Ways of palpation

Single hand

Bimanual palpation

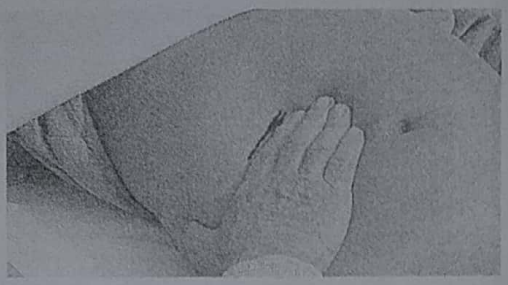


Fig. 7.9 Correct method of palpation. The hand is held flat and relaxed and "moulded" to the abdominal wall.

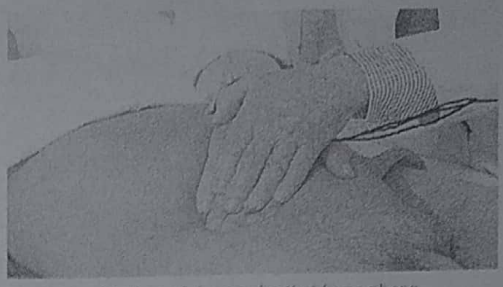


Fig. 7.11 Method of deep palpation in an obese, muscular or poorly relaxed patient.

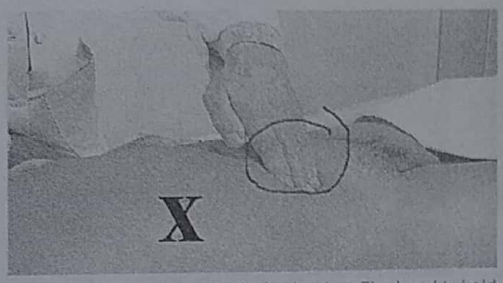


Fig. 7.10 Incorrect method of palpation. The hand is held rigid and mostly not in contact with the abdominal wall.

Fig. 7.12 Palpation of the left kidney.

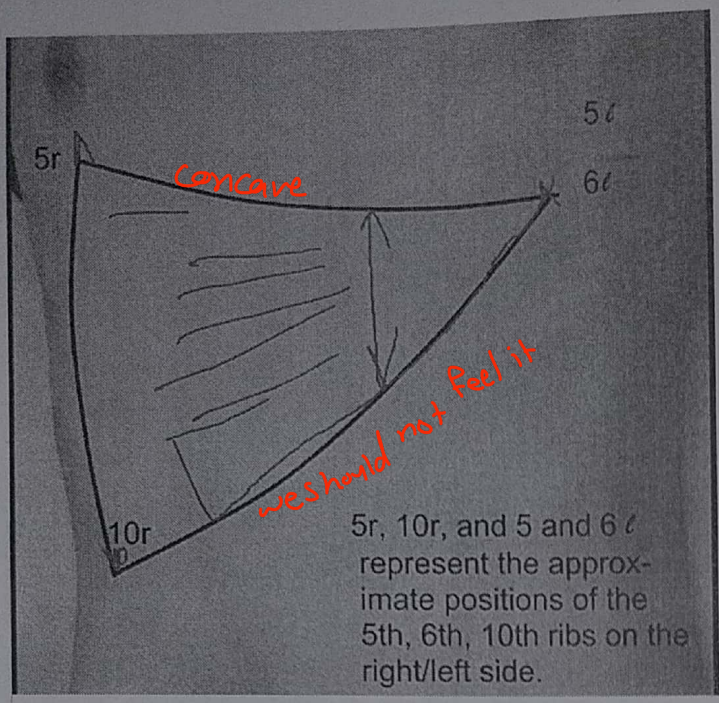
In surgery, we palpate to exclude the urgency of operation.
to exclude peritonitis, hernia and masses.

Palpation of liver

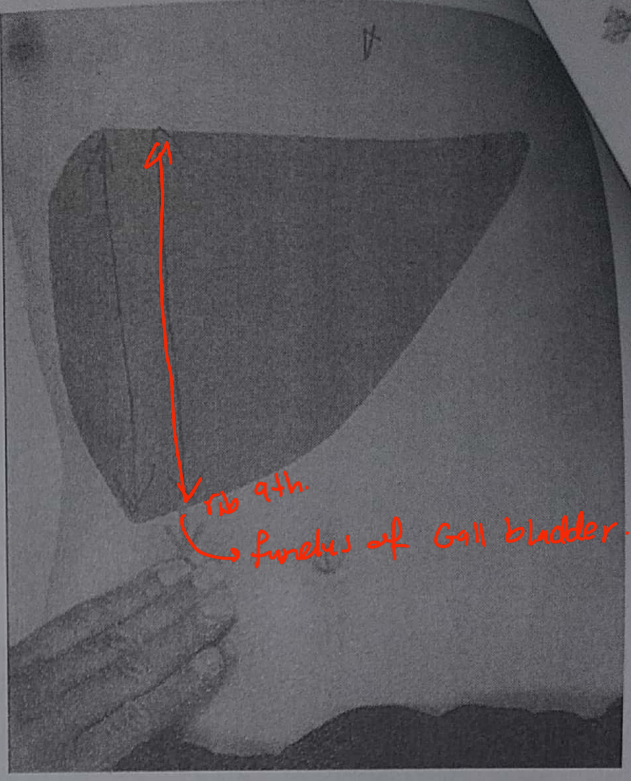
beginning point [resonance]

- Left hand under patient, right hand in right iliac fossa , palpate deeply while patient take deep breath.
- Liver is not felt , Lt lobe can be felt 1-2cm below costal margin in thin individual . in mid line — normal liver span → 6-12 in mid clavicular
- In slim patient edge is felt non tender, firm smooth , even . حتى متعرج
- Combined Palpation and Percussion is needed to determine size of liver. لـ palpation و percussion
- *Scratch test* in distended abdomen .

LIVER

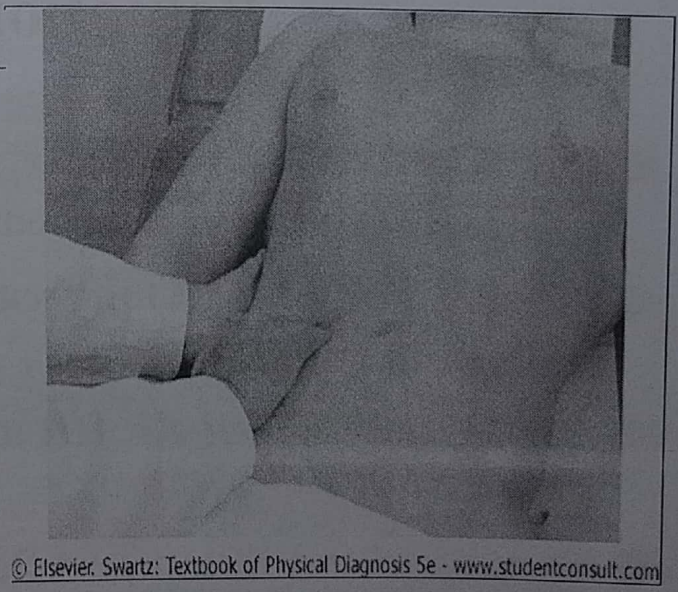


5r, 10r, and 5 and 6 ℓ represent the approximate positions of the 5th, 6th, 10th ribs on the right/left side.



Liver palpation

- Liver is palpated to:
  - help determine if it is enlarged (span is maybe more important for this)
  - determine its consistency (firm, soft, hard)
  - find nodules (metastasis, ~~cirrhotic~~ cirrhotic liver.)
  - detect pulsations (tricuspid regurgitation)



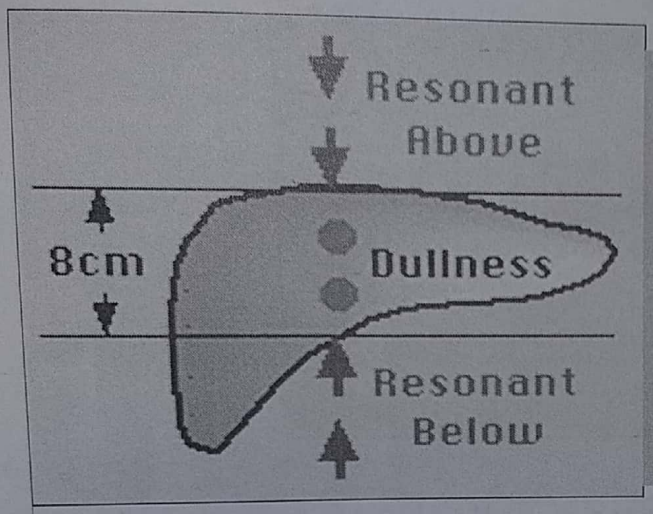
© Elsevier. Swartz: Textbook of Physical Diagnosis 5e - www.studentconsult.com

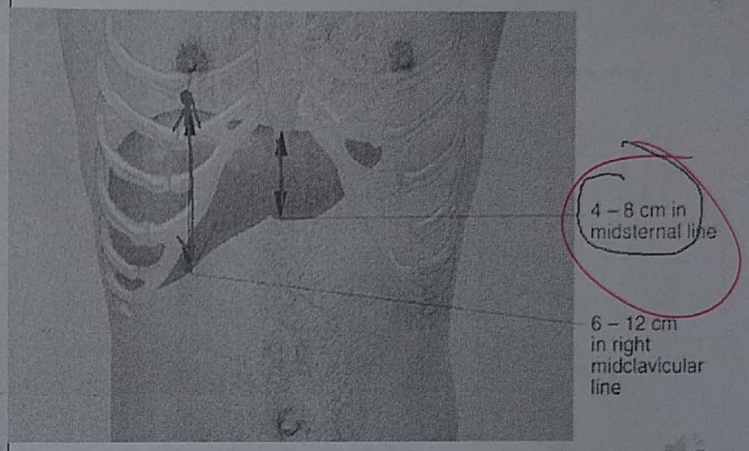
What should it feel like normally?

- ☐ a normal person, usually doesn't feel the liver.
- ☐ If you do feel it, the lower border should be soft with a regular contour and have a sharp border. (non-nodular)
- ☐ It's normal for the liver to be slightly tender, but not severely tender.

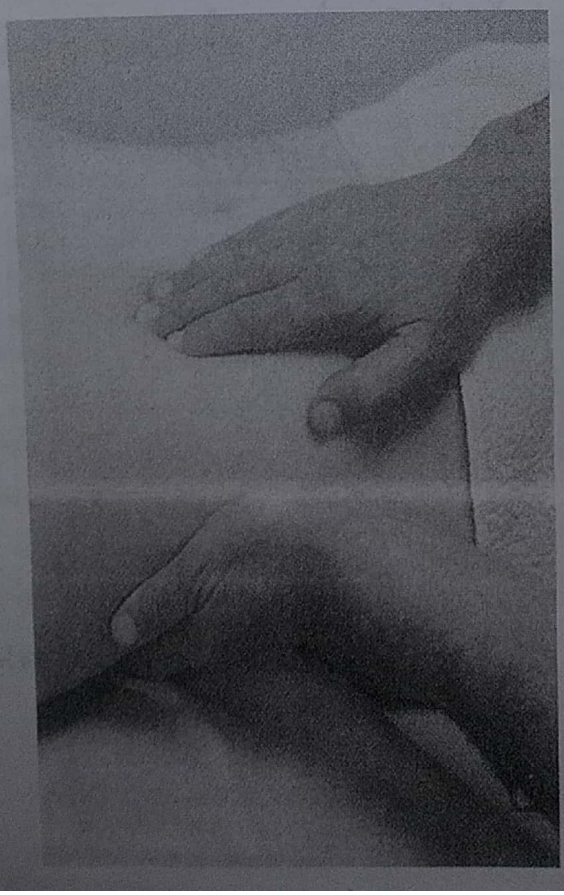
How to percuss the liver.

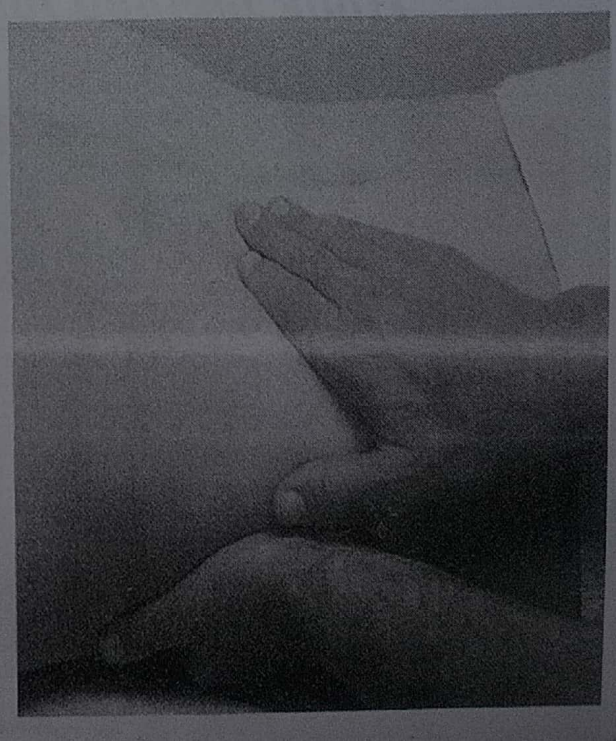
- A normal liver measures 6 to 12cm, usually 8 to 12cm .
- The reliability of percussion to assess liver size is limited





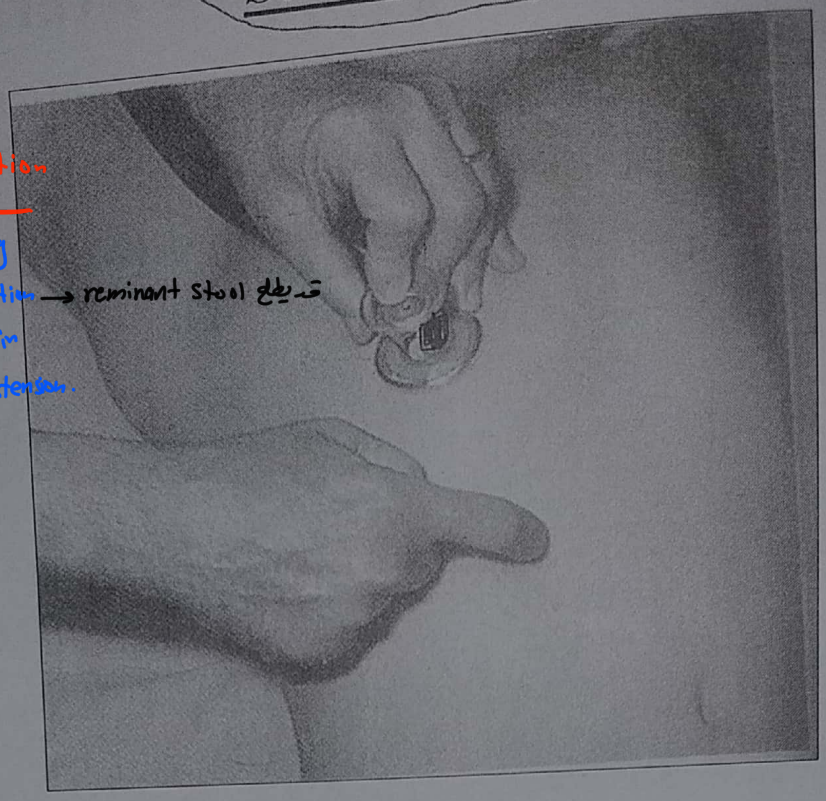
A





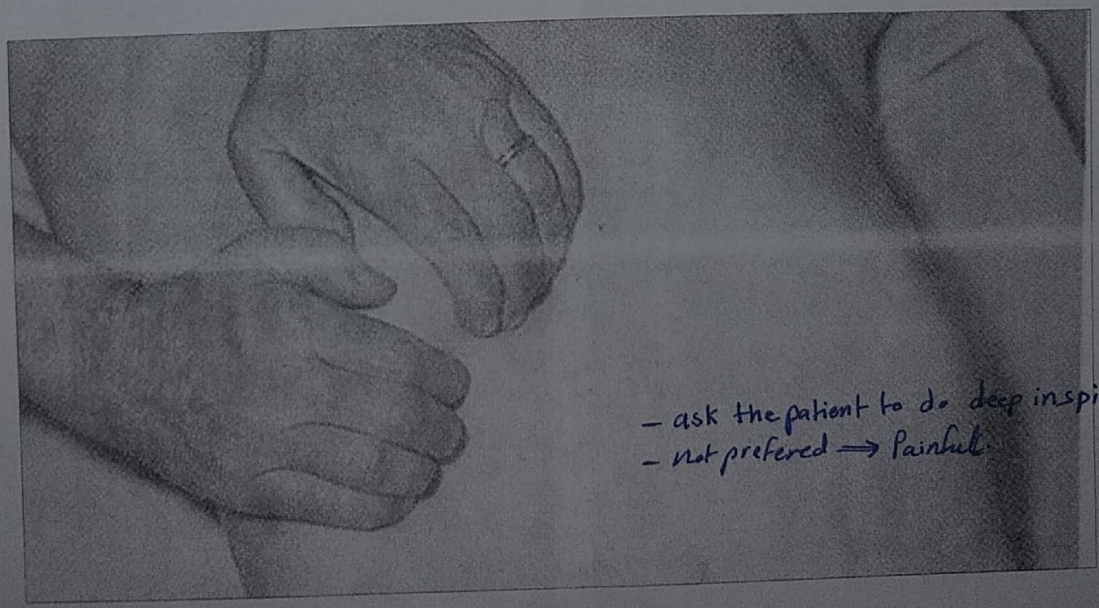
•Scratch test

Large bowel obstruction	SI obstruction
late vomiting	early vomiting
early constipation	late constipation → remnant stool تبقى
better colic pain	Bad colic pain
- periphral distension...	- centrally distension.



is a type of auscultatory percussion that uses the difference in sound transmission between solid and hollow organ in abdominal cavity in order to locate the inferior edge of live.

Hook method for liver palpation



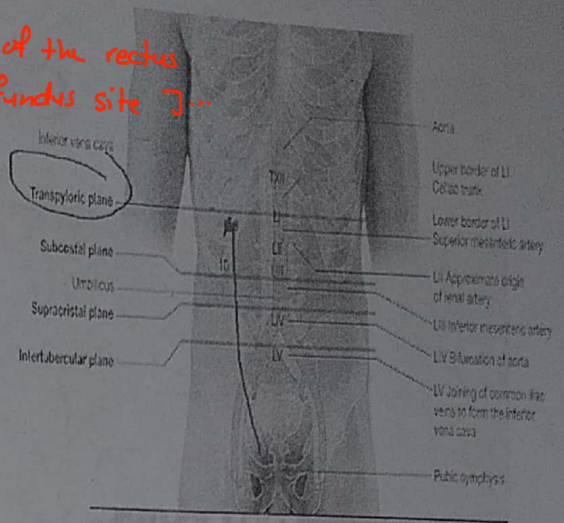
- ask the patient to do deep inspiration
- not prefered → Painful

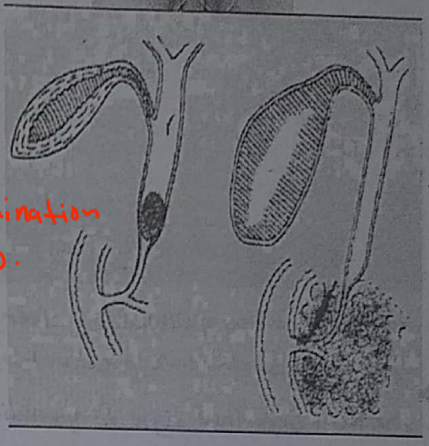
→ The Rt and lf hepatic duct join and form common hepatic duct...

Gall bladder

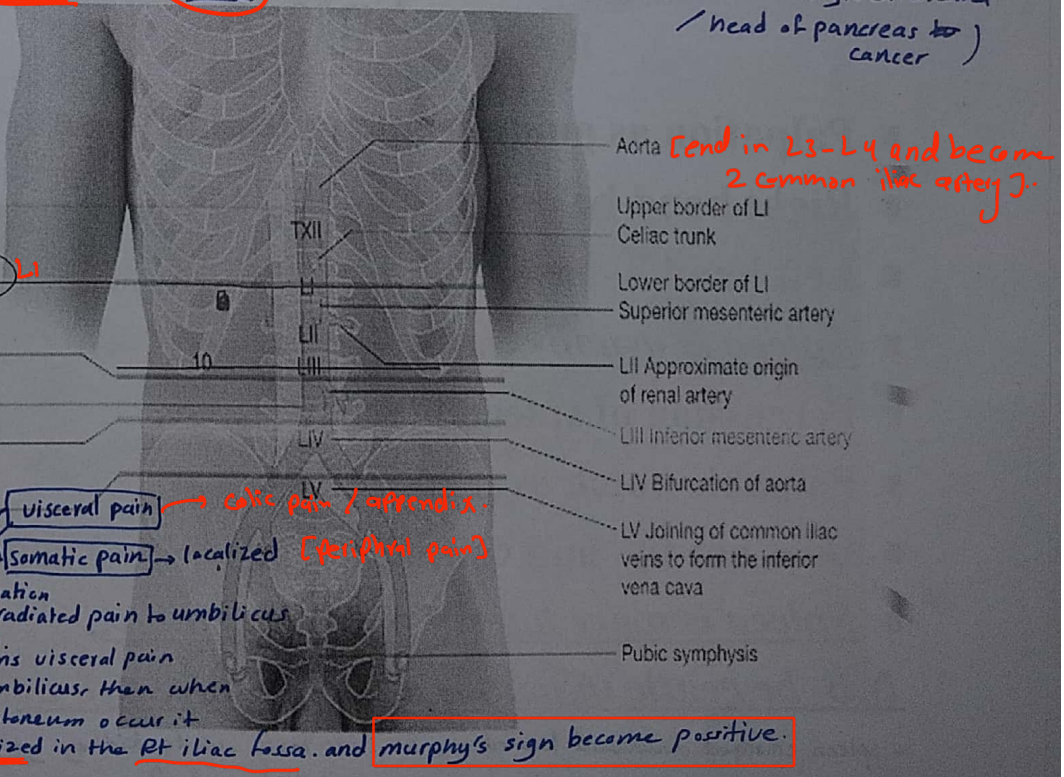
→ The fundus in the trans pyloric plane (in lat. border of the rectus after 9th cc → the fundus site).. not felt)

- **Funds of gall bladder, below 9th costal cartilage , Trans pyloric plane L1 , where linea semilunaris cut the costal margin .**
- ***Healthy G B is not palpable.***
- **Palpable tender in cholecystitis, palpable non tender, in bile duct obstruction *(Courvoisier's law).***
- ***Murphy's sign*** → in 2 way by the examination or by prove of the ECG.





- x biliary colic is bad pain, needs IV analgesia.
- x we don't operate gall bladder if it's not symptomatic.
  لا يعني انه فيه stones وجود ال
- x How to find linea semilunaris → Ask the patient to set "قعدة"
- x gall bladder normally not tender
- x palpable gall bladder with Jaundice → cancer until approved otherwise. (~~Colon~~ cholangiocarcinoma / head of pancreas cancer)
  distended.
- x not felt gall bladder with Jaundice ⇒ cholic gallbladder (bile duct stone obstruction)
  (Chronic cholecystitis) ← Inferior vena cava



Aorta [end in L3-L4 and become 2 common iliac artery].

tender palpable → acute cholecystitis

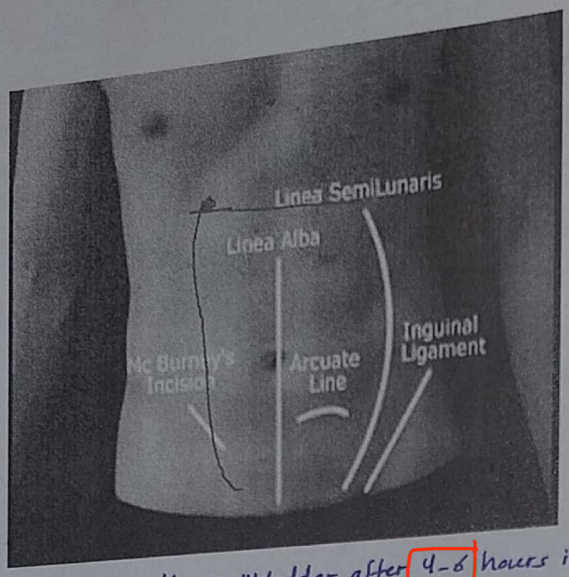
- x Proximal to any obstruction there is dilation and distally there is collapse.
- x In gallbladder and appendix: visceral pain → colic pain / appendix. ; somatic pain → localized [peritoneal pain]

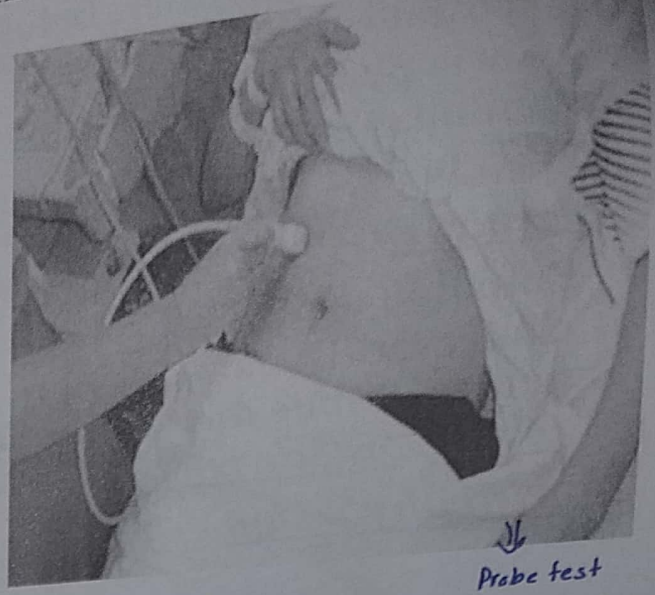
Shared innervation
- in appendicitis → radiated pain to umbilicus (T10)
- appendicitis begins visceral pain
  " Pain around umbilicus, then when irritation of peritoneum occur it becomes localized in the Rt iliac fossa. and murphy's sign become positive.

- x Murphy's sign ⇒ when you put your hand in the fundus of gallbladder, and ask the patient to take a deep breath in inflammed gallbladder, when you touch the GaBr sudden catchment of breath occur.
  – murphy's sign differentiate between acute cholecystitis and biliary cholic
- x Acute cholecystitis treatment → IV antibiotic "hospital admission". , biliary colic → [illegible]

*arcute line → below it there is no past layer of rectal sheath...
↳ there is hernia occur between the junction of arcute and rectus sheath called [sub inguinal hernia]
...2-3 cm ÷ inguinal hernia ↓ ↳

Continue





- any pain in the gallbladder after 4-6 hours is acute cholecystitis.
  بعد ٤-٦ ساعات
- the most important sign of appendicitis in the US is Diameter of appendix (>6 mm)
  in gallbladder ⇒ >3mm in diam. is acute cholecystitis
  <3mm is normal

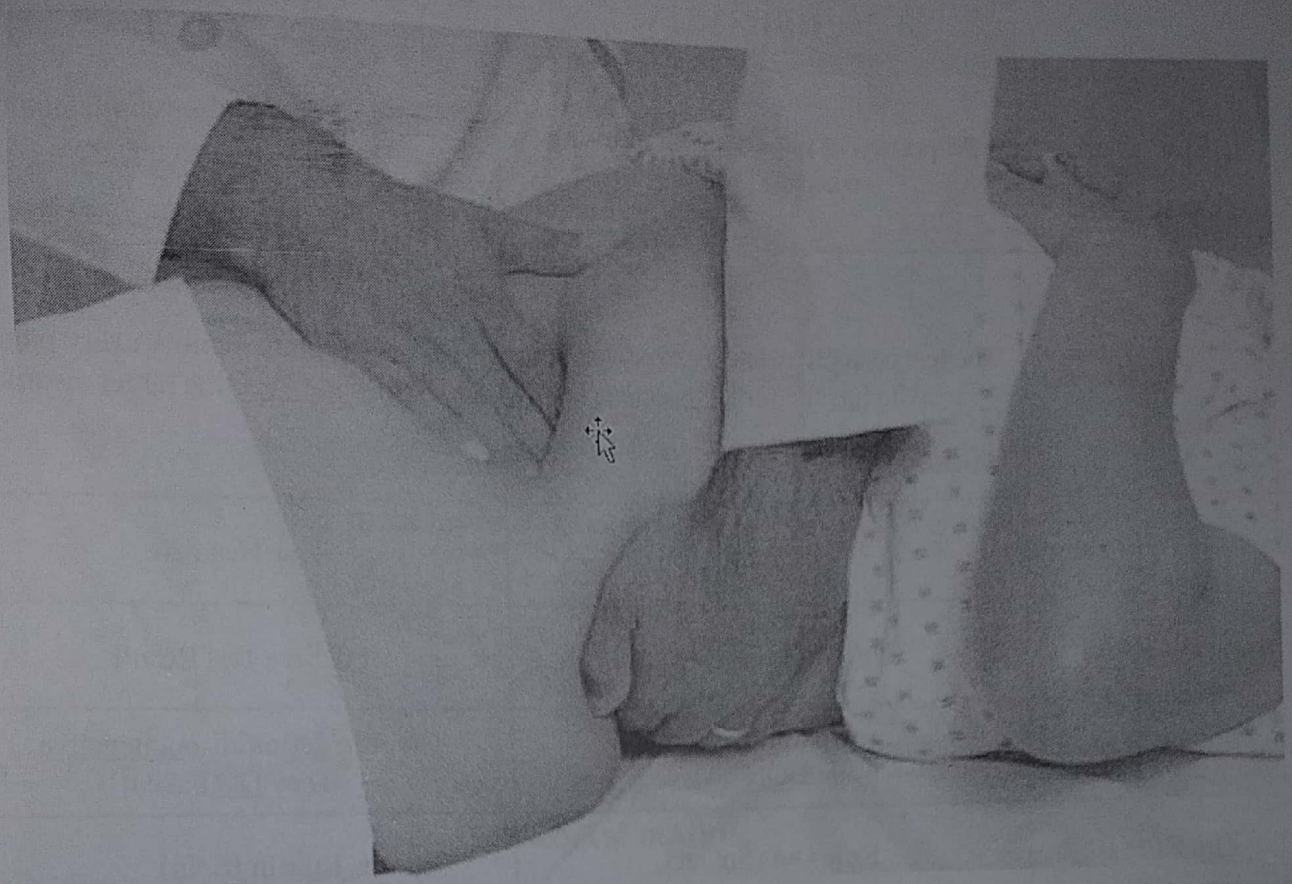
Probe test
- Put the probe of US at the fundus of GB
  لازم تضغط
murphy's sign positive with the probe of US

Spleen
more lateral than you think.
[intra peritoneal organ]

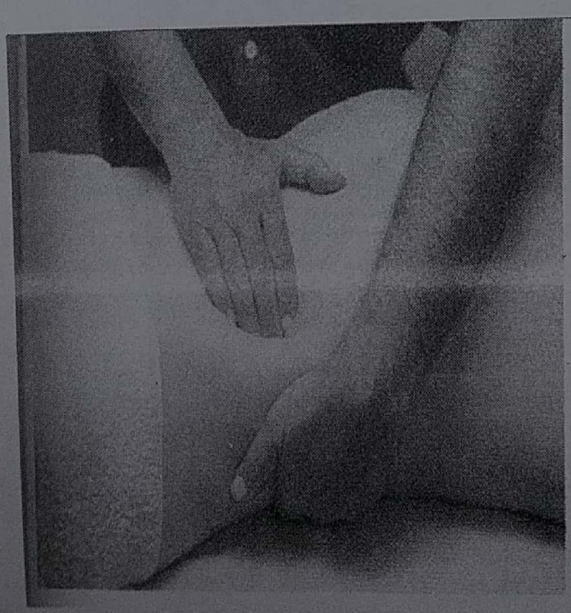
- Palpation as guide from right iliac fossa .
- Right hand below costal cartilage .
- Left hand in cost vertebral angle .
- ***Spleen is usually not felt .***
- Percussion of spleen is dull .
- Palpable notch over medial border .
- Does not fill, and cannot be pushed in renal angle .
- ***Spleen is more lateral than you think .***

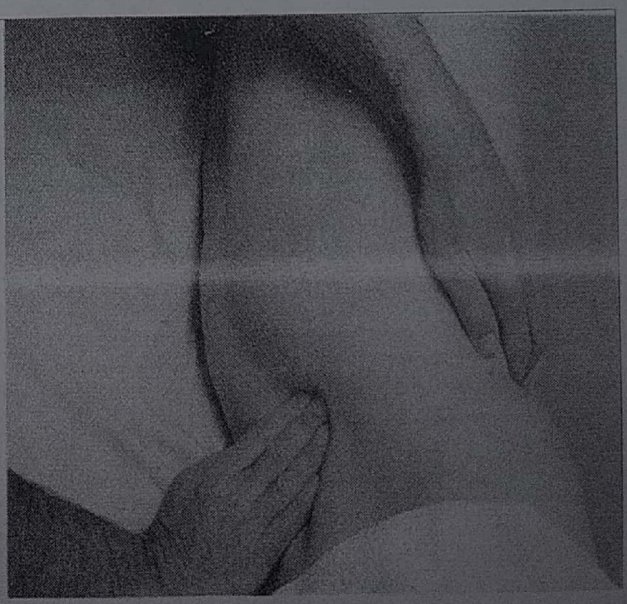
N.B be gentle in palpating large spleen so not to rupture it

- Spleen enlarged downward toward the Rt iliac fossa while kidney go downward toward Lt iliac fossa.
- spleen enlargment can cross the midline, but kidney can't.
- Spleen have notch, kidney have not
- kidney is ballootable, spleen is not

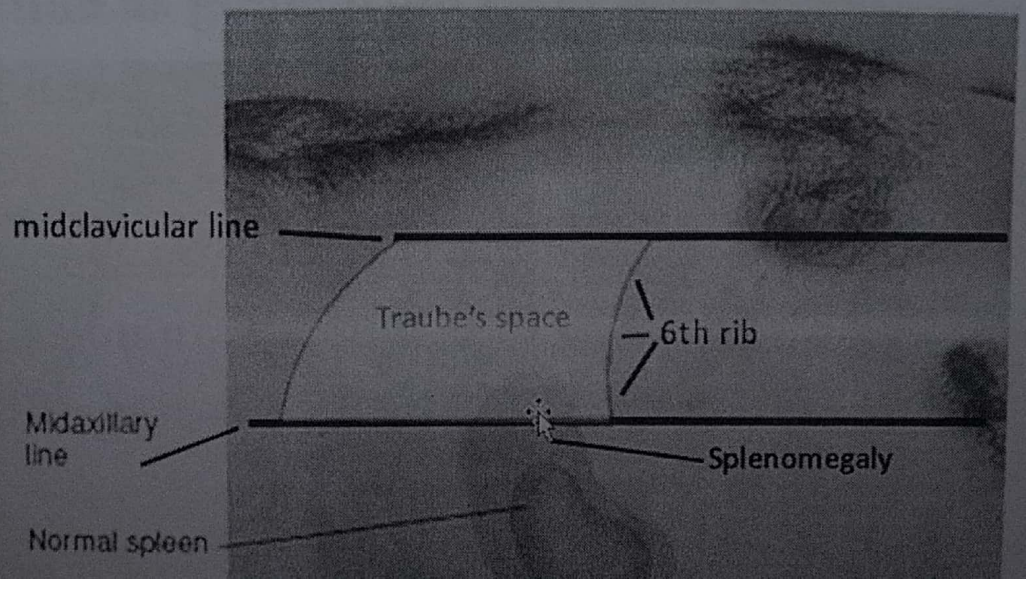


Palpation the spleen

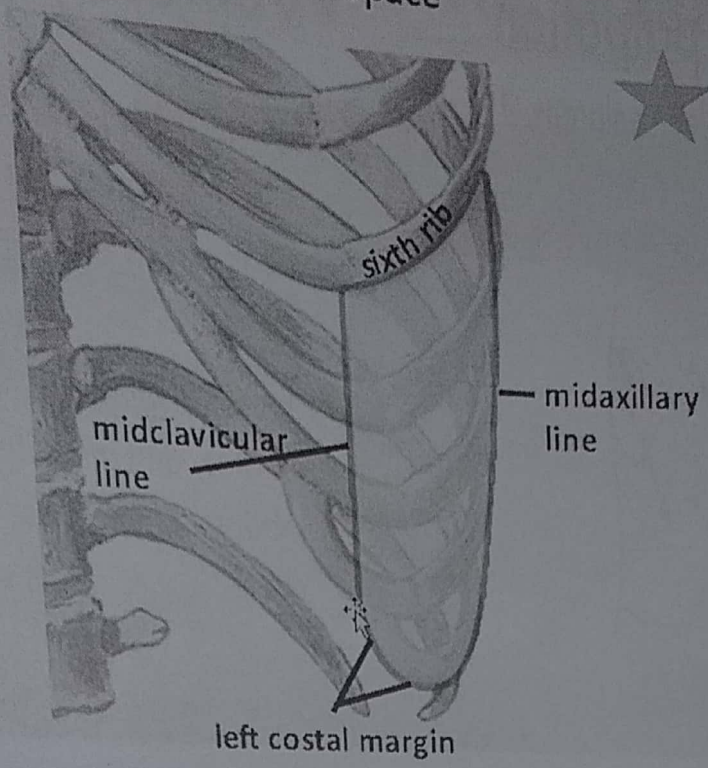




	Sensitivity	Specificity
Definition	Proportion of patients with a disease who test positive	Proportion of patients without the disease who test negative
100% (1.0) Means	The test correctly identify every person who has the target disorder	The test correctly identify every person who does not have the target disorder
Statistical Outcome	True Positive	True Negative
Ideal Test Result	Negative Test Result	Positive Test Result
Test Interpretation	They are definitely not positive → They DON'T have it	They are definitely not negative → They DO have it
The Rule	Rule Out (SnOut)	Rule In (SpIn)



Traube's Space



Enlarged Spleen or enlarged lt kidney

	Left kidney	*Spleen*
Shape	Reniform كلوي	Oblong مستطيل
Site	Lumbar region	Lt hypochondrium
Line of enlargement	Downwards	Downward,forward,medially
Midline crossing	Never	Can cross
Relation to costal cartilage	Can insinuate	Can not insinuate
Edge	Round	Sharp anterior edge Rounded lower pole
Notch	Absent	Present
Percussion	Band of resonance in front of it (descending colon is anterior to it)	dull
ballotment	yes	no
Sickening sensation	present	absent

ballotment → the way to asses floating mass

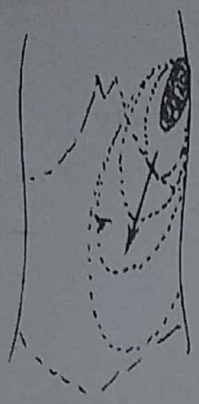
single hand ballotment – for baby – kidney – patella of knee.

double hand ballotment. – kidney
- anterior ballotment
- Posterior

differentiate it from spleen only

Spleen palpation

- When the spleen enlarges, it moves anteriorly and obliquely downwards into the abdomen.



Spleen palpation

- False (+) spleens = feces, colonic/renal masses, left lobes of the liver, and lower costal margins.
- False (-) spleens = obesity, ascites, and inability to relax the abdominal muscles.

AORTA

2.8 cm diameter
we felt it above the umbilicus

Retroperitoneal structures
↳ Aorta
↳ Pancreas except tail of pancreas.
↳ Duodenum except the 1st inch of the 1st part.

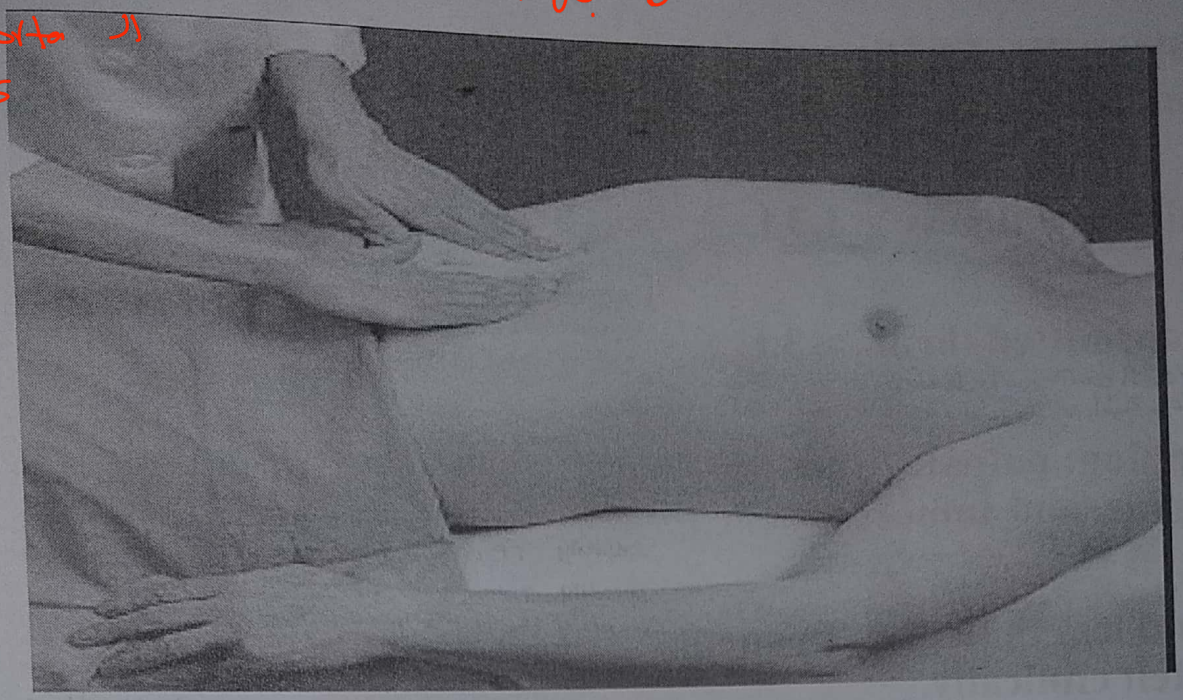
- **A Aorta ends just below and lateral to umbilicus so always palpate above umbilicus (Epigastric Region).** L3/L4
- **Prominent *Expansile Pulsation* in aneurysm.** (hand up and abduct if there is aneurysm.)
- **Normal pulse in thin adult is anterior (*Transmitted Pulsation*).** → from posterior to anterior.

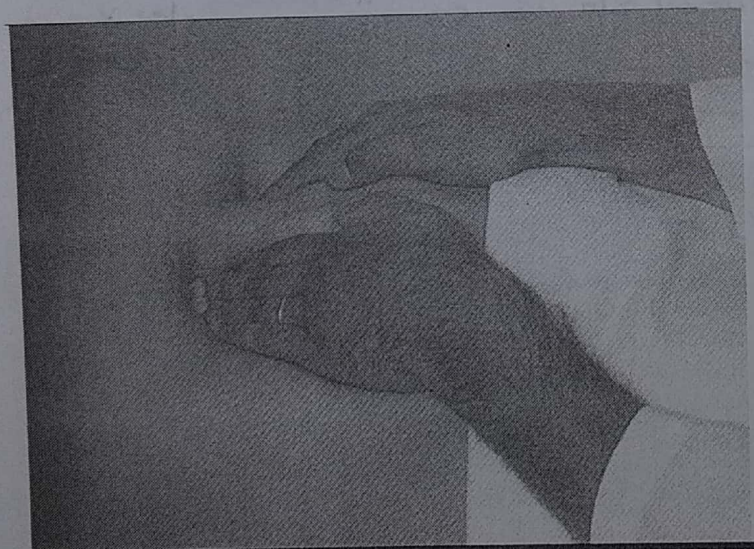
* abdominal pulsating → expansile, Transmitted

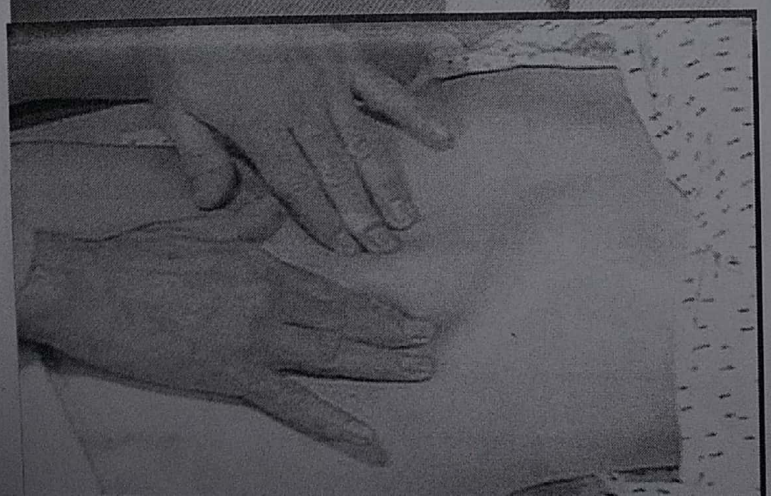
- Mass infront of Aorta ⟹ intraperitoneal mass (transverse colon / stomach)
- 95% of AAA are below the renal artery. (if the Renal Artery involved → ...)
  Abdomenal Aortic Aneurysm.
- → Tender AAA :- dangerous needed operation [emergency]
  ↳ rupture

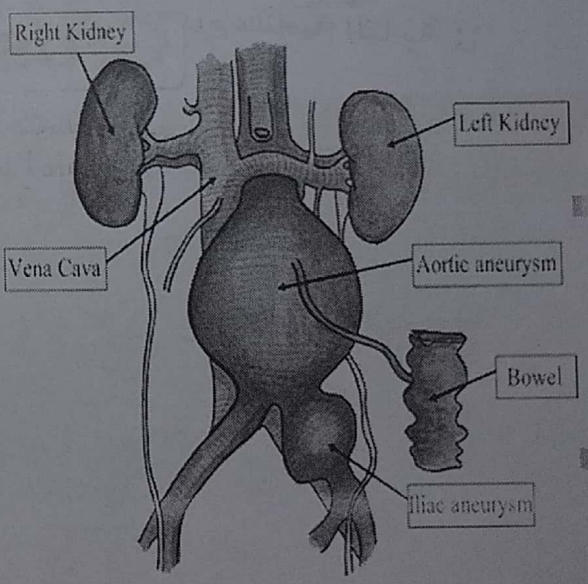
retroperitoneal ... intraperitoneal ... [rupture organs]

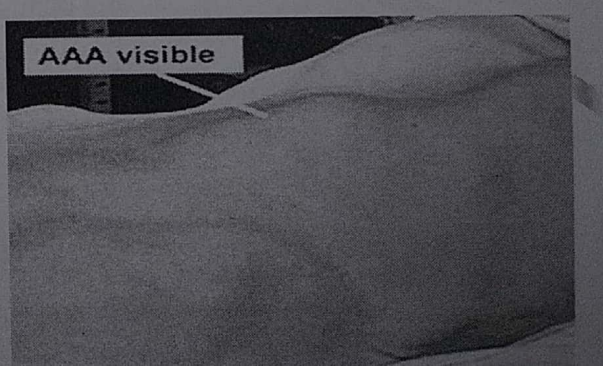
Expansile aortic pulsations











Ascites assessment

- Bulging flanks, Distended abdomen.
- Shifting dullness > 1.5 L
- Transmitted thrill > 3 L

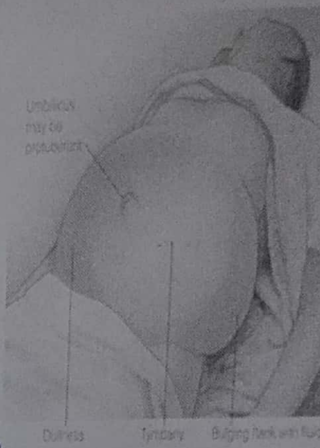
تضغط بإيد وبتحس الـ wave بالإيد الثانية
نتكرم بالمريض إيد ثالثة بالنص علشان المية ماتمشي باز subcutaneous tissue and muscle

- Dipping: palpate solid organs, and tumors.
- Fluid less than *500 cc* cannot be felt clinically.

Physical Diagnosis: Ascites

Maneuver	Sensitivity	Specificity
Shifting Dullness	83-88%	56%
Bulging Flanks	72-78%	40-70%
Fluid Wave	53%	82-90%

Joseph D. Sapira. The Art & Science of Bedside Diagnosis.



	Disease	No disease
sensitivity	TP	FN
specifity	TN	FP

- we prefer the test with high both sens. and speci.

المريض نايم على السرير ← fluid shifts to the flanks

flanks – resonance → no fluid in the abdomen
flanks – dull → maybe fluid or other mass

← منتقل shifting dullness

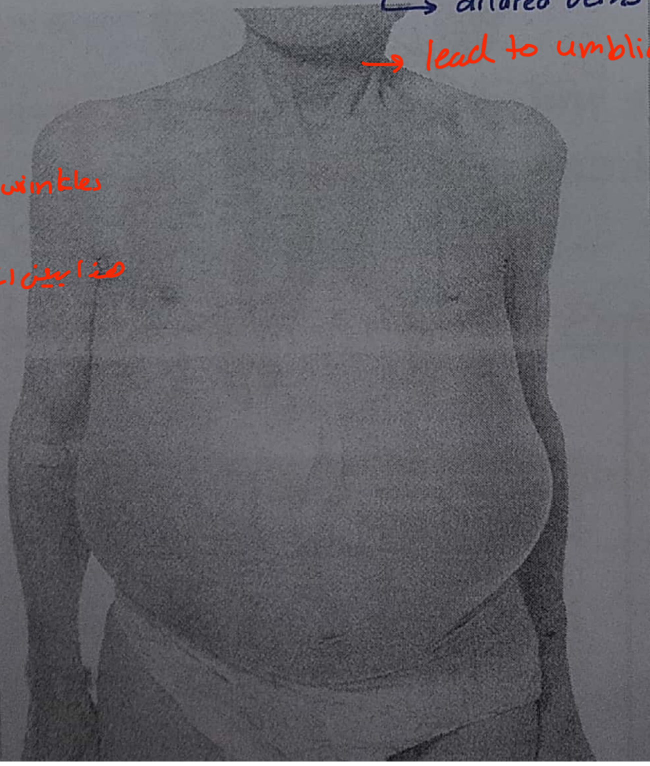
Percussion بعدين بخليه يلف على الناحية الثانية وبستنى شوية بعدين بحل ← بعمل X
fluid لنزل الـ resonant بتصير dull تاني ما
راح عالناحية الثانية

R X
R X
R X
R X X X X
R D
umbilicus.

Gross Ascites

edema:-
→ metalic color in abdomen [recent]
→ dilated veins. [old]
→ lead to umblical hernia

* if there is wrinkles in the skin:- swelling



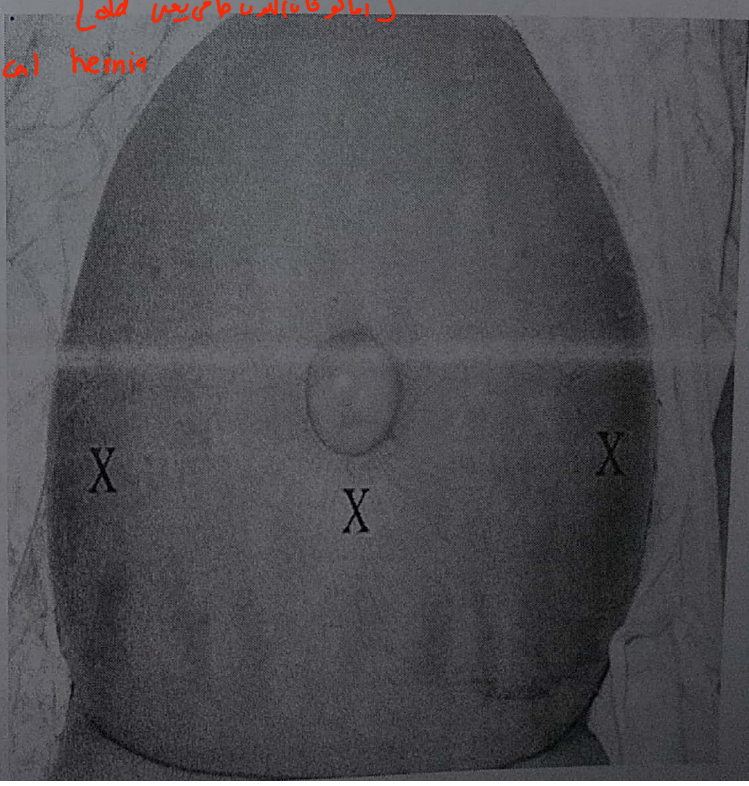


FIG 12-29
Testing for shifting dullness. Dullness shifts to the dependent side.

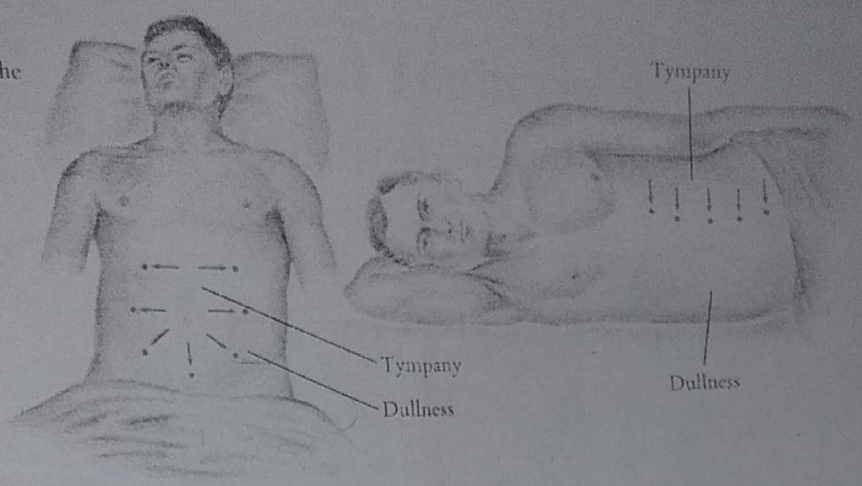
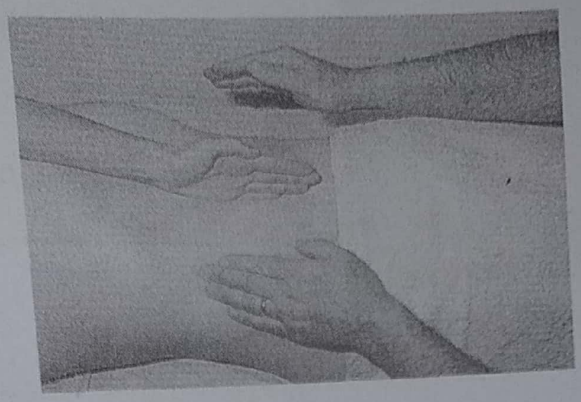


FIG 12-30
Testing for fluid wave. Strike one side of the abdomen sharply with the fingertips. Feel for the impulse of a fluid wave with the other hand.



McBurney's Point. — umbilicus — ASIS — 1/3 — 2/3

Abdominal signs

Cullen	Ecchymosis around umbilicus	Hemoperitoneium, pancreatitis, ectopic pregnancy
Grey Turner	Ecchymosis of flank	Hemoperitoneium, pancreatitis,
Kehr sign	Pain (Lt) shoulder (more than outside)	Spleen rupture or Pregnancy.
Murphy sign	Abrupt cessation of inspiration	Cholecystitis...
Dance	No bowel sounds RIF	Intussusception
Blumberg	rebound tenderness	appendicitis.
Rovsing	RIF pain on Lt IF pressure	Appendicitis
Markle	Raise on toes then heel hit ground	Appendicitis

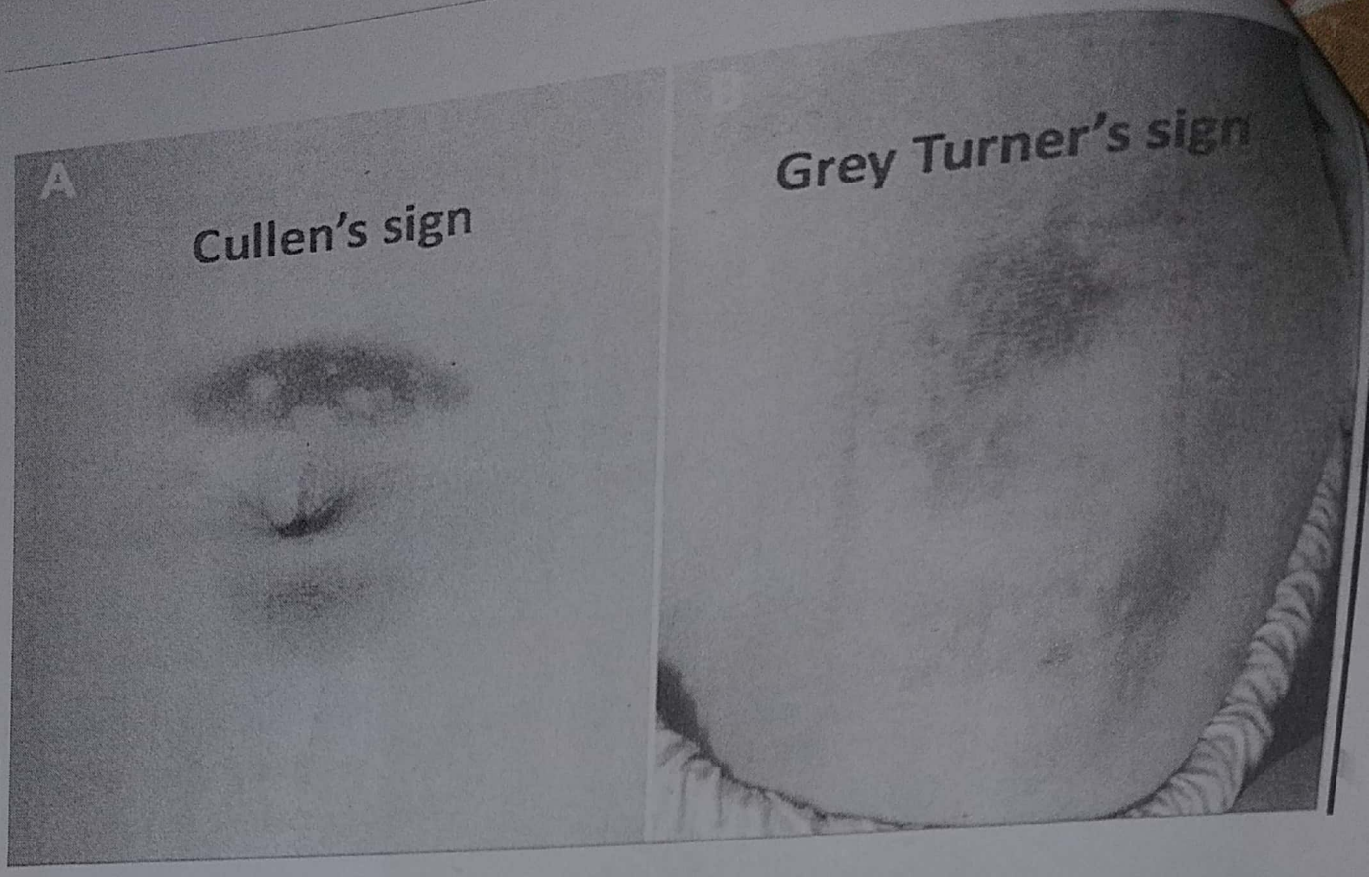
Shoulder pain due to irritation in the lower surface of diaphragm.

- Biliary colic → < 4 hour (need analgesia only)
- acute cholecystitis > 4 hour (need admission + Antibiotic + analgesia)

Bad pancreatitis hemorrhagic 40% mortality need ICU.

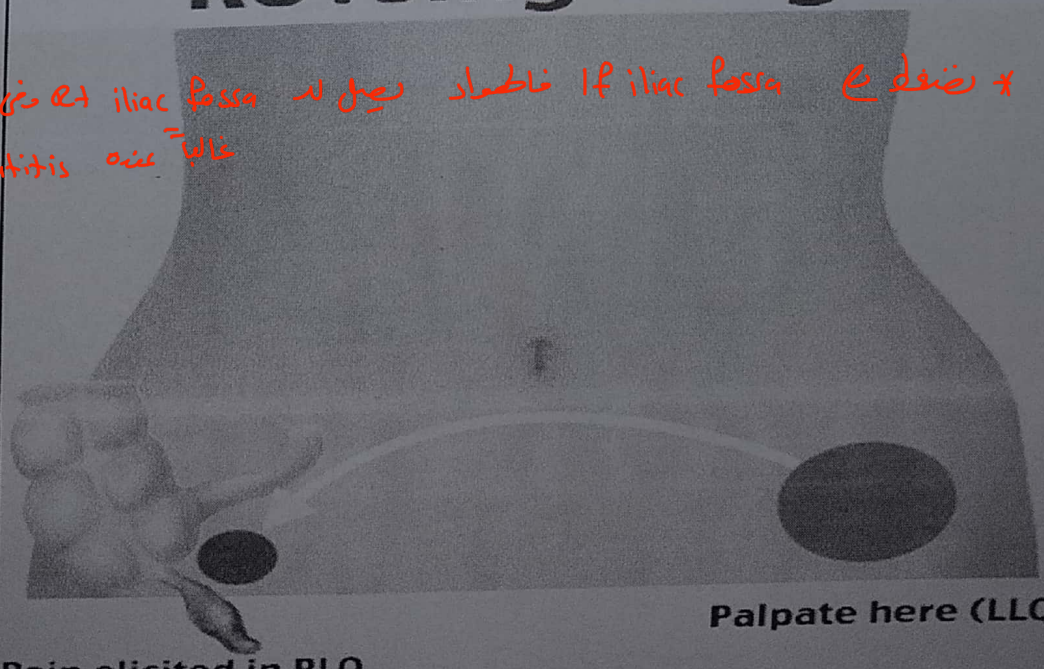
Colic pain and cholecystitis

Blumberg sign differentiate appendicitis from → renal Colic or Stones in the Rt ureter



Rovsing's Sign

* ضغط في Lt iliac fossa فاطمواد تحس بـ pain في Rt iliac fossa يعني acute pancreatitis عنده = غالبا



Pain elicited in RLQ
Suggestive of acute appendicitis

Rebound Tenderness (Blumberg)

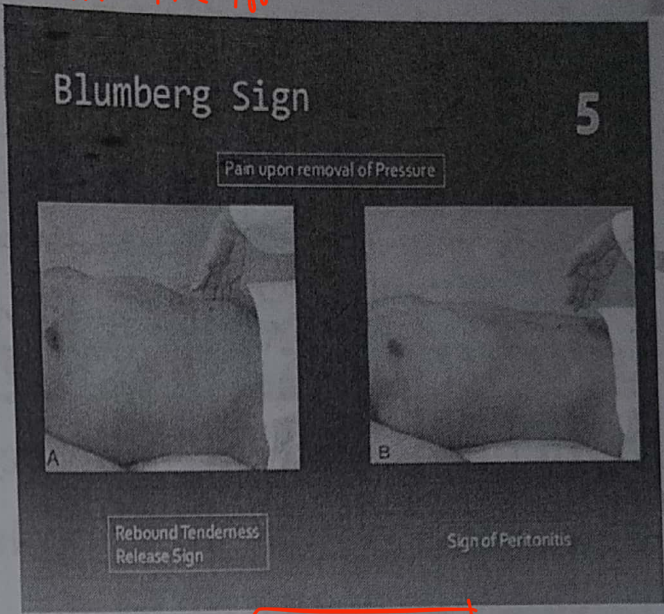
+ve :- واضا تشيل ايدنا بتوجع مع (appendicitis)
-ve ما بتوجع ما تشيل ايدنا

↳ to differentiate the appendicitis

- Right hand over abdomen.
- Deep palpation.

inflammed appendiex → > 6 mm indiameter

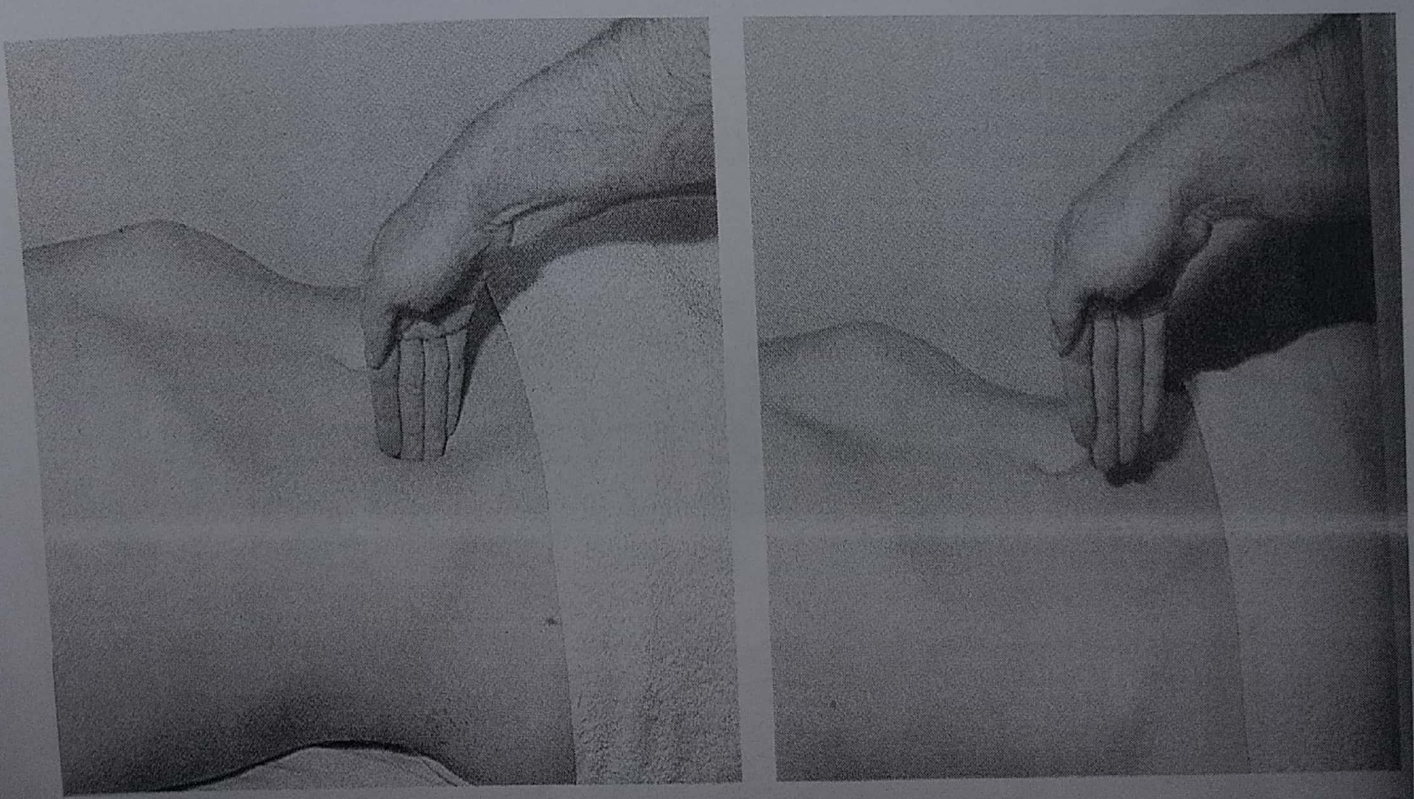
- Sudden remove of hand.



* The best investigation for appendicitis is pelvic CT

→ The 2nd commonest cause of Rt iliac fossa pain in Male is appendicitis..

* The most common " " " " " " in female " mid cyclic pain..



Rebound tenderness

- from lumbar vertebrae to lesser trochanter of femur
- flexion of hip

Iliopsoas muscle test

- In acute appendicitis.
- Lower abdominal pain ++ ve test .
- Ask patient to flex his hip ,while pushing down over leg.

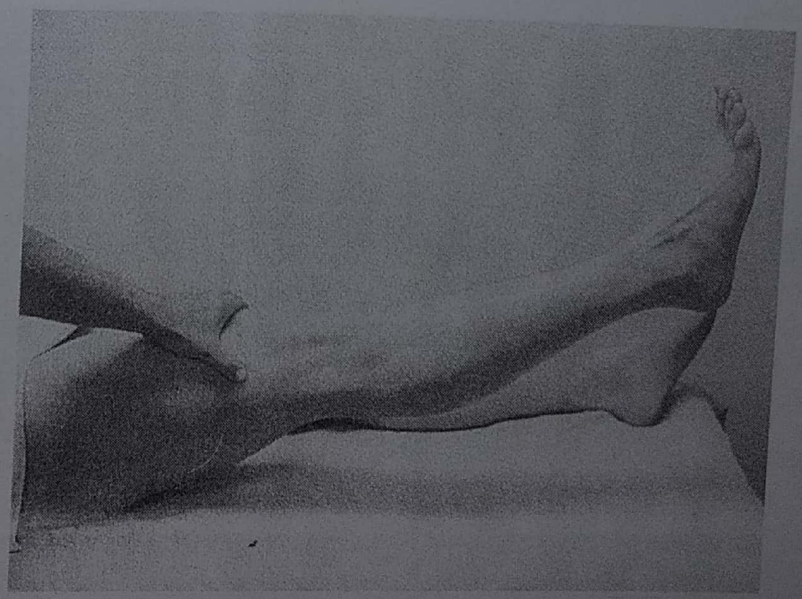
internus — internal rotation of hip, foot outward

externus — external rotation of hip, foot inward.

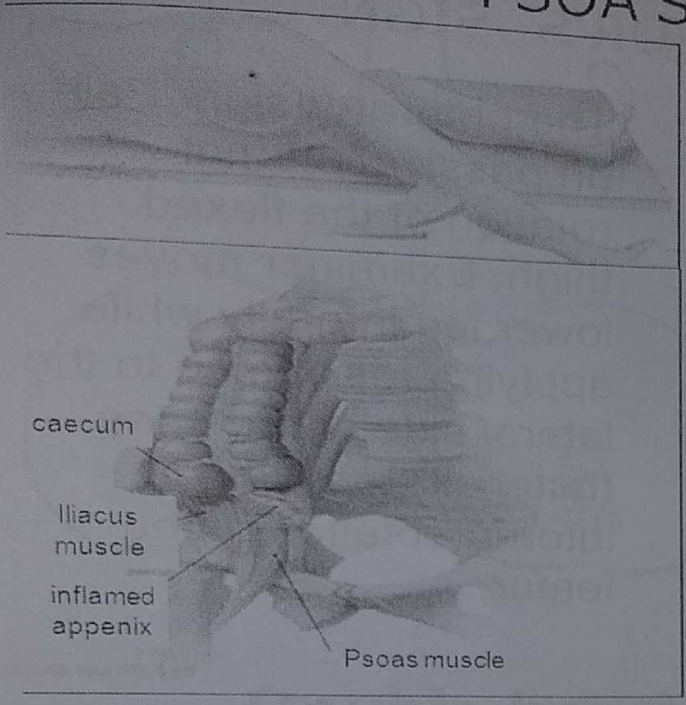
Obturator muscle test

- In pelvic abscess ,rupture appendix.
- Flex right hip and knee, lateral and medial rotation cause hypogastric pain .

FIG 12-33
Iliopsoas muscle test. The patient raises the leg from the hip while the examiner pushes downward against it.

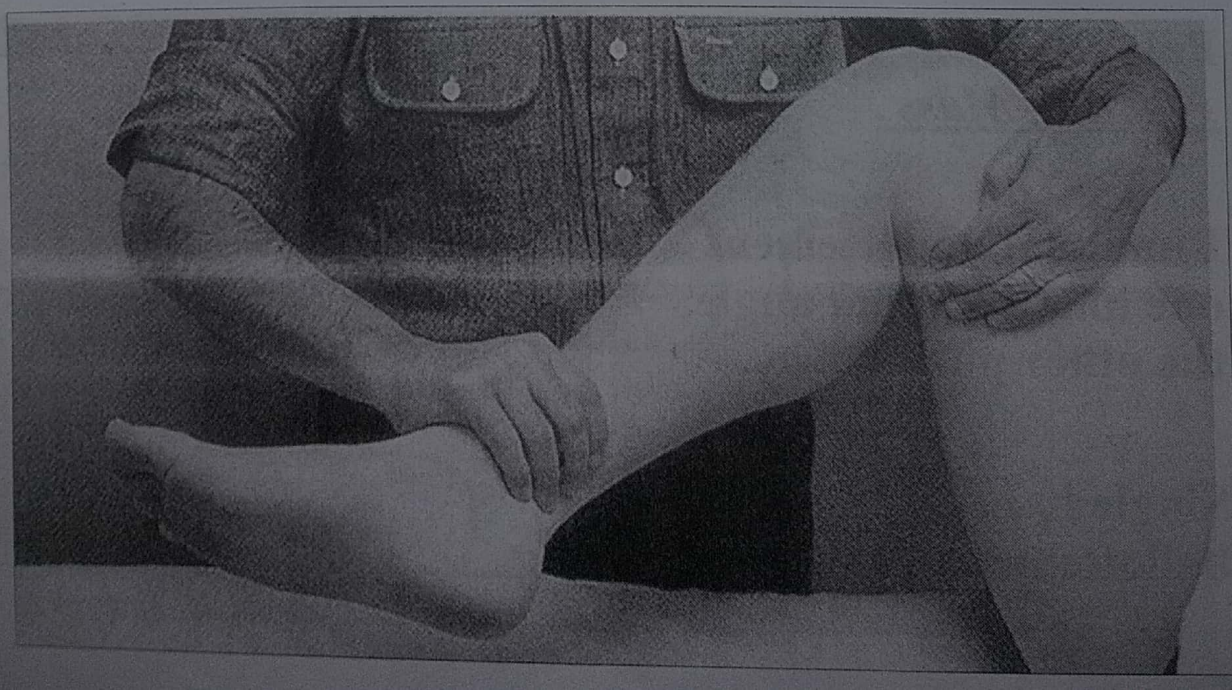


PSOA'S SIGN



Psoas sign is right lower-quadrant pain that is produced with the patient extending the hip due to inflammation of the peritoneum overlying the psoas muscles and inflammation of the psoas muscles themselves. Straightening out the leg causes the pain because it stretches the muscles, and flexing the hip into the "fetal position" relieves the pain.

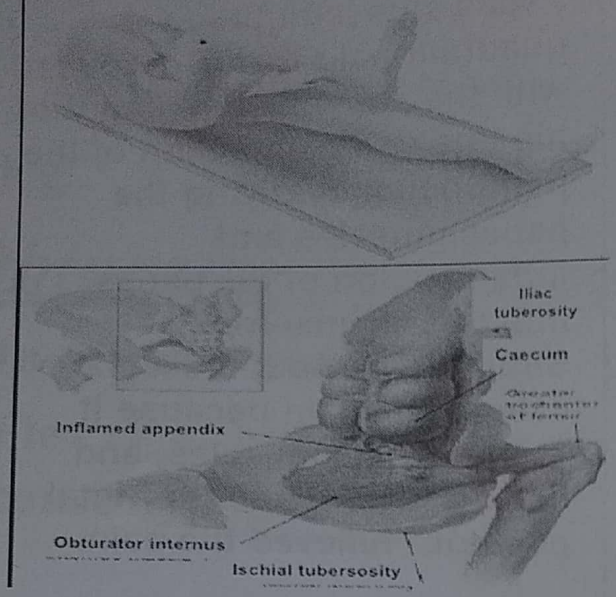
Obturator sign



CLINICAL FEATURES

OBTURATOR'S SIGN

internus الـ بتاعة ← OBTURATOR'S SIGN



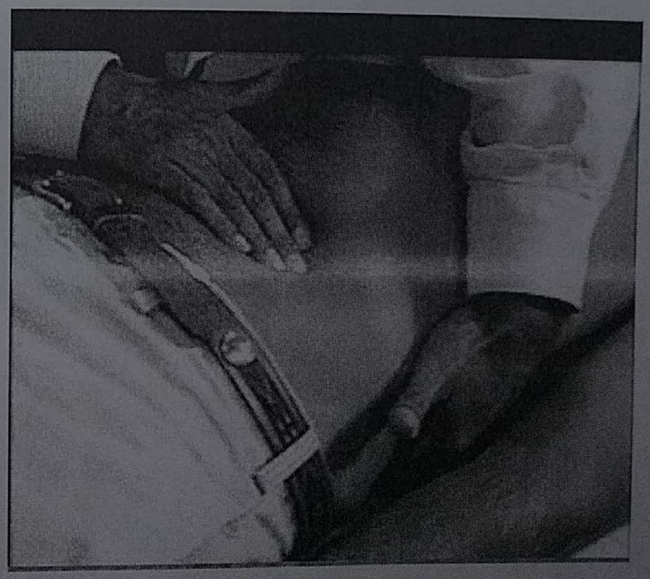
The obturator sign. Pain on passive internal rotation of the flexed thigh. Examiner moves lower leg laterally while applying resistance to the lateral side of the knee (asterisk) resulting in internal rotation of the femur..

appendix tenderness هعمل كده ولا لأ
or not.

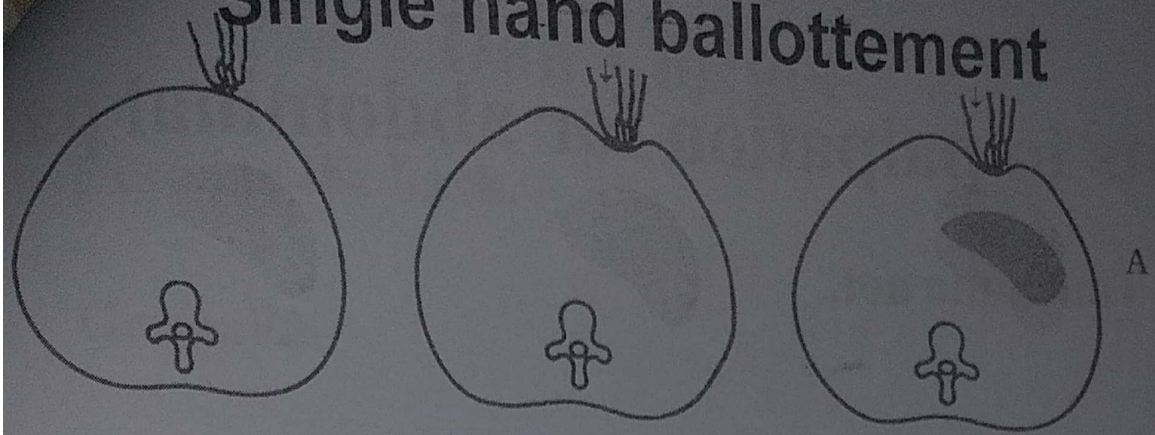
Dr Kulwant Singh

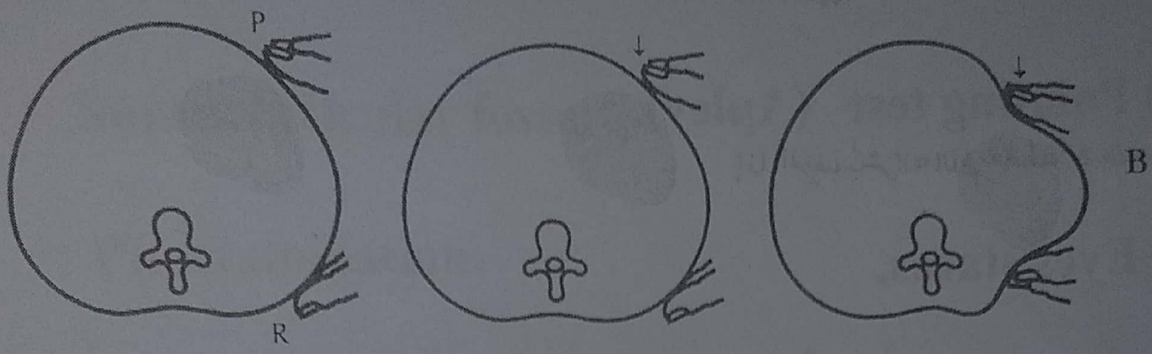
Ballottement

- Palpation way to assess *Floating Mass .*
- Bimanual ballottement , one hand in renal angle, the other push down.
- Single hand ballottement.



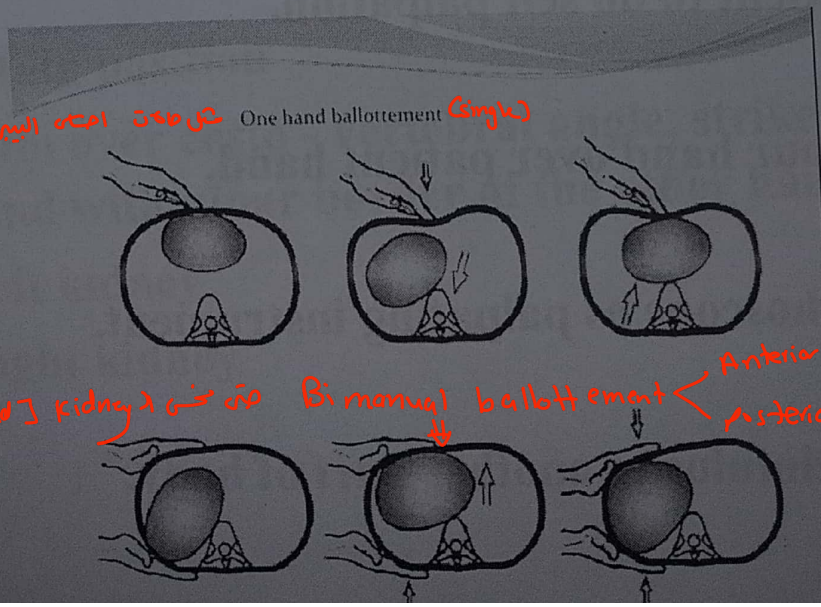
Single hand ballottement





Double hand ballottement

Bimanual ballottement



Hints in palpation for abdominal pain

- Touch me not. → peritonitis

- Appetite. Peritonitis patients and appendicitis are anorexic.
  ↳ flush face – bad appetite – tachycardia...

- Pointing test (Apley).
  "more serious" ← إذا المريض أشار إلى الألم بنقطة محددة (warning sign)

- Eyes status. * The multifocal or multicentric pain → مش مهمة
  more alarming.. ← لو المريض فاتح عيونه

× 50%. of Rt iliac fossa pain is nonspecific
× $\frac{1}{3}$ " " " " is appendicitis

الـ appendix سهل تشخيصها بالـ male، لأنه كثير أسباب بتعمل بالـ RIFP

Female — sulpingitis, ovarian cyst, mittelschmerz

– any femal with Right IF pain, the 1st thing to do is to exclude gynacological problems
then US to pelvis
if both can't be done, do CT to the pelvis.

Abdominal exam in a ticklish patient

- Ask patient to do self palpation.
- Place your hand over patient hand.
- Use stethoscope as palpating instrument.
- Apply stimulus to another part of body.

Don't forget

- Examine the back.
- Genitalia.
- Hernial orifices.
- Supraclavicular fosse.
- PR examination.
- Femoral pulse.