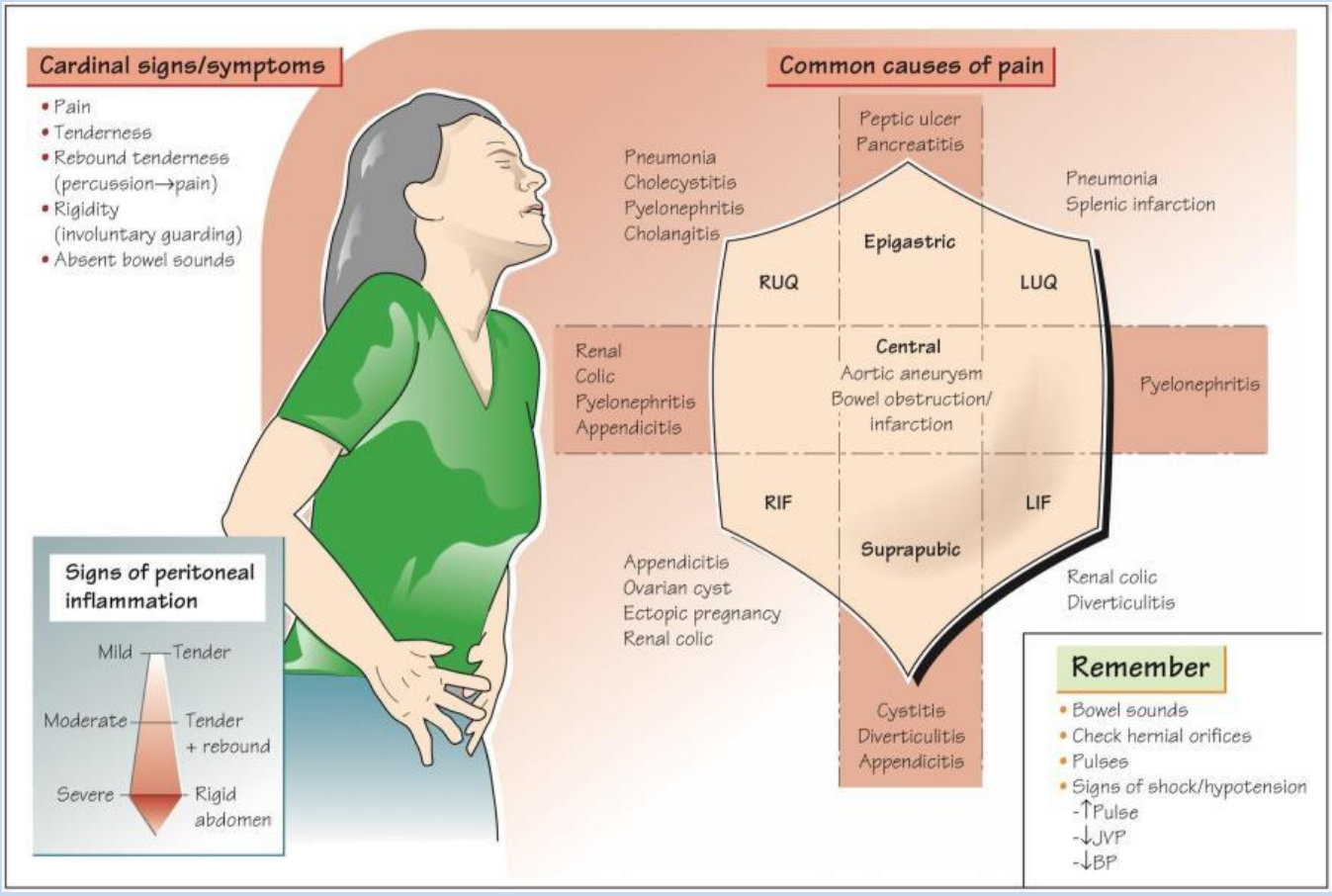
1

Abdomen

Abdomen



Types of Abdominal pain:

1. **Radiated pain**: extension of pain from original site to another site with persistence of pain at original site. e.g. penetration of duodenal ulcer posteriorly causes pain both in epigastrium and back , pancreatitis radiates to back .

2. **Referred pain:** pain is not felt at the site of disease but felt at distant site. e.g. diaphragmatic irritation causes referred pain at the tip of shoulder through same segmental supply . Diaphragm (phrenic c4,c5), shoulder (cutaneous supply c 4,c5).

3. **Shifting/migrating pain:** pain that begin in a site and then move to other site e.g. appendicitis

4. **Visceral pain:** ((generalized)) occur in the epigastric, suprapubic regions and around the umbilicus.
5. **Parietal or somatic pain:** ((localized)) occur when an inflamed organ touch the parietal peritoneum. Like pain in the right iliac fossa (R.I.F)
6. **Constant griping pain:** could contracting pain, it is due to inflammation
7. **Colic pain:** a cramp-like pain that originates in the small or large intestine due to muscular tube obstruction

Abdomen

1 History of Abdominal Pain

Introduction: Greet the patient, introduce yourself, explain what you plan to do, & take Patient ID	
Focused Hx (SOCRATES)	
Site	• Where is the pain?
Onset, duration,	• When did it start? • Did it start **suddenly** or **gradually**? • Is it **constant** or **intermittent**? (How many times if intermittent)
Character	• Describe the pain is it **sharp, colicky, dull**?
Radiation	• Does it radiate anywhere? To the **back or shoulder** for example?
Alleviating & Exacerbating Factor	• Is there anything that relieves the pain? Like **changing your posture, vomiting**? • Anything that makes it more painful like **movement, eating or drinking**?
Timing	• Has the pain **changed** over time? • **When** is the pain worse?
Severity	• **Does it wake you up from sleep?** • Rate the pain out of 10? • How has this affected your daily life?
Risk Factors	• Have you eaten from a restaurant recently? Old food? • **ANTIBIOTICS** • Do you take Aspirin, Ibuprofen or other painkillers? (GERD, PUD) • H.pylori? PUD? • Do you have a family history of UGI cancer? • Have you and any surgeries before (SBO) • Hx of Crohn's, malignancies, hernias? (SBO) • Have you ever had gallstones, similar pain before? ERCP? (Pancreatitis, Cholecystitis) • Alcohol? (Pancreatitis) • Travel, unprotected intercourse, IVDU? (Acute hepatitis)
Related System Questions	• difficulty/ pain with swallowing? • Nausea? • Vomiting? (when? How many times? color? content/ blood/ amount?) • Do you have diarrhea? Blood with stool? • Yellowish discoloration of your eyes, skin? Urine & stool? • Abdominal distension? • Bloating? Flatulence? • Any pain in defecation or sense of incomplete emptying? • Joint pain? Mouth Ulcers? Rashes?
Constitutional Symptoms	• Night Sweats? Nausea? Weight loss? Loss of Appetite? Fever? Fatigue?
Finishing & Thank the patient	

Abdomen

Examination

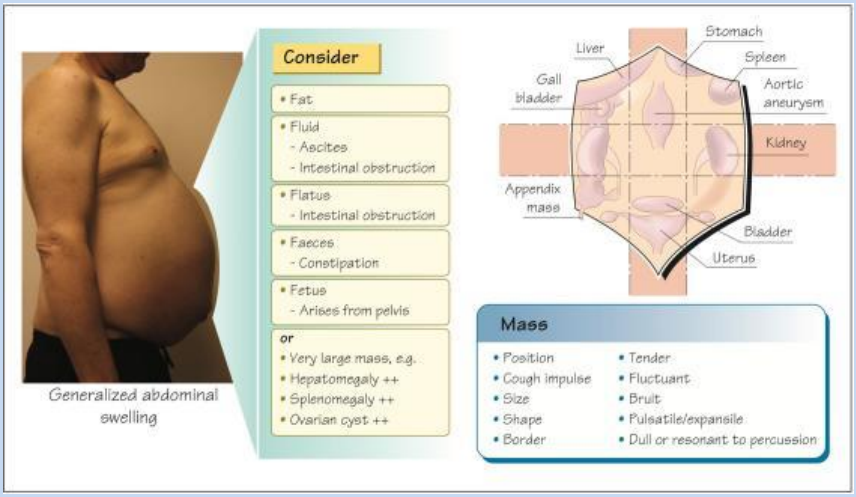
WIPER: **w**ash hands, **i**ntroduce yourself, **p**ermission, **e**xpose patient, **r**eposition
Expose from the **nipples down to mid thigh** and let them sit in **45** degrees for the inspection and **lay flat** for the abdominal exam .

General Inspection:

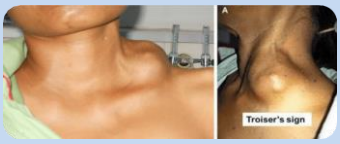
- From end of the bed :
  - Appearance, body weight, pale, pallor, resp distress, breathing type
- Stand right to the patient:
  - Vitals (take HR comment rhythm, volume & RR rate)
- **Hands:** koilonychia, leukonychia, dupuytren's contracture, *clubbing* and flapping tremors.
- **Arms and Axilla:** temperature, bruises and petechiae, acanthosis nigricans (below the axilla).
- **Eyes :** Pale conjunctiva, xanthelasma, **jaundice**.
- **Mouth :** Angular stomatitis, fetor hepaticus, ulcers.
- **Neck :** Check for lymphadenopathy (Virchow's node)
- **Chest :** Spider naevi and gynecomastia.

Abdominal inspection

- **From the bed end:** **Symmetry, cough impulse & visible peristalsis.**
- **From the right side :**
- **Distension**: 5Fs (fat, fetus, flatus, feces, fluid)
- **2Ps**: **P**ulses, **p**rominent veins
- **4Ss**: **S**cars, **s**kin lesion, **s**tomas, **s**triae
- **Umbilicus**: **i**nverted or **e**verted, color, discharge



How to describe the scar ?
1. Recent or old
2. Well healed or poorly healed
3. Atrophic, hypertrophic, keloid
4. Presence or absence of infection
5. Complicated - incisional hernia
6. size



Virchow's node

Abdomen

2 Examination

Superficial Palpation:

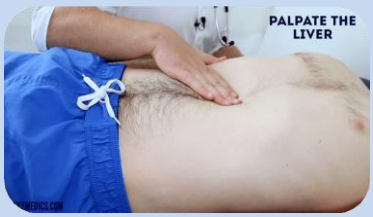
Do you have any pain? Start farthest *away* from the pain. And keep your eyes on the patient's face. Palpate across the nine regions gently.

Look for superficial masses, tenderness, temperature, guarding (and elicit rebound tenderness (for appendicitis).

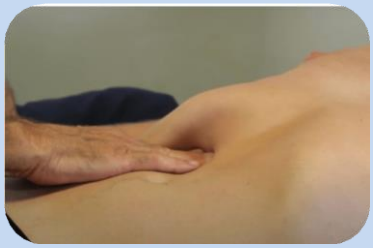
Deep Palpation:

Palpate across the nine regions deeply, look for deep masses & organomegaly (All are NOT palpable normally)

1. **Liver**
   - Start at the right iliac fossa, put your hands parallel to the right costal margin and with each expiration, move the hand upwards closer to the right costal margin.
     - The liver edge may be palpable 1-2 cm below the right costal margin during deep inspiration. This finding is considered normal if the liver edge is soft, smooth, and non-tender..



2. **Gallbladder**
   - Ask the patient to exhale then palpate the gallbladder (medial to the midclavicular line) then ask the patient to inhale to push down the gallbladder. If the patient stops breathing due to pain this is a **POSITIVE Murphy's sign** (due to cholecystitis). (Video)



3. **Spleen**
   - Palpate from the right iliac fossa, going obliquely to the LUQ (because the spleen enlarges obliquely). If you can't palpate it, do the bimanual maneuver to feel the splenic notch.

4. **Kidneys**
   - Kidney balloting: Place your left hand behind the patient between the rib cage and the iliac crest and your right hand anteriorly below the costal margin. Press with your left hand upwards and the kidney will float upward and strike your right hand.

5. **Aorta**
   - Use both hands and palpate just superiorly to the umbilicus in the midline. If your hands move away from each other → AAA.

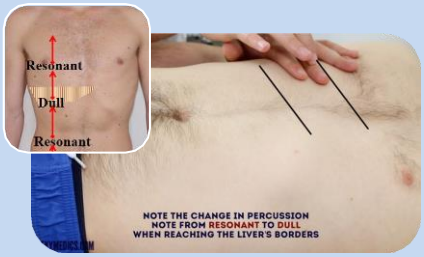
To achieve this, the examiner must sit or kneel beside the bed. Do not examine the patient from a standing position by leaning forwards and dorsi-flexing your wrist.

Abdomen

Examination

Percussion:

1. **Liver:**
   - Start to percuss from the 2nd intercostal space midclavicular line, and mark the area of dullness. Then percuss from the right iliac fossa upwards until you hear dullness and mark it again.
   - Measure the liver span (normally it is from **8-12 cm**, from the 5th IC space to the right costal margin).
     - Early cirrhosis and acute hepatitis ↑ liver span
     - Late cirrhosis and Fulminant hepatitis ↓ liver span

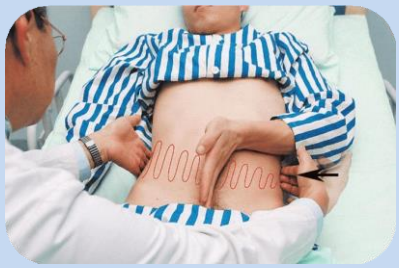


2. **Spleen:**
   - Percuss over the lowest intercostal space at the left anterior axillary line (traube's triangle). This is usually tympanic. Ask the patient to take a deep breath and if it becomes dull → splenomegaly

3. **Bladder**
   - Percuss from the umbilicus down the midline and look for suprapubic dullness.

4. **Ascites**
   - Start at the midline and percuss laterally (away from you) to the flank. If you hear dullness → perform a shifting dullness test:
     - Fix your hand at the area of the dullness and roll the patient to your side and wait for about 30 seconds then percuss again.
     - If it switches from dull to resonant → is +ve

5. **Fluid Thrill**
   - Ask the patient to place their hand in the middle of their abdomen and the examiner places their fingertips along one flank and the other hand firmly gives a sharp tap along the opposite flank.



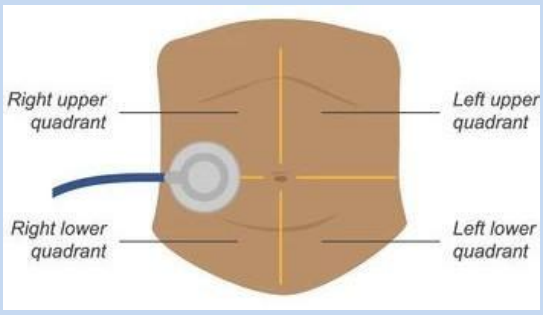
Q/How to differentiate between large ovarian cyst from ascites?
1. After emptying of urinary bladder with catheter, percuss the abdomen where in ovarian cyst central dullness with peripheral resonant & vice versa.
2. In whole abdomen filled with fluid place ruler above to ASIS and press firmly in ovarian cyst the transmitted pulsation to the ruler and fingers.

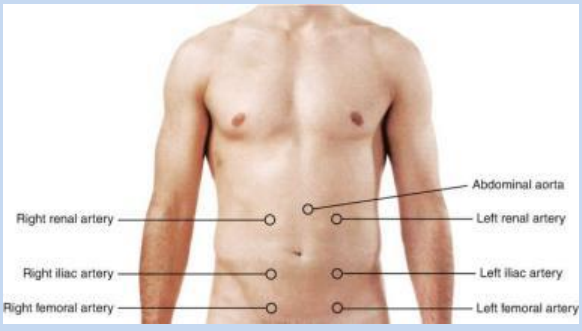
Abdomen

Examination

Auscultation:

1. **Bowel Sounds:**
   - Normal bowel sounds are low-pitched gurgles which occur every few seconds.
   - Use the diaphragm of the stethoscope and place it in at least 3 different areas, especially the right iliac fossa.
   - Exaggerated bowel sounds → Obstruction
   - Absent bowel sounds → Paralytic ileus
   - Bowel sounds should be auscultated for at least 2 minutes before concluding that they are absent.
2. **Aortic Bruits:**
   - Auscultate 1-2 cm above umbilicus.
3. **Renal Artery Bruits:**
   - Auscultate 1-2 cm above and lateral to umbilicus.
4. **Friction Rub:**
   - Might indicate peritonitis.
5. **Venous Hum:**
   - Between the umbilicus and xiphisternum, indicates portal hypertension.





Revision panel 15.1
Never forget to examine

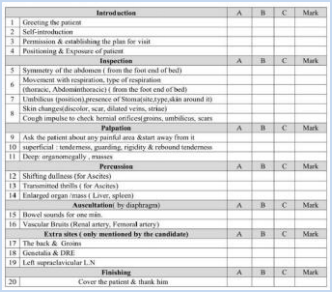
Supraclavicular lymph glands
Hernia orifices
Femoral pulses
Genitalia
Bowel sounds
Anal canal and rectum

McBurney point is the best site for bowel sound WHY?
1- Presence of ileocecal valve
2- Transition area between large and small intestine
3- Junction between moveable (ileum) and fixed (cecum) part

When describing bowel sounds:
frequency (normally 5-35/min), duration of each one, character (clicking, gargling..), volume/intensity (soft, harsh?), and pitch (idk how)

Abdomen

Theoretical Notes



	Introduction	A	B	C	Mark
1	Greeting the patient				
2	Self-introduction				
3	Permission & establishing the plan for visit				
4	Positioning & Exposure of patient				
	Inspection	A	B	C	Mark
5	Symmetry of the abdomen (from the foot end of bed)				
6	Movement with respiration, type of respiration (thoracic, Abdominothoracic) (from the foot end of bed)				
7	Umbilicus (position),presence of Stoma(site,type,skin around it)				
8	Skin changes(discolor, scar, dilated veins, striae)				
	Cough impulse to check hernial orifices(groins, umbilicus, scars				
	Palpation	A	B	C	Mark
9	Ask the patient about any painful area &start away from it				
10	superficial : tenderness, guarding, rigidity & rebound tenderness				
11	Deep: organomegally , masses				
	Percussion	A	B	C	Mark
12	Shifting dullness (for Ascites)				
13	Transmitted thrills (for Ascites)				
14	Enlarged organ /mass (Liver, spleen)				
	Auscultation(by diaphragm)	A	B	C	Mark
15	Bowel sounds for one min.				
16	Vascular Bruits (Renal artery, Femoral artery)				
	Extra sites (only mentioned by the candidate)	A	B	C	Mark
17	The back & Groins				
18	Genetalia & DRE				
19	Left supraclavicular L.N				
	Finishing	A	B	C	Mark
20	Cover the patient & thank him				

Peritonitis features:

- **Inspection**: No abdominal movement on respiration
- **Palpation:** Tenderness, rebound tenderness, guarding & rigidity.
- **Percussion:** tenderness on percussion
- **Auscultation:** Absence of bowel sound.
- **Associated:** Pyrexia and tachycardia.

Causes of enlargement of the kidney

- Hydronephrosis
- Pyonephrosis
- Malignant disease
- Polycystic disease
- Hypertrophy

Causes of splenomegaly

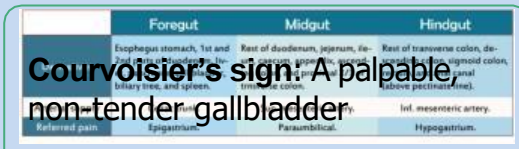
- Infection
- Infraction
- Congestion
- Collagen disease
- Cellular infiltration
- Cellular proliferation

Causes of hepatomegaly

- Infection
- Congestion
- Cellular infiltration
- Cellular proliferation
- Bile duct obstruction
- Cirrhosis

- **Guarding** : voluntary reaction to protect an area from pain (as by spasm of muscle on palpation of the abdomen over a painful lesion)
- **Rigidity** : is involuntary stiffness of the muscles in the belly area, which can be felt when touched or pressed.

- **Hematemesis** is the vomiting of blood,
- **Melena** is the passage of black, tarry stools
- **Hematochezia** is the passage of fresh blood per anus



	Foregut	Midgut	Hindgut
	Esophagus stomach, 1st and biliary tree, and spleen.	Rest of duodenum, jejunum, ileum, appx, cecum, upper ⅔ transverse colon.	Rest of transverse colon, descending colon, sigmoid colon, upper part of anal canal (above pectinate line).
Referred pain	Epigastrium.	Parasumbilical.	Hypogastrium.

Courvoisier's sign: A palpable, non-tender gallbladder

Enlarged Kidney	Splenomegaly
It has a palpable upper border so, we **can go above it**	Has no palpable upper border so, **not** possible to palpate over it
No palpable notch	Has palpable **notch**
Move **inferiorly**	Move **inferomedially**with inspiration
Floatable(**bloating**)	Not Floatable
Resonant on percussion "it's retroperitoneal organ"	**Dull** on percussion
No friction rub	**Friction rub** maybe heard

Summary box 63.6

Colicky abdominal pain

- Pain of 'small bowel colic' comes in waves and disappears completely in minutes when the peristaltic wave ceases
- Pain of biliary colic is insidious in onset, reaches the peak in half an hour or so and does not ease off completely between spasms
- Pain of ureteric colic is intense, lasting 1–2 minutes

Summary box 63.5

Specific characteristics of abdominal pain

- Visceral pain arises from ischaemia, muscle spasm or stretching of the visceral peritoneum
- Autonomic pain, deep and poorly localised, is referred to the equivalent somatic distribution of that nerve root from T1 to L2
- When an inflamed organ touches the parietal peritoneum, pain is then localised to the segmental dermatome of the abdominal wall
- The pain in the parietal peritoneum may radiate to back or front along the dermatome

Revision panel 15.4

The common conditions that present with acute upper abdominal pain

Oesophagitis
Boerhaave's syndrome
Acute gastritis
Perforated peptic ulcer
Acute cholecystitis
Gallstone and biliary colic
Acute pancreatitis

Revision panel 15.9

The causes of acute and chronic lower abdominal pain

Appendicitis
Crohn's disease
Carcinoma of the caecum and right colon
Diverticular disease
Carcinoma of the left colon/rectum
Bladder outflow obstruction
Interstitial/irradiation cystitis
Pelvic inflammatory disease

Abdomen

4 Cardinal signs of some disease of acute abdomen

Acute appendicitis:

- History: Nausea, vomiting, central abdominal pain which later shifts to the right iliac fossa
- Examination: Peritonitis features, palpable mass in the right iliac fossa. Rovsing's sign (Palpation in the left iliac fossa produces pain in the right iliac fossa). Iliopsoas test (for Retroileal appendicitis, iliopsoas abscess): Ask the patient to flex the thigh against the resistance of your hand; a painful response indicates an inflammatory process involving the right psoas muscle.

Intestinal obstruction:

- History: Colicky abdominal pain, vomiting, distention and constipation
- Examination: Surgical scars, hernias, mass, distension, visible peristalsis, increased bowel sounds
- The constipation could be relieved easily without surgery but the obstruction very difficult to be relieved

Acute pancreatitis:

- History: alcoholism /cholelithiasis, Anorexia, nausea, vomiting, constant severe epigastric pain
- Examination: Peritonitis features, epigastric tenderness, periumbilical bruising (Cullen's sign) or loin bruising (Grey–Turner's sign, fever)

Perforated peptic ulcer with acute peritonitis:

- History: history of dyspepsia, ulcer disease, NSAIDs or corticosteroid therapy. Vomiting at onset associated with severe acute onset abdominal pain, previous
- Examination: Peritonitis features (previous page)

Ruptured aortic aneurysm:

- History: history of vascular disease and/or high blood pressure. Sudden onset of severe, tearing back/loin/abdominal pain.
- Examination: Shock and hypotension, pulsatile, tender, abdominal mass, asymmetrical femoral pulses, Grey–Turner's and Cullen's sign.

Acute Cholecystitis:

- Febrile, Nausea
- Colic abdominal pain if there is biliary obstruction but if there is inflammation it will spread to make constant referral pain
- Post-meal pain (30 min)
- Fatty meal will increase the pain
- The pain is sudden, severe, continuous, radiated to tip of right scapula, aggravated by moving and coughing, relieved by analgesics and the site is right hypochondrium.

Diverticulitis

The most common type of diverticulitis is sigmoid diverticulitis and it is caused by fiber full food and it is acquired type of diverticulitis and not occur in developing countries

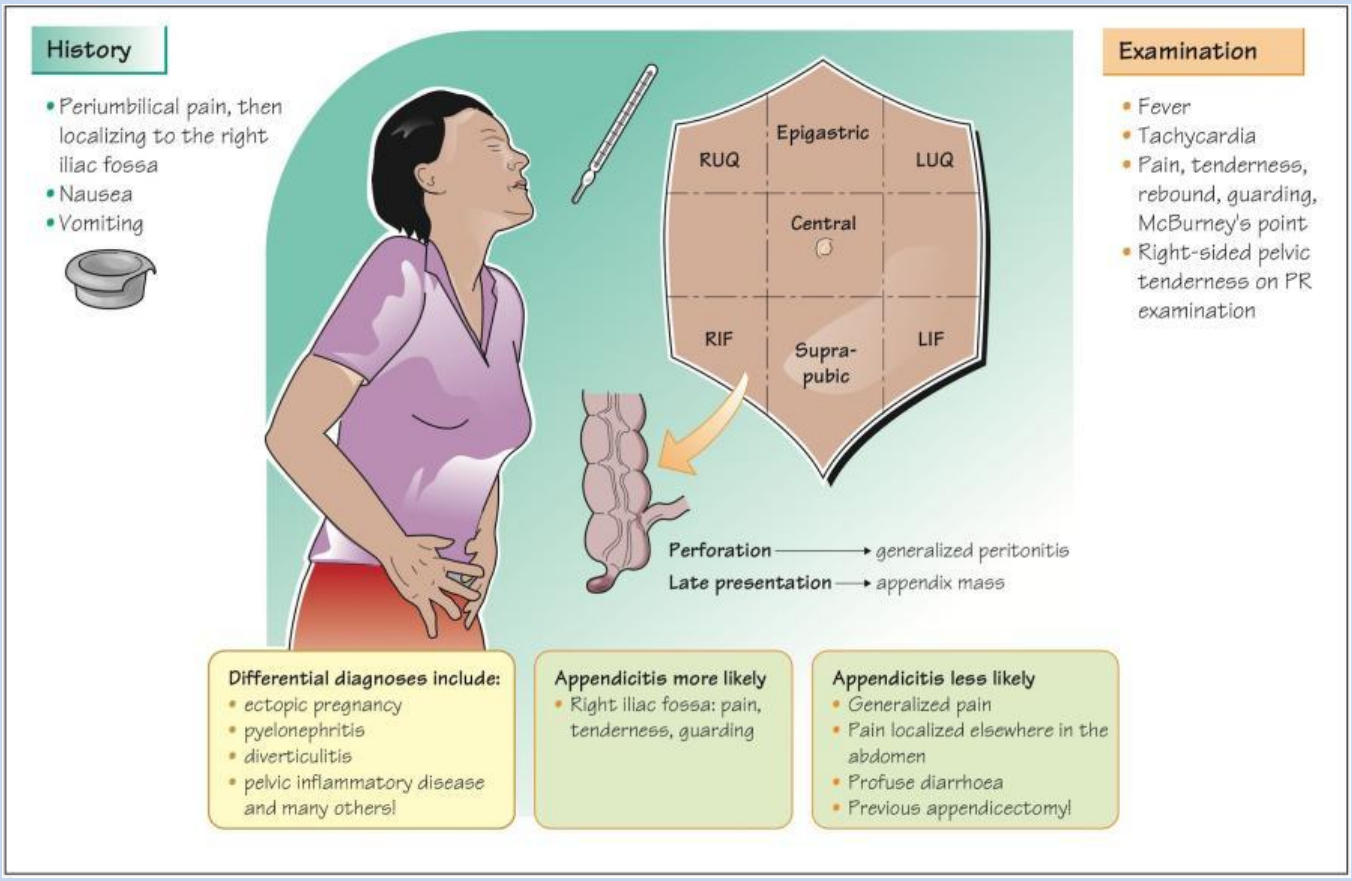
- Lead to inflammation ➜ acute abdomen
- Diarrhea
- Bleeding per rectum
- Nausea & vomiting

2

Appendicitis

Appendicitis

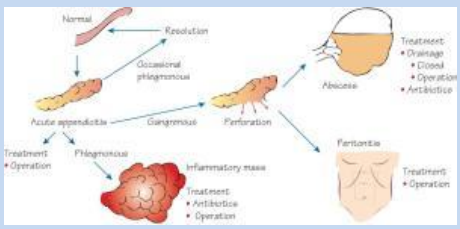
1 Definition



An inflammation of the inner lining of the vermiform appendix that spreads to its other parts. Despite diagnostic and therapeutic advancement in medicine, appendicitis remains a clinical emergency and is one of the more common causes of acute abdominal pain.

Causes: Obstruction of the appendiceal lumen by:

- Lymphoid hyperplasia (commonly due to infections, rarely due to IBD)
- Fecaliths and fecal stasis
- Infections (bacterial, parasitic, viral)
- Foreign bodies
- Neoplasms (e.g., carcinoid tumor, adenocarcinoma, lymphoma)
- Strictures (secondary to IBD, fibrosis, or previous surgery)



Appendicitis

History

History of acute appendicitis (clinical presentation)

1. **Shifting pain:** start as visceral pain (around the umbilicus) then shift to parietal pain (in the R.I.F)
2. **Sudden onset** of severe pain in the R.I.F (in 1/3 of patients)
3. Nausea
4. Vomiting one or two times per day, usually start after the pain)
5. **Loss of appetite**
6. **Diarrhea or constipation** (in 18% of patients)

3 Investigations

- AA is Diagnosed from **history and clinical examination** , but we do many investigations for differential diagnosis ddx and complications:

Ultrasound for DDx of:

1. Ectopic pregnancy
2. Ovarian cyst
3. Salpingitis
4. Ureteric stone
5. Pyelonephritis

CT scan for DDx of:

1. Tumor
2. Perforated appendix
3. Perforated viscus
4. Pancreatitis

WBC count & General urine analysis for DDx of

1. Acute appendicitis
2. Urinary Tract Infection (UTI)
3. Stone formation
4. Irritation of bladder wall

Abdominal X-ray for DDx of:

1. Intestinal obstruction
2. ureteric stone
3. Pyelonephritis

TABLE 76.1 Differential diagnosis of acute appendicitis.

Children	Adult	Adult female	Elderly
Gastroenteritis	Regional enteritis	Mittelschmerz	Diverticulitis
Mesenteric adenitis	Ureteric colic	Pelvic inflammatory disease	Intestinal obstruction
Meckel's diverticulitis	Perforated peptic ulcer	Pyelonephritis	Colonic carcinoma
Intussusception	Torsion of testis	Ectopic pregnancy	Torsion appendix epiploicae
Henoch–Schönlein purpura	Pancreatitis	Torsion/rupture of ovarian cyst	Mesenteric infarction
Lobar pneumonia	Rectus sheath haematoma	Endometriosis	Leaking aortic aneurysm

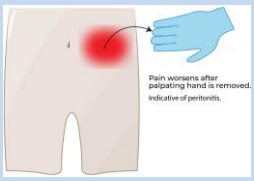
1. To differentiate between acute appendicitis and Meckel's diverticulum:
   - Rotate the baby to the left side then exam the pain if the pain is still in the R.I.F it is acute appendicitis but if the pain disappear it is Meckel's diverticulum both have the same clinical characters
2. To differentiate between acute appendicitis and Mesenteric lymphadenoma
   - Via shifting pain

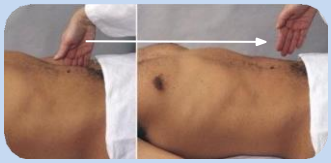
Appendicitis

Clinical signs

Rebound tenderness or Blumberg's sign

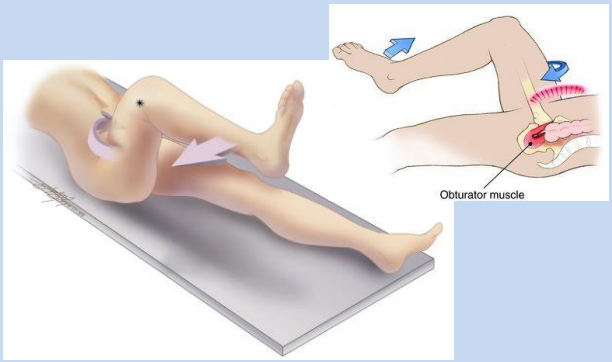
pain when removing pressure from abdomen
- peritonitis, appendicitis





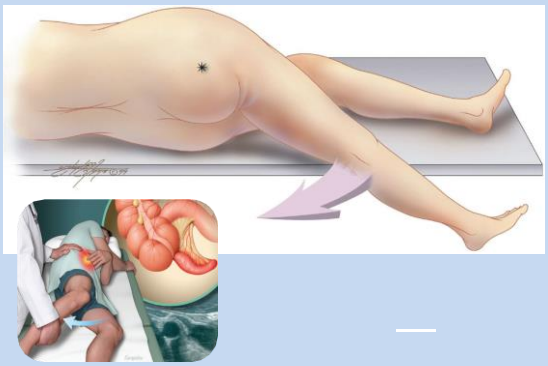
Obturator sign

Pain results because the psoas borders the peritoneal cavity, so stretching (by hyperextension at the hip) or contraction (by flexion of the hip) of the muscles causes friction against nearby inflamed tissues like appendix.



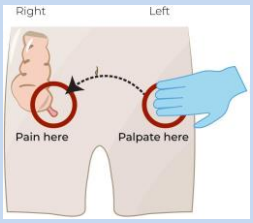
Psoas sign

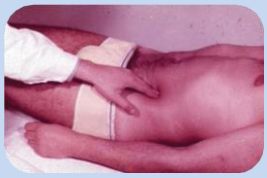
Pain due to contact between the inflamed appendix and obturator muscle.



Rovsing's sign

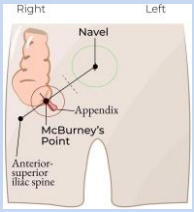
Pressure on left iliac fossa and the pain will appear in Right iliac fossa





McBurney's sign

deep tenderness at the McBurney's point

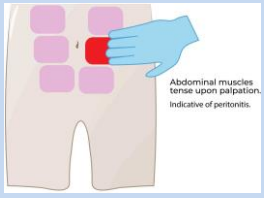


Dunphy's sign (Cough)

Increased pain in the right lower quadrant with coughing .

Guarding sign

The tensed muscles of the abdominal wall automatically go into spasm to keep the tender underlying tissues (appendix) from being disturbed.



Appendicitis

IMPORTANT

TABLE 76.2 The Alvarado (MANTRELS) score.

	Score
Symptoms	
Migratory RIF pain	1
Anorexia	1
Nausea and vomiting	1
Signs	
Tenderness (RIF)	2
Rebound tenderness	1
Elevated temperature	1
Laboratory	
Leukocytosis	2
Shift to left	1
Total	10

RIF, right iliac fossa.

One of the widely used methods to assist in the diagnosis of an appendicitis is Alvarado score, which is a clinical and laboratory-based scoring system.

- **9-10 :** almost certain appendicitis and should go to
- **7-8** : high likelihood of appendicitis, imaging study.
- **5-6 :** compatible but not diagnostic, CT scan is appropriate.
- **0-4 :** extremely unlikely.

[Bailey and Love's Short Practice of Surgery 28th edition]

complications of acute appendicitis:

- Appendicular abscess
- Appendicular mass
- Generalized peritonitis
- Perforation:

Appendicitis

Important Question in OSCE

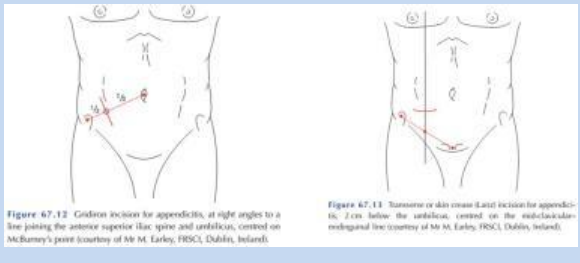
How can you detect the site of the appendix at the operation ?
The position of the base of the appendix is constant, being found at the confluence of the three taeniae coli of the caecum, which fuse to form the outer longitudinal muscle coat of the appendix. At operation, use can be made of this to find an elusive appendix, as gentle traction on the taeniae coli, particularly the anterior taenia, will lead the operator to the base of the appendix

What are the condition that needs urgent surgical intervention?
1- Extremes of age
2- Immunosuppression
3- Diabetes mellitus
4- Faecolith obstruction
5- Pelvic appendix
6- Previous abdominal surgery

Define the silent appendix?
Retrocaecal appendix
Rigidity is often absent, and even application of deep pressure may fail to elicit tenderness (silent appendix), the reason being that the caecum, distended with gas, prevents the pressure exerted by the hand from reaching the inflamed structure. However, deep tenderness is often present in the loin, and rigidity of the quadratus lumborum may be in evidence

How can you differentiate between acute appendicitis and ruptured ectopic pregnancy ?
In ruptured ectopic pregnancy :
1. the pain commences on the right side and stays there.
2. there is a history of a missed menstrual period.
3. urinary pregnancy test may be positive.
4. Severe pain is felt when the cervix is moved on vaginal examination.
5. Pelvic ultrasonography.
6. There are well-defined signs of hemoperitoneum.

Types of the incisions in appendicectomy
- grid iron incision
- Lanz incision
- Rutherford-morrison incision
- laparoscopic incisions



Appendicitis

4 Important Question in OSCE

What is the most dangerous type of appendicitis ? why ?

Post-ileal type is considered the most dangerous type because :

1. No shift of pain which is misdiagnosed as gastroenteritis
2. No omental localization …Peritonitis
3. Affection of ileocecal vein ….. Portal pyemia
4. Affection of appendicular artery ….gangrene

How to differentiate between sub-hepatic acute appendicitis and acute cholecystitis?

- Type of the patient
  - In acute appendicitis : the patient is young , slim
  - In acute cholecystitis: female , fatey , fertile, fortie, fair
- Hyperesthesia
  - in appendicitis: hyperesthesia in the tringle of shirine
  - In cholycytisits : hyperesthesia in the on the back(boass sign)
- US

how do you know that the appendix has been raptured ?

1. The patient develops generalised abdominal pain
2. Temperature increases (39-40 c)
3. Gardening and rigidity all over the abdomen
4. Shifting dullness (due to fluid)
5. Diminished the liver dullness on percussion
6. US : fluid around the appendix and peritoneal cavity
7. CXR: air under diaphragm

Define appendicular mass? How could it occur ?

When the inflammatory process is slow (> 48 hours), the body defense mechanism has enough time to surround the inflamed appendix by adhesions to the nearby intestine and omentum. Thus, forming appendicular mass within 3-5 days after starting of pain.

lt is suspected by history of pain 3 days ago and temperature 39 c .the patient develops repeated vomiting , with increase the constipation , gradually mass in the right iliac fossa beguns to increase…

What are the anatomical site of appendix ? according to the frequency?