



Abdominal Examination

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Session Aims and Objectives

Overall aim of this workshop is to:

- Develop abdominal examination skills and understand the relevant anatomy and physiology to the physical assessment
- Develop understand of some of the major physiological changes that occur in the older person
- Discuss the management of a few common conditions seen in the older person

Session Agenda

- General principles of physical examination
- Brief review of relevant anatomy
- Target history taking in relation to abdominal complaints
- Physical abdominal examination techniques
 - Inspection
 - Auscultation
 - Palpation
 - Percussion
 - Specific signs
- **Practice**
- Brief overview specific GI changes that occur with ageing
- Overview of a few common conditions seen

History taking

- Nausea
- Vomiting
- Haematemesis
- Dysphagia
- Heartburn
- Loss of appetite
- Unintentional weight loss
- Change of bowel habit
- Rectal bleeding /black stools
- Constipation
- Diarrhoea
- Mucus
- Abdominal pain
- Urinary symptoms
- Gynae history
- Last Menstrual Period
- Vaginal discharge
- Sexual history
- Alcohol use

How to perform the physical examination?

- Exposing only the area that are being examined
- Offer a chaperone for both sexes.
- Explain what you're going to do
- Sequential



General principles of exam

- Good light
- Relaxed patient
- Full exposure of abdomen
- Have the patient empty their bladder before examination
- Have the patient lie in a comfortable, flat (head @45 degree), supine position
- Have them keep their arms at their sides or folded on the chest



General principles of exam

- Before the exam, ask the patient to identify painful areas so that you can examine those areas last
- During the exam pay attention to their facial expression to assess for signs of discomfort

Facial Expression of Pain

- Brows lowered, drawn together
- Bulge, vertical furrows in forehead between brows
- Nasal root broadened, bulged
- Eyed fissure scouraged, tightly closed
- Angular, squarish mouth

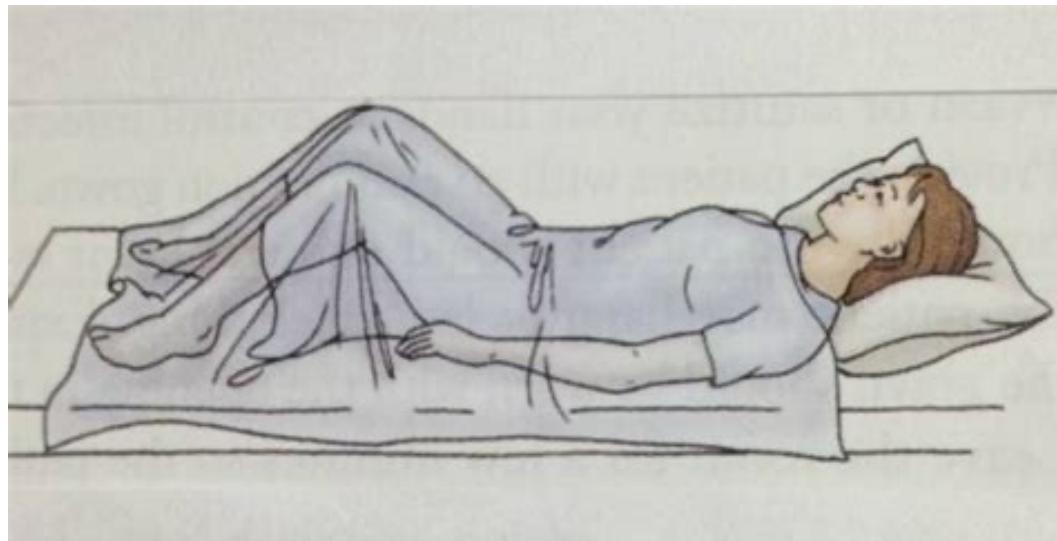
General principles of exam

- Use warm hand, warm stethoscope, and have short finger nails
- Approach the patient slowly and deliberately explaining what you will be doing
- Stand right side of the bed
- Exam with right hand
- Head just a little elevated
- Ask the patient to keep the mouth partially open and breathe gently

Inspection- auscultation- percussion-palpation

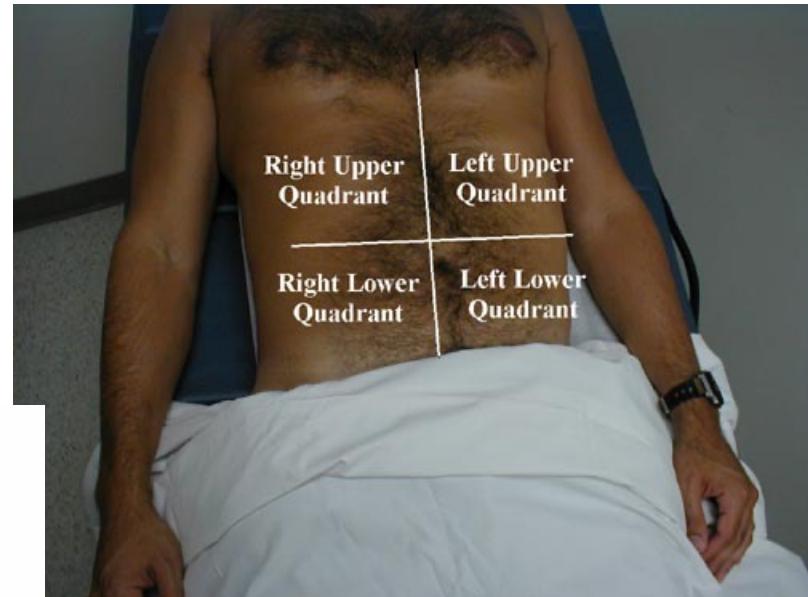
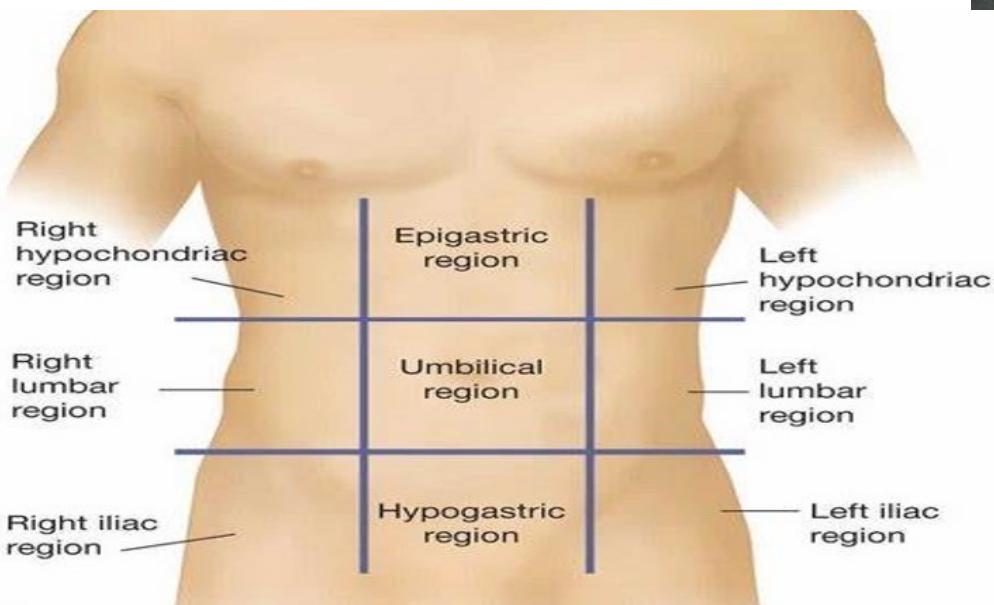
General principles of exam

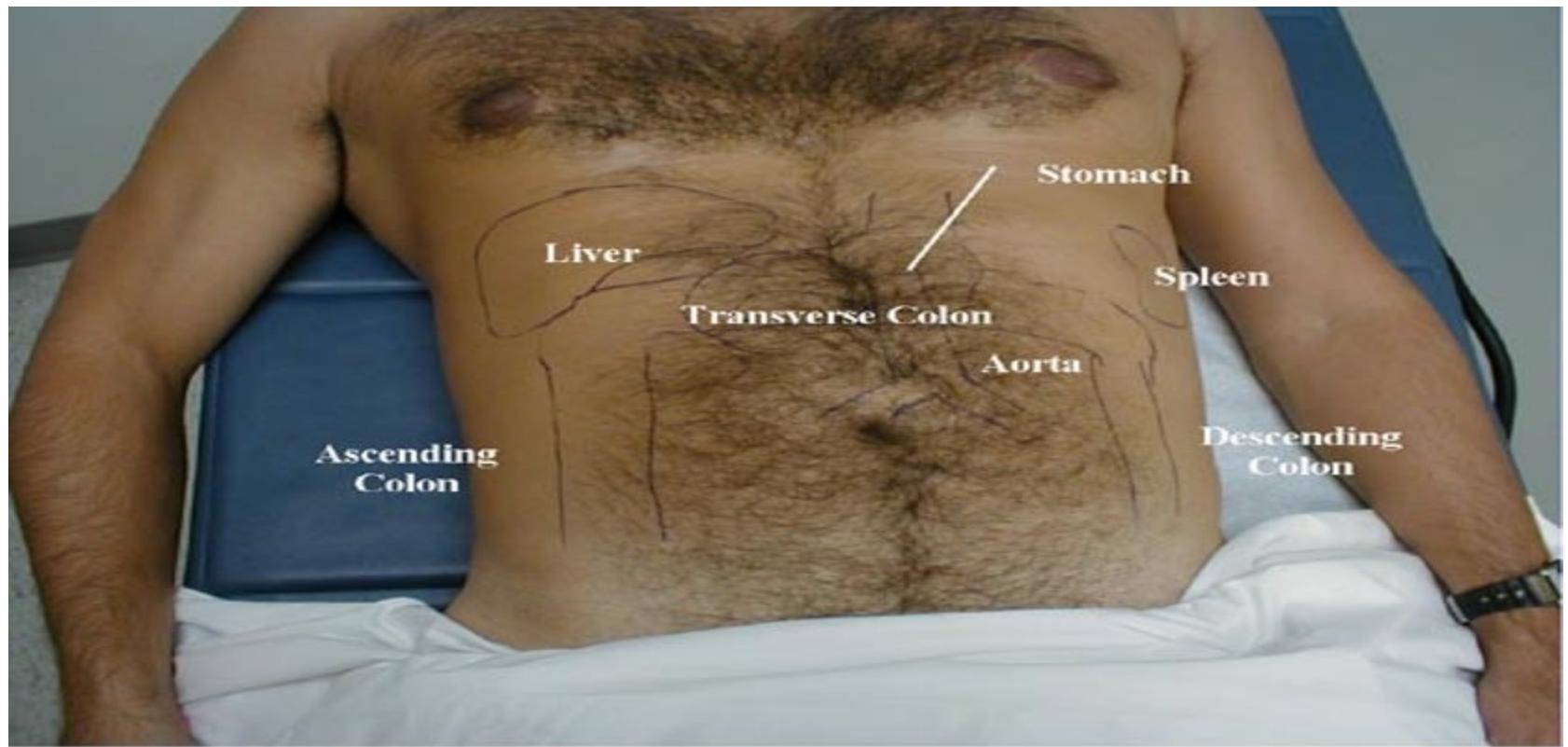
- If muscles remain tense, patient may be asked to rest feet on table with hips and knees flexed

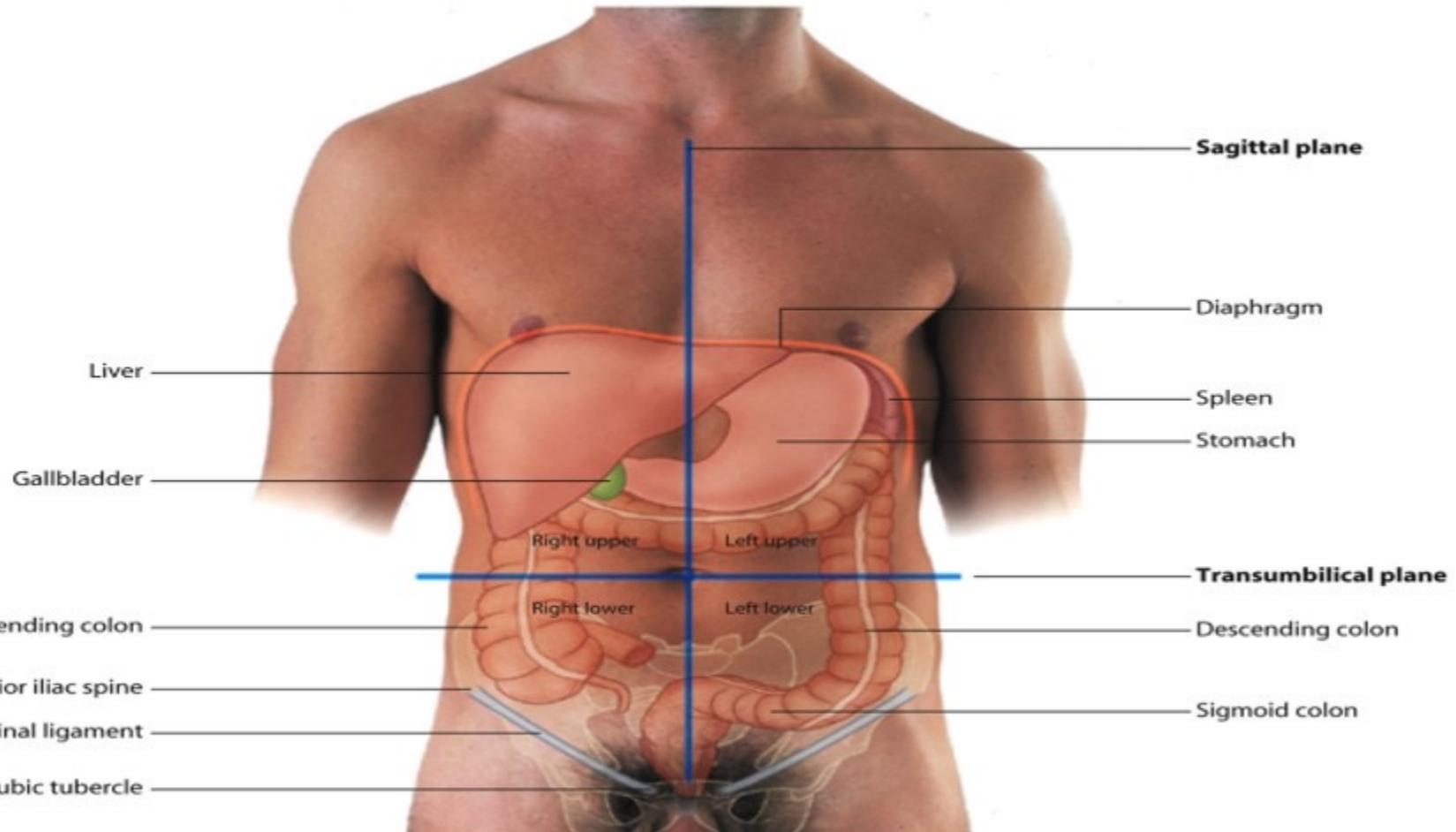


Think Anatomically

- When looking, listening, feeling and percussing imagine what organs live in the area that you are examining.





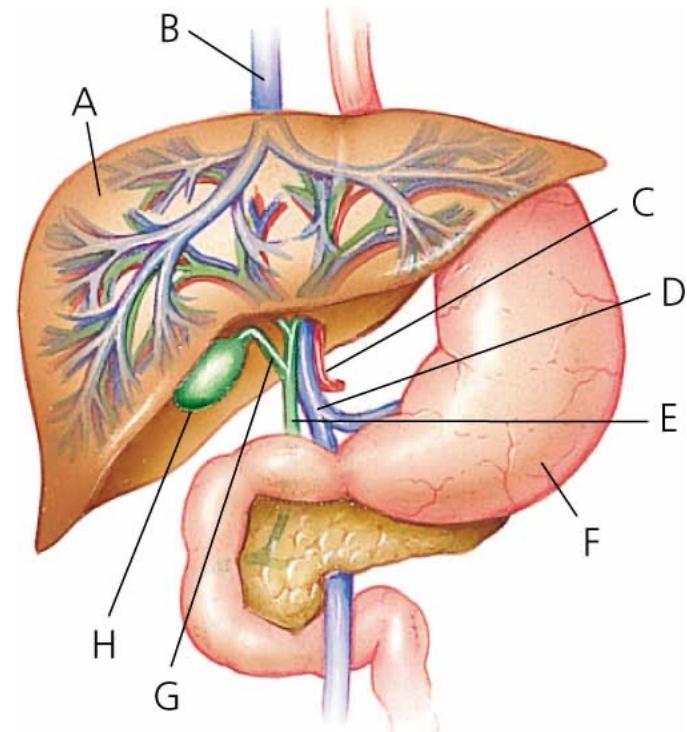


Abdominal quadrants and the positions of major viscera

<ol style="list-style-type: none"> 1. Pneumonia, pleurisy or pulmonary embolus 2. Pre-eclampsia, HELLP syndrome 3. Duodenal ulcer 4. Cholecystitis, gallstones, biliary colic 5. Hepatomegaly, hepatitis <p>RIGHT SUBCOSTAL</p>	<ol style="list-style-type: none"> 1. Myocardial infarction 2. Pre-eclampsia 3. Gastritis, oesophagitis, peptic ulcer 4. Pancreatitis, pancreatic tumours 5. Oesophageal or gastric cancer <p>EPISGASTRIUM</p>	<ol style="list-style-type: none"> 1. Pneumonia, pleurisy or pulmonary embolus 2. Splenomegaly, splenic rupture 3. Gastritis, peptic ulcer <p>LEFT SUBCOSTAL</p>
<ol style="list-style-type: none"> 1. Pyelonephritis, renal stones, renal or adrenal tumours 2. Aortic aneurysm <p>RIGHT FLANK, RIGHT LOIN</p>	<ol style="list-style-type: none"> 1. Appendicitis (early) 2. Mesenteric adenitis 3. Aortic aneurysm 4. Irritable Bowel Syndrome 5. Severe constipation 6. Small bowel: obstruction, mesenteric infarction, Crohn's disease, tuberculosis, Meckel's diverticulitis 7. Pancreatitis 8. Lymphoma, metastatic nodes 	<ol style="list-style-type: none"> 1. Pyelonephritis, renal stones, renal or adrenal tumours. 2. Aortic aneurysm <p>LEFT FLANK, LEFT LOIN</p>
<ol style="list-style-type: none"> 1. Gynaecological: ectopic pregnancy, pelvic infection (usually bilateral), ovarian cysts and tumours, ovulation pain 2. Appendicitis 3. Mesenteric adenitis 4. Renal stones, UTI 5. Hernia (inguinal/femoral) 6. Caecal tumours 7. Constipation 	<ol style="list-style-type: none"> 1. Colon/rectum: diverticular disease, ulcerative colitis, tumours 2. Urinary retention, UTI 3. Obstetric: miscarriage, labour, placental abruption, uterine rupture 4. Gynaecological: pelvic infection, endometritis, dysmenorrhoea, ovulation pain 	<ol style="list-style-type: none"> 1. Gynaecological: ectopic pregnancy, Pelvic infection (usually bilateral), Ovarian cysts and tumours, ovulation pain 2. Colon: diverticular disease, ulcerative colitis, tumours, constipation, intussusception, volvulus 3. Renal stones, UTI 4. Hernia(inguinal/femoral)

Right Upper Quadrant (RUQ)

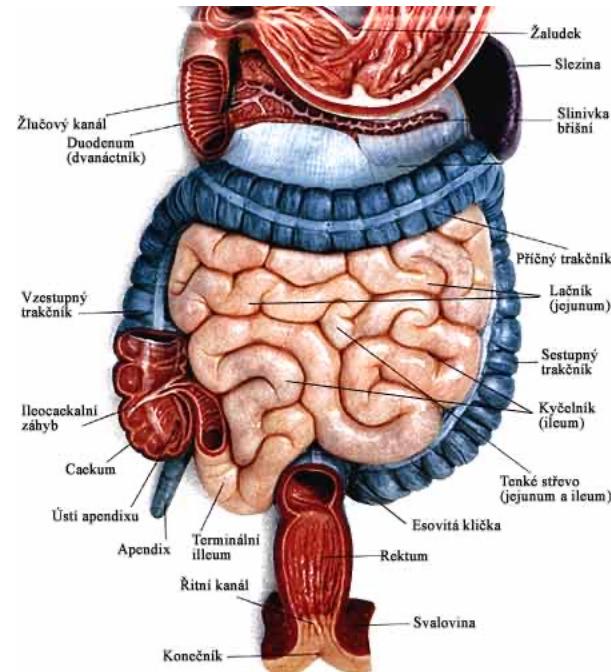
- liver,
- gallbladder,
- duodenum,
- right kidney
- hepatic flexure of colon



Carlyn Iverson

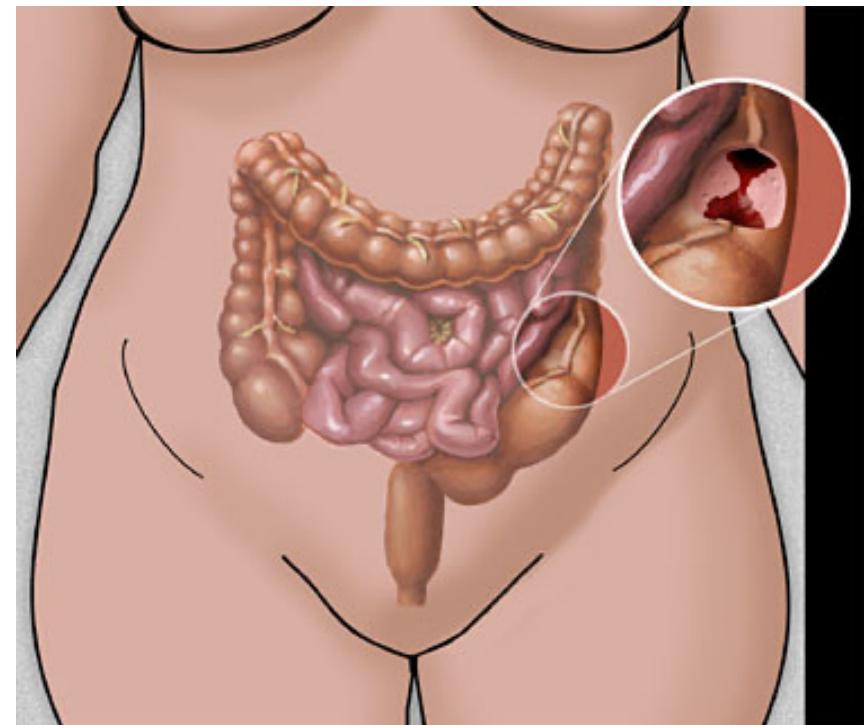
Right Lower Quadrant (RLQ)

- Caecum,
- Appendix
- In females, right ovary & tube



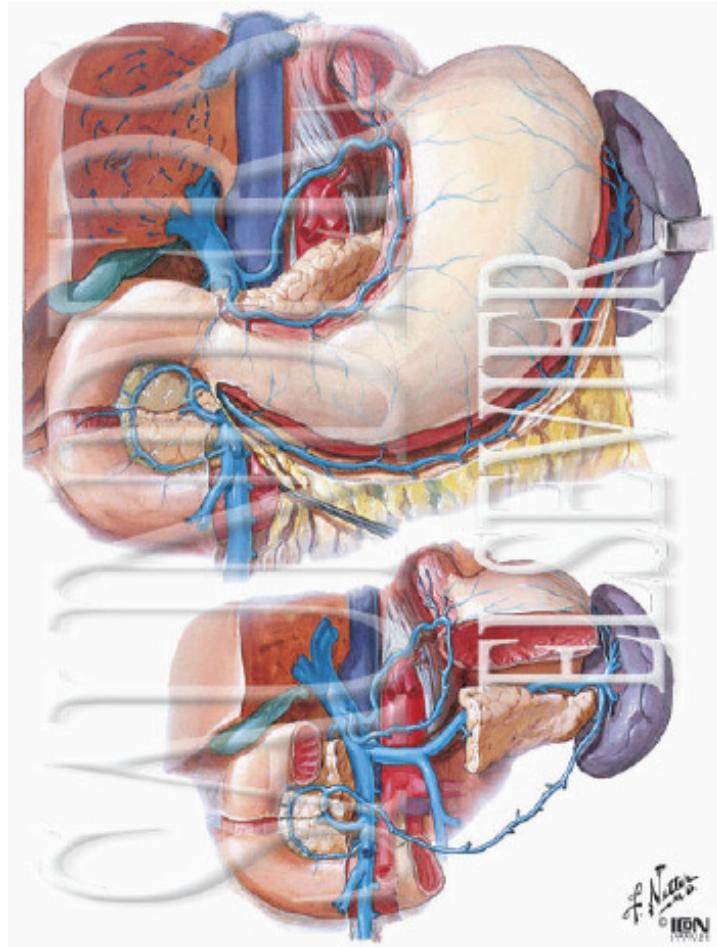
Left Lower Quadrant (LLQ)

- Sigmoid colon
- If female: left ovary & tube



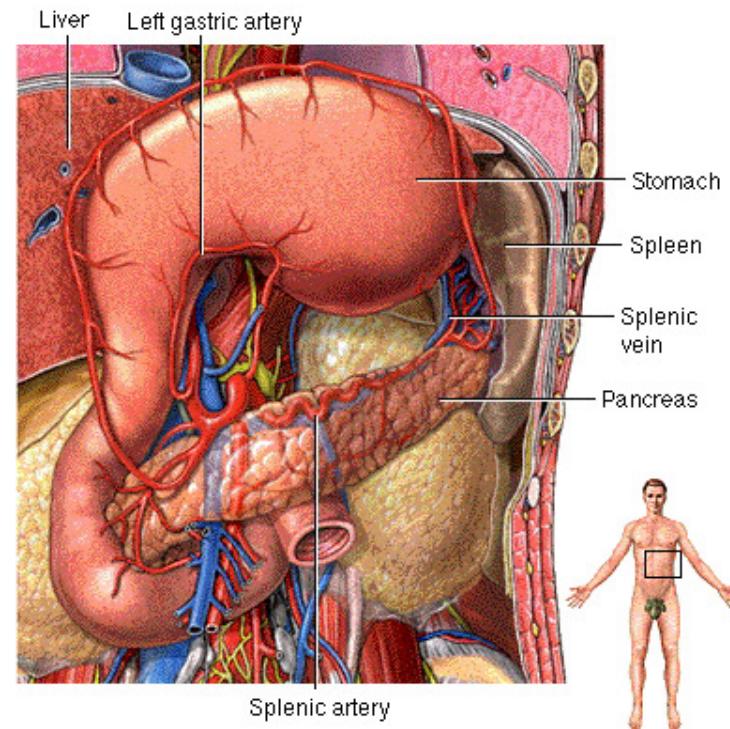
Left Upper Quadrant (LUQ)

- Stomach
- spleen,
- left kidney,
- pancreas (tail),
- splenic flexure of colon



Epigastric Area

- Stomach,
- pancreas (head and body)
- aorta



Types of Abdomen Pain

Visceral pain

Generally a dull aching pain
Hollow organs + capsules of solid organ

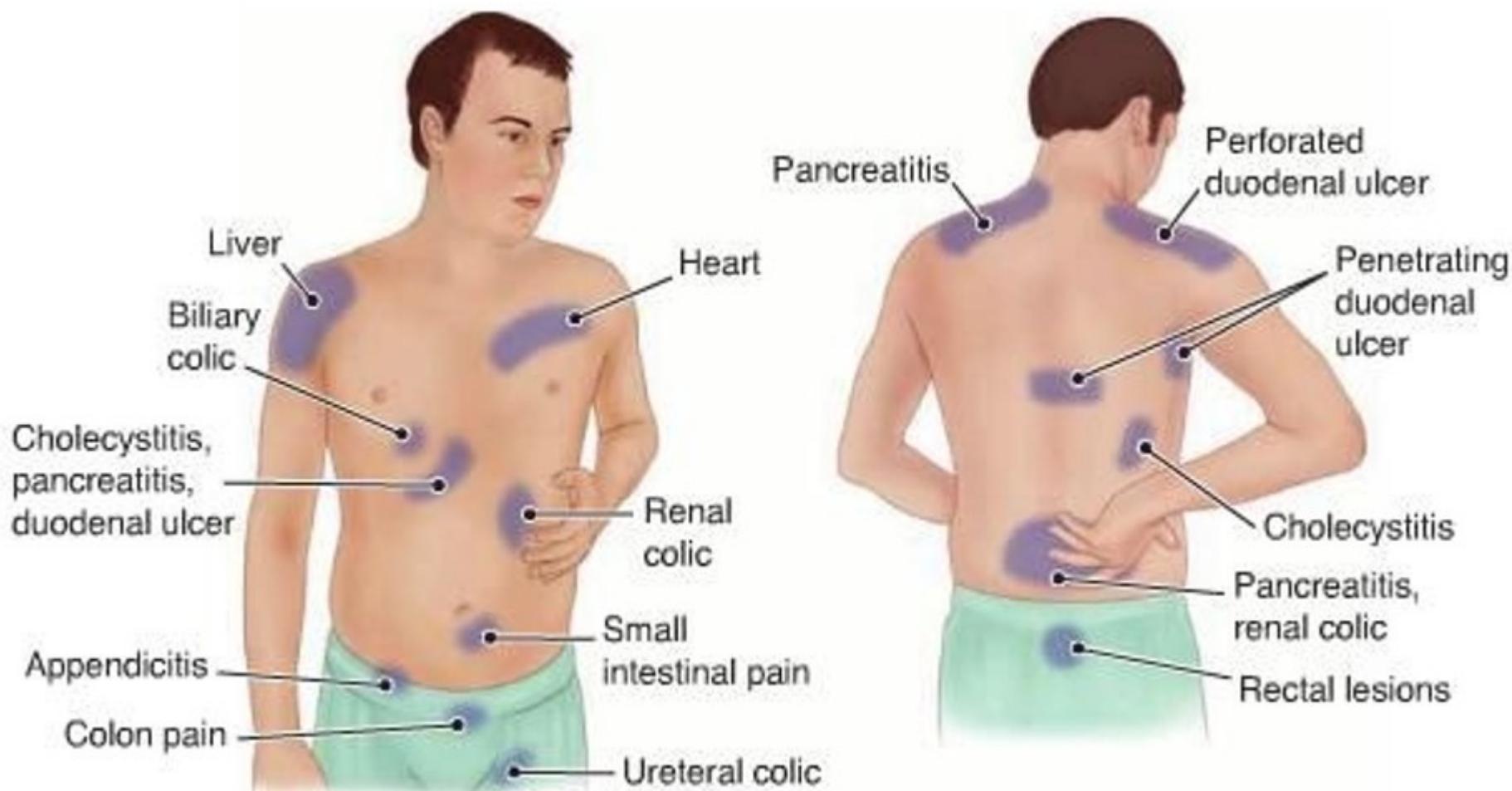
Parietal pain

Sharper pain
Lining of the peritoneal cavity

Referred pain

Felt at a different site e.g gall bladder pain

Common Sites of referred abdominal pain



Abdomen: History

- **Onset** - sudden/gradual
- **Palliation/Provocative factors** - eating/movement etc
- **Quality of pain** - Nature and character e.g. sharp, dull, contracting, griping, stabbing
- **Radiation** – to back/chest/shoulder
- **Site of pain/Symptoms associated/Severity of pain** (score out of 10)
- **Timing of pain** – when does it start, duration of pain, constant/intermittent
- **Understanding of pain** – what does the patient think is causing pain?

Abdomen: History

Other associated symptoms

- bowel habit
- urinary symptoms
- vomiting
- appetite
- fever
- menstrual cycle
- change in weight

This may involve questions on history of rectal or vaginal bleeding and haematuria, and where appropriate history of vaginal or penile discharge

Abdomen: History

- **Past Medical History –**
history of previous episodes of abdominal pain or chronic illness
(e.g. diverticulitis, endometriosis, chronic constipation)
- **Sexual history**
 - some patients with abdominal pain a sexual history should be taken
 - In all women of childbearing age - document LMP and any risk of early pregnancy (e.g. recent use of contraception)

Abdomen: Assessment

- Baseline observations
- Urinalysis
- HCG in females of childbearing age
 - Obtaining patient's verbal consent prior to testing
- assessment of hydration status - tongue/oral mucosa/skin
- JACCOL
- abdominal examination.
- If trained and competent - consider vaginal and rectal examinations if indicated.

Physical Examination of the Abdomen

Inspection
Auscultation
Percussion
Palpation
Special Tests

Inspection

Abdominal examination

Inspection: the EYES (JACCOL)

(Jaundice- Anemia-Clubbing-Cyanosis-Oedema-Lymphadenopathy)

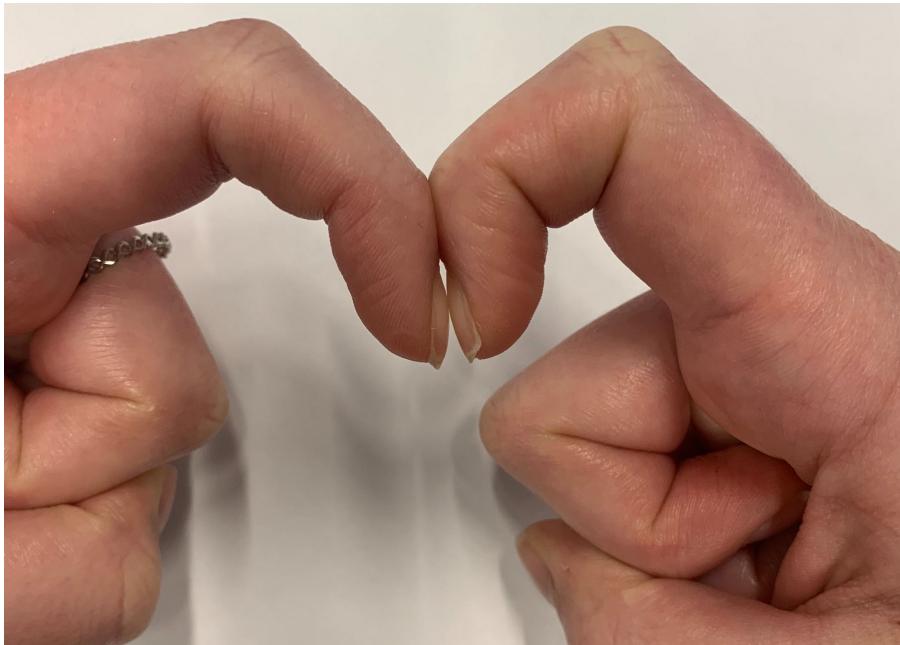


The eyes (JACCOL)Anaemia



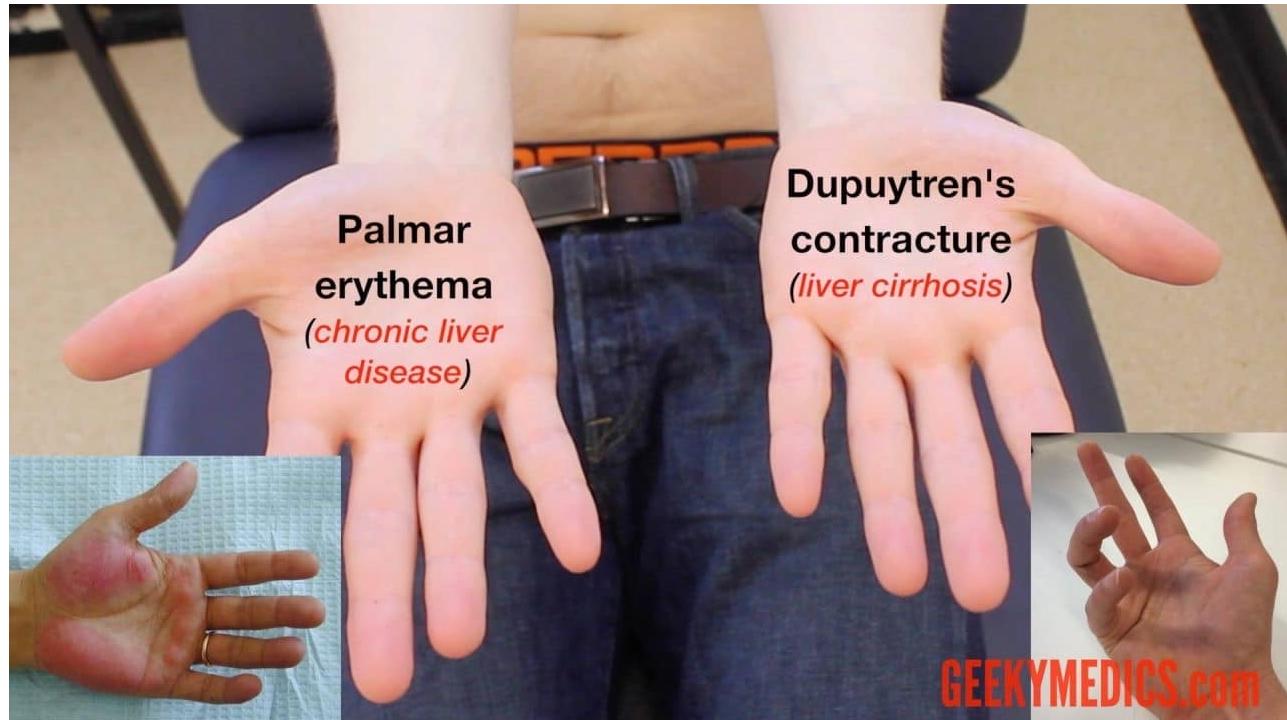
Look at the everted part of the lower eyelid

NAILS : Clubbing



Associated with a number of diseases,, eg heart & lung

NAILS & hand



Ref: Geeky Medics, 2022

Pitting Oedema



Pitting oedema

Ref: Geeky Medics,2022

Inspection: Lymphadenopathy

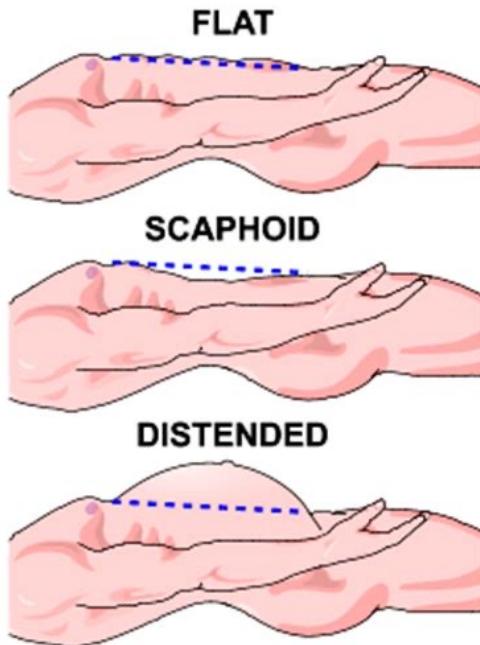


Ref: Geeky Medics, 2022

Abdomen Pain: Examination Inspection

Contour

- Flat
- Scaphoid
- Distended -
- Symmetry



Movement

- Peristaltic
- Respirations
- Aortic pulsation

Skin

- Scars – surgical
- Striae
- Discolouration (jaundice)
- Hernias
- Oedema
- Body hair/Rashes

Symmetrical in shape



Scaphoid or flat in young patients
of normal weight



slightly full but not distended in older age group due to poor muscle tone or in subjects who are mildly overweight

Appearance of the abdomen

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



Asities- (ref; Geeky Medics,2022)

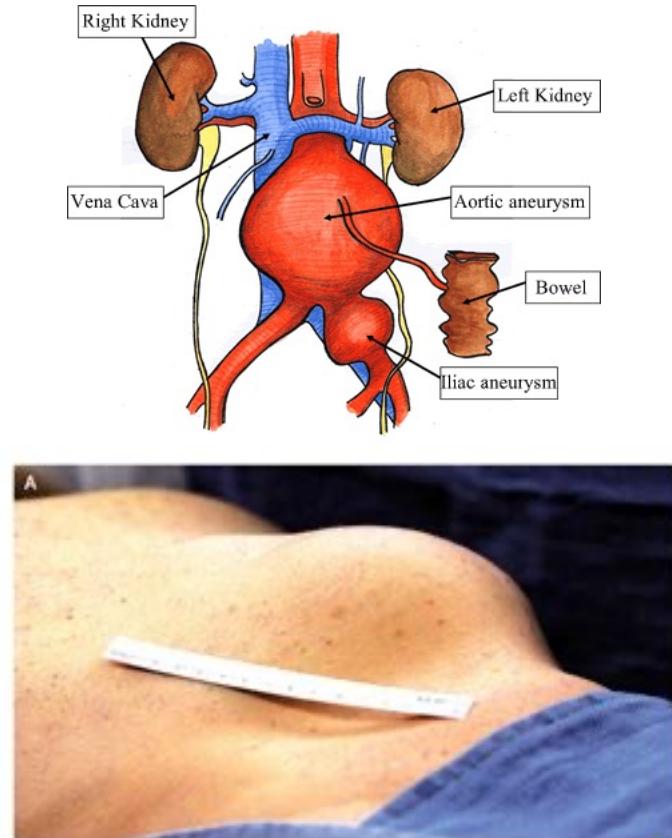
Appearance of the abdomen

- Localized enlargement probably distend space occupying lesion, hepatomegaly....



An aortic aneurysm

- Palpable mass
- Patient feeling of pulsation
- 1 in 10 men over 65 may have some enlargement of the abdominal aorta.
- About 1 in 100 will have a large aneurysm requiring surgery.



On rare occasions, a lump can be visible

Striae

- Stretch marks are a light silver hue.
- Pregnancy and obese individuals
- Cushing's syndrome (more purple or pink).



Hernias



Umbilical – ref Geeky Medics , 2022



Incisional, Ref: Geeky Medics,2022
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Cullen's sign

- Ecchymosis perumbilically.
(intraperitoneal hemorrhage ruptured ectopic pregnancy, hemorrhagic pancreatitis..)

• • Case



Grey-Turner's sign

- Ecchymosis of flanks.
(retroperitoneal hemorrhage such as hemorrhagic pancreatitis)

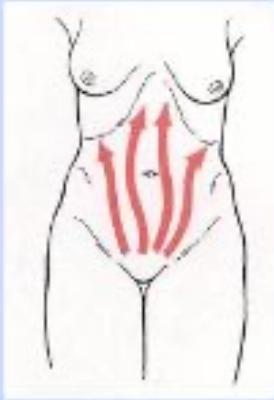
○●● **Turner Sign**



Case

A patient has leg swelling and prominent veins on her abdomen. The pattern of flow is on the left.

IVC obstruction



Upward flow direction indicates IVC obstruction

● ● ● SVC obstruction

- Higher pressure will cause upper abdominal veins to flow towards the umbilicus to escape into the IVC system.
- Veins of neck, chest, and arms also dilate.



Visible gastric Peristalsis

- Gastric peristalsis is commonly seen in neonates with congenital hypertrophic pyloric stenosis

Visible intestinal Peristalsis

Intestinal peristalsis in partial and chronic intestinal obstruction
Colonic obstruction is usually not manifest as visible peristalsis

Appearance of the abdomen Patient's movement

- Patients with kidney stones will frequently writhe on the examination table, unable to find a comfortable position



Appearance of the abdomen

Patient's movement

- Patients with peritonitis prefer to lie **very still** as any motion causes further peritoneal irritation and pain.



Auscultation

Auscultation

- Bowel sounds
 - Gas & fluid
- Vascular sounds (bruits)
- Friction Rubs

Auscultation for bowel sounds

- Listen over abdomen with diaphragm of stethoscope
 - In at least 2 positions
 - -- 30 to 60 secs
- Normal bowel sounds
- -- Take time to listen to your own – establishing what's normal is sufficient initially



Ref: Geeky Medics, 2022

It is performed *before* percussion or palpation

Auscultation for bowel sounds

- Normal sounds are due to peristaltic activity.
- Described as GURGLING
- Peristalsis: A progressive wavelike movement that occurs involuntarily in hollow tubes of the body.

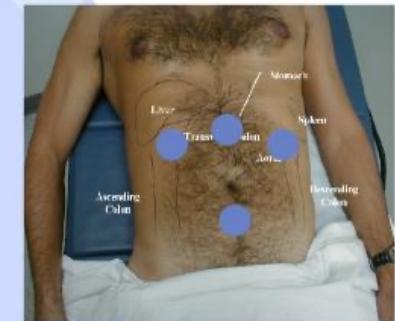


Auscultation for bowel sounds

- Bowel sounds lend supporting information to other findings but are not **pathognomonic** for any particular process.
- **Tinkling bowel sounds:** typically associated with bowel obstruction.
- **Absent bowel sounds:** suggests ileus which is a disruption of the normal propulsive ability of the intestine due to a malfunction of peristalsis.

● ● ● Auscultation

- Listen in R and L upper quadrants, epigastric area, and mid pelvis.



Auscultation

- 1.Diaphragm of stethoscope used
- 2.Skin depressed to approximately 1 cm



Bowel sound decrease

- Inflammatory processes of the serosa
- After abdominal surgery
- In response to narcotic analgesics or anesthesia.

○ ● ● Bowel sounds

- Diagnostic yield is low.
- “Bowel sounds absent” requires long listening.
- Reduced or increased bowel sounds are not reliably detected.

Auscultation for bowel sounds

- Inflammation of the intestinal mucosa will cause hyperactive bowel sounds.



Auscultation for bowel sounds

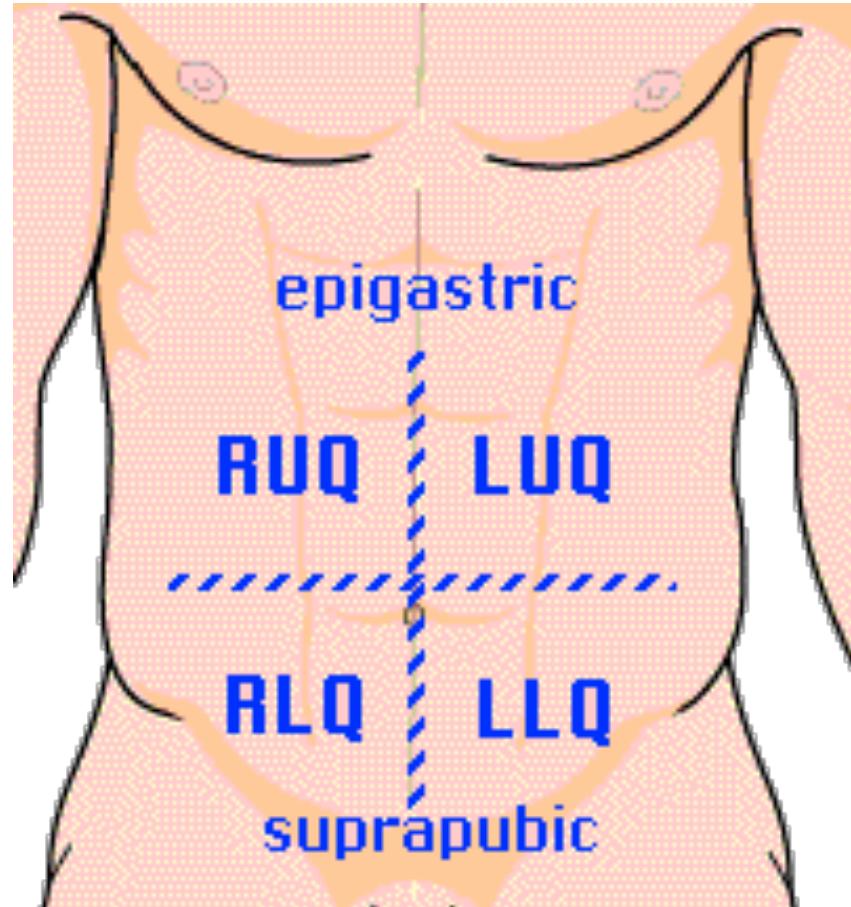
- Processes which lead to intestinal obstruction initially cause frequent bowel sounds, referred to as "rushes."
- "Rushes" means as the intestines trying to force their contents through a tight opening.



Auscultation for bowel sounds

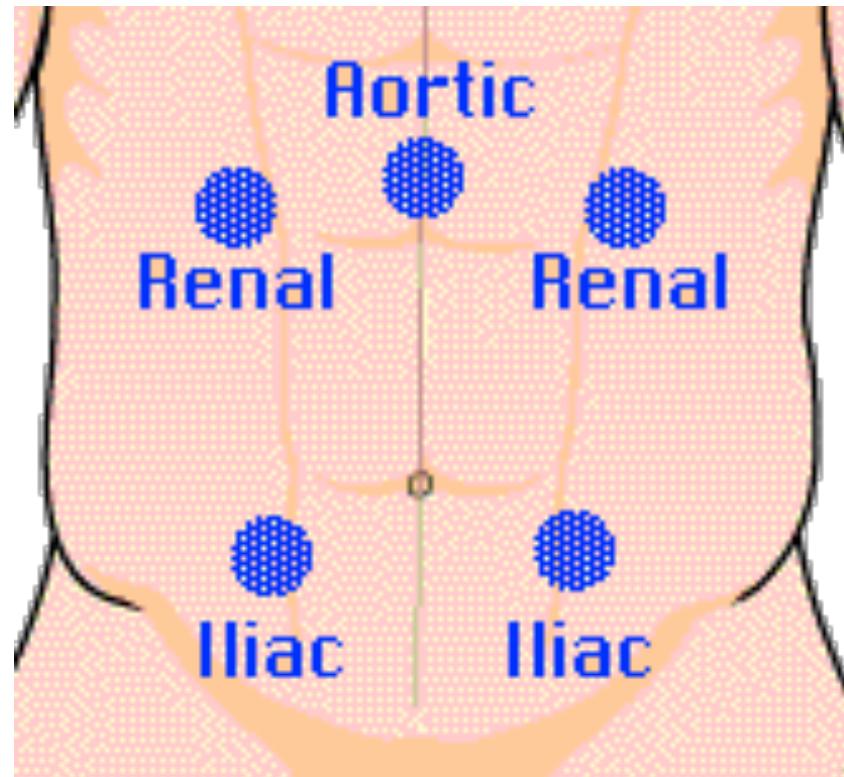
- "Rushes" is followed by decreased sound, called "tinkles," and then silence.

Bowel sounds must be interpreted within the context of the particular clinical situation.



Bruits

- **Vascular bruits** are suggestive of turbulent blood flow
 - Frequently caused by occlusive arterial disease
- Resembles heart murmurs.
- Sometimes they're described as blowing **sounds**.



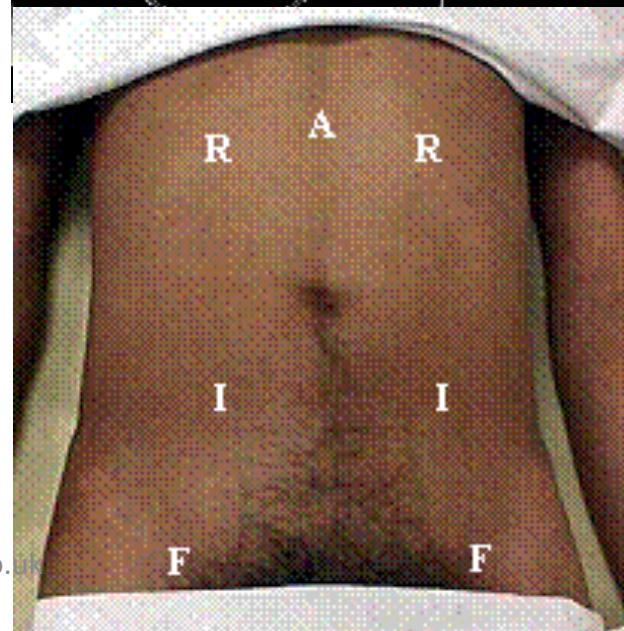
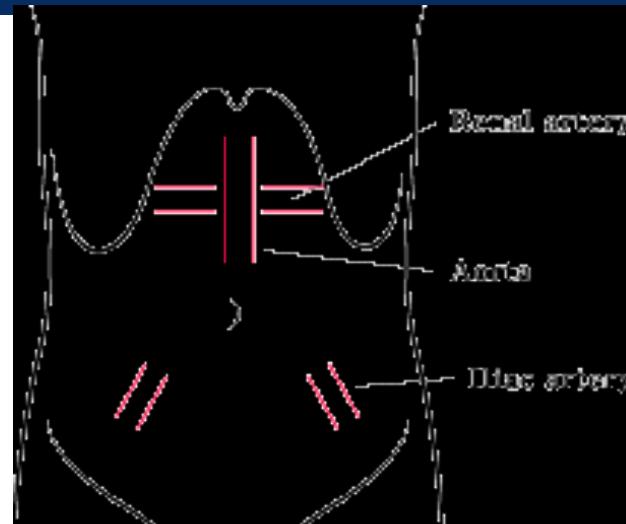
Auscultation for vascular sounds (bruits)

Aortic (midline between umbilicus and xiphoid)

Renal (two inches superior to and two inches lateral to umbilicus)

Common iliac (midway between umbilicus and midpoint of inguinal ligament)

When listening for bruits, you will need to press down quite firmly



Percussion

Percussion

- Technique
- Liver
- Spleen

Percussion

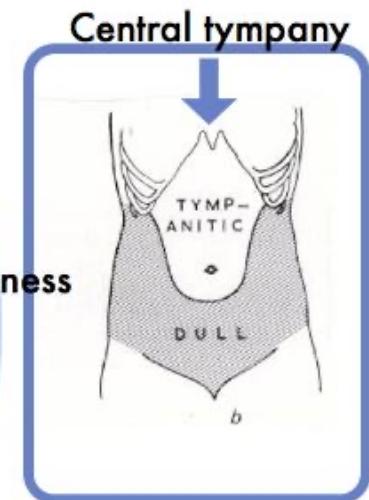
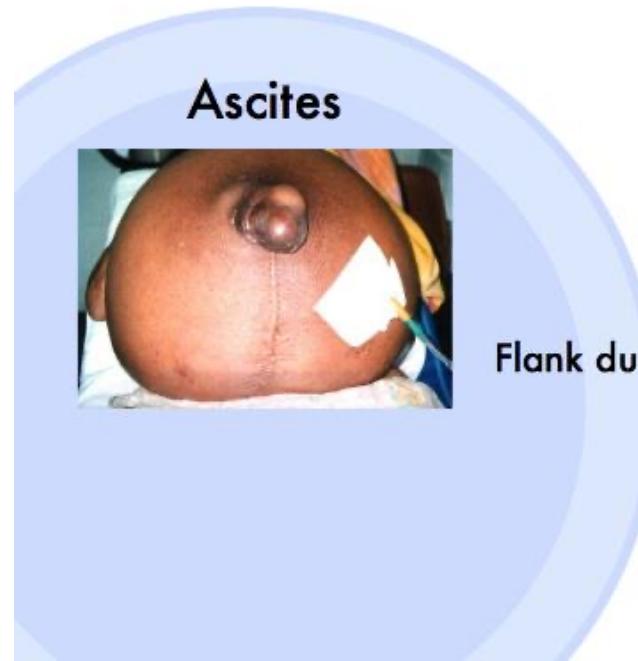
- DIP joint of third finger pressed firmly on the abdomen remainder of hand not touching the abdomen
- Strike body surface with quick light blows
- Elicits vibrations and sounds
- Sound determines the density of the underlying tissue



Two basic percussion sounds

- Dull sounds that occur when a solid structure (e.g. liver) or fluid (e.g. ascites) lies beneath the region being examined.
- Tympanic (drum-like) sounds produced by percussing over air filled structures.

○ ● ● Flank dullness



Abdominal Pain: Percussion

- Dullness on percussion: (NB// shifting dullness)
 - ascites
 - free fluid
 - an organ, e.g. liver, spleen
 - tumor, e.g. large ovarian cyst
- Percuss liver, spleen and kidneys after palpation of each organ.
- Percuss any suspected mass

Note that the midline of the abdomen should be resonant – if not, think of gastric neoplasm, omental secondaries, enlarged bladder, ovarian cyst, pregnancy.

The two solid organs are percussable in the normal patient

- Liver: will be entirely covered by the ribs. Occasionally, an edge may protrude 1-2 centimeter below the costal margin.
- Spleen: The spleen is smaller and is entirely protected by the ribs.



Liver percussion

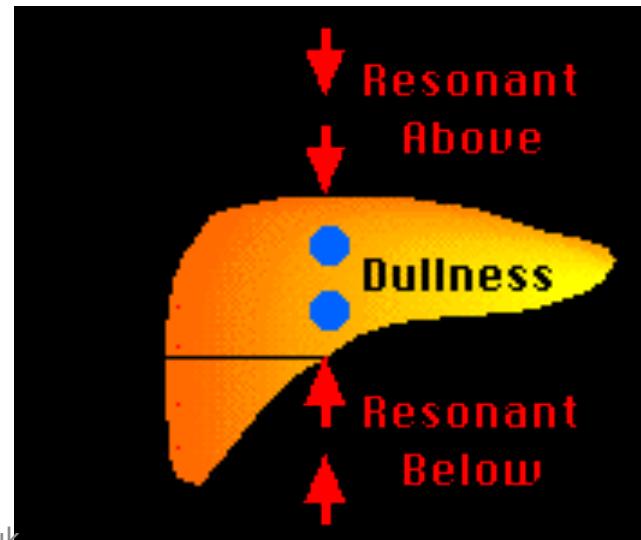


NOTE THE CHANGE IN PERCUSSION
NOTE FROM RESONANT TO DULL

1. Percuss upwards 1-2 cm at a time from the right iliac fossa (the same position used to begin palpation)-mid clavicular line - towards the right costal margin until the percussion note changes from resonant to dull indicating the location of the lower liver border.
2. Continue to percuss upwards 1-2 cm at a time until the percussion note changes from dull to resonant indicating the location of the upper liver border.

To determine the size of the liver

- Measure the liver span by percussing hepatic dullness from above (lung) and below (bowel). A normal liver span is 6 to 12 cm in the midclavicular line.



Spleen percussion

- Enlarged spleen produce a dull tone, in the left upper quadrant percussion but should then be verified by palpation.



Percuss upwards 1-2 cm at a time from the right iliac fossa (the same position used to begin palpation) towards the left costal margin until the percussion note changes from resonant to dull indicating the location of the spleen (in the absence of splenomegaly the spleen should not be identifiable using percussion).

Palpation

Abdominal Pain: palpation

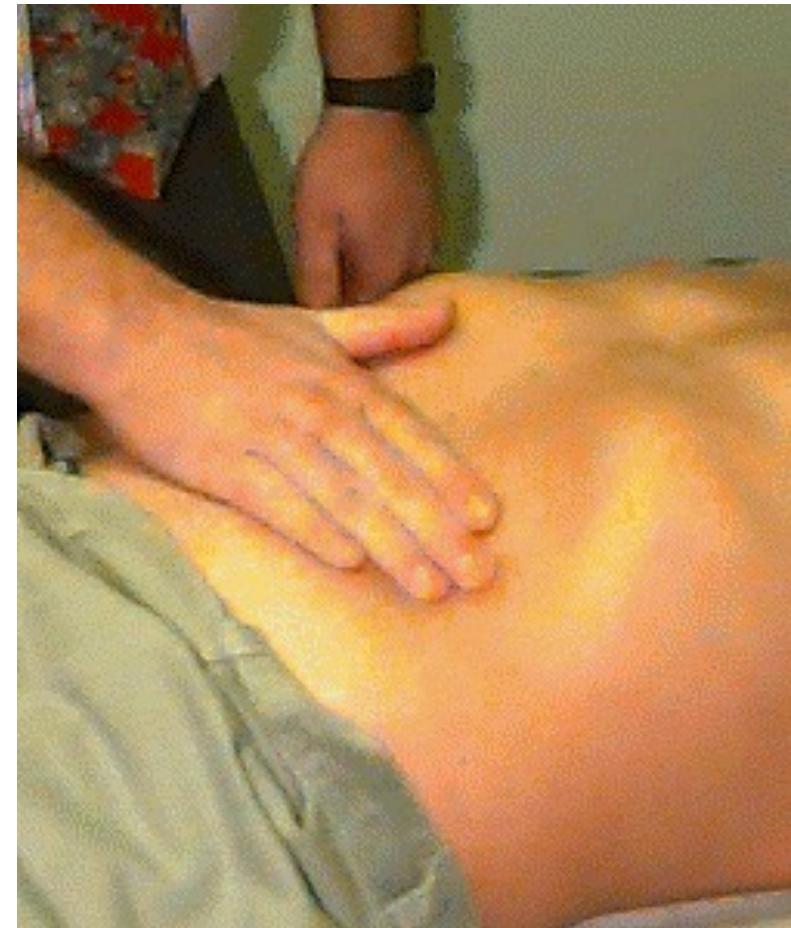
- Allow patient to empty bladder (remember to request MSU)
- Warm hands
- Ask where pain is?
- Start palpation away from site of tenderness
- Lightly palpate each quadrant before proceeding to deep palpation
- Flat hands on patient abdomen and gently flexing at the MCPJ
- Note patient's face to assess if painful

Abdominal Palpation

- Technique
- Light
- Deep
- Liver edge
- Spleen tip
- Kidneys
- Aorta
- Masses

Abdominal palpation

- Palpate four quadrants superficially from LLQ counterclockwise



Abdominal Pain: palpation

- Tenderness can be
 - Superficial
 - Deep
 - Rebound
- Palpate the abdomen lightly 1–2 cm in depth. If no pain, proceed to deep palpation 4–6 cm in depth.
- Rebound tenderness sign
 - Rebound tenderness is from movement of inflamed viscera of peritonitis against parietal peritoneum.
 - To illicit rebound tenderness – press on the patient's abdomen with the tip/pulp of fingers, pain is elicited on sudden removal of the fingers – checks patient face.

Abdominal Pain: palpation

Guarding

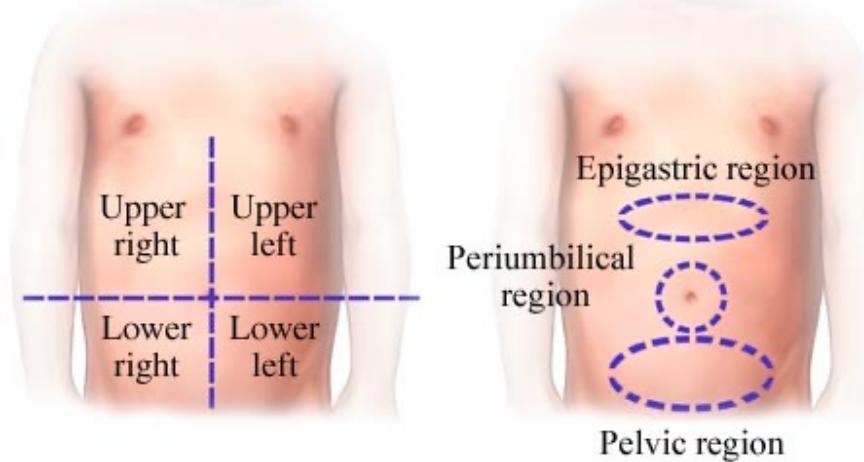
- Guarding may be noted during palpation. This is a **voluntary** muscle spasm to protect from pain. Patient generally contracts muscles to protect from pain.

Rigidity

- Fixed, tense abdominal muscles from reflex **involuntary** spasm. Occurs in generalized peritonitis.

Palpation (light)

- Use pads of three fingers of one hand and a light, gentle, dipping maneuver to examine abdomen
- Any areas of pain or tenderness are reserved for evaluation at the end of the exam
- Tenderness is a physical exam finding a reflex occurs (muscle splinting, wide eyes, moaning, teeth gritting).

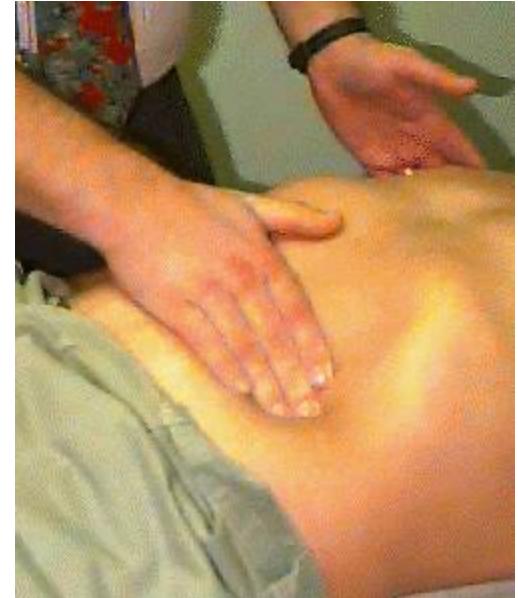


Deep Palpation

- Palpate tender areas last
- Try to identify abdominal masses or areas of deep tenderness- if felt try to note:
 - **Location:** note which of the nine abdominal regions the mass located within
 - **Size and shape:** assess the approximate size and shape of the mass.
 - **Consistency:** assess the consistency of the mass (e.g. smooth, soft, hard, irregular).
 - **Mobility:** assess if the mass appears to be attached to superficial or underlying structures.
 - **Pulsatility:** note if the mass feels pulsatile, suggestive of vascular aetiology (e.g. abdominal aortic aneurysm).

Palpation (deep)

- Applying **greater pressure** to identify any **deeper masses**.
 - Warn the patient this may feel uncomfortable and ask them to let you know if they want you to stop.
 - You should also carefully monitor the patient's face for evidence of discomfort (as they may not vocalise this).
- Entire palm
- Either one- or two handed technique is acceptable
- Use palmar surface of fingers of one hand (greatest number of fingers) and a deep, firm, gentle maneuver to examine abdomen



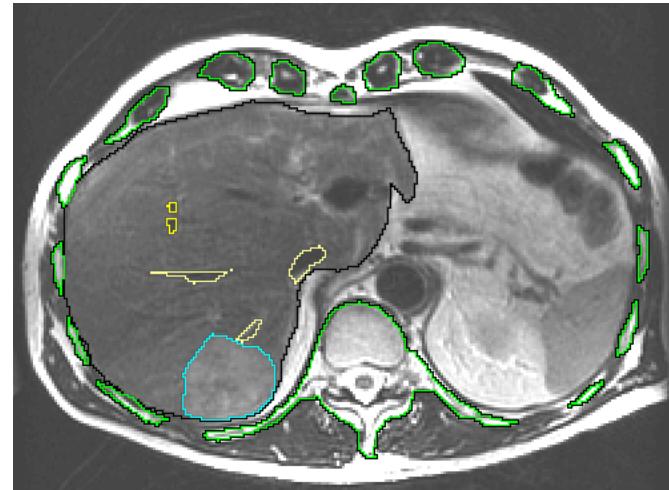
When deep palpation is difficult, examiner may want to use left hand placed over right hand to help exert pressure

Normal structure that may be palpable

- Sigmoid colon
- Liver
- Kidney
- Abdominal aorta
- Iliac artery
- Distended bladder
- Gravid and non-gravid uterus
- Xyphoid process
- spleen

Abdominal mass

- Intra abdominal masses or enlargements of the liver, gallbladder or spleen
- Abdominal wall mass



Intra abdominal masses or enlargements of the liver, gallbladder or spleen

- They will shift down with inspiration and back with expiration. (not true of masses within the abdominal wall or retroperitoneal structures).



Liver palpation

Liver palpation (Standard Method)

- Start in the RUQ, 10 centimeters below the rib margin in the mid-clavicular line
- Use the flat edge of your hand
- Place left hand posteriorly parallel to and supporting 11th & 12th ribs on right.
- Ask the patient to take a deep breath and then palpate
- You may feel the edge of the liver press against your fingers
- Repeat this process of palpation moving 1-2 cm superiorly from the right iliac fossa each time towards the right costal margin.



- As you get close to the costal margin (typically 1-2 cm below it) the liver edge may become palpable in healthy individuals.

Ref: geeky Medics, 2022

Alternate Method Liver palpation

- Stand by the patient's chest.
- "Hook" your fingers just below the costal margin and press firmly.



Hepatomegaly

- More than 1-2cm below the costal margin
- An exception is a congenitally large right lobe of the liver
- Severe, chronic emphysema

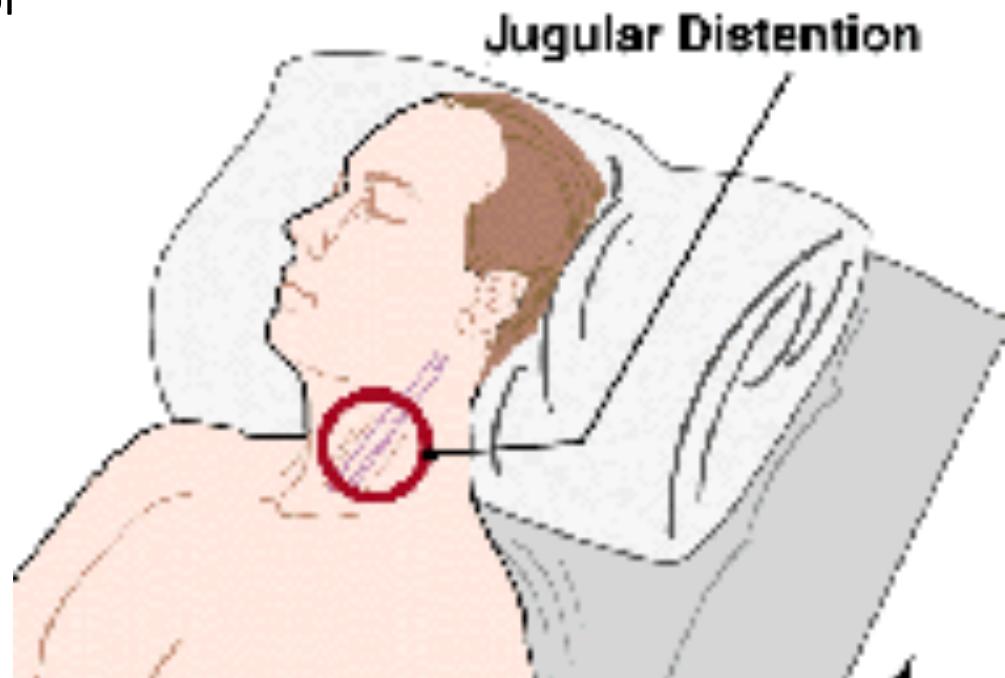
If liver edge felt, check

- **Consistency of the liver edge:** a nodular consistency is suggestive of cirrhosis.
- **Tenderness:** hepatic tenderness may suggest hepatitis or cholecystitis (as you may be palpating the gallbladder)



Hepatojugular reflux sign

- If you press the liver, you will find the dilated jugular vein becomes more bulged or distended, as from the enlargement of liver passive congestion resulted from right failure.



Spleen palpation

- In healthy individuals, you should **not** be able to palpate the spleen.
- A palpable spleen at the edge of the left costal margin would suggest **splenomegaly** (for the spleen to be palpable at this location it would need to be approximately three times its normal size)
- Support lower left rib cage with left hand while patient is supine and lift anteriorly on the rib cage.



Spleen palpation

- Palpate upwards toward spleen with finger tips of right hand, starting below left costal margin.
- Have the patient take a deep breath.



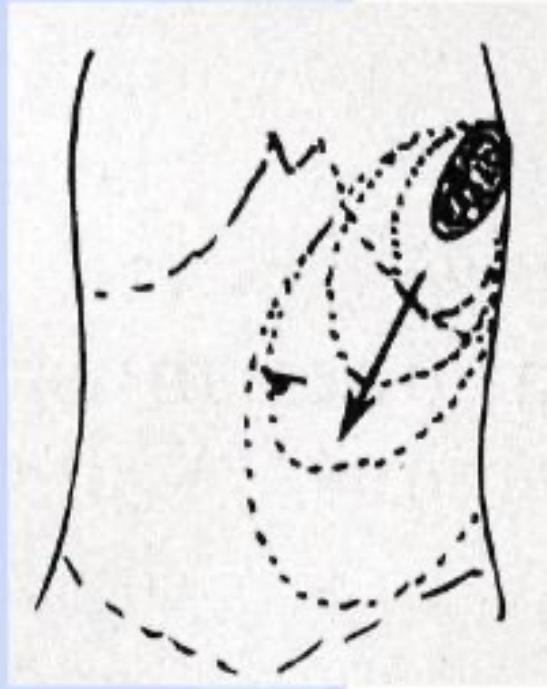
Some causes of splenomegaly

There is a wide range of possible causes of splenomegaly including but not limited to:

- Portal hypertension secondary to liver cirrhosis
- Haemolytic anaemia
- Congestive heart failure
- Splenic metastases
- Glandular fever

● ● ● Spleen palpation

- When the spleen enlarges, it moves anteriorly and obliquely downwards into the abdomen.



Kidney palpation

- Place left hand posteriorly just below the right 12th rib. Lift upwards.
- Palpate deeply with right hand on anterior abdominal wall.
- Patient take a deep breath.
- Feel lower pole of kidney and try to capture it between your hands (ballot)

In healthy individuals, the kidneys are not usually ballotable, however, in patients with a low body mass index, the inferior pole can sometimes be palpated during inspiration.



Abdominal pain & Tenderness

Type of abdominal pain

- Visceral pain

- Somatic pain

Visceral pain

- This is pain that arises from an organic lesion or functional disturbance within an abdominal viscus (**dull, poorly localized, and difficult for the patient to characterize**).

Mechanisms of Pain

Visceral Pain

- Deep, squeezing, pressure.
- Poorly localised.
- Sometimes referred.

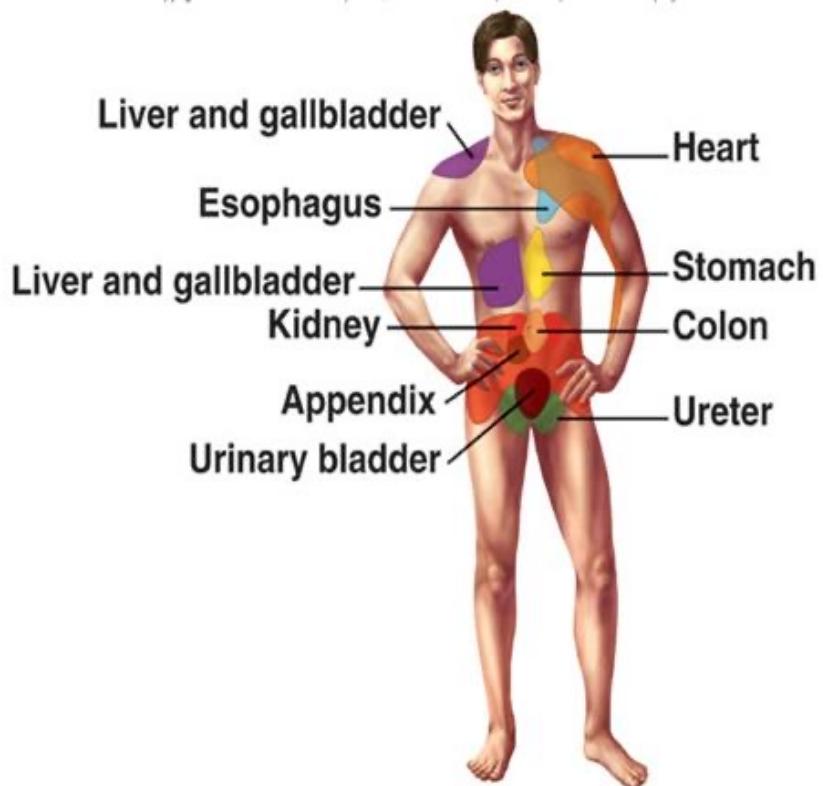
Eg: Body organs that can cause pain:

- Liver, pancreas, lung, heart.

Somatic pain

- Painful lesion of the skin
- Sharp, bright, and well localized
- Indicates involvement of parietal peritoneum or the abdominal wall itself

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Tenderness

- If there is tenderness determine the point of maximum tenderness and its distribution



Abdominal muscle spasm

- **Voluntary guarding**

Tensing abdominal muscles due to patient anxiety, ticklishness, or to prevent palpation to a painful area



- **Involuntary guarding**

- Muscular spasm or rigidity due to peritoneal inflammation
- May be localized (early appendicitis) or diffuse (perforated bowel)

Board-like rigidity

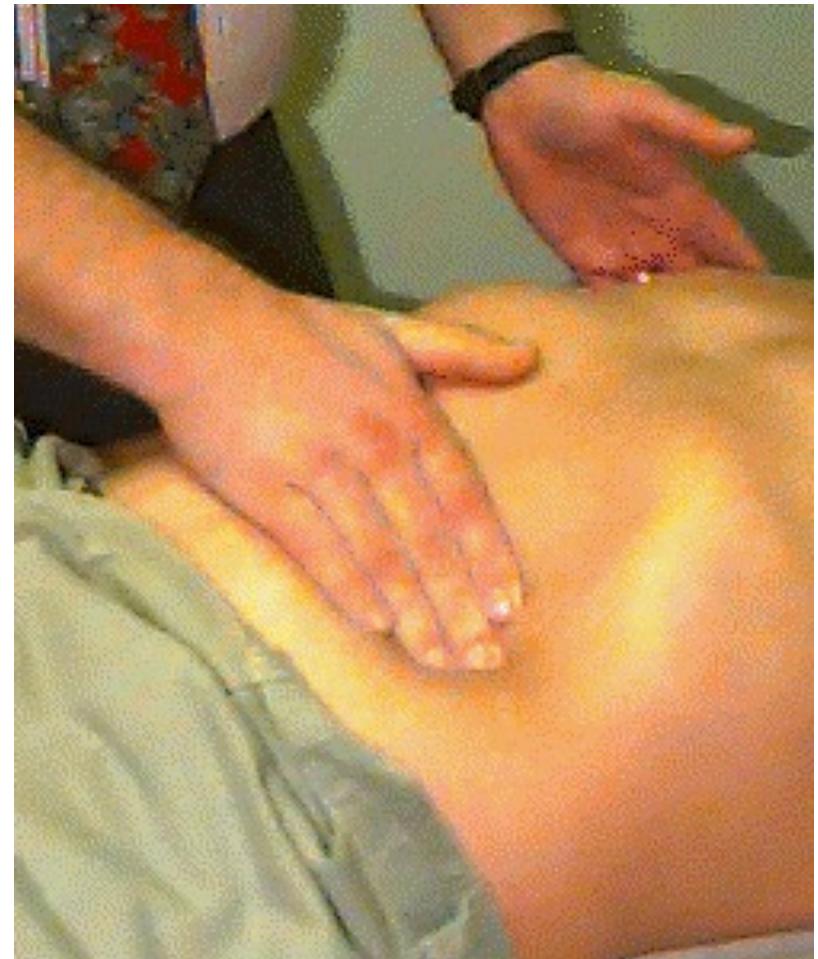
- If abdominal wall is palpated as obviously tense, even as rigid as a board, board-like rigidity is so called. Is caused by the spasm of abdominal muscle due to peritoneal irritation.



Palpation of the Aorta

Examination of Aorta

- Flat palm placed over the epigastrium to locate pulse



Examination of Aorta

- Press down deeply in the midline above the umbilicus.
- The aortic pulsation is easily felt on most individuals.



Special exam

Special exam

- Murphy's Sign
- McBurney's Point
- Rovsing's Sign
- Psoas Sign
- Obturator Sign
- Re bound Tenderness
- Costovertebral tenderness
- Shifting Dullness
- Fluid wave

Special Abdominal Exam Manoeuvres

Sign	Definition	Differential Diagnosis
Murphy's sign	Suspension in deep inspiration upon palpation of the RUQ due to tenderness	Cholecystitis
Kehr's sign	Left shoulder tip pain, specifically when the patient lies supine, due to irritation of the peritoneum	Ruptured Spleen or injury Ruptured ectopic pregnancy
McBurney's sign	Tenderness upon deep palpation of McBurney's Point; found midway between the umbilicus and the right anterior iliac spine	
Psoas sign	Irritation of the iliopsoas group; at extension of the right hip while patient lies on left side elicits abdominal pain	
Obturator's sign	Internally rotating a flexed right hip elicits abdominal pain	Appendicitis
Rovsing's sign	RLQ pain upon palpation of LLQ	
Heel-drop sign	Dropping heels on the ground after standing on tiptoes, or forcefully striking the patient's heel elicits RLQ pain	
Cough sign	Tenderness when patient is asked to cough	Peritoneal irritation
Pulsatile masses	Pulsating mass upon palpation of the abdomen	Aortic aneurysm
Cullen's sign	Periumbilical ecchymosis	Retroperitoneal hemorrhage; Hemorrhagic pancreatitis, Ruptured AAA
Grey-Turner's sign	Flanks ecchymosis	

Murphy's Sign (acute cholecystitis)

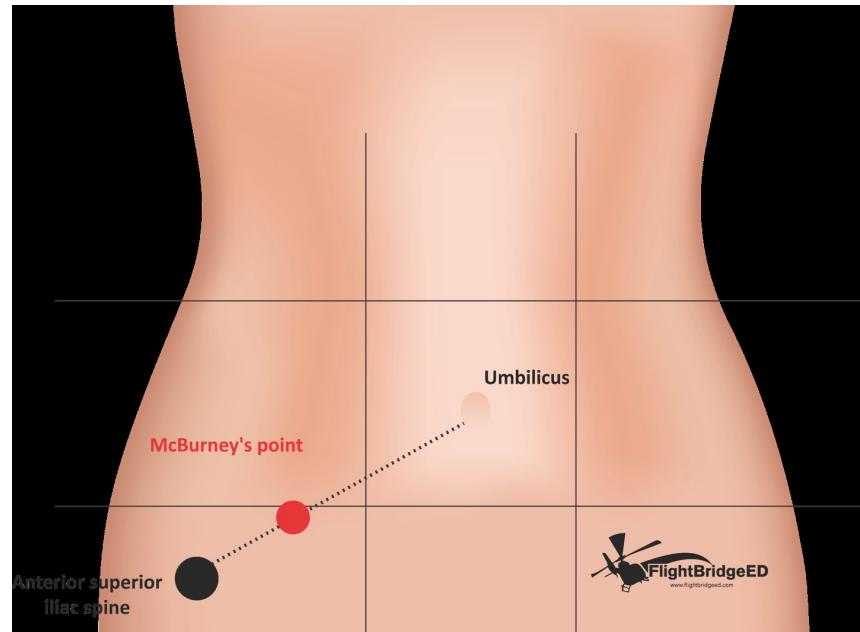
- Examiner's hand is at middle inferior border of liver.
- Patient is asked to take deep inspiration.
- If the patient suddenly stops mid-breath due to pain, this suggests the presence of cholecystitis (known as "Murphy's sign positive").



Hepatitis, subdiaphragmatic
abscess Cholecystitis

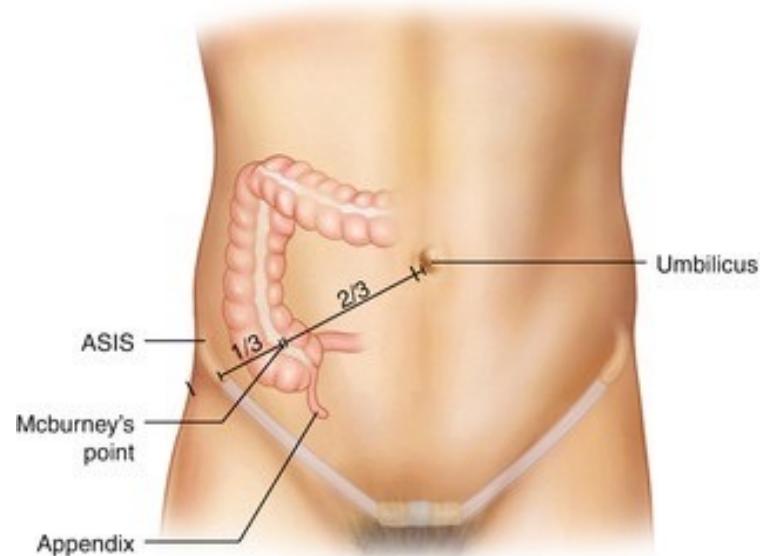
McBurney's Point

- Localized tenderness Just below midpoint of line between right anterior iliac crest and umbilicus.
- Heel strike, riding over bumps in road while driving, coughing, will produce pain.



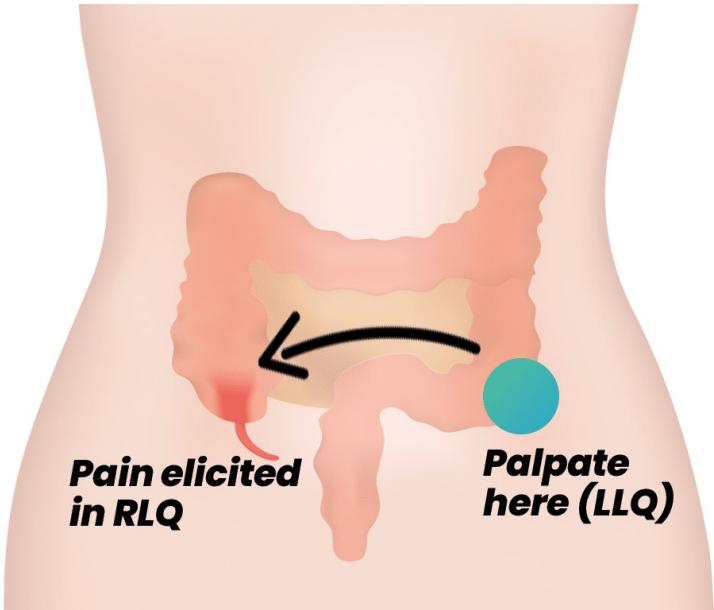
McBurney's Point (Common Causes)

- Appendicitis
- Incarcerated or strangulated hernia
- Ovarian torsion (twisted Fallopian tube)
- Pelvic Inflammatory disease
- Abdominal mass
- Hepatitis
- Diverticular disease
- Meckel's diverticulum



Rovsing's Sign

- Patient will experience right lower quadrant pain (in region of McBurney's Point) when left lower quadrant is palpated.

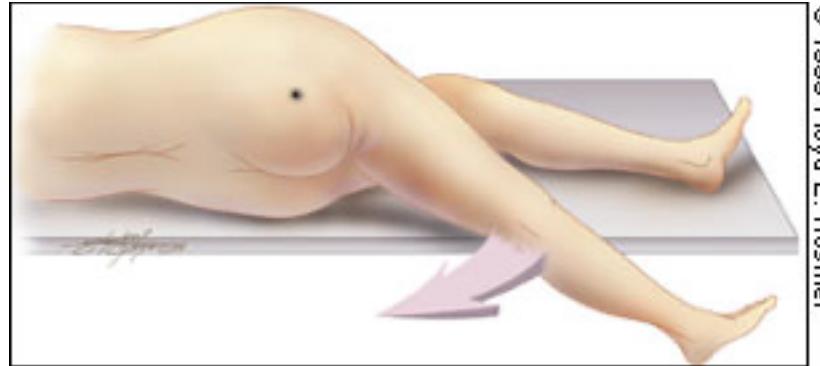


Non-Classical Appendicitis

- Iliopsoas Sign
- Obturator Sign



Iliopsoas Sign



Patient can lay on side and extend leg at the hip or have patient lay on back and try to flex hip against the resistance of examiner's hand on thigh. If patient has an inflamed retrocecal appendix, this will produce pain.

Iliopsoas Sign

- Anatomic basis for the psoas sign :inflamed appendix is in a retroperitoneal location in contact with the psoas muscle, which is stretched by this maneuver .

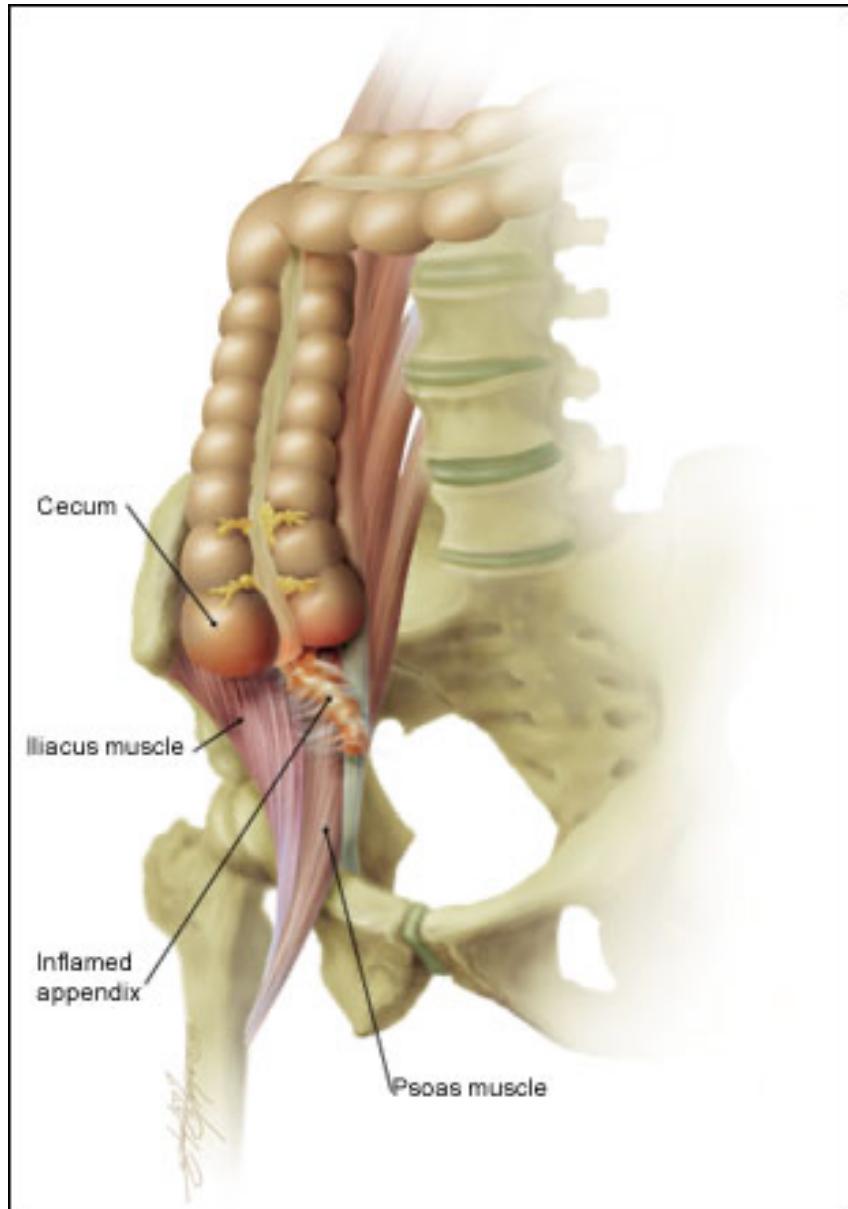
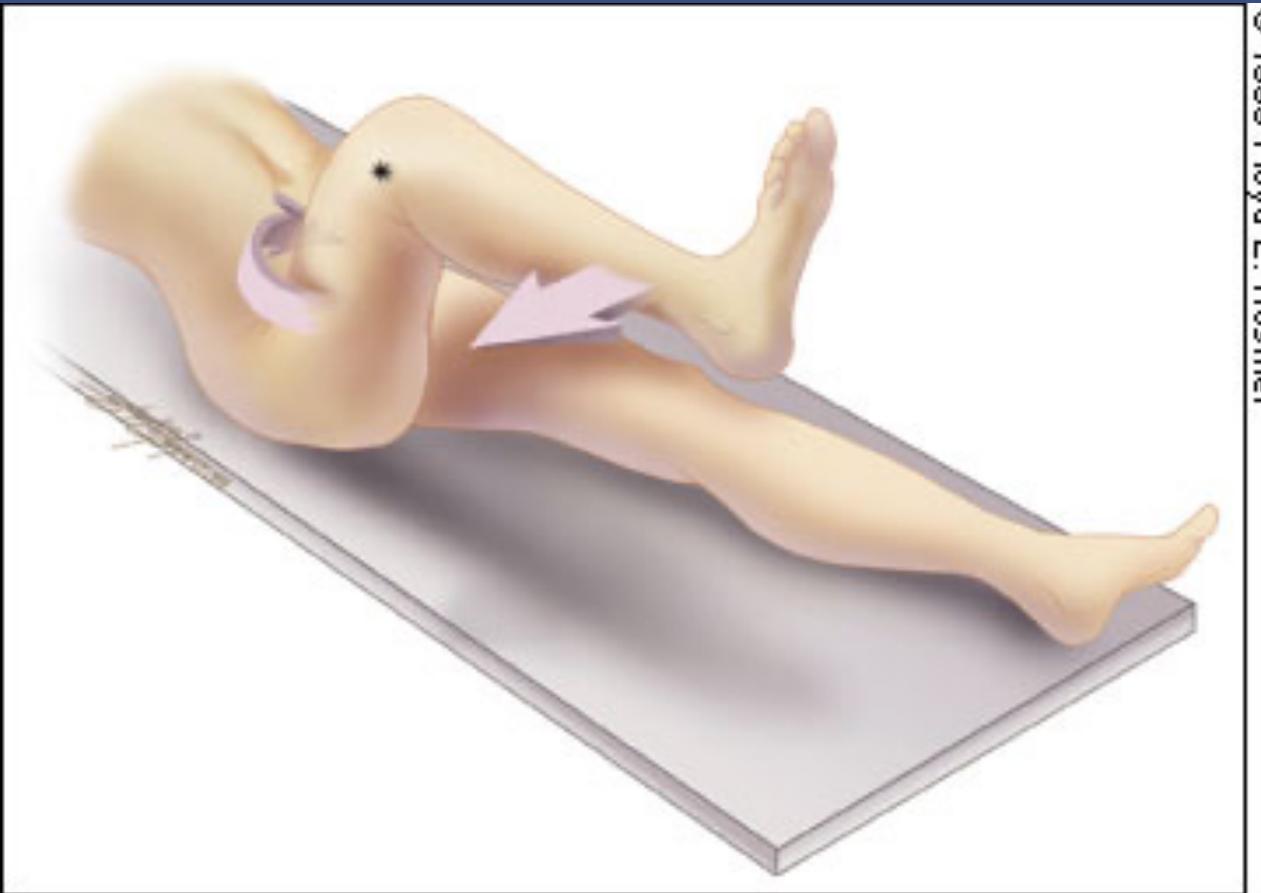


Illustration © 1999 Floyd E. Hosmer

Obturator Sign



© 1999 Floyd E. Hosmer

- Internally rotate right leg at the hip with the knee at 90 degrees of flexion. Will produce pain if inflamed appendix is in pelvis.

Obturator Sign

- Anatomic basis for the obturator sign :inflamed appendix in the pelvis is in contact with the obturator internus muscle, which is stretched by this maneuver .

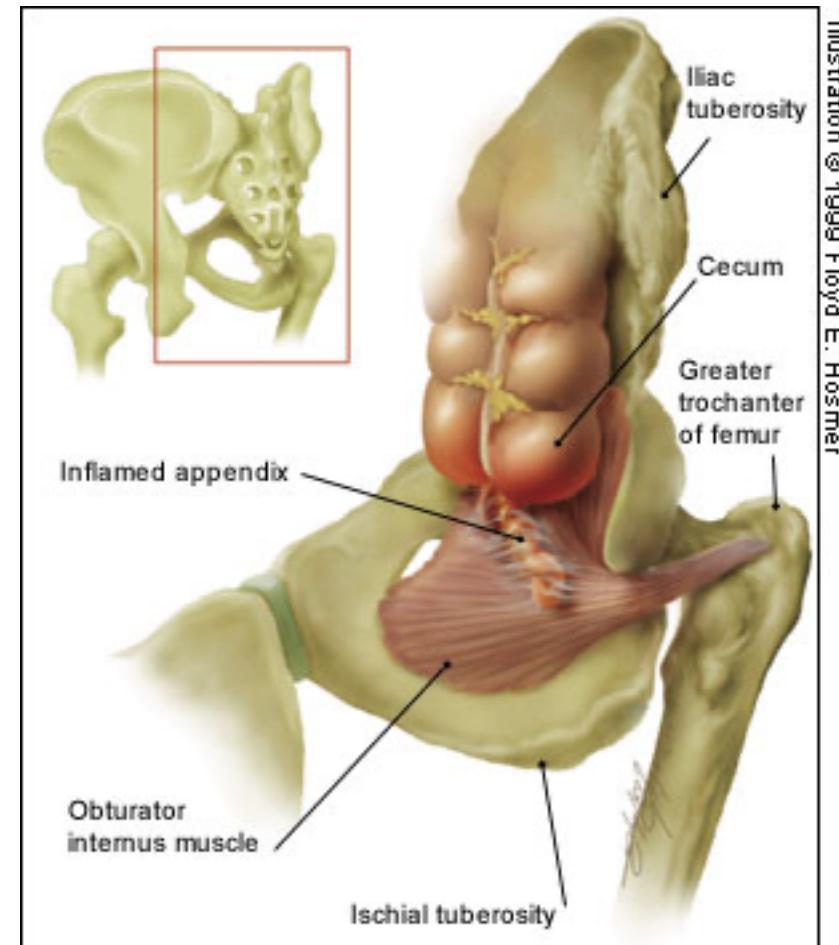


Illustration © 1999 Floyd E. Hosmer

Rebound Tenderness

(For peritoneal irritation)

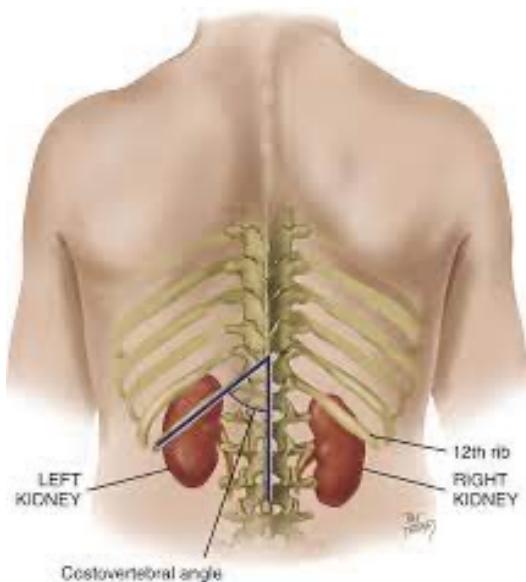
- Warn the patient what you are about to do.
- Press deeply on the abdomen with your hand.
- After a moment, quickly release pressure.
- If it hurts more when you release, the patient has rebound tenderness.



Cost vertebral Tenderness

(Often with renal disease)

- Use the heel of your closed fist to strike the patient firmly over the costovertebral angles.
- Compare the left and right sides.



Shifting dullness

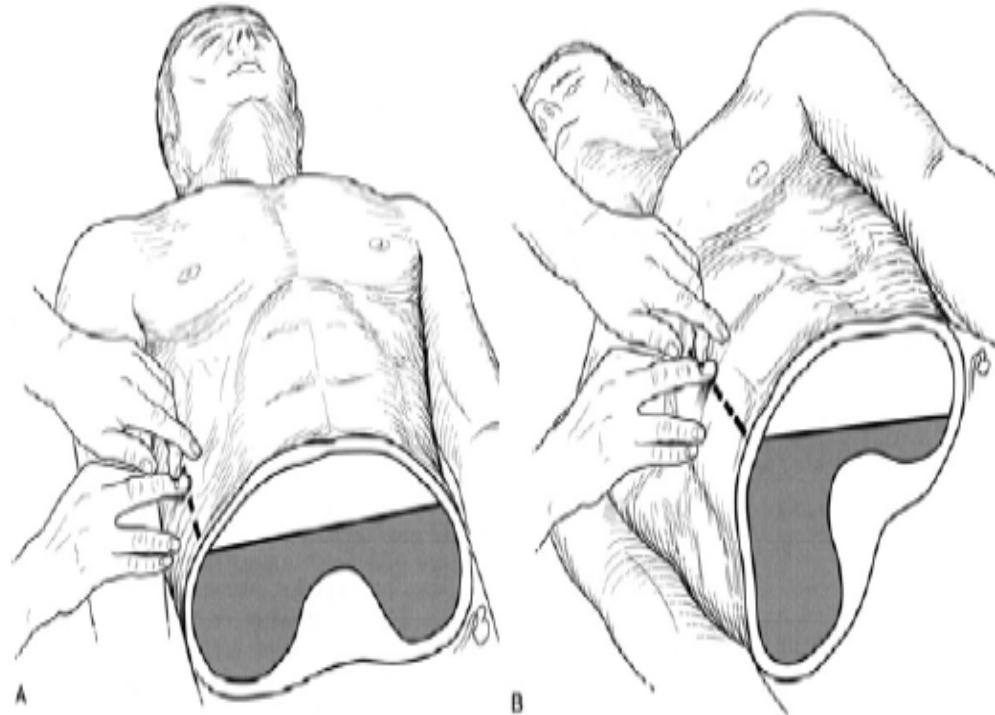
Percussion can also be used to assess for the presence of **ascites** by identifying **shifting dullness**:

- Percuss from the umbilical region to the patient's left flank. If dullness is noted, this may suggest the presence of ascitic fluid in the flank.
- Whilst keeping your fingers over the area at which the percussion note became dull, ask the patient to roll onto their right side (towards you for stability).
- Keep the patient on their right side for 30 seconds and then repeat percussion over the same area.
- If ascites is present, the area that was previously dull should now be resonant (i.e. the dullness has shifted).



Ref: Geeky Medics, 2022

Shifting Dullness



General Abdomen Assessment Documentation

T,P,R and BP (use template where available)

JACCOL – NAD

CVS/RS (Chest – equal movement, no obvious recession, no wheeze/ crepitations, good AE bilaterally & HS 1+2+0, no murmurs)

Bowels sounds present x4

Abdomen is soft and not tender

No rebound tenderness, No guarding , No rigidity , No renal tenderness

Urinalysis and BHCG

Time to Practice

Changes in older adult

- Slower gastric emptying of fluids, but not solids.
- Reduced pancreatic function due to duct and parenchymatous changes.
- Reduced splanchnic blood flow.
- Reduced small bowel surface area.
- Changes in intestinal microflora including a decrease in anaerobes and bifidobacteria and an increase in enterobacteria reduce immunity to Clostridium difficile .
- Diverticula develop in the bowel.
- Reduced large bowel motility predisposes to constipation.
- Reduced rectal wall elasticity increases the risk of faecal incontinence

Unintentional weight loss

Loss of > 5 kg of weight in 6– 12 months is clinically significant, associated with increased morbidity and mortality, and affects: 20% of over 65s living in the community . 50% of those in nursing homes.

- Ageing changes : account for only 0.1– 0.2 kg weight loss per year. There is a tendency to weight loss in old age (in contrast to the weight gain common in middle age) due to reduced body-water content, bone loss (osteoporosis), thinning of connective tissue and the conversion of muscle to fat.
- Oral and dental disease:
- Systemic disease: weight loss is associated with all chronic disorders, e.g. COPD, cardiac failure, kidney disease,
- Malignancy : GI malignancy accounts for 50% of cancers presenting with severe weight loss.
- Psychiatric disease : the apathy of depression and self-neglect in some people with dementia lead to weight loss.
- Iatrogenic disease : impaired appetite may be due to unpalatable treatments, side-effects, e.g. antibiotics (especially metronidazole and erythromycin), opiates, antidepressants, metformin, levodopa or toxicity, e.g. digoxin. ACE inhibitors may cause loss of taste or an unpleasant taste.
 - Diarrhoea may be due to proton pump inhibitors, anti-cholinesterase inhibitors, misoprostol or antibiotics. The burden of too many tablets may suppress appetite. performing the same functions.
- GI disease : Dysphagia, Dyspepsia. Malabsorption.

Scenario 1

77 year old male c/o one episode of vomiting and 7 of diarrhoea in last 5 hours.

1. What questions would you ask?
2. What examination would you?

Scenario 1

PMHX: Diabetes, HTN,
Thyroid

Drugs: insulin,
NKDA

OBS
B/P 101/65
HR 107
Temp 38.5
Urine – Glucose,
ketones
BM 22

Patient looks unwell

Diarrhoea in the elderly

- More frequent in older people than in young adults
- Severe diarrhoea in the elderly can be life threatening as more at risk of dehydration and electrolyte imbalance
 - 2nd leading cause of morbidity and mortality in the elderly
 - 50% of deaths due to diarrhoea occurs in people over the age of 75 years

Acute diarrhoea - (< 2 weeks duration)

Infective

- Cultures must be taken and patient isolated while results are awaited
- **VIRAL** most commonly Norovirus (also known as winter vomiting) which causes outbreaks, e.g. in hospitals, care homes and cruise ships.
 - The incubation period is 12– 48 h.
 - Symptoms usually last for 24– 60 h and include sudden onset projectile vomiting, abdominal discomfort and watery diarrhoea.
 - Supportive measures are all that are usually required.
 - Transmission is mainly faeco-oral, but also person-to-person, via fomites and airborne as the highly contagious virus is easily aerosolized in vomitus.
- Wash your hands – alcohol rubs are not effective as this RNA virus does not have a lipid envelope.
- **BACTERIAL** including Salmonella and E. coli ; antibiotics are only justified in severe disease; in mild cases they may prolong symptoms and produce carrier states.

Ref: Wilson et al, 2012: P155

Acute diarrhoea : Clostridium difficile associated diarrhoea (CDAD)

- This is the most serious cause of antibiotic-associated diarrhoea and occurs when competing bacteria in the gut flora have been wiped out by broad spectrum antibiotics.
- *Clostridium difficile* is a Gram-positive spore-forming bacillus. It produces two distinct exotoxins, A (enterotoxin) and B (cytotoxin). These bind to the intestinal epithelial brush border and trigger release of inflammatory mediators resulting in increased fluid secretion and inflammation.
- In severe disease, extensive necrosis and ulceration may result in development of a pseudomembrane,
- **Symptoms** : Usually a patient who has had a course of antibiotics develops malaise, abdominal pain, nausea, anorexia and very watery, foul-smelling diarrhoea. Worsening pain and diarrhoea may herald complications.

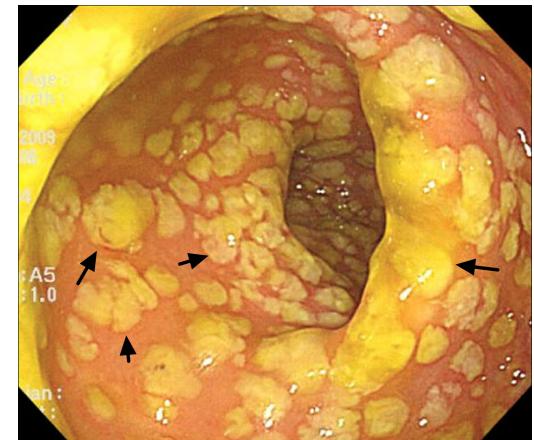


Ref: Wilson et al, 2012: P155

Acute diarrhoea : Clostridium difficile associated diarrhoea (CDAD)

- Examination Low-grade fever, abdominal tenderness. High temperature and severe tenderness are signs of complications.
- Characteristic smell;
- Severe disease high mortality rates in older people. Relapses are common and morbidity is high.
- Treatment Isolate any patient with suspicious diarrhoea immediately.
- Stop any culprit antibiotic and PPI whenever possible and replace fluid and electrolytes.
- First line therapy is usually oral metronidazole 500 mg t.d.s. Metronidazole is also effective
- Research taking place into the use of probiotics,
eg Actimel

Ref: Wilson et al, 2012: P155

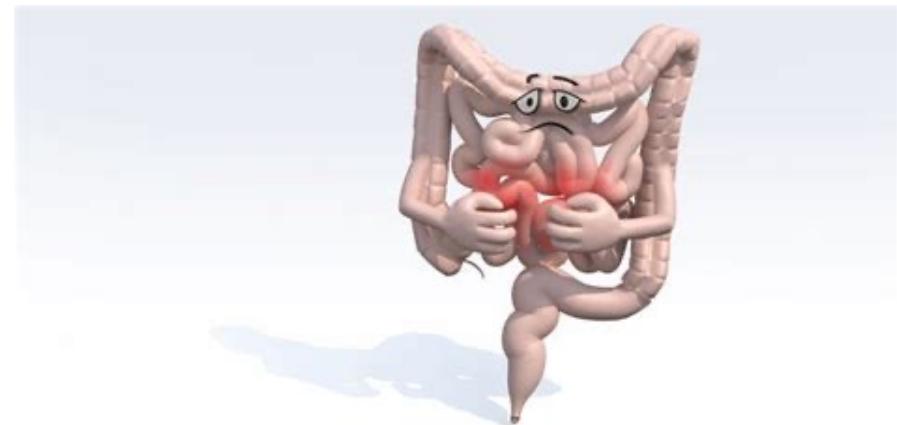


Chronic diarrhoea

- This is incapacitating in old age, especially if the patient is already disabled and immobile due to other pathologies.
- It may result in faecal incontinence which patients and carers find very hard to manage.
- A good history must be taken to exclude food poisoning, exposure to viruses or recurrence of C. difficile , especially if the patient lives in an institution

Main categories of causes:

1. Spurious
2. Metabolic
3. Drugs
4. Inflammatory
5. Previous surgery
6. Malabsorption



Chronic diarrhoea

- Spurious : i.e. obstruction with overflow, must be excluded first by rectal examination and then by sigmoidoscopy if necessary. The cause may be simple, e.g. faecal impaction, or serious, e.g. carcinoma of the rectum.
- Metabolic: uncommon, but exclude thyrotoxicosis; some cases are secondary to diabetic neuropathy.
- Drugs: antibiotic diarrhoea is common, especially after cephalosporins; also consider colchicine, PPIs, acetylcholinesterase , donepezil, magnesium-containing antacids and iron.

Chronic diarrhoea

Inflammatory:

Crohn's disease of the large bowel is the most common chronic inflammatory bowel disease in old age; diagnosis is made by barium studies and biopsy.

Microscopic colitis encompasses both collagenous and lymphocytic colitis. It is a cause of non-bloody diarrhoea that is increasingly common in old age.

Treatment includes stopping drugs that may be exacerbating the diarrhoea, avoiding caffeine, looking for associated coeliac disease and a trial of steroids or mesalazine

Malabsorption

- Small-bowel function declines with age, but nutritional deficiencies only occur when additional factors intervene, e.g. poor diet or ill health.
- Causes usually considered in younger patients occur in old age, e.g. coeliac disease.
- Maldigestion is more common than malabsorption, e.g. due to pancreatic disease.
- Bacterial change in the small-bowel lumen due to stasis or diverticular disease is common (10% of elderly people and is frequently clinically significant.
- Ischaemia is a special cause of malabsorption in old age.
- Iatrogenic causes must always be considered, e.g. post-gastrectomy, alcohol and some drugs

Malabsorption

- **INDICATORS**

- Weight loss (especially around the face) in spite of good dietary intake.
- Low serum albumin.
- Unexplained iron-deficiency anaemia (with negative faecal occult blood).
- Macrocytic anaemia.
- Osteomalacia, presenting as falls and weakness



Constipation

- Fear of becoming constipated is an aspect of old age that is more common than the genuine symptom.
- Seventy percent of elderly people open their bowels once daily, 11% every other day and 14% twice daily.
 - Difficulty passing motions is of greater importance than frequency of defecation.



Constipation: Common causes

- Faulty habits: low-residue diet, poor fluid intake, lack of exercise and ignoring the call to stool.
- Poor appetite: leads to reduced gastro-colic reflex, but does not stop the bowels from working.
- Immobility.
- Drugs: check the drug chart for opiate analgesics, anticholinergics, diuretics, calcium channel blockers,
- Check for metabolic precipitants: diabetes mellitus, hypothyroidism, hypercalcaemia, hypokalaemia and hypomagnesaemia secondary to drugs, or bowel, endocrine or metabolic disease.
- Psychiatric: depression, dementia.
- Functional: irritable bowel, purgative abuse (cathartic colon).
- Pain: from peri-anal disease such as piles and fissures.
- Neurological causes include Parkinson's disease, spinal cord injury, multiple sclerosis and cerebrovascular disease.

Ref:Wilson et al,2016:p156

Constipation: management

- Identify the nature and duration
 - small, hard stools are often related to low-fibre diet or dehydration; soft stools in a dilated rectum suggest chronic laxative abuse.
- Identify any precipitating causes from the list
- Rectal examination must be performed and recorded in the notes before prescribing laxatives.
 - Refer GP for this
- If impaction is imminent, enemas are required.
- If not impacted but a quick result is required prescribe a stimulant (senna); occasionally an osmotic laxative (magnesium sulphate) will be required.

Constipation: management 2

- For short-term treatment (associated with acute illness) ensure an adequate fluid intake and mobilize as soon as possible.
 - Senna if stools are bulky and soft
 - co-danthrusate/ co-danthramer if stools are small and hard in association with opiates.
 - Macrogols (Laxido) or liquid paraffin and magnesium hydroxide emulsion (Milpar) can be used acceptable alternatives.
- For longer-term treatment where non-drug treatment fails or is impracticable macrogol or a bulking agent (ispaghula husk) are often used
- Complications of constipation include: faecal impaction, overflow diarrhoea, obstruction and even perforation, megacolon predisposing to sigmoid volvulus and rectal prolapse, urinary retention and delirium.

Ref:Wilson et al,2016:p157

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Laxatives

The aim of laxatives is to increase stool frequency or ease of stool passage by increasing stool water content (directly by osmotic or intestinal secretory mechanisms) or by accelerating bowel transit.

Bulk-forming laxatives

(containing soluble fibre) act by retaining fluid within the stool and increasing faecal mass, stimulating peristalsis; also have stool-softening properties.

- Ispaghula husk.
- Methylcellulose.
- Sterculia.

Osmotic laxatives act by increasing the amount of fluid in the large bowel producing distension, which leads to stimulation of peristalsis; lactulose and macrogols also have stool-softening properties.

- Lactulose.
- Macrogols (polyethylene glycols).
- Phosphate and sodium citrate enemas

Ref: CKS,2021

Laxatives-2

Stimulant laxatives cause peristalsis by stimulating colonic nerves (senna) or colonic and rectal nerves (bisacodyl, sodium picosulfate).

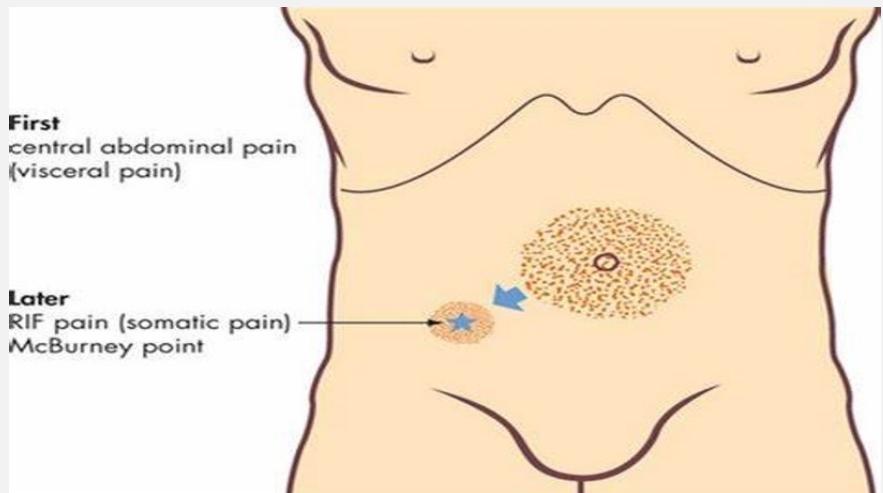
- Senna — hydrolyzed to the active metabolite by bacterial enzymes in the large bowel.
- Bisacodyl and sodium picosulfate — hydrolyzed to the same active metabolite. Bisacodyl is hydrolyzed by intestinal enzymes; sodium picosulfate relies on colonic bacteria.
- Docusate — a surface-wetting agent which reduces the surface tension of the stool, allowing water to penetrate and soften it. Also has a relatively weak stimulant effect.

Prokinetic laxatives

Pruclalopride — a selective, high-affinity, serotonin (5HT4) receptor agonist, which stimulates intestinal motility

Appendicitis History

- Acute central abdominal pain moving to right iliac fossa
- Pain is worse with movement
- Sometimes on and off central abdo pain
- Nausea &/or vomiting
- Constipation or diarrhoea
- Sometimes fever
- Loss of appetite



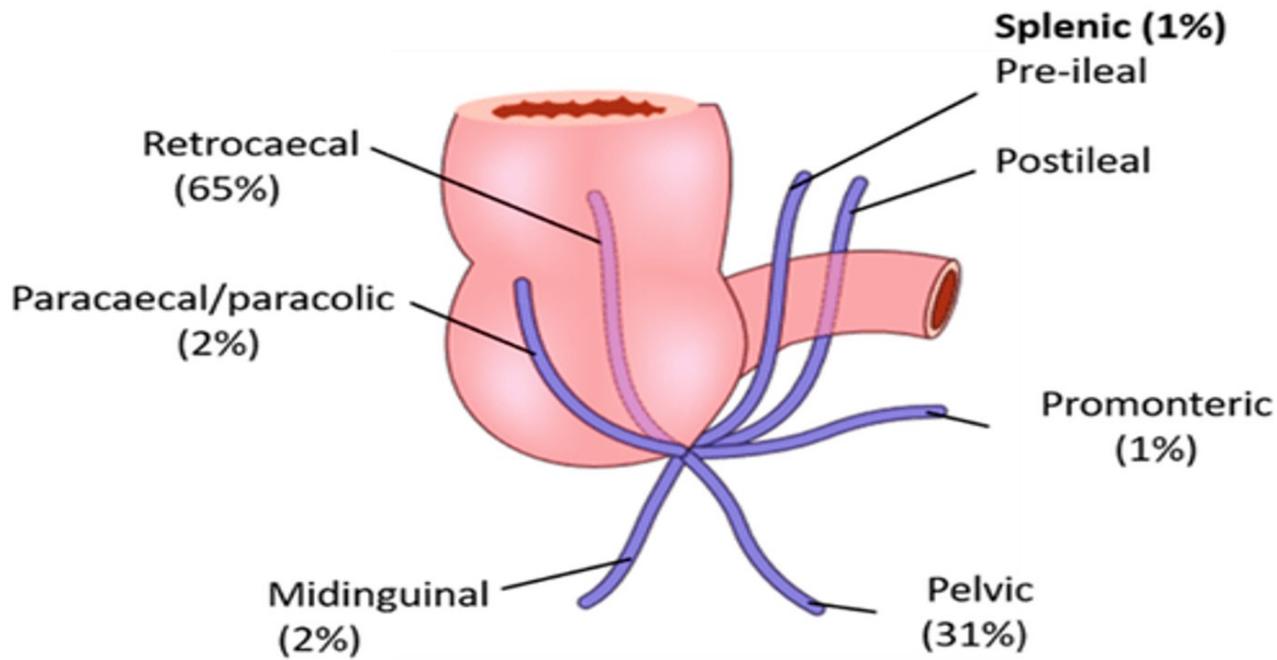
Appendicitis Presentation: Older Age

- pain may be minimal
- fever absent
 - Even with advanced Inflammation
- May present with confusion and shock



Appendix anatomical position:

The anatomical position of the appendix can vary considerably



Appendicitis Examination

- Fever
- Tachycardia
- Right iliac fossa tenderness (maximal at McBurney's point)
- Rebound and guarding
- Classic features of appendicitis may not always be present

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