Vomiting
This is a common symptom often due to dietary (or alcohol!) indiscretion and settles quickly at home. However, it can be a symptom of general ill health. It is associated with neurological, psychological, metabolic, renal as well as gastrointestinal disease.

The history is normally the best indication of the cause.

**Duration**

**Acute**
If the duration is < 48 h, consider alcohol, toxins, acute infective disease (e.g. Noravirus), medication (e.g. digoxin), acute neurological disease (e.g. vertigo), acute abdominal disease (e.g. appendicitis), gallstones.

**Chronic**
If the duration is > 48 h, think of gastrointestinal obstruction. Remember psychological factors (usually in young women), endocrine (Addison’s) and metabolic disease (renal failure). Neurological factors (raised intracranial pressure) can also cause vomiting.

**Frequency and relationship to food**
Differentiate vomiting from regurgitation. Vomiting occasionally eases the pain of peptic ulcer disease.

**Content**
Haematemesis (see haematemesis/melaena, p. 84), faeculent (intestinal obstruction), semi-digested food (evidence of gastric retention).

**Associated symptoms**
Abdominal pain, weight loss, constipation, diarrhoea.
CASE HISTORY

A 70-year-old man was admitted with a 2-week history of repeated vomiting. He had lost more than 6 kg in weight. He had recently developed colicky abdominal pain and constipation without passage of wind. On examination, his abdomen is distended and he is tender in the epigastrium.

You call for surgical advice. The surgeon, in addition to your findings, notes that there are increased bowel sounds. The patient’s hernial orifices and rectal examination show no abnormality.

Remember

Non-gastrointestinal causes are possible: a full examination is therefore necessary. Note: look at the fundi for papilloedema

Investigations

- Haematological: 
  - FBC, ESR
- Radiological: 
  - Abdominal X-ray
  - Chest X-ray
- Biochemical: 
  - Electrolytes
  - Urea
  - LFTs
  - Calcium
  - Amylase

Chest X-ray (CXR)

Look for evidence of air under the diaphragm (perforation), signs of pneumonia, hilar mass (tumour).

Abdominal X-ray (AXR)

Normal

With a history of this length, a normal X-ray would suggest that large or small bowel obstruction is unlikely. High obstruction in the gastrointestinal (GI) tract, i.e. in the oesophagus or stomach, is possible. Investigate for non-GI causes (metabolic, neurological – exclude brainstem lesion), occasionally severe depression.

Abnormal

Might show evidence of small or large bowel obstruction or gastric distension.
In this patient, the AXR showed small bowel obstruction (Fig. 4.1). The differential diagnosis is shown in the Information box.

**Information**

Small intestinal obstruction: differential diagnosis:
- Adhesions (80% in adults)
- Hernia
- Crohn’s disease
- Intussusception
- Obstruction due to extrinsic involvement by cancer

**Management**

The ultimate goal is to relieve obstruction. In the interim:

- Infuse dextrose/saline to maintain electrolyte balance (might need additional K+ 20 mmol per 500 mL)
- Insert nasogastric tube (on continuous drainage)
- Contact surgeons, await instruction as to further investigations (such as CT scan to localise obstructive lesion).

This case history continues below. The patient returns to A&E 10 days later with continuous hiccups.
Hiccups

CASE HISTORY

You are called by the surgical SHO because he is concerned that a 70-year-old man has had continuous hiccups for 48 h, a fever, malaise and right hypochondrial pain. Ten days ago he had been admitted with intestinal obstruction (see above) and a laparotomy for a carcinoma of the ascending colon had been performed. This is a classic situation of a subphrenic abscess occurring post-surgery in an elderly person.

How would you investigate?

Check Hb, WBC and liver biochemistry. An urgent ultrasound is needed. This will confirm the diagnosis. If febrile, blood cultures should be taken.

Treatment

This is drainage under ultrasound control and antibiotics. The bacteria involved are usually Bacteroides spp. and/or E. coli. Treat with cefoxitin and gentamicin. Hiccups can be controlled with chlorpromazine 50 mg or diazepam 5 mg as necessary.

Other causes of hiccups

- Metabolic, e.g. uraemia
- Neurological, e.g. brainstem tumour
- Other abdominal pathology
- No pathological cause.

Information

Hiccups are due to involuntary diaphragmatic contractions with closure of the glottis. They are very common and usually not sinister, even if persistent.

Weight loss

Weight loss is often a perceived symptom by patients but does need to be verified. It is a general symptom, which can reflect disease in any part of the body.

Always make sure that the patient has a sufficient calorie intake for his/her requirements, bearing in mind the amount of exercise taken. In a young female, think of anorexia nervosa.

Reduced calorie intake can be due to intentional dieting but can also be a symptom of generalised disease due to anorexia.
CASE HISTORY

A 40-year-old man has been admitted with a fever, tremor and 10 kg weight loss. He has previously been counselled for alcohol abuse.

What should you do?
You need to consider a number of diagnoses and this might be helped by additional history and examination. The following should be considered:

- Thyrotoxicosis: check for signs of toxicity (see p. 562)
- Alcoholic liver disease (see p. 89)
- Malnutrition: check by asking the patient’s family. Perhaps there is a psychiatric history?
- Underlying cancer, particularly lung, bowel and pancreas, should be considered
- Biochemical investigations: should help determine underlying metabolic or renal disease
- Malabsorption: often causes anorexia, which contributes to weight loss.

This patient had no major signs of chronic liver disease but did admit to recurrent episodes of upper abdominal pain radiating through to his back. These tended to occur on Monday, following his weekend binges. This suggests pancreatic disease resulting from his heavy alcohol intake.

What initial investigations are appropriate?
- FBC, LFTs, calcium, blood alcohol
- Plain X-ray of the abdomen for pancreatic calcification
- Abdominal ultrasound to assess the pancreas for cysts and potential masses.

Investigations

- CT scan of the pancreas:
- MRCP (see p. 79) this is non-invasive and of value in assessment of the pancreas and biliary tree
- ERCP to delineate the biliary and pancreatic ducts (if MRCP is unavailable)
- Endoscopic ultrasound: can help define pancreatic cysts and masses

This patient was admitted in a malnourished, hyperdynamic state. Consider acute alcohol withdrawal symptoms (see p. 89). Treat this initially and investigate the pancreas later.
Dysphagia (see Kumar and Clark, Clinical Medicine 6th edn, p. 274)

CASE HISTORY

A 55-year-old patient has been referred urgently because of acute dysphagia. She gave a history of reflux for years and increasing dysphagia for 6 months. She had been eating an orange, which became lodged in her gullet and all efforts to dislodge it were unsuccessful. The underlying diagnosis is likely to be food bolus obstruction on an already present oesophageal stricture.

What should you do?
Refer for an urgent endoscopy because the problem is very acute. Food can often be removed and the patient’s symptoms relieved. Dilatation of any stricture can be performed.

Unfortunately, this woman developed severe chest pain immediately after the dilatation and surgical emphysema could be felt in her neck. Clinically, an oesophageal tear is suspected.

A CXR and Gastrograffin swallow confirmed an oesophageal rupture.

The underlying diagnosis is more likely to be oesophageal cancer because careful dilatation of benign lesions rarely causes a tear. Biopsies later confirmed a carcinoma.

Initial management
- Nil by mouth
- IV infusion
- Antibiotic prophylaxis
- Surgical referral.

Small tears might resolve on conservative management but large tears generally need surgery in a dedicated thoracic unit. Endoscopic stenting can be used for tears in malignant lesions.

This patient has cancer; management will include assessment for surgery with:
- Blood count, liver biochemistry
- CXR
- ECG
- Respiratory function tests
- Abdominal US, CT scan to assess operability
- Endoscopic ultrasound is the most accurate way of staging lesion.

Remember
Submucosal cancer can look like a benign lesion
Constipation (see Kumar and Clark, *Clinical Medicine* 6th edn, p. 320)

**CASE HISTORY**

Your house officer asks you what he should prescribe for an elderly man who hasn’t opened his bowels for 5 days. The patient who was previously well and active had been admitted a week ago with a chest infection. Rectal examination revealed a loaded colon with no local lesion.

**Should this patient be investigated?**

Not initially because it seems likely that constipation is due to immobility. A barium enema might be necessary if there is no improvement.

**Treatment**

- Initially, the patient will require a laxative to ‘get things moving’. Glycerol suppositories are useful. Oral magnesium sulphate, an osmotic purgative, is effective and cheaper than the more usually prescribed osmotic laxative lactulose.
- Do not use stimulant laxatives.
- Stop ‘constipating’ drugs if possible.
- Faecal impaction might require digital extraction followed by small-volume phosphate enemas.
- Advise the patient regarding high-fibre diets and fluid intake.

**Information**

**Causes:**
- Simple/idiopathic
- Intestinal obstruction
- Colonic disease, e.g. carcinoma
- Painful anal conditions
- Drugs, e.g. codeine, iron, verapamil, tricyclic anti-depressants, opiates
- Hypothyroidism, hypercalcaemia
- Depression
- Immobility

Diarrhoea (see Kumar and Clark, *Clinical Medicine* 6th edn, p. 331)

Increased frequency of defecation can, even in a previously fit patient, produce dehydration and *severe* electrolyte depletion. Diarrhoea can also be a recurrent problem in patients with established gastrointestinal disease.
What should you do in a case of diarrhoea presenting in A&E?

In the history, ascertain whether the patient has eaten suspect food or travelled abroad. Check for drug history, e.g. antibiotics. Ask about accompanying symptoms, e.g. abdominal pain, weight loss. It is essential to:

- Establish history of onset
- Determine frequency, consistency, content of stool, presence of blood
- Determine the state of hydration and electrolyte balance
- Send stool for culture, parasites (ova or cysts) and C. difficile toxin (if the patient has previously been hospitalised or been on antibiotics)
- Perform a rectal examination; sigmoidoscopy (if bloody diarrhoea) should be done by the gastroenterology team
- Do blood cultures in severe cases with a temperature
- Do a plain abdominal X-ray.

Management

This will depend on the case scenario (see below) but most diarrhoeal illnesses are self-limiting and short lived; 1–10% might persist for a month. Identification of the pathogen will determine specific therapy (see Chapter 1).

Information

Likely pathogens causing diarrhoea

Bacteria (50%):
- *E. coli*
- *Campylobacter* spp.
- *Salmonella* spp.
- *Shigella* spp.

Viruses (1% but seldom produce severe diarrhoea in adults):
- Rotavirus
- Norovirus

Protozoa (%):
- *Giardia*
- *Entamoeba histolytica*
- Cryptosporidium

Helminths (e.g. *Strongyloides*):
Some cases have no pathogens or multiple pathogens (this occurs in 20–50% of cases)
CASE HISTORY

A 24-year-old returns from travelling for 3 months, during which he passed through several countries. He has had severe diarrhoea for 2 weeks. He could have been exposed to all sorts of infective agents.

On admission he is dehydrated and has lost over 5 kg in weight.

What immediate action would you take?

- FBC, U&Es, LFTs.
- Send stools for culture × 3.
- Rehydration might require large amounts of IV fluids but often oral glucose/electrolyte solutions are sufficient.
- Vomiting might need to be treated with an anti-emetic (metoclopramide 10 mg × 3/day).
- Evidence of anaemia will need correction and further investigation, e.g. folate deficiency in tropical sprue, in which no organism can be isolated.

Giardiasis is very likely and treatment is with metronidazole 2 g a day for three successive days.

If bacterial, many cases will settle without antibiotics. Ciprofloxacin will often shorten the clinical course.

CASE HISTORY

A 30-year-old female patient presents with a 2-week history of six to ten motions a day. She has felt tired and has lost about 5 kg in weight.

On admission she is not dehydrated but has a fever and is lethargic.

What is the differential diagnosis?

- Consider infective diarrhoea and screen (as above).
Consider first presentation of inflammatory bowel disease (most likely in this woman). Check plain abdominal film.

Consider possibility of steatorrhoea and diseases of small bowel and pancreas.

**Inflammatory bowel disease** (see Kumar and Clark, *Clinical Medicine* 6th edn, p. 309)

In any case of diarrhoea presenting in A&E in the UK, ulcerative colitis or Crohn’s disease should be considered as possible causes. A previous history of chronic diarrhoea or abdominal pain might help you with this possibility.

**Action**

**General**

- Determine general biochemical and haematological status.
- Check plain abdominal X-ray for presence of stool, mucosal oedema, bowel dilatation or perforation.
- Sigmoidoscopy: the presence of an inflamed, friable mucosa with loss of vascular pattern or a patchy inflammation indicates inflammatory bowel disease. Take a rectal biopsy.
- Stool cultures (NB: Remember to check result).

Acute colitis is associated with diarrhoea, abdominal pain, fever and systemic disturbance. There is usually blood in the stools. To assess severity, check the factors shown in Table 4.1.

Always consider the presence of:

- Toxic dilatation: colon > 5 cm diameter and mucosal islands on plain abdominal X-ray (Fig. 4.2)
- Perforation (on abdominal X-ray).

**How would you manage this acute situation?**

- IV fluids with dextrose/saline.
- IV therapy with steroids (IV hydrocortisone 100 mg × 4/day)

**TABLE 4.1 Acute colitis: assessment of severity**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Sign</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemoglobin</td>
<td>↓</td>
<td>&lt; 10 g/dL</td>
</tr>
<tr>
<td>Albumin</td>
<td>↓</td>
<td>&lt; 30 g/L</td>
</tr>
<tr>
<td>Fever</td>
<td>↑</td>
<td>&gt; 37.5°C</td>
</tr>
<tr>
<td>Stool frequency</td>
<td>↑</td>
<td>&gt; 6/day</td>
</tr>
<tr>
<td>Erythrocyte sedimentation rate</td>
<td>↑</td>
<td>&gt; 30 mm per hour</td>
</tr>
<tr>
<td>Pulse rate</td>
<td>↑</td>
<td>&gt; 90 bpm</td>
</tr>
<tr>
<td>Platelets</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td>White blood cells</td>
<td>↑</td>
<td></td>
</tr>
</tbody>
</table>
**Acute colitis – assessment of severity**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb</td>
<td>↓ &lt;10 g/dL</td>
<td>ESR</td>
<td>↑ &gt;30 mm/h</td>
</tr>
<tr>
<td>Alb</td>
<td>↓ &lt;30 g/L</td>
<td>Pulse rate</td>
<td>↑ &gt;90 bpm</td>
</tr>
<tr>
<td>Fever</td>
<td>↑ &gt;37.5°C</td>
<td>Platelets</td>
<td>↑</td>
</tr>
<tr>
<td>Stool frequency</td>
<td>↑ &gt;6/day</td>
<td>WBC</td>
<td>↑</td>
</tr>
</tbody>
</table>

*Figure 4.2*

(a) Toxic dilatation of the colon; (b) plain abdominal X-ray showing toxic dilatation in ulcerative colitis. From Kumar and Clark *Clinical Medicine* 6th edn, 2005.
followed by oral therapy (enteric coated prednisolone 40 mg per
day) if patient improves.

- IV antibiotics (metronidazole/cephalosporin) if infection is
suspected.
- Further management: refer to gastroenterologists; consult GI
surgeons. Will need further investigation.

**Remember**

In acute severe ulcerative colitis, at 3 days: CRP > 45 mg/L or stool
frequency > 8/day gives an 85% chance of needing a colectomy

**Has this patient got Crohn’s disease or ulcerative
colitis?**

Both can produce an acute colitis. The differentiation is by
colonoscopy and histological appearance (see Table 4.2).

**TABLE 4.2 Differentiating between Crohn’s disease and ulcerative colitis**

<table>
<thead>
<tr>
<th>Histological findings</th>
<th>Crohn’s disease</th>
<th>Ulcerative colitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammation</td>
<td>Deep (transmural), patchy</td>
<td>Superficial (mucosal) continuous</td>
</tr>
<tr>
<td>Granulomas</td>
<td>++</td>
<td>Rare</td>
</tr>
<tr>
<td>Goblet cells</td>
<td>Present</td>
<td>Depleted</td>
</tr>
<tr>
<td>Crypt abscesses</td>
<td>+</td>
<td>++</td>
</tr>
</tbody>
</table>

**Information**

- **Crohn’s disease:**
  - Affects any part of GI tract, from mouth to anus
  - 70% of cases affect the terminal ileum
  - Can be controlled but not cured

- **Ulcerative colitis:**
  - Confined to colon
  - Cured by colectomy
  - Can affect the: rectum alone (proctitis), sigmoid and descending colon (left-sided colitis) or the whole colon (total colitis)

**Abdominal pain** (see Kumar and Clark, *Clinical Medicine* 6th edn, p. 340)

Most diseases of the GI tract are associated with abdominal pain
but pain can be referred to the chest or back. The characteristics of
the pain can help in the diagnosis.
CASE HISTORY

A 40-year-old man presents with epigastric and central abdominal cramping pain. For 48 h the pain has been continuous, severe and associated with vomiting. He has no alteration of bowel habit and no loss of weight.

What should you do?
Assess the severity of the pain and associated symptoms:

- Duration
- Frequency/characteristics/exacerbating or relieving factors
- Site and referral of pain
- Examine the patient for fever, tachycardia, abdominal tenderness, bowel sounds.

Immediate investigations
- Haematological: Hb, WCC, ESR
- Biochemical: U&Es, liver biochemistry, amylase
- Radiological: initial AXR for obstruction. CXR in acute pain for intestinal perforation.

Management
Develop the management plan to include:

- Symptomatic relief
- Establish disease-specific therapy
- Information for patient and relatives
- Further investigations (endoscopy, ultrasound, CT and MRI to exclude perforation, obstruction, stones, calcification, cancer and ascites)
- Consultation with colleagues in surgery and other disciplines.

In this case, abdominal pain situated in the epigastrium and central abdomen, and of the severity described, would be associated with pathology. However, your differential diagnosis should include the following:

- An acute surgical cause:
  - Aortic aneurysm
  - Appendicitis should always be considered.
- Features of acute pancreatitis:
  - Severe pain
  - Often associated with alcohol abuse, gallstones, viral infection (e.g. mumps)
  - ↑ Serum amylase (> 5× normal)
  - Gastric retention and vomiting
– ultrasonographic changes and contrast-enhanced dynamic CT (best investigation) show pancreatic swelling, necrosis and peripancreatic fluid collection.

**Remember**

**Acute pancreatitis**
Assessment of severity and poor prognosis (first 48 h):
- Age > 55 years
- Blood glucose > 10 mmol/L
- Serum urea > 16 mmol/L
- Serum calcium < 2 mmol/L
- Serum LDH > 600 u/L
- \( \text{PaO}_2 < 8 \text{ kPa} \)
- WCC > 15 \( \times \) 10\(^9\)/L
- Serum albumin < 30 g/L
- Serum AST > 200 U/L

- **Features of gallstone disease:**
  - Biliary pain:
    - Pain usually continuous in the right hypochondrium and epigastrium lasting up to 2 h (not colicky)
    - Often associated with abnormal LFTs
    - Often previous similar episodes but well in between episodes
  - Acute cholecystitis:
    - Severe, continuous pain in epigastrium and right hypochondrium
    - Ultrasound shows gallstones, distension of gall bladder, gall bladder wall thickening, sonographic Murphy’s sign

- **Features of IBS:**
  - Pain: abdominal pain is common in IBS. It is often cramping and intermittent, and at different sites. Relieved by defaecation
  - Alternating diarrhoea/constipation
  - Feeling of incomplete emptying on defaecation
  - Wind and abdominal bloating
  - Unassociated with pathological findings. These symptoms have usually been present for some time tending to fluctuate

- **Features of dyspepsia:**
  - See p. 59.

- **Features of cancer:**
  - Cancer of pancreas, bowel, stomach, ovary, kidney can present as abdominal pain
There are usually associated symptoms of weight loss, debility and organ failure, depending on the site.

- There might also be additional biochemical and haematological abnormalities specific to the organ involved.
- Radiology, ultrasonography and MRI are vital in the diagnosis, localisation and detection of spread of disease.

**Symptom relief**

Symptom relief depends on diagnosis. Use anti-spasmodics (hyoscine 20–40 mg ×4/day). Minor analgesics (paracetamol) can help and NSAIDs are useful in some cases. When prescribing opiates (morphine, codeine) remember they can increase constipation and spasm in the sphincter of Oddi. Anti-emetics (metoclopramide 10 mg ×2/day or prochlorperazine 5 mg ×2/day).

**Patient information**

This depends on diagnosis but should be delivered to both patients and relatives sensitively and with an understanding of underlying pathology.

In this case, the 40-year-old patient turned out to have acute pancreatitis, with a serum amylase of 1000 units. He quickly settled by being nil by mouth and having IV fluids. The aetiology was never established but was thought to have perhaps been viral.

---

**Remember**

- Gallstones and upper abdominal symptoms are both common. Great care must be taken to establish that the two are related.
- Fair, Fat, Fertile Females of Forty have the same chance of having gallstones as the rest of the population (about 15–20%).

---

**Gastro-oesophageal reflux disease (GORD)** *(see Kumar and Clark, *Clinical Medicine* 6th edn, p. 275)*

**CASE HISTORY**

A 45-year-old man was admitted with severe epigastric pain radiating up into his chest. He thought he had had a heart attack (see p. 368).

**What investigations would you do on admission?**

It is critical to consider life-threatening conditions, such as myocardial infarction, pulmonary embolism and pneumothorax before labelling such pain as dyspepsia.
In this patient, the ECG, CXR and cardiac markers (e.g. CPK, troponins) were normal. Additional features in the history included:

- Long history of reflux (GORD)
- Burning nature of the pain
- Flatulence
- A relationship of the present pain to previous similar pain
- A food-related element
- Exacerbation of pain with drinking hot liquids.

**Features of gastro-oesophageal reflux**

- Burning pain produced by bending, stooping or lying down.
- Pain seldom radiates to the arms.
- Pain precipitated by drinking hot liquids or alcohol.
- Pain relieved by antacids.

**Features of myocardial ischaemia**

- Gripping or crushing pain
- Pain radiates into neck, shoulders and both arms
- Pain produced by exercise
- Accompanied by dyspnoea.

Diagnosis of GORD was strongly suggested in this patient from the history.

**Treatment**

Give liquid Gaviscon (10 mL) and a proton pump inhibitor (PPI, e.g. omeprazole 20 mg × 2 daily for 6 weeks, reducing to 10 mg) to control the symptoms. Endoscopy will need to be performed.

**Remember**

- Reflux can be difficult to diagnose and although it is often associated with a hiatus hernia, more formal investigation might be necessary, e.g. endoscopy followed by oesophageal pH and pressure monitoring if necessary.
- The possibility of significant disease in this patient should always be considered and the presence of alarm features would demand urgent endoscopy.
Peptic ulcer disease (see Kumar and Clark, *Clinical Medicine* 6th edn, p. 284)

**CASE HISTORY**

You see a 40-year-old man in the clinic with epigastric pain that has been present on and off for a number of years. The doctor’s letter indicates that the man has been a regular attender and has received antacids, H₂ receptor antagonists and a PPI at some time over the last 5 years. In 1995 the patient was found to have *H. pylori* antibodies in his serum and was given eradication therapy.

**What should you do?**

The history of intermittent epigastric pain is highly suggestive of peptic ulcer disease and you note there are no alarm features in the history. The patient has been given *H. pylori* eradication therapy but the GP has not indicated the drugs that were used. The patient remembers taking two different tablets for 1 week. You ask about smoking (which delays ulcer healing) and also take a drug history. There is no history of NSAID or aspirin use.

**What would you do next?**

You would need to establish whether the patient has had successful *H. pylori* eradication.

**Tests for *Helicobacter pylori***

- Serological (useful in the community but does not distinguish between past or current infections)
- Urea breath tests (for current infections) measuring $^{13}\text{CO}_2$ or $^{14}\text{CO}_2$ (Fig. 4.3)
- Antral biopsy: either for histology or for CLO (urease) testing (for current infections)
- Stool assay.

This patient’s urea breath test is positive, indicating continuing *H. pylori* infection.

**Treatment**

Patients with peptic ulcer disease who are *H. pylori* positive should be given combination eradication therapy:

- Clarithromycin 500 mg twice daily for 1 week
- Amoxicillin 1 g twice daily for 1 week
- Omeprazole 20 mg twice daily for 2 weeks.
Figure 4.3  **Urea breath test.**
Tagged urea ($^{13}$C or $^{14}$C) is given orally and is metabolised by urease, produced by *H. pylori*, into ammonia and CO$_2$. The latter is measured in the breath.

**Remember**

Alarm features:
- Weight loss
- Anaemia
- Dysphagia
- Vomiting
- Continuing severe pain

In the absence of alarm features it is reasonable to try a proton pump inhibitor if the history is suggestive of reflux, e.g. heartburn worse on bending.
CASE HISTORY

You are asked by the cardiologists to see a man with epigastric pain. He has been admitted for a coronary stent insertion. He is already on aspirin 75 mg daily. He has had many similar episodes of pain over the years. In 1988 he had an endoscopy, was told that he had an ulcer and was given Zantac. He points with one finger to his epigastrium as the site of his pain.

This is a classic history of duodenal ulcer disease.

What should you do?
As the angioplasty is tomorrow you recommend he is given a PPI, e.g. omeprazole 20 mg ×2 daily and is referred to gastroenterology outpatients.

The cardiology SpR would like to put the patient on anti-coagulants and is worried that he has an ulcer. This is a problem of balancing the risks. If the coronary stent is urgent they will have to go ahead with anti-coagulants. If not, an endoscopy to ascertain if he has an ulcer should be performed prior to coronary intervention. The ideal situation for this man would be to heal his ulcer before the intervention.

How do you investigate a patient with a suspected ulcer in the community?

- Less than 45 years: H. pylori serology. If positive, eradication therapy (see p. 59). If negative, treat symptomatically.
- Greater than 45 years: patients with new dyspepsia and those with alarm symptoms (e.g. anorexia, weight loss) should be referred for endoscopy.

Remember

- H. pylori serology remains positive even after successful eradication of H. pylori
- Current H. pylori infection can be detected by the urea breath test (see Fig. 4.3), endoscopy (urease test, histology or culture) and detection of stool antigen

Iron deficiency anaemia

CASE HISTORY

A 40-year-old, female, globe-trotting managing director was found at routine screening to have a haemoglobin of 8.0 g/dL with an iron-deficient appearance on the film.
She admitted to some ankle swelling and increased breathlessness of recent onset. Examination was unhelpful. FBC, film and low serum ferritin confirmed iron deficiency.

**What do you do?**
Exclude all obvious causes of bleeding:

- Heavy periods
- Rectal bleeding
- Recurrent nose bleeds.

If there is no obvious menorrhagia, you can assume the anaemia is due to gastrointestinal disease:

- Malabsorption: coeliac disease is very underdiagnosed.
- The patient travels a lot abroad and could have a bowel infestation. Remember hookworm is the most common cause of iron deficiency anaemia world-wide.
- Occult bleeding from the GI tract is common and can be confirmed by haemoccult testing. This, however, is totally unnecessary in a patient with iron deficiency because if there is no history of blood loss, blood can then only be lost from the GI tract.

**Information**

Faecal occult bloods:
- Of no use in males or post-menopausal females with iron deficiency anaemia and no other cause for bleeding
- Possibly useful for screening populations for colonic cancer

**What additional investigations are appropriate?**

- Rectal examination is mandatory to exclude rectal cancer. Proctoscopy to exclude piles.
- Gastroscopy: peptic ulcer, gastric cancer and GORD can certainly occur in this age group. Also do a duodenal biopsy for coeliac disease (see Fig. 4.4).

**Remember**

Coeliac disease: (see Kumar and Clark, *Clinical Medicine* 6th edn, p. 301)

- Is increasingly recognised world-wide and has an incidence of less than 1 in 300 in the UK. Certain areas of the world are said to have a higher incidence, e.g. Ireland and Italy
- Malabsorption of iron as well as increased iron loss can occur. There might be other deficiencies as well, e.g. calcium and folic acid
- A history of steatorrhoea can be missed unless a detailed stool history is taken (Note: many patients do not have steatorrhoea)
If gastroscopy is unhelpful, full colonic assessment is necessary. The best investigation is colonoscopy, which will allow full assessment of the colon when biopsy, polypectomy, laser treatment of angiodysplasia can be performed as appropriate. Alternatively a barium enema and flexible sigmoidoscopy (the rectum is poorly visualised on barium enema) can be used.

If the above investigations are negative you have a problem. A small minority of patients fall into this category and the host of further investigations, performed with advice from the GI unit, will include:

- Small bowel follow-through
- Capsule endoscopy
- Enteroscopy

Diagnosis is made by biopsy of duodenal/jejunal mucosa, although anti-endomysial antibodies and tissue transglutaminase (the target antigen for the endomysial antibody) are simple to perform and have high specificities and sensitivities.

Treatment is with a gluten-free diet.
• Meckel’s scan
• Angiography: preferably performed when a patient is bleeding and in this patient unlikely to be helpful
• Laparotomy with possibly simultaneous on-table endoscopy at the time.

This woman turned out to have menorrhagia due to fibroids.

Remember

- In iron deficiency anaemia, a post-menopausal female or any male with no obvious cause of blood loss must have a GI cause for the anaemia
- Few patients have an inadequate iron intake in the UK

REFERENCE


Rectal bleeding (see Kumar and Clark, Clinical Medicine 6th edn, p. 293)

Rectal bleeding is characterised by the passage of fresh blood rectally as opposed to either occult loss when blood can only be acknowledged by laboratory testing or melaena (see p. 84).

CASE HISTORY

An 80-year-old woman was admitted in a shocked state after having passed ‘a great deal’ of fresh blood from her rectum. She gave no other history and prior to the incident had just returned on her bicycle from doing the shopping. Abdominal examination was normal.

How would you manage the patient initially?

- Establish IV infusion and give colloids.
- Check Hb and U&Es.
- Insert a CVP line.
- Transfuse blood.

The patient stabilised and had no further bleeding.

Additional investigations

Additional investigations on the ward must include a rectal examination, proctoscopy and sigmoidoscopy.
**Proctoscopy**
This will allow the diagnosis of haemorrhoids and an anal fissure. These are the most common causes of rectal bleeding, but rarely cause torrential blood loss. Features of bleeding from an anorectal lesion:
- Passage of blood after a motion, and not mixed with it
- Blood dripping into the pan
- Blood just on the paper
- Anal pain, particularly with an anal fissure.

**Sigmoidoscopy**
This will determine the presence of a colitis and might show a lesion, e.g. carcinoma. If local anorectal disease is excluded, other causes include:
- Cancer
- Diverticular disease
- Colitis
- Angiodysplasia
- Polyps
- Ischaemia.

In this patient, sigmoidoscopy showed that the blood was coming from above the limit of the scope. Colonoscopy showed a bleeding polyp; this was excised.

**Remember**
Even in the presence of severe diverticular disease, a polyp and carcinoma can be the cause of the bleeding and must be excluded by colonoscopy.

**Family history of colon cancer** (see Kumar and Clark, *Clinical Medicine* 6th edn, p. 328)

**CASE HISTORY**
A GP phones to discuss a possible referral to the gastroenterology clinic. He has just seen an anxious, 32-year-old woman whose mother has recently died of colonic cancer. The patient has just discovered that her maternal aunt died of a similar complaint. The GP emphasises that the patient herself has no GI symptoms.

**What should you advise?**
The patient needs to be seen by a gastroenterologist with a view to having a colonoscopy.
There are two family cancer syndromes:

1. **Familial adenomatous polyposis**: multiple polyps are found throughout the colon and upper small bowel. All patients should be screened after age 12 years because all patients will develop colon cancer unless the colon is removed.

2. **Hereditary non-polyposis cancer of the colon (HNPCC)**: this accounts for 5–10% of colon cancers, the average age of diagnosis is 45 years. Cancers are mainly in the right-hand side of the colon.

A flexible sigmoidoscope can reach 60–70 cm up the colon, where approximately 60% of cancers occur (Fig. 4.5).

The gastroenterologist advises a colonoscopy for this patient.

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**Remember**

Risks for development of colon cancer:
- Normal: 1:50
- With a first-degree relative: 1:17
- With an elderly first-degree relative: 1:30

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**Figure 4.5 Distribution of colorectal cancer.**

Functional bowel disease (see Kumar and Clark, *Clinical Medicine* 6th edn, p. 335)

CASE HISTORY

A 30-year-old woman is in the A&E department with severe lower abdominal pain. She is rolling around in agony but the surgical registrar has found no evidence of serious disease. He has already fully examined her and investigated her with routine blood tests and an abdominal X-ray, all of which are normal. Her boyfriend is aggressive and insisting that something must be done. The casualty officer is looking for help.

What do you do?
- Re-take the history with the possibility of this being irritable bowel syndrome (IBS).
- Re-examine the abdomen: think of all the causes of an acute abdomen again (see Information box).
- Review the investigations.

The history strongly supports the diagnosis of IBS (see p. 52). Remember that the pain can be very severe and real to the patient even though it is related to life events, i.e. the pain is not just ‘all in the mind’.

Management
This can be very difficult, particularly because relatives often feel unable to cope. The situation needs to be calmed down with strong reassurance and pain relief (e.g. NSAID and anti-spasmodics). Refer to gastroenterology outpatients.

Information

Acute abdominal pain of sudden onset:
- Perforation, e.g. of a duodenal ulcer
- Rupture, e.g. aneurysm
- Torsion, e.g. ovarian cyst

Gradual onset:
- Inflammatory conditions, e.g. appendicitis, back pain

Think of:
- Pancreatitis
- Ruptured aortic aneurysm
- Renal tract disease
Self-assessment questions

Q1 In coeliac disease:
   a The ileum is most severely affected
   b Associated dermatitis herpetiformis responds to a gluten-free diet
   c Oesophageal cancer is an associated complication
   d Measurement of vitamin B\textsubscript{12} is a good screening test
   e Splenomegaly is a recognised association

Q2 A 23-year-old beautician, who is otherwise well, complains of alternating diarrhoea, constipation and severe abdominal pain:
   a What are the possible causes?
   b What investigations would you suggest?
   c How would you manage the problem?

Q3 A 50-year-old man presents with dysphagia:
   a What are the possible causes?
b What questions in the history help you arrive at a diagnosis?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

What are the investigations to consider?

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________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

If caused by cancer, how would you decide on treatment?

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________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

What treatments are available for achalasia?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Q4 In a patient with diarrhoea:

a A 24-hour stool weight of 200 g suggests significant pathology

b Presence of blood makes an infective cause likely

c Measurement of a serum amylase is useful if pancreatic disease is suspected

d A normal sigmoidoscopy does not exclude colonic disease

e Antibiotics should be given if infection is suspected

Q5 A 30-year-old man presents with a 10-week history of discomfort in right iliac fossa. He has also noticed some weight loss. The ESR is also raised:

a What is the differential diagnosis?
Q6 An elderly man collapses following the passage of a large amount of blood PR late one evening:

a What are the most likely causes of this?

b His blood pressure is 80/60 and pulse rate 120. How would you manage him?

c How would you establish a cause?

Q7 A 40-year-old woman complains of fatigue and lethargy. You notice her Hb to be low, at 8 g/dL:

a A low MCV indicates iron deficiency and endoscopy should be performed as the next test

b In iron deficiency the serum iron, TIBC and ferritin will be reduced

c Faecal occult blood tests do not contribute to the diagnosis

d A history of terminal ileal resection suggests macrocytic anaemia due to folate deficiency as a possible cause
e If there are no other symptoms menorrhagia is the likeliest cause

Q8 A 55-year-old man presents with a 2-month history of epigastric pain:

a If peptic ulceration is suspected clinically, a therapeutic trial of a proton pump inhibitor is appropriate

b A normal serum amylase makes a pancreatic disorder unlikely

c As he has had numerous courses of treatment from his GP a blood test for HP aetiology should be performed to check his *H. pylori* status before commencing treatment

d Following a normal endoscopy, eradication of helicobacter is unlikely to help his symptoms

e When the *H. pylori* is successfully eradicated the recurrence rate is less than 1% per annum, in the UK
Self-assessment answers

A1  a  False. Coeliac disease is mainly a proximal enteropathy; the ileum is less involved. The involvement is often patchy

b  True. Oral dapsone also helps the skin lesion

c  True. Malignant complications include lymphoma, oesophageal cancer and small intestinal cancer

d  False. The ileum (where vitamin $B_{12}$ is absorbed) is not usually involved. The $B_{12}$ is often normal. Red cell folate is usually low in untreated disease and many patients are iron deficient

e  False. There is often splenic atrophy with associated Howell–Jolly bodies in red cells. Howell–Jolly bodies are nuclear remnants that are normally removed by the spleen

A2  a  These features, particularly in a young female, strongly suggest irritable bowel syndrome. Inflammatory bowel disease, particularly Crohn’s disease, can also present with pain and alteration of bowel habit but other features, e.g. weight loss, systemic symptoms, rectal bleeding, are often present

b  In the young well patient, investigation is often unnecessary. If there is doubt, blood tests to assess inflammatory markers (Hb, WCC, platelets, ESR/CRP, albumin) should be checked. If diarrhoea is a predominant symptom, sigmoidoscopy with a rectal biopsy should be performed

c  Management of IBS is largely with reassurance. Occasionally anti-spasmodics (e.g. mebeverine) can be useful. Depression should be actively sought and treated

A3  a  The more common causes of dysphagia include a benign or malignant stricture, motility disorders such as achalasia or oesophageal spasm. Neuromuscular disorders (such as bulbar palsy and myasthenia gravis) and extrinsic pressure (such as a lung tumour) can cause dysphagia

b  A long history of heartburn suggests a peptic stricture. Progressive dysphagia of short duration with weight loss suggests malignancy. Chest pain, regurgitation and dysphagia for liquids suggest a motility disorder such as achalasia

c  A barium swallow is usually the best initial investigation; endoscopy can be normal in motility disorders. Causes of high dysphagia, e.g. pharyngeal pouch, can make endoscopy hazardous

d  Treatment depends on patient’s age, general health and extent of tumour. Liver biochemistry, CXR, abdominal
ultrasound and CT ± endoscopic ultrasound will usually indicate operability and possibility for cure. If inoperable, oesophageal stents can be inserted.

e  Treatments for achalasia include pneumatic balloon dilation of the sphincter, intrasphincteric injections of botulin toxin or a surgical cardiomyotomy. Surgical treatment is now most commonly performed laparoscopically.

A4  
a  False. Normal stool weight is < 250 g/24 h. A complaint of diarrhoea with normal stool weight suggests functional bowel disorder.

b  False. *Campylobacter* or *Shigella* can cause bloody diarrhoea but ulcerative colitis is more likely.

c  False. Serum amylase will be normal if pancreatic insufficiency is the cause of diarrhoea.

d  True. Occasionally colonic disease might be evident only in the right side of the colon, e.g. Crohn’s, pseudo-membranous colitis. Mucosal biopsies should always be taken because even with a macroscopically normal colon, rarer conditions such as microscopic inflammatory colitis, lymphocytic colitis and collagenous colitis can occur.

e  False. Most causes of infectious diarrhoea are self-limiting. Antibiotics are usually only used if the patient is ill or if *C. difficile* is the cause (metronidazole).

A5  
a  In this age group, RIF pain and weight loss strongly suggest Crohn’s disease. Other causes of these symptoms would include an appendix mass, although the history is long. In immigrants, ileocaecal TB should be considered. Amoebiasis can cause RIF pain, usually with formation of an amoeboma and should be considered in a traveller returning from the tropics.

b  Blood tests looking for inflammatory causes: Hb, WCC, ESR, albumin. Ultrasound of the RIF will identify masses and thickened bowel. A small bowel follow-through will confirm a diagnosis of Crohn’s disease. Colonoscopy and ileoscopy will provide histological confirmation.

c  This patient is symptomatic and therefore Crohn’s disease requires treatment. Medical options include prednisone 40 mg daily reducing over 4–6 weeks. 5-ASA drugs (mesalazine) have limited use in ileocaecal Crohn’s disease but might reduce the risk of relapse, particularly following surgery. Surgery should be considered particularly for limited ileocaecal disease and for disease associated with stricturing or fistulisation. Other options include elemental feeding (for diffuse disease) and azathioprine for long-term maintenance.
A6  
a Most causes of rectal bleeding do not induce haemodynamic compromise. In this scenario the likely cause would be diverticular disease, an ischaemic colon or possibly a vascular abnormality. Cancer and colitis do not usually bleed sufficiently briskly to induce shock  
b Resuscitation is the key. A large-bore intravenous cannula is inserted and colloid, or preferably blood, is infused. A CVP line should be inserted. Urgent consultation with surgical colleagues is required  
c A history of pain, diarrhoea and weight loss is suggestive of ischaemia or cancer. Blood tests in the acute stage are often unhelpful. A plain film of the abdomen might show evidence of mucosal oedema/thumb printing. Endoscopic examination of the colon is usually unhelpful in the acute bleeding situation but should be scheduled electively if the bleeding stops spontaneously. Angiography might be indicated if bleeding continues and the origin is unclear. Often, laparotomy is required if bleeding continues.

A7  
a False. Although the MCV is reduced in iron deficiency, there are other causes of a low MCV, i.e. thalassaemia, sideroblastic anaemia. Iron deficiency should be proven with iron studies before proceeding with further investigations  
b False. The TIBC will be elevated with a low iron and ferritin level  
c True. Iron deficiency in the absence of menorrhagia must be due to a gastrointestinal disorder. A negative FOB does not exclude a GI cause and further investigation is indicated regardless of the FOB status  
d False. Folate is absorbed in the jejunum. Terminal ileal resection can lead to vitamin B12 deficiency  
e True. In a menstruating female, iron deficiency is common

A8  
a False. In this age group new onset of symptoms should be investigated before treatment is undertaken  
b False. The serum amylase is usually normal in chronic pancreatic disease  
c False. Serology is not helpful in checking the success, or otherwise, of H. pylori eradication because antibodies persist despite successful treatment. A positive H. pylori breath test or a stool antigen will indicate current infection  
d False. In non-ulcer dyspepsia, H. pylori eradication has been shown to reduce dyspeptic symptoms  
e True. Recurrence following successful eradication is extremely uncommon