

APPROACH TO PATIENT WITH ACUTE ABDOMEN

**Younis Hizzani
Hanan Saleh
Aseel Abugnaim
Bayan Alraggad
Laith Khalaf
Ola Mohammad
Zaid Sallam**

INTRODUCTION:

Acute abdomen is defined as the recent (< 5 days) or sudden onset of severe abdominal pain.

It is the most common emergent general surgical problem.

A thorough history and physical examination in conjunction with selective diagnostic testing are of paramount importance in the evaluation of the patient with acute abdominal pain.

PATHOPHYSIOLOGY:

Acute abdomen cases are divided mainly into intra-abdominal or extra abdominal causes.

Intra-abdominal causes :

Irritation of the peritoneum by the diseased organ is responsible for the origin of pain.

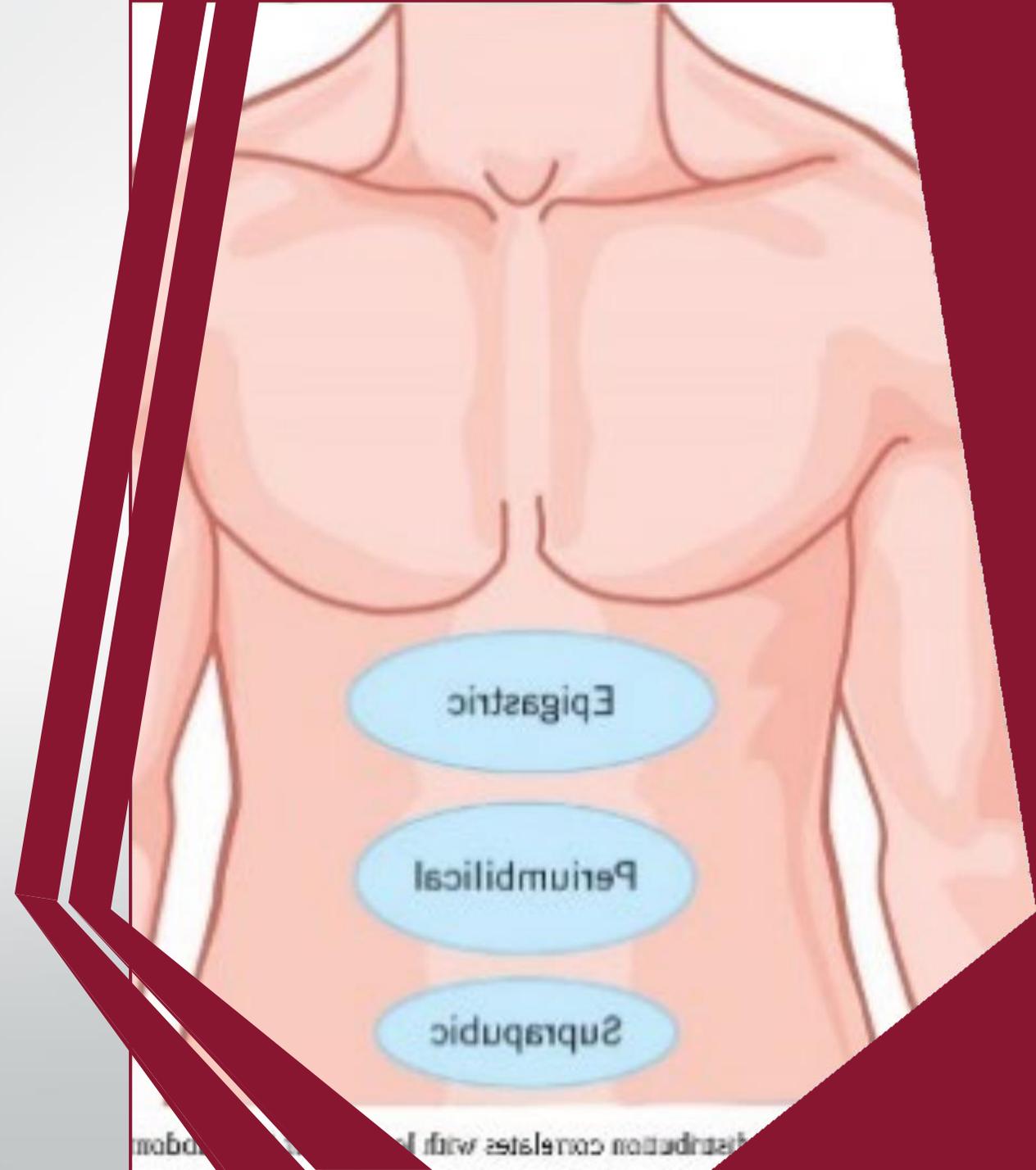
1) VISCERAL PAIN IS TRANSMITTED BY AUTONOMIC INNERVATION SO IS POORLY LOCALIZED AND TRIGGERED BY INFLAMMATION; ISCHEMIA; AND GEOMETRIC CHANGES SUCH AS DISTENTION, TRACTION, AND PRESSURE, CREATING DEEP, DULL, AND VAGUE PAIN.

The general location of pain can correlate with the Embryonic location of the organ

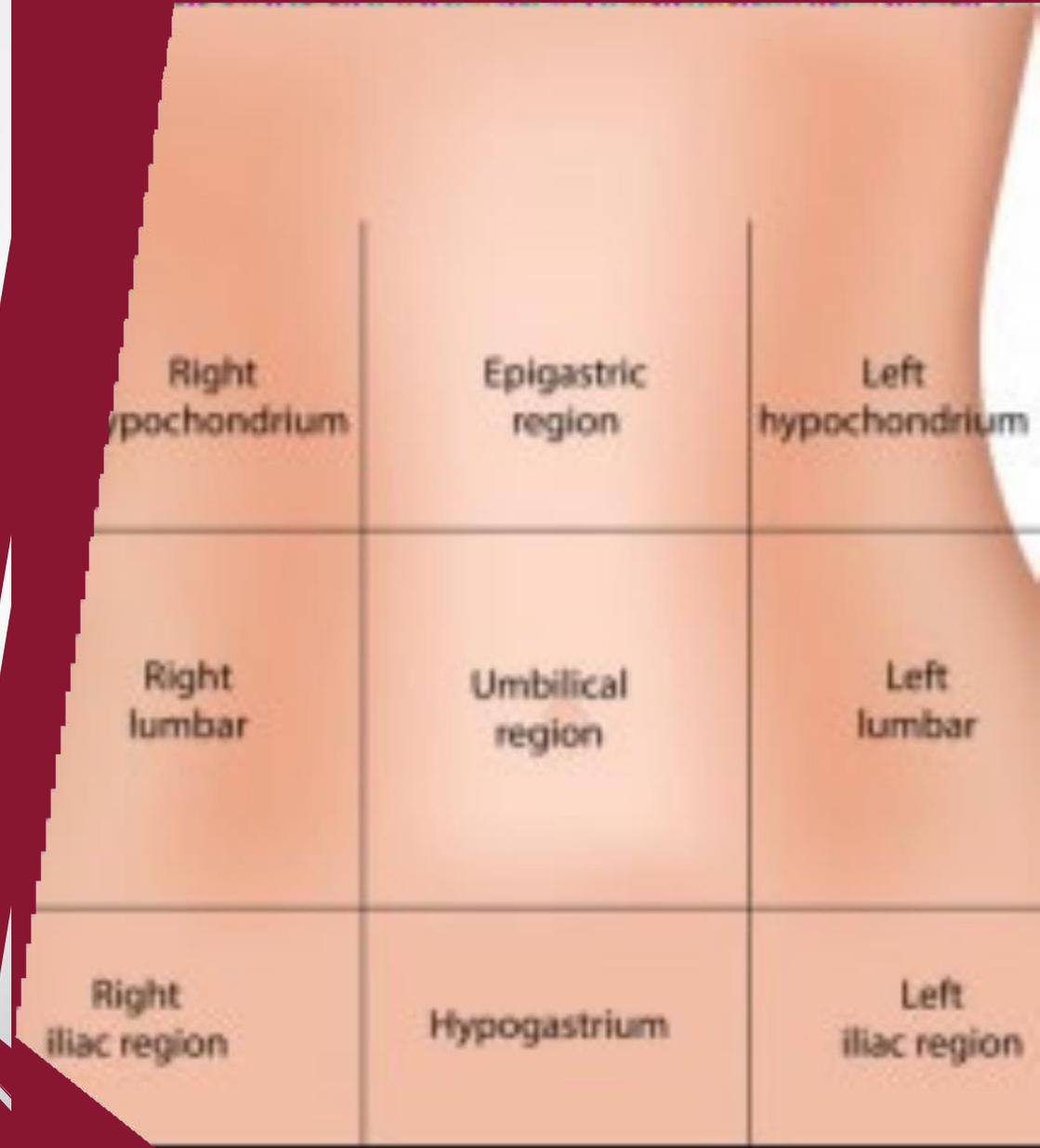
All structures arise from Foregut will present with pain in epigastrium (you have to take lower MI and lower lobe pneumonia in your consideration).

All structures arise from Midgut will present with pain in paraumbilical region .

All structures arise from hindgut will present with pain in suprapubic region.



In contrast, parietal pain transmitted via somatic innervation so is in a distinct abdominal quadrant, causing sharp and severe pain that is well localized and occurs due to (a) peritoneal irritation by localized inflammation of an organ in contact with the parietal peritoneum, (b) chemical peritonitis from a perforated viscus, or (c) mechanical stimulation as from a surgical incision or trauma (Fig. 16-2). parietal pain can correlate with local or diffuse peritonitis and usually signifies the need for surgical treatment.



3) Referred pain arises from a deep structure but is superficial at the painful site as the nerve supplying the organ supply the that dermatome examples include biliary tract pain which refers to the right inferior scapular area, renal colic referring down to the ipsilateral groin, or a ruptured aortic aneurysm or pancreatitis radiating to the back.

II. EVALUATION:

A thorough history and physical examination with ancillary imaging and laboratory tests can guide the diagnostic and treatment process .

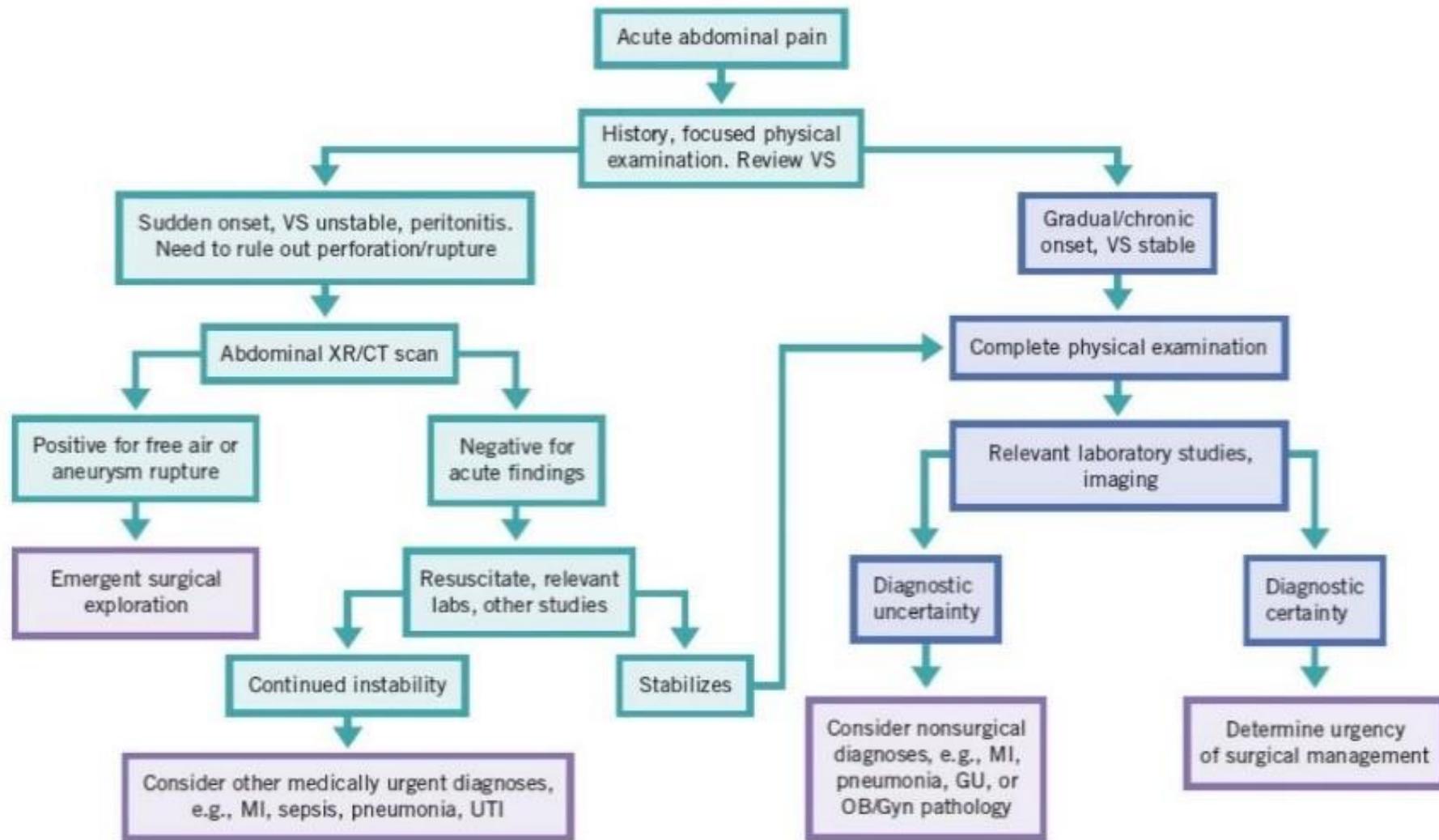


FIGURE 16-3 Diagnostic algorithm for the evaluation of acute abdominal pain.

A. History of present illness provides a chronological description of the progression of the patient's signs and symptoms. Visceral pain distribution correlates with location of intra-abdominal disease.

HISTORY composed of

PATIENT PROFILE

2) It is important to consider the patient's; Name ,Age ,Sex Residency, Occupation marital state Admission ; (how ? when ? (day and hour))

CHIEF COMPLAIN AND DURATION

1)Site of Pain

At the beginning the pain is visceral diffuse pain so we deal with the embryonic origin ,then it becomes parietal pain which is localized to specific quadrant



RIGHT

- Cholelithiasis
- Biliary colic
- Acute Cholecystitis
- Acute cholangitis
- Acute hepatitis
- Liver abscess
- Budd-Chiari syndrome
- Portal vein thrombosis
- Pancreatitis
- Duodenal ulcer
- Nephrolithiasis

- Nephrolithiasis
- Pyelonephritis
- Constipation
- Infectious colitis
- Ischemic colitis

- Appendicitis
- Nephrolithiasis
- Pyelonephritis
- Infectious colitis
- Inflammatory bowel disease
- Inguinal hernia
- Ovarian cyst / torsion
- Ectopic pregnancy (unilateral)
- PID (bilateral)

LEFT

- Acute myocardial infarction
- Acute pancreatitis
- Chronic pancreatitis
- Peptic ulcer disease
- GERD
- Gastritis
- Functional dyspepsia
- Gastroparesis

- Appendicitis
- Constipation
- Small bowel obstruction
- Large bowel obstruction
- Inflammatory bowel disease
- Irritable bowel syndrome
- Gastroenteritis
- Ischemic colitis
- Abdominal aortic aneurysm

- Cystitis (UTI)
- Acute urinary retention
- Appendicitis
- Inflammatory bowel disease
- Ovarian cyst

- Splenomegaly
- Splenic infarct
- Peptic ulcer
- Gastritis
- Nephrolithiasis

- Nephrolithiasis
- Pyelonephritis
- Constipation
- Infectious colitis
- Ischemic colitis

- Diverticulosis / Diverticulitis
- Nephrolithiasis
- Pyelonephritis
- Irritable bowel syndrome
- Infectious colitis
- Inguinal hernia
- Ovarian cyst / torsion
- Ectopic pregnancy (unilateral)
- PID (bilateral)

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2) Mode of Onset and Progression of Pain:

Sudden pain occurs with perforation of a hollow viscus: Perforated peptic ulcer, Ruptured AAA rupture ectopic pregnancy

Gradual and constant pain suggests inflammation

3) Characterization of the pain:

COLICKY PAIN : Intestinal Obstruction ,Gall bladder stone ,Appendicitis and Renal stones
STABBING PAIN: pancreatitis
TEARING PAIN OR THROBING :Ruptured aortic aneurysm.
BURNING PAIN (GNEWING) :PUD

5) Exacerbating and relieving factors :

(A) Movement : Patients with peritonitis find any movement painful while patient with renal colic tends to be restless.

(B) Position. Patients with pancreatitis often find that leaning forward improves the pain.

(c) Food may :

1) exacerbate the pain (as in pancreatitis (all food type)
cholecystitis (especially fatty meals) , gastric ulcer (spicy food , smoking)

2) Relieve the pain (as in duodenal ulcer disease).

6) Timing, is either continuous or episodic (intermittent)
Intermittent usually seen in tube structures with obstruction

7) Severity from the definition it is very severe that affects the patient's daily life

8) Associated symptoms

A) Vomiting

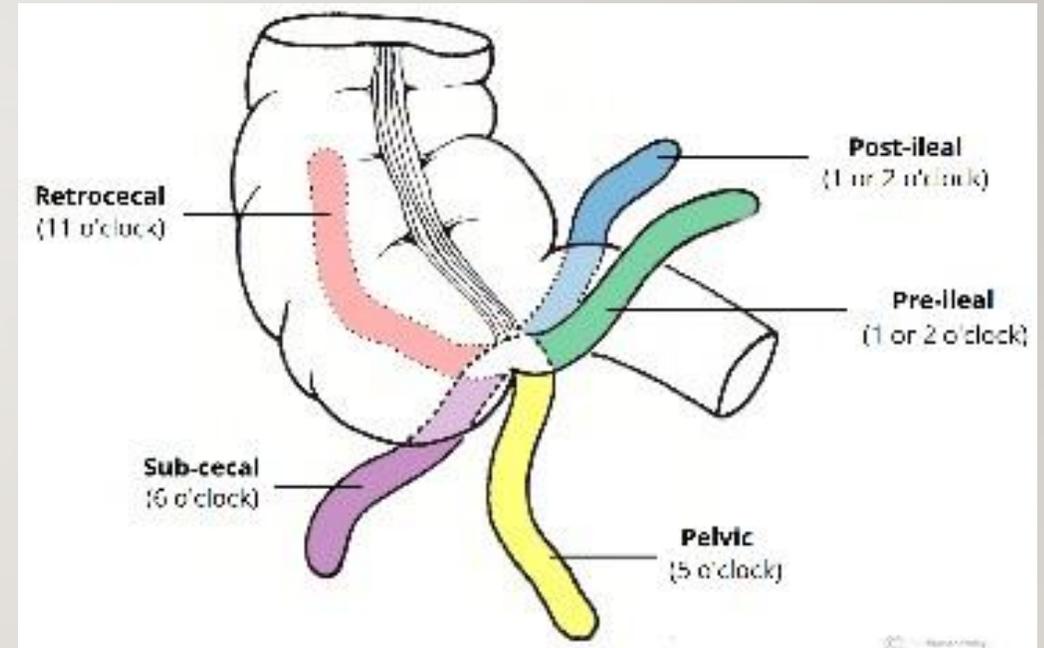
1) Bilious vomitus suggests a bowel obstruction (especially upper small bowel obstruction) 2) Coffee grounds vomitus suggests peptic ulcer

B) Anorexia and nausea are important to note because the diagnosis of appendicitis is practically excluded if anorexia is not present.

C)Constipation or Diarrhea

If the patient main complaint was Constipation or obstipation suggests bowel obstruction or some time late small bowel obstruction strangulated hernia ,volvulus ,adhesion ,intussusceptions and other.

*But as associated symptom ,most diseases of the abdomen arise with Paralytic ileus which lead to constipation but some time diarrhea may develop in some diseases as pelvic Appendix inflammation which Leads to diarrhea which should be differentiated from Gastroenteritis.



Diarrhea may be

Watery diarrhea ,inflammatory diarrhea ,steatorrhea Bloody diarrhea:

IF stool culture was negative ,suggests inflammatory bowel disease Diverticulitis or
invasive gastroenteritis

D) Fever Chills ,or Rigor Indicates inflammation or infection

**Risk factor for your differential Pancreatitis /peptic ulcer disease/Gallbladder disease

Organ-System Review

1. History of diabetes, CAD, or PVD presenting with vague abdominal symptoms may have myocardial ischemia.
2. Pneumonia may present with upper abdominal pain and be associated with cough and fevers.
3. In women, a thorough gynecologic history is important to rule out ruptured ovarian cysts, ectopic pregnancy, and pelvic inflammatory disease.
4. Never consider your exam was done in patient with right or left abdominal pain without asking about urinary symptoms to exclude renal colic.

Past Medical History 1. Medical conditions precipitating intra-abdominal pathology a. Peripheral vascular disease (PVD) or coronary artery disease (CAD) may predispose patients to abdominal vascular disease, such as AAA or mesenteric ischemia.

b. Cancer history should raise suspicion for bowel obstruction or perforation from progression or recurrence.

Surgical history a. Following abdominal surgeries patients may develop adhesions predisposing them to bowel obstructions. b. If a patient has had a prior abdominal surgery, it is important to be aware of anatomic variations (ex: bowel resections, organ transplantation).



Drug History a. Nonsteroidal anti-inflammatory medications, such as aspirin or ibuprofen increase the risk of complicated peptic ulcer disease, namely, bleeding, obstruction, and perforation.

b. Corticosteroids often mask classic signs of inflammation such as fever and peritoneal signs.

3. Antibiotics may either attenuate abdominal symptoms due to treatment of the underlying disease process, or cause diarrhea/abdominal pain from antibiotic-induced pseudomembranous

Family History of PUD /DM/HTN/cardiovascular disease
Autoimmune disease /malignancy*****/liver disease
jaundice

Social factors Alcohol abuse raises the possibility of pancreatitis, hepatitis, cirrhosis, gastritis, and peptic ulcer disease Smoking also increases the probability of peptic ulcer disease

43 yrs old man presented to the ER complaining of severe epigastric abdominal pain with nausea and vomiting, he was stabilized by some fluids after more detailed history taking he reported that the pain started suddenly and it radiates to his back , but the pain is reduced when he sits upright and he reported a history of heavy alcohol consumption. What is the most likely cause of his condition ?

- A. biliary colic
- B. renal colic
- C. Gastric ulcer
- D. acute pancreatitis
- E. appendicitis



PHYSICAL EXAMINATION :

A systematic approach to the abdominal examination.

- One should search for specific signs that confirm or rule out differential diagnostic possibilities

After introducing your self and examine to the patient what do you want to do .

Expose the patient from nipple line to mid thigh .

Start doing inspection -palpation -percussion -auscultation

GENERAL EXAMINATION:

Conscious level of the patient : diminished responsiveness or an altered consciousness.

Is the patient confused ,oriented or alerted ?

General observation: affords a fairly reliable indication of severity of the clinical situation.

Does the patient generally look well ?

Vital signs :

Radial puls

Radio-radial puls

Radio-femoral puls

Respiratory rate

Heart rate

Temperature

O2 saturation

Hydrational state

INSPECTION:

- Hand?/Chest? Abdominal inspection”
- Look for pattern of breathing
- Look for scaring ,jaundice ,dilated veins Cullen’s sign or Grey turner signs and hair distribution
- Look for abdominal symmetry is it flat? ,distended?
- Look for visible masses
- ((Scars – midline scars (laparotomy) / RIF (appendectomy) / right subcostal (cholecystectomy).
- Abdominal distension / Asymmetry – ascites / intestinal obstruction / large masses.
- Anemia – obvious pallor suggests significant anemia – e.g. GI bleeding.
- Masses – may suggest malignancy / organomegaly.
- Scaphoid contracted abdomen - perforated ulcer.
- The abdomen move / Can the patient blow out/suck in the abdomen / the patient lie still or writhe about – peritonitis))

PALPITATION:

- Kneel so that you are level with the patient.
- Observe the patient's face throughout for signs of discomfort
- Ask about any areas of pain and examine it last.
- Start by superficial then deep palpation ,looking for the abdomen, is it soft lax or **guarding**?
- Is it tender? Is there any superficial or deep masses?
- ((Rigidity – peritonitis.
- Tenderness – acute cholecystitis, appendicitis, diverticulitis, and acute salpingitis.
- Rebound tenderness – pain is worsened on releasing the pressure – peritonitis. Positive Blumberg sign or rebound tenderness is indicative of peritonitis which can occur in diseases like appendicitis, and may occur in ulcerative colitis with rebound tenderness in the right lower quadrant. This method is specially useful in diagnosing appendicitis requiring urgent management.

- Guarding – involuntary tension in the abdominal muscles – localized or generalized? neurologic disorders / renal colic / peritoneal inflammation.
- Masses – large/superficial masses suggest malignancy / organomegaly. Palpation Deep palpation:
 - Palpable organs/masses: relevant pathology.
 - Rebound tenderness: peritonitis.
 - If any masses are identified then assess: Location – which region? Size Shape Consistency – smooth / soft / hard / irregular Mobility – is it attached to superficial/underlying tissues? Pulsatility))

PERCUSSION

- Resonance - intestinal obstruction.
- Loss of liver dullness - gastrointestinal perforation (due to free air accumulating under the diaphragm). • Dullness - free fluid, full bladder.
- Shifting dullness - free fluid changes shape and moves (ascites).
- Percussion causes pain if peritonitis is present.
- **Auscultation**
- Absent sounds over a 30-second period : paralytic ileus.
- Hyperactive sounds: mechanical obstruction / gastroenteritis
- / dysentery.
- Change in the character of the sounds: mechanical obstruction.
- Bruit (Aortic bruits / Renal bruits) : vascular disease

PRE HOSPITAL/EMERGENCY DEPARTMENT CARE OF SUSPECTED ACUTE ABDOMEN:

- Keep patient nil by mouth NPO
- Apply oxygen as appropriate.
- Intravenous (IV) fluids: set up immediately if the patient is shocked and the equipment is available. Send blood for group and save/crossmatch and other blood tests as appropriate. ➤ Consider passing a nasogastric (NG) tube if there is severe vomiting, signs of intestinal obstruction or the patient is extremely unwell and there is danger of aspiration.
- Analgesia: → the previous practice was to withhold analgesia until surgical review, but a surgical abdomen is very painful and is likely only to be adequately relieved by parenteral opioids, eg morphine. One recent review showed that opioid administration may alter physical examination findings, but these changes result in no significant increase in management errors. Another study showed that morphine safely provides analgesia without impairing diagnostic accuracy.

- Antiemetic: avoid using this as a symptomatic treatment without considering a diagnosis in a community setting.
- Antibiotics: if systemic sepsis, or peritonitis, or severe urinary tract infection (UTI) is suspected. IV cephalosporin plus metronidazole are commonly used in acutely unwell patients in whom peritonitis is suspected.
- Arrange urgent surgical/gynaecological review as appropriate.
- Arrange investigations such as ECG if a medical cause is likely.
- Admit: if surgery is considered likely, if the patient is unable to tolerate oral fluids, for pain control, if a medical cause is possible or if IV antibiotics are required.

A patient presented with a chief complaint of *tummy pain* with a duration of 2 days

History : the pain started suddenly 2 days ago at the RIF (lower tummy at the right hand side) ,she describes the pain as knife 'sharp', no radiation , associated with mainly nausea but vomited a couple of times change in appetite no changes in bowel or urinary habit no blood in stool or urine ,it is just there all the time , Moving around makes it worse paracetamol helped 8/10.

-Which clinical examination(s) would you perform?

-Name 2 signs that may be elicited in this patient:

Answers :

1. Basic observations:

HR, RR, BP, Oxygen saturation , Temperature

Abdominal examination:

Generally tender abdomen, maximal tenderness in the right iliac fossa (RIF)

Voluntary guarding present

Bowel sounds normal

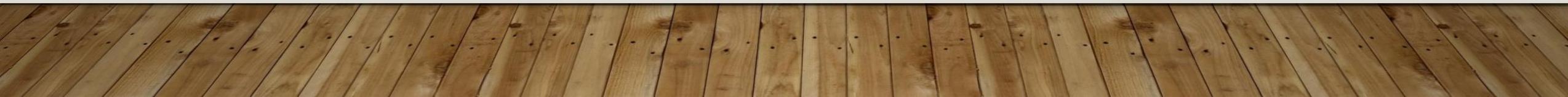
No organomegaly

2.2. Rovsing's sign: palpation of the left iliac fossa (LIF) causes RIF pain

Psoas sign: extension of the right thigh, in the left lateral position, causes RIF pain

Obturator sign: internal rotation of the flexed right thigh causes pain

Hop test: hopping or jumping causes abdominal pain



ACUTE MESENTERIC ISCHEMIA

DEFINITION

Acute mesenteric ischemia refers to the sudden onset of intestinal hypoperfusion.

Its either :

- 1 occlusive mesenteric ischemia
- 2 non occlusive mesenteric ischemia

RISK FACTORS



OMI: PATIENTS WHO ARE
AT RISK OF THROMBOSIS
WHETHER
ARTERIAL OR CARDIAC
THROMBOSIS.



NOMI:
HYPOPERFUSION
WITHOUT
OBSTRUCTION OF
MESENTERIC ARTERIES

:



DRUGS
(VASOPRESSORS)



HYPOTENSION

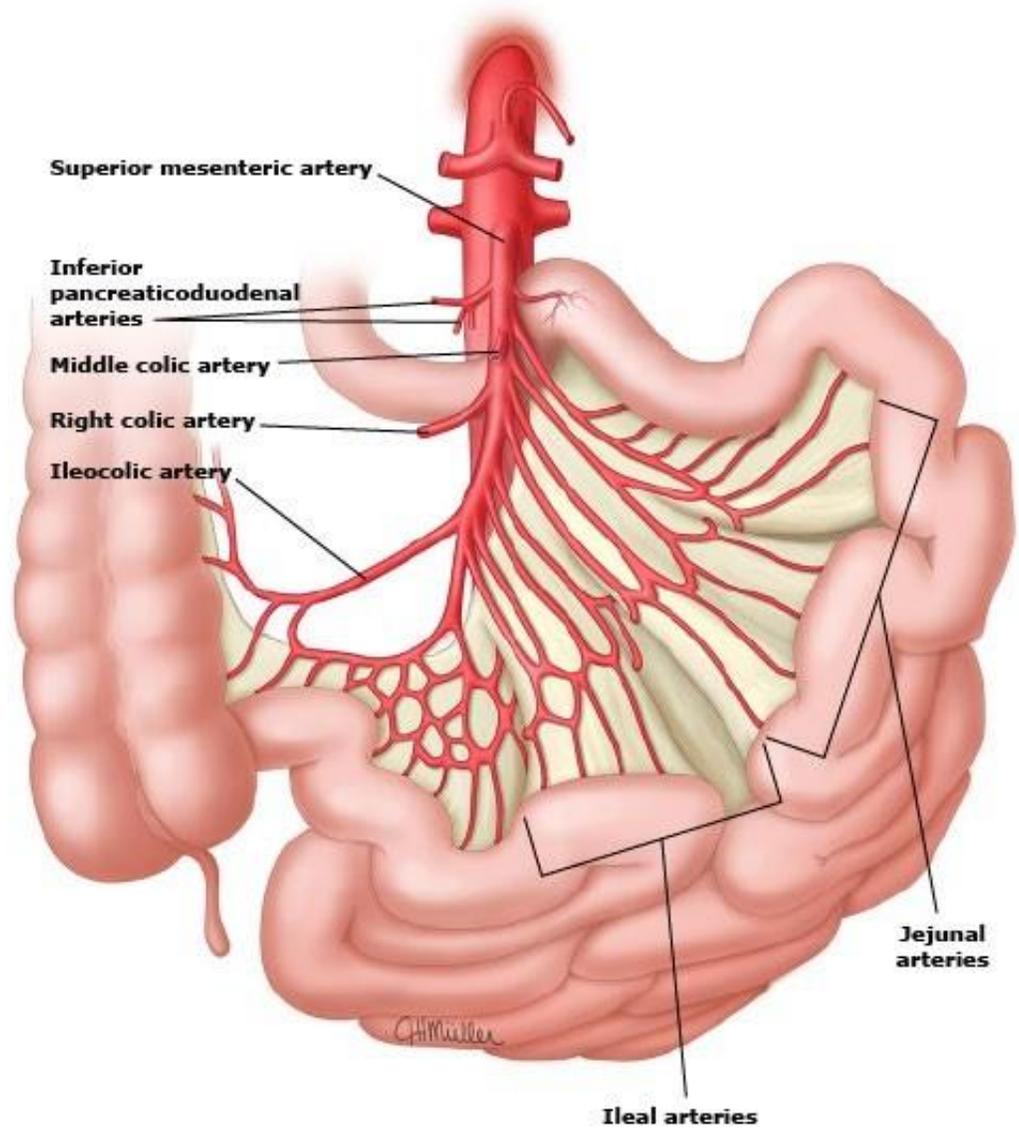
EPIDEMIOLOGY

AMI is a rare syndrome with a prevalence of 1 out of 1000 hospital admissions. For all cases of AMI, arterial embolism accounts for 40% to 50%, arterial thrombosis 25% to 30%, and NOMI represents 20% of cases. AMI is typically seen in women, older patients, and patients presenting with numerous severe comorbidities.

Poor prognosis, mortality rate of 60-80 percent.

AN ACUTE MESENTERIC ARTERIAL
EMBOLISM IS OFTEN CARDIOGENIC IN
ORIGIN AND PRIMARILY AFFECTS THE
SUPERIOR MESENTERIC ARTERY (SMA)

Bowel ischemia---necrosis---septicemia---
sepsis---septic shock



HISTORY AND PHYSICAL EXAM

- AMI patients typically present with abdominal pain that does not correlate with physical exam findings Tenderness to palpation occurs when the entire bowel wall is involved, which is a later presentation when necrosis begins to occur.
- Patients with an embolic disease typically have a history of the bowel emptying violently, followed by severe pain.

HISTORY AND PHYSICAL EXAM

Patients also may have a combination of diarrhea, distention, bloody stool, and most importantly, a history of postprandial pain, suggesting chronic mesenteric ischemia.

NOMI progresses slowly, and the associated abdominal pain is not localized and varies in severity.

These patients are critically ill (e.g., septic shock, cardiac disease, and respiratory failure), hypotensive, and usually on vasopressor agents.

EVALUATION

Laboratory values and biomarkers for AMI are nonspecific and do not have diagnostic power.

CT angiography is the preferred method for imaging all types of AMI.

TREATMENT/MANAGEMENT

Initial medical treatment focuses on fluid resuscitation and correcting electrolyte imbalances.

Avoid vasopressors and alpha-adrenergic agents, which may cause vasospasm.

Broad-spectrum antibiotics should be given before surgery to avoid abdominal sepsis if the necrotic bowel is resected.

TREATMENT/MANAGEMENT

Early surgical exploration is required to assess the level of ischemia and spread of necrosis. Revascularization of the bowel is the primary goal of surgery and excision of necrotic bowel is necessary.

After revascularization, the bowel should be assessed for viability, which includes checking for pulses with a continuous wave Doppler, peristalsis, and normal color.

TREATMENT/MANAGEMENT

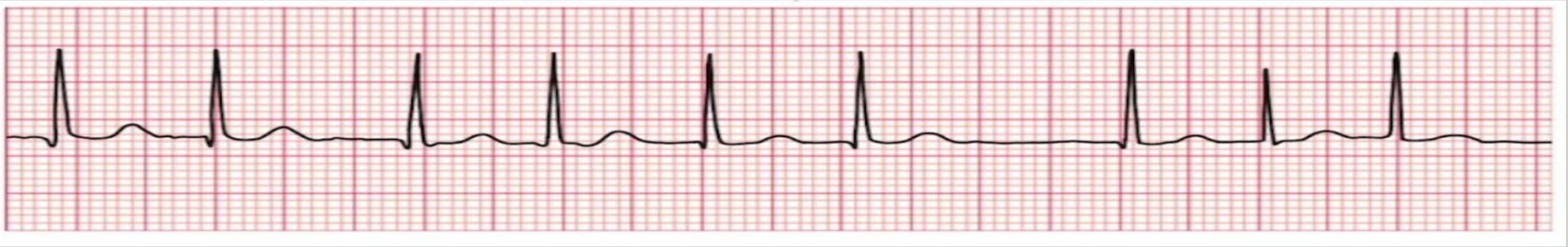
As NOMI is secondary to vasospasm rather than occlusion, treatment is medically focused and relies upon reversing the underlying cause of the low-flow state.

Catheter-directed papaverine (phosphodiesterase inhibitor) delivered by a side-hole catheter or thrombolysis catheter is an interventional option.

A 67-year-old woman with a history of coronary artery disease, coronary artery bypass grafting, type 2 diabetes, and peripheral vascular disease reports 2 days of palpitations. A few hours ago, she experienced acute onset of abdominal pain.

On examination, she is in distress. Her heart rate is irregularly irregular at 110 beats per minute, and her blood pressure is 100/60 mm Hg. Her abdomen is diffusely tender but soft and without rebound tenderness.

An electrocardiogram is obtained :



Which one of the following tests is most appropriate in the initial evaluation of this patient?

- A) Upper endoscopy
- B) Colonoscopy
- C) Magnetic resonance angiography
- D) CT mesenteric angiography
- E) Mesenteric duplex ultrasound

Acute cholecystitis

- Acute inflammation of gall bladder with or without stone.
- **Pathophysiology:**

Obstruction of cystic duct leads to inflammation of the gallbladder, 95% due to stone and 5% is acalculous, so pain is continuous (more than 3 hours).

- **Risk factors:** gallstones.

- Types:

1) Calculous:

-It is the obstructive cholecystitis due to gall stones having the most common variety in which around 90% of people having gall stones suffers.

2) Acalculous:

-It is the non-obstructive type which is common in person suffering from major illness like sever sepsis, burns, multiple injury etc.

3) Acute Emphysematous Cholecystitis:

is an uncommon condition caused by gas-forming organisms and characterized by the presence of gas in the wall and lumen of the gallbladder. Its incidence is higher among male diabetics

CLINICAL FEATURES

Symptoms and signs:

Pain :

Site – RUQ

Character - colicky

Onset – sudden

Duration- more than 12 hrs

Radiation -Right subscapular pain/ epigastric discomfort. (referred pain)

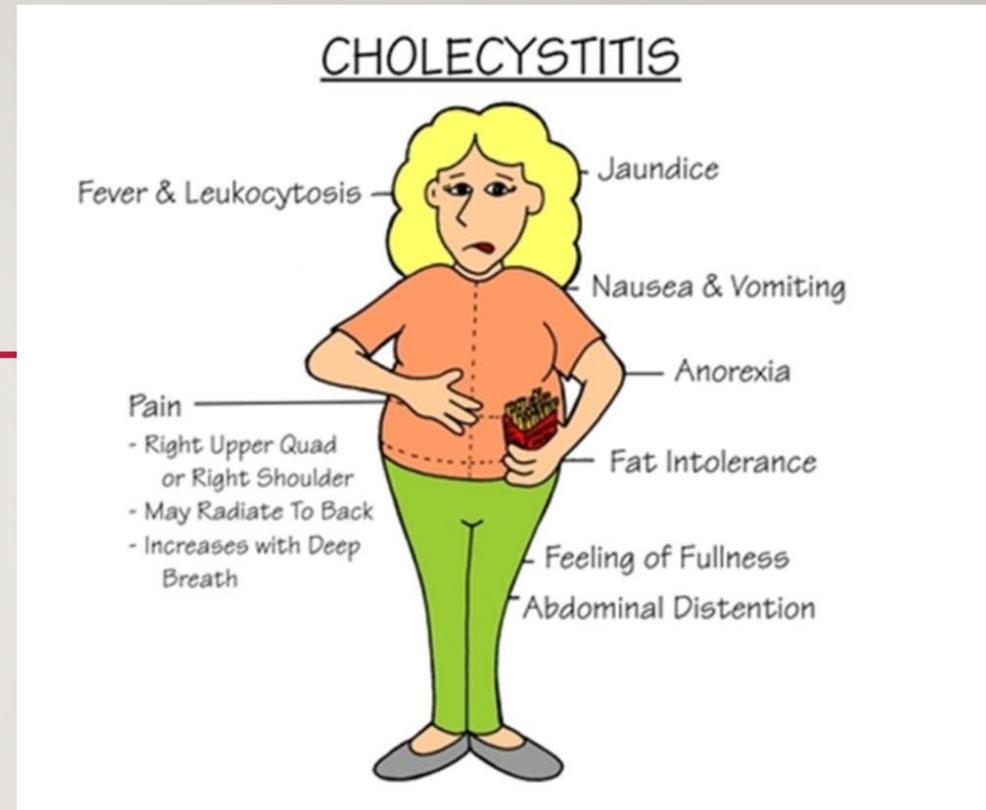
Associated symptoms – nausea,vomiting and anorexia

Exacerbating factors - Fatty Food, Movement , Breathing

Relieving factors –Analgesics

Painful palpable GB in 33% of patients.

Mild jaundice(if severe, you should think of CBD stone)



- **Positive** Murphy's Sign:

Keep the fingers in RUQ & tell the patient to take deep breath. At the height of inspiration, there is sudden catch of breath, Its due to inflamed gall bladder coming in contact with abdominal wall

- The urine may be dark ,the stools pale and the skin itchy (pruritus)→obstructive jaundice
- Pt appears sick, may be febrile and may have tachycardia



DIFFERENTIAL DIAGNOSIS :

- Acute pancreatitis
- Perforated peptic ulcer
- Appendicitis
- Acute pyelonephritis
- Hepatitis

DIAGNOSIS

Investigations

Labs: CBC → ↑WBC; Leukocytosis , ↑Alkaline phosphatase
, ↑total bilirubin.
Slightly ↑ amylase.

Imaging:

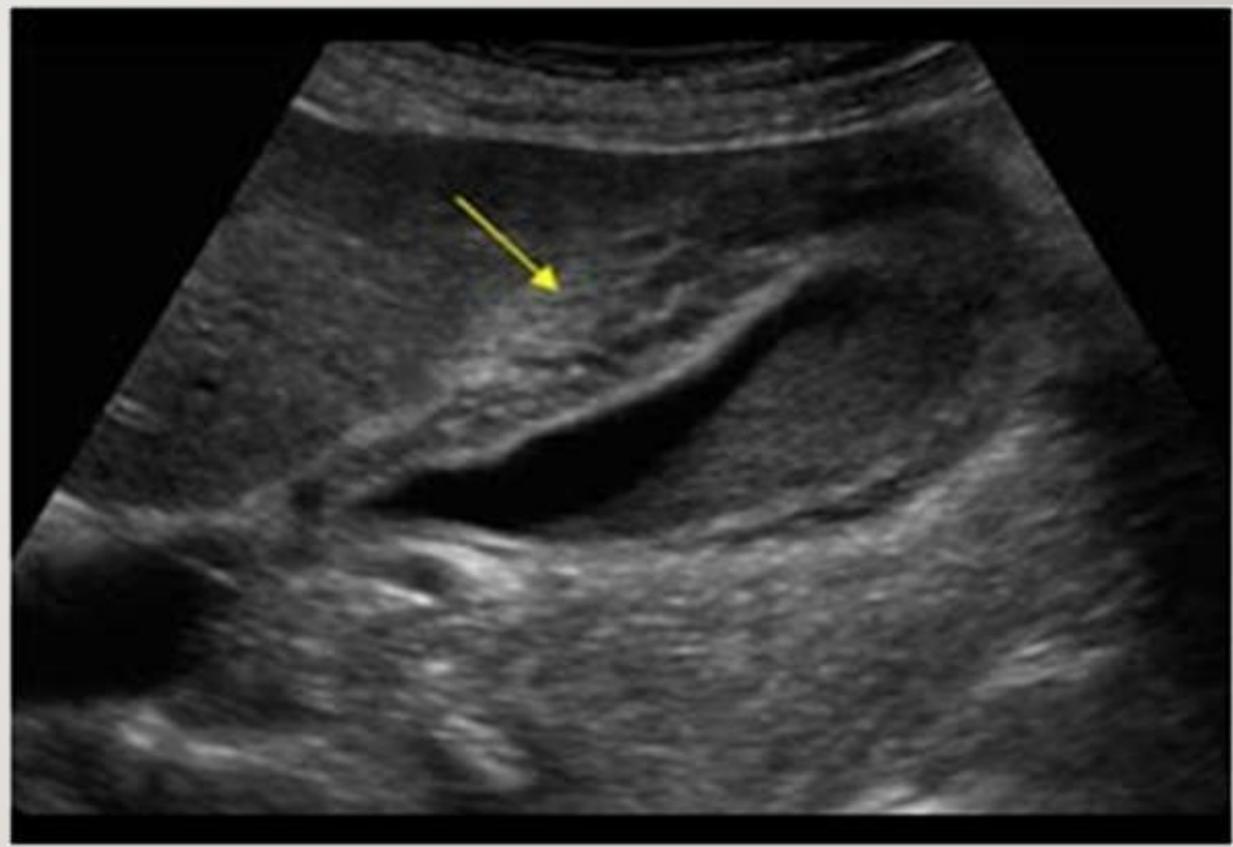
The diagnostic tool of choice is **ultrasound**.

Findings on ultrasound:

- 1- Thickened gallbladder wall > than 3 mm.
- 2- Pericholecystic fluid.
- 3- Distended gallbladder (> 7mm)
- 4- Gallstones or cystic stones.
- 5- Sonographic Murphy's sign.

HIDA scan is the most accurate.

CT scan, less sensitive.



- **Treatment:**

- 1) Conservative (60-70%)**

- i. Admission

- ii. Analgesia- Inj. Morphine 8-10 mg IM along with Inj. Atropine 0.6 mg to relieve spasm

- iii. Antibiotics- Broad spectrum antibiotics like (Piperacillin/Tazobactam).

Pt is kept NPO for 2-3 days . During this period IV fluids are given.

- 2) Early Cholecystectomy:**

This can be done from 2nd to 7th day of admission.

As there's proved of having complications of inflamed GB (Perforation, fistula, Choledocholithiasis, Gallstones ileus ...)

3) Emergency Cholecystectomy:

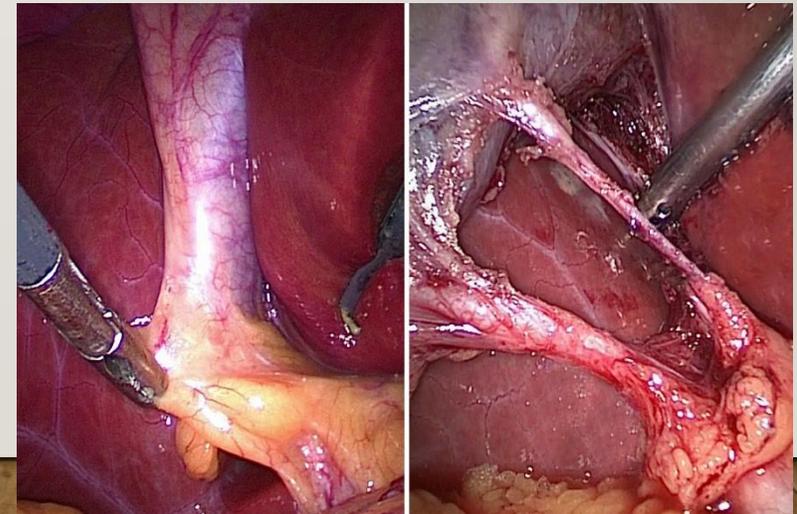
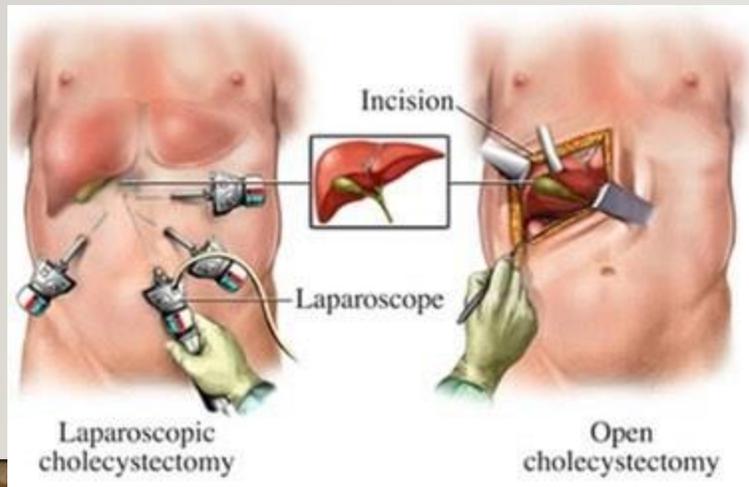
About 10% pt needs emergency cholecystectomy.

The deciding factors to be considered are High Grade Fever, Sepsis, Shock, etc.

Acalculous & Perforated GB are the strong indications.

4) Prophylactic Cholecystectomy:

It means complete removal of GB with stones and without symptoms.



A 73-year-old man comes to the emergency department because of a 1-day history of nausea and severe pain in his upper abdomen and right shoulder blade. He was able to eat a little for breakfast but vomited up the meal a couple of hours later. He has type 2 diabetes mellitus treated with metformin. He has smoked half a pack of cigarettes daily for 40 years and drinks 4 beers every week. He appears acutely distressed. His temperature is 38.8°C (102°F), pulse is 124/min, and blood pressure is 92/68 mm Hg. Pulse oximetry on room air shows an oxygen saturation of 95%. The abdomen is soft and there is tenderness to palpation of the right upper quadrant with soft crepitus. The remainder of the examination shows no abnormalities. Laboratory studies show:

Ultrasonography of the right upper quadrant shows a gallbladder with an air-filled, thickened wall and no stones in the lumen. Which of the following is the most likely diagnosis?

- A. Chronic pancreatitis with pseudocyst rupture
- B. Emphysematous cholecystitis
- C. Gallstone ileus
- D. Perforated duodenal ulcer
- E. Primary sclerosing cholangitis

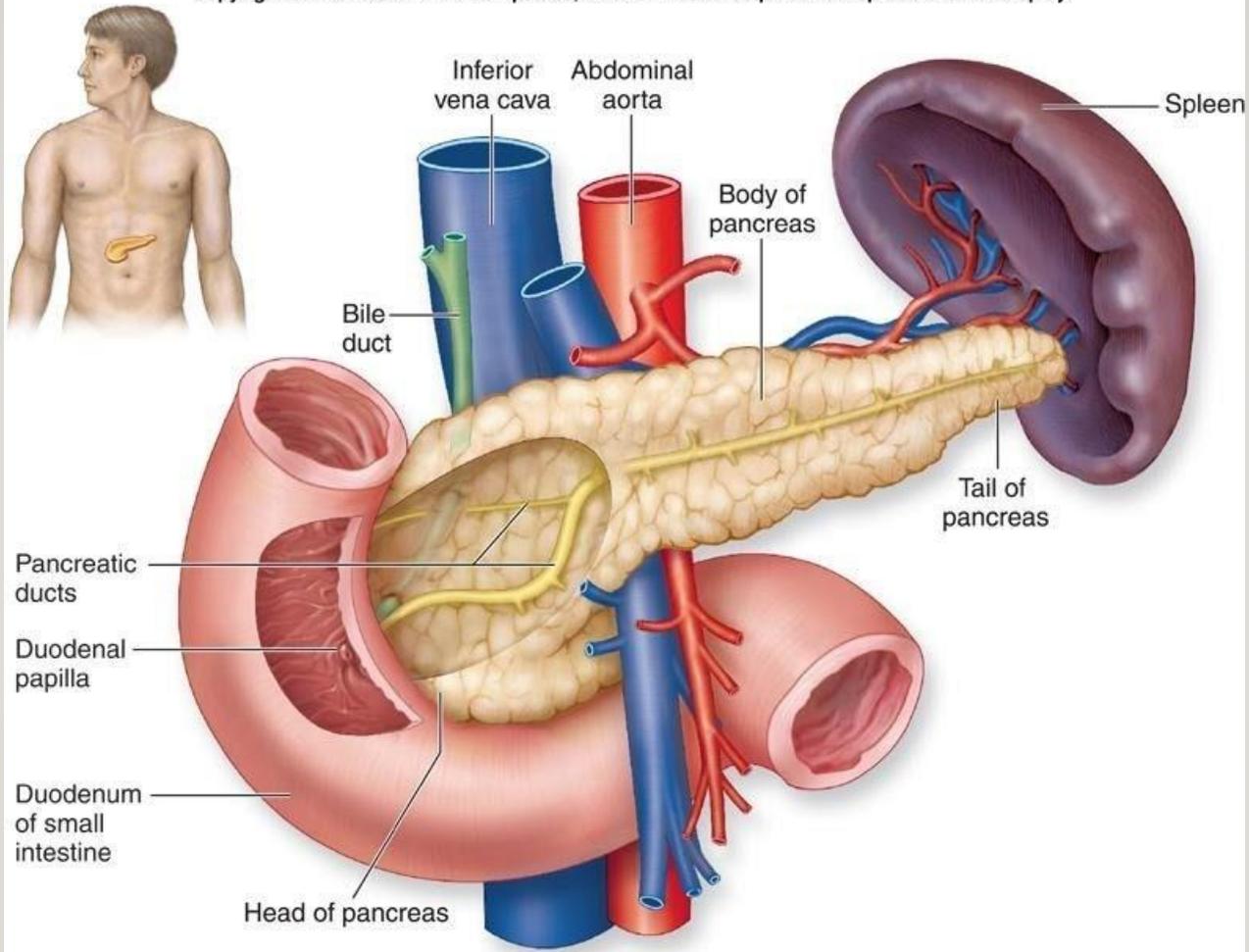
Hemoglobin	14.3 g/dL
Leukocyte count	18,100/mm ³
Platelet count	216,000/mm ³
Serum	
Aspartate aminotransferase (AST)	62 U/L
Alanine aminotransferase (ALT)	38 U/L
Alkaline phosphatase	90 U/L
Total bilirubin	0.9 mg/dL
Direct bilirubin	0.2 mg/dL
Albumin	4.1 g/dL

ACUTE PANCREATITIS

ANATOMY OF PANCREAS

- The pancreas formed of head (including uncinata), neck, body and tail
- **Blood supply :**
 - Head : superior and inferior pancreaticoduodenal artery
 - Body : splenic artery
 - Tail : splenic, gastroepiploic and dorsal pancreatic artery
- **Venous drainage :** into the portal system
- **Lymphatics :** celiac and SMA nodes

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Acute pancreatitis

Acute onset of
abdominal pain due to
enzymatic necrosis and
inflammation of
pancreas

ACUTE PANCREATITIS

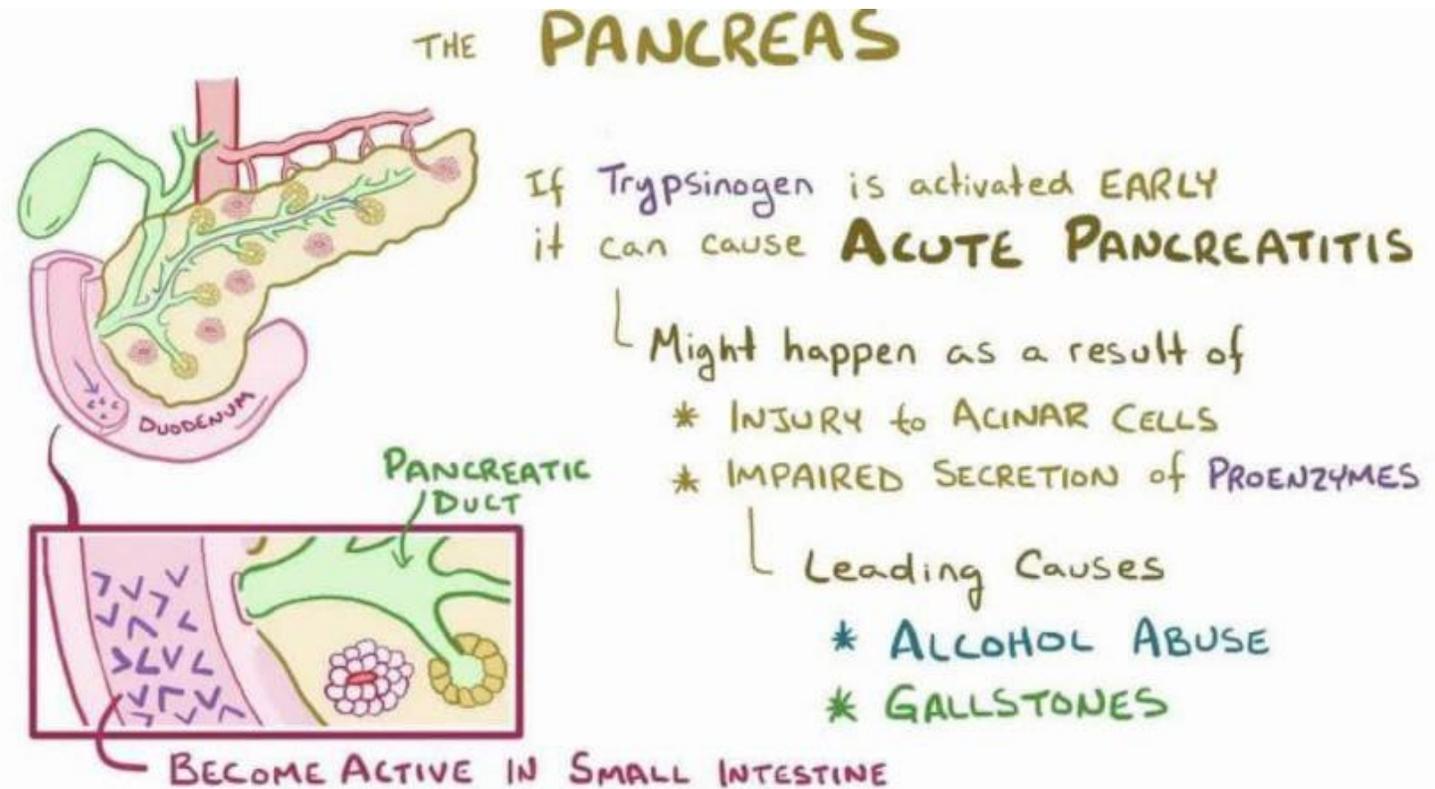
SUDDEN
INFLAMMATION
and
HEMORRHAGING
of the
PANCREAS

due to destruction by its own digestive enzymes

Acute pancreatitis

Main (common) causes:

- Gallstones and alcohol



• It can be initiated by several factors :

- The two major causes of acute pancreatitis are gall stones, which occur in 50–70% of patients, and alcohol abuse, which accounts for 25% of cases
- **Gallstones** – can obstruct the ampulla of Vater, causing impaired extrusion of zymogen granules and activation of degradation enzymes → leads to pancreatic auto-digestion
- **Alcohol** – can cause auto-activation of pancreatic enzymes while still in the pancreas

Possible causes of acute pancreatitis

- Gallstones
- Alcoholism
- Post ERCP
- Abdominal trauma
- Following biliary, upper gastrointestinal or cardiothoracic surgery
- Ampullary tumour
- Drugs (corticosteroids, azathioprine, asparaginase, valproic acid, thiazides, oestrogens)
- Hyperparathyroidism
- Hypercalcaemia
- Pancreas divisum
- Autoimmune pancreatitis
- Hereditary pancreatitis
- Viral infections (mumps, coxsackie B)
- Malnutrition
- Scorpion bite
- Idiopathic

ACUTE PANCREATITIS CAN BE CATEGORIZED INTO:

- **Mild Acute pancreatitis**

- Interstitial edema of the gland and minimal organ dysfunction
- 80% of patients
- Mortality 1%

- **Severe acute pancreatitis**

- Pancreatic necrosis with severe systemic inflammatory response and often multi-organ failure
- Mortality 20 – 50%
- 1/3rd of deaths occur early secondary to multiple organ failure
- Deaths after one week secondary to septic complication

CLINICAL PRESENTATION

- **Pain is the cardinal symptom**
- Develops quickly, reaching maximal intensity within minutes, and persists for hours or days
- Pain is frequently severe, constant, refractory usual doses of analgesics
- Pain usually in epigastrium, or either upper quadrants, or felt diffusely in abdomen
- Radiate to back
- Relieved by leaning forward
- Nausea, repeated vomiting and retching

- **On Examination**

- Abdominal examination

- Distension
- Grey Turner's sign (flank ecchymosis)
- Cullen's sign (periumbilical ecchymosis)
- Fox's sign - (inguinal ecchymosis)
- Epigastric tenderness and guarding
- Can also get jaundice, left pleural effusion and ascites.

a. Cullen's sign



b. Grey Turner's sign



INVESTIGATIONS

- **Serum Amylase**

Level three to four times above the normal

Normal serum level doesn't rule out the acute pancreatitis (late presentation, rapidly cleared from circulation) Urine amylase, and amylase / creatinine clearance ratio

- **Serum Lipase**

More sensitive and specific

- **CBC, KFT LFT**

IMAGING

- **Ultrasound** – needed to check for gallstones and possible CBD dilatation
- **Abdominal CT** – to check for complications (necrotic pancreas will not uptake contrast)
- ERCP is needed in patients with gallstone pancreatitis and retained CBD stones

MANAGEMENT

- **Mild attack of pancreatitis**
- NPO
- IV fluids
- Analgesics
- Anti-emetics
- Antibiotics are not indicated

MANAGEMENT COUNT...

Severe attack of pancreatitis

Admission to ICU

N/G tube especially if patient is vomiting

Adequate analgesics

Aggressive IV fluid

Supplemental O₂

TPN

Urgent ERCP (sphincterotomy & stenting)

Close monitoring of

Serial blood analysis , Hematocrit , Clotting profile,
Blood glucose, Calcium, Magnesium, KFT, LFT

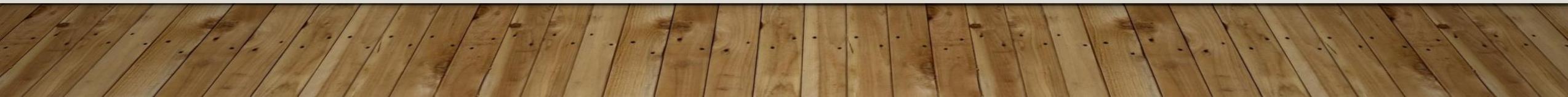
COMPLICATIONS :

- Acute fluid collection
- pancreatic necrosis
- Pancreatic abscess
- Hemorrhagic pancreatitis

A 49-year-old woman has a 24-hour history of nausea, vomiting, escalating epigastric pain radiating to her back, and fever (temperature to 101.3°F). Medical history is remarkable for depression, cholecystectomy (because of gallstones) 5 months ago, and appendectomy during childhood. She takes fluoxetine 20 mg daily for depression. Physical examination reveals a tender epigastrium as well as tenderness in the right upper quadrant. Laboratory studies reveal the following serum levels: amylase, 14,500 U/L; lipase, 9300 U/L; aspartate aminotransferase, 500 U/L; alanine aminotransferase, 449 U/L; alkaline phosphatase, 420 U/L; total bilirubin, 1.9 mg/dL; calcium, 9.7 mg/dL; triglycerides, 430 mg/dL; and leukocyte count, $16 \times 10^3/\text{mm}^3$.

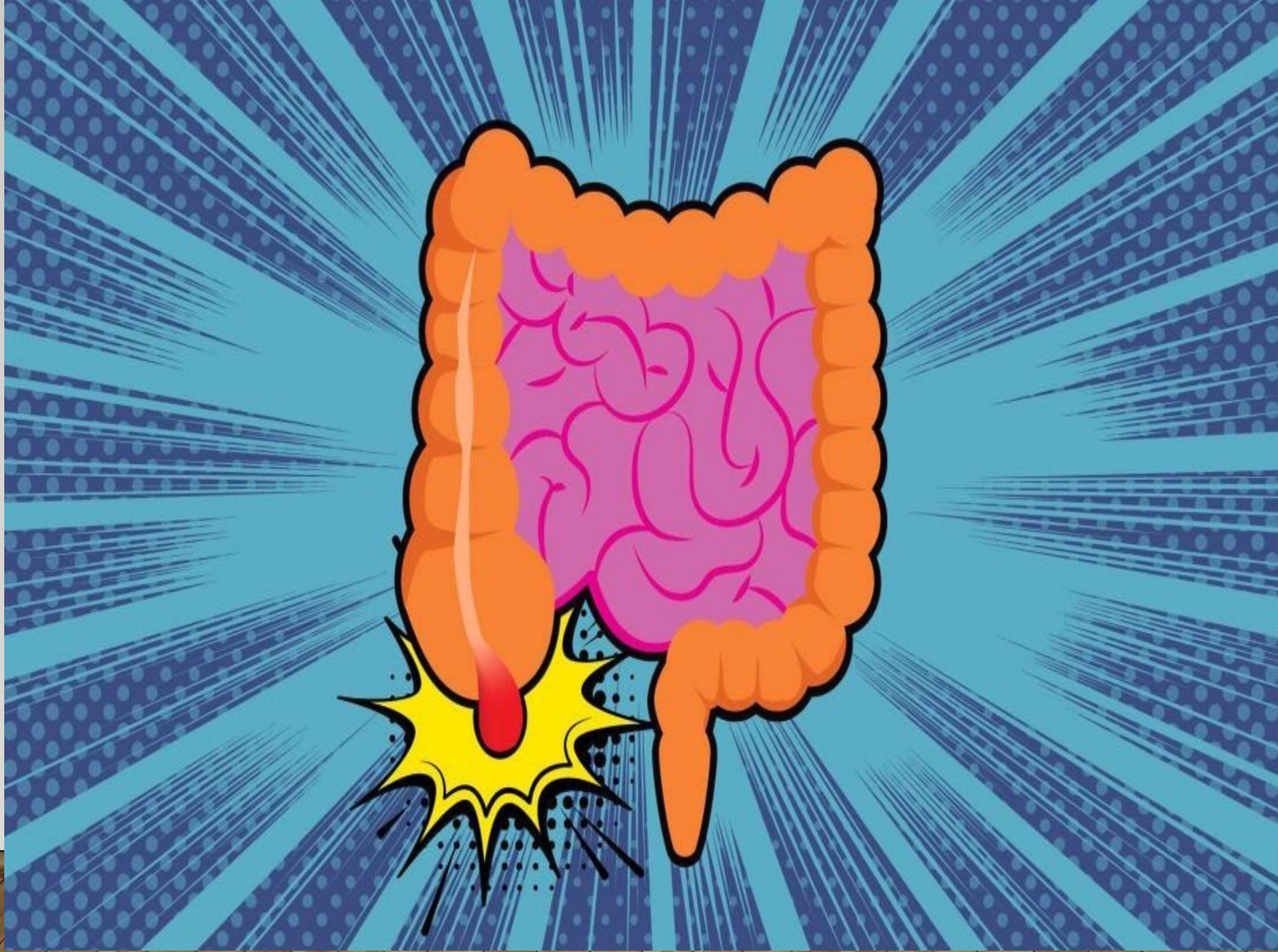
1. Which of the following is the most likely cause of this patient's pancreatitis?

- A) Alcohol abuse
- B) Fluoxetine administration
- C) Gallstones
- D) Hypercalcemia
- E) Hypertriglyceridemia



ACUTE APPENDICITIS

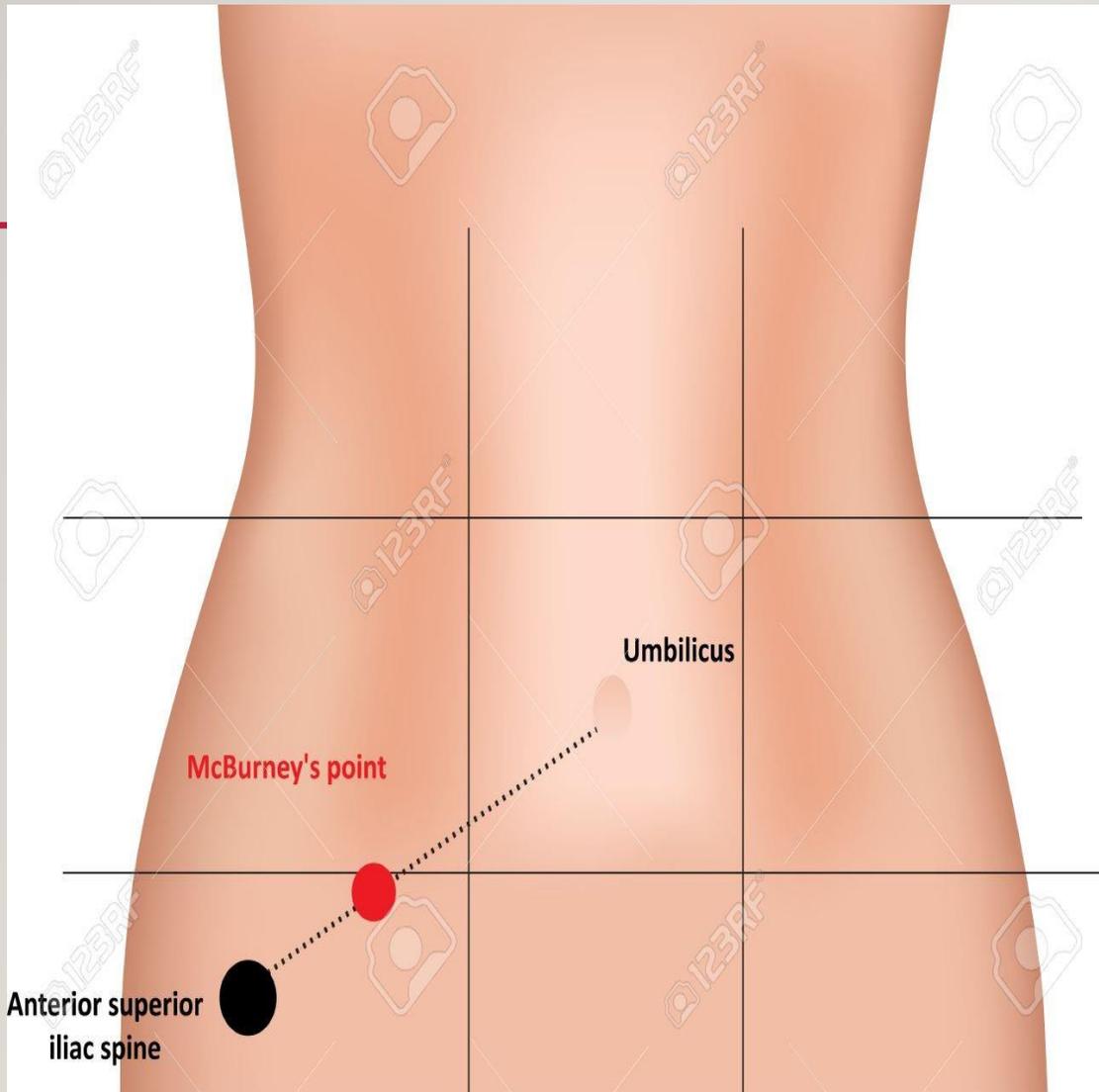
- History:
 - Sudden-onset, constant, severe abdominal pain often periumbilical with migration to right lower quadrant, usually worse on movement; nausea, vomiting, anorexia, and fever, more common in children and young adults



ACUTE APPENDICITIS

- **Physical examination:**

- fever, tachycardia, right lower quadrant (**McBurney's point**) **tenderness** with rigid abdomen; guarding and rebound tenderness; **psoas sign** (right lower quadrant pain with right thigh extension), **obturator sign** (pain upon internal rotation of the leg with the hip and knee flexed), **rovsing's sign** (palpation of LLQ result pain in the RLQ)



(MCBURNNEY'S POINT) TENDERNESS

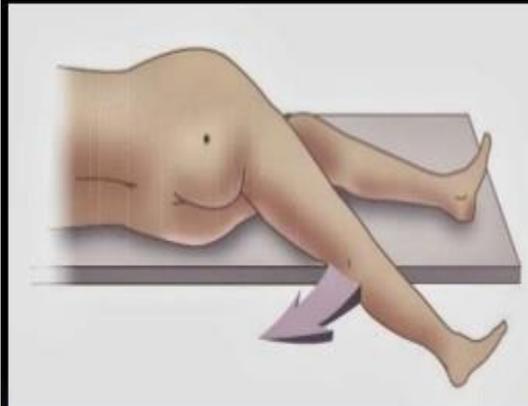
- Physical finding → **McBurney sign**
- Deep tenderness located two thirds of distance from umbilicus to right anterior superior iliac spine (McBurney point)

PSOAS SIGN

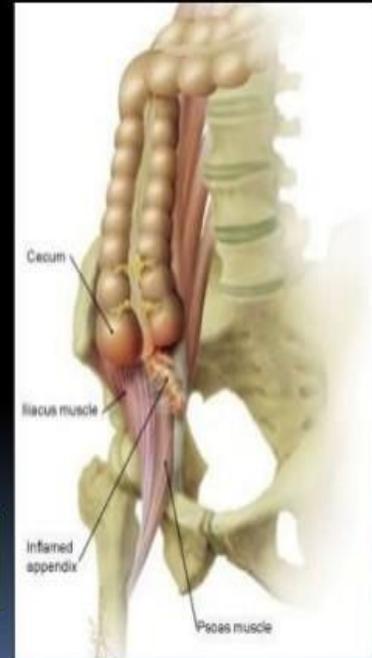


Psoas Sign

3

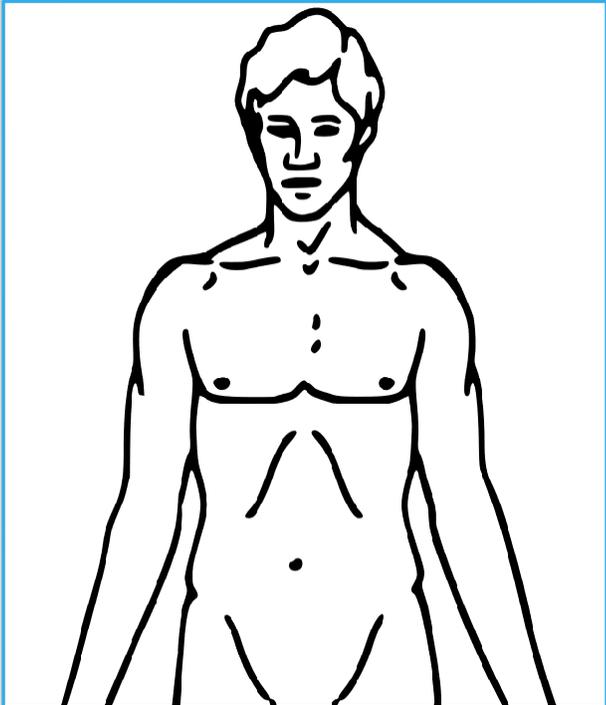


Pain on hyperextension of right hip
While Patient is lying left lateral with knee extended



Also in Psoas abscess/ retroperitoneal bleed due to ruptured iliac vessel

ROVSING SIGN



- is a sign of appendicitis.
- If palpation of the left lower quadrant of a person's abdomen increases the pain felt in the right lower quadrant, the patient is said to have a positive Rovsing's sign and may have appendicitis.

PELVIC U/S

May see a large,
noncompressible appendix
or fecalith

- **To detect:**

Inflamed appendix

Appendicular mass



CT SCAN FINDING

- Periappendiceal fat stranding
- Appendical diameter >6mm
- Periappendiceal fluid
- fecalith

Alvarado score	
Feature	Score
Migration of pain	1
Anorexia	1
Nausea	1
Tenderness in right lower quadrant	2
Rebound pain	1
Elevated temperature	1
Leucocytosis	2
Shift of white blood cell count to the left	1
Total	10

-
- <4 : unlikely
 - 5-6: possible
 - 7-8: probable
 - 9-10: very probable

ACUTE APPENDICITIS

- Treatment and management:

- a) PRE-OP

- Rehydration with IV fluid (Ringer lactate)
- Pre-op antibiotics with anaerobic coverage (cefoxitin/cefotetan/ciprofloxacin)

B) OP

- ***IF NOT PERFORATED:***

Prompt appendectomy to prevent perforation 24 hours antibiotics “anaerobic coverage”

- ***If perforated (rupture):***

25% of rupture → after 24h 75% of rupture → after 48h

IV fluid resuscitation and prompt appendectomy

All pus is drain

Postop antibiotics for 3-7 days

- ***If appendiceal abscess:*** Percutaneous drainage of abscess Antibiotics to fight possible peritonitis.
Elective appendectomy → 6 weeks later

CASE PRESENTATION

- A 25-year-old male presents to the emergency room with **right lower quadrant abdominal pain**, anorexia, nausea, and fever. Of one day duration
- Physical examination reveals a low-grade fever (38°C), tenderness on palpation at right lower quadrant **(McBurney sign)**, and leukocytosis (12,000) with **85% neutrophils**.
- What is your DDx?

INTESTINAL OBSTRUCTION

It could be:

Dynamic: in which peristalsis is working against a mechanical obstruction . It may occur in acute or chronic form.

Adynamic: in which there is no mechanical obstruction (peristalsis is absent or inadequate)

ETIOLO

GY:

• Intraluminal:

- -fecal impaction (immobile bulk)
- -foreign bodies
- -Bezoars
- -Gallstone ileus

• Intramural:

- -strictures
- -CA
- -Diverticulosis

• Extramural:

- -Hernia
- -Adhesion
- -Volvulus
- -Intussusception

• Causes of functional obstruction:

- -Post OP ileus
- -Peritonitis, Sepsis, Shock
- -Drugs (opiates / anticholinergic)
- -Electrolyte abnormalities (Hypokalemia)

SIGNS &

SYMPTOMS:

- Emesis
 - Constipation
 - Diarrhea
 - Hypovolemia
-

Signs of strangulated obstruction bowel:

- Fever
- Sever & continuous pain
- Tachycardia
- Hematemesis
- Shock
- acidosis
- Peritoneal signs

APPROACH

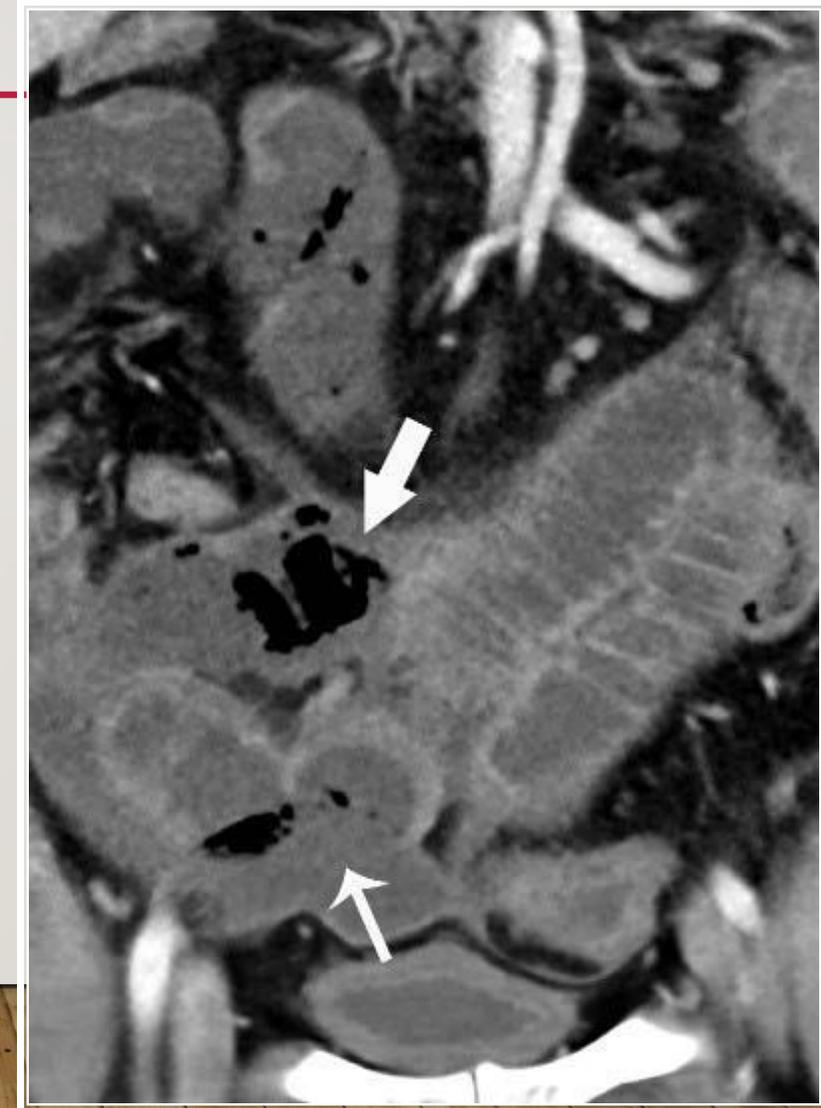
- History: cardinal symptoms
- Don't forget to ask about previous abdominal surgery, previous colonoscopy, previous irradiation
- History of hernia
- Changes in bowel motion, symptoms of anemia
- Tenesmus, blood per rectum, weight loss, family hx of IBD ,family history or personal hx of colon cancer

PHYSICAL EXAMINATION

- General appearance
- Vital sign and assessment of hydration status
- Abdominal exam looking for level of distention, tenderness, skin changes
- Hernia orifice examination(looking for strangulation hernia sign)
- Auscultation
- Don't forget to do digital rectal examintaion

INVESTIGATION LABS & IMAGING

- CBC
- Serum electrolytes
- Creatinin
- Bun
- Urine analysis
- Abdominal x-ray
- CT



MANAGEMENT

Strangulated obstruction or peritonitis:

- requires prompt operative intervention
- Fluid / electrolyte resuscitation and nasogastric (NG) tube, decompression are crucial in the preoperative preparation of the patient

Non strangulated obstruction:

- It can be treated non operatively if the patient is stable
- Fluid resuscitation and NG decompression
- close observation with serial abdominal examinations every 4 to 6 hs, if the patient develops signs of shock or peritonitis or fail to improve within a few days labarotomy is indicated

- A 73 yrs old obese woman presents to the ER with 3 days of progressive abdominal pain and recent bilious vomiting. imaging reveals multiple air air fluid levels in small intestine and air in biliary tree .

Which of the following is the most likely diagnosis?

- A. colon cancer
- B. gallstones lieus
- C. gangrenous cholecystitis
- D. volvulus

PERFORATED PEPTIC ULCER

INTRODUCTION

- >Definition
- >Etiology
- >Pathophysiology
- >Stages
- Stage of chemical peritonitis Stage of reaction (illusion)
- Stage of diffuse bacterial peritonitis

HISTORY

- > Age & Sex
- > Symptoms
- > Drug History

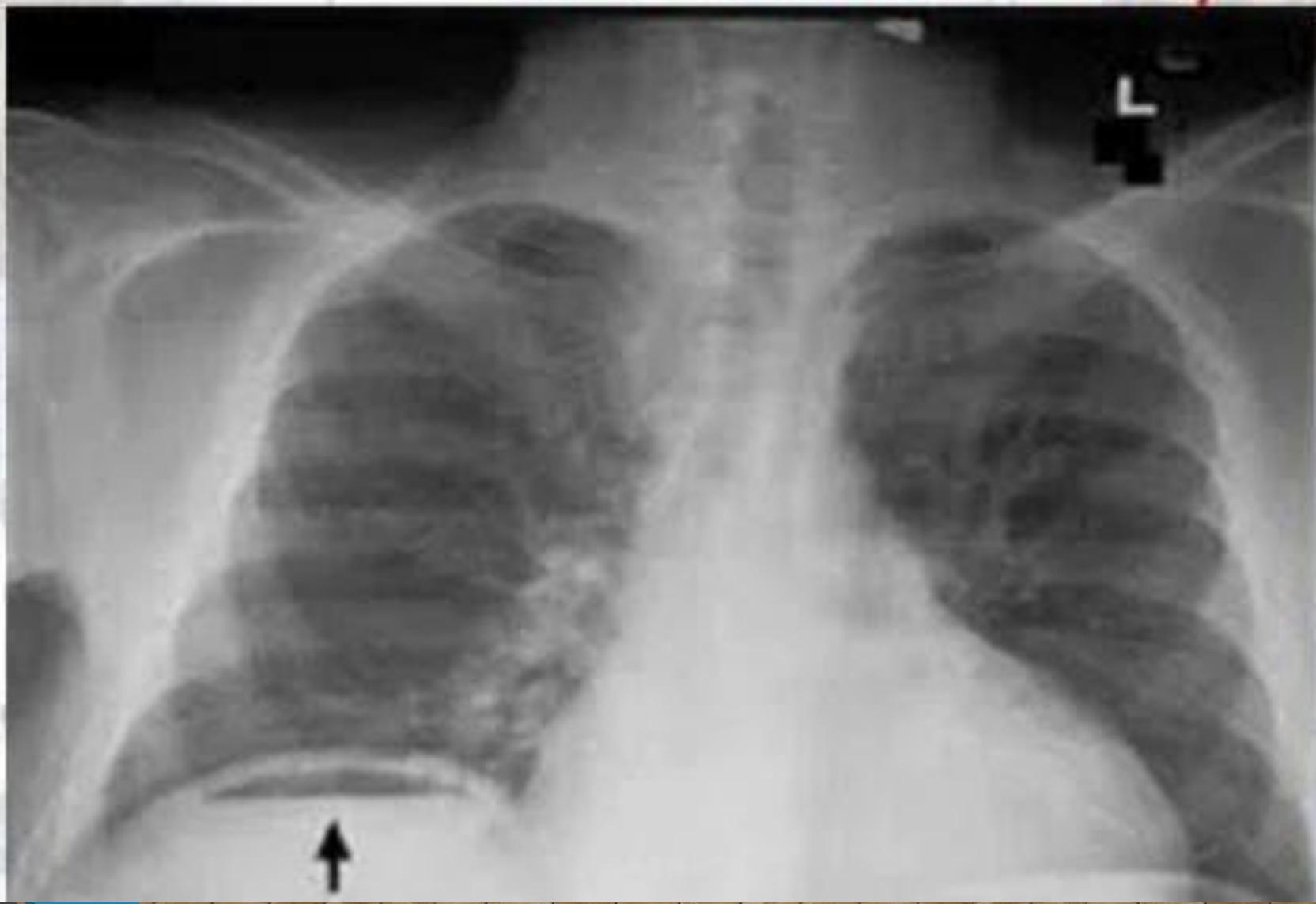
EXAMINATION

- > General Inspection
- > Abdomen
 - Inspection
 - Palpation
 - Percussion
 - Auscultation

INVESTIGATION

- Lab studies
- Imaging Studies
- Tissue Diagnosis
 - cytology & Histology

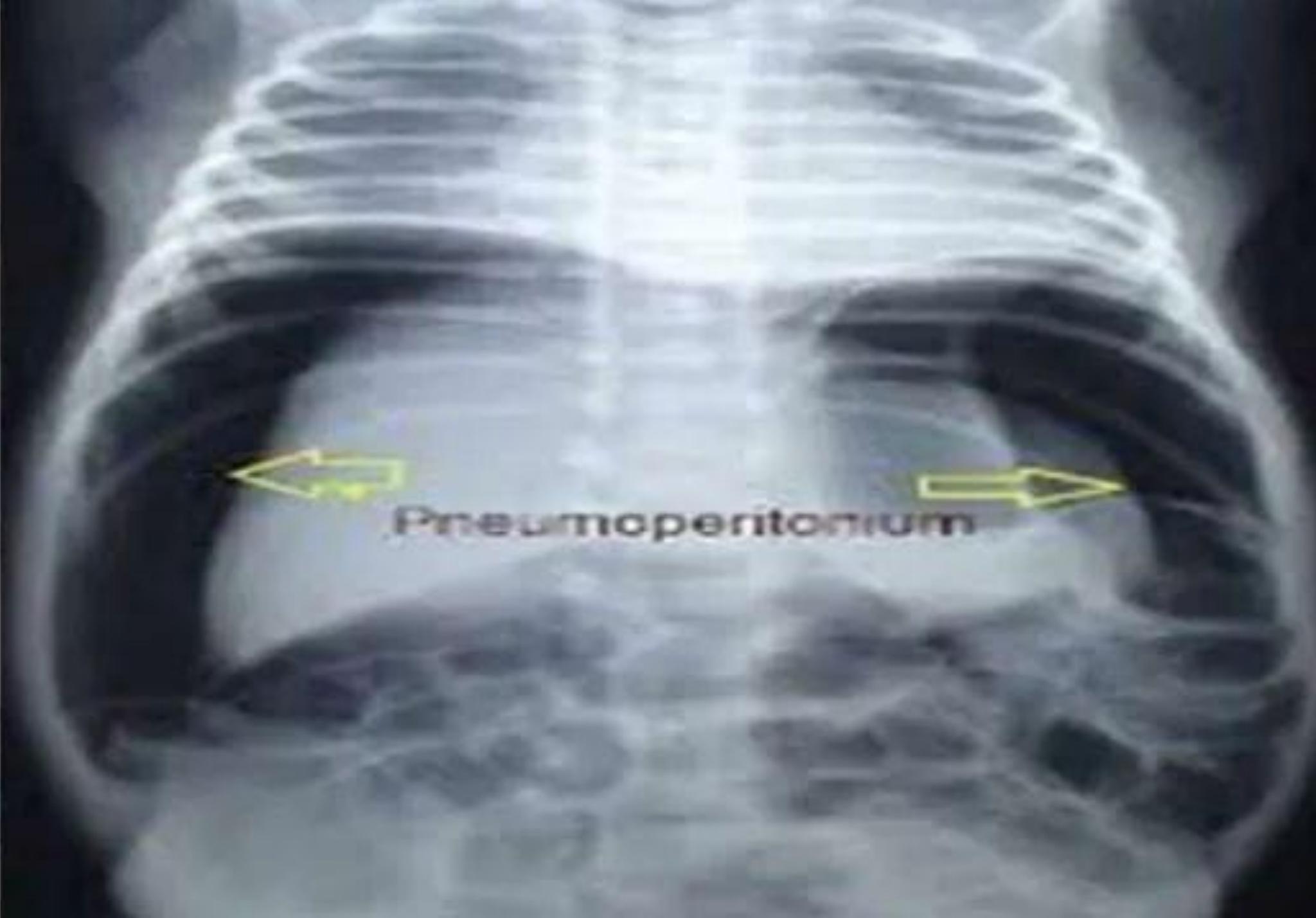
Gas under diaphragm



Chest Radiograph







Pneumoperitoneum

COMPLICATIONS

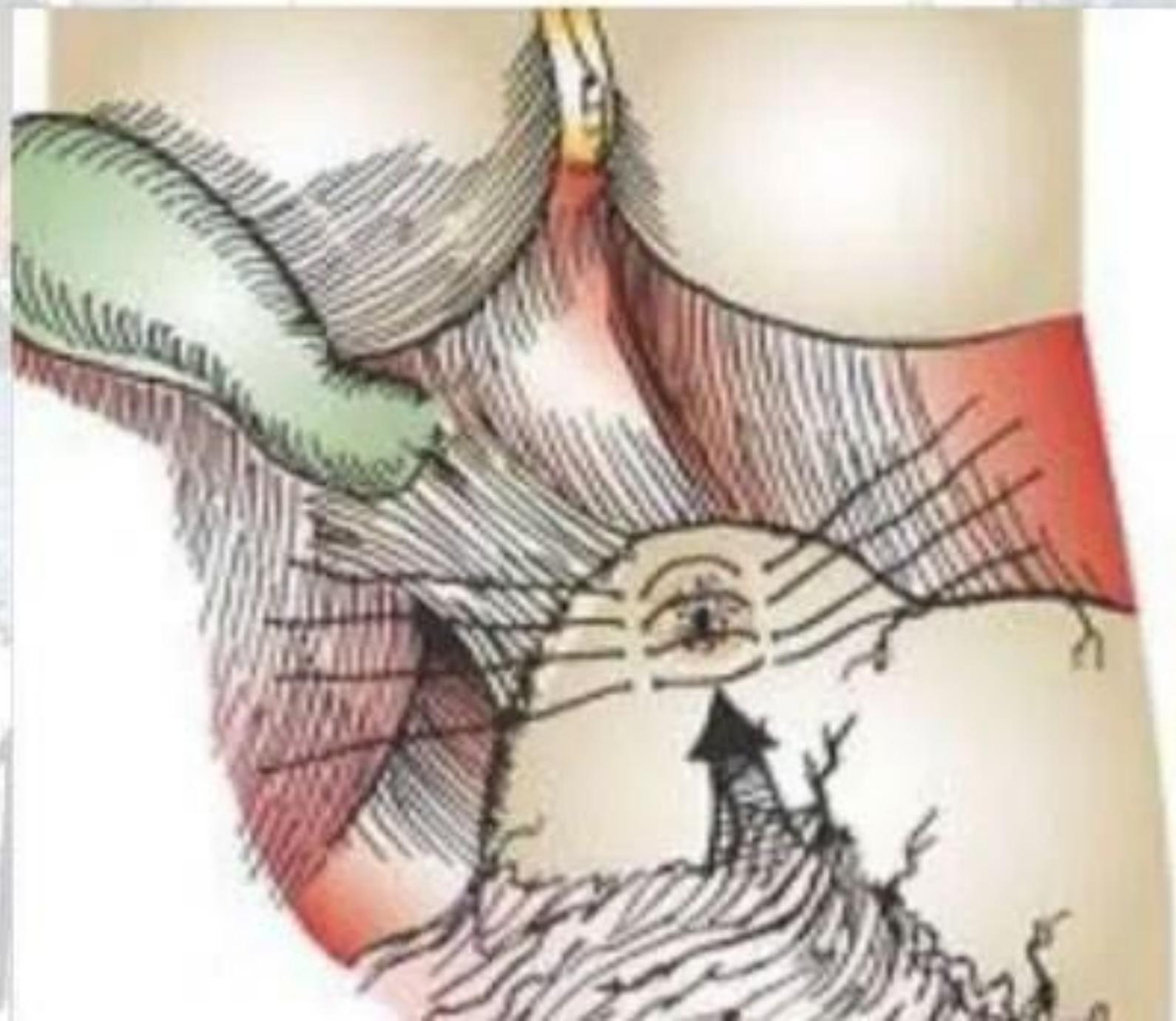
- > Septic Hypovolemic shock
- > Intrabdominal Abscess
- > Pleural effusion
- > intrabdominal adhesions

DIFFERENTIAL DIAGNOSIS

- MI
- Pancreatitis
- Enteric perforation
- Acute Appendicitis
- Acute cholecystitis

MANAGEMENT

- Resuscitation
- Laparotomy for closure
- Laparoscopic approach





THANK YOU