

ABDOMINAL EXAMINATION 2010

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Abdominal examination

Common case in exam:-

- 1-Hepatomegaly.
- 2-Splenomegaly.
- 3- Hepatosplenomegaly.
- 4-Ascitis.
- 5-liver cirrhosis with jaundice

*Preparation of examination:-

- Stand on the Right side of bed.
- Introduce yourself.
- Permission taken.
- Good position for PT.
- Good exposure: - ideally from 2nd rib to mid of thigh but in exam from the infra-mammary region to just above the genitalia. **Do not expose the genitalia in exam.**

NOTE:- before starting Ensure the patient is lying flat (remove any extra pillows, if present, with the permission of the patient) the hands should lie by the patient's side.

Know you can start examination:-

1-inspection:- Stand at the end of the bed.

- **Symmetrical** or not if not symmetrical note which side more distended
- **Swelling** or distention:-

D/D (6-F):-

- 1 - Fat ⇒ Distension is central Umbilicus is inverted
- 2 - Fluid (ascites) ⇒ Distension of the flanks, Umbilicus flat or everted
- 3- Faeces ⇒ usually associated with abdominal pain.
- 4 - Flatus ⇒ usually associated with abdominal pain.
- 5 - Fetus.
- 6 - Full bladders (rare).

- **Movement** with respiration: - if not moving indicate of generalized peritonitis or pancreatitis.

• **Scar:** Midline, Suprapubic(pfannenstiel scar) , Lt or RT subcostal(Kocher scar), Laparoscopy and appendectomy(grid iron scar).

• **Superficial veins:-** Caput Medusa⇒ (portal HTN).

Lateral veins⇒ (SVC or IVC. obstruction). check direction of flow, which is usually away from the umbilicus.

• **Look for** bruising /scratch mark / and striae.

• **Cough impulse** for hernia and note it if present.

2- Palpation:- kneel on the floor or sit on a chair before you begin palpation ,and warm hands.

• Ask about the site of the pain.

• The patient face should be observed for any expression.

NOTE:-In superficial palpation the examiner's hand should remain in continuous contact with the patient's abdomen and when palpating for organomegaly never take off your hand until you finish.

***Aim of Superficial Palpation:-**

1 - To be familiar with the patient.

2 - Temperature and Tenderness.

3-Tense: - a) Rigidity (involuntary ms contracture).

b) Guarding (voluntary ms contracture).

4- Superficial mass.

☛ How to differentiate between rigidity and guarding?

Ask PT to flex the knee and relax and take breathing from mouth if :- change to lax it was guarding if still tense means its rigidity.

• **Deep Palpation:- palpate for organomegaly.**

1-Liver. 2-Spleen. 3-Kidneys. 4-Masses.

A-Liver :- start from RT iliac fossa and, ask PT to take slow deep breath from his mouth, then palpate deeply in upward direction till reach costal cartilage along RT mid clavicle line, normally liver not palpable but if palpable you have to differentiate between hepatomegaly and posted liver (posted liver means liver pushed down 2nd to hyper inflated chest, e.g. COPD).

Differentiate by measurement liver span (Normal liver span is <12cm).

Liver span: - (9-12cm) normally.

• Percuss the upper border (normally in the fifth intercostal space in the right mid-clavicular line) and percuss the lower border start from right iliac fossa .

Enlarged liver: comment on its size, tenderness, surface (smooth or irregular), and consistency and auscultate for bruit.

Causes of hepatomegaly:

1 - Heart failure

- 2-** Liver cirrhosis early because late usually shrunk.
- 3-** Malignancy [leukemias, primaries, or secondaries]
- 4-** Infections: glandular fever, infectious hepatitis, and hydatid disease.

Note:-

• Tender liver indicates a stretch of its capsule (Gilson's capsule) due to a recent enlargement, as in cardiac failure or acute hepatitis.

• **Pulsatile liver** ⇒ Tricuspid regurgitation.

• **Hepatic arterial bruit** over the liver indicate ⇒ alcoholic hepatitis, primary or metastatic carcinoma.

• **Abdominal venous hum indicate** ⇒ diagnostic of portal venous hypertension.

B- Spleen :- Spleen lies under 9th, 10th, & 11th rib with anterior margin reaching anterior axillary line.

Note:-

- Spleen is palpable if it's 3 times more enlarged than normal.
- Massive Splenomegaly is >8cm below costal margin or crosses midline.
- Not every palpable liver is pathological but any palpable spleen is pathological.

✱Methods to palpate for the spleen:

1 - Normal starting in the Rt iliac fossa toward left hypochondria by tip of your right finger cross above umbilicus.

2- Short's maneuver (bimanual exam in Rt lateral position)

3- Percussion on Traube's area (a crescentic space about 12 cm wide, bounded medially by the left border of the sternum, above by an oblique line from the 6th costal cartilage to the lower border of the 9th rib in the mid-axillary line and below by the costal margin; the percussion tone here is normally tympanic, because of the underlying stomach, but is dull in presence of enlarged spleen).

✱How differentiate between splenomegaly and kidney mass?

Spleen	Renal
Can not get above it	Can get above
Move downward and medially with respiration	No
Notch may be felt	No
Not Ballotable	Ballotable
Dull on percussion	Resonant on percussion

D/D of splenomegaly :-

Slight < 4cm	Moderate splenomegaly 4-8cm	Massive splenomegaly >8cm
1 -Infections [IMN, SBE]	1 -Hemolytic anemia	1 - Myelofibrosis
2 -Blood dis [PRV, ITP, pernicious anemia,]	2 -Lymphoproliferative dis	2 - CML
3 - SLE, Felty's.	3 - Portal hypertension	3 - Malaria
4 -Sarcoidosis, Amyloidosis	4 - Splenic vein thrombosis	4 - Kala-azar
		5 - Gaucher's disease

Causes of hepatosplenomegaly:-

- 1** - Infections⇒ Chronic hepatitis, IMN, CMV
- 2** - Malignancy ⇒ leukemia, lymphoma
- 3** - Extra-medullary hematopoiesis.

What is mean by Hypersplenism ?

Definition: its condition characterized by splenomegaly + cytopenia+ hyperplastic bone marrow + a response to splenectomy, It occurs as a result of that components of the blood (RBC, WBC, Plt) are removed at an

Abnormally high rate by the spleen and low circulating levels.

Kidney: - Palpate for renal enlargement use bimanual test if (Ballotable)⇒ +ve test ⇒ kidney is enlarged.

3-Percussion:- it's mainly for ascites

Minimal ⇒ Dullness only in Knee-elbow position, can also be detect minimal amount by U/S more accurate.

Moderate ⇒ Shifting dullness positive.

Severe ⇒ Transmitted thrill.

↳ **Note:** - In this stage of ascites difficult to palpate liver or spleen even in enlarged state, But can palpate by **(dipping method)** which is: - use of both hands together at same time with stretch of both elbow.

4-Auscultation:- Warm stethoscope and listen for:-

- 1** - Arterial bruit in renal artery stenosis.
- 2** - Venous hum in portal hypertension.
- 3** - For bruit if hepatomegaly⇒indicate of hepatoma.
- 4** - Intestinal sound normally (3-5 movement / min).

•**Tell the examiner:** - I would like to examine genitalia and do P.R examination.

•**P.R examination:-** inspect ⇒(fistula, skin tag)

Palpate ⇒mass or induration of prostatic cancer to rectal mucosa, blood on index finger after finishing (you will not do this in exam but for note it to examiner if asking you).

- Dress the patient and thank the patient. [Please don't miss this step].

☼ Comment of abdominal examination:-

• Normal case comment:-

Mr. or MS..... Line flat oriented cooperative with average built abdomen looks symmetrical move with respiration no scar no superficial dilated veins or scratch mark, no abnormal color as (yellow or blue) and negative cough impulse, palpation reveal soft lax abdomen with good temperature no tenderness or superficial masses, no palpated spleen or liver with liver span (10cm) negative Ballotable test, percussion negative shifting dullness, auscultation good bowel sound with no hum or bruit over abdomen.

• Comment of case with long standing liver cirrhosis with portal hypertension, moderate ascites, and splenomegaly:-

Mr. or MS.....line 45 degree on bed disoriented looks ill distress with underweight abdomen asymmetrically distended, slight move with respiration there is scar (laparoscopy) around umbilicus and obvious dilated veins refilling away from umbilicus (cupatmedosa) skin look yellow in color with scratch mark over abdomen cough impulse reveal umbilical hernia (2nd to ↑ intra-abdominal pressure), palpation reveal soft lax abdomen,

But tenderness over left hypochondrium no palpable liver but liver span was (5cm⇒shrunk) 2nd to long standing liver cirrhosis, spleen palpable 8cm blow costal cartilage, I can't get above it with dull percussion note over mass, Ballotable was negative (all this going with splenic mass rather than kidney mass) Shifting dullness was positive but fluid trill negative (moderate ascites), auscultation reveal veins hum over epigastric area (esophageal varices) no other abnormal sound.

• D/D of mass in abdomen:-

Right iliac fossa mass	Left iliac fossa mass
1 - Carcinoma cecum 2 - Crohn's disease 3 - Appendicular mass 4 - Iliocecal .T.B 5 - Iliac lymphadenopathy 6 - Transplanted kidney	1 - Carcinoma of colon 2 - Diverticulosis 3 - Iliac lymphadenopathy 4 - Transplanted kidney
Epigastric mass	Suprapubic mass
1 - Gastric C.A 2 - Pancreatic pseudo-cyst	1 - Bladder 2 - Uterus

3- Aortic aneurysm (expansile pulsation)**3- Ovarian cyst**

General examination related to GIT

***Vital sign:** • **pulse** ⇒ Bradycardia (obstructive jaundice).

⇒ Tachycardia (active IBD)

• **BP** ⇒ hypotension (active IBD).

• **Temperature** ⇒ increase in (pancreatitis, peritonitis, IBD).

Mental state: = semiconscious or disoriented (hepatic encephalopathy) in liver cirrhosis ammonia escape through portosystemic shunt.

1-face: • **eye for:** - jaundice, anemia, kayser Fleischer ring (Wilson dis), xanthelasma.

• **Mouth:** - ulcer (celiac, IBD), anemia, jaundice (under tongue), odor (fishy or sweaty) pigmentation (peutz-jeghers syndrome).

2-neck: • **cervical (L.N)** ⇒ metastatic sign of gastric carcinoma ⇒ left supraclavicular L.N enlargement (Virchow's node), or part of generalized lymphadenopathy especially in case of Hepatosplenomegaly as in leukemia, lymphoma, glandular fever).

• **JVP:** - raised in case of tender hepatomegaly 2nd to (constrictive pericarditis, right side heart failure).

3- Upper limb:-

Nail: -

Nail: -

1)-leukonychia ⇒ whitening of the nail bed due to hypoalbuminaemia

2)-Koilonychias ⇒ spooning of the nails making a concave shape instead of the normal convexity (chronic iron deficiency)

3)-Clubbing ⇒ cirrhosis, IBD, coeliac dis.

4)-Blue nail ⇒ in Wilson disease

Palms:-

Palms:-

1)-Palmar erythema ⇒ chronic liver disease

2)-Dupuytren's contracture ⇒ thickening and fibrous contraction of the palmar fascia (fixed flexion

deformity starting in 4th and 5th metacarpals).

3)-Anaemia:- pallor in palmar creases.

Hepatic flap (asterixis):- ask PT to stretch out their hands in front of them with hands dorsiflexed at the wrist and fingers outstretched and separated. Positive if PT moves in jerky, irregular flexion/extension at wrist and MCP.

Arms:-

1)-Bruising ⇒ hepatocellular damage and clotting dis order.

2)-Muscle wasting:- chronic alcoholic liver disease

3)-Scratch marks (excoriations):- it's may the early feature of cholestasis (obstructive jaundice).

Axillae

1)-Lymphadenopathy

2)-Acanthosis nigricans ⇒ associated with intra-abdominal malignancy.

Note:- chest examination not part of general examination but you have to exam for:-

1)-Spider naevi ⇒ its dilation of central arteriole > 6mm in diameter with its branches and disappear in pressure, occur 2nd to increase of estrogen level which normally was metabolized by liver, significant if more than five in number.

2)-Breast ⇒ breast atrophy in female, gynaecomastia testicular atrophy and hair lose in male.

***What are stigmata of liver disease you would like to examine? ⇒ (common question)**

Signs of Chronic liver disease in GE	
Site	Signs
Hands	Clubbing, Leukonychia, Palmar Erythema, Dupuytren's contracture. Spider naevi [Spider naevi of > 5 is pathological], Liver flap
Face	Spider naevi, Telangiectasia, Jaundice, Pigmentation, Central cyanosis
The limbs	Ankle edema
Trunk	Gynaecomastia, Excoriation

***Revision Questions:-**

1-What does a tender liver indicate?

A stretch of its capsule due to a recent enlargement, as in cardiac failure or acute hepatitis.

2-What are the common causes of a palpable liver?

- Cardiac failure (firm, smooth, tender, mild to massive enlargement).
- Cirrhosis (non-tender, firm; in later stages the liver decreases in size).
- Secondaries in the liver (enlarged with rock-hard or nodular consistency).

3-In which condition does a pulsatile liver occur?

- Tricuspid regurgitation.

4-What does a hepatic arterial bruit over the liver indicate?

- The hepatic arterial bruit has been described in alcoholic hepatitis, primary or metastatic carcinoma.

Although reported to occur in cirrhosis.

5-What does the presence of an abdominal venous hum indicate?

It is virtually diagnostic of portal venous hypertension (usually due to cirrhosis).

- When present together with the hepatic arterial bruit in the same patient, it suggests cirrhosis with either alcoholic hepatitis or cancer.

✱ Examiner asking you:-

- If you found hepatomegaly what do you want to examine else?

Answer: - I would like to examine (L.N) b/c (lymphoma, leukemia, glandular fever) can cause both Hepatosplenomegaly and lymphadenopathy

- If you found pulsatile liver enlargement what do you like other system to examine rather than abdomen?

Answer: - I would like to examine CVS especially for pansystolic murmur on tricuspid area, and JVP wave, lower limb edema to assess RT side function of heart.

- If this PT has liver cirrhosis (liver span < 9 + jaundice) what first think you like to examine?

Answer: - look for other stigmata (sign) of liver disease, (noted before).

What is cirrhosis ?

Answer :- Cirrhosis is defined pathologically as a diffuse liver abnormality characterized by fibrosis and abnormal regenerating nodules.

Mention a few causes of cirrhosis of the liver?

- Alcoholic liver disease the most common cause.
- Viral hepatitis (B, C, D).
- Biliary diseases .
- Primary hemochromatosis.
- Wilson disease (Rare).
- Alpha1-Antitrypsin deficiency Rare.
- CHF (cardiac cirrhosis).
- Cryptogenic cirrhosis (idiopathic).

- What are the complications of liver cirrhosis?

Answer:-

- | | |
|-----------------------------|------------------------|
| 1 -Portal hypertension. | 2 -Ascites. |
| 3 -Spontaneous peritonitis. | 4 -Esophageal varices. |

5-Splenomegaly.

6-Hepatic encephalopathy.

7-Hepatorenal syndrome.

8-Hepatopulmonary syndrome.

9-Bleeding tendency.

10- Hepatocellular carcinoma.

• **Define portal hypertension?**

• **Answer:-**

Defined as an increase in portal vein pressure (>10 mmHg) due anatomic or functional obstruction to blood flow in the portal system. Normal portal vein pressure is 5-10 mmHg.

• **What is mean by hepatic encephalopathy?**

A state of disordered CNS function associated with severe acute or chronic liver disease

• **What is the precipitating factor?**

Answer:-

1-GI bleeding (100 mL = 14-20 g of protein).

2-Azotemia

3-Constipation

4-High-protein meal

5-CNS depressant drugs (e.g., benzodiazepines)

6-Hypoxia, hypercapnia, Sepsis.

• **How can detect the prognosis in cirrhotic PT?**

Answer: - by Child-Pugh Classification of Cirrhosis which consist of:-

1-Serum bilirubin

2-Serum albumin

3-Prothrombin time

4-Ascites

5-Hepatic encephalopathy

• **What do you understand by the term 'ascites'?**

It is the pathological accumulation of fluid in the peritoneal cavity.

• **What are the causes of ascites?**

Transudate

Exudate

1.Cirrhosis(liver failure)	Tuberculosis
2-CHF (heart failure)	Malignancy
3-Nephrotic syndrome(renal failure)	CTD
4-Myxedema(hypothyroidism)	Pancreatitis
5-Some case of meigs syndrome	Others Infections

•What is the difference between an exudate and a transudate?

An exudate has a protein content of over 25 g/l.

•How to differentiate between hepatic or cardiac or renal cause of ascites?

Organ	Laboratory finding	
	Serum protein	Urine protein
Liver failure	Low	No protein
Heart failure	normal	No protein
Renal failure	Low	High protein

•What do you understand by the term 'jaundice'?

Answer:-It is the yellowish discoloration of skin, sclera and mucous membrane due to the accumulation of bile pigments. It is usually clinically manifest when the serum bilirubin concentration is at least >3 mg/dl.

•How would you differentiate jaundice from carotenaemia?

Answer:-The discoloration of carotenaemia is differentiated from jaundice by the absence of yellow color in the sclera and mucous membranes, normal urine color and the presence of yellow-brown pigmentation of carotenoid pigment in the palms, soles and nasolabial folds.