



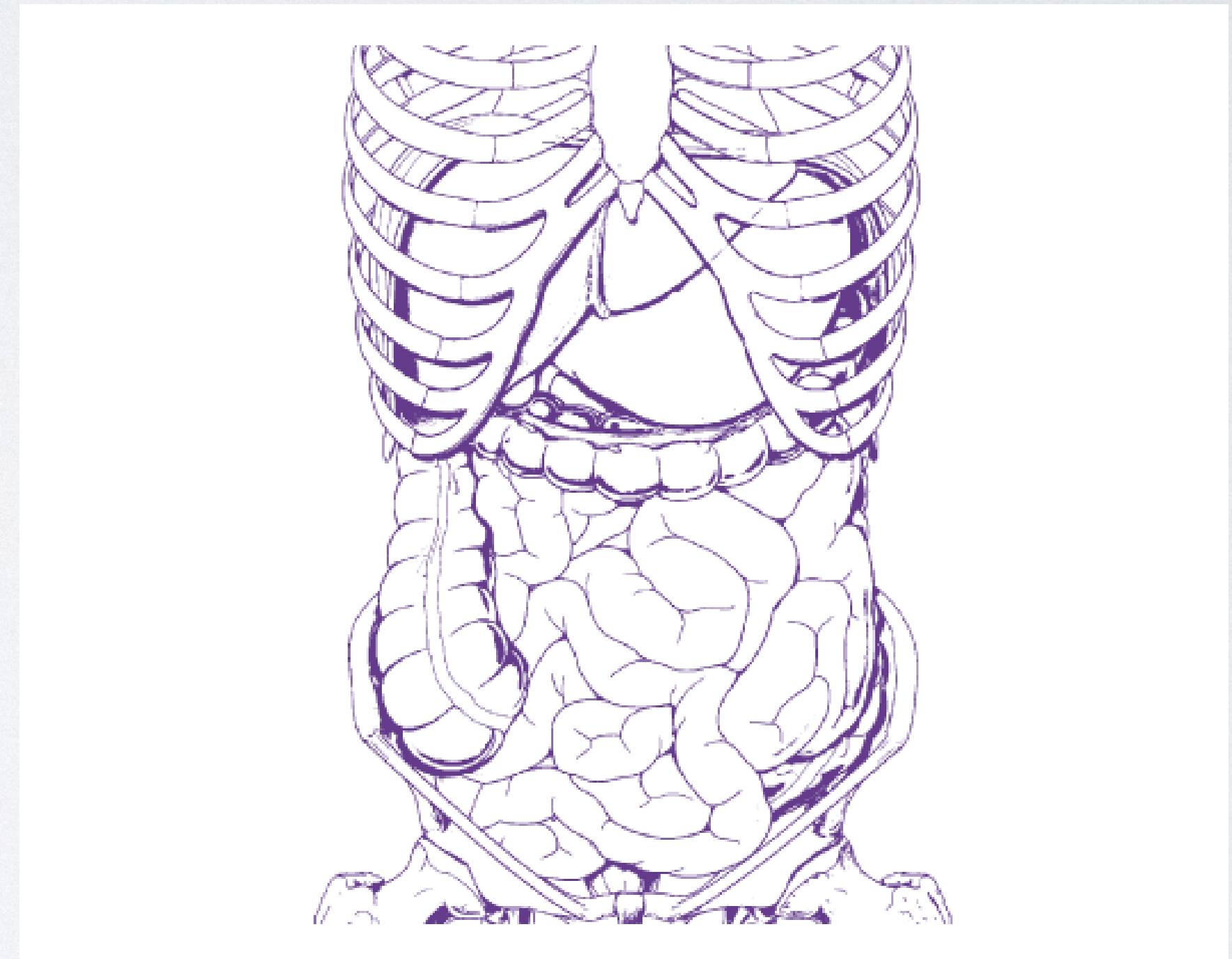
# GENERALIZED ABDOMINAL PAIN & UPPER ABDOMINAL PAIN

Dr. Bushr Mrad *MBBS, FRCSC, ABSD*  
Assistant Clinical Professor of Surgery  
Consultant General Surgeon  
Acute Care & Trauma Unit  
King Saud University Medical City

Academic Year 2022

# OUTLINE

- Basic Definition and Principles
- Clinical Diagnosis / DDx
  - Characterizing the pain
  - Other history to elicit
  - Broad differential
  - History & Physical / Labs / Imaging
  - Non-surgical causes of acute abdomen
- Clinical Management
- Decision to Operate
- Atypical presentations
- Take home message

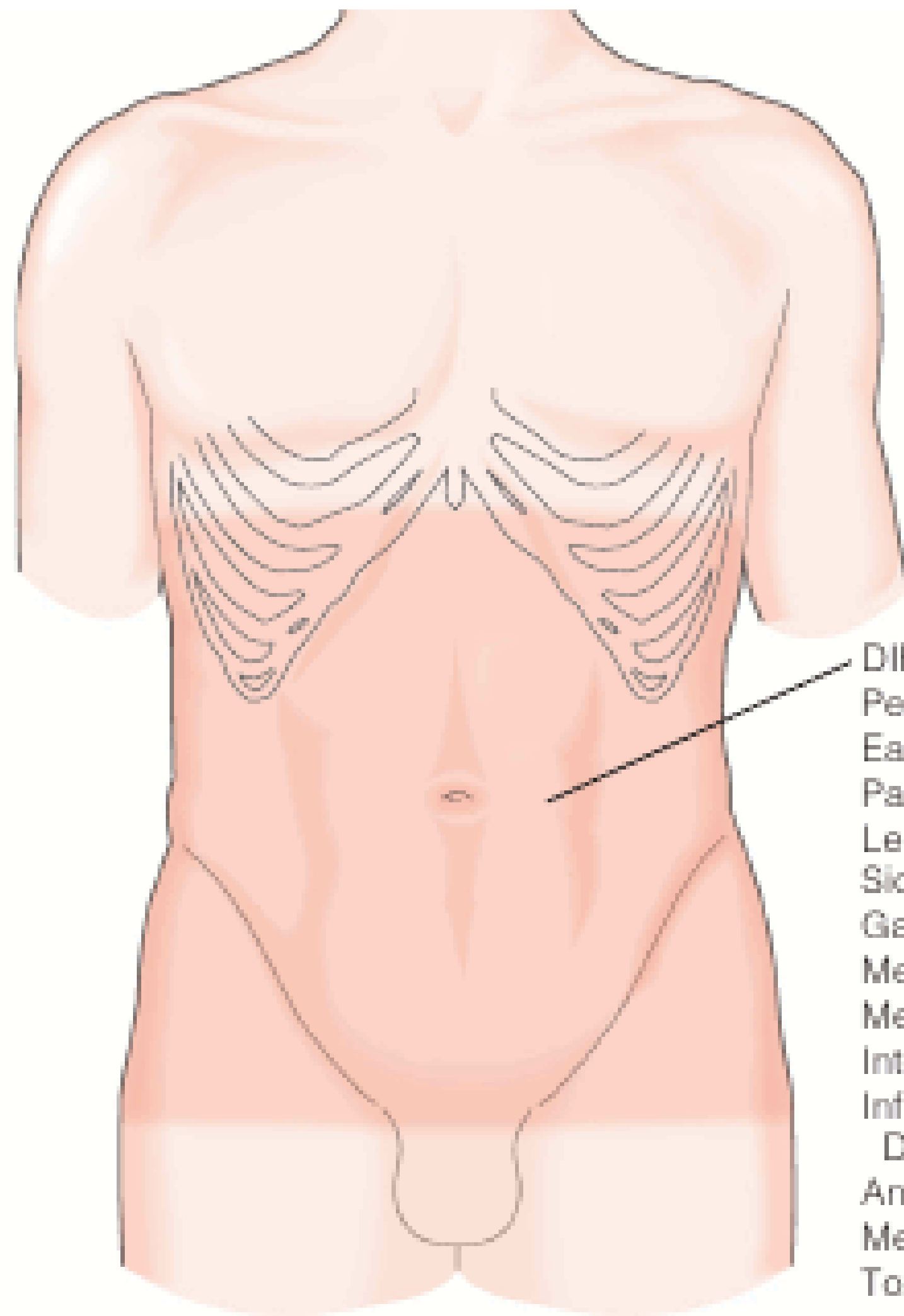


# BASIC DEFINITION AND PRINCIPLES

- Signs and symptoms of intra-abdominal disease that is *usually* best treated by surgery
- Despite improvements in labs and imaging, history and physical examination remains the mainstay of determining the correct diagnosis !
- Proper evaluation and management requires one to recognize:
  - 1. Does this patient need surgery ?
  - 2. Is it emergent, urgent, or can wait ?
- Remember medical “non-surgical” causes of abdominal pain

# CLINICAL DIAGNOSIS

- Characterizing the pain is the key
  - Onset, duration, location, character
- Visceral pain → dull & poorly localized
  - i.e. distension, inflammation or ischemia
- Parietal pain → sharper, better localized
  - Inflammation of parietal peritoneum

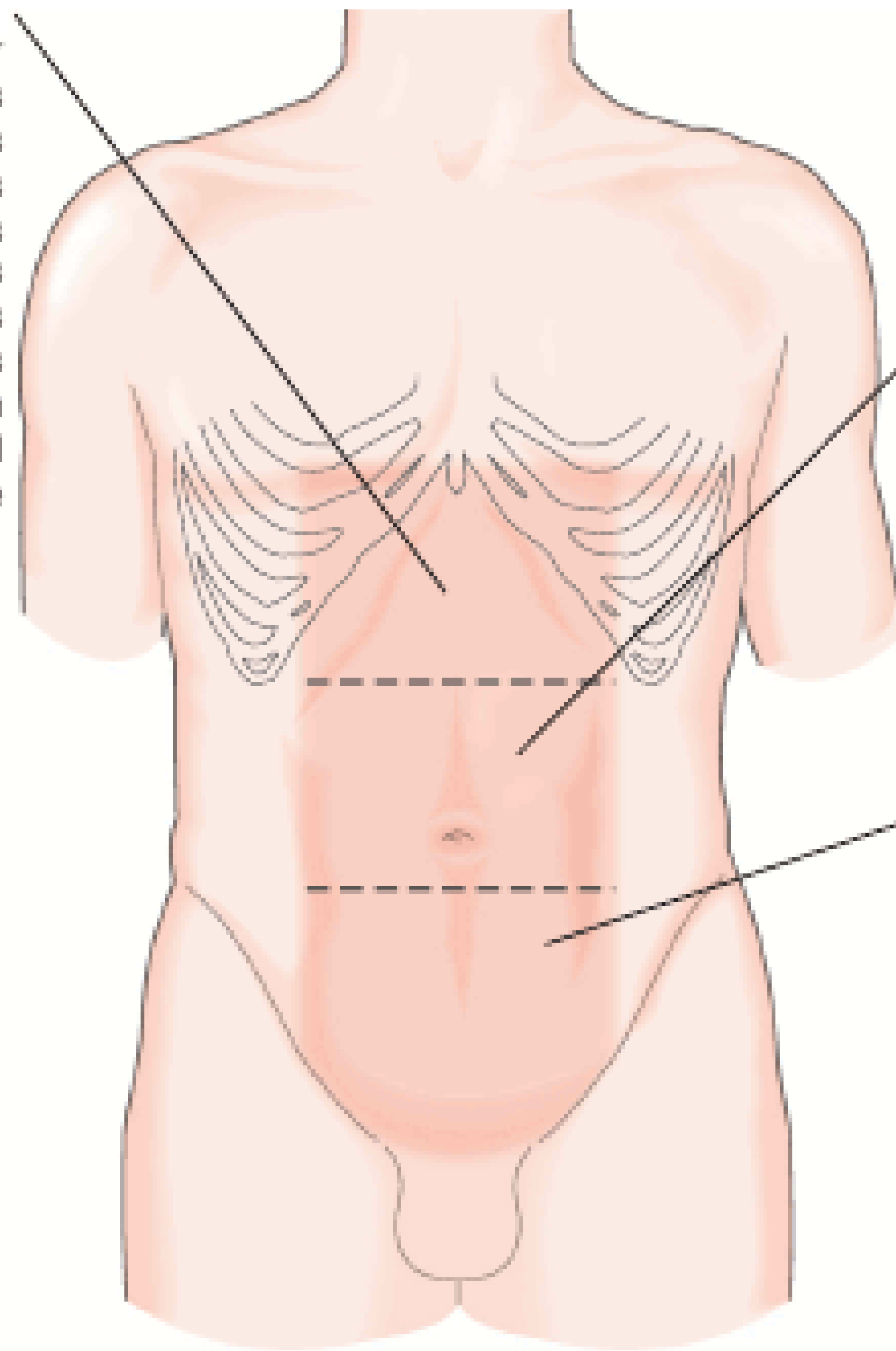


**EPIGASTRIC REGION**

- Peptic Ulcer
- Gastritis
- Pancreatitis
- Duodenitis
- Gastroenteritis
- Early Appendicitis
- Mesenteric Adenitis
- Mesenteric Thrombosis
- Intestinal Obstruction
- Inflammatory Bowel Disease

**DIFFUSE**

- Peritonitis
- Early Appendicitis
- Pancreatitis
- Leukemia
- Sickle Cell Crisis
- Gastroenteritis
- Mesenteric Adenitis
- Mesenteric Thrombosis
- Intestinal Obstruction
- Inflammatory Bowel Disease
- Aneurysm
- Metabolic Causes
- Toxic Causes



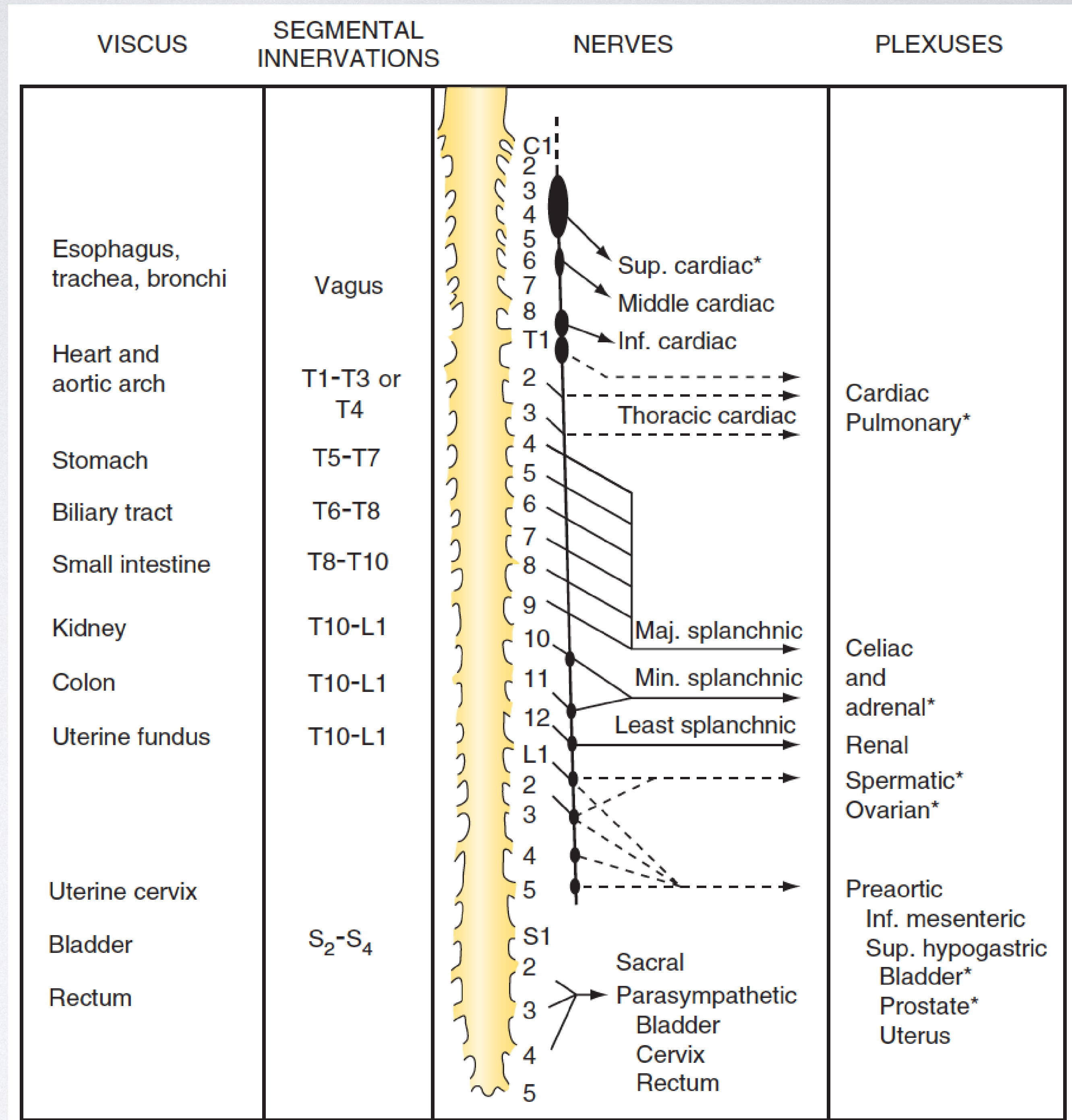
**UMBILICAL REGION**

- Early Appendicitis
- Gastroenteritis
- Pancreatitis
- Hernia
- Mesenteric Adenitis
- Mesenteric Thrombosis
- Intestinal Obstruction
- Inflammatory Bowel Disease
- Aneurysm

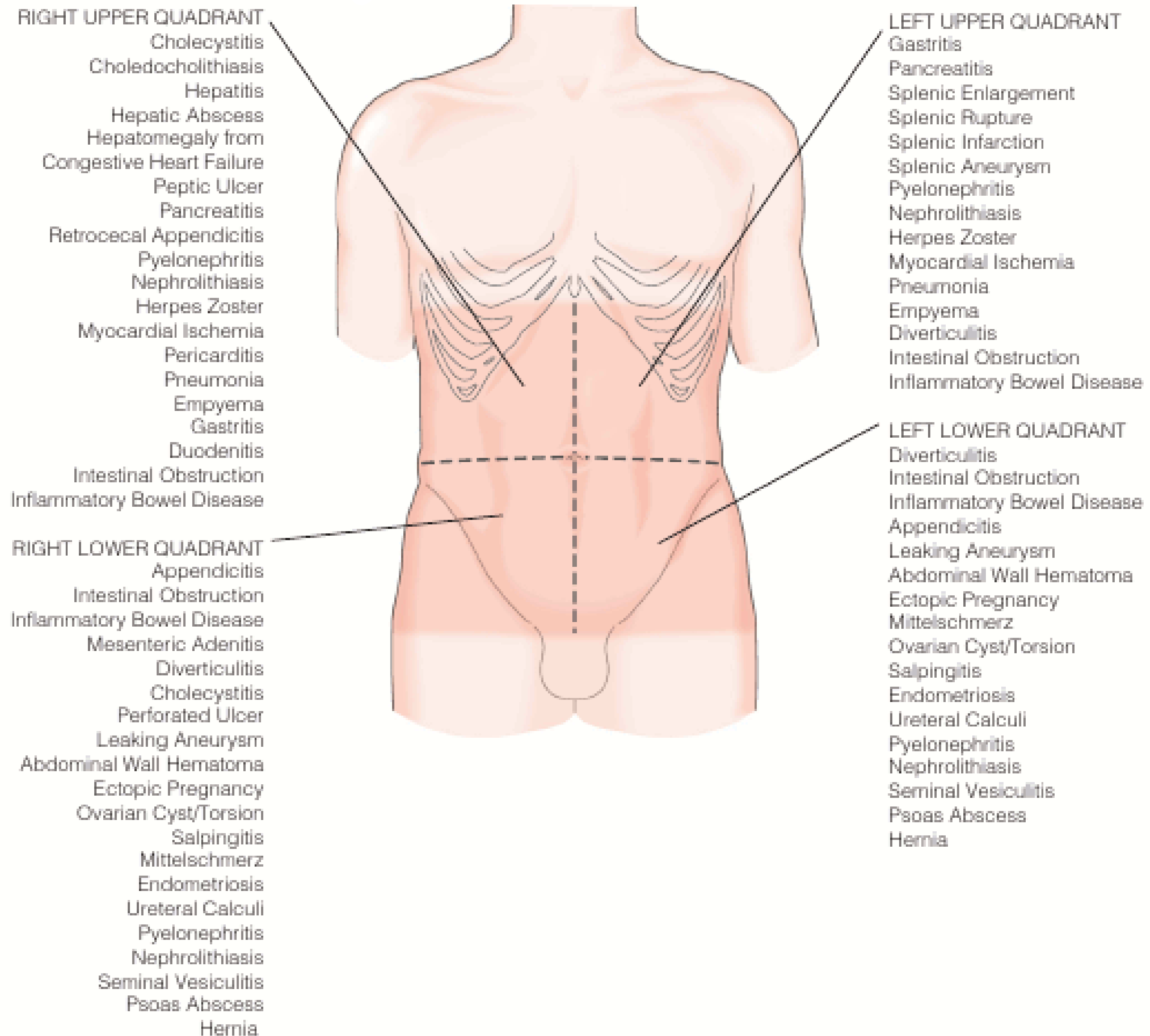
**HYPOGASTRIC REGION**

- Cystitis
- Diverticulitis
- Appendicitis
- Prostatism
- Salpingitis
- Hernia
- Ovarian Cyst/Torsion
- Endometriosis
- Ectopic Pregnancy
- Nephrolithiasis
- Intestinal Obstruction
- Inflammatory Bowel Disease
- Abdominal Wall Hematoma

# Sensory innervation of the viscera



- Parietal pain → sharper, better localized
- Inflammation of parietal peritoneum



# GENERALIZED ABDOMINAL PAIN

- Irritable Bowel Syndrome
- Recurrent adhesive bowel obstruction
- Mesenteric vascular ischemia
- Diffuse carcinomatosis
- Chronic constipation
- Radiation visceral damage
- Retroperitoneal neoplasms
- Diffuse endometriosis
- Lumbar spinal pain
- Extensive retroperitoneal fibrosis
- Psychosomatic



# Medical Causes of Acute Abdomen

## *3 broad categories*

### **Endocrine and Metabolic Causes**

Uremia  
Diabetic crisis  
Addisonian crisis  
Acute intermittent porphyria  
Hereditary Mediterranean fever

### **Hematologic Causes**

Sickle cell crisis  
Acute leukemia  
Other blood dyscrasias

### **Toxins and Drugs**

Lead poisoning  
Other heavy metal poisoning  
Narcotic withdrawal  
Black widow spider poisoning

# Surgical Causes of Acute Abdomen

### **Hemorrhage**

Solid organ trauma  
Leaking or ruptured arterial aneurysm  
Ruptured ectopic pregnancy  
Bleeding gastrointestinal diverticulum  
Arteriovenous malformation of gastrointestinal tract  
Intestinal ulceration  
Aortoduodenal fistula after aortic vascular graft  
Hemorrhagic pancreatitis  
Mallory-Weiss syndrome  
Spontaneous rupture of spleen

### **Infection**

Appendicitis  
Cholecystitis  
Meckel's diverticulitis  
Hepatic abscess  
Diverticular abscess  
Psoas abscess

### **Perforation**

Perforated gastrointestinal ulcer  
Perforated gastrointestinal cancer  
Boerhaave syndrome  
Perforated diverticulum

### **Blockage**

Adhesion induced small or large bowel obstruction  
Sigmoid volvulus  
Cecal volvulus  
Incarcerated hernias  
Inflammatory bowel disease  
Gastrointestinal malignant neoplasm  
Intussusception

### **Ischemia**

Buerger disease  
Mesenteric thrombosis or embolism  
Ovarian torsion  
Ischemic colitis  
Testicular torsion  
Strangulated hernias

# UPPER ABDOMINAL PAIN

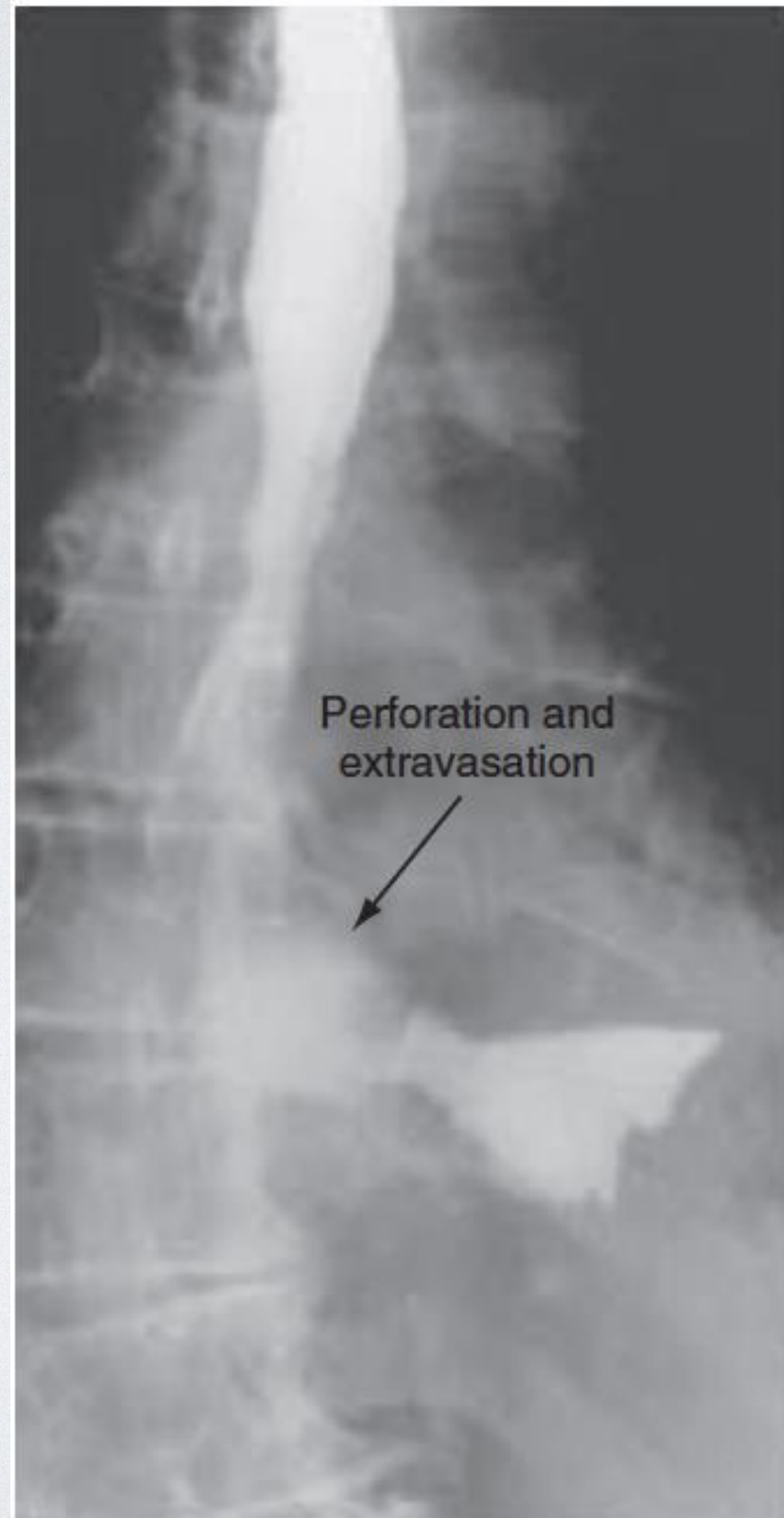
## Acute

- Oesophagitis
- Boerhaave's syndrome
- Acute gastritis
- Gallstone and biliary colic
  - Acute Cholecystitis
  - Acute pancreatitis

## Chronic

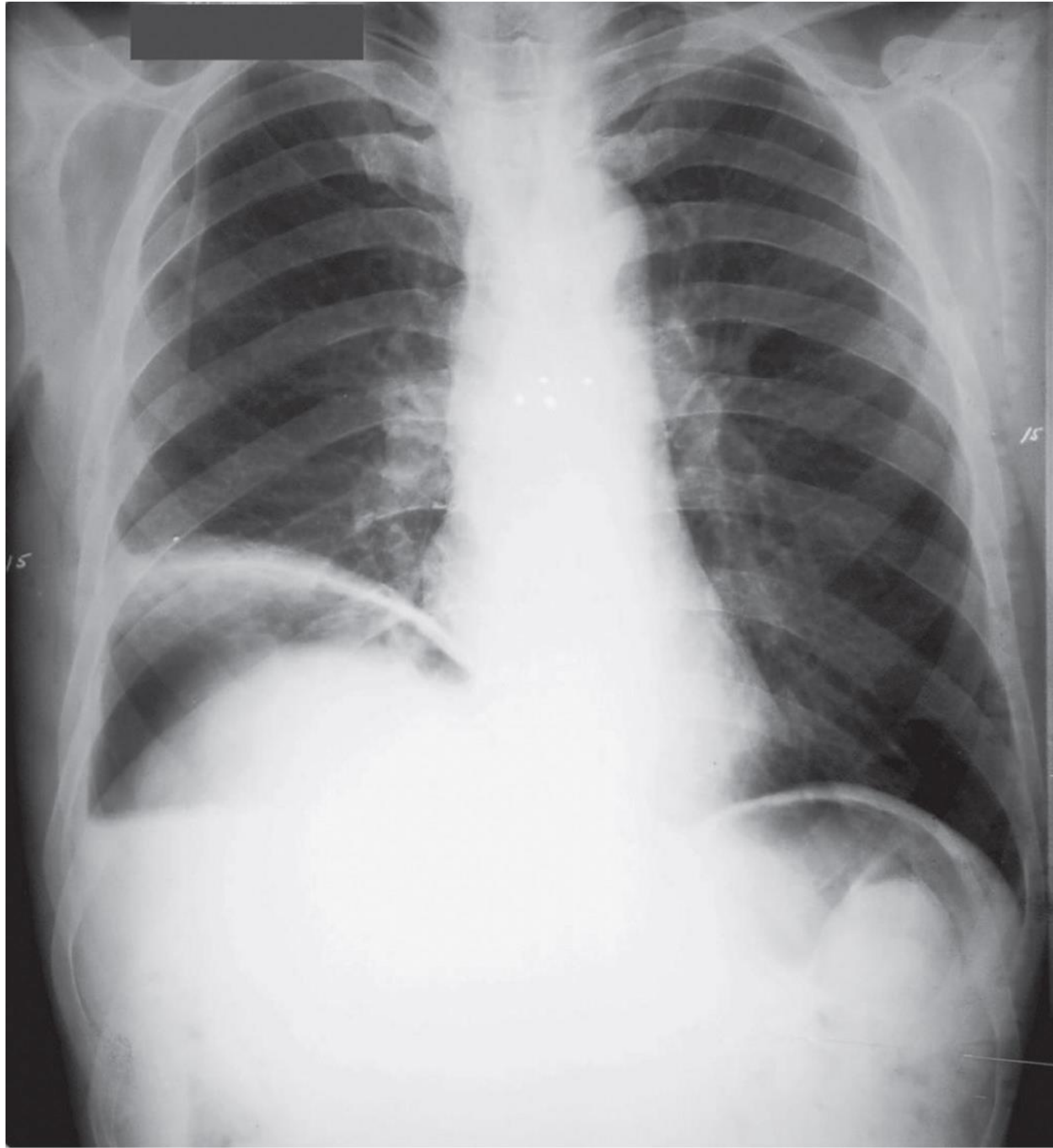
- Chronic peptic ulceration
- Carcinoma of the stomach
  - Chronic cholecystitis
  - Chronic pancreatitis
  - Liver metastasis
  - Splenomegally

# POSTEMETIC RUPTURE OF THE ESOPHAGUS



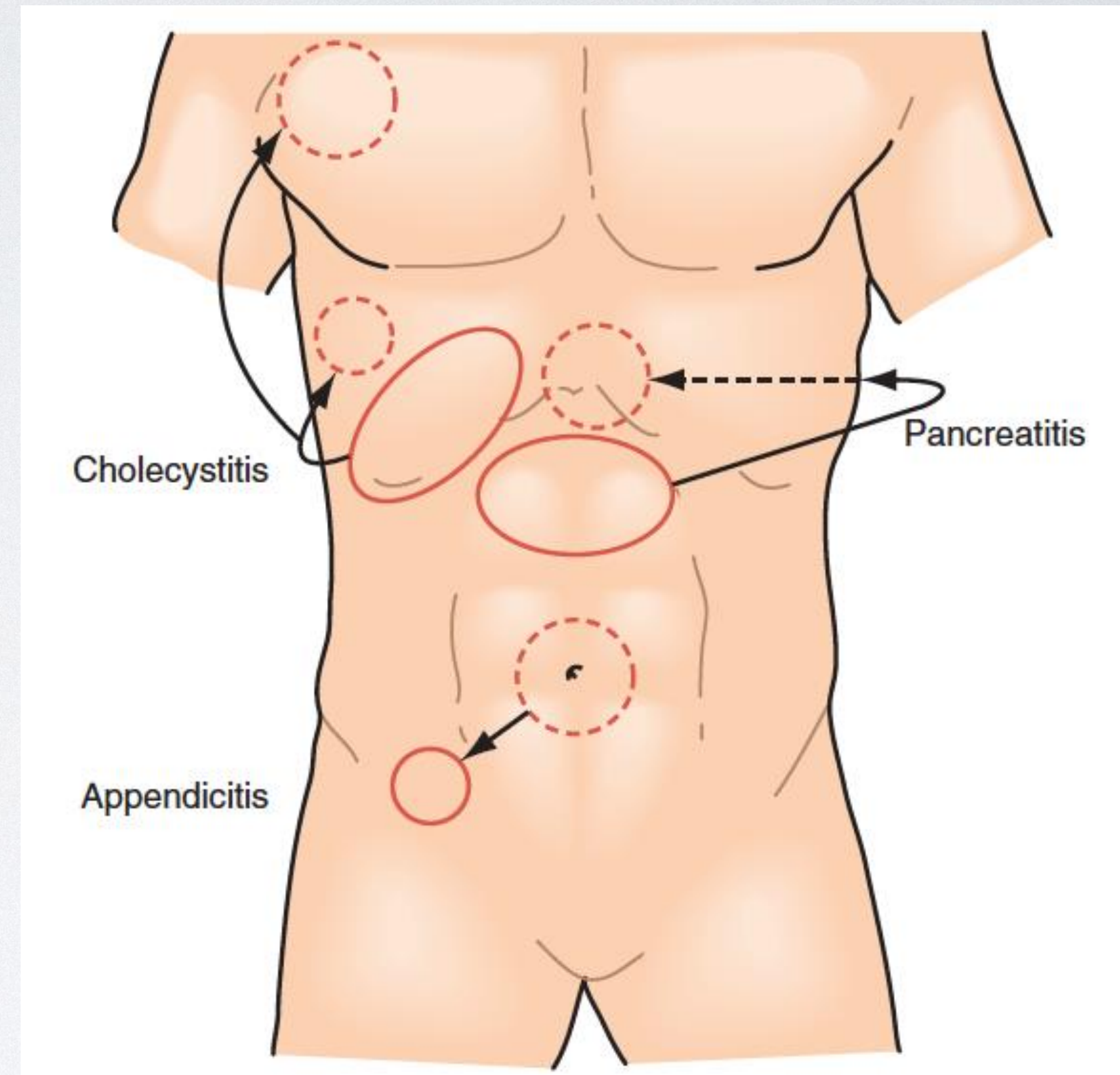
# CASE

- 83 yo F presented to the ED
- Progressive weakness & functional decline over past 5 days
- Initially vague abdominal complaints
- Past Medical History: Arthritis
- P/E generalized tenderness maximum over RUQ



# CLINICAL DIAGNOSIS

- “Referred pain”
  - Biliary disease → R shoulder or back
  - Sub-left diaphragm abscess → L shoulder
  - Above diaphragm(lungs) → Neck/shoulder
  - Acute onset & unrelenting pain = bad



- Pain which resolves *usually* is not acutely surgical

# OTHER HISTORY

- GI symptoms
  - Nausea, emesis (? bilious or bloody)
  - Constipation, obstipation (last BM or flatus)
  - Diarrhea (? bloody)
- Change in symptoms with eating? Loss of appetite?
- NSAID use (perforated Duodenal Ulcer)
- Jaundice, acholic stools, dark urine

# OTHER HISTORY

- Drinking history (pancreas)
- Prior surgeries (adhesions→ SBO, ?still have gallbladder & appendix)
- History of hernias
- Urine output (dehydrated)
- Constitutional Symptoms
  - Fevers/chills
- Sexual/menstrual history



# THINK BROAD CATEGORIES

- Inflammation
- Obstruction
- Ischemia
- Perforation (any of above can end here)
  - Offended organ becomes distended
  - Lymphatic/venous obstruction due to ↑pressure
  - Arterial pressure exceeded → ischemia
  - Prolonged ischemia → perforation

## Inflammation versus Obstruction

Organ	Lesion	Location	Lesion
Stomach	Gastric Ulcer Duodenal Ulcer	Small Bowel Obstruction	<b>A</b> dhesions <b>B</b> ulges <b>C</b> ancer <b>C</b> rohn's disease Gallstone ileus Intussusception Volvulus
Biliary Tract	Acute chol'y +/- choledocholithiasis		
Pancreas	Acute, recurrent, or chronic pancreatitis		
Small Intestine	Crohn's disease Meckel's diverticulum	Large Bowel Obstruction	Malignancy Volvulus: cecal or sigmoid Diverticulitis
Large Intestine	Appendicitis Diverticulitis		

# ISCHEMIA / PERFORATION

- Acute mesenteric ischemia
  - Usually acute occlusion of the SMA from thrombus or embolism
- Chronic mesenteric ischemia
  - Typically smoker, vasculopathy with severe atherosclerotic vessel disease
- Ischemic colitis
- Any inflammation, obstructive, or ischemic process can progress to perforation
- Ruptured abdominal aortic aneurysm

# GYN Etiologies

Organ	Lesion
Ovary	Ruptured graafian follicle Torsion of ovary Tubo-ovarian abscess (TOA)
Fallopian tube	Ectopic pregnancy Acute salpingitis Pyosalpinx
Uterus	Uterine rupture Endometritis

# Labs & Imaging

Test	Reason	Test	Reason
CBC w diff	Left shift can be very telling	KUB Flat & Upright	SBO/LBO, free air, stones
BMP	N/V, lytes, acidosis, dehydration	Ultrasound	Chol'y, jaundice GYN pathology
Amylase	Pancreatitis, perf DU, bowel ischemia	<b>CT scan</b> Diagnostic accuracy	Anatomic dx Case not straightforward
LFT	Jaundice, hepatiti s	<b>Diagnostic Laparoscopy</b>	Anatomic dx Case not straightforward
UA	GU- UTI, stone, hematuria		
Beta-hCG	Ectopic		

- 19 year old man with periumbilical pain that shifted to RLQ
- On exam febrile, sick and tender RLQ
- CT scan
- What is the diagnosis?



Aaron sign	Pain or pressure in epigastrium or anterior chest with persistent firm pressure applied to McBurney point	Acute appendicitis
Bassler sign	Sharp pain created by compressing appendix between abdominal wall and iliacus	Chronic appendicitis
Blumberg sign	Transient abdominal wall rebound tenderness	Peritoneal inflammation
Carnett sign	Loss of abdominal tenderness when abdominal wall muscles are contracted	Intra-abdominal source of abdominal pain
Chandelier sign	Extreme lower abdominal and pelvic pain with movement of cervix	Pelvic inflammatory disease
Charcot sign	Intermittent right upper abdominal pain, jaundice, and fever	Choledocholithiasis
Claybrook sign	Accentuation of breath and cardiac sounds through abdominal wall	Ruptured abdominal viscus
Courvoisier sign	Palpable gallbladder in presence of jaundice	Periampullary tumor
Cruveilhier sign	Varicose veins at umbilicus (caput medusae)	Portal hypertension
Cullen sign	Periumbilical bruising	Hemoperitoneum
Danforth sign	Shoulder pain on inspiration	Hemoperitoneum
Fothergill sign	Abdominal wall mass that does not cross midline and remains palpable when rectus is contracted	Rectus muscle hematomas
Grey Turner sign	Local areas of discoloration around umbilicus and flanks	Acute hemorrhagic pancreatitis
Iliopsoas sign	Elevation and extension of leg against resistance create pain	Appendicitis with retrocecal abscess
Kehr sign	Left shoulder pain when supine and pressure placed on left upper abdomen	Hemoperitoneum (especially from splenic origin)
Mannkopf sign	Increased pulse when painful abdomen is palpated	Absent if malingering
Murphy sign	Pain caused by inspiration while applying pressure to right upper abdomen	Acute cholecystitis
Obturator sign	Flexion with external rotation of right thigh while supine creates hypogastric pain	Pelvic abscess or inflammatory mass in pelvis
Ransohoff sign	Yellow discoloration of umbilical region	Ruptured common bile duct
Rovsing sign	Pain at McBurney point when compressing the left lower abdomen	Acute appendicitis
ten Horn sign	Pain caused by gentle traction of right testicle	Acute appendicitis

# TAKE HOME POINTS

- Careful history (pain, other GI symptoms)
- Remember DDx in broad categories
- Narrow DDx based on hx, exam, labs, imaging
- Always perform ABCs, Resuscitate before diagnosis
- Don't forget GYN/medical causes, special situations
- Common things are common in acute abdomen



?