

# The abdomen, trunk and groin

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## The abdominal examination

### 1 Introduce yourself to the patient and wash your hands.

Lie the patient flat on the bed with one pillow.

Obtain adequate exposure from nipples to knees, keeping the genital area covered unless you are asked to examine that area.

Ask about pain.

### 2 Inspect (general and specific).

Inspection should begin from the foot of the bed, looking 'from out to in' – that is, looking around the bed for clues first, and then looking at the patient (for signs, such as jaundice and cachexia). Still from the foot of the bed, inspect the abdomen for the following:

- ▶ Is the abdomen moving freely with respiration?
- ▶ Ask the patient to push their abdomen out and suck it back in. Look at the patient's face for signs of discomfort.
- ▶ Distension (central or in flanks?).
- ▶ Ask the patient to cough.
- ▶ Ask the patient to lift their head off the bed, or to lift both legs together off the bed. Look at the patient's face for signs of pain, and look for abdominal wall hernias.

Approach the patient from their right side for closer inspection.

- ▶ Start with the hands – look for clubbing, leukonychia, paronychia, palmar erythema, pallor in the palmar creases, Dupuytren's contracture, pulse.
- ▶ Arms – look for liver flap, scratch marks related to pruritus.
- ▶ Eyes – look for icterus and pallor (*Note*: pull both eyelids down together).
- ▶ Mouth – look for jaundice (palate and lower surface of tongue), ulcers, state of dentition, tongue changes. Ask the patient to lift their tongue up, and look for telangiectasia.
- ▶ Neck – check for supraclavicular lymph nodes (Virchow's node/Troisier's sign).
- ▶ Chest – look for spider naevi, gynaecomastia, scratch marks.

Inspect the abdomen from close up.

- ▶ Central – umbilical shape (paraumbilical hernias are easily missed!), dilated veins.
- ▶ The flanks – distension/fullness.

- ▶ Check carefully for scars and fistulae, quadrant by quadrant. Multiple scars of different ages often suggest Crohn's disease.
- ▶ Ask the patient to roll to each side so that you can visualise the loins/renal angles for any scars or masses.
- ▶ Get down level with the abdomen to look for masses, visible peristalsis and AAA pulsations (ask the patient to hold their breath while you look for the latter).

### 3 Palpation.

Ask the patient to point with one finger to the area that is most painful. Ensure that you have clean, warm hands and nails that are cut short.

- ▶ Perform superficial palpation first – four quadrants and central area to check for tenderness and obvious masses (*you must keep your eyes fixed on the patient's face at all times to detect signs of tenderness*).
- ▶ Deep palpation – nine areas for masses.
- ▶ Feel for a liver edge – start in the RIF, and as the patient breathes in deeply move up towards the costal margin.
- ▶ Feel for the spleen – start in the RIF moving up towards the left costal margin, as the patient breathes in. To detect a mildly enlarged spleen, roll the patient over to their right-hand side.
- ▶ Ballott the kidneys.
- ▶ To detect an AAA, feel for an expansile, pulsatile mass in the epigastrium, in two planes, with the hands flat on the abdomen (*Fox's manoeuvre*). If there is an expansile rather than a transmitted pulsation, the fingers will be seen to be pushed apart in time with the pulsation of the aorta.

### 4 Percussion.

- ▶ Elicit the presence or absence of peritoneal irritation.
- ▶ Assess the size of the liver from the fifth intercostal space, mid-clavicular line downwards.
- ▶ Assess the size of the spleen from the RIF.
- ▶ Percuss the bladder in the suprapubic area.
- ▶ Percuss for free fluid/ascites (with or without fluid thrill, shifting dullness).

### 5 Auscultate.

- ▶ Bowel sounds.

- ▶ Renal bruits.
- ▶ Venous hums.
- ▶ Friction rubs.
- ▶ Femoral artery bruits.

## 6 Groin and ankles.

- ▶ Place one hand on each superficial ring and ask the patient to cough (hernia).
- ▶ Place one hand on each deep ring and ask the patient to cough (hernia).
- ▶ Palpate for groin lymph nodes.
- ▶ Check for ankle oedema.

## 7 Complete the examination.

- ▶ Offer to examine the external genitalia.
- ▶ Offer to perform a digital rectal examination.
- ▶ Check the urine and dipstick test.
- ▶ Check the stool chart (if appropriate).
- ▶ Check the observation and fluid balance charts.

## 8 Thank the patient and wash your hands.

## 9 Summarise and offer your differential diagnosis.

If you identify any abdominal scar during the exam, comment on the:

- ▶ age (old or recent)
- ▶ healing tendency (well healed or poorly healed)
- ▶ complications of the scar itself (infected, hypertrophic, atrophic or keloid)
- ▶ associated complications of the wound (incisional hernia, false aneurysm, etc.)
- ▶ presence or absence of drain site scars and stoma scars in the surroundings.

## Approach to the abdominal lump

### 1 Introduce yourself to the patient and wash your hands.

Lie the patient flat on the bed with one pillow.

Ask about pain.

### 2 Inspection/palpation/percussion/auscultation.

- ▶ Site.
- ▶ Scars overlying it (e.g. renal transplant).
- ▶ Size.
- ▶ Shape.
- ▶ Surface – regular or irregular.
- ▶ Edge – regular or irregular.
- ▶ Tenderness.
- ▶ Temperature.
- ▶ Consistency.
- ▶ Can you get above and below it?
- ▶ Pinch the skin over it.
- ▶ Ask the patient to lift their head off the bed, or to lift both feet up in the air to tense the rectus sheath. Determine the relationship of the lump to the muscle and the mobility/fixity (*Carnett's test*) (see 'Approach to any lump (or cutaneous lesion)', page 12).
- ▶ Cough impulse.
- ▶ Reducibility/compressibility.
- ▶ Fluctuance.
- ▶ Pulsatility and expansility.
- ▶ Does it move with respiration?
- ▶ Can it be ballotted?
- ▶ Percuss the lump.
- ▶ Auscultate over the lump.
- ▶ Palpate for regional lymph nodes (inguinal and axillary, especially if the case is splenomegaly), and check the neurovascular status.

*Note:* In the case of hepatomegaly:

- ▶ Determine how far the liver extends beneath the costal margin (cm/finger breadths).
- ▶ Percuss the upper border of the liver to demonstrate that it has not been pushed down by hyperexpanded lungs.

- ▶ Assess liver consistency (soft, firm, hard, craggy).
- ▶ Comment on the liver edge (smooth or nodular).
- ▶ Assess liver tenderness.
- ▶ Assess liver pulsatility.
- ▶ Don't forget the Reidel's lobe!

**3 Thank the patient and wash your hands.**

**4 Summarise and offer your differential diagnosis.**

## Common causes of hepatomegaly and splenomegaly

### *Isolated hepatomegaly*

Physiological causes:

- ▶ Riedel's lobe
- ▶ hyperexpanded chest (liver ptosis).

Alcoholic liver disease:

- ▶ fatty liver
- ▶ macronodular cirrhosis.

Neoplastic disease:

- ▶ benign – polycystic kidney disease, hepatomas
- ▶ primary – hepatocellular carcinoma, angiosarcoma, cholangiocarcinoma
- ▶ secondary – metastatic deposits, lymphoma, myeloproliferative disorders.

Infections:

- ▶ viral – viral hepatitis, EBV, CMV, HIV
- ▶ bacterial – TB, liver abscess
- ▶ protozoal – malaria, hydatid, amoebiasis, schistosomiasis.

Congestive cardiac failure.

Metabolic diseases and infiltrative diseases:

- ▶ Wilson's disease, haemochromatosis, Gaucher's disease
- ▶ amyloidosis, sarcoidosis.

### *Isolated splenomegaly*

Haematological disease:

- ▶ benign – haemolytic anaemias, pernicious anaemia, idiopathic thrombocytopenic purpura, sickle-cell disease (early stages)
- ▶ malignant – myeloproliferative and lymphoproliferative disorders.

Portal hypertension – pre-sinusoidal, sinusoidal, post-sinusoidal causes.

Infections:

- ▶ viral – EBV, CMV, HIV

- ▶ bacterial – typhoid, typhus, TB, sepsis, bacterial endocarditis
- ▶ protozoal – malaria, schistosomiasis, kala-azar.

Space-occupying lesions:

- ▶ solitary cysts, polycystic disease.

Cellular infiltration and systemic diseases:

- ▶ amyloidosis, rheumatoid arthritis (Felty's syndrome), Gaucher's disease, SLE, sarcoidosis.

### *Hepatosplenomegaly*

- ▶ Portal hypertension.
- ▶ Myeloproliferative disorders.
- ▶ Lymphoproliferative disorders.

**Distinguishing a spleen from a kidney clinically**

	<i>Spleen</i>	<i>Left kidney</i>
<i>Descent on inspiration</i>	Towards right iliac fossa	Vertically
<i>Ballotable (bimanually palpable)?</i>	No	Yes
<i>Notch present</i>	Yes	No
<i>Can you get above it?</i>	No	Sometimes
<i>Percussion note</i>	Dull	Usually resonant (overlying bowel)
<i>Friction rub</i>	Occasionally	No

## **Stigmata of chronic liver disease**

### Hands:

- ▶ leukonychia, clubbing, palmar erythema, Dupuytren's contracture, bruising, asterixis (flapping tremor), pruritus/scratch marks.

### Face:

- ▶ jaundice, scratch marks, spider naevi, foetor hepaticus.

### Chest:

- ▶ gynaecomastia, loss of body hair, spider naevi, bruising, pectoral muscle wasting.

### Abdomen:

- ▶ signs of portal hypertension (hepatosplenomegaly, ascites, caput medusae), testicular atrophy.

### Legs:

- ▶ oedema, muscle wasting, bruising.

## Approach to the stoma

### 1 Introduce yourself to the patient and wash your hands.

Lie the patient flat on the bed with one pillow, obtaining adequate exposure from nipples to knees.

Ask about pain.

### 2 Inspect the stoma.

- ▶ In which quadrant is it sited?
- ▶ Look for scars throughout the abdomen (previous surgery and stomas).
- ▶ Check the contents of the bag (liquid faeces, formed faeces, urine).
- ▶ Is the stoma flush or spout with the skin (ileostomy vs. colostomy)?
- ▶ Is the stoma single- or double-lumen (end vs. loop stoma)?
- ▶ If it is a loop stoma, look for the presence of a bridge (a newly formed stoma).
- ▶ If the patient has a loop stoma, identify the afferent and efferent limbs of the stoma. The *afferent limb*, or functional end, produces the stool output and is usually larger and more caudally placed to prevent spill-over into the efferent limb. The *efferent limb* allows passage of flatus and mucous discharge from the distal, 'defunctioned' portion of the bowel, and is usually smaller and more cephalic.

Look for complications:

- ▶ Does the stoma look healthy? (Avoid using the phrase 'The stoma looks nice', as it isn't nice for the patient! It would be better to say 'The stoma looks healthy and is well fashioned').
- ▶ Is it well sited (i.e. placed away from scars, bony prominences and skin folds)?
- ▶ Ask the patient to cough and lift their head off the bed so that you can check for the presence of a parastomal hernia.
- ▶ Look for prolapse, retraction, mucocutaneous separation, ischaemia/necrosis, ulceration, stenosis, oedema, parastomal hernia and high output.
- ▶ Look at the surrounding skin for excoriation and erythema which may be due to a poorly fitting bag.

**3 Palpation.**

- ▶ Offer to insert a finger into the stoma to check stoma patency and stenosis. First check that the patient can reapply the stoma bag.
- ▶ Offer to shine a light down into the stoma to check that the mucosa is healthy.

**4 Complete the examination.**

- ▶ Inspect the perineum for scars and the presence of an anal opening.
- ▶ Offer to perform a complete abdominal examination.
- ▶ Assess the position of the stoma with the patient sitting, lying and standing.

**5 Thank the patient and wash your hands.**

**6 Summarise and offer your differential diagnosis.**

**7 Try to offer an explanation for the need for the stoma in the first place.**

## Examination of the groin

### 1 Introduce yourself to the patient and wash your hands.

Ideally stand the patient up and obtain full exposure of the groin, genitalia and abdomen. However, be prepared to be flexible. For example, if you are asked to examine the groin, and the patient is an elderly man sitting in a wheelchair, the examiners will not be impressed if you try to get him to stand up!

Ask about pain and tell the patient that you will be gentle.

*Note: Each time that you ask the patient to cough, this should have a specific purpose.* The examiners will be watching carefully how many times you make the patient cough and at which stage.

### 2 Inspect.

- ▶ Look for any lumps in the groin and define their characteristics.
- ▶ Look carefully for scars, especially overlying any lumps.
- ▶ Ask the patient to look away and cough. Look at the superficial ring of the affected side for a cough impulse (*cough 1*). Then ask the patient to cough again and look at the contralateral/normal side (*cough 2*).

### 3 Palpate.

- ▶ Can you get above the lump? If you cannot, it is indeed likely to be a groin swelling and you should proceed as described below. If you can get above the lump, it is likely to be a scrotal lump (see 'Examination of the scrotum', page 104).

### 4 The 'Insider Medical' hernia protocol.

*Step 1: Where is the lump? (Define the anatomy and its relations)*

- ▶ Stand to the side of the patient with one hand on their back and the other hand on the lump itself.
- ▶ Identify key landmarks (ASIS, pubic tubercle, the interposed inguinal ligament, femoral artery pulsation, etc.).
- ▶ Define the relationship of the lump to the pubic tubercle (femoral vs. inguinal hernia) and the inguinal ligament.

*Step 2: What is it like? (Define the characteristics of the lump)*

Define the characteristics of the lump in the groin, as you would

for any other lump anywhere else (see 'Approach to any lump (or cutaneous lesion)', page 12).

**Step 3: Confirm that it is a hernia (Expansile cough impulse, reducibility, bowel sounds)**

- ▶ With your hand on the lump, ask the patient to look away and cough (*cough 3*). Is there an expansile cough impulse?
- ▶ Assess for reducibility. Ask the patient whether the lump 'ever goes back inside.' If so, ask the patient to push it back in for you: 'Can you push it back in for me and make the lump disappear?'

Watch how the patient reduces it (straight back, implying a direct inguinal hernia, or following an oblique course backwards and laterally, implying an indirect inguinal hernia).

If the lump is difficult to reduce at any stage, lie the patient down.

- ▶ Place one finger on the pubic tubercle and ask the patient to cough again (*cough 4*). Note the relationship of the lump to the pubic tubercle as it protrudes:
  - above and medial to the pubic tubercle suggests inguinal hernia
  - below and lateral to the pubic tubercle suggests femoral hernia.

**Step 4: Is the inguinal hernia direct or indirect?**

Perform the *deep ring occlusion test*. Place one hand on the deep inguinal ring, situated just above a point halfway between the pubic tubercle and the ASIS, and then ask the patient to look away and cough (*cough 5*). If the lump is controlled at the level of the deep ring, the inguinal hernia is indirect.

**Step 5: Check that the bowel is alive!**

Auscultate for bowel sounds.

**5 The final steps.**

- ▶ Examine the contralateral groin.
- ▶ Examine the scrotum on both sides. (There may be a coincidental hydrocele or varicocele, etc. The likelihood of dual pathologies featuring in the MRCS exam is far higher than in everyday clinical practice!)

- ▶ Offer to stand the patient up if you have not already done so (to avoid missing a varicocele).

## 6 Complete the examination.

- ▶ Examine the regional lymph nodes.
- ▶ Offer to take a full history.
- ▶ Offer to examine the abdomen.
- ▶ Offer to perform a digital rectal examination.
- ▶ Offer to assess the cardiovascular and respiratory systems with the patient's fitness for surgery in mind.

## 7 Thank the patient and wash your hands.

## 8 Summarise and offer your differential diagnosis. For example:

*'This is a well-looking, middle-aged man, who has a 2 × 2 cm non-tender, fully reducible lump in the left groin that lies above and medial to the pubic tubercle. It has an expansile cough impulse and is controlled by pressure over the deep/internal inguinal ring. These findings support a diagnosis of a left-sided indirect inguinal hernia. The contralateral side and genitalia are normal. To complete my examination I would like to take a full history, examine the abdomen, and assess this patient's fitness for surgery by performing a full cardio-respiratory history and examination.'*

When formulating a differential diagnosis in the exam, try to think anatomically. What structures are present in the vicinity of the problem? It may be helpful to sieve through the layers from the skin. The differential diagnosis of a groin lump may therefore include:

- ▶ skin – *sebaceous cyst*
- ▶ subcutaneous tissues – *lipoma, fibroma*
- ▶ lymphatics – *inguinal lymphadenopathy*
- ▶ bowel – *inguinal, femoral hernia*
- ▶ vein – *saphena varix*
- ▶ artery – *femoral artery aneurysm*
- ▶ nerve – *neuroma, neurofibroma*
- ▶ spermatic cord – *lipoma of the cord, encysted hydrocele of cord*
- ▶ testis/scrotum – *ectopic testis*
- ▶ muscle – *benign/malignant tumour (sarcoma)*
- ▶ psoas sheath – *psoas abscess, psoas bursa*.

## Examination of the scrotum

### 1 Introduce yourself to the patient and wash your hands.

Ideally stand the patient up and obtain full exposure of the groin, genitalia and abdomen. However, be prepared to be flexible. For example, if you are asked to examine the groin, and the patient is an elderly man sitting in a wheelchair, the examiners will not be impressed if you try to get him to stand up!

Ask about pain, and explain to the patient that you will be gentle.

### 2 Inspect.

- ▶ Ask the patient to look away and cough.
- ▶ Inspect for groin and scrotal scars (including the posterior aspect of the scrotum).

### 3 Palpate.

- ▶ Can you get above the lump? If you can, the lump is a true scrotal lump and you should proceed as described below. If you cannot, the lump is in fact arising from the groin, e.g. an inguino-scrotal hernia (*see* 'Examination of the groin', page 101).
- ▶ Is the testis separable from the lump?
- ▶ Define the characteristics of the lump, as you would for any other lump.
- ▶ Does the lump transilluminate?
- ▶ Does the scrotal skin move easily over the lump?
- ▶ Ask the patient to cough. Is there a cough impulse?
- ▶ Examine the abdomen for para-aortic nodes.
- ▶ Don't forget to examine *both* testes!
- ▶ Offer to stand the patient up if you have not done so already (to avoid missing a varicocele.)

### 4 Complete the examination.

- ▶ Offer to take a full history.
- ▶ Offer to examine the abdomen.
- ▶ Offer to perform a digital rectal examination.

### 5 Thank the patient and wash your hands.

### 6 Summarise and offer your differential diagnosis.