# Physical examination in Gastroenterology

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# 腹部身體檢查

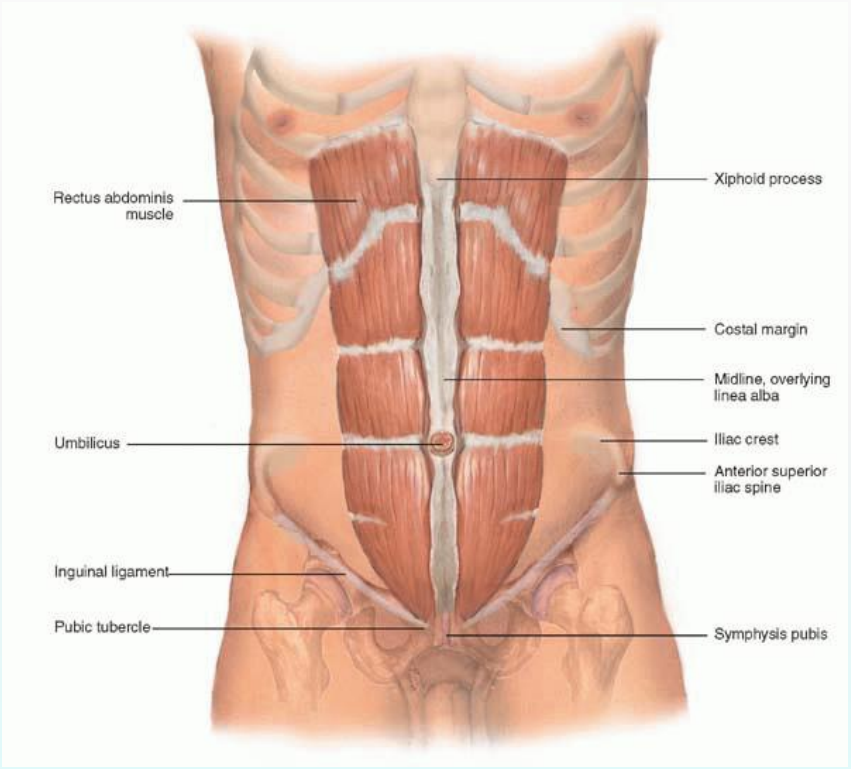
- **Anatomy**
- Techniques of Examination
  - General Approach
  - Inspection
  - Auscultation
  - Percussion
  - Palpation
- Special Maneuver

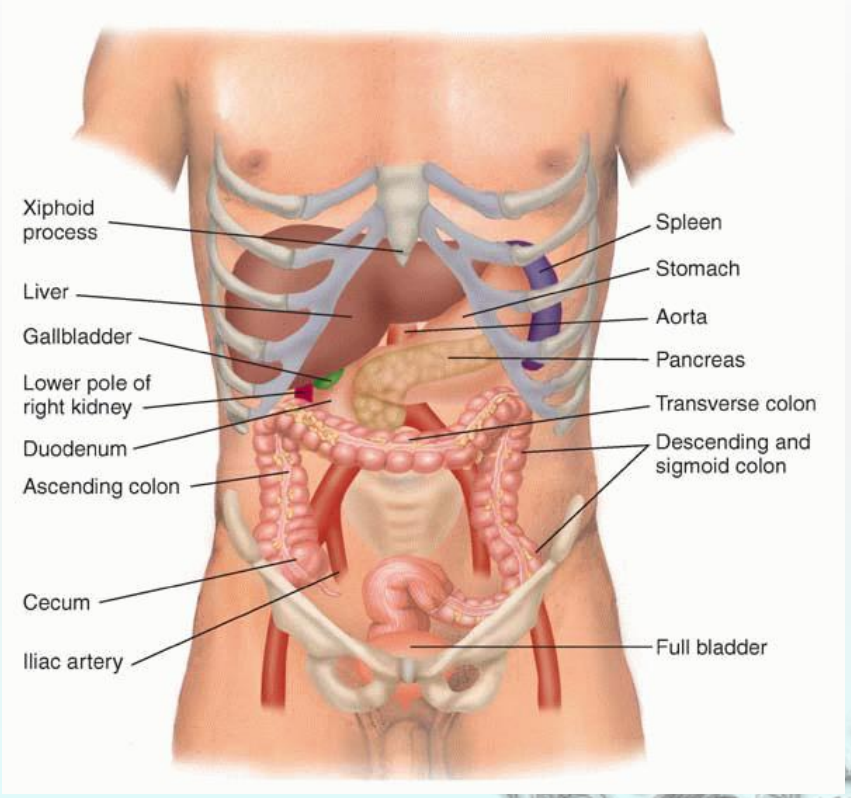
# Equipment

- Stethoscope
- Centimeter ruler and non-stretchable measuring tape
- Marking pen
- Glove
- Lubricant
- Tissues
- Occult blood testing card and Hemoccult developer

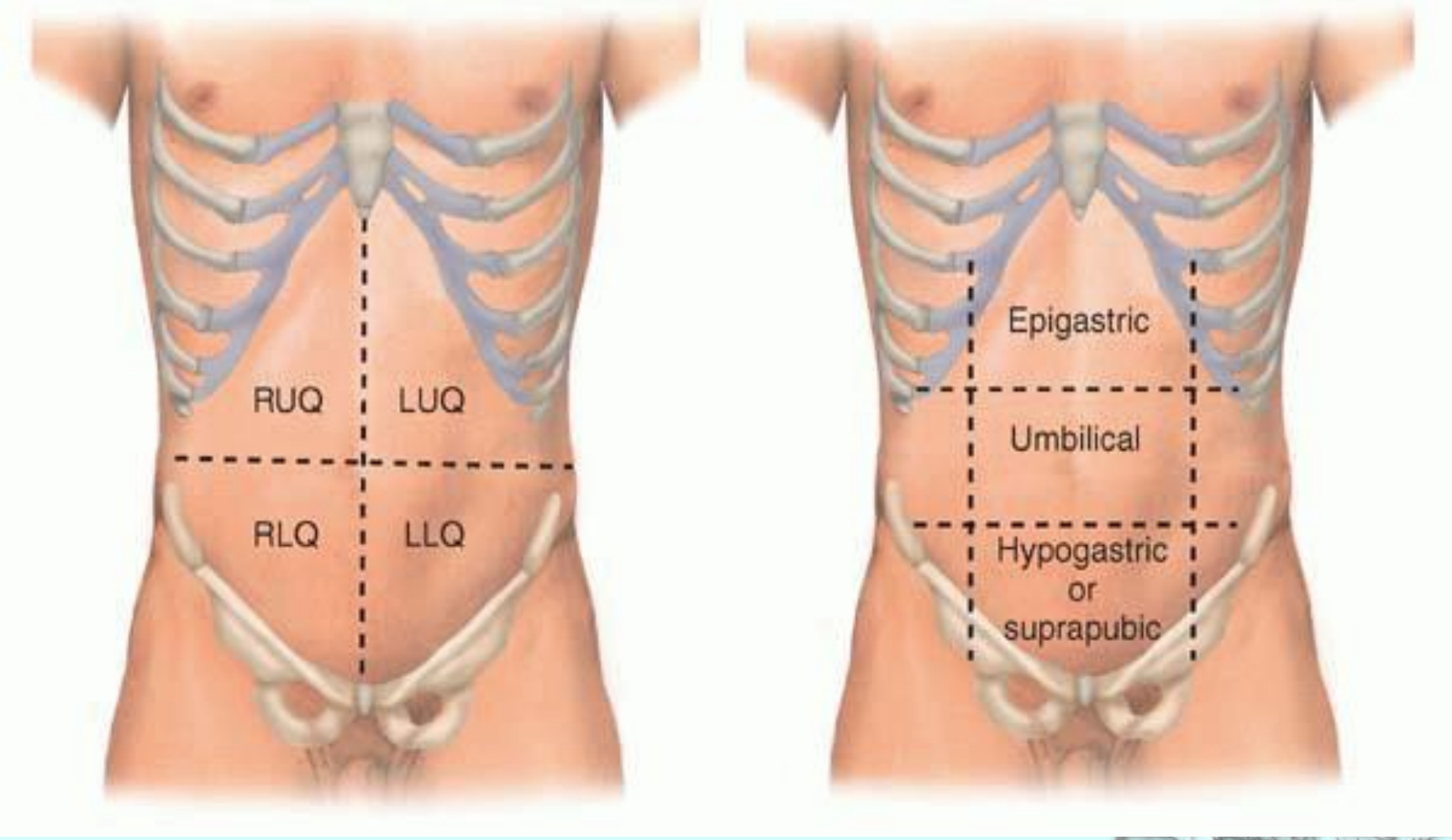
Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). p532

# ANATOMY AND PHYSIOLOGY



# Imaginary lines



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# General Approach

- 良好光線＋病人放鬆＋適當暴露
- 病人平臥＋手勿高舉＋膝蓋微曲
- 慢慢檢查＋隨時修正＋保持溫暖
- 保持對話＋隨時說明＋轉移注意
- 由遠而近＋由輕而重＋最後壓痛
- 由病人自己指出痛點或病灶
- 怕癢者可將病患的手放在醫師之手下

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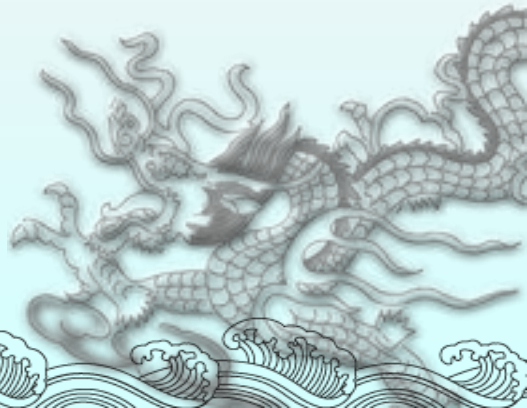
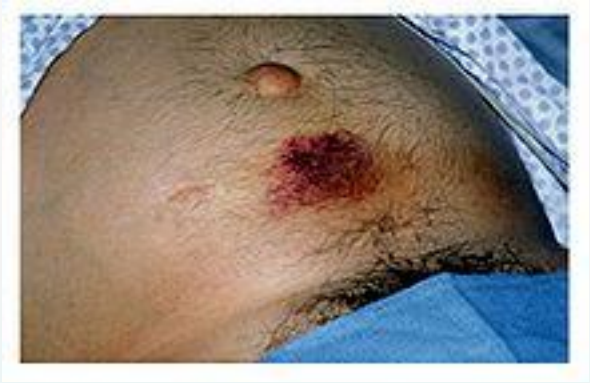


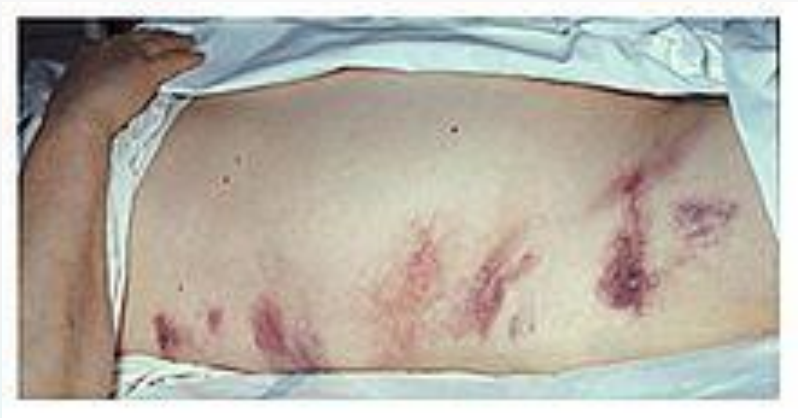
# Inspection

- Evaluate general appearance:
  - Renal or biliary colic- **find no comfortable position**
  - Peritonitis- remain **still in bed**
  - **Pale or sweating-** shock, pancreatitis or perforated gastric ulcer

# Cullen sign / Grey Turner's sign

Cullen sign: bruising in the subcutaneous fatty tissue around the umbilicus ( ex. Hemorrhagic pancreatitis )





Grey Turner's sign: hemorrhagic pancreatitis in retroperitoneal or strangulated bowel

# Direction of venous return

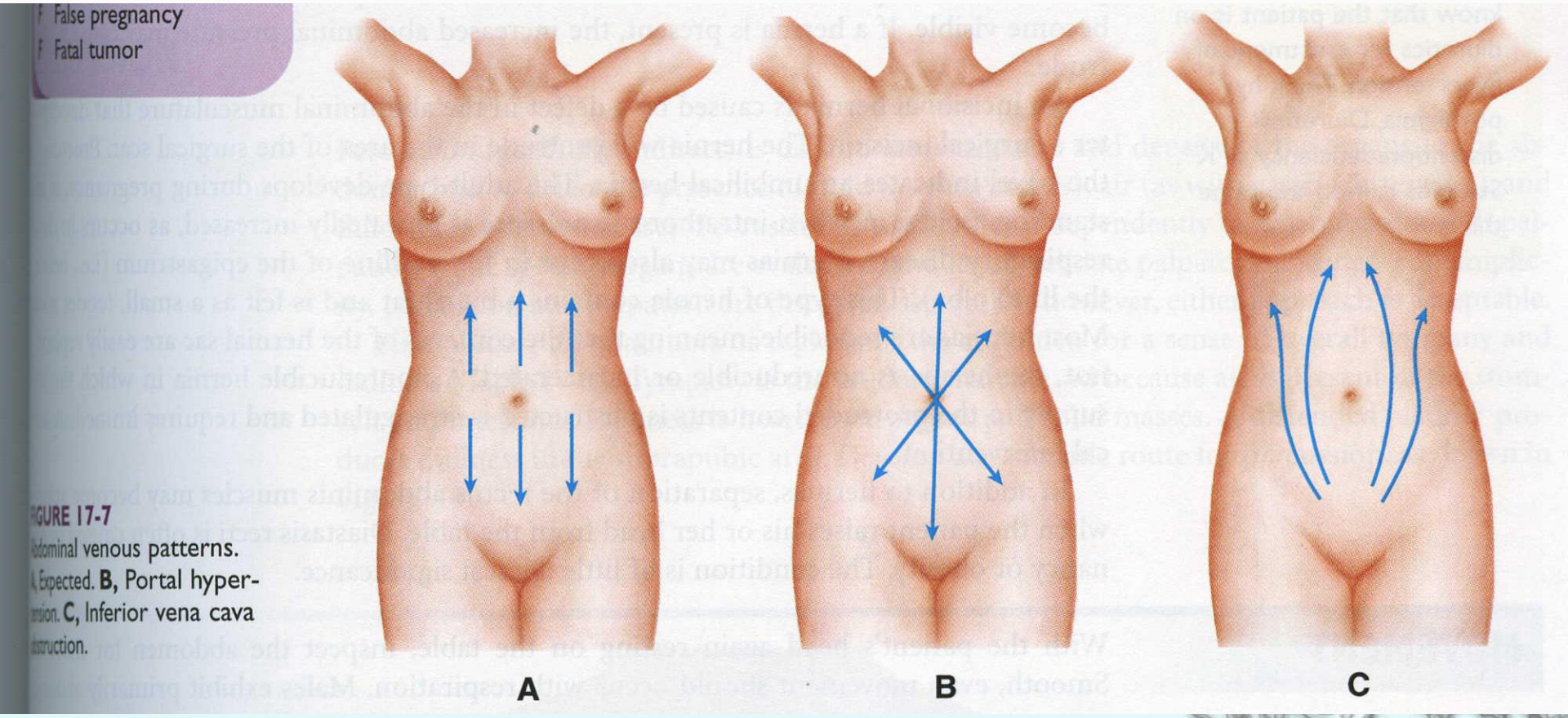



FIGURE 17-7
Abdominal venous patterns. A, Expected. B, Portal hypertension. C, Inferior vena cava obstruction.

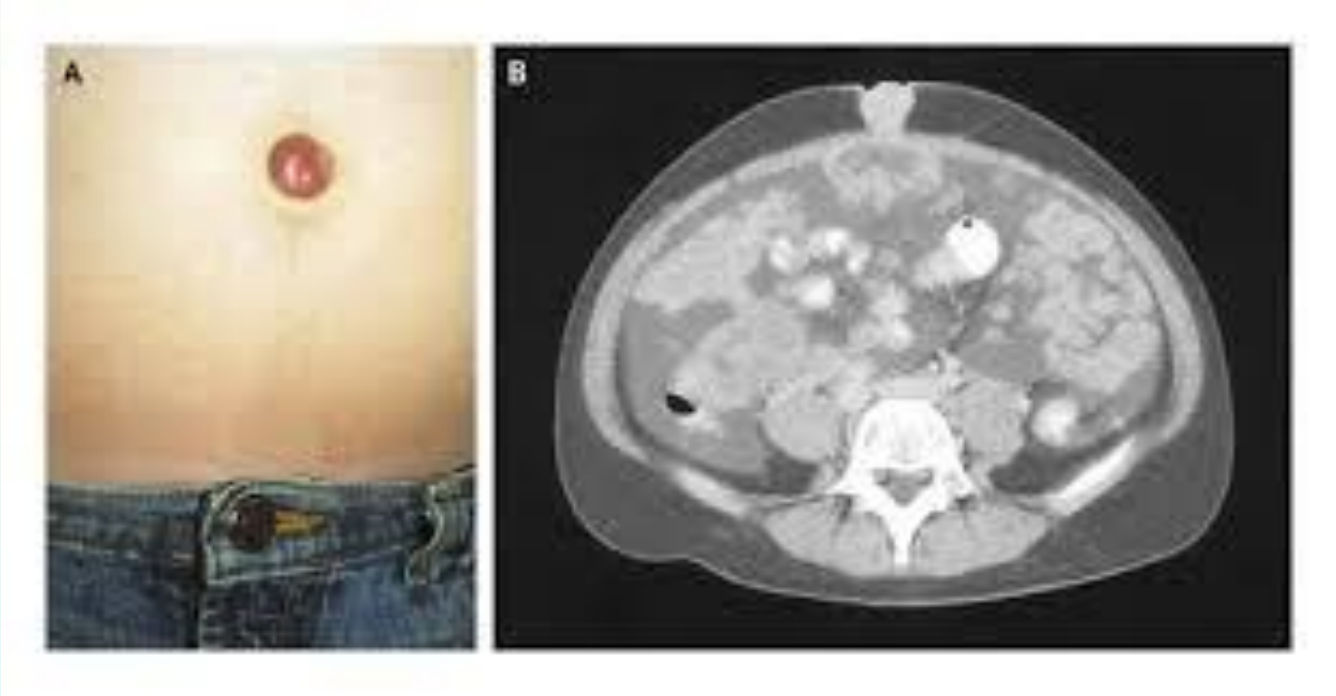
NP

Potal hypertension

IVC obstruction

## Sister Mary Joseph nodule

- a palpable nodule bulging into the umbilicus as a result of metastasis of a malignant cancer in the pelvis or abdomen.




Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). P533-534

Scar and past Hx- the presence of scarring should alert you to the possibility of internal adhesion

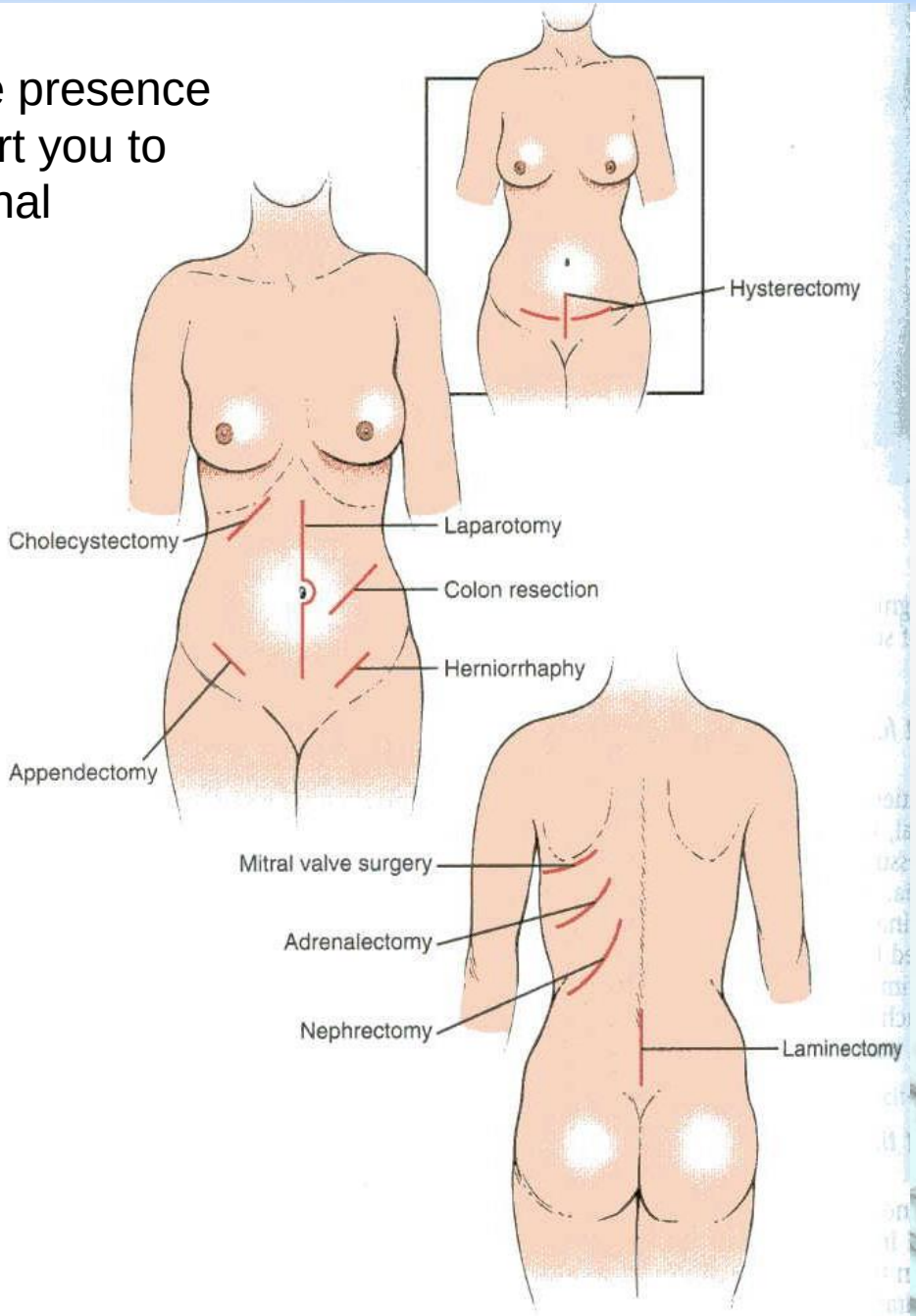



**Figure 17–12.** Locations of common surgical scars.

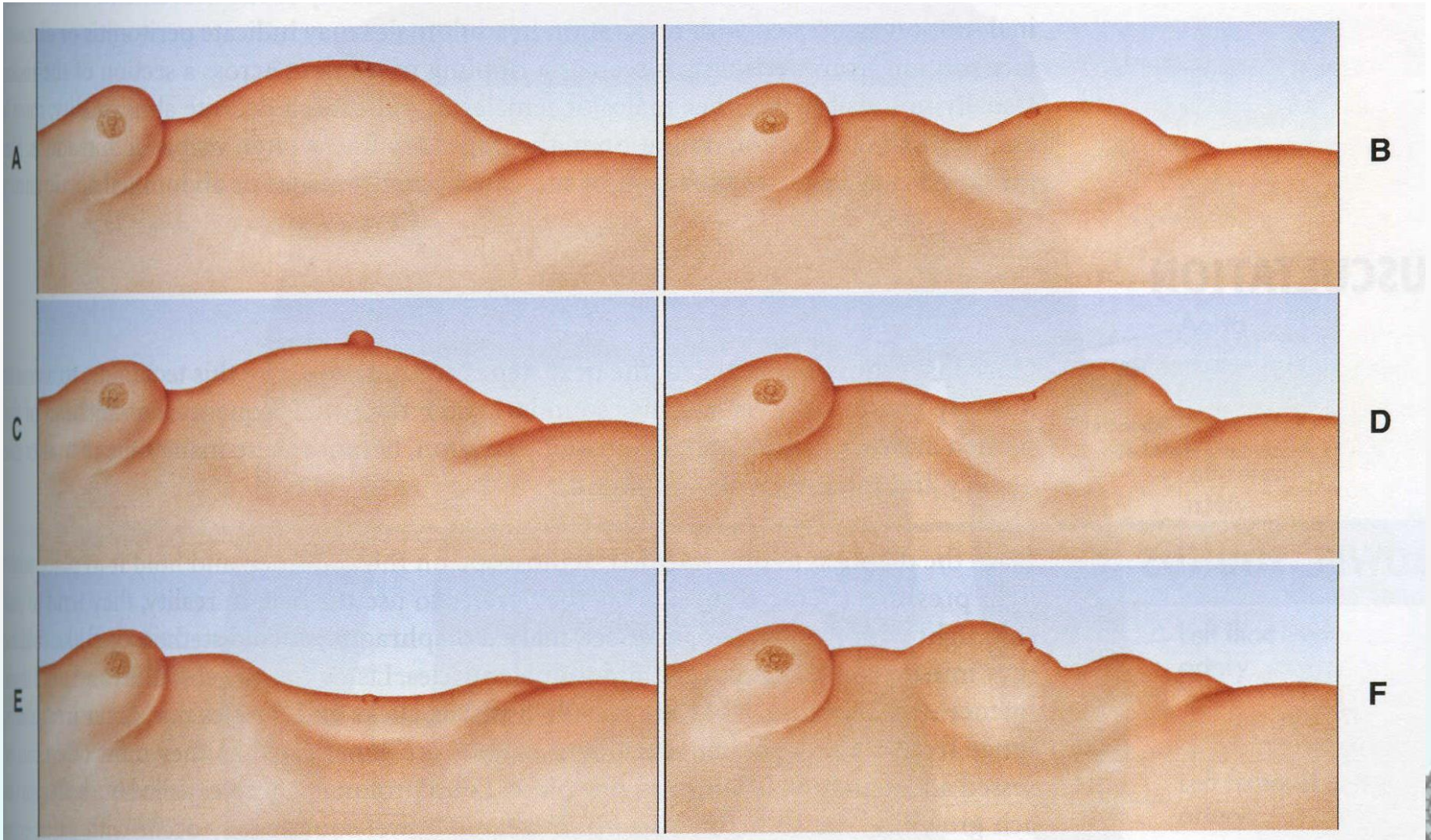



**FIGURE 17-8**
Abdominal profiles. **A,** Fully rounded or distended, umbilicus inverted. **B,** Distended lower half. **C,** Fully rounded or distended, umbilicus everted. **D,** Distended lower third. **E,** Scaphoid. **F,** Distended upper half.

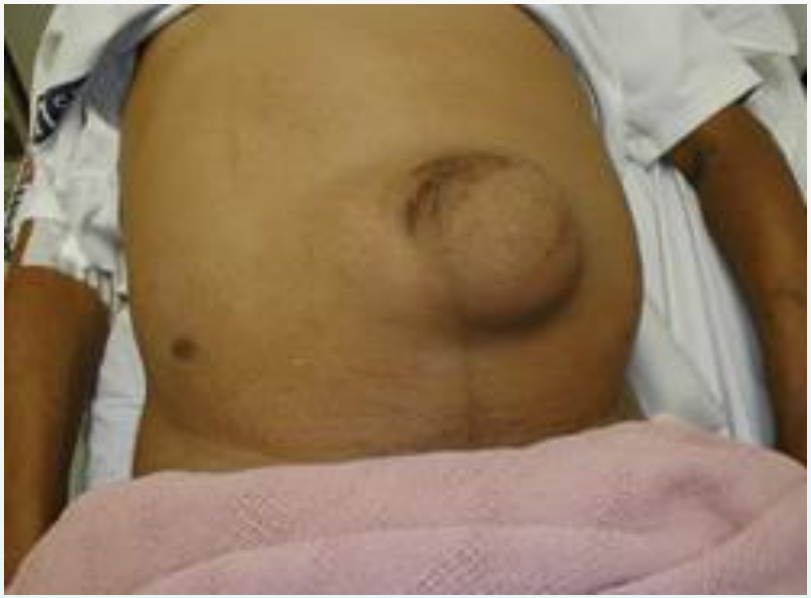
# Inspection

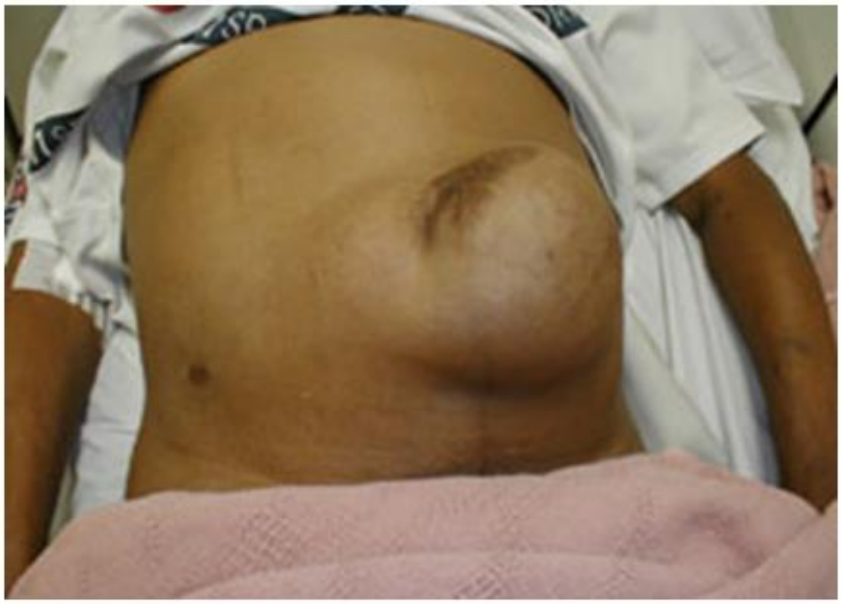
- Distension:
  - **B:** From **umbilicus to symphysis-** ovarian tumor, pregnancy, uterine fibroids, or a distended bladder
  - **F:** **Upper half**: carcinoma, pancreatic cyst, or gastric dilation
  - **Asymmetric**: hernia, tumor, cysts, bowel obstruction, or enlargement of abdominal organ

Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). p534

# Hernia

Hernia: reducible or nonreducible (incarcerated or even strangulated which requires immediate surgical intervention) in inguinal, umbilical and femoral





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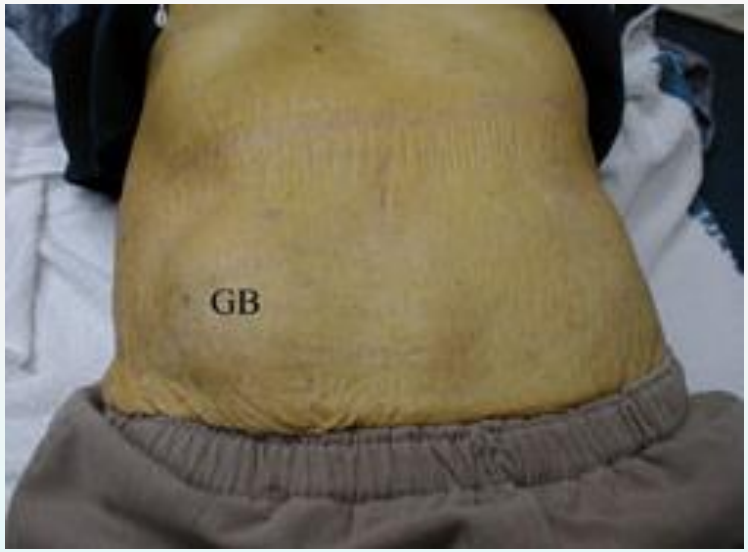
To take a deep breath and hold it, to raise his head from the table- contracts the rectus abdominis muscles (superficial abdominal wall mass or hernia may protrude)

Striate: result from pregnancy or weight gain / abdominal tumor or ascites also stretches



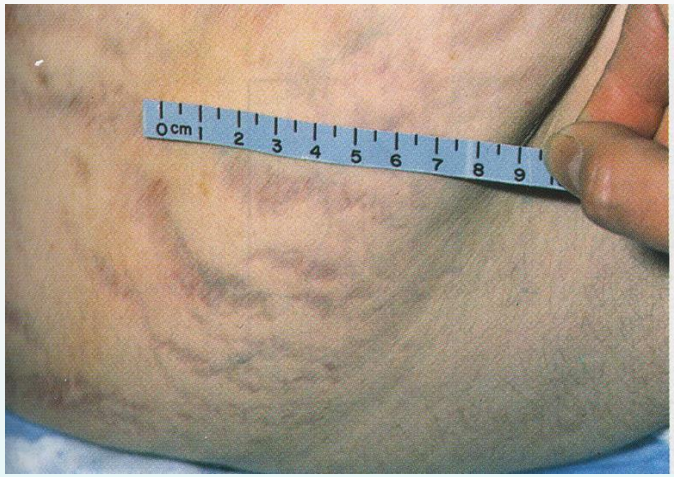




**Figure 17–11.** Abdominal striae.

# Jaundice

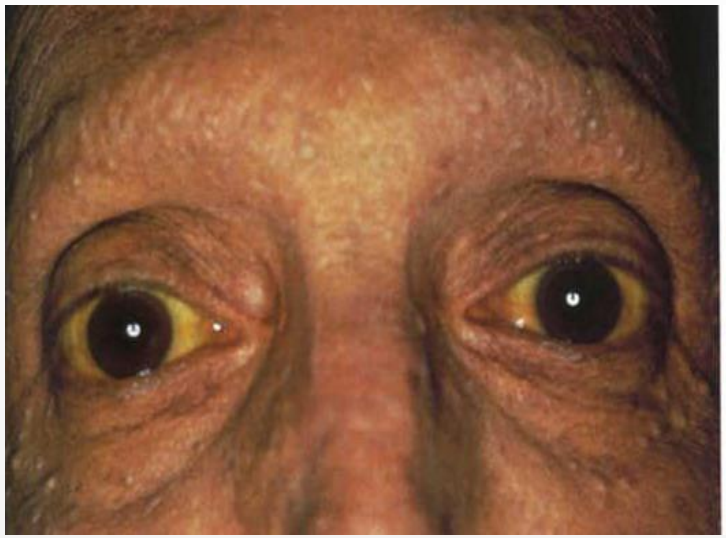
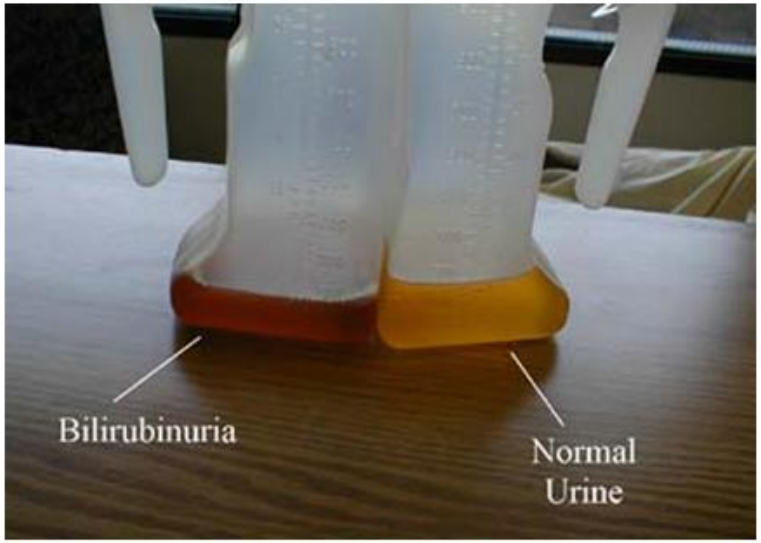


**Figure 17–5.** Jaundice.

鞏膜黃疸（scleral icterus）：血清膽色素增加超過 2[mg/dL] 時，皮膚與黏膜就隨之呈現黃色的顏色出來。



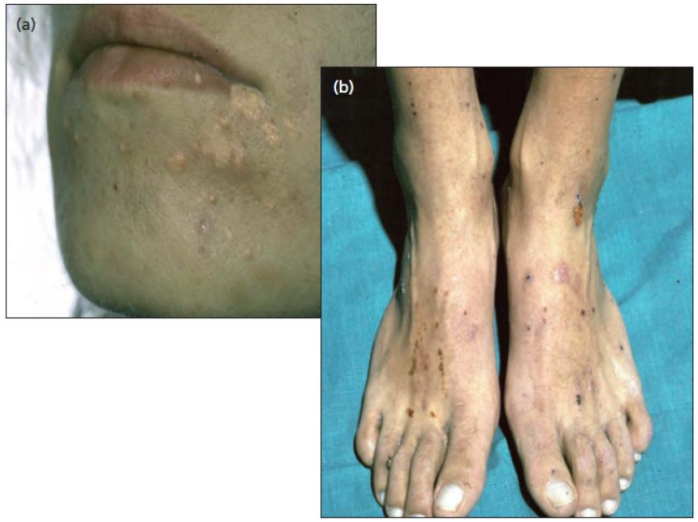



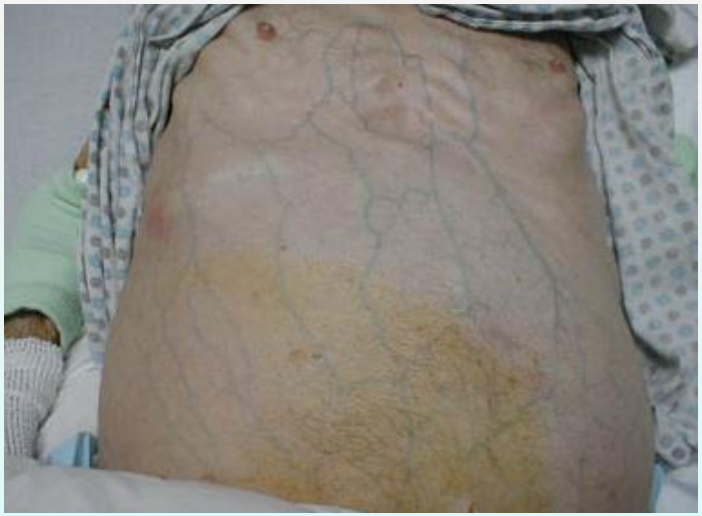

**Fig. 11.10.** A patient with cholestatic jaundice who demonstrates the classical features of (a) cutaneous cholesterol deposits and (b) scratch marks in response to pruritus.

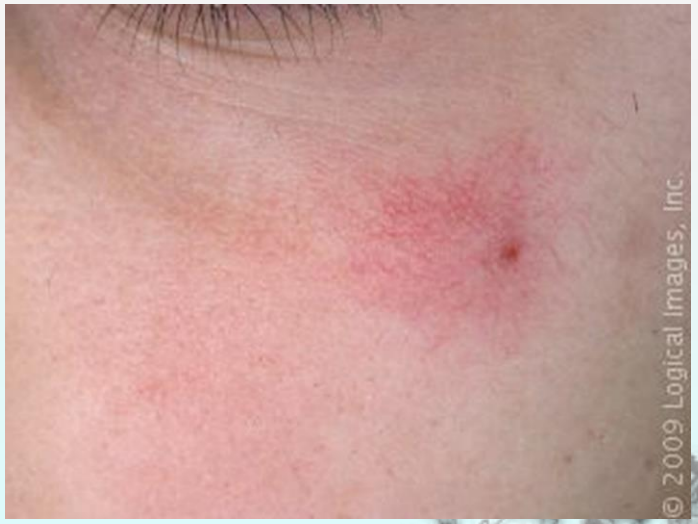
# Spider angioma

(LC or pregnancy, collagen vascular disorders)

Ascites: glistening, taut apperance

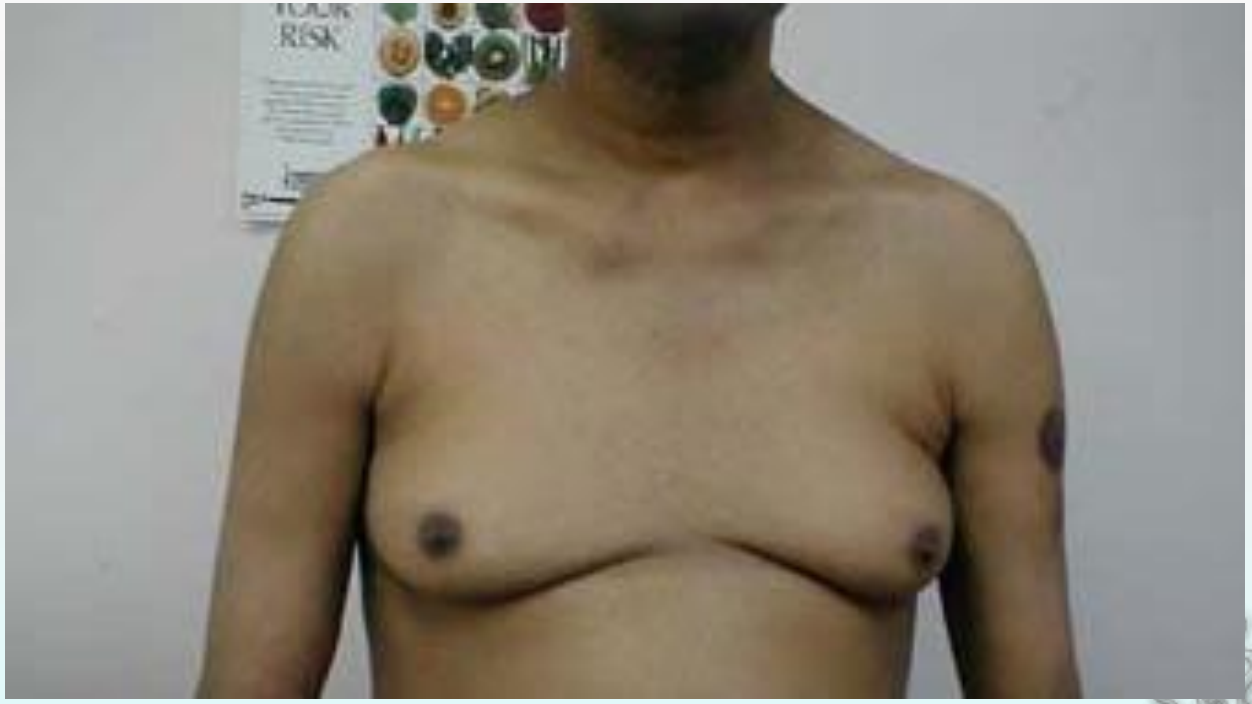
蜘蛛樣血管瘤（spider angioma，多見於前胸上部、頸部或臉部 ）：肝硬化病人因為性荷爾蒙代謝的改變，而容易在前胸軀幹部形成許多由小血管環繞中央小動脈的蜘蛛痣。蜘蛛痣的大小和數量，在某種程度上和肝硬化嚴重度成正比。





# Liver cirrhosis ?

男性女乳（gynecomastia）：約有三分之二肝硬化的病人會有男性女乳症，這也和肝硬化病人體內異常的性激素代謝相關；造成良性的男性乳腺組織增生。



## TABLE 17–8. Signs and Symptoms of Cirrhosis

| Hepatocellular Failure | Portal Hypertension |
| --- | --- |
| Spider angiomata | Ascites |
| Gynecomastia | Varices: esophageal |
| Palmar erythema | Hemorrhoids |
| Ascites | Caput medusae |
| Jaundice | Splenomegaly |
| Testicular atrophy | |
| Erectile dysfunction | |
| Bleeding problems | |
| Changes in mental function | |

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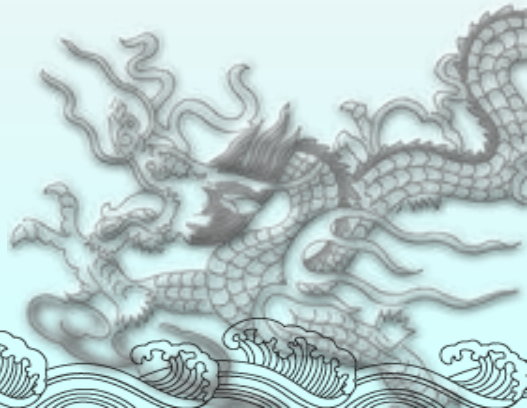

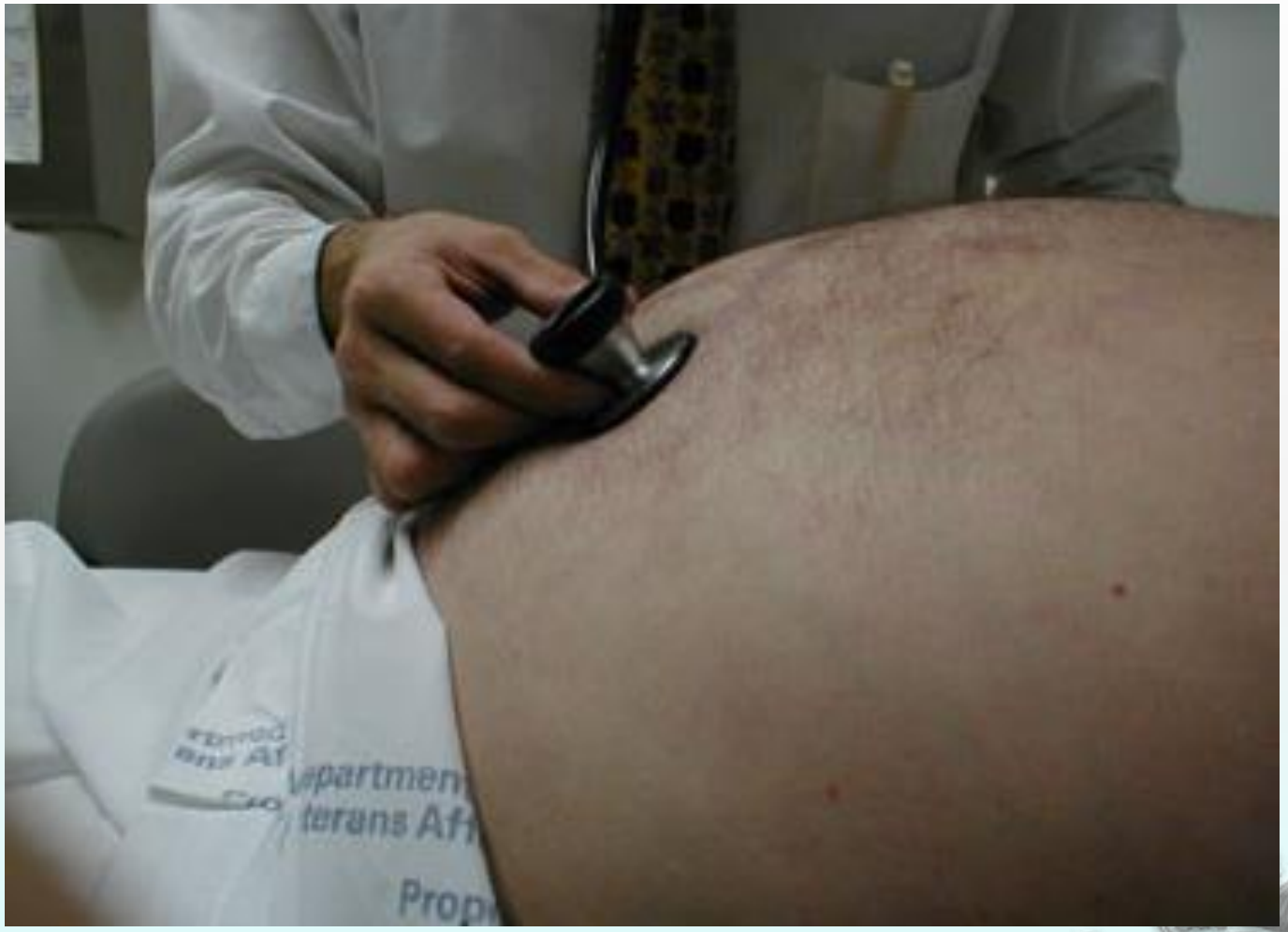

# Auscultation

Bowel sound

- Auscultation should be performed before percussion / palpation with wormed stethoscope.
- Clicks and gurgles, range from 5-35 per minutes (any place or four quadrants).
- **High-pitched** tingling sound: intestinal fluid and air under pressure- as in **early obstruction.**
- Decreased bowel sound: peritonitis and paralytic ileus.
- Absence of bowel sound is established only after 2-5 minutes of continuous listening.
- Succusin splash- rule out obstructed viscus.

Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). p536

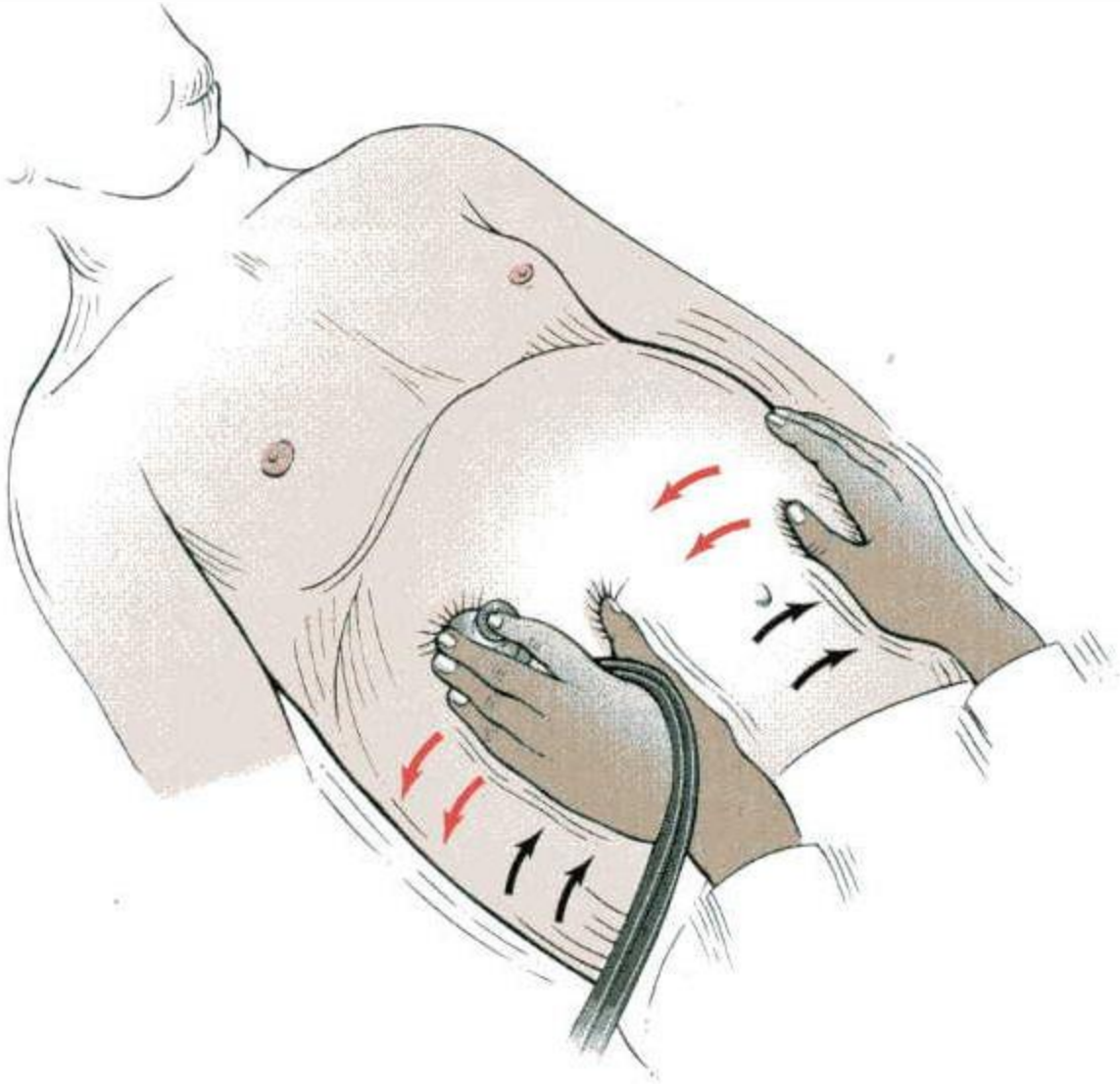

**Figure 17–16.** "Succussion splash" technique for assessing distention of abdominal viscera.

# Auscultation

Vascular sound

- Bell/diaphragm for vascular sound.
- **Bruits (bell**) in the aortic, renal, iliac, and femoral arteries.
- **Friction rubs** (diaphragm- high pitched and association with respiration) over liver and spleen: tumor, infection, or infarct.
- **Venous hum** (soft, low pitched, and continuous): increased collateral circulation between portal systemic and systemic venous systems.

Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). p537

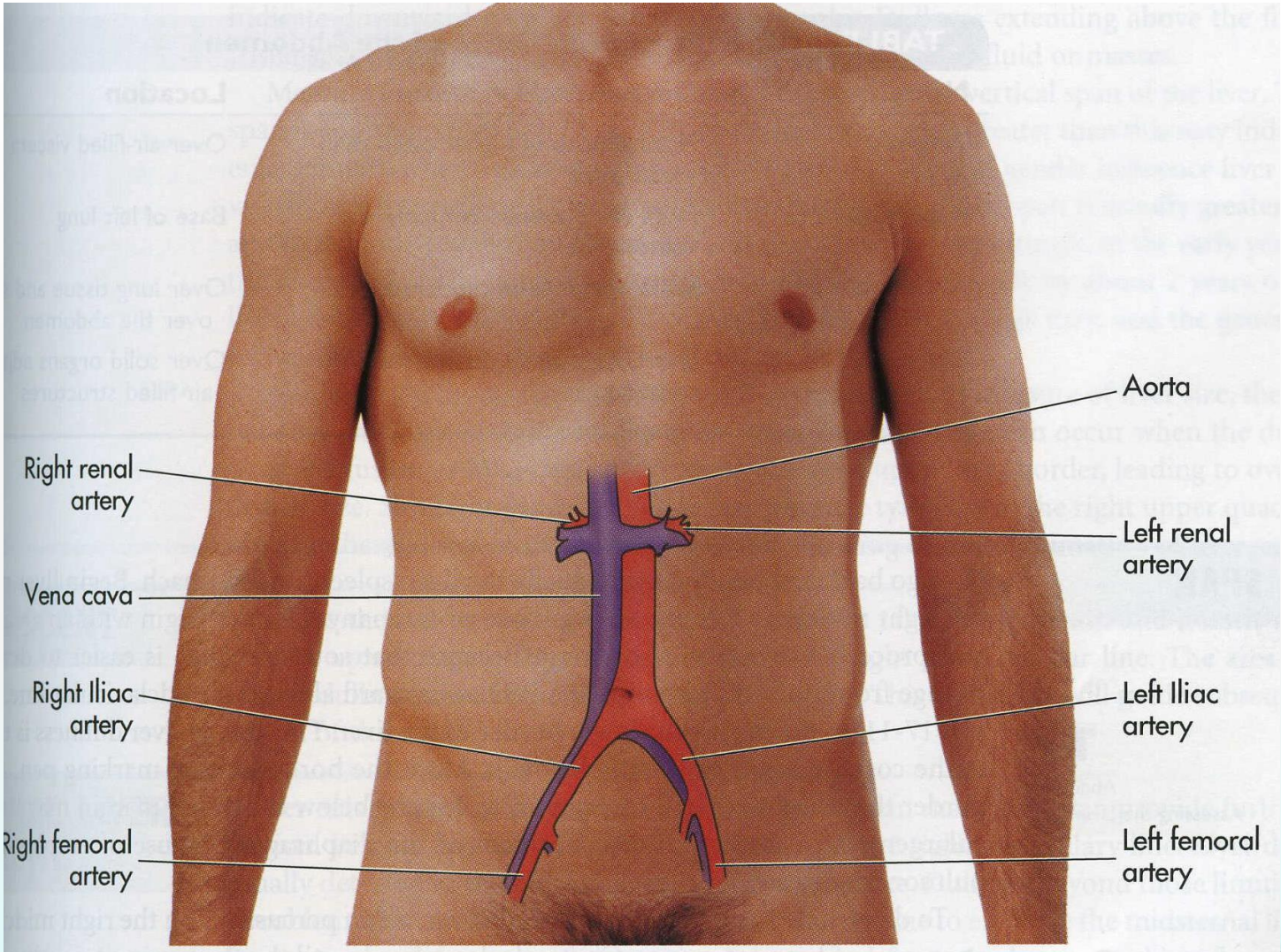


**FIGURE 17-9**
Sites to auscultate for bruits: renal arteries, iliac arteries, aorta, and femoral arteries.
*Modified from Wilson, Giddens, 2005.*

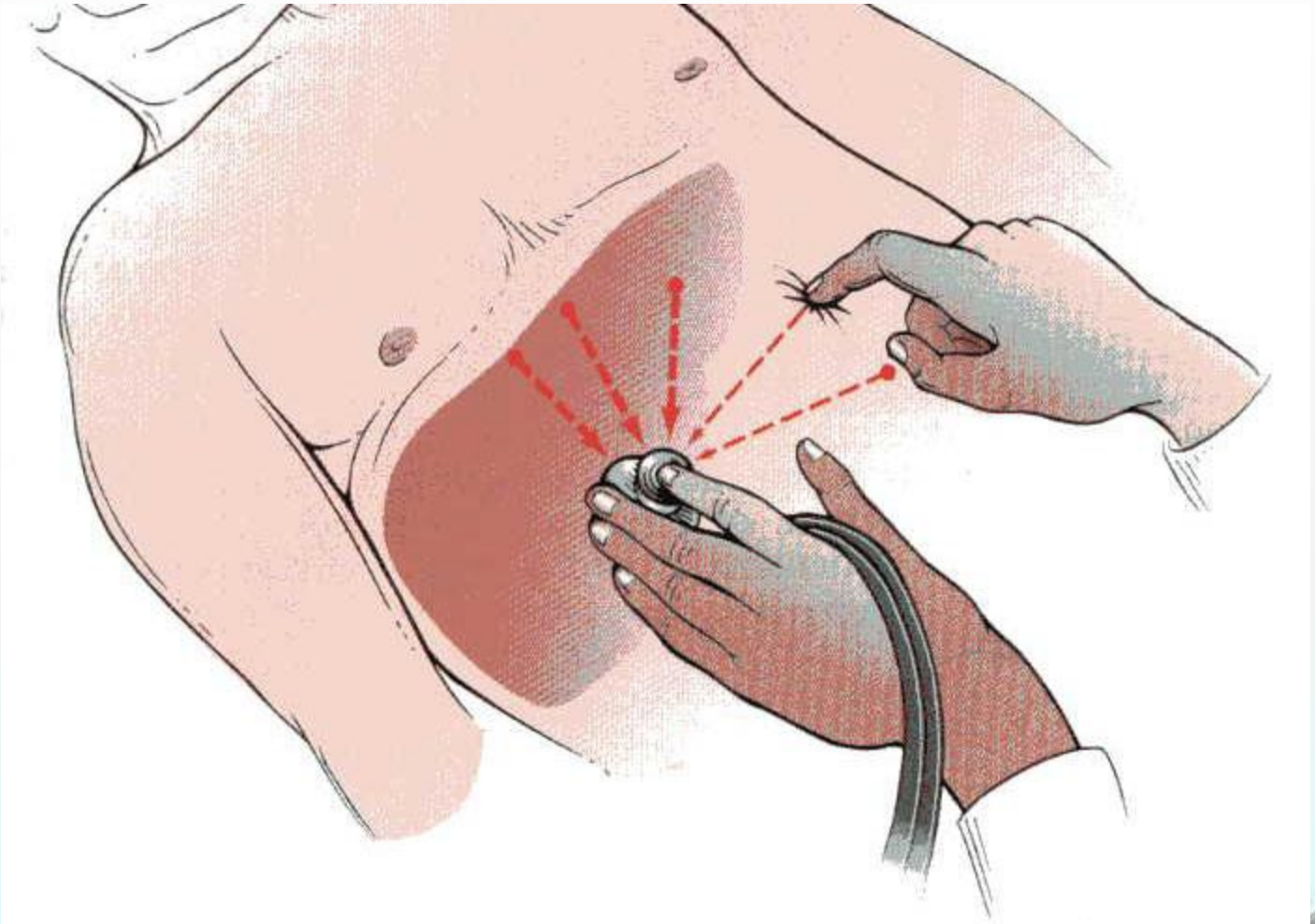

**Figure 17–25.** The scratch test for determining liver size.

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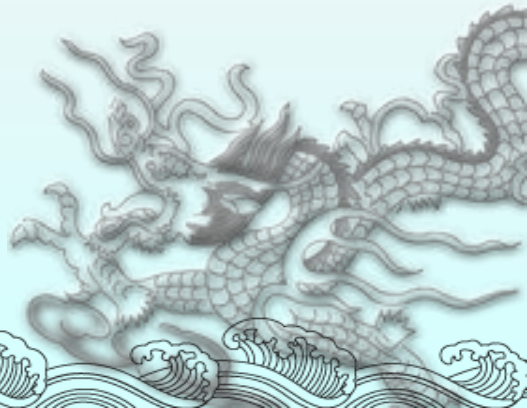
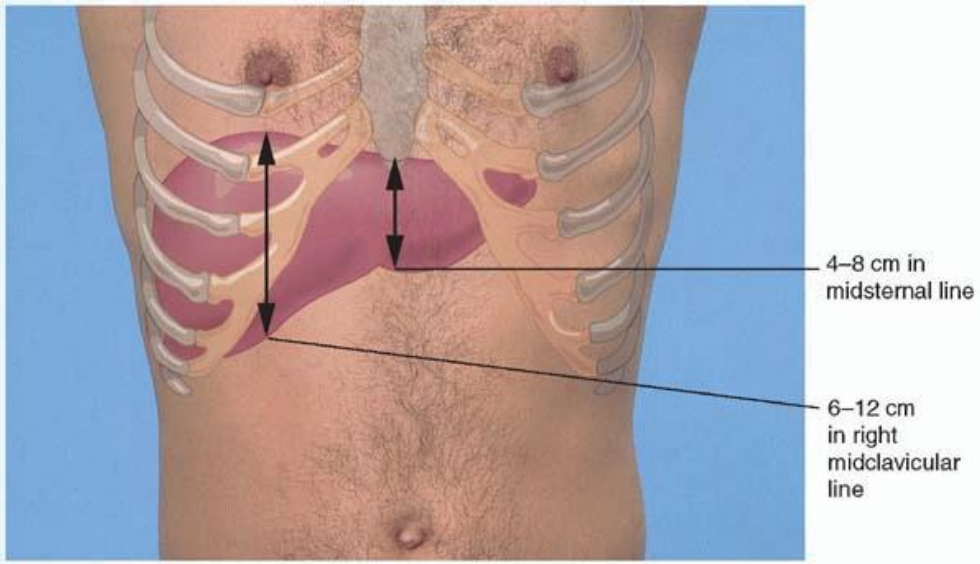


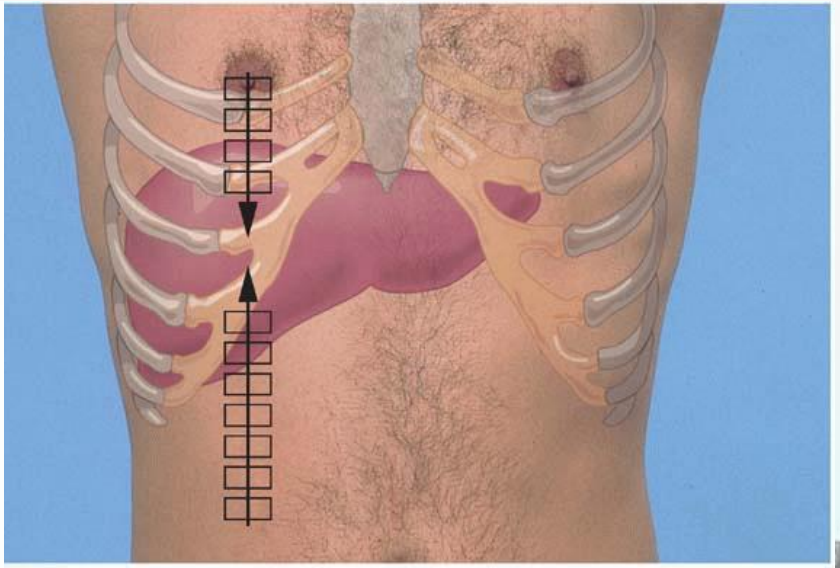
# Percussion

- Percussion is used either independently or concurrently with palpation
- Tympany- is the predominant sound because air is present in the stomach and intestine.
- Hyperresonance- pitch lies between tympany and resonance
- Resonance- sustained note of moderate picth
- Dullness- is heard over organs and solid masses.

Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). p537

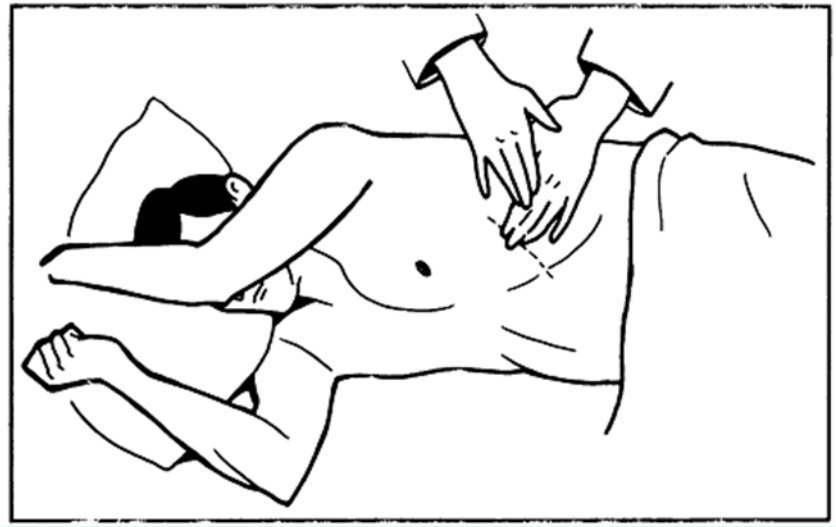



NORMAL LIVER SPANS



PERCUSSING LIVER SPAN

扣診脾臟：病人右側躺，由後腋線(posterior axillary line)和肋骨下緣交叉點垂直肋骨下緣往上敲，濁音正常範圍為肋骨上緣6-8公分，若超過8公分仍有濁音懷疑為脾腫大。



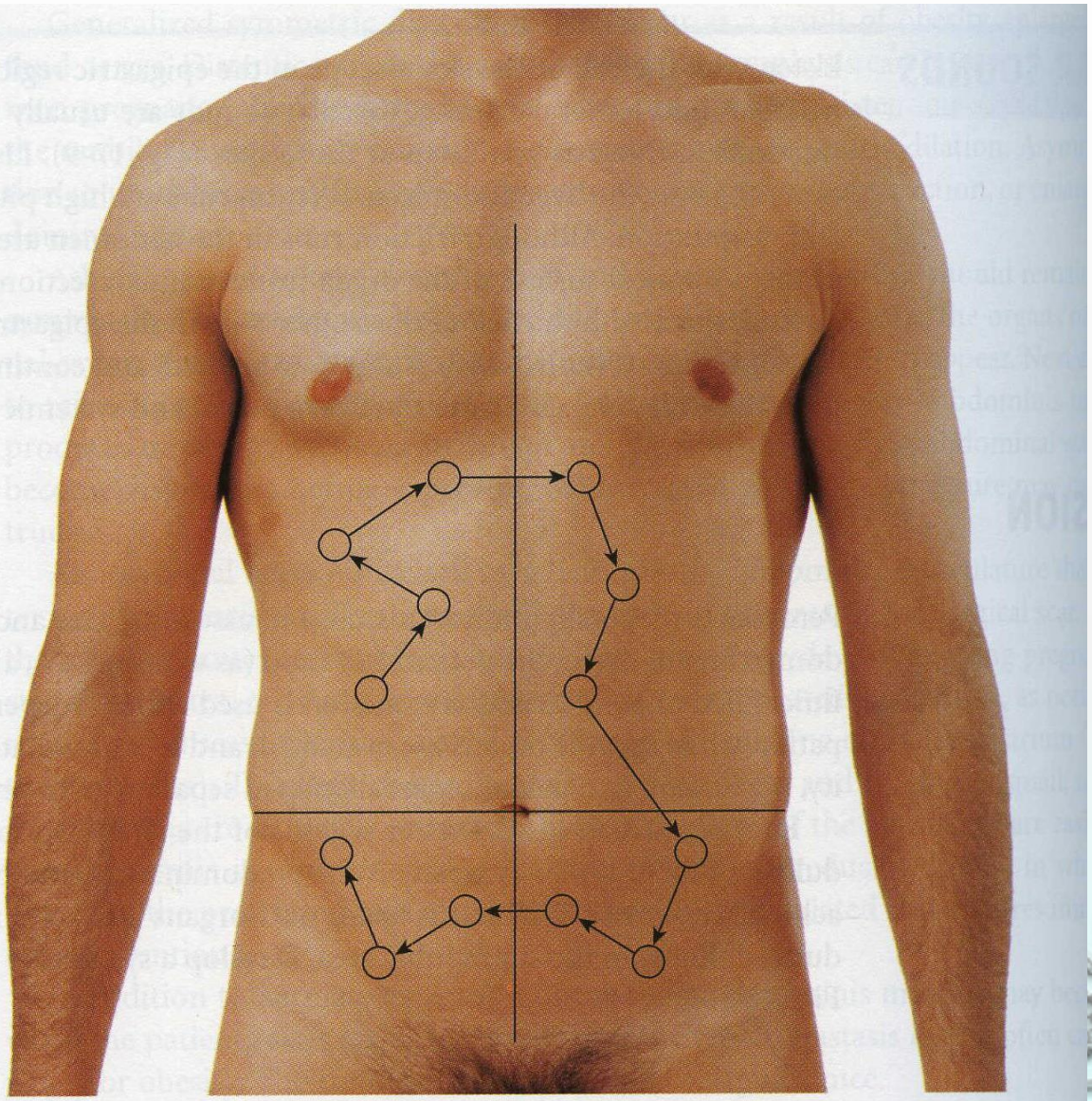


**FIGURE 17-10**
Systematic route for abdominal percussion.
*From Wilson, Giddens, 2005.*

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# Palpation

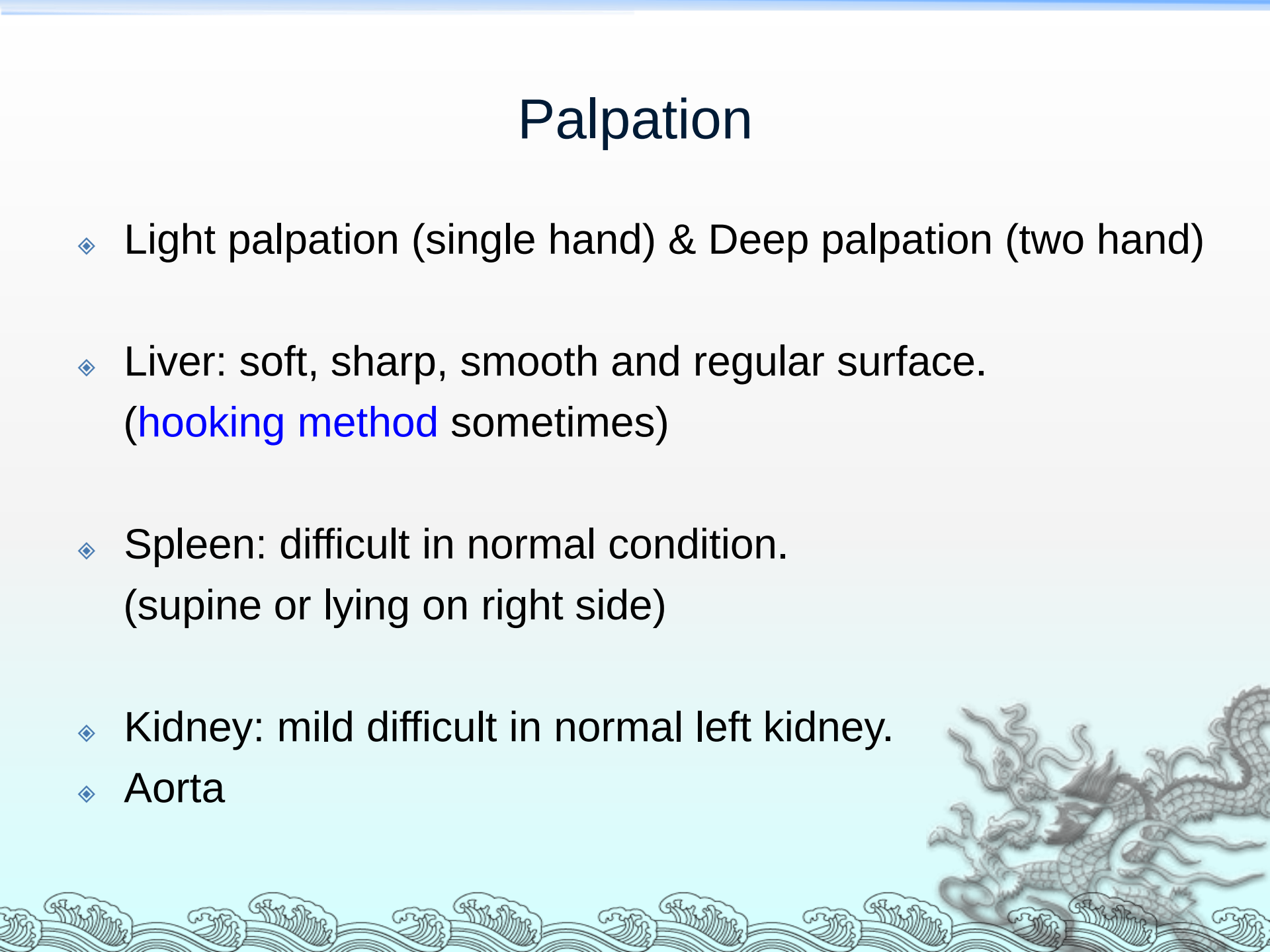
- Light palpation
- Moderate palpation
- Deep palpation

- Masses
- Umbilical ring
- Bimanual technique

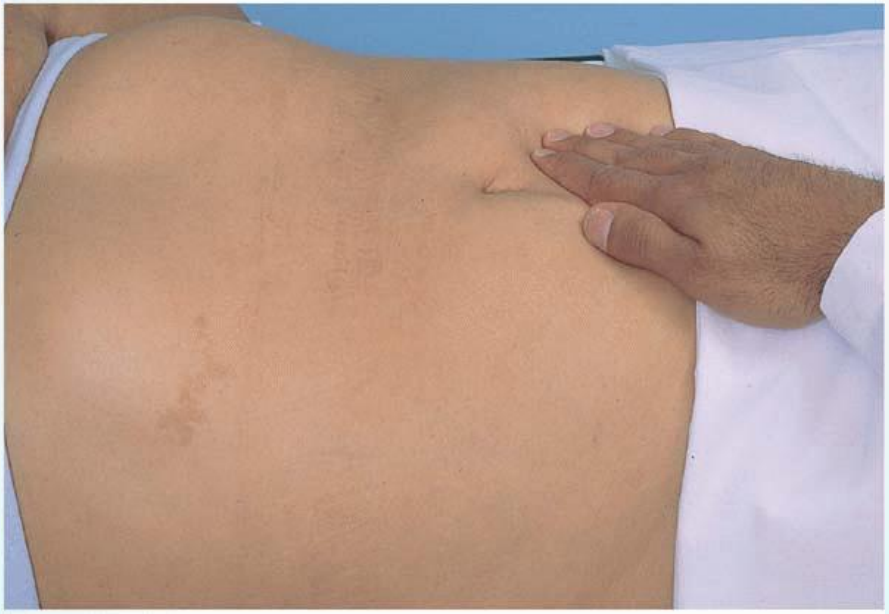
Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). P540-544

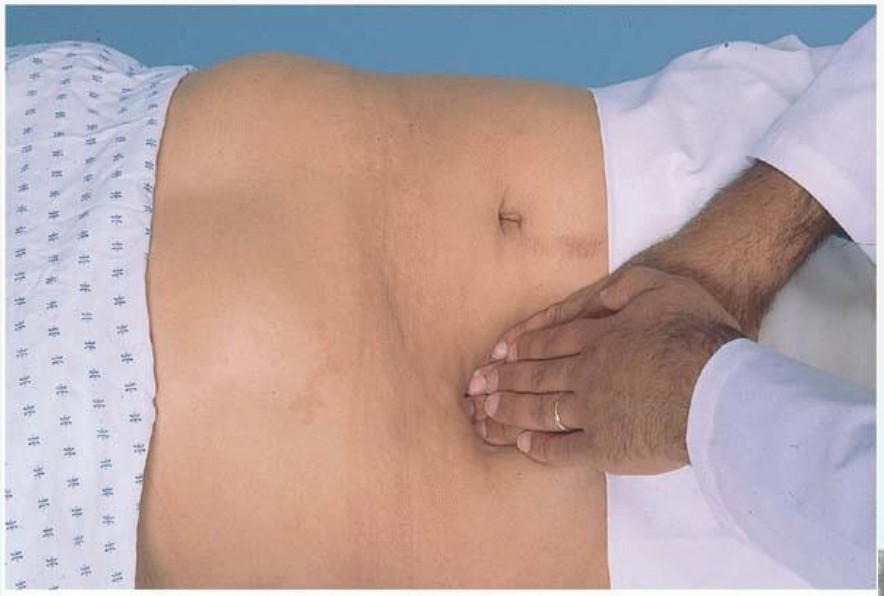
# Palpation

- Light palpation (single hand) & Deep palpation (two hand)
- Liver: soft, sharp, smooth and regular surface.
  (hooking method sometimes)
- Spleen: difficult in normal condition.
  (supine or lying on right side)
- Kidney: mild difficult in normal left kidney.
- Aorta



# Light Palpation and Deep Palpation





TWO-HANDED DEEP PALPATION

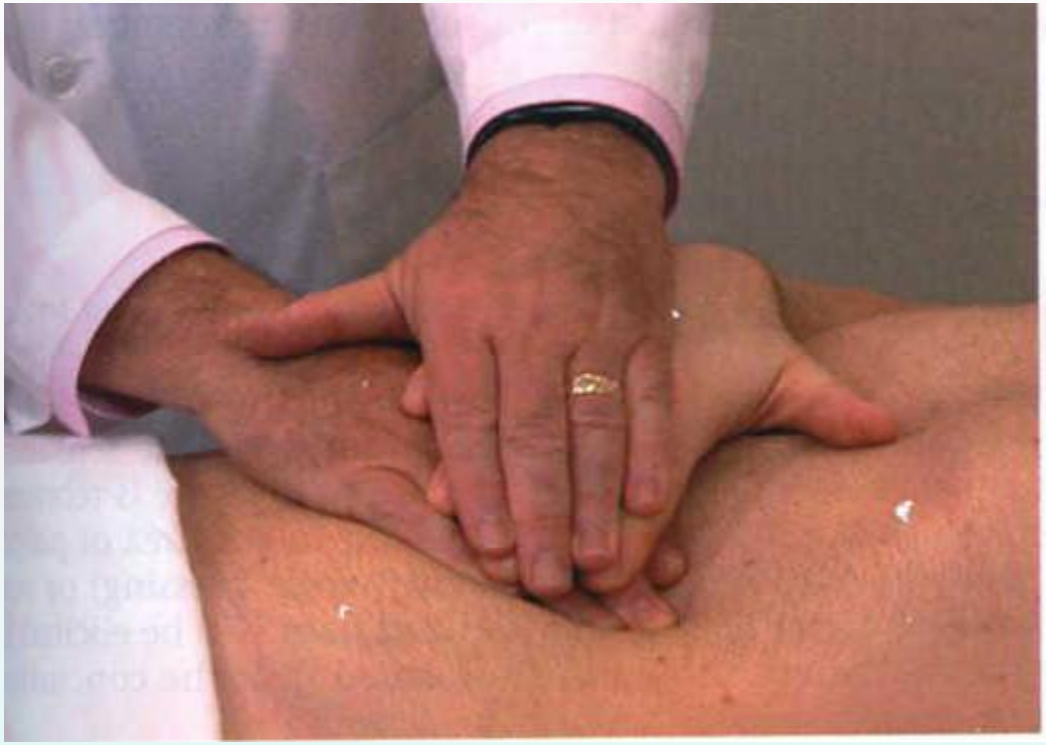


**Figure 17–21.** Technique used for ticklish patients. The patient's hand is sandwiched between the examiner's hands.

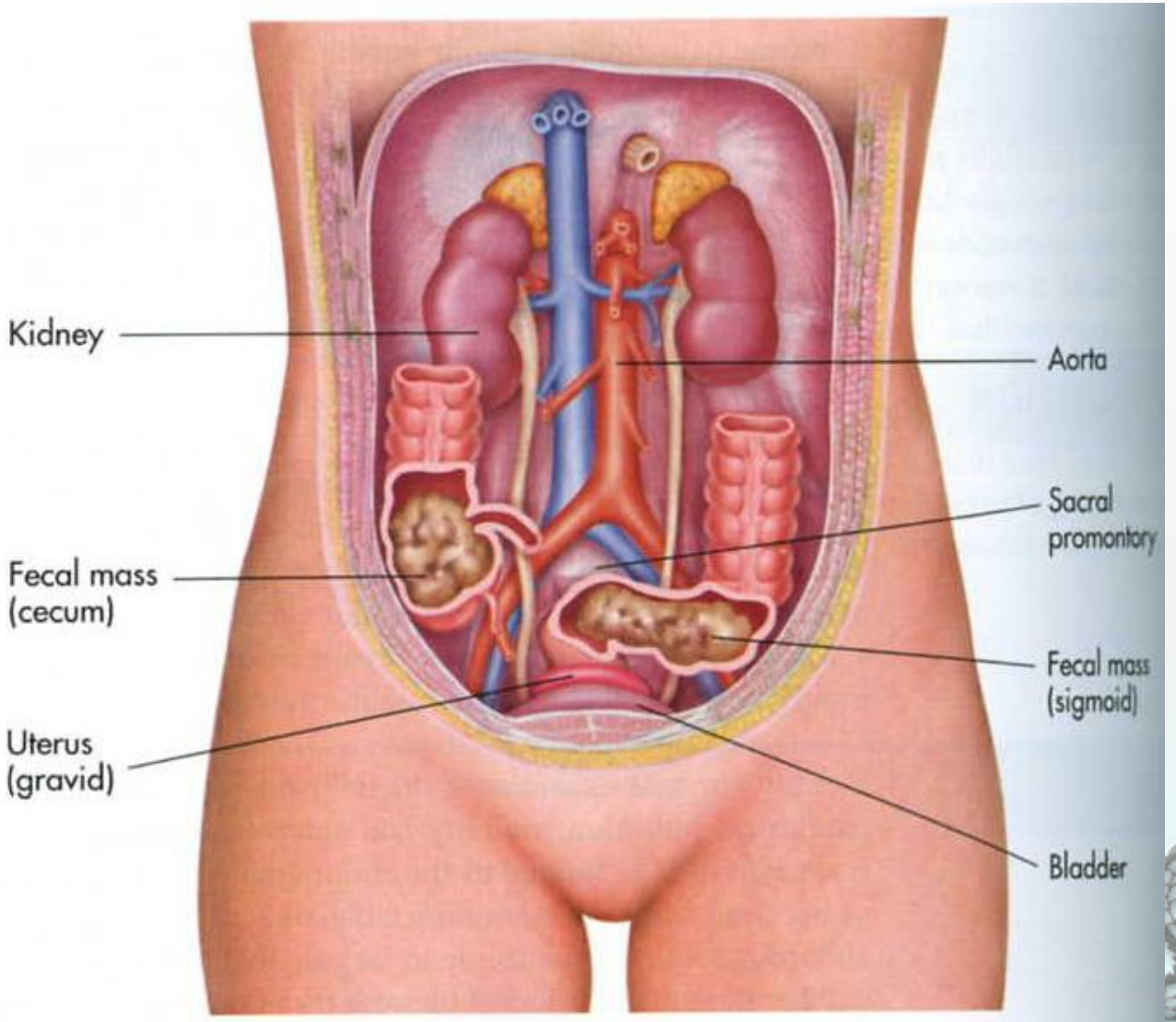
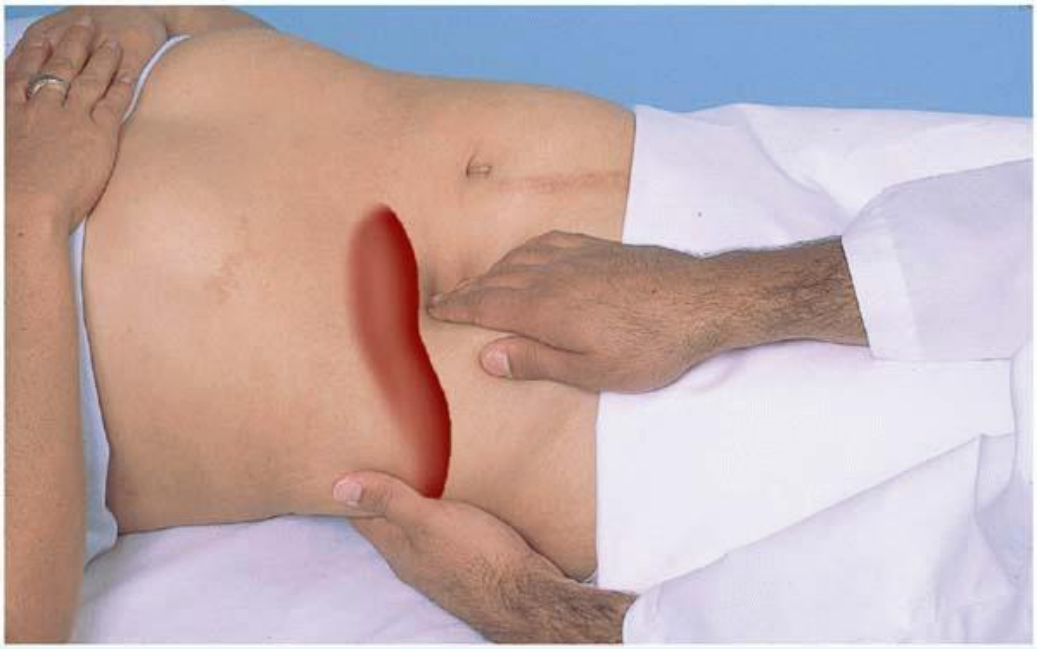
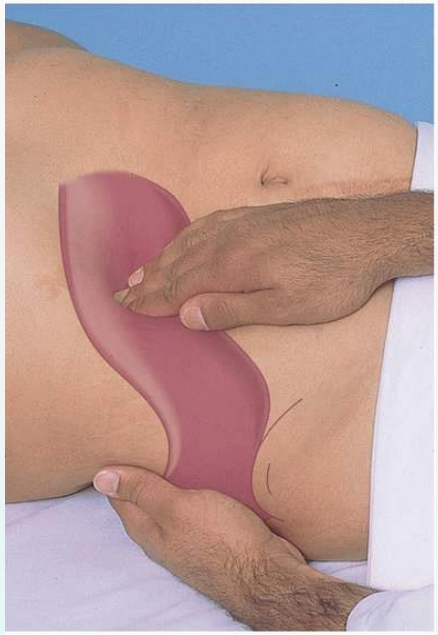


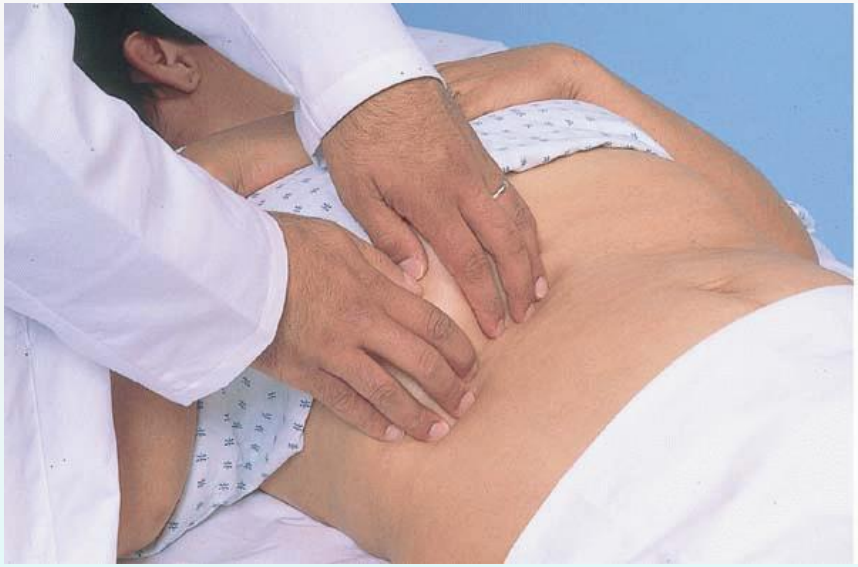

**FIGURE 17-19**
Abdominal structures commonly felt as masses.

# Feel the liver

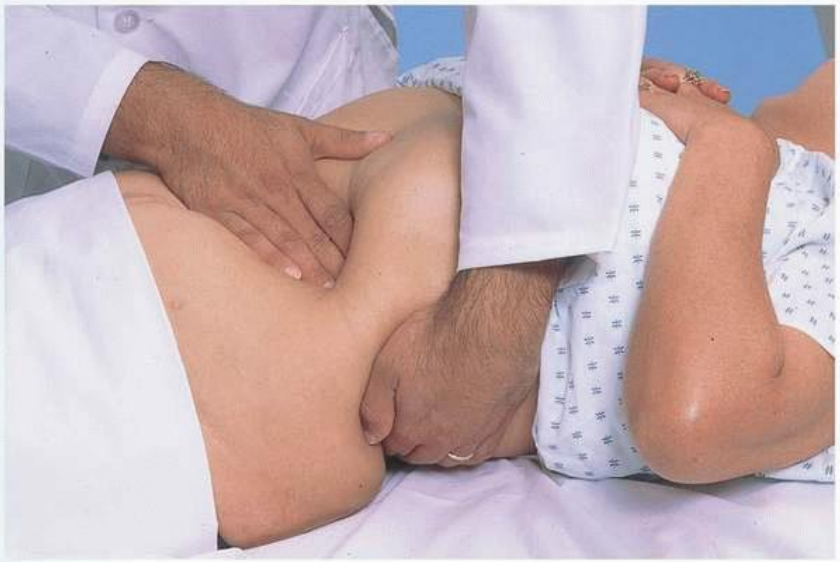


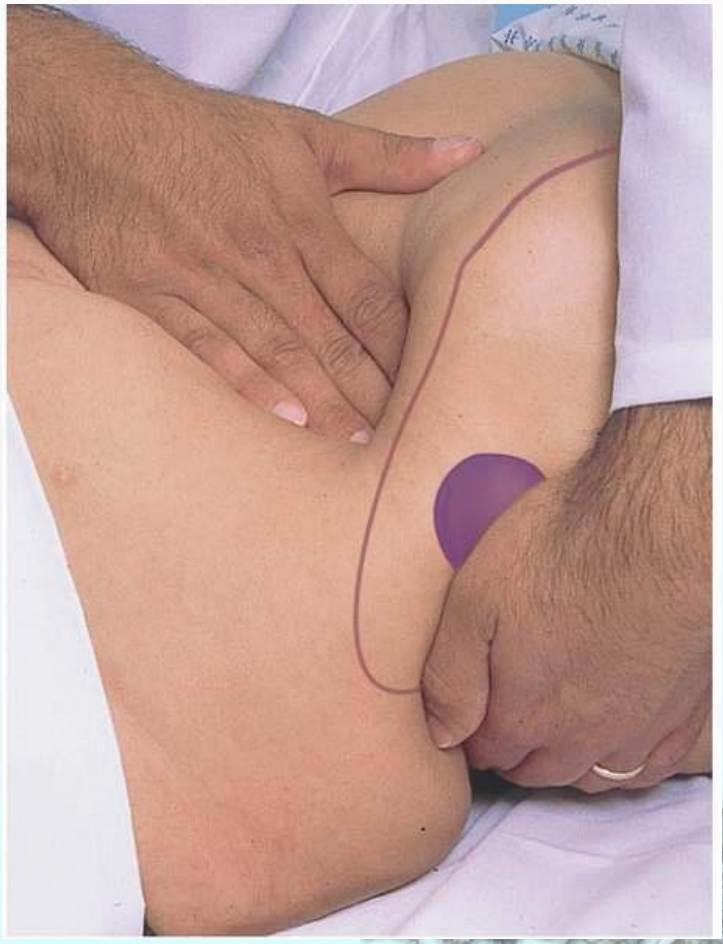


# Hooking technique

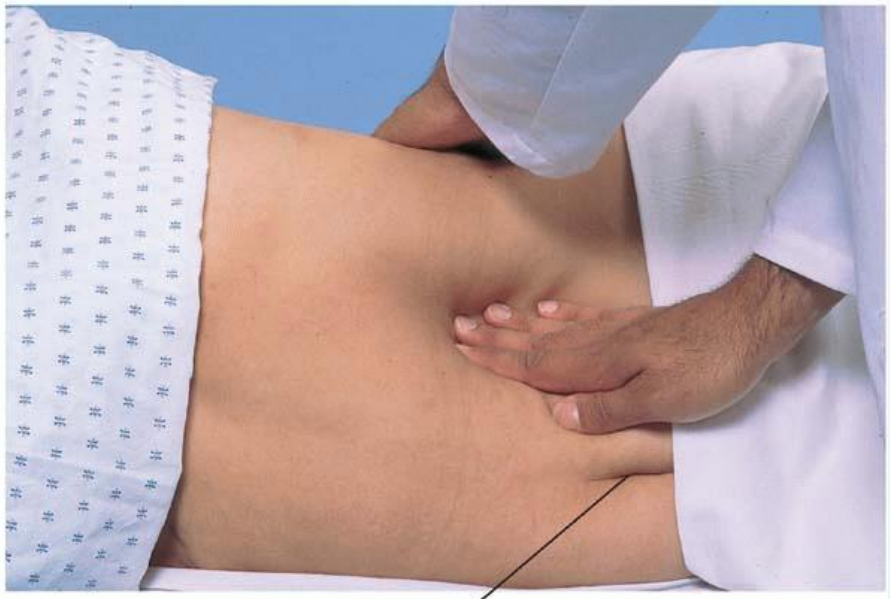


# Feel the spleen

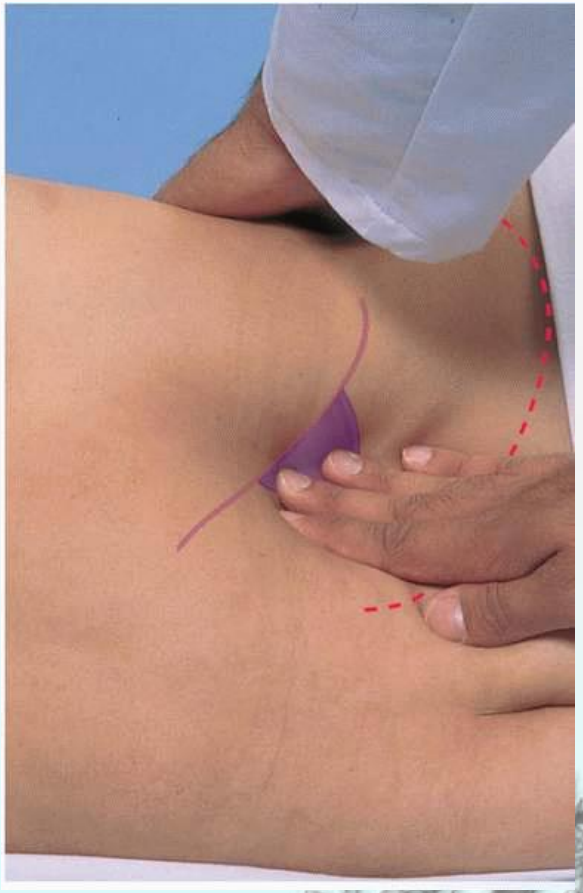




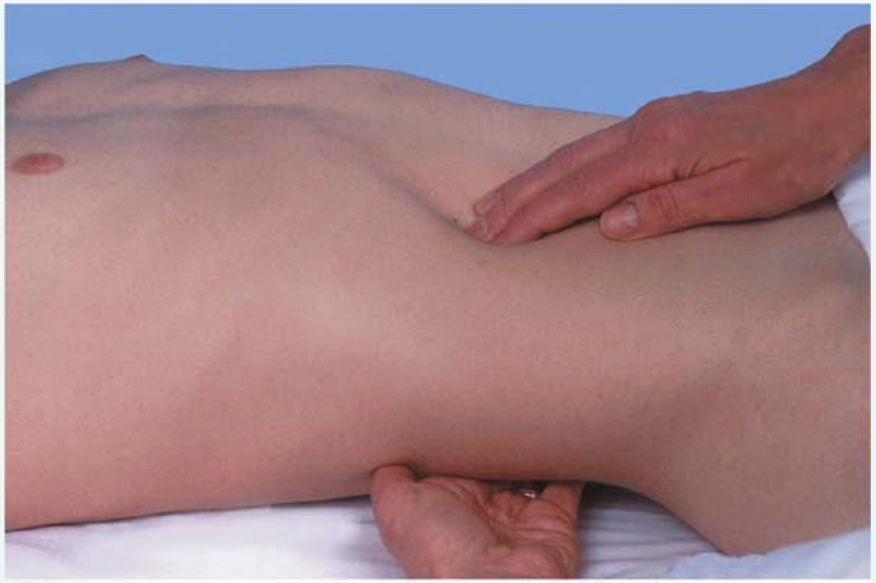
# Feel the spleen

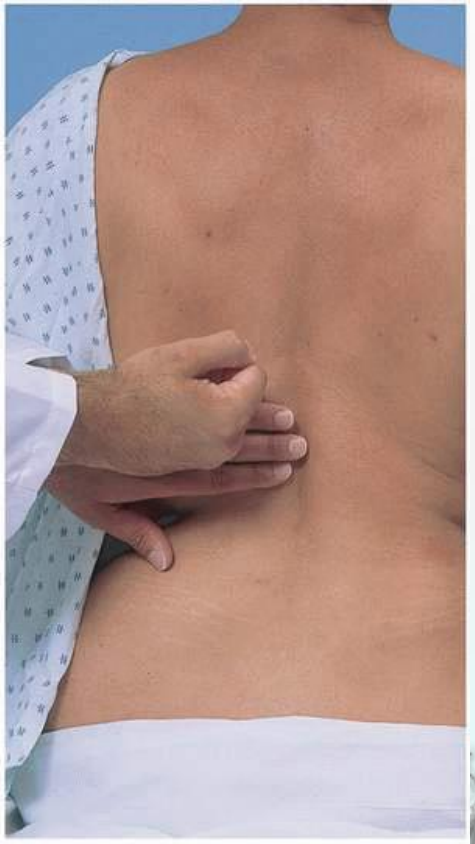



PALPATING THE SPLEEN—PATIENT LYING ON RIGHT SIDE



# Assessing Percussion Tenderness of the Kidneys

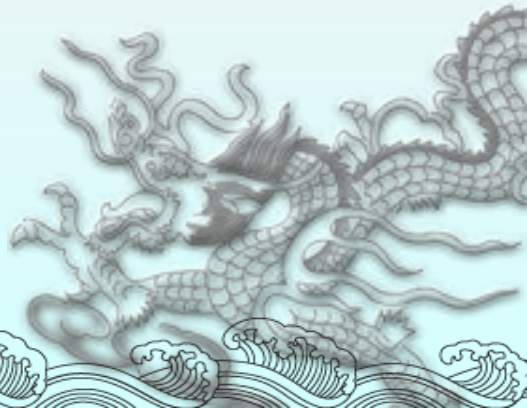




ASSESSING COSTOVERTEBRAL ANGLE TENDERNESS

# 腹部身體診察

- Anatomy
- Techniques of Examination
  - General Approach
  - Inspection
  - Auscultation
  - Percussion
  - Palpation
- Special Maneuver



# Additional procedures

Pain assessment

- Assessment for peritoneal irritation
  - Ask the patients to cough, then identified the tender point
  - Palpate gently with one finger by patient, look for rebound tenderness or muscle guarding

    ( False Negative in Elder, DM, Immunocompromised, Sedative or Control pain by medication)

Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). P550-556

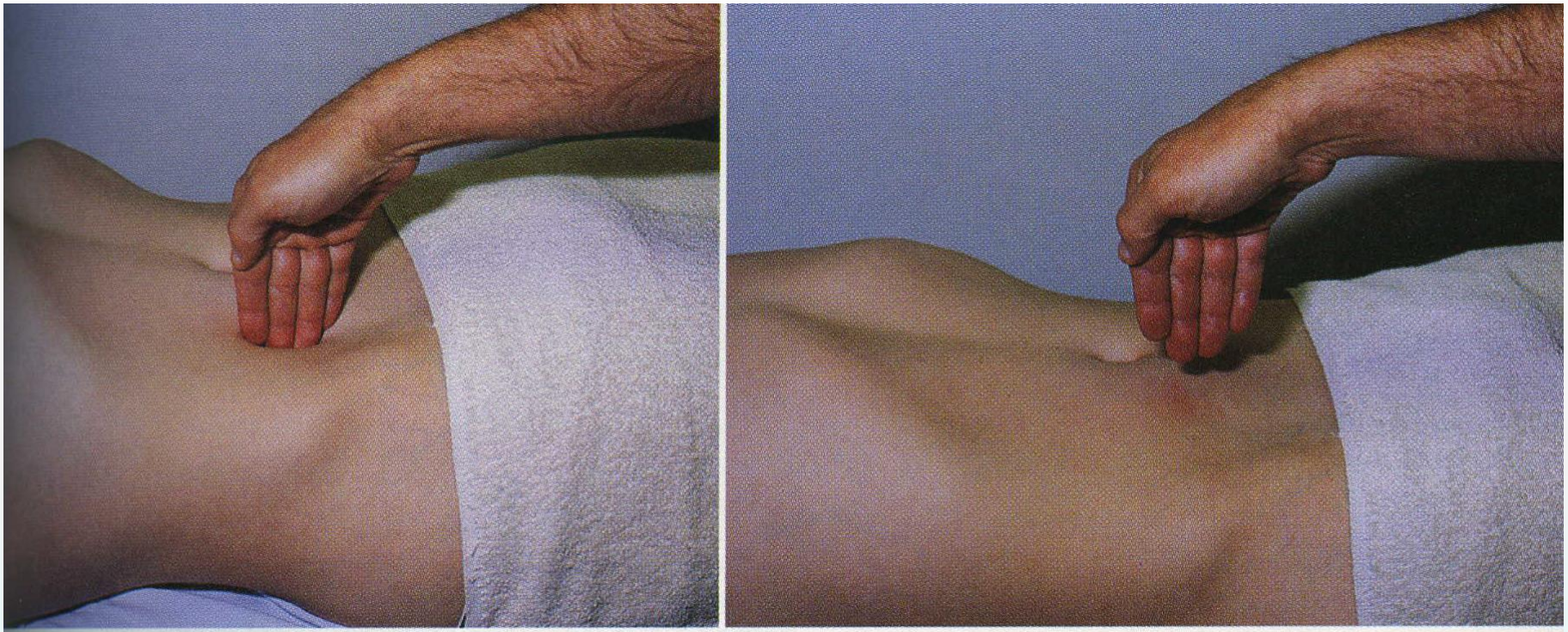


**FIGURE 17-33**
Testing for rebound tenderness. **A,** Press deeply and gently into the abdomen. **B,** Then rapidly withdraw the hands and fingers.

## TABLE 17-4 Quality and Onset of Abdominal Pain

| Characteristic | Possible Related Condition |
|---|---|
| Burning | Peptic ulcer |
| Cramping | Biliary colic, gastroenteritis |
| Colic | Appendicitis with impacted feces; renal stone |
| Aching | Appendiceal irritation |
| Knifelike | Pancreatitis |
| Ripping, tearing | Aortic dissection |
| Gradual onset | Infection |
| Sudden onset | Duodenal ulcer, acute pancreatitis, obstruction, perforation |

## TABLE 17–3. **Maneuvers for Ameliorating Abdominal Pain**

| Maneuver | Affected Organ | Clinical Example |
|---|---|---|
| Belching | Stomach | Gastric distention |
| Eating | Stomach, duodenum | Peptic ulcer |
| Vomiting | Stomach, duodenum | Pyloric obstruction |
| Leaning forward | Retroperitoneal structures | Pancreatic cancer<br>Pancreatitis |
| Flexion of knees | Peritoneum | Peritonitis |
| Flexion of right thigh | Right psoas muscle | Appendicitis |
| Flexion of left thigh | Left psoas muscle | Diverticulitis |

# Additional procedures

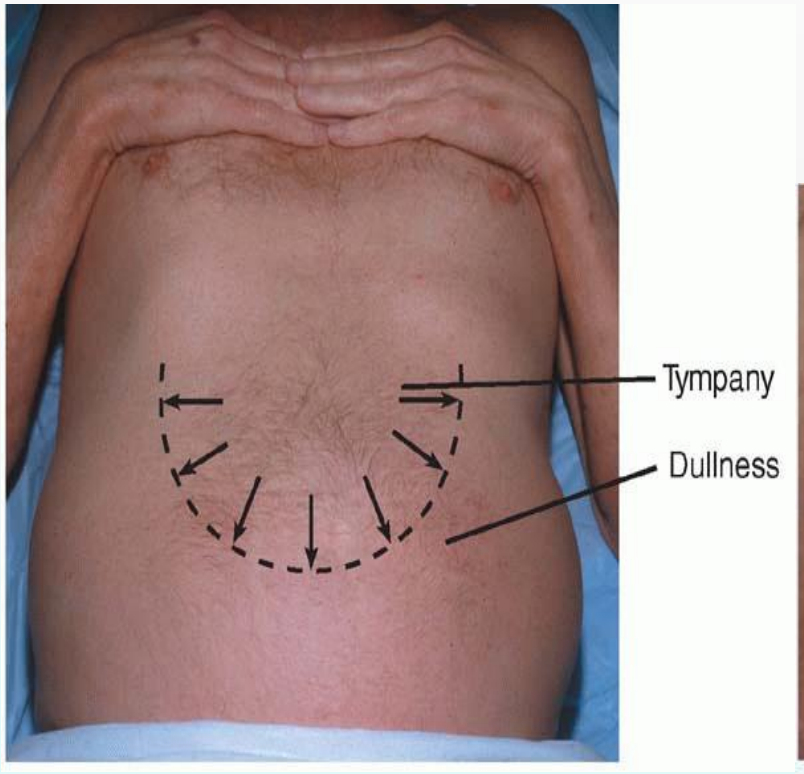
- Ascites assessment
  - Shifting dullness
  - Fluid wave
  - Auscultatory percussion
  - Puddle sign

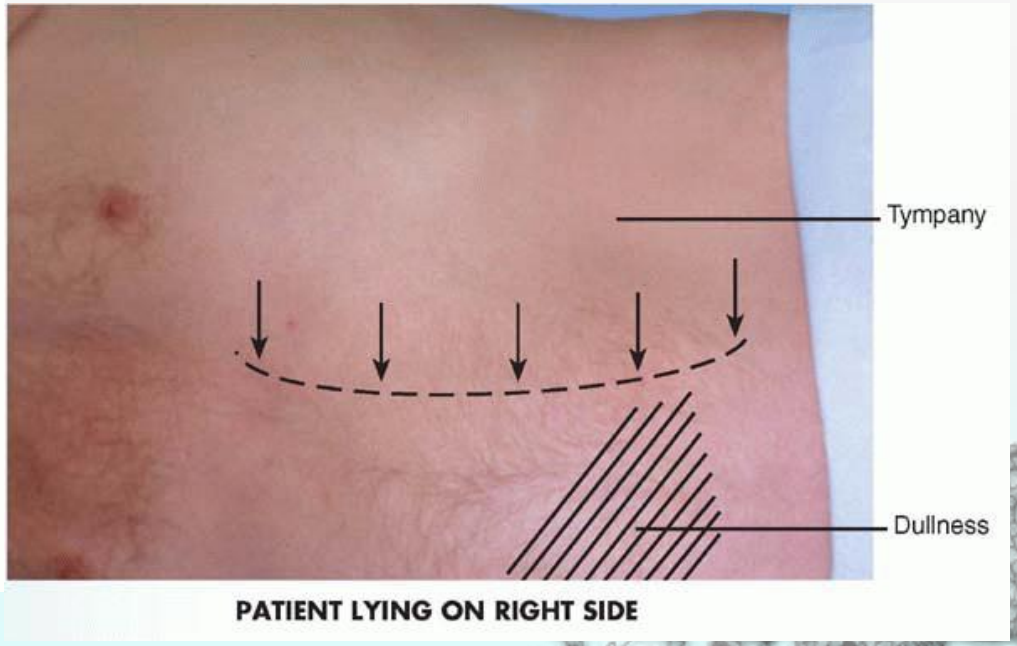
Seidel HM, Ball JW, Dains JE, Benedict GW.
Mosby's Guide to Physical Examination, sixth edition. (2006). p549

# Shifting dullness

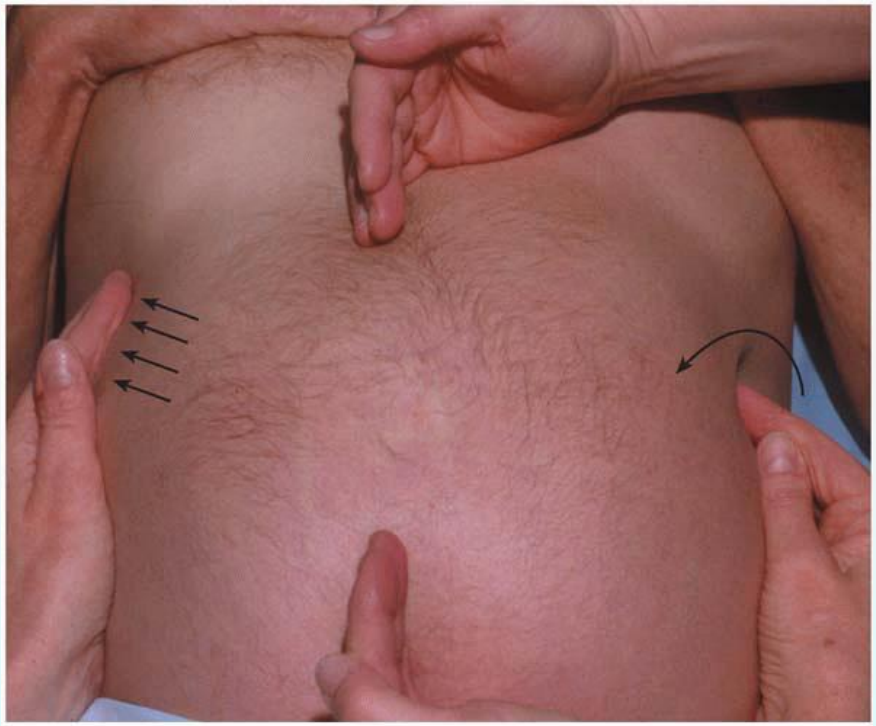
- This is a test for peritoneal fluid (ascites).
- Percuss the patient's abdomen to outline areas of dullness and tympany.
- Have the patient roll away from you.
- Percuss and again outline areas of dullness and tympany.
- If the dullness has shifted to areas of prior tympany, the patient may have excess peritoneal fluid

# Outline areas of dullness



# Test for a fluid wave and shifting dullness



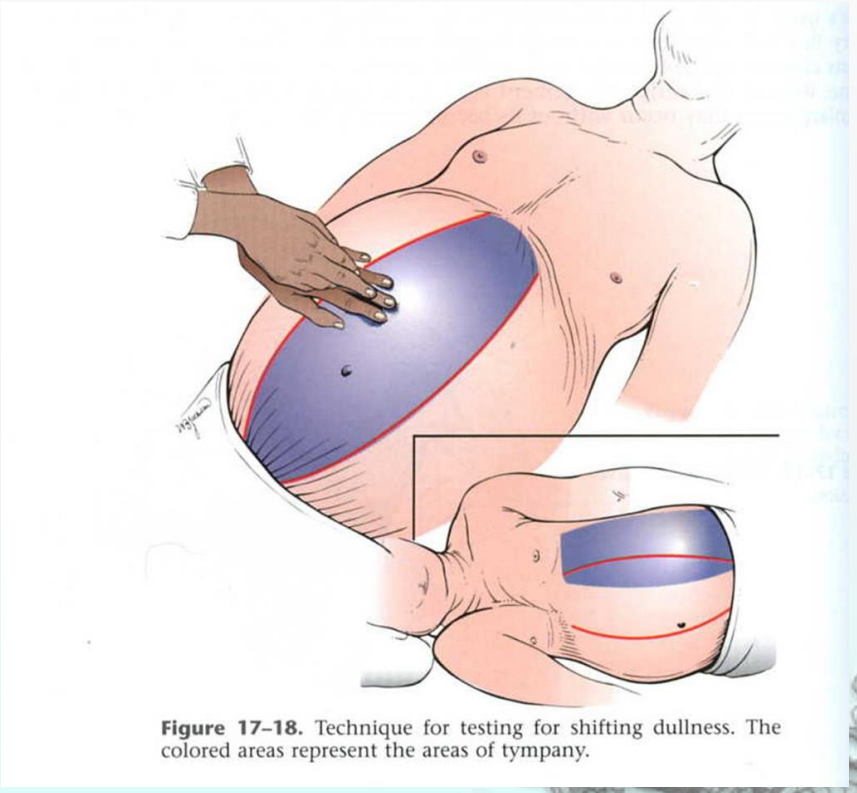


**Figure 17–18.** Technique for testing for shifting dullness. The colored areas represent the areas of tympany.

TABLE 17–4. **Characteristics of Physical Signs (Pooled Data) for Detection of Ascites***

| Physical Sign | Sensitivity (%) and Range | Specificity (%) and Range | LR+ | LR– |
|---|---|---|---|---|
| Bulging flanks | 81<br>69–93 | 59<br>50–68 | 2.0 | 0.3 |
| Flank dullness | 84<br>80–94 | 59<br>47–71 | 2.0 | 0.3 |
| Shifting dullness | 86<br>64–90 | 72<br>63–81 | 2.7 | 0.3 |
| Prominent fluid wave | 62<br>47–77 | 90<br>84–96 | 6.0 | 0.4 |

*95% confidence interval; data pooled from Cummings et al (1985), Simel et al (1988), Cattau et al (1982), and Williams and Simel (1992).

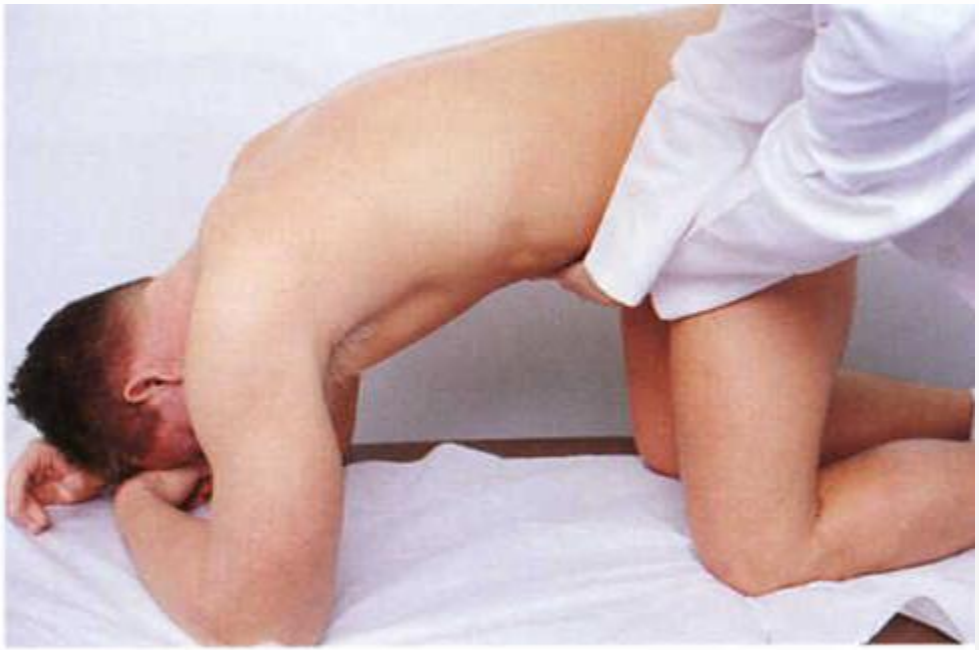
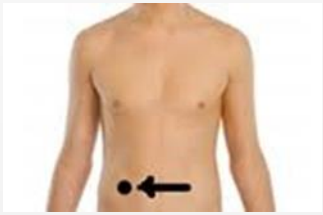


**FIGURE 17-32**
Testing for pooling abdominal fluid. Percuss the umbilical area for dullness.

# Appendicitis

- Migration pain from upper, periumbilical to RLQ rebounding pain or muscular rigidity.
- Rovsing's sign : RLQ pain when palpation LLQ
- Psoas sign
- Obturator sign



- Rectal examination or pelvic examination for DDx PID and other disease

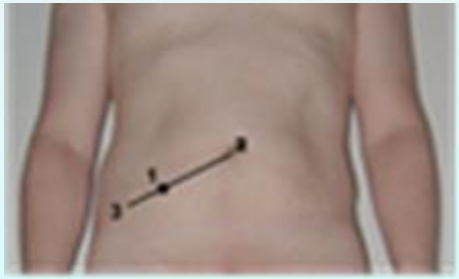
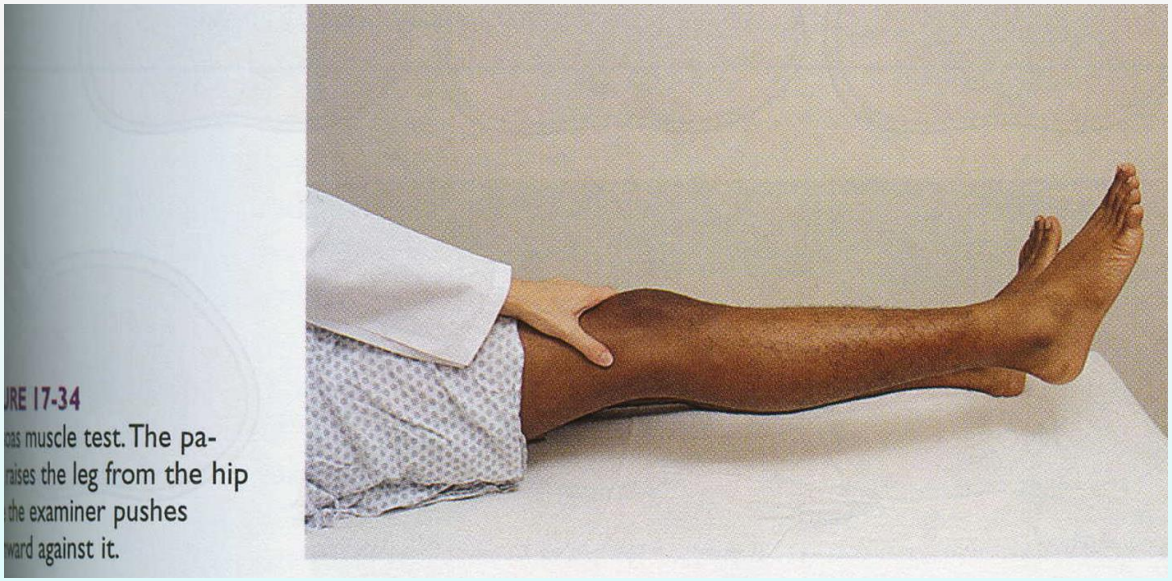


圖: Deep tenderness at McBurney's point, known as **McBurney's sign**

# Psoas sign

- Place your hand above the patient's right knee.
- Ask the patient to flex the right hip against resistance.
- Increased abdominal pain indicates a positive psoas sign.



# Obturator sign

- The examiner holds the patient's ankle with one hand and knee with the other hand. The examiner internally rotates the hip by moving the patient's ankle away from the patient's body while allowing the knee to move only inward. This is flexion and internal rotation of the hip.
- Increased abdominal pain indicates a positive obturator sign.

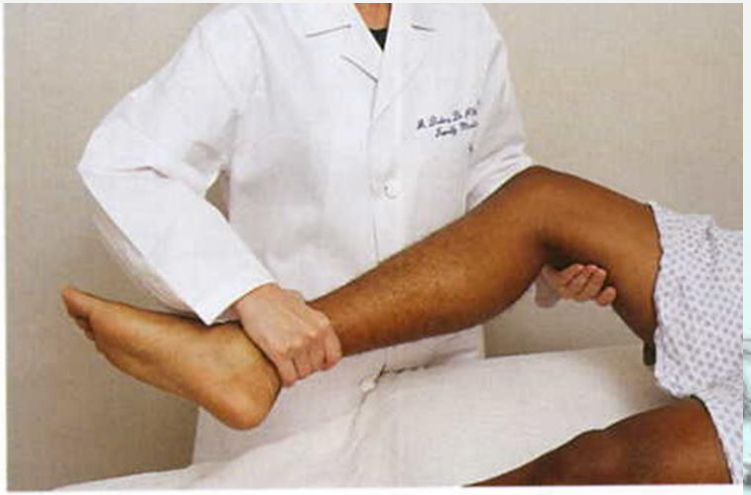


**FIGURE 17-35**
Obturator muscle test. With the right leg flexed at the hip and knee, rotate the leg laterally and medially.

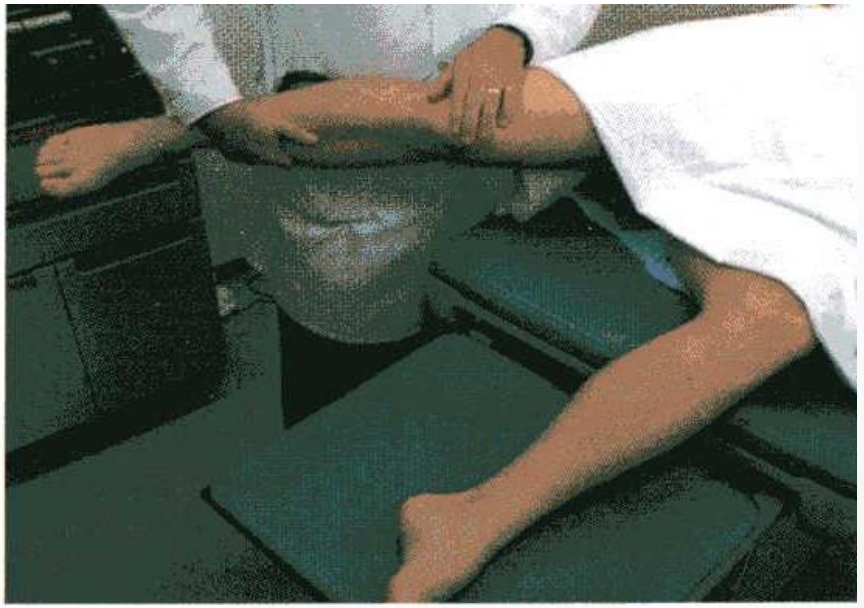


**Figure 17–39.** The iliopsoas test.

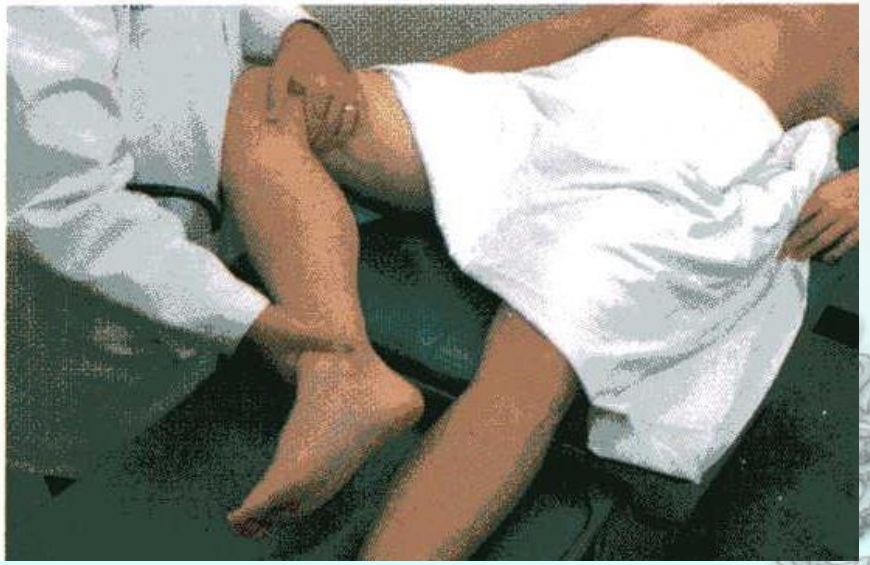
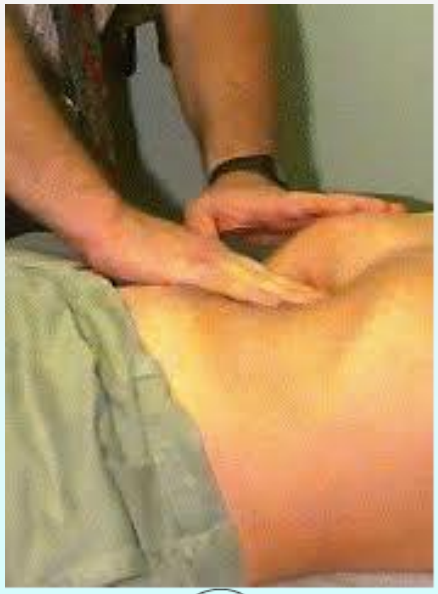
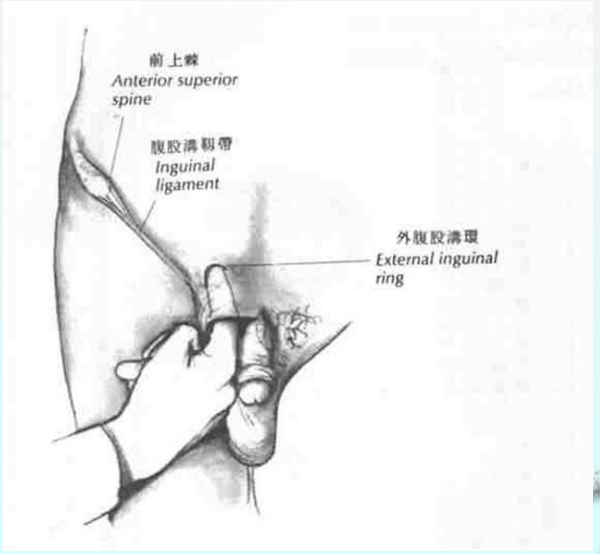


**Figure 17–40.** The obturator test.

# Murphy's sign and Hernia

- Asking the patient to breathe out and then gently placing the hand below the costal margin on the right side at the mid-clavicular line (the approximate location of the gallbladder).
- The patient is then instructed to inspire (breathe in).





# Rectal examination

- Digital rectal examination: the anterior rectum has a peritoneal surface, the DRE may reveal tenderness if peritoneal inflammation is present
- Right hand of examiner with index finger
- Ask the patient take a breath when index finger is inserted (cold sensation must explained before this procedure)
- Palpate the rectal wall, prostate gland, fecal occult blood test and special techniques

# Position

Lying on his back, with knee flexed (Modified lithotomy position)

Left lateral prone position with right upper leg flexed while left lower leg semi-extented (Sim's position)

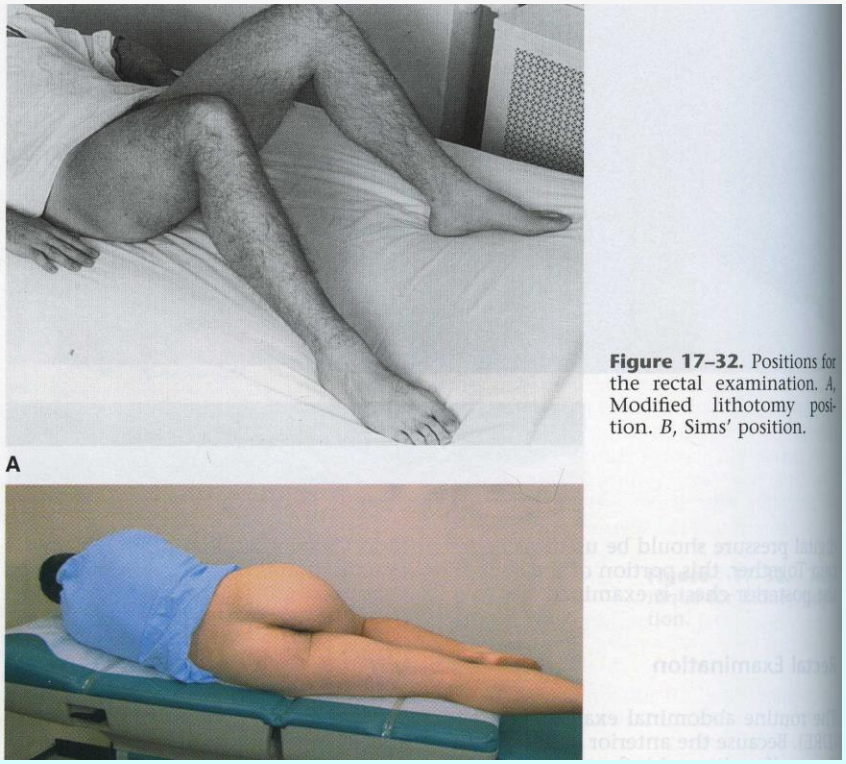
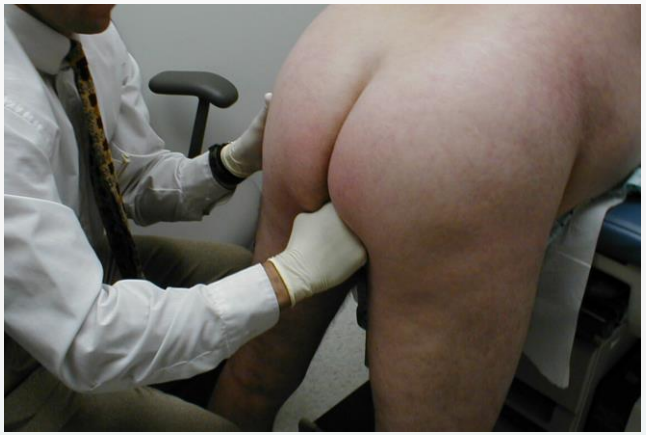
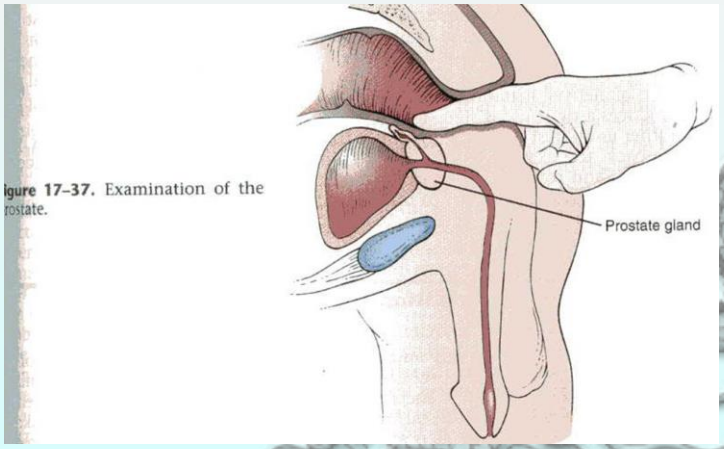


**Figure 17–32.** Positions for the rectal examination. *A*, Modified lithotomy position. *B*, Sims' position.

A

Standing, bent over the examination table






igure 17–37. Examination of the rostate.