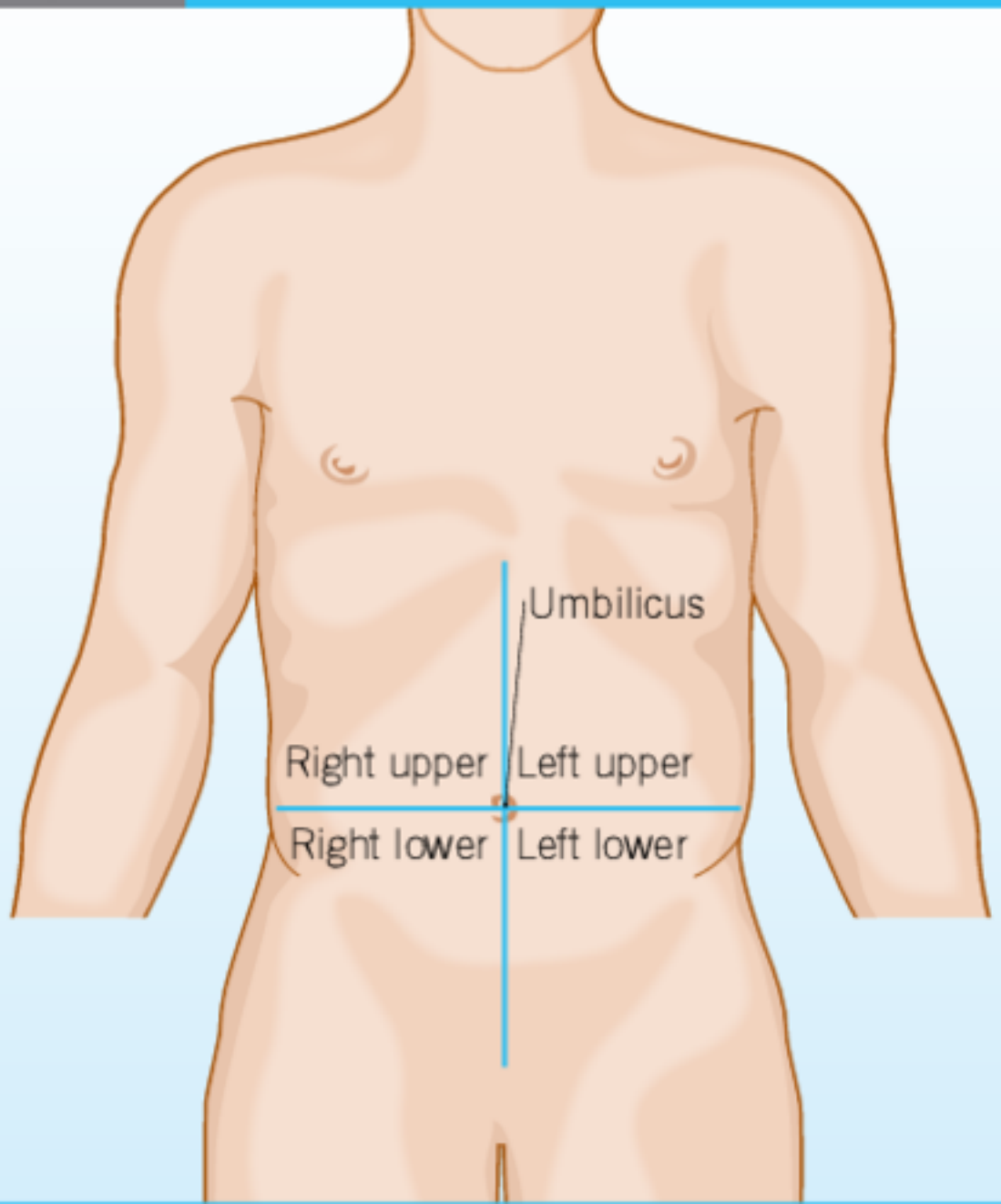
The Abdominal Examination

Fb/Nurse Info

Figure 1 **Organs located in the four quadrants of the abdomen**



Right upper

- Liver.
- Gallbladder.
- Duodenum.
- Head of pancreas.
- Right kidney and adrenal gland.
- Hepatic flexure of colon.
- Part of transverse and ascending colon.

Left upper

- Stomach.
- Spleen.
- Left lobe of liver.
- Body of pancreas.
- Left kidney and adrenal gland.
- Splenic flexure of colon.
- Parts of transverse and descending colon.

Right lower

- Caecum.
- Appendix.
- Right ovary and tube.
- Right ureter.

Left upper

- Part of descending colon.
- Sigmoid colon.
- Left ovary and tube.
- Left ureter.

Peter Lamb

Organs by Quadrant

Right Upper

- Liver, gallbladder
- Pylorus, duodenum
- Head of pancreas
- Ascending/transverse colon
- Right kidney/adrenal

Right Lower

- Right kidney and ureter
- Cecum/appendix/ascending colon
- Ovary, fallopian tube
- Spermatic cord
- Uterus/bladder (if enlarged)

Left Upper

- Liver (left lobe)
- Spleen
- Stomach
- Body of pancreas
- Descending/transverse colon
- Left kidney/adrenal

Left Lower

- Left kidney and ureter
- Sigmoid/descending colon
- Ovary/fallopian tube
- Spermatic cord
- Uterus/bladder (if enlarged)

Inspection: General

1. Cachexia of cirrhosis or cancer evident by temporal recession / or wasted muscles.
2. Jaundice.
3. Pallor.
4. Vircow's Node: left supraclavicular LN enlargement.
5. Clubbing, palmar erythem, white nails, duptryn contracture.
6. Leg edema.
7. Gynecmastia.
8. Mouth ulcers of IBD, Peutz-gagher perioral pigmentation, talangiectasia of HHT, MOUTH THRUSH.

Inspection

- Skin: spider angiomas (blanching red marks mostly above nipples level), striae (purple or silver)
- Contour of abdomen
  - Concave (scaphoid) vs convex (protuberant)
- Dilated veins radiating from the umbilicus (caput medusa) & its direction of flow: from below upward or vise versa.

Respiratory movement

- In men / children, manner of breathing is abdominal respiration.
- In women the manner of breathing is thoracic respiration.

- Respiratory movement is limited (could suggest peritonitis).

Gastric or intestinal pattern / peristalsis

- In healthy person peristalsis is not visible
- Becomes spontaneously visible or provoked by percussion in bowel obstruction

Auscultation

- Provides important information about bowel motility: decreased motility suggests peritonitis; increased motility suggests obstruction
- *Need to listen before percussion or palpation since these maneuvers may alter the frequency of bowel sounds*
- Can also appreciate bruits over the aorta or other arteries, suggesting narrowing of the arteries from atherosclerosis

Auscultation

- **Listen with diaphragm of stethoscope**
- **Normal sounds occurs every 5-10 seconds & consist of clicks and gurgles**
- **Need to listen for 2 minutes to declare no bowel sounds; since bowel sounds are widely transmitted, need only to listen in one spot**
- **Occasionally hear *borborygmi* - long, prolonged gurgles of hyperperistalsis - the familiar stomach growling**

Auscultation

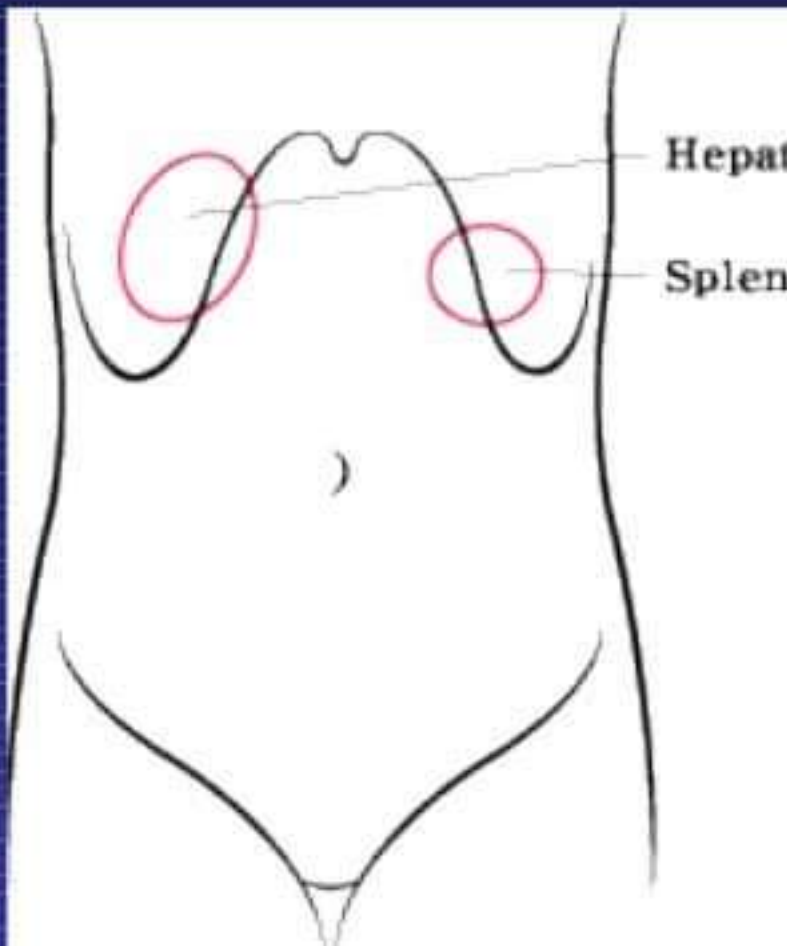
- For bruits
- Bruits are high pitched sounds due to obstruction to flow due to narrowing (stenosis) of arteries
- Listen midline (bruit in aorta)
- Right / left upper quadrant (renal artery bruits)

Bowel sounds

- Diagnostic yield is low.
- "Bowel sounds absent" requires long listening.
- Reduced or increased bowel sounds are not reliably detected.

Rubs

- Rubs over the liver are most likely neoplastic, but may infrequently occur in inflammatory disease, including acute cholecystitis.
- Splenic infarcts can generate LUQ rubs.

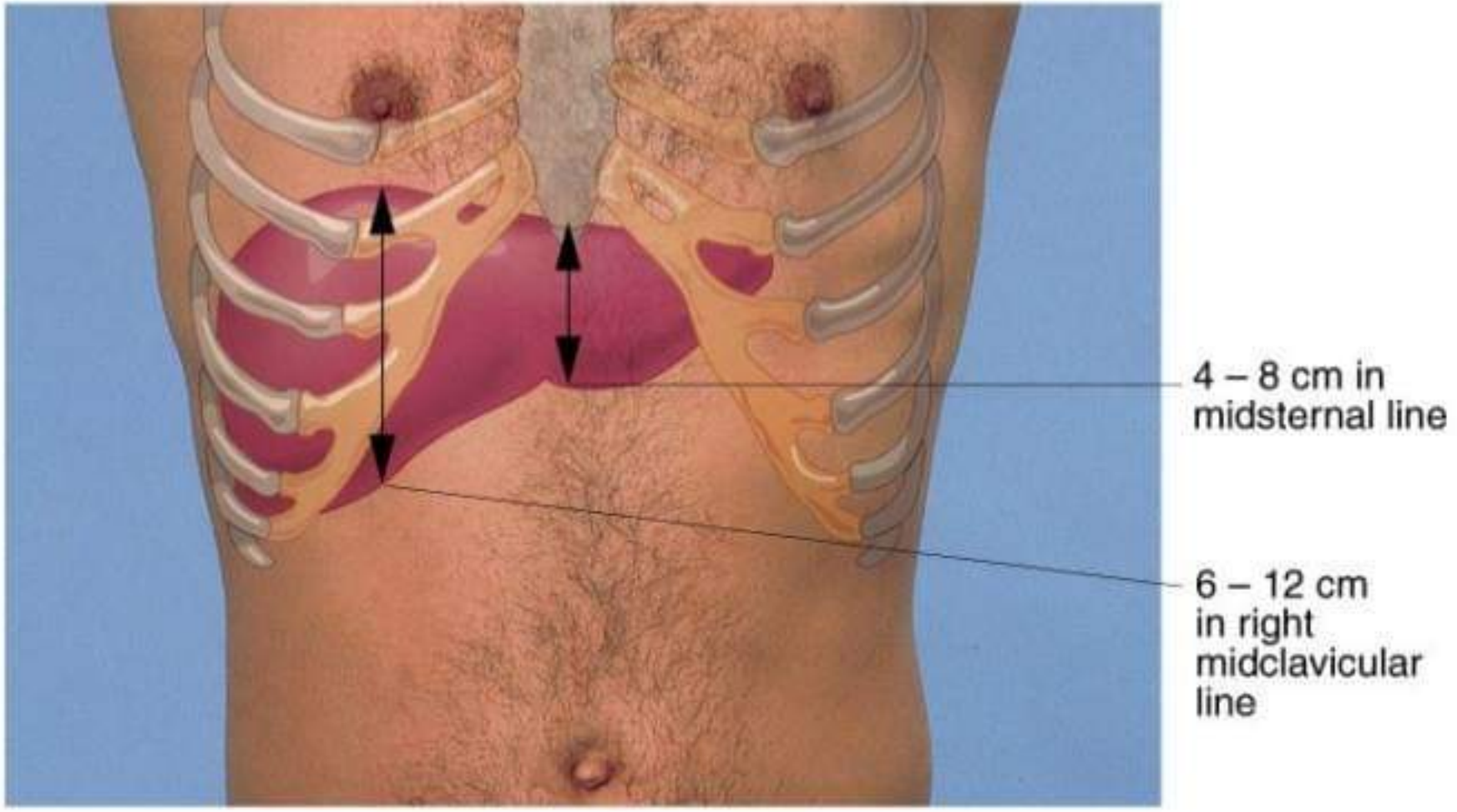


Percussion

- Helps to identify the amount and distribution of gas and to identify possible masses that are solid or fluid filled
- Can be used to assess size of liver and spleen
- Percuss looking for areas of tympany and dullness
- Large dull areas may indicate an underlying mass; you will later confirm with palpation
- On the right is liver dullness; on the left, dullness of the spleen

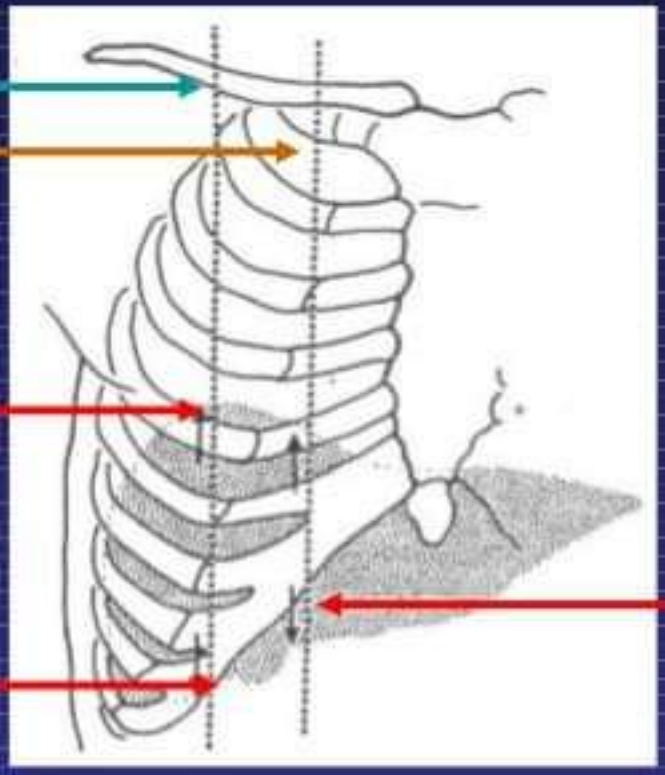
Percussion: Liver

- Upper border of the liver is percussed in the right, midclavicular line starting at midchest
- Resonance becomes dull as upper border of liver is reached and becomes resonant again as lower level of liver is reached
- Total span shouldn't be more than 10 cm



Normal liver spans

LIVER SPAN



LIVER SPAN MAY VARY BETWEEN OBSERVERS DEPENDING UPON WHERE THE MCL IS DETERMINED

JAMA 1994;271:1859-1865

Palpation

Several structures are palpable normally:

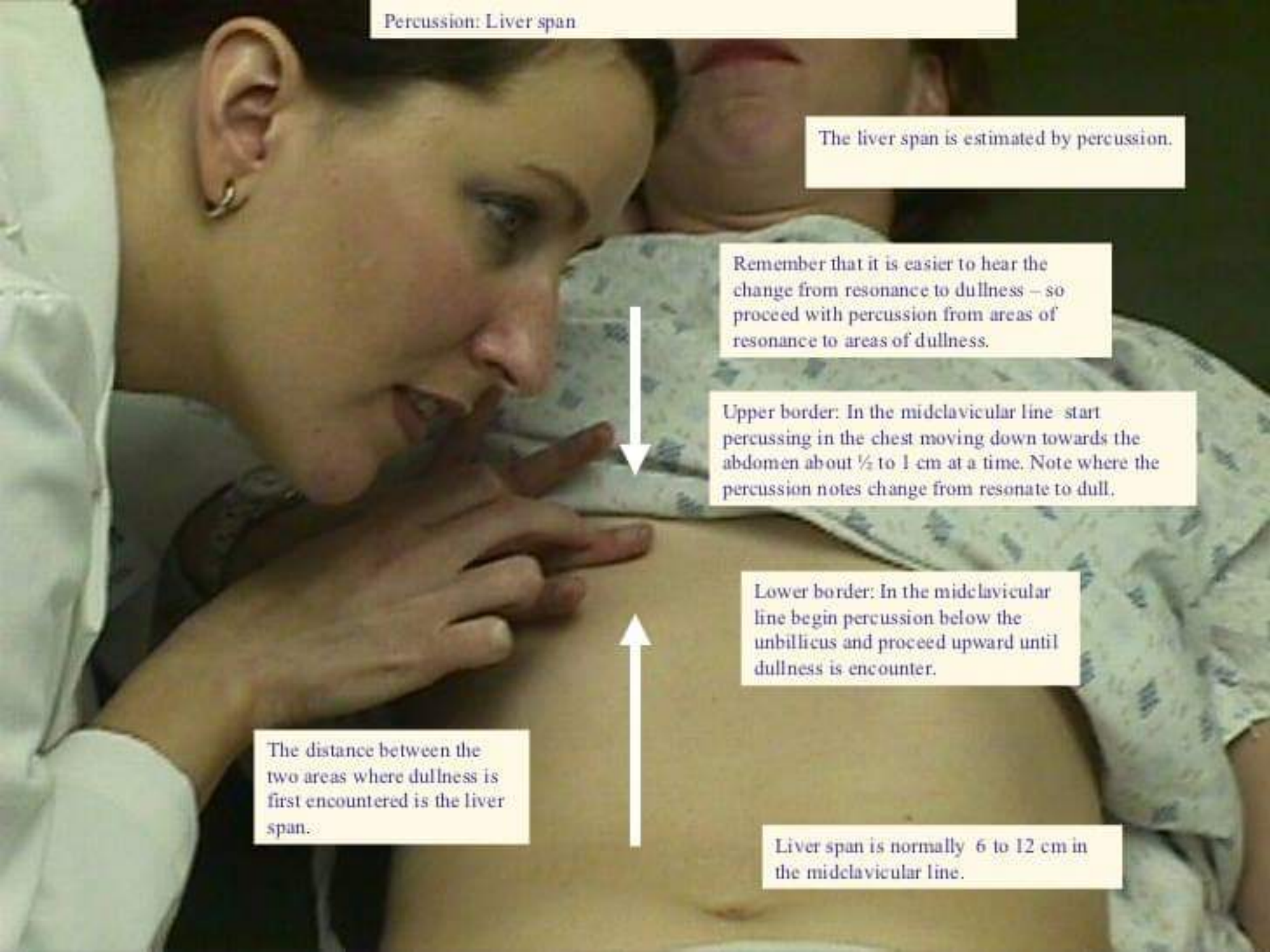
- Sigmoid colon is frequently palpable as a firm, narrow tube in the left lower quadrant
- The caecum and ascending colon form a softer, wider tube in the right lower quadrant
- Normal liver distends below the costal margin but its soft consistency is difficult to feel
- Pulsations of the abdominal aorta are frequently visible and usually palpable
- **Usually NOT palpable are: stomach, spleen, gallbladder, duodenum, pancreas, kidneys**

Liver Palpation

- Place left hand behind patient; by pressing the left hand forward, the liver may be more easily felt
- Right hand on the patient's right abdomen with your fingers well below the lower border of liver dullness; fingers may be pointed to the patient's head or to the left shoulder
- Press gently in and up; ask the patient to take a deep breath
- Try to feel the liver edge as it comes down to meet your fingertips

Liver Palpation

- The edge should be soft, sharp and regular, with a smooth surface
- The normal liver may be slightly tender
- On inspiration, the liver is palpable about 3 cm below the right costal margin in the midclavicular line
- If you start too high, you may miss the liver
- Can also consider the hooking technique


Percussion: Liver span
The liver span is estimated by percussion.
Remember that it is easier to hear the change from resonance to dullness – so proceed with percussion from areas of resonance to areas of dullness.
Upper border: In the midclavicular line start percussing in the chest moving down towards the abdomen about ½ to 1 cm at a time. Note where the percussion notes change from resonate to dull.
Lower border: In the midclavicular line begin percussion below the unbillicus and proceed upward until dullness is encounter.
The distance between the two areas where dullness is first encountered is the liver span.
Liver span is normally 6 to 12 cm in the midclavicular line.

Liver palpation

- Liver is palpated to:
  - help determine if it is enlarged (span is maybe more important for this)
  - determine its consistency
  - find nodules
  - detect pulsations (tricuspid regurgitation)

Liver palpation

- With ascites, the liver may be hard to palpate but may be "ballotable" by gently "bouncing" the abdominal wall.
- Begin palpating the liver from low down in the abdomen so very large livers are not missed.

AUSCULTATION – UNCOMMON FINDINGS

- FRICTION RUBS - MALIGNANCY, HEPATOMAS, LIVER ABCESS
- HUMS (SYSTOLIC AND DIASTOLIC) – PORTAL HYPERTENSION
- BRUITS (SYSTOLIC) – TUMORS, ETOH HEPATITIS

JAMA 1994;271:1859 -1865

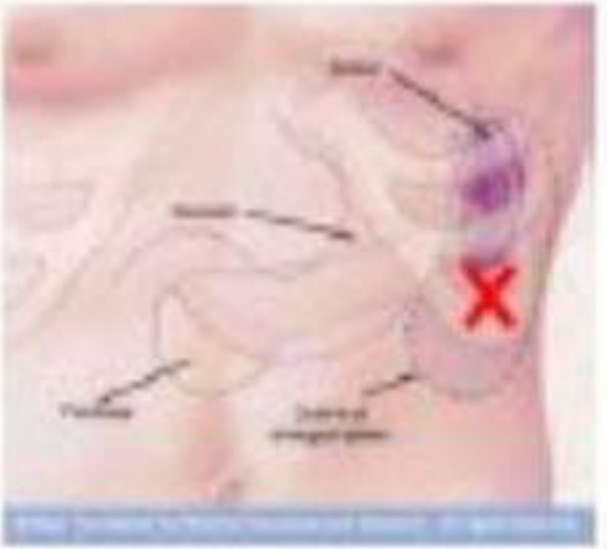
JAMA 1979;241:495

Spleen Palpation

- Again, with the left hand, reach over and round the patient to support and press forward the lower left rib cage
- With your right hand below the left costal margin, press in toward the spleen
- Again, begin palpation low so you don't miss an enlarged spleen
- Again ask the patient to take a deep breath and try to feel the tip of the spleen as it comes down to meet your fingertips

Examination of the Spleen

- Percussion cont
  - Castell's Method
    - Supine
    - Lowest intercostal space
    - Left anterior axillary line
    - Full inspiration and expiration
    - Splenomegaly = dullness



Examination of Spleen (Percussion)

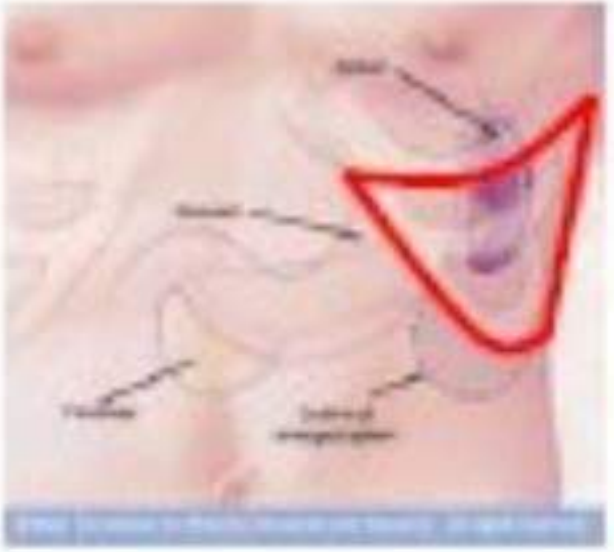
Percussion at Castell's Spot

- Castell's Spot identified
  - Left anterior axillary line identified
  - Left lower costal margin identified
- Percussion at Castell's Spot while patient inhales and exhales deeply

- Dull tone indicates possible splenomegaly

Examination of the Spleen

- Percussion cont
  - Traube's Space
    - Supine
    - 6th rib
    - Costal margin
    - Midaxillary line
    - Normal breathing
    - Splenomegaly = dullness



Hackett's Classification

0 Not Palpable

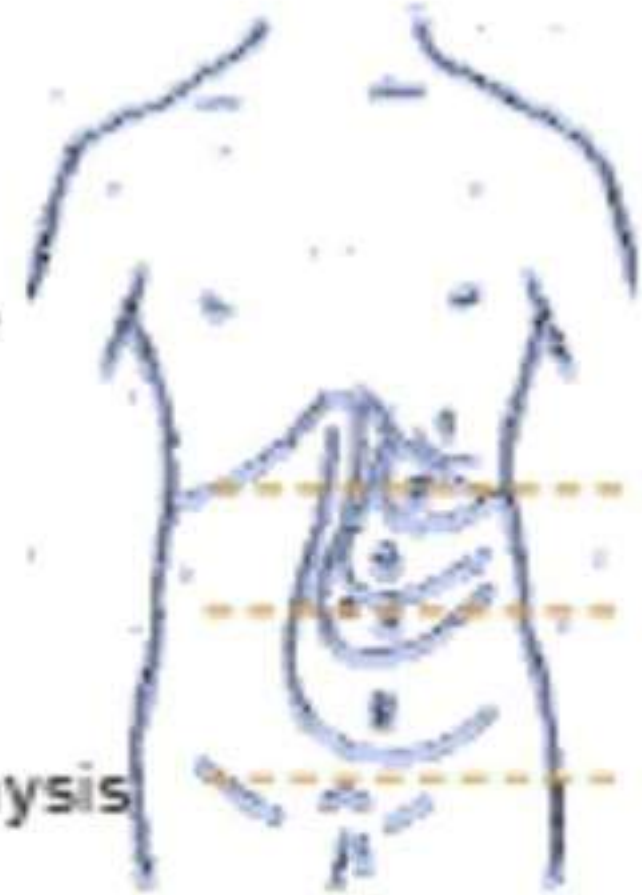
1 Palpable on deep inspiration

2 Palpable but <½ the way to the umbilicus

3 Not below the umbilicus

4 Below the umbilicus

5 >½ the way to the pubic symphysis

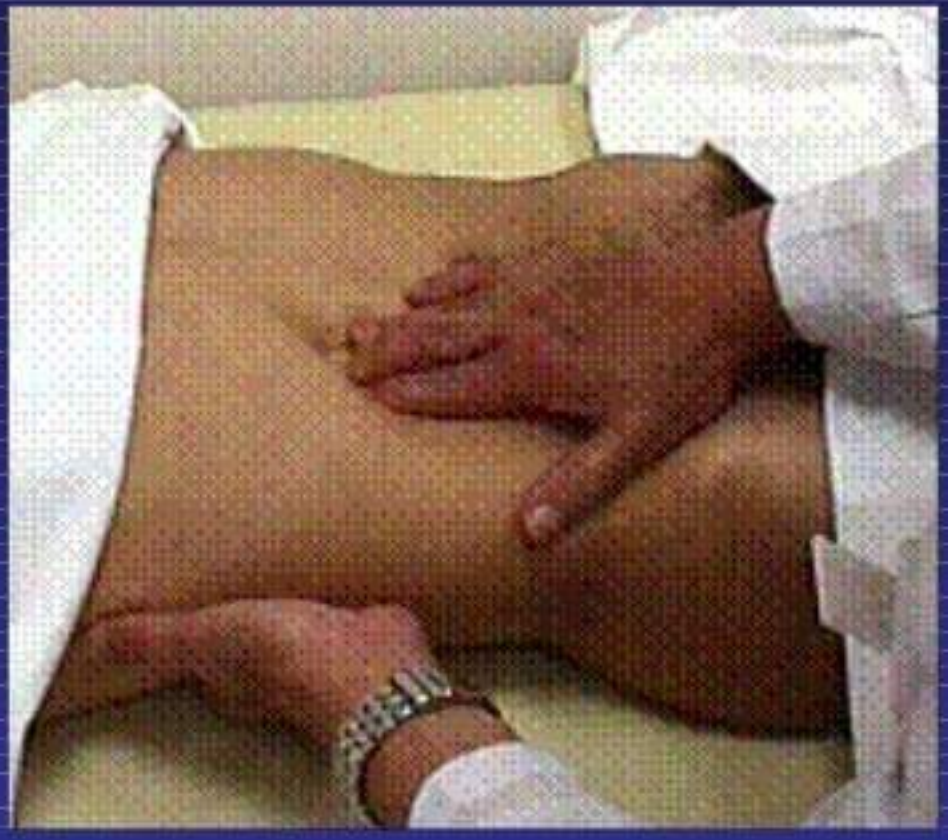


Spleen palpation

- 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.

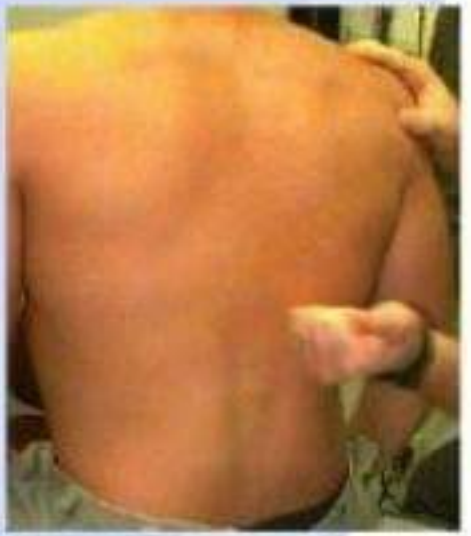
Examination of Kidney

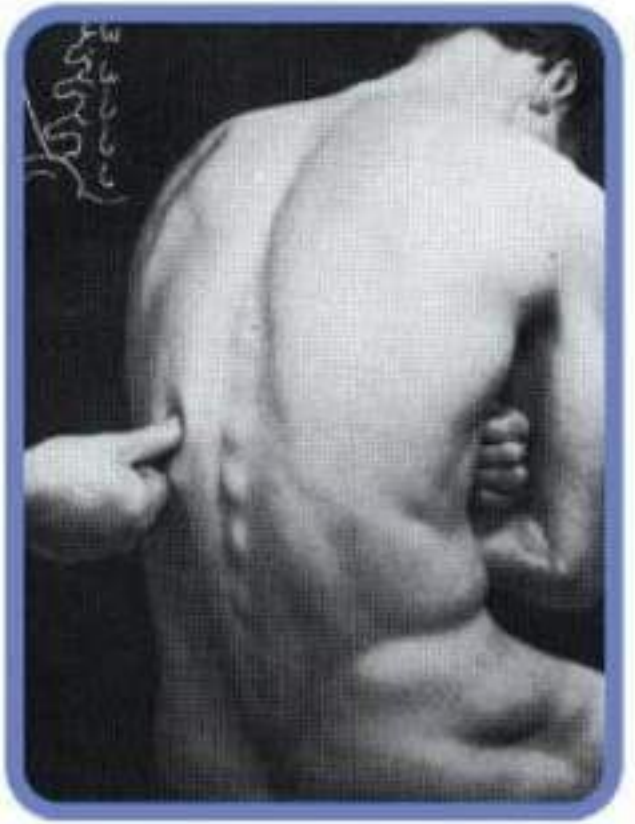
- Patient take a deep breath.
- Feel lower pole of kidney and try to capture it between your hands.



CVA tenderness

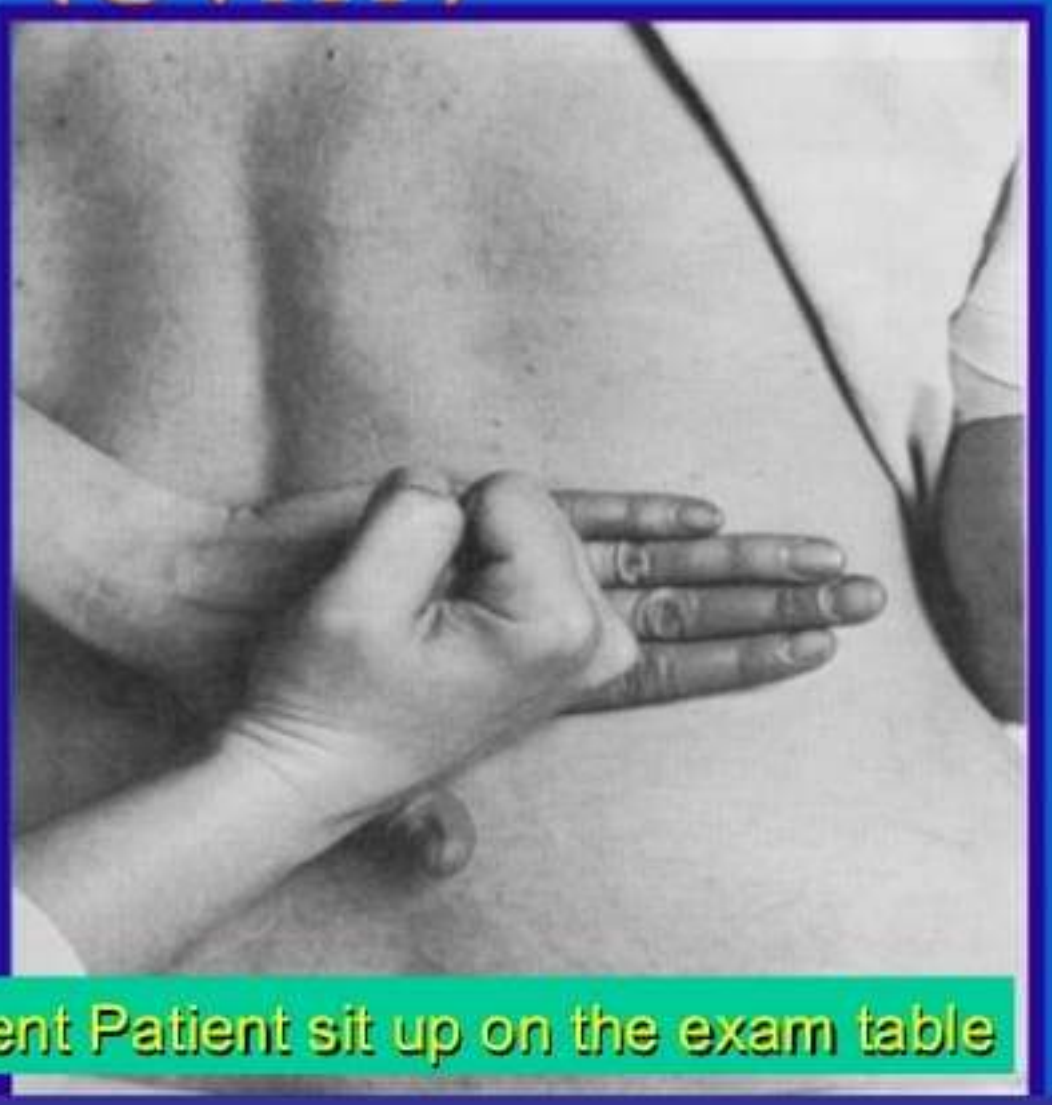
- False positive = occasional other inflammatory abdominal conditions or musculoskeletal conditions.





Assessing kidney tenderness (CVAT)

- **Pain suggests infection or a musc-uloskeletal cause.**



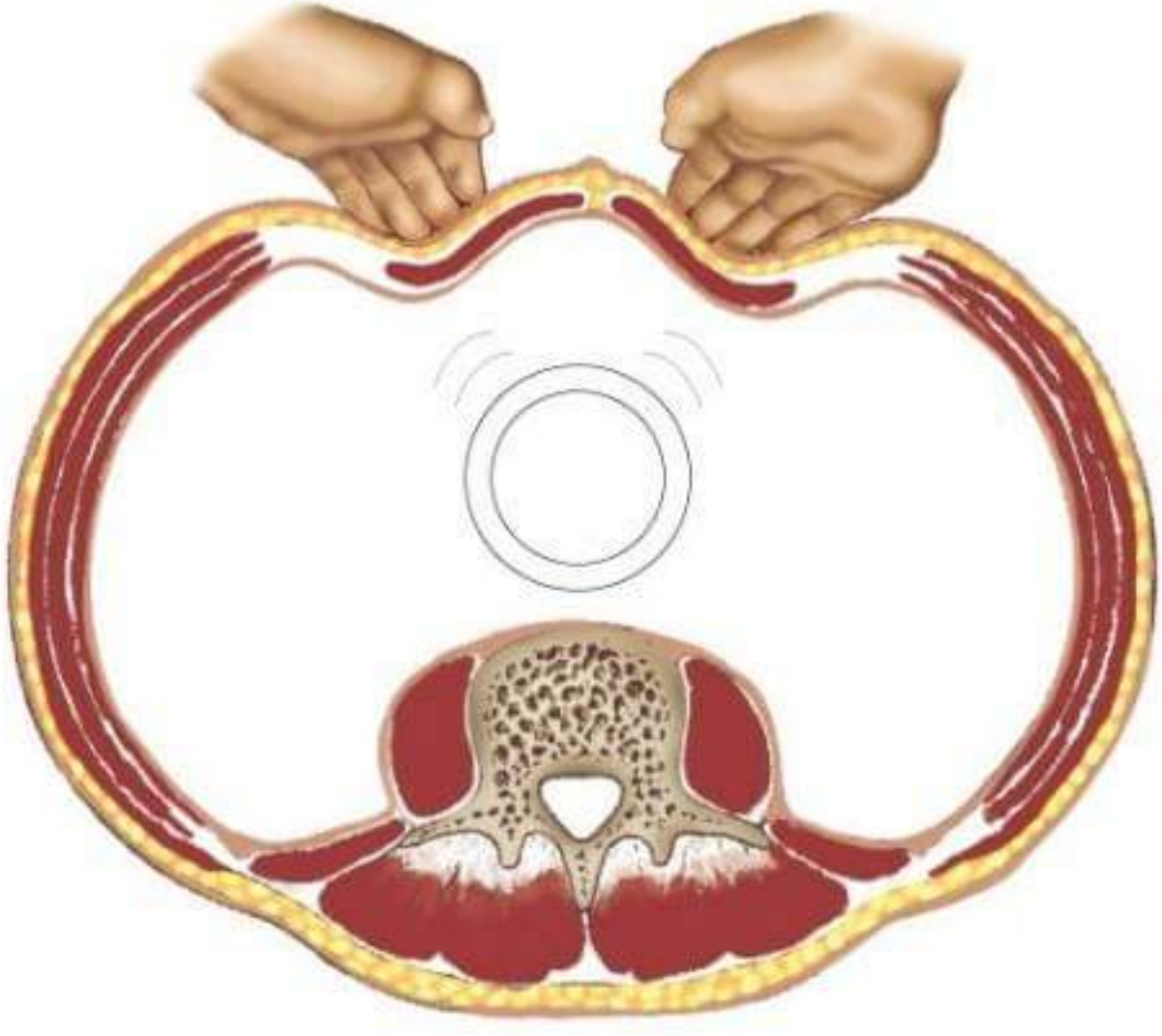
Warn the patient Patient sit up on the exam table

The Aorta

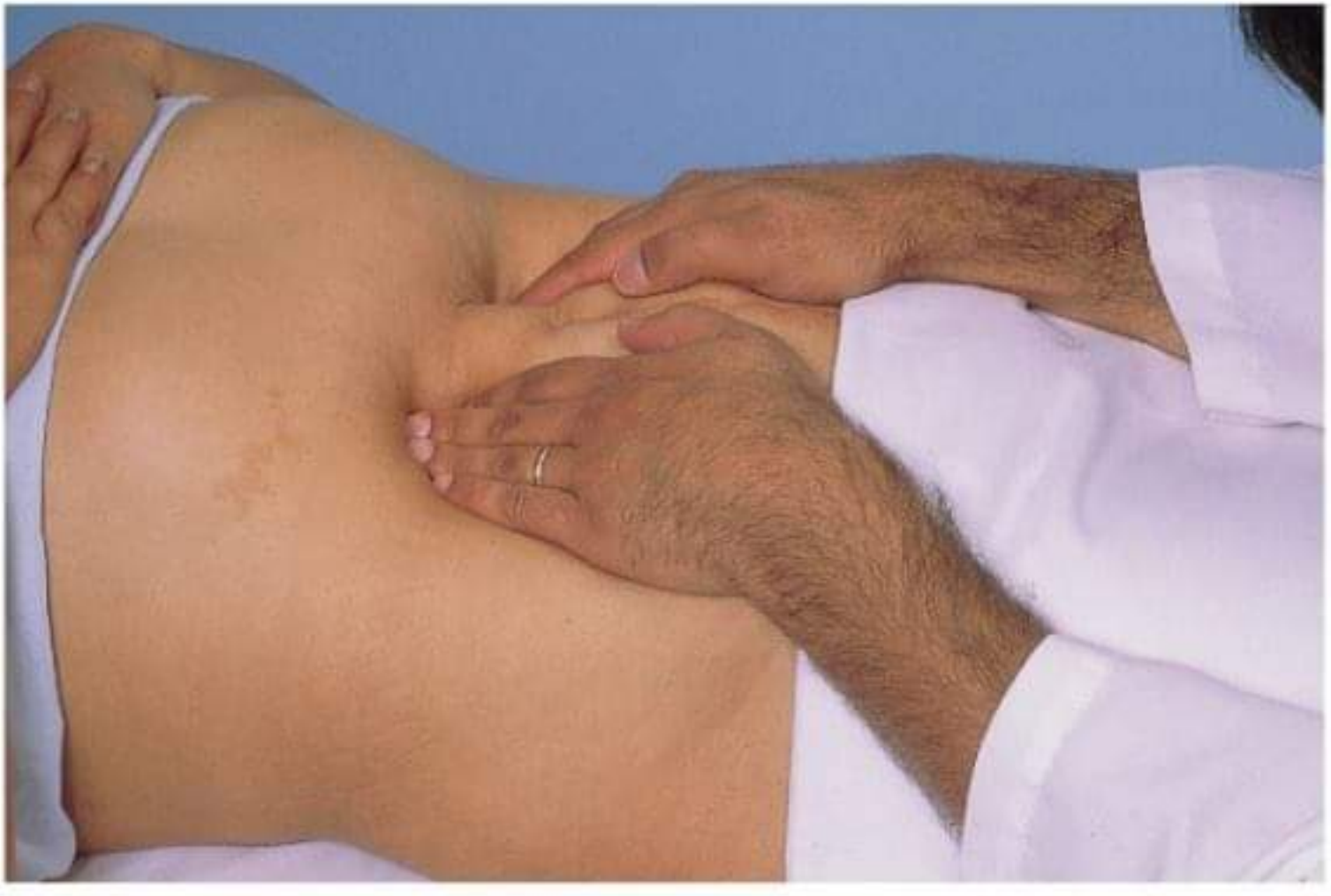
- Press firmly deep in the upper abdomen and try to identify the aortic pulsations
- Try to assess the width by pressing deeply with one hand on each side of the aorta; normal should be not more than 3 cm
- The ease of feeling varies with the thickness of the abdominal wall
- Try to appreciate pulsations laterally rather than just in the anterior/posterior dimension

ABDOMINAL AORTIC ANEURYSM THE EXAM

- METHOD
- THE PATIENT'S ABDOMEN SHOULD BE RELAXED WITH THE KNEES FLEXED.
- THE EXAMINER FEELS CEPHALAD OF THE UMBILICUS FOR THE AORTIC PULSATION.
- PLACE BOTH HANDS ON THE ABDOMEN WITH THE INDEX FINGER ON EITHER SIDE OF THE PULSATING AORTA. ESTIMATE THE WIDTH (NL <2.5CM IN WIDTH).



Identifying aortic pulsations in the abdomen - upper abdominal mass



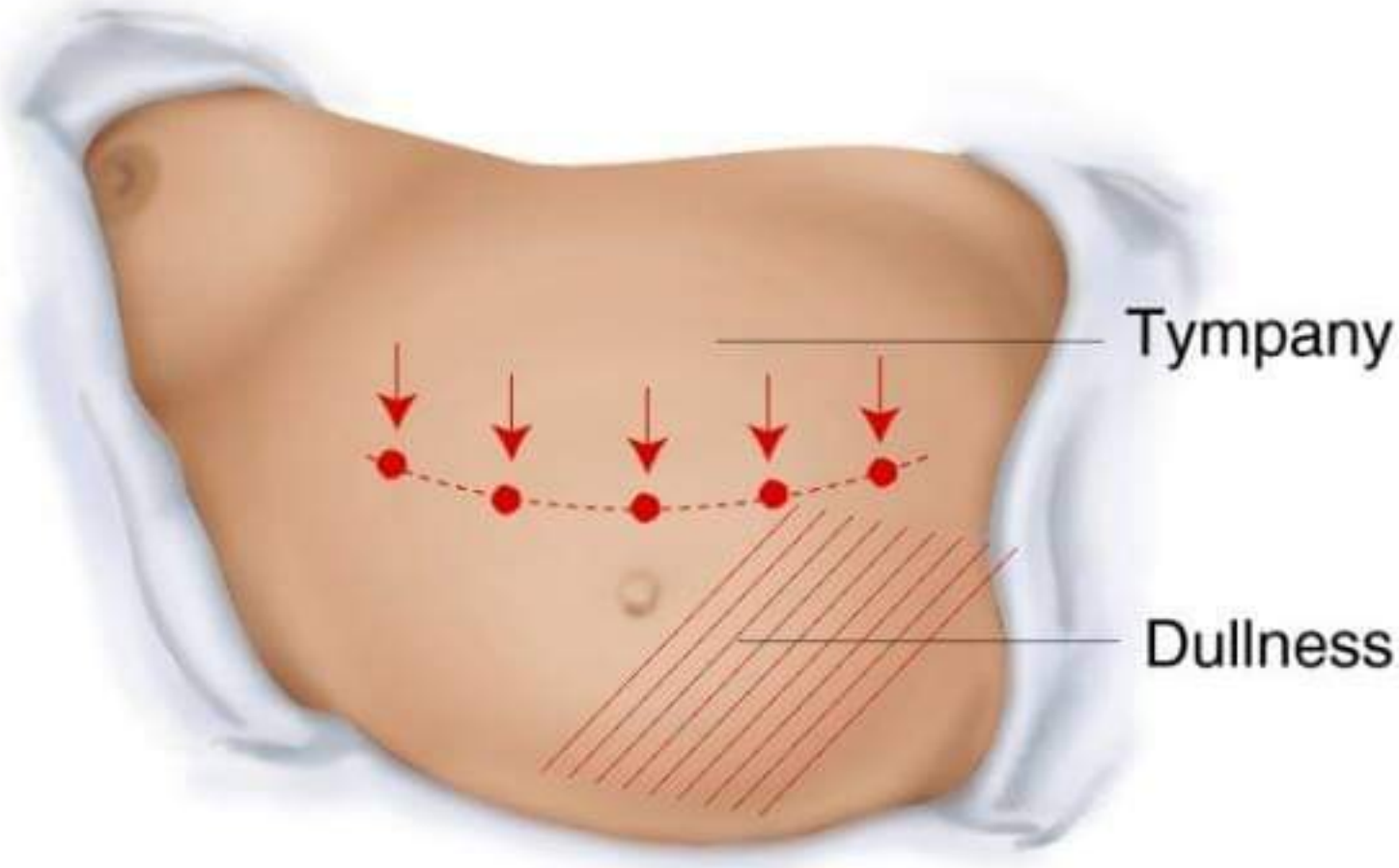
Identifying aortic pulsations in the abdomen - 2

Assessing Possible Ascites

- A bulging abdomen with protuberant flanks suggests the possibility of fluid in the abdominal cavity (ascites)
- Because fluid sinks with gravity while gas filled loops of bowel float to the top, percussion gives a dull note in dependent areas of the abdomen
- Two additional techniques; shifting dullness and assessment for a fluid wave

Testing for Shifting Dullness

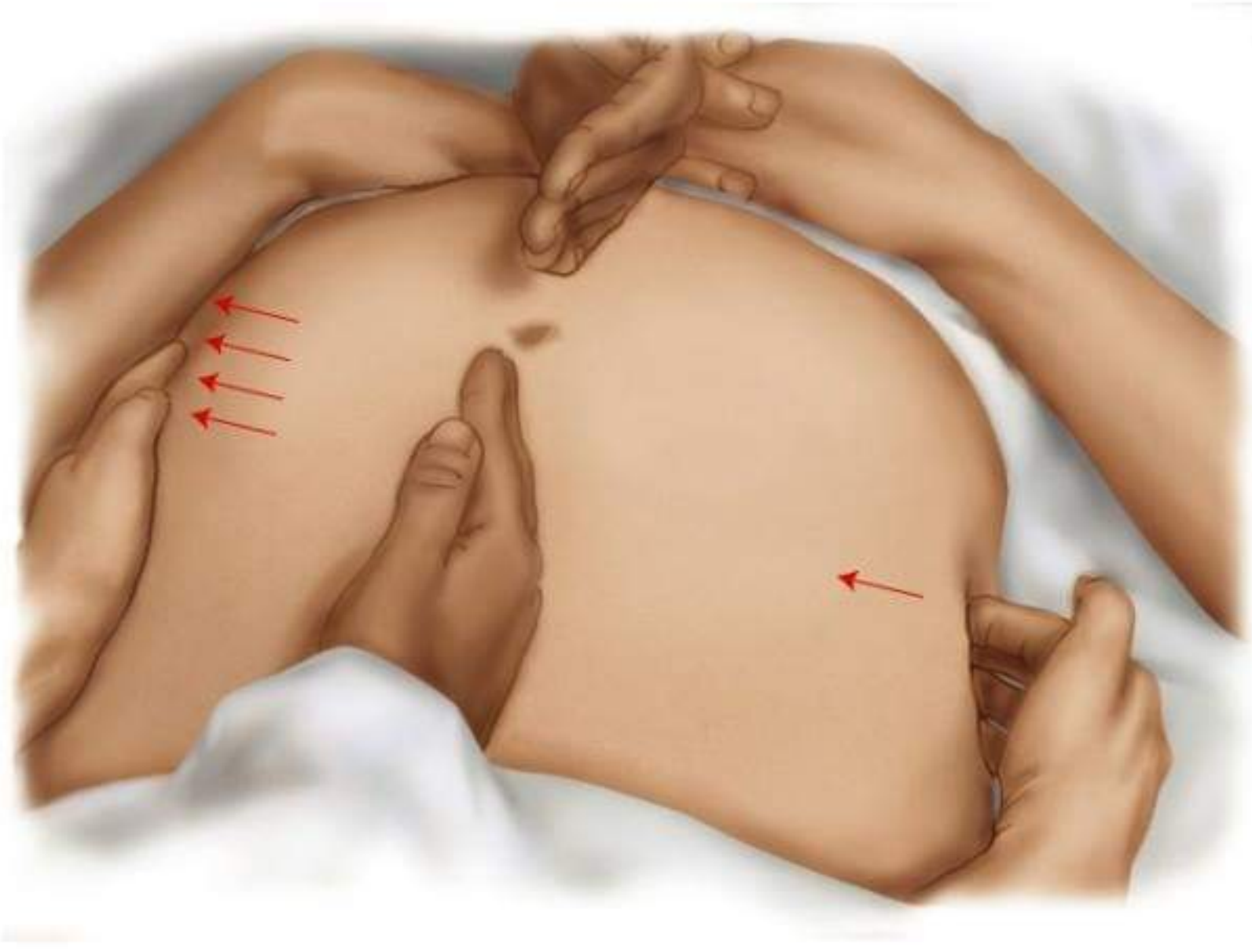
- Map the borders of tympany and dullness
- Ask the patient to turn to one side
- Percuss and mark the borders again
- In a person without ascites, the borders between tympany and dullness remain relatively constant



Assessing possible ascites - testing for shifting dullness

Testing for a Fluid Wave: TRANSMITTED FLUID THRIL

- Ask the patient or an assistant to press the edges of both hands firmly down the middle of the abdomen
- This pressure helps to stop the transmission of a wave through fat/skin
- Then tap one flank sharply with your fingers
- Feel on the opposite flank for an impulse transmitted through the fluid
- Unfortunately this sign is often negative until the ascites is obvious



Assessing possible ascites - testing for a fluid wave