Gastrin



Polypeptide P



Secretin



Vasoactive intestinal peptide (VIP)

Please select 1 option/

<input type="radio"/>	Cholecystokinin (CCK)	
<input checked="" type="radio"/>	Gastrin	This is the correct answer
<input type="radio"/>	Polypeptide P	
<input type="radio"/>	Secretin	
<input type="radio"/>	Vasoactive intestinal peptide (VIP)	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Gastrin stimulates gastric motility, growth and acid secretion, and intestinal motility.

## Explanation

Gastrin is secreted from the antrum of the stomach when stimulated by parasympathetic nerves and the presence of amino acids in the stomach.

It stimulates gastric motility, growth and acid secretion, and intestinal motility.

The secretion of gastrin is inhibited by acid in stomach and somatostatin.

Dr Assem

A 20-year-old man was found to have iron deficiency anaemia when he went to donate blood. The Blood Transfusion Service contacted his general practitioner who referred the patient to the outpatient clinic for further investigation.

Generally, the patient was very well. He had a good appetite, his weight was steady and he ate a normal diet. He had a normal bowel habit and had never passed any blood, mucus or diarrhoea in his stools. The patient denied knowledge of any overt blood loss from any other source.

His general practitioner had organised an open access endoscopy which was normal; duodenal biopsies were unremarkable. He had a limited knowledge of his family history as his mother had died in childbirth and as a result he was an only child. His father had died of what he thought was secondary liver and lung cancer but he was unsure.

On general physical examination he was fit and athletic. The skin and mucosal membranes were unremarkable. Pulse was 70 beats per minute and regular with a blood pressure of 132/78 mmHg. Heart sounds were normal and the chest was clear. His abdomen was soft and non-tender with no palpable masses or organs. Rectal examination was normal. On viewing the rectal mucosa through a rigid sigmoidoscopy the colonic mucosa was covered in innumerable polyps.

What specific genetic abnormality is responsible for this appearance?

(Please select 1 option)

- |                       |  |
|-----------------------|--|
| <input type="radio"/> | Germline mutation of the STK11 gene on chromosome 19 |
| <input type="radio"/> | Homozygous mutation of the MYH gene                  |
| <input type="radio"/> | Loss of the APC gene on chromosome 5                 |
| <input type="radio"/> | Mutations in mismatch repair genes (e.g. MSH2)       |
| <input type="radio"/> | Mutation of the p53 tumour suppressor gene           |

<input type="radio"/>	Germline mutation of the STK11 gene on chromosome 19	
<input type="radio"/>	Homozygous mutation of the MYH gene	
<input type="radio"/>	Loss of the APC gene on chromosome 5	This is the correct answer
<input type="radio"/>	Mutations in mismatch repair genes (e.g. MSH2)	
<input checked="" type="radio"/>	Mutation of the p53 tumour suppressor gene	Incorrect answer selected

### Key Learning Points

#### Gastroenterology, Oncology

- Familial adenomatous polyposis (FAP) is caused by the loss of the APC gene on the long arm of chromosome 5.

### Explanation

The patient will need a full colonoscopy and biopsy but the information presented is highly suggestive of familial adenomatous polyposis (FAP), caused by the loss of the APC gene on the long arm of chromosome 5.

**Peutz-Jeghers syndrome** (PJS) is an autosomal dominant inherited disorder caused by a germline mutation of the STK11 (serine threonine kinase 11) gene, usually located on the long arm of chromosome 19. **Peutz-Jeghers syndrome** is associated with intestinal hamartomatous polyps, but is usually (90%) associated with peri-oral pigmentation.

Hereditary nonpolyposis colon cancer (HNPCC) and MYC polyposis do not cause multiple polyps as suggested in this case. In HNPCC, affected individuals inherit a mutation in one of several genes involved in DNA mismatch repair, including MSH2, MLH1, and PMS2. Homozygous mutations in the MYH gene have been associated with a phenotype of multiple colorectal adenomas with or without cancer. This accounts for a proportion of FAP patients without a pathogenic APC mutation.

Mutations in the p53 tumour suppressor gene are found in many different cancers. While mutations in p53 are seen in cases of colon cancer, the question asks for the specific mutation associated with polyposis coli.

The main differential in this question is between FAP and PJS but the lack of perioral pigmentation favours FAP as the diagnosis.

A 39-year-old sailor has had repeated visits to his GP for heartburn and dyspepsia. He had been an irregular visitor and his treatments had been discontinuous in the past.

This time, after an acute episode of dyspepsia and abdominal pain, he underwent an upper GI endoscopy which showed Barret's esophagus. Histopathology showed very low-grade dysplasia.

What is the best next line of management?

(Please select 1 option)

<input type="radio"/>	A trial of PPI therapy
<input type="radio"/>	Endoscopic ablation therapy
<input type="radio"/>	Endoscopic mucosal resection
<input type="radio"/>	Lower esophageal resection
<input type="radio"/>	Only observation

(Please select 1 option)

<input type="radio"/>	A trial of PPI therapy	This is the correct answer
<input type="radio"/>	Endoscopic ablation therapy	
<input type="radio"/>	Endoscopic mucosal resection	
<input checked="" type="radio"/>	Lower esophageal resection	Incorrect answer selected
<input type="radio"/>	Only observation	

## Key Learning Points

### Gastroenterology

- Barret's esophagus is treated with PPI as first line therapy.

## Explanation

Barret's oesophagus occurs due to gastro-oesophageal reflux disease. The initial therapy for this condition is PPI-based. Usually, once-daily dosing of PPI is preferred.

Observation only is not a preferred strategy. Barret's oesophagus is a premalignant condition. Hence, quick intervention is needed.

The three remaining therapies are used in the NICE pathways in patients with moderate to severe grade dysplasia. Also, if there is inadequate response to PPI therapy, then these modalities of treatment may be tried. They are also used for recurrent disease.

Which of the following analgesics would be most suitable for the management of liver capsule pain?

(Please select 1 option)

<input type="radio"/>	Codeine
<input type="radio"/>	Dexamethasone
<input type="radio"/>	Naproxen
<input type="radio"/>	Oramorph
<input type="radio"/>	Paracetamol

Dr. Assem

Please select 1 option

<input type="radio"/>	Codeine
<input type="radio"/>	Dexamethasone <span>This is the correct answer</span>
<input type="radio"/>	Naproxen
<input type="radio"/>	Oramorph
<input checked="" type="radio"/>	Paracetamol <span>Incorrect answer selected</span>

## Key Learning Points

### Gastroenterology

- Dexamethasone is usually the corticosteroid of choice in the management of liver capsule pain.

## Explanation

Corticosteroids can be used in the management of liver capsule pain and dexamethasone is usually the choice of steroid.

Pain-sensitive structures in the region of the liver include the liver capsule, vessel, and biliary tract. Stretching of the liver capsule by a primary hepatoma or metastases within the liver can cause chronic cancer pain. This commonly presents as dull, right-sided subcostal pain. Referred pain at the top of the ipsilateral shoulder occurs due to diaphragmatic irritation if the superior aspect of the capsule is involved.

Dexamethasone 8-16 mg can be administered in single or divided doses. If there is no improvement after four to seven days of use then it should be discontinued by gradually reducing the dose by 2-4 mg every three to five days with the aim of stopping completely.



An 18-year-old man with a history of hereditary spherocytosis presents to the Emergency Department with extreme lethargy, shortness of breath, and mild chest pain on exertion, which has developed over the past few days. He reports suffering a short flu-like illness associated with a rash affecting his cheeks a few days before the symptoms began. He has suffered from one episode of cholecystitis during the past few years, and has so far declined splenectomy. On examination his BP is 105/82, pulse is 95 and regular. He looks very pale. He has a palpable spleen on abdominal palpation.

Investigations:

Hb	48g/l	135-180
WCC	$5.2 \times 10^9/L$	6-10
PLT	$132 \times 10^9/L$	150-400
Na	138 mmol/l	135-145
K	4.1 mmol/l	3.5-5.5
Cr	98 $\mu\text{mol/l}$	60-110
CRP	65 mg/l	<10

Which of the following is the most likely cause of his anaemia?

(Please select 1 option)

<input type="radio"/>	Cytomegalovirus infection
<input type="radio"/>	Epstein Barr virus infection
<input type="radio"/>	Influenza virus infection
<input type="radio"/>	Parvovirus B19 infection
<input type="radio"/>	Rubella infection

Please select 1 option

<input type="radio"/>	Cytomegalovirus infection
<input type="radio"/>	Epstein Barr virus infection
<input type="radio"/>	Influenza virus infection
<input checked="" type="radio"/>	Parvovirus B19 infection <span>Correct</span>
<input type="radio"/>	Rubella infection

## Key Learning Points

### Gastroenterology

- Aplastic crisis is a recognised complication of parvovirus B19 infection, particularly in patients with a history of sickle cell anaemia or hereditary spherocytosis.

## Explanation

The answer is Parvovirus B19 infection. Parvovirus B19 is a single stranded DNA virus and is associated with aplastic crisis in patients pre-disposed to **haemolytic anaemia**, including those with hereditary spherocytosis. It's likely the flu-like illness reported here was B19 infection, which affects erythrocyte precursors hence its ability to result in severe anaemia in patients whose red cells have a shorter lifespan than normal. Patients with severe aplastic crisis are likely to require red cell transfusion until their counts recover, which is usually associated with clearance of the infection over a 10-14 day period.

CMV, Epstein Barr, and influenza virus do not affect the erythrocyte precursors, and are therefore not associated with aplastic crisis. Although **rubella** infection presents with similar symptoms to parvovirus infection, it is not classically associated with anaemia, and it is unlikely in this patient given he will most likely have been vaccinated.

Which of the following drugs is a P450 hepatic enzyme inducer?

(Please select 1 option)

- |                       |                  |
|-----------------------|------------------|
| <input type="radio"/> | Ciprofloxacin    |
| <input type="radio"/> | Erythromycin     |
| <input type="radio"/> | Ketoconazole     |
| <input type="radio"/> | Phenobarbitone   |
| <input type="radio"/> | Sodium valproate |

(Please select 1 option)

- |                                  |                               |
|----------------------------------|-------------------------------|
| <input type="radio"/>            | Ciprofloxacin                 |
| <input type="radio"/>            | Erythromycin                  |
| <input type="radio"/>            | Ketoconazole                  |
| <input checked="" type="radio"/> | Phenobarbitone <b>Correct</b> |
| <input type="radio"/>            | Sodium valproate              |

## Key Learning Points

### Gastroenterology

- Phenobarbitone is a liver enzyme inducer.

## Explanation

The correct answer is phenobarbitone.

The remainder of the listed options are all inhibitors of cytochrome P450.

Dr Assem

A 52-year-old male presents with jaundice and feeling generally unwell. He is a sewage worker. Over the last week, he was having a non-productive cough and a headache which hasn't settled. He spent most of the day resting as he felt too weak and tired to do anything. He was pyrexial over the last 24 hours.

On examination, you noticed he has swollen ankles and some crackles bilateral at the bases. His blood test revealed the following:

ALP	138
ALT	420
Bilirubin	64
Urea	18.3
Creatinine	200
Na	137
K	4.5
Hb	105
Platelets	120
WCC	15.1
Neutrophils	11.1

What is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Alcoholic Hepatitis
<input type="radio"/>	Cholangitis
<input type="radio"/>	Dengue Fever
<input type="radio"/>	Hepatitis A
<input type="radio"/>	Weill's Disease

Please select 1 option

<input type="radio"/>	Alcoholic Hepatitis
<input type="radio"/>	Cholangitis
<input type="radio"/>	Dengue Fever
<input type="radio"/>	Hepatitis A
<input checked="" type="radio"/>	Weil's Disease <span>Correct</span>

### Key Learning Points

Gastroenterology, Liver Disorders

- Leptospirosis which presents as jaundice, acute kidney injury and bleeding is known as Weil's Disease.

### Explanation

Weil's disease is the severe form of leptospirosis. Leptospirosis is an infection caused by bacteria called Leptospira. It is transmitted by both wild and domestic animals, but the most common are rodents. It is often transmitted via the urine of rodents.

Signs and symptoms can range from mild symptoms as cough, nausea and vomiting headaches, muscle pains, and fevers to severe symptoms such as meningitis. If the infection causes jaundice, kidney failure and bleeding, it is then known as Weil's disease.

If it affects the lung and causes pulmonary haemorrhage, then it is known as severe pulmonary haemorrhage syndrome.

As the patient is a sewage worker, he is a risk of leptospirosis.

Hepatitis A and alcoholic hepatitis is unlikely to present with acute kidney injury.

Cholangitis presents as post hepatic jaundice but this patient presented with hepatic jaundice.

Dengue fever usually present as are sudden-onset fever, headache (typically located behind the eyes), muscle and joint pains, and a rash.

Weil's disease is a life-threatening condition and is treated aggressively with IV antibiotics, supportive therapy and in some situations, dialysis. Effective antibiotics include penicillin, doxycycline, cefotaxime or ceftriaxone.

Which is the most common feature and clinical hallmark of carcinoid syndrome?

(Please select 1 option)

- |                       |                          |
|-----------------------|--------------------------|
| <input type="radio"/> | Bronchospasm             |
| <input type="radio"/> | Cardiac valvular lesions |
| <input type="radio"/> | Cutaneous flushing       |
| <input type="radio"/> | Diarrhoea                |
| <input type="radio"/> | Venous telangiectasia    |

(Please select 1 option)

<input type="radio"/>	Bronchospasm	
<input type="radio"/>	Cardiac valvular lesions	
<input type="radio"/>	Cutaneous flushing	This is the correct answer
<input checked="" type="radio"/>	Diarrhoea	Incorrect answer selected
<input type="radio"/>	Venous telangiectasia	

## Key Learning Points

### Gastroenterology

- Episodic flushing is the clinical hallmark of carcinoid syndrome, occurring in 85% of patients.

## Explanation

Episodic flushing is the clinical hallmark of carcinoid syndrome occurring in 85% of patients. It mainly involves the face, neck, and upper chest. In severe cases flushes are accompanied by a drop in blood pressure and an increase in heart rate.

The clinical manifestations of carcinoid syndrome are dependent upon the combination of bioactive substances secreted. One of the main features of enterochromaffin cells is the production, storage, and secretion of serotonin. When serotonin and other products are released into the portal circulation they undergo hepatic metabolism and do not usually cause systemic symptoms or signs. However, with liver metastases or with primary lesions in the bronchus and/or ovaries, the systemic features of carcinoid syndrome manifest.

Carcinoid syndrome occurs in less than 10% of patients, typically with cutaneous flushing of the face, neck and upper chest. Up to 75% of patients have diarrhoea. Less often patients may develop cardiac valvular abnormalities mainly affecting the right side of the heart, such as tricuspid regurgitation, tricuspid stenosis, pulmonary regurgitation, and pulmonary stenosis. Bronchoconstriction and venous telangiectasia may also occur.



A 21-year-old anorexic is admitted for parenteral nutrition and has a tunnelled line inserted.

A few days after parenteral feeding has begun you are asked to see her as she has begun complaining of diplopia, lethargy and muscle weakness. She also has paraesthesia affecting her hands and feet.

Examination confirms global muscle weakness and peripheral sensory loss.

Which of the following electrolyte abnormalities is the most likely to have occurred?

(Please select 1 option)

- |                       |                    |
|-----------------------|--------------------|
| <input type="radio"/> | Hyperkalaemia      |
| <input type="radio"/> | Hypermagnesaemia   |
| <input type="radio"/> | Hyperphosphataemia |
| <input type="radio"/> | Hypocalcaemia      |
| <input type="radio"/> | Hypophosphataemia  |

<input type="radio"/>	Hyperkalaemia	
<input type="radio"/>	Hypermagnesaemia	
<input type="radio"/>	Hyperphosphataemia	
<input checked="" type="radio"/>	Hypocalcaemia	Incorrect answer selected
<input type="radio"/>	Hypophosphataemia	This is the correct answer

## Key Learning Points

### Gastroenterology

- Hypophosphataemia is often seen with re-feeding syndrome.

## Explanation

This patient is suffering from re-feeding syndrome, where patients complain of a range of symptoms which can include:

- muscle weakness
- peripheral neuropathy
- neurological impairment, and
- myocardial depression.

It is characterised by a fall in phosphate, magnesium, potassium and fluid accumulation, which in combination can lead to cardiac failure.

Patients at risk from re-feeding include those who are fed after a prolonged period of starvation, such as those with anorexia and those with chronic alcoholism.

The key to avoiding re-feeding syndrome and hypophosphataemia is involvement of a specialist dietician who will be able to advise on adequate phosphate replacement during the initial stages of re-feeding.

A 55-year-old post-menopausal woman presents with tiredness and lethargy, she denies any other symptoms. Her blood tests show that she is anaemic.

Tests reveal:

Haemoglobin	103 g/L	(115-165)
Mean corpuscular volume	76 fL	(80-96)
Ferritin	5 µg/L	(15-300)

Anti-tissue transglutaminase IgA and IgG antibodies are negative. Gastroscopy and CT colonography are both performed and do not reveal any cause for iron deficiency. She is commenced on oral ferrous sulphate and three months later her haemoglobin is 115 g/L.

She comes to see you three months after this asking whether it is possible to stop the oral iron as she feels it is making her nauseated.

According to the British Society of Gastroenterology guidelines on the management of iron deficiency anaemia what is the most appropriate course of action?

(Please select 1 option)

<input type="radio"/>	Change to parenteral iron
<input type="radio"/>	Offer transfusion as required
<input type="radio"/>	Refer for further investigation
<input type="radio"/>	Stop oral iron and monitor haemoglobin
<input type="radio"/>	Trial of alternative oral iron preparation

Please select 1 option

<input type="radio"/>	Change to parenteral iron	
<input type="radio"/>	Offer transfusion as required	
<input type="radio"/>	Refer for further investigation	
<input type="radio"/>	Stop oral iron and monitor haemoglobin	This is the correct answer
<input checked="" type="radio"/>	Trial of alternative oral iron preparation	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Parenteral iron replacement should be considered where iron replacement is necessary but an oral preparation cannot be tolerated or absorbed.

## Explanation

Parenteral iron replacement should be considered where iron replacement is necessary but an oral preparation cannot be tolerated or absorbed.

There is no indication for transfusion and there has been a response to iron supplementation that is likely to be replicated, if necessary, in the future.

Initial investigations for a gastrointestinal cause for the iron deficiency have been completed and are negative, in the absence of other symptoms to suggest an alternative source for blood loss and in the presence of a good response to oral iron further investigation is not warranted. Further monitoring is required to ensure that any response is sustained.

Supplementary iron is no longer required at this stage in the patient's management so switching to an alternative is not required.

Alternative preparations and dose reduction may help where oral iron is not well tolerated.

Reference:

A 42-year-old woman comes to the hepatology clinic for review. She has suffered increasing lethargy over the past few months to the point that she is barely able to hold down her job, and most recently has developed intermittent nausea, anorexia, and itching. Past medical history of note includes Hashimoto's thyroiditis for which she takes thyroxine 100 mcg per day.

On examination her BP is 125/80 mmHg, and pulse is 72 bpm and regular. There are scratch marks over the abdomen related to the itching and you notice she has xanthelasma. Abdominal examination reveals 1 finger breadth hepatomegaly, and her BMI is 26.

Investigations:

Hb	110g/l	115-160
WCC	$9.9 \times 10^9/L$	6-10
PLT	$135 \times 10^9/L$	150-400
Na	139 mmol/l	135-145
K	4.2 mmol/l	3.5-5.5
Cr	85 $\mu\text{mol/l}$	50-90
ESR	45 mm/hr	<10
Ca <sup>2+</sup>	2.2 mmol/l	2.1-2.65
Albumin	32g/l	30-50
Total protein	75g/l	60-85
Alkaline phosphatase	291 U/l	40-120
ALT	55 U/l	0-20
Bilirubin	26 $\mu\text{mol/l}$	<22

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Autoimmune hepatitis
<input type="radio"/>	Non-alcoholic steatohepatitis (NASH)
<input type="radio"/>	Primary biliary cirrhosis
<input type="radio"/>	Primary sclerosing cholangitis
<input type="radio"/>	Viral hepatitis

Please select 1 option/

<input type="radio"/>	Autoimmune hepatitis
<input type="radio"/>	Non-alcoholic steatohepatitis (NASH)
<input type="radio"/>	Primary biliary cirrhosis <b>This is the correct answer</b>
<input type="radio"/>	Primary sclerosing cholangitis
<input checked="" type="radio"/>	Viral hepatitis <b>Incorrect answer selected</b>

## Key Learning Points

### Gastroenterology

- PBC usually occurs in middle aged women, and commonly presents with lethargy and pruritis before prominent features of liver failure occur.

## Explanation

The answer is primary biliary cirrhosis (PBC). Lethargy and itching are prominent early features in PBC, which is most commonly seen in middle aged women (especially those with coexistent autoimmune thyroid disease). The elevation in alkaline phosphatase coupled with a smaller rise in ALT is typical of the condition, and the difference between total protein and albumin raises the possibility of elevated immunoglobulins, also seen in PBC. Anti-mitochondrial antibodies are seen in association with PBC at a titre of 1 in 40 or higher. Ursodeoxycholic acid may be of value in treating PBC if started very early, but ultimately patients usually require a liver transplant.

Autoimmune hepatitis is less likely because there is a more marked elevation in alkaline phosphatase with a much smaller rise in ALT, and cholestatic symptoms would be less common. NASH is less likely here given the relatively normal BMI. It can be difficult to differentiate between primary sclerosing cholangitis (PSC) and PBC, but PSC is more common in men and often in combination with inflammatory bowel disease. There are no risk factors to suggest viral hepatitis reported in this patient's history, and a more prominent rise in ALT would be expected.

A 58-year-old man presents to your clinic with dysphagia for solids for the past three months. He also complains of weight loss and loss of appetite. There is no other past medical history, apart from symptoms of indigestion and heartburn for the past five years.

He regularly takes Gaviscon and Rennie tablets. He is a heavy smoker and a regular drinker. He undergoes endoscopy, which reveals a small tumour at the lower end of the oesophagus.

What is the most likely aetiological cause for the tumour?

(Please select 1 option)

<input type="radio"/>	Alcohol
<input type="radio"/>	Barrett's oesophagus
<input type="radio"/>	<i>Helicobacter pylori</i>
<input type="radio"/>	Oesophageal candidiasis
<input type="radio"/>	Oesophageal pouch

<input type="radio"/>	Alcohol	
<input type="radio"/>	Barrett's oesophagus	This is the correct answer
<input type="radio"/>	<i>Helicobacter pylori</i>	
<input checked="" type="radio"/>	Oesophageal candidiasis	Incorrect answer selected
<input type="radio"/>	Oesophageal pouch	

## Key Learning Points

Gastroenterology, Oncology

- Barrett's oesophagus is a premalignant state and surveillance endoscopies are recommended, with some guidance suggesting two-yearly endoscopy.

## Explanation

The history suggests a five-year history of gastro-oesophageal reflux.

This can cause metaplasia of the oesophageal mucosa, resulting in replacement of the normal squamous epithelium with columnar epithelium (also known as Barrett's oesophagus), which is a premalignant state. Surveillance endoscopies are recommended every two to five years, depending on the length of the Barrett's segment, for metaplasia. The detection of dysplasia prompts more intense surveillance or therapeutic intervention.

The development of dysphagia for solids and weight loss suggests the presence of oesophageal carcinoma.



A 23-year-old man presents with steatorrhoea and weight loss.

On examination he is found to have a vesicular rash over his elbows and knees which he describes as extremely pruritic.

Which of the following immunoglobulins is characteristically present at the dermo-epidermal junction?

(Please select 1 option)

<input type="radio"/>	IgA
<input type="radio"/>	IgD
<input type="radio"/>	IgE
<input type="radio"/>	IgG
<input type="radio"/>	IgM

Please select 1 option/

<input type="radio"/>	IgA	This is the correct answer
<input type="radio"/>	IgD	
<input type="radio"/>	IgE	
<input checked="" type="radio"/>	IgG	Incorrect answer selected
<input type="radio"/>	IgM	

## Key Learning Points

### Gastroenterology

- Dermatitis herpetiformis is characterised by IgA at the dermo-epidermal junction and associated with Coeliac disease.

## Explanation

Dermatitis herpetiformis is characterised by IgA at the dermo-epidermal junction.

Dermatitis herpetiformis is associated with coeliac disease which is the underlying diagnosis in this patient.

The rash which is pruritic and vesicular is found over the elbows, knees, buttocks, sacrum, trunk, face and neck. Treatment is with dapsone and a gluten-free diet.

A 58-year-old man presents with a history of indigestion which has been steadily worsening over the past few months. He tells you that he has lost 4 kg in weight in the past half a year.

There is no past medical history of note apart from smoking of 10 cigarettes/day. On examination his BP is 152/90 mmHg, pulse is 75 and regular. His BMI is 22.

Investigations show:

Haemoglobin	109 g/L	(135-177)
White cell count	$7.5 \times 10^9/L$	(4-11)
Platelets	$280 \times 10^9/L$	(150-400)
Sodium	139 mmol/L	(135-146)
Potassium	3.9 mmol/L	(3.5-5)
Creatinine	88 $\mu\text{mol/L}$	(79-118)

Which of the following is the most appropriate course of action?

(Please select 1 option)

<input type="radio"/>	Barium swallow
<input type="radio"/>	Magnesium trisilicate
<input type="radio"/>	Omeprazole
<input type="radio"/>	Ranitidine
<input type="radio"/>	Upper GI endoscopy

(Please select 1 option)

<input type="radio"/>	Barium swallow
<input type="radio"/>	Magnesium trisilicate
<input type="radio"/>	Omeprazole
<input type="radio"/>	Ranitidine
<input checked="" type="radio"/>	Upper GI endoscopy <span>Correct</span>

## Key Learning Points

### Gastroenterology

- OGD is indicated in patients with indigestion and weight loss, anaemia, or vomiting; and in the over 55s with continuous dyspepsia of <1y duration .

## Explanation

Guidelines from the Department of Health suggest that urgent endoscopy is warranted when there is indigestion and weight loss at any age, combined with anaemia and vomiting and in the over 55s when there is a history of <1 year of dyspepsia and symptoms are continuous.

Barium swallow is not the usual first line investigation, with upper gastrointestinal (GI) endoscopy preferred for the majority of patients.

Magnesium trisilicate is an antacid used for short term relief of symptoms only.

Ranitidine is predominantly used now as an over the counter indigestion relief tablet.

Omeprazole is standard pharmacological therapy for gastro-oesophageal reflux disease, although not until an endoscopy has excluded a serious underlying diagnosis in this case.

A 29-year-old man presents with anaemia, bleeding tendency, diarrhoea, and abdominal pain.

Examination reveals a palpable mass in the right lower quadrant and anal skin tags.

What is the most likely underlying condition?

(Please select 1 option)

☐ Chronic pancreatitis

☐ Coeliac disease

☐ Crohn's disease

☐ Intestinal lymphoma

☐ Ulcerative colitis

<input type="radio"/>	Chronic pancreatitis
<input type="radio"/>	Coeliac disease
<input checked="" type="radio"/>	Crohn's disease <b>Correct</b>
<input type="radio"/>	Intestinal lymphoma
<input type="radio"/>	Ulcerative colitis

## Key Learning Points

### Gastroenterology

- Crohn's disease commonly presents with diarrhoea, abdominal pain and weight loss. It can affect the whole gastrointestinal tract, the most common being ileocolitis.

## Explanation

Crohn's disease commonly presents with diarrhoea, abdominal pain and weight loss. It can affect the whole gastrointestinal tract, the most common being ileocolitis.

Anaemia is usually due to blood loss and less commonly B12/folate malabsorption.

An abdominal mass is often palpable in the presence of small bowel disease which can lead to Vitamin K malabsorption.

Anal tags, fissures, perianal fistulae and abscesses are associated with Crohn's disease and not ulcerative colitis.

A 35-year-old woman comes to the clinic for review. She has been suffering from abdominal bloating, very strongly smelling bowel gas and intermittent diarrhoea over the past two months since returning from honeymoon in Africa.

On examination, her BP is 125/82 mmHg, and her temperature is 37.2°C. Her BMI is 23 kg/m<sup>2</sup>, and her abdomen is mildly distended.

Investigations show:

Hb	111 g/L	(135-180)
WCC	8.1 ×10 <sup>9</sup> /L	(4-10)
PLT	271 ×10 <sup>9</sup> /L	(150-400)
Na	139 mmol/L	(134-143)
K	4.6 mmol/L	(3.5-5)
Cr	104 μmol/L	(60-120)

Stool sample: Trophozoites in the fresh stool sample.

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Giardiasis
<input type="radio"/>	Schistosomiasis
<input type="radio"/>	Shigellosis
<input type="radio"/>	Tropical sprue
<input type="radio"/>	Whipple's disease



Giardiasis

This is the correct answer



Schistosomiasis



Shigellosis



Tropical sprue



Whipple's disease

Incorrect answer selected

## Key Learning Points

### Gastroenterology, Infectious Diseases

- A history of abdominal bloating with intermittent diarrhoea and strong smelling bowel gas is typical of giardiasis in the returning traveller.

## Explanation

The history of abdominal bloating with intermittent diarrhoea and strong smelling bowel gas is typical of giardiasis. As long as a fresh stool sample is examined, trophozoites are found in 60%+ of samples.

A single dose of tinidazole or a course of metronidazole is the treatment of choice.

Adequate sanitation is the key to reducing the risk of infection, although the infection rate from uncooked foods is high in areas where *Giardia* is endemic.



A 55-year-old man is admitted with frank haematemesis.

The patient is a poor historian but a recent discharge summary reports he was under the gastroenterology team two months previously with decompensated alcoholic liver disease.

On examination he appears anxious; he is tachycardic at 105 beats per minute with a blood pressure of 122/90 mmHg. There is evidence of palmar erythema and spider naevi. Abdominal examination reveals hepatosplenomegaly and mild ascites.

There is no evidence of melaena on rectal examination. He has a further episode of haematemesis while in the Emergency Department which the nursing staff estimates at approximately 500 ml.

Which class of hypovolaemic shock is applicable to this patient's clinical state?

(Please select 1 option)

<input type="radio"/>	Class I
<input type="radio"/>	Class II
<input type="radio"/>	Class III
<input type="radio"/>	Class IV
<input type="radio"/>	Class V

☐ Class I

☒ Class II **This is the correct answer**

☐ Class III

☒ Class IV **Incorrect answer selected**

☐ Class V

### Key Learning Points

#### Gastroenterology

- Class II of hypovolaemic shock by blood loss in adults is where there is 750-1500 ml blood loss with 15-30% loss of circulating blood volume.

### Explanation

Class II of hypovolaemic **shock** by blood loss in adults is where there is 750-1500 ml blood loss with 15-30% loss of circulating blood volume. Systolic blood pressure may be normal or decreased but the diastolic is raised, heart rate is 100-120 beats per minute. Patients may have a normal respiratory rate but they are anxious or aggressive in view of the hypovolaemia.

This patient is likely to have had a variceal haemorrhage. There are four classes of hypovolaemic **shock** by blood loss in adults - I to IV (not five). The criteria are determined by volume of blood lost, vital signs and conscious state.

Classification of haemorrhage:

Parameter	I	II	III	IV
Blood loss (ml)	<750	750-1500	1500-2000	>2000
Blood loss (%)	<15%	15-30%	30-40%	>40%
Pulse rate (beats/min)	<100	>100	>120	>140
Blood pressure	Normal	Normal/Decreased	Decreased	Decreased
Respiratory rate (breaths/min)	14-20	20-30	30-40	>35
Urine output (ml/hour)	>30	20-30	5-15	Negligible
CNS symptoms	Normal	Anxious	Confused	Lethargic

CNS = central nervous system.

Modified from Committee on Trauma [Committee on Trauma Advanced Trauma Life Support Manual. Chicago: American College of Surgeons; 1997. pp. 103-112.]

A 50-year-old male with a history of alcohol excess presents with a two-week history of confusion.

Which of the following strongly suggests a diagnosis of Korsakoff's psychosis?

(Please select 1 option)

<input type="radio"/>	Delusional jealous beliefs
<input type="radio"/>	Epileptic seizures
<input type="radio"/>	Impaired long term memory
<input type="radio"/>	Inventing recent events
<input type="radio"/>	Visual hallucinations

☐ Delusional jealous beliefs☐ Epileptic seizures☐ Impaired long term memory☒ Inventing recent events

Correct

☐ Visual hallucinations

### Key Learning Points

Gastroenterology, Neurology, Psychiatry

- Korsakoff's is associated with short term memory loss with subsequent compensatory confabulation by the patient.

### Explanation

Korsakoff's is associated with short term memory loss with subsequent compensatory confabulation by the patient.

Other symptoms may include

- Delirium
- Anxiety
- Fear
- Depression
- Confusion
- Delusions
- Insomnia
- Painful extremities
- Sometimes bilateral wrist drop but more frequently bilateral foot drop with pain or pressure over the long nerves.

The treatment is intravenous thiamine and attention to the consequences of alcohol withdrawal.

A 28-year-old woman presents with three months of diarrhoea and rectal bleeding. She has had similar episodes in the past, and has diagnosed herself with lactose intolerance. She currently reports 10-12 watery bloody stools per day and is becoming distressed by the effect it is having on her quality of life.

Examination reveals a diffuse tender abdomen.

Bloods show the following:

Sodium	136 mmol/L	(135-145 mmol/L)
Potassium	4.6 mmol/L	(3.5-4.9 mmol/L)
Creatinine	119 $\mu$ mol/L	(60-110 $\mu$ mol/L)
Urea	8.1 mmol/L	(2.5-7.5 mmol/L)
Adjusted calcium	2.1 mmol/L	(2.2-2.6 mmol/L)
ALT	44 U/L	(7-55 U/L)
ALP	66 U/L	(45-115 U/L)
Bill	13 $\mu$ mol/L	(<22 $\mu$ mol/L)
Albumin	32 g/L	(35-55 g/L)
Haemoglobin	104 g/L	(115-140 g/L)
White cell count	$5 \times 10^9$ /L	(4-11 $\times 10^9$ /L)
MCV	86 fl	(80-96 fl)
Platelets	$170 \times 10^9$ /L	(150-400 $\times 10^9$ /L)
Neutrophils	$5.3 \times 10^9$ /L	(1.8-8 $\times 10^9$ /L)
CRP	30 g/L	(<5 g/L)

A biopsy from colonoscopy reveals crypt abscess formation and lymphocytic infiltration of the lamina propria.

Which is the most likely diagnosis?

(Please select 1 option)

☐ Coeliac disease

☐ Colorectal carcinoma

☐ Crohn's disease

☐ Ulcerative colitis

☐ Whipple's disease

Please select 1 option)

<input type="radio"/>	Coeliac disease	
<input type="radio"/>	Colorectal carcinoma	
<input type="radio"/>	Crohn's disease	
<input type="radio"/>	Ulcerative colitis	This is the correct answer
<input checked="" type="radio"/>	Whipple's disease	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Ulcerative colitis is characterised by crypt abscess formation and lymphocytic infiltration of the lamina propria on colonic biopsy.

## Explanation

A history of bloody diarrhoea in a young female with anaemia, mildly raised CRP, and the above findings on colonoscopy biopsy are diagnostic of ulcerative colitis.

Treatment during an acute flare is dietary support, oral and/or rectal steroids followed by immunosuppression and surgery if medical treatments are unsuccessful.

Crohn's disease is classically associated with strictures, transmural inflammation, fistulae, ulcers, and cobblestoning on endoscopy.

Coeliac disease does not present with bloody diarrhoea. A histological diagnosis is usually only possible if the duodenum is biopsied during colonoscopy.

Whipple's disease is caused by *Tropheryma whippelii*, a gram-positive bacterium, which results in malabsorption, arthritis, and endocarditis.

Colorectal carcinomas are often characteristic in their appearance and so suspected during endoscopy, and the biopsy would be diagnostic of malignancy. It is thankfully rare in this age group.

Which of the following is more likely to be seen in female patients with Crohn's disease who smoke?

(Please select 1 option)

<input type="radio"/>	Earlier age of disease onset
<input type="radio"/>	Less aggressive disease course
<input type="radio"/>	Older age of disease onset
<input type="radio"/>	Reduced risk of requiring immunosuppression
<input type="radio"/>	Reduced risk of requiring surgery

☐ Earlier age of disease onset **This is the correct answer**

☐ Less aggressive disease course

☐ Older age of disease onset

☒ Reduced risk of requiring immunosuppression **Incorrect answer selected**

☐ Reduced risk of requiring surgery

## Key Learning Points

### Gastroenterology

- Smoking has been shown to be associated with earlier age of onset of disease among women with Crohn's disease but not men.

## Explanation

Data support an association between smoking and developing Crohn's disease. It has been shown to be associated with earlier age of onset of disease and more frequent need for immunosuppression among women with Crohn's disease but not men.

Smoking is associated with a more aggressive disease course with patients more likely to require immunosuppression and surgery and a high risk of recurrence of disease following ileo-caecal resection. It is thought that smoking could alter smooth muscle tone affecting endothelial function through the production of nitric oxide production or that it affects the integrity of the gut mucous barrier.

Oxidative stress may also be a cause as it has been found that mononuclear cells from smokers with Crohn's disease but not ulcerative colitis were less sensitive to anti-inflammatory protection against oxidative free radical stress.

Smoking cessation is associated with an increased risk of ulcerative colitis.



A 48-year-old woman complains of pruritus, steatorrhoea, and bruising.

On examination, she is jaundiced and pigmented, with spider naevi and hepatosplenomegaly.

Which is the most likely underlying diagnosis?

(Please select 1 option)

<input type="radio"/>	Alcoholic liver disease
<input type="radio"/>	Alpha-1 antitrypsin deficiency
<input type="radio"/>	Autoimmune hepatitis
<input type="radio"/>	Primary biliary cirrhosis
<input type="radio"/>	Wilson's disease

- |                                  |                                |                            |
|----------------------------------|--------------------------------|----------------------------|
| <input type="radio"/>            | Alcoholic liver disease        |                            |
| <input type="radio"/>            | Alpha-1 antitrypsin deficiency |                            |
| <input checked="" type="radio"/> | Autoimmune hepatitis           | Incorrect answer selected  |
| <input type="radio"/>            | Primary biliary cirrhosis      | This is the correct answer |
| <input type="radio"/>            | Wilson's disease               |                            |

## Key Learning Points

### Gastroenterology

- The two main conditions causing pigmentation and chronic liver disease are primary biliary cirrhosis (PBC) and haemochromatosis.

## Explanation

This woman has clinical evidence of chronic liver disease and portal hypertension.

The two main conditions causing pigmentation and chronic liver disease are primary biliary cirrhosis (PBC) and haemochromatosis.

PBC is a chronic cholestatic inflammatory liver disease, the aetiology of which is probably autoimmune. It most commonly affects middle-aged women.

There is jaundice with skin pigmentation, risk of developing oesophageal varices, and fat malabsorption leading to deficiency of the vitamins A, D, E, K (hence osteomalacia and also bruising).

Serum antimitochondrial antibody is positive in 95-99% cases.

Which of the following is a recognised cause of gingival hyperplasia?

(Please select 1 option)

<input type="radio"/>	Allopurinol
<input type="radio"/>	Hyoscine
<input type="radio"/>	Penicillamine
<input type="radio"/>	Phenytoin
<input type="radio"/>	Prednisolone

Please select 1 option

<input type="radio"/>	Allopurinol	
<input type="radio"/>	Hyoscine	
<input type="radio"/>	Penicillamine	
<input type="radio"/>	Phenytoin	This is the correct answer
<input checked="" type="radio"/>	Prednisolone	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Phenytoin can lead to gingival hyperplasia.

## Explanation

A rare adverse effect of allopurinol includes a metallic taste.

Hyoscine commonly causes a dry mouth.

Penicillamine can cause oral ulceration and loss of taste.

Prednisolone commonly results in *Candida* infection.

Dr Assem

With respect to liver cirrhosis, which of the following statements is correct?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | Endothelin causes dilatation of the sinusoids, thus decreasing portal hypertension        |
| <input type="radio"/> | In end stage cirrhosis, liver transplantation is associated with 20% five- year survival  |
| <input type="radio"/> | The final common pathway of hepatic fibrosis is mediated by the hepatic stellate cell     |
| <input type="radio"/> | Transforming growth factor is a potent promoter of the fibrogenic response by hepatocytes |
| <input type="radio"/> | Tumour necrosis factor is an anti-inflammatory effector in fibrotic liver injury          |

(Please select 1 option)

<input type="radio"/>	Endothelin causes dilatation of the sinusoids, thus decreasing portal hypertension	
<input type="radio"/>	In end stage cirrhosis, liver transplantation is associated with 20% five- year survival	
<input type="radio"/>	The final common pathway of hepatic fibrosis is mediated by the hepatic stellate cell	This is the correct answer
<input checked="" type="radio"/>	Transforming growth factor is a potent promoter of the fibrogenic response by hepatocytes	Incorrect answer selected
<input type="radio"/>	Tumour necrosis factor is an anti-inflammatory effector in fibrotic liver injury	

## Key Learning Points

Gastroenterology, Liver Disorders

- The final common pathway of hepatic fibrosis is mediated by the hepatic stellate cell in the space of Disse.

## Explanation

The hepatic stellate cells reside in the space of Disse and are central to the process of fibrosis within the liver.

Tumour necrosis factor- $\alpha$  is a pro-inflammatory effector in fibrotic liver injury, through activation of the stellate cells. These cells then secrete the fibrillar collagen constituting the defining features of hepatic fibrosis.

Interleukin-10 is thought to exert anti-inflammatory effects on the stellate cell.

Endothelin is a vasoconstrictor in the hepatic sinusoids (similarly in the endothelium of the systemic circulation) and functions by causing contraction of the hepatic stellate cells thus increasing intrahepatic sinusoidal resistance and promoting portal hypertension.

Nitric oxide antagonises the effects of endothelin in the liver.

Five-year survival after liver transplantation is now 75%.

A 40-year-old male presents with a six-hour history of profuse vomiting and over the last two hours had developed left sided chest pain and dyspnoea.

On examination, he had a pulse of 110 beats per minute regular and a blood pressure of 168/90 mmHg.

On palpation, he had crepitus over the left supraclavicular region and neck, reduced heart sounds and left basal sided crackles, plus some dullness to percussion over the right base of the chest.

What is the most appropriate initial investigation?

(Please select 1 option)

<input type="radio"/>	CT with oral contrast
<input type="radio"/>	Echocardiogram
<input type="radio"/>	Gastrografin swallow
<input type="radio"/>	Rigid oesophagoscopy
<input type="radio"/>	Upper GI endoscopy

(Please select 1 option)

<input type="radio"/>	CT with oral contrast	
<input type="radio"/>	Echocardiogram	
<input type="radio"/>	Gastrografin swallow	This is the correct answer
<input type="radio"/>	Rigid oesophagoscopy	
<input checked="" type="radio"/>	Upper GI endoscopy	Incorrect answer selected

### Key Learning Points

#### Gastroenterology

- Mackler's triad (vomiting, chest pain and surgical emphysema) is classical for oesophageal rupture but absent in almost half the cases. A gastrografin swallow is the recommended first-line investigation.

### Explanation

This man has a history of severe vomiting which then progressed to chest pain.

The most relevant finding on examination is the crepitus over the chest indicating surgical emphysema. The most probable cause is spontaneous rupture of the oesophagus.

Mackler's triad (vomiting, chest pain and surgical emphysema) is classical but absent in almost half the cases.

The chest x ray may confirm the surgical emphysema.

Gastrografin swallow will confirm the site of perforation in approximately 65-75% of cases and is the recommended first line investigation. Barium is more sensitive at 90% for detecting small perforations but carries the risk of a severe inflammatory response (mediastinitis).

A CT with contrast can then be performed to confirm the site of perforation, as well as imaging the other surrounding structures.

Lateral neck x rays may be useful in the early stages where the diagnosis is uncertain and surgical emphysema is not seen on a plain CXR.

Oesophagoscopy has a role in if the Gastrografin swallow is negative.



A 21-year-old man was admitted with confusion.

He was noted to have Kayser-Fleischer rings and his liver function tests were consistent with acute hepatitis.

Which chromosome contains the gene for this disease?

(Please select 1 option)

- |                       |               |
|-----------------------|---------------|
| <input type="radio"/> | Chromosome 6  |
| <input type="radio"/> | Chromosome 13 |
| <input type="radio"/> | Chromosome 15 |
| <input type="radio"/> | Chromosome 17 |
| <input type="radio"/> | Chromosome 22 |

(Please select 1 option)

<input type="radio"/>	Chromosome 6	
<input type="radio"/>	Chromosome 13	This is the correct answer
<input checked="" type="radio"/>	Chromosome 15	Incorrect answer selected
<input type="radio"/>	Chromosome 17	
<input type="radio"/>	Chromosome 22	

### Key Learning Points

#### Gastroenterology

- The gene involved in Wilson's disease is located on chromosome 13.

### Explanation

The gene involved in Wilson's disease is located on chromosome 13.

Wilson's disease is an autosomal recessive disorder which results in copper deposition in the liver and brain, and impaired incorporation of copper into caeruloplasmin.

Wilson's disease is a cause of acute liver failure and can also lead to decompensated cirrhosis.

Patients with neurological disease often have Kayser-Fleischer rings.

In the majority of patients plasma caeruloplasmin is low (< 200 mg/L); serum copper is < 11  $\mu\text{mol/L}$  and in 65% of patients 24-hour urinary copper is elevated at > 3  $\mu\text{mol}$ .

Liver biopsy will aid the diagnosis.

Treatment includes penicillamine, which leads to urinary copper excretion.

Ninety per cent of cases of haemochromatosis are caused by the substitution of tyrosine for cysteine at position 282 of the HFE gene found on chromosome 6.

Marfan's syndrome is caused by defects in fibrillin; the gene responsible is located on chromosome 15.

Neurofibromatosis type 1 is due to a mutation or deletion of the NF111 gene located on chromosome 17.

Neurofibromatosis type 2 is the result of a mutation or deletion of the NF2 gene11 found on chromosome 22.

Which of the following is not true of a patient with ascites due to liver cirrhosis?

(Please select 1 option)

- |                       |  |
|-----------------------|--|
| <input type="radio"/> | Cardiac output is often elevated   |
| <input type="radio"/> | Hepatic intrasinusoidal pressure is elevated   |
| <input type="radio"/> | Spontaneous bacterial peritonitis is a recognised feature  |
| <input type="radio"/> | The usual source of the ascitic fluid is mainly from the exudation from the surface of the liver |
| <input type="radio"/> | Urinary sodium concentration is usually less than 10 mmol/l                                      |

- |                                  |   |
|----------------------------------|---|
| <input type="radio"/>            | Cardiac output is often elevated  |
| <input type="radio"/>            | Hepatic intrasinusoidal pressure is elevated  |
| <input type="radio"/>            | Spontaneous bacterial peritonitis is a recognised feature   |
| <input type="radio"/>            | The usual source of the ascitic fluid is mainly from the exudation from the surface of the liver<br><b>This is the correct answer</b> |
| <input checked="" type="radio"/> | Urinary sodium concentration is usually less than 10 mmol/l<br><b>Incorrect answer selected</b>                                       |

## Key Learning Points

### Gastroenterology

- Hepatocellular failure is associated with hyperdynamic circulation and systemic vasodilatation with increased vascular capacitance.

## Explanation

Hepatocellular failure is associated with hyperdynamic circulation and systemic vasodilatation with increased vascular capacitance.

Most patients have sodium and water retention.

A 76-year-old man presents with dysphagia and 1.5 kg unintentional weight loss for three months. He reports some "funny feelings in his throat" when swallowing food. His wife also reports that he has become increasingly short of breath. He reports no changes in his bowel habit and denies melaena or fresh rectal bleeding.

An examination reveals a palpable lump in the throat which has an audible gurgle when the patient swallows, but there are no other abnormalities.

Bloods show the following:

Sodium	140 mmol/L	(135-145 mmol/L)
Potassium	4 mmol/L	(3.5-4.9 mmol/L)
Creatinine	90 µmol/L	(60-110 µmol/L)
Urea	5.4 mmol/L	(2.5-7.5 mmol/L)
Adjusted calcium	2.3 mmol/L	(2.2-2.6 mmol/L)
ALT	37 U/L	(7-55 U/L)
ALP	60 U/L	(45-115 U/L)
Bilirubin	14 µmol/L	(<22 µmol/L)
Albumin	45 g/L	(35-55 g/L)
Haemoglobin	140 g/L	(115-140 g/L)
White cell count	$10 \times 10^9/L$	$(4-11 \times 10^9/L)$
Platelets	$200 \times 10^9/L$	$(150-400 \times 10^9/L)$
Neutrophils	$2.7 \times 10^9/L$	$(1.8-8 \times 10^9/L)$
CRP	<5 mg/L	(<5 mg/L)

Which is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Achalasia
<input type="radio"/>	Barrett's oesophagus
<input type="radio"/>	Follicular thyroid carcinoma
<input type="radio"/>	Oesophageal carcinoma
<input type="radio"/>	Pharyngeal pouch

<input type="radio"/>	Achalasia
<input type="radio"/>	Barrett's oesophagus
<input type="radio"/>	Follicular thyroid carcinoma
<input type="radio"/>	Oesophageal carcinoma
<input checked="" type="radio"/>	Pharyngeal pouch <span>Correct</span>

### Key Learning Points

#### Gastroenterology

- A pharyngeal pouch typically presents with dysphagia and regurgitation, and there may be a palpable lump in the neck on examination.

### Explanation

A pharyngeal pouch is a herniation between the thyropharyngeus and cricopharyngeus muscles (Killian's dehiscence, in the inferior constrictor of the pharynx), resulting in a diverticulum where food and other debris can collect. The aetiology is not fully understood, but malfunction of the upper oesophageal sphincter probably contributes.

Patients typically present with dysphagia, regurgitation of food, aspiration, chronic cough, and weight loss. Clinical signs are often lacking, but there may be a palpable lump in the neck which gurgles on palpation. Food decaying in the pouch can also result in halitosis.

Endoscopy should only be performed with caution, as it can result in perforation of the pouch and therefore barium swallow is preferred as an initial investigation.

Management depends on the size of the lesion. Larger lesions can still be treated with diverticulectomy, but minimally invasive techniques and cricopharyngeal myotomy and the mainstay of treatment of smaller lesions.

Oesophageal carcinoma would definitely be high on the list of differential diagnoses in this patient, but you might expect more progressive dysphagia (initially to solids, then progressing to liquids) and more marked weight loss. It would be unusual to have a palpable neck lump in oesophageal carcinoma (unless it is an involved lymph node).

Barrett's oesophagus is essentially an asymptomatic condition diagnosed on endoscopy, although you would expect the patient to have symptoms of gastro-oesophageal reflux.

Follicular thyroid carcinoma might present in an enlarged thyroid resulting in some dysphagia, and the thyroid may be palpable but this would be an unusual presentation and the lump would not gurgle on swallowing.

**Achalasia** typically presents with dysphagia to solids, regurgitation and chest pain but a palpable lump in the neck would not be expected.

A 24-year-old woman has ingested an unknown quantity of paracetamol tablets four hours ago.

She now presents with nausea, vomiting, anorexia, and right subchondral pain.

Which of the following features suggest that she should be transferred to the liver unit?

(Please select 1 option)

- |                       |                        |
|-----------------------|------------------------|
| <input type="radio"/> | ALT 800 units/L        |
| <input type="radio"/> | Blood glucose 5 mmol/L |
| <input type="radio"/> | Heart rate 120 BPM     |
| <input type="radio"/> | pH 7.25                |
| <input type="radio"/> | Systolic BP 100 mmHg   |

(Please select 1 option)

<input type="radio"/>	ALT 800 units/L
<input type="radio"/>	Blood glucose 5 mmol/L
<input checked="" type="radio"/>	Heart rate 120 BPM <span>Incorrect answer selected</span>
<input type="radio"/>	pH 7.25 <span>This is the correct answer</span>
<input type="radio"/>	Systolic BP 100 mmHg

### Key Learning Points

Gastroenterology, Pharmacology, Toxicology

- A pH of less than 7.3 is a poor prognostic factor for patients who have taken an overdose of paracetamol.

### Explanation

A pH of less than 7.3 is a poor prognostic factor for this patient.

The criteria for transfer to a specialist unit are:

- encephalopathy
- INR:  $>2.0$  at  $<48$  hours, or  $>3.5$  at  $<72$  hours
- serum creatinine:  $>200 \mu\text{mol/L}$
- blood pH:  $<7.3$
- systolic BP:  $<80 \text{ mmHg}$ .



A 75-year-old woman is admitted with headache and vomiting. She denies abdominal pain. She reports weight loss of one stone over the last six weeks.

On further questioning it becomes apparent that she has noticed the vomitus contains food from several days ago. Abdominal x ray reveals a prominent gastric bubble.

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Acute cholecystitis
<input type="radio"/>	Colon carcinoma
<input type="radio"/>	Gastric outflow obstruction
<input type="radio"/>	Peptic ulceration
<input type="radio"/>	Raised intracranial pressure

Please select 1 option

<input type="radio"/>	Acute cholecystitis
<input type="radio"/>	Colon carcinoma
<input checked="" type="radio"/>	Gastric outflow obstruction <span>Correct</span>
<input type="radio"/>	Peptic ulceration
<input type="radio"/>	Raised intracranial pressure

## Key Learning Points

### Gastroenterology

- Vomiting of food from several meals ago suggests gastric stasis or gastric outflow obstruction.

## Explanation

Vomiting of food from several meals ago suggests gastric stasis or gastric outflow obstruction. In this case, with the history of weight loss, an underlying malignancy such as antral gastric carcinoma is likely.

Patients with **acute cholecystitis** typically have abdominal pain, usually in the right upper quadrant or epigastrium. Nausea and vomiting may also occur. Patients are often febrile.

Abdominal pain and change in bowel habit are the common clinical presentations of colorectal cancer.

Upper abdominal pain or discomfort is the most prominent symptom in patients with **peptic ulcer disease**; occasionally there may be vomiting.

Clinical features of raised intracranial pressure include headache, reduced consciousness and vomiting. Signs include **sixth** cranial nerve palsy and papilloedema. Hypertension and **bradycardia** (Cushing's reflex) may also be seen.

A 34-year-old man with ulcerative colitis is admitted with severe bloody diarrhoea. He is opening his bowels approximately 15 times a day and has abdominal pain.

His current medication includes Mezavant and on admission he is commenced on intravenous hydrocortisone. You are asked to request a thiopurine methyltransferase (TPMT) level as the plan is to start azathioprine at a later date.

What percentage of the population has normal or high TPMT activity?

(Please select 1 option)

- |                       |     |
|-----------------------|-----|
| <input type="radio"/> | 1%  |
| <input type="radio"/> | 10% |
| <input type="radio"/> | 25% |
| <input type="radio"/> | 50% |
| <input type="radio"/> | 90% |

<input type="radio"/>	1%
<input type="radio"/>	10%
<input checked="" type="radio"/>	25% <b>Incorrect answer selected</b>
<input type="radio"/>	50%
<input type="radio"/>	90% <b>This is the correct answer</b>

## Key Learning Points

### Gastroenterology

- Ninety per cent of the population have normal or high enzyme activity, that is, are homozygous for the wild-type allele.

## Explanation

Ninety per cent of the population have normal or high enzyme activity, that is, are homozygous for the wild-type allele.

The enzyme activity of thiopurine methyltransferase (TPMT) is under the control of a genetic polymorphism.

Ten per cent of the population have intermediate levels of TPMT activity, that is, one wild-type and one variant allele.

One in 300 people have no functional enzyme activity.

Several groups of patients - not only those with inflammatory bowel disease - have developed azathioprine induced myelosuppression linked to TPMT deficiency.

With respect to gastric carcinoma, which of the following statements is true?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | Aspirin use is a risk factor for gastric carcinoma  |
| <input type="radio"/> | Early diagnosis of gastric carcinoma results in a five-year survival rate of 20%            |
| <input type="radio"/> | Endoscopic ultrasonography is superior to conventional CT scanning for local tumour staging |
| <input type="radio"/> | <i>Helicobacter pylori</i> infection is not associated with gastric carcinoma               |
| <input type="radio"/> | Incidence of distal stomach tumours is increasing   |

<input type="radio"/>	Aspirin use is a risk factor for gastric carcinoma	
<input type="radio"/>	Early diagnosis of gastric carcinoma results in a five-year survival rate of 20%	
<input type="radio"/>	Endoscopic ultrasonography is superior to conventional CT scanning for local tumour staging	This is the correct answer
<input checked="" type="radio"/>	<i>Helicobacter pylori</i> infection is not associated with gastric carcinoma	Incorrect answer selected
<input type="radio"/>	Incidence of distal stomach tumours is increasing	

### Key Learning Points

#### Gastroenterology, Oncology

- In patients with gastric carcinoma, endoscopic ultrasonography is superior to conventional CT scanning for local tumour staging.

### Explanation

The incidence of distal stomach tumours is actually decreasing while the incidence of tumours in the proximal stomach is increasing.

NSAID use is associated with decreased risk of certain gastric tumours.

*H. pylori* infection has been associated in a number of studies with increased risk of gastric carcinoma.

Screening for gastric carcinoma in Japan detects up to 40% of gastric carcinomas at an early stage and in skilled hands, five-year survival can be upwards of 90%.

CT with gastric dilatation is a useful complementary investigation in the staging of gastric carcinoma but endoscopic ultrasonography is superior to conventional CT scanning as it is able to assess depth of infiltration and lymphatic dissemination of tumour.

A 69-year-old man is seen in outpatients. He reports weight loss of 1 stone over three months but his history is otherwise unremarkable.

On examination, his abdomen is soft with no palpable masses. A PR examination is normal.

His blood tests show:

Haemoglobin	80 g/L	(120-160)
MCV	70 fL	(80-96)

Which of the following is the most appropriate investigation for this patient?

(Please select 1 option)

- ☐ Abdominal x ray and colonoscopy
- ☐ CT scan of the abdomen and upper GI endoscopy
- ☐ Sigmoidoscopy and upper GI endoscopy
- ☐ Ultrasound scan of abdomen and colonoscopy
- ☐ Upper GI endoscopy and colonoscopy

- ☐ Abdominal x ray and colonoscopy
- ☐ CT scan of the abdomen and upper GI endoscopy
- ☐ Sigmoidoscopy and upper GI endoscopy
- ☐ Ultrasound scan of abdomen and colonoscopy
- ☒ Upper GI endoscopy and colonoscopy **Correct**

## Key Learning Points

Gastroenterology, Haematology

- Microcytic anaemia should prompt investigation for occult GI malignancies.

## Explanation

This man has weight loss and an unexplained microcytic anaemia.

The likely site of blood loss is from the GI tract in absence of an alternative explanation.

This may be due to an occult GI malignancy and therefore the initial investigations of choice are upper and lower GI endoscopy.



A 30-year-old female is brought to Accident and Emergency by her family; she is suffering from severe confusion and muscle twitches. They report a year long history of diarrhoea and bloating, which the patient has declined to visit the GP regarding. They also report approximately 10 kg of weight loss in the same time.

Of note in her past medical history is bipolar disorder, for which she takes citalopram and lithium.

Bloods reveal

Sodium	160 mmol/L	(135-145 mmol/L)
Potassium	3.0 mmol/L	(3.5-4.9 mmol/L)
Creatinine	130 µmol/L	(60-110 µmol/L)
Urea	10 mmol/L	(2.5-7.5 mmol/L)
Adjusted calcium	2.3 mmol/L	(2.2-2.6 mmol/L)
ALT	43 U/L	(7-55 U/L)
ALP	65 U/L	(45-115 U/L)
Bilirubin	12 µmol/L	(<22 µmol/L)
Albumin	37 g/L	(35-55 g/L)
Haemoglobin	129 g/L	(115-140 g/L)
White cell count	$6.1 \times 10^9/L$	$(4-11 \times 10^9/L)$
Platelets	$198 \times 10^9/L$	$(150-400 \times 10^9/L)$
Neutrophils	$4.4 \times 10^9/L$	$(1.8-8 \times 10^9/L)$
CRP	<5 mg/L	(<5 mg/L)

Following acute management of her electrolyte abnormalities, she undergoes colonoscopy which demonstrates multiple dark pigmented areas in the descending colon.

Which is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Drug induced colitis
<input type="radio"/>	Familial adenomatous polyposis (FAP)
<input type="radio"/>	Hereditary nonpolyposis colorectal cancer (HNPCC)
<input type="radio"/>	Melanosis coli
<input type="radio"/>	Microscopic colitis

<input type="radio"/>	Drug induced colitis	
<input type="radio"/>	Familial adenomatous polyposis (FAP)	
<input type="radio"/>	Hereditary nonpolyposis colorectal cancer (HNPCC)	
<input checked="" type="radio"/>	Melanosis coli	This is the correct answer
<input type="radio"/>	Microscopic colitis	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Melanosis coli is a benign condition associated with chronic laxative use, most commonly osmotic laxatives.

## Explanation

Melanosis coli is a benign condition associated with chronic laxative use, most commonly osmotic laxatives. The pigmentation is due to lipofuscin formation and accumulation in macrophages. It is most commonly identified at endoscopy and requires no treatment other than counselling on laxative use.

The hypernatraemia and hypokalaemia are likely a result of chronic diarrhoea, which has also contributed to the weight loss.

Microscopic and drug induced colitis would not present in such a way with bloody painful stools to be expected.

Both FAP and HNPCC would present with numerous tumours within the bowel lumen and usually a family history of bowel cancer.

A 55-year-old man on no current treatment for his quiescent ulcerative colitis (UC) is found to have an ESR of 95 mm/hr (0-20 mm/1st hour).

Investigations show:

Haemoglobin	132 g/L	(130-180)
WCC	$4.5 \times 10^9/\text{L}$	(4-11)
Platelets	$160 \times 10^9/\text{L}$	(150-400)
Corrected calcium	2.58 mmol/L	(2.2-2.6)
IgG	25 g/L	(6-13)
IgA	1.8 g/L	(0.8-3.0)
IgM	1.6 g/L	(0.4-2.2)

What is the most appropriate next investigation?

(Please select 1 option)

<input type="radio"/>	Bone marrow trephine and aspiration
<input type="radio"/>	Isotope bone scan
<input type="radio"/>	Plasma immunoelectrophoresis
<input type="radio"/>	Rectal biopsy
<input type="radio"/>	x Ray skeletal survey

<input type="radio"/>	Bone marrow trephine and aspiration	
<input type="radio"/>	Isotope bone scan	
<input type="radio"/>	Plasma immunoelectrophoresis	This is the correct answer
<input type="radio"/>	Rectal biopsy	
<input checked="" type="radio"/>	x Ray skeletal survey	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Plasma immunoelectrophoresis to look for an M band is the most appropriate next investigation following blood tests in the diagnosis of myeloma.

## Explanation

The erythrocyte sedimentation rate (ESR) is not raised in quiescent UC. Hence there must be another reason in this case.

The only abnormal result given is a raised IgG. This suggests that myeloma is the diagnosis.

Plasma immunoelectrophoresis to look for an M band is the most appropriate next investigation.

A bone marrow trephine is the definitive investigation but is traumatic and painful to the patient and so is not the next investigation of choice.

Which of the following demonstrates autosomal dominant inheritance?

(Please select 1 option)

☐ Acute intermittent porphyria

☐ Cystic fibrosis

☐ Dubin-Johnson syndrome

☐ Haemochromatosis

☐ Wilson's disease

<input type="radio"/>	Acute intermittent porphyria	This is the correct answer
<input type="radio"/>	Cystic fibrosis	
<input type="radio"/>	Dubin-Johnson syndrome	
<input checked="" type="radio"/>	Haemochromatosis	Incorrect answer selected
<input type="radio"/>	Wilson's disease	

## Key Learning Points

### Gastroenterology

- Acute intermittent porphyria is an autosomal disorder. Clinical features include abdominal pain and constipation. Associated neurological manifestations such as polyneuropathy and epilepsy are also seen. Urinary porphobilinogen is greater than four times the upper limit of normal. Management includes analgesia – opiates are often required. High carbohydrate intake and in severe attacks haem infusion inhibit haem production and thereby reduce porphyrin synthesis.

## Explanation

Acute intermittent porphyria is an autosomal disorder. Clinical features include abdominal pain and constipation. Associated neurological manifestations such as polyneuropathy and epilepsy are also seen. Urinary porphobilinogen is greater than four times the upper limit of normal. Management includes analgesia - opiates are often required. High carbohydrate intake and in severe attacks haem infusion inhibit haem production and thereby reduce porphyrin synthesis.<sup>1</sup>

Cystic fibrosis is an autosomal recessive disease, where mutations in the gene for the CFTR (cystic fibrosis transmembrane conductance regulator) results in the production of dry protein-rich secretions leading to pulmonary and gastrointestinal complications.

Dubin-Johnson syndrome is a rare autosomal recessive disorder where there is conjugated hyperbilirubinaemia and impaired bilirubin excretion resulting in mild jaundice but normal liver function.

Haemochromatosis demonstrates autosomal recessive inheritance where iron overload can lead to cirrhosis. Other systems are also affected and patients may suffer from:

- cardiomyopathy
- diabetes mellitus
- hypogonadism
- skin pigmentation ('bronze diabetes') and
- arthropathy.

Wilson's disease is an autosomal recessive disorder caused by copper retention and impaired incorporation of copper into caeruloplasmin. Patients may develop acute liver failure, and the disease is also a cause of cirrhosis. There may be neuropsychiatric manifestations such as parkinsonism and cognitive impairment.<sup>1</sup>

A 30-year-old man presents with acute, profuse, watery diarrhoea with some blood after returning from a holiday in Tanzania. He had been taking oral rehydration salts.

Which one of the following is the most appropriate treatment?

(Please select 1 option)

<input type="radio"/>	Ciprofloxacin
<input type="radio"/>	Loperamide
<input type="radio"/>	Metronidazole
<input type="radio"/>	Prednisolone
<input type="radio"/>	Vancomycin



Ciprofloxacin

This is the correct answer



Loperamide



Metronidazole



Prednisolone

Incorrect answer selected



Vancomycin

## Key Learning Points

Gastroenterology, Infectious Diseases

- Ciprofloxacin is recommended for first-line antibiotic therapy in *Escherichia coli* when supportive measures fail or when signs of sepsis are present.

## Explanation

The most likely cause of such traveller's diarrhoea is *Escherichia coli* and hence ciprofloxacin is recommended for first-line antibiotic therapy (when needed) before stool culture results are available.

Metronidazole would be suitable for *Giardia* infection but its course is usually more insidious.



Which of the following genotypes is associated with the lowest levels of alpha-1-antitrypsin (AAT)?

(Please select 1 option)

☐ PiMM

☐ PiMS

☐ PiMZ

☐ PiSZ

☐ PiZZ

Please select 1 option

<input type="radio"/>	PiMM
<input type="radio"/>	PiMS
<input type="radio"/>	PiMZ
<input type="radio"/>	PiSZ
<input checked="" type="radio"/>	PiZZ <span>Correct</span>

## Key Learning Points

### Gastroenterology

- Of the options listed PiZZ is the genotype with the lowest level of plasma AAT.

## Explanation

PiMM is the normal phenotype.

The null phenotype (not in the list of options) is the least common but the most severe form of the disease where there is no detectable AAT in the serum.

Dr. Arsen

A 34-year-old woman is referred to the gastroenterology clinic. The GP referral letter states the patient has persistent lethargy and blood results have demonstrated iron deficiency anaemia.

Which of the following statements regarding iron deficiency anaemia is correct?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | Endomysial antibody serology to investigate for coeliac disease should always be requested in addition to duodenal biopsies |
| <input type="radio"/> | Low serum iron with a low total iron-binding capacity confirms iron deficiency  |
| <input type="radio"/> | Microcytosis may be absent where there is combined iron and folate deficiency   |
| <input type="radio"/> | The presence of Howell-Jolly bodies on blood film would go against coeliac disease  |
| <input type="radio"/> | Thrombocytosis indicates chronic blood loss   |

<input type="radio"/>	Endomysial antibody serology to investigate for coeliac disease should always be requested in addition to duodenal biopsies
<input type="radio"/>	Low serum iron with a low total iron-binding capacity confirms iron deficiency
<input checked="" type="radio"/>	Microcytosis may be absent where there is combined iron and folate deficiency <span>Correct</span>
<input type="radio"/>	The presence of Howell-Jolly bodies on blood film would go against coeliac disease
<input type="radio"/>	Thrombocytosis indicates chronic blood loss

### Key Learning Points

#### Gastroenterology

- Microcytosis may be absent where there is combined iron and folate deficiency.

### Explanation

Iron-deficiency typically results in a microcytosis, but this can be absent when there is concurrent folate deficiency (which typically results in a macrocytosis).

Coeliac disease is the cause of iron-deficiency in 2-3% of cases, and needs to be excluded. The gold-standard for diagnosis are distal duodenal (D2) biopsies. Endomysial antibody serology can be useful to confirm the subtotal villous atrophy is not due to another cause, or as a screening test prior to endoscopy. Antibody titres can also help to determine whether or not a patient is adhering to a gluten-free diet. However, it is not true to say that serology should ALWAYS be requested with biopsies.

Low serum iron (<10 pmol/L) with a high total iron-binding capacity (>70 pmol/L) confirms iron deficiency.

Howell-Jolly bodies on blood film indicate hyposplenism and are consistent with a diagnosis of coeliac disease.

Thrombocytosis may occur in acute haemorrhage but is also found in a number of other situations such as inflammatory conditions.

Dr. Hassan

Which one of the following require urgent referral for upper endoscopy?

(Please select 1 option)

- ☐ A 35-year-old male who has a history of waterbrash and dyspepsia which has responded to a course of ranitidine but since stopping has recurred
- ☐ A 45-year-old male with a one month history of persistent dyspepsia
- ☐ A 56-year-old male with a one month history of dyspepsia and a pulsatile central abdominal mass
- ☐ A 62-year-old male with a three month history of unexplained weight loss, tenesmus and a right abdominal mass
- ☐ A 73-year-old male with a three month history of dyspepsia which has failed to respond to a course of proton pump inhibitors

<input type="radio"/>	A 35-year-old male who has a history of waterbrash and dyspepsia which has responded to a course of ranitidine but since stopping has recurred
<input type="radio"/>	A 45-year-old male with a one month history of persistent dyspepsia
<input type="radio"/>	A 56-year-old male with a one month history of dyspepsia and a pulsatile central abdominal mass
<input checked="" type="radio"/>	A 62-year-old male with a three month history of unexplained weight loss, tenesmus and a right abdominal mass <b>Incorrect answer selected</b>
<input type="radio"/>	A 73-year-old male with a three month history of dyspepsia which has failed to respond to a course of proton pump inhibitors <b>This is the correct answer</b>

### Key Learning Points

#### Gastroenterology, Oncology

- Criteria for referral for urgent endoscopy include dyspepsia in a patient aged 55 or above with onset of dyspepsia within one year and persistent symptoms.

### Explanation

Criteria for referral for urgent endoscopy include

- Dysphagia (at any age)
- Dyspepsia at any age combined with any one of weight loss, anaemia or vomiting
- Dyspepsia in a patient aged 55 or above with onset of dyspepsia within one year and persistent symptoms
- Dyspepsia with one of Barrett's oesophagus, family history of upper gastrointestinal (GI) carcinoma, pernicious anaemia or upper GI surgery more than 20 years ago
- Jaundice
- Abdominal mass

With regard to the presented cases, the 56-year-old man has dyspepsia with what seems to be an aortic aneurysm. This requires an ultrasound and vascular opinion.

In the case of unexplained weight loss, tenesmus and upper right mass the problem is likely to be a colonic carcinoma.

Which of the following statements is true of autoimmune hepatitis?

(Please select 1 option)

<input type="radio"/>	It is associated with hypogammaglobulinaemia
<input type="radio"/>	It may be associated with keratoconjunctivitis sicca
<input type="radio"/>	It rarely interferes with menstruation except in later stages
<input type="radio"/>	It rarely presents before 20 years of age
<input type="radio"/>	It usually presents as an acute hepatitis

<input type="radio"/>	It is associated with hypogammaglobulinaemia	
<input type="radio"/>	It may be associated with keratoconjunctivitis sicca	This is the correct answer
<input type="radio"/>	It rarely interferes with menstruation except in later stages	
<input checked="" type="radio"/>	It rarely presents before 20 years of age	Incorrect answer selected
<input type="radio"/>	It usually presents as an acute hepatitis	

## Key Learning Points

### Gastroenterology

- The sicca syndrome (xerostomia/dry eyes, keratoconjunctivitis sicca) may occur in cases of autoimmune hepatitis.

## Explanation

It occurs frequently in young (10-20 years) and middle-aged women.

Twenty-five percent present as acute hepatitis but usually the onset is insidious. Some may be asymptomatic for years and then are found to have signs of chronic liver disease.

Amenorrhoea is common. It is associated with hyperglobulinaemia and other autoimmune disease.

Sixty percent are associated with HLA-B8, DR3 and Dw3.

The sicca syndrome (xerostomia/dry eyes, keratoconjunctivitis sicca) may occur.



A 65-year-old man was investigated for weight loss and dyspepsia.

Endoscopic examination revealed an ulcerated lesion in the stomach and biopsy revealed the presence of a low-grade mucosa-associated lymphoma (MALT) with *Helicobacter pylori*.

Further investigation with CT of chest and abdomen were normal as were bone marrow aspirate and trephine.

What is the best treatment option for this patient?

(Please select 1 option)

<input type="radio"/>	Eradication therapy for <i>Helicobacter pylori</i>
<input type="radio"/>	IV chemotherapy
<input type="radio"/>	Oral chlorambucil
<input type="radio"/>	Partial gastric resection
<input type="radio"/>	Radiotherapy

<input checked="" type="radio"/>	Eradication therapy for <i>Helicobacter pylori</i>	This is the correct answer
<input type="radio"/>	IV chemotherapy	
<input checked="" type="radio"/>	Oral chlorambucil	Incorrect answer selected
<input type="radio"/>	Partial gastric resection	
<input type="radio"/>	Radiotherapy	

## Key Learning Points

Gastroenterology, Oncology

- Low-grade gastric MALT tumours associated with *Helicobacter pylori* infection respond in over 80% to *Helicobacter* eradication as the primary mode of treatment.

## Explanation

This is a gastric MALT tumour.

These are usually marginal zone B cell lymphomas and associated with an excellent prognosis.

Low-grade gastric MALT tumours associated with *Helicobacter pylori* infection respond in over 80% to *Helicobacter* eradication as the primary mode of treatment.

Radiotherapy is considered but is generally unnecessary.

For the diagnosis of *Giardia*, what is the specificity of ELISA against *Giardia* antigen 65?

(Please select 1 option)

<input type="radio"/>	≥80%
<input type="radio"/>	≥88%
<input type="radio"/>	≥90%
<input type="radio"/>	≥95%
<input type="radio"/>	≥98%

Please select 1 option)

<input type="radio"/>	≥80%
<input type="radio"/>	≥88%
<input type="radio"/>	≥90%
<input type="radio"/>	≥95%
<input checked="" type="radio"/>	≥98% <span>Correct</span>

### Key Learning Points

Gastroenterology, Microbiology

- Specificity of a number of different immunoassays in the diagnosis of *Giardia* is =98%.

### Explanation

Several immunoassays using antibodies against cyst or trophozoite antigens have been developed for stool analysis in the diagnosis of *Giardia*. Available kits include direct immunofluorescent assays (DFA), immunochromatographic assays, and enzyme-linked immunosorbent assays (ELISA).

In general, these methods have greater sensitivity and faster turnaround time than conventional stool microscopy methods. Specificity and cost are usually relatively comparable. In a study of stool samples from patients with abdominal symptoms using different assays for detection of *Giardia*, the specificity of a number of different immunoassays was ≥98%.

ELISA uses the immunological principle of an antigen binding to its specific antibody thereby allowing the detection of small quantities of antigens such as proteins, peptides, hormones, or antibody in a fluid sample. The assay utilises enzyme-labelled antigens and antibodies to detect biological molecules. The antigen is allowed to bind to a specific antibody, which is subsequently detected by a secondary antibody that is coupled to an enzyme. A visible colour change or fluorescence then indicates the presence of antigen which allows quantitative or qualitative measures.

A 42-year-old man presents with a six-month history of diarrhoea and abdominal cramps. On further questioning, it appears he has also noticed facial flushing.

On examination, there is wheeze on auscultation of his chest and abdominal examination reveals hepatomegaly.

Which of the following investigations would confirm the likely diagnosis?

(Please select 1 option)

<input type="radio"/>	24-hour urinary 5-HIAA
<input type="radio"/>	24-hour urinary copper
<input type="radio"/>	24-hour urinary free cortisol
<input type="radio"/>	24-hour urinary protein
<input type="radio"/>	24-hour urinary VMA

<input type="radio"/>	24-hour urinary 5-HIAA	This is the correct answer
<input type="radio"/>	24-hour urinary copper	
<input checked="" type="radio"/>	24-hour urinary free cortisol	Incorrect answer selected
<input type="radio"/>	24-hour urinary protein	
<input type="radio"/>	24-hour urinary VMA	

### Key Learning Points

#### Gastroenterology

- Carcinoid syndrome is a paraneoplastic syndrome caused by serotonin secretion. It is diagnosed by a 24 hour urine collection testing for 5-HIAA.

### Explanation

This patient has carcinoid syndrome. The diagnosis is made by 24-hour urine collection for 5-hydroxyindoleacetic acid (5-HIAA) - excretion is greater than 0.3 mmol.

Forty-five percent of carcinoid tumours arise in the appendix, 30% arise in the small bowel, and 20% in the rectum.

Most patients with **carcinoid syndrome** have liver metastases.

5-HT, kinins, prostaglandins and other vasoactive substances are secreted.

Clinical features of **carcinoid syndrome** include diarrhoea and abdominal cramps in the majority of patients.

Flushing, which is often provoked by alcohol, is also a feature, as are bronchoconstriction and cardiac involvement with tricuspid or pulmonary incompetence.

Diagnosis also includes chest x ray, abdominal ultrasound scan, small bowel radiology, and echocardiography to establish the extent of disease. Surgical resection of the primary tumour is possible in some cases; octreotide is the treatment of choice.

In the majority of cases of Wilson's disease, 24-hour urinary copper is greater than 3  $\mu\text{mol}$ .

In Cushing's syndrome, 24-hour urinary free cortisol is elevated.

Nephrotic syndrome is defined as proteinuria greater than 3.5 g/1.75 m<sup>2</sup> of body surface per 24 hours, hypoalbuminaemia, and oedema.

Screening for **phaeochromocytoma** can be performed by 24-hour urine collection for 4-OH-3-methoxymandelate (HMA, VMA).

What proportion of patients diagnosed with primary biliary cirrhosis (PBC) are positive for anti-mitochondrial antibodies (AMA)?

(Please select 1 option)

<input type="radio"/>	25%
<input type="radio"/>	45%
<input type="radio"/>	65%
<input type="radio"/>	85%
<input type="radio"/>	95%

Dr. Assem

<input type="radio"/>	25%
<input type="radio"/>	45%
<input type="radio"/>	65%
<input type="radio"/>	85%
<input checked="" type="radio"/>	95% <span>Correct</span>

### Key Learning Points

#### Gastroenterology

- Anti-mitochondrial antibodies (AMA) are positive in approximately 95% of patients with PBC.

### Explanation

Anti-mitochondrial antibodies (AMA) are the serologic hallmark of primary biliary **cirrhosis** (PBC) and are positive in approximately 95% of patients.

Occasionally AMA are found in patients with no other features suggestive of PBC. Many of these patients will eventually develop features of PBC. Anti-nuclear antibodies (ANA) can be seen in up to 70% of patients with PBC.

PBC is a progressive autoimmune liver disease characterised by a triad of:

- chronic cholestasis
- circulating AMA, and
- characteristic liver biopsy findings of non-suppurative destructive cholangitis and interlobular bile duct destruction.

It is thought to be related to environmental exposure in genetically vulnerable individuals and typically occurs in middle-aged females. The main clinical features include:

- fatigue
- pruritis
- jaundice
- xanthomata
- **osteoporosis**, and
- dyslipidaemia.

Ursodeoxycholic acid is the mainstay of treatment which works partly by reducing the concentration and injury from toxic bile acids. Liver transplantation is the definitive therapy for advanced disease with a ten year survival rate of approximately 70% post-transplantation.



Which of the following stimulates the secretion of gastrin?

(Please select 1 option)



Amino acids



Fasting



High level gastric acid in the stomach



Low gastric pH



Somatostatin



Amino acids

This is the correct answer



Fasting



High level gastric acid in the stomach



Low gastric pH

Incorrect answer selected



Somatostatin

## Key Learning Points

### Gastroenterology

- Protein, peptides, and amino acids are specific components which will stimulate gastrin release.

## Explanation

Gastrin is released from specialised endocrine cells, called G cells, in response to a meal. Protein, peptides, and amino acids are specific components which will stimulate gastrin release.

Fasting and increased gastric acid in the stomach both inhibit the release of gastrin. High gastric pH is a strong stimulus for the secretion of gastrin.

G cells are tightly regulated by two hormones: gastrin-releasing peptide has a stimulatory effect causing the secretion of gastrin, while somatostatin is inhibitory.

A 35-year-old woman was referred to the gastroenterology clinic with rectal bleeding. She underwent a colonoscopy which showed dark brown pigmentation of the entire colon, along with a small polyp in descending colon. Also, internal piles were found.

Further questioning revealed that the patient had a history of chronic constipation for which she was taking some form of herbal medicine for a long time.

Which of the following histopathological picture may be found in colonic biopsy of this patient?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | Fungal hyphae in colon  |
| <input type="radio"/> | Increased melanocytes in colonic epithelium   |
| <input type="radio"/> | Macrophage infiltration of colonic mucosa lamina propria with lipofuscin pigment inside the macrophages |
| <input type="radio"/> | Malignant changes of colonic epithelium   |
| <input type="radio"/> | Malignant melanoma changes of colonic epithelium  |

Please select 1 option

<input type="radio"/>	Fungal hyphae in colon
<input type="radio"/>	Increased melanocytes in colonic epithelium
<input type="radio"/>	Macrophage infiltration of colonic mucosa lamina propria with lipofuscin pigment inside the macrophages <b>This is the correct answer</b>
<input checked="" type="radio"/>	Malignant changes of colonic epithelium <b>Incorrect answer selected</b>
<input type="radio"/>	Malignant melanoma changes of colonic epithelium

## Key Learning Points

### Gastroenterology

- Chronic laxative abuse (containing anthraquinones) may cause melanosis coli.

## Explanation

This patient, with history of laxative abuse, shows diffuse pigmentation of colon. This is suggestive of melanosis coli, a phenotypic consequence of chronic abuse of anthraquinone laxatives. Chronic use of anthraquinone laxatives cause injury to the colonic epithelium, with generation of lipofuscin pigment. This pigment is subsequently engulfed by the macrophages to give rise to the histological picture. Generally, these changes are reversible and stopping the laxative may lead to disappearance of the phenotypic changes.

The modern laxatives such as liquid paraffin and polyethylene glycol do not cause these changes. However, alternative "medicine" drugs contain ingredients like cascara which contain anthraquinones.

Colonic fungal infection does cause this type of colonoscopic appearance.

In melanosis coli, there is not increased melanocytes but rather, increased abnormal lipofuscin pigment.

Malignant changes of the colon are usually seen as localized growth or polypoidal mass. Diffuse pigmentation is not found.

**Melanoma** of the colon is very rare. Usually, it presents as a localized mass, which may or may not be pigmented. The rectal bleeding in this patient has no relation to melanosis coli. Melanosis coli is an asymptomatic condition and diagnosed incidentally on colonoscopy. The bleeding in this case is caused by either the piles or the polyp.

A patient presents with haematemesis. An oesophagogastroduodenoscopy detects a bleed in the lesser curvature of the stomach.

Which of the following arteries is most likely to be the cause of the bleeding?

(Please select 1 option)

<input type="radio"/>	Left gastro-omental artery
<input type="radio"/>	Pancreaticoduodenal artery
<input type="radio"/>	Right gastric artery
<input type="radio"/>	Right hepatic artery
<input type="radio"/>	Splenic artery

- |                                  |                            |                            |
|----------------------------------|----------------------------|----------------------------|
| <input type="radio"/>            | Left gastro-omental artery |                            |
| <input type="radio"/>            | Pancreaticoduodenal artery |                            |
| <input type="radio"/>            | Right gastric artery       | This is the correct answer |
| <input checked="" type="radio"/> | Right hepatic artery       | Incorrect answer selected  |
| <input type="radio"/>            | Splenic artery             |                            |

## Key Learning Points

### Gastroenterology

- The right gastric artery arises from the hepatic artery or the left hepatic artery supplies the pylorus and travels along the lesser curvature of the stomach, supplying it, and anastomosing with the left gastric artery.

## Explanation

The pancreaticoduodenal artery supplies mainly the upper and lower duodenum and the head of the pancreas.

The gastro-omental arteries supply the greater curvature of the stomach.

The right gastric artery arises from the hepatic artery or the left hepatic artery supplies the pylorus and travels along the lesser curvature of the stomach, supplying it, and anastomosing with the left gastric artery.

A 49-year-old female presents with a six-month history of pruritus.

Examination reveals jaundice, xanthelasma, scratch marks, vitiligo and 3 cm hepatomegaly. She was afebrile.

Liver function tests reveal raised bilirubin, alkaline phosphatase, gamma glutamyl transferase and mildly elevated alanine transaminase and aspartate transaminase.

Which of the following conditions is most likely to be found in this woman?

(Please select 1 option)

<input type="radio"/>	Constipation
<input type="radio"/>	Haemolysis
<input type="radio"/>	Lymphadenopathy
<input type="radio"/>	Vitamin A deficiency
<input type="radio"/>	Vitamin B complex deficiency

Please select 1 option

<input type="radio"/>	Constipation
<input type="radio"/>	Haemolysis
<input type="radio"/>	Lymphadenopathy
<input checked="" type="radio"/>	Vitamin A deficiency <b>Correct</b>
<input type="radio"/>	Vitamin B complex deficiency

## Key Learning Points

### Gastroenterology

- Malabsorption of fat-soluble vitamins (A, D, K) is common in primary biliary cirrhosis.

## Explanation

The most likely diagnosis is primary biliary cirrhosis as evidenced by

- pruritus
- hypercholesterolaemia
- jaundice
- raised ALP, and
- $\gamma$ -GT.

Malabsorption of fat-soluble vitamins (A, D, K) is common.



A 61-year-old man has a 2 cm adenoma removed from his sigmoid colon.

The biopsy results confirm an adenocarcinoma in situ with moderately differentiated dysplastic cells. The pathology report confirms total excision with clear resection margins.

What is the most appropriate follow-up management for this patient?

(Please select 1 option)

<input type="radio"/>	Annual carcinoembryonic antigen (CEA)
<input type="radio"/>	Chemotherapy
<input type="radio"/>	No follow up
<input type="radio"/>	Regular follow up with colonoscopy
<input type="radio"/>	Regular follow up with no colonoscopy

<input type="radio"/>	Annual carcinoembryonic antigen (CEA)
<input type="radio"/>	Chemotherapy
<input type="radio"/>	No follow up
<input checked="" type="radio"/>	Regular follow up with colonoscopy <span>Correct</span>
<input type="radio"/>	Regular follow up with no colonoscopy

## Key Learning Points

Gastroenterology, Oncology

- Following a confirmed total excision of adenocarcinoma, patients should continue to be reviewed with colonoscopy annually for at least two years.

## Explanation

The first thing to note is that the question is about planned management

This patient has been picked up early and has had a tumour resected. His CEA would be normal and would not be expected to be elevated until the disease was quite established on the TNM scale.

However, this patient's prognosis would be excellent but he is by definition someone with increased risk. Therefore he should continue to be reviewed with colonoscopy annually for at least two years.

A 41-year-old woman comes to the gastroenterology clinic for review. She underwent extensive resection of her distal small bowel for Crohn's disease around three months earlier.

She is still suffering from diarrhoea and is worried that her Crohn's disease is still active. On examination, her BP is 105/70 mmHg with a pulse of 80. Her abdomen is soft and non-tender.

Investigations show:

Haemoglobin	104 g/L	(135-180)
White cell count	$4.5 \times 10^9/\text{L}$	(4-10)
Platelets	$195 \times 10^9/\text{L}$	(150-400)
Sodium	138 mmol/L	(134-143)
Potassium	3.4 mmol/L	(3.5-5)
Creatinine	140 $\mu\text{mol}/\text{L}$	(60-120)
C reactive protein	9 mg/L	(<10)

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Active Crohn's disease
<input type="radio"/>	Bacterial overgrowth syndrome
<input type="radio"/>	Bile acid diarrhoea
<input type="radio"/>	Ischaemic colitis
<input type="radio"/>	Short bowel syndrome

<input type="radio"/>	Active Crohn's disease	
<input type="radio"/>	Bacterial overgrowth syndrome	
<input type="radio"/>	Bile acid diarrhoea	This is the correct answer
<input type="radio"/>	Ischaemic colitis	
<input checked="" type="radio"/>	Short bowel syndrome	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Cholestyramine may be effective for the treatment of bile acid diarrhoea.

## Explanation

We are told that this patient has undergone extensive distal small bowel resection, but she does not have an ileostomy. As such, it is most likely that she has colonic bile acid irritation leading to diarrhoea.

Short bowel syndrome is usually associated with voluminous diarrhoea of up to 5 litres per day, normally through the ileostomy outlet.

There is no indication of active Crohn's disease, and bacterial overgrowth syndrome is usually associated with symptoms of abdominal bloating.

Cholestyramine may be effective for the treatment of bile acid diarrhoea.

A 28-year-old woman is referred by her GP to the gastroenterology clinic after a recent gastroscopy with duodenal biopsies confirmed the diagnosis of coeliac disease.

What is the prevalence of coeliac disease in Europe?

(Please select 1 option)

<input type="radio"/>	1:10
<input type="radio"/>	1:30
<input type="radio"/>	1:300
<input type="radio"/>	1:1000
<input type="radio"/>	1:3000

Please select 1 option

<input type="radio"/>	1:10	
<input type="radio"/>	1:30	
<input type="radio"/>	1:300	This is the correct answer
<input checked="" type="radio"/>	1:1000	Incorrect answer selected
<input type="radio"/>	1:3000	

## Key Learning Points

### Gastroenterology

- The prevalence of coeliac disease in Europe varies widely and is in the region of between 1:100 and 1:300. It is more common in the Celtic population.

## Explanation

The prevalence of coeliac disease in Europe varies widely and is in the region of between 1:100 and 1:300. It is more common in the Celtic population.

Coeliac disease is caused by a T cell mediated hypersensitivity reaction to gluten which causes intestinal inflammation and atrophy. It presents at any age but in adults the commonest age of presentation is 20s and 30s. Women are slightly more commonly affected.

Patients usually have diarrhoea and steatorrhoea may be present. There is often a mild macrocytic anaemia with low folate. Classically iron or folate deficiency is seen.

Ten per cent to 15% of patients have abnormal liver function tests. Patients may also have thrombocytosis. Low corrected calcium, vitamin D, and zinc are also seen.

IgA anti-endomysial and anti-tissue transglutaminase antibodies are useful serological tests. Anti-endomysial antibodies are 90% sensitive and almost 100% specific. Biopsies from the second part of the duodenum are essential and demonstrate villous atrophy.

Management includes a gluten-free diet - patients should avoid wheat, barley and rye.

A 52-year-old male is admitted with vomiting and acute epigastric abdominal pain which radiates through to his back. Investigations confirm severe acute pancreatitis.

Which of the following figures most accurately reflect the mortality associated with severe acute pancreatitis?

(Please select 1 option)

<input type="radio"/>	Less than 5%
<input type="radio"/>	Approximately 10%
<input type="radio"/>	Approximately 20%
<input type="radio"/>	Approximately 30%
<input type="radio"/>	Approximately 40%

<input type="radio"/>	Less than 5%
<input type="radio"/>	Approximately 10%
<input checked="" type="radio"/>	Approximately 20% <span>This is the correct answer</span>
<input type="radio"/>	Approximately 30% <span>Incorrect answer selected</span>
<input type="radio"/>	Approximately 40%

## Key Learning Points

### Gastroenterology

- Mortality in severe acute pancreatitis is approximately 20%

## Explanation

Mortality in [acute pancreatitis](#) varies according to age, comorbidities and severity and is scored through the Ranson scoring system.

However, average mortality with severe disease has remained pretty much unchanged over the last two decades, and is approximately 20%.



A 65-year-old man is referred with abnormal liver function and undergoes a liver biopsy.

Which of the following count against hepatic cirrhosis?

(Please select 1 option)

<input type="radio"/>	Fibrous septa formation
<input type="radio"/>	Granuloma formation
<input type="radio"/>	Liver cell necrosis
<input type="radio"/>	Nodular regeneration
<input type="radio"/>	Subendothelial fibrosis

Please select 1 option

<input type="radio"/>	Fibrous septa formation	
<input checked="" type="radio"/>	Granuloma formation	This is the correct answer
<input type="radio"/>	Liver cell necrosis	
<input type="radio"/>	Nodular regeneration	
<input checked="" type="radio"/>	Subendothelial fibrosis	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Granuloma formation is not classically seen in liver cirrhosis.

## Explanation

Granuloma formation is not classically seen in cirrhosis, which can be micro- or macronodular in type.

In the micronodular form, the nodules are less than 3 mm across with uniform liver involvement - seen in alcohol or biliary disease.

In the macronodular form, there are larger nodules, classically seen in chronic viral hepatitis.

Dr. Assem

A 17-year-old man presents to the Emergency Department complaining of intense pain on defecation, which persists for some hours after the event. The pain recurs with each bowel movement, and is so severe that he is now scared to defecate.

He is passing harder stools over the past few months and has noticed fresh blood on the paper and occasionally even drips of blood into the toilet.

From the history, which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Anal fissure
<input type="radio"/>	Crohn's disease
<input type="radio"/>	Irritable bowel syndrome
<input type="radio"/>	Rectal carcinoma
<input type="radio"/>	Ulcerative colitis

<input type="radio"/>	Anal fissure	This is the correct answer
<input type="radio"/>	Crohn's disease	
<input checked="" type="radio"/>	Irritable bowel syndrome	Incorrect answer selected
<input type="radio"/>	Rectal carcinoma	
<input type="radio"/>	Ulcerative colitis	

## Key Learning Points

### Gastroenterology

- A history of harder stools, fresh red blood and intense pain on defecation points to a diagnosis of anal fissure.

## Explanation

The history is of an anal fissure, which arises as a mucosal tear following passage of a hard stool. Most anal fissures occur in the posterior midline.

The majority of cases respond to conservative therapy which includes stool softeners and bulking agents.

Topical GTN treatment may also be useful for sphincter relaxation.

Surgery is reserved for resistant cases.

A 55-year-old male presents with dysphagia, retrosternal discomfort, and weight loss. Studies reveal achalasia.

Which of the following is most likely to provide symptomatic relief?

(Please select 1 option)

<input type="radio"/>	Buscopan
<input type="radio"/>	Diazepam
<input type="radio"/>	Nifedipine
<input type="radio"/>	Omeprazole
<input type="radio"/>	Surgical cardiomyotomy

Single select question

<input type="radio"/>	Buscopan
<input type="radio"/>	Diazepam
<input type="radio"/>	Nifedipine
<input type="radio"/>	Omeprazole
<input checked="" type="radio"/>	Surgical cardiomyotomy <span>Correct</span>

### Key Learning Points

#### Gastroenterology

- Both calcium channel blockers (nifedipine) and nitrates relax the lower oesophageal sphincter.

### Explanation

Both calcium channel blockers (nifedipine) and nitrates relax the lower oesophageal sphincter. However, the effect on symptoms is variable, short-lived, and usually suboptimal. Use is frequently limited by adverse effects. Consequently, medical therapy is typically limited to those patients too frail or unwilling to undergo definitive treatment or other therapies.

Studies looking at the efficacy of medical therapies are typically small and uncontrolled and tend to overestimate the benefit of an intervention. Study estimates of symptom improvement with medical therapy vary between 53-87%. None, however, claim to achieve full symptom improvement.

On the other hand pooled results from five studies of surgical procedures (Heller myotomy) show good to excellent symptom response in 82% of patients. Other studies of surgical techniques typically show symptom response rates of 84-100%.

Benefit seems to persist for at least 16 months beyond this although there may be some recurrence. Reflux is the most common side effect and a concomitant antireflux procedure (Nissen's fundoplication) may be performed.

Botox applied to the lower oesophageal sphincter is a recent therapy with good efficacy. However, its effects are short-lived (typically less than six months) and use is generally recommended to be restricted to the frail or elderly in whom more aggressive therapy poses high risk.

None of other choices help the symptoms.

Oesophageal dilatation is usually attempted before laparoscopic surgical myotomy.

A 21-year-old woman presents with flatulence, bloating, loose stools, and diarrhoea for three months. She takes no medication and has no allergies. Avoidance of wheat, dairy, and gluten has not improved her symptoms. Colonoscopy reveals nothing of concern.

Which is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Coeliac disease
<input type="radio"/>	Crohn's disease
<input type="radio"/>	Irritable bowel syndrome (IBS)
<input type="radio"/>	Laxative abuse
<input type="radio"/>	Ulcerative colitis

(Please select 1 option)

<input type="radio"/>	Coeliac disease	
<input type="radio"/>	Crohn's disease	
<input type="radio"/>	Irritable bowel syndrome (IBS)	This is the correct answer
<input checked="" type="radio"/>	Laxative abuse	Incorrect answer selected
<input type="radio"/>	Ulcerative colitis	

## Key Learning Points

### Gastroenterology

- IBS is a chronic relapse-remitting condition, which classically causes bloating, change in bowel habit, and abdominal pain which improves with defecation.

## Explanation

IBS is a chronic relapse-remitting condition, which classically causes bloating, change in bowel habit, and abdominal pain which improves with defecation. It predominantly affects women (5:1 F:M). The aetiology is not well understood, but it seems to involve abnormal smooth muscle activity and visceral hypersensitivity, and abnormal central processing of painful stimuli. It is also associated with increased levels of psychiatric distress and poor coping strategies.

Diagnosis is based on exclusion of other bowel pathologies and clinical examination and history. Treatment is based on dietary change, psychological support, and recognition of triggers.

Crohn's disease is an autoimmune mediated disease which is T-cell mediated causing diarrhoea, weight loss, and peri-anal ulcers and fistulas. It can affect any section of bowel from mouth to anus.

Ulcerative colitis predominantly presents with bloody painful diarrhoea.

Both Crohn's disease and ulcerative colitis have characteristic findings on colonoscopy.

There is no history alluding to laxative abuse, and colonoscopy would most likely show melanosis coli.

Coeliac disease would likely be improved by removing gluten and wheat from the diet, and is diagnosed by duodenal biopsies following colonoscopy.



A 64-year-old lady presents with symptoms suggestive of irritable bowel syndrome.

Which of the following would represent a 'red flag' indicator and prompt further investigation?

(Please select 1 option)

<input type="radio"/>	A recent change to more frequent stools in the last two months
<input type="radio"/>	Abdominal pain
<input type="radio"/>	Bloating
<input type="radio"/>	Change in bowel habit present for at least the last two years
<input type="radio"/>	Weight gain

<input type="radio"/>	A recent change to more frequent stools in the last two months	This is the correct answer
<input type="radio"/>	Abdominal pain	
<input type="radio"/>	Bloating	
<input checked="" type="radio"/>	Change in bowel habit present for at least the last two years	Incorrect answer selected
<input type="radio"/>	Weight gain	

## Key Learning Points

### Gastroenterology

- A recent change to more frequent stools in the last two months is a red flag which in this patient should be investigated under urgent 2 week wait referral.

## Explanation

The 'red flag' indicators are listed in the NICE guidelines as:

- unintentional and unintended weight loss
- rectal bleeding
- a family history of bowel or **ovarian cancer**, and
- a change in bowel habit to looser and/or more frequent stools persisting for more than six weeks in a person aged over 60 years.

Also on clinical examination, the other 'red flag' indicators are:

- anaemia
- abdominal mass
- rectal mass, and
- inflammatory markers for inflammatory bowel disease.

A 37-year-old woman gives an eight-month history of bloody diarrhoea. On average she has six bowel motions per day with associated urgency. She also reports weight loss of approximately 3 kg.

On examination, she is dehydrated and tachycardic. There is evidence of pallor and abdominal examination reveals left-sided tenderness.

Which of the following pathological features would you expect to find given the likely underlying diagnosis?

(Please select 1 option)

<input type="radio"/>	Diffuse mucosal inflammation
<input type="radio"/>	Lymphoid aggregates
<input type="radio"/>	Normal crypt architecture
<input type="radio"/>	Presence of goblet cells
<input type="radio"/>	Transmural inflammation

<input type="radio"/>	Diffuse mucosal inflammation	This is the correct answer
<input type="radio"/>	Lymphoid aggregates	
<input type="radio"/>	Normal crypt architecture	
<input checked="" type="radio"/>	Presence of goblet cells	Incorrect answer selected
<input type="radio"/>	Transmural inflammation	

## Key Learning Points

### Gastroenterology

- Ulcerative colitis only affects the bowel starting from the rectum, and may go as far as the terminal ileum.

## Explanation

Chronic (particularly for this duration) bloody diarrhoea in a young patient is very suggestive of a diagnosis of ulcerative colitis. The time course is too long for an infective cause and whilst Crohn's may cause a colitis, this is less frequent.

Bloody diarrhoea occurs in 90-100% of cases of UC. Crohn's disease often presents with intermittent abdominal pain, diarrhoea is usually watery and in half of all cases, presentation is with perianal disease. Bloody diarrhoea may be a feature of Crohn's colitis but this is less common than UC. The predominant left sided symptoms (urgency and anatomical distribution of the tendency) should also point towards UC.

The answer here, therefore, is diffuse mucosal inflammation, all the remaining options are histological features of Crohn's disease. Mucosal inflammation is one of the histological findings in UC; transmural inflammation is seen in Crohn's disease.

Lymphocytes are seen in Crohn's disease, whereas neutrophils are found in UC.

Crypt abscesses and goblet cell depletion are also found in UC.

Which of the following drugs does not undergo extensive hepatic first-pass metabolism?

(Please select 1 option)

<input type="radio"/>	Budesonide
<input type="radio"/>	Carvedilol
<input type="radio"/>	Ketoconazole
<input type="radio"/>	Salbutamol
<input type="radio"/>	Warfarin

Dr. Assen

<input type="radio"/>	Budesonide
<input type="radio"/>	Carvedilol
<input type="radio"/>	Ketoconazole
<input type="radio"/>	Salbutamol
<input checked="" type="radio"/>	Warfarin <span>Correct</span>

## Key Learning Points

### Gastroenterology

- Warfarin does not undergo extensive hepatic first-pass metabolism.

## Explanation

The correct answer is warfarin.

The remaining listed drugs all undergo extensive hepatic first-pass metabolism.

A 43-year-old male presents with weight loss and watery diarrhoea.

Investigations reveal hypokalaemia with a pancreatic mass.

Which of the following would support the diagnosis of a VIPoma?

(Please select 1 option)

- |                       |                                  |
|-----------------------|----------------------------------|
| <input type="radio"/> | Achlorhydria                     |
| <input type="radio"/> | Hypoglycaemia                    |
| <input type="radio"/> | Increased pancreatic polypeptide |
| <input type="radio"/> | Migratory erythema               |
| <input type="radio"/> | Pellagra                         |

Please select 1 option

<input type="radio"/>	Achlorhydria	This is the correct answer
<input type="radio"/>	Hypoglycaemia	
<input type="radio"/>	Increased pancreatic polypeptide	
<input checked="" type="radio"/>	Migratory erythema	Incorrect answer selected
<input type="radio"/>	Pellagra	

## Key Learning Points

### Gastroenterology

- Achlorhydria is classically associated with VIPoma together with profuse diarrhoea, a hypokalaemic acidosis and hyperglycaemia.

## Explanation

Achlorhydria is classically associated with VIPoma together with profuse diarrhoea, a hypokalaemic acidosis and hyperglycaemia.

Migratory erythema is associated with a glucagonoma.

Although raised pancreatic polypeptide is seen with a VIPoma it is unusual and is more commonly associated with its own syndrome.

Pellagra is associated with the carcinoid syndrome.



A 32-year-old woman has presented to the Emergency Department for the third time with abdominal pain which typically lasts several days. The previous two occasions she has been discharged home without a firm diagnosis. Between episodes, the patient is symptom-free. She complains of feeling anxious.

She has recently restarted the combined oral contraceptive pill after completing her family.

On examination, she is anxious and hypertensive at 155/98 mmHg with a pulse of 102. She has no rashes. Her abdomen is diffusely tender.

Investigations show:

Haemoglobin	128 g/L	(135-180)
White cell count	$8.1 \times 10^9/L$	(4-10)
Platelets	$220 \times 10^9/L$	(150-400)
Sodium	135 mmol/L	(134-143)
Potassium	3.9 mmol/L	(3.5-5)
Creatinine	100 $\mu\text{mol/L}$	(60-120)

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Acute intermittent porphyria
<input type="radio"/>	Appendicitis
<input type="radio"/>	Depression
<input type="radio"/>	Porphyria cutanea tarda
<input type="radio"/>	Variegate porphyria

☐ Acute intermittent porphyria **This is the correct answer**

☐ Appendicitis

☐ Depression

☐ Porphyria cutanea tarda

☒ Variegate porphyria **Incorrect answer selected**

## Key Learning Points

Gastroenterology, Neurology

- Acute intermittent porphyria (AIP) is a rare disorder characterised by abdominal pain and neuropsychiatric symptoms which usually presents in the 20-40 age group.

## Explanation

Acute intermittent porphyria (AIP) is a rare disorder characterised by abdominal pain and neuropsychiatric symptoms which usually presents in the 20-40 age group.

Rash is not a feature of AIP, unlike other porphyrias. Hypertension and tachycardia are common examination findings.

The progesterone component of the combined oral contraceptive pill is known to precipitate porphyria attacks. Many other drugs have been described in association with an attack.

A 35-year-old obese Afro-Caribbean lady presents with abnormal liver function tests. She claims to be a teetotaler and her BMI is 30 kg/m<sup>2</sup>.

Investigations reveal the following results:

Haemoglobin	140 g/L	(115-165)
U+Es	Normal	-
Bilirubin	25 µmol/L	(1-22)
Aspartate transaminase	140 U/L	(1-31)
Alanine transaminase	155 U/L	(5-35)
Alkaline phosphatase	160 U/L	(60-110)
Random blood glucose	11.2 mmol/L	(3.0-6.0)
Hepatitis A IgG	Positive	-
Hepatitis B and C screening	Negative	-
Antinuclear antibodies	1:16 titre	-

Ultrasound abdomen reveals hyperechogenic hepatic parenchyma.

Liver biopsy reveals lesions suggestive of alcoholic liver disease.

On review of her notes, liver function tests performed six months previously showed similar values.

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Alcoholic liver disease
<input type="radio"/>	Autoimmune hepatitis
<input type="radio"/>	Non-alcoholic steatohepatitis
<input type="radio"/>	Primary biliary cirrhosis
<input type="radio"/>	Viral hepatitis

<input type="radio"/>	Alcoholic liver disease	
<input type="radio"/>	Autoimmune hepatitis	
<input type="radio"/>	Non-alcoholic steatohepatitis	This is the correct answer
<input type="radio"/>	Primary biliary cirrhosis	
<input checked="" type="radio"/>	Viral hepatitis	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Cases of non-alcoholic steatohepatitis, the diagnosis of which is made only by histology of liver biopsy which shows lesions suggestive of ethanol intake in a patient known to consume less than 40 g of alcohol per week.

## Explanation

This is a case of non-alcoholic steatohepatitis, the diagnosis of which is made only by histology of liver biopsy which shows lesions suggestive of ethanol intake in a patient known to consume less than 40 g of alcohol per week.

The diagnosis is supported by the presence of obesity, hyperglycaemia, and hyperechogenic hepatic parenchyma.

In alcoholic hepatitis, the AST is normally raised more than the ALT typically with a ratio of at least 2:1.

A 24-year-old woman who has a long history of ulcerative colitis and takes mesalazine 3 g and azathioprine 125 mg per day discovers that she is 10 weeks pregnant.

She is also a smoker of 15 cigarettes daily.

She attends clinic seeking advice on the management of her medicines during her pregnancy.

Which of the following statements is correct?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | Azathioprine can be used in pregnancy without significant risk to the fetus |
| <input type="radio"/> | Initiating an elemental diet predisposes to fetal malnutrition              |
| <input type="radio"/> | Mesalazine therapy should be withdrawn                                      |
| <input type="radio"/> | Steroid therapy is contraindicated  |
| <input type="radio"/> | Termination of the pregnancy is advised                                     |

<input type="radio"/>	Azathioprine can be used in pregnancy without significant risk to the fetus	This is the correct answer
<input type="radio"/>	Initiating an elemental diet predisposes to fetal malnutrition	
<input type="radio"/>	Mesalazine therapy should be withdrawn	
<input checked="" type="radio"/>	Steroid therapy is contraindicated	Incorrect answer selected
<input type="radio"/>	Termination of the pregnancy is advised	

### Key Learning Points

#### Gastroenterology, Pharmacology

- Azathioprine can be used in pregnancy without significant risk to the fetus.

### Explanation

Azathioprine use for the treatment of inflammatory bowel disease in pregnancy is not associated with a significant increase in complications of pregnancy, nor fetal malformations, and its use in this setting is considered safe.

Animal studies suggest an increased risk of low birth weight but this is not supported by the data available in humans. The risk to the fetus from uncontrolled inflammatory bowel disease is significant and maintenance of remission is very important.

Well-controlled ulcerative colitis is more important for the baby from a nutritional point of view.

An elemental diet simply contains predigested food and would not lead to fetal malnutrition.

The safety of the 5-aminosalicylic acid (5-ASA) drugs in pregnancy is best supported by the data on Salazopyrin which have been available for the longest.

Which of the following drugs is an inhibitor of cytochrome P450 hepatic enzymes?

(Please select 1 option)

<input type="radio"/>	Carbamazepine
<input type="radio"/>	Griseofulvin
<input type="radio"/>	Omeprazole
<input type="radio"/>	Phenytoin
<input type="radio"/>	Rifampicin

Dr. Assem

Please select 1 option



Carbamazepine



Griseofulvin



Omeprazole

This is the correct answer



Phenytoin

Incorrect answer selected



Rifampicin

## Key Learning Points

### Gastroenterology

- Omeprazole is a liver enzyme inhibitor.

## Explanation

The correct answer is omeprazole.

The remainder of the listed options are all cytochrome P450 inducers.



A 45-year-old female develops profuse watery diarrhoea with lower abdominal pain seven days after undergoing laparoscopic cholecystectomy.

What is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Abdominal sepsis
<input type="radio"/>	Bile acid diarrhoea
<input type="radio"/>	<i>Campylobacter</i> gastroenteritis
<input type="radio"/>	Pseudomembranous colitis
<input type="radio"/>	Pseudo-obstruction

<input type="radio"/>	Abdominal sepsis	
<input type="radio"/>	Bile acid diarrhoea	
<input checked="" type="radio"/>	<i>Campylobacter</i> gastroenteritis	Incorrect answer selected
<input type="radio"/>	Pseudomembranous colitis	This is the correct answer
<input type="radio"/>	Pseudo-obstruction	

## Key Learning Points

### Gastroenterology

- Typically broad spectrum antibiotics are administered with a consequent risk of pseudomembranous colitis.

## Explanation

Prophylactic antibiotics are frequently given in both laparoscopic and open cholecystectomy.

Typically broad spectrum antibiotics are administered with a consequent risk of pseudomembranous colitis. However, it must also be remembered that *Clostridium difficile* may also be contracted on the wards.

Bile acid diarrhoea may affect 10% of patients following cholecystectomy. Typically it is post-prandial; the bile, with no gallbladder to store it, is excreted directly into the gut.

A 33-year-old man was admitted to the hospital with acute bloody diarrhoea. He had had blood in stool occasionally over the last 6 months but he had not visited any doctor for it. This time, he presented with fever and tachycardia. After admission, an emergency colonoscopy showed inflamed mucosa with occasional bleeding spots. A biopsy was taken from the colonic mucosa which revealed inflammatory cellular infiltration only in the mucosa with aggregation of neutrophils in crypts.

What is the first line of management in this patient?

(Please select 1 option)

<input type="radio"/>	Aminosalicylate enema
<input type="radio"/>	Intravenous corticosteroids
<input type="radio"/>	Oral aminosalicylates
<input type="radio"/>	Oral ASA plus oral steroids
<input type="radio"/>	Oral steroids

(Please select 1 option)

- |                                  |                             |                            |
|----------------------------------|-----------------------------|----------------------------|
| <input type="radio"/>            | Aminosalicylate enema       |                            |
| <input checked="" type="radio"/> | Intravenous corticosteroids | This is the correct answer |
| <input type="radio"/>            | Oral aminosalicylates       |                            |
| <input checked="" type="radio"/> | Oral ASA plus oral steroids | Incorrect answer selected  |
| <input type="radio"/>            | Oral steroids               |                            |

## Key Learning Points

### Gastroenterology

- Severe exacerbation of UC needs intravenous corticosteroids with or without cyclosporine.

## Explanation

This patient has ulcerative colitis (UC). There are typical clinical features and also, mucosal biopsy shows crypt abscesses. According to Truelove and Witts' criteria, this patient has severe UC. Thus, according to the NICE guidelines, intravenous corticosteroids are used to induce remission.

Topical aminosalicylate is used in mild to moderate UC especially that limited to rectum or sigmoid colon.

Oral ASA is also used in mild to moderate UC, according to the patient's preferences although it alone is less effective than topical preparation. In inflammatory exacerbations, high dose oral ASA induction may be used.

Oral ASA plus oral steroids is used in acute exacerbation of mild to moderate UC or left sided UC.

Oral steroids are usually add-on in step-2 therapy. It may be used as firstline if there is intolerance to oral ASA.

A 40-year-old woman with a history of Crohn's disease and multiple previous operations presents to the gastroenterology clinic.

She has begun suffering from increasing symptoms of early satiety, loss of appetite, bloating and diarrhoea over the past few months. She has lost weight, and is worried as she finds it very difficult to maintain her weight anyway.

On examination her BMI is 18.5 kg/m<sup>2</sup>. Physical examination is unremarkable apart from mild abdominal distension, and a number of old scars related to previous surgery.

Investigations show:

Haemoglobin	102 g/L	(115-165)
MCV	104 fL	(80-96)
White cell count	6.1 ×10 <sup>9</sup> /L	(4-11)
ESR	11 mm/hr	(<10)
Platelets	175 ×10 <sup>9</sup> /L	(150-400)
Serum sodium	136 mmol/L	(135-146)
Serum potassium	3.9 mmol/L	(3.5-5)
Creatinine	90 µmol/L	(79-118)
Serum albumin	32 g/L	(35-50)
Hydrogen breath test	Positive	

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Bacterial overgrowth syndrome
<input type="radio"/>	Exacerbation of Crohn's disease
<input type="radio"/>	Functional diarrhoea
<input type="radio"/>	Pernicious anaemia
<input type="radio"/>	Short bowel syndrome

<input type="radio"/>	Bacterial overgrowth syndrome	This is the correct answer
<input type="radio"/>	Exacerbation of Crohn's disease	
<input type="radio"/>	Functional diarrhoea	
<input checked="" type="radio"/>	Pernicious anaemia	Incorrect answer selected
<input type="radio"/>	Short bowel syndrome	

## Key Learning Points

### Gastroenterology

- A positive hydrogen breath test in the context of bloating, abdominal distension and diarrhoea is diagnostic of bacterial overgrowth syndrome.

## Explanation

Symptoms of bloating, abdominal distension and diarrhoea are very consistent with a diagnosis of bacterial overgrowth syndrome. The hydrogen breath test further supports the diagnosis.

The fact that the ESR is normal significantly reduces the likelihood that this is an exacerbation of Crohn's.

The raised MCV is related to B<sub>12</sub> deficiency, which is also caused by bacterial overgrowth.

Both metronidazole and tetracyclines are used in the management of the condition.

A 17-year-old student returns from a backpacking trip to Nepal with a two-week history of offensive diarrhoea and weight loss.

Which is the most likely infective organism?

(Please select 1 option)



*Escherichia coli* 0157



*Giardia intestinalis* (*G. lamblia*)



*Salmonella typhi*



*Shigella flexneri*



*Yersinia enterocolitica*

(Please select 1 option)

<input type="radio"/>	<i>Escherichia coli</i> 0157	
<input type="radio"/>	<i>Giardia intestinalis</i> ( <i>G. lamblia</i> )	This is the correct answer
<input type="radio"/>	<i>Salmonella typhi</i>	
<input type="radio"/>	<i>Shigella flexneri</i>	
<input checked="" type="radio"/>	<i>Yersinia enterocolitica</i>	Incorrect answer selected

### Key Learning Points

Gastroenterology, Infectious Diseases

- *Giardia* classically presents with a few weeks of diarrhoea with an offensive smell.

### Explanation

The history of diarrhoea over a couple of weeks makes giardiasis the most likely diagnosis here.

*Giardia lamblia* is a protozoan which can cause traveller's diarrhoea. It is transmitted by cysts from faecally contaminated water or between people. The incubation period is three days to three weeks and the symptoms can persist for several weeks.

Diarrhoea tends to be the presenting symptom and classically has a highly offensive smell. This is often followed by nausea, cramps, abdominal pain, and bloating. The diarrhoea can become persistent and lead to malabsorption and weight loss. Unlike other infective causes of chronic diarrhoea, *Giardia* readily affects immunocompetent hosts as well as the immunocompromised.

*Giardia* is diagnosed by visualising cysts in stool or trophozoites in small bowel mucosal biopsy. It is treated with tinidazole (2 g single dose), or metronidazole (3-10 days). Metronidazole has been shown to cure over 90% of patients and is often better tolerated than tinidazole. Paromomycin can be used in pregnancy as there is no systemic absorption. Resistant infection can often be cured with a combination of metronidazole and quinacrine.

*Escherichia coli* 0157 is a rare cause of infectious gastroenteritis. It usually causes bloody diarrhoea which lasts less than a week. It can be complicated by haemolytic uraemic syndrome.

*Shigella* and *Yersinia* also usually cause dysentery.

*Salmonella typhi* causes typhoid fever which typically presents as a systemic illness with intermittent diarrhoea.



A 22-year-old man returned from a back-packing holiday three weeks ago. While abroad he developed bloody diarrhoea with abdominal pain. Stool cultures have confirmed *Salmonella enteritidis*.

Which of the following antibiotics would be first line treatment?

(Please select 1 option)

<input type="radio"/>	Ampicillin
<input type="radio"/>	Ciprofloxacin
<input type="radio"/>	Erythromycin
<input type="radio"/>	Metronidazole
<input type="radio"/>	Tetracycline

(Please select 1 option)

<input type="radio"/>	Ampicillin
<input type="radio"/>	Ciprofloxacin <span>This is the correct answer</span>
<input checked="" type="radio"/>	Erythromycin <span>Incorrect answer selected</span>
<input type="radio"/>	Metronidazole
<input type="radio"/>	Tetracycline

## Key Learning Points

### Gastroenterology

- Ciprofloxacin is the antibiotic of choice for the treatment of *Salmonella* - 500 mg bd for 10-14 days.

## Explanation

Ciprofloxacin is the antibiotic of choice for the treatment of *Salmonella* - 500 mg bd for 10-14 days.

Diarrhoea occurs due to increased water in the stool. The definition of chronic diarrhoea is the abnormal passage of three or more loose or liquid stools per day for more than four weeks and/or a daily stool volume > 200 ml/day (weight > 200 g/day).

Ampicillin or ciprofloxacin can be used for the treatment of *Shigella*.

Erythromycin is used in *Campylobacter jejuni*.

Metronidazole is used for *Clostridium difficile*.

Tetracycline is given for *Yersinia enterocolitica*.

Which of the following is consistent with a diagnosis of insulinoma?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | High fasting glucose, low insulin, high C peptide |
| <input type="radio"/> | Low fasting glucose, high insulin, high C peptide |
| <input type="radio"/> | Low fasting glucose, high insulin, low C peptide  |
| <input type="radio"/> | Low fasting glucose, low insulin, high C peptide  |
| <input type="radio"/> | Low fasting glucose, low insulin, low C peptide   |

Please select 1 option



High fasting glucose, low insulin, high C peptide



Low fasting glucose, high insulin, high C peptide

This is the correct answer



Low fasting glucose, high insulin, low C peptide



Low fasting glucose, low insulin, high C peptide

Incorrect answer selected



Low fasting glucose, low insulin, low C peptide

## Key Learning Points

### Gastroenterology

- In patients with an insulinoma there is low fasting glucose due to high levels of insulin and C peptide is elevated.

## Explanation

In patients with an insulinoma there is low fasting glucose due to high levels of insulin and C peptide is elevated. Insulinoma is a pancreatic endocrine cell tumour. Patients suffer from recurrent hypoglycaemia due to the secretion of insulin.

In contrast, insulin overdose will cause high insulin levels but a low C peptide.

Dr. Assem

A 35-year-old woman with alcoholic cirrhosis is admitted with deteriorating encephalopathy and abdominal discomfort. An ascitic tap revealed a polymorphonuclear cell count of 350 cells per  $\text{mm}^3$ .

Which of the following is the most appropriate therapy?

(Please select 1 option)

- |                       |                           |
|-----------------------|---------------------------|
| <input type="radio"/> | Intravenous amoxicillin   |
| <input type="radio"/> | Intravenous cefotaxime    |
| <input type="radio"/> | Intravenous metronidazole |
| <input type="radio"/> | Oral neomycin             |
| <input type="radio"/> | Oral norfloxacin          |

(Please select 1 option)

<input type="radio"/>	Intravenous amoxicillin	
<input checked="" type="radio"/>	Intravenous cefotaxime	This is the correct answer
<input type="radio"/>	Intravenous metronidazole	
<input checked="" type="radio"/>	Oral neomycin	Incorrect answer selected
<input type="radio"/>	Oral norfloxacin	

## Key Learning Points

Gastroenterology, Infectious Diseases, Pharmacology

- Initial treatment of spontaneous bacterial peritonitis is with broad-spectrum antibiotics such as cefotaxime. Quinolones may be offered as prophylaxis in patients with cirrhosis and ascites in patients with an ascitic fluid protein of 15g/L or less until the ascites has resolved. (NICE)

## Explanation

This lady has spontaneous bacterial peritonitis as suggested by the typical history, ascites and raised polymorphonuclear count within the ascitic tap.

It is most commonly seen in alcoholic cirrhosis and the causative organisms are usually *Escherichia coli*, *Klebsiella*, *S. pneumoniae* or *Enterococci*. (Compare this with the mixed growth seen in other forms of peritonitis).

Sending some ascitic fluid in blood culture bottles increases the yield.

Initial treatment is with broad-spectrum antibiotics such as cefotaxime.

Norfloxacin is recommended for short-term prophylaxis.

Dr. Assem

Which of the following features, seen on barium studies, is typical of both ulcerative colitis and Crohn's disease?

(Please select 1 option)

<input type="radio"/>	Cobblestone mucosa
<input type="radio"/>	Pseudopolyps
<input type="radio"/>	Rose-thorn ulcers
<input type="radio"/>	Skip lesions
<input type="radio"/>	Strictures

Please select 1 option

<input type="radio"/>	Cobblestone mucosa	
<input checked="" type="radio"/>	Pseudopolyps	This is the correct answer
<input type="radio"/>	Rose-thorn ulcers	
<input type="radio"/>	Skip lesions	
<input checked="" type="radio"/>	Strictures	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Pseudopolyps are seen in both ulcerative colitis and Crohn's disease.

## Explanation

Pseudopolyps are seen in both ulcerative colitis and Crohn's disease.

Each of the remaining options listed tend to be features of Crohn's disease rather than of ulcerative colitis.

Dr Assem



The criteria for the clinical diagnosis of toxic megacolon includes evidence of colonic dilatation on x ray in addition to which of the following?

(Please select 1 option)

<input type="radio"/>	Electrolyte disturbances
<input type="radio"/>	Heart rate above 90 beats per minute
<input type="radio"/>	Hypertension
<input type="radio"/>	Polycythaemia
<input type="radio"/>	Pyrexia above 40°C

<input type="radio"/>	Electrolyte disturbances	This is the correct answer
<input type="radio"/>	Heart rate above 90 beats per minute	
<input type="radio"/>	Hypertension	
<input type="radio"/>	Polycythaemia	
<input checked="" type="radio"/>	Pyrexia above 40°C	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- In addition to radiographic evidence of colonic distension at least three of the following criteria should be met: pyrexia above 38.6°C, tachycardia above 120 beats per minute, neutrophilia above  $10.5 \times 10^9/L$ , and anaemia.

## Explanation

Electrolyte disturbance is one of the criteria in addition to radiographic colonic dilatation for the diagnosis of toxic megacolon.

The transverse or right colon is usually the most dilated part in toxic megacolon, often greater than 6 cm and occasionally up to 15 cm on supine films.

Jalan et al<sup>2</sup> described the following criteria for the clinical diagnosis of toxic megacolon:

Radiographic evidence of colonic distension plus at least three of the following:

- fever  $>38.6^\circ C$
- heart rate  $>120$  beats per minute
- neutrophilic leucocytosis  $>10.5 \times 10^9/L$ , or
- anaemia.

Plus at least one of the following:

- dehydration
- altered mental status
- electrolyte disturbances, or
- hypotension.

A 43-year-old man with known chronic liver disease secondary to alcohol is admitted to hospital with confusion.

He is currently taking spironolactone 400 mg and furosemide 40 mg in addition to several vitamin supplements.

On examination there are peripheral stigmata of chronic liver disease and shifting dullness can be elicited. His pulse rate is 102 beats per minute and blood pressure 95/40 mmHg.

His blood tests show:

Sodium	118 mmol/L	(137-144)
Potassium	4.8 mmol/L	(3.5-4.9)
Urea	8.4 mmol/L	(2.5-7.5)
Creatinine	87 µmol/L	(60-110)

According to the British Society of Gastroenterology guidelines on the management of ascites what is the most appropriate way to manage this gentleman's hyponatraemia?

(Please select 1 option)

<input type="radio"/>	Fluid restrict
<input type="radio"/>	No change in current management
<input type="radio"/>	Reduce diuretics
<input type="radio"/>	Stop diuretics
<input type="radio"/>	Stop diuretics and give normal saline

(Please select 1 option)

<input type="radio"/>	Fluid restrict
<input type="radio"/>	No change in current management
<input type="radio"/>	Reduce diuretics
<input type="radio"/>	Stop diuretics
<input checked="" type="radio"/>	Stop diuretics and give normal saline <span>Correct</span>

## Key Learning Points

### Gastroenterology

- The British Society of Gastroenterology guidelines suggest that where the serum sodium is  $\leq 120$  mmol/L diuretic therapy should be stopped and patients should receive volume expansion with colloid or normal saline.

## Explanation

Patients with chronic liver disease and ascites often develop **hyponatraemia**, the management of which can be difficult. Diuretic therapy for the management of ascites often contributes to the hyponatraemia.

The British Society of Gastroenterology guidelines suggest that where the serum sodium is  $\leq 120$  mmol/L diuretic therapy should be stopped and patients should receive volume expansion with colloid or normal saline.

These guidelines also advise that fluid restriction should only be used in patients who are clinically euvolaemic, not on diuretics and have severe **hyponatraemia** with a normal serum creatinine.

No specific intervention other than careful monitoring is advised where the serum sodium is 126-135 mmol/L. In the range 121-125 mmol/L where the serum creatinine is normal, diuretic therapy may be continued but may need to be reduced with a view to stopping if necessary.

If the sodium is in this range but the serum creatinine is rising diuretics should be stopped and patients should receive volume expansion.

Which of the following demonstrates autosomal co-dominant inheritance?

(Please select 1 option)

- |                       |  |
|-----------------------|--|
| <input type="radio"/> | Alpha-1-antitrypsin deficiency         |
| <input type="radio"/> | Cowden's disease                       |
| <input type="radio"/> | Familial adenomatous polyposis         |
| <input type="radio"/> | Hereditary haemorrhagic telangiectasia |
| <input type="radio"/> | Peutz-Jeghers syndrome                 |

<input type="radio"/>	Alpha-1-antitrypsin deficiency	This is the correct answer
<input type="radio"/>	Cowden's disease	
<input type="radio"/>	Familial adenomatous polyposis	
<input checked="" type="radio"/>	Hereditary haemorrhagic telangiectasia	Incorrect answer selected
<input type="radio"/>	Peutz-Jeghers syndrome	

## Key Learning Points

### Gastroenterology

- Alpha-1-antitrypsin (A1AT) deficiency is an autosomal co-dominant disorder - both alleles contribute to the phenotype.

## Explanation

Alpha-1-antitrypsin (A1AT) deficiency is an autosomal co-dominant disorder - both alleles contribute to the phenotype. The most common allele is M (normal), whilst there are over 100 abnormal alleles (leading to decreased A1AT levels) the most common are Z and S. Individuals with a single normal allele may have reduced levels of A1AT but still produce sufficient normal protein to prevent development of a disease phenotype, this is why some texts will refer to the condition as autosomal recessive. In the disease state there is impaired cellular transport of alpha-1-antitrypsin leading to accumulation within the liver and hepatic injury.

Cowden's disease is an autosomal disorder resulting in multiple hamartomas of skin and mucous membranes.

Familial adenomatous polyposis is the commonest adenomatous polyposis syndrome demonstrating autosomal dominant inheritance.

Hereditary haemorrhagic telangiectasia (Osler-Weber-Rendu syndrome) demonstrates autosomal dominant inheritance and is characterised by telangiectasia affecting the skin and mucous membranes; severe gastrointestinal haemorrhage may occur.

**Peutz-Jeghers syndrome** demonstrates autosomal dominant inheritance. There is characteristic mucocutaneous pigmentation; polyps can occur anywhere in the gastrointestinal tract but are commonly in the small bowel.

A 26-year-old presents in the first trimester of her first pregnancy (six weeks gestation) for an antenatal check; she feels well.

Blood tests show a bilirubin of  $40 \mu\text{mol/L}$  (1-22). The other LFTs are completely normal.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- |                       |                                      |
|-----------------------|--------------------------------------|
| <input type="radio"/> | Cholestasis of pregnancy             |
| <input type="radio"/> | Dubin-Johnson syndrome (DJS)         |
| <input type="radio"/> | Gilbert's syndrome                   |
| <input type="radio"/> | Primary biliary cirrhosis (PBC)      |
| <input type="radio"/> | Primary sclerosing cholangitis (PSC) |

<input type="radio"/>	Cholestasis of pregnancy
<input type="radio"/>	Dubin-Johnson syndrome (DJS)
<input type="radio"/>	Gilbert's syndrome <b>This is the correct answer</b>
<input checked="" type="radio"/>	Primary biliary cirrhosis (PBC) <b>Incorrect answer selected</b>
<input type="radio"/>	Primary sclerosing cholangitis (PSC)

## Key Learning Points

### Gastroenterology

- Gilbert's syndrome commonly causes mild isolated hyperbilirubinaemia.

## Explanation

Gilbert's is the most common condition causing mild isolated hyperbilirubinaemia.

PBC and PSC are much less common conditions and are almost always associated with a rise in the other liver function tests, particularly alkaline phosphatase (ALP) and gammaglutamyltransferase (GGT).

DJS is much less common than Gilbert's.

Intrahepatic cholestasis of pregnancy is relatively common but usually occurs in the second or third trimester; ALP is usually high, risk increases with multiparity.



A 43-year-old wine buyer for a supermarket presents to the gastroenterology clinic for review. He has suffered from diarrhoea over the past 6-9 months, which is slowly worsening, and he tells you that this is difficult to flush away and often sticks to the toilet bowl. He also suffers from dull epigastric pain which comes on 1-2 hours after a meal, and has lost 4 kg in weight over the past three months. One previous episode of acute pancreatitis 18 months ago is noted.

On examination his BP is 115/82 mmHg, pulse is 80 bpm and regular. He is mildly tender in the epigastrium, and is thin with a BMI of 19 kg/m<sup>2</sup>.

Investigations reveal:

Haemoglobin	102 g/L	(135-180)
Mean corpuscular volume (MCV)	104 fL	(76-100)
White cell count (WCC)	$7.9 \times 10^9/L$	(6-10)
Platelet count	$112 \times 10^9/L$	(150-400)
Na	134 mmol/L	(135-145)
K	3.4 mmol/L	(3.5-5.5)
Creatinine	89 $\mu$ mol/L	(60-110)
Alanine aminotransferase (ALT)	112 U/L	(0-35)
Alkaline phosphatase	185 IU/L	(40-120)
Albumin	25 g/L	(30-50)
Amylase	205 U/L	(30-110)

Which of the following is the best way to confirm exocrine pancreatic insufficiency?

(Please select 1 option)

<input type="radio"/>	Abdominal CT
<input type="radio"/>	Faecal elastase
<input type="radio"/>	Faecal fat
<input type="radio"/>	Hydrogen breath test
<input type="radio"/>	MRCP

<input type="radio"/>	Abdominal CT
<input checked="" type="radio"/>	Faecal elastase <span>This is the correct answer</span>
<input type="radio"/>	Faecal fat
<input type="radio"/>	Hydrogen breath test
<input type="radio"/>	MRCP <span>Incorrect answer selected</span>

## Key Learning Points

### Gastroenterology

- Faecal elastase is the most appropriate screening test for diarrhoea resulting from pancreatic exocrine insufficiency.

## Explanation

Confirmation of exocrine pancreatic insufficiency requires a functional test, and faecal elastase is the best option. One gram of stool is required for analysis, and the level of elastase-1 can indicate:

- <100 mcg/g - severe pancreatic insufficiency
- 100-200 mcg/g - moderate insufficiency
- >200 mcg/g - normal.

The advantage of this versus other options is that the test can be performed on a single spot faeces sample.

Abdominal CT and MRCP may be useful in demonstrating pancreatic anatomy, including areas of calcification and fibrosis consistent with chronic pancreatitis; they are not a functional measure.

Faecal fat is generally avoided now because of difficulties for the patient in collecting all their faeces.

Hydrogen breath testing is used in the diagnosis of bacterial overgrowth syndrome.

A 72-year-old man is discharged from hospital following a stroke.

During his stay he was started on several new medications. He presents with diarrhoea.

Which of the following medications is most likely to be the cause?

(Please select 1 option)

<input type="radio"/>	Clopidogrel
<input type="radio"/>	Enalapril
<input type="radio"/>	Metformin
<input type="radio"/>	Pioglitazone
<input type="radio"/>	Simvastatin

(Please select 1 option)

<input type="radio"/>	Clopidogrel
<input type="radio"/>	Enalapril
<input checked="" type="radio"/>	Metformin <b>Correct</b>
<input type="radio"/>	Pioglitazone
<input type="radio"/>	Simvastatin

## Key Learning Points

Gastroenterology, Pharmacology, Therapeutics

- Metformin can commonly cause gastrointestinal disturbances.

## Explanation

Although all the medications listed could cause gastrointestinal disturbances it is metformin that is by far the most likely.

A 52-year-old woman presented with history of worsening dysphagia over many years.

Recently there had been episodes of ill-defined central chest discomfort and nocturnal cough.

Which of the following is the most likely diagnosis?

(Please select 1 option)



Achalasia



Barrett's oesophagus



Motor neurone disease



Oesophageal carcinoma



Pharyngeal pouch

(Please select 1 option)

<input type="radio"/>	Achalasia	This is the correct answer
<input type="radio"/>	Barrett's oesophagus	
<input type="radio"/>	Motor neurone disease	
<input type="radio"/>	Oesophageal carcinoma	
<input checked="" type="radio"/>	Pharyngeal pouch	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Achalasia presents often in the third to fifth decades with vague chest discomfort and nocturnal cough.

## Explanation

**Achalasia** presents most often in the third to fifth decades.

Symptoms usually develop years before the patient presents. Vague chest discomfort is common. Thirty percent have a nocturnal cough due to aspiration of oesophageal contents.

Barrett's oesophagus does not cause dysphagia.

MND causes dysphagia due to problems with chewing and initiating a swallow and would not cause chest discomfort.

Oesophageal carcinoma is very unlikely due to the duration of symptoms (years).

A pharyngeal pouch usually presents in the sixth to seventh decades with regurgitation and would not cause chest discomfort.

Which of the following is an inhibitor of gastric acid secretion?

(Please select 1 option)

<input type="radio"/>	Acetylcholine
<input type="radio"/>	Histamine
<input type="radio"/>	Prostaglandins
<input type="radio"/>	Stomach distension
<input type="radio"/>	Swallowing

Please select 1 option

<input type="radio"/>	Acetylcholine
<input type="radio"/>	Histamine
<input checked="" type="radio"/>	Prostaglandins <b>Correct</b>
<input type="radio"/>	Stomach distension
<input type="radio"/>	Swallowing

## Key Learning Points

### Gastroenterology

- Prostaglandins inhibit gastric acid secretion.

## Explanation

The correct answer is prostaglandins.

The remaining listed options all stimulate the release of gastric acid.



A 51-year-old male labourer presents with a haematemesis and undergoes urgent upper GI endoscopy.

Using the Rockall score, which one of the following features would categorise him into a high risk group for a subject presenting with GI bleed?

(Please select 1 option)

- |                       |                                      |
|-----------------------|--------------------------------------|
| <input type="radio"/> | A blood pressure of 134/88 mmHg      |
| <input type="radio"/> | A history of ischaemic heart disease |
| <input type="radio"/> | A plasma glucose of 7.2 mmol/L       |
| <input type="radio"/> | A pulse of 90 beats per minute       |
| <input type="radio"/> | His age                              |

<input type="radio"/>	A blood pressure of 134/88 mmHg	
<input checked="" type="radio"/>	A history of ischaemic heart disease	This is the correct answer
<input type="radio"/>	A plasma glucose of 7.2 mmol/L	
<input checked="" type="radio"/>	A pulse of 90 beats per minute	Incorrect answer selected
<input type="radio"/>	His age	

### Key Learning Points

#### Gastroenterology

- The Rockall scoring system is based on: Age (the higher the age the worse the prognosis), Comorbidities, e.g. ischaemic heart disease (IHD); Presence of shock; and Endoscopic abnormalities.

### Explanation

There are a number of available scoring systems which stratify subjects with gastrointestinal bleed into high and low risk groups.

The Rockall scoring system is based on:

- Age (the higher the age the worse the prognosis)
- Comorbidities, e.g. ischaemic heart disease (IHD)
- Presence of shock, and
- Endoscopic abnormalities.

The Canadian Consensus Conference Statement utilises a similar system, incorporating endoscopic factors including:

- Active bleeding
- Major stigmata of recent haemorrhage
- Ulcers greater than 2 cm in diameter, and
- The location of ulcers in proximity to large arteries.

The Baylor bleeding score attaches a score to pre- and post-endoscopic features.

The Blatchford score is based on clinical parameters alone:

- Elevated blood urea nitrogen
- Reduced haemoglobin
- A drop in systolic blood pressure
- Raised pulse rate
- The presence of melaena or syncope, and
- Evidence of hepatic or cardiac disease.

A man is admitted with acute abdominal pain and vomiting. He is diagnosed and treated for acute pancreatitis.

Which of the following features is associated with a worse prognosis in acute pancreatitis?

(Please select 1 option)

<input type="radio"/>	Plasma glucose of 11.1 mmol/L (3.5-5.5)
<input type="radio"/>	Plasma sodium of 125 mmol/L (133-144)
<input type="radio"/>	Serum amylase of 1200 IU/L (24-100)
<input type="radio"/>	The patient is 50 years of age
<input type="radio"/>	White cell count of $13.9 \times 10^9/L$

Please select 1 option)

<input type="radio"/>	Plasma glucose of 11.1 mmol/L (3.5-5.5) <span>This is the correct answer</span>
<input type="radio"/>	Plasma sodium of 125 mmol/L (133-144)
<input type="radio"/>	Serum amylase of 1200 IU/L (24-100)
<input type="radio"/>	The patient is 50 years of age
<input checked="" type="radio"/>	White cell count of $13.9 \times 10^9/L$ <span>Incorrect answer selected</span>

### Key Learning Points

#### Gastroenterology

- The Ranson criteria is a useful system for predicting the severity of acute pancreatitis.

### Explanation

There are a number of criteria used in the Ranson's scoring system which reflect prognosis associated with acute pancreatitis.

Ranson's criteria on admission that signify a worse prognosis include:

Criteria present at 0 hours:

- Age  $>55$  years old - 1 point
- WBC  $>16 \times 10^9$  - 1 point
- Glucose  $>11.1$  mmol/L - 1 point
- LDH  $>350$  U/L - 1 point
- AST  $>250$  U/L - 1 point

Criteria present at 48 hours:

- Hematocrit fall of 10% or greater - 1 point
- Urea rise of 1.8 mmol/L or more despite fluids - 1 point
- Serum Calcium  $<2$  mmol/L - 1 point
- pO<sub>2</sub>  $<60$  mmHg - 1 point
- Base deficit  $>4$  meq/L - 1 point
- Fluid sequestration  $>6000$  mL - 1 point

Which of the following stimulates bicarbonate secretion from the pancreas and liver?

(Please select 1 option)

- |                       |                                     |
|-----------------------|-------------------------------------|
| <input type="radio"/> | Cholecystokinin (CCK)               |
| <input type="radio"/> | Gastrin                             |
| <input type="radio"/> | Motilin                             |
| <input type="radio"/> | Secretin                            |
| <input type="radio"/> | Vasoactive intestinal peptide (VIP) |

(Please select 1 option)

<input type="radio"/>	Cholecystokinin (CCK)
<input type="radio"/>	Gastrin
<input type="radio"/>	Motilin
<input checked="" type="radio"/>	Secretin <span>Correct</span>
<input type="radio"/>	Vasoactive intestinal peptide (VIP)

## Key Learning Points

### Gastroenterology

- Secretin is secreted from the small intestine when there is acid in the small intestine. It inhibits gastric motility and acid production and stimulates bicarbonate secretion from the pancreas and liver.

## Explanation

Secretin is secreted from the small intestine when there is acid in the small intestine. It inhibits gastric motility and acid production and stimulates bicarbonate secretion from the pancreas and liver.

CCK stimulates gallbladder emptying and pancreatic enzyme release.

Gastrin stimulates gastric acid secretion and gastric motility.

Motilin stimulates intestinal peristalsis.

VIP induces smooth muscle relaxation, stimulates secretion of water into pancreatic juice and bile, and causes inhibition of gastric acid secretion; whilst in the intestine, it greatly stimulates secretion of water and electrolytes.

A 28-year-old lady develops abdominal pain, jaundice and ascites worsening over a week.

She drinks ten units of alcohol each week and takes the oral contraceptive pill.

Which of the following findings would make a diagnosis of hepatic vein thrombosis (Budd-Chiari syndrome [BCS]) most likely?

(Please select 1 option)

- |                       |  |
|-----------------------|--|
| <input type="radio"/> | Acute liver failure                                |
| <input type="radio"/> | Alanine aminotransferase (ALT) of 345 U/L (5 - 35) |
| <input type="radio"/> | Ankle oedema                                       |
| <input type="radio"/> | Ascites fluid protein of 38 g/L                    |
| <input type="radio"/> | Tender enlarged liver                              |

Please select 1 option)

<input type="radio"/>	Acute liver failure
<input type="radio"/>	Alanine aminotransferase (ALT) of 345 U/L (5 - 35)
<input type="radio"/>	Ankle oedema
<input type="radio"/>	Ascites fluid protein of 38 g/L
<input checked="" type="radio"/>	Tender enlarged liver <span>Correct</span>

### Key Learning Points

Gastroenterology, Liver Disorders

- Tender hepatomegaly is one of the hallmarks of BCS.

### Explanation

The most common causes of an acute severe liver injury in a young woman are:

- viruses (including hepatitis A virus [HAV], hepatitis B virus [HBV])
- drugs (particularly paracetamol overdose)
- autoimmune hepatitis
- hepatic vein thrombosis (often precipitated by pregnancy or oral contraceptive pill [OCP] use).

The presence of liver failure, ankle oedema, and an exudative ascites do not help differentiate between these aetiologies.

The ALT of 345 is moderately elevated and compatible with BCS. With viral or drug-related hepatitis, the peak ALT is usually much higher than this; the ALT may already be on the way down if she has had symptoms for a week.

Tender hepatomegaly is one of the hallmarks of BCS.

In acute severe viral, autoimmune or drug/toxin related liver disease the necrotic liver decreases in size.



A 37-year-old homeless gentleman with a history of alcohol excess presents to hospital with progressive abdominal distension. He now complains of early satiety and abdominal discomfort as a result of the distension.

Examination reveals a significantly distended abdomen with shifting dullness. An ascitic tap is performed and the fluid sent for analysis.

According to the British Society of Gastroenterology guidelines on the management of ascites, what is the most appropriate first-line treatment for his ascites?

(Please select 1 option)



Amiloride



Dietary salt restriction



Furosemide



Paracentesis



Spironolactone

(Please select 1 option)

<input type="radio"/>	Amiloride
<input type="radio"/>	Dietary salt restriction
<input checked="" type="radio"/>	Furosemide <span>Incorrect answer selected</span>
<input type="radio"/>	Paracentesis <span>This is the correct answer</span>
<input type="radio"/>	Spironolactone

## Key Learning Points

### Gastroenterology

- The treatment of choice for large, symptomatic ascites is large volume therapeutic paracentesis.

## Explanation

The treatment of choice for large, symptomatic ascites is large volume therapeutic paracentesis.

Where the volume of ascites is not sufficient to warrant paracentesis then first line treatment is dietary salt restriction (to no more than 90 mmol/day) and spironolactone.

Initial dose of spironolactone in this setting is 100 mg/day and may be titrated up to 400 mg/day. Once the maximum dose of spironolactone has been reached furosemide can be added if there is still significant ascites accumulation and the renal function and electrolytes will tolerate further diuresis. Doses of furosemide are advised start at 40 mg/day titrating up to 160 mg/day as tolerated or needed.

Furosemide alone has poor efficacy in cirrhosis.

Amiloride is not generally recommended for use in **cirrhosis** and ascites as, although it produces a natriuresis, its efficacy is significantly inferior to spironolactone.

Bumetanide may be used instead of furosemide.

A 25-year-old man with a long history of heavy alcohol intake is admitted with nausea and frequent vomiting, four hours after a meal in a restaurant.

During review in the Emergency Department, he vomits a cupful of blood.

Which if the following is the cause of his haematemesis?

(Please select 1 option)

- |                       |                        |
|-----------------------|------------------------|
| <input type="radio"/> | Duodenal ulceration    |
| <input type="radio"/> | Haemorrhagic gastritis |
| <input type="radio"/> | Mallory-Weiss tear     |
| <input type="radio"/> | Oesophageal varices    |
| <input type="radio"/> | Oesophagitis           |

Please select 1 option

<input type="radio"/>	Duodenal ulceration	
<input type="radio"/>	Haemorrhagic gastritis	
<input checked="" type="radio"/>	Mallory-Weiss tear	This is the correct answer
<input type="radio"/>	Oesophageal varices	Incorrect answer selected
<input type="radio"/>	Oesophagitis	

## Key Learning Points

### Gastroenterology

- A Mallory-Weiss tear can cause haematemesis.

## Explanation

Persistent vomiting can eventually lead to small tears in the oesophagus, leading to the vomiting of red blood.

Varices would produce large volumes of blood (much more than just a cupful).

A 75-year-old patient presents with watery diarrhoea.

He is passing large volumes of watery diarrhoea, approximately 3 litres a day, with no noticeable blood. It has been present for approximately five months and is gradually becoming more frequent. It often wakes him at night with the urge to defecate.

Liver function tests, calcium and urea and electrolytes are normal. Stool microscopy and culture are normal, and *Clostridium difficile* toxin is negative.

A flexible sigmoidoscopy is organised and the investigator reports to you that the large bowel appears normal. Biopsies demonstrate mild thickening of the subepithelial collagen band with 10 intraepithelial lymphocytes per 100 epithelial cells. Crypt architecture is normal without evidence of cryptitis.

From which of the following treatments may this patient benefit?

(Please select 1 option)

- |                       |                     |
|-----------------------|---------------------|
| <input type="radio"/> | Gluten free diet    |
| <input type="radio"/> | Low residue diet    |
| <input type="radio"/> | Oral budesonide     |
| <input type="radio"/> | Oral cholestyramine |
| <input type="radio"/> | Oral prednisolone   |

Please select 1 option)

<input type="radio"/>	Gluten free diet
<input type="radio"/>	Low residue diet
<input checked="" type="radio"/>	Oral budesonide <span>Correct</span>
<input type="radio"/>	Oral cholestyramine
<input type="radio"/>	Oral prednisolone

## Key Learning Points

### Gastroenterology

- Budesonide is efficacious in the management of microscopic colitis

## Explanation

In the absence of infection and with this typical history in an elderly individual, the diagnosis is likely to be microscopic colitis.

This does not fulfil the ROME II criteria for IBS.

Although [coeliac disease](#) is a possibility, this is unlikely given the patient's age and the presentation.

[Microscopic colitis](#) can only be diagnosed by colonoscopy and mucosal biopsy because, macroscopically, the colon appears normal.

The incidence is increasing as the use of colonoscopy increases; almost certainly due to better diagnostic workup. Microscopic colitis is diagnosed in up to 10% of all patients undergoing colonoscopy for unexplained diarrhoea, an incidence which increases to 20% in those aged over 70 years.

Budesonide is the most effective and widely studied agent for inducing (and maintaining) remission in microscopic colitis. It is likely to be more effective (and certainly less toxic) than oral prednisolone.

There are conflicting data on the association between bile acid malabsorption (BAM) and microscopic colitis though more data support an association. Where present BAM (unsurprisingly) worsens diarrhoea.

Cholestyramine is recommended where there is BAM however, there is evidence that even patients without BAM may respond to cholestyramine therapy. Use of 5-ASA compounds, with or without cholestyramine has generated high remission rates (85-91%).

Most treatment algorithms suggest a graded approach starting with antidiarrhoeal agents, cholestyramine and 5-ASAs. More severe (such as here) or non-responsive disease should be treated with budesonide in the first instance and bismuth in the second.

A 56-year-old man from Thailand presented with abdominal pain and a mass in the right upper quadrant. He reported that he had been diagnosed with viral hepatitis several years previously and had several treatment which he states reduced his disease burden significantly but he is still a chronic carrier. He reports no high risk sexual behaviour or Intravenous drug use.

Investigations showed:

Serum alpha-fetoprotein	13,500 IU/L	(< 10)
-------------------------	-------------	--------

Which of the following is the most likely underlying viral infection?

(Please select 1 option)

- ☐ Hepatitis A virus
- ☐ Hepatitis B virus
- ☐ Hepatitis C virus
- ☐ Hepatitis D virus
- ☐ Hepatitis E virus

<input type="radio"/>	Hepatitis A virus	
<input type="radio"/>	Hepatitis B virus	This is the correct answer
<input type="radio"/>	Hepatitis C virus	
<input type="radio"/>	Hepatitis D virus	
<input checked="" type="radio"/>	Hepatitis E virus	Incorrect answer selected

## Key Learning Points

Infectious Diseases, Liver Disorders, Oncology

- There is a higher prevalence of HBV in the Far East which can lead to hepatoma development if left untreated.

## Explanation

The patient has chronic viral hepatitis and presents with an AFP elevated to such a degree that it is essentially diagnostic for hepatoma. The underlying cause is either HBV or HCV.

Since his country of origin is the only other detail given here this gives a clue to the cause of his hepatitis. There is a higher prevalence of HBV in the Far East, consequently, the most likely viral agent is HBV.



A 70-year-old woman comes to the gastroenterology clinic for review. She has been referred by her GP with a microcytic anaemia, and has recently undergone an upper GI endoscopy that demonstrated a small scar thought to be from a healed duodenal ulcer. *Helicobacter pylori* screening was negative. Other past history of note includes hypertension for which she is taking indapamide, and asthma for which she uses a Seretide inhaler.

Examination reveals a BP of 135/70 mmHg, pulse is 75 bpm and regular. Breath sounds are normal, abdomen is soft and non tender, and her BMI is 25 kg/m<sup>2</sup>. PR reveals an empty rectum with no masses.

Investigations:

Haemoglobin	92 g/L	(115-160)
Mean corpuscular volume (MCV)	72 fL	(76-100)
White cell count (WCC)	8.2 ×10 <sup>9</sup> /L	(6-10)
Platelet count	210 ×10 <sup>9</sup> /L	(150-400)
Na	138 mmol/L	(135-145)
K	3.9 mmol/L	(3.5-5.5)
Creatinine	121 µmol/L	(60-90)

2/3 faecal occult blood samples positive.

Which of the following is the most appropriate next step?

(Please select 1 option)

<input type="radio"/>	Barium enema
<input type="radio"/>	Capsule endoscopy
<input type="radio"/>	Colonoscopy
<input type="radio"/>	CT abdomen
<input type="radio"/>	Sigmoidoscopy

(Please select 1 option)

- |                                  |   |
|----------------------------------|---|
| <input type="radio"/>            | Barium enema  |
| <input type="radio"/>            | Capsule endoscopy                                   |
| <input type="radio"/>            | Colonoscopy <span>This is the correct answer</span> |
| <input checked="" type="radio"/> | CT abdomen <span>Incorrect answer selected</span>   |
| <input type="radio"/>            | Sigmoidoscopy                                       |

## Key Learning Points

### Gastroenterology

- In elderly patients with iron deficiency anaemia not adequately explained by upper GI endoscopy, further imaging of the lower GI tract is mandatory.

## Explanation

The absence of lower GI symptoms raises the possibility of a right-sided colonic lesion resulting in the microcytic anaemia seen here. The best way to rule out an underlying carcinoma is with a colonoscopy after adequate bowel preparation. Age-specific and sex-specific incidence rates for the UK (2009-2011) for colon cancer suggest this approximates to 3.5% per year in the 70-74 year age group. For this reason, further investigation is essential, especially given positive faecal occult blood (FOB) samples.

Sigmoidoscopy will not adequately visualise the whole colon, and barium enema is not as sensitive for small polyps versus colonoscopy, although barium enema would be an alternative option if colonoscopy is not tolerated.

CT abdomen with contrast also runs the risk of missing a small right-sided lesion, but CT colonography (which includes full bowel preparation) is a reasonable alternative in those unable to tolerate colonoscopy.

Capsule endoscopy is generally most useful for imaging the small bowel, where it has an important role in visualising angiodysplasia.

Which of the following allows a diagnosis of spontaneous bacterial peritonitis (SBP) on ascitic fluid?

(Please select 1 option)

☐ Lymphocyte count  $\geq 100$  cells/mm<sup>3</sup>

☐ Lymphocyte count  $\geq 250$  cells/mm<sup>3</sup>

☐ Lymphocyte count  $\geq 300$  cells/mm<sup>3</sup>

☐ Neutrophil count  $\geq 100$  cells/mm<sup>3</sup>

☐ Neutrophil count  $\geq 250$  cells/mm<sup>3</sup>

Which of the following allows a diagnosis of spontaneous bacterial peritonitis (SBP) on ascitic fluid?

(Please select 1 option)

<input type="radio"/>	Lymphocyte count $\geq 100$ cells/mm <sup>3</sup>	
<input type="radio"/>	Lymphocyte count $\geq 250$ cells/mm <sup>3</sup>	
<input type="radio"/>	Lymphocyte count $\geq 300$ cells/mm <sup>3</sup>	
<input type="radio"/>	Neutrophil count $\geq 100$ cells/mm <sup>3</sup>	
<input checked="" type="radio"/>	Neutrophil count $\geq 250$ cells/mm <sup>3</sup>	Correct

### Key Learning Points

Gastroenterology

- Spontaneous bacterial peritonitis (SBP) is diagnosed if the ascitic fluid neutrophil count is  $\geq 250$  cells/mm<sup>3</sup>.

### Explanation

SBP is diagnosed if there is:

- high ascitic fluid neutrophil count  $\geq 250$  cells/mm<sup>3</sup>
- positive ascitic fluid bacterial culture, and
- absence of secondary causes of peritonitis (such as bowel perforation).

The absolute neutrophil count in ascitic fluid is calculated by multiplying the total white blood cell count by the percentage of neutrophils in the differential.

Dr. Aram

A 30-year-old woman presents with jaundice and her investigations reveal:

Haemoglobin	90 g/L	(115-165)
Reticulocyte count	$180 \times 10^9/L$	(25-85)
Serum bilirubin	50 $\mu\text{mol/L}$	(1-22)

Her blood film reveals the presence of spherocytes.

Which of the following is the next most useful investigation?

(Please select 1 option)

- ☐ Abdominal ultrasound scan
- ☐ Direct antiglobulin test
- ☐ Glucose-6-phosphate dehydrogenase activity
- ☐ Haemoglobin electrophoresis
- ☐ Red cell osmotic fragility

Dr Assem

(Please select 1 option)

<input type="radio"/>	Abdominal ultrasound scan	
<input type="radio"/>	Direct antiglobulin test	This is the correct answer
<input type="radio"/>	Glucose-6-phosphate dehydrogenase activity	
<input type="radio"/>	Haemoglobin electrophoresis	
<input checked="" type="radio"/>	Red cell osmotic fragility	Incorrect answer selected

## Key Learning Points

Gastroenterology, Haematology

- The first step in analysis of a spherocytic hemolytic anaemia is to determine whether the process is hemolytic or not. The best way to do it is a direct antiglobulin test.

## Explanation

The results given indicate a **haemolytic anaemia** of which spherocytes are typical and given the age of the patient the most likely cause is immune.

The first step in analysis of a spherocytic hemolytic anaemia is to determine whether the process is hemolytic or not. The best way to do it is a direct antiglobulin test. If negative, one could go on to confirm HS with other tests.

The osmotic fragility test is unreliable and is no longer recommended in routine clinical practice. Osmotic gradient ektacytometry is used to differentiate **hereditary spherocytosis** from hereditary stomatocytosis, but is only available in specialised laboratories. If the diagnosis is equivocal, the cryohaemolysis test and EMA binding can be used.

In atypical cases, gel electrophoresis analysis of erythrocyte membranes is the test of choice.

Dr. Assem

A 75-year-old male presents with a two-month history of dyspnoea, weight loss and generalised lethargy. His medical history included a previous left-sided hemiparesis due to stroke for which he took aspirin and perindopril.

Examination revealed residual left-sided hemiparesis together with a pale and slightly jaundiced appearance.

Investigations show:

Haemoglobin	50 g/L	(130-180)
MCV	109 fL	(80-96)
White cell count	$2 \times 10^9/\text{L}$	(4-11)
Platelets	$45 \times 10^9/\text{L}$	(150-400)

Urinalysis showed increased urobilinogen.

Which of the following is the next most appropriate investigation?

(Please select 1 option)

<input type="radio"/>	Bone marrow aspirate
<input type="radio"/>	Direct antiglobulin test
<input type="radio"/>	Endoscopy
<input type="radio"/>	Serum haptoglobins
<input type="radio"/>	Vitamin B <sub>12</sub> concentration

Dr. Assem

Please select 1 option

<input type="radio"/>	Bone marrow aspirate
<input type="radio"/>	Direct antiglobulin test
<input type="radio"/>	Endoscopy
<input type="radio"/>	Serum haptoglobins
<input checked="" type="radio"/>	Vitamin B <sub>12</sub> concentration <span>Correct</span>

### Key Learning Points

Gastroenterology, Haematology, Miscellaneous

- Macrocytic anaemia should prompt checking serum B12 levels (and folate).

### Explanation

In this situation, serum B<sub>12</sub> estimation is the correct choice. With a pancytopenic picture and raised mean corpuscular volume (MCV), the most appropriate step is to check the B<sub>12</sub> and folate.

The other choices are considered only after the basic assays.

Haemolysis does not explain the low WCC, nor the thrombocytopenia.

A haptoglobin only adds weight to a diagnosis of haemolysis, and an RBC-labelled scan would add greater sensitivity to the diagnosis of haemolysis.

The mild jaundice is typical of megaloblastic anaemia (vitamin B<sub>12</sub> or folate deficiency) because of increased destruction of red cell precursors in the bone marrow.



A 45-year-old woman presents with pruritus.

On examination she has clubbing, palmar erythema and spider naevi. There is also evidence of excoriations and xanthelasma.

Blood results demonstrate deranged liver function tests with a predominantly cholestatic picture but the abdominal ultrasound scan is normal. A subsequent autoimmune screen is positive for antimitochondrial antibodies.

Given the likely diagnosis, which of the following HLA antigens is associated with this disease?

(Please select 1 option)

<input type="radio"/>	HLA-A3
<input type="radio"/>	HLA-B5
<input type="radio"/>	HLA-B27
<input type="radio"/>	HLA-B35
<input type="radio"/>	HLA-DR8

<input type="radio"/>	HLA-A3	
<input type="radio"/>	HLA-B5	
<input type="radio"/>	HLA-B27	
<input checked="" type="radio"/>	HLA-B35	Incorrect answer selected
<input type="radio"/>	HLA-DR8	This is the correct answer

## Key Learning Points

### Gastroenterology

- Primary biliary cirrhosis (PBC) is associated with HLA-DR8.

## Explanation

This woman has primary biliary cirrhosis (PBC) which is associated with HLA-DR8. Antimitochondrial antibodies are positive in 95% of cases of PBC.

HLA-A3 is associated with haemochromatosis.

HLA-B5 is associated with Behcet's disease.

Subacute thyroiditis has an association with HLA-B35.

Ankylosing spondylitis is associated with HLA-B27.

An 80-year-old woman presents with confusion associated with a chest infection.

She received standard treatment and four days afterwards she developed green, liquid diarrhoea which shortly afterwards contained some fresh blood.

Which of the following organisms is most likely to be responsible for her diarrhoea?

(Please select 1 option)

<input type="radio"/>	<i>Campylobacter jejuni</i>
<input type="radio"/>	<i>Clostridium difficile</i>
<input type="radio"/>	<i>Escherichia coli</i> 0157
<input type="radio"/>	Methicillin-resistant <i>Staphylococcus aureus</i>
<input type="radio"/>	Vancomycin-resistant <i>Enterococcus</i>



*Campylobacter jejuni*



*Clostridium difficile*

This is the correct answer



*Escherichia coli* 0157

Incorrect answer selected



Methicillin-resistant *Staphylococcus aureus*



Vancomycin-resistant *Enterococcus*

## Key Learning Points

### Gastroenterology

- *Clostridium difficile* diarrhoea is a common complication for frail patients treated with broad-spectrum antibiotics.

## Explanation

This is typical of *Clostridium* infection with pseudomembranous colitis induced by prior treatment with broad-spectrum antibiotics such as cefuroxime, Augmentin and the macrolides.

It is treated with oral vancomycin/metronidazole.

Which of the following is true of Spontaneous bacterial peritonitis?

(Please select 1 option)

- |                       |  |
|-----------------------|--|
| <input type="radio"/> | A survival rate of over 50% is expected at one year      |
| <input type="radio"/> | Gentamicin is the treatment of choice                    |
| <input type="radio"/> | Is characteristically caused by anaerobic bacteria       |
| <input type="radio"/> | Is diagnosed by culture and examination of ascitic fluid |
| <input type="radio"/> | Is due to intestinal perforation                         |

(Please select 1 option)

<input type="radio"/>	A survival rate of over 50% is expected at one year
<input type="radio"/>	Gentamicin is the treatment of choice
<input type="radio"/>	Is characteristically caused by anaerobic bacteria
<input checked="" type="radio"/>	Is diagnosed by culture and examination of ascitic fluid <span>Correct</span>
<input type="radio"/>	Is due to intestinal perforation

## Key Learning Points

Gastroenterology, Infectious Diseases, Liver Disorders

- Spontaneous bacterial peritonitis is diagnosed by ascitic fluid examination which reveals a neutrophil count of  $>250/\text{ml}$ , and is typically caused by aerobic gram negative bacteria.

## Explanation

SBP is a frequent complication of the ascites of cirrhosis. It is diagnosed by ascitic fluid examination which reveals a PMN count of  $>250/\text{ml}$ . SBP has poor prognostic significance with a one-year survival after a diagnosis of between 30-50%. It is, as the name suggests a spontaneous event that is not a consequence of intestinal perforation.

It is speculated that the infective organism may leak into the ascitic fluid via the blood or from intestinal overgrowth.

Organisms should be cultured by directly collecting into blood culture bottles. It is typically caused by aerobic gram-negative bacteria. Hence, antibiotics such as co-amoxiclav, tazoscin, or ciprofloxacin are typically used as first line treatment.

*E. coli* and *Klebsiella* should be considered aerobic organisms. They are more precisely defined as facultative anaerobes, that is to say, they reproduce best in aerobic conditions but can also reproduce in anaerobic conditions. Obligate anaerobes (e.g. Clostridia) are killed by the presence of oxygen as opposed to aerotolerant anaerobes (e.g. *Lactobacillus*) which have exclusively fermentative (anaerobic) metabolism but are not sensitive to the presence of oxygen.

A 54-year-old man comes to the gastroenterology clinic for follow up of his ulcerative colitis. Over the past few months, he has suffered problems with increasing lethargy, and most recently has been off his food and has begun to suffer from intense itching.

On examination, his BP is 145/82 mmHg and pulse 78. He has mildly jaundiced sclerae, and some scratch marks, predominantly on his arms. The rest of the physical examination was unremarkable.

Investigations show:

Haemoglobin	120 g/L	(135-177)
White cells	$7.8 \times 10^9/L$	(4-11)
Platelets	$189 \times 10^9/L$	(150-400)
Sodium	138 mmol/L	(135-146)
Potassium	4.4 mmol/L	(3.5-5)
Creatinine	95 $\mu\text{mol/L}$	(79-118)
Albumin	35 g/L	(35-50)
Alanine aminotransferase	85 U/L	(5-40)
Alkaline phosphatase	395 U/L	(39-117)
pANCA	Positive	

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Autoimmune hepatitis
<input type="radio"/>	Churg-Strauss syndrome
<input type="radio"/>	Pancreatic carcinoma
<input type="radio"/>	Primary biliary cirrhosis
<input type="radio"/>	Primary sclerosing cholangitis

<input type="radio"/>	Autoimmune hepatitis
<input type="radio"/>	Churg-Strauss syndrome
<input type="radio"/>	Pancreatic carcinoma
<input type="radio"/>	Primary biliary cirrhosis
<input checked="" type="radio"/>	Primary sclerosing cholangitis <b>Correct</b>

## Key Learning Points

### Gastroenterology

- A history of lethargy and itching, together with a blood picture consistent with obstructive liver disease is typical of primary sclerosing cholangitis. It is associated with Ulcerative colitis and patients are at increased risk of cholangiocarcinoma.

## Explanation

This man's history of lethargy and itching, together with a blood picture consistent with obstructive liver disease is typical of the condition.

In total, between 75 and 90% of patients with primary sclerosing cholangitis (PSC) are thought to have co-existent inflammatory bowel disease, although only around 4% of patients with inflammatory bowel disease develop the condition.

There is often an increase in IgM; and pANCA, aCL antibodies, and ANA are present in up to 84%, 66%, and 53% of patients, respectively.

Endoscopic retrograde cholangiopancreatography (ERCP), the gold standard investigation, demonstrates multiple intrahepatic and extrahepatic bile duct strictures and dilatations, although the non-invasive magnetic resonance cholangiopancreatography (MRCP) is often performed initially.

PSC is chronically progressive with median time to liver failure put at around 12 years. Patients are additionally at increased risk of developing cholangiocarcinoma.



A 48-year-old man presents with haematemesis and melaena. He admits to high alcohol intake.

On examination he is shocked, his heart rate is 110 beats per minute and blood pressure is 92/74 mmHg. There is evidence of leukonychia and abdominal examination reveals tenderness in the epigastrium.

What is the most likely underlying cause of the gastrointestinal haemorrhage?

(Please select 1 option)

<input type="radio"/>	Gastric antral vascular ectasia (GAVE)
<input type="radio"/>	Gastro-oesophageal varices
<input type="radio"/>	Mallory-Weiss tear
<input type="radio"/>	Peptic ulceration
<input type="radio"/>	Portal hypertensive gastropathy

(Please select 1 option)

<input type="radio"/>	Gastric antral vascular ectasia (GAVE)
<input type="radio"/>	Gastro-oesophageal varices
<input type="radio"/>	Mallory-Weiss tear
<input checked="" type="radio"/>	Peptic ulceration <span>Correct</span>
<input type="radio"/>	Portal hypertensive gastropathy

### Key Learning Points

#### Gastroenterology

- Peptic ulceration is the commonest cause of acute upper gastrointestinal (GI) haemorrhage.

### Explanation

Peptic ulceration is the commonest cause of acute upper gastrointestinal (GI) haemorrhage.

Epigastric tenderness also points towards peptic ulcer disease. The history of high alcohol intake can be misleading in directing the candidate towards varices.

In this case the answer is the most common cause of an acute upper GI bleed which is peptic ulceration: 25-50% of cases of non-variceal upper GI bleeding and 5% of cases of upper GI haemorrhage are due to varices.

Gastric antral vascular ectasia is a relatively uncommon condition. It typically presents as a cause of iron-deficiency anaemia as a result of chronic GI blood loss. Overt symptoms of upper GI haemorrhage may be precipitated by administration of anti-platelet agents or anti-coagulants. The mean age of diagnosis is around 70 and there is an association with scleroderma.

Portal hypertensive gastropathy is a poorly understood complication of portal hypertension (usually as a result of chronic liver disease). There is a typical mosaic or snakeskin like appearance to the gastric mucosa which, with increasing severity of the condition, can develop vascular ectasia and become very friable. Typical presentation is with chronic GI blood loss but acute haemorrhage may occur.

A 40-year-old man is referred with gastro-oesophageal reflux disease (GORD).

Which of the following concerning GORD is correct?

(Please select 1 option)

- |                       |  |
|-----------------------|--|
| <input type="radio"/> | Acid suppressant therapy should not be given continuously  |
| <input type="radio"/> | Endoscopy is mandatory   |
| <input type="radio"/> | In the presence of Barrett's oesophagus, the risk of future malignancy can be assessed endoscopically without biopsy |
| <input type="radio"/> | Oesophageal pH monitoring is a good guide to therapy   |
| <input type="radio"/> | Symptoms do not correlate with mucosal status at endoscopy   |

Please select 1 option

- |                                  |  |
|----------------------------------|--|
| <input type="radio"/>            | Acid suppressant therapy should not be given continuously  |
| <input type="radio"/>            | Endoscopy is mandatory   |
| <input type="radio"/>            | In the presence of Barrett's oesophagus, the risk of future malignancy can be assessed endoscopically without biopsy |
| <input type="radio"/>            | Oesophageal pH monitoring is a good guide to therapy   |
| <input checked="" type="radio"/> | Symptoms do not correlate with mucosal status at endoscopy <span>Correct</span>                                      |

## Key Learning Points

### Gastroenterology

- Symptoms of GORD do not correlate with the mucosal appearances at endoscopy.

## Explanation

Symptoms of GORD do not correlate with the mucosal appearances at endoscopy.

Although endoscopy should be performed in cases that are not clear-cut or do not respond to proton pump inhibitors (PPIs), it is not mandatory.

The risk with Barrett's and hence the diagnosis of Barrett's can only be clarified with biopsy.

Monitoring of pH is not a good guide to therapy but symptomatic improvement is a good guide to the efficacy of therapy.

PPIs can be given continuously where the diagnosis has been satisfactorily proven and relapse of symptoms persist after withdrawal.

A 21-year-old woman is referred from the Emergency Department with a paracetamol overdose.

Which of the following is an indication for liver transplantation in acute liver failure as a result of paracetamol overdose?

(Please select 1 option)

<input type="radio"/>	Arterial pH <7.35
<input type="radio"/>	Bilirubin >200 $\mu\text{mol/L}$
<input type="radio"/>	Creatinine >250 $\mu\text{mol/L}$
<input type="radio"/>	Grade I encephalopathy
<input type="radio"/>	Prothrombin time >100 seconds (INR >6.7)

(Please select 1 option)

<input type="radio"/>	Arterial pH <7.35	
<input type="radio"/>	Bilirubin >200 µmol/L	
<input checked="" type="radio"/>	Creatinine >250 µmol/L	Incorrect answer selected
<input type="radio"/>	Grade I encephalopathy	
<input type="radio"/>	Prothrombin time >100 seconds (INR >6.7)	This is the correct answer

## Key Learning Points

### Gastroenterology

- The King's College Criteria are the most widely accepted prognostic tool for patients who present with acute liver failure secondary to paracetamol overdose, and include arterial pH, INR, creatinine and encephalopathy.

## Explanation

The King's College Criteria are the most widely accepted prognostic tool for patients who present with acute liver failure. Fulfilment of these criteria has a high specificity for mortality, but the sensitivity and negative predictive value remain low. They can be used to guide which patients should be considered for liver transplantation.

For acute liver failure secondary to paracetamol overdose, the criteria are:

pH <7.30 or

INR >6.5 (PT >100 seconds) and serum creatinine >300 µmol/L (>3.4 mg/dL) in patients with grade 3 or 4 hepatic encephalopathy.

Serum bilirubin is only considered in cases of acute liver failure not secondary to paracetamol overdose.

There are a variety of complications with liver transplantation such as:

- immunological rejection
- effects of immunosuppressive drugs used
- infection, and
- disease recurrence.

A 67-year-old man with known aortic valvular disease is admitted with deteriorating dyspnoea.

Investigations show:

Haemoglobin	90 g/L	(120-160)
MCV	70 fL	(80-96)

Upper gastrointestinal tract endoscopy	Normal
Duodenal biopsy	Normal

Which one of the following investigations is most likely to provide the diagnosis?

(Please select 1 option)

<input type="radio"/>	Barium enema
<input type="radio"/>	Colonoscopy
<input type="radio"/>	CT abdomen
<input type="radio"/>	Mesenteric angiography
<input type="radio"/>	Small bowel enema

(Please select 1 option)

<input type="radio"/>	Barium enema	
<input checked="" type="radio"/>	Colonoscopy	This is the correct answer
<input type="radio"/>	CT abdomen	
<input type="radio"/>	Mesenteric angiography	
<input type="radio"/>	Small bowel enema	Incorrect answer selected

### Key Learning Points

#### Gastroenterology, Radiology

- In the older age group, investigation of the lower gastrointestinal (GI) tract is vital to exclude a lower GI malignancy in cases such as unexplained anaemia with bowel signs or symptoms. Colonoscopy would have the greatest diagnostic yield in most settings.

### Explanation

In the older age group, investigation of the lower gastrointestinal (GI) tract is vital to exclude a lower GI malignancy.

There is an association between aortic stenosis and angiodysplasia; it has been debated and is likely to be present but weak. Angiodysplasia is more common in severe aortic disease and may regress upon treatment of the valvular lesion.

There is evidence that angiodysplasia is more frequently present in patients with aortic stenosis compared to those with other valvular dysfunction, and also that patients with aortic stenosis are over-represented in those with occult GI bleeding. This, however, does not extrapolate to mean that angiodysplasia is the most common underlying lesion in patients with aortic stenosis and GI bleeding.

Colonoscopy would have the greatest diagnostic yield in this setting.

After this, capsule endoscopy would probably be the most appropriate.

Mesenteric angiography may be useful if there is active bleeding; generally, a large arteriovenous malformation or a bleeding rate of at least 0.5 ml/min is required to obtain a diagnostic scan.

CT scans do not demonstrate colonic pathology as well as colonoscopy, which is still considered the gold standard.



A 35-year-old woman with a history of recurrent anaemia was noted to have target cells and Howell-Jolly bodies on a blood film examination.

Investigations revealed:

Haemoglobin	70 g/L	(115-165)
MCV	77 fL	(80-96)
MCH	26.2 pg	(28-32)
Serum B12	140 µg/L	(160-760)
Red cell folate	95 µg/L	(160-640)
Serum ferritin	10 µg/L	(15-300)

Which disease-specific antibody is most likely to be present?

(Please select 1 option)

<input type="radio"/>	Anti-gastric parietal cell
<input type="radio"/>	Anti-glutamic acid decarboxylase
<input type="radio"/>	Anti-intrinsic factor
<input type="radio"/>	Anti-mitochondrial
<input type="radio"/>	Anti-tissue transglutaminase

(Please select 1 option)

<input type="radio"/>	Anti-gastric parietal cell
<input type="radio"/>	Anti-glutamic acid decarboxylase
<input type="radio"/>	Anti-intrinsic factor
<input type="radio"/>	Anti-mitochondrial
<input checked="" type="radio"/>	Anti-tissue transglutaminase <span>Correct</span>

### Key Learning Points

Gastroenterology, Haematology

- Anti-TTG antibodies are most likely to be present in patients with coeliac disease.

### Explanation

The patient has hyposplenism as suggested by the blood film and a mixed anaemia.

Coeliac disease could, therefore, fit the above picture with anti-TTG antibodies being the most appropriate selection from the above list.

- Anti-mitochondrial antibodies are seen in PBC.
- Anti-gastric and anti-intrinsic Abs are seen in pernicious anaemia.
- Anti-GAD abs are found in auto-immune DM.

Screening for coeliac disease should include high-risk groups such as anaemia (iron or folate deficiency), hyposplenism, reduced bone density, and infertility.

A 36-year-old man presented with a three-day history of bloody diarrhoea.

He was afebrile and mildly icteric.

Investigations revealed:

Haemoglobin	105 g/L	(130-180)
White cell count	$19 \times 10^9/L$	(4-11)
Platelets	$70 \times 10^9/L$	(150-400)
Serum urea	12.5 mmol/L	(2.5-7.5)
Serum aspartate aminotransferase	90 U/L	(1-31)
Prothrombin time	12 s	(11.5-15.5)
Blood film	Fragmented red cells	

Which of the following is the most likely cause of his illness?

(Please select 1 option)

<input type="radio"/>	<i>Escherichia coli</i> O157 colitis
<input type="radio"/>	Ischaemic colitis
<input type="radio"/>	Leptospirosis
<input type="radio"/>	<i>Salmonella</i> enterocolitis
<input type="radio"/>	Ulcerative colitis

(Please select 1 option)

<input type="radio"/>	<i>Escherichia coli</i> O157 colitis	This is the correct answer
<input type="radio"/>	Ischaemic colitis	
<input type="radio"/>	Leptospirosis	
<input type="radio"/>	<i>Salmonella</i> enterocolitis	
<input checked="" type="radio"/>	Ulcerative colitis	Incorrect answer selected

### Key Learning Points

#### Gastroenterology

- The presence of thrombocytopenia and evidence of haemolysis in association with bloody diarrhoea should make you think of haemolytic uraemic syndrome (HUS).

### Explanation

The presence of thrombocytopenia and evidence of haemolysis in association with bloody diarrhoea should make you think of [haemolytic uraemic syndrome](#) (HUS).

HUS is the triad of:

- microangiopathic [haemolytic anaemia](#)
- thrombocytopenia, and
- acute kidney injury.

It is classically associated with *Escherichia coli* O157:H7, which produces a Shiga verotoxin.

Approximately 15% of cases with *Escherichia coli* O157 will develop HUS. It can occur up to two weeks following the initial onset of symptoms and can present after recovery from the acute illness. The incubation period of *Escherichia coli* O157 is one to six days. HIV, *Streptococcus pneumoniae*, *Shigella dysenteriae* and Coxsackie virus can also result in HUS, but much less commonly.

The verotoxin circulates and binds to endothelial receptors, particularly in the kidney, gastrointestinal tract and central nervous system, resulting in the deposition of thrombin and fibrin in the microvasculature. Haemolysis subsequently occurs as erythrocytes travel through the affected vessels. Platelets are sequestered resulting in lower circulating numbers.

Treatment for HUS is primarily supportive with fluid and electrolyte management, antihypertensive therapy and dialysis where required.

Plasma exchange can also be used to try to remove the circulating toxin.

A 50-year-old man is admitted to hospital with a third attack of renal stones in the last six months. He suffers from Crohn's disease and has previously had a limited small bowel resection, but his disease is now quiescent.

On examination his BP is 115/72 mmHg, his BMI is 19.5 kg/m<sup>2</sup>, and he has a midline scar consistent with a previous laparotomy.

Investigations:

Haemoglobin	120 g/L	(135-177)
White cell count	5.9 ×10 <sup>9</sup> /L	(4-11)
Platelets	172 ×10 <sup>9</sup> /L	(150-400)
Serum sodium	139 mmol/L	(135-146)
Serum potassium	3.9 mmol/L	(3.5-5)
Creatinine	133 µmol/L	(79-118)
24 hour urinary oxalate excretion	Increased	-

Which of the following is likely to be the most effective and appropriate intervention?

(Please select 1 option)

<input type="radio"/>	Increase fluid intake
<input type="radio"/>	Reduce dietary calcium intake
<input type="radio"/>	Reduce intake of offal
<input type="radio"/>	Start bendroflumethiazide
<input type="radio"/>	Start furosemide

(Please select 1 option)

<input type="radio"/>	Increase fluid intake	This is the correct answer
<input type="radio"/>	Reduce dietary calcium intake	
<input type="radio"/>	Reduce intake of offal	
<input type="radio"/>	Start bendroflumethiazide	
<input checked="" type="radio"/>	Start furosemide	Incorrect answer selected

### Key Learning Points

#### Gastroenterology, Nephrology

- Increased fluid intake restores fluid lost through the digestive tract, and also acts as a dilutional inhibitor of crystal and stone formation.

### Explanation

Several mechanisms have been postulated to explain the develop of hyperoxaluria in patients with intestinal disease. These include increased colonic permeability, reduced free intestinal calcium available to bind oxalate, and decreased levels of O formigenes to degrade intestinal oxalate.

Reducing intake of offal is most helpful at reducing urate excretion; foods such as chocolate, rhubarb, and nuts are high in oxalate. One contributor to this patient's increased oxalate excretion is undoubtedly his partial small bowel resection, and increasing dietary calcium intake decreases urinary oxalate excretion by reducing absorption (as free oxalate is bound).

Therefore, the most effective and appropriate intervention from those given is to increase his oral fluid intake significantly. Increased fluid intake restores fluid lost through the digestive tract, and also acts as a dilutional inhibitor of crystal and stone formation.

Other treatments which can help enteric hyperoxaluria include:

- Calcium, cholestyramine and magnesium - bind strongly to free intestinal oxalate, preventing absorption.
- Iron and aluminium - act as intestinal oxalate-binding agents.
- Potassium citrate - alkalinises the urine, which reduces urinary oxalate excretion.

Dr Assem

Which of the following is a cause of primary iron overload?

(Please select 1 option)

<input type="radio"/>	Alcoholic liver disease
<input type="radio"/>	Aplastic anaemia
<input type="radio"/>	Haemochromatosis
<input type="radio"/>	Insulin resistance syndrome
<input type="radio"/>	Repeated blood transfusions

(Please select 1 option)

<input type="radio"/>	Alcoholic liver disease
<input type="radio"/>	Aplastic anaemia
<input type="radio"/>	Haemochromatosis <span>This is the correct answer</span>
<input checked="" type="radio"/>	Insulin resistance syndrome <span>Incorrect answer selected</span>
<input type="radio"/>	Repeated blood transfusions

## Key Learning Points

### Gastroenterology

- Haemochromatosis is a genetic metabolic disorder which leads to inappropriate intestinal absorption of iron (9), that is, primary iron overload.

## Explanation

Haemochromatosis is the correct answer.

The remaining options are all associated with secondary iron overload.

Iron overload secondary to repeated blood transfusion is a particular problem for patients with hereditary anaemia, and can be a major cause of morbidity.

The association between the metabolic syndrome (insulin resistance, obesity, hyperlipidaemia) and the development of hepatic iron overload has been described on a number of occasions over the last couple of decades. These patients are usually middle-aged men with mild to moderate iron excess. It is thought compound heterozygosity for the HFE mutations (C282Y and H63D) may have a role, but the link is not yet fully understood.

Aplastic anaemia is often associated with chronic haemolysis, and repeated blood transfusions, both of which are linked with iron overload.

Following heavy alcohol intake, hepatocytes may lose their ability to compensate for inborn errors in iron metabolism, resulting in iron overload. The link between iron and alcohol is further demonstrated by the fact that alcohol increases the severity of liver damage in hereditary haemochromatosis.



A woman had lunch at a Chinese restaurant.

In the evening she presented with diarrhoea and vomiting. There was no fever.

Which of the following is the likely cause of food poisoning in her case?

(Please select 1 option)

- |                       |                                |
|-----------------------|--------------------------------|
| <input type="radio"/> | <i>Bacillus cereus</i>         |
| <input type="radio"/> | <i>Clostridium perfringens</i> |
| <input type="radio"/> | <i>Escherichia coli</i>        |
| <input type="radio"/> | <i>Staphylococcus aureus</i>   |
| <input type="radio"/> | <i>Yersinia enterocolitica</i> |

Please select 1 option)

<input type="radio"/>	<i>Bacillus cereus</i> <span>This is the correct answer</span>
<input type="radio"/>	<i>Clostridium perfringens</i>
<input type="radio"/>	<i>Escherichia coli</i>
<input checked="" type="radio"/>	<i>Staphylococcus aureus</i> <span>Incorrect answer selected</span>
<input type="radio"/>	<i>Yersinia enterocolitica</i>

## Key Learning Points

Gastroenterology, Infectious Diseases, Microbiology

- The vomiting-type outbreaks of *Bacillus cereus* food poisoning have generally been associated with rice products.

## Explanation

*Bacillus cereus* **food poisoning** is the general description, although two recognised types of illness are caused by two distinct metabolites.

- The diarrhoeal type of illness is caused by a large molecular weight protein while
- The vomiting (emetic) type of illness is believed to be caused by a low molecular weight, heat-stable peptide.

The onset of watery diarrhoea, abdominal cramps and pain occurs 6-15 hours after consumption of contaminated food. Symptoms usually persist for 24 hours.

The emetic type of **food poisoning** is characterised by nausea and vomiting within 0.5 to 6 hours after consumption of contaminated foods. Occasionally, abdominal cramps and/or diarrhoea may also occur. Duration of symptoms is generally less than 24 hours.

A wide variety of foods including meats, milk, vegetables, and fish have been associated with the diarrhoeal type food poisoning. The vomiting-type outbreaks have generally been associated with rice products. *Staphylococcus aureus* and *Clostridium perfringens* are associated with meat and *Yersinia enterocolitica* with milk.

A 60-year-old lady has a six-month history of abdominal discomfort, bloating and altered frequency in stools.

Her symptoms seem to be worse following a large meal when she also feels nauseated. Clinical examination is normal. She is suspected of fulfilling the criteria for irritable bowel syndrome.

Which of the following investigations should be undertaken to exclude other diagnoses?

(Please select 1 option)

<input type="radio"/>	Anti-tissue transglutaminase (TTG) antibodies
<input type="radio"/>	Faecal occult blood
<input type="radio"/>	Faecal ova/parasite tests
<input type="radio"/>	Sigmoidoscopy
<input type="radio"/>	Thyroid function test

<input type="radio"/>	Anti-tissue transglutaminase (TTG) antibodies	This is the correct answer
<input type="radio"/>	Faecal occult blood	
<input type="radio"/>	Faecal ova/parasite tests	
<input checked="" type="radio"/>	Sigmoidoscopy	Incorrect answer selected
<input type="radio"/>	Thyroid function test	

### Key Learning Points

#### Gastroenterology

- Patients who fulfil the diagnostic criteria for irritable bowel syndrome should be screened for other conditions with tissue transglutaminase (TTG) antibodies.

### Explanation

Patients who fulfil the diagnostic criteria for irritable bowel syndrome should be screened for other conditions with:

- full blood count (FBC)
- erythrocyte sedimentation rate (ESR) (or plasma viscosity)
- C-reactive protein (CRP)
- anti-endomysial antibodies (EMA), and
- tissue transglutaminase (TTG) antibodies.

This lady's presentation fits with a diagnosis of coeliac disease, which can present at any age (although peaks occur in babies and in the third decade).

In the UK 1% - 2% of the population are affected but many cases go under-diagnosed. The condition is caused by an immunological reaction to the gliadin fraction of wheat which provokes an inflammatory response and results in partial or total villous atrophy in the proximal small bowel (which resolves with a gluten-free diet).

HLA DQ2 is present in 90-95% of Caucasian patients with coeliac disease, the majority of the remainder have HLA DQ8. HLA-DQ2 is present in 20-30% of the Caucasian population and the possession of this HLA antigen alone is insufficient for development of coeliac disease.

Patients with coeliac disease present with diarrhoea, oral ulcers, weight loss, malaise, and abdominal pain. Nutritional deficiencies can result in neurological symptoms (ataxia, weakness, paraesthesia) and amenorrhoea. Folate, B12, or iron deficiency can be present as can osteomalacia and abnormal liver function tests. Some patients have dermatitis herpetiformis (an itchy rash mainly affecting the extensor aspects of the elbows).

Diagnosis is with anti-endomysial or tissue transglutaminase antibodies and upper GI endoscopy with duodenal biopsy. Treatment is by strict avoidance of wheat, rye, and barley. Folate, iron and calcium supplements may be required. Antibodies typically become negative if there is good compliance with a gluten-free diet.

There is no history of tropical travel so parasite infection is less likely here.

You would expect other symptoms to be described if this patient has hyperthyroidism.

This history is not classical for lower gastrointestinal malignancy and therefore sigmoidoscopy and faecal occult blood are less likely to reveal the underlying diagnosis here.

A 28-year-old woman presented to the gastroenterology clinic with recurrent chest pain. She had these episodes of pain usually while eating and they lasted 5-10 minutes. She also had significant weight loss of 19 kg over the last three months. Recently, she got alarmed when food, both solid and liquid, "seemed to get stuck" inside her chest.

What is the best method of diagnosis of this condition?

(Please select 1 option)

- |                       |                                |
|-----------------------|--------------------------------|
| <input type="radio"/> | Barium swallow study           |
| <input type="radio"/> | ECG                            |
| <input type="radio"/> | Echocardiography               |
| <input type="radio"/> | Esophageal manometry           |
| <input type="radio"/> | Upper GI endoscopy with biopsy |

Please select 1 option

<input type="radio"/>	Barium swallow study	
<input type="radio"/>	ECG	
<input type="radio"/>	Echocardiography	
<input type="radio"/>	Esophageal manometry	This is the correct answer
<input checked="" type="radio"/>	Upper GI endoscopy with biopsy	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Progressive dysphagia to both solids and liquids in young adults should prompt search for achalasia.

## Explanation

This young woman has dysphagia to both solids and liquids from the start. At this age, **achalasia** is the most likely diagnosis. Chest pain is also a typical feature of **achalasia** and results from oesophageal spasm. Regurgitation of food is also a common feature. Oesophageal manometry is the most sensitive test for diagnosis of achalasia.

Barium swallow study also is used for diagnosing achalasia. But barium swallow study shows dilated oesophagus. Manometry can detect **achalasia** in the early stage before oesophageal dilatation has occurred.

This is not a cardiac condition. Neither ECG nor echocardiography will help in diagnosis, but ECG can help to rule out a cardiac cause.

Upper GI endoscopy is not the preferred test for diagnosis of achalasia. It can show residual food particles and a dilated oesophagus, but diagnosis of the pressure alteration requires manometry. However, endoscopy is a necessary part of the diagnostic algorithm to rule out pseudo-achalasia.

A frail, 81-year-old man was admitted with a stroke. He had eight days of being nil by mouth so nasogastric feeding is commenced.

Following the commencement of nasogastric feeding, which biochemical abnormality is most likely to cause drowsiness?

(Please select 1 option)

<input type="radio"/>	Hyperglycaemia
<input type="radio"/>	Hypermagnesaemia
<input type="radio"/>	Hypernatraemia
<input type="radio"/>	Hypocalcaemia
<input type="radio"/>	Hypophosphataemia

- |                                  |                   |
|----------------------------------|-------------------|
| <input type="radio"/>            | Hyperglycaemia    |
| <input type="radio"/>            | Hypermagnesaemia  |
| <input type="radio"/>            | Hypernatraemia    |
| <input checked="" type="radio"/> | Hypocalcaemia     |
| <input type="radio"/>            | Hypophosphataemia |

Incorrect answer selected

This is the correct answer

## Key Learning Points

Gastroenterology, Geriatrics

- Refeeding syndrome is associated with hypophosphataemia.

## Explanation

The presentation suggests hypophosphataemia associated with refeeding syndrome. He has had a period of starvation and then feeding has been commenced.

This is well described in elderly, frail subjects who may have prior poor nutrition in addition to any period of oral starvation.

Other electrolyte abnormalities are also described in association with NG feeds, for example, hypernatraemia, but with this briefest of histories and the eight days, hypophosphataemia is the most likely.



A 58-year-old man complains of tiredness, fever, weight loss, arthralgia and diarrhoea.

Jejunal biopsy reveals flattened mucosa containing periodic acid-Schiff (PAS) positive macrophages.

Which is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Coeliac disease
<input type="radio"/>	Parasitic infection
<input type="radio"/>	Tropical sprue
<input type="radio"/>	Tuberculosis
<input type="radio"/>	Whipple's disease

<input type="radio"/>	Coeliac disease
<input type="radio"/>	Parasitic infection
<input checked="" type="radio"/>	Tropical sprue <span>Incorrect answer selected</span>
<input type="radio"/>	Tuberculosis
<input type="radio"/>	Whipple's disease <span>This is the correct answer</span>

## Key Learning Points

### Gastroenterology

- Whipple's disease is rare and most commonly affects middle-aged males. It can affect any organ but is dominated by involvement of small bowel, causing malabsorption.

## Explanation

Whipple's disease is rare and most commonly affects middle-aged males.

It can affect any organ but is dominated by involvement of small bowel, causing malabsorption.

The organism (*Tropheryma whippelii*) can be identified both between and within abnormal macrophages which stain *magenta* with PAS.

Treatment is with prolonged antibiotics, for example, parenteral penicillin and streptomycin for two weeks, followed by one year of doxycycline.

A 28-year-old man presents with change in bowel habit and a mass in his right iliac fossa.

He states that his father, grandfather, and uncle have had bowel cancer previously and his sister breast cancer.

He is subsequently diagnosed with bowel carcinoma, and is referred to genetics where he is diagnosed with hereditary non-polyposis colorectal carcinoma (HNPCC).

How would he have been screened had he been diagnosed with HNPCC prior to developing bowel carcinoma?

(Please select 1 option)

<input type="radio"/>	Colonoscopy every five years
<input type="radio"/>	Colonoscopy every two years
<input type="radio"/>	Computed Topography (CT) scan every two years
<input type="radio"/>	CT scan every five years
<input type="radio"/>	Sigmoidoscopy every two years

Please select 1 option

<input type="radio"/>	Colonoscopy every five years	
<input checked="" type="radio"/>	Colonoscopy every two years	This is the correct answer
<input type="radio"/>	Computed Topography (CT) scan every two years	Incorrect answer selected
<input type="radio"/>	CT scan every five years	
<input type="radio"/>	Sigmoidoscopy every two years	

## Key Learning Points

### Gastroenterology

- Individuals with HNPCC should have colonoscopic surveillance every two years from the age of 25.

## Explanation

HNPCC (also known as Lynch syndrome) is an autosomal dominant disorder of DNA mismatch repair gene on chromosome 2 and 3. Affected individuals have a 50-80% lifetime risk of developing colorectal carcinoma.

Individuals found to have HNPCC have colonoscopy every two years from the age of 25. If they have a relative who has been diagnosed with a bowel carcinoma prior to the age of 30, then colonoscopic screening might be recommended from an earlier age.

Sigmoidoscopy is not adequate: the whole colon needs to be visualised.

CT is not as sensitive as colonoscopy at diagnosing bowel malignancy, and the use of radiation in this context is not justified.

A 54-year-old woman presented with an 18-month history of chest pain and dysphagia for both solids and liquids.

She smokes 20 cigarettes per day and drinks 16 units of alcohol per week.

Clinical examination was normal.

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Achalasia
<input type="radio"/>	Bronchial neoplasm
<input type="radio"/>	Oesophageal neoplasm
<input type="radio"/>	Oesophageal web
<input type="radio"/>	Pharyngeal pouch

<input type="radio"/>	Achalasia <span>This is the correct answer</span>
<input type="radio"/>	Bronchial neoplasm
<input type="radio"/>	Oesophageal neoplasm
<input checked="" type="radio"/>	Oesophageal web <span>Incorrect answer selected</span>
<input type="radio"/>	Pharyngeal pouch

### Key Learning Points

#### Gastroenterology

- A longstanding history of dysphagia to both solids and liquids suggests a functional rather than mechanical cause for the dysphagia.

### Explanation

A longstanding history of dysphagia to both solids and liquids suggests a functional rather than mechanical cause for the dysphagia.

This patient has dysphagia to both liquids and solids. This pattern of dysphagia is usually suggestive of a motility disorder rather than an obstructive issue. Obstructive causes tend to cause progressive symptoms and a bronchial carcinoma large enough to cause significant oesophageal compression is likely to be so advanced that 18-month survival without treatment and no other additional symptoms would be a rarity.

Dysphagia as a function of extrinsic compression of any source, but particularly due to a large bronchial Ca is comparatively rare compared to oesophageal causes. Hence a neoplasm or other obstructive lesion is unlikely.

Chest pain is not a typical feature of a pharyngeal pouch.

Achalasia, in which there is failure of oesophageal peristalsis and of relaxation of the lower oesophageal sphincter, typically causes the symptoms described above.

In severe acute pancreatitis, supplemental parenteral nutrition should be provided if enteral feeding is not achieved within what period of time?

(Please select 1 option)

<input type="radio"/>	1 to 2 days
<input type="radio"/>	2 to 3 days
<input type="radio"/>	5 to 7 days
<input type="radio"/>	7 to 10 days
<input type="radio"/>	10 to 14 days

(Please select 1 option)

<input type="radio"/>	1 to 2 days
<input type="radio"/>	2 to 3 days <span>This is the correct answer</span>
<input type="radio"/>	5 to 7 days
<input checked="" type="radio"/>	7 to 10 days <span>Incorrect answer selected</span>
<input type="radio"/>	10 to 14 days

## Key Learning Points

### Gastroenterology

- In severe acute pancreatitis if enteral feeding is not achieved within 48 to 72 hours supplemental parenteral nutrition should be provided.

## Explanation

To maintain gut barrier function and prevent early bacterial translocation, enteral feeding should ideally be started within the first 24 hours of admission. The presence of fluid collections in severe pancreatitis or raised pancreatic enzymes is not necessarily a contraindication to oral or enteral feeding.

In a subgroup of patients there is correlation of pain, recurrence of disease, or worsening of fluid collections with feeding, whether oral or enteral. If the fluid collections are not suitable for drainage or if enteral feeding is not achieved within 48 to 72 hours, supplemental parenteral nutrition should be provided.



A 35-year-old man is referred to the gastroenterology clinic with persistent pain in the rectum. The patient reports recurrent painful oral ulcers.

On direct questioning he admits to red and painful eyes. He also reports he has recently noticed an ulcer over his scrotum.

On examination there is evidence of oral aphthous ulceration; abdominal examination reveals tenderness in the right iliac fossa and a bruit on auscultation of the abdomen. Rectal examination demonstrates perianal ulceration.

What is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Behçet's syndrome
<input type="radio"/>	Crohn's disease
<input type="radio"/>	HIV infection
<input type="radio"/>	Syphilis
<input type="radio"/>	Tuberculosis

<input type="radio"/>	Behçet's syndrome	This is the correct answer
<input type="radio"/>	Crohn's disease	
<input type="radio"/>	HIV infection	
<input type="radio"/>	Syphilis	
<input checked="" type="radio"/>	Tuberculosis	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Diagnostic criteria for Behçet's syndrome include oral aphthous ulcers which are painful, recurrent and non-scarring.

## Explanation

Behçet's syndrome is a vasculitis of unknown pathophysiology.

Onset of disease is typically in the third and fourth decades. It is more common in men in the Middle East and women in the Far East.

Diagnostic criteria include oral aphthous ulcers which are painful, recurrent and non-scarring and two of:

- genital ulceration
- uveitis
- pustular vasculitis and synovitis, and
- meningoencephalitis.

And the exclusion of inflammatory bowel disease, systemic lupus erythematosus, Reiter's syndrome, and herpes.

Aphthoid ulcers can occur anywhere in the gastrointestinal tract but are most commonly found in the ileo-caecal region, right colon and oesophagus.<sup>1</sup>

The presence of genital ulcers and the absence of significant bowel symptoms both go against a diagnosis of Crohn's disease, rather than the presence of an abdominal bruit which is a rare finding in vasculitis.<sup>2</sup>

A 50-year-old woman with a long history of alcohol abuse is prescribed phenytoin for epilepsy.

Examination was normal except for a liver edge.

Her full blood count reveals:

Haemoglobin	100 g/L	(115-165)
MCV	122 fL	(80-96)
White cell count	$2.2 \times 10^9/\text{L}$	(4-11)
Platelet count	$85 \times 10^9/\text{L}$	(150-400)

Which is the most likely explanation for these results?

(Please select 1 option)

<input type="radio"/>	Alcoholic liver disease
<input type="radio"/>	Aplastic anaemia
<input type="radio"/>	Folic acid deficiency
<input type="radio"/>	Hypothyroidism
<input type="radio"/>	Vitamin C deficiency

<input type="radio"/>	Alcoholic liver disease	
<input type="radio"/>	Aplastic anaemia	
<input type="radio"/>	Folic acid deficiency	This is the correct answer
<input type="radio"/>	Hypothyroidism	
<input checked="" type="radio"/>	Vitamin C deficiency	Incorrect answer selected

## Key Learning Points

Gastroenterology, Haematology

- Folic acid deficiency is associated with alcoholism and presents with macrocytic anaemia.

## Explanation

Folic acid deficiency would give all these results. In addition, she has good reason to be folate deficient since she drinks a considerable amount and is taking anticonvulsants.

Alcoholic liver disease on its own would not make her leucopenic.

Hypothyroidism would cause a raised MCV, but not the other parameters.

Scurvy does not cause this picture.

Aplastic anaemia could cause this haematological picture but the clinical scenario leads towards folic acid deficiency.

A 39-year-old man who is known to drink three bottles of wine per day presents to the Emergency Department with dull abdominal pain. He tells you that he has suffered from increasing abdominal swelling over the past month.

On examination his BP is 105/72 mmHg, his pulse is 92 and regular. He is pyrexial 37.9°C. His abdomen is generally tender but there are bowel sounds on auscultation. He is penicillin allergic.

Investigations show:

Haemoglobin	105 g/L	(135-177)
White cell count	$11.5 \times 10^9/L$	(4-11)
Platelets	$125 \times 10^9/L$	(150-400)
Sodium	134 mmol/L	(135-146)
Potassium	3.6 mmol/L	(3.5-5)
Creatinine	90 $\mu\text{mol/L}$	(79-118)
Neutrophils / ml in ascitic fluid	280	(<250)

Which of the following is the most appropriate treatment?

(Please select 1 option)

<input type="radio"/>	Ciprofloxacin and vancomycin
<input type="radio"/>	Co-amoxiclav
<input type="radio"/>	Erythromycin and ciprofloxacin
<input type="radio"/>	Erythromycin and metronidazole
<input type="radio"/>	Piperacillin and tazobactam

(Please select 1 option)

- |                                  |                                |                            |
|----------------------------------|--------------------------------|----------------------------|
| <input type="radio"/>            | Ciprofloxacin and vancomycin   | This is the correct answer |
| <input type="radio"/>            | Co-amoxiclav                   |                            |
| <input type="radio"/>            | Erythromycin and ciprofloxacin |                            |
| <input type="radio"/>            | Erythromycin and metronidazole |                            |
| <input checked="" type="radio"/> | Piperacillin and tazobactam    | Incorrect answer selected  |

## Key Learning Points

### Gastroenterology

- Spontaneous bacterial peritonitis should be managed aggressively.

## Explanation

The diagnosis here is spontaneous bacterial peritonitis. Note the history of alcohol excess, gradually increasing abdominal girth, and elevated neutrophil count in the ascitic fluid.

Spontaneous bacterial peritonitis should be managed aggressively, and whilst piperacillin and tazobactam are an appropriate choice in those who are not penicillin allergic. In this case ciprofloxacin and vancomycin are the default choice due to the presence of penicillin allergy. Oral continuation therapy is with ciprofloxacin alone or co-trimoxazole.

Co-amoxiclav is not appropriate due to the presence of penicillin allergy, nor is the piperacillin and tazobactam combination.

The two erythromycin combinations do not provide an adequate breadth of coverage.

A 32-year-old female presents with pruritus and jaundice. She is 30 weeks gestation in her first pregnancy.

Two weeks earlier she had been treated by the ENT surgeons after presenting to the Emergency Department with intractable nose bleeds.

Liver function tests reveal:

ALT	72 U/L	(5-40)
Alkaline phosphatase	700 U/L	(30-110)
Bilirubin	80 $\mu$ mol/L	(1-18)
Serum bile acids	100 times normal titre	

Which of the following statements is correct concerning this patient?

(Please select 1 option)

<input type="radio"/>	ALP does not increase in a normal pregnancy
<input type="radio"/>	Maternal hepatic blood flow does not increase in pregnancy
<input type="radio"/>	Treatment options include IV N-acetyl cysteine
<input type="radio"/>	Varices are diagnostic of liver disease in pregnancy
<input type="radio"/>	Viral hepatitis is the likely diagnosis

- ☐ ALP does not increase in a normal pregnancy
- ☒ Maternal hepatic blood flow does not increase in pregnancy

This is the correct answer

- ☐ Treatment options include IV N-acetyl cysteine
- ☐ Varices are diagnostic of liver disease in pregnancy

- ☒ Viral hepatitis is the likely diagnosis

Incorrect answer selected

### Key Learning Points

Liver Disorders, Obs & Gynae, Obstetrics

- Cardiac output and blood volume increase in pregnancy but hepatic blood flow does not.

### Explanation

The diagnosis here is intrahepatic cholestasis which presents with markedly elevated serum bile acids (cholyglycine).

It presents in the second or third trimester and usually, the alkaline phosphatase (ALP) is 7-10 times normal with raised alanine transaminase (ALT), aspartate transaminase (AST) and bilirubin.

Cardiac output and blood volume increase in pregnancy but hepatic blood flow does not.

Treatment options include ursodeoxycholic acid, cholestyramine, phenobarbital and vitamin K to treat the coagulopathy.

ALP rises in pregnancy but not to this extent. The placenta is the source of the raised ALP.

Viral hepatitis is the commonest cause of jaundice in pregnancy but the elevated bile acids make this unlikely in this case.



A 44-year-old gentleman with dyspepsia associated with *H. pylori* was recently treated with triple therapy. He returns to your clinic for follow up to ensure the infection has been cleared.

Which is the most appropriate test to confirm eradication?

(Please select 1 option)

<input type="radio"/>	Endoscopic biopsy culture
<input type="radio"/>	<i>H. pylori</i> antigen on blood sample
<input type="radio"/>	Rapid urease test during endoscopy
<input type="radio"/>	Stool sample for <i>H. pylori</i> antigen
<input type="radio"/>	Urea breath test

<input type="radio"/>	Endoscopic biopsy culture
<input type="radio"/>	H.pylori antigen on blood sample
<input type="radio"/>	Rapid urease test during endoscopy
<input type="radio"/>	Stool sample for H.pylori antigen
<input checked="" type="radio"/>	Urea breath test <span>Correct</span>

## Key Learning Points

### Gastroenterology

- Urea breath test used to confirm H. pylori eradication as it is non-invasive and has a high sensitivity (95-98%) and specificity (98%).

## Explanation

The gold standard test for confirming *Helicobacter pylori* eradication is the urea breath test. Patients swallow urea labelled with a carbon isotope. If H. pylori is present in the stomach, its urease enzyme splits the urea and isotope-labelled carbon dioxide is present in the patient's exhaled breath (within 10-30 m). This can be measured either by scintillation or mass spectrometry depending on the carbon isotope used. A baseline breath sample is also required from the patient. Patients should have stopped antibiotics at least four weeks prior to the test being done, and proton pump inhibitors at least two weeks prior. The test has high sensitivity (95-98%) and high specificity (98%) for confirming H. pylori eradication.

The rapid urease test requires a biopsy sample (taken at OGD) and has a lower sensitivity.

Serum antibody will remain positive after eradication and has a lower sensitivity and specificity as well.

Culture of gastric biopsy has a higher specificity (100%) but is less sensitive and more invasive. It is used more commonly when testing antibiotic sensitivity in H. pylori which is resistant to initial triple therapy.

Stool sample is less specific and sensitive than the urea breath test.

A 55-year-old male is admitted with vomiting. He has a long history of alcohol abuse, appears slightly jaundiced, and is dishevelled and unkempt.

He was started on an intravenous glucose infusion and diazepam and he symptomatically improved.

One day later he became confused, developed vomiting and diplopia, and was unable to stand.

What is the most likely diagnosis?

(Please select 1 option)

☐ Benzodiazepine intoxication

☐ Delirium tremens

☐ Hepatic encephalopathy

☐ Subdural haematoma

☐ Vitamin B deficiency

<input type="radio"/>	Benzodiazepine intoxication	
<input type="radio"/>	Delirium tremens	
<input checked="" type="radio"/>	Hepatic encephalopathy	Incorrect answer selected
<input type="radio"/>	Subdural haematoma	
<input type="radio"/>	Vitamin B deficiency	This is the correct answer

## Key Learning Points

### Gastroenterology, Neurology

- IV dextrose administration can exhaust vitamin B reserves. B vitamins must be administered to all alcoholic patients requiring dextrose.

## Explanation

This patient is manifesting signs of Wernicke's encephalopathy with confusion, oculomotor signs, and ataxia affecting gait and stance.

Wernicke's encephalopathy is a medical emergency, requiring urgent intravenous thiamine.

The episode has been precipitated by intravenous dextrose administration which has exhausted his vitamin B reserves, hence B vitamins must be administered to all alcoholic patients requiring dextrose.

Which of the following symptoms is most commonly seen in patients with achalasia?

(Please select 1 option)

- |                       |                       |
|-----------------------|-----------------------|
| <input type="radio"/> | Aspiration            |
| <input type="radio"/> | Dysphagia to liquids  |
| <input type="radio"/> | Dysphagia to solids   |
| <input type="radio"/> | Regurgitation         |
| <input type="radio"/> | Retrosternal fullness |

(Please select 1 option)

<input type="radio"/>	Aspiration	
<input type="radio"/>	Dysphagia to liquids	
<input type="radio"/>	Dysphagia to solids	This is the correct answer
<input type="radio"/>	Regurgitation	
<input checked="" type="radio"/>	Retrosternal fullness	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Dysphagia is the most common symptom in patients with achalasia, with the majority suffering from dysphagia to solids.

## Explanation

Dysphagia is the most common symptom in patients with [achalasia](#), with 91% presenting with dysphagia to solids and 85% with dysphagia to liquids.

[Achalasia](#) involves the selective loss of inhibitory neurones in the myenteric plexus. This leads to the production of vasoactive intestinal polypeptide, nitric oxide, and inflammatory infiltrate responsible for abnormal lower oesophageal sphincter dysfunction and failure to relax in response to swallowing.

The mechanisms responsible for the loss of inhibitory neurones is not well understood. Previous studies suggest hereditary, neurodegenerative, genetic, infectious and autoimmune mechanisms. It is thought most likely to be caused by viral and autoimmune factors leading to the inflammatory changes and damage to the myenteric plexus.

Regurgitation of undigested food or saliva also occurs in patients with [achalasia](#) and regurgitation may lead to aspiration (occurring in 8%). Patients may also suffer from a sensation of retrosternal fullness following a meal.

A 58-year-old female with type 2 diabetes is admitted with diarrhoea and vomiting. She has noticed small amounts of blood in her stools. The vomiting had commenced one day after a meal of chicken and chips.

The patient's type 2 diabetes is treated with diet alone. Stool cultures taken by the GP reveal *Campylobacter jejuni*.

Which of the following is the most appropriate therapy?

(Please select 1 option)

<input type="radio"/>	Amoxicillin
<input type="radio"/>	Cefaclor
<input type="radio"/>	IV fluids
<input type="radio"/>	Metronidazole
<input type="radio"/>	Trimethoprim

<input type="radio"/>	Amoxicillin
<input type="radio"/>	Cefaclor
<input checked="" type="radio"/>	IV fluids <span>This is the correct answer</span>
<input type="radio"/>	Metronidazole <span>Incorrect answer selected</span>
<input type="radio"/>	Trimethoprim

## Key Learning Points

### Gastroenterology, Infectious Diseases

- In cases of *Campylobacter*, appropriate fluid replacement and anti-emetics are initially indicated; most units advocate no antibiotic treatment as the illness is usually self limiting.

## Explanation

*Campylobacter* is a leading cause of diarrhoeal illness, often caused by ingestion of undercooked meat harbouring the pathogen. It is also a major cause of traveller's diarrhoea.

The use of antibiotic therapy for the management of *Campylobacter* infection in adults is controversial. Antibiotic of choice in this infection is erythromycin, although ciprofloxacin and tetracycline may also be appropriate.

However, appropriate fluid replacement and anti-emetics are initially indicated; most units advocate no antibiotic treatment.



A 40-year-old single man returned from holiday in Europe with mild bloody diarrhoea which had lasted for two weeks. He had lost 2.5 kg in weight, had occasional lower abdominal cramping discomfort and a painful swelling of his left knee.

Which is the most likely diagnosis?

(Please select 1 option)

- |                       |                                |
|-----------------------|--------------------------------|
| <input type="radio"/> | Amoebiasis                     |
| <input type="radio"/> | <i>Campylobacter</i> infection |
| <input type="radio"/> | Crohn's disease                |
| <input type="radio"/> | Gonococcal septicaemia         |
| <input type="radio"/> | Ulcerative colitis             |

<input type="radio"/>	Amoebiasis	
<input type="radio"/>	<i>Campylobacter</i> infection	This is the correct answer
<input type="radio"/>	Crohn's disease	
<input checked="" type="radio"/>	Gonococcal septicaemia	Incorrect answer selected
<input type="radio"/>	Ulcerative colitis	

## Key Learning Points

### Gastroenterology, Infectious Diseases

- *Campylobacter* infection is one of the commonest causes of inflammatory diarrhoea with pain often a prominent feature of the illness frequently localising to the right iliac fossa. Symptoms may last a week or longer.

## Explanation

*Campylobacter* infection is one of the commonest causes of inflammatory diarrhoea. Abdominal pain is often a prominent feature of the illness frequently localising to the right iliac fossa. Diarrhoea may be mild or very severe often with passage of blood. Symptoms may last a week or longer.

Reactive arthritis and Reiter's syndrome can develop following infection with a number of enteric pathogens including *Shigella*, *Salmonella*, *Campylobacter* and *Yersinia*.

A 40-year-old woman presents with dysphagia and weight loss for three months as well as vomiting, which she describes as containing recognisable pieces of food. She reports that the symptoms are progressive and that it is predominantly solid food which she cannot tolerate, but on further questioning she reports she has had trouble with liquids too.

A CXR shows what looks like a fluid level behind the right heart border.

Which is the most likely diagnosis?

(Please select 1 option)

- |                       |                            |
|-----------------------|----------------------------|
| <input type="radio"/> | Achalasia                  |
| <input type="radio"/> | Intussusception            |
| <input type="radio"/> | Multiple sclerosis         |
| <input type="radio"/> | Oesophageal adenocarcinoma |
| <input type="radio"/> | Pharyngeal pouch           |

(Please select 1 option)

<input type="radio"/>	Achalasia <b>This is the correct answer</b>
<input type="radio"/>	Intussusception
<input checked="" type="radio"/>	Multiple sclerosis <b>Incorrect answer selected</b>
<input type="radio"/>	Oesophageal adenocarcinoma
<input type="radio"/>	Pharyngeal pouch

## Key Learning Points

### Gastroenterology

- Achalasia is caused by dysfunction of the lower oesophageal sphincter, which can be treated with endoscopic dilatation or surgical myotomy.

## Explanation

**Achalasia** is the inability of the lower oesophageal sphincter to relax, causing a functional stricturing of the oesophagus.

Patients usually complain of dysphagia to both solids and liquids though the former is slightly more common.

Chest x ray may demonstrate the presence of a fluid level behind the heart. Barium swallow may show a classical bird beak appearance, and treatment is primarily endoscopic or surgical with oesophageal dilatation or surgical myotomy.

Pharyngeal pouch is an option in this scenario however patients classically report a gurgling sensation in their throat and also complain of halitosis.

**Oesophageal cancer** is classically associated with significant weight loss and progressive dysphagia to solids and then liquids.

One would expect other systemic symptoms if MS were the underlying diagnosis.

Intussusception is a predominantly seen in children, where one end of bowel is invaginated by the other producing bloody "redcurrant jelly" stools.

Which of the following drugs is a recognised cause of pancreatitis?

(Please select 1 option)

☐ Alendronic acid

☐ Amiodarone

☐ Amitriptyline

☐ Atenolol

☐ Azathioprine

Please select 1 option

☐ Alendronic acid

☐ Amiodarone

☐ Amitriptyline

☐ Atenolol

☒ Azathioprine **Correct**

## Key Learning Points

### Gastroenterology

- Pancreatitis is a rare adverse effect of azathioprine.

## Explanation

The correct answer is azathioprine.

The remaining listed options are not known to cause pancreatitis.

Dr Assem

A 43-year-old female presents with abdominal pain and watery diarrhoea. She is taking ibuprofen for joint pains and has been previously investigated for infertility. She was given a proton pump inhibitor by her GP for six weeks with no relief of her symptoms.

Investigations:

Haemoglobin	122 g/L	(115-165)
Calcium	2.86 mmol/L	(2.2-2.6)
Albumin	42 g/L	(37-49)
Phosphate	0.8 mmol/L	(0.8-1.4)
CRP	10 mg/L	(<10)
Endoscopy	Multiple small duodenal ulcers	
H. pylori	Negative	

What is the likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Crohn's disease
<input type="radio"/>	Cushing's syndrome
<input type="radio"/>	Multiple endocrine neoplasia
<input type="radio"/>	NSAID induced PUD
<input type="radio"/>	Small bowel lymphoma

(Please select 1 option)

<input type="radio"/>	Crohn's disease	
<input type="radio"/>	Cushing's syndrome	
<input type="radio"/>	Multiple endocrine neoplasia	This is the correct answer
<input type="radio"/>	NSAID induced PUD	
<input checked="" type="radio"/>	Small bowel lymphoma	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Hypercalcaemia with multiple duodenal ulcers in a young patient should trigger alarm bells for MEN.

## Explanation

The CRP is not raised, making a diagnosis of Crohn's unlikely.

The duodenal ulcers (DUs) have persisted despite a lengthy treatment with PPIs.

Small bowel lymphoma is suggested by narrowing of the intestine lumen resulting in paraumbilical pain made worse by eating, with weight loss, vomiting and occasional intestinal obstruction. Small bowel lymphoma is diagnosed by contrast radiographs and intestinal biopsy.

The most likely diagnosis here is MEN; likely MEN1a (Wermer's syndrome).

Multiple DUs make a diagnosis of Zollinger-Ellison syndrome likely, due to gastrinomas.

Hypergastrinaemia may be the cause of the diarrhoea.

There is also hypercalcaemia as a result of the parathyroid hyperplasia indicative of this condition. There may not necessarily be a family history, sporadic cases make up 10% of new cases.

The infertility would fit with a prolactinoma.

Dr. Arsen



Which of the following dermatological conditions is associated with oesophageal carcinoma?

(Please select 1 option)

- |                       |                               |
|-----------------------|-------------------------------|
| <input type="radio"/> | Acanthosis nigricans          |
| <input type="radio"/> | Ichthyosis                    |
| <input type="radio"/> | Necrolytic migratory erythema |
| <input type="radio"/> | Tylosis                       |
| <input type="radio"/> | Vasculitis                    |

<input type="radio"/>	Acanthosis nigricans	
<input type="radio"/>	Ichthyosis	
<input type="radio"/>	Necrolytic migratory erythema	
<input checked="" type="radio"/>	Tylosis	This is the correct answer
<input type="radio"/>	Vasculitis	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- In tylosis there is palmar and plantar keratosis, this is associated with oesophageal cancer.

## Explanation

Acanthosis nigricans is associated with gastric adenocarcinoma.

Ichthyosis is associated with lymphoma.

Glucagonoma is associated with necrolytic migratory erythema.

Malignancy-associated vasculitis is associated with haematological rather than solid malignancies.

A 53-year-old woman with rheumatoid arthritis was referred with iron deficiency anaemia.

Endoscopy revealed several superficial antral erosions with small bowel biopsy showing mild villous blunting, apoptotic bodies, occasional eosinophils and mild increase in chronic inflammatory cells.

Colonoscopy was reported as normal.

What is the most likely cause of these findings?

(Please select 1 option)

<input type="radio"/>	Coeliac disease
<input type="radio"/>	Crohn's disease
<input type="radio"/>	Non-steroidal anti-inflammatory drug therapy
<input type="radio"/>	Small bowel lymphoma
<input type="radio"/>	Whipple's disease

<input type="radio"/>	Coeliac disease	
<input type="radio"/>	Crohn's disease	
<input type="radio"/>	Non-steroidal anti-inflammatory drug therapy	This is the correct answer
<input checked="" type="radio"/>	Small bowel lymphoma	Incorrect answer selected
<input type="radio"/>	Whipple's disease	

## Key Learning Points

### Gastroenterology, Rheumatology

- In patients with rheumatoid arthritis, chronic NSAID use can lead to complications such as iron deficiency anaemia and the superficial ulceration on endoscopy.

## Explanation

This salient features in this patient's case revolve around the fact that she has rheumatoid arthritis (hence the requirement for NSAIDs), the iron deficiency anaemia and the superficial ulceration on endoscopy with features indicative of inflammation due to the chronic NSAID use.

Coeliac disease is associated with villous atrophy and lymphocyte infiltration. There is no suggestion on the biopsy of lymphocyte infiltration which argues against lymphoma or coeliac.

Which of the following is correct regarding reflux of gastric contents into the oesophagus?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | Can be excluded by a normal appearance at endoscopy                   |
| <input type="radio"/> | Can be improved by <i>Helicobacter pylori</i> eradication             |
| <input type="radio"/> | Is a cause of asthma  |
| <input type="radio"/> | Is neutralised by bicarbonate secreted by the oesophageal mucosa      |
| <input type="radio"/> | Occurs during transient relaxation of the lower oesophageal sphincter |

(Please select 1 option)

<input type="radio"/>	Can be excluded by a normal appearance at endoscopy
<input type="radio"/>	Can be improved by <i>Helicobacter pylori</i> eradication
<input type="radio"/>	Is a cause of asthma
<input type="radio"/>	Is neutralised by bicarbonate secreted by the oesophageal mucosa
<input checked="" type="radio"/>	Occurs during transient relaxation of the lower oesophageal sphincter <span>Correct</span>

## Key Learning Points

### Gastroenterology

- *H. pylori* eradication is indicated in long term healing of gastric and duodenal ulceration, but not reflux disease.

## Explanation

Diagnosis is based predominantly on history, with a proportion of patients with reflux disease having a normal endoscopy.

*H. pylori* eradication is indicated in long term healing of gastric and duodenal ulceration, but not reflux disease.

Whilst it is true the oesophagus secretes bicarbonate, the statement here is not true. It is a fairly weak defence and is not able to neutralise any gastric contents which reflux up the oesophagus. More effective Brunner's glands which secrete alkaline mucus are found in the duodenum.

The link between asthma and **gastro-oesophageal reflux disease** is a complex one, but a recent systemic review indicates that there is a significant association but there is a lack of data on the direction of causality. It is therefore not possible to conclude that GORD is a cause of asthma.

You are asked to review the blood results of an 18-year-old woman who is known to have anorexia nervosa. She is under close review by the dietician who has asked you to ensure electrolytes are checked daily.

Which of the following is a feature of the potentially life-threatening complication this lady is at risk of developing?

(Please select 1 option)

- |                       |                    |
|-----------------------|--------------------|
| <input type="radio"/> | Hypercalcaemia     |
| <input type="radio"/> | Hyperkalaemia      |
| <input type="radio"/> | Hypermagnesaemia   |
| <input type="radio"/> | Hyperphosphataemia |
| <input type="radio"/> | Hypophosphataemia  |

(Please select 1 option)

<input type="radio"/>	Hypercalcaemia	
<input type="radio"/>	Hyperkalaemia	
<input type="radio"/>	Hypermagnesaemia	
<input checked="" type="radio"/>	Hyperphosphataemia	Incorrect answer selected
<input type="radio"/>	Hypophosphataemia	This is the correct answer

### Key Learning Points

#### Gastroenterology

- Hypophosphataemia is a key feature of refeeding syndrome.

### Explanation

There are potentially fatal complications which can result from refeeding patients who have had periods of starvation, including those with anorexia nervosa. Hypophosphataemia is a key feature of refeeding syndrome.

Refeeding syndrome is defined as the clinical complications which arise as a consequence of fluid and electrolyte shifts during the nutritional support of malnourished patients.

Refeeding syndrome comprises:

- Hypophosphataemia
- Hypokalaemia
- Hypomagnesaemia
- Deficiencies in vitamins, for example, thiamine and trace minerals, and
- Fluid overload with oedema.

The fluid retention may contribute to cardiac failure.



	550 U/L	(150-100)
Blood film	No malaria parasites seen	
Alk Phos	450 U/L	(45-105)
AST	50 U/L	(1-31)
CRP	88 mg/L	(<10)
Stool culture	Negative	-
Chest x ray	Small right pleural effusion noted	

visit to Pakistan. He

a. His abdomen was

Which of the following investigations would be of most diagnostic value?

(Please select 1 option)

<input type="radio"/>	Hepatitis E serology
<input type="radio"/>	Sigmoidoscopy
<input type="radio"/>	Stool microscopy for ova, cysts, and parasites
<input type="radio"/>	Typhoid serology
<input type="radio"/>	Ultrasound scan of the abdomen

(Please select 1 option)

<input type="radio"/>	Hepatitis E serology
<input type="radio"/>	Sigmoidoscopy
<input type="radio"/>	Stool microscopy for ova, cysts, and parasites
<input type="radio"/>	Typhoid serology
<input checked="" type="radio"/>	Ultrasound scan of the abdomen <span>Correct</span>

### Key Learning Points

Gastroenterology, Infectious Diseases

- Ultrasound scan would confirm most moderate-sized to large liver abscesses and could guide a diagnostic aspiration.

### Explanation

The presentation is not consistent with hepatitis E infection.

Typhoid serology is unreliable.

The differential diagnosis is mainly pyogenic or amoebic liver abscess.

Pyogenic abscesses present with swinging pyrexia, neutrophilia and high inflammatory markers. Right-sided pleural effusions are common and blood cultures are often positive.

The presentation of amoebic **liver abscess** (ALA) is very similar. Most patients do not have bowel symptoms at any time and amoebic cysts are found in stool in less than 50% of proven cases of ALA.

Serology is the mainstay of diagnosis.

Ultrasound scan would confirm most moderate-sized to large liver abscesses and could guide a diagnostic aspiration.

Small lesions are best demonstrated by CT or MRI.

What is the approximate incidence of forming pigment gallstones in patients with sickle cell disease?

(Please select 1 option)

☐ 20%

☐ 30%

☐ 50%

☐ 80%

☐ 90%

- |                                  |                                       |
|----------------------------------|---------------------------------------|
| <input type="radio"/>            | 20%                                   |
| <input type="radio"/>            | 30%                                   |
| <input type="radio"/>            | 50% <b>This is the correct answer</b> |
| <input type="radio"/>            | 80%                                   |
| <input checked="" type="radio"/> | 90% <b>Incorrect answer selected</b>  |

## Key Learning Points

### Gastroenterology, Haematology

- The incidence of patients with haemolytic disorders such as sickle cell disease and hereditary spherocytosis forming pigment gallstones is approximately 50% due to an increase in bilirubin excretion.

## Explanation

Patients with haemolytic disorders such as sickle cell disease and hereditary spherocytosis have an approximately 50% incidence of forming pigment gallstones.

Black pigment gallstones are common in sickle cell disease and are due to an increase in bilirubin excretion. Their small size allows migration into the common bile duct causing low-grade obstruction typically leading to hyperbilirubinaemia rather than bile duct dilatation. In view of the high incidence of gallstones with such conditions cholecystectomy is suggested for patients with sickle cell disease if abdominal surgery is being performed for other reasons.

A 16-year-old boy with cystic fibrosis presents with abdominal pain. There is no associated nausea and vomiting.

Which of the following is most likely to be the cause?

(Please select 1 option)

<input type="radio"/>	Distal intestinal obstruction syndrome
<input type="radio"/>	Irritable bowel syndrome
<input type="radio"/>	Pyelonephritis
<input type="radio"/>	Renal calculi
<input type="radio"/>	Ulcerative colitis

<input type="radio"/>	Distal intestinal obstruction syndrome	This is the correct answer
<input type="radio"/>	Irritable bowel syndrome	
<input type="radio"/>	Pyelonephritis	
<input checked="" type="radio"/>	Renal calculi	Incorrect answer selected
<input type="radio"/>	Ulcerative colitis	

### Key Learning Points

#### Gastroenterology, Respiratory Medicine

- Distal intestinal obstruction syndrome occurs in 10-20% of patients with cystic fibrosis and incidence increases with age with around 80% of cases presenting for the first time in adults.

### Explanation

Distal intestinal obstruction syndrome occurs in 10-20% of patients with **cystic fibrosis** and incidence increases with age. About 80% of cases present for the first time in adults.

The pathogenesis is partially due to loss of CFTR function in the intestine which results in deregulation of chloride secretion from the crypts, bicarbonate secretion from Brunner's glands and sodium transport. This leads to the accumulation of viscous mucus and faecal material in the terminal ileum, caecum, and ascending colon.

Investigation should include a plain abdominal radiograph which classically shows faecal loading in the right iliac fossa, dilatation of the ileum and an empty distal colon.

Ultrasound may be helpful in identifying an obstruction mass but cannot be relied upon to exclude other causes of pain and bowel obstruction.

CT can help with diagnosis and shows dilated small bowel and proximal colon with or without intestinal wall swelling.

Treatment for mild and moderate episodes is initially with hydration and full dietetic review to ensure that the pancreatic enzyme dose is titrated to fat intake. Regular laxatives should be given, for example, senna and lactulose.

In addition, N-acetylcysteine can be used in moderate episodes. This loosens and softens the plugs, presumably by 'opening' the disulphide bonds in the abnormal intestinal mucus and maintains luminal patency.

Severe episodes can be treated with gastrograffin or Klean-Prep, taken regularly.

If there are signs of peritoneal irritation or complete bowel obstruction, surgical review should be obtained. Surgeons will often treat initially with intravenous fluids and an NG tube whilst keeping the patient nil by mouth. N-acetylcysteine can be put down the NG tube.

In resistant cases, phosphate or gastrograffin enemas can be used, or colonoscopy with installation of gastrograffin.

A 63-year-old patient with known alcohol-related cirrhosis presented with ascites, abdominal tenderness, and peripheral oedema.

A diagnostic tap revealed a neutrophil count of  $400/\text{mm}^3$  ( $<250/\text{mm}^3$ ).

Which of the following would be of most immediate benefit?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | Fluid restriction and a no added salt diet      |
| <input type="radio"/> | Intravenous antibiotics                         |
| <input type="radio"/> | Oral spironolactone                             |
| <input type="radio"/> | Therapeutic paracentesis                        |
| <input type="radio"/> | Trans-jugular intrahepatic porto-systemic shunt |

Please select 1 option)

- |                                  |   |                            |
|----------------------------------|---|----------------------------|
| <input type="radio"/>            | Fluid restriction and a no added salt diet      |                            |
| <input type="radio"/>            | Intravenous antibiotics                         | This is the correct answer |
| <input type="radio"/>            | Oral spironolactone                             |                            |
| <input checked="" type="radio"/> | Therapeutic paracentesis                        | Incorrect answer selected  |
| <input type="radio"/>            | Trans-jugular intrahepatic porto-systemic shunt |                            |

## Key Learning Points

Gastroenterology, Infectious Diseases

- An ascitic neutrophil count of  $>250/\text{mm}^3$  is indicative of spontaneous bacterial peritonitis which should be treated with IV antibiotics.

## Explanation

This man has spontaneous bacterial peritonitis (SBP).

Appropriate treatment is IV antibiotics.

He is likely to have a decreased intravascular volume and require IV albumin as volume expansion.

Fluid restriction, diuretics, or large volume paracentesis are likely to cause further hypovolaemia and precipitate renal failure.

There is no stated indication for a TIPSS, indications are:

- diuretic resistant ascites
- intractable portal hypertensive bleeding, and
- hepato-renal failure.



A 71-year-old woman comes to the clinic for advice.

Over the course of the past year or two, she has had increasing problems with regurgitation of rotten food, has lost weight and acquired a chronic cough. According to her partner, she has problems with halitosis which have not improved on multiple visits to the dentist.

On examination her BP is 145/82 mmHg, pulse is 70 and regular and her BMI is 27. She has a neck mass which appears to gurgle when she swallows.

Investigations show:

Haemoglobin	132 g/L	(115-160)
White cell count	$7.3 \times 10^9/L$	(4-11)
Platelets	$161 \times 10^9/L$	(150-400)
Sodium	141 mmol/L	(135-146)
Potassium	4.0 mmol/L	(3.5-5)
Creatinine	95 $\mu\text{mol/L}$	(79-118)

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Achalasia
<input type="radio"/>	Gastro-oesophageal reflux disease (GORD)
<input type="radio"/>	Oesophageal carcinoma
<input type="radio"/>	Pharyngeal pouch
<input type="radio"/>	Plummer-Vinson's disease

<input type="radio"/>	Achalasia
<input type="radio"/>	Gastro-oesophageal reflux disease (GORD)
<input type="radio"/>	Oesophageal carcinoma
<input checked="" type="radio"/>	Pharyngeal pouch <span>This is the correct answer</span>
<input type="radio"/>	Plummer-Vinson's disease <span>Incorrect answer selected</span>

## Key Learning Points

### Gastroenterology

- A history of regurgitation of rotten food, coupled with chronic cough and a gurgling mass on examination fits best with a pharyngeal pouch.

## Explanation

The history of regurgitation of rotten food, coupled with chronic cough and a gurgling mass on examination fits best with a pharyngeal pouch. Aspiration of food from the pouch may lead in some cases to pneumonia. Management involves either diverticulectomy for larger lesions or endoscopic diverticulotomy (Dohlman's procedure) for smaller pouches.

Whilst GORD is a possible alternative diagnosis, a pouch would not be found on examination.

**Achalasia** is usually associated with progressive dysphagia to both liquids and solids, oesophageal carcinoma with progressive dysphagia first to solids then liquids. Again, external examination is typically normal.

Plummer-Vinson's disease is associated with progressive dysphagia due to oesophageal webs and is associated with chronic iron deficiency. A neck mass would not be typical.

Oesophageal carcinoma often presents with systemic malaise as well as progressive dysphagia. The patient may appear cachectic, and there may be palpable nodes in the neck (if the carcinoma is proximal), but a gurgling mass would be less typical. If left untreated for a couple of years, you would expect the presence of metastatic disease and absolute dysphagia.

Mutation of STK11/LKB1 gene is associated with which of the following diseases?

(Please select 1 option)

- |                       |  |
|-----------------------|--|
| <input type="radio"/> | Familial adenomatous polyposis             |
| <input type="radio"/> | Hereditary non-polyposis colorectal cancer |
| <input type="radio"/> | Neurofibromatosis                          |
| <input type="radio"/> | Peutz-Jeghers syndrome                     |
| <input type="radio"/> | Tuberous sclerosis                         |

<input type="radio"/>	Familial adenomatous polyposis	
<input type="radio"/>	Hereditary non-polyposis colorectal cancer	
<input type="radio"/>	Neurofibromatosis	
<input checked="" type="radio"/>	Peutz-Jeghers syndrome	This is the correct answer
<input type="radio"/>	Tuberous sclerosis	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Peutz-Jeghers syndrome is caused by a mutation of the STK11/LKB1 gene.

## Explanation

Mutation of APC gene leads to familial adenomatous polyposis.

Defective mismatch repair genes hMLH1 and hMSH2 leads to hereditary non-polyposis colorectal cancer.

Mutation of tumour suppressor genes NF1 (neurofibromin) and NF2 (merlin) results in neurofibromatosis type 1 and type 2, respectively.

In tuberous sclerosis, there is mutation of TSC1 or TSC2 genes.

A 28-year-old woman presents with a six month history of diarrhoea and weight loss.

On examination her abdomen is mildly distended. She is found to be anaemic, liver function tests are abnormal and iron and folate levels are both low.

Tissue transglutaminase antibody level is elevated and duodenal biopsies demonstrate increased intraepithelial lymphocytes and villous atrophy consistent with a diagnosis of coeliac disease.

Which cell type is responsible for the hypersensitivity response against gluten?

(Please select 1 option)

<input type="radio"/>	B cell
<input type="radio"/>	Macrophage
<input type="radio"/>	Monocytes
<input type="radio"/>	Natural killer (NK) cell
<input type="radio"/>	T cell

<input type="radio"/>	B cell	
<input type="radio"/>	Macrophage	
<input type="radio"/>	Monocytes	
<input checked="" type="radio"/>	Natural killer (NK) cell	Incorrect answer selected
<input type="radio"/>	T cell	This is the correct answer

## Key Learning Points

### Gastroenterology

- Coeliac disease results from small bowel inflammation and atrophy due to T-cell mediated hypersensitivity reaction to the alpha-gliadin component of gluten.

## Explanation

Coeliac disease results from small bowel inflammation and atrophy due to T-cell mediated hypersensitivity reaction to the alpha-gliadin component of gluten.

A 52-year-old woman came to the GP clinic with generalized weakness.

On examination, there was moderate pallor and tenderness in the right iliac fossa. She also complained that recently, she had become constipated with one bowel movement every 3 to 5 days. Both of her brothers had died from colon cancer recently and she is afraid that "it runs in the family".

What is the next line of investigation to screen for colon carcinoma in this lady?

(Please select 1 option)

<input type="radio"/>	Stool for occult blood test (OBT)
<input type="radio"/>	Colonoscopy
<input type="radio"/>	CT enterography
<input type="radio"/>	CECT abdomen
<input type="radio"/>	Carcinoembryonic antigen (CEA) level

<input type="radio"/>	Stool for occult blood test (OBT)
<input type="radio"/>	Colonoscopy <b>This is the correct answer</b>
<input checked="" type="radio"/>	CT enterography <b>Incorrect answer selected</b>
<input type="radio"/>	CECT abdomen
<input type="radio"/>	Carcinoembryonic antigen (CEA) level

## Key Learning Points

### Gastroenterology

- Colonoscopy is the best screening test for suspected colon carcinoma.

## Explanation

In suspected colonic carcinoma, colonoscopy is the best test for diagnosis, according to NICE guidelines.

Stool for OBT can be positive in colorectal cancer, but it is not specific. Any colitis, piles or upper GI pathology can also cause positive result in stool.

CT enterography or colonography is a new test which has shown promise in detecting early colorectal cancer, but its sensitivity has not been tested in any adequately powered study yet. Also, CT colonography cannot be used to take tissue sample.

CECT abdomen is used to stage colon Ca. But it is not a good screening test.

CEA is not a good screening test. It can be used to detect recurrence after therapy.



A 60-year-old woman with known alcoholic liver cirrhosis presents with vague abdominal pains, malaise and nausea.

She has been abstinent since she was diagnosed eight months ago.

On examination, she had moderate ascites and mild, generalised abdominal tenderness.

Investigations reveal:

Haemoglobin	112 g/L	(115-165)
WCC	$15 \times 10^9/L$	(4-11)
Prothrombin time	21 secs	(11.5-15.5)
Serum albumin	28 g/L	(37-49)
Serum total bilirubin	$56 \mu\text{mol/L}$	(1-22)
Ascitic fluid albumin	14 g/L	-
Ascitic fluid amylase	Normal	-
Ascitic fluid white cell count	$500 \times 10^9/L$	-

What is the most likely reason for her current problem?

(Please select 1 option)

<input type="radio"/>	Hepatic vein thrombosis
<input type="radio"/>	Pancreatic pseudocyst rupture
<input type="radio"/>	Portal vein thrombosis
<input type="radio"/>	Primary liver cancer
<input type="radio"/>	Spontaneous bacterial peritonitis

<input type="radio"/>	Hepatic vein thrombosis
<input type="radio"/>	Pancreatic pseudocyst rupture
<input type="radio"/>	Portal vein thrombosis
<input type="radio"/>	Primary liver cancer
<input checked="" type="radio"/>	Spontaneous bacterial peritonitis <b>Correct</b>

## Key Learning Points

### Gastroenterology, Liver Disorders

- Abdominal pain is often only mild, or even absent in SBP, with patients often presenting with otherwise unexplained hepatic decompensation.

## Explanation

The high white cell count in the ascites makes spontaneous bacterial peritonitis (SBP) much more likely than Budd- Chiari syndrome (BCS), PVT, HCC, or a ruptured pancreatic pseudocyst.

Abdominal pain is often only mild, or even absent in SBP, with patients often presenting with otherwise unexplained hepatic decompensation.

A 45-year-old woman is diagnosed with a duodenal ulcer.

Which one of the following is the most sensitive test for detecting current infection with *Helicobacter pylori*?

(Please select 1 option)

<input type="radio"/>	Culture of a gastric biopsy
<input type="radio"/>	Gastric fundal biopsy
<input type="radio"/>	Presence of <i>Helicobacter pylori</i> serum antibodies
<input type="radio"/>	The ( <sup>13</sup> C) urea breath test
<input type="radio"/>	Urease test on gastric biopsy

Please select 1 option

<input type="radio"/>	Culture of a gastric biopsy	
<input type="radio"/>	Gastric fundal biopsy	
<input type="radio"/>	Presence of <i>Helicobacter pylori</i> serum antibodies	
<input type="radio"/>	The ( <sup>13</sup> C) urea breath test	This is the correct answer
<input checked="" type="radio"/>	Urease test on gastric biopsy	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- The urease breath test is the most specific investigation detecting current infection with *Helicobacter pylori*.

## Explanation

The reference standard for diagnosis of *H. pylori* when evaluating methods of diagnosing infection is typically culture of a gastric biopsy. Yet this test has an estimated sensitivity of only 72%.

The rapid urease test on a biopsy is 80-95% sensitive and 95-100% specific. Histology is 80-90% sensitive and 95% specific.

The [urease breath test](#) is approximately 95% sensitive and 98-100% specific. Therefore, the most specific and clinically applicable test would be the urease breath test.

The presence of IgG antibodies to *H. pylori* could indicate previous infection.

A gastric antral biopsy can give false negative results following PPI treatment.

A 60-year-old man presents with a five-day history of lower abdominal pain and diarrhoea. He has a history of chronic obstructive airways disease (COAD) and has had numerous acute infective exacerbations over the last three months.

On examination, he was dehydrated, with a temperature of 38.6°C, a blood pressure of 102/72 mmHg and has a distended, tender abdomen.

Which of the following is the most appropriate investigation for this patient?

(Please select 1 option)

- |                       |                                |
|-----------------------|--------------------------------|
| <input type="radio"/> | Chest x ray                    |
| <input type="radio"/> | Plain abdominal x ray          |
| <input type="radio"/> | Sigmoidoscopy and biopsy       |
| <input type="radio"/> | Stool microscopy               |
| <input type="radio"/> | Ultrasound scan of the abdomen |

<input type="radio"/>	Chest x ray	
<input type="radio"/>	Plain abdominal x ray	This is the correct answer
<input checked="" type="radio"/>	Sigmoidoscopy and biopsy	Incorrect answer selected
<input type="radio"/>	Stool microscopy	
<input type="radio"/>	Ultrasound scan of the abdomen	

## Key Learning Points

### Gastroenterology

- Plain AXR is useful for diagnosing toxic dilatation and would be the investigation of choice in patients presenting with abdominal distension.

## Explanation

This is pseudomembranous colitis due to *Clostridium difficile* secondary to antibiotic usage for his COAD.

Plain AXR is useful for diagnosing toxic dilatation and would be the investigation of choice here due to his abdominal distension. Toxic dilatation should be excluded prior to sigmoidoscopy. However, it does not establish the diagnosis.

Stool microscopy has no value but stool toxin assay is useful.

A patient with diarrhoea normally has involvement of the distal colon; rectum and sigmoidoscopy with biopsy is helpful for rapid diagnosis but should not be performed if toxic dilatation is suspected.

Patients with involvement of right colon usually have little or no diarrhoea.

A 68-year-old man presents with a history of abdominal discomfort that is relieved by passing flatus and stool.

His symptoms have been present on and off for six or seven years and have improved with the reduction of dairy products in his diet. In the past month, his stools have been looser in nature but there is no passage of blood or mucus.

He has lost 3 kg in weight over the last month and his appetite is reduced. There is no family history of note.

Examination of the abdomen is unremarkable and rectal examination is normal.

Which ONE of the following is the most appropriate diagnostic investigation?

(Please select 1 option)

☐

Barium enema

☐

Barium follow through

☐

Colonoscopy

☐

CT scan of the abdomen and pelvis

☐

Flexible sigmoidoscopy

(Please select 1 option)

<input type="radio"/>	Barium enema
<input type="radio"/>	Barium follow through
<input checked="" type="radio"/>	Colonoscopy <span>Correct</span>
<input type="radio"/>	CT scan of the abdomen and pelvis
<input type="radio"/>	Flexible sigmoidoscopy

## Key Learning Points

### Gastroenterology

- A diagnosis of colon cancer, diverticular disease, or colonic inflammation is most readily excluded by colonoscopy and biopsy and this is initially the most helpful investigation.

## Explanation

This man may have [irritable bowel syndrome](#) or diverticular disease.

The symptoms of benign disease and malignancy are frequently similar and malignancy may arise equally in patients with a long or short history of a change in bowel habit. Change in bowel habit due to malignancy may arise due to the partially obstructing effects of a bowel cancer and is always significant.

Weight loss may be caused by dietary modification but may also indicate metastatic spread of a cancer.

A diagnosis of colon cancer, [diverticular disease](#), or colonic inflammation is most readily excluded by colonoscopy and biopsy and this is initially the most helpful investigation.

Flexible sigmoidoscopy is helpful in the investigation of patients with symptoms typical of benign anorectal disease such as painful bright red bleeding during or after the passage of a stool but colonoscopy remains the preferred investigation for a possible cancer, inflammatory bowel disease or diverticular disease.

If colonoscopy is normal the patient will require further investigation of his symptoms.

[Irritable bowel syndrome](#) remains a diagnosis of exclusion.



A 78-year-old woman with hip osteoarthritis presents with altered bowel habit.

She undergoes a sigmoidoscopy and rectal biopsy shows normal epithelium and pigment-laden macrophages in the lamina propria.

What is the most likely cause of these findings?

(Please select 1 option)

<input type="radio"/>	Diverticular disease
<input type="radio"/>	Laxative use
<input type="radio"/>	Mesenteric ischaemia
<input type="radio"/>	Non-steroidal anti-inflammatory drugs
<input type="radio"/>	Ulcerative colitis

<input type="radio"/>	Diverticular disease
<input type="radio"/>	Laxative use <b>This is the correct answer</b>
<input type="radio"/>	Mesenteric ischaemia
<input checked="" type="radio"/>	Non-steroidal anti-inflammatory drugs <b>Incorrect answer selected</b>
<input type="radio"/>	Ulcerative colitis

## Key Learning Points

### Gastroenterology

- Prolonged laxative use can result in melanosis coli.

## Explanation

She has 'melanosis coli' as a result of prolonged laxative use.

Often the bowel mucosa looks dark and 'stained' during colonoscopy.

She may be predisposed to constipation due to immobility from her arthritis and/or use of constipating pain killers.

A 64-year-old man presents to the hospital with bleeding. He has a heavy dependence on alcohol.

On examination, he has petechiae and bleeding gums.

What is the likely vitamin deficiency?

(Please select 1 option)



B<sub>1</sub>



B<sub>12</sub>



C



E



K

Please select 1 option)

<input type="radio"/>	B <sub>1</sub>
<input type="radio"/>	B <sub>12</sub>
<input type="radio"/>	C <span>This is the correct answer</span>
<input checked="" type="radio"/>	E <span>Incorrect answer selected</span>
<input type="radio"/>	K

### Key Learning Points

Gastroenterology, Liver Disorders

- Vitamin C deficiency, or scurvy, results in perifollicular haemorrhages and bleeding gums.

### Explanation

Alcoholics have malabsorption resulting in multiple possible vitamin deficiencies. Vitamin C deficiency, or scurvy, results in perifollicular haemorrhages and bleeding gums.

Vitamin C, also known as ascoric acid, is found in fruit and vegetables, milk, fish, and offal. It cannot be synthesised by the body and, as such, is an essential dietary vitamin. It is used for collagen formation, which maintains the integrity of skin and connective tissues, bone, vessels and dentition. It also facilitates the absorption of iron.

Chronic, severe deficiency, which can occur in alcoholics, results in scurvy. Early symptoms are non-specific such as malaise and lethargy. This can progress to dyspnoea, arthralgia, and myalgia. Ecchymoses, perifollicular haemorrhages, purpura, splinter haemorrhages, petechiae, and poor wound healing then becomes apparent.

In addition, there can be conjunctival haemorrhages, flame-shaped retinal haemorrhages and cotton wool spots can be seen. In the late stages jaundice, oedema, fractures, cardiac failure, neuropathy, and seizures can occur.

Deficiencies in:

- B<sub>1</sub> or thiamine can result in Wernicke's encephalopathy
- Vitamin B<sub>12</sub> or cyanocobalamin can result in subacute degeneration of the spinal cord
- Vitamin K can result in anticoagulant effects and elevated INR causing more profuse bleeding
- Vitamin E deficiency can result in myopathies, neuropathies and red cell dyscrasias.

Which of the following statements regarding colon cancer is correct?

(Please select 1 option)

<input type="radio"/>	In familial cases the inheritance pattern is typically autosomal recessive
<input type="radio"/>	In familial polyposis coli, the increased cancer risk is due to inheritance of a mutated tumour suppressor gene
<input type="radio"/>	In non-familial cases, gene mutations in the cancerous cells are unusual
<input type="radio"/>	It is a characteristic feature of the Peutz-Jegher syndrome
<input type="radio"/>	It occurs most commonly in the ascending colon

- ☐ In familial cases the inheritance pattern is typically autosomal recessive
- ☐ In familial polyposis coli, the increased cancer risk is due to inheritance of a mutated tumour suppressor gene  
**This is the correct answer**
- ☐ In non-familial cases, gene mutations in the cancerous cells are unusual
- ☐ It is a characteristic feature of the Peutz-Jegher syndrome
- ☒ It occurs most commonly in the ascending colon **Incorrect answer selected**

### Key Learning Points

#### Gastroenterology, Oncology

- In familial polyposis coli, the increased cancer risk is due to inheritance of a mutated tumour suppressor gene.

### Explanation

Both familial polyposis coli and Gardner's syndrome are autosomal dominant.

An allelic deletion of a putative tumour suppressor gene located 5q21-q22, familial adenomatous polyposis (FAP) is an autosomal dominant disorder causing extensive adenomatous polyps of the colon and early onset colorectal cancer.

Quantitative and qualitative alterations in gene expression accumulate in **colorectal cancer** cells. These include alterations of pro-oncogene expression and chromosomal abnormalities (deletions at 17p and 18q are seen in 70% of colorectal carcinomas).

Peutz-Jegher's syndrome is dominantly inherited pigmentation of skin and mucous membranes and hamartomatous polyps in the stomach and larger intestine. The polyps only rarely undergo malignant change.

The rectum and sigmoid colon are the commonest sites, not the ascending colon.

A 29-year-old male presents with symptoms of severe gastro-oesophageal reflux despite prolonged course of PPI therapy.

Which one of the following is most useful in assessing the role of surgery?

(Please select 1 option)

- |                       |  |
|-----------------------|--|
| <input type="radio"/> | Cardiac sphincter manometry            |
| <input type="radio"/> | Gastric emptying study                 |
| <input type="radio"/> | Intragastric pH monitoring off therapy |
| <input type="radio"/> | Oesophageal motility and pH study      |
| <input type="radio"/> | Water soluble contrast swallow study   |

Please select 1 option

<input type="radio"/>	Cardiac sphincter manometry	
<input type="radio"/>	Gastric emptying study	
<input type="radio"/>	Intragastric pH monitoring off therapy	
<input type="radio"/>	Oesophageal motility and pH study	This is the correct answer
<input checked="" type="radio"/>	Water soluble contrast swallow study	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Laparoscopic fundoplication is the treatment of choice for patients with GORD refractory to, or intolerant of, proton pump inhibitor therapy.

## Explanation

[Laparoscopic fundoplication](#) is the treatment of choice for patients with GORD refractory to, or intolerant of, proton pump inhibitor therapy.

The patient should have had an endoscopy within the six months prior to surgery to exclude any unsuspected pathology such as Barrett's oesophagus or adenocarcinoma.

An oesophageal transit study is indicated to rule out a primary motor disorder (for example, achalasia, scleroderma) when suspected, and to rule out aperistalsis, which may result in postoperative dysphagia after some forms of fundoplication.

NICE guidance states the following "Oesophageal manometry and ambulatory 24-hour oesophageal pH monitoring (to quantify reflux and assess the relationship between reflux episodes and the person's symptoms).

The latter investigation may help to exclude oesophageal motility disorders such as achalasia, and severe oesophageal hypomotility such as scleroderma-like oesophagus, before considering anti-reflux surgery."



A 42-year-old female with ulcerative colitis is found to have anti-smooth muscle antibodies.

Which is the most appropriate next test for this patient?

(Please select 1 option)

<input type="radio"/>	Abdominal ultrasound
<input type="radio"/>	Colonoscopy
<input type="radio"/>	Full blood count
<input type="radio"/>	Liver biopsy
<input type="radio"/>	Liver function tests

Dr. Assem

<input type="radio"/>	Abdominal ultrasound
<input type="radio"/>	Colonoscopy
<input type="radio"/>	Full blood count
<input type="radio"/>	Liver biopsy
<input checked="" type="radio"/>	Liver function tests <span>Correct</span>

## Key Learning Points

### Gastroenterology, Liver Disorders

- Autoimmune hepatitis is often seen in individuals with other autoimmune disorders such as ulcerative colitis.

## Explanation

The most appropriate investigation for this woman is LFTs to begin with to assess if there are any features of autoimmune hepatitis, such as, raised bilirubin, aspartate aminotransferase (AST), alanine aminotransferase (ALT) and alkaline phosphatase.

If this is the case then liver biopsy may be required or further diagnostic imaging.

Autoimmune hepatitis is often seen in individuals with other autoimmune disorders such as ulcerative colitis.

Which of the following hormones stimulates contraction of the gallbladder?

(Please select 1 option)

- |                       |                                     |
|-----------------------|-------------------------------------|
| <input type="radio"/> | Cholecystokinin                     |
| <input type="radio"/> | Gastrin                             |
| <input type="radio"/> | Secretin                            |
| <input type="radio"/> | Somatostatin                        |
| <input type="radio"/> | Vasoactive intestinal peptide (VIP) |

<input type="radio"/>	Cholecystokinin	This is the correct answer
<input type="radio"/>	Gastrin	
<input type="radio"/>	Secretin	
<input type="radio"/>	Somatostatin	
<input checked="" type="radio"/>	Vasoactive intestinal peptide (VIP)	Incorrect answer selected

## Key Learning Points

### Gastroenterology

- Cholecystokinin is released by the small bowel and is the major hormone which stimulates contraction of the gallbladder.

## Explanation

Gastrin leads to the release of gastric acid.

Secretin stimulates the release of pancreatic fluid and bicarbonate.

Somatostatin inhibits gastrointestinal endocrine secretion.

Vasoactive intestinal peptide (VIP) functions as a vasodilator and also regulates smooth muscle activity, epithelial cell secretion and gastrointestinal blood flow.

A 35-year-old woman with Crohn's disease has had several episodes of relapse which are refractory to oral and rectal steroids, and to azathioprine. She presents to hospital with severe bloody diarrhoea of three days duration, associated with abdominal pain and perianal ulceration.

On examination she looks pale and lethargic and baseline observations reveal BP 80/60, HR 120. All her other observations are normal.

She is admitted, given intravenous fluids, and following further unsuccessful attempts at medical management, undergoes colectomy and resection of a significant amount of ileum, with end ileostomy formation.

You review her on the ward three days later when she complains of severe watery diarrhoea whenever she attempts to eat.

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Hypocalcaemia
<input type="radio"/>	Ongoing active Crohn's disease
<input type="radio"/>	Short bowel syndrome
<input type="radio"/>	Vitamin D deficiency
<input type="radio"/>	Zinc deficiency

Please select 1 option

<input type="radio"/>	Hypocalcaemia
<input type="radio"/>	Ongoing active Crohn's disease
<input type="radio"/>	Short bowel syndrome <b>This is the correct answer</b>
<input type="radio"/>	Vitamin D deficiency
<input checked="" type="radio"/>	Zinc deficiency <b>Incorrect answer selected</b>

## Key Learning Points

### Gastroenterology

- Resection of a significant portion of small intestine can result in malabsorption of fluid and nutrients, presenting with profuse watery diarrhoea in the days following surgery.

## Explanation

**Short bowel syndrome** occurs when there has been resection of a significant portion of the small intestine, resulting in malabsorption of nutrients.

Management should initially focus on replacement of fluids and electrolytes. Gastric hypersecretion should be managed with proton pump inhibitors, and loperamide or codeine can be used to slow gastric and bowel transit time. The patient should initially be kept nil by mouth to reduce the osmotic load. Specialist teams, including dietitians, should then be consulted regarding the most appropriate feeding to initiate. The bowel often adapts after the initial post-operative period and refeeding should be initiated slowly with the aim of the patient having a normal oral diet.

As there has been a significant bowel resection, which has obviously been carefully considered following unsuccessful medical management, it is unlikely the treating team would have left the patient with bowel actively affected by Crohn's disease.

Hypocalcaemia, **vitamin D deficiency**, and **zinc deficiency** can all result from small bowel syndrome, but these are longer-term complications and do not typically present so acutely, and not with this clinical picture.

A 28-year-old male presents with a four-day history of profuse bloody diarrhoea after returning from a holiday in the Far East.

Which of the following regarding his illness is true?

(Please select 1 option)

<input type="radio"/>	A negative amoebic fluorescent antibody test excludes a diagnosis of acute amoebic dysentery
<input type="radio"/>	Cysts to <i>E. histolytica</i> in the stools are only seen in acute amoebic dysentery
<input type="radio"/>	Cholera is a likely diagnosis
<input type="radio"/>	Giardiasis is a likely diagnosis
<input type="radio"/>	Shigellosis is a likely diagnosis

<input type="radio"/>	A negative amoebic fluorescent antibody test excludes a diagnosis of acute amoebic dysentery	
<input type="radio"/>	Cysts to <i>E. histolytica</i> in the stools are only seen in acute amoebic dysentery	
<input type="radio"/>	Cholera is a likely diagnosis	
<input checked="" type="radio"/>	Giardiasis is a likely diagnosis	Incorrect answer selected
<input type="radio"/>	Shigellosis is a likely diagnosis	This is the correct answer

## Key Learning Points

Gastroenterology, Infectious Diseases

- *Shigella* is a cause of profuse bloody diarrhoea.

## Explanation

Shigellosis is a possible cause of profuse bloody diarrhoea as cholera and giardiasis are associated with watery diarrhoea.

Trophozoites and cysts are seen in acute amoebic dysentery, however, cysts may also be excreted in asymptomatic carrier states.



A 45-year-old gentleman presents with dyspepsia of five months duration and loss of weight.

Examination reveals mild pallor and slight epigastric tenderness.

Gastroscopy reveals 5 mm posterior ulcer in the first part of the duodenum and 2 cm mass on the lesser curve of the stomach.

Biopsy of the mass reveals mucosa-associated lymphoid tumour confined to gastric mucosa.

He has tested positive for *H. pylori* infection.

Which of the following treatment options will be appropriate for him?

(Please select 1 option)

- |                       |                              |
|-----------------------|------------------------------|
| <input type="radio"/> | Chemotherapy                 |
| <input type="radio"/> | <i>H. pylori</i> eradication |
| <input type="radio"/> | Proton pump inhibitor        |
| <input type="radio"/> | Radiotherapy                 |
| <input type="radio"/> | Surgery                      |

<input type="radio"/>	Chemotherapy
<input checked="" type="radio"/>	<i>H. pylori</i> eradication <b>This is the correct answer</b>
<input type="radio"/>	Proton pump inhibitor
<input checked="" type="radio"/>	Radiotherapy <b>Incorrect answer selected</b>
<input type="radio"/>	Surgery

## Key Learning Points

### Gastroenterology

- Lymphomas restricted to the gastric mucosa usually disappear when *H. pylori* is eradicated.

## Explanation

Lymphomas restricted to the gastric mucosa usually disappear when *H. pylori* is eradicated.

These lesions are less likely to respond to *H. pylori* eradication alone if they extend beyond the gastric mucosa. Chemotherapy or surgical excision may then be indicated.

Duodenal ulcer will also disappear with *H. pylori* eradication.

A 28-year-old man with HIV presents with a five-day history of feeling unwell. He is a heavy smoker.

A chest radiograph showed right upper lobe consolidation. His CD4 count was 468 cells/mm<sup>3</sup>. HIV RNA level was 90,678 copies/ml. He is not on any antiretroviral treatment.

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Bronchial carcinoma
<input type="radio"/>	Invasive pulmonary aspergillosis
<input type="radio"/>	Pulmonary tuberculosis
<input type="radio"/>	<i>Pneumocystis jiroveci</i> pneumonia (PCP)
<input type="radio"/>	Streptococcal pneumonia

<input type="radio"/>	Bronchial carcinoma	
<input type="radio"/>	Invasive pulmonary aspergillosis	
<input type="radio"/>	Pulmonary tuberculosis	
<input checked="" type="radio"/>	<i>Pneumocystis jiroveci</i> pneumonia (PCP)	Incorrect answer selected
<input type="radio"/>	Streptococcal pneumonia	This is the correct answer

## Key Learning Points

### Genitourinary, Infectious Diseases

- One should think of common infections rather than any opportunistic infections in HIV patients with good CD4 counts. (More than 400 cells/mm<sup>3</sup> is not immunocompromised.)

## Explanation

This is typical of community-acquired pneumonia. One should think of common infections rather than any opportunistic infections in HIV patients with good CD4 counts. (More than 400 cells/mm<sup>3</sup> is not immunocompromised.)

It is not a typical history for bronchial carcinoma as the history was short and radiographic changes were not typical of bronchial carcinoma.

Invasive pulmonary aspergillosis is unlikely in a patient with good CD4 count.

Pulmonary tuberculosis typically causes cavitating lesions in a patient with a good CD4 count.

PCP commonly occurs in patients with CD4 count of less than 200 cells/mm<sup>3</sup> and chest radiograph shows bilateral infiltrates from the hila without any effusion or lymphadenopathy.

The history is too short for tuberculosis, and apart from HIV there aren't any other risk factors for this.

Which one of the following is an oncogenic virus?

(Please select 1 option)

<input type="radio"/>	Hepatitis A
<input type="radio"/>	Human papilloma virus 6 (HPV 6)
<input type="radio"/>	Human papilloma virus 11 (HPV 11)
<input type="radio"/>	Human papilloma virus 16 (HPV 16)
<input type="radio"/>	Varicella zoster virus (VZV)

<input type="radio"/>	Hepatitis A
<input type="radio"/>	Human papilloma virus 6 (HPV 6)
<input type="radio"/>	Human papilloma virus 11 (HPV 11)
<input checked="" type="radio"/>	Human papilloma virus 16 (HPV 16) <span>Correct</span>
<input type="radio"/>	Varicella zoster virus (VZV)

## Key Learning Points

### Genitourinary, Infectious Diseases

- HPV 16 is oncogenic and causes squamous cell carcinomas in the oral cavity, cervix, anus and penis.

## Explanation

HPV 16 is oncogenic and causes squamous cell carcinomas in the oral cavity, cervix, anus and penis.

Hepatitis A is not an oncogenic virus, as it does not cause chronic infection or cancer.

HPV 6 and 11 typically cause the majority of benign warts.

VZV causes chicken pox and herpes zoster.

A 48-year-old African man with HIV was prescribed a combination of antiretroviral therapy. He developed increased diffuse pigmentation of the nails in both hands and toes.

Which of the following is the most likely cause of the increased pigmentation of the nails?

(Please select 1 option)

- |                       |            |
|-----------------------|------------|
| <input type="radio"/> | Efavirenz  |
| <input type="radio"/> | Lamivudine |
| <input type="radio"/> | Nevirapine |
| <input type="radio"/> | Tenofovir  |
| <input type="radio"/> | Zidovudine |

<input type="radio"/>	Efavirenz	
<input type="radio"/>	Lamivudine	
<input type="radio"/>	Nevirapine	
<input checked="" type="radio"/>	Tenofovir	Incorrect answer selected
<input type="radio"/>	Zidovudine	This is the correct answer

## Key Learning Points

### Genitourinary, Infectious Diseases

- Zidovudine causes increased pigmentation of the nails in black patients.

## Explanation

Zidovudine causes increased pigmentation of the nails in black patients.

Efavirenz causes central nervous system toxicity not hyperpigmentation.

Lamivudine does not normally cause hyperpigmentation of nails but it can occasionally cause hyperpigmentation of the skin in black people.

Nevirapine does not cause hyperpigmentation of skin but can cause acute hepatitis and skin rash.

Tenofovir can cause proximal tubular damage hence Fanconi-like syndrome.



Which one of the following drugs is associated with hypersensitivity reactions?

(Please select 1 option)

<input type="radio"/>	Atazanavir
<input type="radio"/>	Lamivudine
<input type="radio"/>	Nevirapine
<input type="radio"/>	Tenofovir
<input type="radio"/>	Zidovudine

Please select 1 option

<input type="radio"/>	Atazanavir	
<input type="radio"/>	Lamivudine	
<input type="radio"/>	Nevirapine	This is the correct answer
<input type="radio"/>	Tenofovir	
<input checked="" type="radio"/>	Zidovudine	Incorrect answer selected

## Key Learning Points

### Genitourinary, Infectious Diseases

- Nevirapine can cause acute hepatitis and skin rash as a part of hypersensitive reaction especially when the CD4 count is over 250 cells/ml in women and over 400 cells/ml in men. Nevirapine should not be prescribed in those conditions.

## Explanation

Nevirapine can cause acute hepatitis and skin rash as a part of hypersensitive reaction especially when the CD4 count is over 250 cells/ml in women and over 400 cells/ml in men. Nevirapine should not be prescribed in those conditions.

Atazanavir causes hyperbilirubinaemia and rarely renal stones.

Lamivudine does not cause hypersensitivity reaction.

Tenofovir causes proximal tubular damage.

Zidovudine causes bone marrow suppression.

Which of the following is a sign of immunodeficiency in the mouth?

(Please select 1 option)

- |                       |                        |
|-----------------------|------------------------|
| <input type="radio"/> | Gingivitis             |
| <input type="radio"/> | Herpes labialis        |
| <input type="radio"/> | Leucoplakia            |
| <input type="radio"/> | Oral hairy leucoplakia |
| <input type="radio"/> | Oral wart              |

<input type="radio"/>	Gingivitis	
<input type="radio"/>	Herpes labialis	
<input type="radio"/>	Leucoplakia	
<input type="radio"/>	Oral hairy leucoplakia	This is the correct answer
<input checked="" type="radio"/>	Oral wart	Incorrect answer selected

## Key Learning Points

### Genitourinary, Infectious Diseases

- Oral hairy leucoplakia is a sign of immunodeficiency. It is due to reactivation of Epstein-Barr virus infection.

## Explanation

Oral hairy leucoplakia is a sign of immunodeficiency. It is due to reactivation of Epstein-Barr virus infection.

Gingivitis is not a sign of immunodeficiency.

Leucoplakia is not a sign of immunodeficiency but it is a precancerous lesion.

Herpes labialis is due to herpes simplex infection, which causes 'cold sores' in immunocompetent patients and chronic herpes labialis in immunocompromised patients.

Oral warts can occur in healthy people. They are due to HPV infection usually due to benign types, 6 and 11.

Which one of the following cutaneous lesions is associated with HIV infection?

(Please select 1 option)

<input type="radio"/>	Leucoplakia
<input type="radio"/>	Lichen planus
<input type="radio"/>	Lichen sclerosis
<input type="radio"/>	Plasma cell balanitis
<input type="radio"/>	Psoriasis

<input checked="" type="radio"/>	Leucoplakia	This is the correct answer
<input type="radio"/>	Lichen planus	
<input type="radio"/>	Lichen sclerosus	
<input type="radio"/>	Plasma cell balanitis	
<input checked="" type="radio"/>	Psoriasis	Incorrect answer selected

## Key Learning Points

### Genitourinary, Infectious Diseases

- If pre-existing psoriasis flares up for no apparent reason or middle-aged people develop psoriasis for the first time, one should exclude underlying HIV infection in those patients.

## Explanation

Leucoplakia is a pre-cancerous lesion and is a sign of immunodeficiency in an HIV-positive patient.

Lichen planus, lichen sclerosus and plasma cell balanitis are not associated with HIV infection.

If pre-existing psoriasis flares up for no apparent reason or middle-aged people develop psoriasis for the first time, one should exclude underlying HIV infection in those patients though it is not a typical sign of primary HIV infection.

A 39-year-old Caucasian man with symptomatic HIV disease developed multiple, painless, umbilicated papular lesions on his face.

Which of the following is the most likely cause of his skin lesions?

(Please select 1 option)

- |                       |                                |
|-----------------------|--------------------------------|
| <input type="radio"/> | Cytomegalovirus (CMV)          |
| <input type="radio"/> | Epstein Barr virus (EBV)       |
| <input type="radio"/> | Human herpes virus (HHV) 8     |
| <input type="radio"/> | Human papilloma virus (HPV 16) |
| <input type="radio"/> | Pox virus                      |

<input type="radio"/>	Cytomegalovirus (CMV)	
<input type="radio"/>	Epstein Barr virus (EBV)	
<input type="radio"/>	Human herpes virus (HHV) 8	
<input checked="" type="radio"/>	Human papilloma virus (HPV 16)	Incorrect answer selected
<input type="radio"/>	Pox virus	This is the correct answer

## Key Learning Points

### Genitourinary, Infectious Diseases

- Multiple painless umbilicated papular lesions are typical of molluscum contagiosum and are caused by pox virus.

## Explanation

Multiple painless umbilicated papular lesions are typical of molluscum contagiosum and are caused by pox virus.

CMV does not cause painless papular lesions.

EBV causes Burkitt's lymphoma, non-Hodgkin's lymphoma, and primary brain lymphomas.

HHV 8 is strongly associated with Kaposi's sarcoma.

HPV 16 is associated with squamous cell carcinomas in cervix, penis, anus and oral cavity.



A 51-year-old homosexual, Caucasian, HIV positive man developed multiple violaceous painless lesions on his trunk.

Which one of the following is the most likely cause of his skin lesions?

(Please select 1 option)

- |                       |                                   |
|-----------------------|-----------------------------------|
| <input type="radio"/> | Cytomegalovirus (CMV)             |
| <input type="radio"/> | Human herpes virus 8 (HHV8)       |
| <input type="radio"/> | Human herpes virus 10 (HHV 10)    |
| <input type="radio"/> | Human papilloma virus 16 (HPV 16) |
| <input type="radio"/> | Pox virus                         |

<input type="radio"/>	Cytomegalovirus (CMV)	
<input type="radio"/>	Human herpes virus 8 (HHV8)	This is the correct answer
<input type="radio"/>	Human herpes virus 10 (HHV 10)	
<input type="radio"/>	Human papilloma virus 16 (HPV 16)	
<input checked="" type="radio"/>	Pox virus	Incorrect answer selected

## Key Learning Points

### Genitourinary, Infectious Diseases

- Multiple violaceous painless lesions are typical of Kaposi's sarcoma in Caucasians. This is associated with HHV 8.

## Explanation

Multiple violaceous painless lesions are typical of Kaposi's sarcoma in Caucasians. This is associated with HHV 8.

CMV and HHV 10 do not cause multiple violaceous painless lesions.

HPV 16 is an oncogenic virus which causes squamous cell carcinomas.

Pox virus causes molluscum contagiosum.

A 19-year-old man presents to the Emergency Department with tea-coloured urine two weeks after the onset of an episode of streptococcal tonsillitis for which he received a course of Penicillin V. He has also noticed puffiness around his eyes which has developed over the past 24 hours. There is no past medical history of note and he takes no regular medications. BP is 148/85, pulse is 80 and regular. You confirm periorbital oedema on examination. Urine dip which is positive for both blood and protein. Serum creatinine is 85 micromol/l, (60-110).

Which of the following is the most likely diagnosis?

(Please select 1 option)

- |                       |                                       |
|-----------------------|---------------------------------------|
| <input type="radio"/> | Acute interstitial nephritis          |
| <input type="radio"/> | IgA nephropathy                       |
| <input type="radio"/> | Membranous nephropathy                |
| <input type="radio"/> | Minimal change disease                |
| <input type="radio"/> | Post streptococcal glomerulonephritis |

<input type="radio"/>	Acute interstitial nephritis	
<input checked="" type="radio"/>	IgA nephropathy	
<input type="radio"/>	Membranous nephropathy	
<input checked="" type="radio"/>	Minimal change disease	Incorrect answer selected
<input type="radio"/>	Post streptococcal glomerulonephritis	This is the correct answer

## Key Learning Points

### Genitourinary

- Post streptococcal glomerulonephritis most commonly presents 1-2 weeks after streptococcal throat infection with mixed haematuria and proteinuria and mild renal impairment.

## Explanation

The answer is post-streptococcal **glomerulonephritis** (diffuse proliferative **glomerulonephritis**). The time period (1-2 weeks after the acute infection), is classical, as is the presentation with discoloured urine and periorbital oedema. Hypertension is seen in 60% or more of cases, although it is usually transient and resolves on normalisation of plasma volume. Treatment is primarily supportive, although some adults may be left with some long-term renal impairment.

**Acute interstitial nephritis** as a result of penicillins starts 2 - 60 days after therapy is initiated and is associated with a fever and maculopapular rash, as well as haematuria. It would definitely be a possibility in this case, however, you would expect more significant renal impairment than is seen here. **IgA nephropathy** presents more quickly after respiratory tract infection, (24 - 48 hours) usually with haematuria. Membranous disease presents with nephrotic syndrome and predominantly proteinuria, minimal change disease is more likely to present with repeated episodes of nephrotic range proteinuria in childhood and teenage years.

A 56-year-old male who has presented with chest pain, has a PSA of 45 ng/ml (normal <4).

Which of the following statements is correct with respect to this patient's management?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | An elevated PSA is a definitive test for prostate cancer                |
| <input type="radio"/> | High selenium intake is related to prostate cancer                      |
| <input type="radio"/> | Prostate cancer is more aggressive with increasing age                  |
| <input type="radio"/> | Prostate cancer is typically squamous cell carcinoma                    |
| <input type="radio"/> | The most commonly used pathological grading system is the Gleason score |

<input type="radio"/>	An elevated PSA is a definitive test for prostate cancer	
<input type="radio"/>	High selenium intake is related to prostate cancer	
<input type="radio"/>	Prostate cancer is more aggressive with increasing age	
<input type="radio"/>	Prostate cancer is typically squamous cell carcinoma	
<input checked="" type="radio"/>	The most commonly used pathological grading system is the Gleason score	Correct

### Key Learning Points

#### Genitourinary

- Prostate-specific antigen (PSA) may be elevated in prostatitis, benign prostatic hyperplasia, and prostate cancer.

### Explanation

Prostate-specific antigen (PSA) may be elevated in:

- prostatitis
- benign prostatic hyperplasia, and
- prostate cancer.

As a rule, prostate cancer is more aggressive in younger men.

Prostate cancer is an adenocarcinoma.

The Gleason score is recommended by the American College of Pathologists. The most well differentiated tumours have a Gleason score of 2, and the most poorly differentiated a Gleason score of 10.

High intake of animal fats is related to prostate cancer as well as low intake of selenium.

A 20-year-old student comes to the clinic complaining of dysuria and minor scrotal swelling and pain. He has also noticed a purulent urethral discharge.

On examination his temperature is 37.5°C, his scrotum is mildly swollen and tender and you can express a mucopurulent discharge from his urethral meatus.

Investigations show:

Haemoglobin	139 g/L	(135-177)
White cell count	$8.8 \times 10^9/L$	(4-11)
Platelets	$269 \times 10^9/L$	(150-400)
Serum sodium	141 mmol/L	(135-146)
Serum potassium	4.5 mmol/L	(3.5-5)
Creatinine	85 $\mu$ mol/L	(79-118)
Urinary chlamydial antigen	positive	

Which of the following is the most appropriate anti-microbial therapy for him?

(Please select 1 option)

<input type="radio"/>	Azithromycin 1 g as single dose followed by 500mg once daily for two days
<input type="radio"/>	Ciprofloxacin 500 mg BD for 7 days
<input type="radio"/>	Minocycline 100 mg daily for 9 days
<input type="radio"/>	Norfloxacin 400 mg daily for 7 days
<input type="radio"/>	Penicillin V 500 mg BD for 7 days

(Please select 1 option)

<input type="radio"/>	Azithromycin 1 g as single dose followed by 500mg once daily for two days	This is the correct answer
<input type="radio"/>	Ciprofloxacin 500 mg BD for 7 days	
<input type="radio"/>	Minocycline 100 mg daily for 9 days	
<input type="radio"/>	Norfloxacin 400 mg daily for 7 days	
<input checked="" type="radio"/>	Penicillin V 500 mg BD for 7 days	Incorrect answer selected

## Key Learning Points

### Genitourinary, Pharmacology

- In a student population where compliance may well be a problem, giving a single dose of antibiotics for the treatment of *Chlamydia* is the most sensible option.

## Explanation

The answer is azithromycin 1 g as a single dose followed by 500mg once daily for two days.

In a student population where compliance may well be a problem, giving a single dose of antibiotics for the treatment of *Chlamydia* is the most sensible option.

Other options for treatment of *Chlamydia* include minocycline, although doxycycline causes less gastrointestinal disturbance. Ofloxacin 200 mg BD for seven days is also considered a potential option according to SIGN guidelines.

He should also be referred to the GUM clinic for screening for other sexually transmitted infections.



A 67-year-old male presents to his GP with urinary frequency, urgency, nocturia, and poor stream. An enlarged prostate is felt on digital rectal examination. Urine dipstick shows nitrites, leukocytes, protein, and blood. He is prescribed nitrofurantoin.

His GP would like to check his PSA. When should his PSA be checked?

(Please select 1 option)

<input type="radio"/>	Check in three days
<input type="radio"/>	Check in one week
<input type="radio"/>	Check in two weeks
<input type="radio"/>	Check on this occasion
<input type="radio"/>	No need to check PSA

Please select 1 option

<input type="radio"/>	Check in three days	
<input type="radio"/>	Check in one week	
<input type="radio"/>	Check in two weeks	This is the correct answer
<input checked="" type="radio"/>	Check on this occasion	Incorrect answer selected
<input type="radio"/>	No need to check PSA	

## Key Learning Points

### Genitourinary

- PSA concentrations can rise with problems of false positives after catheterisation and particularly urine tract infections. Therefore, if one has decided to check a PSA then it is recommended that this should be measured at least two weeks after a treated UTI.

## Explanation

PSA concentrations can rise with problems of false positives after catheterisation and particularly urine tract infections. Therefore, if one has decided to check a PSA then it is recommended that this should be measured at least two weeks after a treated UTI.

Please bear in mind that this is a controversial area and one where the guidelines are not completely clear.

You would expect some prostatic symptoms in patients with prostatic carcinoma, but most of these will actually have BPH rather than carcinoma. Many men will come requesting a PSA and it can be useful in those patients with a family history, young age etc.

In practice it would probably be worth checking it in a male presenting with a UTI, as such a diagnosis is fairly rare in this age group. It is important to allow the infection to clear first however, to reduce the risk of a false positive result.

Which one of the following is an AIDS defining illness?

(Please select 1 option)

<input type="radio"/>	Anal canal warts
<input type="radio"/>	Extra genital molluscum contagiosum
<input type="radio"/>	Multidermatomal shingles
<input type="radio"/>	Oesophageal candidiasis
<input type="radio"/>	Oral candidiasis

- |                                  |   |
|----------------------------------|---|
| <input type="radio"/>            | Anal canal warts  |
| <input type="radio"/>            | Extra genital molluscum contagiosum                             |
| <input type="radio"/>            | Multidermatomal shingles  |
| <input type="radio"/>            | Oesophageal candidiasis <span>This is the correct answer</span> |
| <input checked="" type="radio"/> | Oral candidiasis <span>Incorrect answer selected</span>         |

## Key Learning Points

### Genitourinary, Infectious Diseases

- Oesophageal candidiasis is an AIDS-defining illness but oral candidiasis is not.

## Explanation

Any opportunistic infections or opportunistic malignancies are AIDS-defining illnesses.

Oesophageal candidiasis is an AIDS-defining illness but oral candidiasis is not.

Anal warts are not an opportunistic infection.

Extragenital molluscum contagiosum is also not an opportunistic infection but frequently occurs in symptomatic HIV-positive patients.

Multidermatomal shingles is not an opportunistic infection but if it occurs in a young person HIV infection needs to be excluded.

A 31-year-old African man presented with a history of fever, night sweats, shortness of breath, and weight loss for two months. His chest radiograph showed a moderately severe, left pleural effusion only. He consented to an HIV test which was positive.

Which is the most likely cause of pleural effusion?

(Please select 1 option)

<input type="radio"/>	Hodgkin's lymphoma
<input type="radio"/>	Pleural tuberculosis
<input type="radio"/>	<i>Pneumocystis jirovecii</i> pneumonia (PCP)
<input type="radio"/>	Pulmonary aspergillosis
<input type="radio"/>	Pulmonary Kaposi's sarcoma

(Please select 1 option)

<input type="radio"/>	Hodgkin's lymphoma
<input type="radio"/>	Pleural tuberculosis <span>This is the correct answer</span>
<input type="radio"/>	<i>Pneumocystis jirovecii</i> pneumonia (PCP)
<input checked="" type="radio"/>	Pulmonary aspergillosis <span>Incorrect answer selected</span>
<input type="radio"/>	Pulmonary Kaposi's sarcoma

## Key Learning Points

Genitourinary, Infectious Diseases

- Pleural tuberculosis is the most likely cause in an HIV-positive African man with a two-month history of weight loss, chest symptoms and night sweats.

## Explanation

Pleural tuberculosis is the most likely cause in an HIV-positive African man with a two-month history of weight loss. His pleural effusion is due to pleural tuberculosis (extrapulmonary tuberculosis).

Hodgkin's lymphoma can cause **pleural effusion** due to pleural involvement but it is often associated with mediastinal mass. His chest radiograph showed only pleural effusion. Non-Hodgkin's lymphoma (not Hodgkin's lymphoma) is commonly associated with these patients.

PCP does not cause pleural effusion. It typically causes bilateral reticular shadows from the hila without any hilar lymph node enlargement or pleural effusion.

Pulmonary **aspergillosis** shows infiltrative lesions but it does not typically cause pleural effusion.

Pulmonary Kaposi's sarcoma can cause **pleural effusion** by involving the pleura, but it often causes coarse irregular nodular lesions in the lungs.

A 35-year-old, HIV-positive, African woman presented with weakness of both legs and double incontinence.

CSF showed increased protein and neutrophils with normal glucose.

Which of the following is the most likely cause of her weakness?

(Please select 1 option)

- |                       |                            |
|-----------------------|----------------------------|
| <input type="radio"/> | CMV polyradiculomyelopathy |
| <input type="radio"/> | Guillain-Barré syndrome    |
| <input type="radio"/> | Herpes virus encephalitis  |
| <input type="radio"/> | HIV encephalopathy         |
| <input type="radio"/> | Toxoplasma encephalitis    |

<input type="radio"/>	CMV polyradiculomyelopathy	This is the correct answer
<input type="radio"/>	Guillain-Barré syndrome	
<input type="radio"/>	Herpes virus encephalitis	
<input type="radio"/>	HIV encephalopathy	
<input checked="" type="radio"/>	Toxoplasma encephalitis	Incorrect answer selected

## Key Learning Points

### Genitourinary, Infectious Diseases

- Increased neutrophils are found in CMV polyradiculomyelopathy but not in Guillain-Barré syndrome.

## Explanation

Symptoms are suggestive of polyradiculomyelopathy (weakness of legs with involvement of sphincters).

Increased neutrophils are found in CMV polyradiculomyelopathy but not in Guillain-Barré syndrome.

HIV encephalopathy usually causes confusion and memory loss. It does not involve sphincters.

Guillain-Barré syndrome causes polyradiculopathy, explaining all her symptoms, but with normal cell counts and raised protein in the CSF.

Herpes simplex encephalitis causes fever, headache, confusion, and deteriorating level of consciousness.



A 34-year-old Thai lady presented with a left hemiparesis of two weeks duration.

HIV antibody test was positive. CT scan of the head showed multiple ring-enhanced lesions.

Which of the following is the most likely cause of her weakness?

(Please select 1 option)

<input type="radio"/>	Amoebic brain abscesses
<input type="radio"/>	Cerebral toxoplasmosis
<input type="radio"/>	Herpes simplex encephalitis
<input type="radio"/>	Primary brain lymphoma
<input type="radio"/>	Progressive multifocal leucoencephalopathy

- |                                  |  |
|----------------------------------|--|
| <input type="radio"/>            | Amoebic brain abscesses  |
| <input checked="" type="radio"/> | Cerebral toxoplasmosis <span>This is the correct answer</span> |
| <input type="radio"/>            | Herpes simplex encephalitis                                    |
| <input checked="" type="radio"/> | Primary brain lymphoma <span>Incorrect answer selected</span>  |
| <input type="radio"/>            | Progressive multifocal leucoencephalopathy                     |

## Key Learning Points

### Genitourinary, Infectious Diseases

- Multiple ring-enhanced lesions are commonly seen in patients with cerebral toxoplasmosis and these patients are normally immunosuppressed.

## Explanation

Cerebral **toxoplasmosis** is the most likely diagnosis. Multiple ring-enhanced lesions are commonly seen in patients with cerebral **toxoplasmosis**, though solitary ring enhanced lesions are seen in 25% of patients on CT scan. MRI scan is more sensitive in identifying small lesions than CT scan.

Amoebic brain abscesses are not the most likely cause in this patient.

Multiple ring-enhanced lesions are not seen in patients with herpes simplex encephalitis.

Primary brain lymphoma causes a significant mass effect with surrounding oedema.

Progressive multifocal leucoencephalopathy causes multifocal white matter lesions without any mass effect or surrounding oedema.

A 60-year-old Asian man who has lived in the United Kingdom for the past 15 years presents with painless haematuria. He is a smoker of 10 cigarettes per day.

Investigations reveal a haemoglobin of 110 g/L (120-160), urinalysis shows ++ blood and PA chest x ray shows small flecks of white opacifications in the upper lobe of the left lung.

Which of the following is the most likely diagnosis?

(Please select 1 option)

<input type="radio"/>	Bladder carcinoma
<input type="radio"/>	Glomerular disease
<input type="radio"/>	Prostatic carcinoma
<input type="radio"/>	Renal calculi
<input type="radio"/>	Tuberculosis

<input type="radio"/>	Bladder carcinoma	This is the correct answer
<input type="radio"/>	Glomerular disease	
<input type="radio"/>	Prostatic carcinoma	
<input type="radio"/>	Renal calculi	
<input checked="" type="radio"/>	Tuberculosis	Incorrect answer selected

## Key Learning Points

### Genitourinary, Oncology

- Smoking is a risk factor for bladder cancer

## Explanation

The most likely diagnosis in this middle-aged male is carcinoma of the bladder as suggested by haematuria and anaemia.

The history of smoking is a risk factor for bladder cancer.

The gentleman does not have any of the features of active TB such as fever, night sweats or weight loss, which we would expect if he had renal TB. The opacifications in the lung are consistent with previous primary TB.

Having said that, renal TB can present without systemic symptoms but bladder cancer is more common.

A 32-year-old African woman with HIV presents with a two-week history of greenish, frothy, itchy vaginal discharge.

What is the most likely cause of her discharge?

(Please select 1 option)

<input type="radio"/>	<i>Candida albicans</i> infection
<input type="radio"/>	<i>Chlamydia</i> infection
<input type="radio"/>	Foreign body
<input type="radio"/>	Gonorrhoea infection
<input type="radio"/>	<i>Trichomonas vaginalis</i> infection

Please select 1 option



*Candida albicans* infection



*Chlamydia* infection



Foreign body



Gonorrhoea infection

Incorrect answer selected



*Trichomonas vaginalis* infection

This is the correct answer

## Key Learning Points

Genitourinary, Infectious Diseases

- *Trichomonas vaginalis* causes itchy, frothy, greenish vaginal discharge.

## Explanation

*Trichomonas vaginalis* causes itchy, frothy, greenish vaginal discharge.

*Candida albicans* causes a white, curdy, itchy vaginal discharge.

*Chlamydia* and gonorrhoea do not cause itchy, frothy, vaginal discharge and both can be asymptomatic.

Foreign body causes foul smelling vaginal discharge.

Dr Assem

A 34-year-old homosexual Caucasian man developed jaundice two months after taking a combination of antiretroviral drugs. He admitted that he had had several episodes of unprotected sex with several casual male partners. His liver function showed raised bilirubin with normal transaminases and alkaline phosphatase.

Which of the following is the most likely cause of his jaundice?

(Please select 1 option)

<input type="radio"/>	Acute hepatitis B
<input type="radio"/>	Alcoholic hepatitis
<input type="radio"/>	Atazanavir
<input type="radio"/>	Efavirenz
<input type="radio"/>	Nevirapine

<input type="radio"/>	Acute hepatitis B	
<input type="radio"/>	Alcoholic hepatitis	
<input type="radio"/>	Atazanavir	This is the correct answer
<input type="radio"/>	Efavirenz	
<input checked="" type="radio"/>	Nevirapine	Incorrect answer selected

## Key Learning Points

### Genitourinary, Infectious Diseases

- Atazanavir causes hyperbilirubinaemia with normal transaminases and alkaline phosphatase (mimicking Gilbert's syndrome).

## Explanation

Atazanavir causes hyperbilirubinaemia with normal transaminases and alkaline phosphatase (mimicking Gilbert's syndrome).

Acute hepatitis B is unlikely with normal transaminases and alkaline phosphatase.

A mild to moderate rise in transaminases and alkaline phosphatase occurs in alcoholic hepatitis.

Efavirenz can cause acute hepatitis with raised levels of transaminases.

Nevirapine causes acute hepatitis where transaminases are raised several-fold.



A 36-year-old Caucasian woman was successfully treated for *Pneumocystis jirovecii* pneumonia (PCP).

She was re-admitted with acute breathlessness with left-sided chest pain ten days after her discharge from the hospital. Examination revealed that she was hypoxic and found to have diminished breath sounds on the left side of chest.

What is the most likely cause of her recent admission?

(Please select 1 option)

<input type="radio"/>	Acute myocardial infarction
<input type="radio"/>	Acute pericarditis
<input type="radio"/>	Acute pulmonary embolism
<input type="radio"/>	Left lobar pneumonia
<input type="radio"/>	Pneumothorax

Please select 1 option

<input type="radio"/>	Acute myocardial infarction
<input type="radio"/>	Acute pericarditis
<input type="radio"/>	Acute pulmonary embolism
<input type="radio"/>	Left lobar pneumonia
<input checked="" type="radio"/>	Pneumothorax <span>Correct</span>

## Key Learning Points

Genitourinary, Infectious Diseases

- Pneumothorax is a well-known complication of pneumocystis pneumonia (PCP)

## Explanation

Pneumothorax is a well-known complication of PCP. An acute history of chest pain with breathlessness and diminished breath sounds is typical of pneumothorax.

Diminished breath sounds are not a feature of acute myocardial infarction or acute pericarditis.

Acute pulmonary embolism should be considered due to her recent admission but diminished breath sounds are not a feature.

There are no signs of consolidation to consider lobar pneumonia.

Which one of the following antiretrovirals is likely to cause increased pigmentation of the skin in a black African patient?

(Please select 1 option)

<input type="radio"/>	Didanosine
<input type="radio"/>	Efavirenz
<input type="radio"/>	Emtricitabine
<input type="radio"/>	Nevirapine
<input type="radio"/>	Stavudine

<input type="radio"/>	Didanosine	
<input type="radio"/>	Efavirenz	
<input type="radio"/>	Emtricitabine	This is the correct answer
<input type="radio"/>	Nevirapine	
<input checked="" type="radio"/>	Stavudine	Incorrect answer selected

## Key Learning Points

### Genitourinary, Infectious Diseases

- Emtricitabine causes hyperpigmentation of the skin, including palmar creases, in 8% of black patients.

## Explanation

Emtricitabine causes hyperpigmentation of the skin, including palmar creases, in 8% of black patients.

Didanosine and stavudine cause mitochondrial toxicity, hence peripheral neuropathy, pancreatitis and hyperlactataemia.

Efavirenz causes CNS toxicity.

Nevirapine causes acute hepatitis and skin rash.

A 47-year-old Portuguese former intravenous drug abuser presented with a two-week history of right hemiparesis. He was found to have hepatitis B and C infection. His absolute lymphocyte count was  $0.6 \times 10^9/L$ . CT of the head showed multiple ring-enhanced lesions.

Which of the following would be your next best course of action?

(Please select 1 option)

<input type="radio"/>	Manage him conservatively with physiotherapy
<input type="radio"/>	Refer him to a neurosurgeon for urgent brain biopsy
<input type="radio"/>	Refer him to a stroke specialist
<input type="radio"/>	Request an HIV antibody test
<input type="radio"/>	Start thrombolysis treatment

(Please select 1 option)

- |                                  |   |
|----------------------------------|---|
| <input type="radio"/>            | Manage him conservatively with physiotherapy        |
| <input type="radio"/>            | Refer him to a neurosurgeon for urgent brain biopsy |
| <input type="radio"/>            | Refer him to a stroke specialist                    |
| <input checked="" type="radio"/> | Request an HIV antibody test <span>Correct</span>   |
| <input type="radio"/>            | Start thrombolysis treatment                        |

### Key Learning Points

Genitourinary, Infectious Diseases

- Finding multiple ring-enhanced lesions on CT scan needs further investigations.

### Explanation

This man was already infected with two blood-borne viruses (hepatitis B and C). His absolute lymphocyte count was low. CT scan showed multiple ring-enhanced lesions, which were suggestive of cerebral toxoplasmosis.

Therefore, testing HIV is the next best course of action. Finding multiple ring-enhanced lesions on CT scan needs further investigations.

Managing conservatively with physiotherapy is not an appropriate course of action.

CT scan is not typical of brain tumour, hence referring him for urgent brain biopsy is not the best course of action.

Thrombolysis treatment should not be started, as the CT scan was not typical of ischaemic stroke.

A 46-year-old homosexual HIV positive man presents with a two-week history of weakness of his right arm and leg.

Examination reveals right hemiparesis and left cerebellar signs. CT scan shows white matter lesions in the left cerebellar region and left temporoparietal area. There is no midline shift or surrounding oedema.

Which one of the following is most likely to be found in his cerebrospinal fluid (CSF)?

(Please select 1 option)

- |                       |   |
|-----------------------|---|
| <input type="radio"/> | Positive cytomegalovirus (CMV) PCR      |
| <input type="radio"/> | Positive Epstein-Barr virus (EBV) PCR   |
| <input type="radio"/> | Positive herpes simplex virus (HSV) PCR |
| <input type="radio"/> | Positive human herpes virus (HHV) 8 PCR |
| <input type="radio"/> | Positive JC PCR                         |

- ☐ Positive cytomegalovirus (CMV) PCR
- ☐ Positive Epstein-Barr virus (EBV) PCR
- ☐ Positive herpes simplex virus (HSV) PCR
- ☐ Positive human herpes virus (HHV) 8 PCR
- ☒ Positive JC PCR **Correct**

## Key Learning Points

### Genitourinary, Infectious Diseases

- JC virus causes PML in immunocompromised patients especially when the CD4 count is below 100 cells/mm<sup>3</sup>.

## Explanation

Multifocal lesions in left cerebellar and temporoparietal white matter areas without any mass effect or surrounding oedema are most likely to be due to progressive multifocal leucoencephalopathy (PML).

JC virus causes PML in immunocompromised patients especially when the CD4 count is below 100 cells/mm<sup>3</sup>.

CMV polymerase chain reaction (PCR) may be found in CMV encephalitis. It is clinically not a typical feature of CMV encephalitis.

Positive EBV PCR indicates primary brain lymphoma where CT scan often shows significant mass effect with surrounding oedema.

HSV PCR may be found in HSV encephalitis which commonly affects temporal lobes in patients with good CD4 count.

HHV 8 PCR is usually associated with Kaposi's sarcoma.