SECTION A

CLINICAL PRESENTATIONS

ABDOMINAL PAIN

Abdominal pain is an extremely common presenting symptom. The pain may be acute (sudden onset) or chronic (lasting for more than a few days or presenting intermittently). It is important to be able to distinguish causes of abdominal pain which need urgent surgery (e.g. ruptured aortic aneurysm, perforated bowel, or acute mesenteric ischaemia) from those that do not (e.g. biliary colic, ureteric colic, acute pancreatitis). The causes of abdominal pain may be described based on anatomical location or the region affected on clinical examination. The list below contains some of the more common causes but is not intended to be comprehensive.

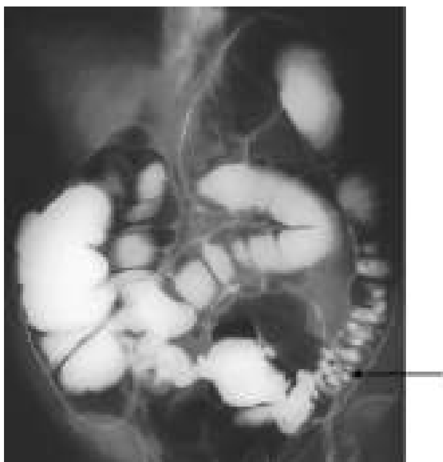

Figure 1 Diverticular disease. *A barium enema showing numerous diverticulae in the sigmoid colon (see arrow).*

CAUSES

GASTROINTESTINAL

GUT

Gastroduodenal

- Gastritis
- Gastric/peptic ulcer
- Oesophageal/gastric malignancy
- Gastric/duodenal perforation
- Gastric volvulus ⚠

Intestinal

- Constipation
- Appendicitis
- Obstruction ⚠
- Diverticulitis (Fig. 1)
- Gastroenteritis
- TB ● *(common in parts of the world where TB is endemic)*
- Strangulated hernia ⚠
- Inflammatory bowel disease
- Intussusception ⚠
- Volvulus ⚠
- Mesenteric adenitis
- Merkel's diverticular

HEPATOBILIARY

- Cholecystitis
- Biliary colic
- Cholangitis ⚠
- Hepatitis

PANCREATIC

- Pancreatitis ⚠
- Malignancy
- Pancreatic pseudocyst

SPLENIC

- Infarction
- Spontaneous rupture ⚠

URINARY TRACT

- Acute retention of urine
- Urinary tract infection/acute pyelonephritis
- Ureteric colic
- Cystitis
- Hydronephrosis
- Tumour
- Pyonephrosis ⚠
- Polycystic kidney

GYNAECOLOGICAL

- Ectopic pregnancy ⚠
- Torsion of ovarian cyst ⚠
- Ovarian cyst
- Severe dysmenorrhoea

- Mittelschmerz
- Endometriosis
- Uterine fibroid
- Salpingitis

VASCULAR

- Abdominal aortic aneurysm ⚠
- Mesenteric embolus ⚠
- Ischaemic colitis ⚠
- Acute aortic dissection (i.e. type B) ⚠
- Mesenteric angina (claudication)
- Mesenteric venous thrombosis ⚠

ABDOMINAL WALL

- Cellulitis
- Strangulated hernia ⚠
- Rectus sheath haematoma

REFERRED PAIN

- Myocardial infarction ⚠
- Lobar pneumonia
- Testicular torsion ⚠
- Pleurisy
- Pericarditis ⚠
- Herpes zoster
- Thoracic spine disease, e.g. disc, tumour

'MEDICAL' CAUSES

- Diabetic ketoacidosis ⚠
- Hypercalcaemia
- Uraemia
- Sickle cell disease
- Addison's disease
- Acute intermittent porphyria
- Henoch–Schönlein purpura
- Tabes dorsalis

HISTORY

Age

Certain conditions are more likely to occur in certain age groups, e.g. mesenteric adenitis in children, diverticular disease in the elderly.

Past history

- **Previous surgery, e.g. adhesions may cause intestinal obstruction.**
- **Recent trauma, e.g. delayed rupture of spleen.**
- **Menstrual history, e.g. ectopic pregnancy.**

Pain

- **Site**
  Right upper quadrant- consider biliary, gallbladder, hepatic causes. Epigastric- consider gastric, pancreatic, or referred cardiac pain. Left upper quadrant- consider splenic causes. Left/Right lumber/ flank- consider bowel, renal, ureteric causes. Umbilical- consider mesenteric or an abdominal aortic aneurysm. Right iliac fossa- consider appendicitis, ovarian, ilio-caecal causes. Left iliac fossa- consider diverticulitis, ovarian. Suprapubic- consider urinary tract infections or cystitis.
- **Onset/Timing**
  Pathologies may develop suddenly or over a period of time. This should guide the urgency of your investigations to exclude life-threatening causes.
- **Character**
  Pain described as colicky or constant with acute exacerbations may signify constipation, bowel obstruction, gastroenteritis, ureteric calculi, biliary/gallbladder pathology etc. Constant pain may be an indication of peritonitis.
- **Radiation**
  Pain associated with ureteric calculi typically radiates from loin to groin. Pain associated with appendicitis typically migrates from the umbilicus to the right iliac fossa.
- **Associated symptoms**
  Absolute constipation, abdominal distention, and faecalant vomiting is suggestive a bowel obstruction. Hard stools, rectal bleedings and localised left sided peritonism may be indicate diverticulitis. Haematemesis/ coffee ground vomit may indicate gastro-intestinal ulceration.
- **Exacerbating factors**
  Pain on or after food ingestion may indicate gastric reflux or ulcer disease. Productive cough with upper abdominal pain may be suggest referred pain or muscle strain. Exacerbation by movements or palpation may be indicative of muscular strain.
- **Severity**
  Assess severity out of 10 and administer analgesia. Constant severe pain despite analgesia may be indicative of further assessment.

Fever

- **Any rigors, sweats and temperatures may suggest infection.**

EXAMINATION

General

Is the patient lying comfortably? Is the patient lying still but in pain, e.g. peritonitis? Is the patient writhing in agony, e.g. ureteric colic? Is the patient flushed, suggesting pyrexia?

Pulse, temperature, respiration

Pulse and temperature are raised in inflammatory conditions. They may also be raised with impending infarction of bowel. An increased respiratory rate might suggest chest infection referring pain to the abdomen.

Cervical lymphadenopathy

Associated with mesenteric adenitis or even cancer.

Chest

Assess for respiratory signs implicating referred pain from lobar pneumonia.

Abdomen

- **Inspection. Does the abdomen move on respiration? Look for scars, distension, visible peristalsis (usually due to chronic obstruction in patient with very thin abdominal wall). Check the hernial orifices. Are there any obvious masses, e.g. visible, pulsatile mass to suggest aortic aneurysm?**
- **Palpation. The patient should be relaxed, lying flat, with arms by side. Be gentle, and start as far from the painful site as possible. Check for guarding and rigidity. Check for masses, e.g. appendix mass, pulsatile expansile mass to suggest aortic aneurysm. Carefully examine the hernial orifices. Examine the testes to exclude torsion.**
- **Percussion, e.g. tympanitic note with distension with intestinal obstruction; dullness over bladder due to acute retention.**
- **Auscultation. Take your time (30–60 s); e.g. silent abdomen of peritonitis; high-pitched tinkling bowel sounds of intestinal obstruction.**

Rectal examination

Always carry out a rectal examination.

Vaginal examination

There may be discharge or tenderness associated with pelvic inflammatory disease. Examine the uterus and adnexa, e.g. pregnancy, fibroids, ectopic pregnancy.

GENERAL INVESTIGATIONS

- **FBC, ESR, CRP**
  Hb ↓ peptic ulcer disease, malignancy. WCC and CRP ↑ infective/inflammatory disease, e.g. appendicitis, diverticulitis.
  ESR ↑ Crohn's disease, TB.
- **U&Es**
  Electrolyte disturbances in vomiting and diarrhoea.
  Pseudo-obstruction.
- **LFTs**
  LFTs may be deranged in cholangitis and hepatitis.
- **Serum amylase**
  Usually raised (x3 baseline) in acute pancreatitis.
- **Venous blood gas**
  Metabolic acidosis in infective, ischaemic aetiologies and diabetic ketoacidosis.
- **MSU**
  Leucocytes and nitrates in UTIs. Blood, leucocytes and nitrates in pyelonephritis. Blood in ureteric colic.
- **βHCG**
  Pregnancy. Ectopic pregnancy.
- **Erect CXR**
  Gas under diaphragm (perforated viscus). Lower lobar pneumonia (referred pain).
- **AXR**
  Obstruction – dilated loops of bowel. Site of obstruction. Local ileus (sentinel loop) – pancreatitis, acute appendicitis. Toxic dilatation – dilated, featureless, oedematous colon in ulcerative colitis or Crohn's disease. Renal calculi. Calcified aortic aneurysm. Air in biliary tree (gallstone ileus). Gallstones (10% radio-opaque).
- **US**
  Localised abscesses, e.g. appendix abscess, paracolic abscess in diverticular disease. Free fluid – peritonitis, ascites. Aortic aneurysm. Ectopic pregnancy. Ovarian cyst. Gallstones. Empyema, mucocele of gall bladder. Kidney – cysts, tumour.

SPECIFIC INVESTIGATIONS

- **Blood glucose**
  Raised in diabetic ketoacidosis.
- **Serum calcium**
  Hypercalcaemia.
- **VDRL**
  Syphilis (tabes dorsalis).

- **Sickling test**
  Sickle cell disease.
- **Urinary porphobilinogens**
  Acute intermittent porphyria.
- **ECG**
  Myocardial infarction (referred pain).
- **CT (i.e. abdomen, angiography)**
  Abscess. Aortic aneurysm. Pancreatitis. Tumour. Mesenteric ischaemia. Mesenteric thrombosis.
- **OGD colonoscopy**
  Peptic ulcer. Malignancy.
- **IVU**
  Stones. Obstruction.
- **Barium enema**
  Carcinoma. Volvulus. Intussusception.
- **Small bowel enema (i.e. gastrograffin follow through)**
  Small bowel Crohn's disease. Lymphoma of small bowel. Carcinoma of small bowel.
- **MRCP/ERCP**
  Biliary tract disease.

- **Don't forget to examine the hernial orifices.**
- **Perform specific examinations in order to narrow your differential diagnosis.**