

Examination Of The Gastrointestinal System

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1. General

Introduce yourself to the patient

Before beginning to examine the gastrointestinal system ask the patient to lie flat. Make sure their head is resting on a pillow and their arms are lying loosely by their sides. Cover the patient's chest and legs with separate blankets. Check with the patient that they are comfortable before proceeding with the examination.

Stand back for a couple of seconds and look at the patient carefully-making it obvious to the examiner that you are doing this. All that is really necessary at this stage is a quick visual survey for signs of **chronic liver disease, liver failure** and **anaemia**. Does the patient look cachexic or in obvious pain?

Basically, if the patient is jaundiced, chronic liver disease is likely. You are extremely unlikely to encounter a patient with liver failure in medical finals as they are too sick to be exam cases, but these patients are both jaundiced and confused. Patients who are pale are likely to be anaemic. If they are pale and cachexic malignant disease may be the cause.

If the examiners stop you at this stage and ask what you are inspecting for, you should respond by saying....

"I am looking for some of the signs of chronic liver disease, liver failure and anaemia that are apparent from a general inspection"

It is likely that this response will prompt the examiner to ask either *"what are the signs of chronic liver disease or liver failure that are apparent from the end of the bed?"* or *"tell me all the signs of chronic liver disease or liver failure."* It is therefore important to be ready to reel off the following lists. The signs apparent from the end of the bed are in italics.

Chronic liver disease:

- *jaundice*
- *spider naevi*
- *gynaecomastia*
- *facial telangiectasia*
- *xanthelasma around the eyes*
- *scratch marks*
- *bruising*
- *muscle wasting*
- *caput medusae (distended veins radiating out from the umbilicus)*
- *distended abdomen*
- *clubbing*
- *leuconychia*
- *Dupuytren's contracture*
- *palmar erythema*
- *testicular atrophy*
- *splenomegaly*

Liver failure:

All the signs of chronic liver disease plus:

- *decreased conscious level*
- *foetor hepaticus*
- *asterixis (a coarse, flapping tremor)*

2. Nails and Hands

Glance at both the hands quickly. It is important to always check both hands as otherwise a Dupuytren's contracture or spider naevi on the patient's left hand might be missed. Only if you are stopped at this point and asked what you are examining for should you recite the following;

"I am examining the nails for evidence of..."

1. koilonychia
2. leuconychia
3. clubbing

and the hand for evidence of...

1. Dupuytren's contracture
2. palmar erythema
3. spider naevi
4. tattoos

You should now check for **asterixis**. This is a coarse flapping tremor which signifies hepatic encephalopathy due to liver failure. Ask the patient *"I would now like to test how steady your arms are. Could you please place your arms out in front of you and cock your wrists back?"* Demonstrate this action to the patient. When they hold their arms out, say *"thank you, I would like you to hold that position for a few seconds."* It is customary to test for asterixis for 20 seconds.

3. The Eyes

Look at both the eyes quickly. Tell the patient *"I would like to take a look in your eyes"* before pulling down one of the lower lids to check for conjunctival pallor. Also check for xanthelasma around the eye as it is one of the features of chronic liver disease.

4. The Mouth

Using your pen torch take a quick look in the patient's mouth. Only if the examiner asks what you are looking for should you recite the following:

"I am looking inside the mouth for evidence of..."

1. dry tongue (dehydration)
2. smooth tongue (anaemia)
3. state of dentition
4. candida (broad spectrum antibiotics, steroid inhalers or AIDS)
5. gingivitis
6. ulcers (inflammatory bowel disease or coeliac disease)...

I am also examining the lips for the brown freckles of Peutz-Jeghers syndrome (small bowel polyps which can bleed or undergo neoplastic change) and the telangiectasia of Osler-Weber-Rendu syndrome (also gut telangiectasia which can bleed)".

5. Supraclavicular Lymphadenopathy

Examine the left supraclavicular fossa for lymphadenopathy. An enlarged node in the left supraclavicular fossa is known as **Virchow's node** and its presence is called **Troissier's sign**. It is indicative of intra-abdominal cancer spread by the lymphatic system via the thoracic duct.

6. The Abdomen

Inspection

Stand back and examine the abdomen from the end of the bed. Although keeping an open mind, try to think what you would *expect* to find given the examination so far.

After a few seconds, move to the patient's right hand side and kneel on a level with the abdomen. If you attempt to examine the abdomen standing, you will not be able to observe it closely and you will be forced to extend your arm so much you will lose accuracy when palpating. Sitting on the side of the patient's bed looks unprofessional and should be avoided.

Look at the **shape** of the abdomen. **Generalised distension** of the abdomen is caused by one of the five F's, namely

- fluid (ascites)
- foetus
- faeces
- fat
- flatus

A **localised area of distension** may be a mass, a loop of bowel or an enlarged organ. If there is a localised bulge, try to think of what organs lie in that position in the abdomen.

Look for movement in the abdomen. A central **visible pulsation** may be an **abdominal aortic aneurysm**. **Visible peristalsis** is seen in very **thin people** and in **bowel obstruction**.

Look now at the **abdominal wall** for **surgical scars**, **striae** and **distended veins**.

If a **surgical scar** is present do not ask the patient "what operation was this for?" as this can antagonise some examiners! In medical finals you should be able to recognise scars of common operations such as hernia repairs and appendicectomies. In addition, it is wise to know the appearance of the "Mercedes Benz" incision of liver transplantation and the hockey stick incision of renal transplantation as these patients often come up to final examinations. Don't forget to look for the smaller scars of laparoscopic surgery.

Striae are more commonly known as **stretch marks**, but the latter term may offend some patients and so is best avoided. They are caused by **rapid weight gain**, **pregnancy** and **Cushing's syndrome**.

If **distended veins** are present, assess their **direction of flow**. In IVC obstruction flow is upwards, whereas caput medusae radiate outwards from the umbilicus.

Palpation

When palpating the abdomen it is essential to look at the patient's face as their expression will tell you if they are in pain.

Start off by warming your hands and asking the patient "*I would now like to feel your stomach, could you tell me is it sore anywhere?*" Not only is this question polite, it also provides you with clues to where the abnormality is. If the patient does have a painful area, reassure them that you will be gentle when examining them.

Start by placing your hand on the hernial orifices and asking the patient "*could you cough for me please?*" Also place your hand over any surgical scars and ask the patient to cough as this may reveal an incisional hernia.

Palpate each quadrant of the abdomen and the periumbilical region superficially and then deeply. If the patient has a sore area, make sure you start away from this.

Superficial palpation is done to elicit signs of **peritoneal inflammation**. A small amount of inflammation will cause tenderness. If there is a tender area, ask the patient “*is it all right if I press on the area gently?*” With the patient’s permission, press down gently then suddenly remove your hand. Ask the patient “*was it more painful when I pressed or when I let go?*” If this is greater when the hand is suddenly withdrawn, this is called **rebound tenderness** and is suggestive of peritoneal inflammation. **Guarding** is the reflex contraction of the abdominal muscles over an area of inflamed peritoneum. It suggests a greater amount of inflammation than rebound tenderness.

Deep palpation should now be carried out in each quadrant and in the periumbilical region. If a mass is detected, try to determine the following characteristics of it:

- site
- size
- shape
- consistency (faeces may be indented by pressure)
- smoothness
- surroundings (i.e. is it fixed to surrounding structures or is it mobile?)
- whether you can “get above it” (you cannot get above a liver or spleen)
- movement with respiration (indicates liver or spleen)
- tenderness
- percussion note (if dull to percussion, bowel is not in front of the mass)

Also remember to feel in the epigastric region for the **pulsatile mass** of an **abdominal aortic aneurysm**. If you detect an abdominal aortic aneurysm, try to calculate its diameter by pressing the index fingers of both hands either side of the mass and estimating the distance between them. This will also enable you to test whether the mass is truly **expansile** or whether it is a **transmitted impulse** from a mass overlying the aorta. In a true abdominal aortic aneurysm, the examining fingers will move upwards and outwards with each pulse, whereas when a mass is overlying the aorta, the examining fingers will move directly upwards.

Palpation of the liver

Politely ask the patient “*could you please breathe in and out deeply for me as this will enable me to perform the next part of the examination.*” Start in the right iliac fossa and work upwards by about 2cm with each breath, feeling for the liver edge with the radial border of the index finger. If enlarged, it will slip under the examining fingers as the patient breathes in. Occasionally you may be able to palpate a liver edge just beneath the costal margin in healthy people. If you do feel a liver edge, note the position in finger breaths beneath the costal margin and whether the surface is smooth, irregular or tender.

Smooth hepatomegaly may be due to:

1. hepatitis (tender liver)
2. heart failure (tender liver)
3. sarcoid
4. tricuspid regurgitation (the liver edge will be pulsatile. Look for the other signs associated with right ventricular failure, namely a raised JVP, peripheral oedema and ascites.

Craggy hepatomegaly may be due to:

1. cancer secondaries
2. hepatoma

In early **cirrhosis**, a firm nodular liver edge may be felt, but as cirrhosis proceeds, the liver shrinks and becomes impalpable.

Palpation of the spleen

Ask the patient “*would you mind taking some more deeps breaths in and out?*” before placing the examining hand in the right iliac fossa again and working towards the left costal margin with each breath. You are feeling for the spleen moving downwards and to the patients right with each breath. To do this, reduce the pressure inwards but maintain the pressure upwards at the mid-point of the patient breathing. This should allow your hand to drift upwards towards the descending spleen.

It is also possible to turn the patient on to their right hand side (the right lateral position) as this is a more sensitive test of an enlarged spleen. However you will need to turn the patient onto their side later in the examination to percuss for shifting dullness so this can be performed then as it saves moving the patient around too much and looks more methodical.

In an adult a palpable spleen is **always abnormal**. There are several causes of splenomegaly, the commonest two in this country are **myelofibrosis** and **chronic myeloid leukaemia** By the time you get to medical finals it is a good idea to memorise about ten causes.

There are a number of ways in which the enlarged spleen can be distinguished from the left kidney:

1. you cannot get above it
2. the overlying percussion note is dull
3. it moves downwards and forwards with inspiration
4. it can have a palpable notch on its medial side

Palpation of the kidneys

Examine the kidneys by placing your left hand under the kidney in the renal angle and the right hand over it. Push upwards with the left hand and try to feel the kidney as it bounces up towards the right hand. This is called balloting the kidney.

The right kidney lies slightly lower than the left (it is pushed down by the liver) and so is easier to feel. The lower pole of a normal right kidney may thus be felt in thin people.

Percussion of the Abdomen

Start off by percussion of each of the **four quadrants** and the **periumbilical region**. If there is an abdominal mass, percuss over that too. You should expect the percussion note to be resonant due to underlying bowel.

Define the lower and upper limits of the **liver** by percussing upwards from the right iliac fossa in the midclavicular line. Keep your left finger parallel to the costal margin and listen for the transition from resonant to dull which normally occurs at the costal margin. Define the upper limit of the liver by percussing downwards from the 3rd intercostal space in the midclavicular line. The level at which the note changes from resonant to dull should be the 5th or 6th intercostal space, but can be lower in patients with hyperinflated lungs.

Percussion of the **spleen** also starts in the right iliac fossa and moves towards the left costal margin with the finger of the left hand parallel to the spleen’s edge. Also percuss in **Traub’s space** (ninth left intercostal space in the anterior axillary line)-it is normally resonant but will be dull if splenomegaly is present.

You should now percuss for the **shifting dullness** of ascites. Start in the midline and percuss towards the patient’s left flank keeping the percussed finger parallel to the patient. If ascites is present, the initially resonant note will turn dull. At this point, keep your left middle finger in position and ask the patient “*would you be comfortable if you rolled towards me to lie on your right hand side for a minute?*” Thank the patient when they do this. Wait 30 seconds and then percuss again. If the percussion note is now resonant, this confirms that shifting dullness is present.

With the patient still in the right lateral position, place your left hand on the patient's left side, to stabilise them and try to palpate for splenomegaly. This can detect mild splenomegaly that was not detected previously.

Auscultation

You should now attempt to auscultate the abdomen with the diaphragm of the stethoscope for the presence of **bowel sounds** and **arterial bruits**. To detect bowel sounds, listen for about 10 seconds. They are normally present but are high pitched and tinkling if the bowel is obstructed. An absence of bowel sounds is called **ileus**. It may occur in generalised peritonitis or after an operation and is always accompanied by abdominal distension.

Listen for an aortic bruit over the epigastric region and for renal bruits 2.5cm above and lateral to the umbilicus. An aortic bruit could indicate an abdominal aortic aneurysm or atherosclerosis. Renal bruits indicate narrowing of the renal arteries and this can cause hypertension. Therefore, if you detect a renal bruit you should go on to take the blood pressure.

7. Finishing off the examination

It is very important at this stage say to the patient “thank-you, you may sit back now” and to cover them up with the blanket.

You should complete any examination of the gastrointestinal system by turning to the examiner and saying:

"I would also like to dipstick the urine, examine the external genitalia and perform a digital rectal examination."