세브란스
SEVERANCE

소화기계 상급신체사정 및 검사의 이해

1885 제중원 창립 · 1904 세브란스병원 · 1913 세브란스의학교 · 2005 세브란스병원

1885 제중원 창립

내 용

- Structure and Function
- Subjective Data - Health History
- Objective Data
  - The Physical Exam & Medical test

Structure and Function

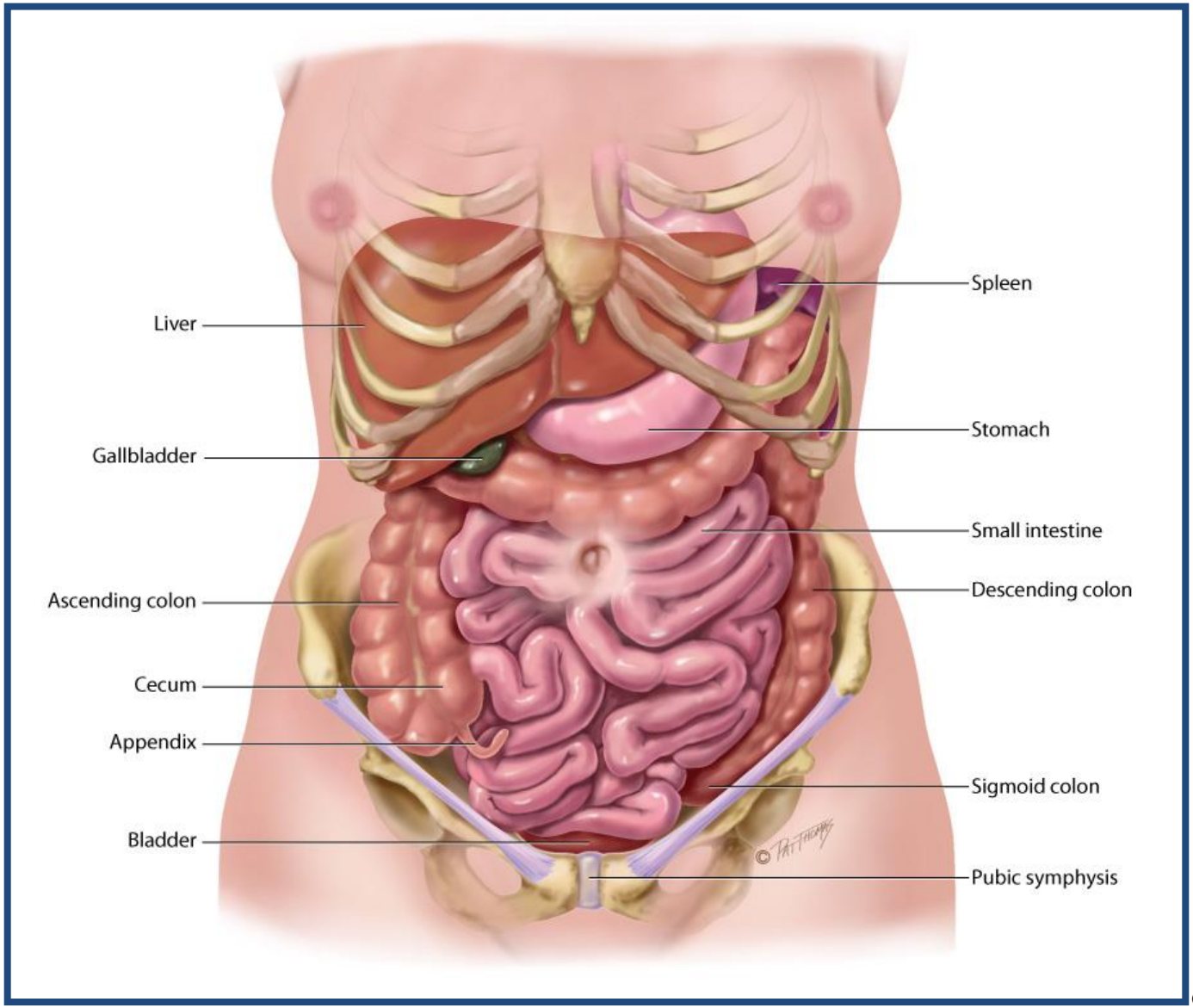
Solid viscera

- Liver
- Pancreas
- Spleen
- Adrenal glands
- Kidneys
- Ovaries
- Uterus

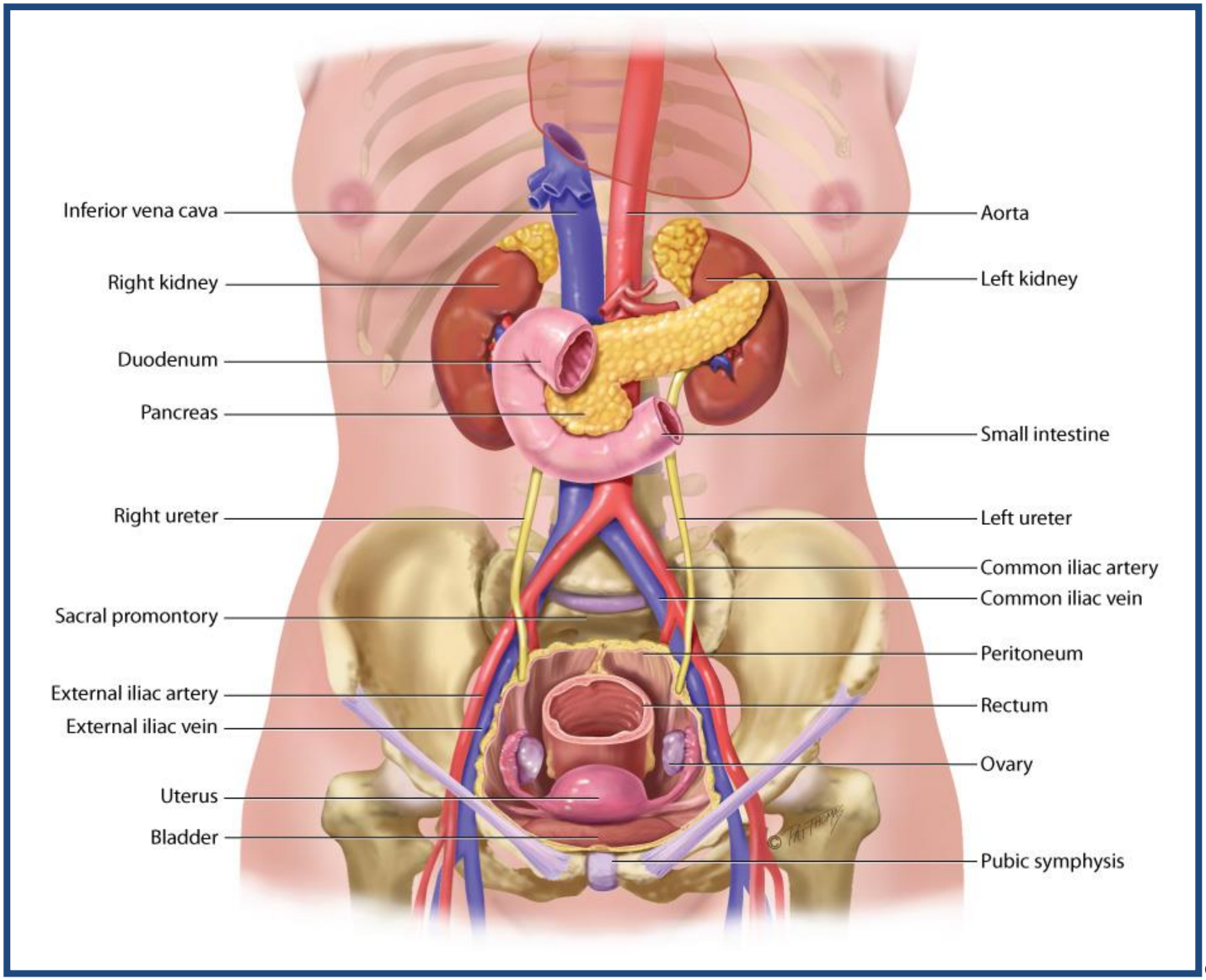
Hollow viscera

- Stomach
- Gallbladder
- Small intestine
- Colon
- Bladder

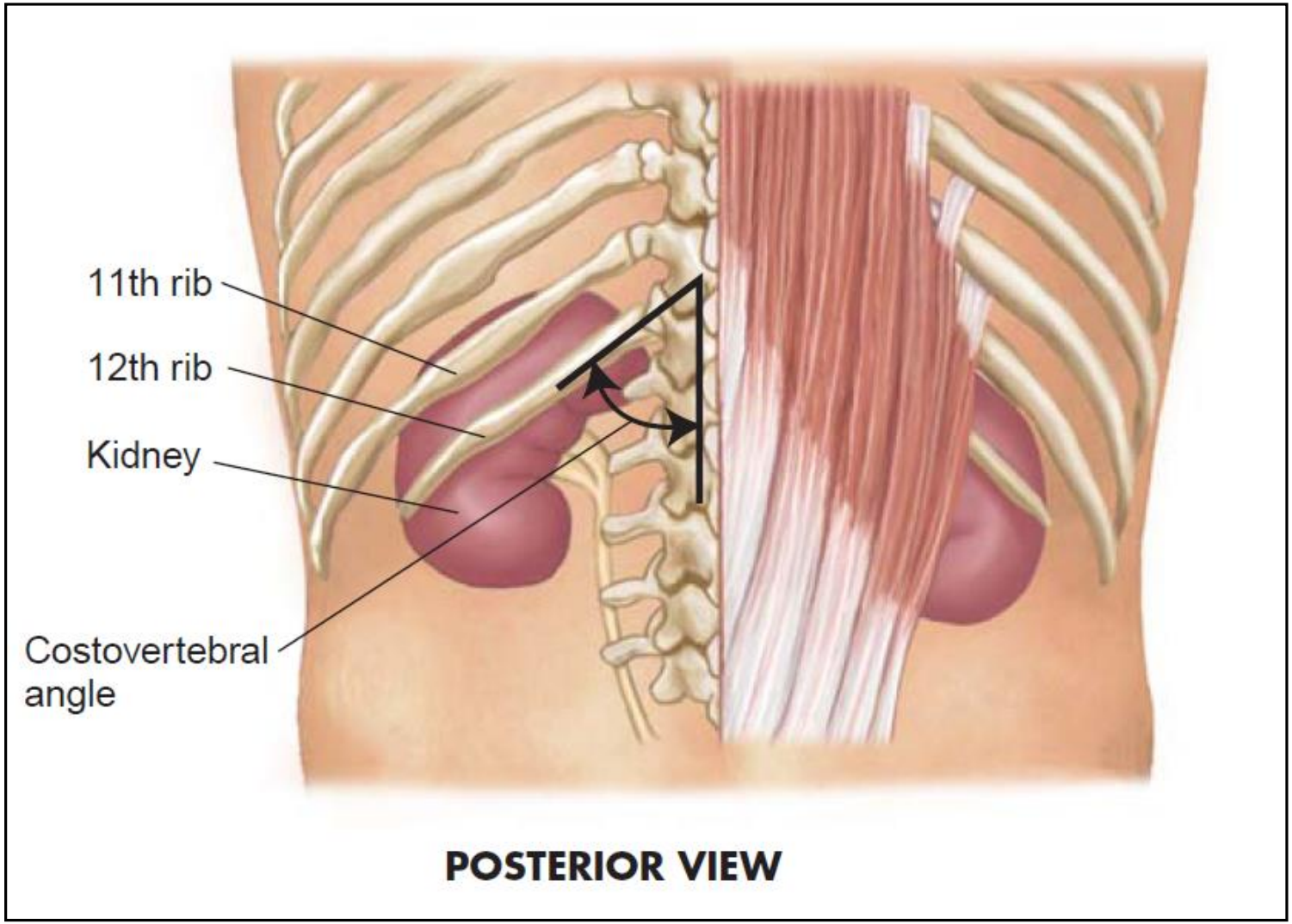
Internal Anatomy



Deep Internal Anatomy

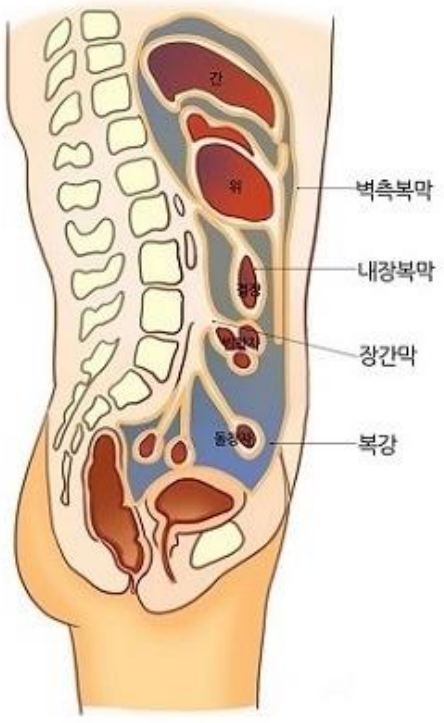


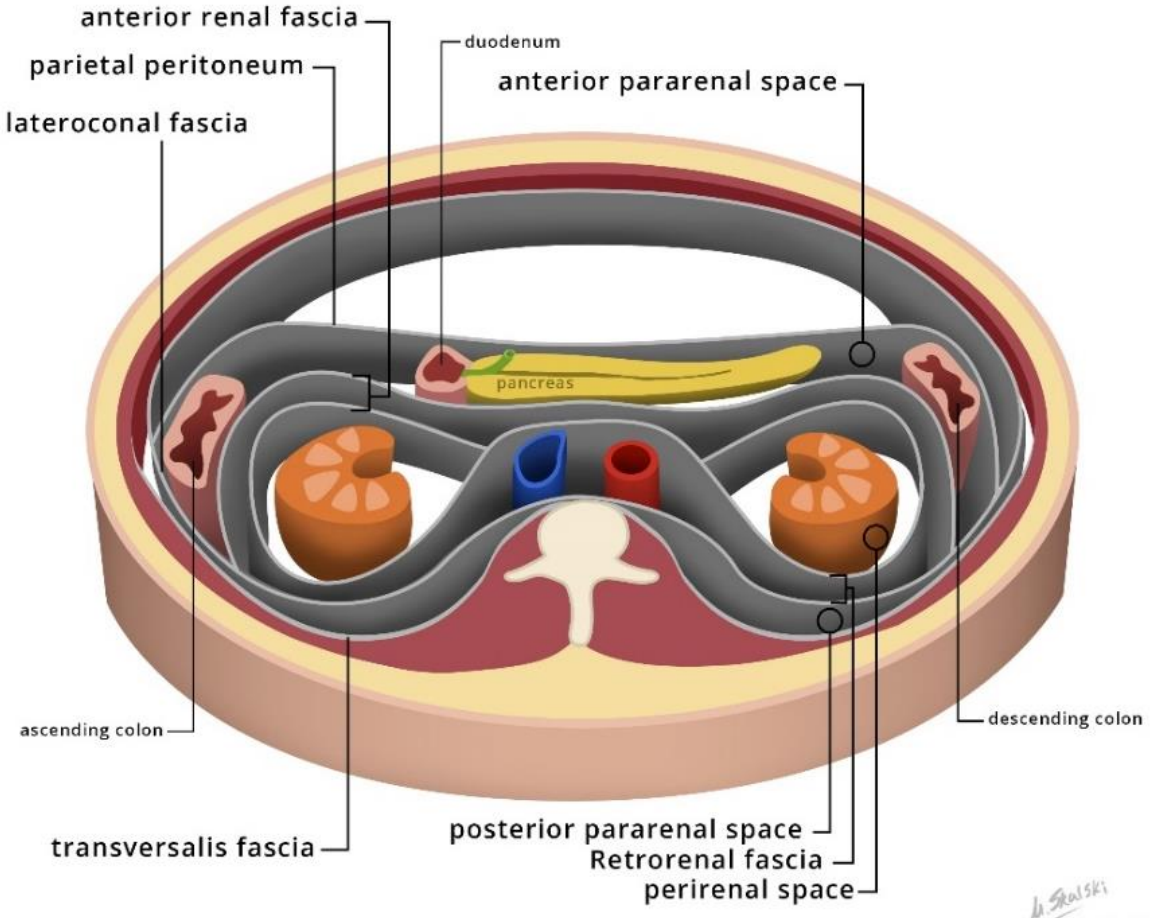
Anatomy


11th rib
12th rib
Kidney
Costovertebral angle
POSTERIOR VIEW

Retroperitoneum

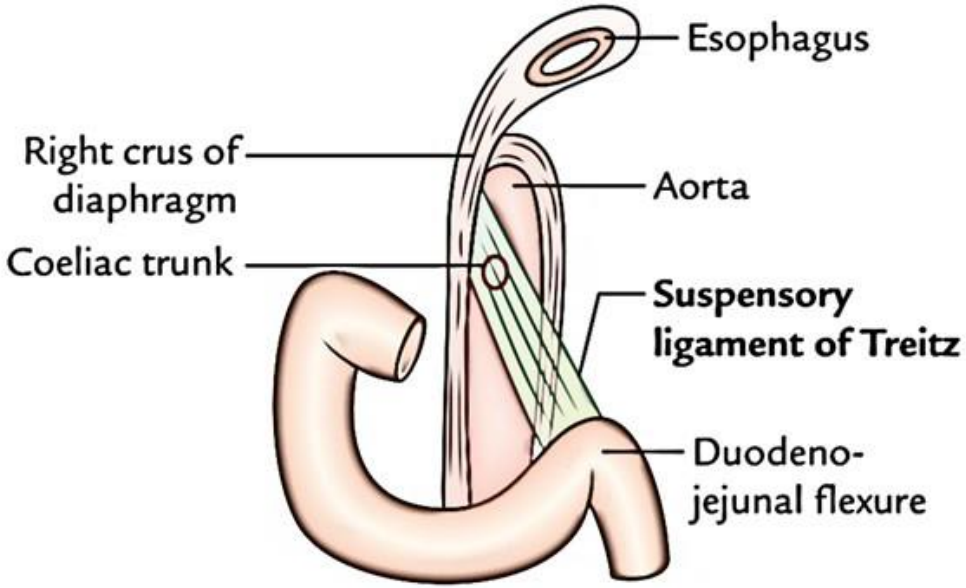
- The retroperitoneum is the part of the abdominal cavity that lies between the posterior parietal peritoneum and anterior to the transversalis fascia..."



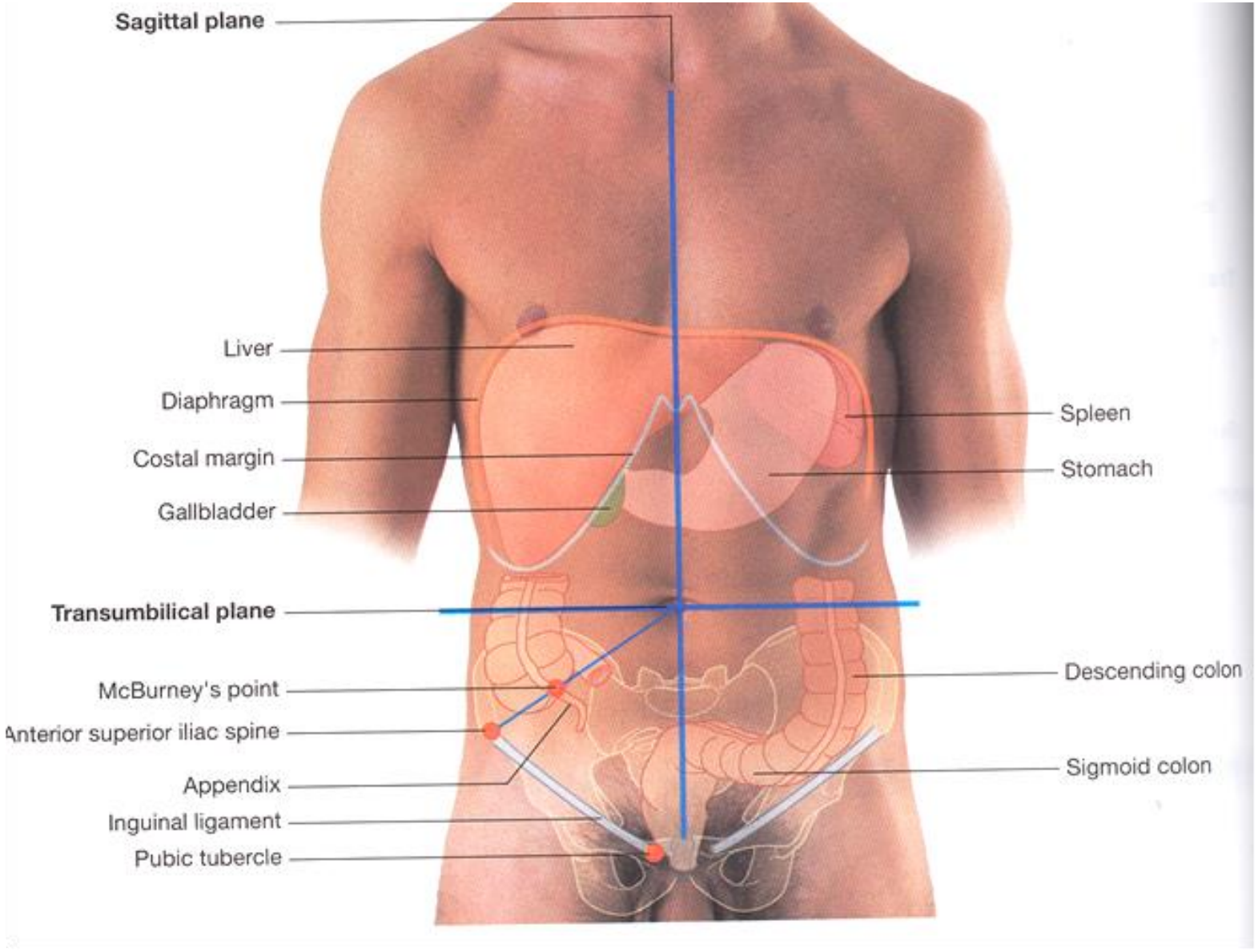


Ligament of Treitz

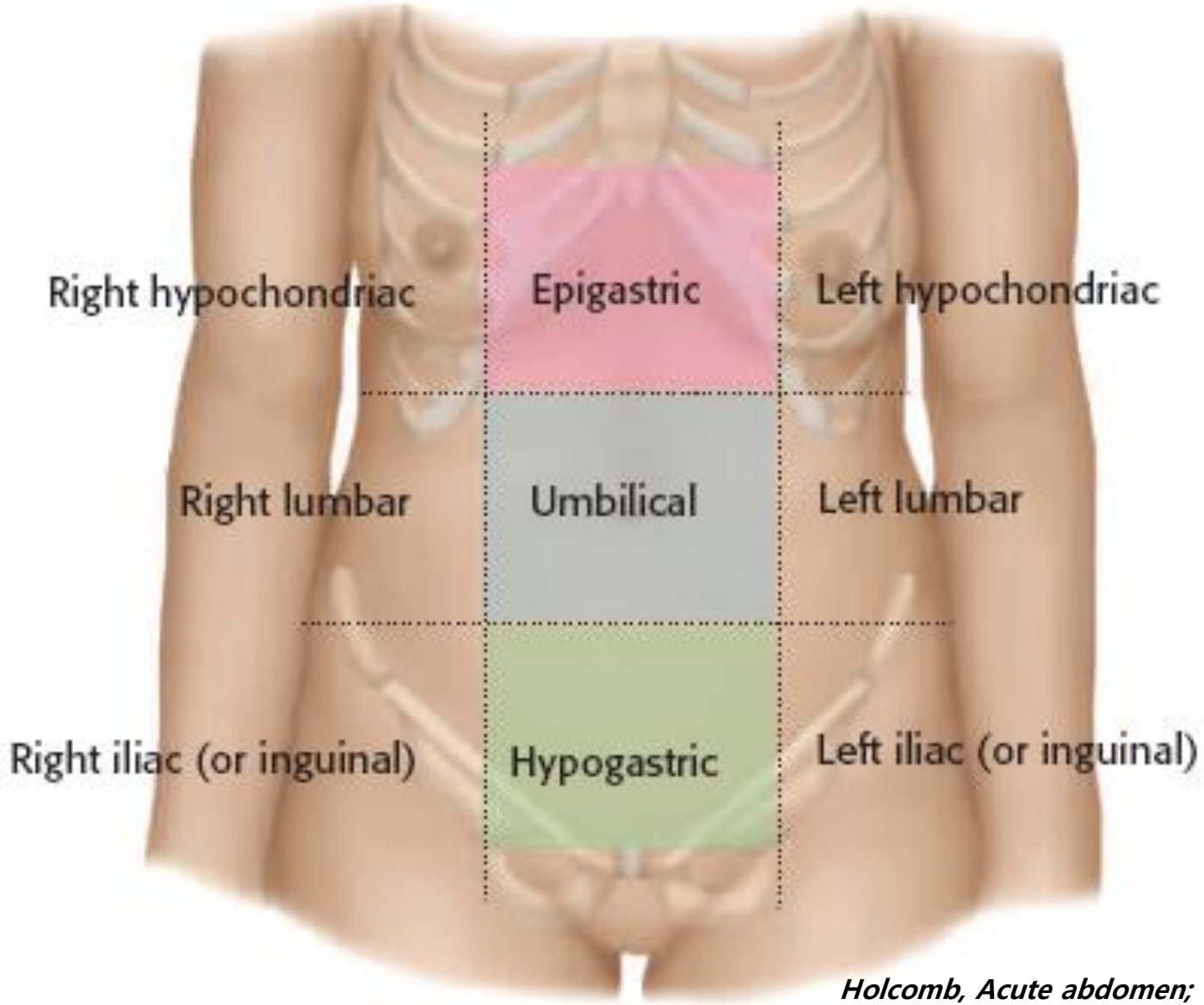
- 십이지장(duodenum)과 공장(jejunum)을 잇는 부위를 잡아주고 있는 근육
- 상부위장관과 하부위장관을 나누는 경계



Quadrants (Clinical)

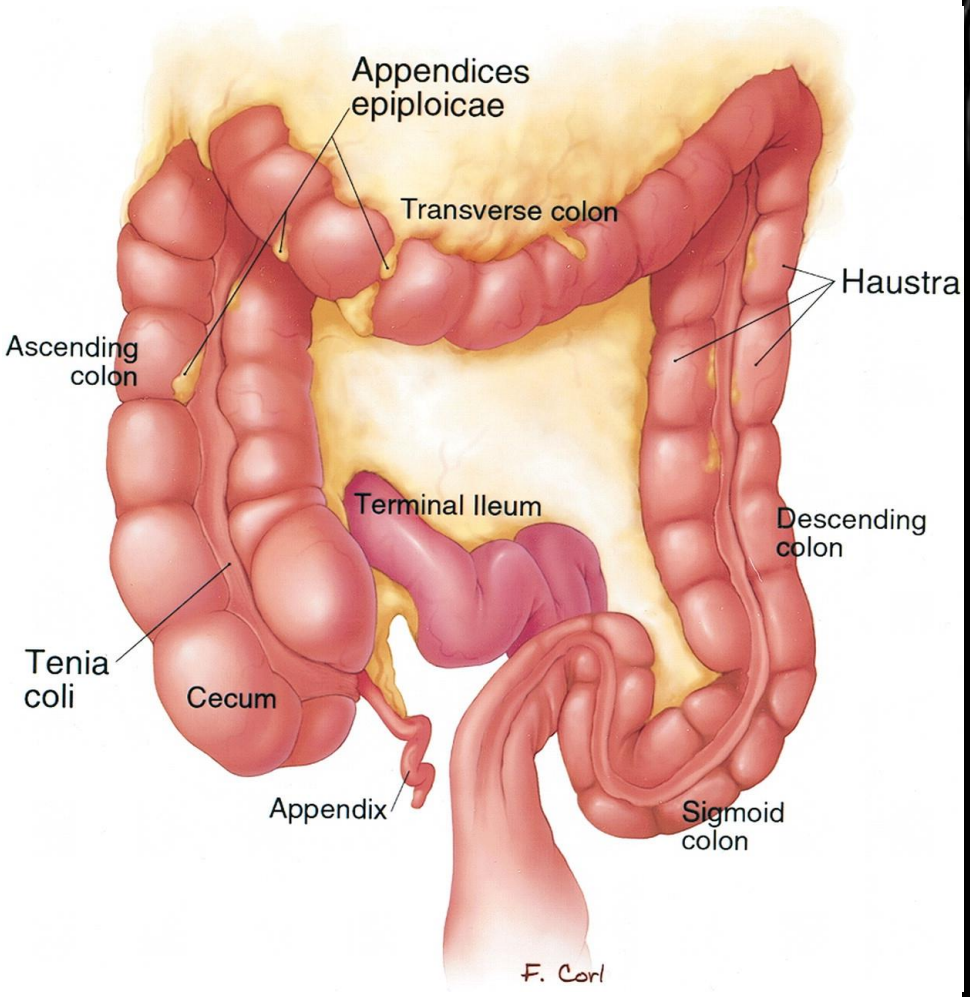


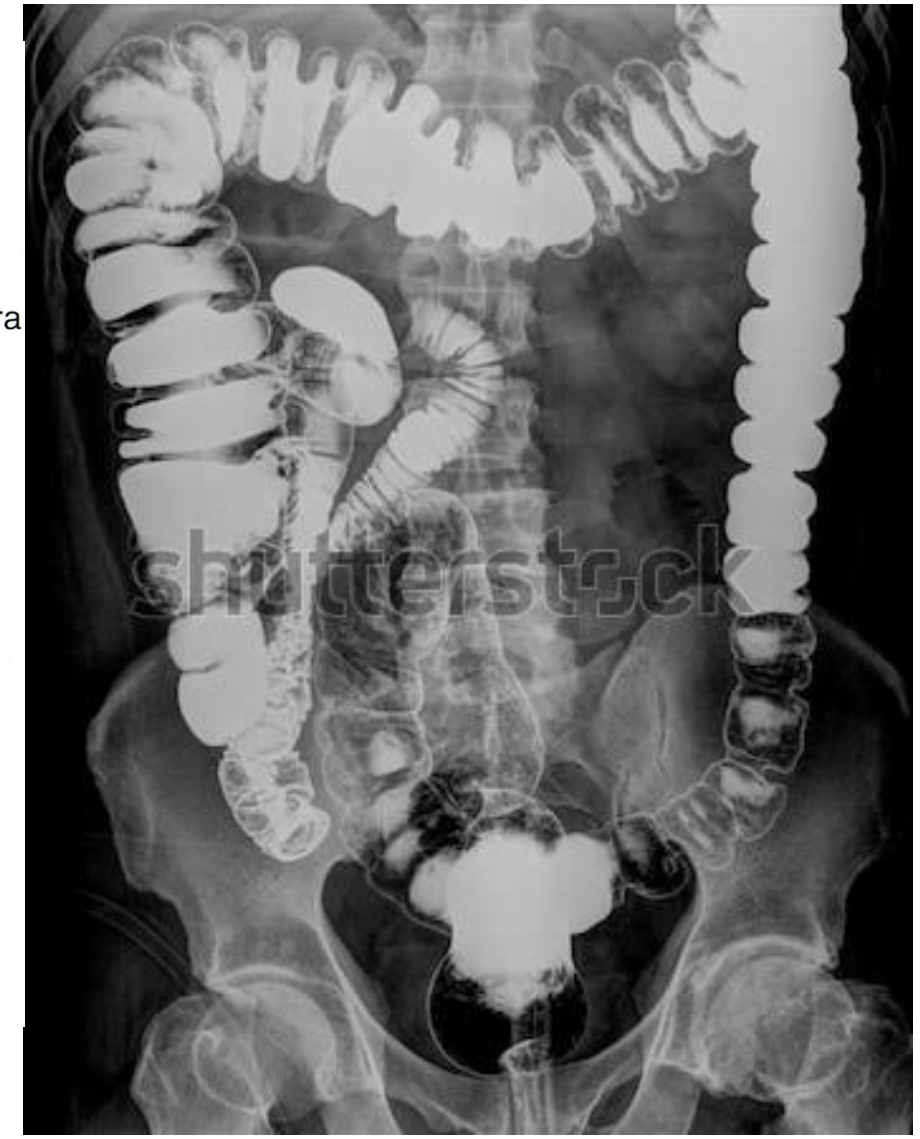
Abdominal Topography



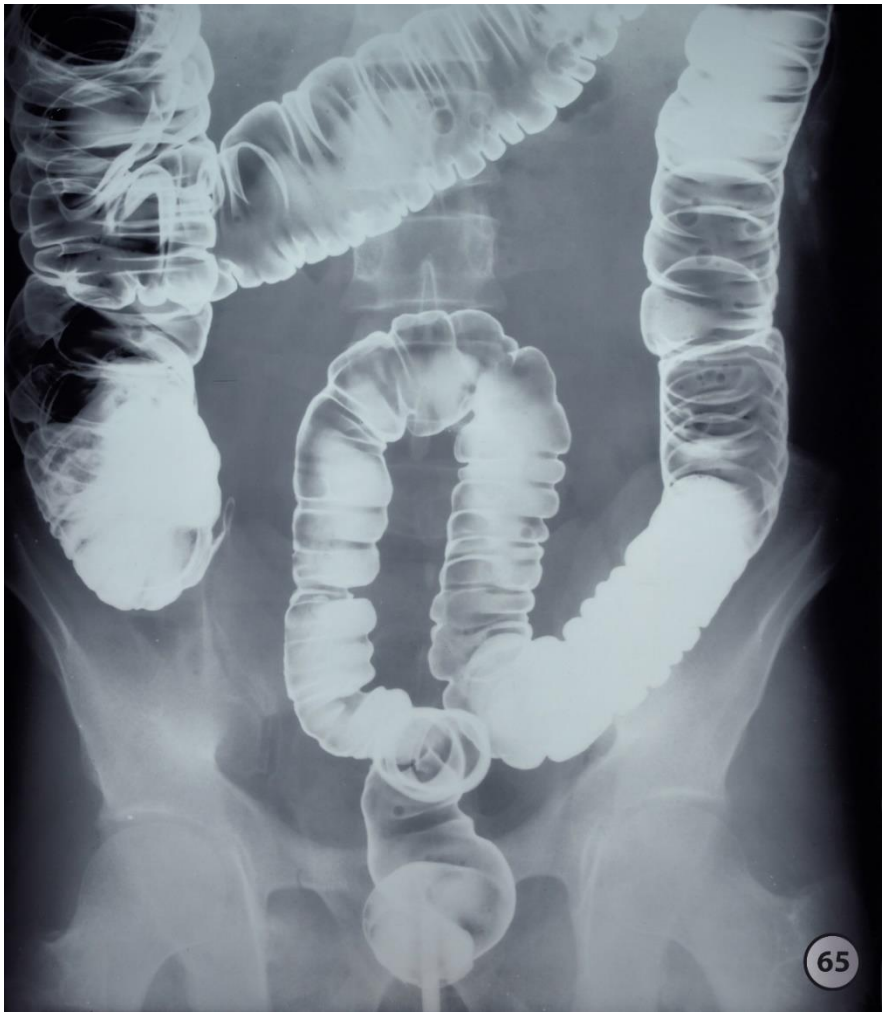
Holcomb, Acute abdomen; What a pain! 2008

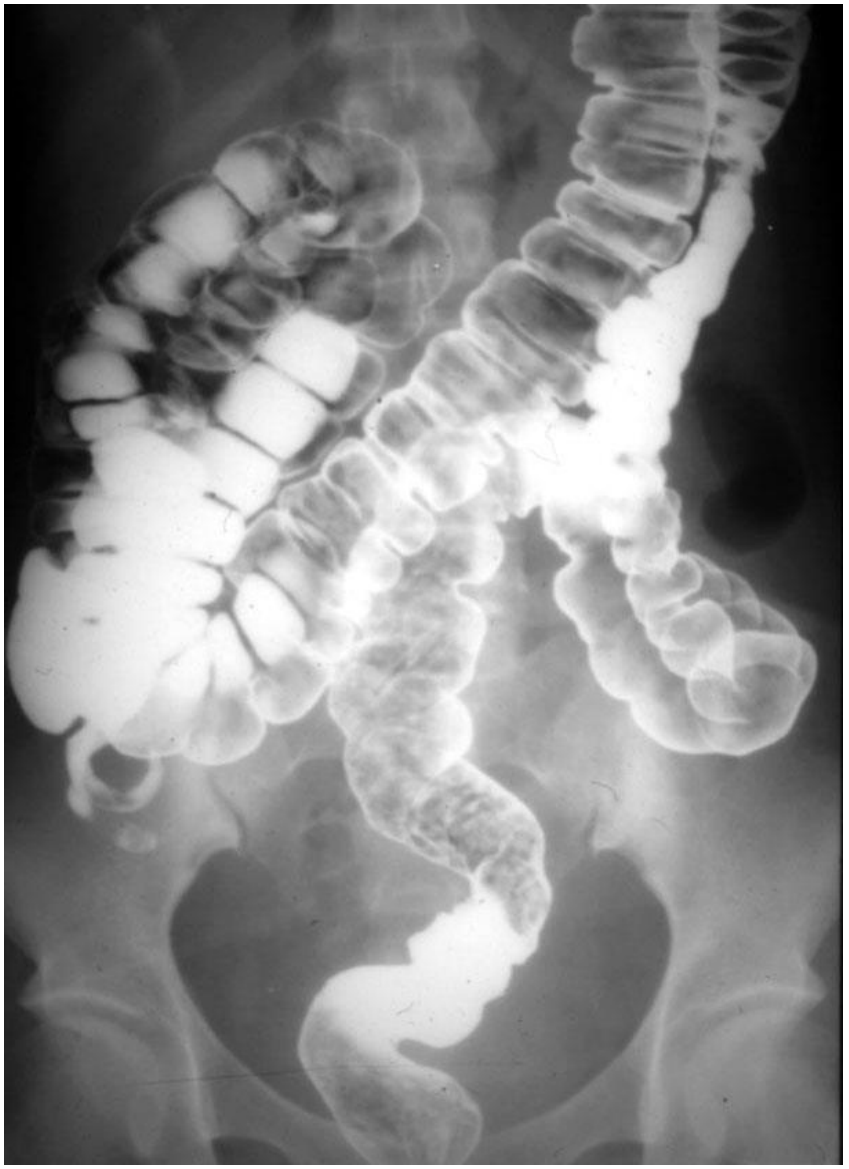
Anatomy


Appendices epiploicae
Transverse colon
Haustra
Ascending colon
Terminal Ileum
Descending colon
Tenia coli
Cecum
Appendix
Sigmoid colon
F. Corl


shutterstock

The problem is that exceptions occur.





Diagnosis Process

Information Sources Critical to the Diagnostic Process

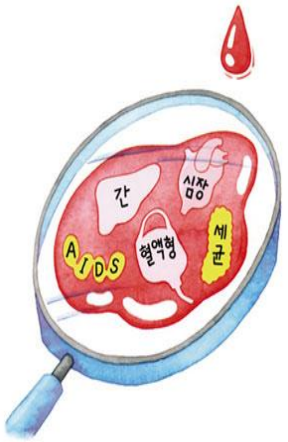
Patient Interview
signs, symptoms, chief complaint

Physical Exam
past & present

Medical History
patient's, family's

Medical Tests
Normal & Abnormal
Past & Present

DIAGNOSIS



Approach to the patient

- To take thorough history
- Physical examination
- Laboratory investigations (blood, stool, culture, etc.)
- Ultrasound
- X-ray (plain film)
- Endoscopy, capsullar video endoscopy
- CT, MRI, angiography, PET, etc.

General principles of exam

- 1st : Immediate distinction between urgent problem and non-acute disorder
- 2nd : Determination of the temporal evolution of symptoms and to be able to differentiate between organic and psychosomatic alterations
- 3rd : Consider all information to avoid unnecessary tests in the workup

General principles of exam

- Proper eval and management requires one to recognize:
  - 1. Does this patient need surgery?
  - 2. Is it emergent, urgent, or can wait?
    - In other words, is the patient unstable or stable?
- Signs and symptoms of intra-abdominal disease *usually* best treated by surgery
- Learn to think in "worst-case" scenario

General principles of exam

- Although we will focus on the abdominal exam, it cannot be overemphasized that a thorough physical exam (head to toes) is important to help in arriving at a comprehensive differential diagnosis list.

- Examples
  - Irregular heart rate -> atrial fibrillation-> mesenteric ischemia

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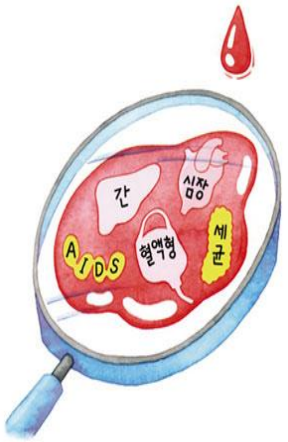

Table 2. Diagnosis of Hereditary Nonpolyposis Colorectal Cancer

Amsterdam criteria II

1. At least three family members with HNPCC-related cancer*, one of whom is first-degree relative of the other two.
2. At least two generations with HNPCC-related cancer
3. At least one individual <50 y at diagnosis of HNPCC-related cancer.

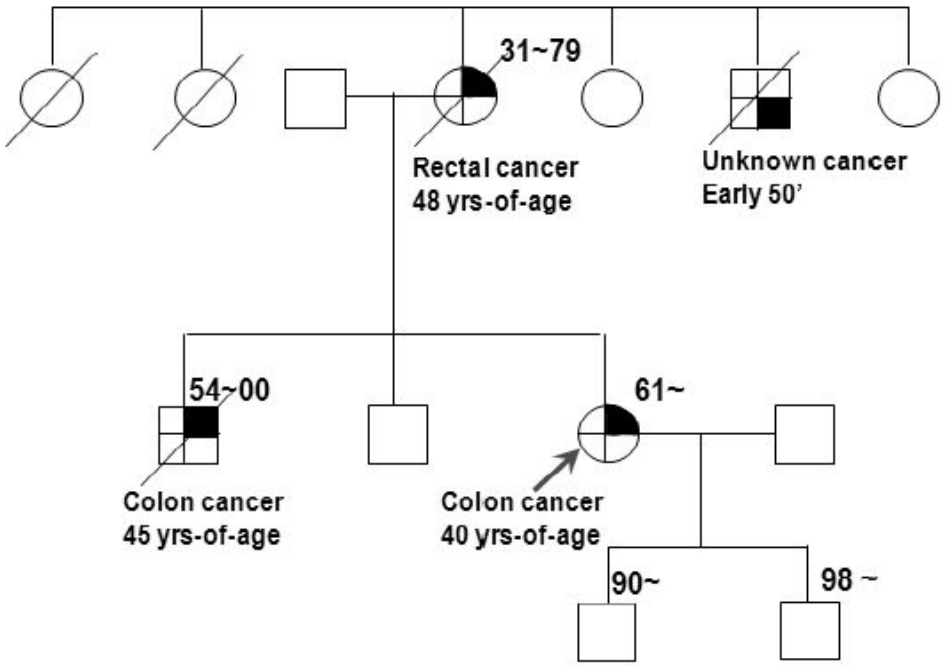

Fig. 2. Pedigree of a patient with hereditary nonpolyposis colorectal cancer.

김덕우, 유전성 대장암
Journal of Genetic Medicine 2010;7:24-36

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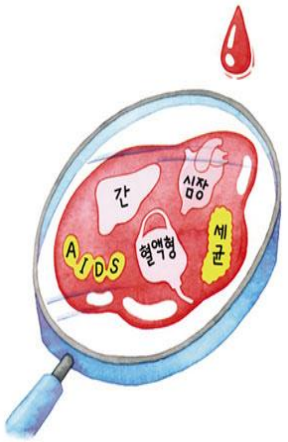


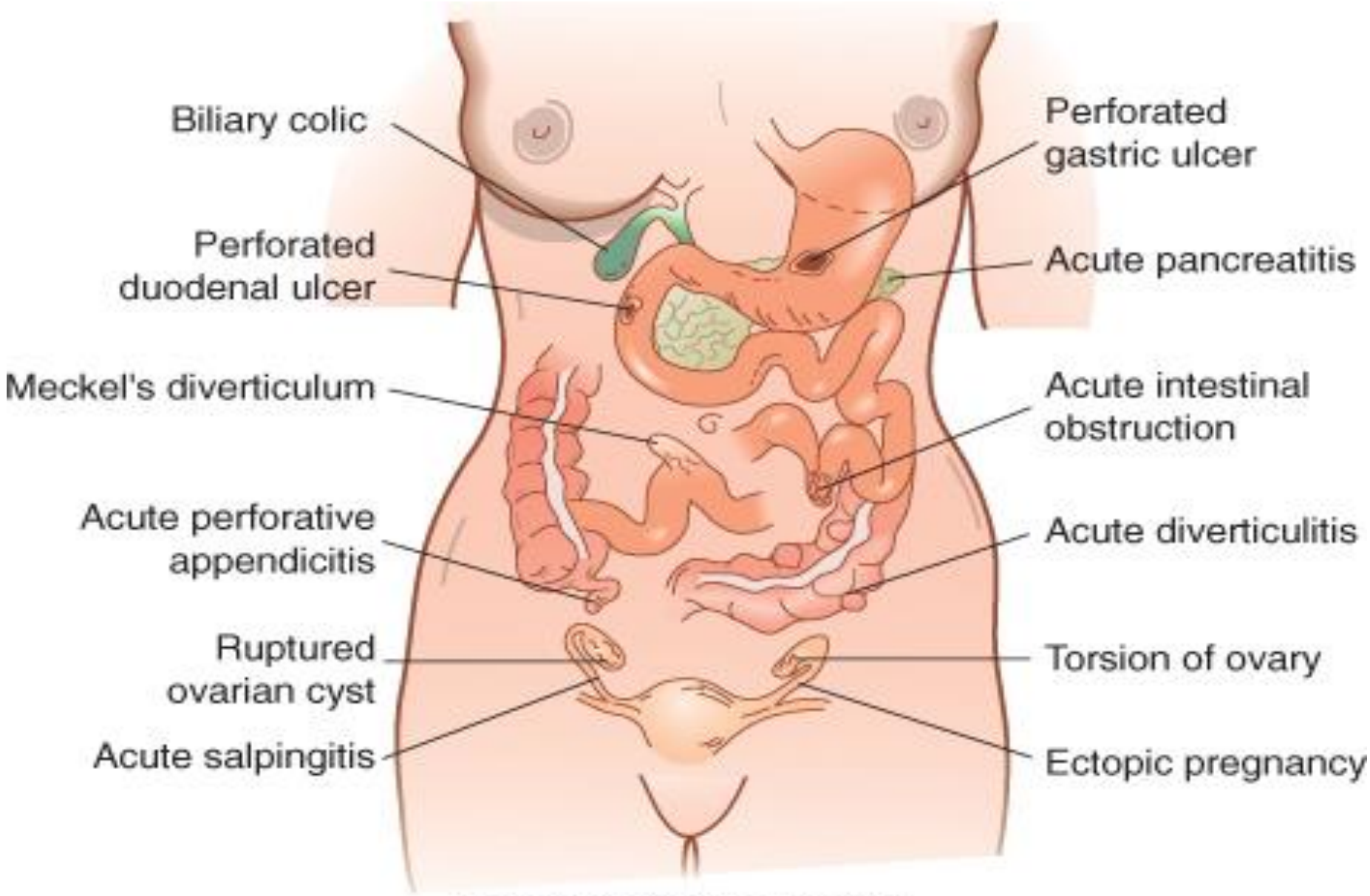
Subjective Data - History

- **Common Complaints:** when, where, what is it like?

- Abdominal pain
- Dysphagia or difficulties in swallowing
- NAUSEA/VOMITING
- Change in bowel habits
- Bleeding: hemathemesis, melena, hematochezia
- Jaundice
- General medical history
- Family history

Most Common Causes in the ED

- Non-specific abd pain 34%
- Appendicitis 28%
- Biliary tract dz 10%
- SBO 4%
- Gyn disease 4%
- Pancreatitis 3%
- Renal colic 3%
- Perforated ulcer 3%
- Cancer 2%
- Diverticular dz 2%
- Other 6%



Abdominal pain

- What else do you want to know?
- What is on your differential diagnosis so far?
- How do you approach the complaint of abdominal pain in general?
- Let's review in this lecture:
  - Types of pain
  - History and physical examination
  - Labs and imaging
  - Ways to remember such a broad differential

Types of Abdominal Pain:

- Three types of pain exist:

  1. Visceral
  2. Parietal
  3. Referred

Visceral pain

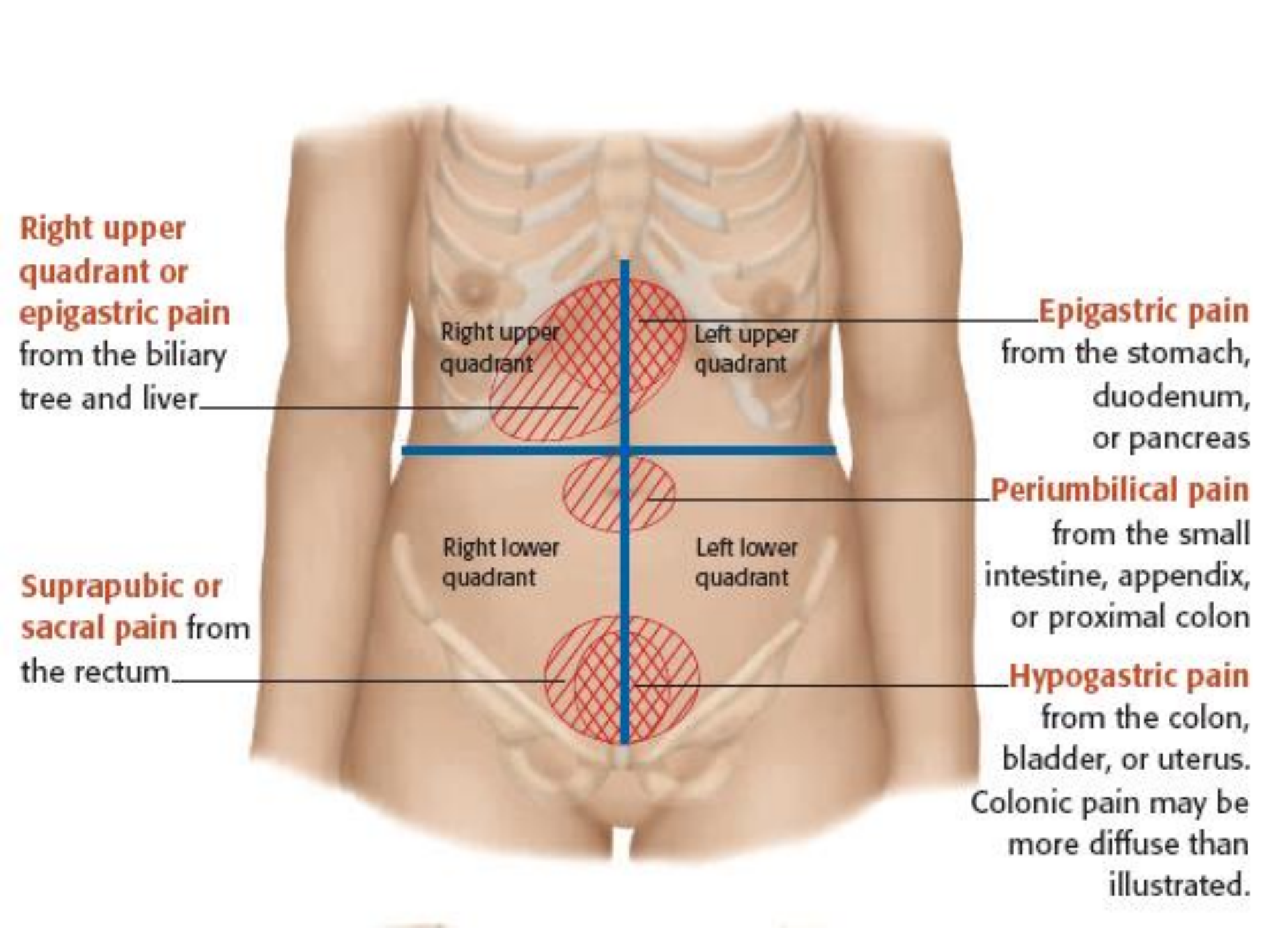
- Dull ache, gnawing, cramping
- It occurs early and poorly localized
- i.e. distension, inflammation or ischemia

Parietal pain

- Caused by irritation of parietal peritoneum fibers.
- It occurs late and better localized.
- Guarding, Rebound tenderness
- Sharp “RUQ pain”(chol’y), “LLQ pain”(divertic)

Referred Pain

- Pain is felt at a site away from the pathological organ.
- Pain is usually ipsilateral to the involved organ and is felt midline if pathology is midline.
- Pattern based on developmental embryology.



Holcomb, Acute abdomen; What a pain! 2008

Clinical Diagnosis

- Location
  - Upper abdomen → PUD, chol'y, pancreatitis
  - Lower abdomen → Divertic, ovary cyst, TOA
  - Mid abdomen → early app'y, SBO

- "Referred pain"
  - Biliary disease → Rt. shoulder or back
  - Sub-left diaphragm abscess → Lt. shoulder
  - Above diaphragm(lungs) → Neck/shoulder

Clinical Diagnosis

- Migratory pattern
  - Epigastric → Peri-umbil → RLQ =Acute app'y
  - Localized pain → Diffuse =Diffuse peritonitis

- Pts with visceral pain are unable to lie still.
- Pts with peritonitis like to stay immobile.

- Acute onset & unrelenting pain = bad

Disorder	Visceral pain	Referred pain
Appenditis	Periumbilical pain to RLQ pain	Rt. Shoulder pain
Small bowel obstruction	Epigastric or periumbilical pain	Midback(rare)
Acute cholecystitis	Middle epigastric pain	Rt. Shoulder/scapula
Diverticulitis	LLQ pain	
Mesenteric ischemia	Diffuse midabdominal pain	
Acute pancreatitis	Middle epigastric or periumbilical pain	Back, Lt. flank, and Lt. Shoulder
Pelvic inflammatory disease	Lower abdominal pain	
Peptic ulcer disease	Upper abdominal epigastric pain	back pain

Bartley, Acute abd. Pain; a diagnostic challenge 2008

Historical features of Abd Pain

- Past medical history
  - Recent / current medications
  - Past hospitalizations
  - Past surgery
  - Chronic disease
  - Social history
  - Occupation / Toxic exposure (CO / lead)

History

- NSAID use (perf DU)
- Jaundice, acholic stools, dark urine
- Drinking history (pancreas)
- Prior surgeries (adhesions→SBO, ? still have gallbladder & appendix)
- History of hernias
- Urine output (dehydrated)
- Related Sx (Fevers/chills)
- Sexual history

History – related symptom

- Nausea and vomiting
- any relationship with food or pain – peptic ulcer
- Is it projectile or faeculant – high obstruction?
- Did it start with certain medication (eg, morphine, digoxin, NSAIDS)
- Do certain events or situations trigger it?(eg hospital, anxiety, chemotherapy)
- Large volume vomit? – gastric stasis
- Distinguish between vomiting/regurgitation
- Psychological assessment

Character of Nausea/Vomitus

- Nausea relieved by vomiting – gastric stasis/bowel obstruction
- Gastritis vomitus contains food particle and some bile
- Intestinal obstruction content varies from gastric, bilious greenish yellow to orange and brown indicating feculent vomitus.
- Early and copious in upper intestinal obstruction
- No vomiting until late in large bowel obstruction
- Frequent scanty in a/c pancreatitis
- Persistent nausea with little relief from vomiting – chemical/metabolic cause

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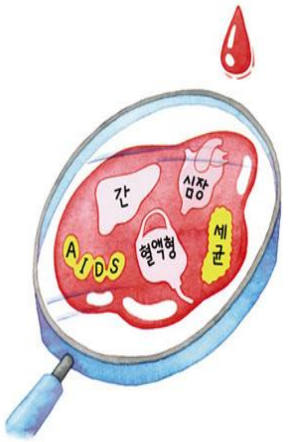


Objective Data - Physical Exam

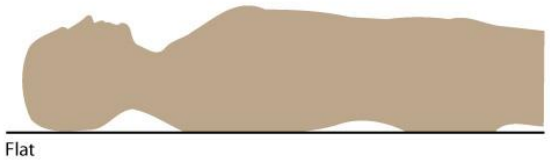
- Enhancing the Exam
  - Empty bladder
  - Patient comfort (pillows and draping)
  - Ask the patient to point to any painful areas; examine last
  - Watch the patient's face for discomfort.
  - Warm hands and stethoscope
  - Ticklish or nervous patients: slow movements, distraction, **use their hands**

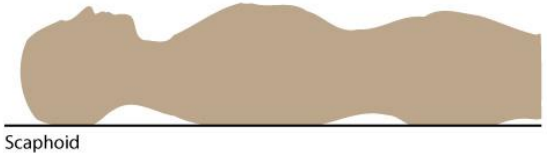
Abdominal Physical Exam

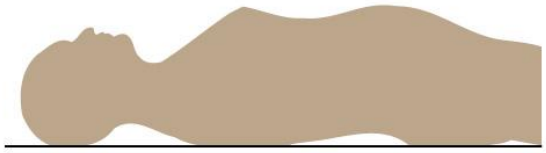
- The exam should be performed in this **specific order**
  - **Inspection**
  - **Auscultation**
  - **Percussion**
  - **Palpation**

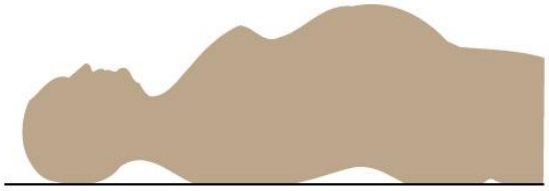
Physical Exam - Inspection

- Contour
  - Flat
  - Scaphoid
  - Distended
  - Symmetry
- Skin
  - Scars
  - Striae
  - Discoloration
  - Venous patterns
  - Edema


Flat

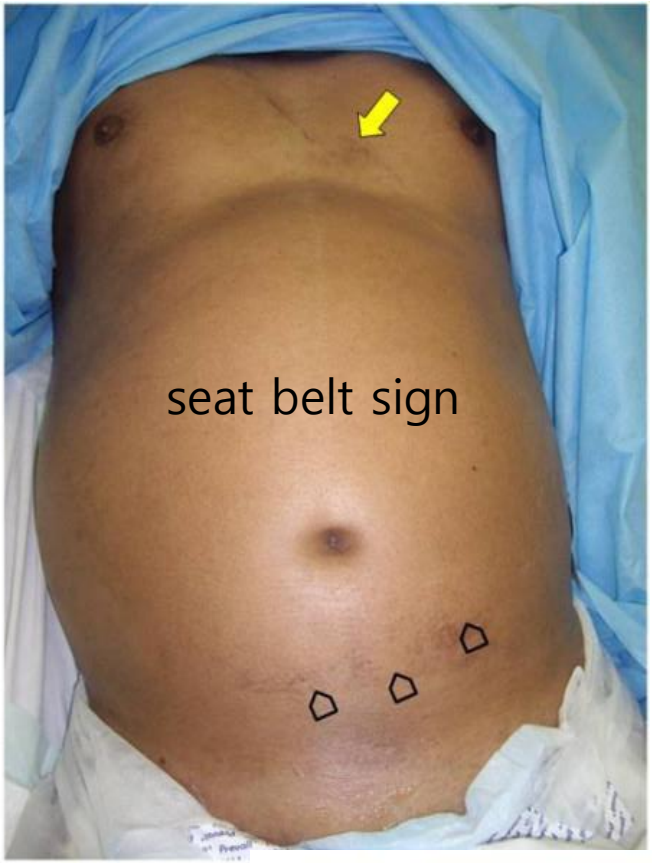

Scaphoid

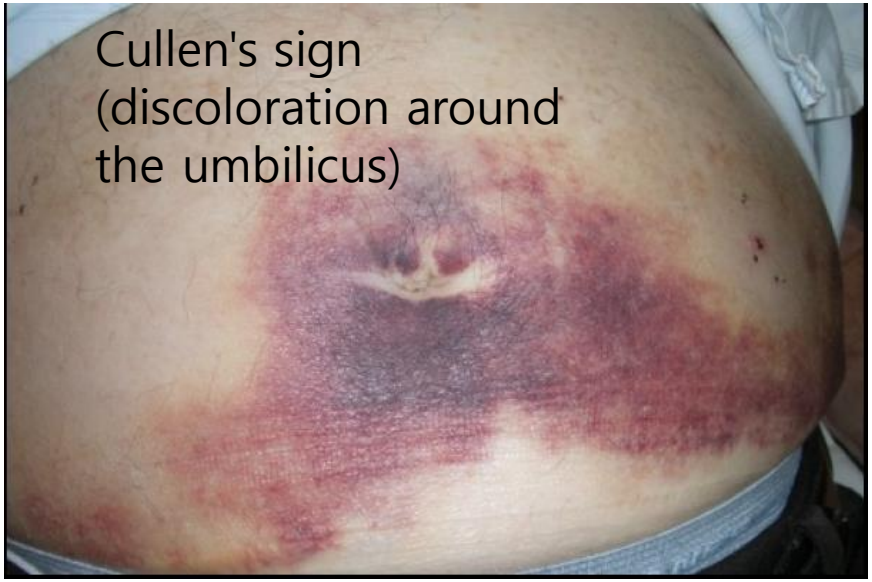

Rounded

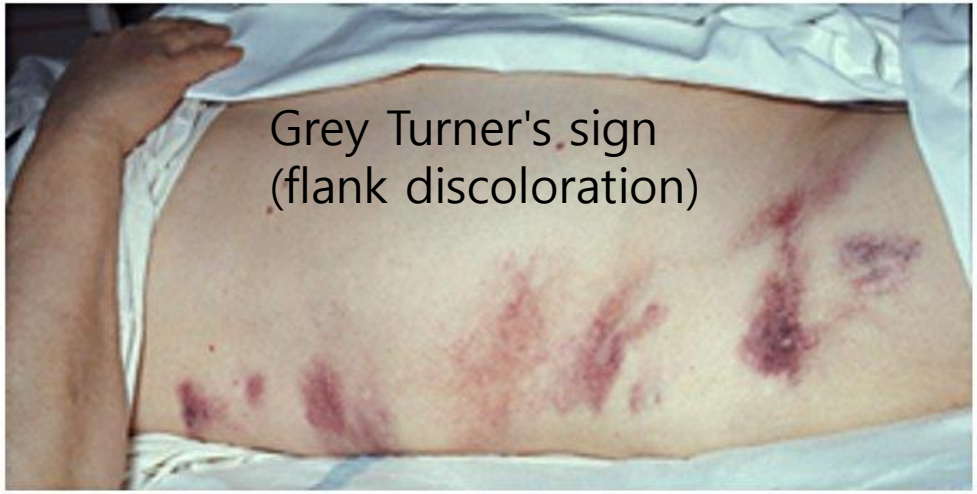

Protuberant

Inspection

- Abdominal contour
  - Distended vs. scaphoid
  - Irregular -> mass / volvulus / obstruction / hernias
- Skin
  - Ecchymosis around umbilicus, flanks
    - pancreatitis? Trauma (seat belt sign)?
  - Scars
  - Prominent veins on the abdominal wall
    - Portal hypertension

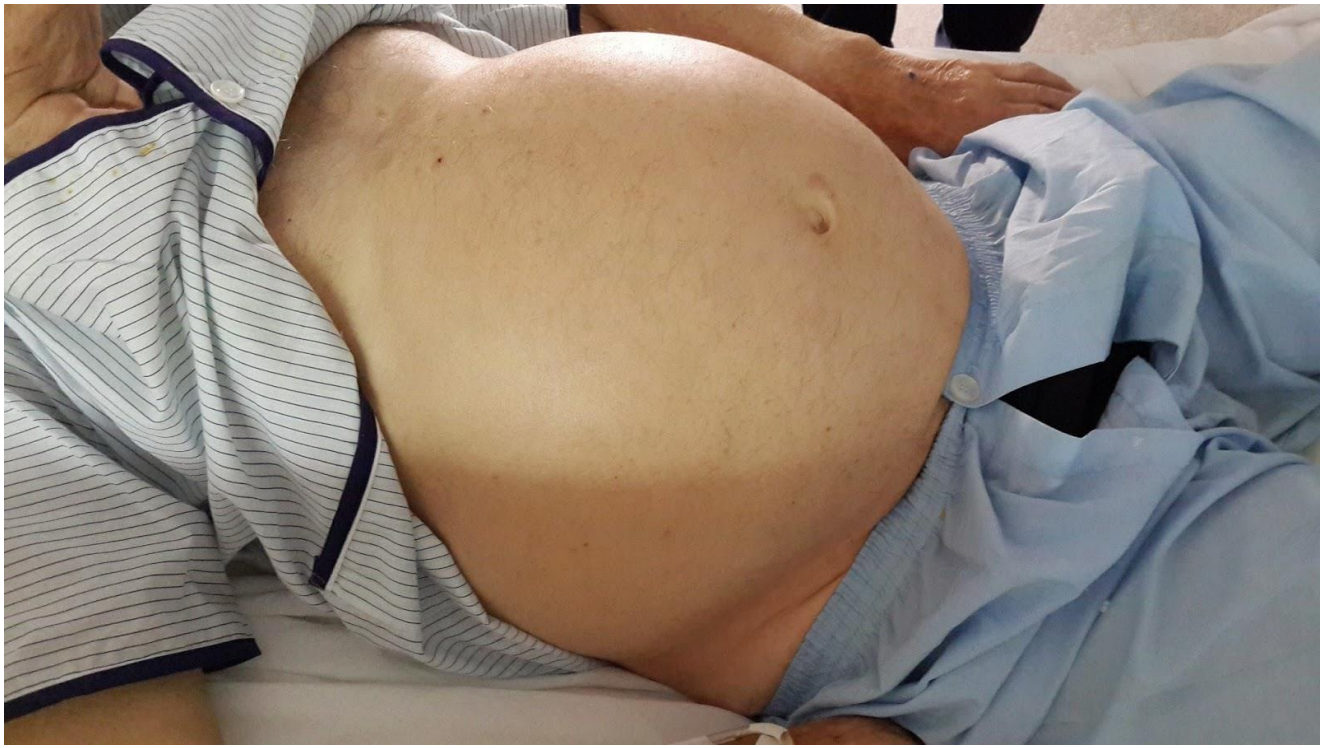

seat belt sign


Cullen's sign
(discoloration around
the umbilicus)


Grey Turner's sign
(flank discoloration)

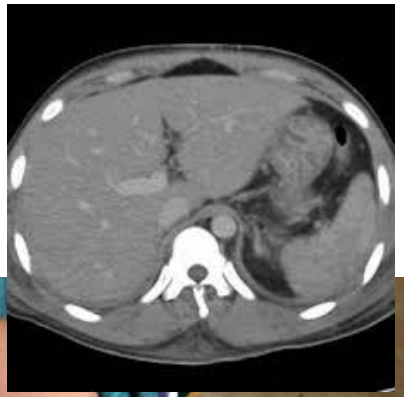
Appearance of the abdomen

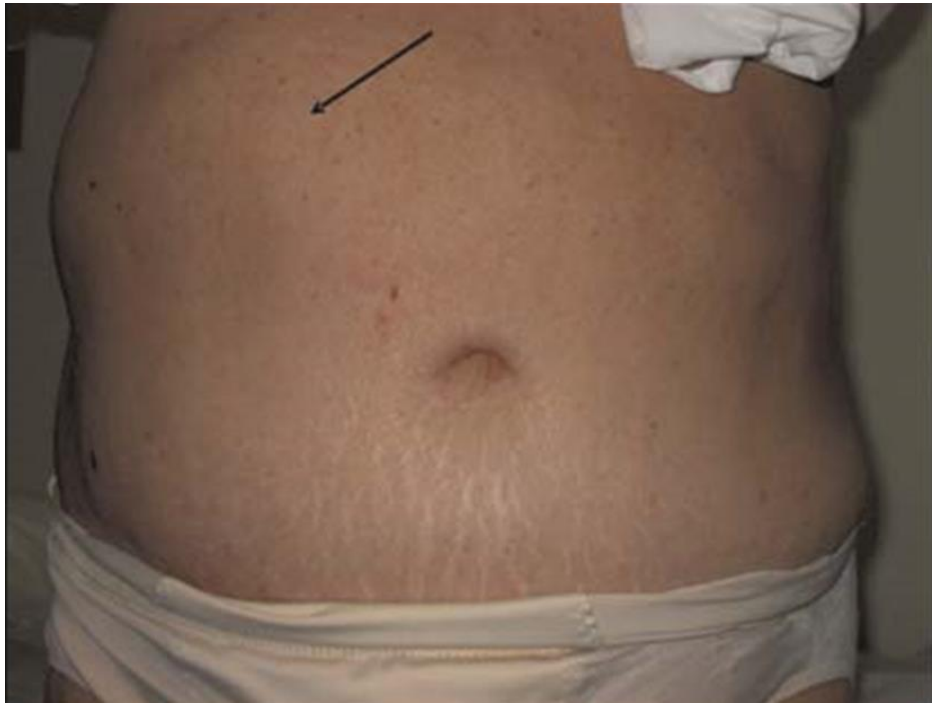
- Global abdominal enlargement is usually caused by air, fluid, or fat.

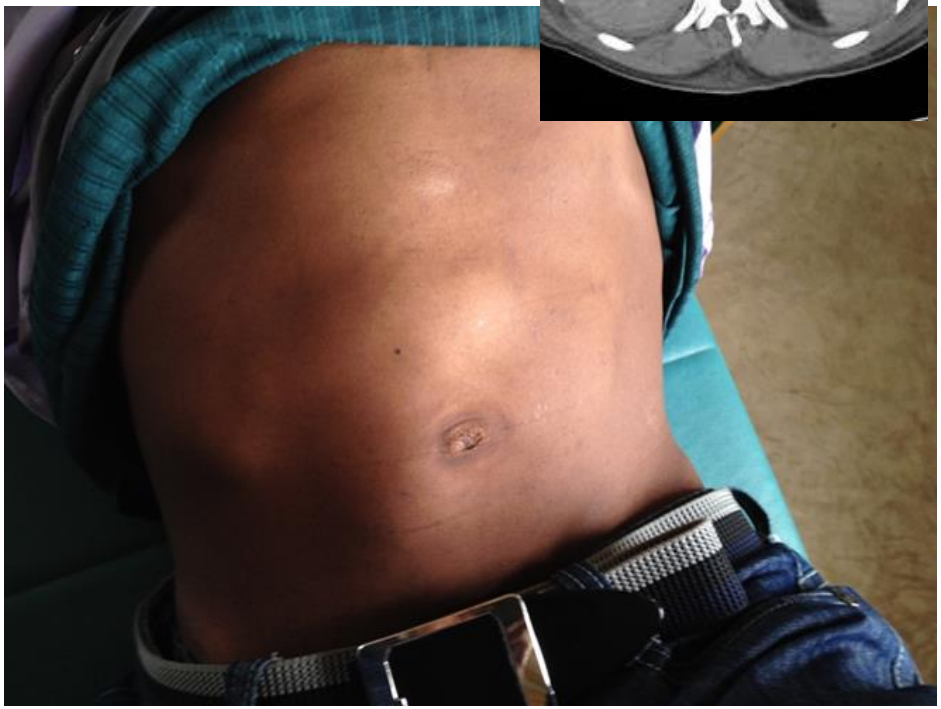


Appearance of the abdomen

- Localized enlargement, probably distended GB, hepatomegaly….



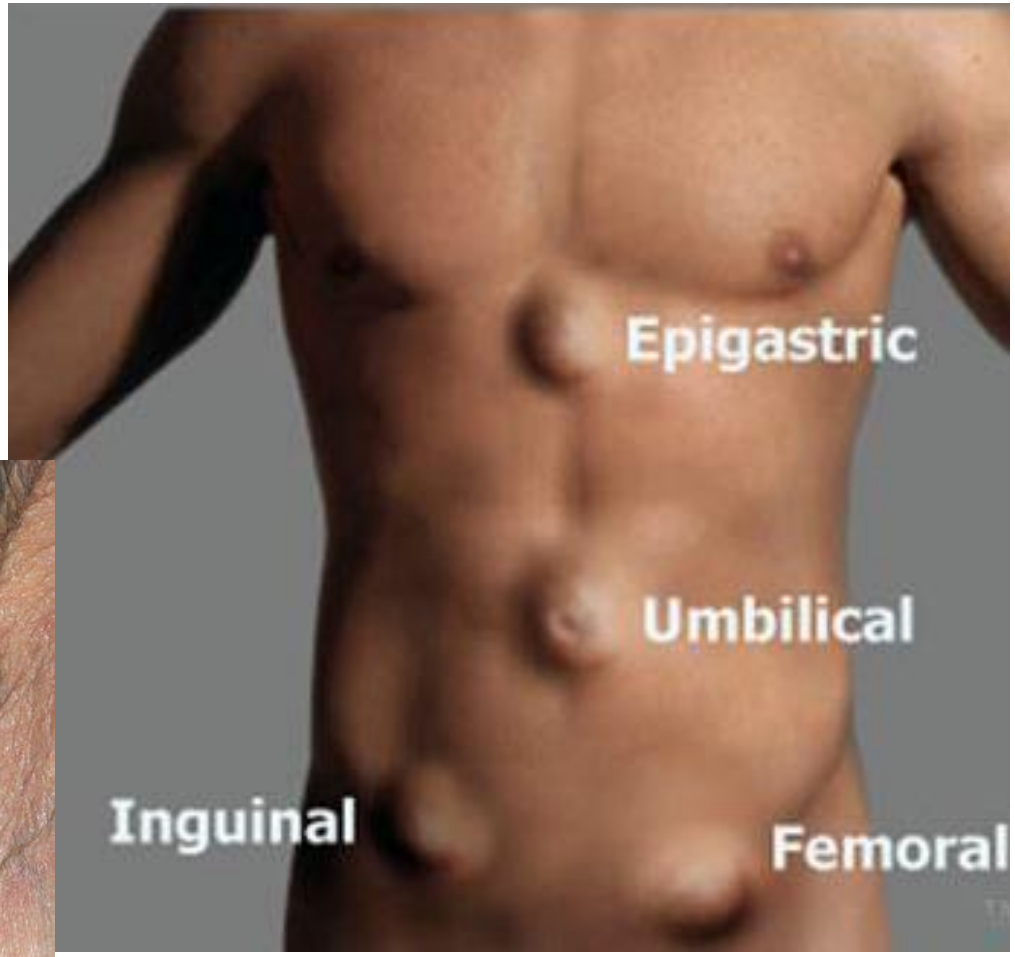




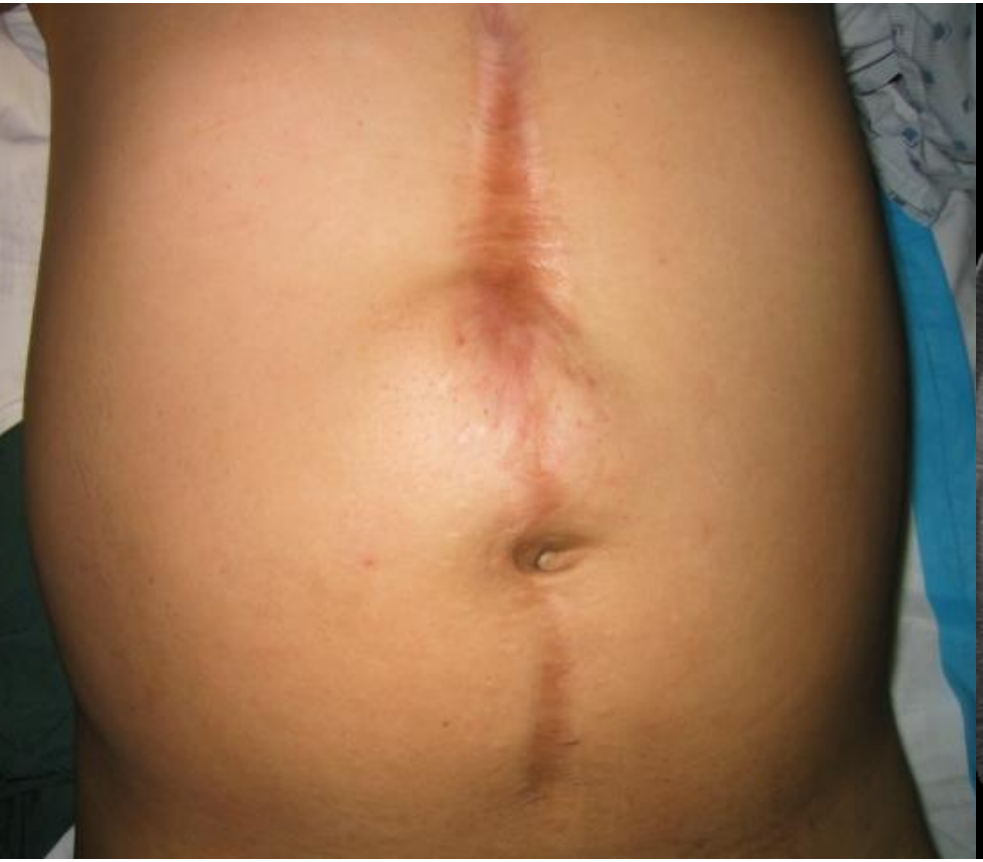
Hepatomegaly

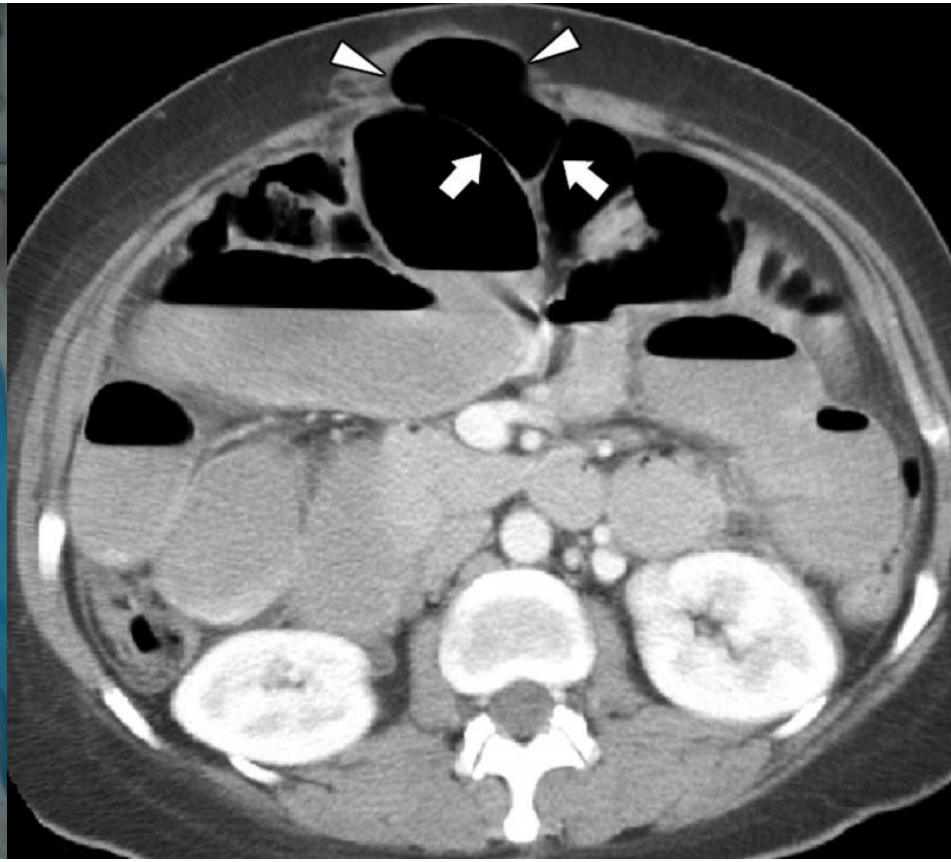
Inspection - Hernia

- Coughing
- Position change

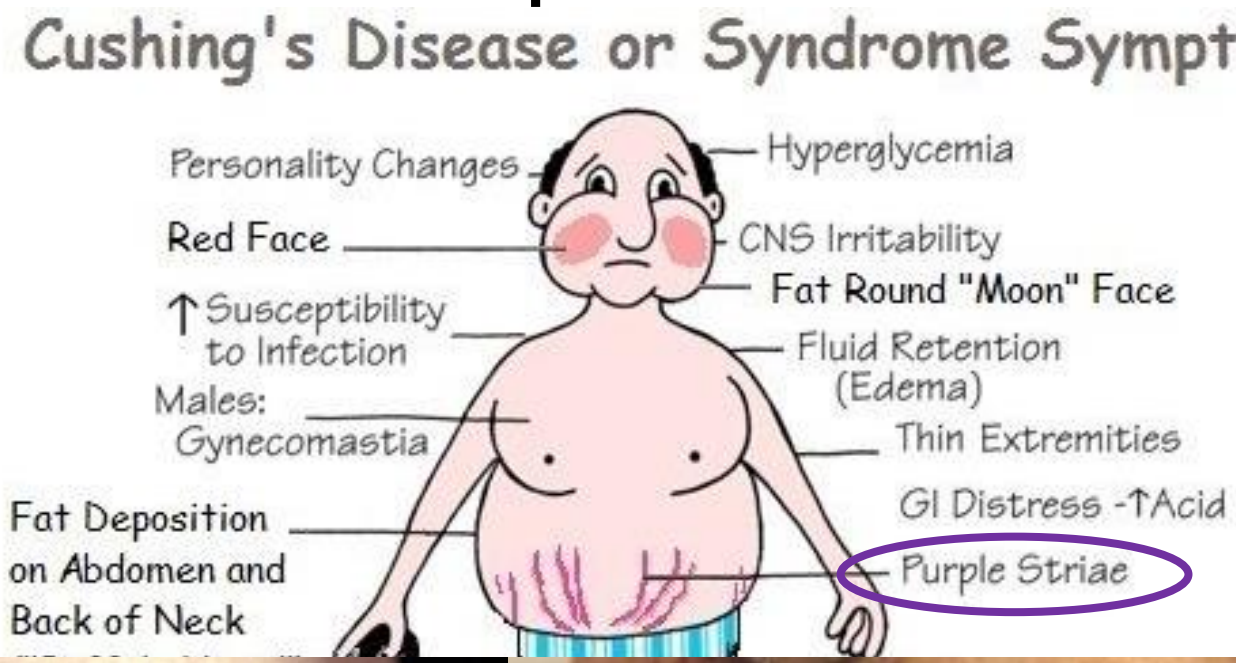


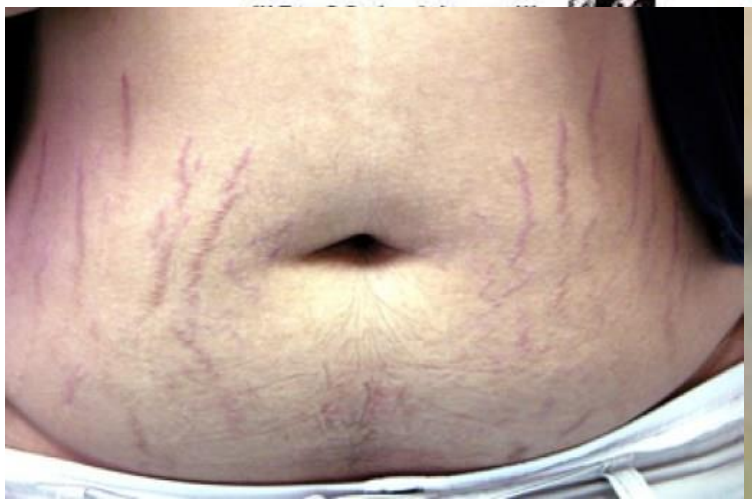
Incisional hernia

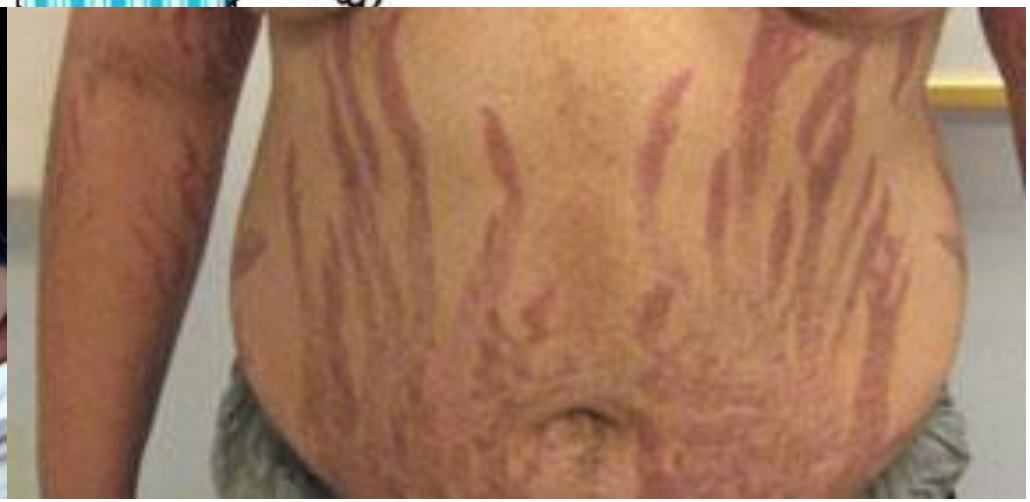




Inspection

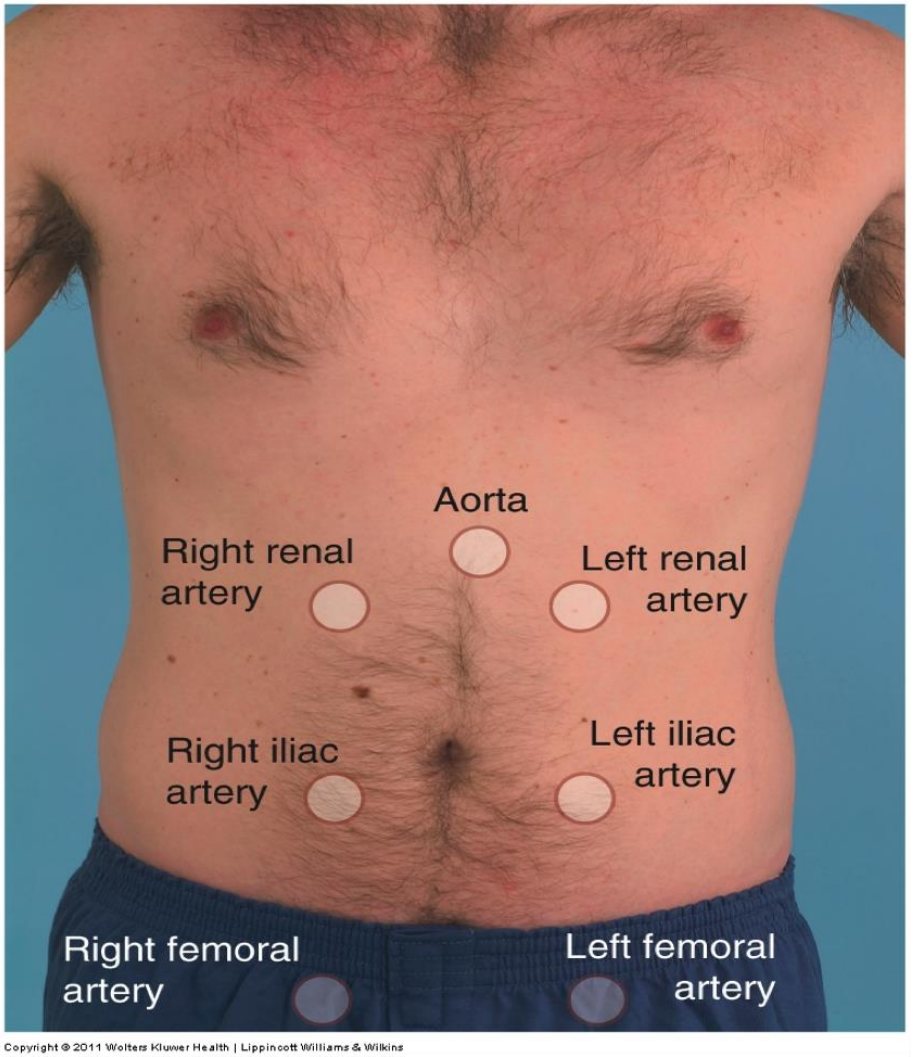

Cushing's Disease or Syndrome Symptoms
Personality Changes
Red Face
↑ Susceptibility to Infection
Males: Gynecomastia
Fat Deposition on Abdomen and Back of Neck
Hyperglycemia
CNS Irritability
Fat Round "Moon" Face
Fluid Retention (Edema)
Thin Extremities
GI Distress -↑Acid
Purple Striae





Physical Exam - Auscultate

- Bowel sounds
- Vascular sounds
  - Bruits
    - Reno-vascular diseases
    - vascular disease
  - in whom the likelihood of vascular disease is low, auscultation may be omitted.

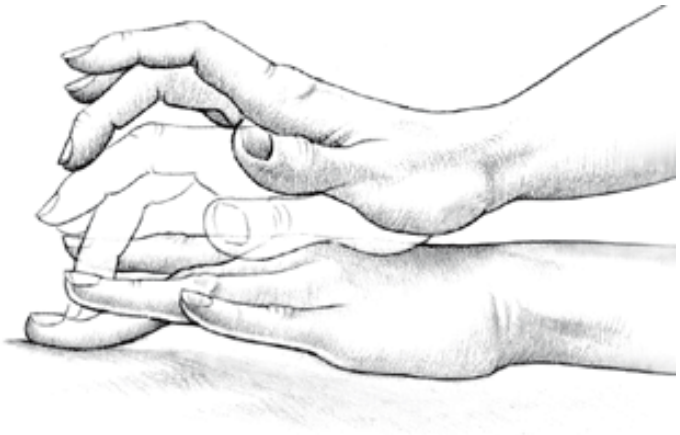


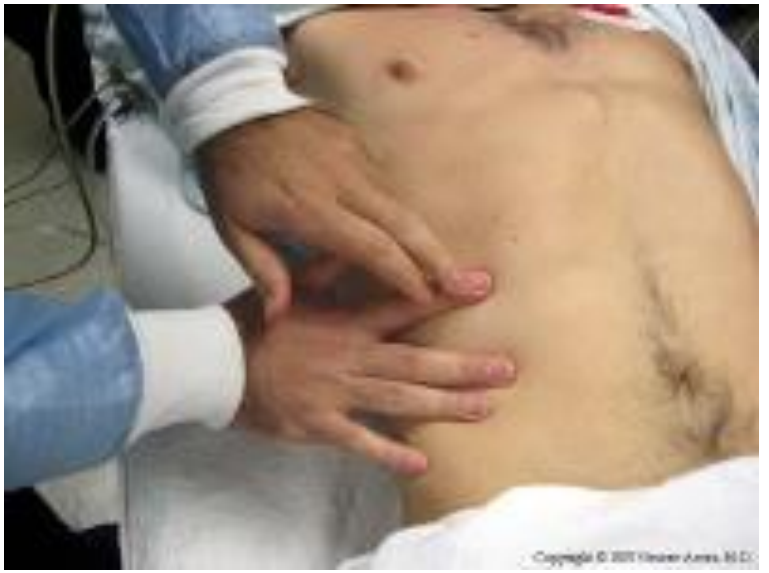
Auscultation

- Bowel Sounds
  - Listen before feeling
  - Absent bowel sounds (at least 5min)
    - ileus, peritonitis, shock
  - Hyperactive
    - Enteritis / obstruction (high pitched or distant)

Physical Exam - Percussion

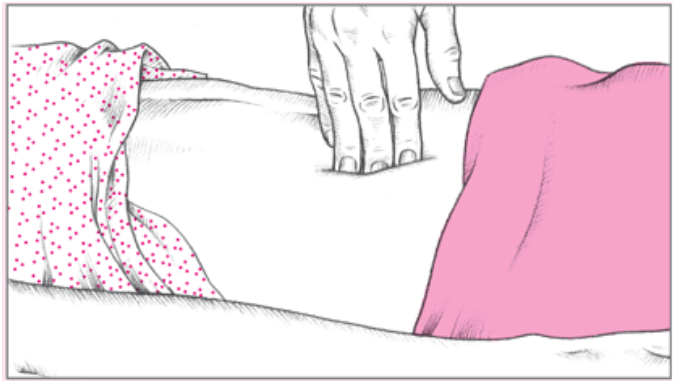
- Notes Elicited
  - 고창음Tympanic: Predominant due to gas in GI tract
  - 둔탁음Dullness: Organs, fluid and feces

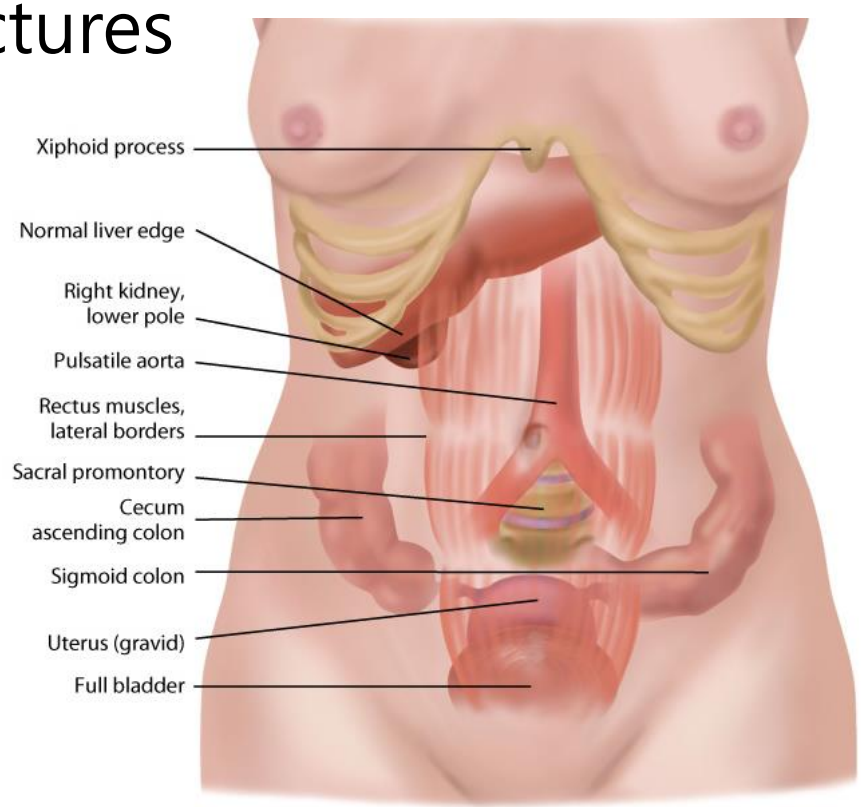




Physical Exam - Palpate

- Light palpation (about 1cm)
- Deep palpation
- Normally palpable structures
  - Liver
  - Spleen
  - Kidneys
  - Aorta





NORMALLY PALPABLE STRUCTURES

Palpation

- Liver palpate
  - 왼손: 11-12번째 늑골에 평행하게 높고 위쪽으로 들어올리는 느낌
  - 오른손: 손가락을 간의 탁음부위 아래에 놓고 끝을 뻗치면서 촉진
  - 대상자는 복식호흡을 하면서 깊게 숨을 들이쉬게 하고 하강되는 간의 전면을 부드럽고 깊게 촉진
  - 정상 간 모서리: soft, sharp, regular, smooth surface

Palpation

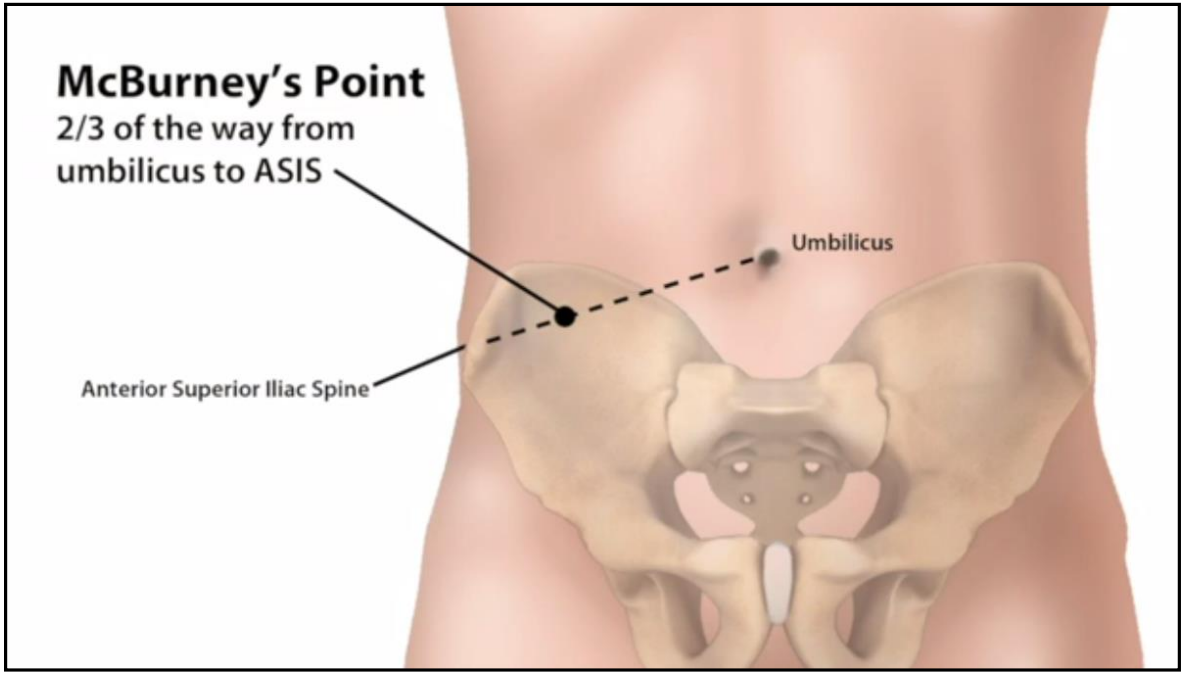
- Feel for masses (enlarged organ, faeces, tumor)
- Tenderness: discomfort and resistance to palpation
- Guarding: voluntary contraction
- Rigidity: involuntary reflex contraction
- Rebound
  - rebound tenderness.mov
    - https://www.youtube.com/watch?v=YYloxjiBAV0
  - patient feels pain when the hand is released
  - Avoid too sudden of a release (may startle patient -> false +)

Acute Appendicitis

- Clinical features with some predictive value include:
  - Pain located in the RLQ
  - Pain migration from the periumbilical area to the RLQ
  - Rigidity
  - Pain before vomiting
  - Positive psoas/Obturator sign
  - Note: Anorexia is not a useful symptom (33% pts not anorectic preoperatively.)

Appendicitis: **McBurney's point**

- McBurney's point
  - rebound tenderness 확인
  - 신체검진 가장 마지막 단계에서 시행(통증-> 근육경직)

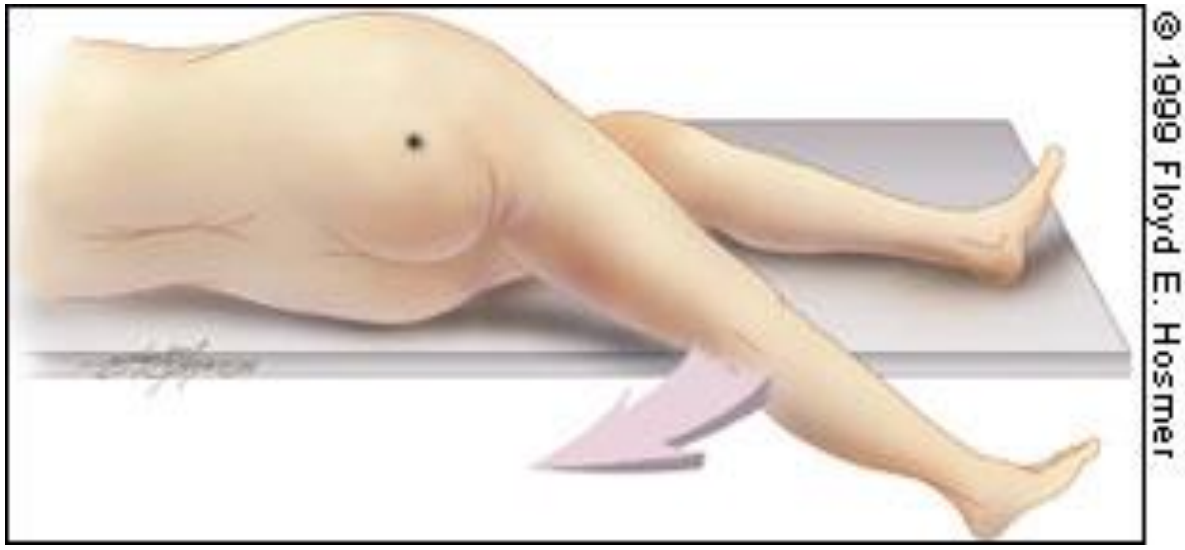


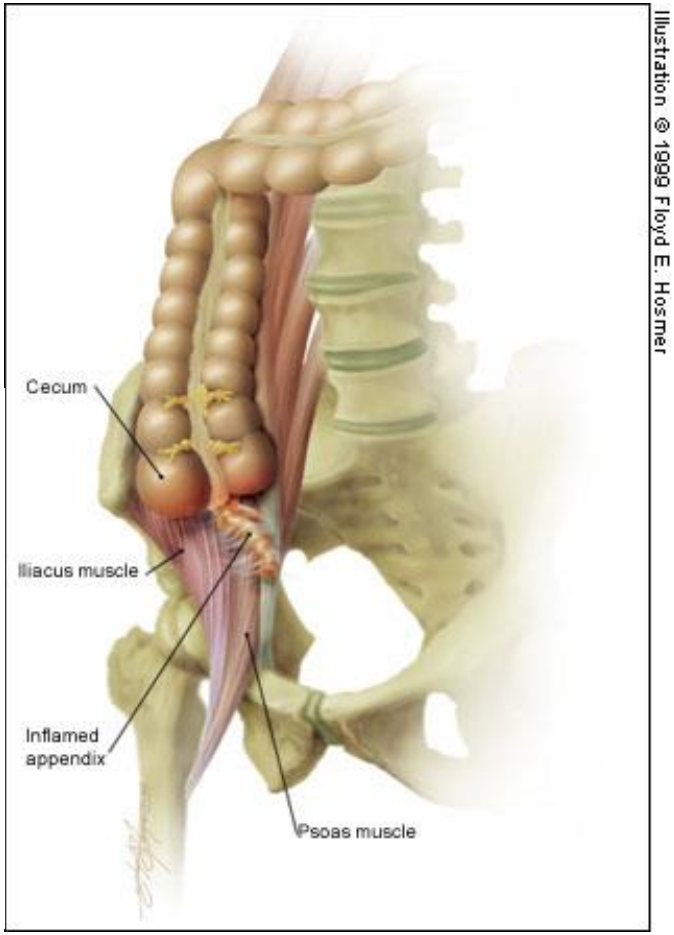
Rovsing's sign

- RLQ pain that is induced by palpation of the left LLQ
- Repose positive is highly suggestive of a RLQ inflammatory process.
- Rovsing sign.MOV
  - https://www.youtube.com/watc
    _lU

Appendicitis: **Psoas Sign**

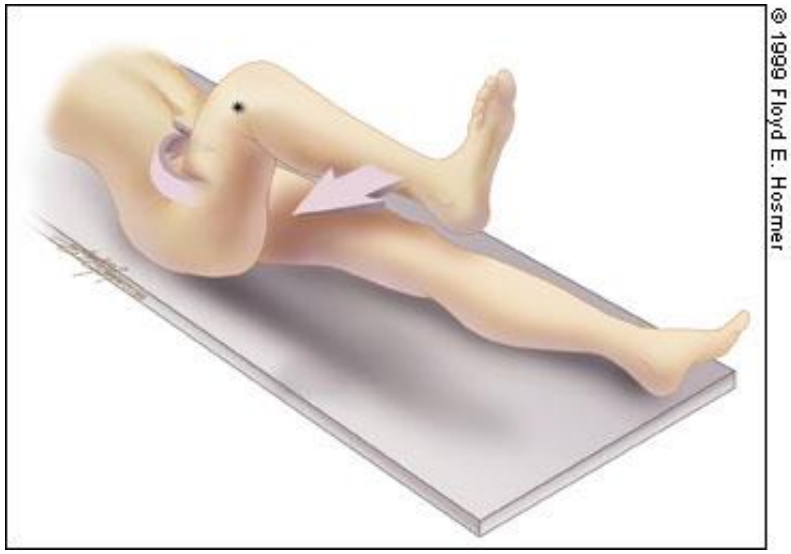
- Psoas sign
  - https://www.youtube.com/watch?v=n0a0PCwsVQ4
  - 검진자의 손을 대상자의 우측 무릎에 두고 대항해서 무릎을 올리도록 하면 통증 악화

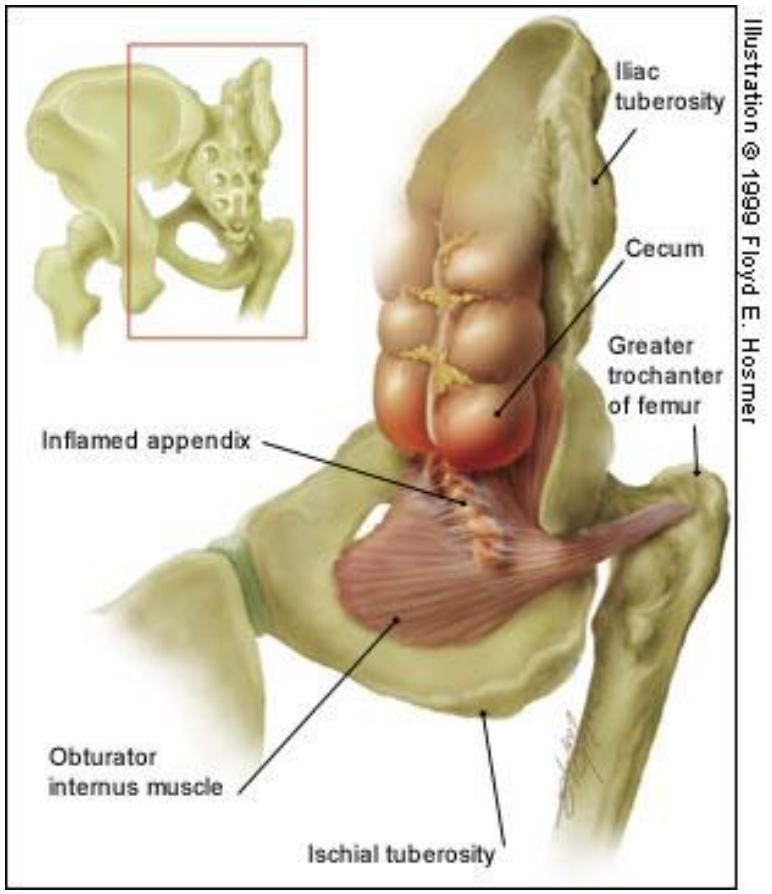




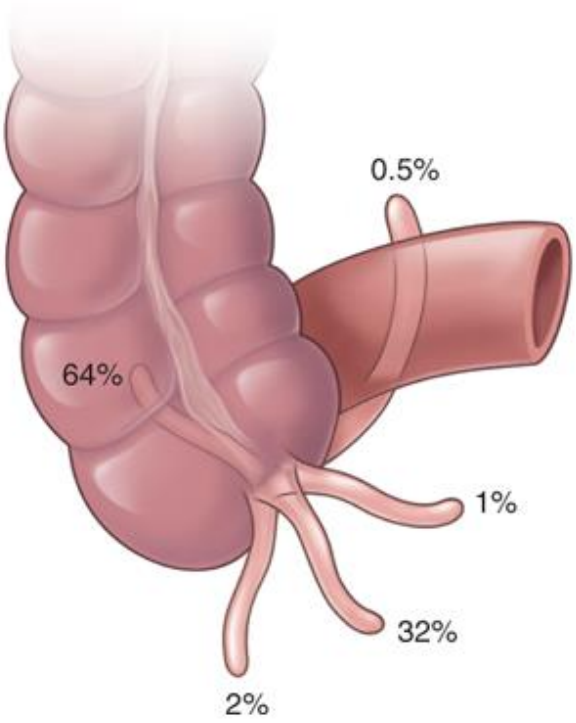
Appendicitis: **Obturator Sign**

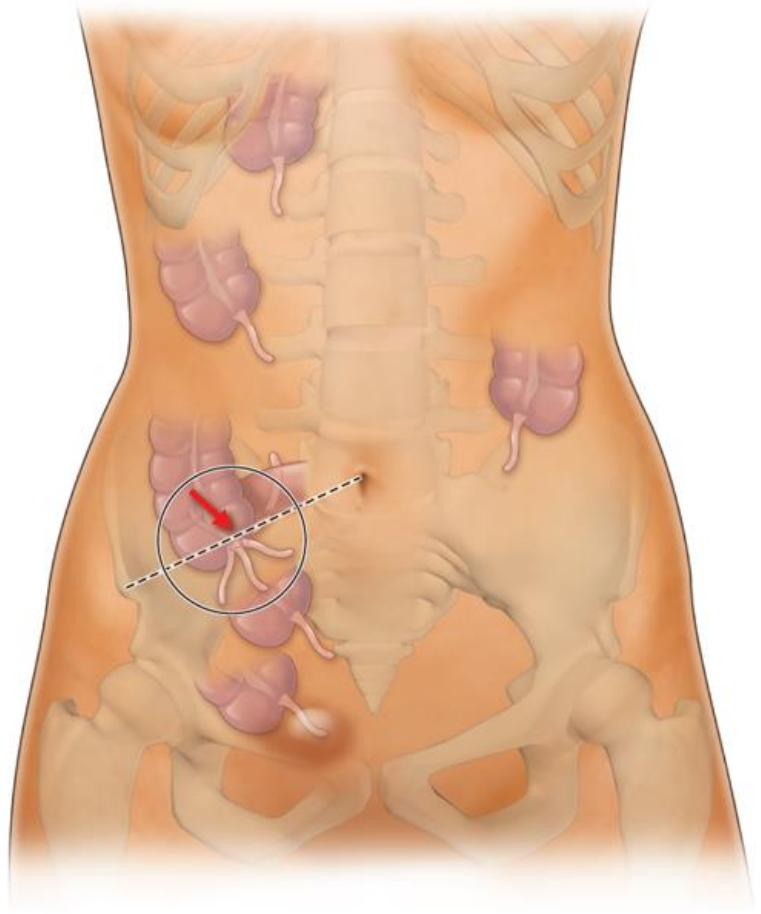
- Obturator sign
  - https://www.youtube.com/watch?v=jV80jcnhNtA
  - 무릎을 구부리고 우측 고관절을 굴곡시킨 후 다리를 내회전하면 통증





Anatomical variations of the appendix

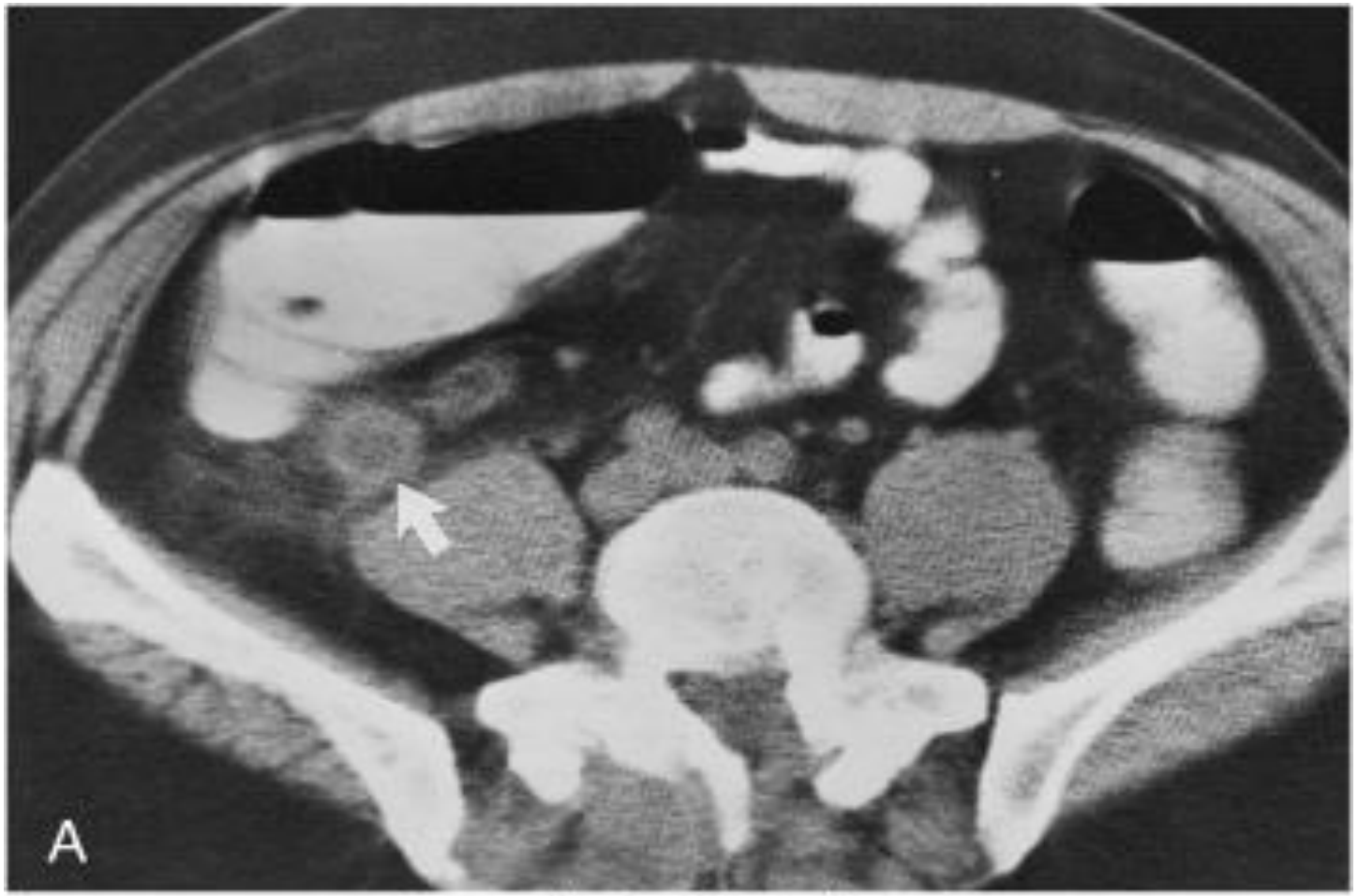




Acute Appendicitis

- Ultrasound can be used for detection, but CT is preferred in adults and non-pregnant women.
- A neg. CT does not exclude diagnosis, but a positive scan confirms it. => sensitivity ↑
- The goal of triage in cases of appendicitis is to get treatment before rupture.
- Perforation occurs in up to 20% of patients and is reported to occur in 50% of patients younger than 3 and older than 50.

CT scan



Acute appendicitis