

Acute Abdomen in Children

Case 1

- Baby , with Dull, dusky-colored, distended abdomen , Bloody stool
- On examination there is absent bowel sound with tenderness , abd X-ray was done

- (temp instability, poor perfusion,
 - A/B/D, lethargy)
- A=apnea / B=bradycardia/D= desaturation





What's the significant radiological sign ?

football sign "stage IIIB"



What's the significant radiological sign ?

*x-ray: Pneumatosis
Intestinalis " stage II "*

*Air in the wall of the
intestine ...*



What's the significant radiological sign ?

cross-table lateral
x-ray with free air

- 1. What is your diagnosis ?
- 2. Why is it important to identify this condition as early as possible?
- 3. Risk factors ?
- 4. initial work up “ labs + imaging “ ?
- 5. what's the absolute indication of surgery ?
- 6. what's initial medical management ?

answers

- 1. necrotizing enterocolitis
- 2. NEC is a progressive disease with mortality rates from 15-30% (inversely related to gestational age and birth weight)
- 3. VLBW “very low body weight” infants , Prematurity , Aggressive advancement of enteral feeding, Hyperosmolarity of solutions , Bacterial overgrowth .
- 4. LAB: 1. CBC → Thrombocytopenia
- 2. DIC panel (PT/INR, PTT, Fibrinogen, D-dimer) → Elevated PT/INR, PTT, D-dimer
- → Decreased Fibrinogen
- 3. BMP → Hyponatremia (<130)
 - Hyperglycemia
 - Hyperkalemia
- Imaging : X-ray “ best “ / ultrasound
- 5. Pneumoperitoneum

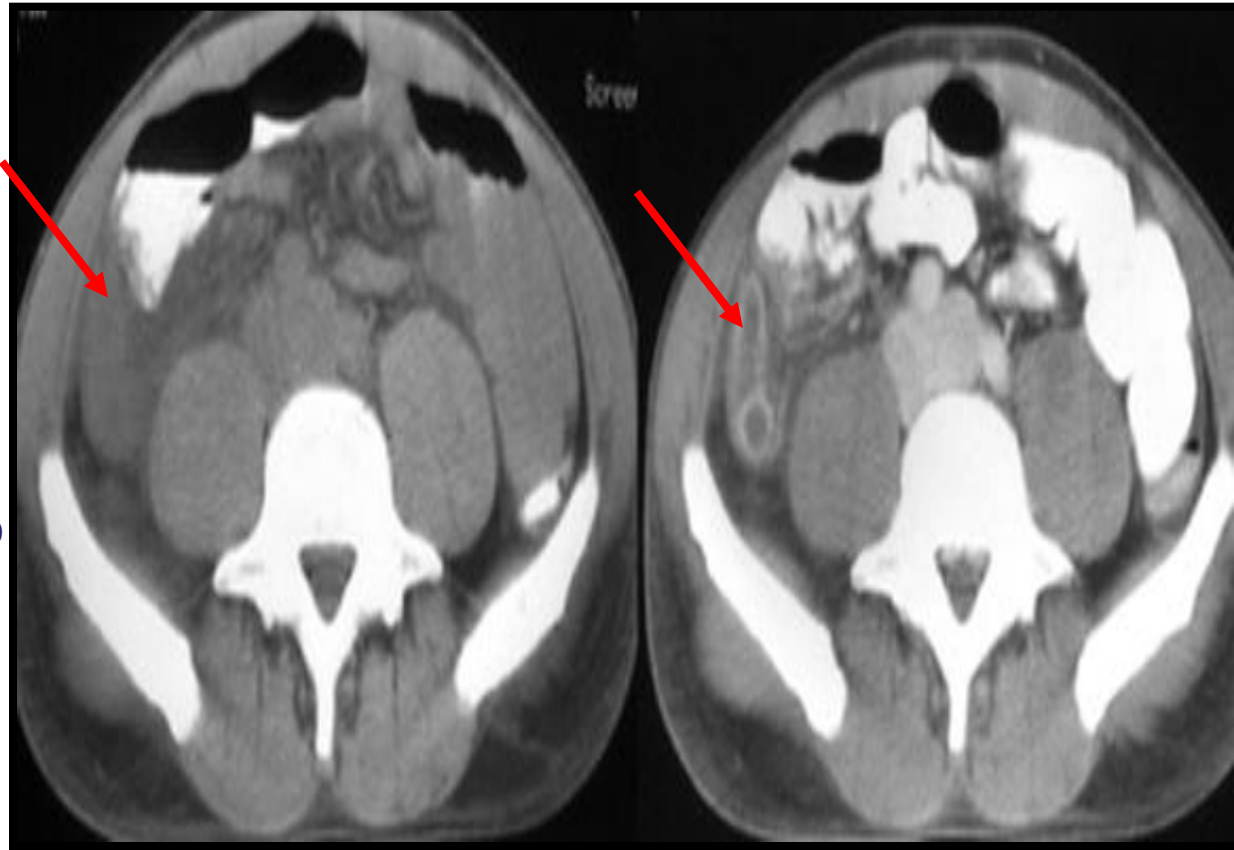
Initial Management

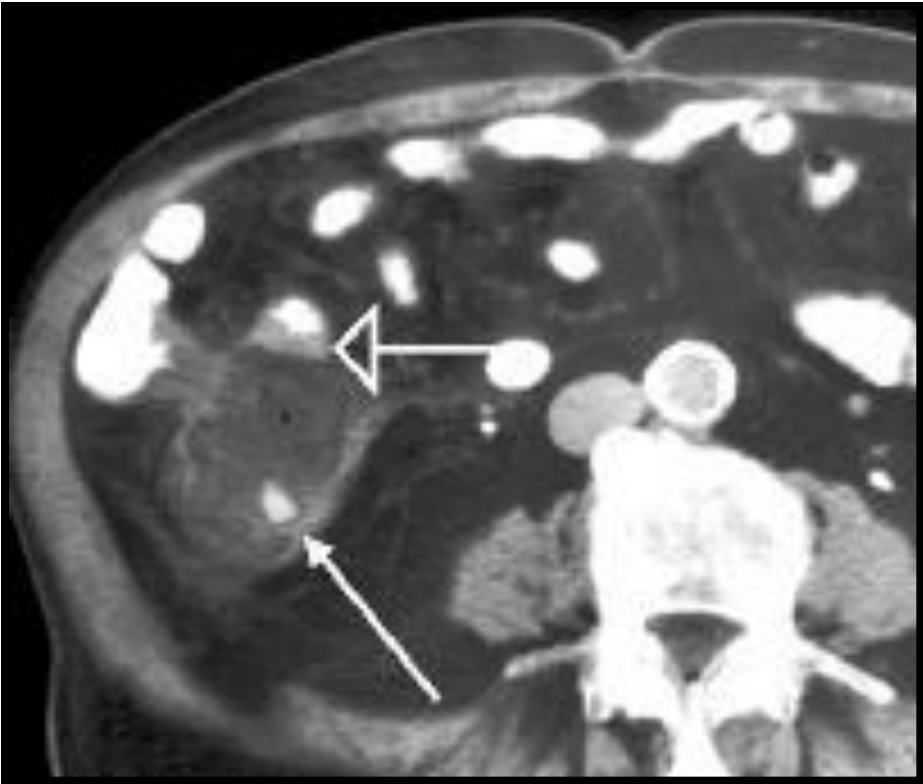
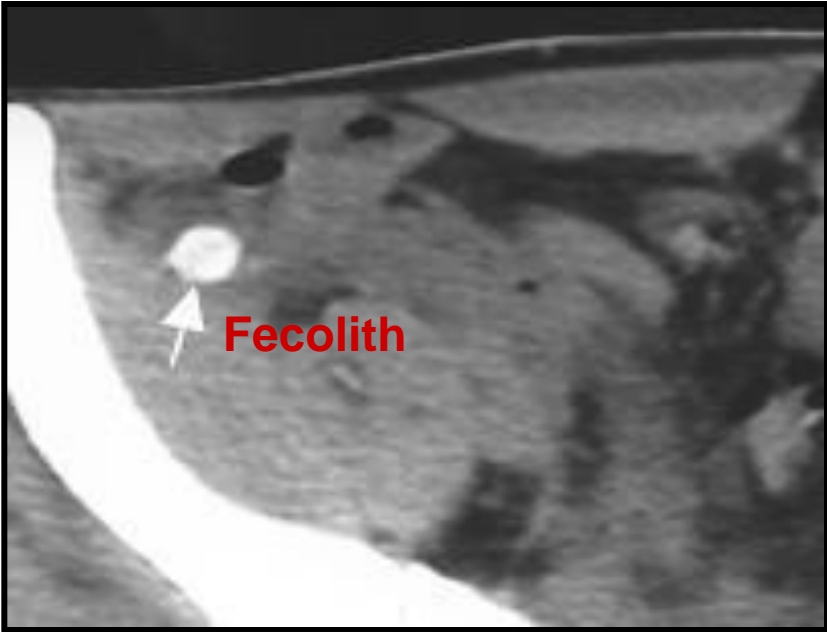
Medical management (10-14 days)

- Make NPO, start on IVF (consider TPN).
- Insertion of nasogastric tube to suction for decompression
- Empiric antibiotics
 - Ampicillin, gentamicin
 - Clindamycin and/or flagyl are often added for severe cases
- Cardiovascular/pulmonary support as needed
- Pediatric surgery consultation
- Lab/radiologic monitoring:
 - Q6-8 hours while patient remains acutely ill
- Check urine output every 1-2 hours
 - If low, give 10-20ml/kg/hr NS

Case 2

1. What is the diagnosis ?
2. Our diagnosis mainly depend on?
3. what's the best imaging study?
4. The most common cause In infants ?
5. what's the best modality to detect late condition "tumors or abscess" ?
6. Treatment ?





answers

1. Inflamed appendix (appendicitis)
2. History and physical examination
3. US (available, no sedation need ,no radiation, BUT it's operator dependant)
4. Fecolith
5. CT scan
6. Medical “ give antibiotics “ OR surgical “ appendectomy “

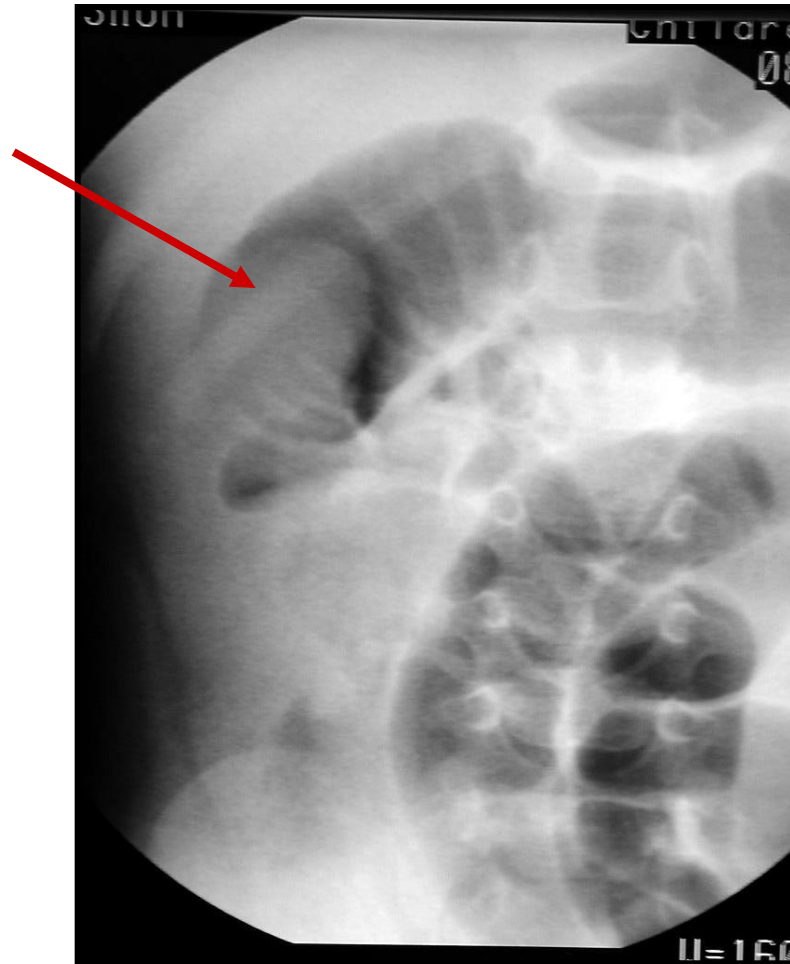
Case3

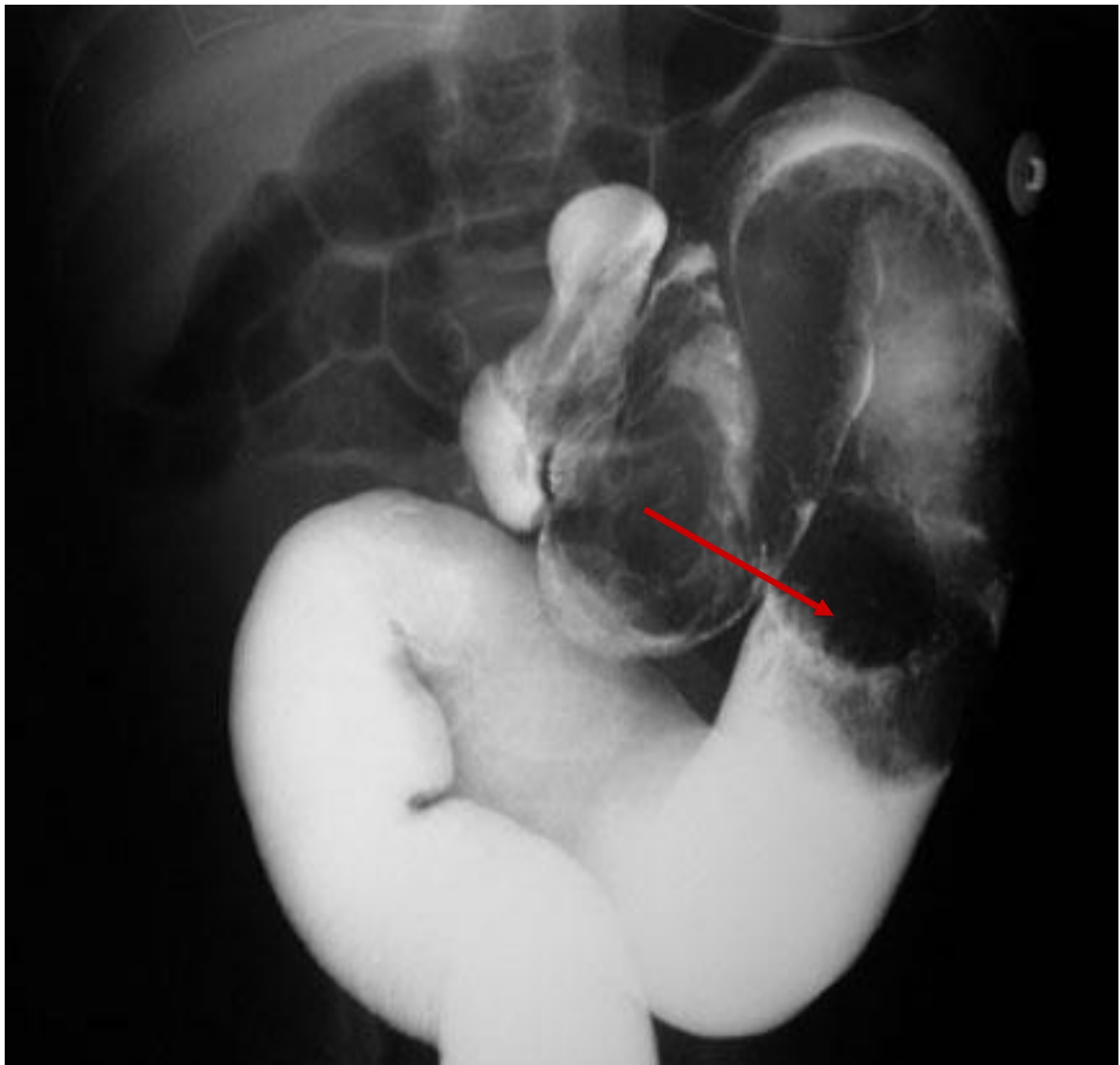
- Mother bring her baby to the doctor, she said that her baby has blood in the stool (jelly stool) and vomiting !!
1. what's your diagnosis ?
 2. Where is the most common site ?
 3. Causes ?
 4. Diagnosis ?
 5. Treatment ?

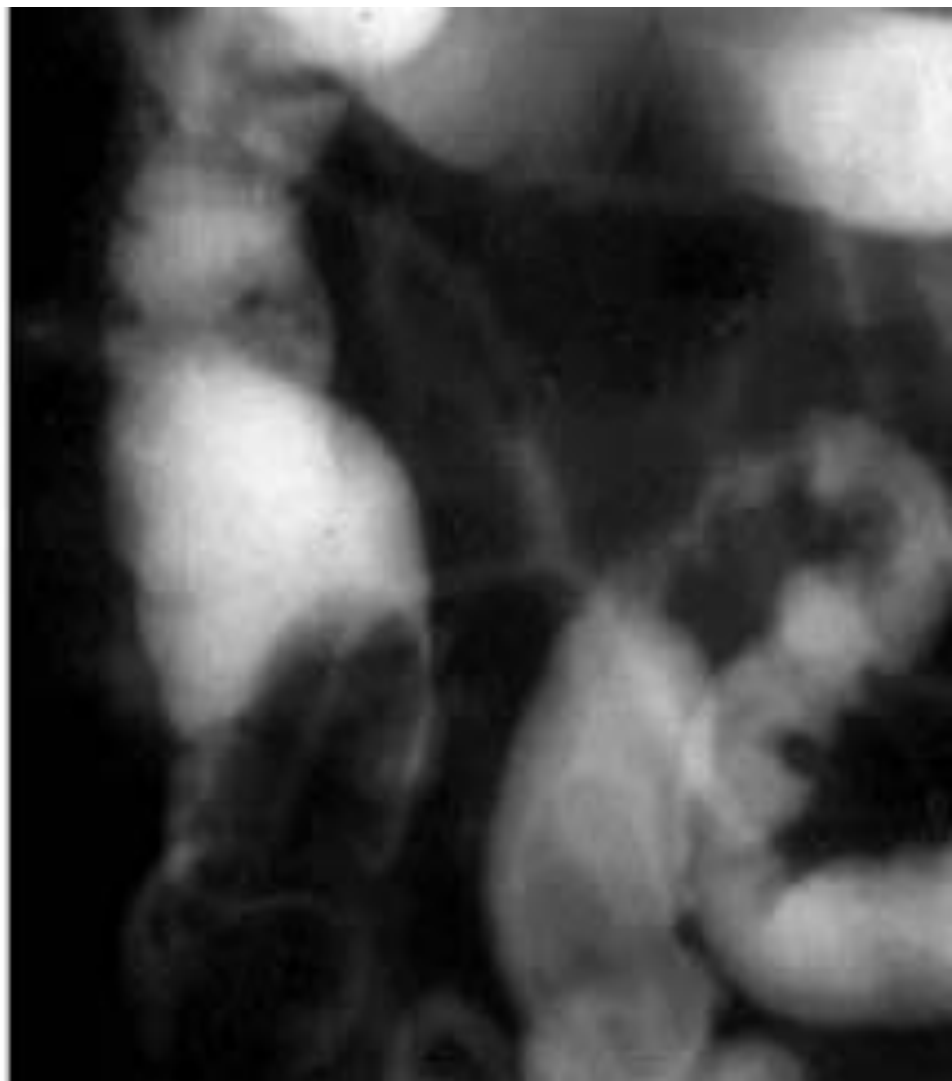
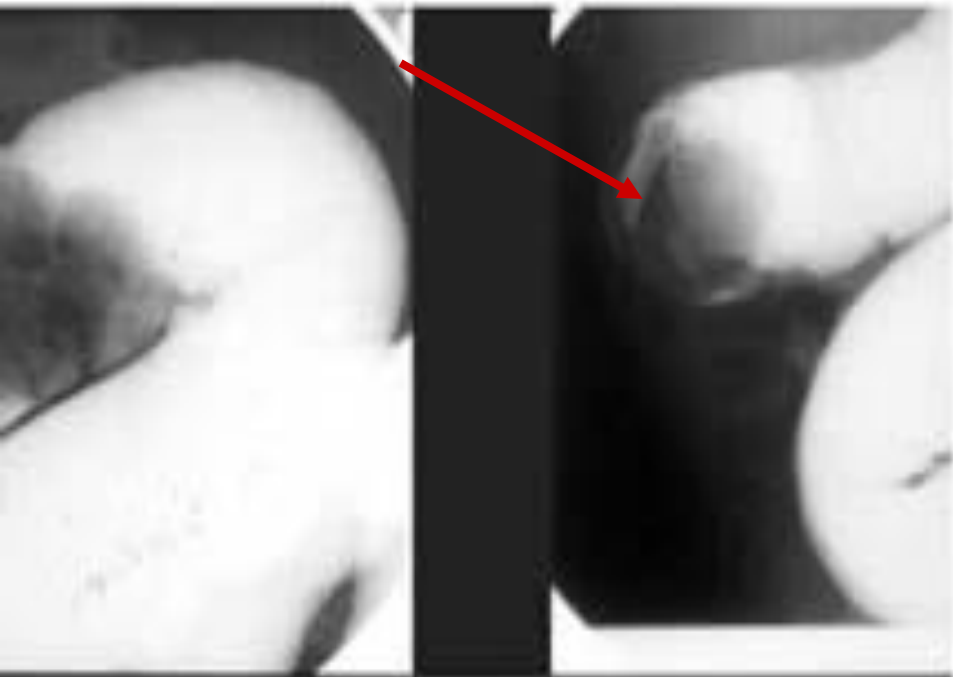


- 1. intussusception (telescoping of bowel)
- 2. ileo-cecal
- 3. a) hypertrophied peyer patches due to viral infection
- B) PLP “ pathological lead point”
- *Meckle's diverticulum ,Tumors eg. Intestinal lymphoma.
- 4. Best by U/S “Target sign, Donut sign”.
Contrast Enema “Dx and treatment”
- 5. Pressure reduction
 - Barium
 - Water
 - Air is most common (less complications)
 - If it failed surgical resection is the definitive treatment !!

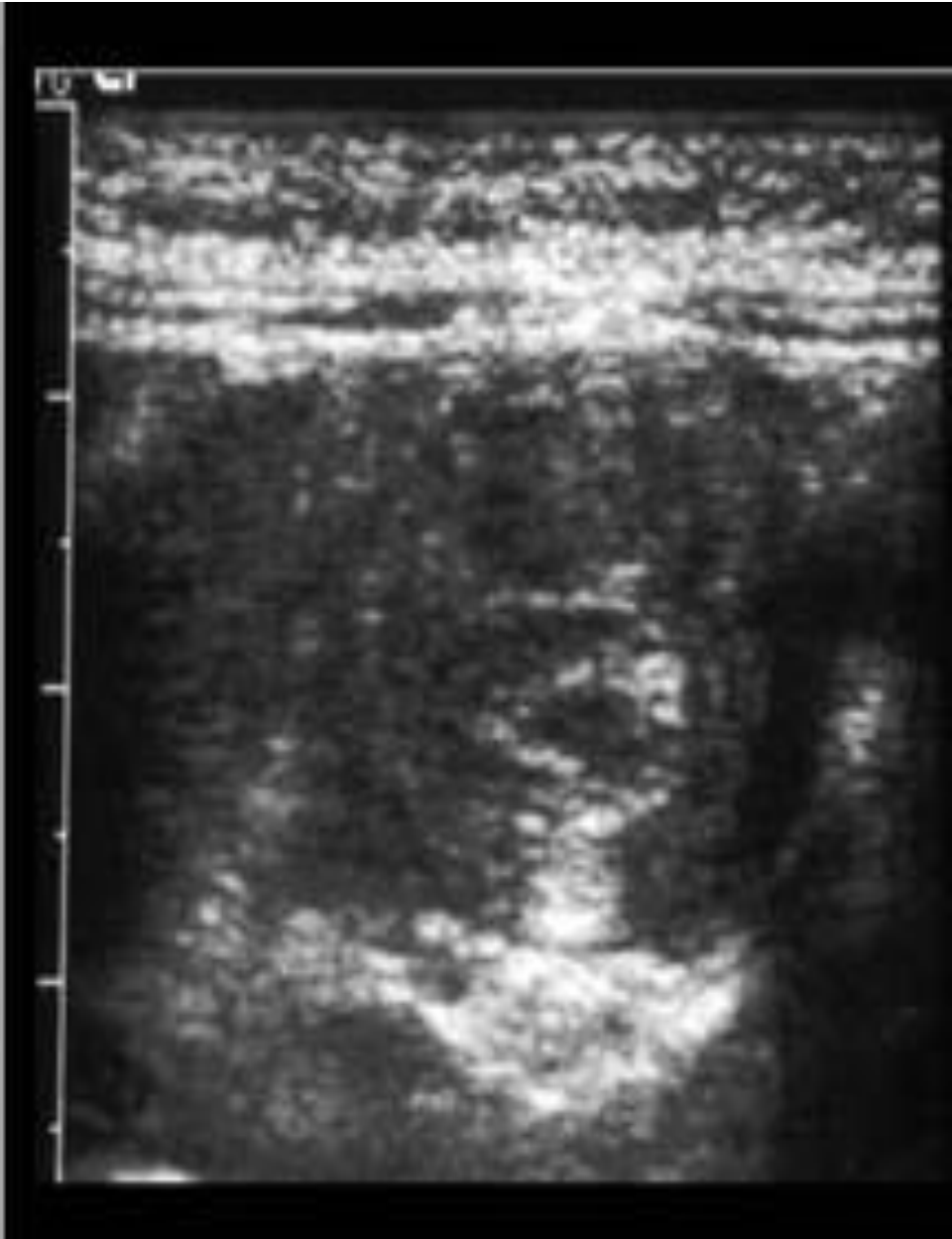
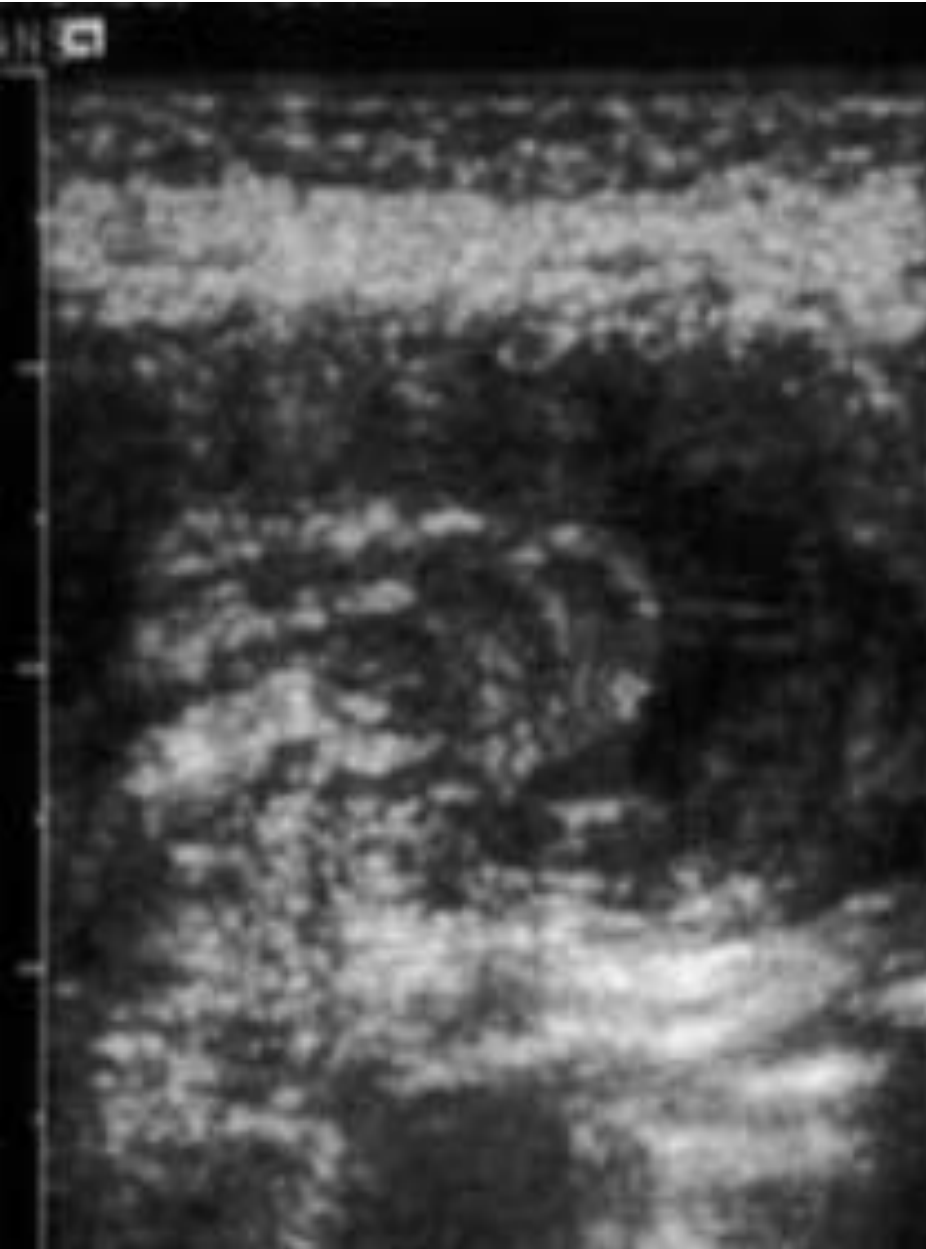
X-rays “intussusception”







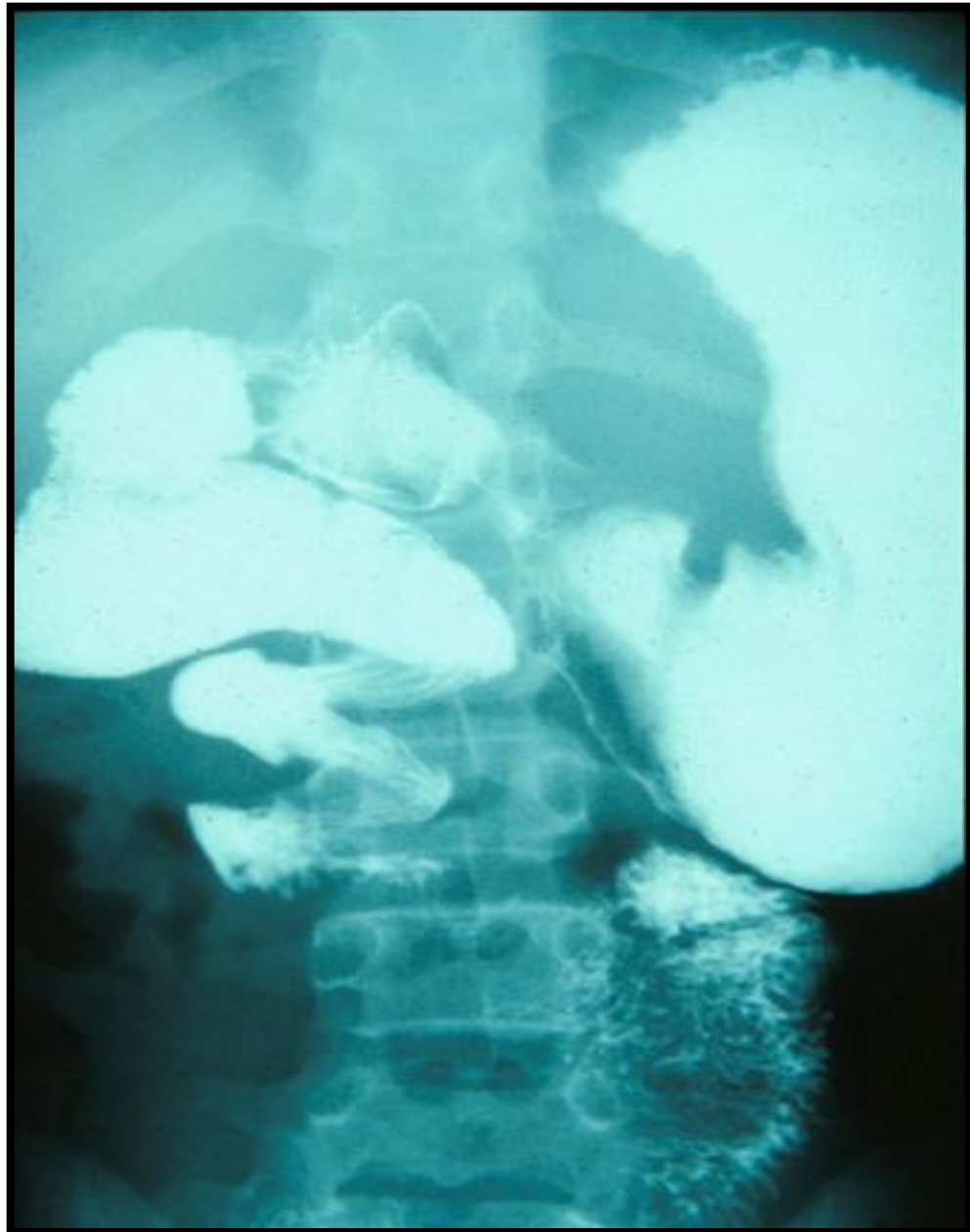
US → Donut sign



Case 4

1. what's your diagnosis ?
2. How this condition is occur?
3. How the patient clinically come?
4. What are the available surgical intervention ?

Infant + Bilious
vomiting is
EMERGENCY



- 1. volvulus
- 2. Malrotation → midgut volvulus → midgut intestinal death → surgery (resected) → short-gut syndrome → death...

3. Bilious vomiting , pain

- +/- pain
 - if +pain (irritable) → likely volvulus +ischemia
 - - pain (calm) → malrotation+obstruction
- 4. Surgery:
 - 1) Untwist (counter clock wise) → assess viability
 - 2) If extensive ischemia → close 2nd look 24-48 hrs
 - 3) Viable SB → close and observe
 - 4) Ladd's procedure
 - Cut Ladd's band
 - Broaden midgut mesentery
 - Place SB → Rt and Colon → LT
 - Appendicectomy

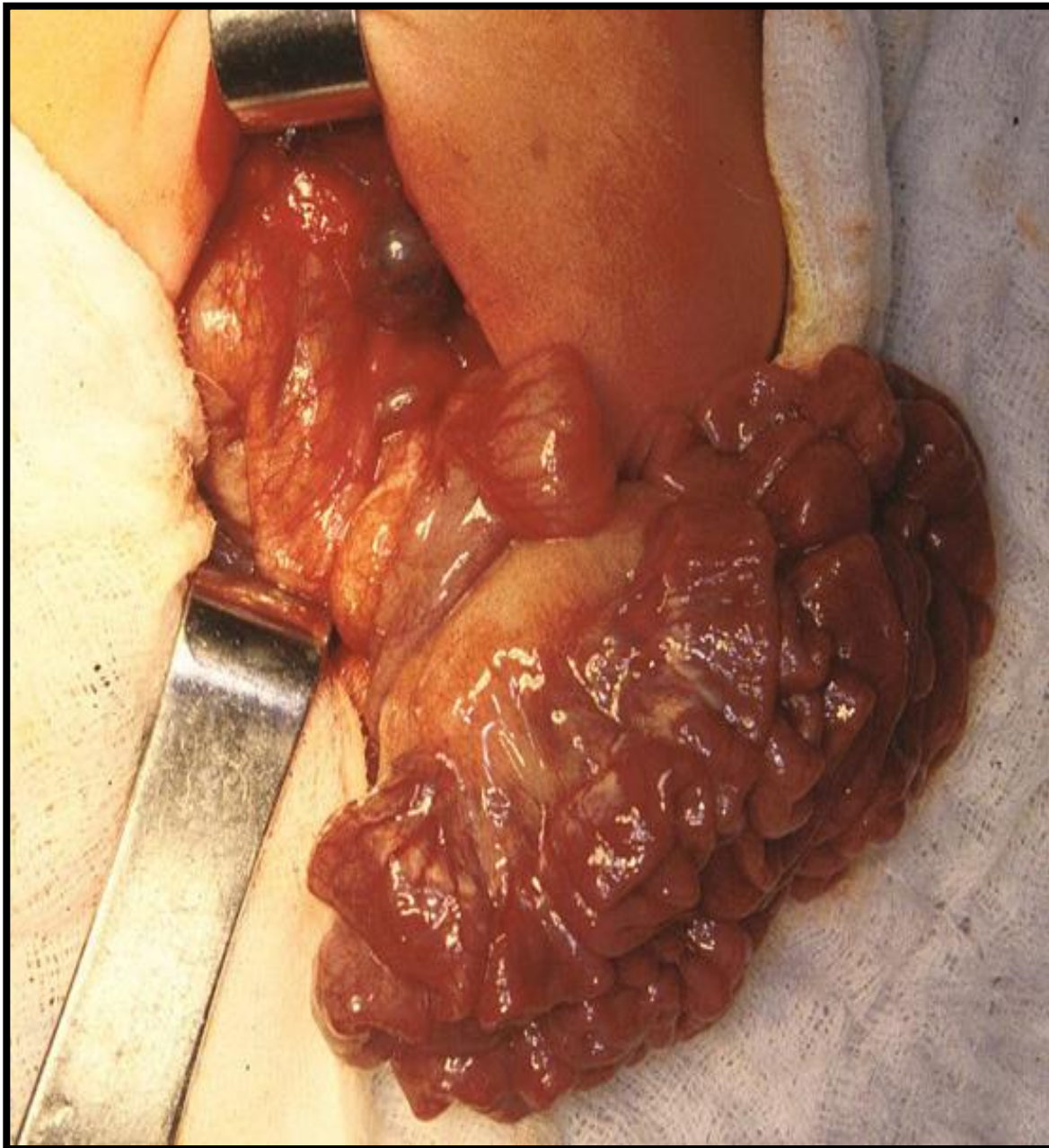
Malrotation,
obstruction



**Pt should go directly
for surgery if:**

**1.If can't do
investigation
immediately.**

**2.Pt is sick +
bilious vomiting.**



**Gangrenous
bowel ☹ !!**



Case 5

1. diagnosis?
2. Pathophysiology of this condition?
3. Can present as?
4. investigation?
5. treatment?



- 1. Meckel's diverticulum.
- 2. a true congenital diverticulum and a vestigial remnant of the omphalomesenteric duct.
- 3. Lower GI bleeding , Diverticulitis, Intussusception , Obstruction ,hernia !
- 4. bleeding GI → meckle's scan Tc99
-
- 5. surgical resection” laparoscopy or laparotomy “

Important to remember ☺

- memory aid is the rule of 2s:
 - 2% (of the population)
 - 2 feet (proximal to the ileocecal valve)
 - 2 inches (in length)
 - 2 types of common ectopic tissue (gastric and pancreatic)
 - 2 years is the most common age at clinical presentation
 - 2:1 male:female ratio

Anal and perianal conditions



This picture shows >>>>>>> **Hemorrhoid**

QUESTIONS

- 1- write down 3 points of difference between internal and external hemorrhoid.
- 2- write down 3 symptoms of hemorrhoids
- 3- If a patient has excruciating anal pain and history of hemorrhoids, what is the likely diagnosis?
- 4- What is the treatment?
- 5- What disease is a contraindication for hemorrhoidectomy?

Answers

1- **Internal hemorrhoids** Tributary of superior rectal, Above dentate line
,Generally painless

External hemorrhoids Tributary of inferior rectal, Below dentate line,
Generally painful

2- Anal mass/prolapse, bleeding, itching, Pain if complicated

3- thrombosed external hemorrhoid.

4- High- fiber diet and anal,topical steroids, sitz baths hygiene(for 1st and 2nd degree)

Rubber band ligation ,Surgical resection for large refractory Hemorrhoids

5- Crohn's disease



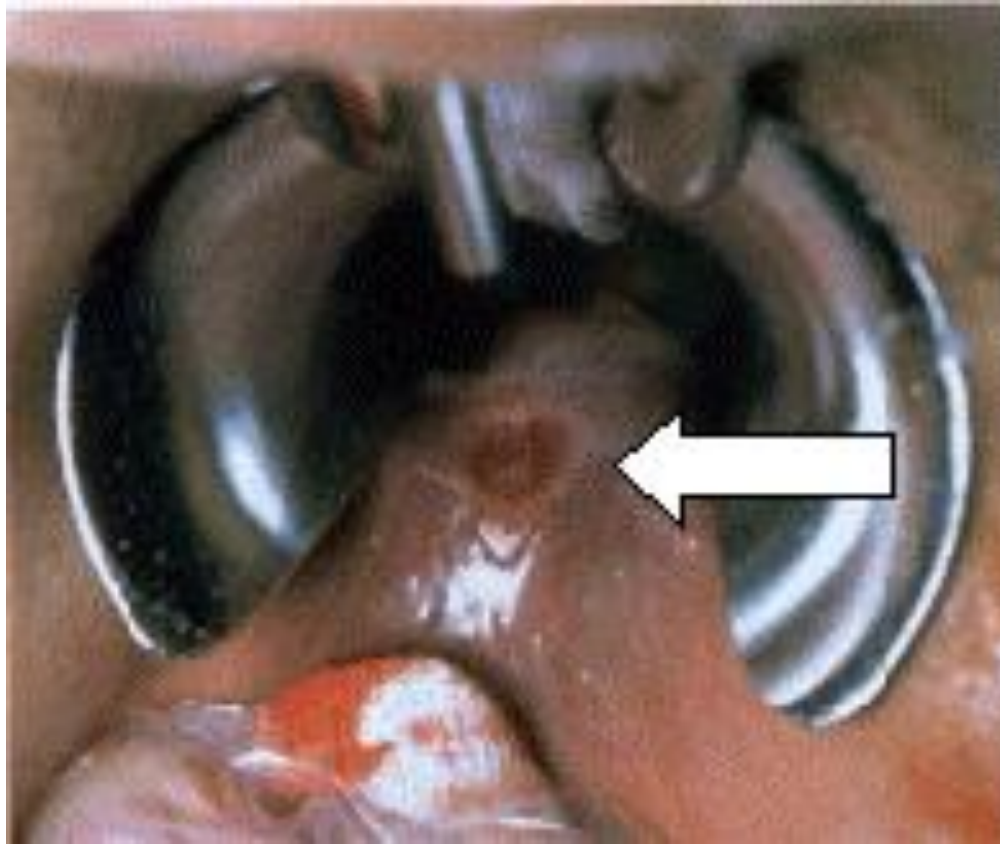
This picture shows >>>>> **Complex Fistula Malignancy**

Questions

- 1- what is the pathogenesis of fistula in ano?
- 2- What disease should be considered with fistula in ano?
- 3-What percentage of patients with a perirectal abscess develop a fistula in ano after drainage?
- 4- what is the relation of abscess to fistula?
- 5- what is most common classification of perianal abscess?

Answers

- 1- infection of the anal glands associated with the anal crypts is the primary cause of anal fistula and abscess.
- 2- Crohn's and Ulcerative colitis
- 3- 50% !!
- 4- The abscess is an acute manifestation, and the fistula is a chronic condition.
- 5- Perianal 60%



This picture shows>>>>>>>> **Anal fissure**

Questions

- 1- define anal fissure.
- 2- what is the commonest site? Why?
- 3- write down 5 causes of anal fissure.
- 4- write down 5 symptoms of anal fissure.
- 5- what is the treatment of superficial anal fissure?
- 6- what is the treatment of deep anal fissure?

Answers

- 1- longitudinal tear in the mucosa and skin of the anal canal**
- 2- Posterior midline, probably because of the relatively unsupported nature of the rectal wall in that location**
- 3- Straining to defecates, chronic constipation and diarrhea, Crohn's disease and Ulcerative colitis, Anal sex, Anal stretching .**
- 4- Pain during, and even hours after, defecation ,Visible tear in the anus ,Blood on the stool, Constipation , Burning, itch .**
- 5- These fissures self-heal within 2 weeks, high-fiber diet, using stool softener, taking pain killer and having a sitting bath .**
- 6- Medications such as nitroglycerine and nifedipine ointments can relax the sphincter muscle, if not useful > surgery : Internal lateral sphincterotomy.**

Collection of Cases and Pictures

Case1 -A 28-year-old man presents to the emergency department complaining of anal pain for 2 weeks. The pain relieved by laxative but it return worse than before.

1. What is the diagnosis?

1. Mention 1 other DDx?

1. Give 2 lines of management?

1. What is the definite treatment for this patient?



Answers

- 1. Perianal abscess**
- 2. Perianal hematoma**
- 3. Excision & drainage, IV antibiotics**
- 4. Treatment underlying cause**

Case2 -A 28-year-old man presents to the emergency department complaining of anal and lower-back pain for the previous 36 h. He has tried taking simple analgesics with no benefit. The pain is progressively getting worse and he is now finding it uncomfortable to walk or sit down. He is otherwise fit and well and smokes 10 cigarettes a day. On Examination Inspection of the anus reveals a 3cm 3 cm swelling at the anal margin. The swelling is warm, exquisitely tender and fluctuant. There is no other obvious abnormality.



1. What is the diagnosis?
2. What are the microorganisms associated with this condition? “2 points”
3. How are these lesions anatomically classified? 4 points
4. What is the treatment of choice?

Answers

1. Perianal abscess
2. GI-E.coli, enterococcus, skin-S. aureus
3. Supralavator, intersphincteric, ishiorectal, perianal
4. Excision & drainage.

Case3 -A 32-year-old man presents to the clinic with an 8-week history of pain on defaecation. The pain is around the anus and typically lasts an hour after passing stool. He normally suffers with constipation but this has now worsened as he is reluctant to pass motion because of the pain. He intermittently notices a small amount of fresh blood on the tissue paper after wiping himself. He has no family history of inflammatory bowel disease or colorectal cancer. He is otherwise well and takes no regular medications. Examination of the anus reveals a small linear defect in the skin at the 6 o'clock position. Rectal examination could not be performed as it caused too much discomfort for the patient.



1. What is the most likely diagnosis?
2. Give 2 physical signs found in the chronic form of the diagnosis?
3. Give 2 other differential diagnoses?
4. Mention 2 modalities of treatment for this patient?
5. What is the most important complication post operatively?

Answers

1. anal fissure
2. Sentinel tag, Hypertrophied anal papilla
3. Complicated hemorrhoid, Perianal haematoma, Anorectal carcinoma
4. Partial lateral sphincterotomy, anal dilation (injection of botulinum toxin)
5. risk of incontinence



Case4 -This patient suffered from recurrent discharge from the perianal region

1- What is the most likely diagnosis?

2- what is the underlying cause?

3-what treatment may be required ultimately

Answers

- **A- Fistula in ano**
- **B- Crohn's disease**
- **C- excision of the fistula plus medical management of croh's disease. If multiple fistulae are present an abdomino-perineal resection may be required**



Case5

- 1- What is this most painful condition?
- 2- How does it begin?
- 3- What treatment is required?

Answers

- **1- Ischiorectal abscess**
- **2- Probably starts as an infection in the anal glands**
- **3- Incision plus broad-spectrum antibiotics to cover aerobes and anaerobes**



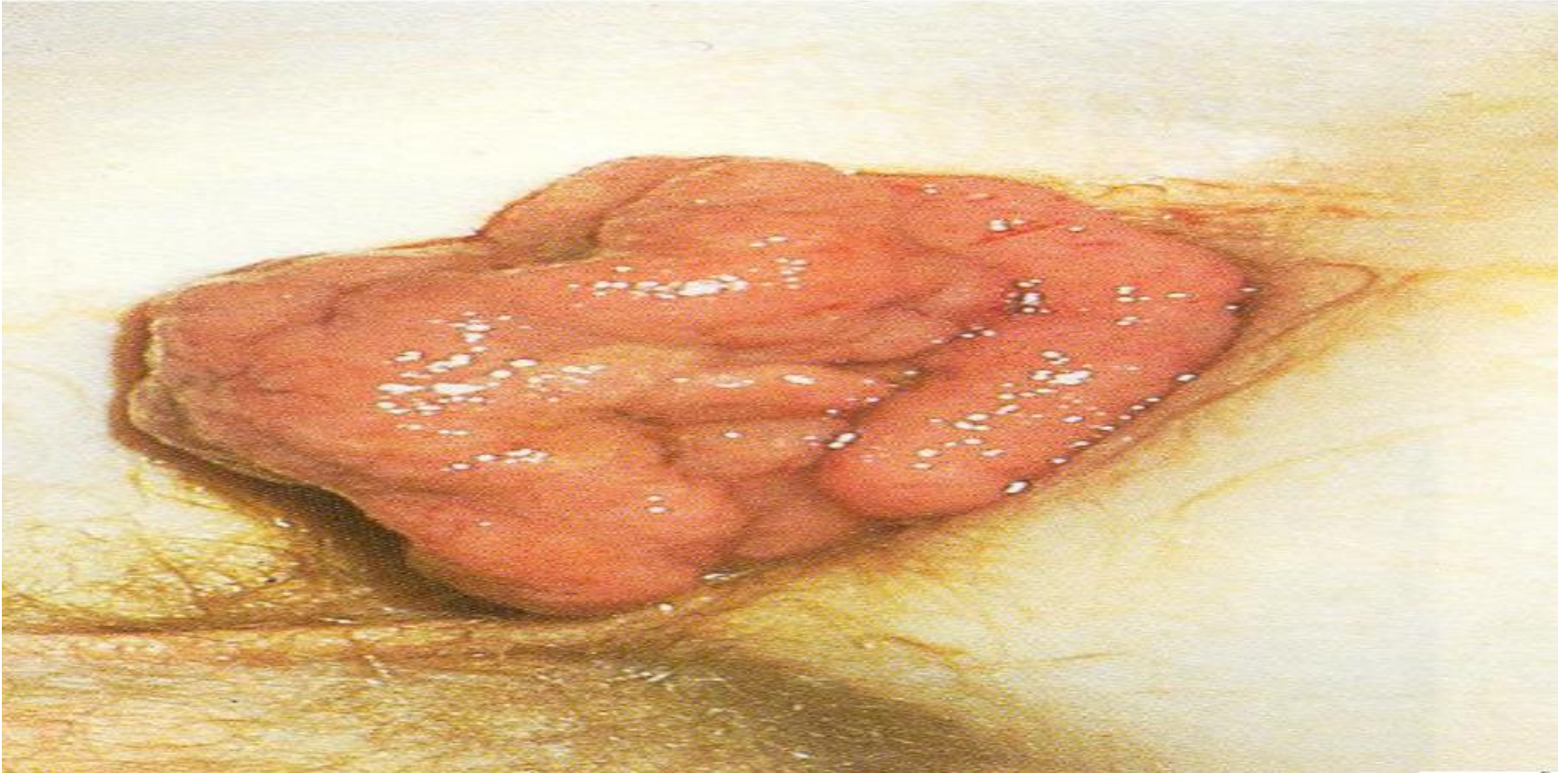
Case 6 –An anorectal problem

- 1- what treatment is required now?
- 2- In milder cases what may suffice?
- 3- What should always be excluded?

Answers

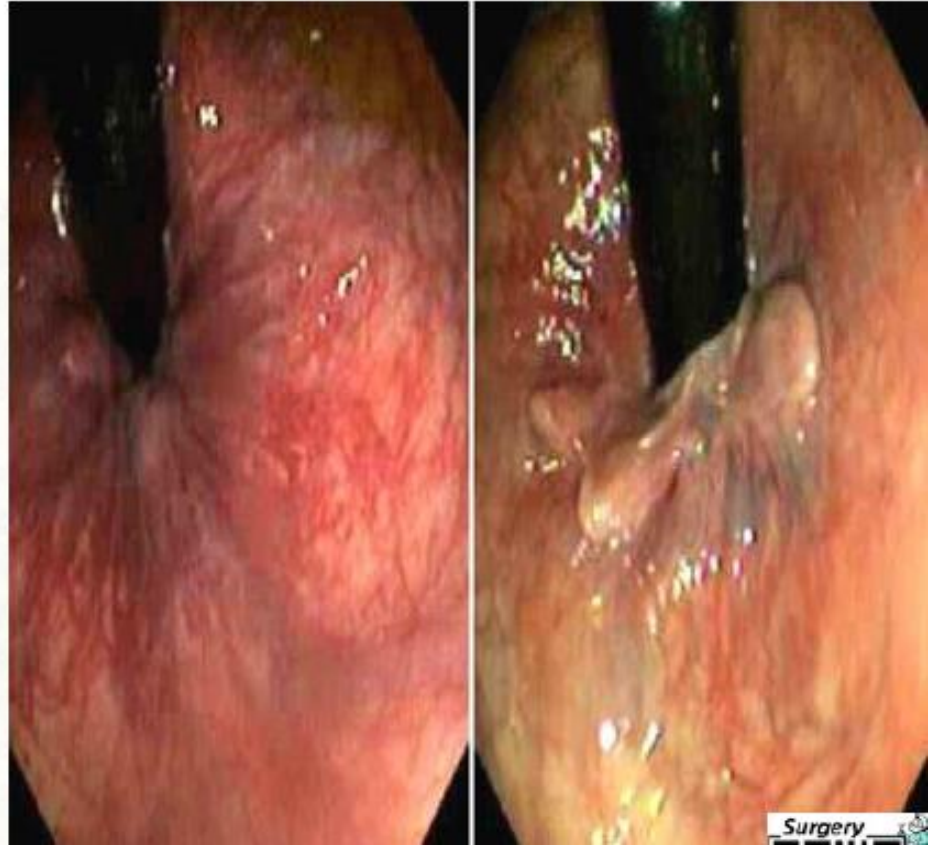
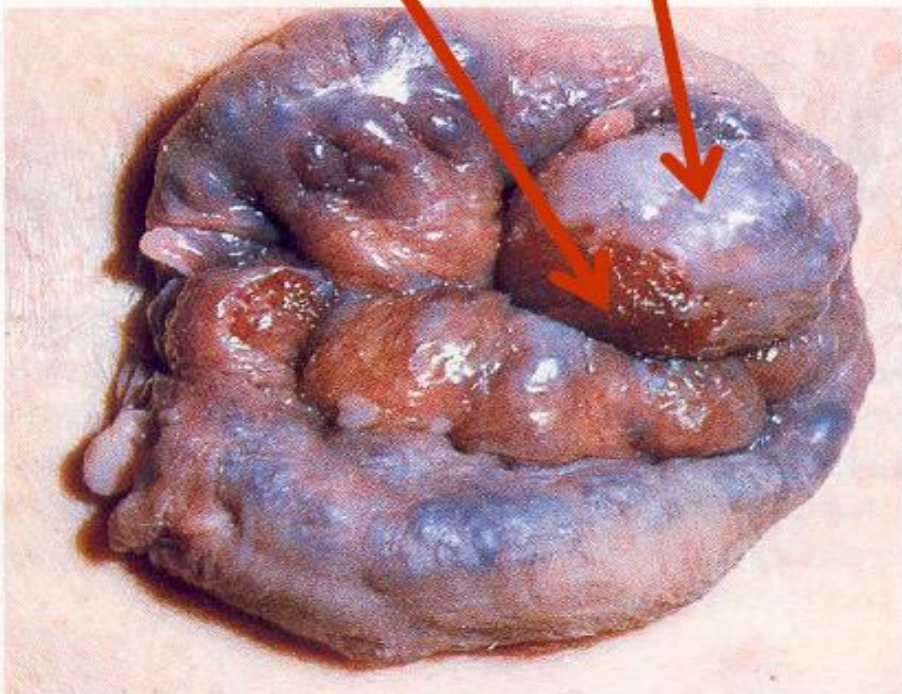
- **1- haemorrhoidectomy**
- **2- Injections of 5% phenol**
- **3- Sigmoidoscopy and barium enema to exclude inflammatory or neoplastic disease of the rectum and colon**

Rectal tumor

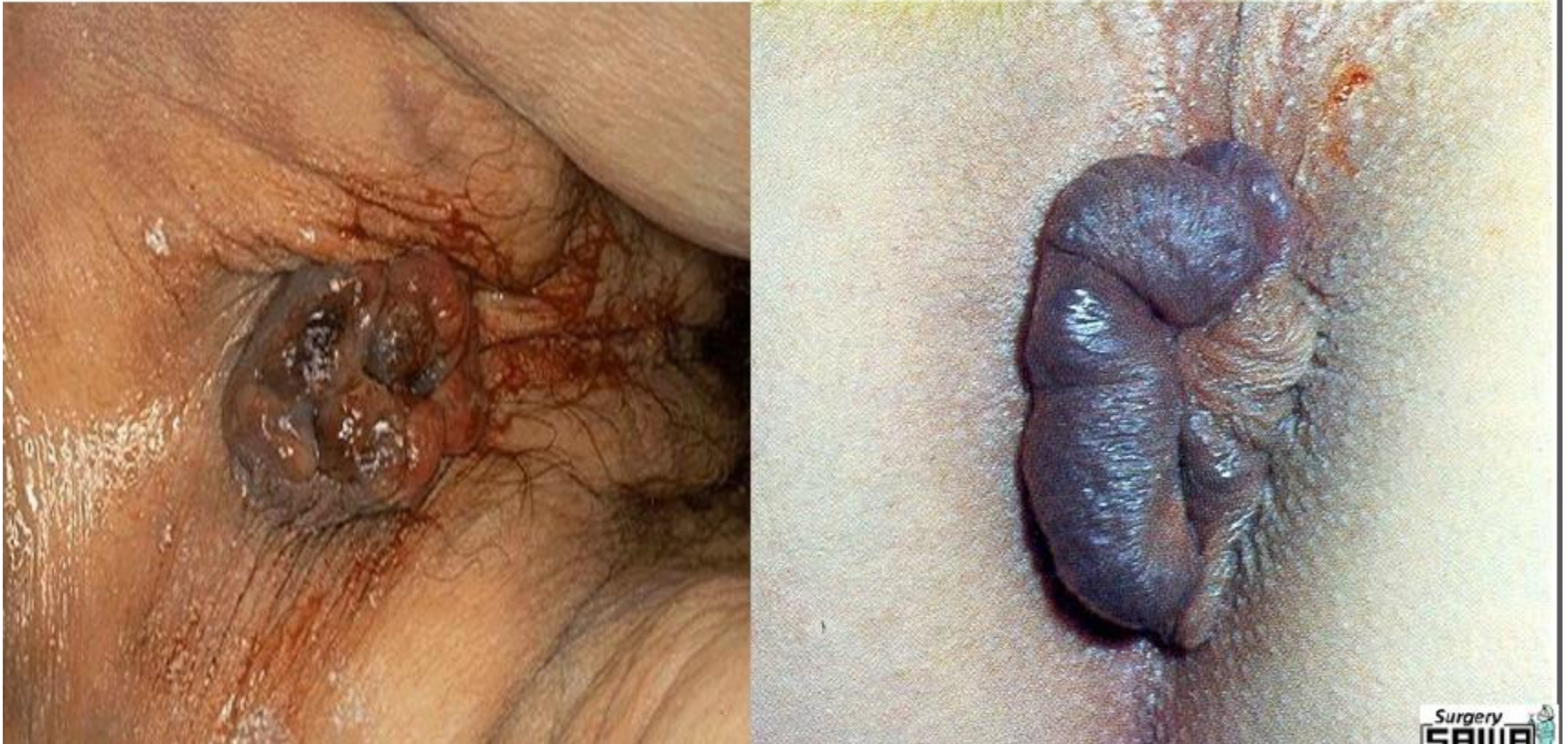


Thrombosed internal hemorrhoids

Internal (red) external(white)



Thrombosed hemorrhoids



Thrombosed hemorrhoid (necrosis) painfull



Ruptured Perianal hematoma



Perianal fistula (tt is by fistulotomy)



Chronic anal fissure with sentinle papilla (hypertrophied)

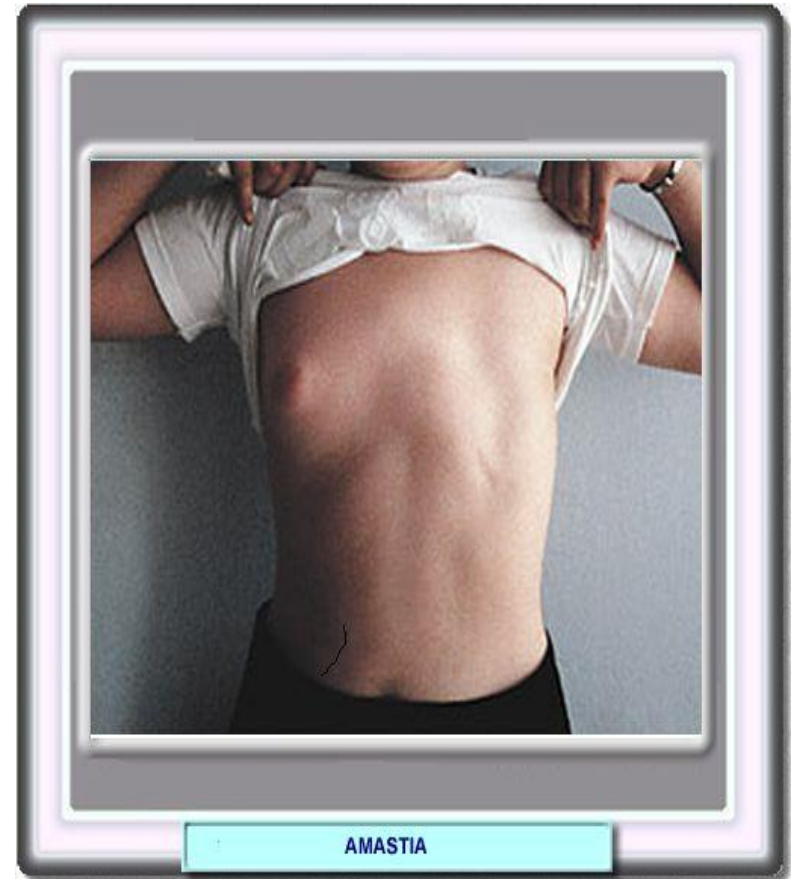


Thrombosed external haemorrhoid

that has burst. There is also a mucosal prolapse, which is separate from the cutaneous lesion.



Breast Disorders



- 1. DX ?

Amastia

- 2. What does that mean ?

It's a rare condition wherein the normal growth of the breast or nipple does not occur, and can be unilateral or bilateral

- 3. Associated with what ?

Unilateral amastia is often associated with absence of the pectoral muscles.

Bilateral amastia is associated in 40% of cases with multiple congenital anomalies involving other parts of the body as well.

- 4. How it can be distinguished from AMAZIA ?

Amastia is distinguished from amazia wherein the breast tissue is absent, but the nipple is present.

Amazia typically is a result of radiation or surgery.



- 1.DX?

Gynecomastia

- 2. How can you differentiate it from pseudogynecomastia?

pseudogynecomastia > is an accumulation of excess fat in a male breast.

- 3. Mention 3 pathological causes ?

-Non-endocrine tumours > bronchial carcinoma, Lymphoma, hypernephroma.

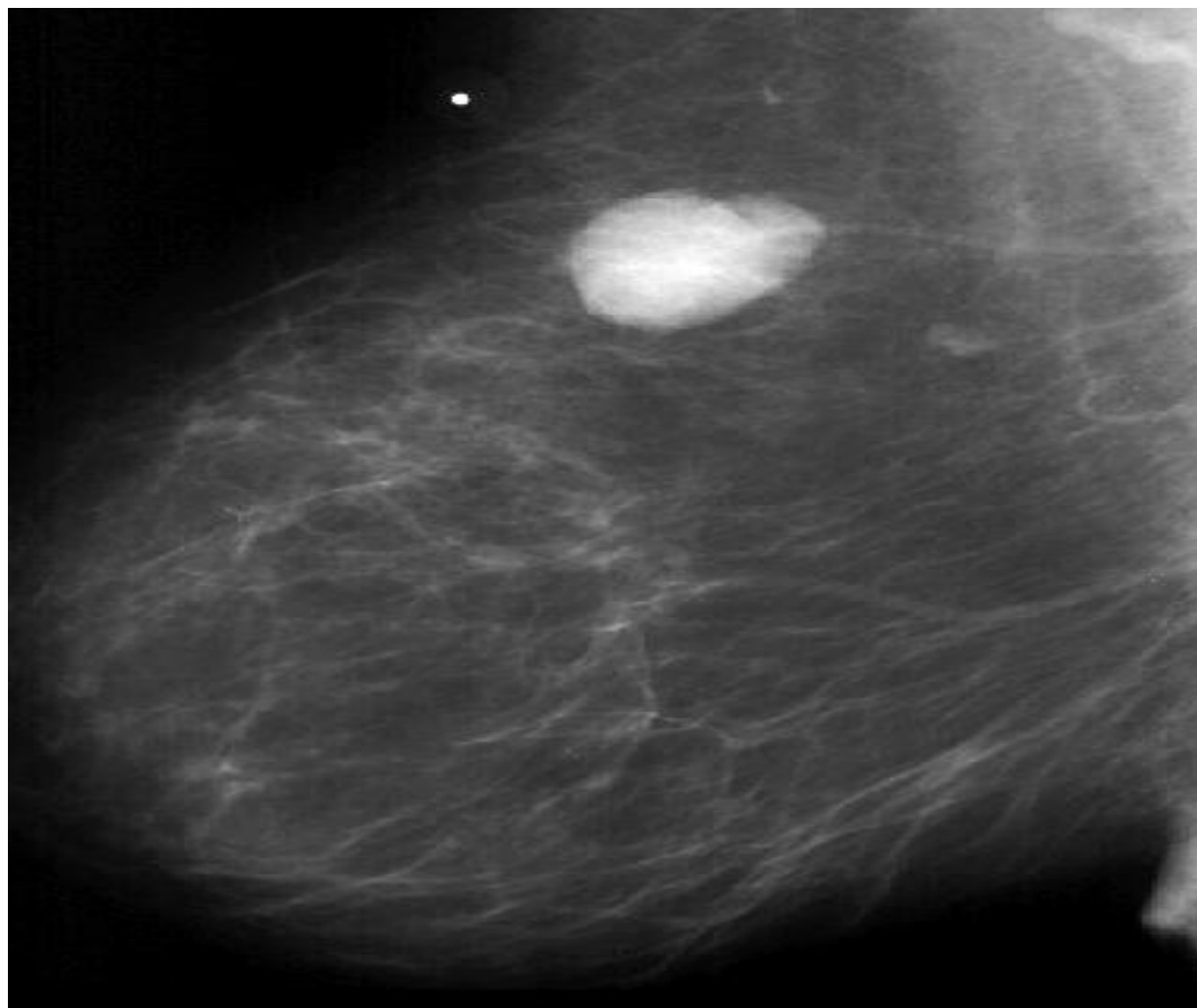
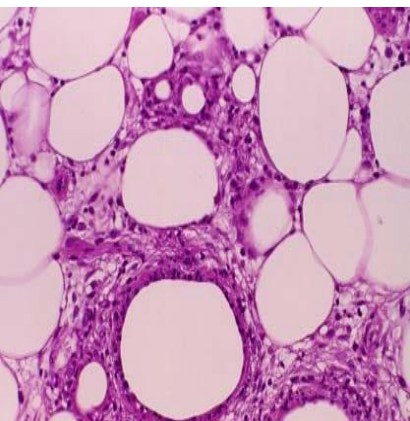
-Hepatic disease > alcoholic cirrhosis ,haemochromatosis.

-Drugs > oestrogen agonists (spironolactone), hyperprolactinaemia (phenothiazines), Testosterone target cell inhibitors

- 4. What is the Pathophysiology of breast gynecomastia ?

The basic mechanisms of gynecomastia are

- a decrease in androgen production,
- an absolute increase in estrogen production,
- and an increased availability of estrogen precursors for peripheral conversion to estradiol.



1. What is the type of this pic?

Mammogram

2. DX?

Fat necrosis

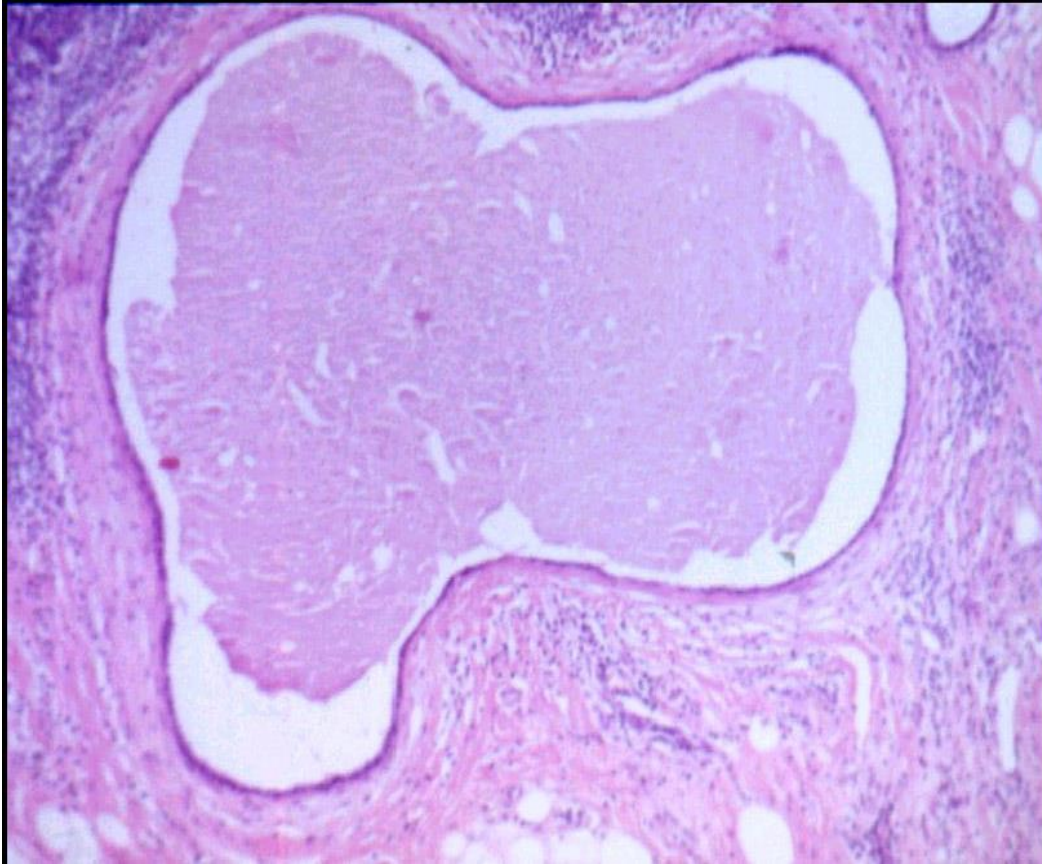
3. How does it occur ?

the patient develop sever bruising after moderately sever trauma.

Impossible to distinguish from carcinoma of the breast because the Irregular mass is often attached to the skin.

4. Treatment ?

by surgical excision, the excised mass is an infiltrative yellowish white mass.



- Duct ectasia .
- Microscopically : The periductal elastic tissue is destroyed & the surrounding tissue are infiltrated with lymphocytes & plasma cell.

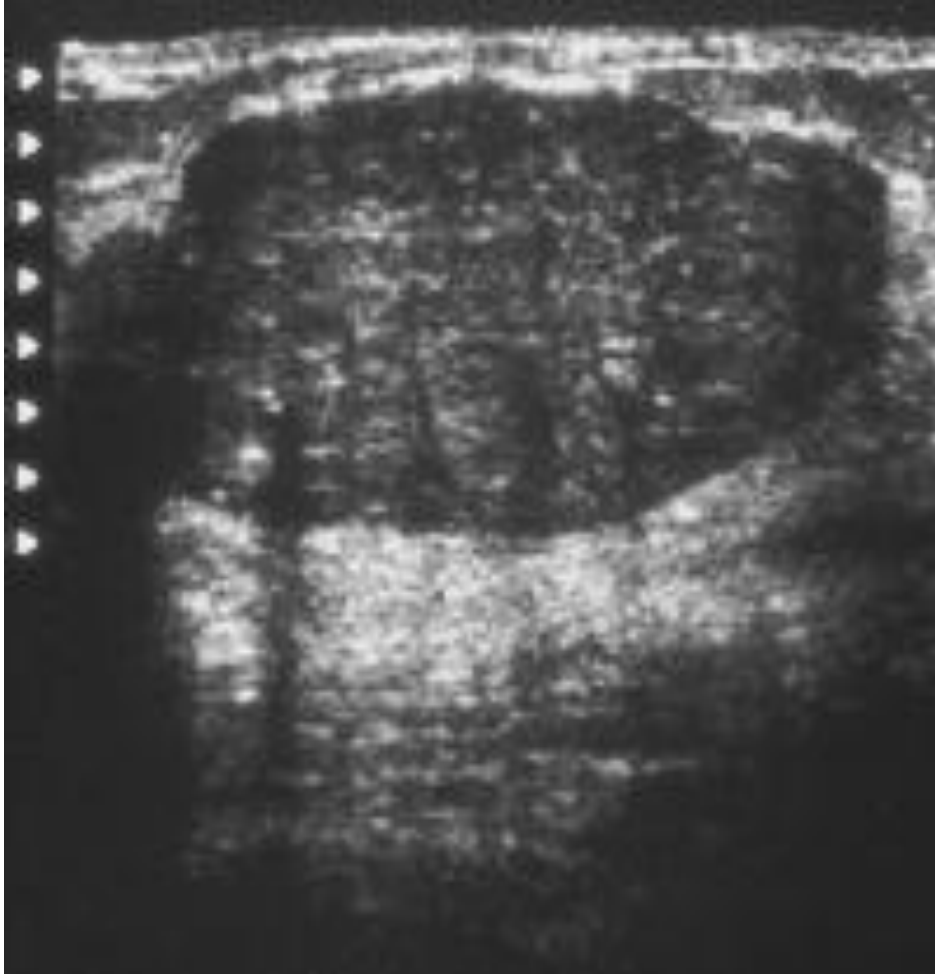
1. What is this ?

Duct ectasia treated by major duct excision

2. Symptoms of duct ectasia ?

- **A thick and sticky discharge, usually gray to green in color, is the most common symptom.**
- **Tenderness and redness of the nipple and surrounding breast tissue may also be present.**
- **Sometimes, scar tissue forms around the abnormal duct, leading to a lump .**





1. You can see a hypoechoic mass with smooth partially lobulated margins. This is typical of what?

- **fibroadenoma.**

2. What is the clinical presentation of it?

- **freely mobile, rubbery, well-circumscribed oval breast mass,, usually >40 years of age**

- **3. treatment?**

Surgical resection for large masses.. Small ones can be observed closely

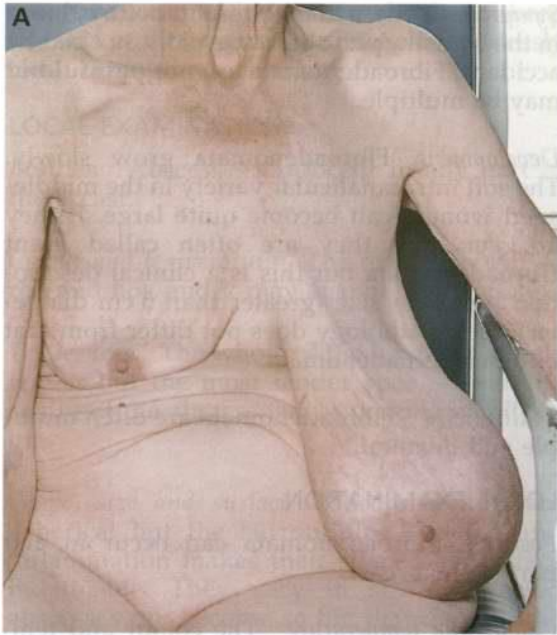


FIG. 12.6 A: A giant fibroadenoma of the left breast. **B:** A large phylloides tumour (Brodie's tumour) causing necrosis of the overlying skin (see page 313)

1. Dx?

Cystosarcoma phyllodes

2. What is it ?

Mesenchymal tumor arising from breast lobular tissue, most are benign. (sarcoma is a misnomer)

3. Usual age of pt?

35-55 years (older than the pt with fibroadenoma)

4-signs/symptoms?

Mobile, smooth mass that resembles fibroadenoma on exam BUT larger sometimes

takes on a leaflike appearance when sectioned, and displays epithelial cystlike spaces when viewed histologically (hence the name).



1. Dx ?

Breast mastitis

2. commonly affects?

women who are breast-feeding .

3. What bacteria are most common the cause?

Staphylococcus aureus

4. Signs and symptoms ?

Part or all of the breast is intensely: painful, hot, tender, red, and swollen.

Flu like symptoms

4. Treatment ?

- Antibiotics are usually prescribed by a physician to help clear up the infection.

- Use warm water on the infected area of the breast before breast-feeding to help stimulate let-down >

- Breast-feed or pump

- Cold compresses to the breasts after breast-feeding to relieve pain and swelling.

- Analgesia to control the pain.

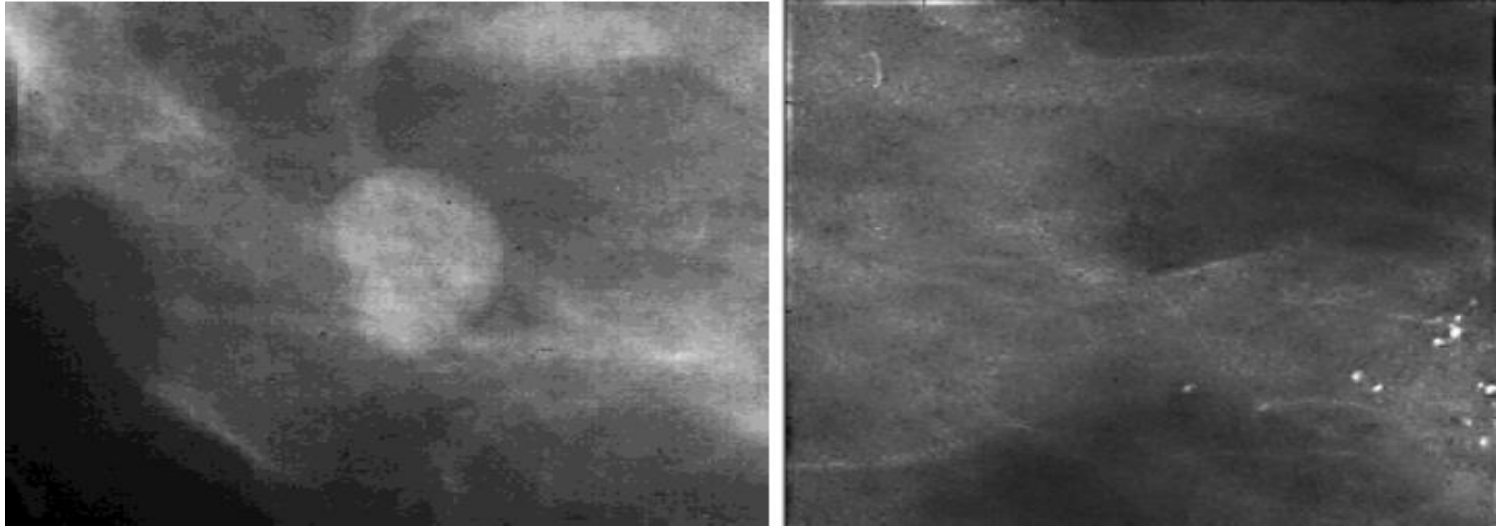


what is this ?

“Eczema” (rash involving
nipple or areola)

(Paget’s disease of the
nipple)

a presentation of breast
cancer .



mammographic indicators of breast cancers :

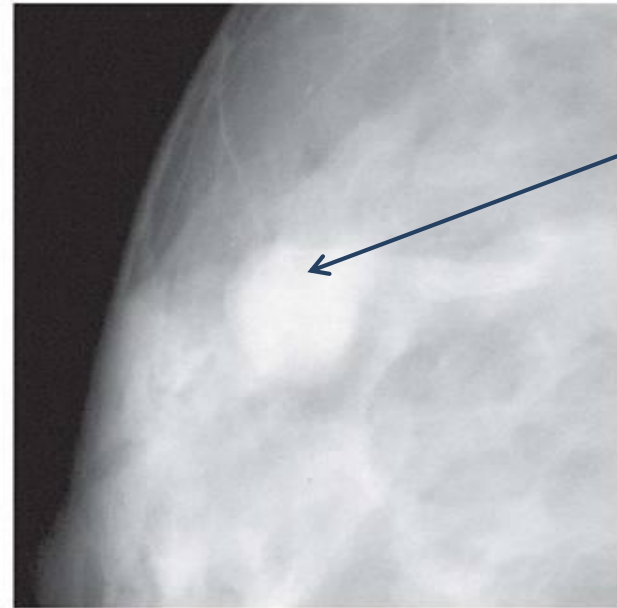
1-Mass

2- Microcalcifications: Tiny flecks of calcium – like grains of salt – in the soft tissue of the breast that can sometimes indicate an early cancer.

-Difference between benign and malignant mass on mammogram ?

Malignant masses have a more **speculated** appearance

malignant



benign

Burns



1) How do you manage a burn trauma patient??

2) A trauma patient came in to the ER, you calculated surface area burnt of about 20%, the patient weighs 70 kgs, how do you calculate the amount of ringer lactate given to the patient ??????????

Answers:

1- in the ER forget about the burn start by the (ABCDE)

C: start IV ringer lactate

2 large bore peripheral lines

Assess for other injuries

Careful history

100% oxygen

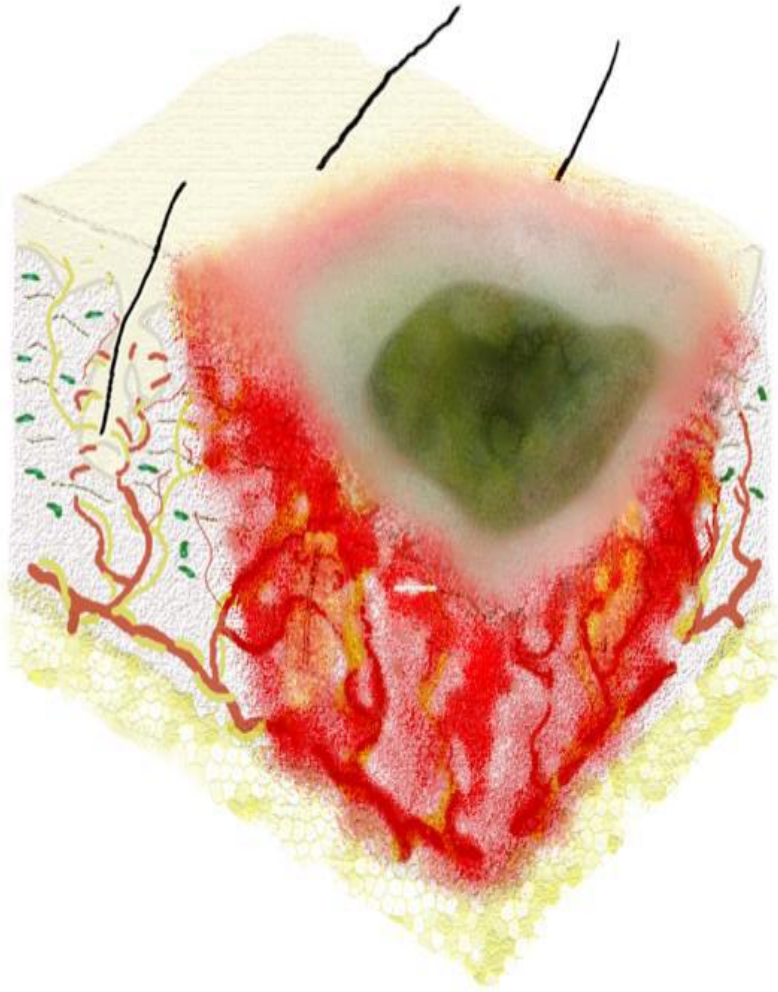
Transport to closest hospital

2- using parkland equation:

$$2-4 \text{ cc} * 70 \text{ kg} * 20\% (\text{TBSA})$$

This amount half of it is given in the first 8 hours

And the other half is given over the following 16 hours 😊



1)What are the zones of this wound?

2)What is the charecteristic of each zone??

Zone of Coagulation(central zone)

–Dead and stays dead regardless of Rx

•Zone of Stasis(the outer zone-white color)

–Area of vessel contraction

–Inflamed

–Ischemic

–±viable depending on care

•Zone of Hyperemia(the red zone)

–Vessel Dilatation

–Viable with good care and no infection



Give an example of three mechanisms resulting in this injury??

Scald

Flame burn

Contact burn



How long does the following scald,greese or flash burn need to heal??

>>>>>>they usually take around 3 weeks



- **Superficial burns resurface by growth of epidermal cells lining skin appendages**



1)What is the degree of this burn wounds?

2)What are the charecterestics of this stage?

3)How is it managed??

Answers:

1-first degree burn

2-limited to epidermis

Never blisters

Painful

3-local wound care:

Aloe vera

Anti-inflammatory agents



- 1)What is the degree of burn?**
- 2)What are the clinical characterestics??**
- 3-how is it managed?**

1-second degree burns superficial partial thickness

2- extends to the papillary dermis like in :

- Scald burns**
- Moist, Painful**

- 3-Blanch with pressure**

- Usually heal within 3 weeks**

- Little functional impairment or scarring**

Scald blurn from steam



Scald burn





1)What is presented in the following picture?

2)Is it commoner in darker skinned people or fair skinned ??

1-hypertrophic scar

2-commoner in darker races



1)What degree of burn is presented in the following picture?

2)What are the clinical features?

3-how is it manages?

1-second degree deep partial thickness

2-

Reticular dermis

- Damage some dermal appendages (e.g., nerves, sweat glands, or hair follicles).

- Gas, grease, flame

- Blisters

- Variable color

- May not blanch

- Less painful

3-Pin prick="pressure"

- Usually need grafting

- Require at least 3 weeks to



- 1) What are the degrees of burn presented?
- 2) what are the clinical features?
- 3) how do they heal?

1) Third-degree: all the skin appendages destroyed.

• and Fourth-degree: fascia, muscle, and bone involved.

• Flame, Deep scalds

• Off-white-brown

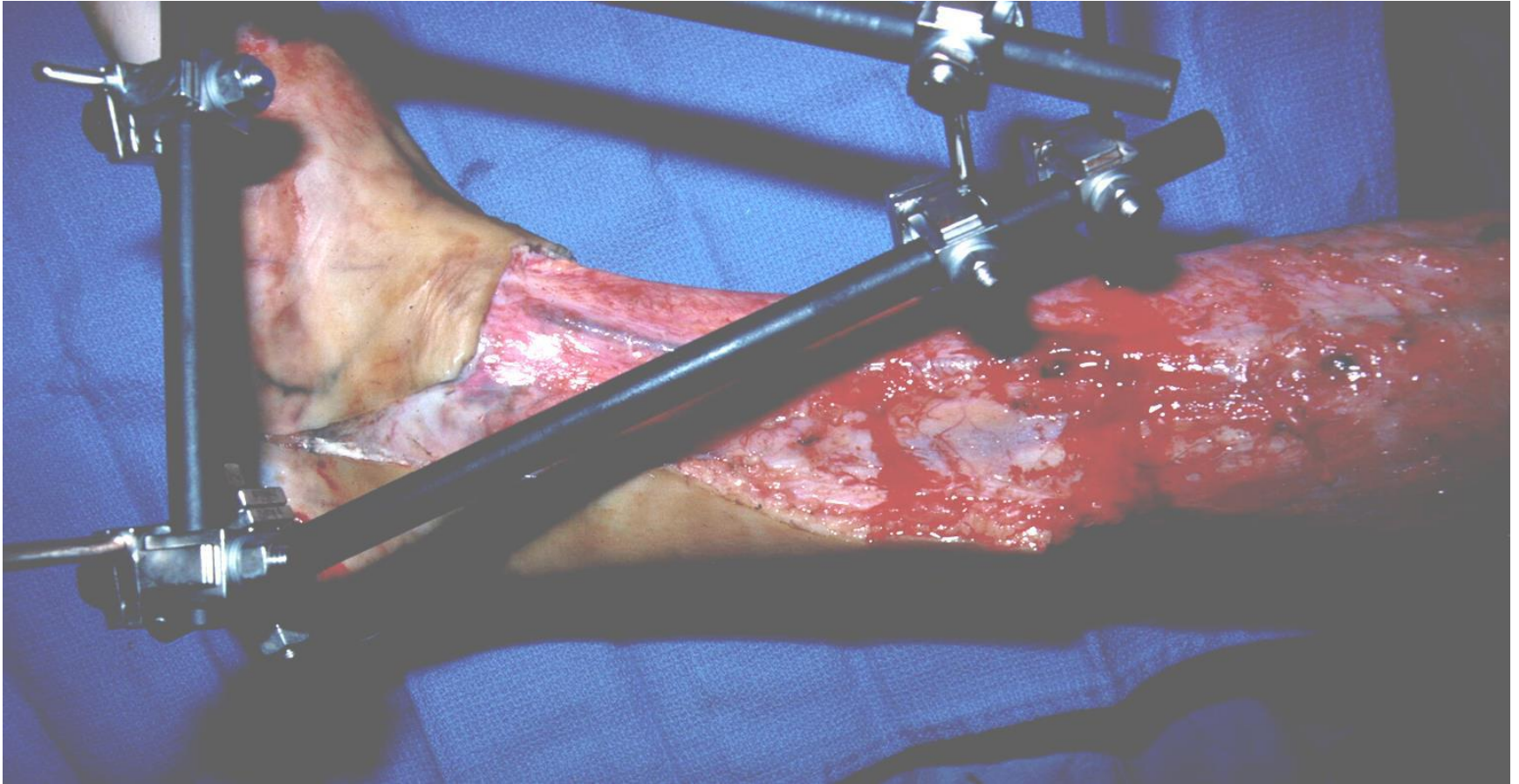
• Painless

• Leathery (tight)

3- • Heal only from edges and contracture

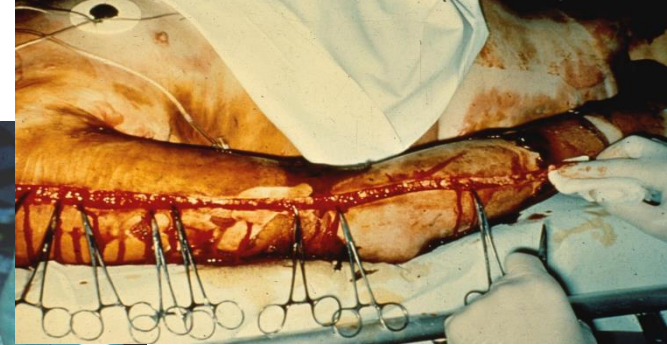
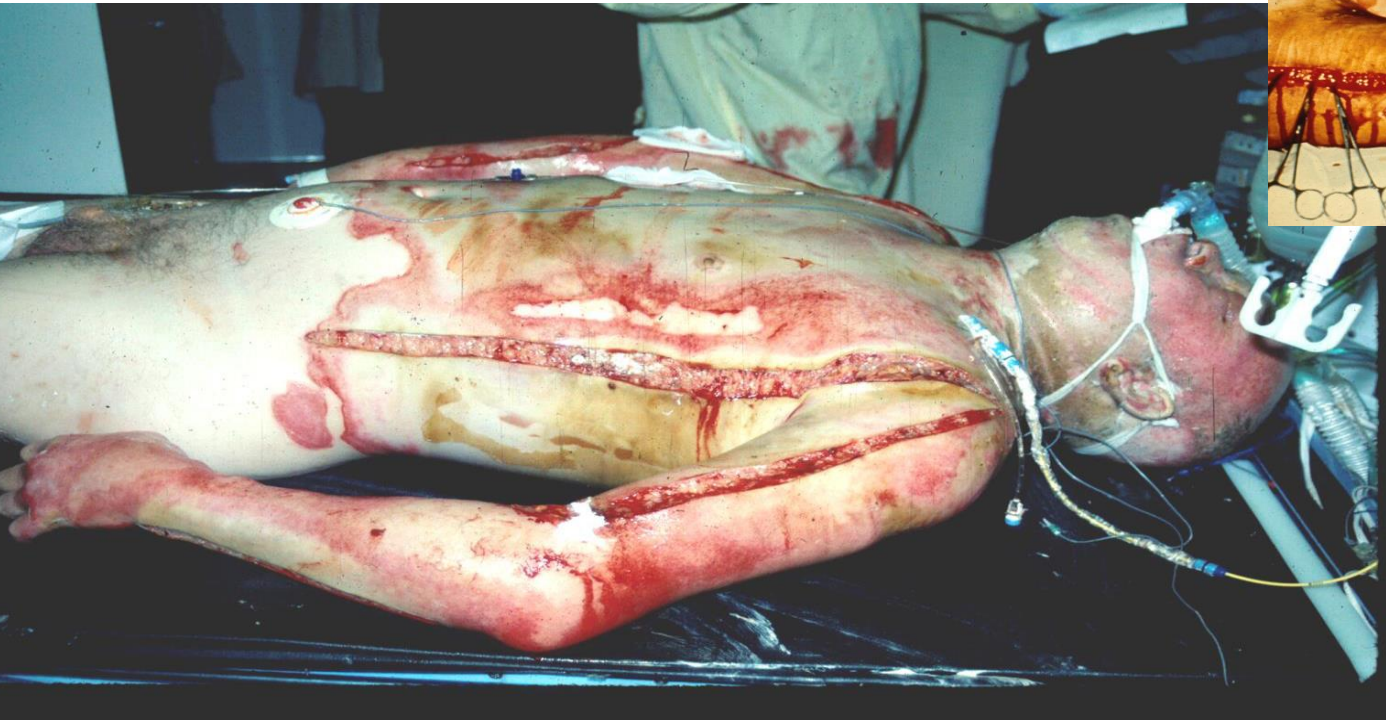
• Always need grafting

Location of burn matters



Always suspect airway injury in neck
burns





What is the clinical procedure performed in the above picture and why is it done?

Escharotomy

It is done because full thickness wounds cannot expand as body swells 😊

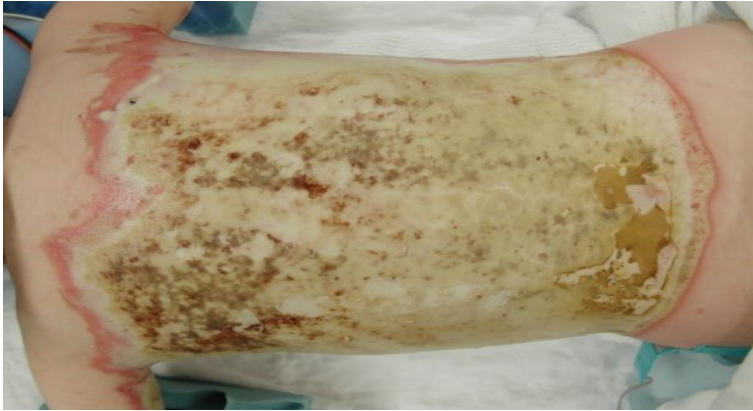


Q) A mother came into the ER with her 2 year old burnt child (like shown in the picture, the mother was nervous and changed her story about how the kid was burnt::

- 1) What do you suspect in this situation?
- 2) What are you supposed to do besides treating the child

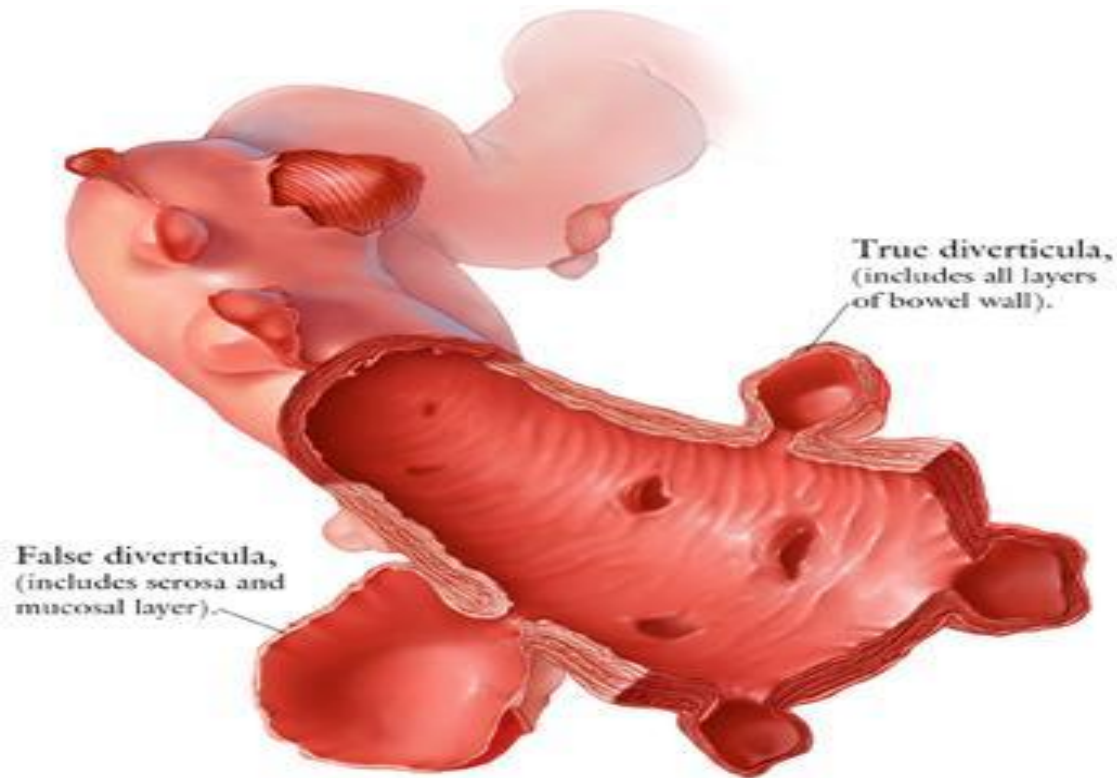


- 1- it's a special burn that is well circumscribed, i suspect child abuse
- 2- I call social services



- What is presented in the above picture?
- What are the types of this clinical procedure dependant on the donor sight??
- 1-burn excision and grafting
- 2- autografts,allografts,xenografts

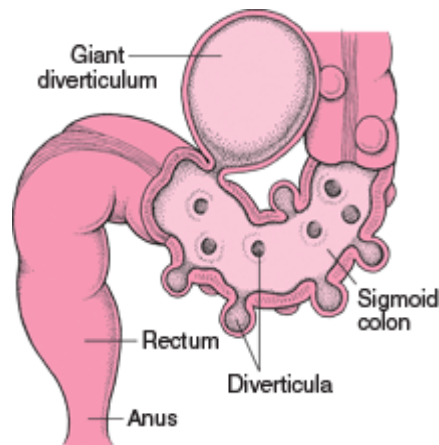
Indicate the difference between diverticula / /diverticulitis / Diverticulosis

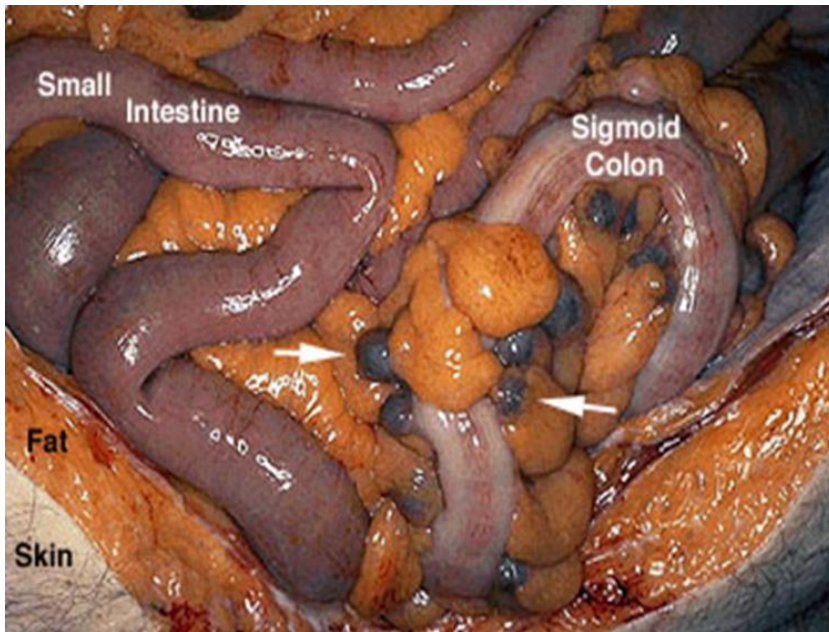


Diverticulosis

ANS :

- Diverticula :acquired hrniation of mucosa through muscular wall of colon.
- Diverticulosis :Asymptomatic diverticular disease.
- Diverticulitis: inflammation.





1-diagnosis ??

2-the common site ??

3-what's the Etiology of this situation ??

4-complications ??



1- **diverticulosis** and it's common in developed countries, 1/3 of cases over 65 y - 1/2 of patients are constipated.

2-over 90% descending colon & sigmoid.

3- Etiology: diverticula are pulsion phenomena 2ndry to raised intraluminal pressure which weeken the the bowel wall and it's a pouch of mucosa covered with seroa & herniate at a point of natural weakness where it is penetrated by a colonic artery.

4-Complications:

1-Acute inflammation:1-localised peritonitis.2-pericolic abscess.

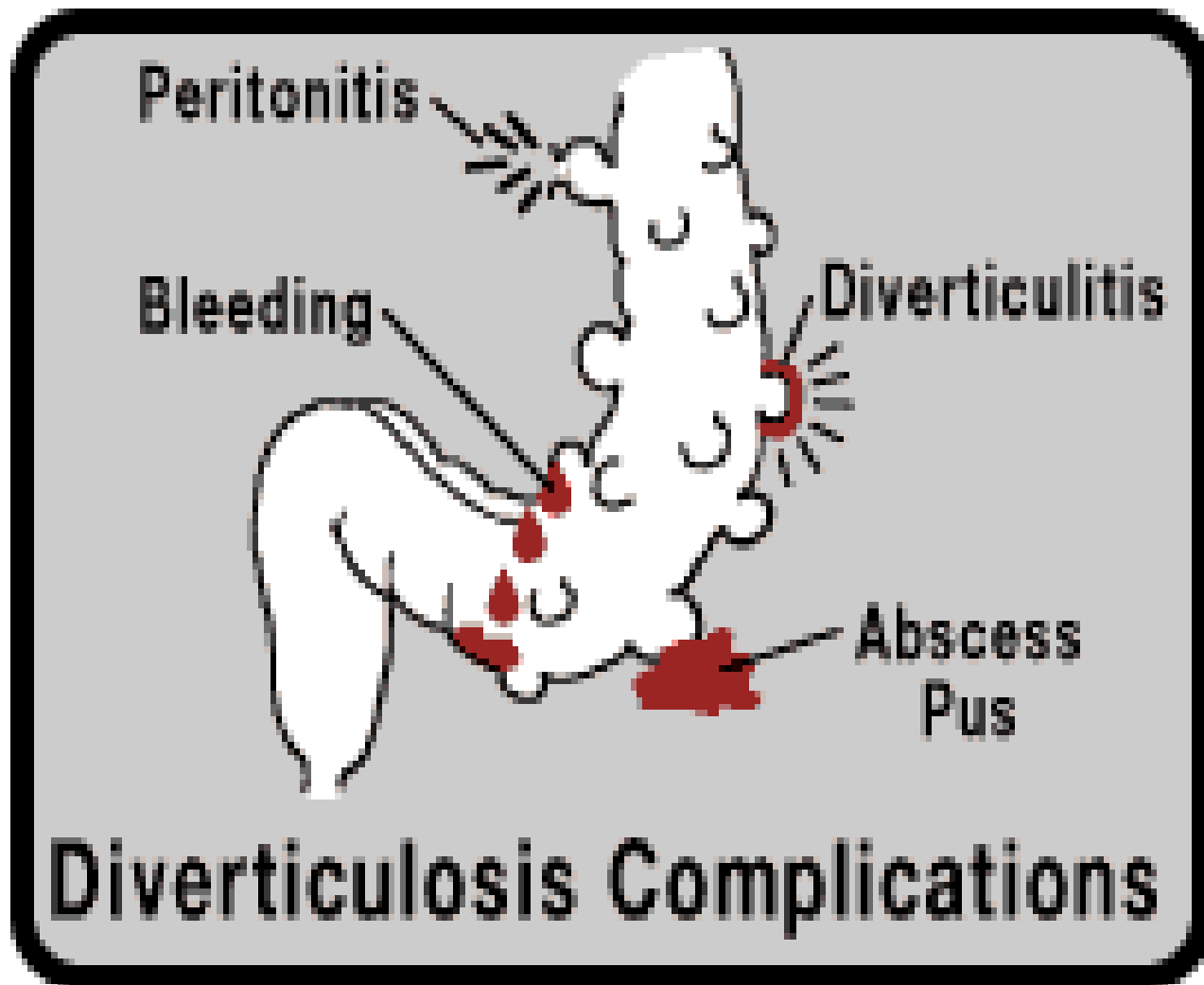
2-perforation:local or general fecal peritonitis.

3-Fistula:colovesical,colovaginal'

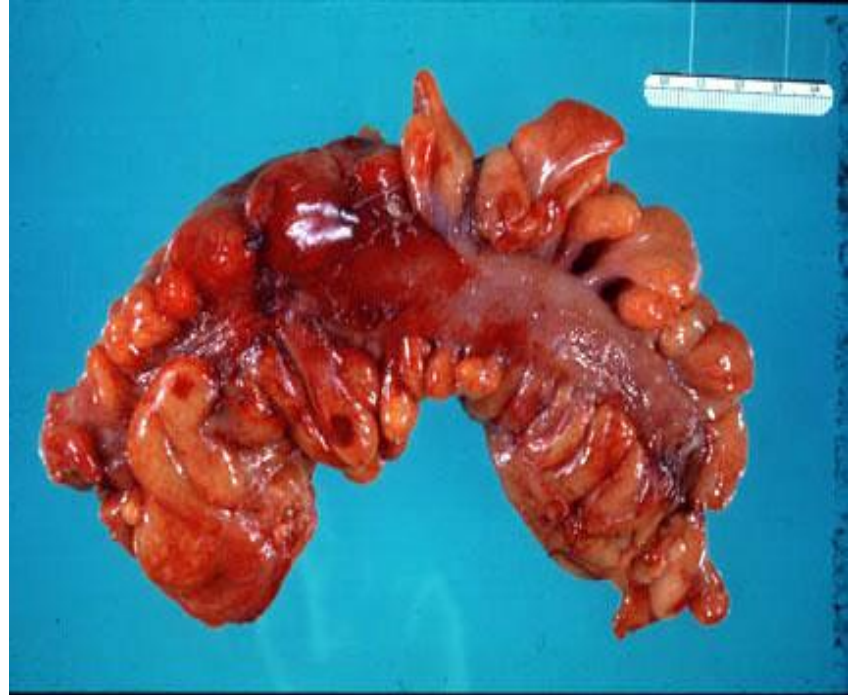
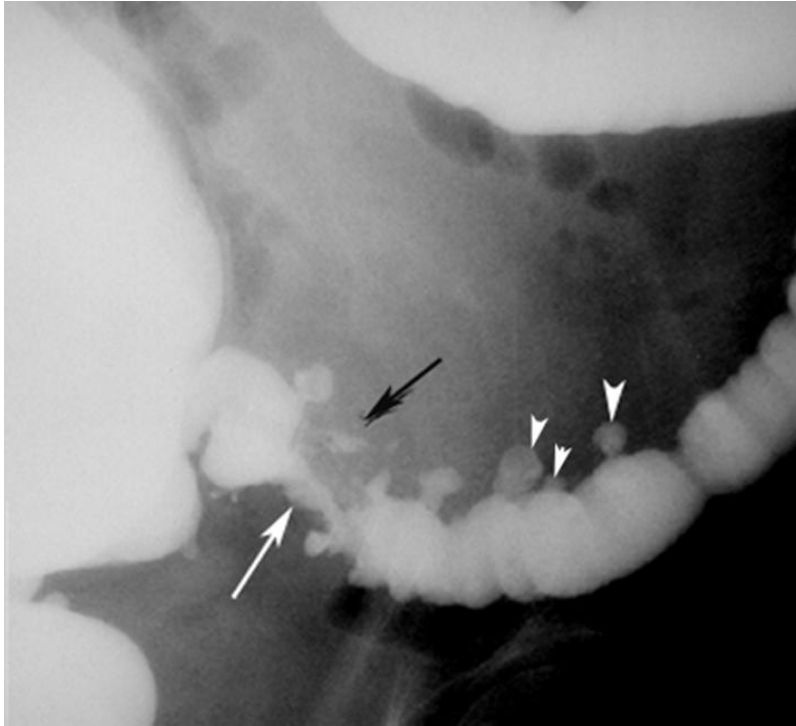
4-Stricture.

5-Haemorrhage.

complications



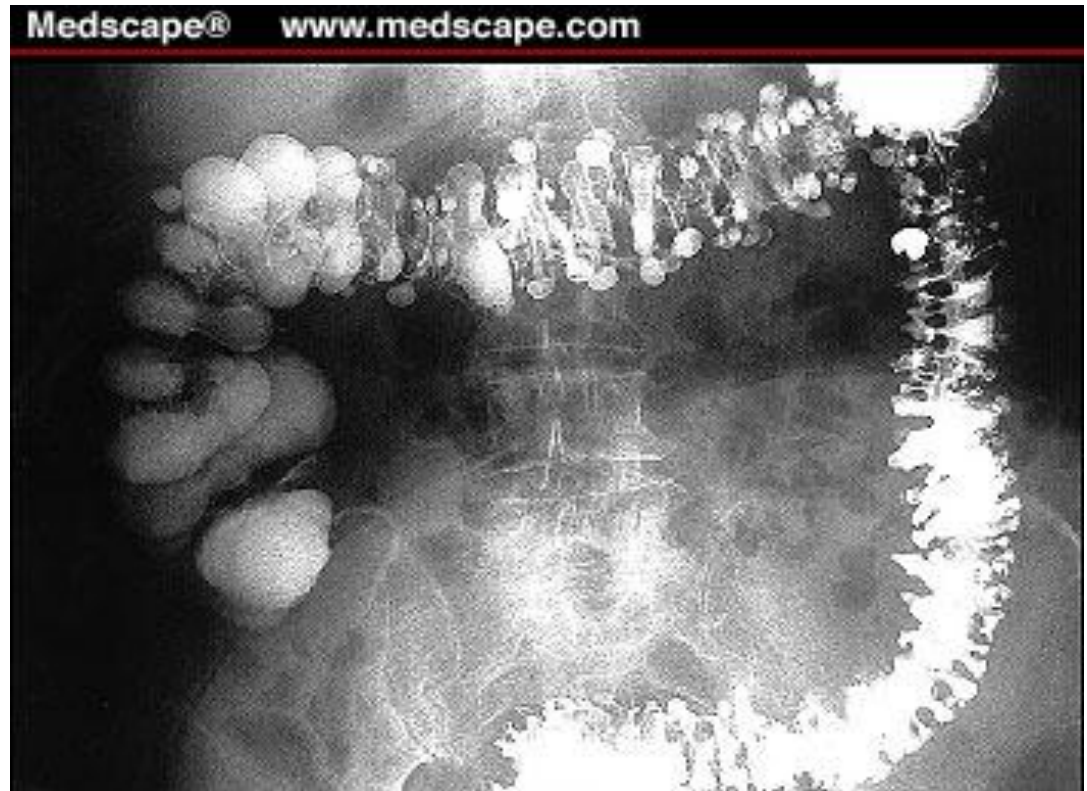
Pericolic Abscess



DCBE but this time
there is a stricture
(long arrows)

5-how can p.t present with this situation ??

6-How we diagnose it ??



5-Presentations:

1-Asymptomatic diverticular disease.discovered accidentally.

2-Symptomatic div dis,symptoms similar to IBS.

3-Complications.

6--Diagnosis:

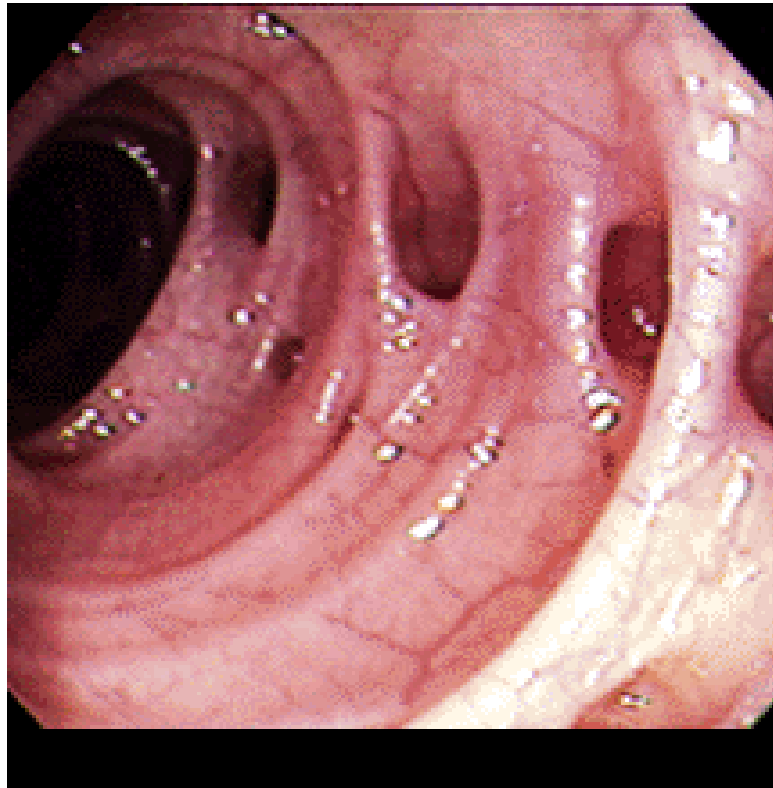
1-DCBE

2-Colonoscopy.

3-Us or CT for abscess.

Note...diagnosis of(diverticulosis),like IBS,is by
exclusion

Colonoscopy





Phlegmon due to
inflammation (whitening

What's the treatment for the disease that's
indicated in CT SCAN??

Treatment:

1-Uncomplicated:high fibre diet,bulk laxative,antispasmodics.

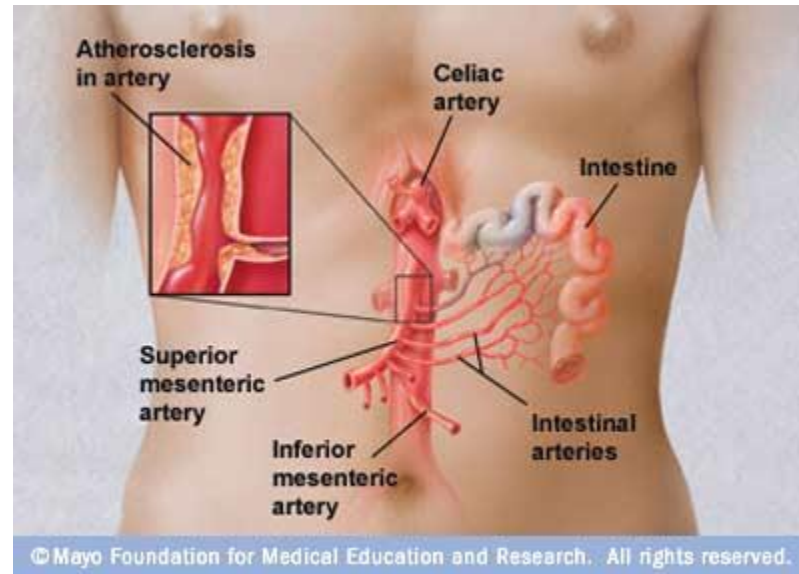
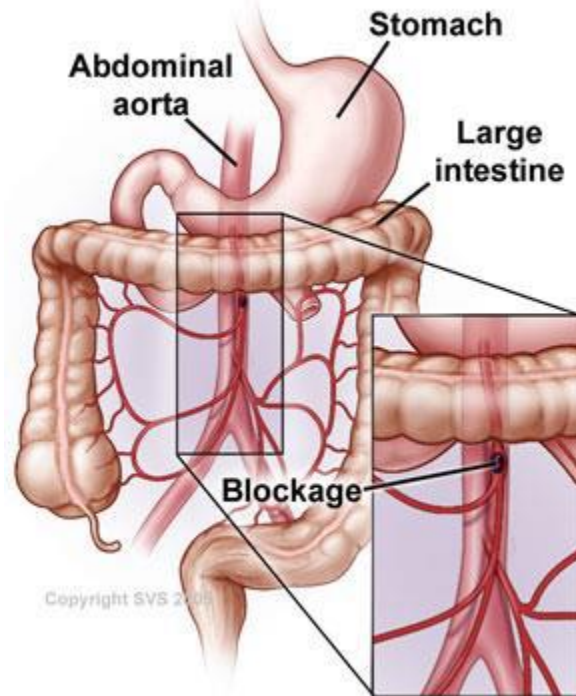
2-Diverticulitis:IV Fluid,A.B.

3-Abscess:drainage

4-Perforation:Surgery.

Hemorrhage: resuscitation(most settle).Surgery for life threatening bleeding.

Pathophysiology and anatomy of mesenteric ischemia



Pic of IMA

Pic of SMA with clot in it.

the most common affected branches are the middle colic and eliocolic branches

As dr said it's a very important chart
you have a patient came to you with severe abdominal pain, not responding to analgesia, what you do for him?

first, give fluid resuscitation, pain killer etc.

if there is a high suspicion of mesenteric ischemia:
we make a radiological evaluation, we start with CT scan (not angiography), if there is no free air they still have time (if the duration is less than 12 hours) and if there is no peritoneal sign they still have time. so if the CT scan do not show any of these sign (free air or perforation) next step we do mesenteric angiography (only if high suspicion of mesenteric ischemia)

mesenteric angiography, if there is thrombosis or embolism you can restore the blood flow with laparotomy, intra-arterial thrombolytic therapy, place a stent or give spasmolytic therapy etc. (no matter the way, the important is to restore blood flow)

after this we have to assess bowel viability, if it is viable, thats it (after restoration of blood flow), if not, then you have to make operation, resect the bowel and do anastomosis.

if non-occlusive mesenteric ischemia you can give vasodilator using intra-arterial catheter and this can help.

regarding the mesenteric venous thrombosis, if there is no peritoneal sign, and CT scan do not show any sign of perforation, you can give anticoagulant and most times this works but we need to do serial examination for the patient, if there is peritonitis or peritoneal sign then we need laparotomy, but most of the time if you pick them early we can treat them without any surgeries.

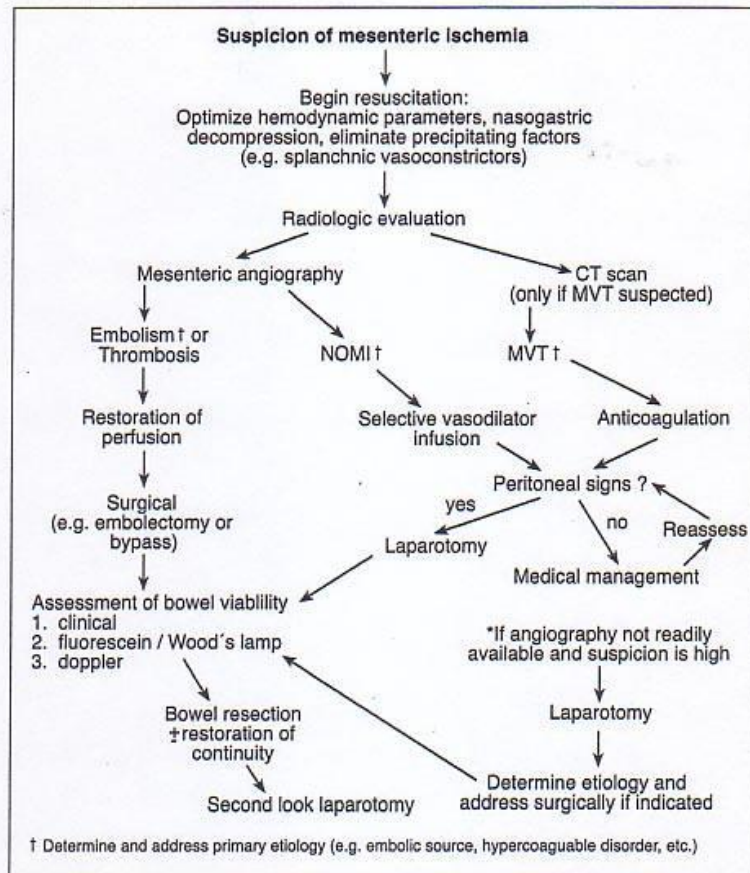


Diagram 1. Algorithm for management of acute mesenteric ischemia

Infarction



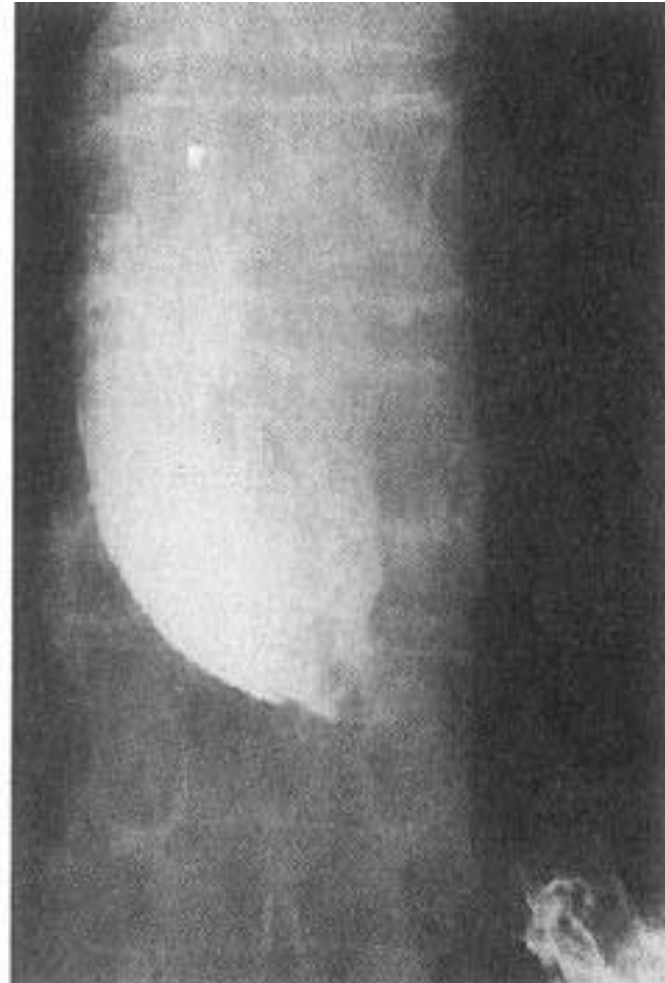
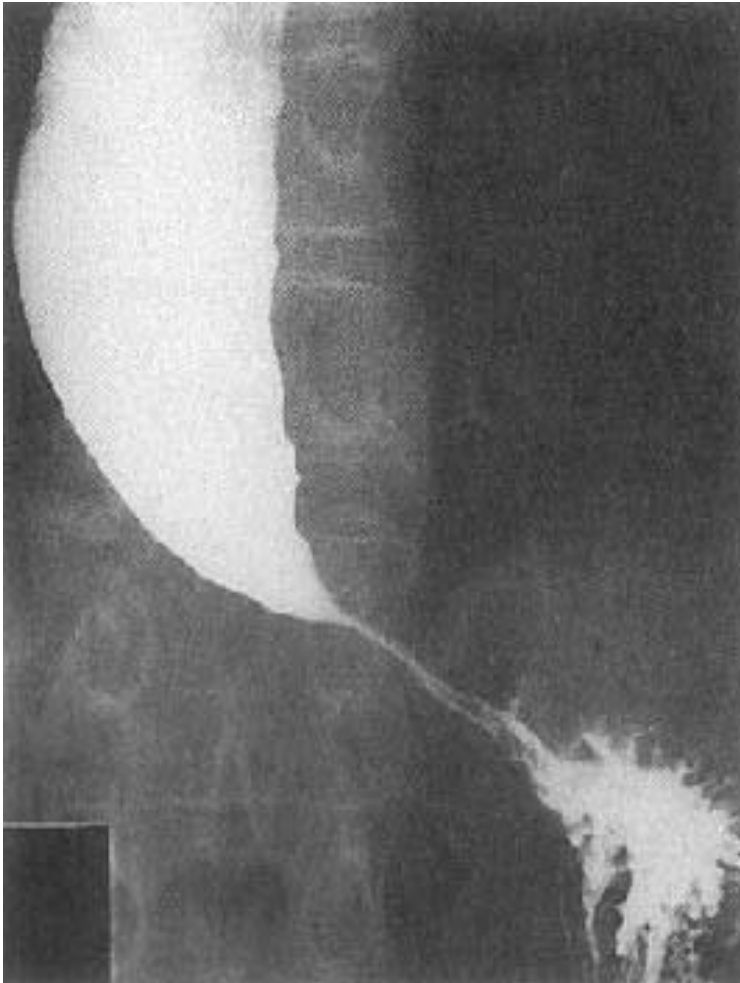
**Next slide there is a table
for summarizing**

Good luck ☺

DISEASE	in general	S&S	INV	T.T
Diverticulosis Diverticulosis:Asymptomatic diverticular disease. Diverticulitis:inflammation	90% descending colon & sigmoid	1-Asymptomatic diverticular disease.discovered accidentally. 2-Symptomatic div dis,symptoms similar to IBS. 3-Complications	1-DCBE 2-Colonoscopy. 3-Us or CT for abscess. Note...diagnosis of(diverticulosis),like IBS,is by exclusion	1-Uncomplicated:high fibre diet,bulk laxative,antispasmodic 2-Diverticulitis:IV Fluid,A.B. 3-Abscess:drainage 4-Perforation:Surgery. Hemorrhage:resuscitation(most settle).Surgery for life threatening bleeding
Mesentric ischaemia Aetiology:1-arterial. 2-venous Course:1-Acute .2-Chronic Acute Mesenteric ischemia 1-Arterial embolism 2-Arterial thrombosis 3-Nonocclusive etiology Chronic mesenteric ischemia 1-Long standing atherosclerosis of 2 or more mesenteric vessels. 2- Nonatherosclerotic e.g vasculitides	Rare. High mortality rate. Vaque nonspecific clinical findings. Limitation of diagnostic studies. Delay in diagnosis. **Decreased intestinal blood flow—mucosal injury—tissue necrosis—metabolic acidosis. 3 arteries:1-coeliac.2-SMA.3-IMA. **Collateral circulation is good & ca compensate for 75% reduction in mesenteric flow up to 12 hours. .	HX 1-AMI: sever abd pain,visceral,nonlocalised ,history of intestinal <u>angina,underlying cardiac dis.</u> 2-CMI: postprandial abdominal <u>pain,fear of eating.</u> Physical: may be normal abdo exam inspite of severe abdo pain.Malena or haematochezia in 15%,later peritonitis		
Mesenteric venous thrombosis Contraceptive pills	75% have hypercoagulable state(portal hypertension,pancreatitis,malignancy.cirrhosis trauma)			

Esophageal Disorders

An X-ray of barium swallow showing the esophagus



Qs

1. Mention two radiological signs you see.
2. What is your Diagnosis ?
3. What are the clinical features the patient comes with ?
4. How can we treat this patient ?
5. What is the most serious complication of the Diagnosis ?

As



1. a- 'bird beak' or 'rat's tail' sign.
b- dilated esophagus.
2. Achalasia.
3. a- slowly progressive dysphagia, worse for fluids than solids.
b- frequent regurgitation of undigested food.
c- secondary recurrent respiratory infections due to aspiration.

4. Treatment:

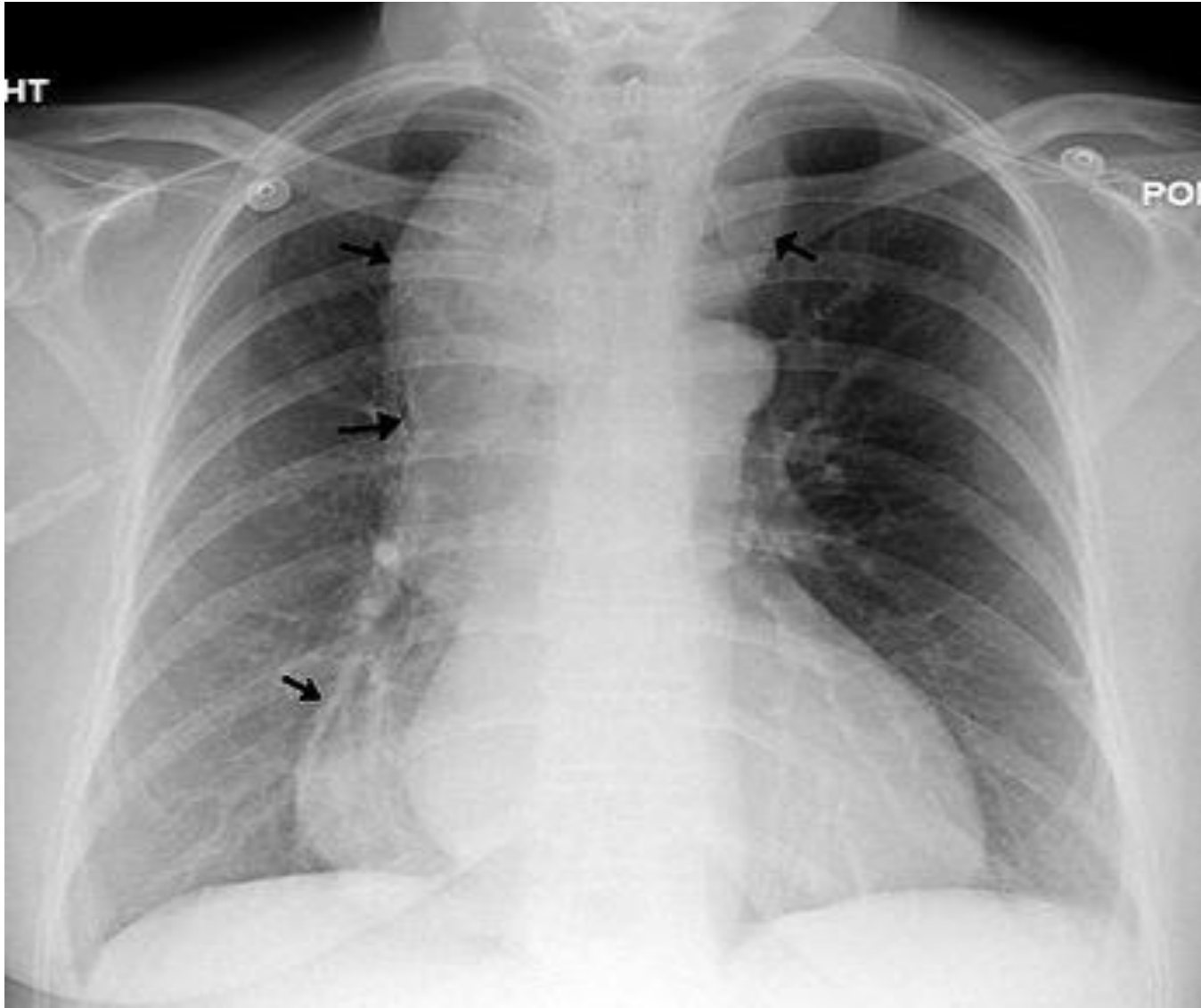
a- Heller's myotomy is the 'Gold Standard'.

b- Balloon dilation.

c- Medically: [Calcium Channel blockers
Nitrates
Botulinum toxin injection].

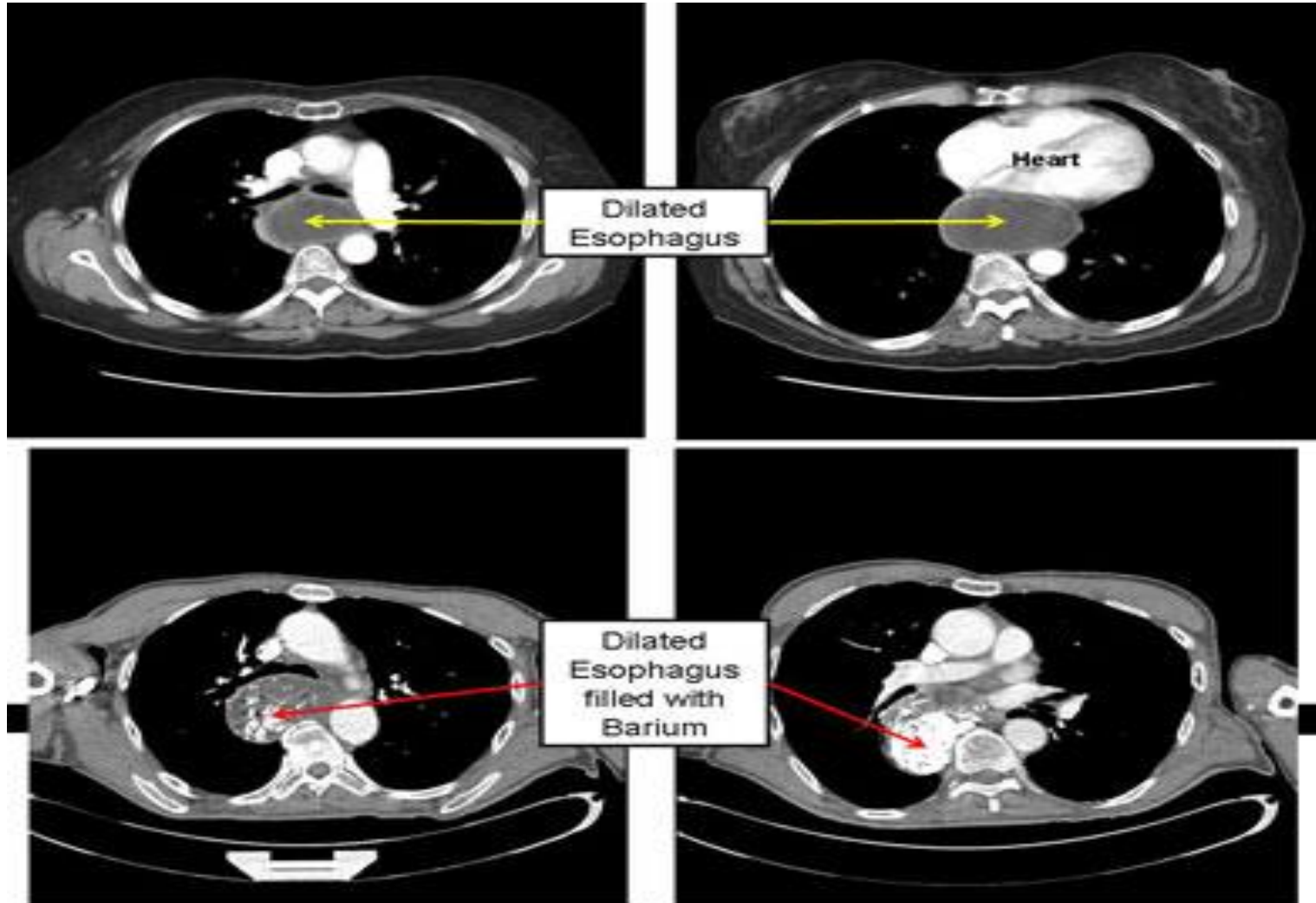
5. Esophageal cancer.

What is this ?



A chest X-ray showing achalasia (arrows point to the outline of the massively dilated esophagus).

A CT scan showing dilated esophagus.



An X-ray of barium swallow showing the esophagus



Qs

1. Mention a radiological sign you see.
2. What is your Diagnosis ?
3. What are the clinical features the patient comes with ?
4. How can we treat this patient ?

As

1. 'Corkscrew' appearance.
2. Diffuse esophageal spasm.
3. Acute pain along the esophagus induced by ingestion, especially hot or cold substances (Odynophagia).
4. Treatment:
 - a- calcium channel blockers or relaxants.
 - b- long-acting nitrous oxide.



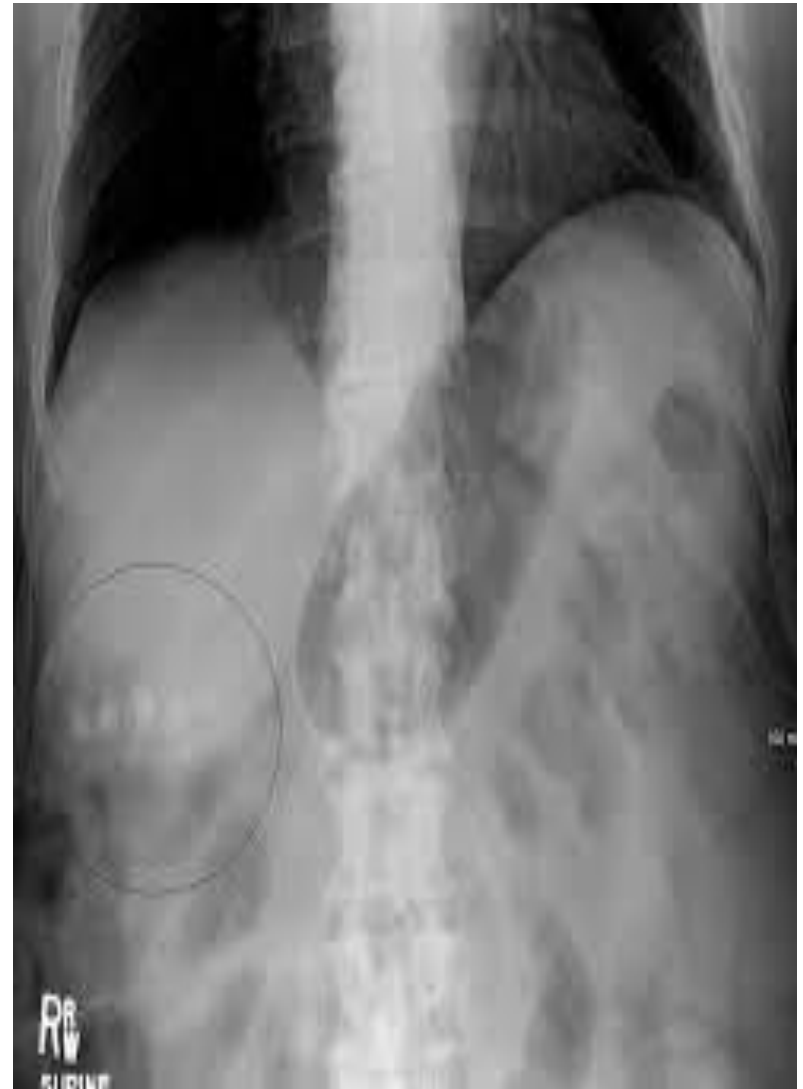
GALLSTONE DISEASE

- -27 years female , went to ER complaining of sever Right Upper Quadrant pain ,she said that she ate Mansaf an hour ago :-

- 1-What's your diagnosis ?
- 2-Give a differential diagnosis .
- 3-what is the treatment ?
- 4-Is WBC normal in this case ?
- 5- How can we make sure of our diagnosis ?
- 6-Mention 3 complications .

****Answers :-**

- 1-Cholelithiasis
- 2-A. Acute Calculeus Cholecystitis
B. Cholangitis
- 3-Laparoscopic Cholecystectomy if she is symptomatic
- 4-Yes
- 5-Ultrasound
- 6-GS ILEUS , Acute Cholangitis , Acute Pancreatitis



-30 years male admitted to ER
complaining of painful mass in RUQ
of his abdomen , high WBC with
fever :-

- 1-What's your diagnosis ?
- 2-how to make sure ?
- 3-How to treat it ?
- 4-which protein will be elevated ?
- 5-what's the cause behind this pathology ?

****Answers :-**

- 1-Acute calculous Cholecystitis
- 2-ultrasonography + hepatobiliary scintigraphy
- 3-cholecystectomy and for unstable pt : percutaneous transhepatic cholecystostomy
- 4- C-reactive**
- 5-persistent cystic duct obstruction



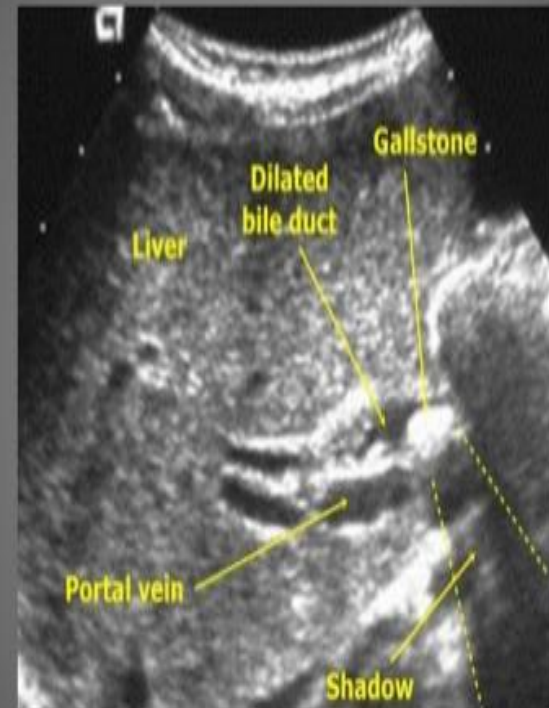
-35 years female admitted to ER with sever RUQ pain + Jaundice :-

- 1-what is your diagnosis ?
- 2-Give a differential diagnosis
- 3- what is the treatment ?

****Answers:**

- 1- Choledocholithiasis
- 2-A.cholelithiasis
 - B. Hepatitis
 - C. Cholangitis
- 3-ERCP+ STONE EXTRACTION + sphincterotomy + Cholecystectomy

CHOLEDOCHOLITHIASIS ULTRASOUND

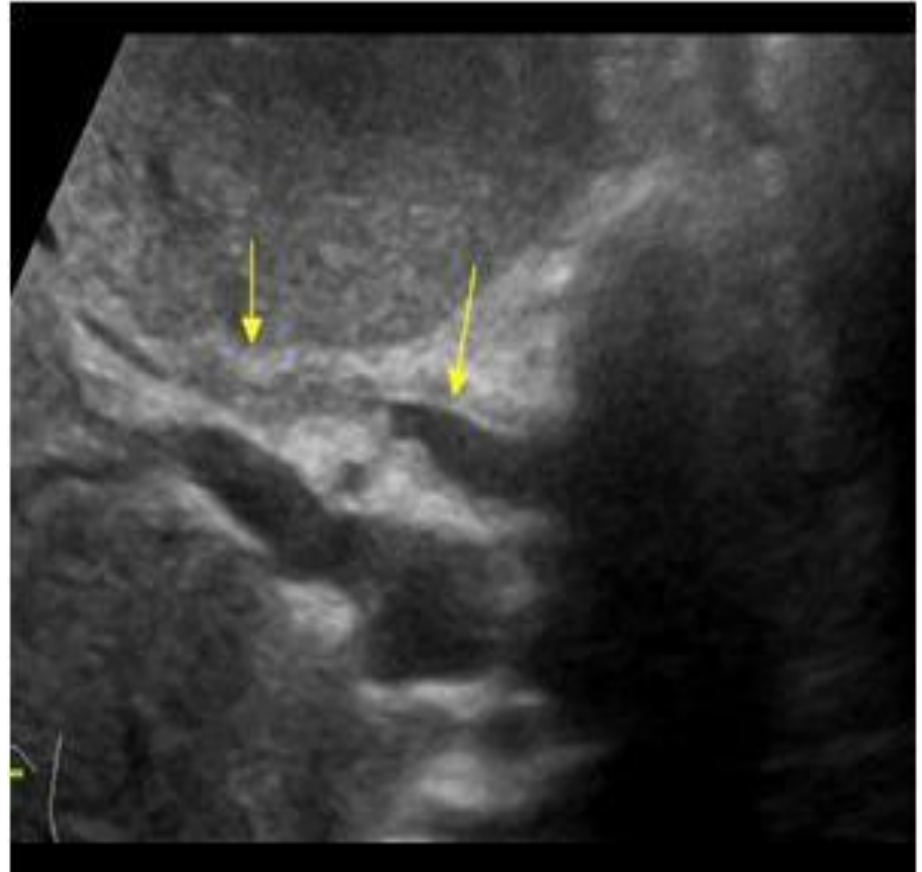


-40years male known to have GB stone , admitted to ER + RUQ pain +fever +Jaundice :-

- 1-what's your diagnosis ?
- 2-what is your treatment ?
- 3-what is the lab finding ?
- 4-what are the organisms behind this pathology ?

****Answers :-**

- 1-Cholangitis
- 2-1- conservative tt “ NPO ,IVF ,IV AB “
2-Decompression by ERCP +PTC or surgery
- 3- E.COLI + Klebsiella



- I tried to add pictures from the net as the lecture lacks any pictures related to any disease , get back to lecture to read the cancer of GB .

Best of luck DRS ☺

Hernia

#ملاحظة: الاسئلة الموجودة في اول سلايد ممكن تتكرر لكل الصور.



#Case scenario :

A 40 yrs old M. Pt , construction worker ,
presented at your clinic with the following feature:

1- How the pt. present?

*the pt. present to u complaining either
from a lump or discomfort that especially
increase on walking or long standing , (in
the complicated conditions the pt. may
come to u with signs and symptoms of
intestinal obstruction).

2-What is the most likely diagnosis?

*Indirect inguinal hernia.

3-Give other possible DDx.

Mentioned below.

4- The causes of this presentation

5- What we can do to the pt.

6-Treatment

##This what we call it bubonocoele (just to
the tip of the external ring).

Differential diagnosis

3- In most cases of mass in this region our ddx list should include the following : femoral hernia, direct/indirect inguinal hernia, inguinal adenopathy, lipomas, dilation of the saphenous vein, epididymitis, groin abscess, inflammation from an ischemic condition, hydrocele, vascular aneurysms (femoral), undescended testis. (keep in mind that ordering your list should be relevant to the case

Causes , management and t.t

4-increased intra abdominal pressure (straining, copd,ascites, pregnancy...) ,anatomical weaknesses where: structures pass through , acquired weakness associated with trauma, genetic weakness of collagen.

5-hx,physical exam. (mainly are enough), investigations (-not always-, Xray , U/S, CT).

6-surgical repair (tension free repair).

it's a complete (inguino-scrotal hernia)

*Description: very large , bilateral , irreducible hernia (more likely to be indirect hernia because it reaches the scrotum) .

#note: u can see a hole in the left scrotum this hole lead to the penis (because of the large size of the hernia the penis in embedded inside).



*This is a bilateral indirect inguinal hernia >> most likely because of genetic weakness of collagen and here we have to make sure that there is no other hernias in other sites.





#Here , on physical exam.
We ask the pt. to stand up
and cough , so we can see
if there is a positive
visible cough impulse.

#On physical exam. to differentiate hernia from scrotal conditions >> u need to know if u can go above it or u can't ,, if u can go above and feel the spermatic cord easily this is a scrotal condition , if is it a hernia u can't feel it easily.



#What are the complications of hernia if it is untreated ??

- 1- irreducibility.
- 2- obstruction.
- 3- incarceration.
- 4-Inflammation.
- 5- strangulation (the most dangerous).



#note: The most important two things in palpation (for defining a hernia) are :-

1) if there is any positive visible cough impulse OR any positive palpable cough impulse.

2) is it reducible or not.

>> so for hernia u need :-

1) cough impulse and

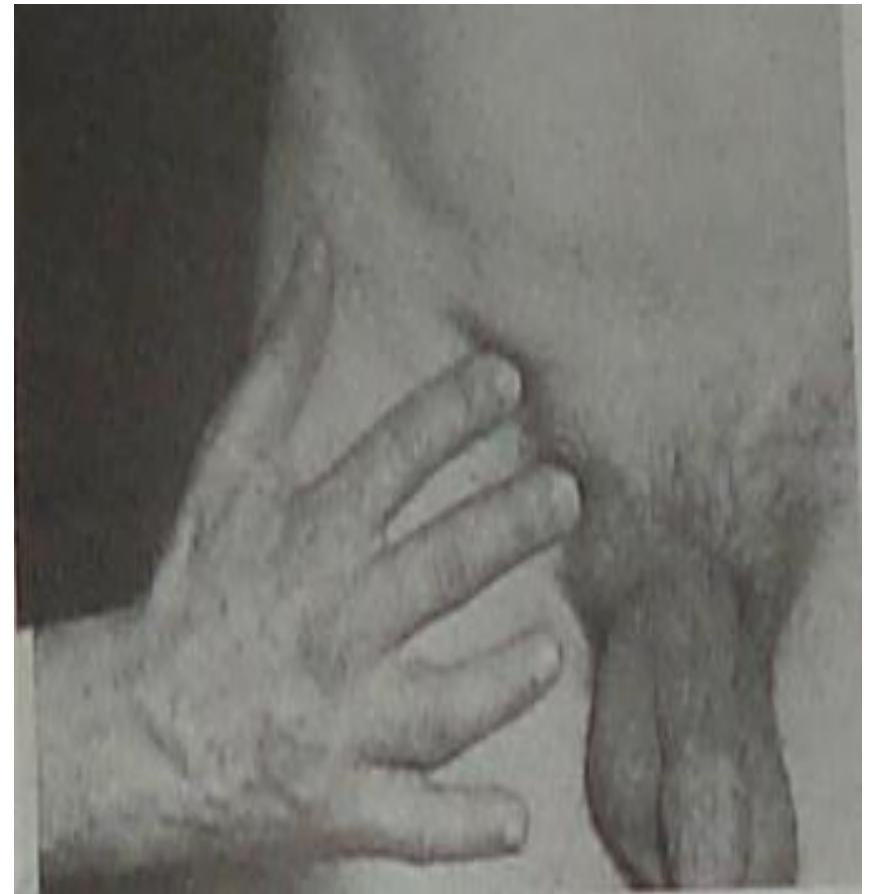
2) reducibility.

External ring test



3 fingers occlusion test

*you have to decide the type of hernia (direct inguinal , indirect or femoral) >> (after the reduction of hernia by lying down or asking the pt. to do that , you put one finger on the internal ring , another one on the external ring and another one on the femoral ring . It depends on which finger you feel the impulse then you ask the pt. to cough , if it appears in (index finger >> indirect ,, middle finger>> direct lateral and below the pubic tubercle ,, ring finger >> femoral hernia).

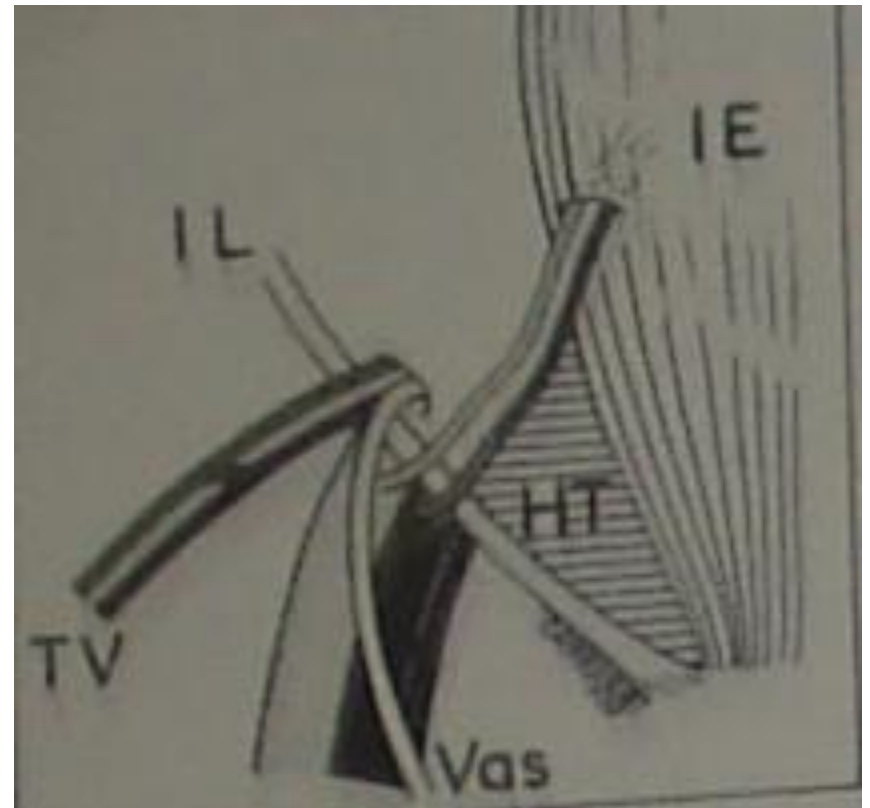


Testicular examination

This how we decide ,, we examine the testicles , if we can go above it or not

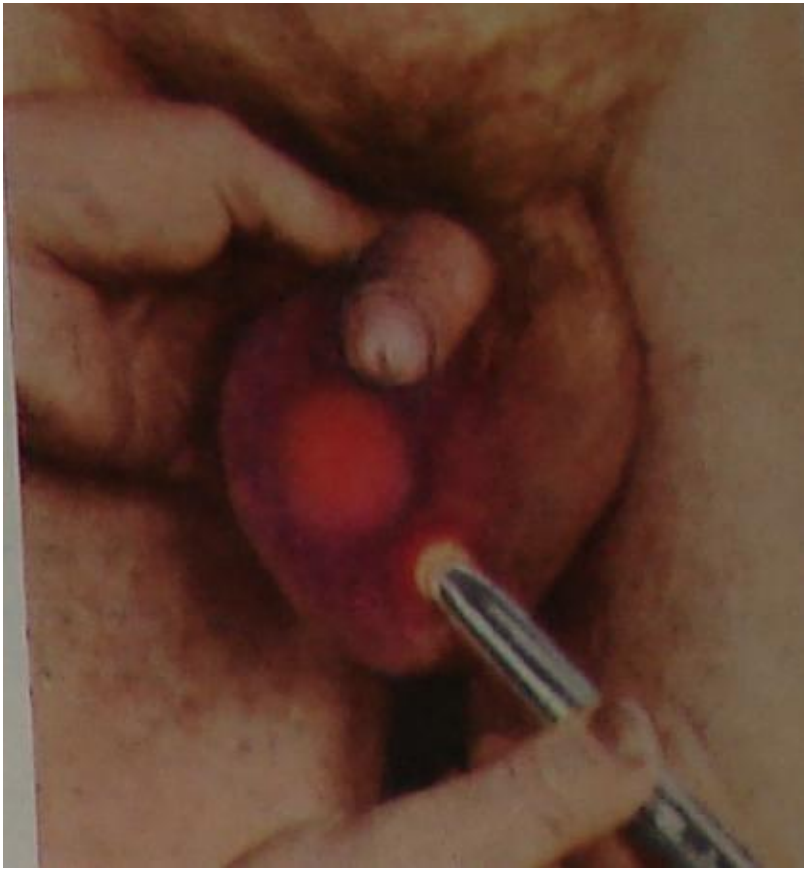


#Here is the relationship anatomically ,, inguinal ligament >> ASIS --→ Pubic tubercle
,, inferior epigastric vessels (artery and vein) any thing medial to it , is direct through
the hesselbach's triangle ,, any thing lateral to it , from the internal ring , this is
indirect hernia.



Transillumination

*Especially and specifically for hydrocele (some times you can't differentiate between hydrocele and hernia especially in infants).



*Femoral hernia >> Most liable to become strangulated and may be the first presentation , why? Because it has a very tight neck.

#note: femoral hernia is more common in females than males (2:1) because of → Wider femoral canal , Pelvic tilt and repeated pregnancy.

* the contents could be : fat , Lymphatics,L.N of Cloquet.



****femoral hernia is very liable for obstruction and strangulation because of the tight neck and its position.**



#This is a picture of femoral hernia , here it's very easy to say this is an inguinal hernia ..

#The most important thing is the neck of the hernia (where is the neck , can u reduce it or not ,, most of the femoral hernias are non reducible or partially reducible ,, u feel where is the neck then u feel the pubic tubercle ,, below and lateral >> femoral ,, above and medial >> inguinal.

Umbilical hernia

Congenital hernia= Exomphlos= Omphalocele

Minor → small defect with cord attach to its center.



Major ---- wide defect with the cord attach to its lower part.



#Symptoms indicates more serious situation :

- 1-the baby is in obvious pain.
- 2-the baby is vomiting.
- 3-the bulge (in both children and adults) is tender, swollen, or discolored.

#What are the complications ?

1-Intestinal injury during labor → fecal fistula.

2-Rupture → peritonitis.

3-Associated anomalies.

#treatment:

Small defect : primary closure.

Large defect :

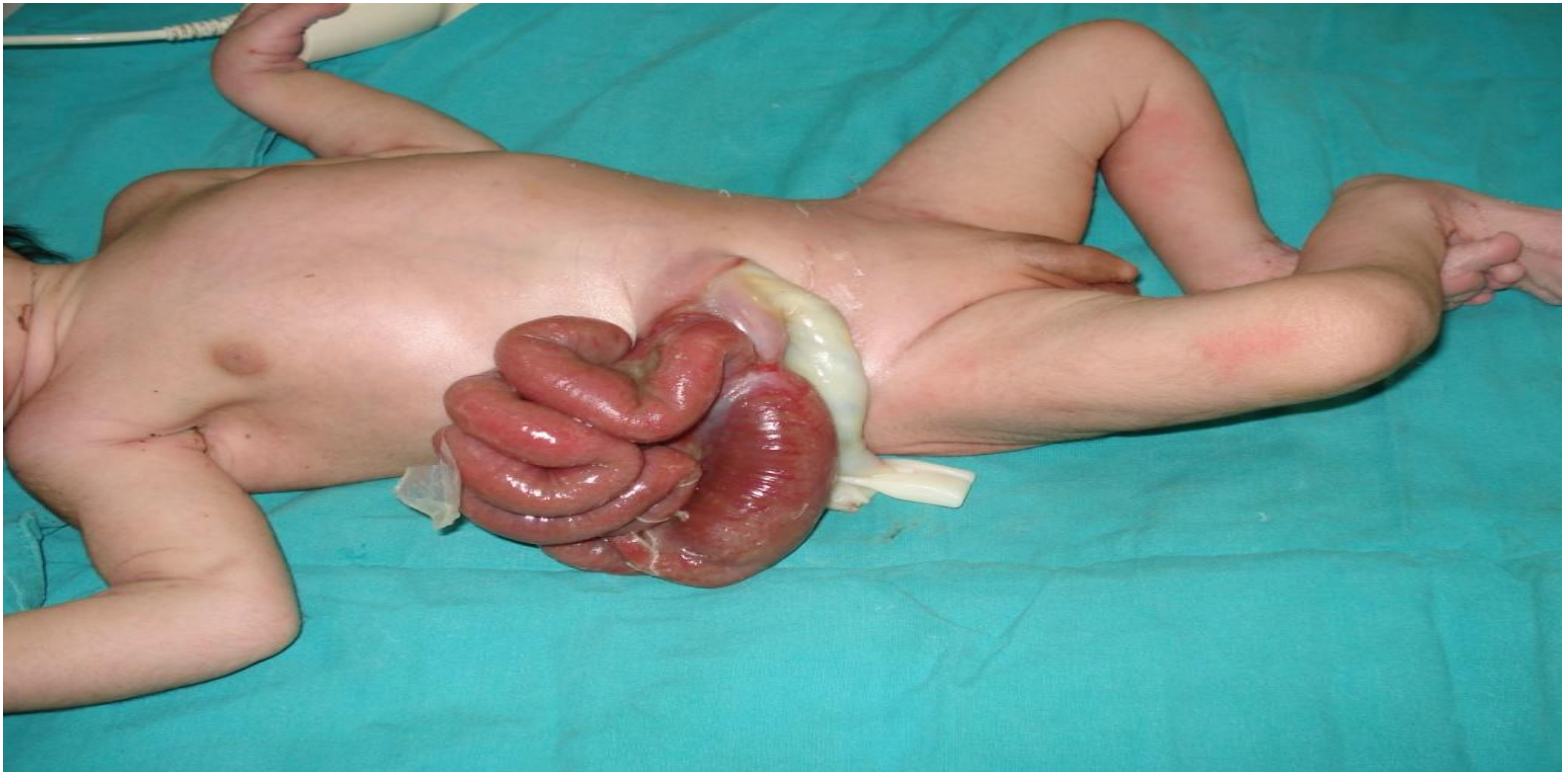
- Primary closure.

-Skin flap closure.

-Non-operative → repeated painting with betadine, gentian violet, etc.

*ventral hernia

→repair.



GASTRISCHISIS



Infantile(true) Umbilical Hernia



*Regarding the treatment most of the times it will close by itself so u have to wait up to the age of 2-4 years but if the defect is more than 4 cm or the child is far away in a remote area it's better to do surgery for him.

#Case scenario :

A 45 years old male Pt , obese ,
presented at your clinic with the following feature:



1- How the pt. present?

* In addition to the lump and discomfort , the pt. will complain from something called >>dragging sensation.

2-What is the most likely diagnosis?

*umbilical-paraumbilical hernia.

3-Give other possible DDx.

Epidermoid cyst, lipoma, sebaceous cyst , sister • mary joseph nodule (metastatic carcinoma), dermatofibroma.

4-What are the complications?

* In addition to the complications that we mentioned previously, 1) dyspepsia 2) intertrigo

#Here, the umbilicus is intact

#treatment:

Preoperative: if the pt. obese we ask him to loss weight and strengthen his abdominal wall muscles then we do surgery.



#The neck of the paraumbilical hernia usually narrow compared to the size.

IRREDUCIBLE HERNIA



#causes of irreducible hernia:

1) Adhesions 2) large contents and narrow neck

#what are the clinical features of strangulated hernia?

1-Sudden onset of pain +/- signs of intestinal obstruction.

2-Local signs: Irreducible, No impulse with cough , tense , tender , discoloration (red).

#If not treated early (surgery) → perforation → peritonitis → septic shock and death.



#Here the bowel is dead this is a very late presentation.

#differential diagnosis for this case:
Strangulated indirect inguinal hernia , testicular torsion
and any other diagnosis from the acute scrotum.



Strangulated hernia without obstruction

in infants Gonadal vessels are more likely to be damaged than the bowel vessels so testicular infarction is more common than bowel infarction.

#Differential diagnosis of strangulated hernia without obstruction :

- 1- Strangulated omentum.
- 2-Strangulated ovary.
- 3-Richter's hernia.
- 4-Littre's hernia.



Hirschsprung's disease & ARM

- Hirschsprung's disease
(Aganglionic mega colon)

- Important notes :

- it's failure of neural crest cells to migrate caudally(absence of ganglions in the submucous and the myenteric plexuses).
- no peristalsis in the affected segment and distal to it.
- 80% involve only rectosigmoid area.

- #most presentations :

- Severe abdominal distention
- 95% - **failure to pass meconium** in first 24 hours life
- Bilious vomiting .

- #we **diagnose** hirschsprung's disease by 4 methods (**investigations**) :

- Abdominal plain X-rays
- Barium Enema
- Rectal Biopsies **gold standard**
- Anal manometry

Severe abdominal distention of a patient with hirschsprung's disease



1)diagnosis ?

An X-ray of Hirschsprung's disease

2)How would we know it on x-ray? Or what is the abnormality in this x-ray?

Here we have a prolapsed rectosigmoid junction area, **proximally** we have **dilated** region(descending and sigmoid colon) and **distally** we have **narrow** region.

3) Mention 2 other differential diagnosis for a baby failed to pass meconium in the first 24 hours of life?

-**imperforated anus**

-**meconium ileus**

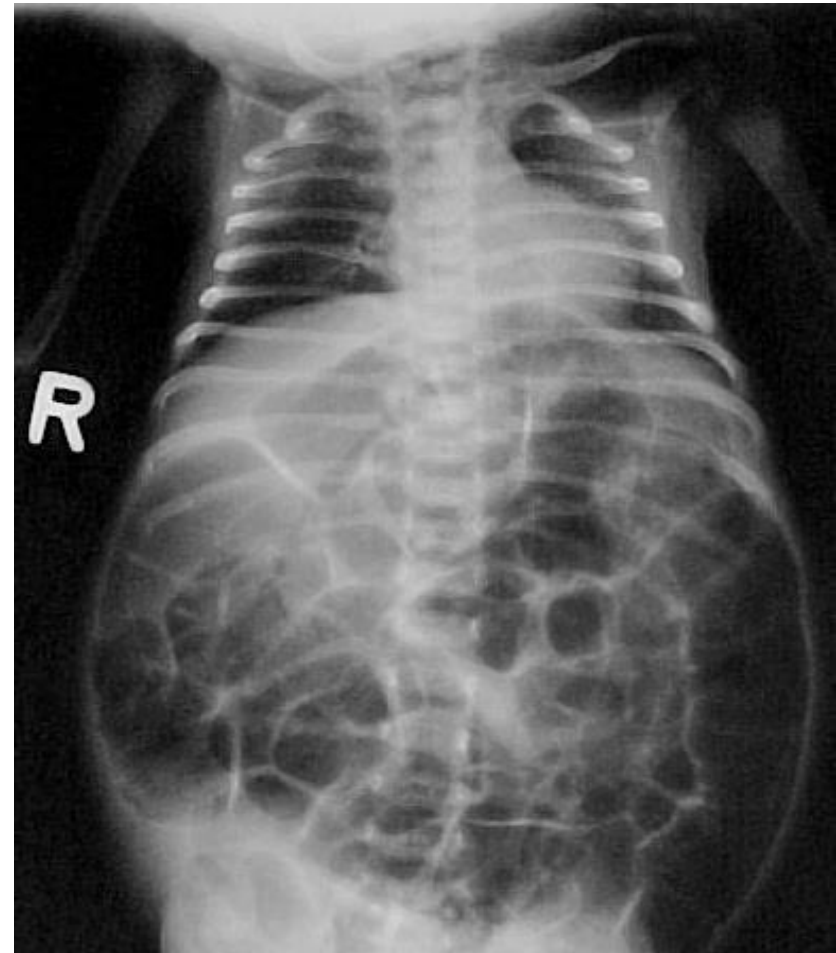


1)diagnosis ?

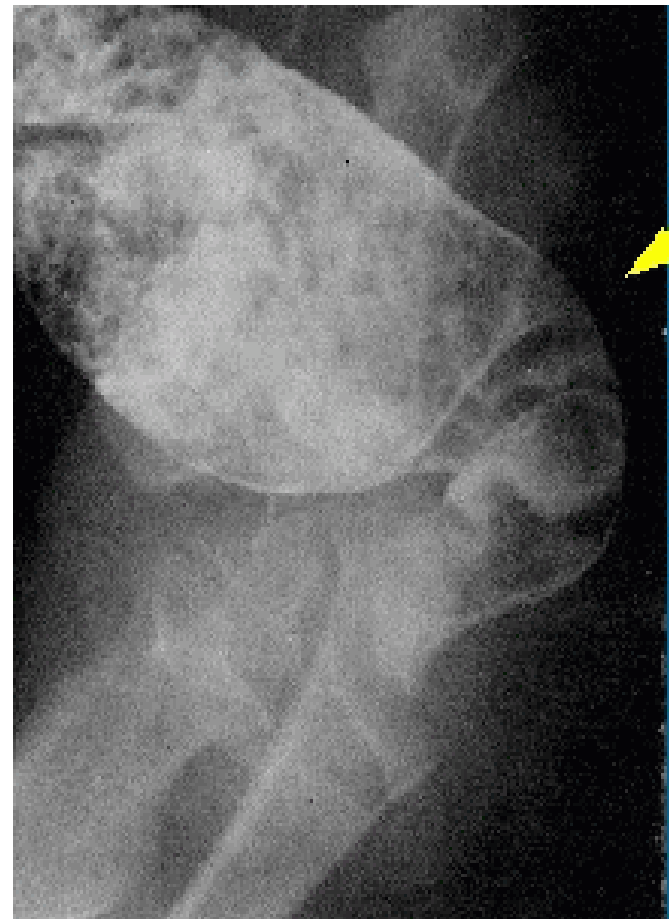
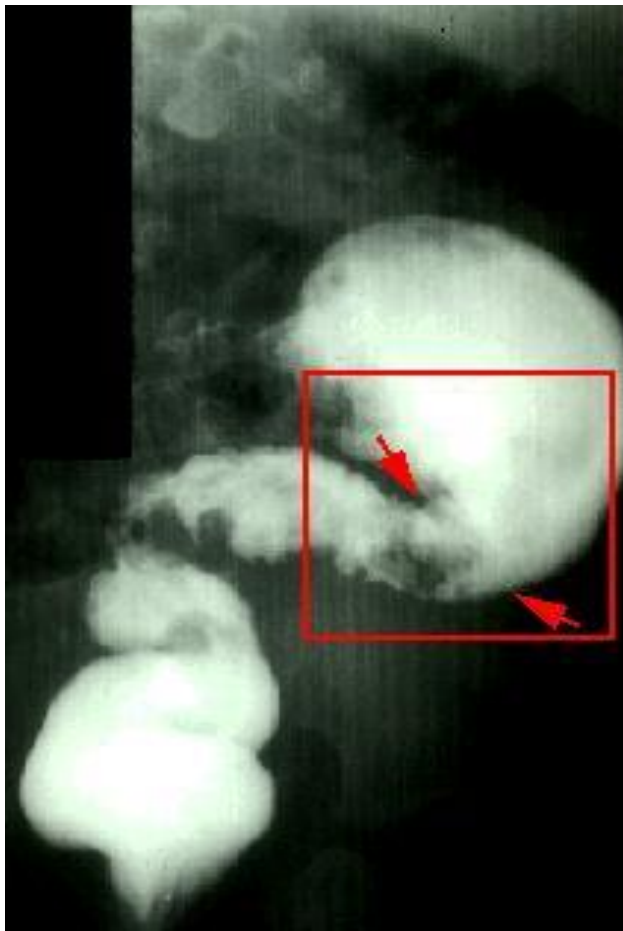
An x-ray of hurschsprung's disease

2)How would we know it on x-ray? Or what is the abnormality in this x-ray?

Here the **colon** is enormously **dilated** and shows **large air fluid level**, **note** the size of abdomen in relation to the size of chest (this is **a typical picture** of primary mega colon\hurschsprung's disease).



- These 2 pictures show **contrast(barium) enema of hirschsprung's disease** with dilated proximal segment and narrow distal segment.
- Note : this method (barium enema) is **less sensitive to detect small lesions**, because there may be small lesions in rectum and when you insert the catheter with contrast through rectum , the catheter may bypass these small lesions .



- we talked about x-ray and barium enema, mention 2 other investigations ??

1-Rectal biopsy : 3 types,

- Submucosal suction biopsy
 - Meissner's submucosal plexus
- Full thickness rectal biopsy
 - Auerbach's myenteric plexus
- Acetylcholinesterase staining >> thick neurofibrils indicate aganglionic

2-anal manometry : we do it because patients lack of internal anal sphincter relaxation.

- How would we **manage** a patient with hirschsprung's disease?
 - it depends on presentation :
 - if patient with constipation and abdominal distention >> the 1st line of treatment after hydration and IV fluid is **rectal washout(rectal irrigation)**
 - but if the patient has signs of **colitis or sepsis** we can't do rectal washout >> we do **laprotomy and make colostomy**.
 - ***but the definitive treatment** is **surgical** excision of the aganglionic segment and re-anastomosis to the anal canal.
- >> we should know the 3 types of surgeries we do(just names without details):
- 1)**Swenson**
 - 2)**Duhamel**
 - 3)**Soave** (most common one in USA)

- Anorectal Malformations (ARM)

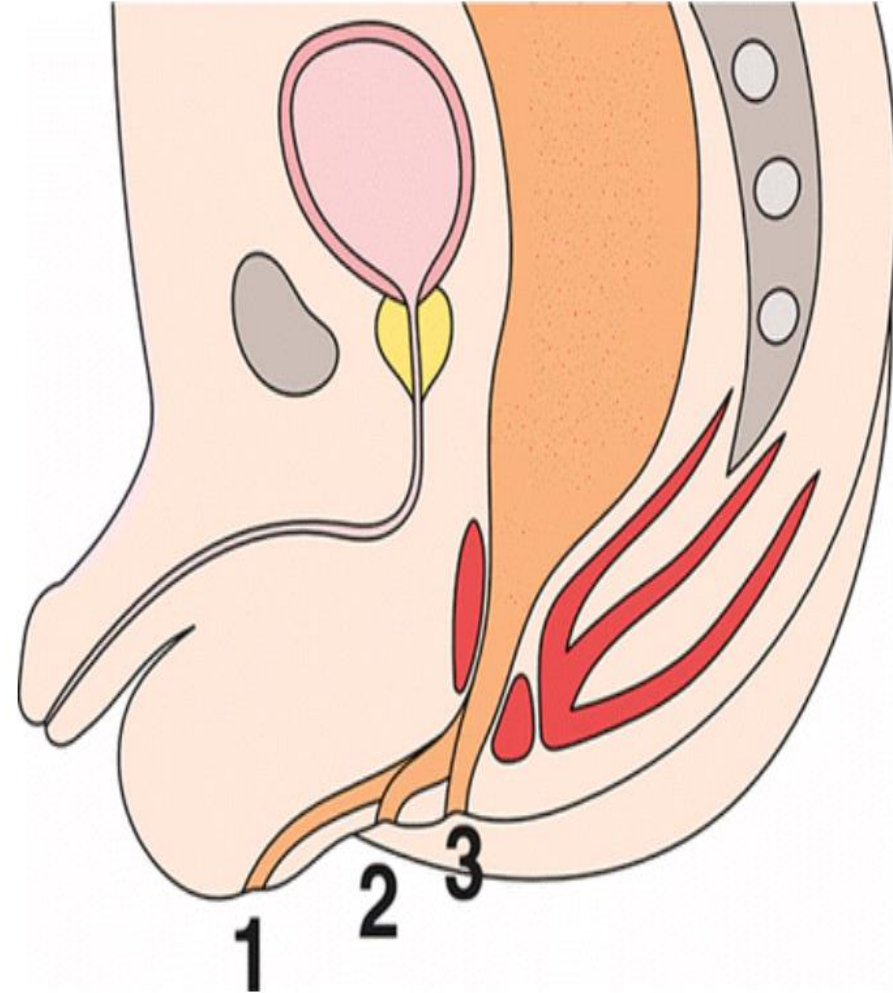
- *Classification of ARMs :*

- 1) low type ARMs : the anal opening is near the normal position of anus.
 - 2) high type ARMs : the anal opening is little far from the normal position of anus.
- In **females** both low and high types are managed by complicated surgery but **in males** only high type needs complicated surgical management.

It's low type .

In male low type it opens in the **scrotum** or **perineum** .

We manage low type ARMs in males only
locally (we may only **widen the anal opening** or do anoplasty)



1)what type of ARMs is shown in the picture?

It's a **high type** ARMs

2)Where does the anal opening open in this type?

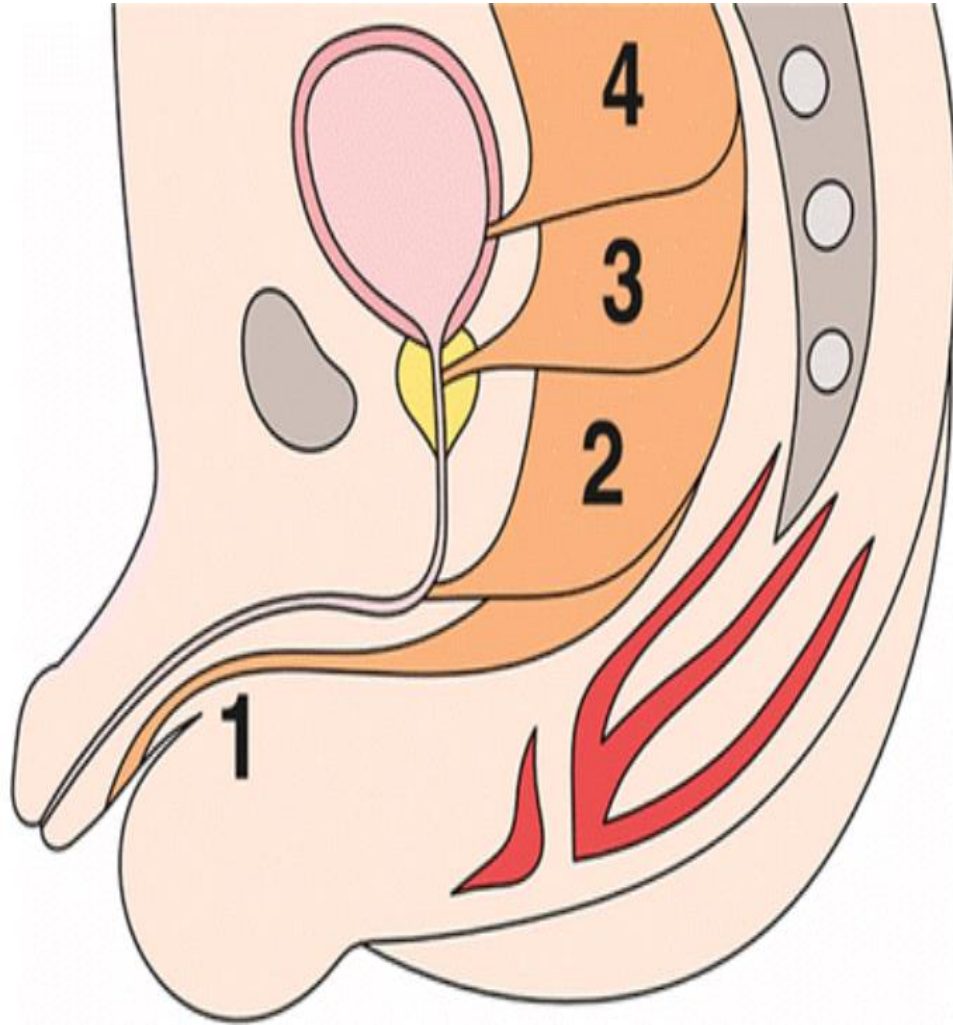
In males high type it opens in the base of the penis (1), the bulbar (2) or prostatic urethra (3) , or the urinary bladder (4).

3)Common **presentation**?

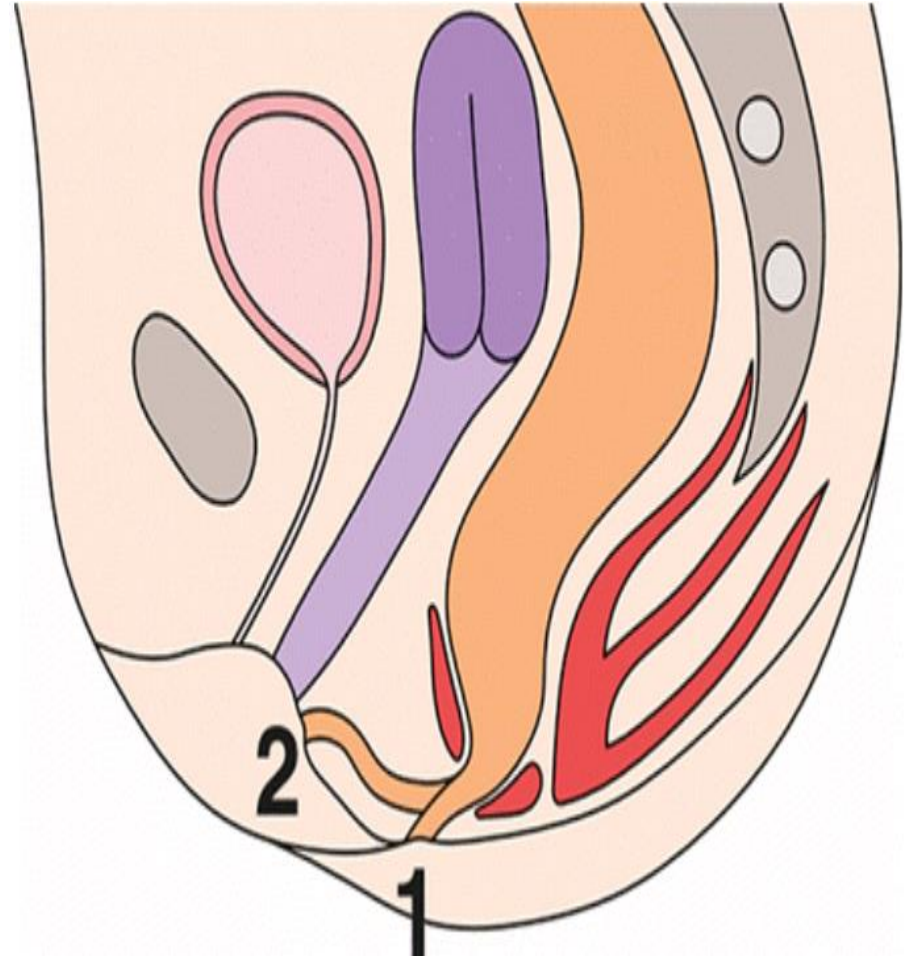
The baby not being able to pass stool within a couple days after birth or stool passing out of the genitals or urethra.

4)management?

We do a **temporary colostomy** for a few months until baby is strong enough for **surgery** .



- Type : female **low type** ARMs.
- **Opening** : in perineum or vestibular area .
- **Management** : temporary colostomy until we do surgery (as males high type).



-Type :

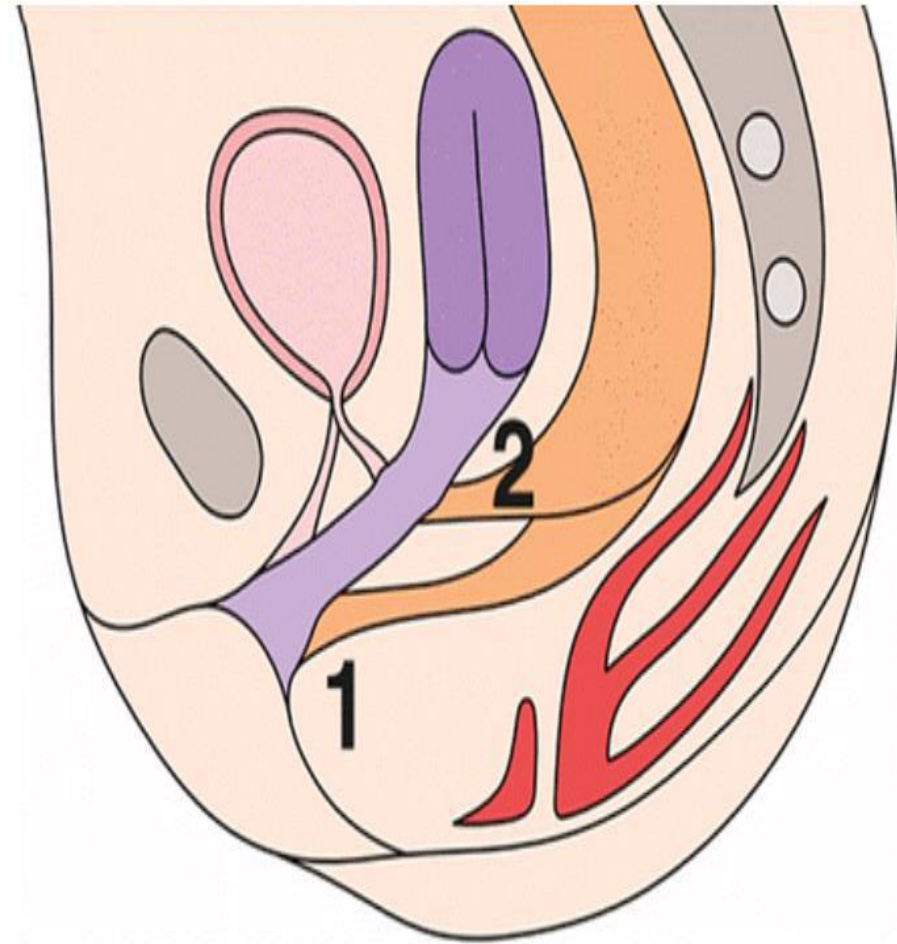
female high type ARMs

-Opening :

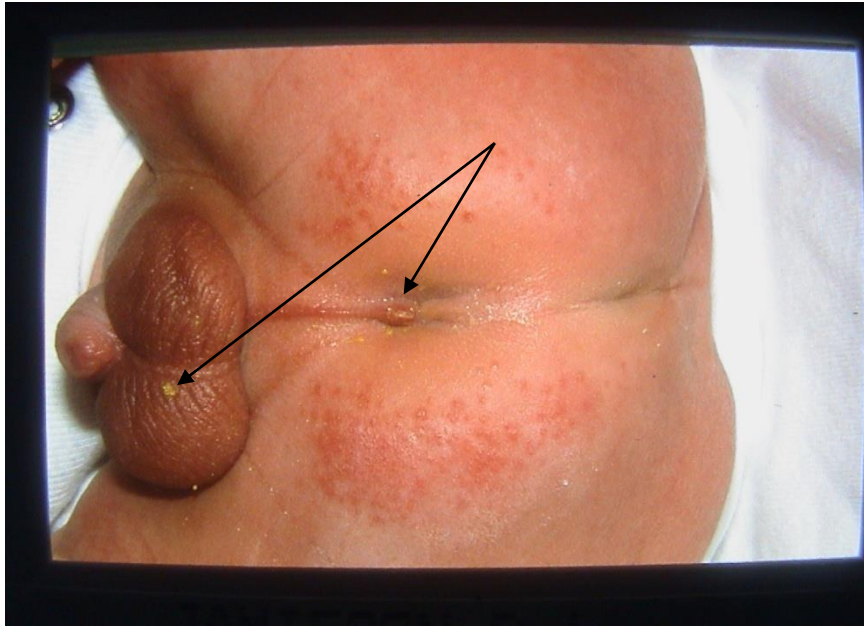
Here we have external **perineal opening** **with** a short (1) or long (2) **common canal** for the genital, urinary, and digestive systems.

-management :

Also temporary colostomy until we do surgery.



#Low types ARMs :

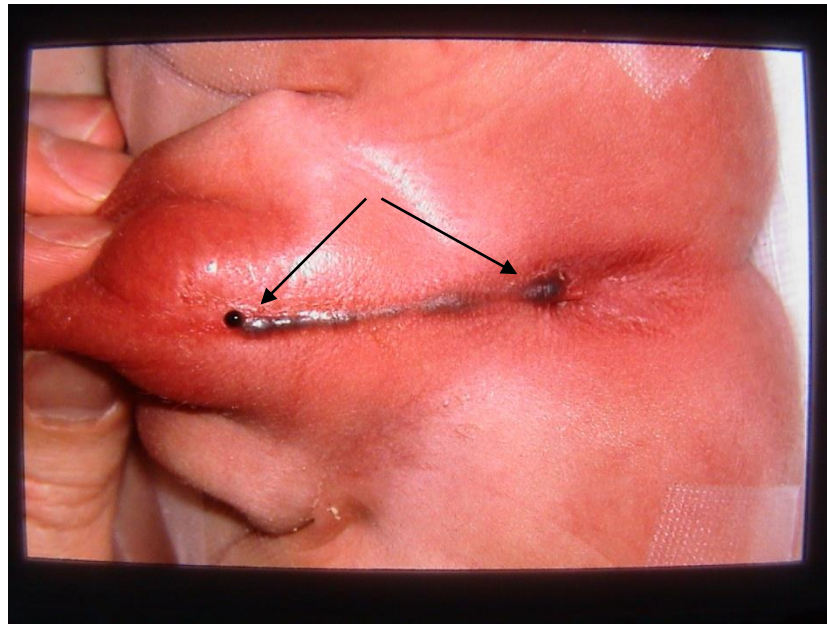


Above Left

Covered Anus
(Bucket handle
anomaly)
Note stool
particles
(arrows)



Above Right: Anal stenosis



Left

Low Imperforate
Anus
Note translucent
membrane
& ano-cutaneous
fistula showing
Meconium (arrows)

#High Anomalies (Male & Female):



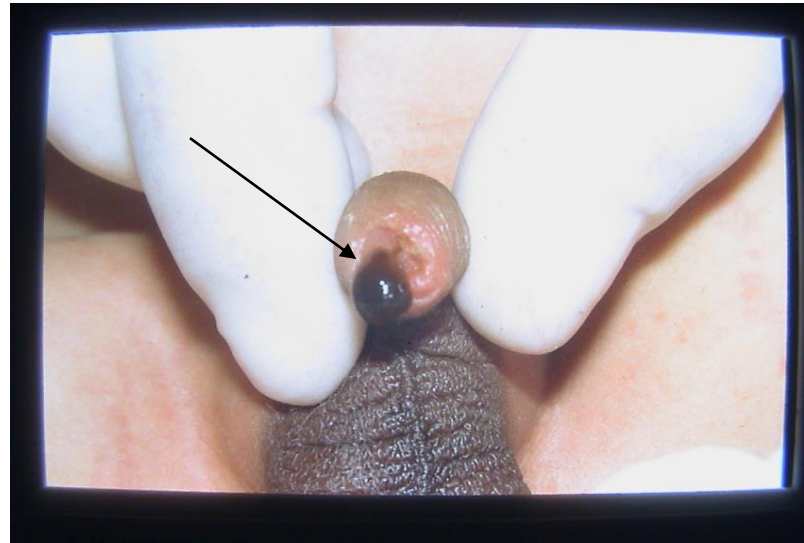
Left

Vesibular Anus

Note meconium coming
Out of vaginal vestibule

Right

Note meconium coming out
Of the urethra (arrow),
Indicating recto-urinary fistula



the meconium coming out from the
tip of gland so it means we have
fistula with urinary tract >> so high
type ARMs

- how would we **manage** a baby with ARM ??

-Clinical examination:

Usually the clinical diagnosis is made **at birth** either **by** inspection or by failing to pass a thermometer easily into the anus.

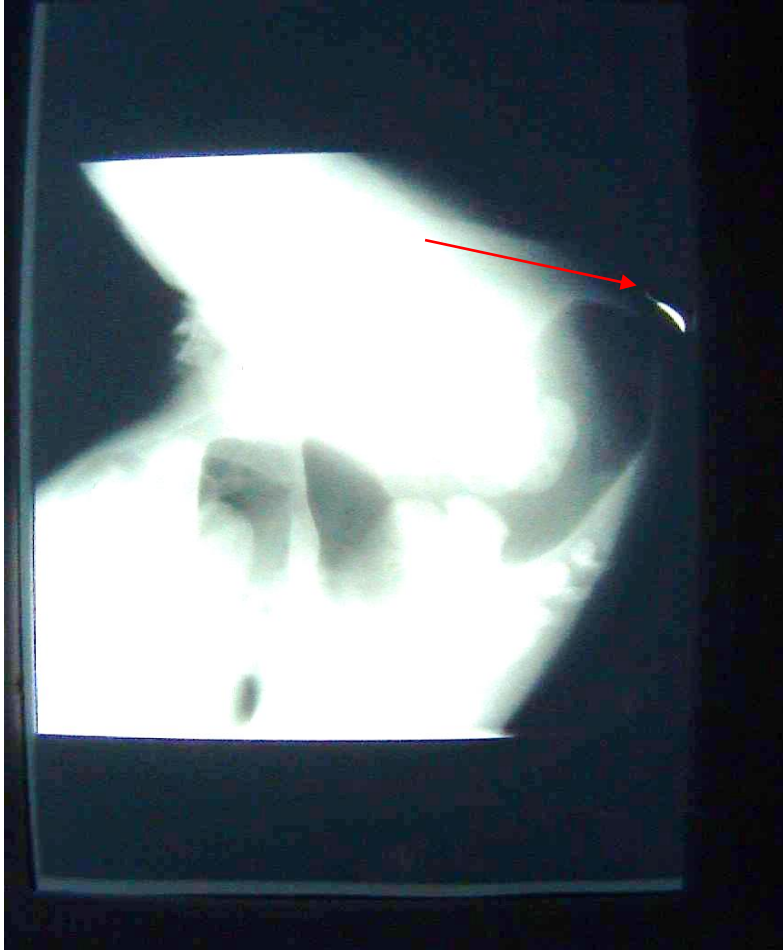
-investigations:

Invertogram, done after six hours of birth >> it's a **standing x-ray** of abdomen **with the baby inverted**(so gas in colon comes to distal part of rectum then a lateral film is taken, if the gas shadow ends **above** the pubocoxygeal line then it's a **high type** while if **it's below** pubocoxygeal line then it's a **low type**) done to baby with no anus **to define the lower most point of the rectum.**

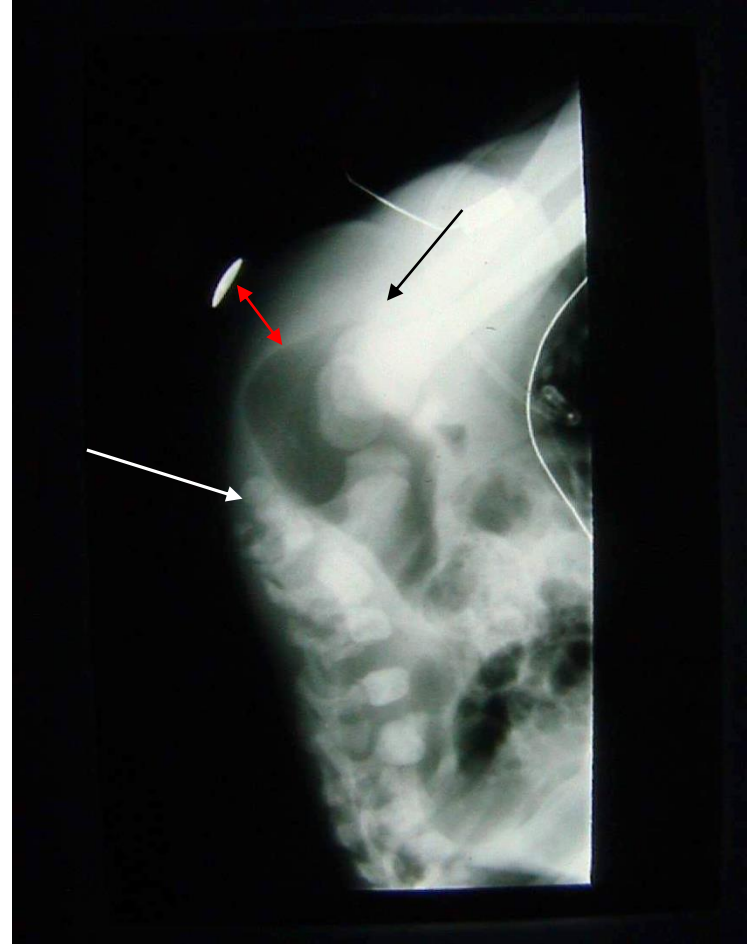


Invertogram

Low Anomaly



High Anomaly



-treatment :

If it's not male low type then we do temporary colostomy until we do the **definitive surgery**,,

The definitive surgery is called >> PSARP (posterior sagittal anorectal plasty),,

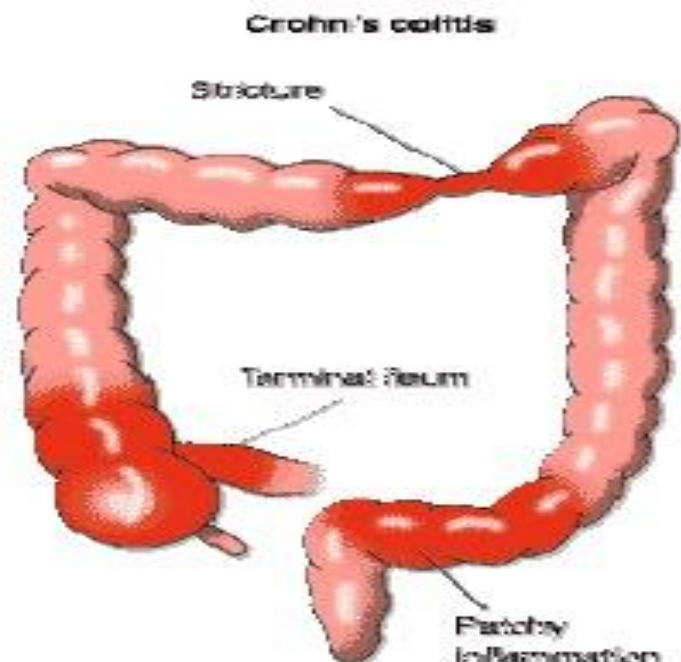
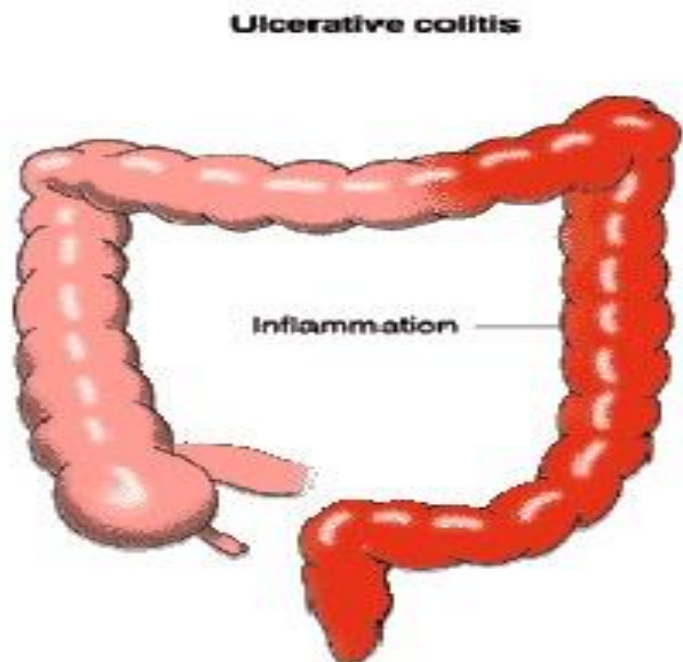
PSARP technique >> msh 3arf etha aslan mohem n3rf el technique bs el dr shr7o 3l sree3 o msh ktheer mfhomah bs aham eshe n3rf esm el surgery,

Bs e7tya6 >> This what is written in wikipedia “Posterior sagittal **anorectoplasty** (PSARP) is a new technique for the repair of high anorectal malformations. It is based upon complete exposure of the anorectal region by means of a median sagittal incision that runs from the sacrum to the anal dimple, cutting through all muscle structures behind the rectum.”

Inflammatory Bowel Disease

In the next few slides is a summary of the lec in order to have an idea about the topic and to differentiate between the 2 diseases as it's a possible question in the mini OSCE exam..

Hope its helpful ^_^



		Ulcerative Colitis	Crohn's Disease
Age of onset		20-40 yrs (one peak incidence)	25-40 ,, >70 yrs (2 peak incidence)
Location		Colon only (mainly rectum) ** <u>continuous</u> involvement proximally from the rectum	Anywhere along the digestive tract (mainly the ileum , and the beginning of the colon) ,, <u>Skipped lesions</u>
Appearance (Pathology)		-colon wall is thinner -inflammation of mucosa & submucosa only -No granuloma -shows Chronic pseudopolyps	-colon is thickened -Transmural inflammation -Non-caseating Granuloma - Cobblestone Appearance (rocks)
presentation	Pain	Lower left abdomen	Lower right abdomen
	Bleeding	Very common	Occasional
	obstruction	Uncommon	Common
	Fistula	None (rare)	Common
	Weight loss	uncommon	Common
	Peri-anal Disease	Rare	Common -any pt comes with perianal conditions which is out of norm (not usual pathology of this area) → mainly Crohn's

Types of Ulcerative Colitis

- **Proctitis:** involves only the rectum (a)
- **Proctosigmoiditis:** involves the rectum and sigmoid colon (b)
(the lower segment of the colon before the rectum)
- **Distal colitis:** involves only the left side of the colon (c)
- **Pancolitis:** involves the entire colon (d)
- **Backwash ileitis:** involves the distal ileum



(a)



(b)



(c)



(d)

Complications

Intestinal complications

Stricture

Fistula

Perforation

Abscess

Neoplasm

Systemic complications

Athritis

Ankylosing
spondylitis

Sclerosing
episcleritis

Uveitis

Sclerosing
cholangitis

Oxalate stones

Erythema nodosum

Pyoderma
gangrenosum

Postoperative complications

Anastomotic
recurrence

Anastomotic
fibrosis/stenosis

Adhesional
obstruction



at a glance

Ulcerative colitis and Crohn's disease

Diagnosis

❖ **Laboratory tests →**

- ✓ CRP-elevated
- ✓ ESR-elevated
- ✓ Anemia
- ✓ Leukocytosis
- ✓ hypoalbuminemia

❖ **Endoscopy**

❖ **Radiography**

❖ **Biopsy**

❖ **CT enterography**

TREATMENT



Diet change



Lifestyle changes



Drugs



Surgery

LIFESTYLE CHANGES



Taking rest



No smoking



Doing exercise



Stress reduction

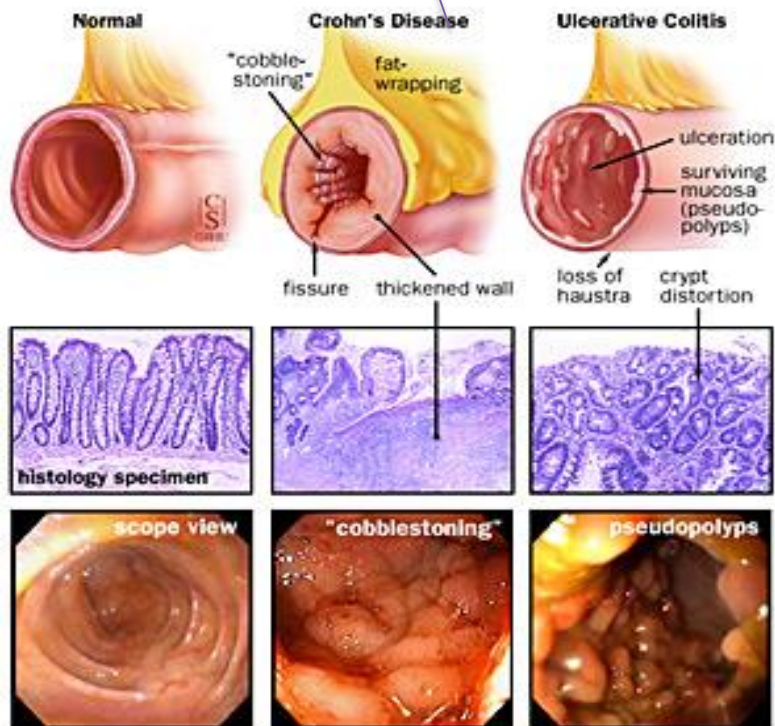
Crohn's ::

Deeper and goes through all the mucous

Ulcerative Colitis



Superficial Ulceration



Q: What does the pic represent ?

Pseudo polyps

Q: What is your diagnosis ?

Ulcerative Colitis

Q: How does the pt presents ? (Clinical Presentation)

****Symptoms :**

- 1-Rectal bleeding.
- 2-Diarrhea \pm urgency and tenesmus.
- 3-Mucous PR.
- 4-Abdominal pain.
- 5-Lethargy, general malaise, anemia symptoms, weight loss.

**** Signs :**

- 1.Colon tenderness.
- 2.Weight loss, anemia.
- 3.Salt and water depletion.
- 4.Severe cases: abdominal distension
- 5.Perianal disease is rare.



Q: What is present in the histological pic ?

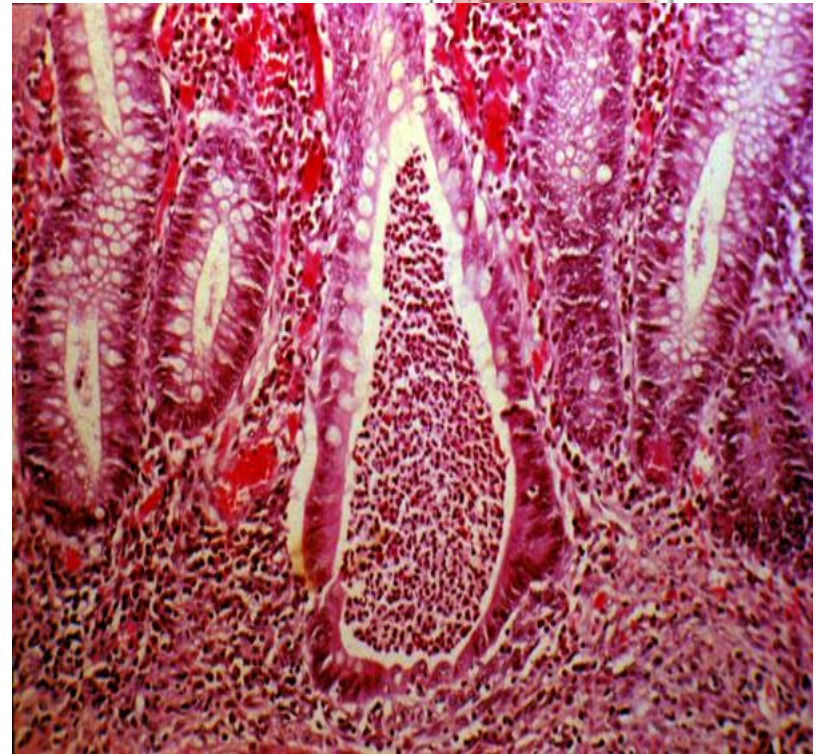
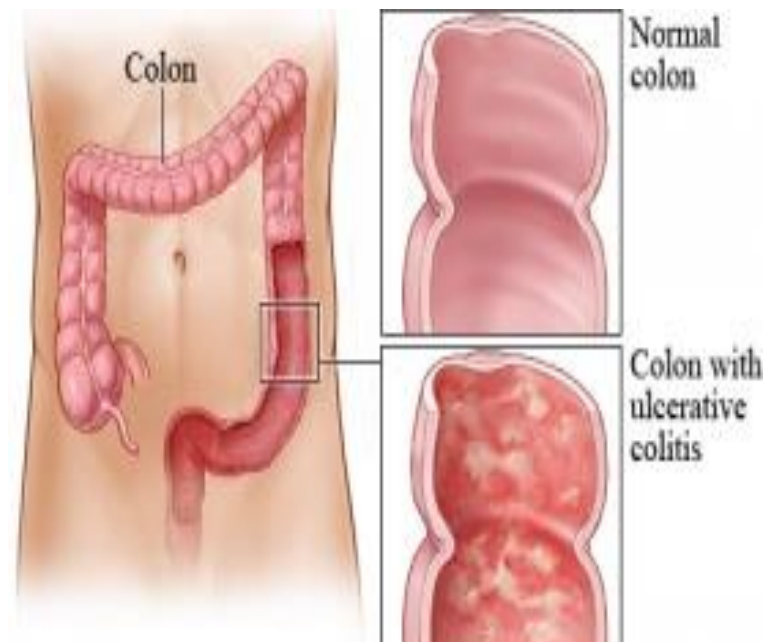
Crypt Abscess

Q: Its suggestive for ?

Ulcerative Colitis

Q: Someone came with positive clinical manifestations and signs of the disease , What are the investigations you would do inorder to confirm your diagnosis ?

- 1.Stool examination: blood, mucous, pathogens
- 2.Hb
- 3.ESR, C-R-protein, albumin
- 4.Lower endoscopy.
- 5.Plain films: colon dilatation $> 5.5\text{cm}$



Ulcerative colitis

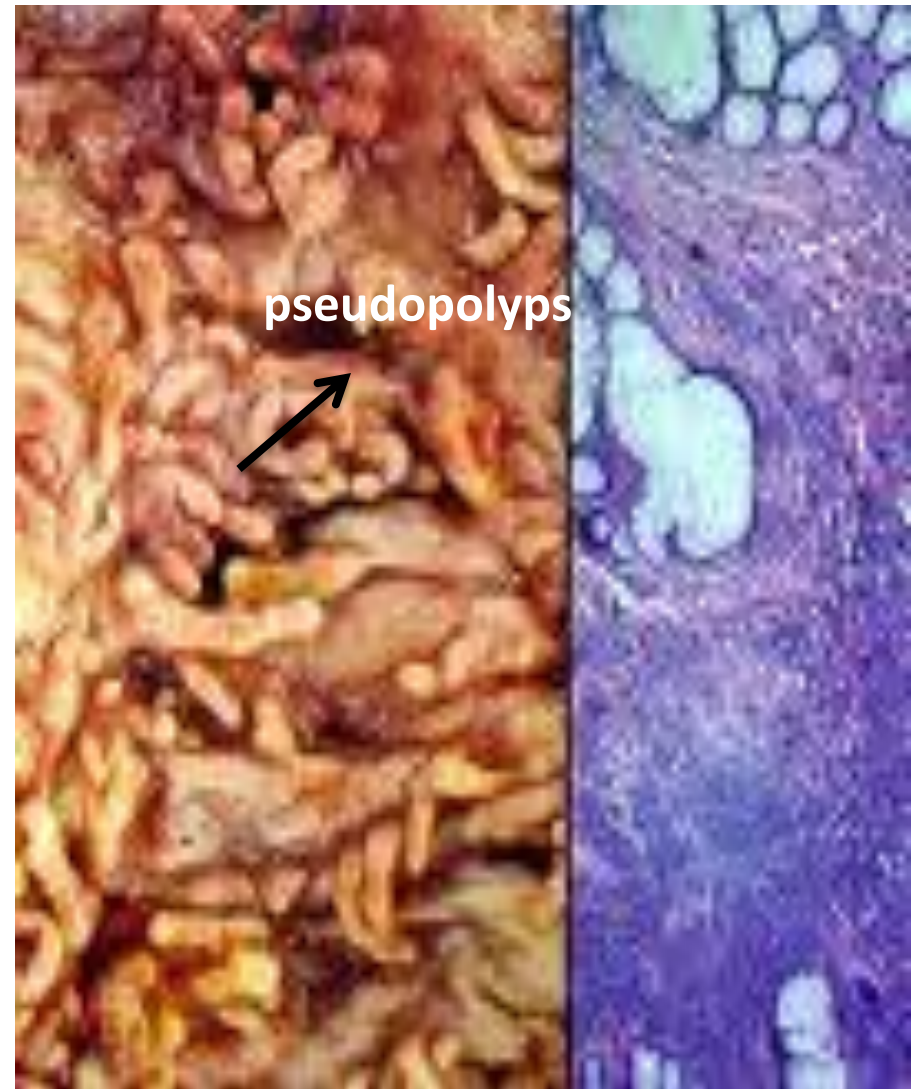




FIGURE 17-40 Crohn disease of ileum, showing narrowing of the lumen, bowel wall thickening, serosal extension of mesenteric fat ("creeping fat"), and linear ulceration of the mucosal surface (arrowheads).

Q: What is the appearance seen in the pic ?

Cobblestone mucosa (as rocks)

Q: It is pathognomonic for what disease ?

For Crohn's disease



Q: What do you see in the pic on the left ? What is this called?

Segment of the bowel with normal mucosa followed by another segment of abnormal one (there is edema between the ulcers) → This appearance is called **Cobblestone Appearance**

Q: What is the probable diagnosis ? Crohn's disease

Q: What does this Histology pic show ? Granuloma,, seen in Crohn's disease

Skip Lesion

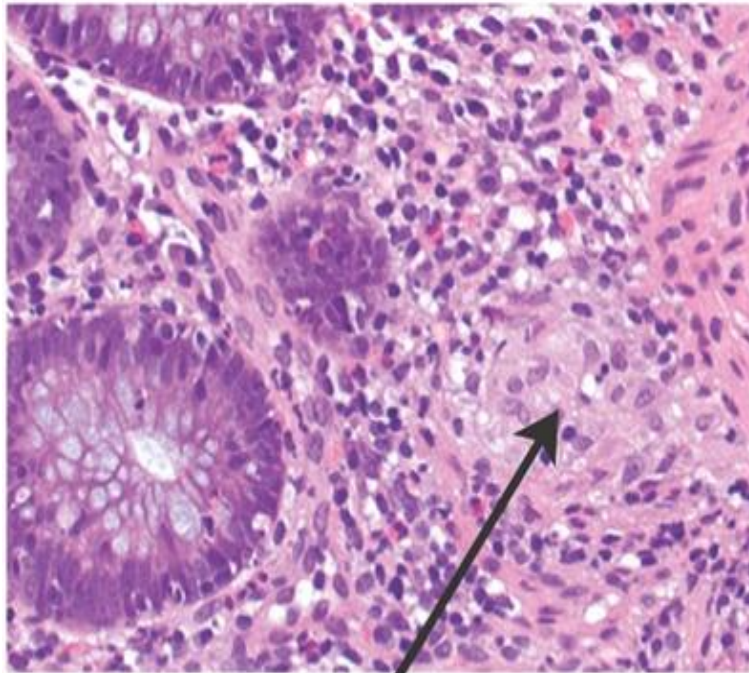


Granuloma



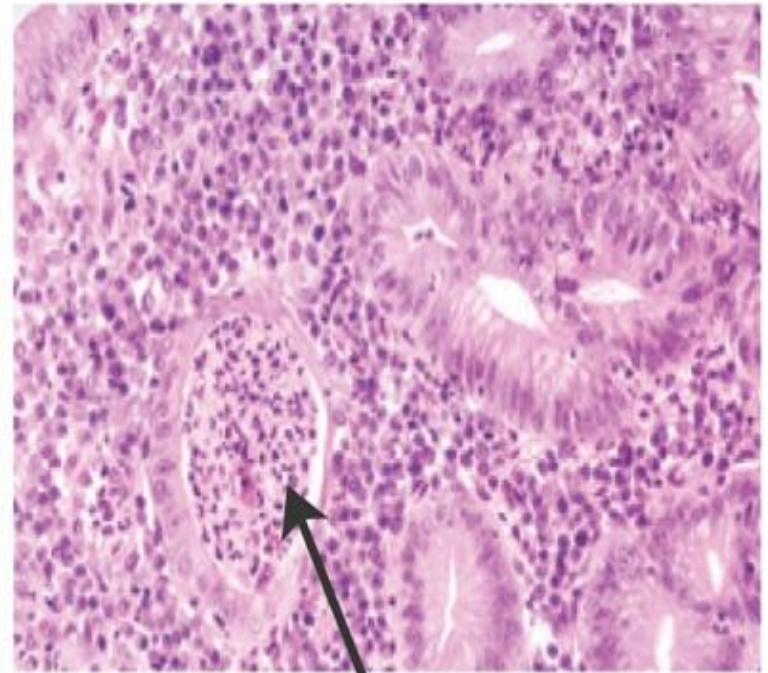
Q: How could we differentiate Ulcerative Colitis from Crohn's Histologically ??

Crohn's disease



Granuloma

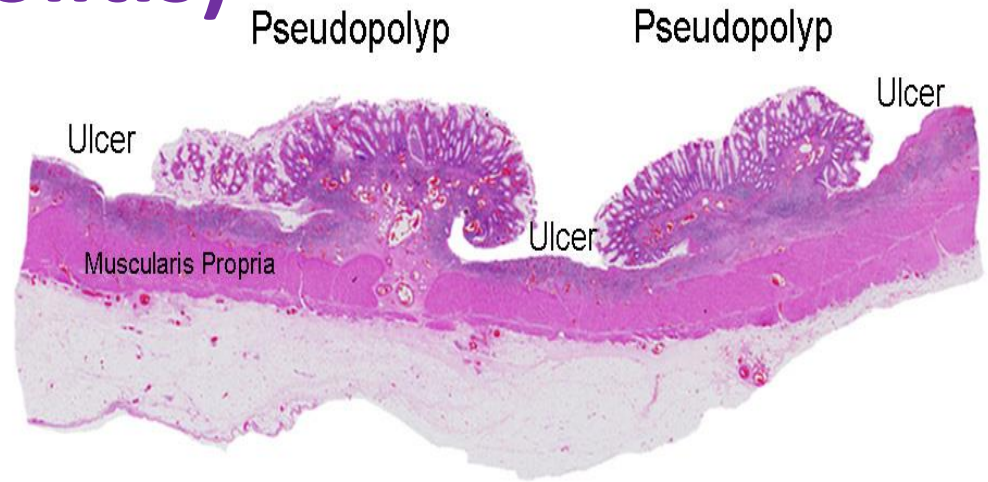
Ulcerative colitis



Crypt abscess

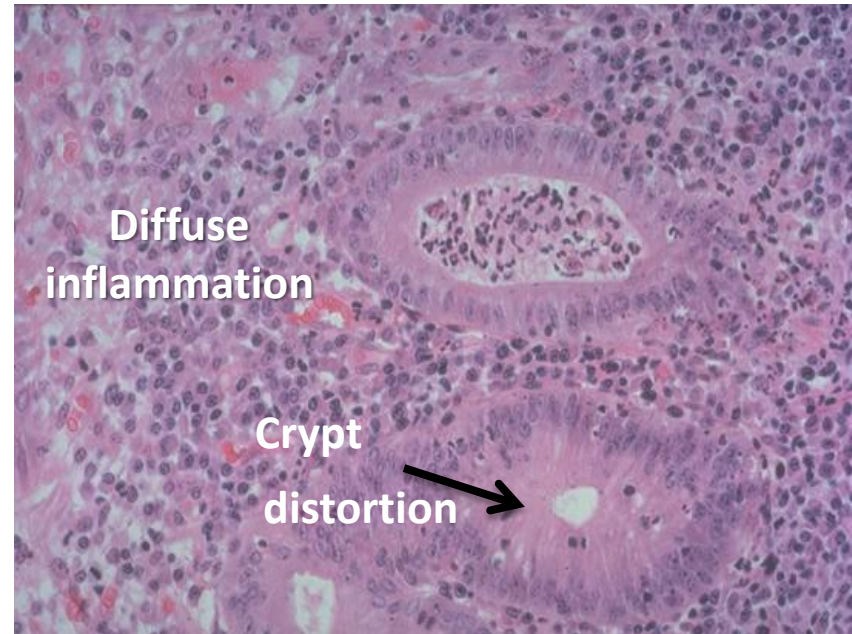
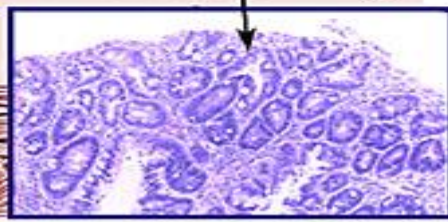
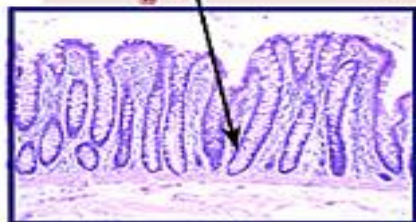
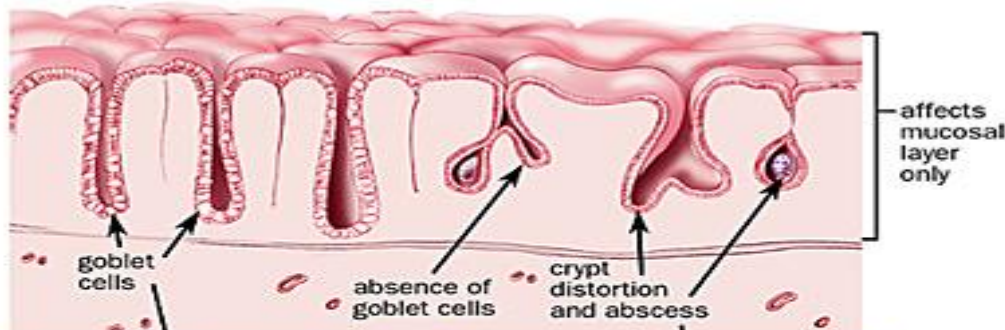
Microscopic features (Ulcerative Colitis)

- Crypts atrophy & irregularity
- Superficial erosion
- Diffuse mixed inflammation
- Basal lymphoplasmacytosis



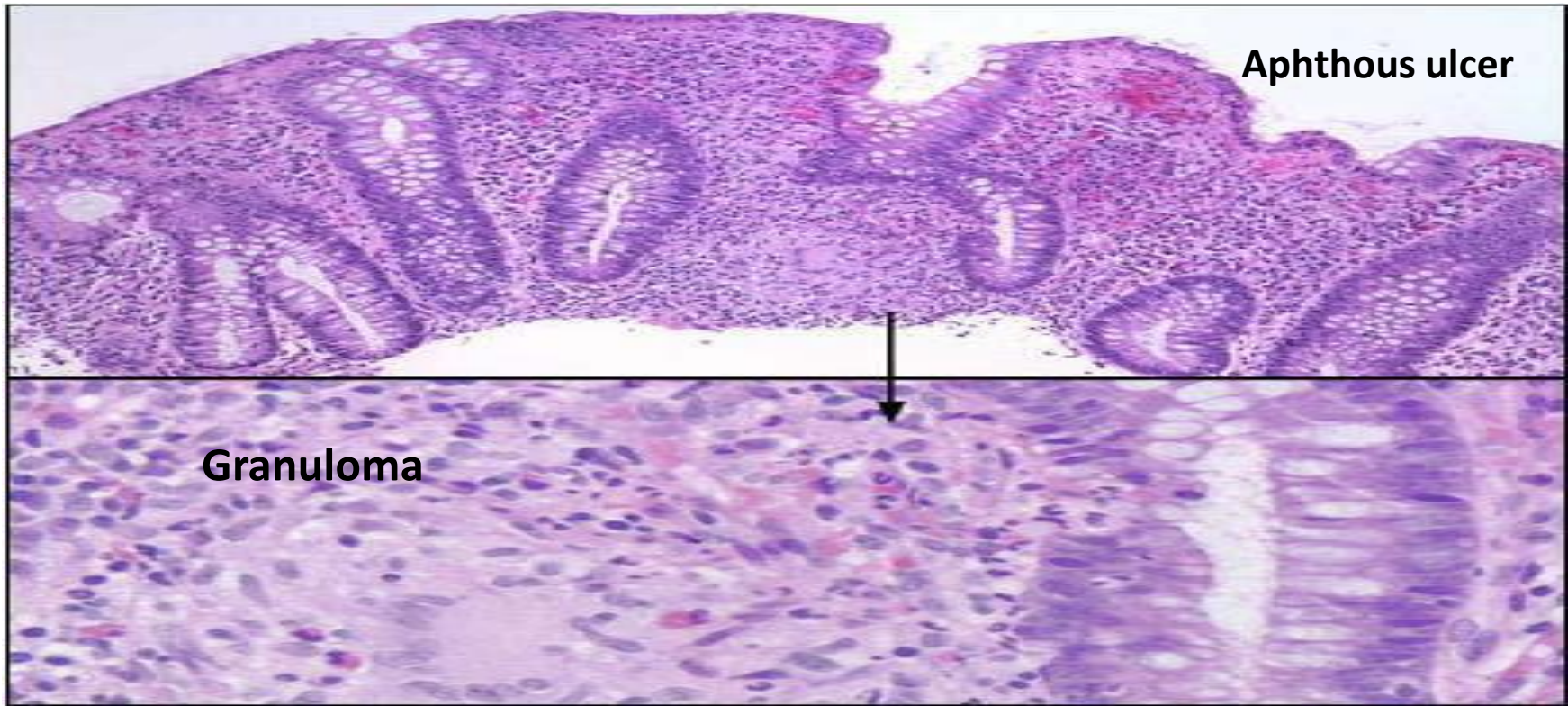
Normal colon

Ulcerative colitis



Macroscopic features **(Crohn's disease)**

- Aphthous ulcerations
- Focal crypt abscesses
- Granuloma-pathognomonic
- Submucosal or subserosal lymphoid aggregates
- Transmural with fissure formation



Ulcerative Colitis

Pathology

- In severe fulminant colitis, a section of the colon, usually the transverse colon, may become **acutely dilated**, with the risk of *perforation (toxic megacolon)*



Q: What abnormalities do you see in this pic ?

- Long stricture/spasm of the ascending colon/cecum (arrow)
- Pseudopolyps in the descending colon

Q:What is your diagnosis ?

Ulcerative colitis

Q: Give other differential Diagnosis ?

- 1.Ulcerative vs. Crohn's vs. Indeterminate.
- 2.Ischemic colitis.
- 3.Infective colitis.
- 4.Pseudomembranous colitis.
- 5.Ileocecal tuberculosis.
- 6.Behcet's disease.
- 7.yersinia terminal ileitis.



[Previous Image](#)

Image 12 of 21

[Next Image](#)

Plain abdominal radiograph in a 26-year-old with a 10-year history of ulcerative colitis shows a long stricture/spasm of the ascending colon/cecum. Note the pseudopolypsis in the descending colon.



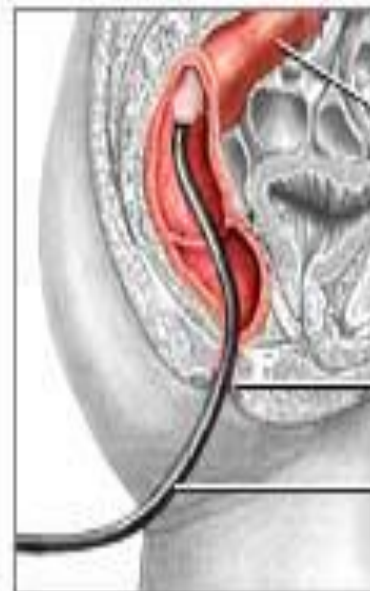
Toxic megacolon

Barium enema

Barium liquid is instilled into the large intestine through the anus



Radiologic view of barium enema



Large intestine

Anus

Endoscope



Q: What does this pic represent ?

Barium Enema

Q: What does it show ?

- Fine mucosal granularity
- Superficial ulcers seen
- Collar button ulcers
- Pipe stem appearance-
loss of haustrations
- Narrow & short colon-
ribbon contour colon



Q1: What is the finding on X-ray in the pic on the right ?

Loss of haustrations in the colon

Q2: What is the probable diagnosis ?

Seen in Ulcerative colitis



Normal Colon



Loss of Haustration in UC



Q: What sign is seen here ?

String sign

Q: Where do you see it ?

In Crohns disease

Q: Management (for any UC case) ?

**** Medical :**

- 1.Sulphasalazin:
- 2.Corticosteroids.
- 3.Azathioprine, 6 MP, cyclosporine.
- 4.Metronidazole.
- 5.Infliximab (monoclonal antibody against TNF-alpha).

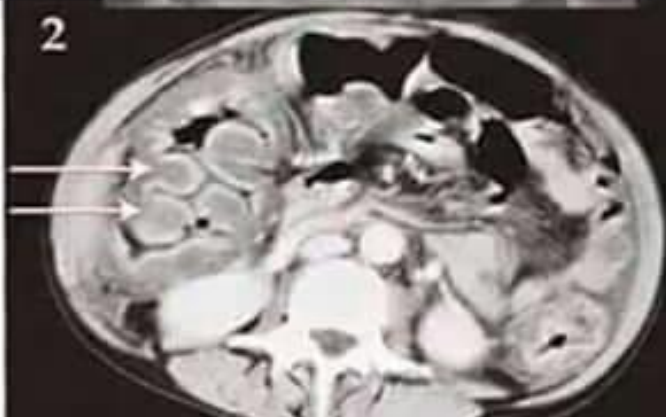
**** Surgery :**

The disease can not be cured by surgery.
Surgery is reserved for complications.



thumb-printing sign

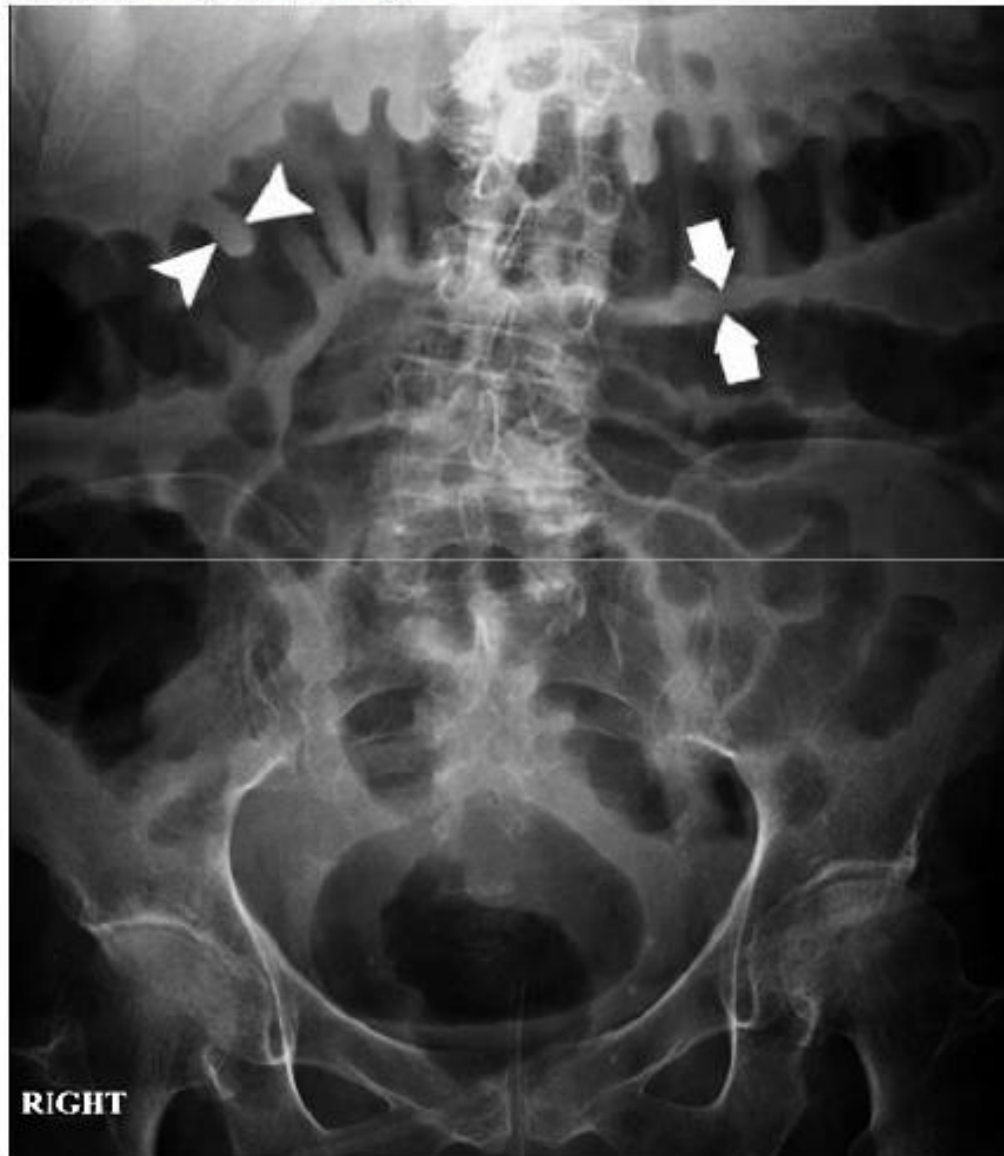
- pseudomembranous colitis
- ulcerative colitis
- Crohn disease
- ischaemic bowel
- diverticulitis
- lymphoma
- amyloid



Thumb printing

indentation in contrast or air-filled bowel lumen caused by sub mucosal infiltration and resembling a thumbprint; e.g. ischemia

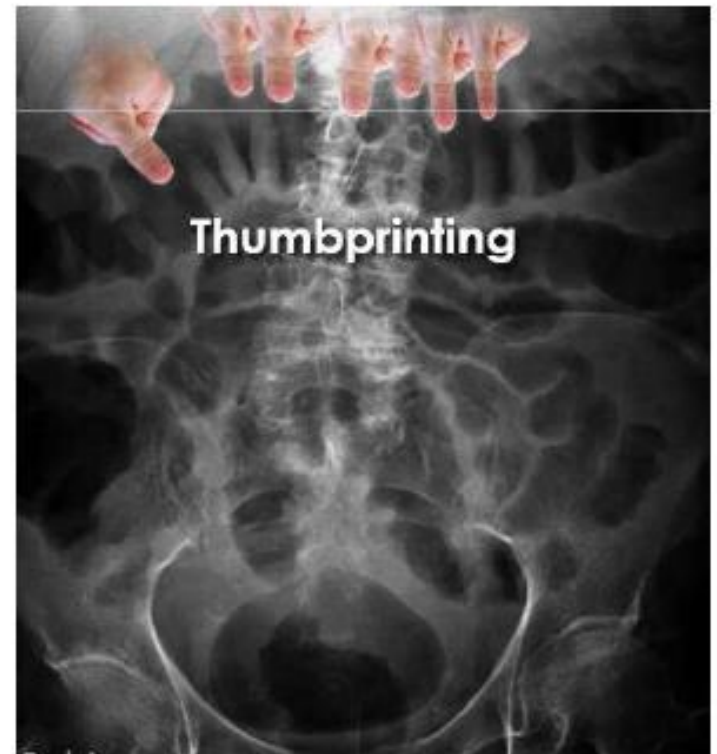
Hover over image to show findings



Mucosal thickening - 'thumbprinting'

This patient presented with an exacerbation of symptoms of ulcerative colitis .

The distance between loops of bowel is increased (arrows) due to thickening of the bowel wall. The haustral folds are very thick (arrowheads), leading to a sign known as 'thumbprinting.'



A pattern seen on a barium enema of the ascending colon, in which rigid fibrosis causes transverse linear fissures intersecting with gullies of contrast material in deep longitudinal ulcers, a finding in in

Crohn's disease

Step ladder configuration



Ulcerative Colitis with multiple ulcer.

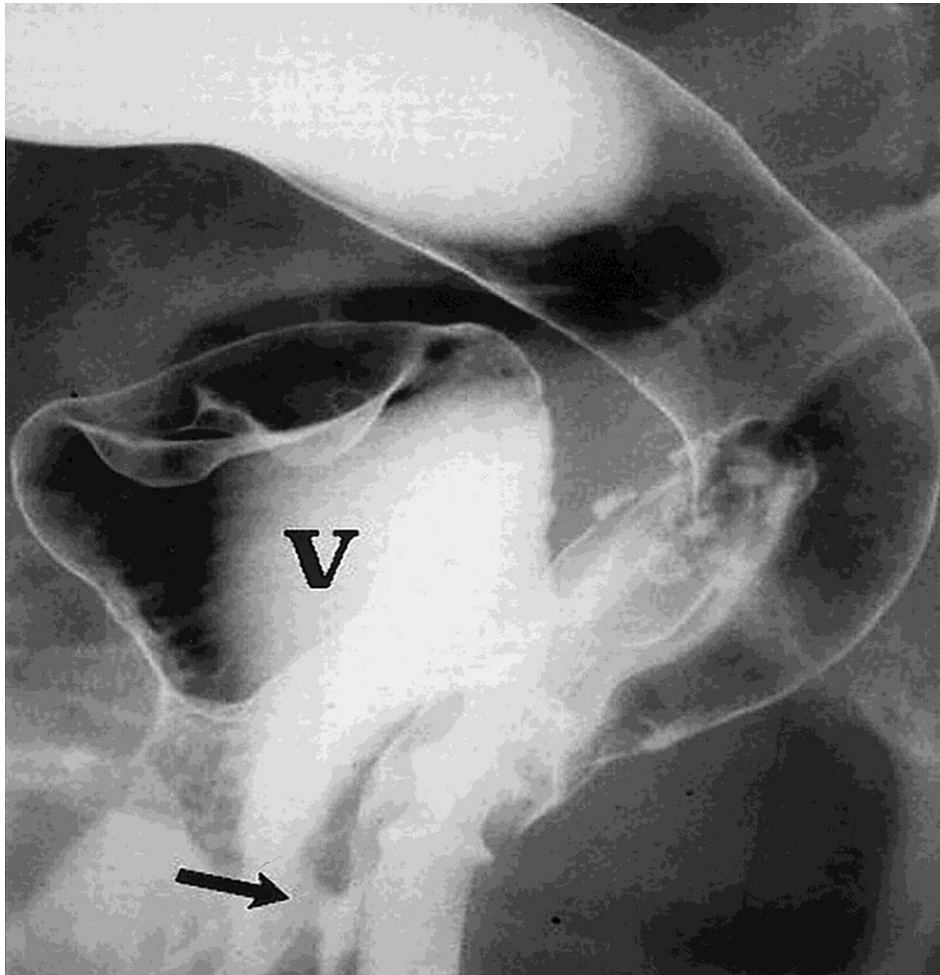


Q: What do you see in the pic (abnormality) ?

loss of haustral pattern and lead pipe appearance.

Q:Whats your diagnosis ?

Ulcerative Colitis



Q: This pt has Ulcerative Colitis for 20 years. What do you see in the pic ?

- Total colitis
- Granular mucosa in the cecum/ascending colon
- multiple strictures in the transverse and descending colon

Q: What type of imaging is this?

Double-contrast barium enema



[< Previous Image](#)

Image 14 of 21

[Next Image >](#)

Double-contrast barium enema study shows total colitis. Note the granular mucosa in the cecum/ascending colon and multiple strictures in the transverse and descending colon in a patient with a more than a 20-year history of ulcerative colitis.

Q: What do you see ?

This is a single-contrast barium enema study,, which shows Burnt-out Ulcerative Colitis

Q: Management (for any UC case) ?

** Medical

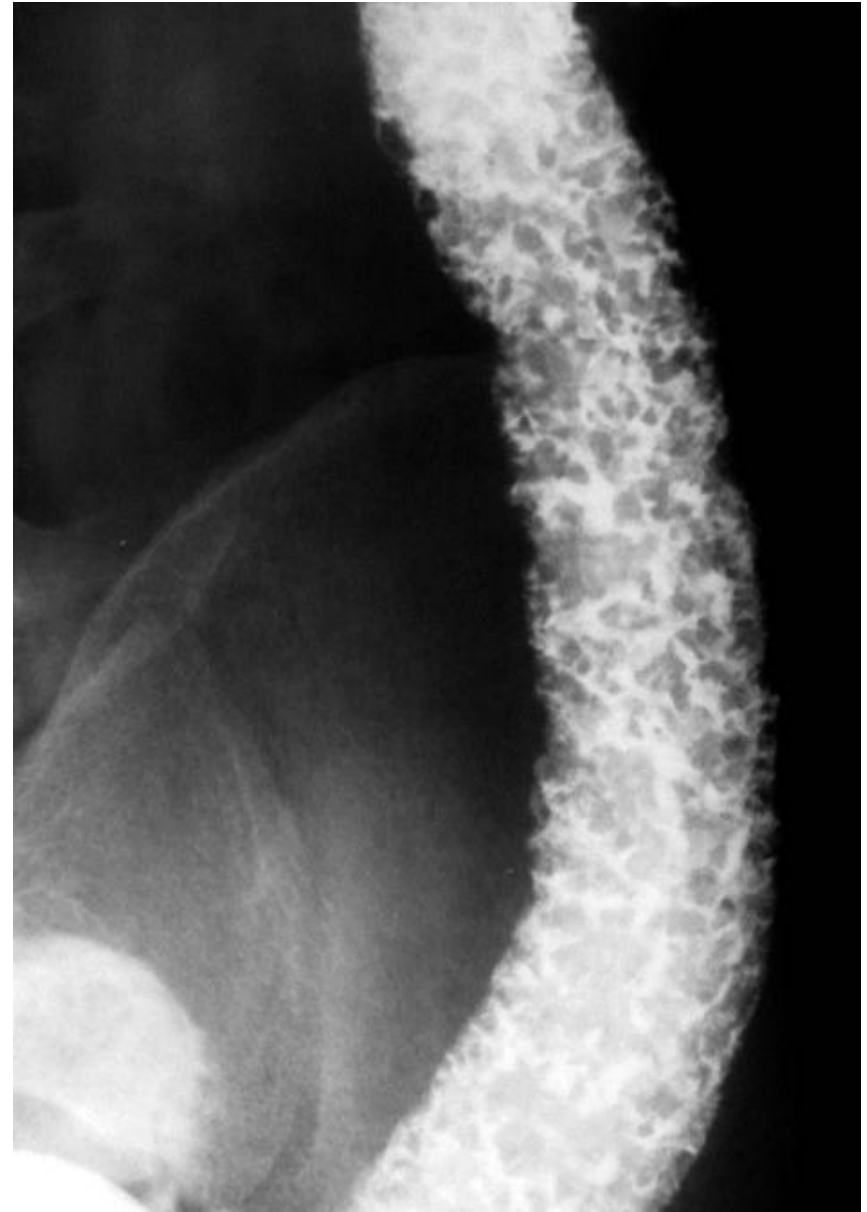
- 1-Corticosteroids:topical, oral I.V.
- 2-Sulfasalazine: topical, oral.
- 3-Immunosuppressive therapy.

** Surgical :

- 1-Total proctocolectomy & permanent ileostomy.
- 2-Total colectomy & ileorectal anastomosis.
- 3-Total proctocolectomy, ileal pouch & pouch-anal anastomosis.



Ulcerative Colitis with pseudo-polyp.



Ulcerative Colitis with multiple stricture segments.



Q: What are the findings seen in the below pics?

Contracted colon with widespread pseudopolyp formation.

There is also a stricture at the hepatic flexure, which was inflammatory.



Q: What do you see ? What is your probable diagnosis ?

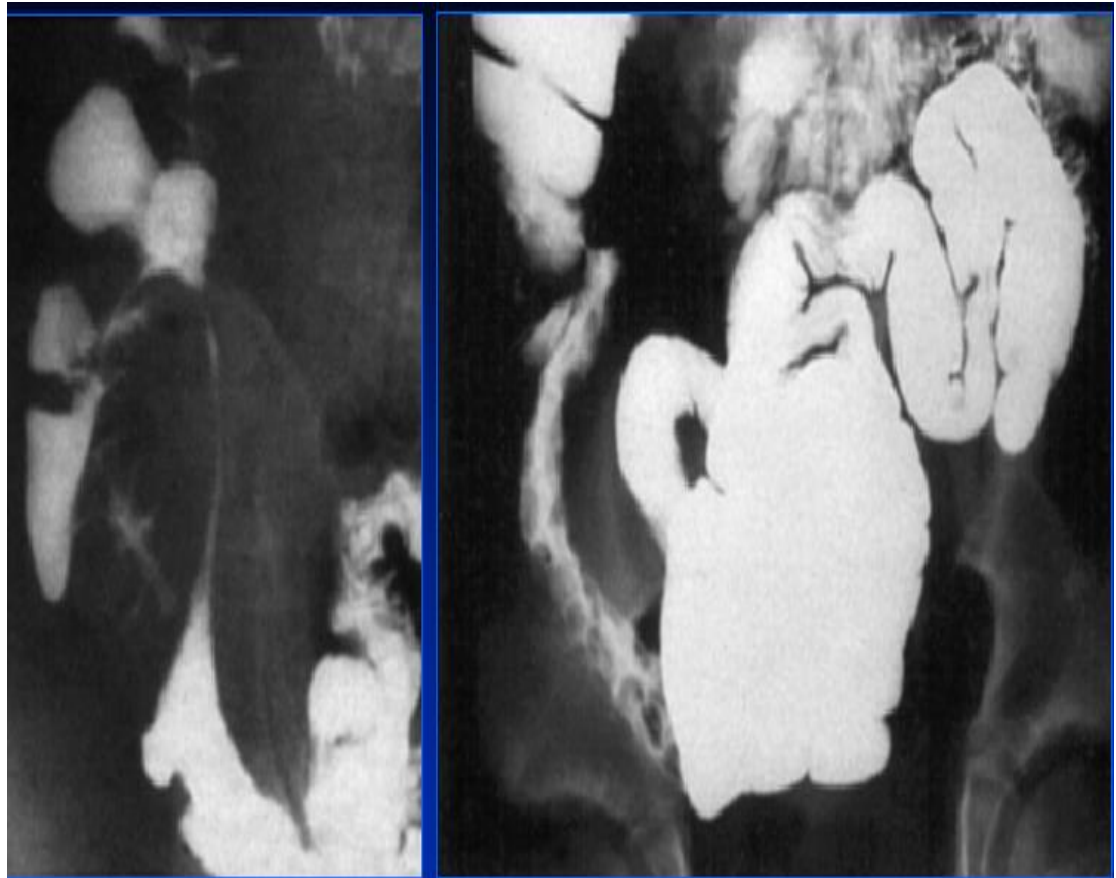
Crohn's Disease → with stricture segment (Sting sign of Kantor)
and wide separation between loops.

Q: What other differential Diagnosis did you put in mind ?

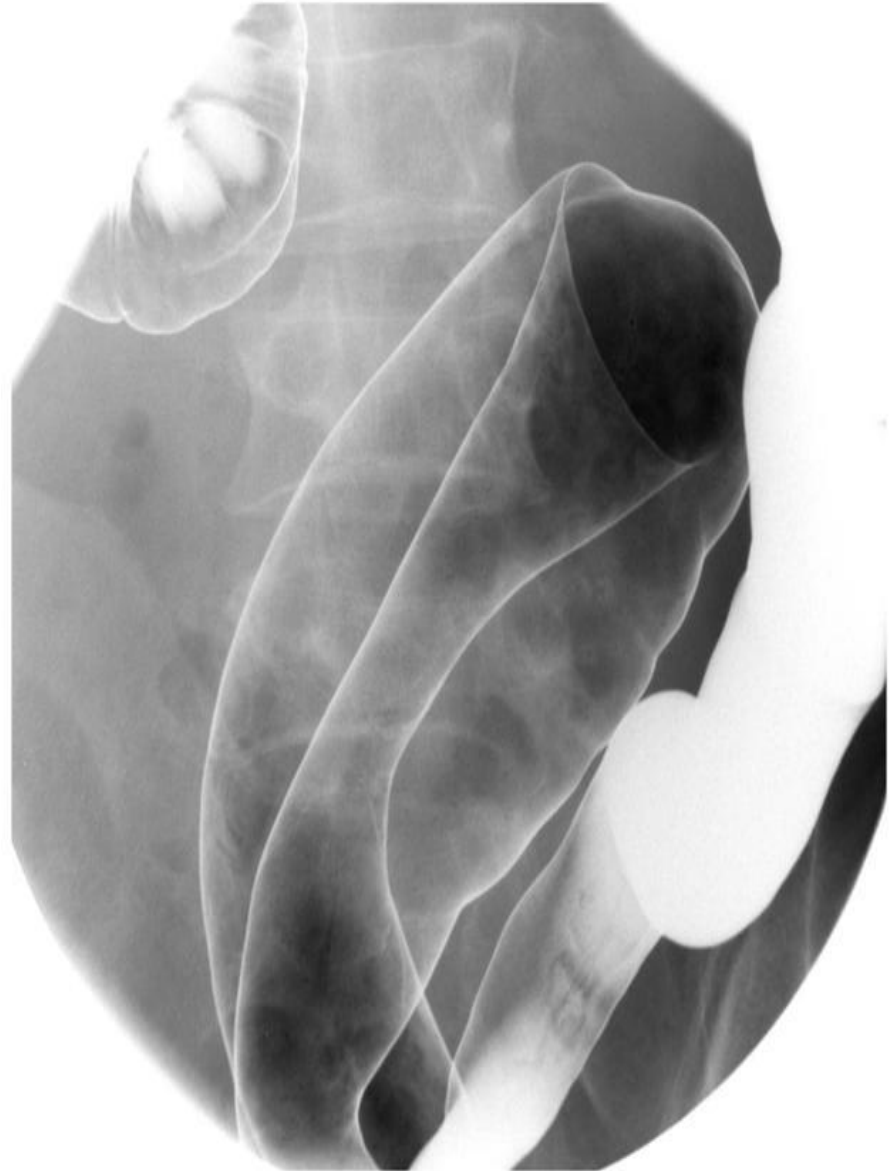
- 1.Ulcerative vs. Crohn's vs. Indeterminate.
- 2.Ischemic colitis.
- 3.Infective colitis.
- 4.Pseudomembranous colitis.
- 5.Ileocecal tuberculosis.
- 6.Behcet's disease.
- 7.yersinia terminal ileitis.

Q: What Investigations would you order for a Crohn pt?

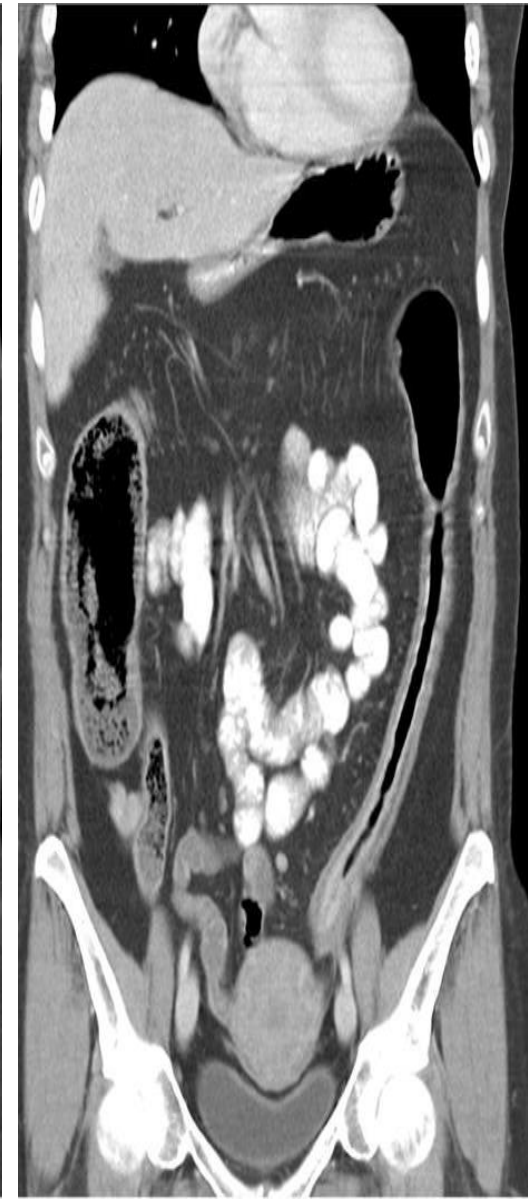
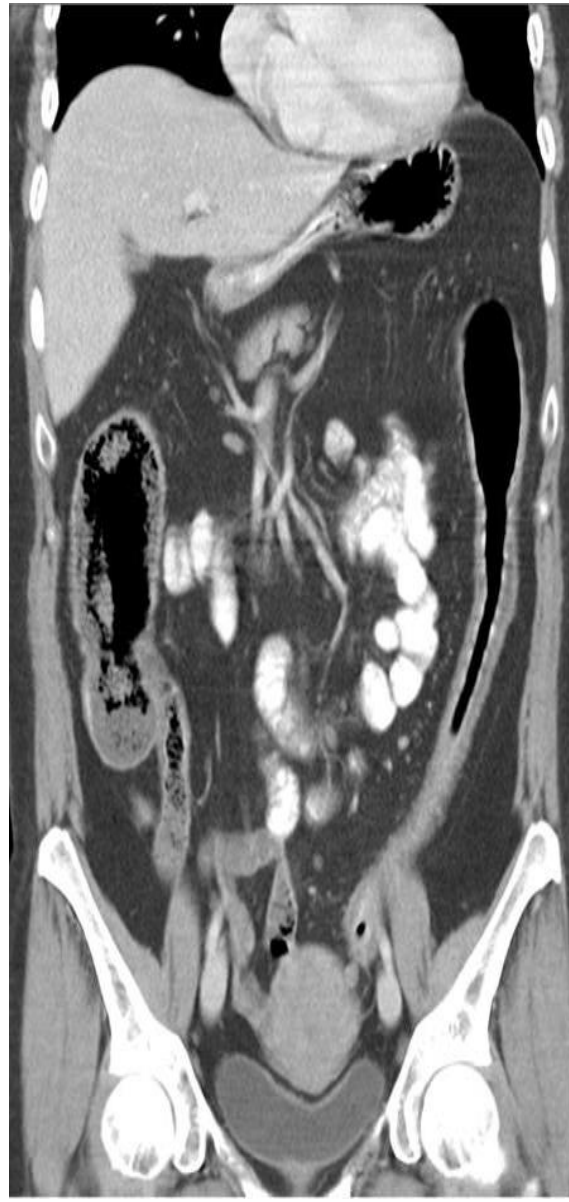
- 1.Small bowel enema.
- 2.Barium enema.
- 3.Colonoscopy.



Ulcerative Colitis with lead pipe colon.



Ulcerative Colitis with thickened wall and narrow lumen.



Q: What do you see ?

Fluid filled intestine

Q: What is your diagnosis ?

Crohn's disease

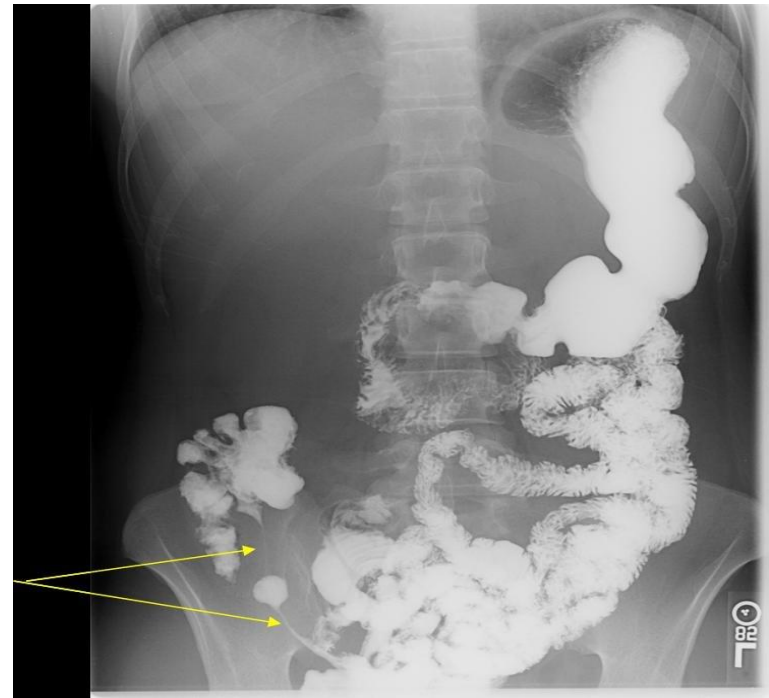
Q2 : How does the pt present (Clinical Presentation) ?

** Symptoms

1. Diarrhea 70-90%
2. Bleeding PR 33%
3. Abd. pain >50%
4. Malaise, anorexia, fever and weight loss
5. Anemia and malabsorption.
6. Failure to thrive.
7. Perianal disease.

** Signs :

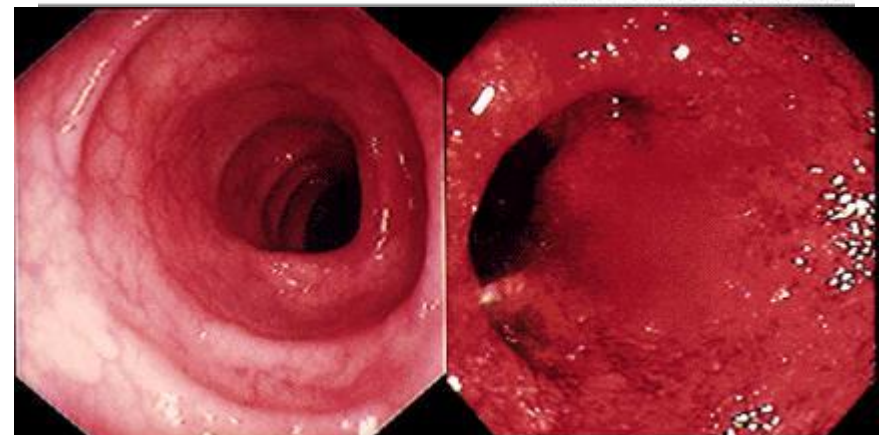
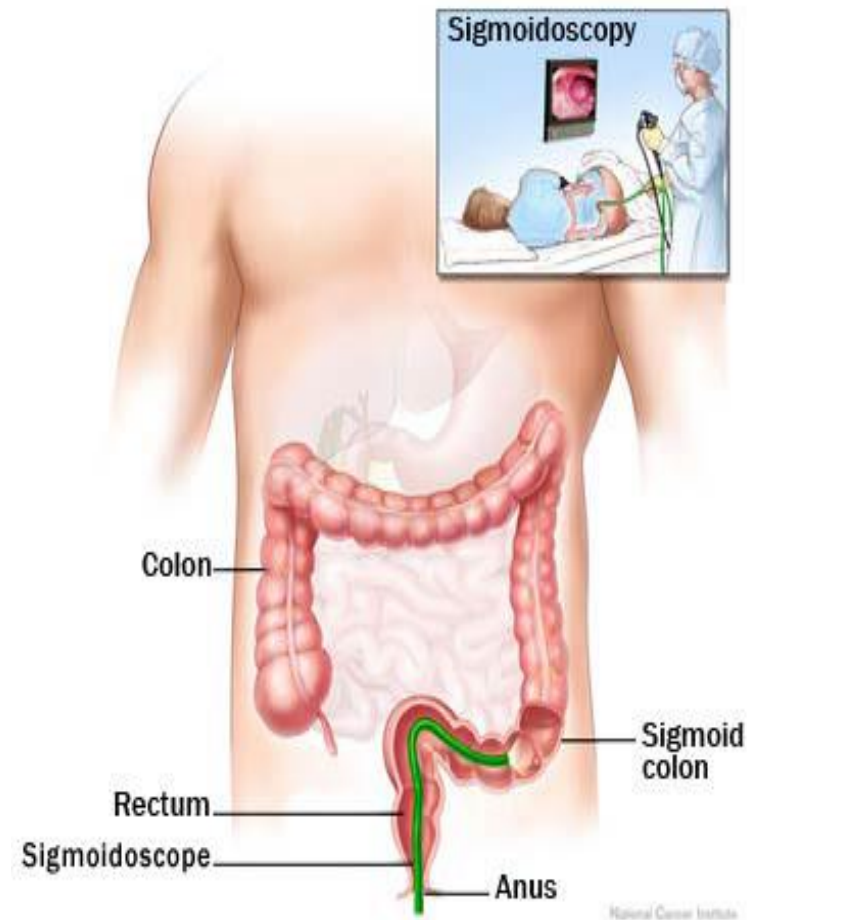
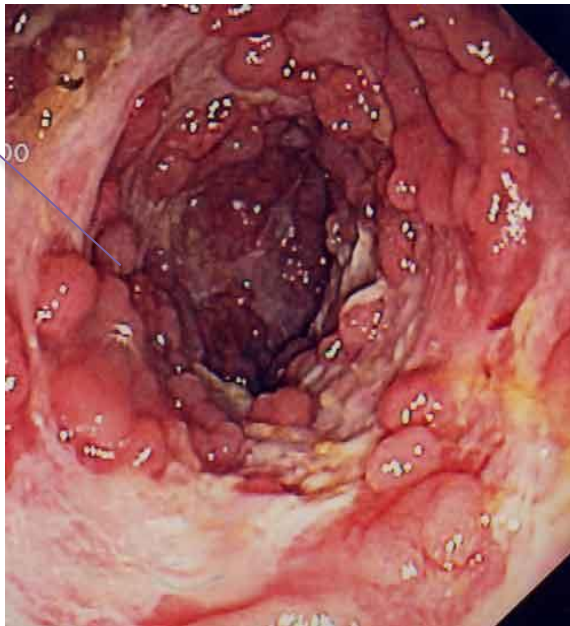
1. Tender mass
2. Anal lesions (in >30% of cases as tags, fissures, fistulas, abscesses)
3. Picture of acute appendicitis 10%.



Sigmoidoscopy

- Always abnormal
- Loss of vascular patterns
- Granularity
- Friability
- ulceration

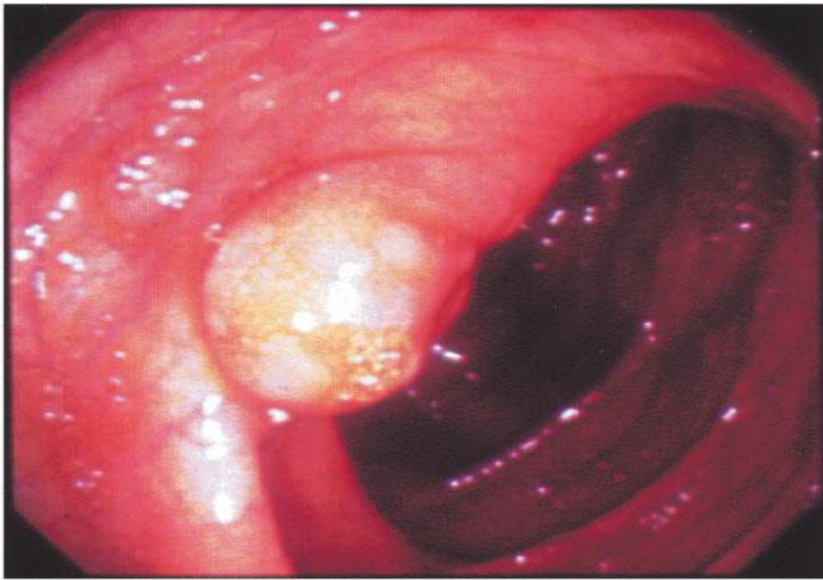
Crohn's Disease



Healthy Colon

Ulcerative Colon

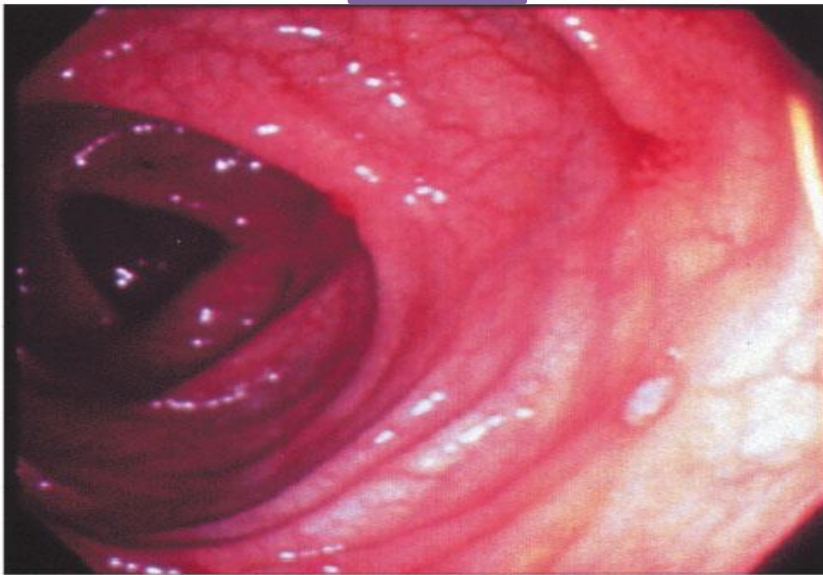
Colonoscopy - UC



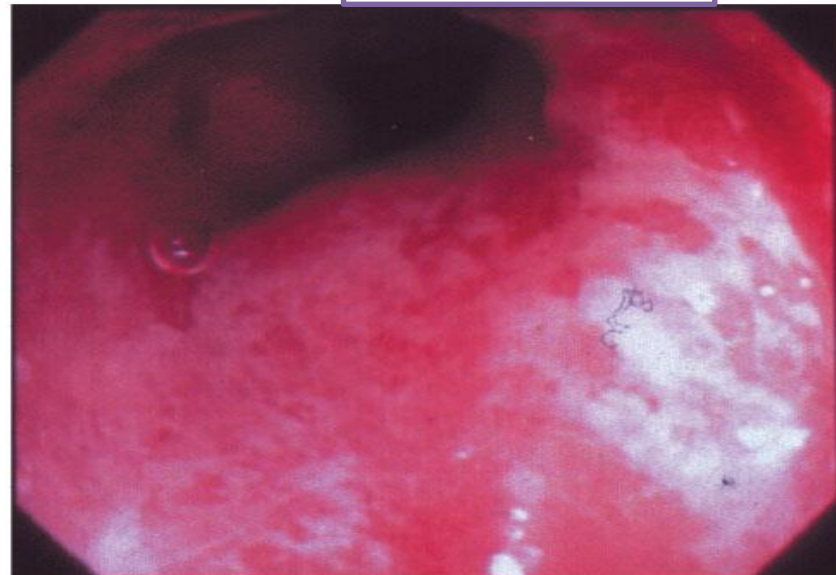
Cecum



Ascending colon



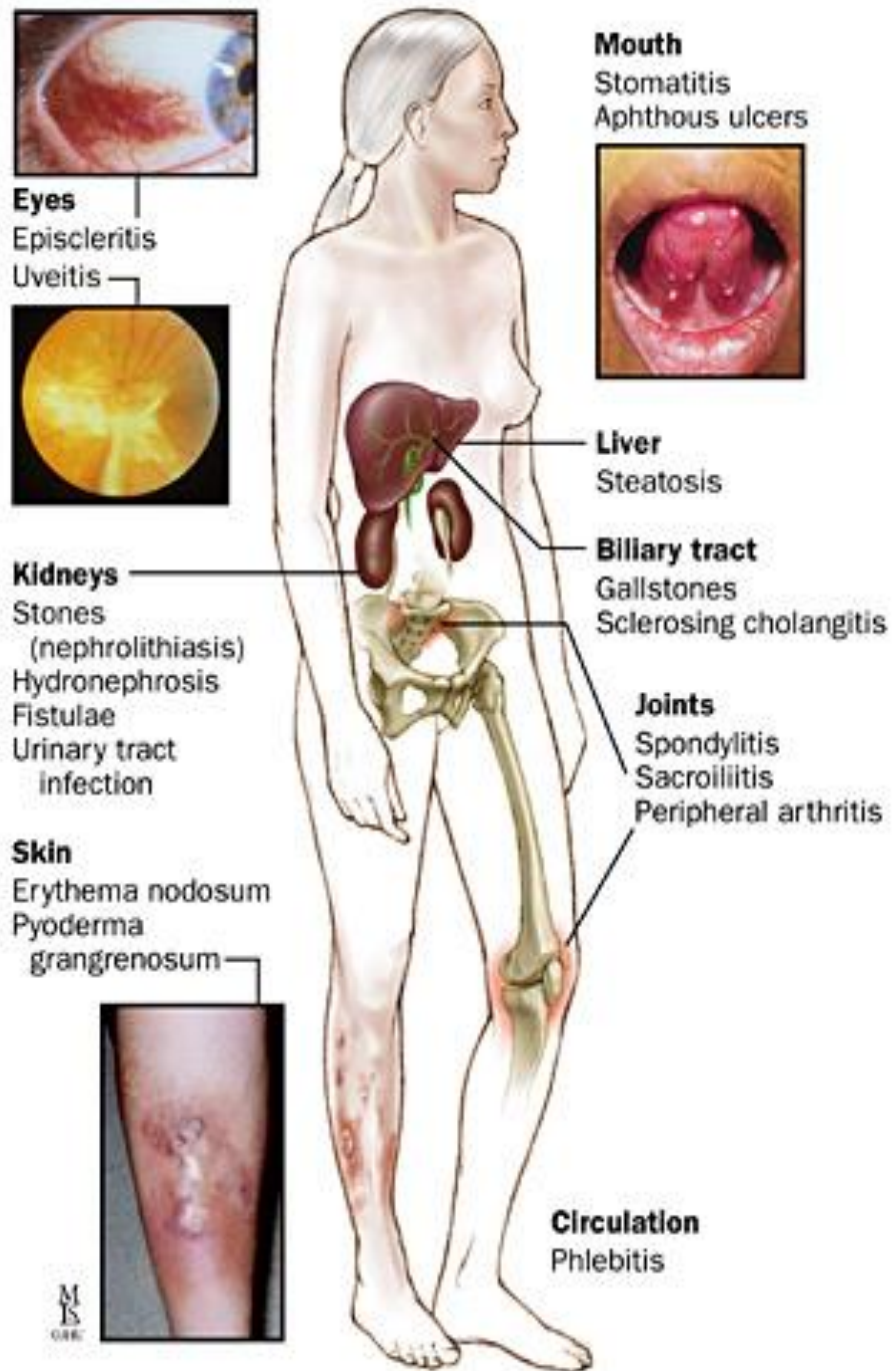
Transverse colon



Sigmoid colon

Figure 2. Results of a colonoscopy. Multiple aphthous ulcers on the cecum (A), ascending colon (B), transverse colon (C) and sigmoid colon (D).

Extra intestinal manifestations



Pyoderma Gangrenosum

Q1: What are the extra-intestinal manifestations of UC ?

- Arthritis
- Liver disease
- Eye problems
- Skin lesions (as demonstrated in the pic's)

Aphthous Ulcers



Erythema Nodosum (*lower limb*)





Pyoderma gangrenosum Multiple active and healing lesions of pyoderma gangrenosum with cribriform scarring in patient with inflammatory bowel disease. Courtesy of Samuel Moschella, MD.



Pyoderma gangrenosum Early lesion in pyoderma gangrenosum presenting as a pustular and violaceous plaque with incipient breakdown. Courtesy of Cynthia Magro, MD.

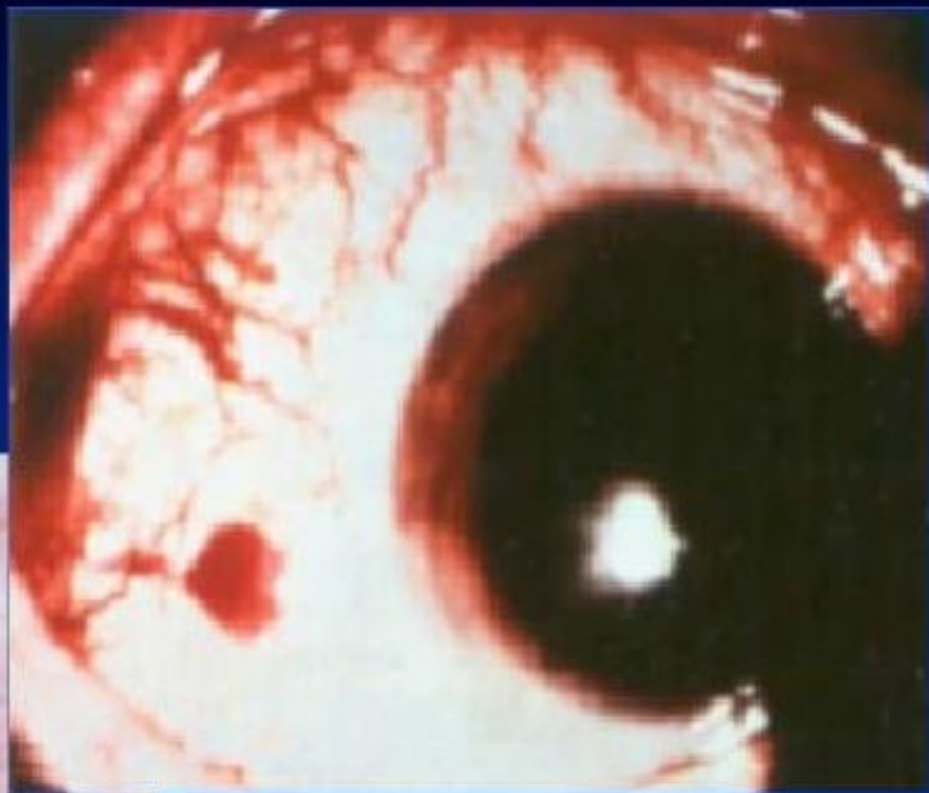


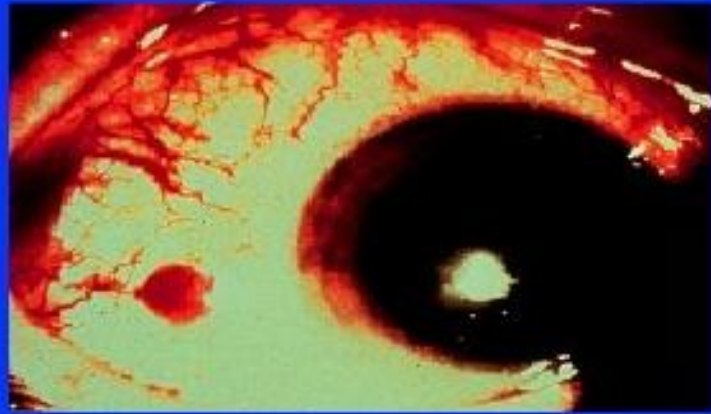
Erythema nodosum Patient with inflammatory bowel disease with red nodular areas on the shins which are characteristic of erythema nodosum. (Courtesy of the American Gastroenterological Association®. This slide cannot be downloaded but may be purchased as part of a set from the AGA through Milner-Fenwick, Inc at 1-800-432-8433.)

UC - IBD Systemic Complications

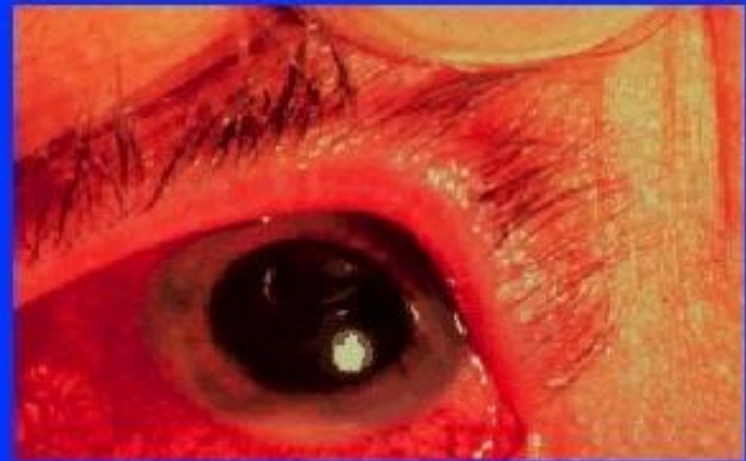


UC - IBD Systemic Complications





Episcleritis Patient with episcleritis associated with inflammatory bowel disease showing the characteristic injection of the ciliary vessels. (Courtesy of the American Gastroenterological Association®. This slide cannot be downloaded but may be purchased as part of a set from the AGA through Milner-Fenwick, Inc at 1-800-432-8433.)



Anterior uveitis Anterior uveitis in a patient with inflammatory bowel disease is characterized by injection of the conjunctiva and opacity in the anterior chamber. Courtesy of the American Gastroenterological Association®. This slide cannot be downloaded but may be purchased as part of a set from the AGA through Milner-Fenwick, Inc at 1-800-432-8433.

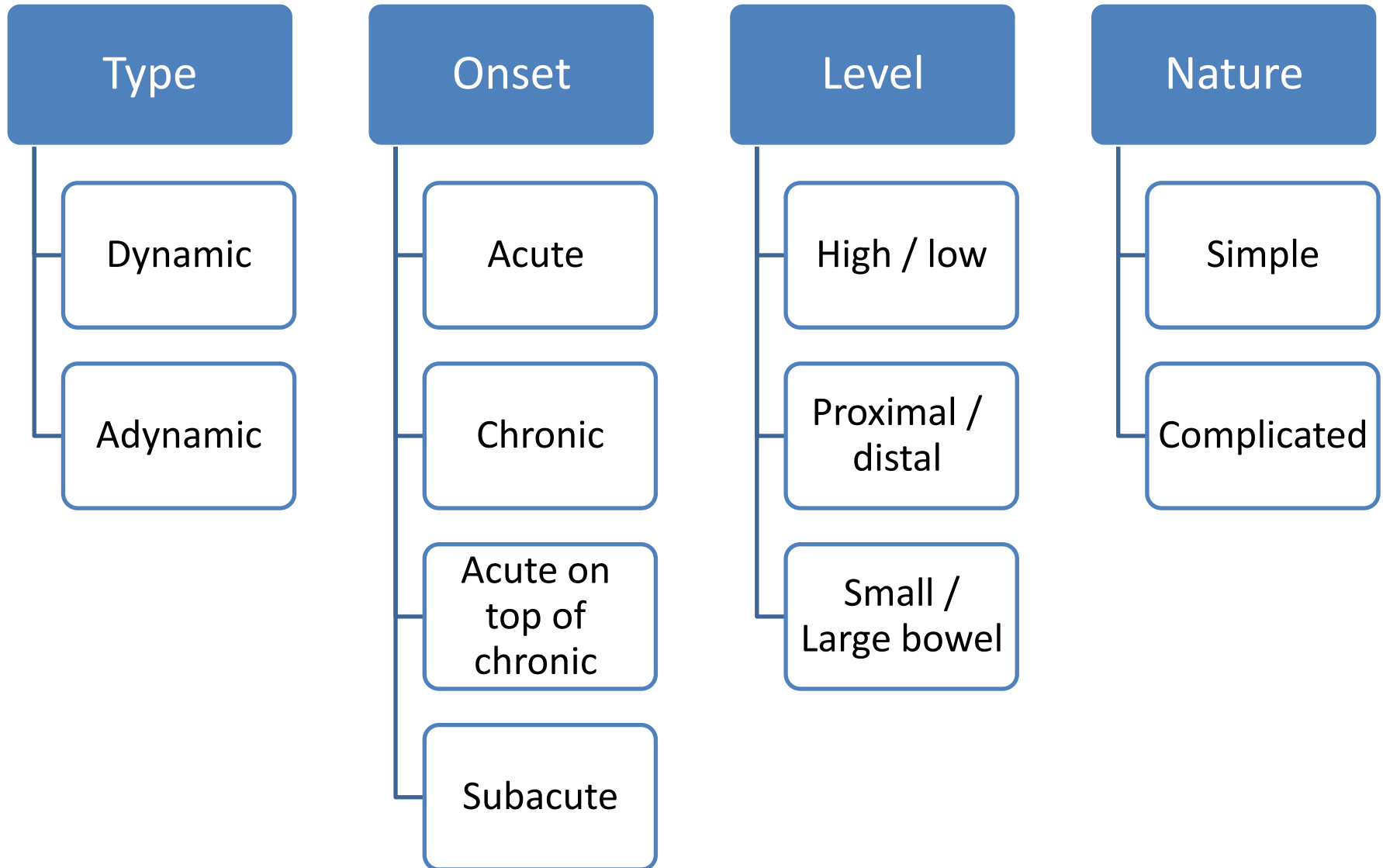
Intestinal Obstruction

Please be noted that this lec contains pictures from different resources not only the pic's in the dr's lecture ...

Hope its useful

And sorry for any mistakes ^_^

Classification depending on :



***** What can present in the history (case) that may lead to the Dx,, or may be a Q >>***

(What in the history goes with the diagnosis of the x-ray ?)
“for example”

Onset

Acute → -Sudden severe central colicky pain
-central distension -early vomiting
-late constipation *“usually Small bowel”*

Chronic → -lower abdominal pain - constipation
-followed by distension of long duration
“usually Large bowel”

Acute on Top of chronic → -short history of distension
-with vomiting on longer history of pain & constipation

Subacute → incomplete ON & OFF intestinal obstruction

**Dynamic
(mechanical/
obstructive)**

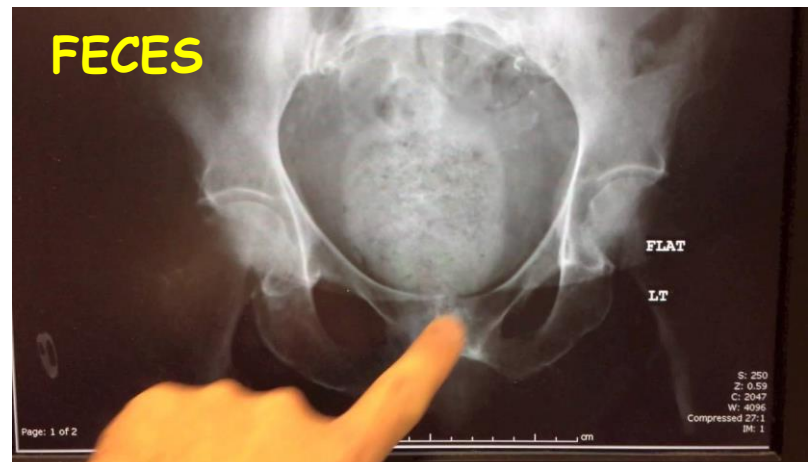
- **Intraluminal**
-GALL STONES/ Foreign body/BEZOARS /WORMS/ FECES
- **Intrumural (*within the walls of a cavity or hollow organ*)**
-TB /CROHN'S/TUMORS/STICTURE/ CONGENITAL
- **Extraluminal (*Occurring or situated outside of the walls or boundaries*)**
-BANDS/ADHESIONS /ABSCESS /HERNIAS /COMPRESSION

Type

**Adynamic
(non-mechanical)**

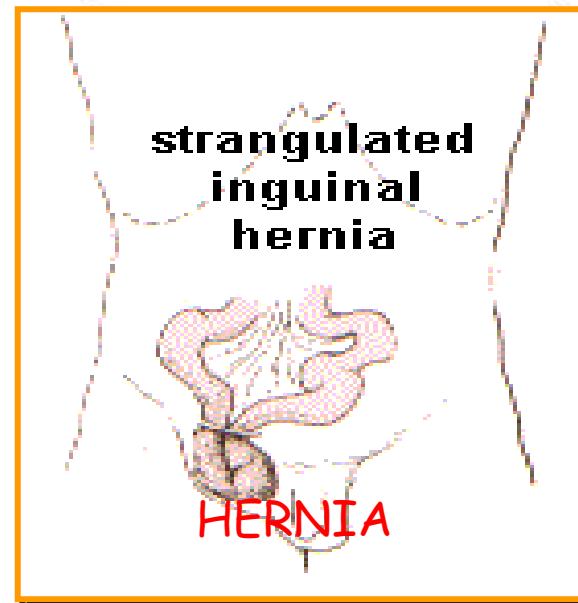
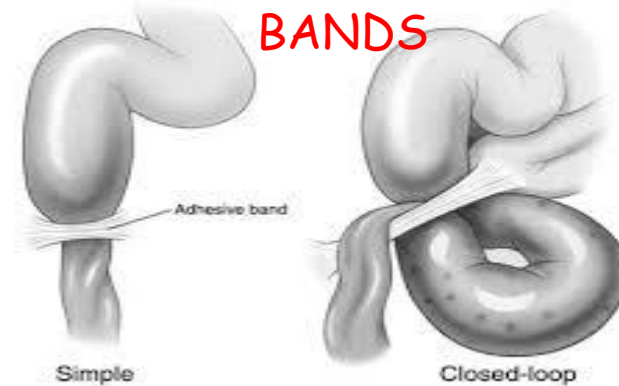
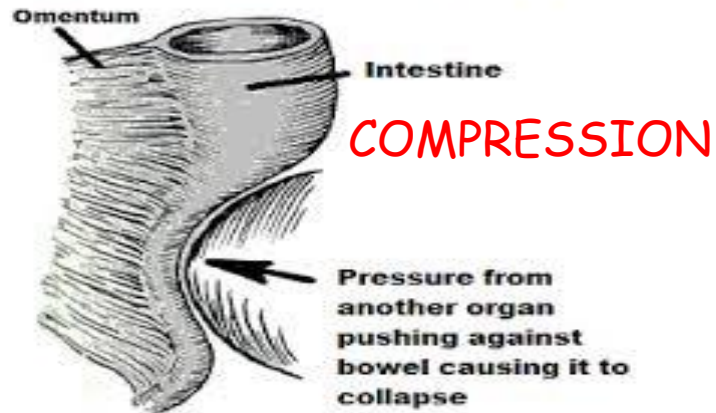
- *Peristalsis may be absent (paralytic ileus)*
- *non-propulsive form (mesenteric vascular occlusion or pseudo obstruction).*
-Peritonitis/Electrolytes' Imbalance
/Postoperative/Ischemia/Drugs /Retroperitoneal causes...

“Intraluminal”



“Extraluminal”

Compression of Bowel by Other Organ



Level

	Small Bowel		Large Bowel
	High	Low	
Pain	-Pain is centrally -colicky		-Pain is peripheral -Dull / mild
Abdominal Distension	Little / central	Great distension of the whole abdomen	Early & pronounced
Vomiting	Early / bilious	Late / feculent	-delayed or absent -Feculent
Radiograph	-Little fluid levels on abdominal Radiograph	-Multiple central fluid levels are Seen <u>-“Ladder-like dilatation”</u>	-Proximal colon and caecum are distended -Haustral indentation & large diameter

SYMPTOMS & SIGNS

CARDINAL FEATURES:

- ◆ Colicky pain
- ◆ Vomiting
- ◆ Abd distention
- ◆ Constipation

OTHER FEATURES:

- ◆ Dehydration
- ◆ Hypokalaemia
- ◆ Pyrexia
- ◆ Abd tenderness

DIAGNOSIS

To make a complete diagnosis we need :

■ History:

As we are concerned in the mini OSCE exam in the case presented there are some points that will lead to the diagnosis (as we have already mentioned)

■ Clinical examination

Also in the case may be presented , and may be asked about signs that the pt. may come with in this condition (discussed in the next slide)

■ Paraclinical examination

CLINICAL EXAMINATION

Inspection:

dehydration, abdominal distention, visible peristalsis, hernias (Incarcerated hernias may be obscure (obese)), **scars** (Surgical scars can suggest adhesions)

Palpation:

masses (abdominal masses can suggest neoplasms, intussusception, abscess),
tenderness, guarding, rigidity, obstructed hernia

Percussion: tympani, tenderness

Auscultation:

frequent, metallic (period of increasing separated by periods of quite bowel sounds (high pitched, tinkling or musical) in mechanical obstruction), **borborygmi, absent**

Digital rectal examination:

impaction, masses (to seek luminal masses.), **blood** (Blood in the feces suggest mucosal lesion (cancer, intussusception, infarction)), **empty rectum**

INVESTIGATIONS:

- Lab:

- CBC (leukocytosis, anaemia, hematocrit, platelets)
- Serum Electrolytes
- Serum Creatinine → *pre-renal cause for renal failure (Acute tubular necrosis)*
- Coagulation profile → *My be the underlying cause “Warfarin toxicity”*
- Ileus check electrolytes including Ca, Mg , K
- Urine for hematuria

- Radiological:

- Plain ABDOMINAL x-rays
- USS (*free fluid, masses, mucosal folds, pattern of paristalsis, Doppler of mesenteric vasulature, solid organs*)
- Other advanced studies (CT, MRI, Contrast studieS)

Role of barium gastrografin studies

Barium should not be used in a patient with peritonitis

- As: follow through, enema
- Limited use in the acute setting
- Gastrografin is used in acute abdomen but is diluted
- Useful in recurrent and chronic obstruction
- May able to define the level and mural causes.
- Can be used to distinguish adynamic and mechanical obstruction



DANGEROUS SIGNS

(Red Flags)

- Constant pain
- Absent bowel sounds
- Tenderness with rigidity
- Leukocytosis
- Fever and tachycardia
- Shock



**Take
IMMEDIATE
action!**

MANAGEMENT FOR LARGE BOWEL OBSTRUCTION

All patients require

- Adequate resuscitation
- Prophylactic antibiotics
- Consenting and marking for potential stoma formation

•At operation

- Full laparotomy should be performed
- Liver should be palpated for metastases
- Colon should be inspected for synchronous tumours

•Appropriate operations include:

- Right sided lesions – right hemicolectomy
- Transverse colonic lesion – extended right hemicolectomy
- Left sided lesions – various options

INDICATIONS FOR SURGERY

- Emergent Operation

- Generalised peritonitis
- Localised peritonitis
- Visceral perforation
- Irreducible hernia

- Urgent operation

- Progressive bowel obstruction after non-operative measures are started
- Failure to improve with conservative therapy within 24-48 hr
- Early post op. complications (may indicate an internal hernia)

Trial of conservatism

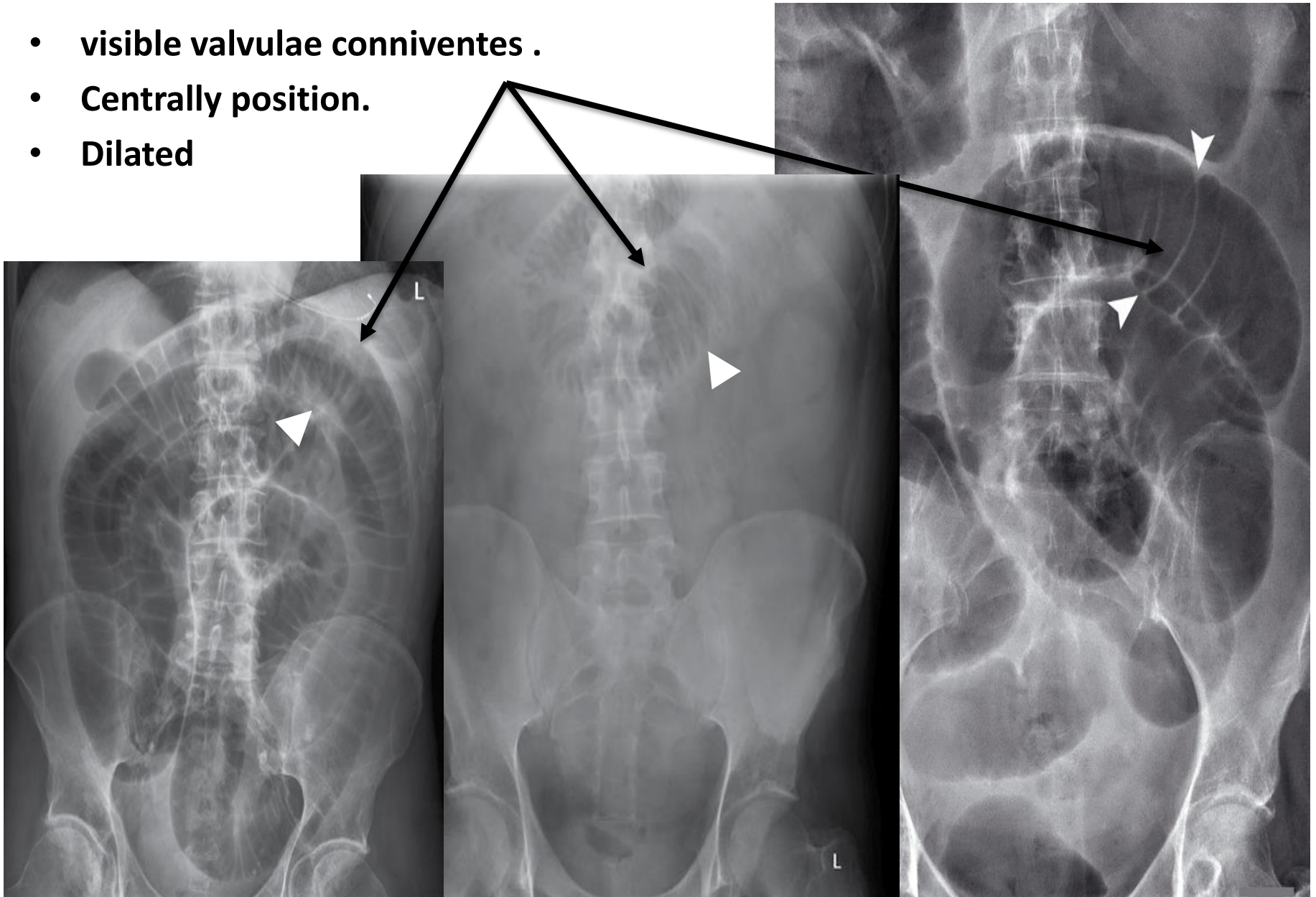
- Incomplete obstruction (partial) → put NG-tube
- Previous surgery (immediate post op.)
- Advanced malignancy
- Inflammatory conditions (IBD/ Radiation/ Enteritis/ Diverticulitis)
- Diagnostic doubt - possible ileus

Delayed operation

- Immediate post op obstruction
- sigmoid volvulus successfully decompressed
- Acute exacerbation of Chrons / diverticulitis / Radiation Enteritis
- Post op adhesions

Small Bowel Obstruction

- visible valvulae conniventes .
- Centrally position.
- Dilated



The Difference between small and large bowel obstruction

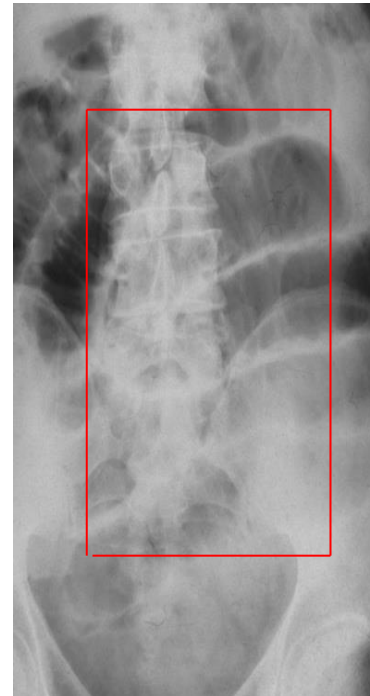
Large bowel

- Peripheral (diameter 6 cm max)
- Presence of haustration



Small Bowel

- Central (diameter 3 cm max)
- Vulvulae coniventae
- Ileum: may appear tubeless



Q1 : What is presented in this x-ray ?

→ Dilated small bowel

Q2 : What is the main Dx? What is the DISORDER that is showed here?

→ Intestinal Obstruction

Q3 : Mention 2 causes of it ?

→ Adhesions

→ Hernia

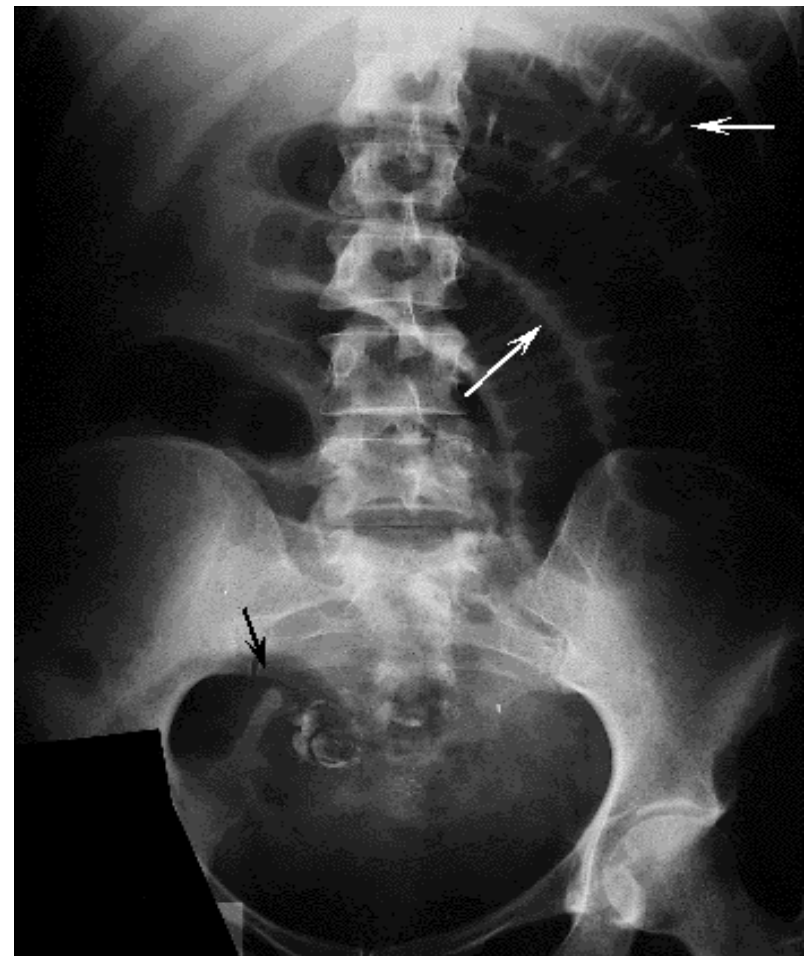
Q4: What loops are presented here ?

→ Jejunal loops

***They are found in the Duodenum + Jejunum ,, BUT absent in the Ileum*

Q5: What is the type of this image?

→ KUB (Kidneys, ureters, and bladder x-ray)



Supine radiograph from a patient with complete small bowel obstruction shows **distended small bowel loops** in the central abdomen with **prominent valvulae conniventes** (small white arrow)

Q1: What is presented in the pic ?

- Air-fluid level
- And the small arrow (Gas in the rectum),, indicating its partial obstruction..

Q2: When such a patient need a necessitating urgent operation ?

- Incarcerated, strangulated hernias
- Peritonitis

(here are 2 but they are mentioned in the previuos slides)

Q3: In which position we put the patient to take such an image?

Why?

- in supine position, to see the fluid air level.



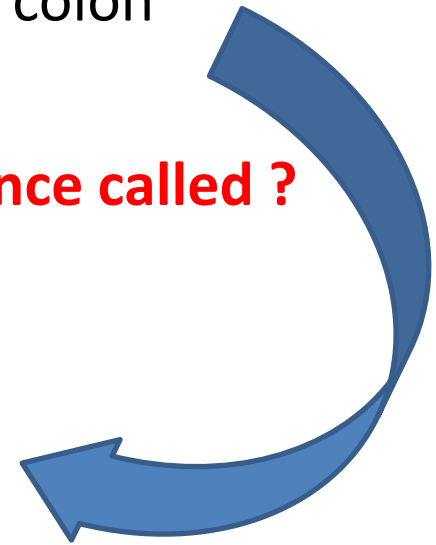


Q1: What can you see ? (This pic is Pathognomonic for ?)

→ Volvulus of the sigmoid colon

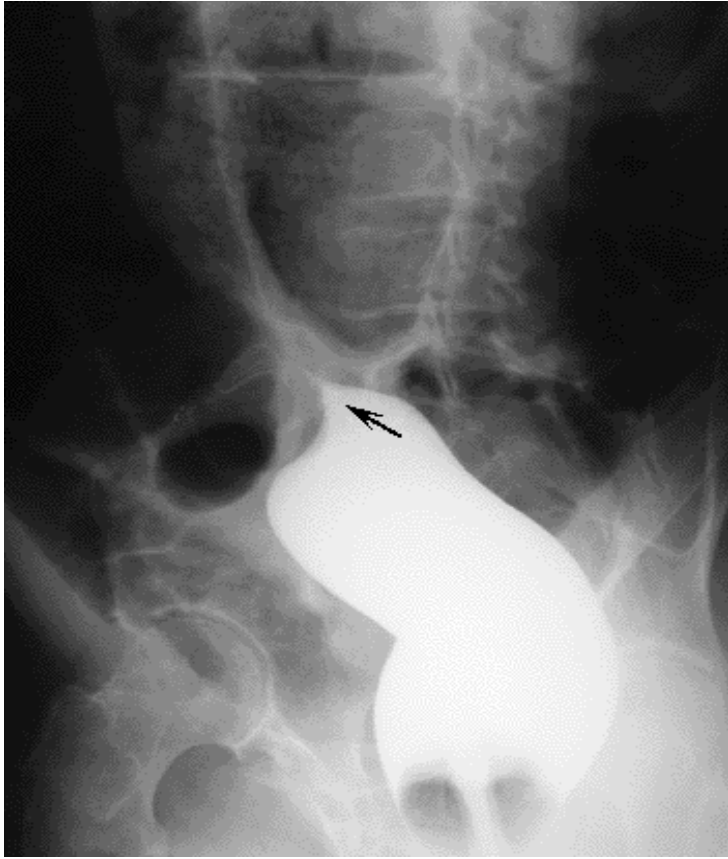
Q2 : What is this appearance called ?

→ Coffee bean shape



Q3: What are the cardinal clinical features of such a patient?

→ Abdominal pain ,
abdominal
distension, vomiting
and constipation



Q1: What is this ?

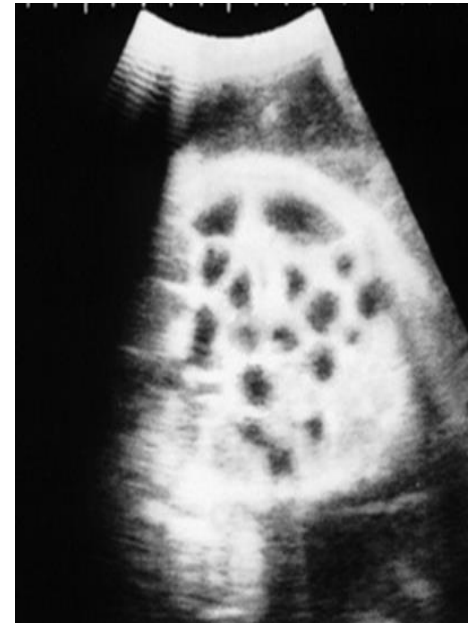
→ Barium Enema

Q2: What type of contrast is used here ?

→ Gastrographin (water-soluble contrast material)

Q3: What is the appearance called (on the arrow) ?

→ Bird beak sign (which appears at the site of obstruction)



**Q4 : If we do an U/S for this patient, what we will find?
“mention 3”?**

- Simultaneous observation of distended and collapsed bowel segments
- Free peritoneal fluid
- Inspissated intestinal content
- Paradoxical pendulating peristalsis
- Highly reflective fluid within bowel lumen
- Bowel wall edema

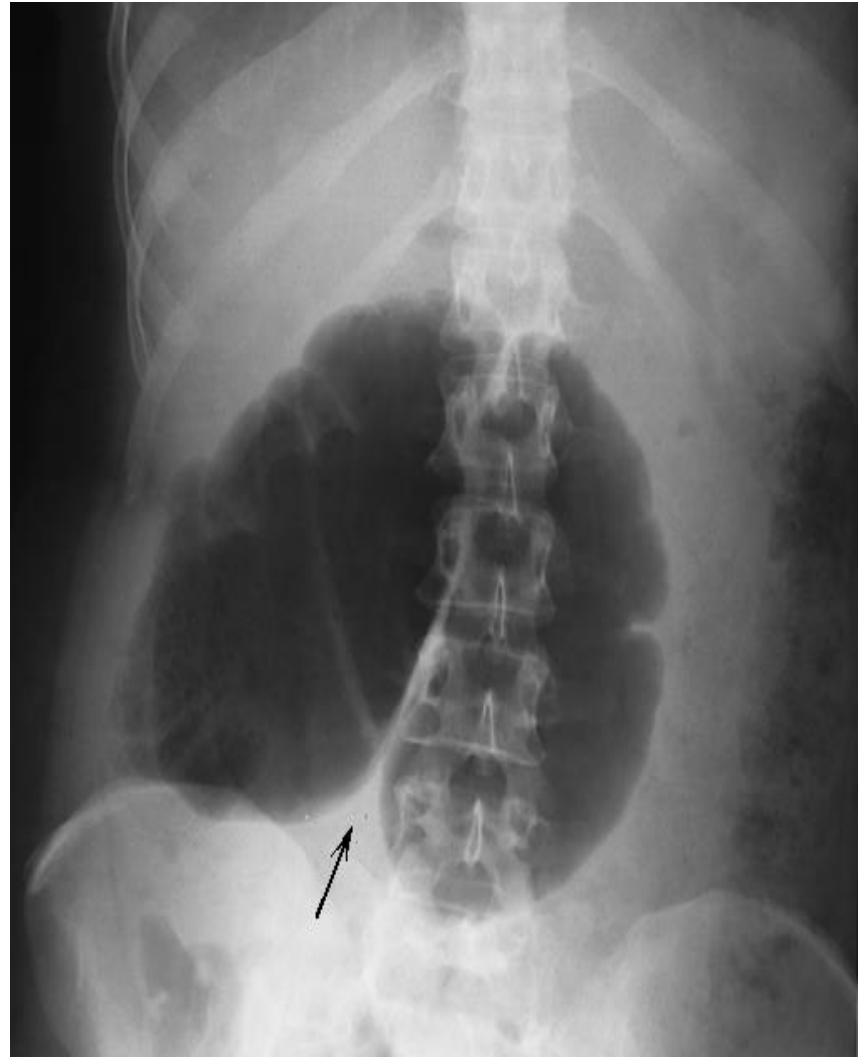


Q1: What is this appearance ?

→ Comma shaped appearance

Q2: What is your Dx?

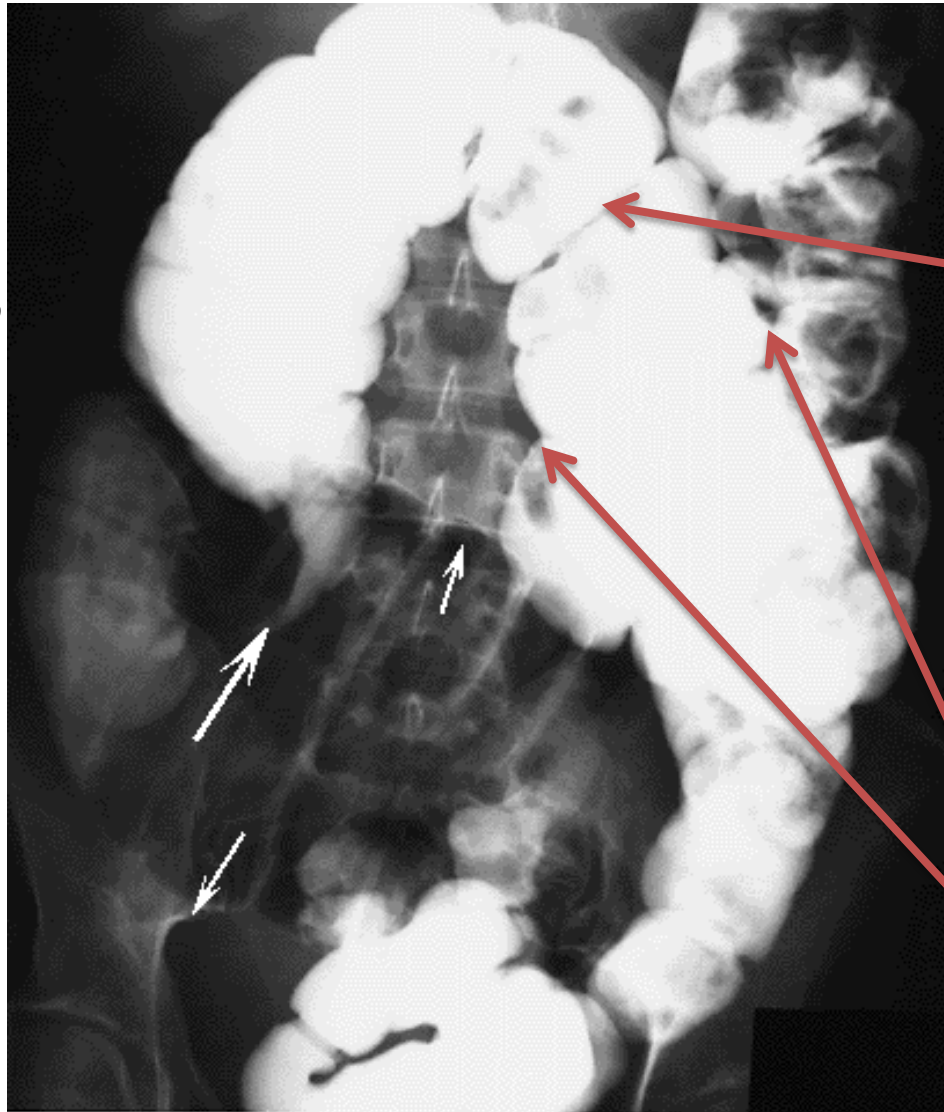
→ Cecum volvulus (on the right side)



*****Laplace's law: maximum pressure is at the maximum diameter AREA
Caecum is at the greatest risk of perforation***

large Bowel Obstruction

*Gastrographin
Enema*

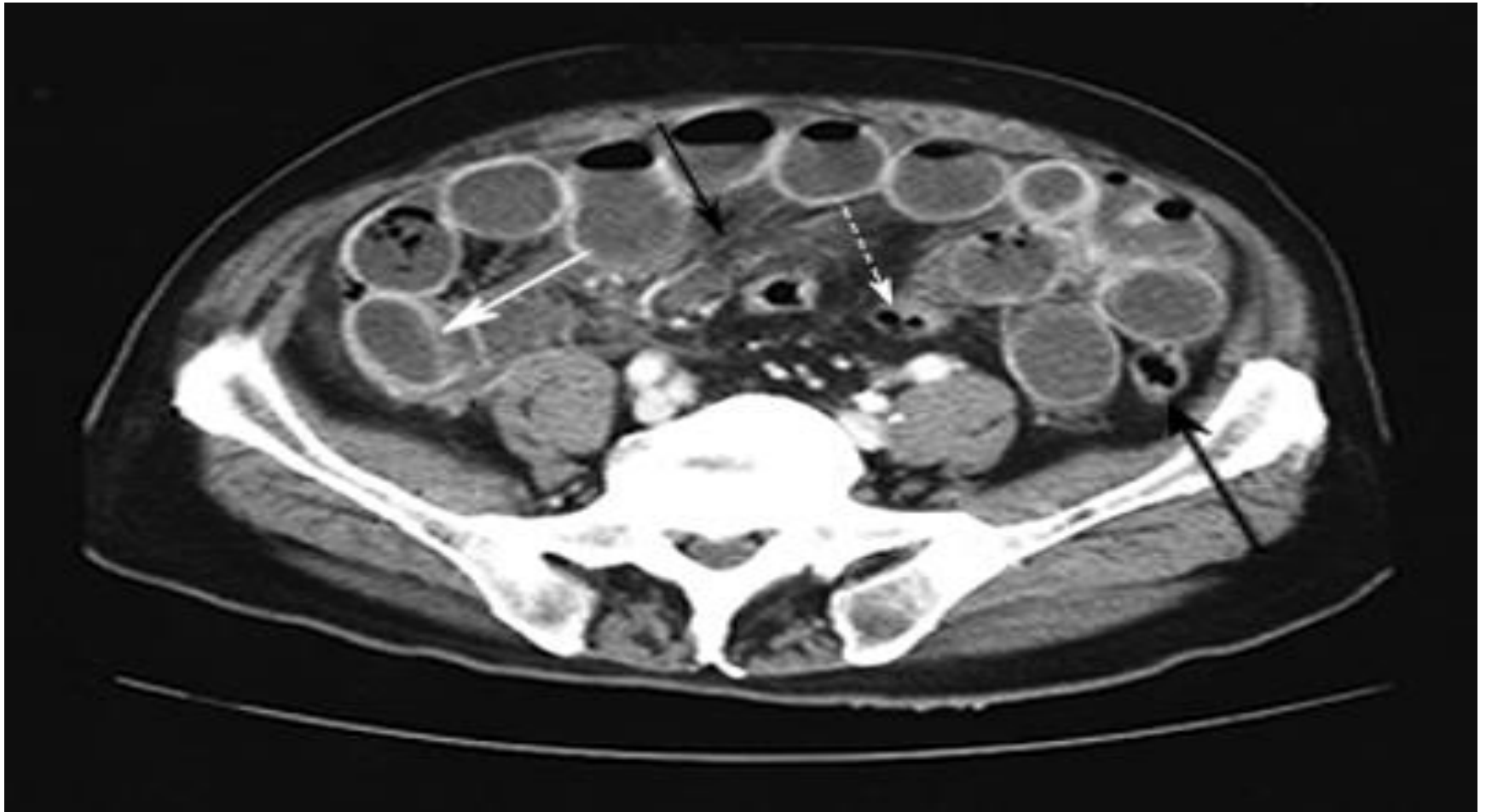


haustra

dilated bowel

Q : What do you see in the pic / the disorder seen ?

→ multiple air fluid level in the intestine and some loops are fluid filled



Intestinal Obstruction

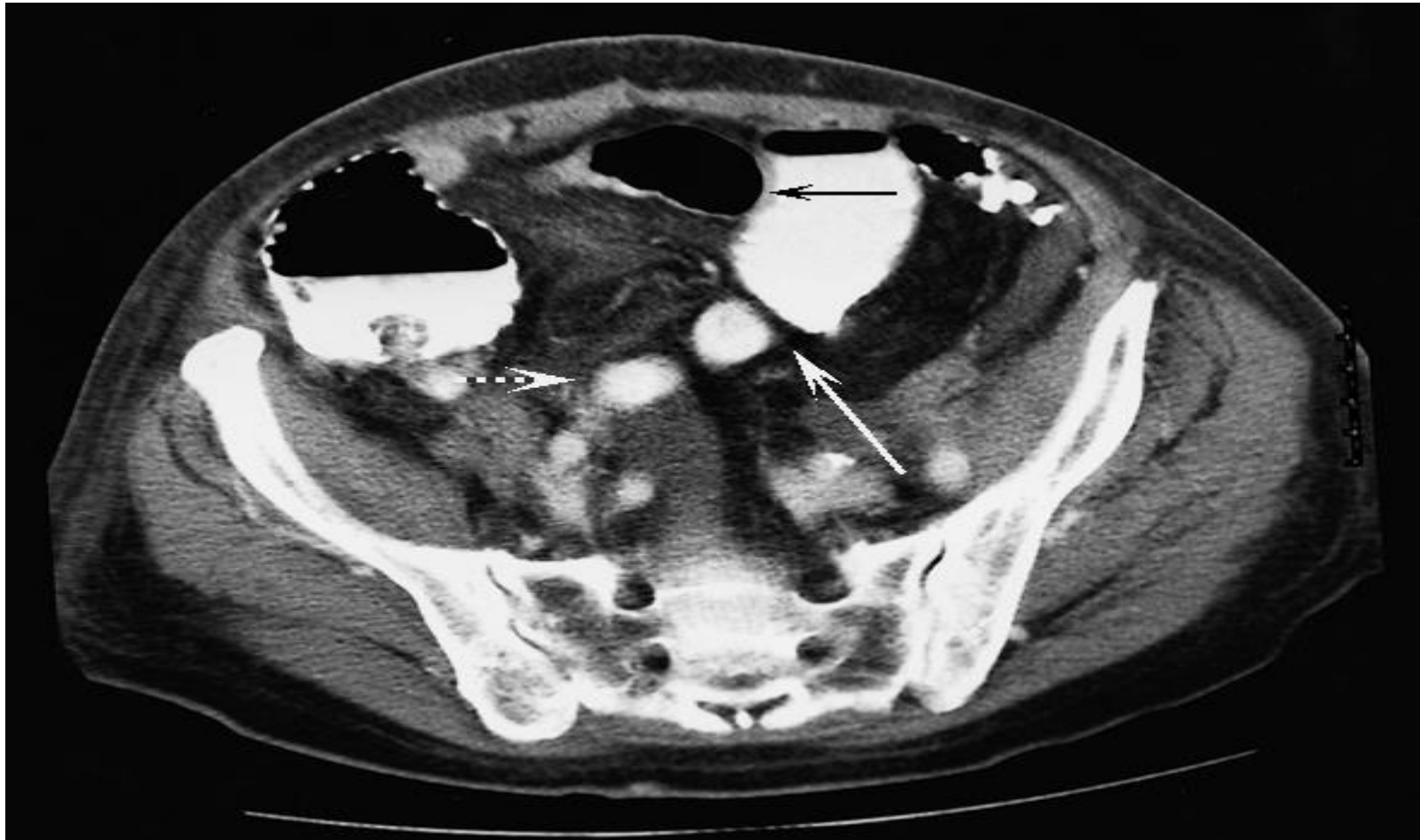
Adjunct Tests for Equivocal Situations

CT scan

- Ascertain the level of obstruction
- Assess the severity of obstruction and determine the cause of obstruction
- Detect closed loop obstruction and early strangulation
- Detect inflammatory processes
- Detect small amounts of pneumatosis cystoides intestinalis

****The segment :**

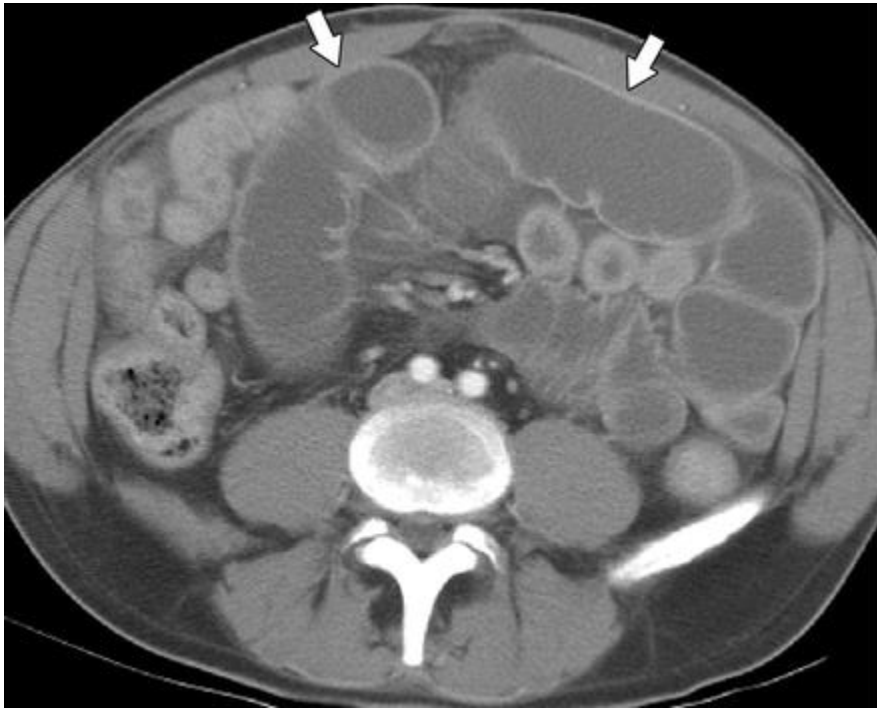
- 1) Proximal to the obstruction → *-Fluid filled*
- Air fluid level in some loops
- 2) Distal to obstruction → *collapsed intestine*



“The arrow” → This is a **Volvulus** ,, the wall is edematous and thickened/ enlarged

- CT scan: early closed-loop small bowel obstruction





**Proximal
obstruction**

**Distal
obstruction**



Q: dilated bowel (large or small) ?

- Peripherally , dilated more than vertebra about double 8cm , and haustra can be seen spaced .

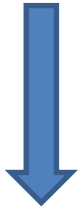


→ large Bowel Obstruction

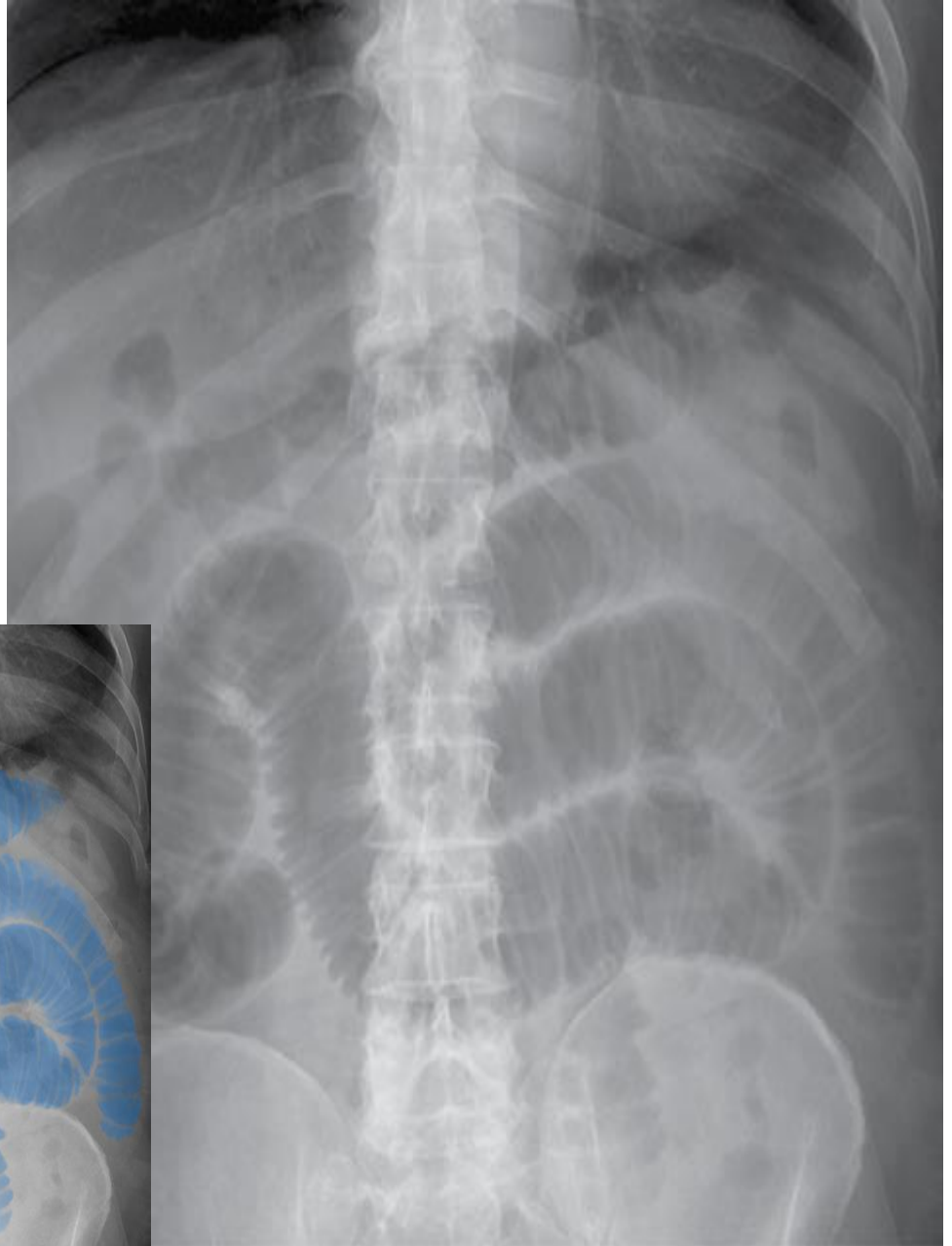


Q: dilated bowel, large or small ?

- Centrally , dilated more than 3 cm , and valvulae conniventes can be seen



→ Small Bowel Obstruction

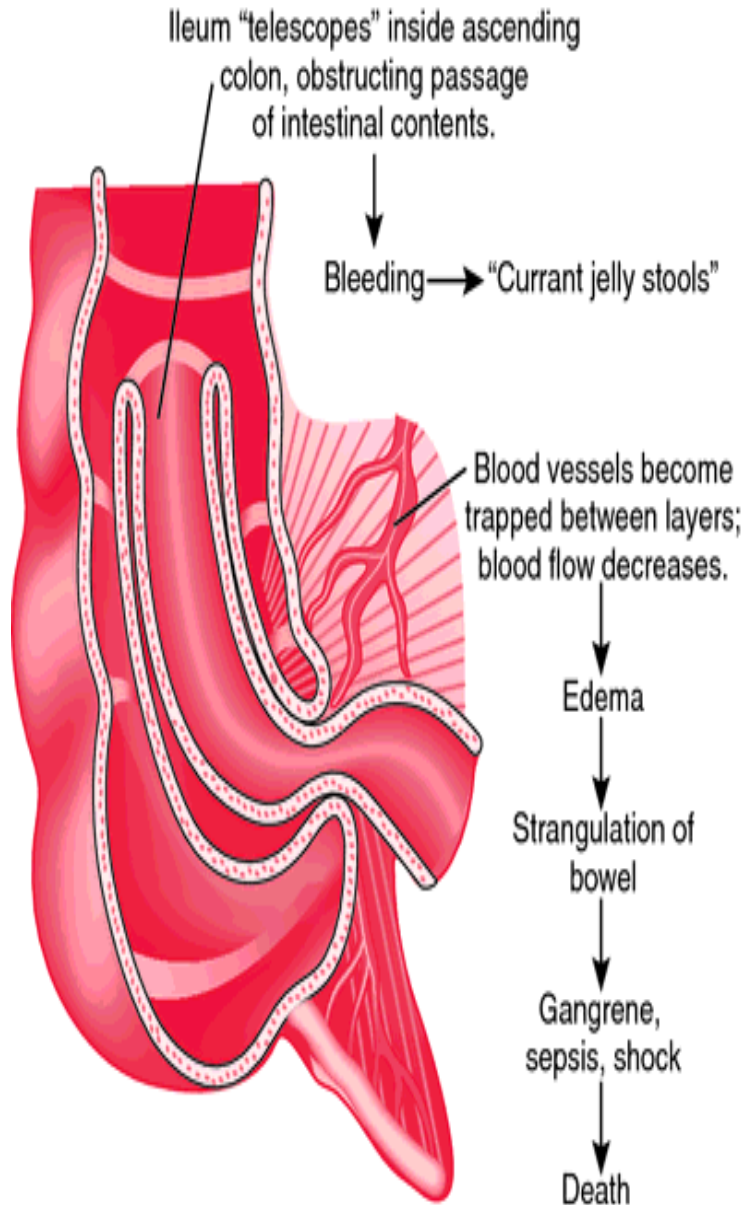




Claw' sign of iliac intussusception. The barium in the intussusception is seen as a claw around a negative shadow of the

intussusception

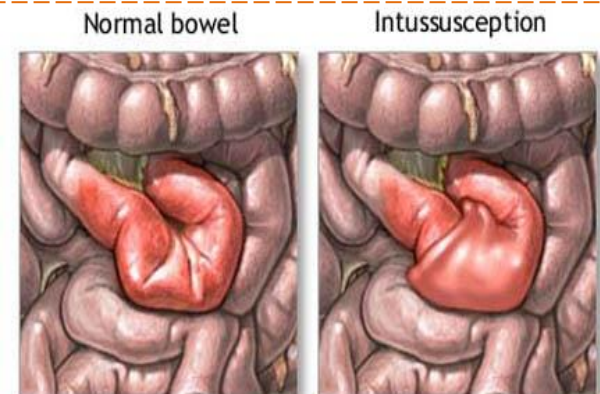
Continue...



- ❑ **Classically, a previously healthy infant presents with colicky pain and vomiting (milk then bile).**
- ❑ **Between episodes the child initially appears well.**
- ❑ **Later, they may pass a 'redcurrant jelly' stool.**



Red currant jelly stools



Q1- what is it :
intussusception

Q2- what are the characteristics :

episodes of screaming , jelly stool , target sign on CT is pathognomonic

Q3- management :
like any obstruction

Q4- can be reduced by
air/barium enema





Fluid levels with gas above; '**stepladder pattern**'. Ileal obstruction by adhesions; patient erect.

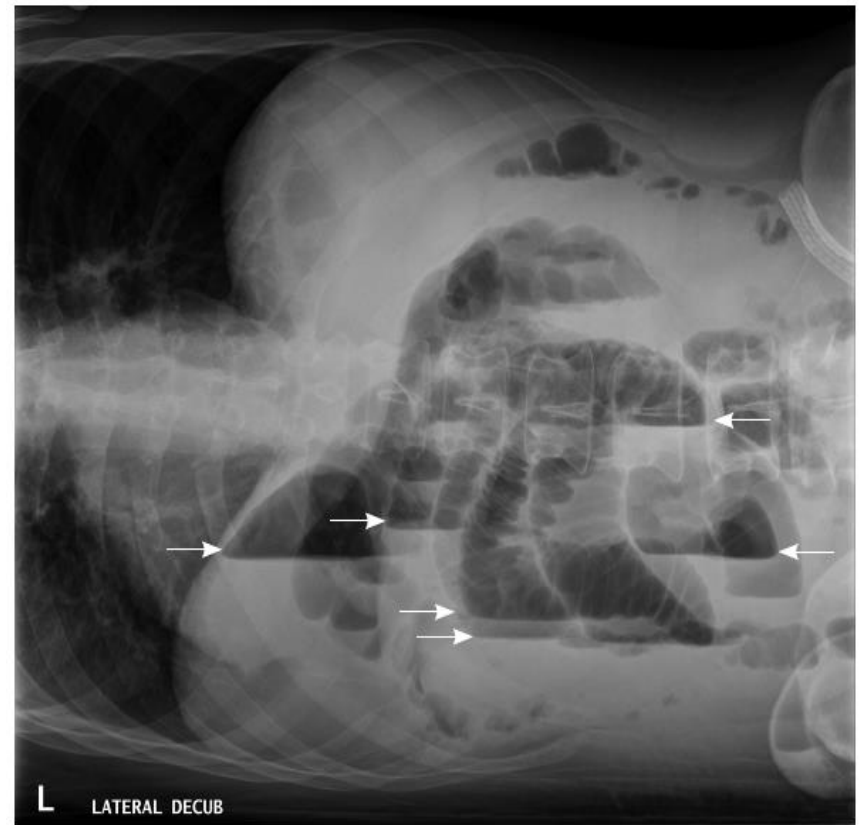


Figure 3. Lateral decubitus view of the abdomen, showing air-fluid levels consistent with intestinal obstruction (*arrows*).

Q1: What does this pic represent ?

→ Paralytic Ileus

Q2: How does it appear on radiograph ?

→ Gas filled loops of intestine with multiple fluid level

Q3: How does the pt come clinically ?

→ Pain is absent
→ absent bowel sounds
→ Absolute constipation

Q4: Factors/ Causes ?

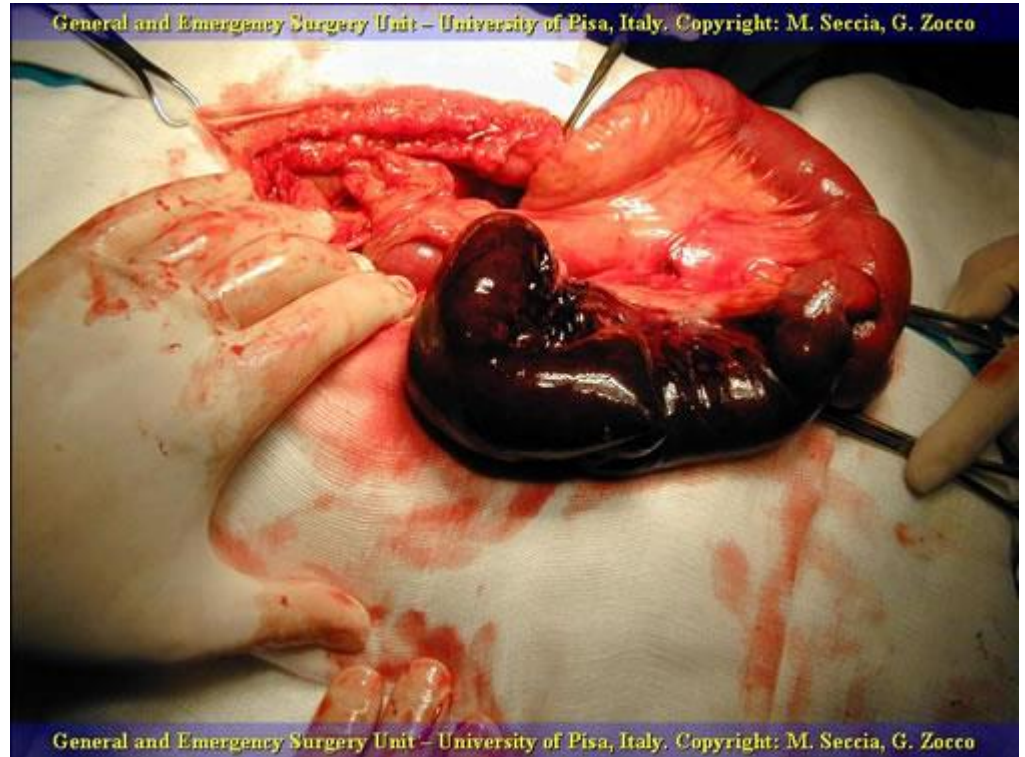
- Post Op.
- Infection (intra-abdominal sepsis)
- Reflex ileus (spine rib/ retroperitoneal hemorrhage)
- Metabolic (uremia/ hypokalemia)
- Prolonged hypoproteinemia



During **paralytic ileus** gaseous distention occurs somewhat uniformly in the stomach, small intestine and colon



Hernia



**Bowel obstruction leading to
gangrenous bowel which need
resection**

393



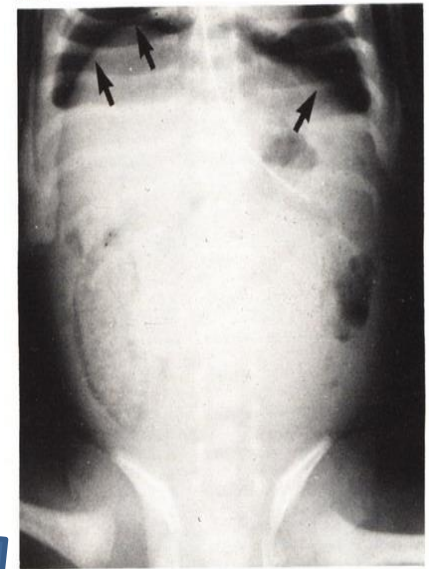
Pneumatosis intestinalis
(gas in bowel wall)

394



**Gas in portal
venous system**

395

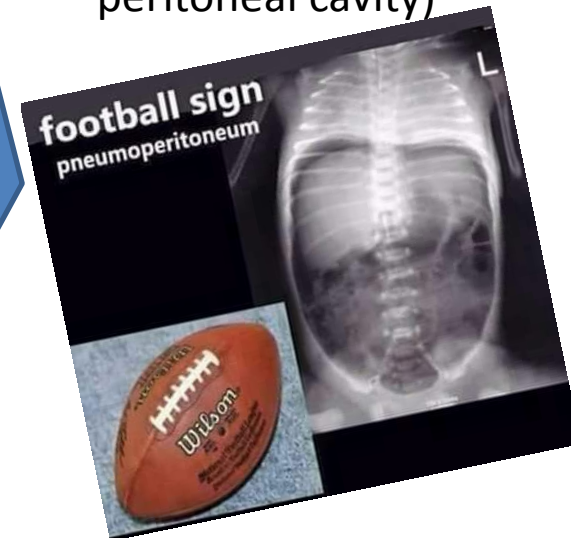


Pneumoperitonium
(gas in the
peritoneal cavity)

1- where u find these findings : neonatal necrotizing enterocolitis

2- what are the clinical findings : triad of –
abdominal distention , GI bleeding , pneumatosis intestinalis

3- Treatment : surgical removal of the necrotic area
+ anastomosis



**Some pic's from Browse +
Bailey and love**



Figure 70.4 Obstruction of the small intestine due to *Ascaris lumbricoides* (courtesy of Asal Y Izzidien, Nenavah, Iraq).



FIG 15.14 Visible peristalsis in a patient with a low small bowel obstruction. **Top:** mild abdominal distension, surface of abdomen smooth. **Bottom:** the abdomen 5 minutes later – visible loops of peristalting small bowel.

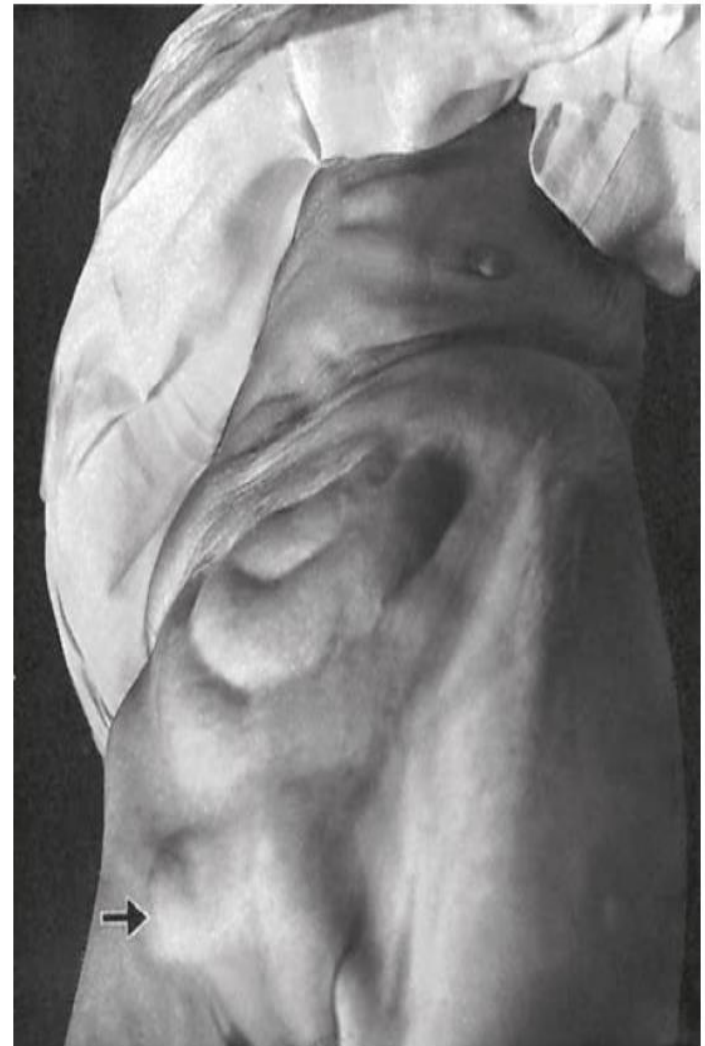


Figure 70.7 Visible peristalsis. Intestinal obstruction due to a strangulated right femoral hernia, to which the arrow points.



Figure 70.8 Skin discolouration over a strangulated incisional hernia.

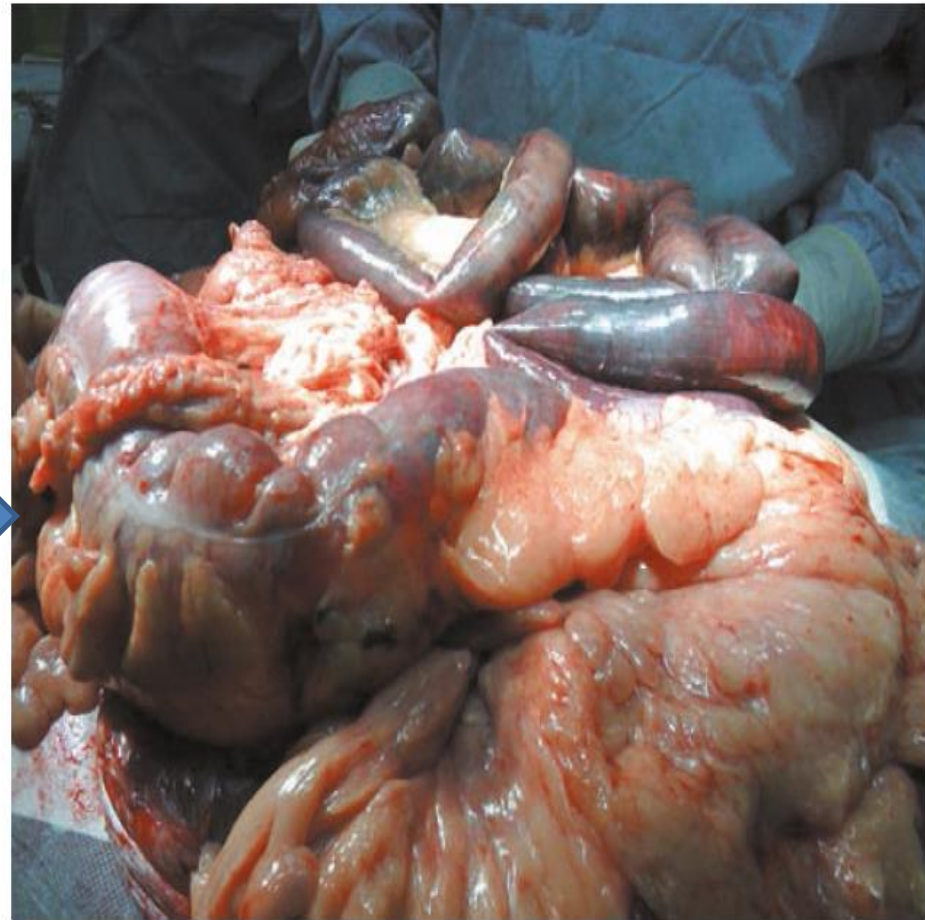


Figure 70.9 Ischaemic small and large bowel in the strangulated incisional hernia.



Figure 70.14 Band adhesion causing closed-loop obstruction.



Figure 70.21 Volvulus of the sigmoid colon (a) before and (b) after untwisting (courtesy of SU Rahman, Manchester, UK).

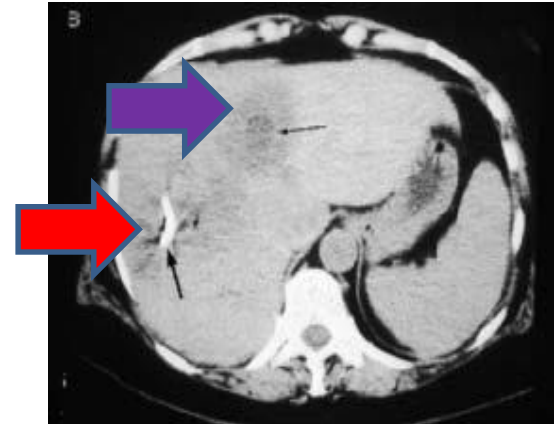
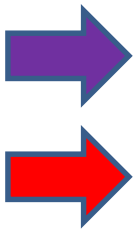
THANK YOU

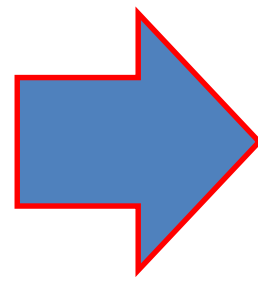
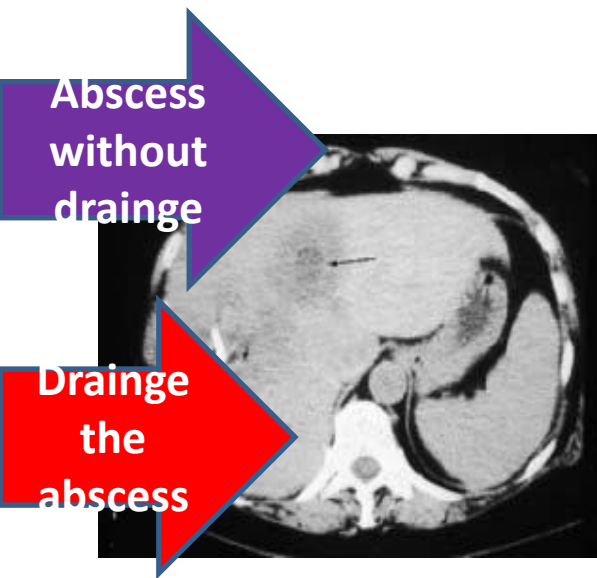


Liver diseases

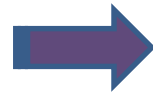
65 years old pt with DM, came to your clinic complain of RUQ pain ,nocturnal fever ,sweating , malaise ,anorexia and weight loss. after request CT scan you find ➡ on this pic

- What is differential diagnosis?
- What is the diagnosis?
- What do you think the organisms cause this lesion ?
- What is the treatment ?
- If left untreated % of mortality rate ?
- What this





pyogenic liver abscess
Amoebic liver abscess
Hydatid liver cyst.



pyogenic liver abscess



Most common E.coli
,klebsiella pneumonia
,anaerobic streptococci.



Antibiotics (penicillin
,metronidazole) and drainage
by U/S or CT scan guided.



100%





Depending on previous image

What is differential diagnosis?
What is the diagnosis?
What do you think the organisms
cause this lesion ? Why?

Which lobe affected more ?
How pt come to you ?
what is treatment?

answers

- 1-pyogenic liver abscess, Amoebic liver abscess, Hydatid liver cyst.
- 2-Amoebic liver abscess.
- 3-Entameoba histolytica (fecal oral route) because the shape like anchovy paste (abscess contain sterile pus and reddish – brown liquefied necrotic liver tissue)

answers

- 4-Right lobe in 80% of cases
- 5-pain ,enlarged liver with maximal tenderness over abscess ,intermittent fever ,night sweat , nausea , vomiting, cough and dyspnoea
- 6-mertnidazole alone for 5 days then diloxide furoate for 7 days to eliminate intestinal amoebae.



diagnosis	Hydatid cyst
Cause	Echinococcus granulosus (tape worm) is present in dog intestine ,and ova are ingested by humans and pass in the portal blood to the liver.
Presentaion	Liver enlargement and RUQ pain
Complications	<p>1-rupture of the cyst into the peritoneal cavity, which results in urticaria, anaphylactic shock, eosinophilia, and implantation into the omentum and other viscera.</p> <p>2-Cysts may compress or erode into a bile duct causing pain, jaundice, or cholangitis.</p> <p>3-the cyst may become infected secondary to a bile leak.</p>



Investigation

- ✓ Ultrasonography and computed tomography
- ✓ Eosinophilia is present in 40% of patients
- ✓ The diagnosis is confirmed by haemagglutination and complement fixation tests
- ✓ ERCP in jaundiced patients

Treatment

All symptomatic cysts require surgical removal to prevent complications
(dr eyad said) 1-surgical 2- percutaneous drainage under CT or U/S guided 3- medical (very minimal response)

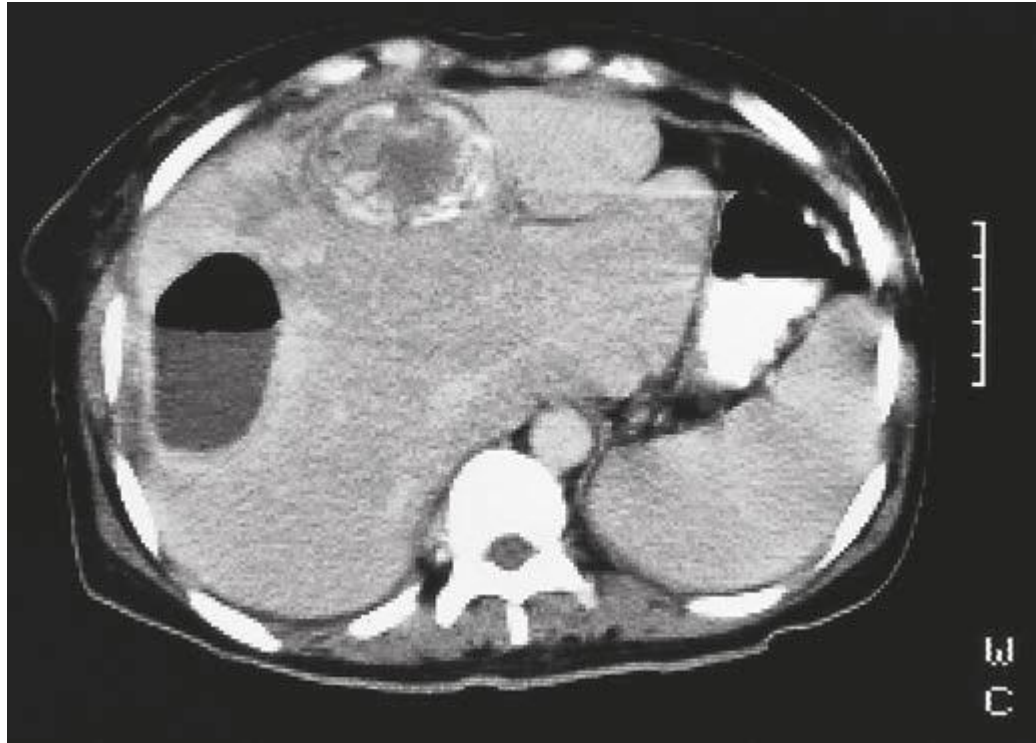


- Treatment is indicated to prevent progressive enlargement and rupture of the cysts. In the first instance, a course of albendazole or mebendazole may be tried. There are many reports that percutaneous treatment of hydatid cysts is safe and effective. Percutaneous treatment constitutes an initial course of albendazole followed by puncture of the cyst under image guidance, aspiration of the cysts contents, instillation of hypertonic saline in the cyst cavity and reaspiration (PAIR). PAIR should only be attempted if there is no communication with the biliary tree. Failure to respond to medical treatment or percutaneous treatment usually requires surgical intervention. The surgical options range from liver resection or local excision of the cysts to deroofing with evacuation of the contents

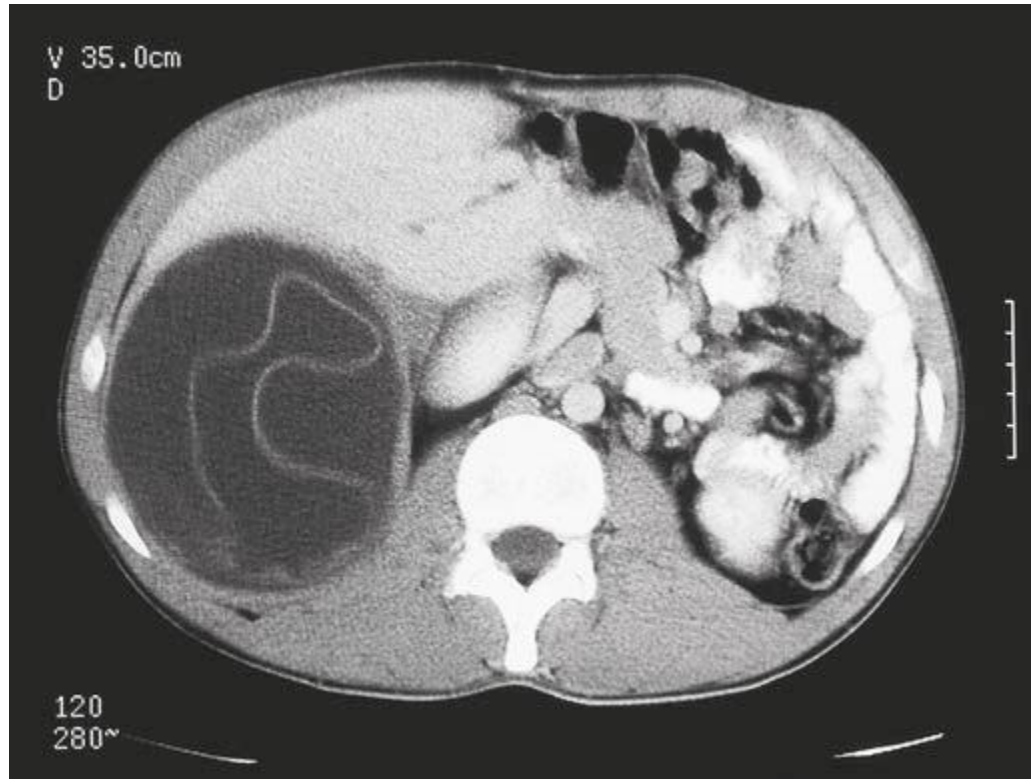
The cyst doesn't replace the parenchyma of the liver they only push it ----
no LF

Extra images

Bailey & Love's



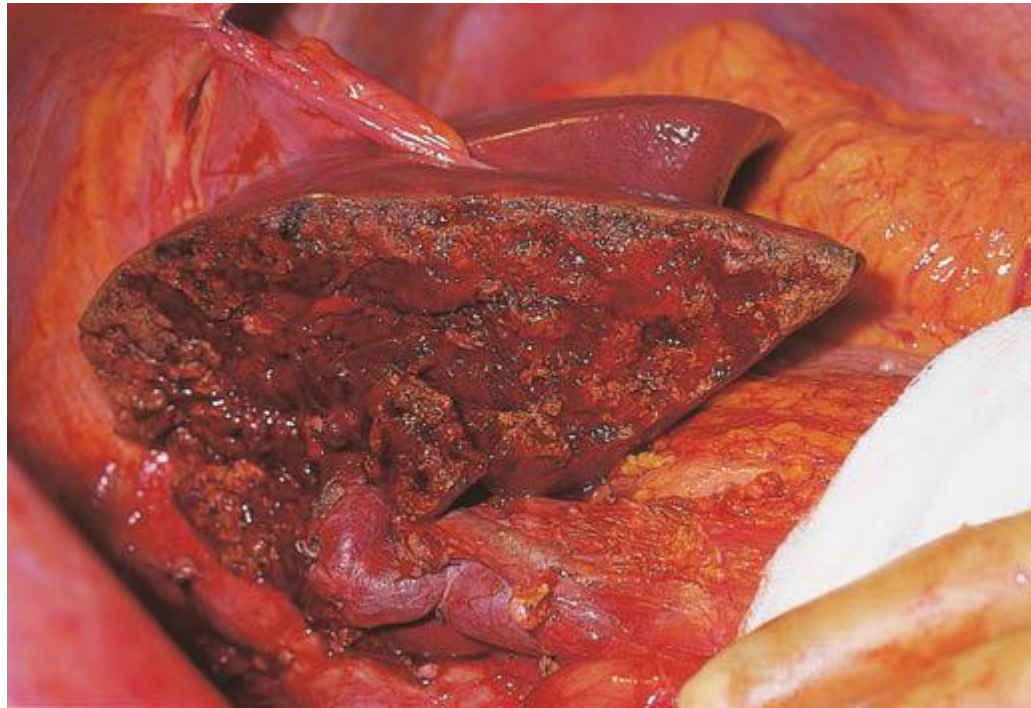
Liver abscess. Computed tomography scan showing an air–fluid level and rim enhancement with intravenous contrast typical of a liver abscess. In the adjacent liver is a calcified hydatid cyst.



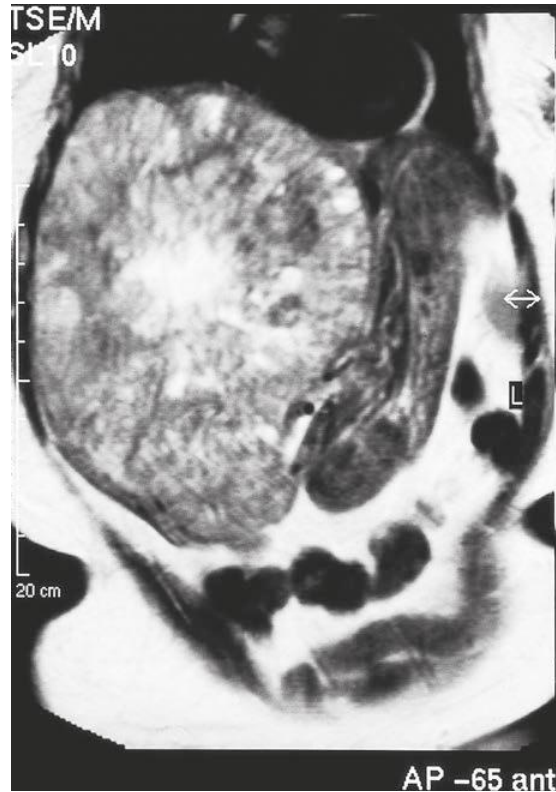
Hydatid liver cyst. Active hydatid disease usually produces a non-calcified liver cyst and, within the cyst, floating layers of the germinal membrane can be seen.



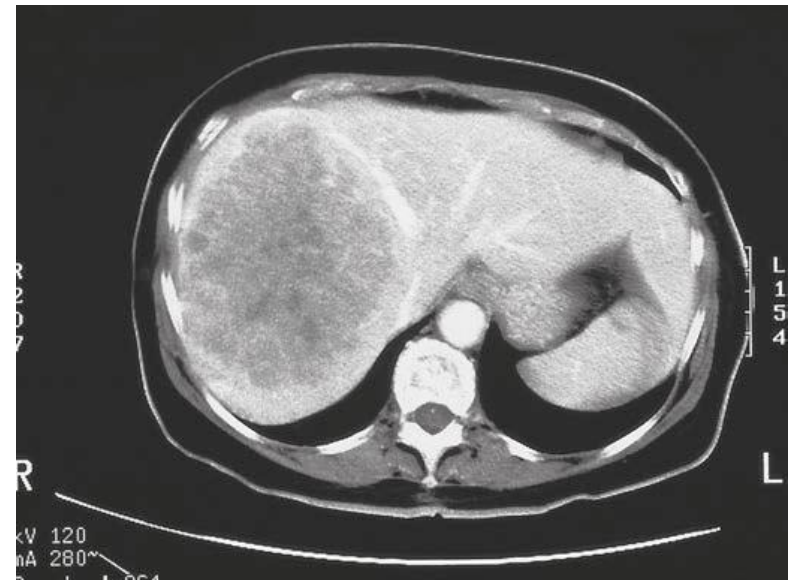
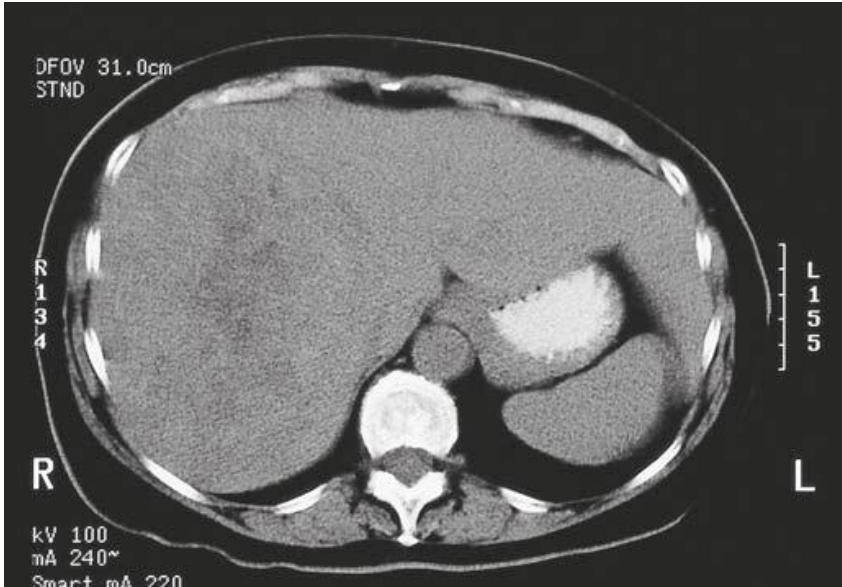
Hydatid 'daughter' cysts. These were removed from the bile duct of a patient presenting with obstructive jaundice due to a hydatid liver cyst communicating with the bile duct. Endoscopic removal should also be considered.



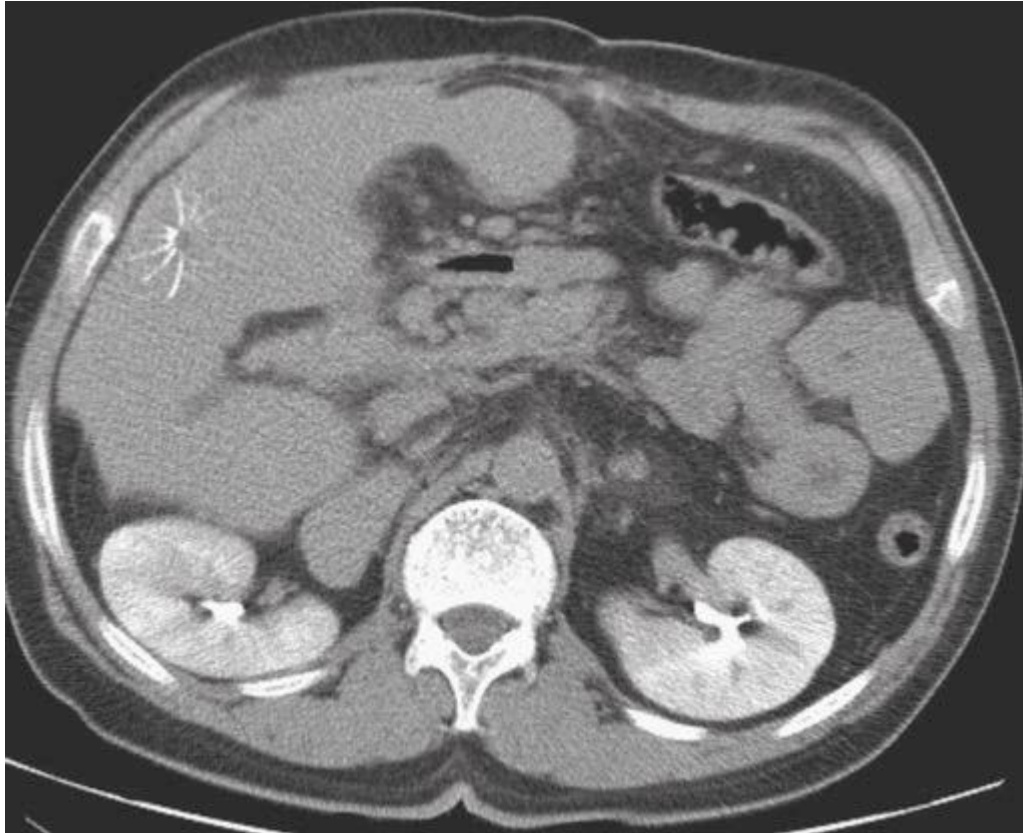
Hepatectomy post-resection. Cut surface of the residual liver following a right hepatectomy in which segments V–VIII have been removed. On the lower edge, the portal vein and bile duct can be visualised.



Hepatic adenoma. Magnetic resonance imaging scan of a giant hepatic adenoma. These lesions are thought to be premalignant, they may haemorrhage and, in some cases, their growth is sex hormone sensitive. Withdrawal of hormone preparations may allow spontaneous regression.



- Colorectal liver metastases on computed tomography (CT)
- scan: (a) after oral contrast CT; (b) after intravenous contrast. The colorectal liver metastasis occupying the entire right lobe of the liver is difficult to visualize on oral contrast CT. The addition of intravenous contrast shows its lack of enhancement and its relationship to the hepatic veins.



**Computed tomography scan after
radiofrequency ablation
for hepatocellular carcinoma.**

Abdominal Wall Defects & Malrotation

A full term, new born baby boy was born with a condition seen in the picture. Analyze this picture and answer the following questions:

- 1- What is this?**
- 2- What's another name for this condition?**
- 3- What's the pathophysiology behind this condition?**
- 4- What is the structure that the asterix (*) is pointing at? What is its composition?**
- 5- Is this condition more common in males, or females?**
- 6- Can this condition be diagnosed prenatally?**
- 7- What are some potential causes for this condition?**
- 8- What are some of the cranial fold defects that are associated with this condition? (Mention 4)**
- 9- What are some of the caudal fold defects that are associated with this condition? (Mention 6)**
- 10- What is the management for this patient?**



- 1- Omphalocele
- 2- Exomphalos
- 3- Failure of the midgut to return to abdomen by the 10th week of gestation
- 4- The sac. Its composed of: 1- Amnion 2- Whartons jelly 3- Peritoneum
- 5- Neither, the ratio is 1:1
- 6- Yes, by Prenatal U/s, polyhydramnios, MSAFP (maternal serum alpha fetoprotein), amniocentesis
- 7- Folic acid deficiency, Hypoxia, Salicylates (like aspirin)
- 8- Congenital heart disease, diaphragmatic hernia, ectopia cordis, sternal cleft
- 9- Imperforate anus, genitourinary malformations, bladder or cloacal exstrophy, colon atresia, sacral and vertebral anomalies, and meningomyelocele.
- 10- Management:
 - ➔ ABC
 - ➔ Heat Management: Sterile wrap or sterile bowel bag, Radiant warmer
 - ➔ Fluid Management: IV bolus 20 ml/kg LR/NS, D10¼NS 2-3 maintenance rate
 - ➔ Nutrition: NPO and TPN (central venous line) are sometimes needed
 - ➔ For Gastric Distention: OG/NG tube, urinary catheter (also to monitor fluids)
 - ➔ For Infection Control: Broad-spectrum antibiotics
 - ➔ Treat associated Defects
 - ➔ For omphalocele, there's a sac, so we do something called "Paint and wait", we paint the omphalocele with a material that will cause epithelialization and then we wait until there's space in the abdomen, and then we push the contents & close it. We can also use skin flaps and then do closure.

A new born baby girl ,delivered by a C-section, has an omphalocele. On inspection of the omphalocele, you see that it contains the liver, and part of the small bowel. Inspection of the chest reveals a budging, pulsating mass coming out of the chest wall. Based on this scenario, answer the following questions.

- 1- **Define** an omphalocele.
- 2- Where would you expect **the cord location** to be in an omphalocele?
- 3- What are some **organs** would you commonly see in the sac?
- 4- Is the **bowel** in this omphalocele **malrotated**? Is there a **risk of volvulus**?
- 5- Could this baby be **delivered vaginally**?
- 6- What is the bulging, pulsating mass coming out of the chest wall called?
- 7- If this patient was ,also, found to have a sternal cleft, anterior diaphragmatic hernia and ventricular septal defect, **what is this (syndrome) called**?
- 8- What are the **locations** of an omphalocele?
- 9- If you were **to inspect and examine the bowel** inside the sac, what would you find?



1-A defect in abdominal wall musculature and skin with protrusion of abdominal viscera contained within a membranous sac.

2- Cord attachment is on the sac

3- Liver, spleen, testes/ovary (50% of cases)

4- Bowel is malrotated but there's no risk of volvulus. Because of surgical interventions that we do, there's formation of lots of adhesions around the bowel and this prevents volvulus. So malrotation in these patients is not worrisome (because of adhesions holding everything in place & preventing volvulus)

5- Yes, but there's a risk of rupture (4%), so it's preferred to deliver these babies by cesarean section.

6- Ectopia cordis

7- Pentalogy of Cantrell: Omphalocele, anterior diaphragmatic hernia, sternal cleft, ectopia Cordis, and intracardiac defect

8- Epigastric, Central, Hypogastric

9- It would be normal, because it's covered by a sac and not exposed to amniotic fluid during gestation

A premature baby girl was born at 32 weeks of gestation, delivered by a C-section, has a condition seen in the picture. Analyze the picture and answer the following questions.

- 1- What is this?
- 2- Give **another differential diagnosis**?
- 3- What's the **pathophysiology** behind this condition? (Mention 3 theories)
- 4- Is this condition **more common** in males, or in females?
- 5- What are some of the **clinical findings** that you might find? (Mention 5)
- 6- Is the bowel **malrotated**? Is there a **risk of volvulus**?
- 7- Can this condition be diagnosed **prenatally**?
- 8- What's the **management** for this condition?
- 9- Could this baby be **delivered vaginally**?



1- Gastroschisis

2- Ruptured omphalocele

3- a. Abnormal involution of right umbilical vein **b.** Rupture of a small omphalocoele **c.** Failure of migration and fusion of the lateral folds of the embryonic disc on the 3rd-4th week of gestation

4- Neither, ratio is 1:1

5- 1) Defect to the right of an intact umbilical cord allowing extrusion of abdominal content **2)** Opening about 5 cm **3)** No covering sac **4)** Bowels often thickened, matted and edematous (Because the bowel is exposed to amniotic fluid, which cause adhesions within the bowel) **5)** 10-15% with intestinal atresia

6- Yes it's malrotated, and no there's no risk of volvulus (same reason as omphalocele)

7- Yes, by Prenatal U/s, polyhydramnios, MSAFP (maternal serum alpha fetoprotein), amniocentesis

8- Management:

➔ **ABC**

➔ **Heat Management:** Sterile wrap or sterile bowel bag, Radiant warmer

➔ **Fluid Management:** IV bolus 20 ml/kg LR/NS, D10½NS 2-3 maintenance rate

➔ **Nutrition:** NPO and TPN (central venous line)

➔ **Gastric Distention:** OG/NG tube, urinary catheter

➔ **Infection Control:** Broad-spectrum antibiotics

➔ **Treat associated Defects**

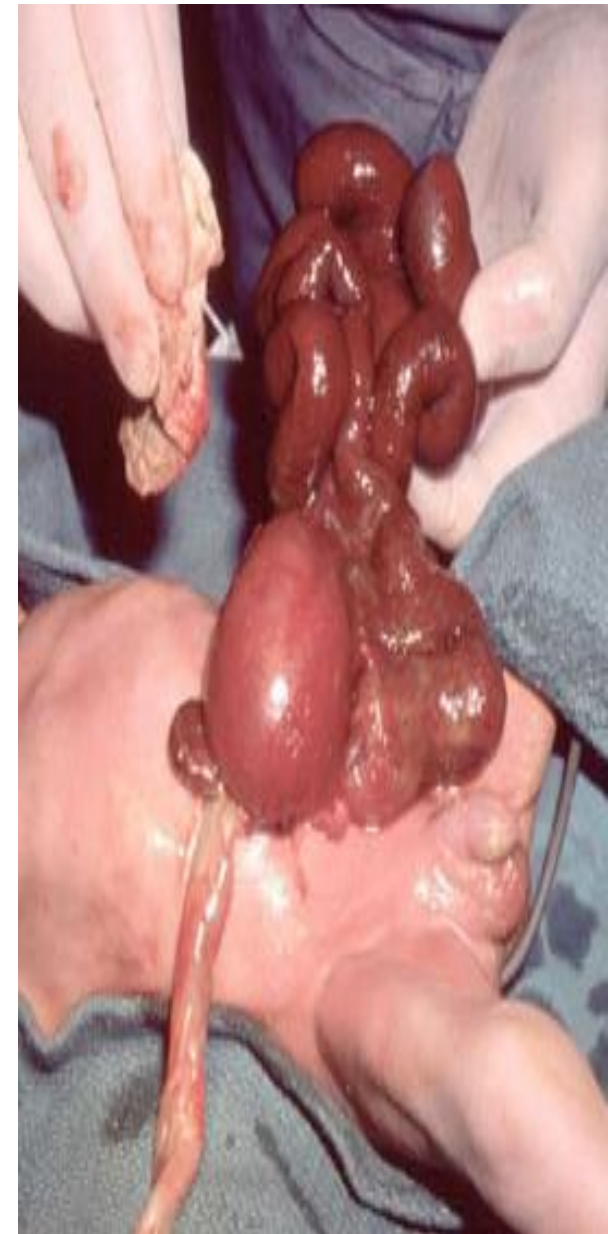
➔ **For Gastroschisis, there's no covering sac, so you have to create one using a surgical silo.**

9- No

Note: 50-60% of babies with gastroschisis are born prematurely

A premature baby boy, was born with gastroschisis, he was diagnosed with this condition prenatally, and his mother was planning on getting an abortion but eventually she changed her mind. Analyze the following picture and answer the following questions.

- 1- **Define** gastroschisis.
- 2- What are some possible **causes** to this condition?
- 3- Where would you find **the umbilical cord** in this condition?
- 4- Would you expect organs other than the bowel to be protruding out in gastroschisis?
- 5- What are some of the accompanying **complications** that are associated with gastroschisis?
- 6- The mother was planning on getting an abortion. **Is this condition an indication for abortion?**
- 7- What would you tell the mother about the **prognosis** of this condition?
- 8- What's the **congenital anomaly** associated with this condition?



1- It is the defect in the abdominal wall was displaced to the **right** of the umbilicus and eviscerated bowel was not covered by a membrane.

2- Folic acid deficiency, hypoxia, salicylates

3- On the abdominal wall

4- It's rare to see organs other than bowel

5- Hypothermia, hypovolemia, Intrauterine Growth Restriction, necrotizing enterocolitis

6- No

7- Good prognosis (70-90% survival rate)

8- Intestinal atresia

Note: Gastroschisis is associated with anomalies (10-15% of cases – mostly intestinal atresia), while omphalocele is associated with anomalies much more (>50% of cases)

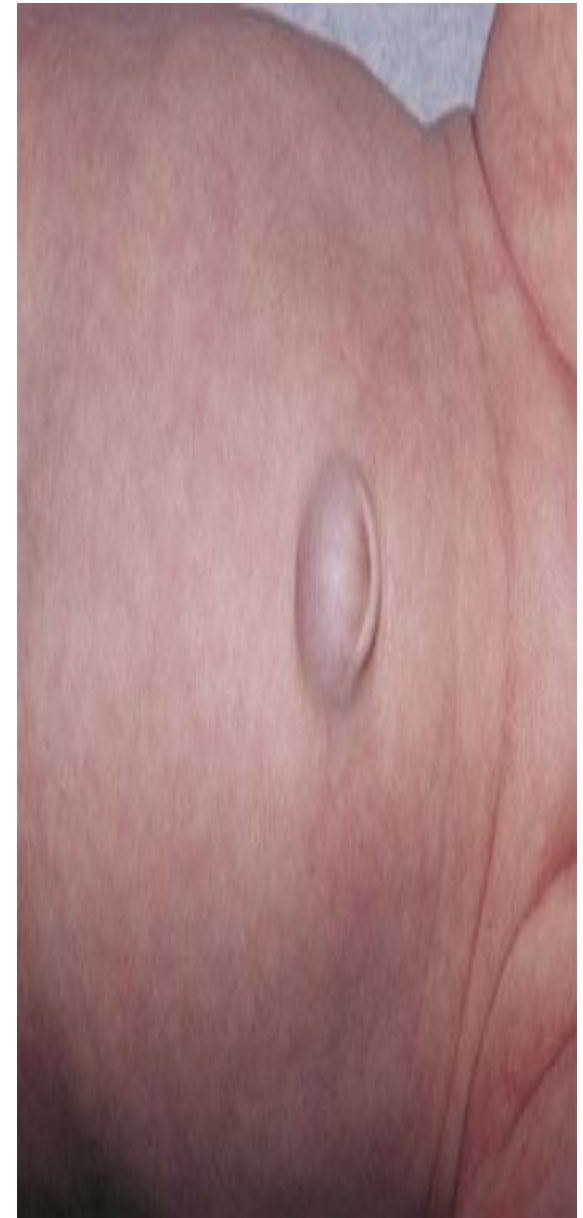
A preemie baby boy was born with a bulge appearing in his umbilicus as seen in the picture. Analyze the picture and answer the following questions:

1- What is this?

2- **Define** this condition

3- **Mention** 1 point from the question that is related to this condition

4- What's the **management**?



1- Umbilical hernia

2- Defect in linea alba, subcutaneous tissue and skin covering the protruding bowel

3- That the patient was a preemie (premature infant), since umbilical hernias are more common in premature infants

4- Surgical repair is indicated if:

a. >1.5 cm defect

b. Bowel incarceration

c. >4 years of age

A new born baby boy was found to have a condition appearing in the adjacent photo. His mothers pregnancy was uncomplicated. Analyze the picture and answer the following questions

- 1-** What is this?
- 2- Define** this condition
- 3-** Is this condition considered relatively common?
- 4-** What **anomalies** you should look for in this patient?
- 5-** Mention 1 **complication** this patient might experience during his life.
- 6-** What's the **treatment** for this condition?



1- Prune belly syndrome

2- A partial or complete lack of abdominal wall muscles.
There are wrinkly folds of skin covering the abdomen

3- No, it's rare, 1:30000-50000

4-

- Urinary tract abnormality such as unusually large ureters, distended bladder, vesicoureteral reflux
- Undescended testicles
- VSD
- Malrotation of the gut
- Club foot

5- Frequent urinary tract infections

6- Treatment of the associated anomalies, these patients usually end up with a cystostomy for urinary drainage

A new born baby girl was born with the condition seen in this picture. Answer the following questions:

1- What is this?

2- Define this condition.

3- What would you expect to find in a **pelvic X-ray** done on this patient?

4- What are some of the **associated anomalies** that is associated with this condition?

5- What's the **management** for this case?



1- Bladder Extrophy (Ectopic Vesicae)

2- A defect in the abdominal wall occupied by both the exstrophied bladder as well as a portion of the urethra

3- Separation of the pubic symphysis, Shortening of the pubic rami, External rotation of the pelvis.

4- Associated with prolapsed vagina or rectum, epispadias, bifid clitoris or penis

5- Tx: Reconstruction of bladder + pelvic osteotomy (approximation of pubic bone), so it requires both a pediatric surgeon, and an orthopedic surgeon.

A 1 month old baby boy is brought to you by his mother for a check up. You notice that the baby is in the 99th percentile of weight and height, on examination of the abdomen you notice an umbilical hernia. You measure blood glucose level for this baby and it's 42 mg/dL. A picture of this baby is shown, analyze it and answer the following questions:

- 1- Based on this scenario, **what does this baby have?**
- 2- **Mention** 3 points **from the scenario** that is related to this patient's condition.
- 3- **Mention** 1 point (observation) **from the picture** that is related to this patient's condition.
- 4- **Mention** other common features of this condition.
- 5- For what should this baby be screened during his childhood?



1- Beckwith-Wiedemann syndrome: macroglossia, macrosomia, organomegaly, abdominal wall defects, embryonal tumors, and neonatal hypoglycemia.

2- 99th percentile of weight and height (This means that 99% of babies his age have smaller weight, height or both – basically it means that he's overweight (Macrosomia)), umbilical hernia (abdominal wall defect), low blood glucose level (Neonatal hypoglycemia)

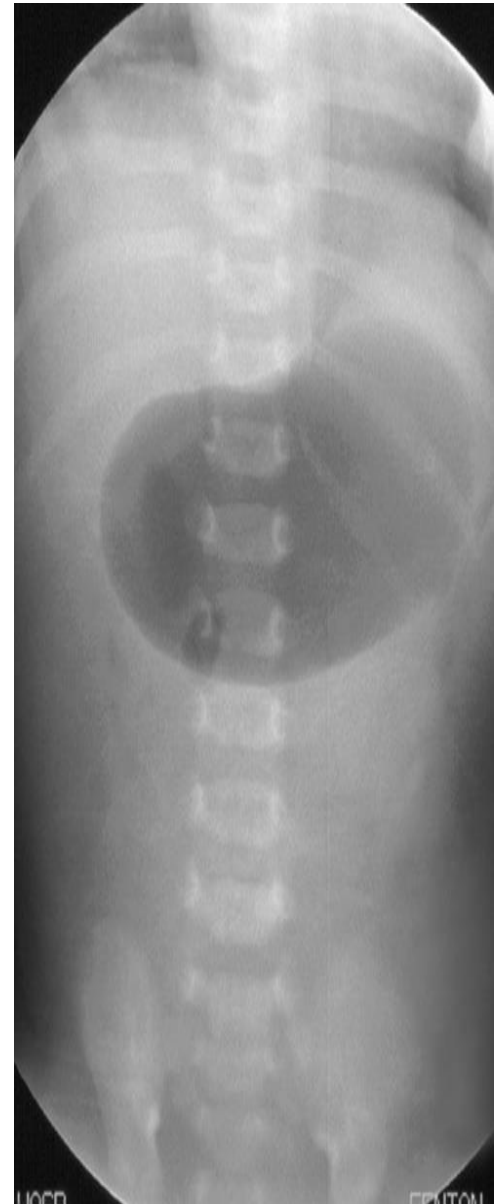
3- Macroglossia

4- Organomegaly, embryonal tumors, coarse rounded facial features, genitourinary abnormalities.

5- For cancer (Embryonal tumors)

(Part 1/2) : A 2 weeks year old infant was brought to the emergency department by her parents because she suddenly started vomiting. The vomiting looks greenish in color, and the baby is irritated and inconsolable. You order an abdominal X-ray; which is shown. Answer the following questions:

- 1-** What would you expect that this baby is having depending on the X-ray?
- 2-** What other modalities of diagnosis can you do?
- 3-** What's the best modality of diagnosis that you should do next?
- 4-** What are worrisome complications that can result from continuous vomiting?



- 1-** Intestinal obstruction (Billious vomiting in an infant is malrotation until proven otherwise)
- 2-** Upper contrast study, Doppler study, CT scan
- 3-** Upper contrast study (suspecting malrotation)
- 4-** Hypovolemic shock, metabolic alkalosis

Part (2/2): You order an upper GI contrast study and the radiologist sends you a report saying “Beyond the stomach, The contrast remained on the right side & didn’t cross the midline”, as seen in the shown picture. Depending on the whole scenario (Part 1 & 2), answer the following questions.

1- What's the **definitive diagnosis**?

2- What are some of the **complications** that might result from this condition?

3- In a neonate; **what signs**, other than bilious vomiting, **can be present**?

4- What are the possible **associated anomalies** with this condition? (Mention 7)

5- What’s the **definitive surgical treatment** for this patient? **Describe** how it’s done.

6- **Mention the types** of this condition, and **specify** which would constitute an emergency if complicated.



1- Malrotation

2- Volvulus, intestinal gangrene, death (if complicated)

3- Hypovolemia & Metabolic alkalosis, abdominal pain & distention, failure to thrive, gastroesophageal reflux, early satiety, mild abdominal discomfort. Late signs include abdominal wall erythema & hematemesis or melena from progressive mucosal ischemia

4- Intestinal atresia, imperforate anus, cardiac anomalies, duodenal web, meckels diverticulum, hernia, trisomy 21 (Down syndrome)

5- Ladd's procedure. ➔ a. Entry into abdominal cavity and evisceration (open)

b. Counterclockwise detorsion of the bowel (acute cases) c. Division of Ladd's cecal bands (Ladd's bands: fibrous bands that extend from the abnormally placed cecum in the RUQ, often crossing over the duodenum & causing obstruction)

d. Broadening of the small intestine mesentery e. Incidental appendectomy (because you reconstruct the whole anatomy of the GI tract, so if this patient were to have appendicitis in the future, it would be very difficult to diagnose due to its abnormal location, to prevent this we remove the appendix with this procedure)

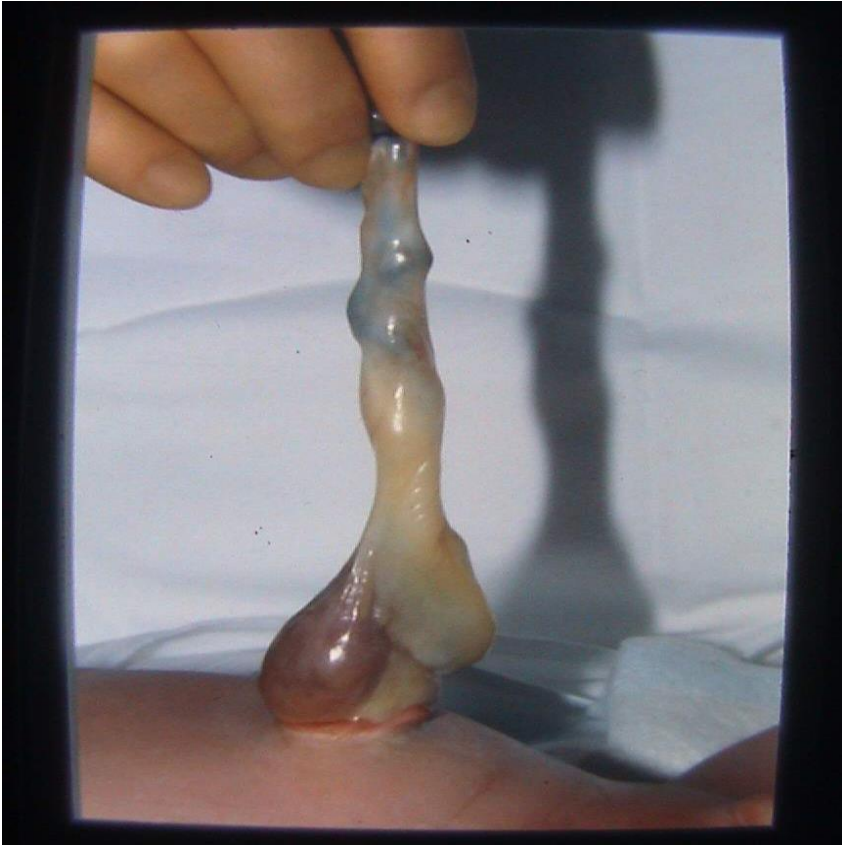
f. Placement of small bowel along the right lateral gutter and colon along the left gutter

7. a. **Non-rotation**: leaving the major part of the colon on the left side and the small intestine to the right of the midline b. **Incomplete rotation**: the cecum is situated in the sub-hepatic region c. **Reversed rotation**: the final 180° rotation occurs in a clockwise manner so that the colon is lying posterior to the duodenum and the superior mesenteric artery d. **Hyper-rotation**: the rotation continues to 360° or 450° so that the cecum rests in the region of the splenic flexure.

* Out of all these types, incomplete rotation could be an emergency.

Spot Diagnosis

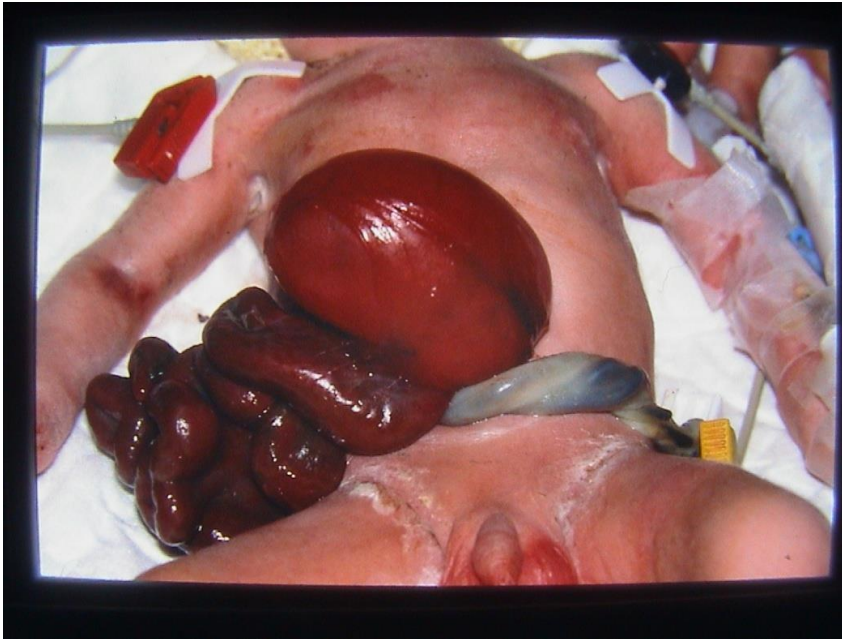
Omphalocele



Omphalocele



Rutured omphalocele*



Omphalocele



* Might be gastroschisis (Difficult to tell – if it contains the liver, its most likely a ruptured omphalocele)

Omphalocele (Umbilical cord hernia)



Omphalocele *



* Notice that it's very clear that the cord is on top of the sac

Ruptured omphalocele*



Ruptured omphalocele



* You can see the sac here

Gastroschisis *



Gastroschisis



* The bowel is matted and edematous and there's intestinal atresia

Gastroschisis



Painted omphalocele



Skin flaps (During surgery)*



Skin flaps (After healing)*



- * Flank flaps were used to close the giant omphalocele in the baby whose patch became infected.
- * The flank wounds were skin grafted and closure of the giant omphalocele obtained.

Surgical Silo (Almost end stage of treatment) *



Surgical Silo*



- * Used for gastroschisis, you put a silo over the protruded contents & keep pushing once or twice daily until all the contents are inside the abdomen, we do this because the newborn doesn't have enough space inside the abdomen to accommodate all the contents, so we make space gradually.
- * Completed reduction of the bowel contained within the silo; the silo is about to be removed and the abdominal wall closed.

Silo *



Silo



* Every day you push inside a little & suture at a closer point as seen in the picture

Umbilical hernia



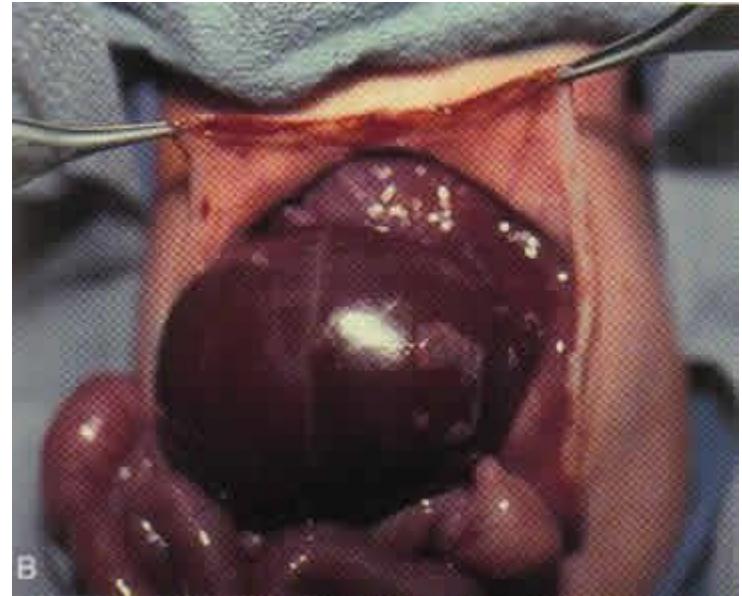
Prune Belly syndrome



Ectopia cordis



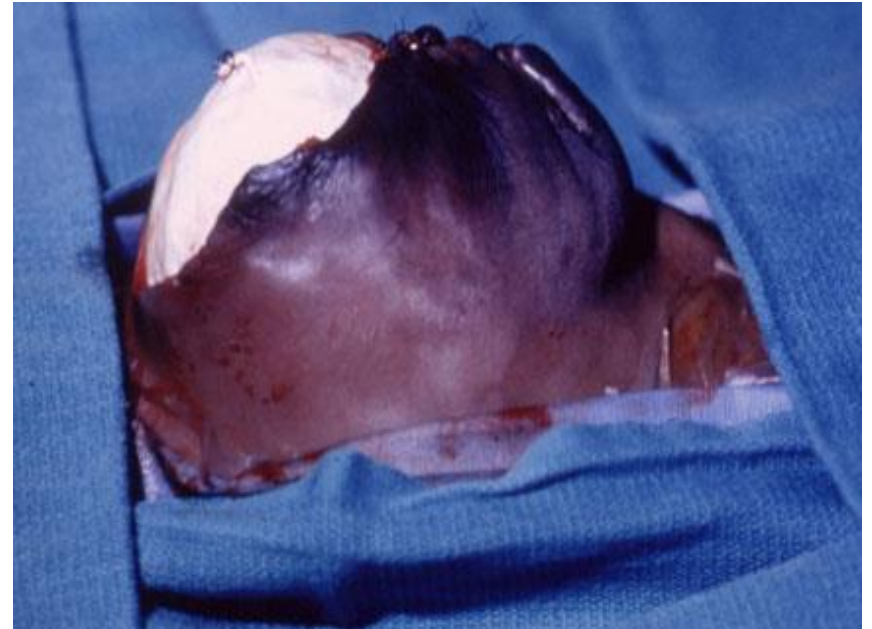
Ectopia cordis



Giant omphalocele



Closure of the giant omphalocele using a synthetic patch



Tightening the abdominal wall
closure



Baby with cloacal exstrophy.



Note the bifid genitalia in this baby with cloacal exstrophy.



Closure of the bladder exstrophy.



Baby with bladder exstrophy and epispadias; note the appearance of the bladder mucosa, indicating chronic inflammation.



Another view demonstrating the epispadias shown in the previous image.



Baby with isolated epispadias.



Closure of a giant omphalocele with an AlloDerm patch



Two months after implantation:
epithelialization of the AlloDerm patch.



Eight months after implantation:
epithelialization is nearly complete, but
a huge ventral hernia has developed



Baby with an omphalocele.



Complicated gastroschisis.

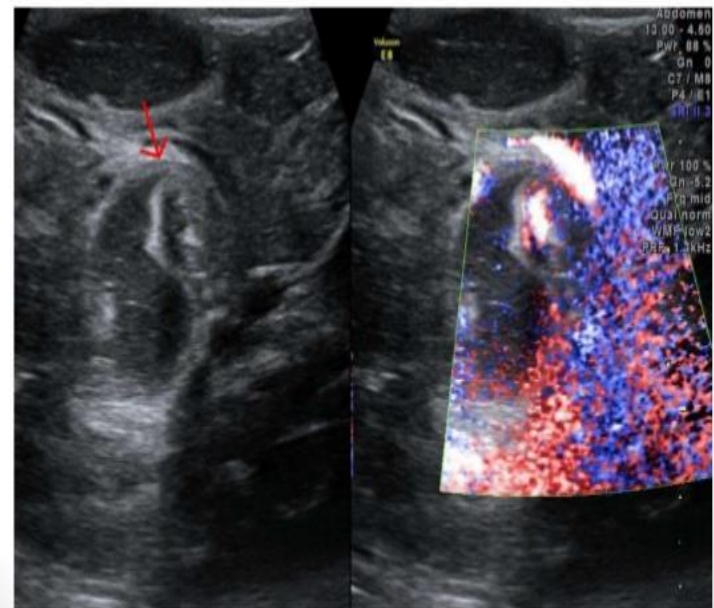


Radiograph showing the intestine following multiple serial transverse enteroplasty (STEP) procedures in the patient who had gastroschisis.



Whirl pool sign *

Colour doppler: whirlpool sign



* When structures twist on itself, It represents the swirling appearance of the mesentery and superior mesenteric vein around the superior mesenteric artery in malrotation.

**Upper GI contrast study;
showing malrotation**



**Upper GI contrast study showing
malrotation (X-ray is done in late
stage of contrast)**



Omphalocele Vs Gastroschisis

	Omphalocele	Gastroschisis
Incidence	1:6,000-10,000	1:20,000-30,000
Delivery	Vaginal or CS	CS
Covering sac	Present	Absent
Size of defect	Small or large	Small
Cord location	Onto the sac	On abdominal wall
Bowel	Normal	Edematous, matted
Other Organs	Liver often out	Rare
Prematurity	10-20%	50-60%
IUGR (intrauterine growth retardation)	Less common	Common
NEC (Necrotizing enterocolitis)	If sac is ruptured	18%
Associated anomalies	>50%	10-15%
Treatment	Often primary	Often staged
Prognosis	20-70%	70-90%

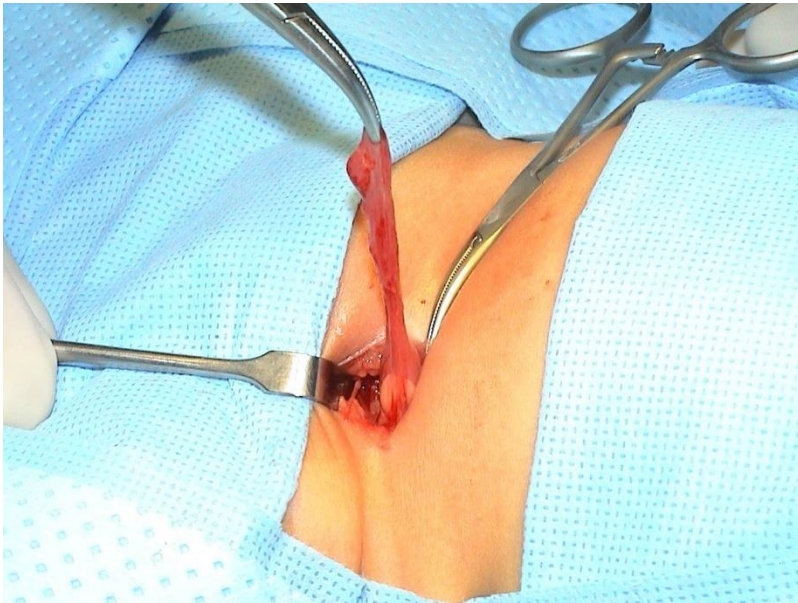
Pediatric inguinal and scrotal conditions

Case 1:



- What is the diagnosis?
- Give other differential diagnosis?
- mention other associated condition to this pic ?
- What's the congenital pathophysiology ?
- Complications ?
- Investigation ?
- What's the treatment ?

- 1. indirect inguinal hernia
- 2. hydrocele , epididymal cyst
- 3. associated conditions :
 - Cystic Fibrosis
 - Connective tissue disorders
 - Ehlers-Danlos syndrome//Hunter-Hurler syndrome
 - Preterm infants with intraventricular hemorrhage
 - Myelomeningocele with VP-shunt
 - Undescended testis
- 4. Failure of closure of the processus vaginalis.
- 5. strangulation , intestinal obstruction , bowel gangrenous
- 6.ultrasound
- 7.herniotomy



- What is the name of this procedure ?
→ herniotomy
- Mention 2 possible complication of the surgery ?
→ Injury to Vas deferens & vessels , hydrocele , Testicular atrophy , recurrence , wound infection .

Case 2:

1. What's the possible diagnosis?
2. Give other differential diagnosis?
3. Mention 2 finding on examination support your diagnosis ?
4. What is the causes ?
5. Treatment ?



- 1. hydrocele
- 2. indirect inguinal hernia , epididymal cyst
- 3. Fluctuant/Fluid thrill/Dull to percussion
- Transilluminates/ Can go above it .
- 4. a) congenital (PPV)
 b) acquired (trauma , infection , tumor)
- 5. surgery not advised <2 years of age
- Ligation of PPV !

Case 3:

- what's your diagnosis?
- who is the most affected group ?
- What's the most common form (unilateral OR bilateral) ??
- Mention an investigation which is both diagnostic and therapeutic?
- What is the possible treatment ?
- Indications of surgical treatment ?

Palpable 80%



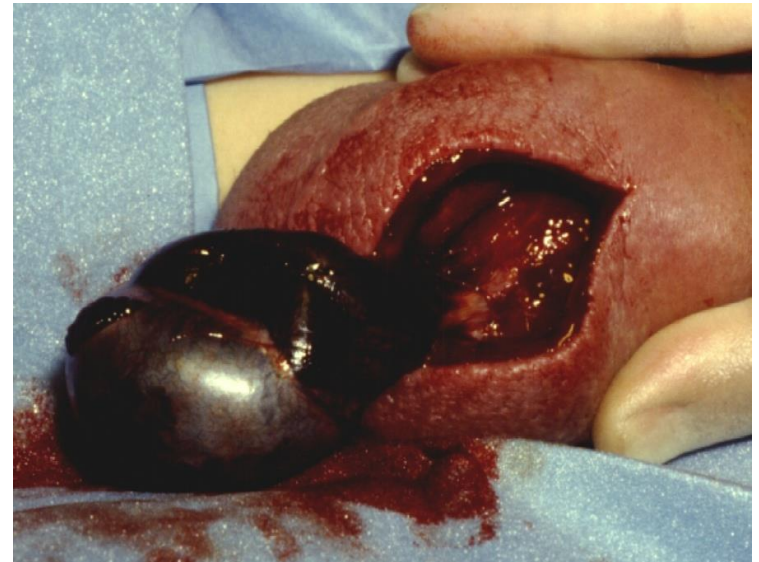
Non palpable 20%



- 1. undescended testis “cryptorchidism”
- 2. premature infants
- 3. unilateral
- 4. laparoscopy
- 5.a) hormonal therapy
- b) surgical therapy “**Palpable - open orchiopexy**”
 - **Nonpalpable -**
 - **Laparoscopy assisted orchiopexy**
 - **Two stages Fowler-Stephens orchiopexy.**
- 6. Abnormal fertility , Testicular tumor , Cosmetic/Social, Trauma/Torsion

Case 4:

1. what's your diagnosis ?
2. If we suspect this condition , how much time we have before permanent complication occur?
3. Describe the clinical picture of the patient (symptoms and signs)?
4. Investigations ?



Pediatric surgical emergency!!!

1. Testicular torsion

2. 4-6h

3. Clinicaly :

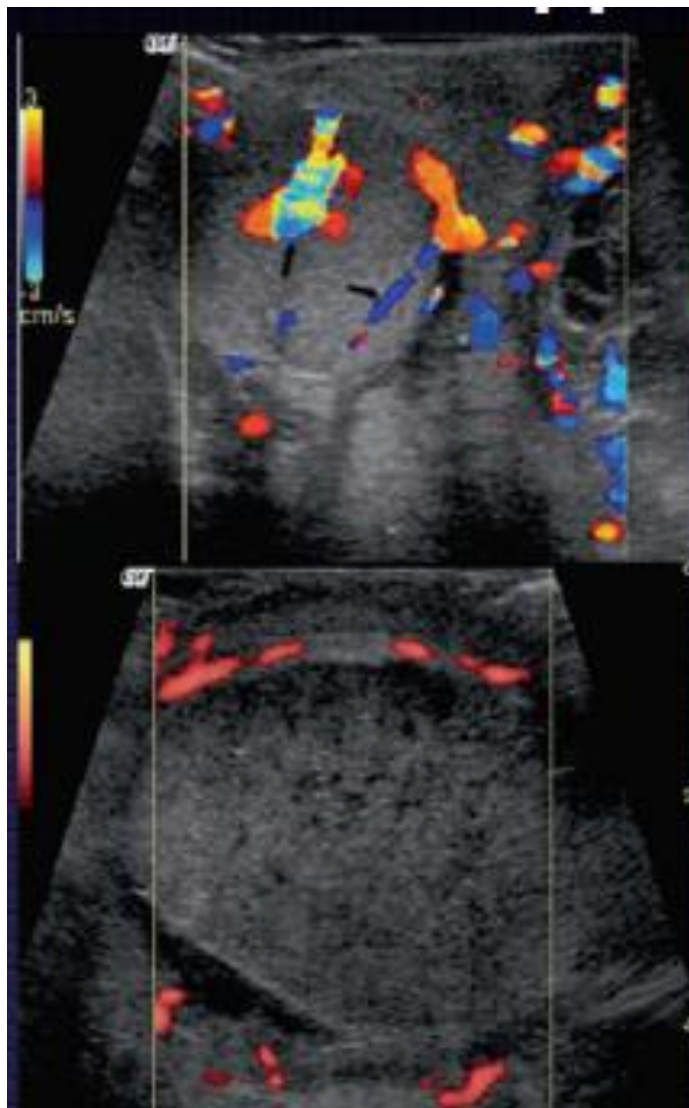
Symptoms:

- Lower abdominal pain and vomiting
- Hemiscrotal pain
- Swollen → red hemiscrotum

Signs:

- Tender
- Cremasteric reflex- absent (most specific)
- Lies higher than contralateral testis
- Horizontal in position

**4. Dopplar US
radionucclide scan**



Central testicular blood flow → Normal Testis

No Central testicular blood flow but excessive peripheral blood flow

Case 5:

1. What is structure labeled by arrow known ? And it's indication for what?
2. Best investigation is ?
3. Management ?



- 1. blue dot sign / indication of torsion of testicular appendages
- 2. color doppler scan
- 3. conservative OR operative if torsion can't be excluded.

Case 6:

Patient come to clinic complains of discomfort and sometime aching pain in the scrotum on left side, on examination it felt like a bag of worms!!

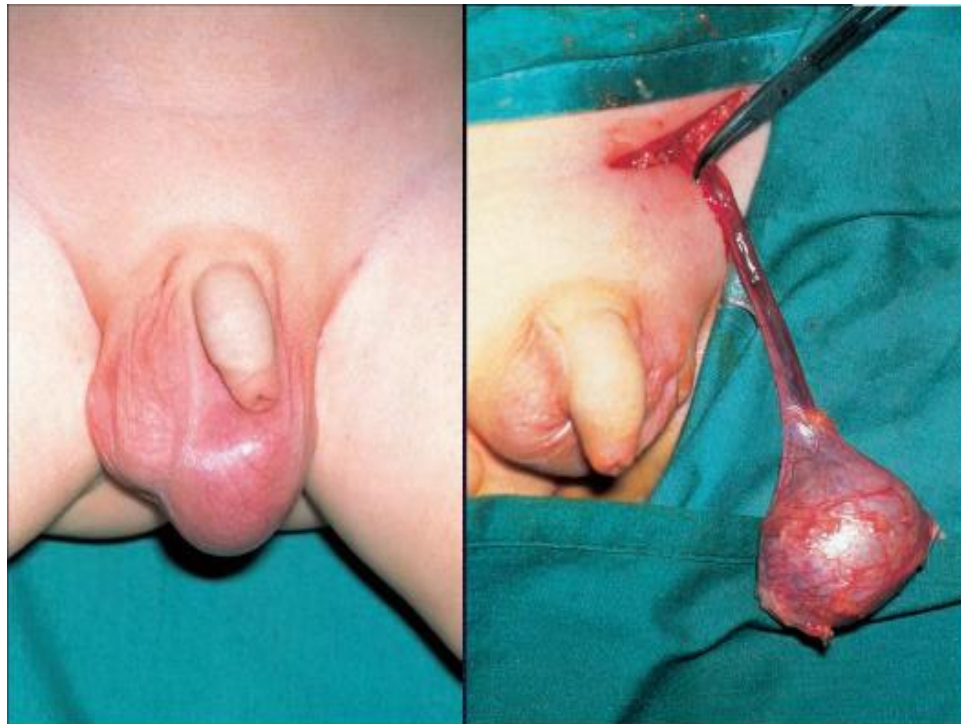
- What is the diagnosis?
- Investigation ?
- Treatment ?



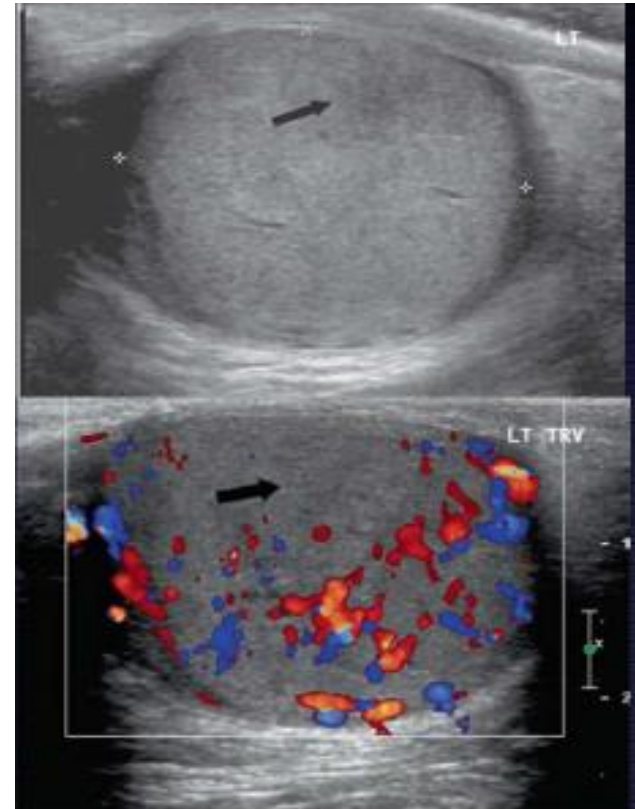
- 1.varicocele
- 2.Dopplar US
- 3. ligation of testicular vein
- varicocelectomy

Case 7:

a male patient 3 years old , presents to the clinic with painless hard testicular swelling , USG and doppler scan was done ...



1. What's the most likely diagnosis?
2. Mention the finding which present in previous imaging support your diagnosis?
3. What is the commonest malignant tumor of testis ?
4. Can we do needle biopsy ?
5. Treatment ?



- 1.testicular tumor

- 2. **USG Testis**

Anterior Hypoechoic area Testicular
Tumor

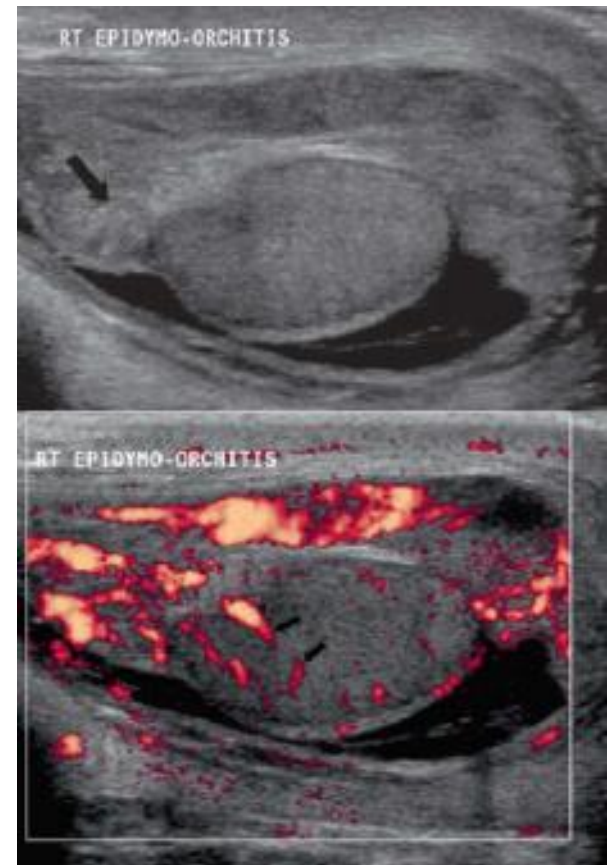
Doppler Scan

Hypovascular intratesticular tumor

- 3.endodermal sinus tumor
- 4.no it's contraindicated to do it
- 5. high orchidectomy with retroperitoneal lymph node dissection
- Post op radiotherapy or adjuvant chemotherapy

Patient comes to the clinic complains of sudden onset of pain in the right hemiscrotum associated with dysuria , pain relieved by elevation of the scrotum...

1. What's the most likely diagnosis?
2. Cases ?
3. What is the most important finding in the scan ?
4. Treatment ?



- 1. epididymo-orchitis
- 2. trauma ,infection
- 3. excessive blood flow to epididymis with normal blood flow to testicular parenchyma.
- 4. give antibiotics and antiinflammatory drugs

Idiopathic Scrotal Edema

- Introduction:

- Cause?
- Peak age: 4-5 yrs

- Presentation:

- Swollen, red scrotum
- Minimal pain

- Management:

Conservative, self limiting
within 1-2 days



Pancreatitis

50 years old male patient came to you in ER with sudden severe epigastric pain radiating to the back, he vomited 2 times, one of the tests you ordered is CT scan with contrast and the result as you see in the picture



Questions

- 1- What is your primary diagnosis? And what do you see in the ct scan?
- 2- Write down 2 contraindication for this imaging.
- 3- What are the causes of your diagnosis?
- 4- Write 3 DDx according to patient signs and symptoms.
- 5- Write 3 lab tests you would order to support your diagnosis?
- 6 -write 3 possible complications of your diagnosis?
- 7- Write down 2 prognostic scoring systems to your Dx and on what it depends?
- 8- other than CT scan what other images you would order to support your Dx and what you would see?

Answers

- 1- **Acute pancreatitis**. Focal pancreatitis involving pancreatic head. Pancreatic head is enlarged with adjacent ill-defined peripancreatic inflammation and fluid collections.
- 2- patient **allergy to I.V contrast** and patient with **renal insufficiency**
- 3- **Gallstones + Alcohol: 80%+ I GET SMASHED** 😊
- 4- **Biliary disease, Intestinal obstruction, Mesenteric Ischemia, PUD**
- 5- **Amylase/lipase, CBC, LFT, Calcium**
- 6- **Pseudocyst, Abscess/infection, Pancreatic necrosis, Renal failure**
- 7- **Ranson's criteria on admission** it depends on age, WBC, Glc, AST, LDH
CT severity index on how many of pancreas affected and how it is affected
- 8- **Ultra sound** : gallbladder or common bile duct stones, ductal dilation ,pseudocyst
AXR : Sentinel loop, colon cut-off sign

AXR showing
Colon cut-off sign
due to spasm of
descending colon
from inflammation
,sign of acute
pancreatitis



Grey Turner sign



Source: Lichtman MA, Shafer MS, Felgar RE, Wang N:
Lichtman's Atlas of Hematology: <http://www.accessmedicine.com>
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Cullen's sign



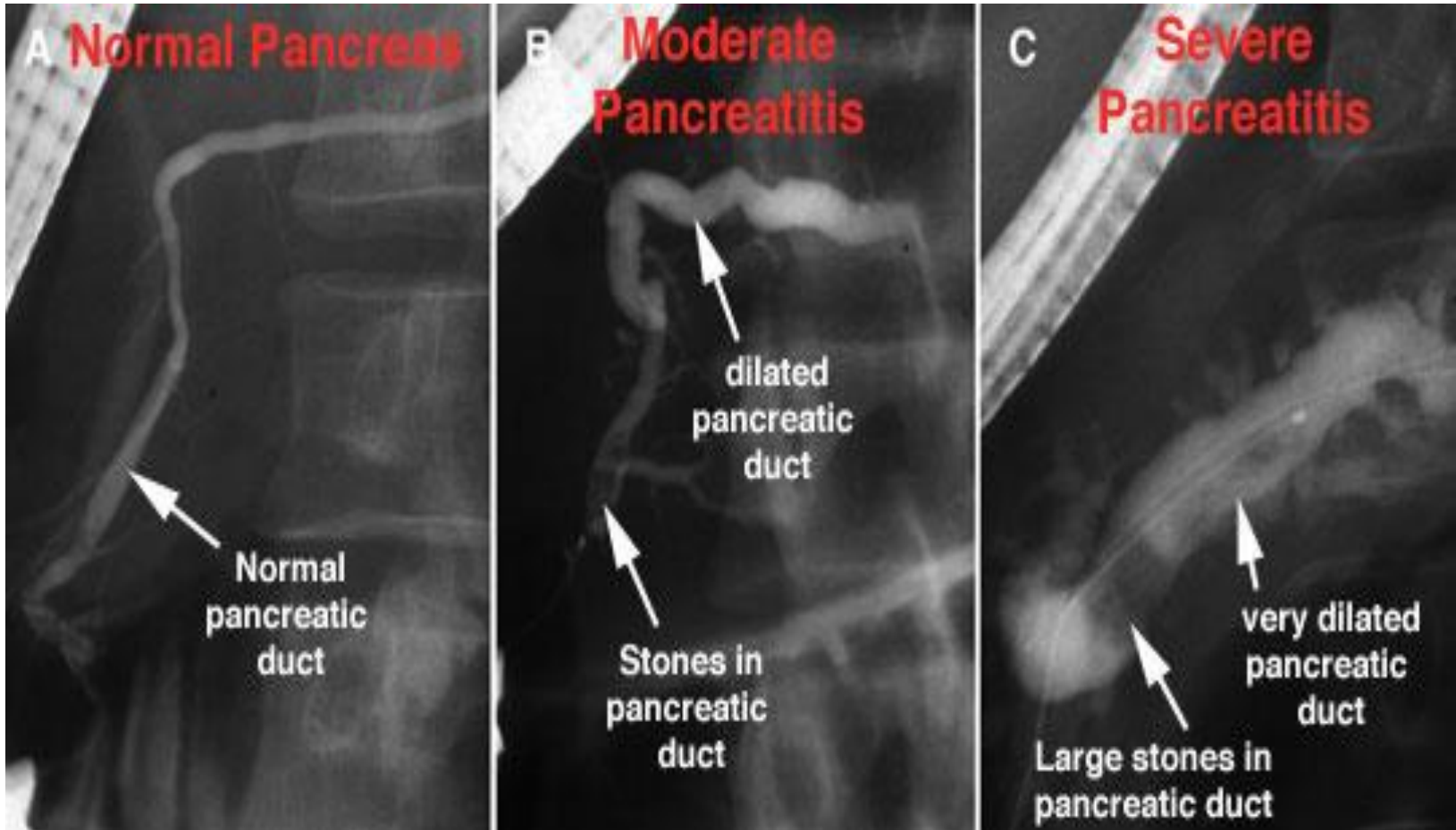
Source: Lichtman MA, Shafer MS, Felgar RE, Wang N:
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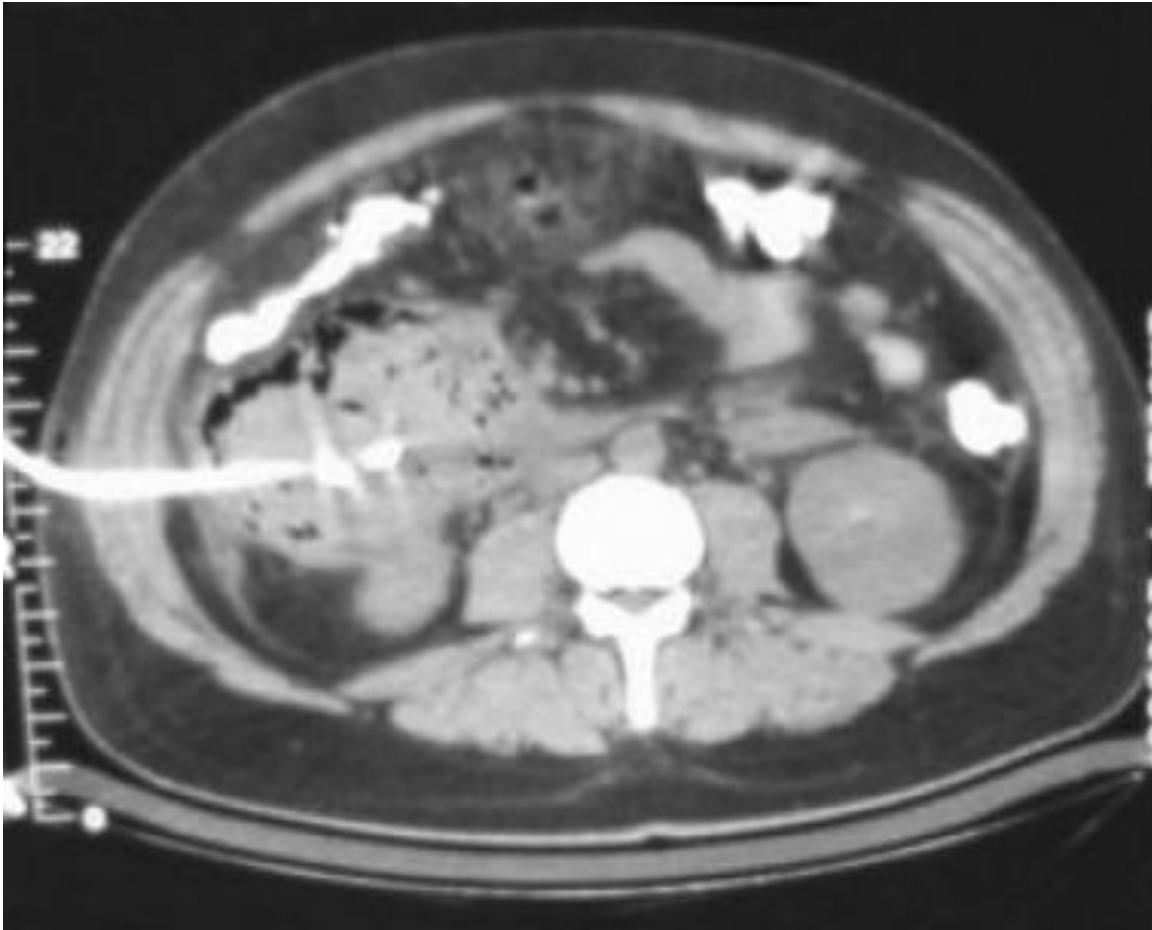
Signs of acute peritonitis

Abdominal Ultrasound showing **Pseudocyst**

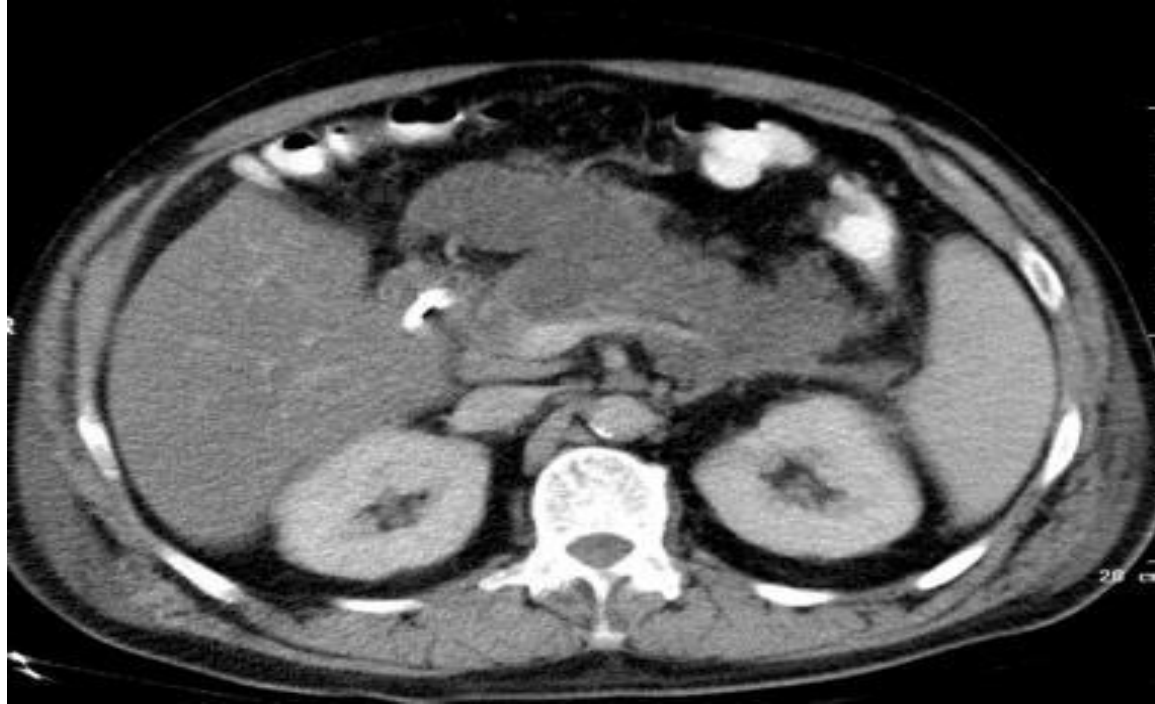


Gall stone pancreatitis by ERCP



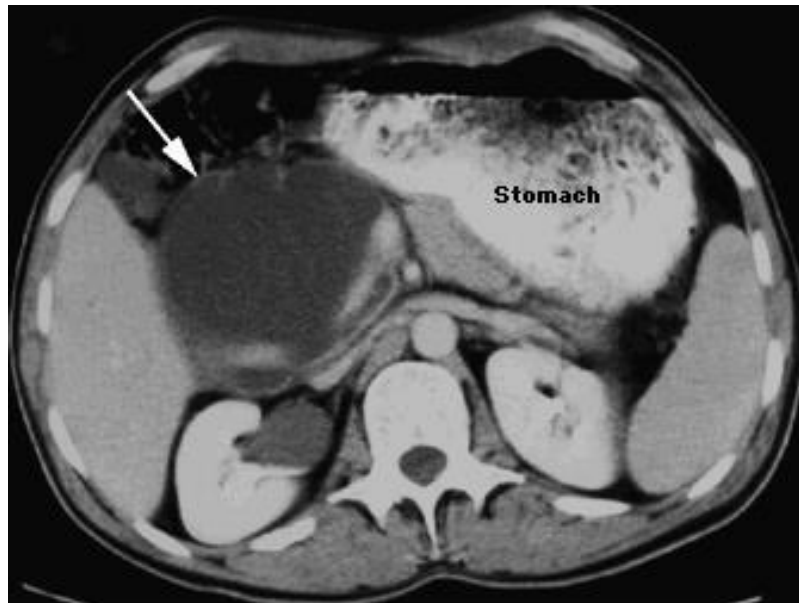


Pancreatic abscess. Large, relatively well-circumscribed heterogeneous collection containing gas bubbles inferior to the pancreatic head.

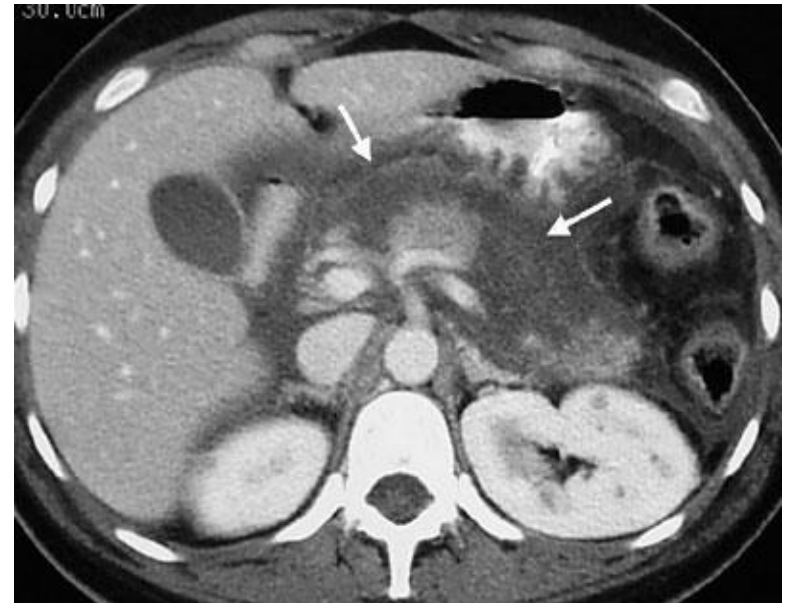


Pancreatic necrosis. Note the nonenhancing pancreatic body anterior to the splenic vein. Also present is peripancreatic fluid extending anteriorly from the pancreatic head.

Abdominal CT scans showing different complications of acute pancreatitis



Pancreatic Pseudocyst



Pancreatic necrosis



Pancreatic necrosis. Approximately 50% of the pancreatic gland does not display enhancement after contrast administration.

Cases from kaplan surgery

61. A 33-year-old **alcoholic** man shows up in the ER with epigastric and midabdominal pain that began 12 hours ago shortly after the ingestion of a large meal. The pain is constant and very severe, and radiates straight through to the back. He vomited twice early on, but since then has continued to have retching. He has tenderness and some muscle guarding in the upper abdomen, is afebrile, and has mild tachycardia. Serum amylase is 1,200, and his **hematocrit is 52%**.

What is it? Acute edematous pancreatitis.

Management. Put the pancreas at rest: NPO, NG suction, IV fluids.

62. A 56-year-old alcoholic man is admitted with a clinical picture of acute upper abdominal pain. The pain is constant, radiates straight through the back, and is extremely severe. He has a serum amylase of 800, a hematocrit of 40%, WBC count of 18,000, blood glucose of 150 mg/dl, and serum calcium of 6.5. He is given IV fluids and kept NPO with NG suction. By the next morning, his hematocrit has dropped to 30%, the serum calcium has remained below 7 despite calcium administration, his blood urea nitrogen (BUN) has gone up to 32, and he has developed metabolic acidosis and a low arterial Po_2 .

What is it? He has hemorrhagic pancreatitis. In fact, he is in deep trouble, with at least eight of Ranson's criteria predicting 80 to 100% mortality.

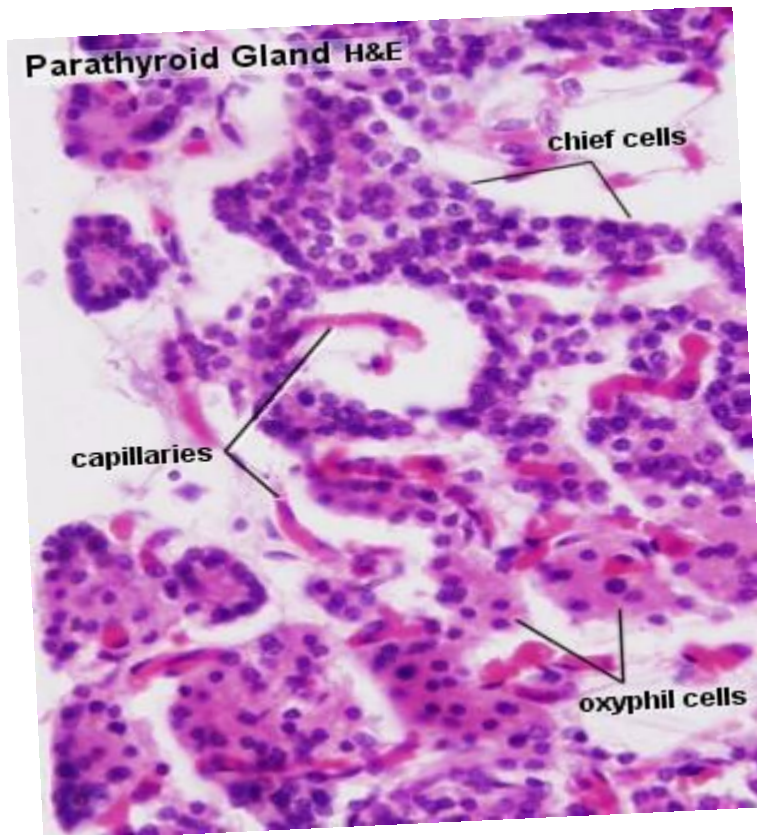
Management. Very intensive support will be needed, but the common pathway to death from complications of hemorrhagic pancreatitis frequently is by way of pancreatic abscesses that need to be drained as soon as they appear. Thus serial CT scans will be required. In very selected patients there is a role for necrosectomy to get rid of dead pancreatic tissue.

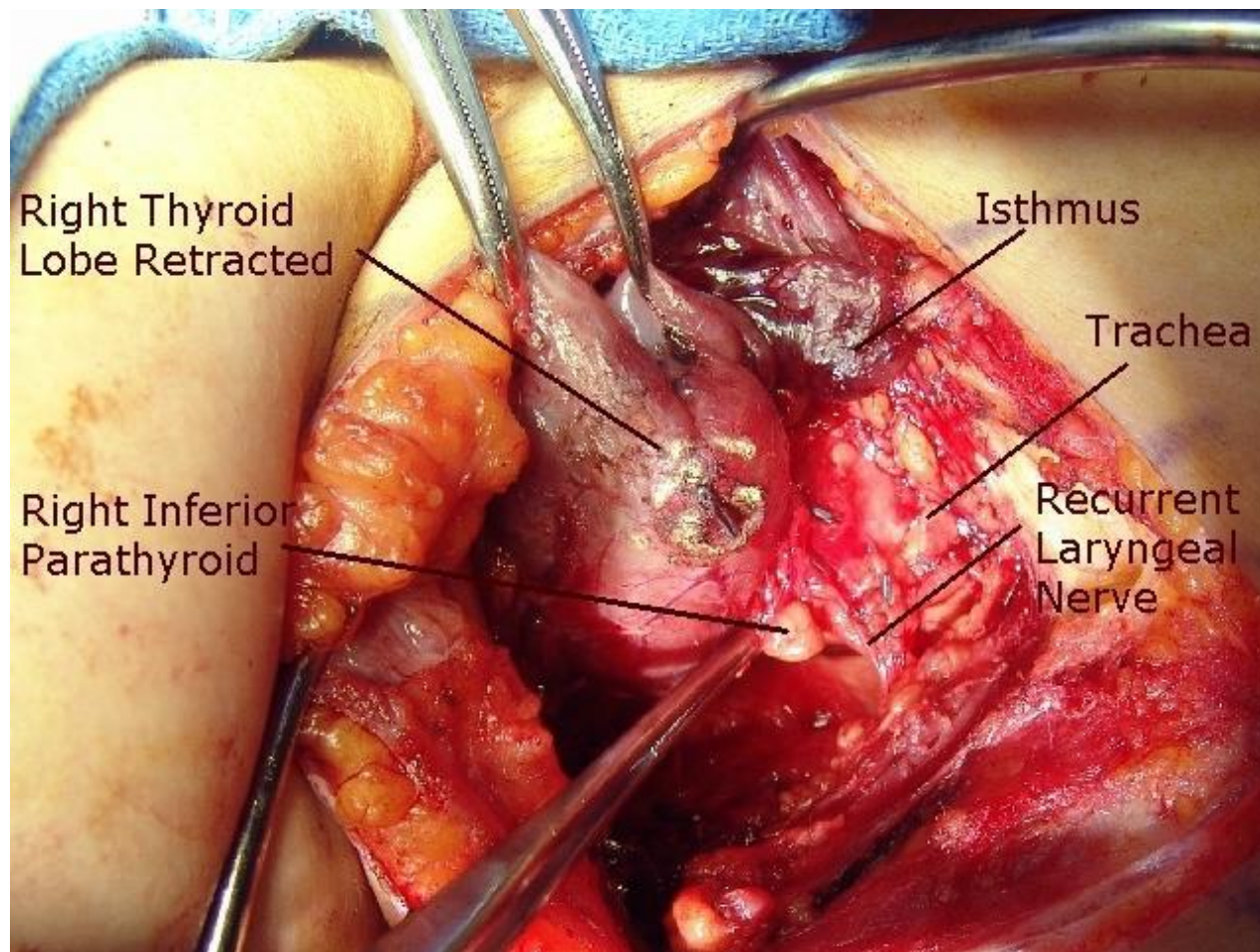
64. A 49-year-old alcoholic man presents with ill-defined upper abdominal discomfort and early satiety. On physical examination he has a **large epigastric mass** that is deep within the abdomen and actually hard to define. He was discharged from the hospital **5 weeks ago, after successful treatment for acute pancreatitis**.
65. A 55-year-old woman presents with vague upper abdominal discomfort, early satiety, and a large but ill-defined **epigastric mass**. **Five weeks ago** she was involved in an automobile accident in which she **hit the upper abdomen against the steering wheel**.

What is it? The two presentations of pancreatic pseudocyst.

Parathyroid Gland

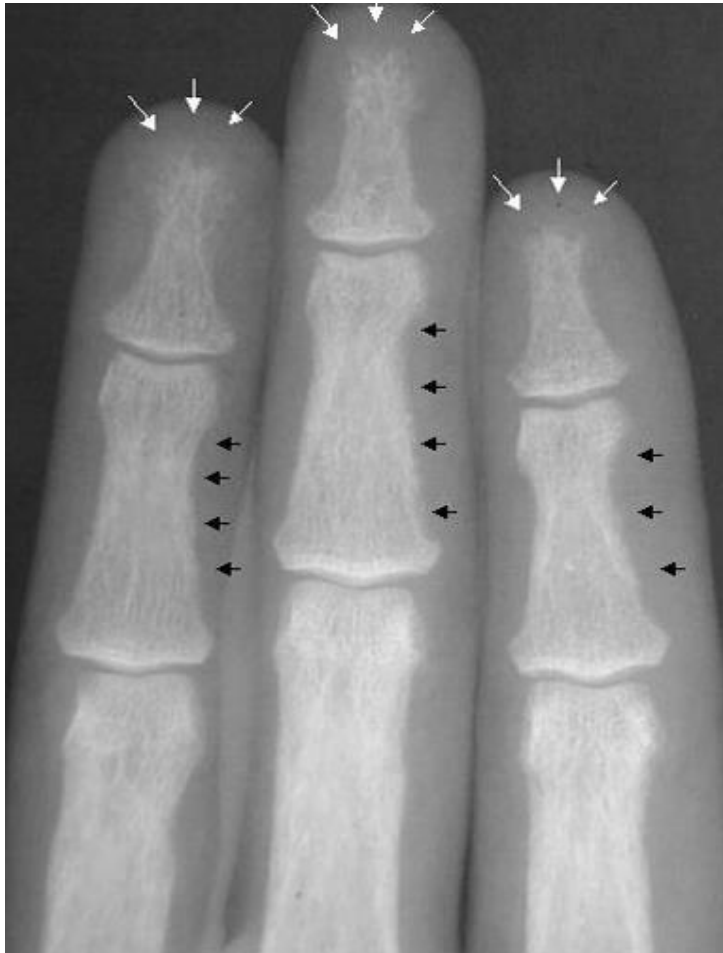
Histology of normal parathyroid

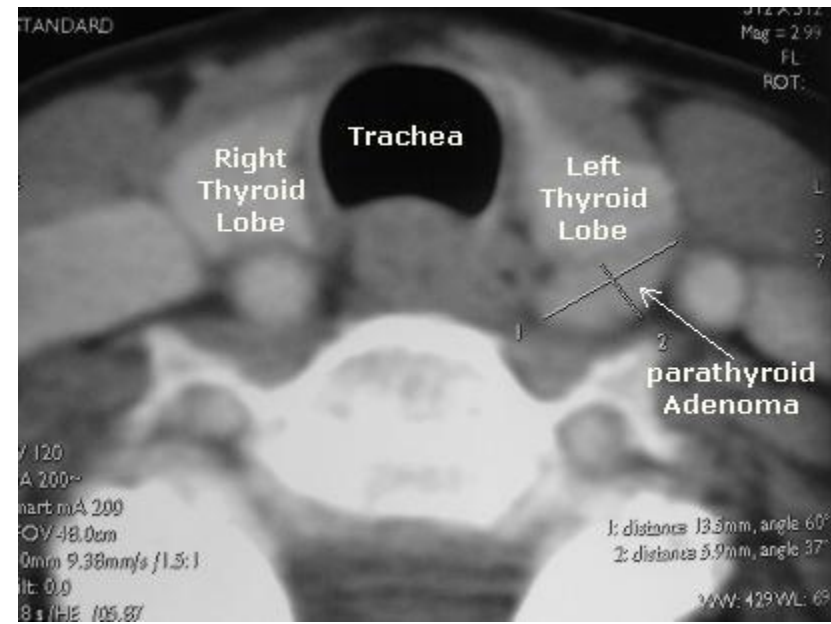
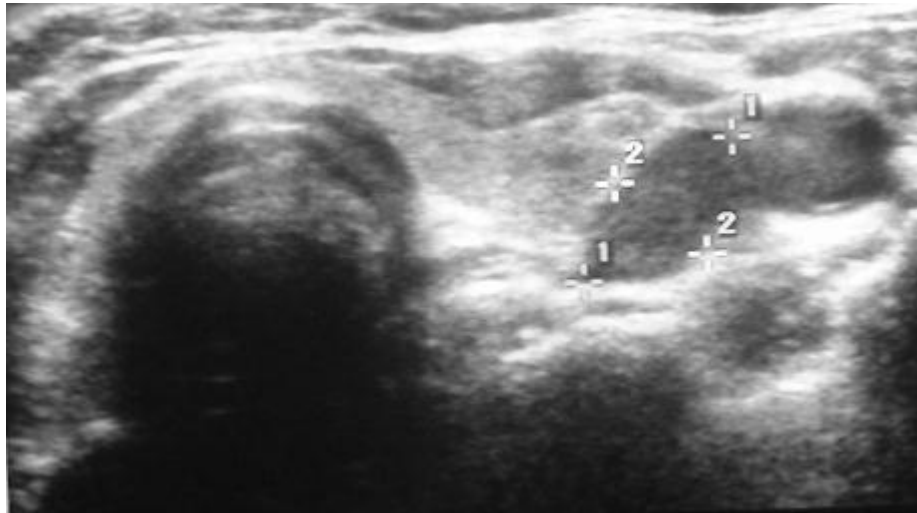


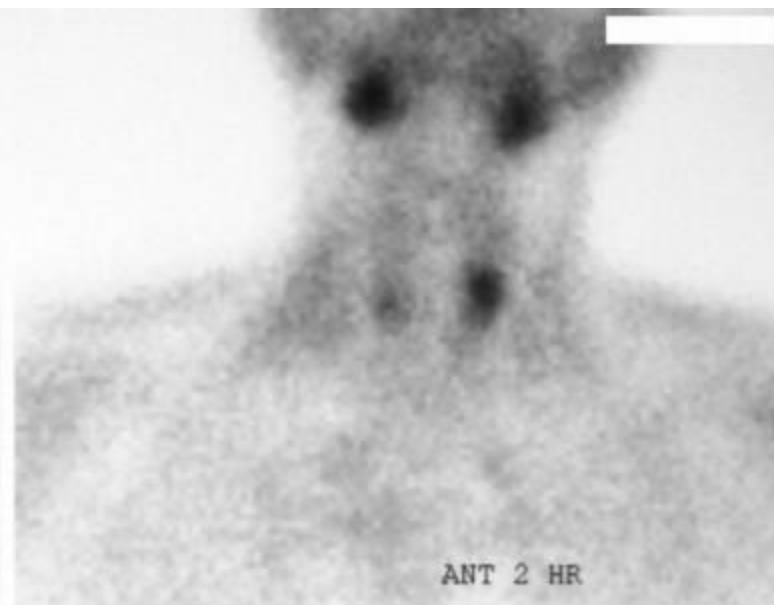
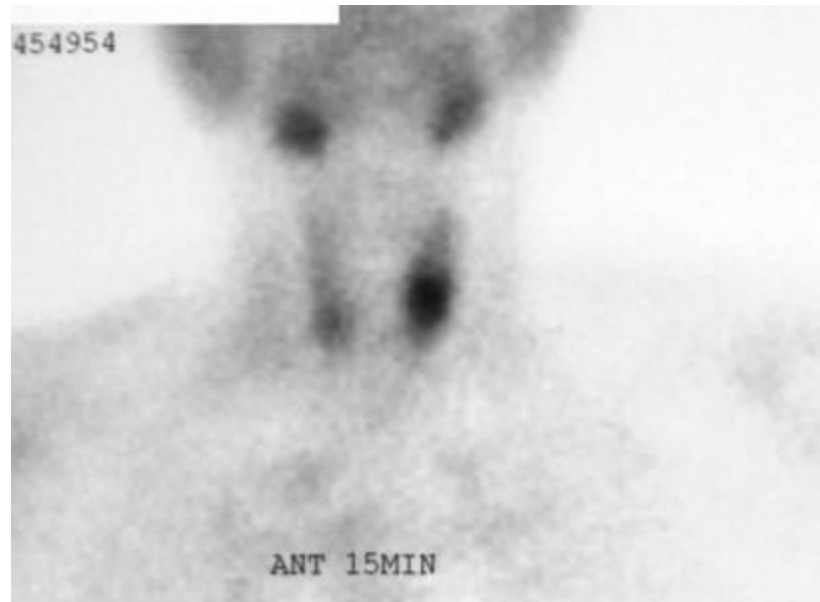


A 35 year old patient had hypercalcemia, hypercalciuria, osteopenia and elevated PTH. In addition, there is a history of passing kidney stones

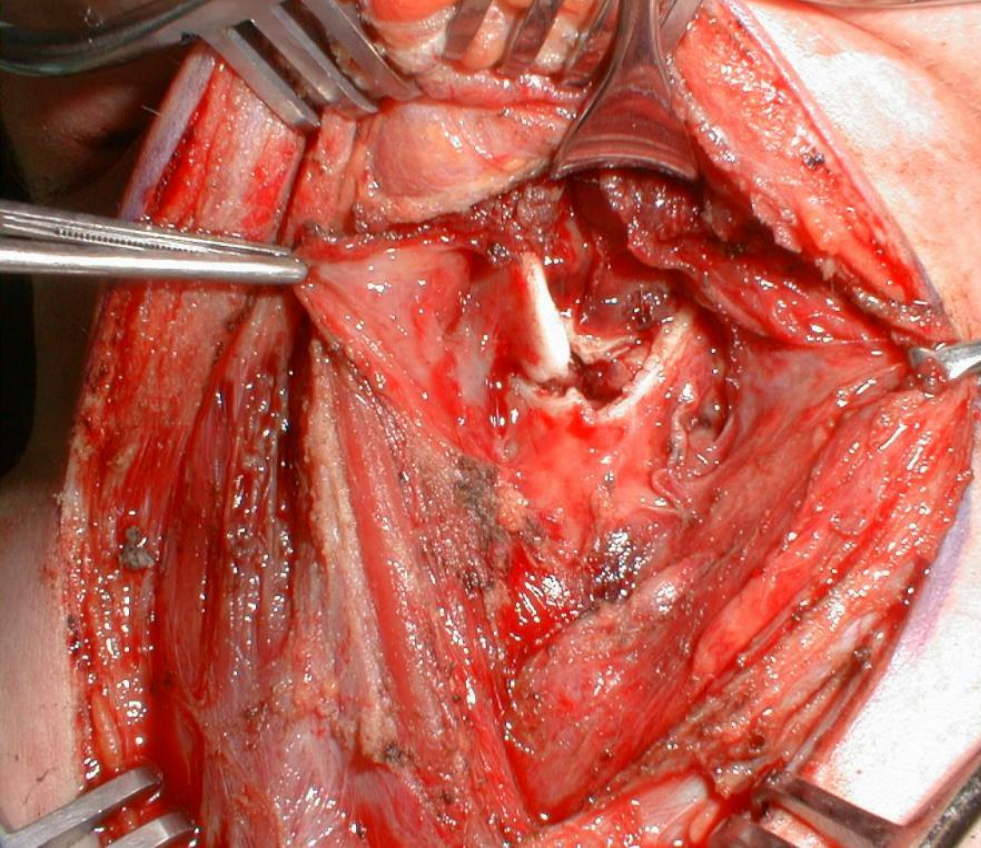








Pediatric trauma



*** patient admitted to ER due to neck trauma >> laryngeal injury isn't obvious on the patient BUT in surgery there is crushed larynx**

-How to manage the airway?

Tracheostomy/ cricothyroidotomy

-10 yrs old boy admitted to ER
complaining of tachypnea after
chest trauma, X-Ray was done.

Q: -name 3 findings in this x-ray?

-what's your DDX?

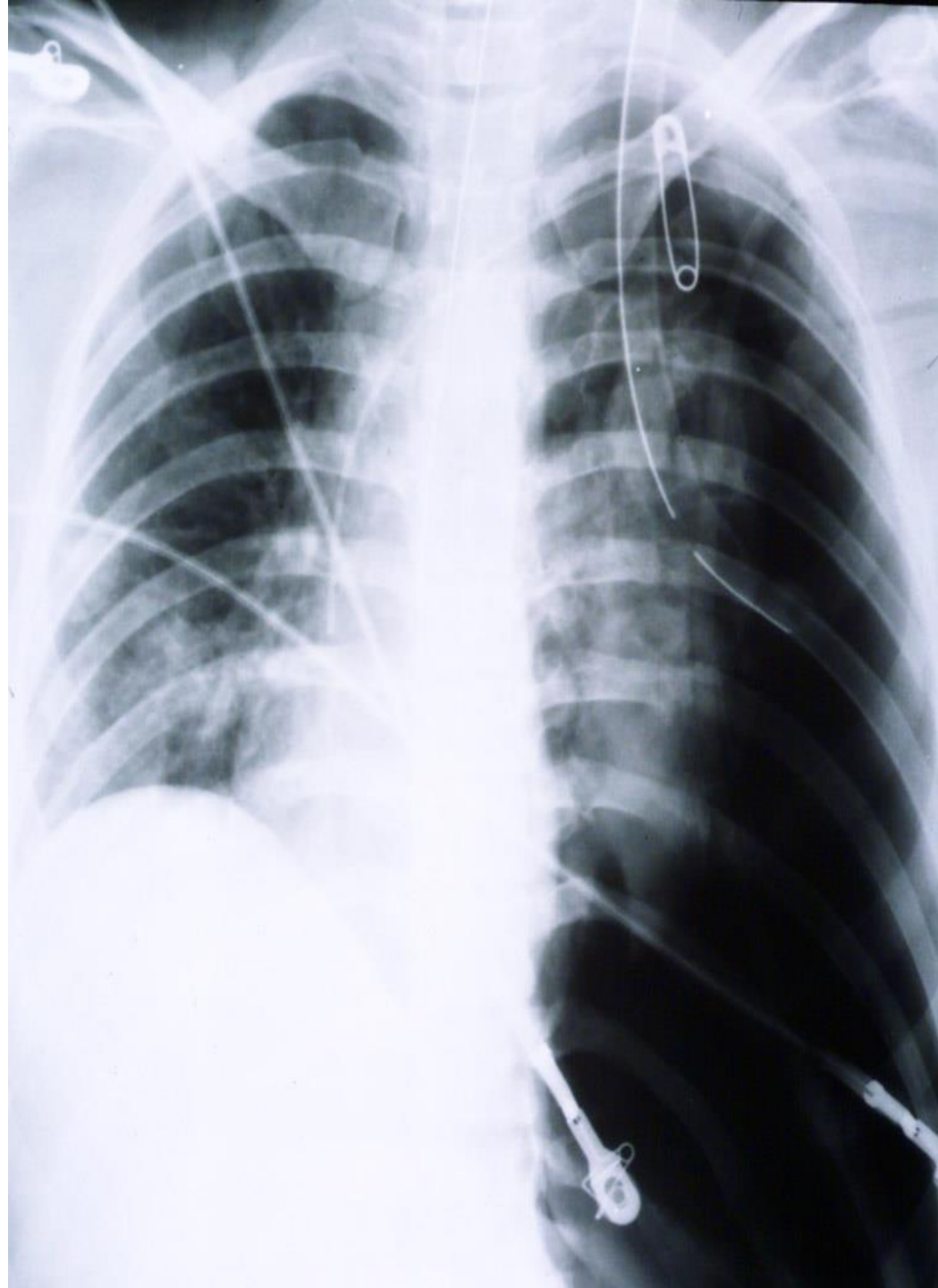
-what's your management?

A: -loss of the diaphragm
angle/obvious lung marking/black
air

-pneumothorax

-1)needle decompression in 2nd
intercostal space/ midclavicular line

2)Definite management>> chest
tube in 5th intercostal
space/anterior axillary line



***open pneumothorax (sucking air)**

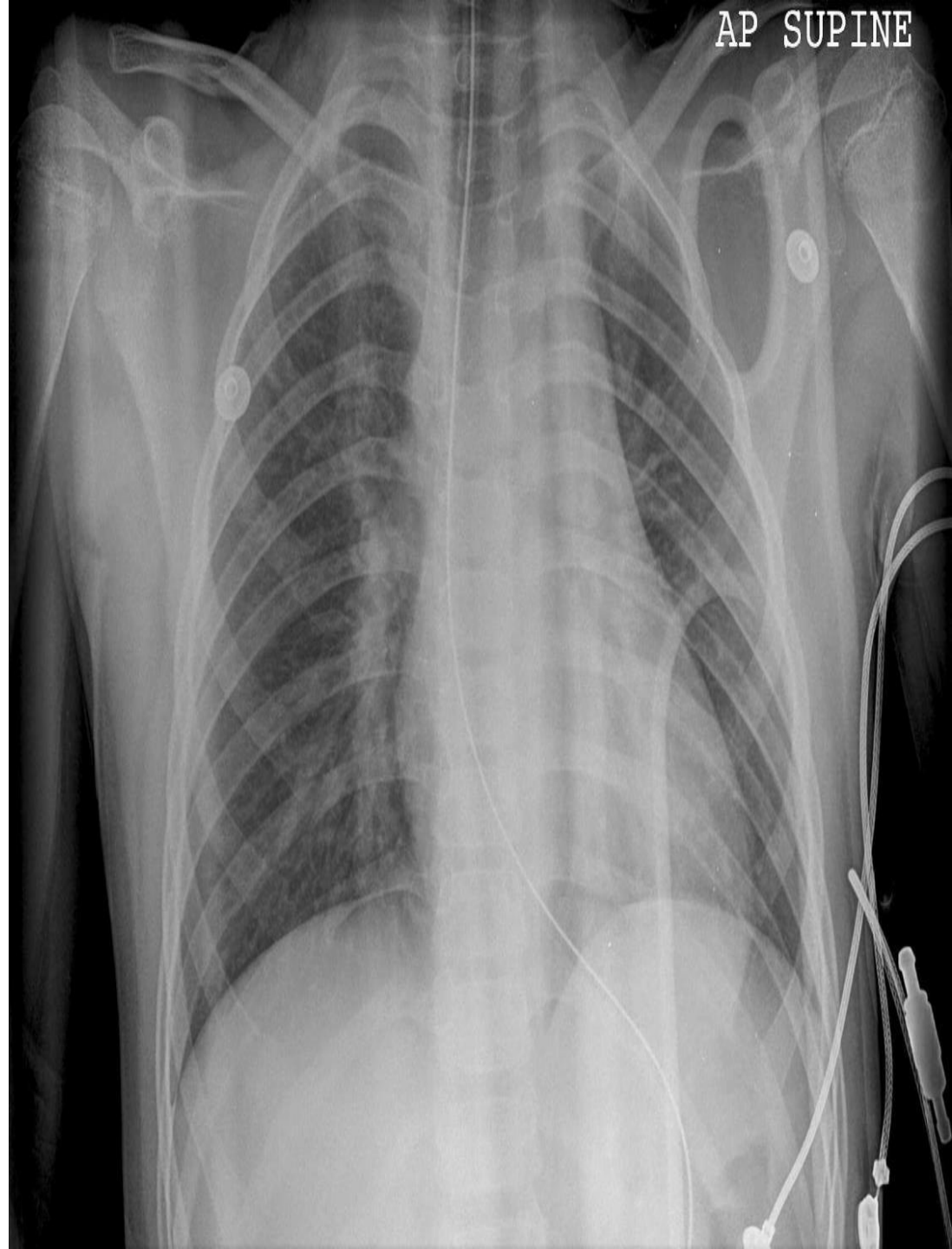
-management>> The definitive is to place an occlusive dressing over the wound and immediately place an intercostal chest drain.

Rarely, if a chest drain is not available a bandage may be applied over the wound and taped on 3 sides. This, in theory, acts as a flap-valve to allow air to escape from the pneumothorax during expiration, but not to enter during inspiration.



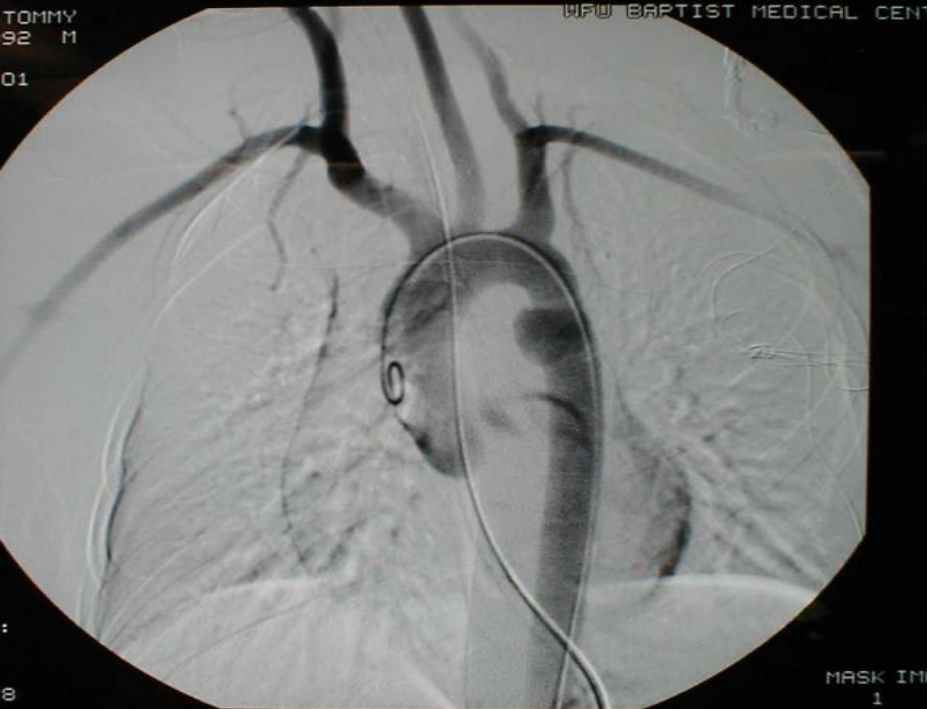
-what's the finding in this
x-ray?

Widened mediastinum



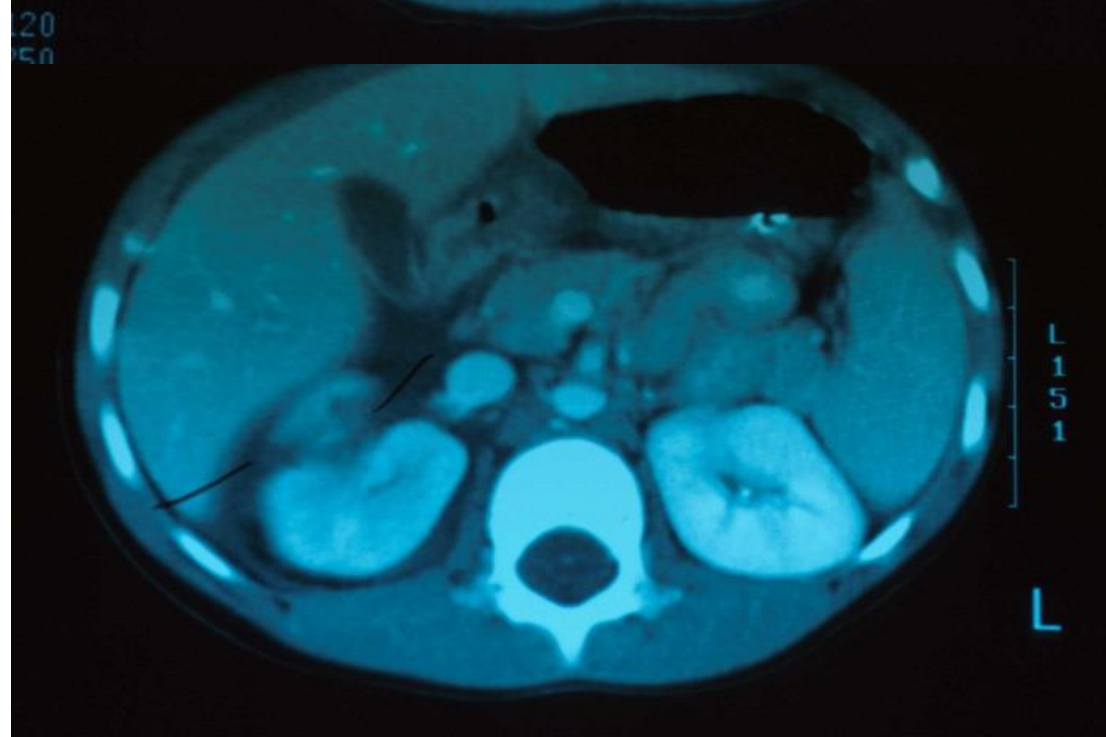
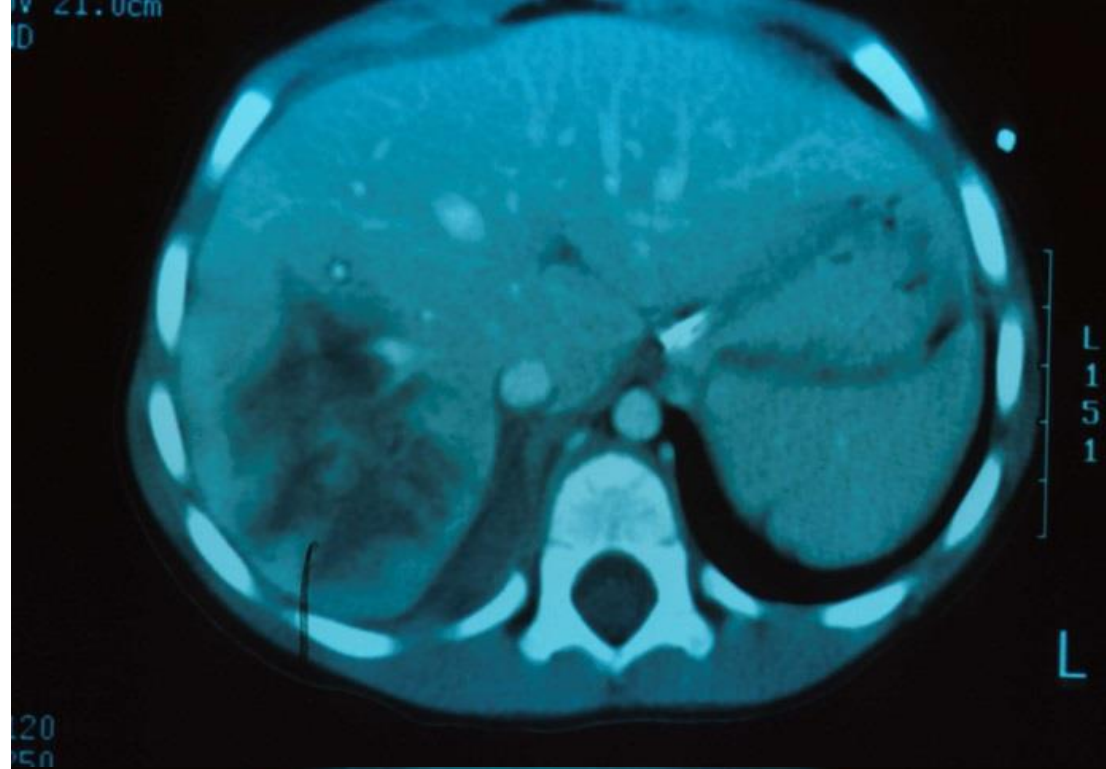
**Ct shows
ruptured (torn)
aorta and blood
leak after chest
trauma**





Angiogram showing torn aorta

CT showing liver
injury after blunt
trauma





-A 10 yrs old boy admitted to ER after RTA>>

Q: *what's this sign?

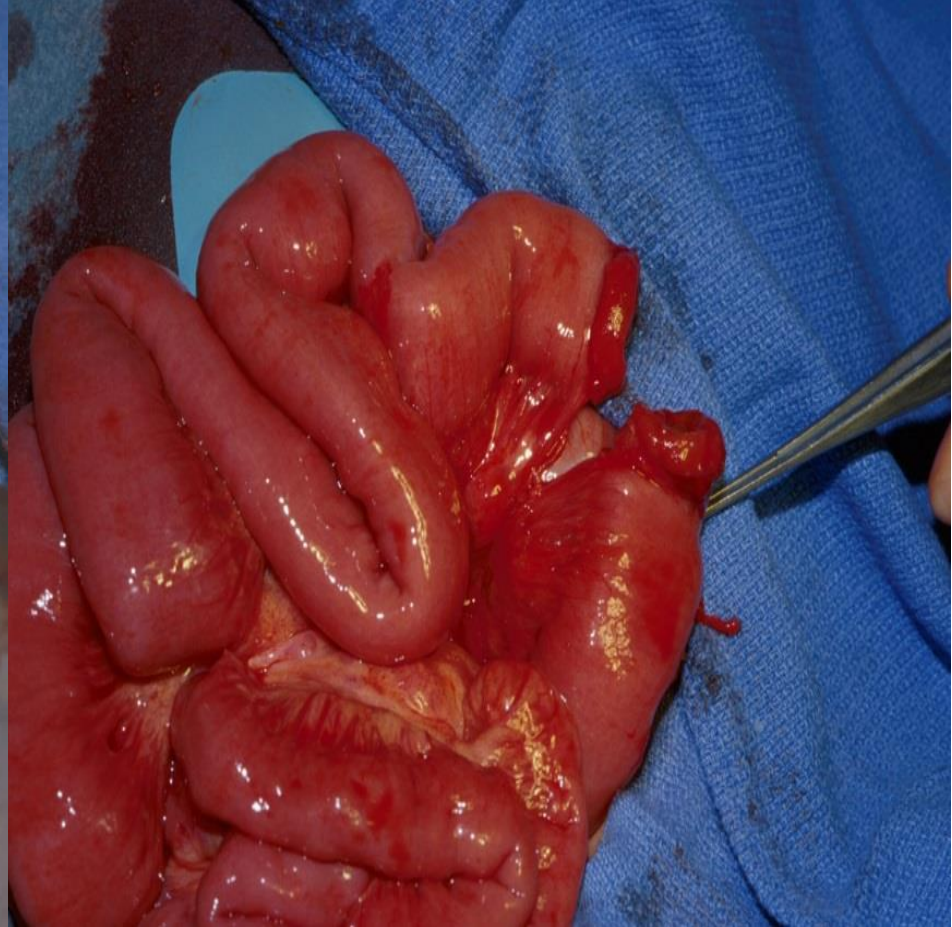
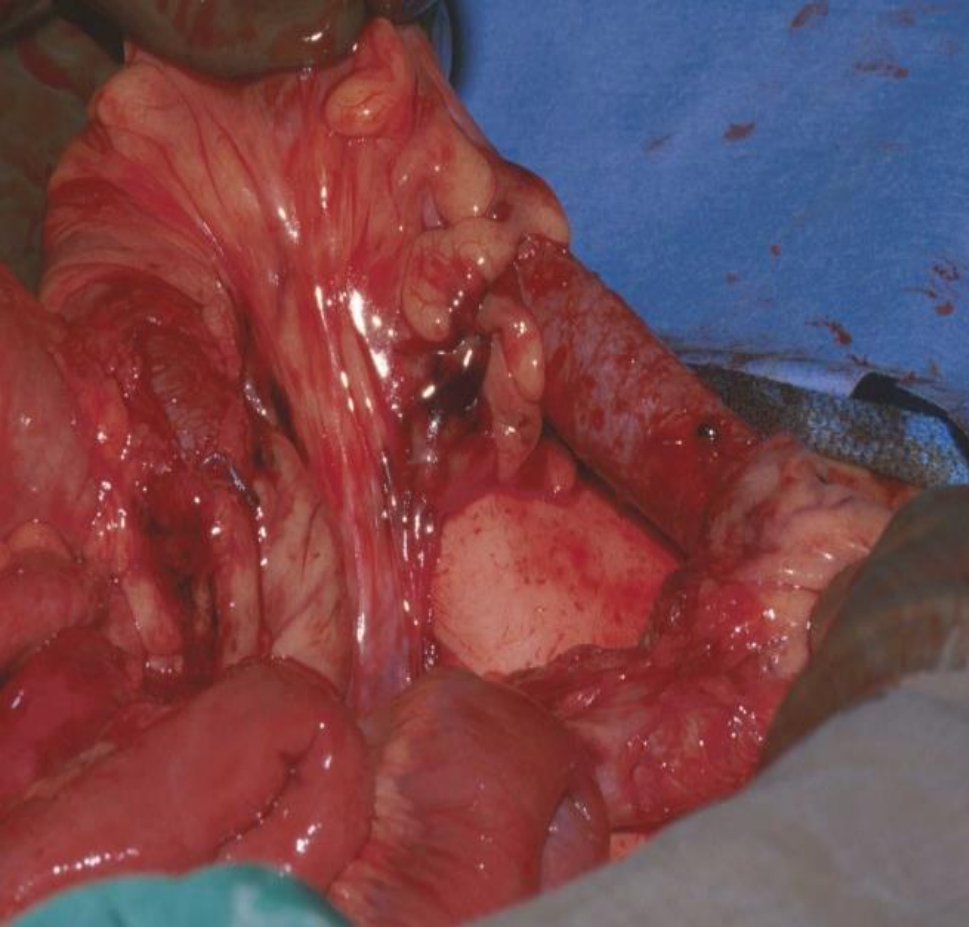
seat belt sign

***which organ is more probably to get injured?**

Small bowel

***Is CT sensitive for bowel injury?**

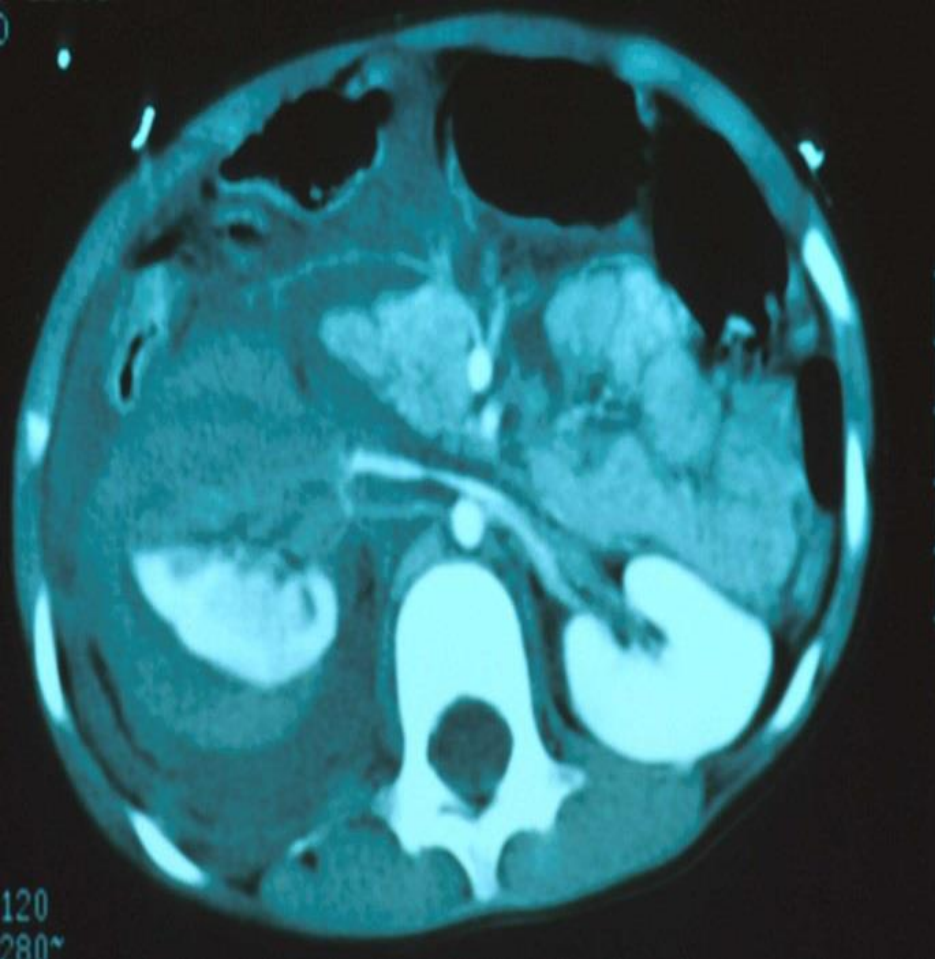
NO CT of the abdomen & pelvis is not effective for ruling out hollow viscus injuries



Bowel injuries associated with seat belt stripe

Q: How can you assess the patient if there's no sign on CT?

Serial physical exam



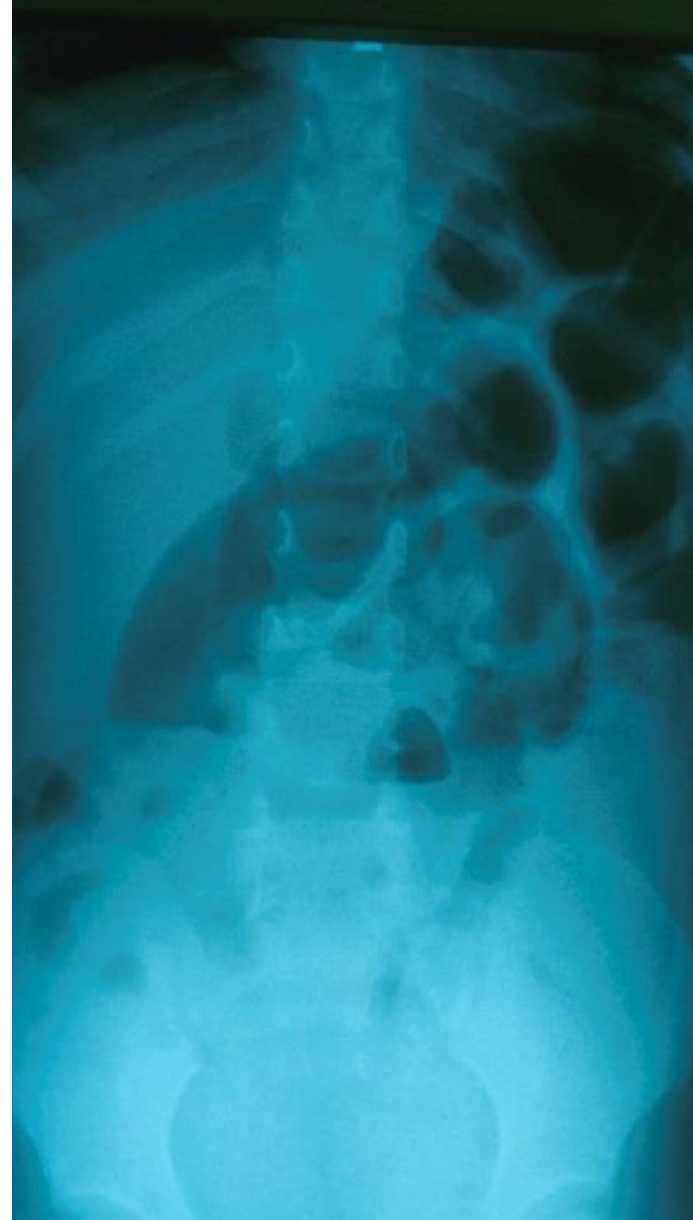
Q: what are the findings in this CT?

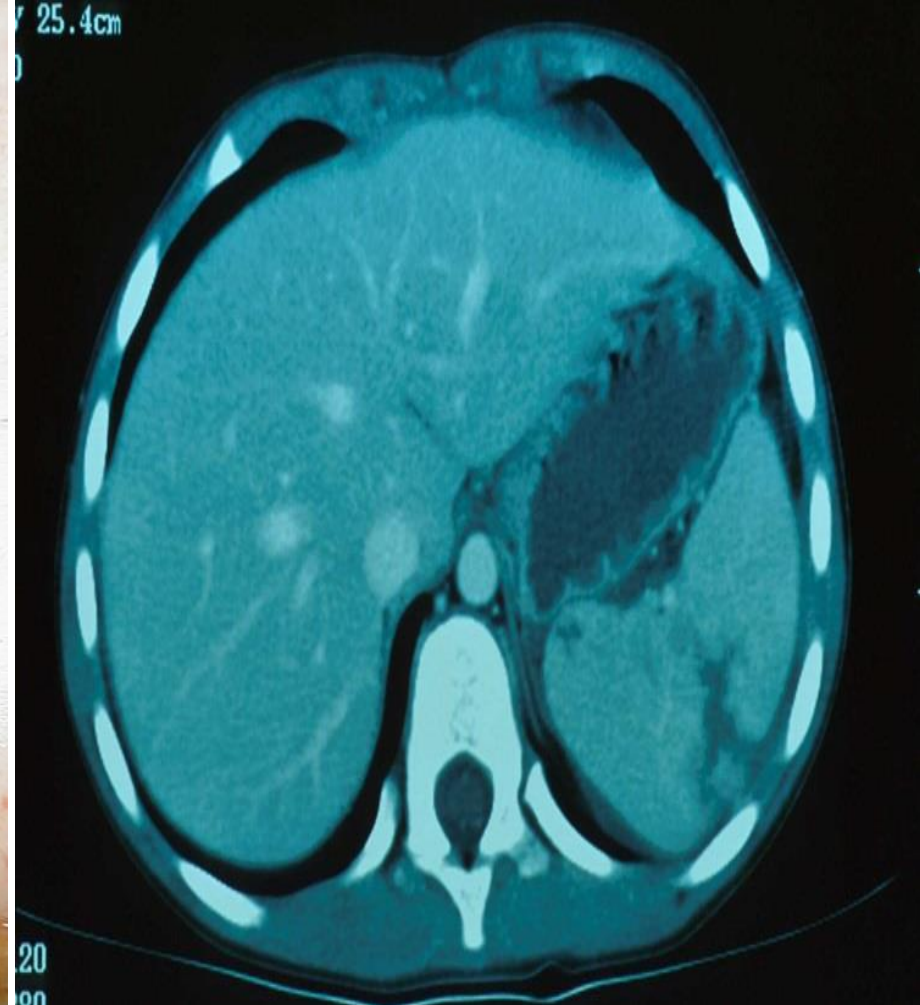
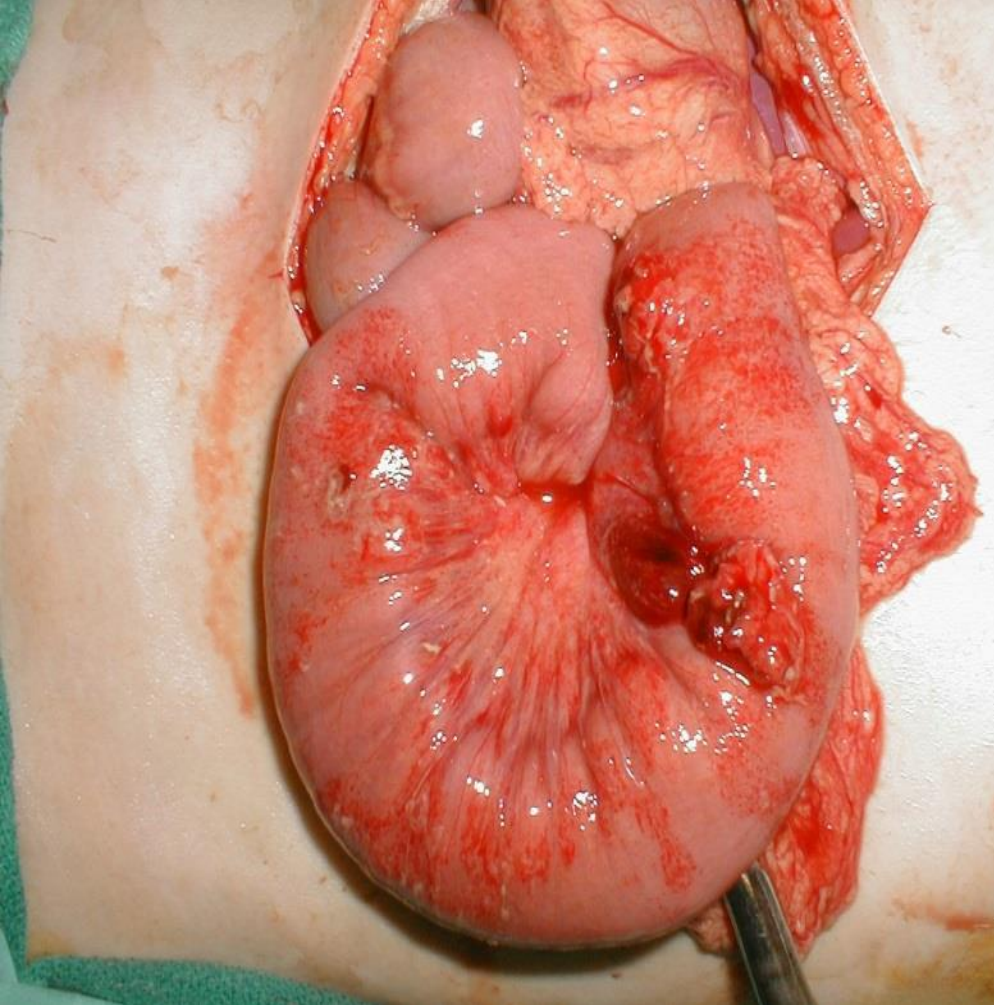
Free fluid without associated solid organ injury/Bowel wall thickening

>> we should suspect bowel injury



**Post traumatic
bowel
obstruction**





Bicycle Handlebar Injury

LUQ usual point of injury

Spleen, pancreas, bowel and kidney often injured



Pancreas Injury

- Conservative management often successful
- Complete transection best managed acutely with distal pancreatectomy

Salivary Glands Disorders

Content

- 1) Photos and Qs
- 2) Review tables



1) whats your diagnosis?

Minor Salivary gland duct rupture(Mucocele)

2) Cause ?

Trauma

3) Tx?

self resolve but chronic lesion would need excision.



1) what's your diagnosis?	Extravasation Cysts(minor salivary gland)
2) Cause	Lower lip trauma (MSG trauma)
3) Tx	self resolve but chronic lesion would need excision
4) Clinical	•Painful swelling



Malignant



Benign
Necrotizing sialometaplasia



benign

1) whats your diagnosis?	MSG tumor (rare)but 90%=malignant
2) Site	Upper lip,palate (pic) retromolar regions(pic)
3)Tx	<ul style="list-style-type: none"> •Benign <1cm = excisional biopsy. •Benign >1cm = incisional biopsy then excisional •Malignant = excisional removal : •Total maxillectomy and immediate reconstruction.
4) Clinical	<ul style="list-style-type: none"> •Benign = painless, swelling ,slow growing ,ulcer (rare) •Malignant = firm ,ulcer (later stage)

Major glands



1) what's your diagnosis?	Plunging ranula(retention cyst)
2) Site	Sublingual>Submandibular
3)tx	•Surgical excision via neck (splitting the mylohyoid muscle to prevent nerve damage)
4) Clinical	•Soft, painless •Fluctuant 'dumbbell shaped swelling'



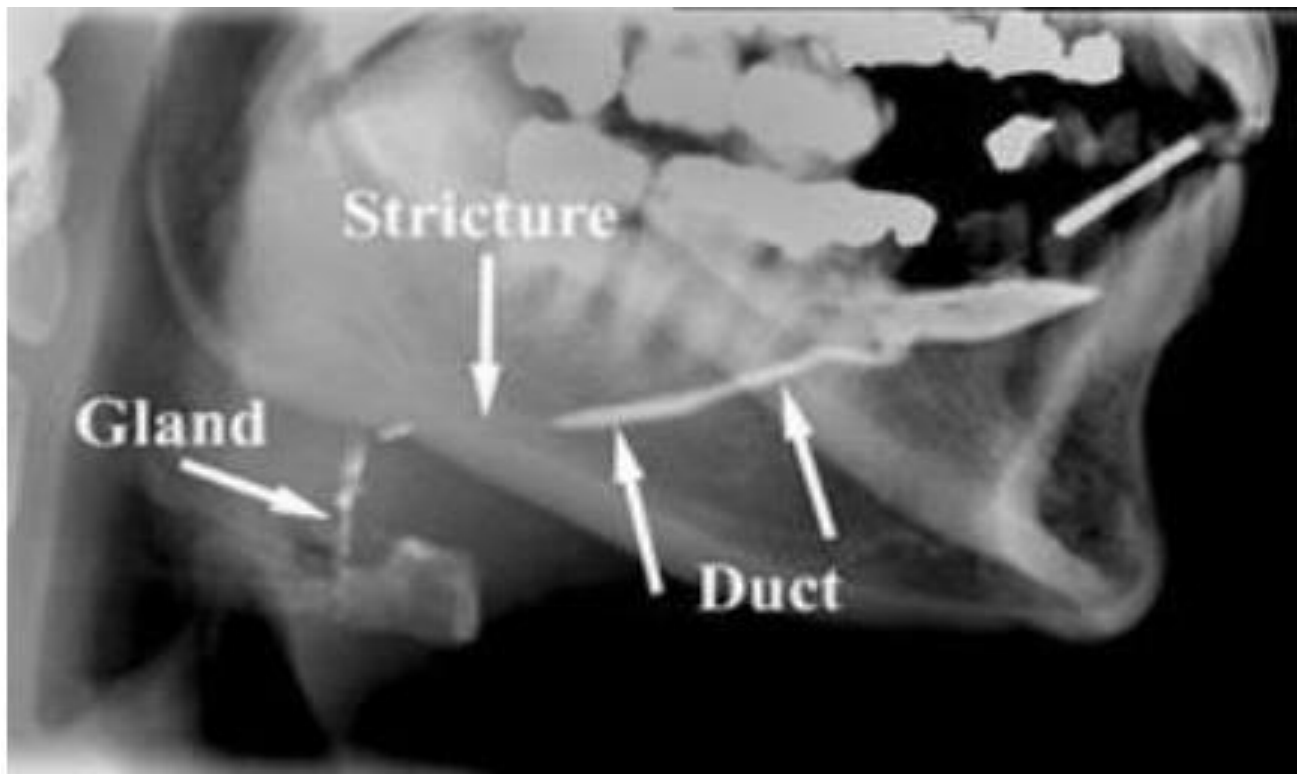
1) whats your diagnosis?	Sialolithiasis
2) Cause	arise from deposition of Ca salts around a nidus of debris within the duct lumen
3) Tx	gentle massage, moist heat Surgical excision
4) Clinical	-develop within the ductal system of the submandibular gland - radiopaque masses visible -can cause pain or swelling in affected gland



1) whats your diagnosis?	Acute Sialadenitis (due to duct obstruction-thick mucus-)
2) Site	Submandibular
3)tx	<ul style="list-style-type: none"> •Despite control with Abx chronicity follows and requires surgical excision(bacterial)
4) Clinical (causes)	<ul style="list-style-type: none"> •Viral (Mumps) •Bacterial secondary to infection <ul style="list-style-type: none"> ☐ More Common ☐ Secondary to obstruction ☐ Poor capacity to recover



1) whats your diagnosis?	Chronic Sialadneitist (due to duct obstruction-stone-)
2) Site	Submandibular
3)tx	•Marsupialization/excision
4) Clinical	<ul style="list-style-type: none"> •Site 80% of salivary stone occur in submandibular gland • onset swelling of the gland under the jaw bone particularly at mealtimes . •Character acute pain •Allevated by”Resolve within 1-2 hr “ after cessation of eating •Exacerbated by eating •High mucous content.



1) What's Is this?	Sialography (done in equivocal cases)
2) findings?	Stone in the duct(sm) Stricture
3)Tx	<ul style="list-style-type: none"> •Depends on causing pathology •gentle massage, moist heat Surgical excision
4) Other modalities?	Plain radiograph of the jaw area






1) whats your diagnosis?	Parotid lump(commonest problems of the parotid gland) Others(specific) : <ul style="list-style-type: none"> •Parotitis •Tumor
2) Site	Parotid gland Exactly: Swelling lies below the external auditory meatus between the vertical ramus of the mandible and the mastoid process not in front of the ear.
3)tx	Upcoming slides



1) whats your diagnosis?	Acute suppurative parotitis
2) Site(most common)	Parotid gland
3)tx	<ul style="list-style-type: none"> •Prevention(best) : hydration and mouth care •Antibiotics and surgical drain (abscess)
4) Clinical	<ul style="list-style-type: none"> •Site unilateral or bilateral parotid • onset during dehydration (causes Bacterial infection) •Character Swollen, indurated, tender gland. •Purulent discharge from the duct.





1) whats your diagnosis?	Obstructive parotitis (sialectasia)
2) Site	Parotid gland
3)tx	<ul style="list-style-type: none"> •Hydration, gland massage, sialendoscopy or open surgery (duct dilatation or incision is required) *Slide didn't contain tt for parotid sialectasia*
4) Clinical	<ul style="list-style-type: none"> •Swelling at meal time

Parotid masses	carcinoma	benign	Tumor like lesion (sialadenosis)
	<p>High grade (adenoCa/SCC)</p> <ul style="list-style-type: none"> *rapid growth *painfull *nodal mets 	<p>Monomorphic (warthins tumour)</p>	<p>Diabetes</p> <ul style="list-style-type: none"> ☒ Alcoholism ☒ Endocrine disorders ☒ Pregnancy ☒ Bulimia
	<p>Low grade (acinic cell/adenoid cystic)</p> <ul style="list-style-type: none"> *indistinguishable from benign 	<p>Pleomorphic</p>	
			



1) whats your diagnosis?	Parotid tumor
2) Site	Parotid gland
3)tx	<ul style="list-style-type: none"> •Benign=Excision •High grade = radical parotidectomy •Low grade =superficial parotidectomy
4) Clinical	<ul style="list-style-type: none"> •Site parotid gland • onset •Character pain =malignant /painless = benign •Signs •Facial muscle paralysis = malignant

	Plemorphic adenoma (benign)	Adenolymphoma (warthin's tumor) (benign)	Carcinoma
%	The most common tumor of the salivary glands	10% of parotid	
site	Usually in the superficial portion of the parotid	Parotid gland	Parotid gland
tx	•Benign=Excison		•High grade = radical parotidcotomy •Low grade =superficial paratidoctomy
Age/gender	Middle age (M=F)	>50(M)	Middle-elderly
Characteristics	•Slow growing •Painless •Smooth lump •Reccurance	•Soft cystic mass	•Hard •Benign converts to malig.(10-20yr duration) •Painfull •Facial nerve involved •Spread to local LN
He might bring the same picture and ask for different dx for the same mass -remember ! •Smooth = benign ! •Age to differentiate! •Painfull mass = malignant vs inflammatory •Histology to differentiate			

Common Neoplasms of the Salivary Glands

TYPE	OVERALL INCIDENCE (%)	CLINICAL CHARACTERISTICS
Benign		
Pleomorphic adenoma	54 to 68	Most common tumor; usually found in parotid gland; may undergo malignant transformation, so excision is advised
Warthin tumor	6 to 10	More common in older men; associated with smoking; may be multifocal or bilateral
Malignant		
Mucoepidermoid carcinoma	4 to 13	Usually low-grade; excellent prognosis if treated early
Adenoid cystic carcinoma	4 to 8	Tends to invade nerves; higher incidence of facial weakness; may recur years after treatment

1) whats your diagnosis?	Sjogren Syndrome
2) cause	Autoimmune condition causing progressive degeneration of salivary and lachrymal glands.
3)tx	Medical • Steroids+immunosuppressive • artificial tears
4) Clinical	dry eyes xerostomia +(mucosal atrophy +-salivary gland enlargement) Physical exam parotid enlargement dental carries Taste dysfunction
5)Investigations	Sialometry Sialography Scintigraphy Sialochemistry Ultrasonogram Salivary gland biopsy



A 48-year-old **female** presents to your office with a 1-year history of **dry eyes** and **difficulty swallowing**. She complains of blinking frequently and of eye strain while using her computer at work. She also reports stiffness in her knees and lower back. Past medical history is unremarkable and she does not take medications. She denies cigarette or alcohol use. Family history is notable for Hashimoto's thyroiditis in her mother. Physical exam shows **dry oral mucosa and enlargement of the parotid glands**.

Sjogren syndrome

Source :

<http://www.aafp.org/afp/2014/0601/p882.html>

REVIEW TABLES!

Table 1 = general review

Table 2 = signs and symptoms

Table 3 = neoplasm

how to use the tables?

- Read the mini osce's scenario.
- Use the keywords provided in the tables to match the most probable answer

CONDITION	ETIOLOGY	CLINICAL PRESENTATION	DIAGNOSIS	TREATMENT
Acute suppurative sialadenitis	Bacterial infection	Sudden onset of pain and swelling	Swollen, indurated, tender gland; purulence from duct may be seen	Antibiotics, gland massage, hydration, sialagogues, warm compresses, oral hygiene
Chronic or recurrent sialadenitis	Obstruction (stone or stricture) of the duct	Repeated episodes of pain and swelling, often with meals; recurrent infections	Swollen or firm gland; may appear normal on examination; imaging (computed tomography or ultrasonography) may show calculus or dilated duct	Hydration, gland massage, sialendoscopy or open surgery
Neoplasm	May be benign or malignant	Painless, firm, slow-growing mass	Imaging (computed tomography or magnetic resonance imaging); fine-needle aspiration	Surgical removal of gland
Recurrent parotitis of childhood	Unknown	Repeated episodes of pain and swelling of the parotid gland in children	Clinical history; examination and imaging findings are usually normal; parotid gland may be swollen	Antibiotics, gland massage, hydration, sialendoscopy
Viral infections	Most commonly mumps or human immunodeficiency virus	Swelling, often bilateral; may be tender	Viral serology	Supportive care; antiretrovirals for human immunodeficiency virus

Component	Finding	Most likely etiology
History		
Constitutional symptoms	Fever, chills, malaise	Infection
	No other symptoms	Obstruction or neoplasm
Duration of symptoms	Acute	Infection
	Chronic	Chronic inflammation or neoplasm
	Recurrent	Obstruction
Onset and pattern of symptoms	Fluctuating	Obstruction
	Rapid	Acute infection
	Slow	Neoplasm
Pain	Painless	Neoplasm
	Tender	Infection or obstruction
Physical examination		
Cranial nerve examination	Facial weakness or decreased sensation	Malignancy
Massage of saliva from duct	No saliva	Obstruction
	Normal saliva	Other
	Purulence	Acute suppurative sialadenitis
Palpation of gland	Discrete mass	Neoplasm
	Tender, diffusely swollen	Infection, obstruction
Palpation of lymph nodes	Firm lymphadenopathy	Malignancy
	No lymphadenopathy	Chronic inflammation or benign neoplasm

Skin Tumors & Principles of plastic surgery

-35 years woman , admitted to hospital because she noticed a mass on her wrist :-

1- what's your diagnosis ?

2-define this diagnosis ?

3- what is the characteristic of it ?

4- Is it a cancer or precancerous lesion ?

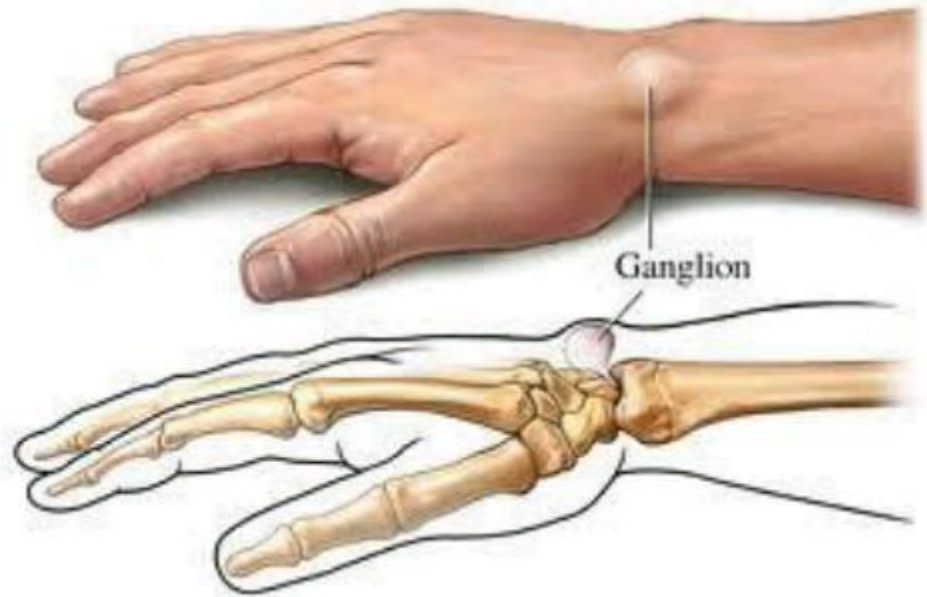
****nswers:**

1- Ganglion cyst

2- Subcutaneous cysts attached to joint capsule or tendon sheath of hands + wrists .

3-Firm , round mass on DORSUM of wrist

4- No



- 1-what's your diagnosis ?
- 2- How can we make sure of the diagnosis ?
- 3- give other differential diagnosis ?
- 4- what 's the risk factor ?
- 5- Is it the second most malignant of skin ?
- 6- what is the treatment ?

****Answers :-**

- 1- Basal Cell Ca 2- Skin Biopsy
- 3- Acne Scars , Intradermal Naveus
- 4- Sun Exposure 5 –No “ it is the most “
- 6- A- Excision
 B- Mohs surgery + frozen section analysis
 C- Curettage + Electrodesiccation
 D- Radiation therapy



-65 years dark-skinned female ,
admitted to dermatologist complaining
of red sore patch in her mouth ' noted
that this female used to love tanning :-

- 1-What is your Diagnosis ?
- 2- Give differential Diagnosis
- 3-what are the risk factors ?
- 4- Treatment
- 5- does it occur in fair-skinned people

***Answers:-**

- 1-Squamous Cell Ca
- 2-Marjolin Ulcer "Burn Scar"
- 3-Sunlight , radiation ,Chronic Ulcer ,
Scars
- 4 -similar to BCC
- 5- YES ...esp elderly



-50 years fair- skinned male , admitted to the dr complaining of” itchy dark irregular Borders “changes of his existing Naevi in his leg +back :-

- 1-what’s your diagnosis ?
- 2-what’s the risk factor ?
- 3- Mention the type of this cancer ?
- 4-where does it arise from ?
- 5- treatment ?

***Answers :-**

- 1-Melanoma
- 2-UV radiation from sun + pre-existing Naevi
- 3- Superficial Spreading , Nodular ,lentigo maligna , Acral lentiginous
- 4- melanocyte
- 5-exision with wide margin



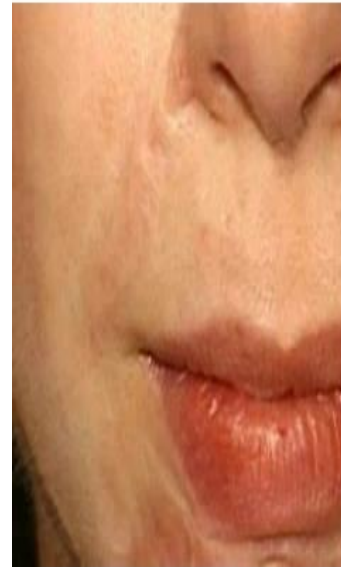
- **BCC Most common skin Cancer**
- **SCCSecond Most in fair – skinned people + most common in darkly pigmented people**

- **Hypertrophic Scars**

- excessive buildup of scar tissue within the boundary of injury.

- regress overtime

- causes : 1- excessive wound tension
2- delayed wound healing



- **Keloid Scars**

- excessive buildup of scar tissue beyond the boundary of injury .

- Familial tendency

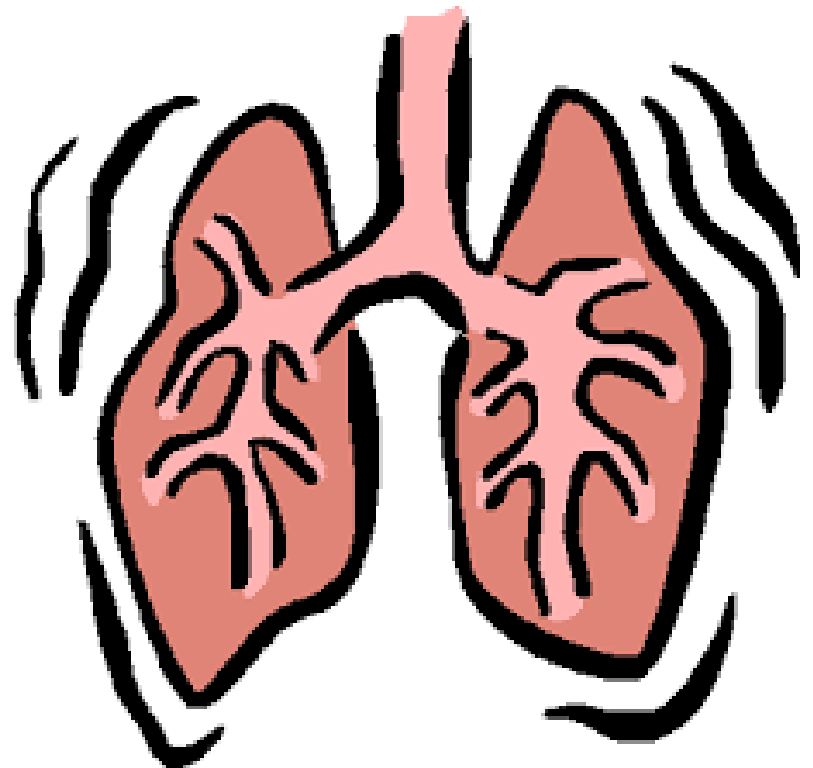
- won't regress overtime

- mostly in ear lobe



THANK YOU

Thoracic surgery lectures



Mediastinal disorders lecture

this CT scan shows Non-invasive thymoma

Where is it situated in ?

Anterior mediastinum

What is the most common tumor in the anterior mediastinum ?

thymoma

-Mention the characters ?

- Well encapsulated

- Lobular in shape

manifest as solid lesion with areas of hemorrhage,necrosis or cystic degeneration.

- Why do we chose CT with contrast for mediastinal disorders ??

Because it' s excellent in showing demarcation and invasion of the adjacent structures.(important→ CT with contrast is the gold standard)

- What will be the management for it ?

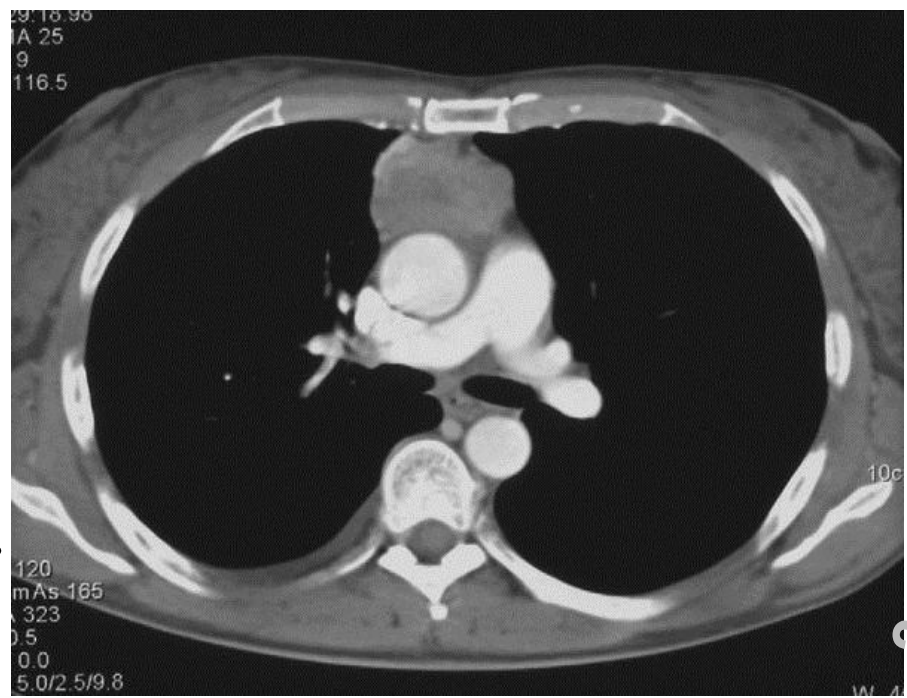
Mainly : surgical resection,
but radiotherapy and chemotherapy are
required sometimes.

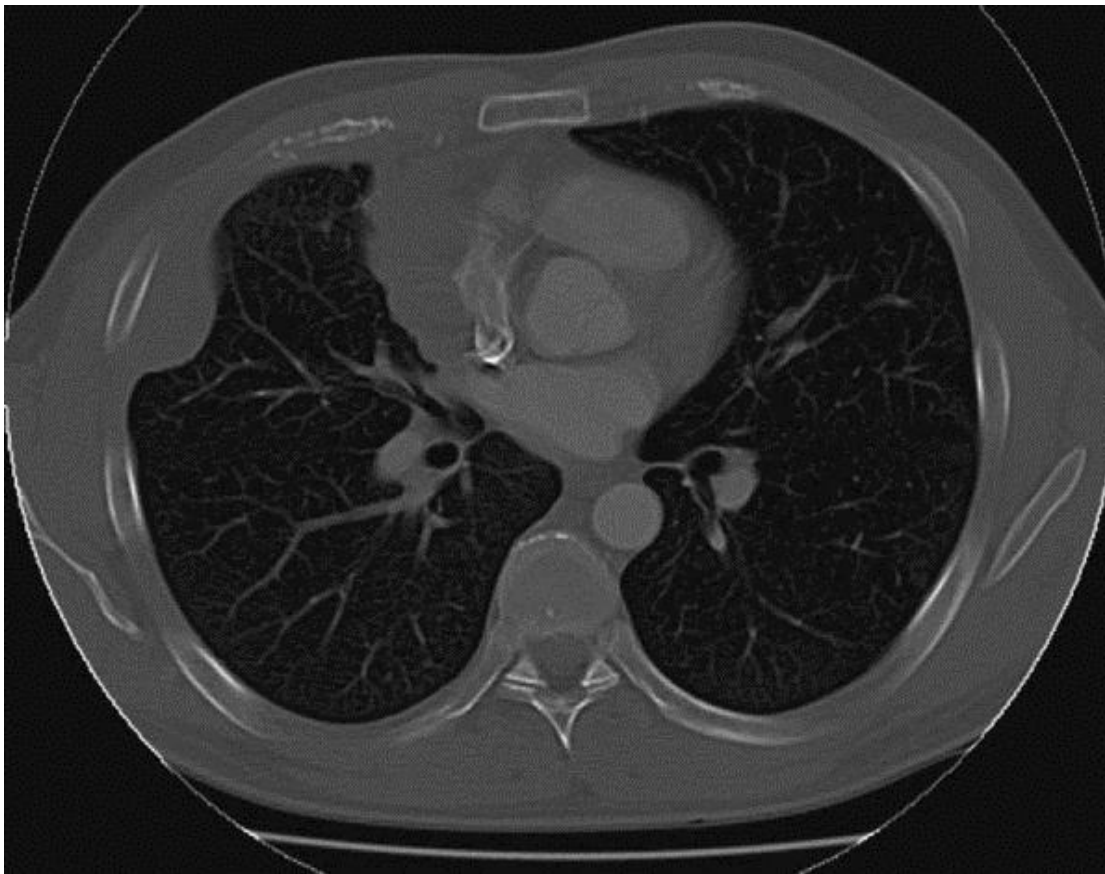
- Mention one of the DDx that you' ll
need to take biopsy for ruling it out ?

- Lymphoma

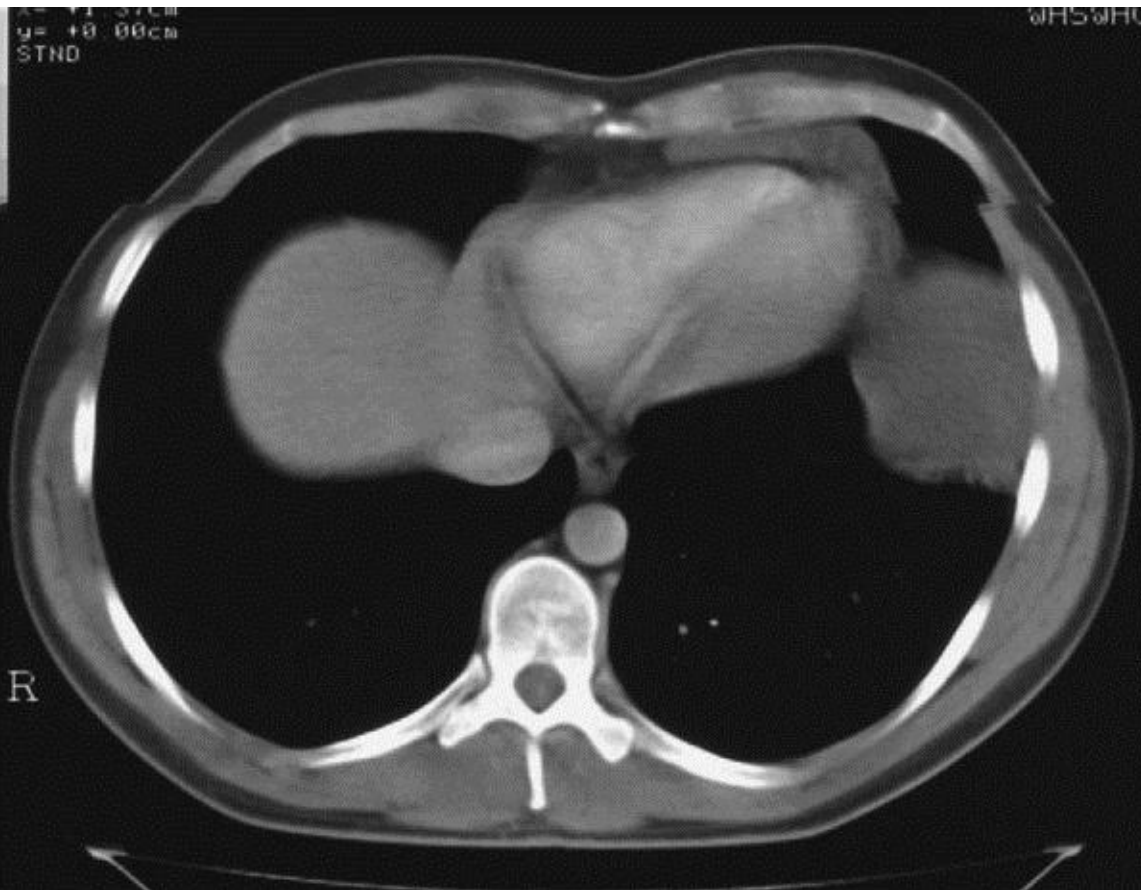
*what is the most common associated
syndrome with thymoma ?

Paraneoplastic syndrome (in 40% of cases).





Invasive thymomas: infiltration of the adjacent structures, irregular margins, areas of low attenuation, and multifocal calcification.



This CT shows pericardial cyst.
(on both right and left sides).

*What is the most common site
for pericardial cyst ?
Right costophrenic angle.

What is the cause of pericardial
cyst ?

Congenital abnormality.
Might be acquired in some pts.

*what are signs and symptoms
that pts come with ?

1- most are ASYMPTOMATIC
2- dyspnea, chest pain or cough

There' s a life threatening
complication of pericardial cyst
that should be managed
directly , mention it ?

Pericardial tamponade.

*how do we treat pericardial
cysts ?

Surgical excision.

Which radiologic investigation is superior to
CT in selected cases? And why ?

Eccho

It shows if the cyst is attached or
communicating to pericardium and
differentiates it from other possible
pathologies.

**THE NEXT SLIDES
(INTERPRETATION FOR CHEST X-
RAY) WERE ADDED BY THE
DOCTOR AT THE END OF THE
FIRST LEC, HE DIDN'T COMMENT
ON THEM AND I THINK THEY'RE
NOT IMPORTANT FOR US IN THE
OSCE
SO TAKE A BRIEF LOOK ON THEM
AND GO TO THE NEXT LECTURES.**

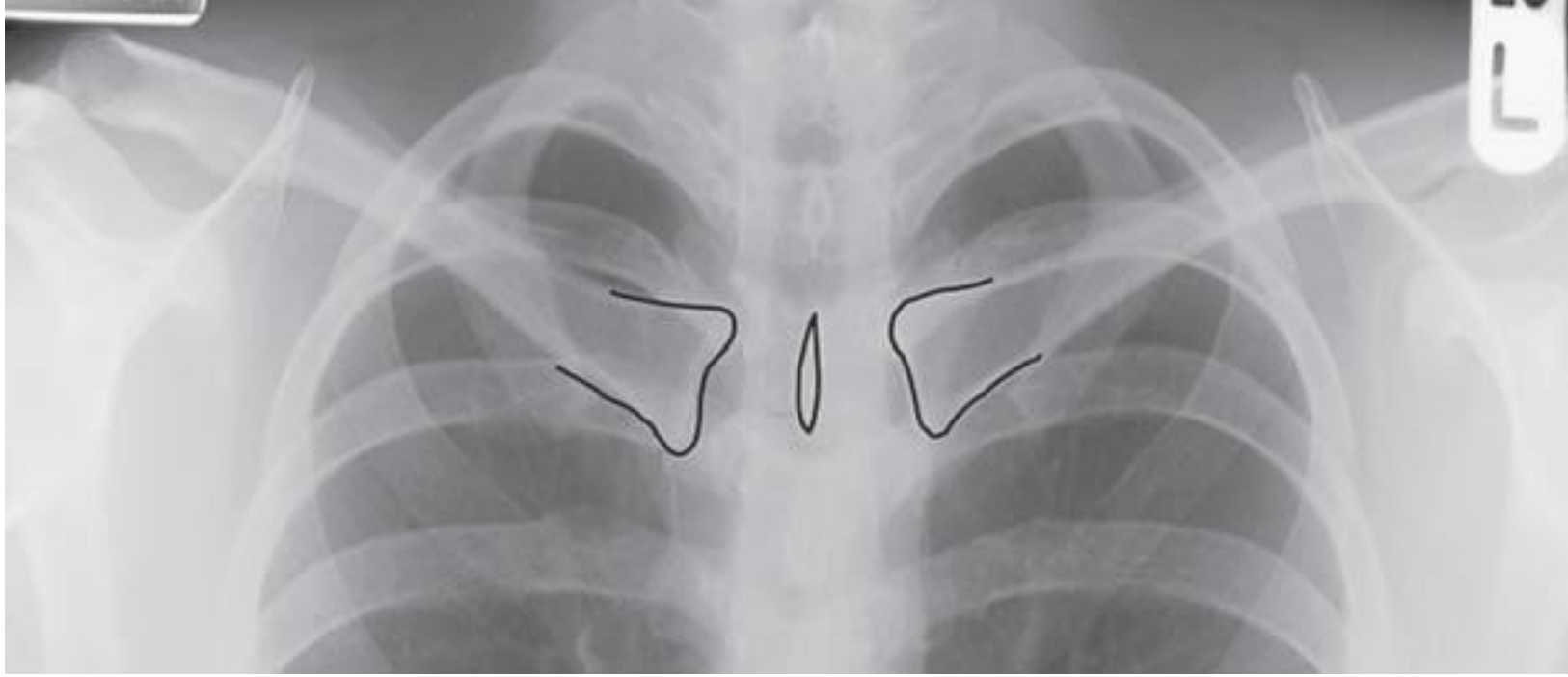
BASIC INTERPRETATION OF A CXR

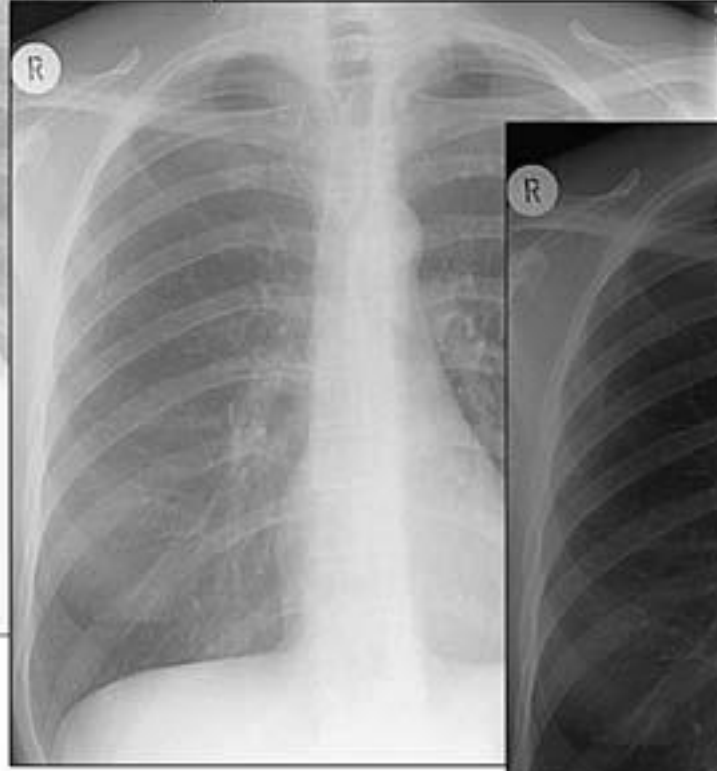
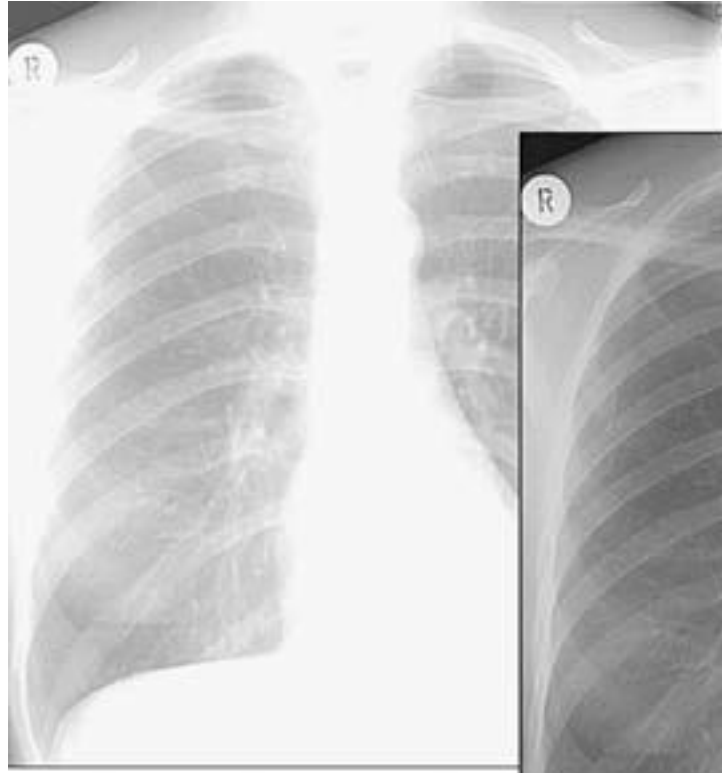
Abnormalities are classified into

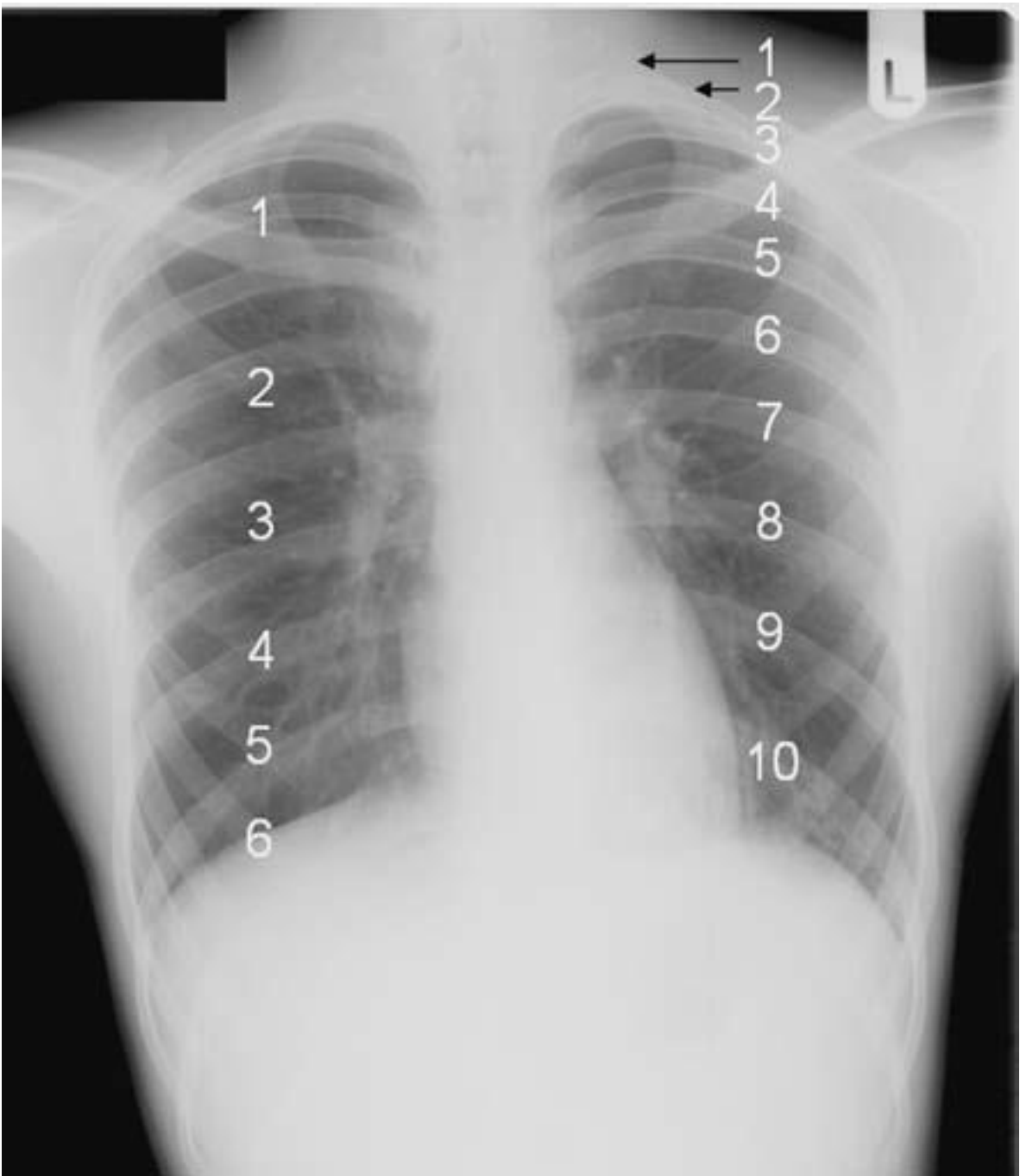
- Too white
- Too black
- Too large
- In the wrong place

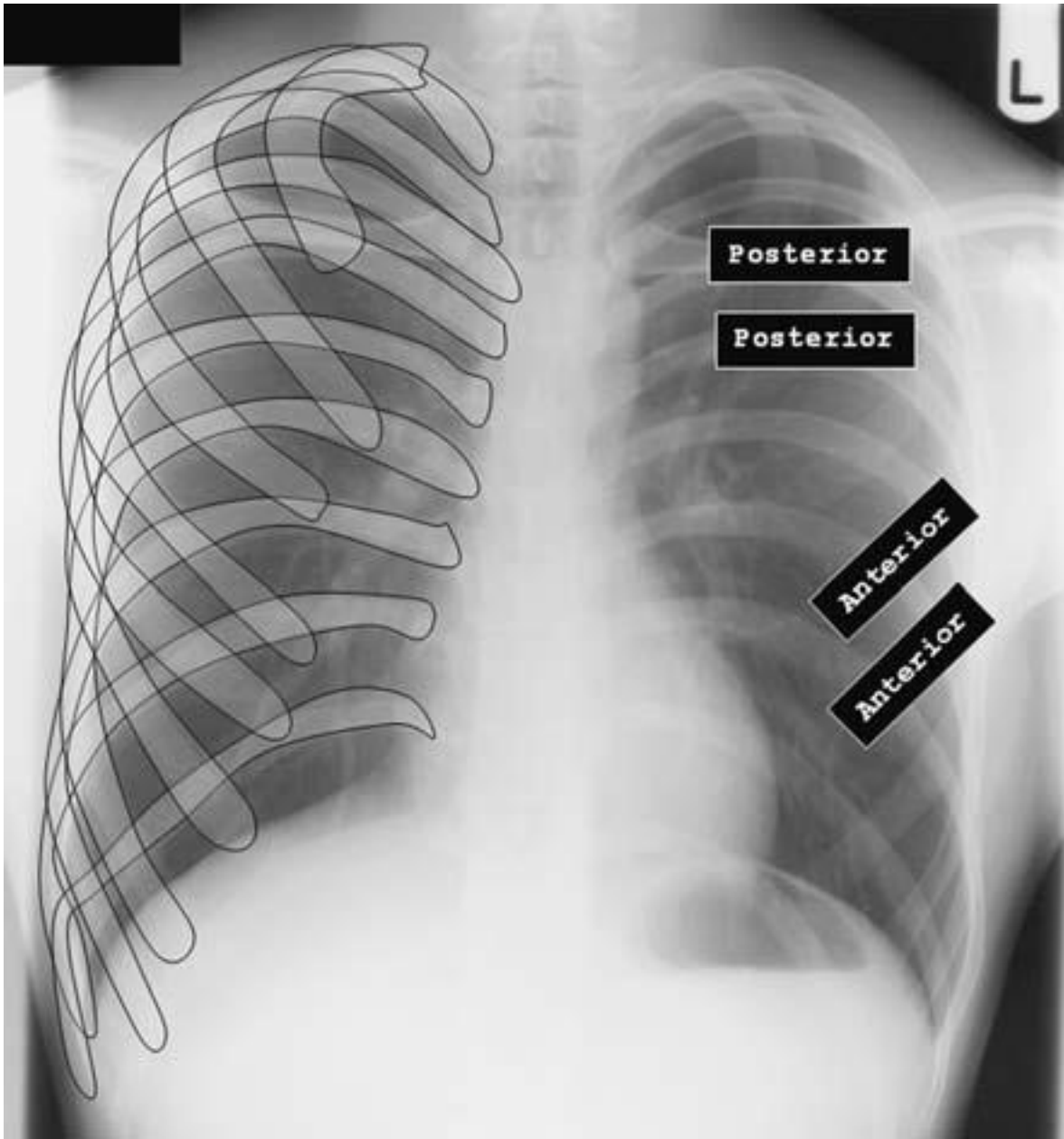


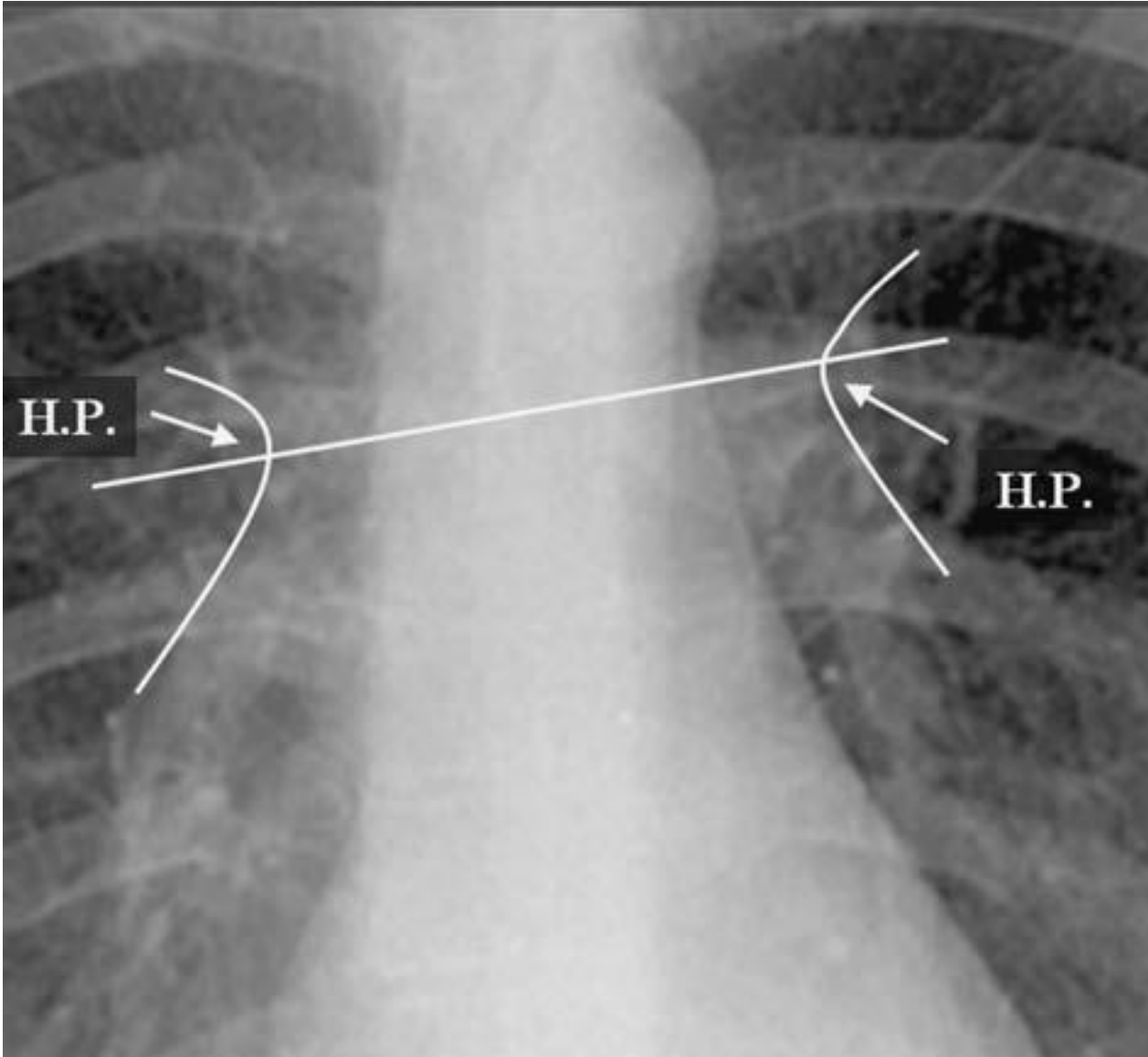


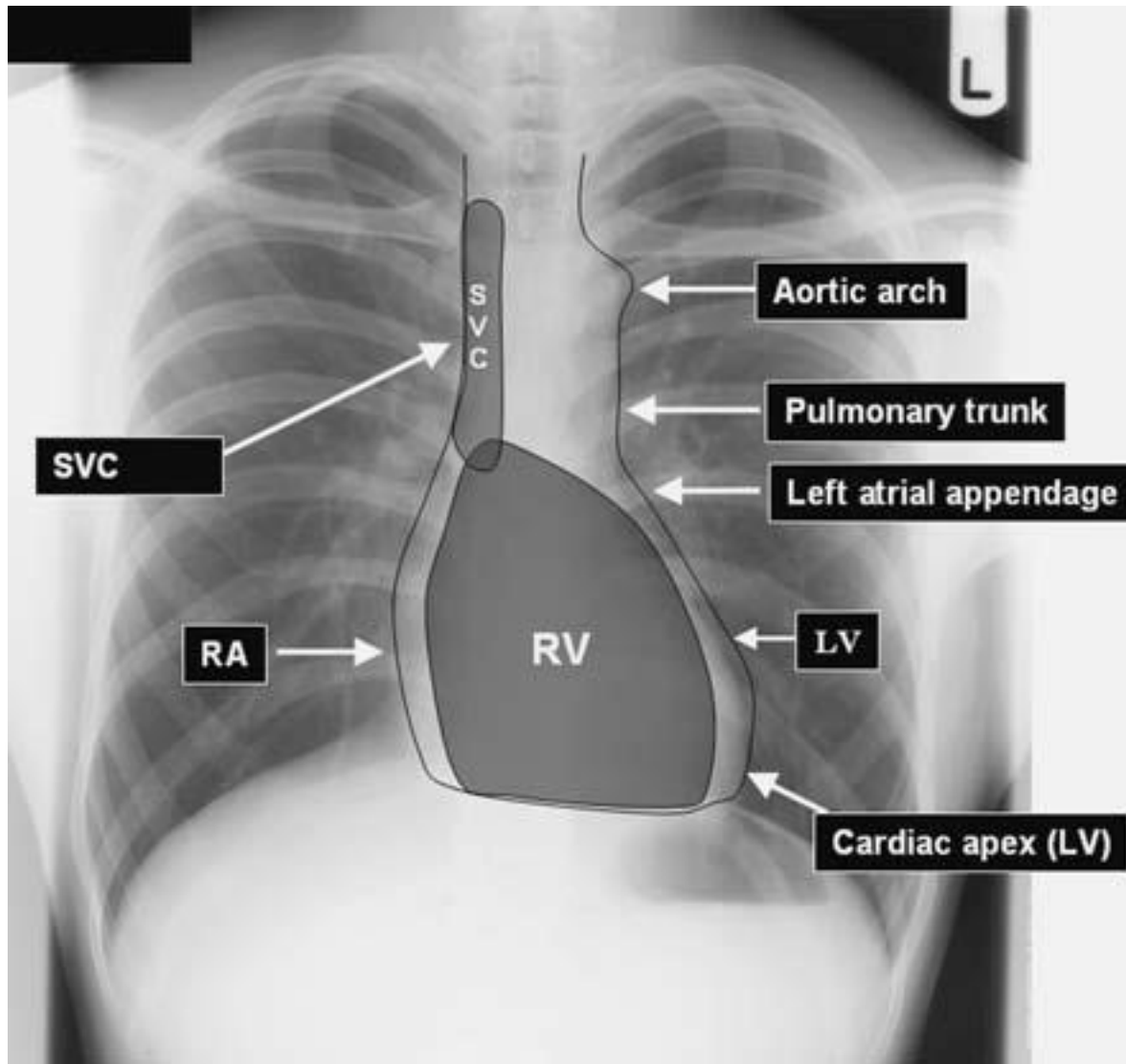


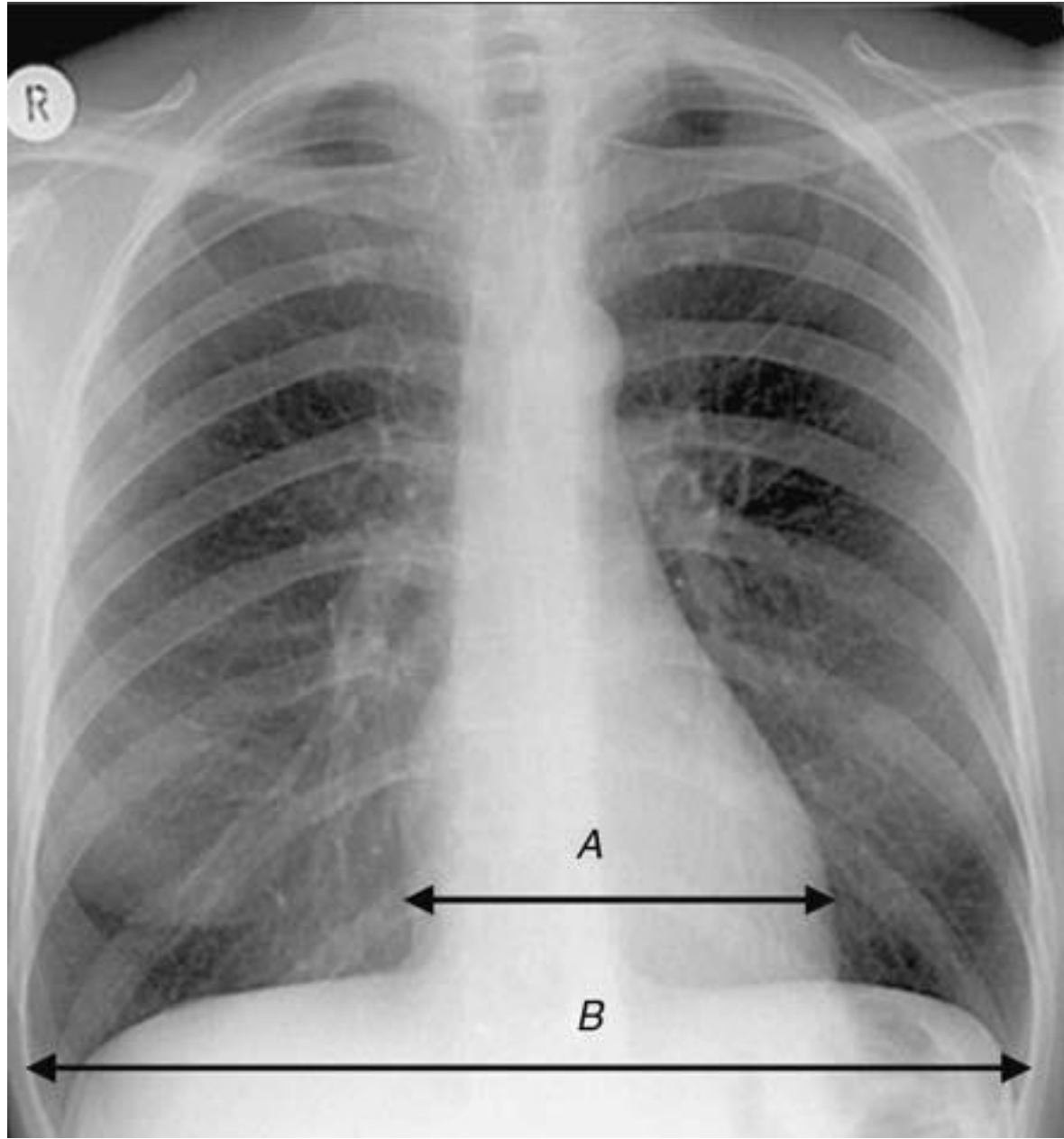


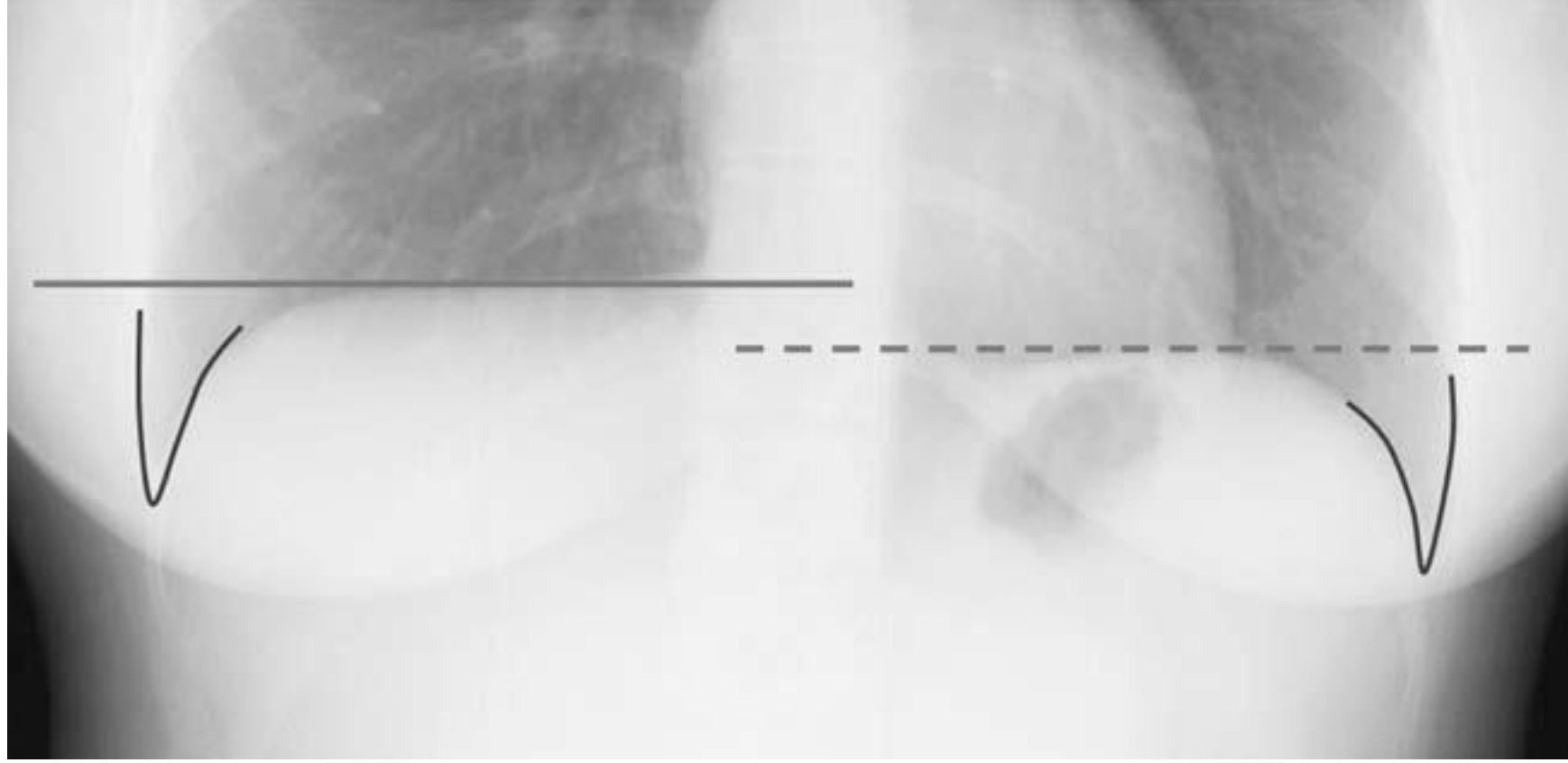


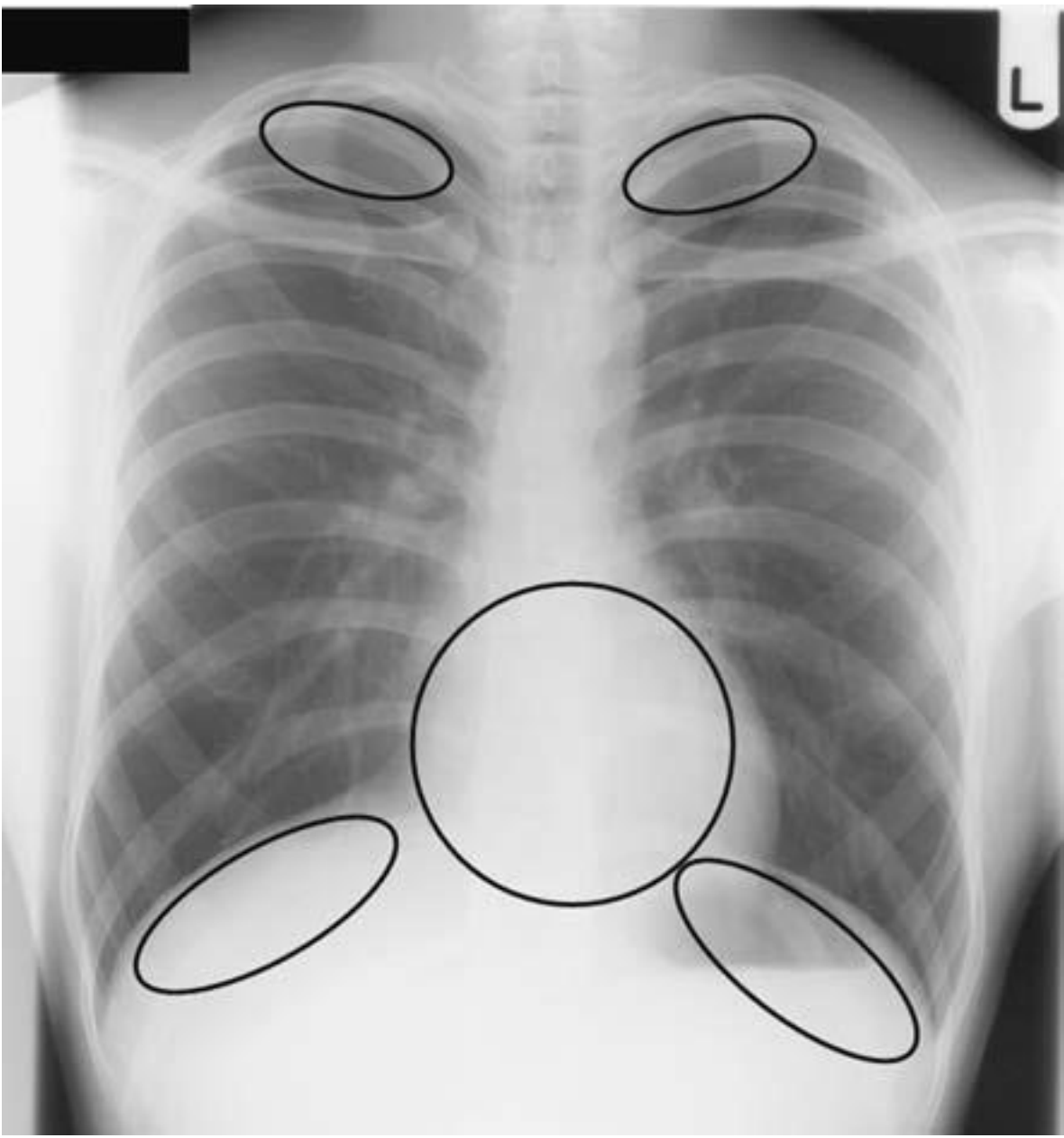


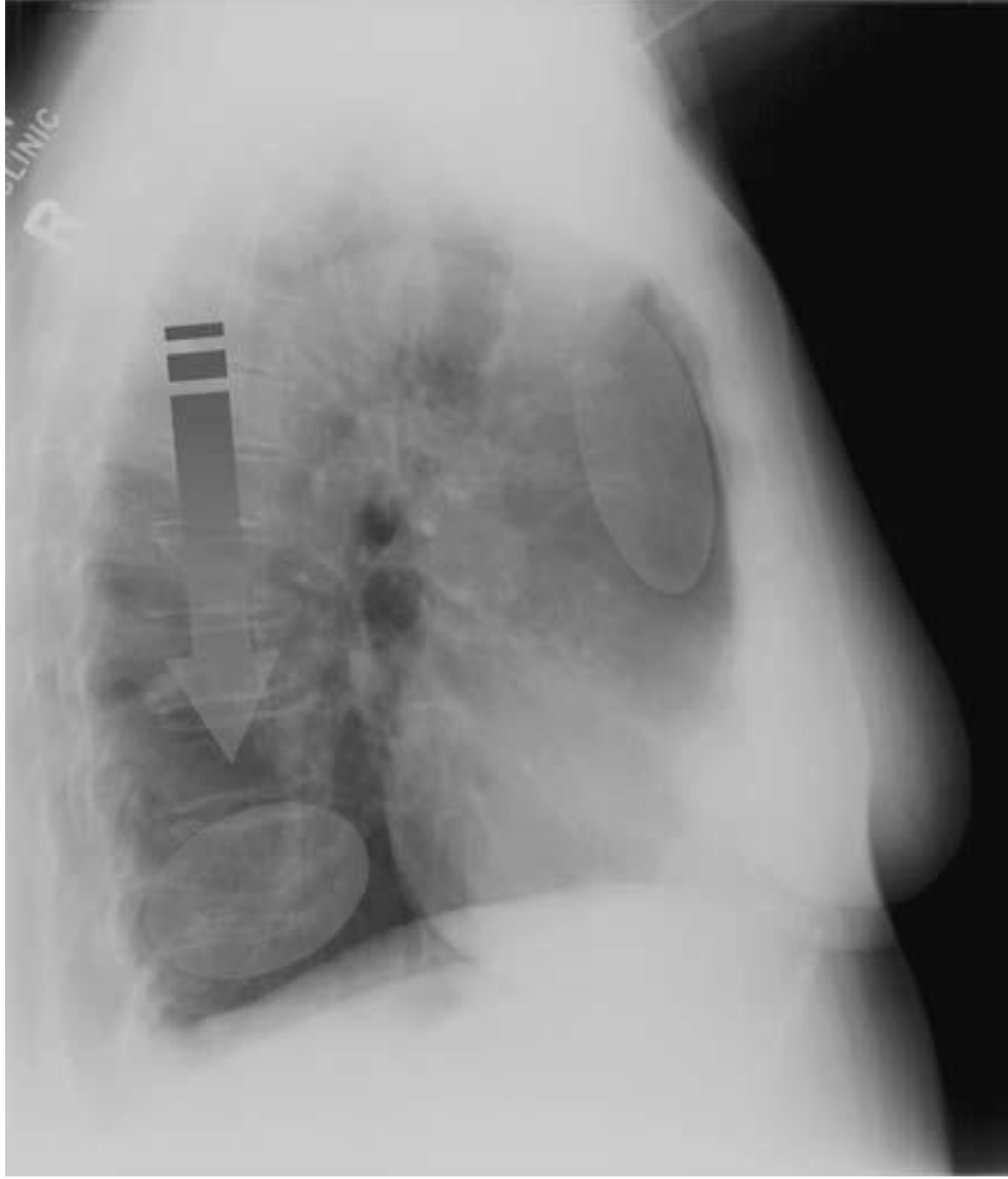


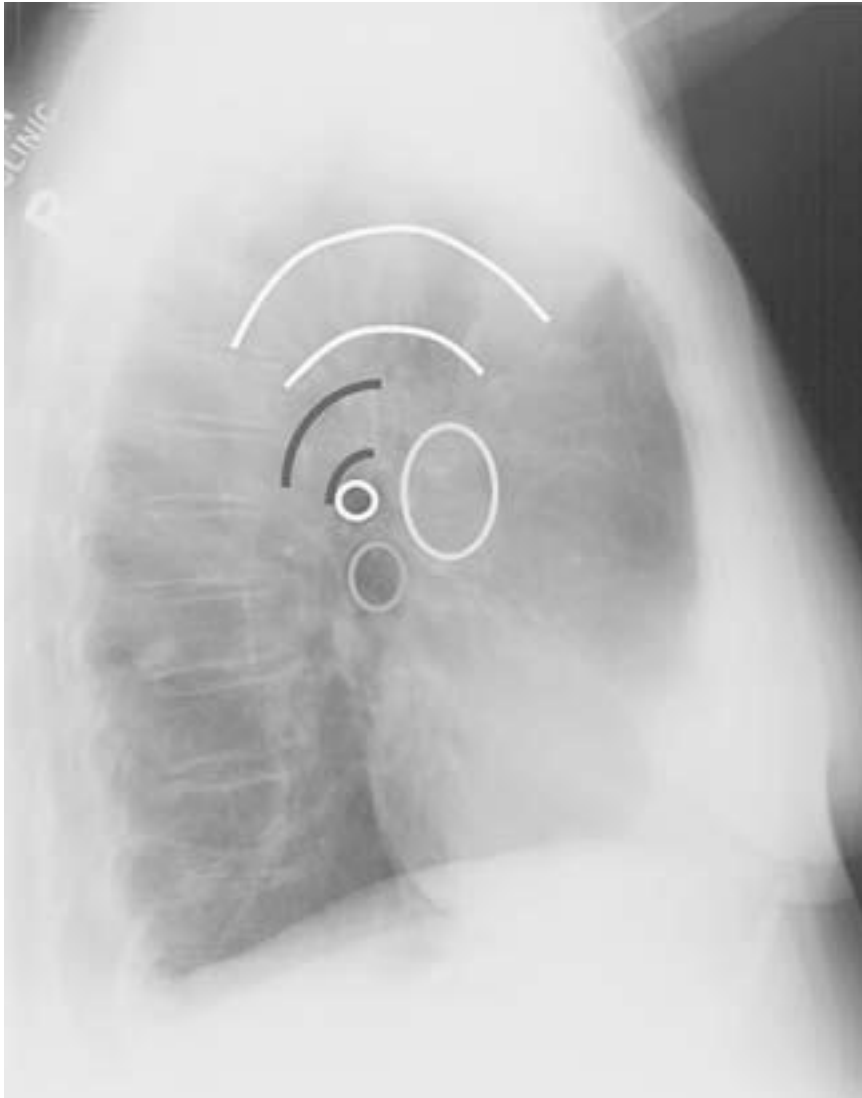












Key points

Central hilar structures



= Pulmonary trunk



= Right upper lobe bronchus



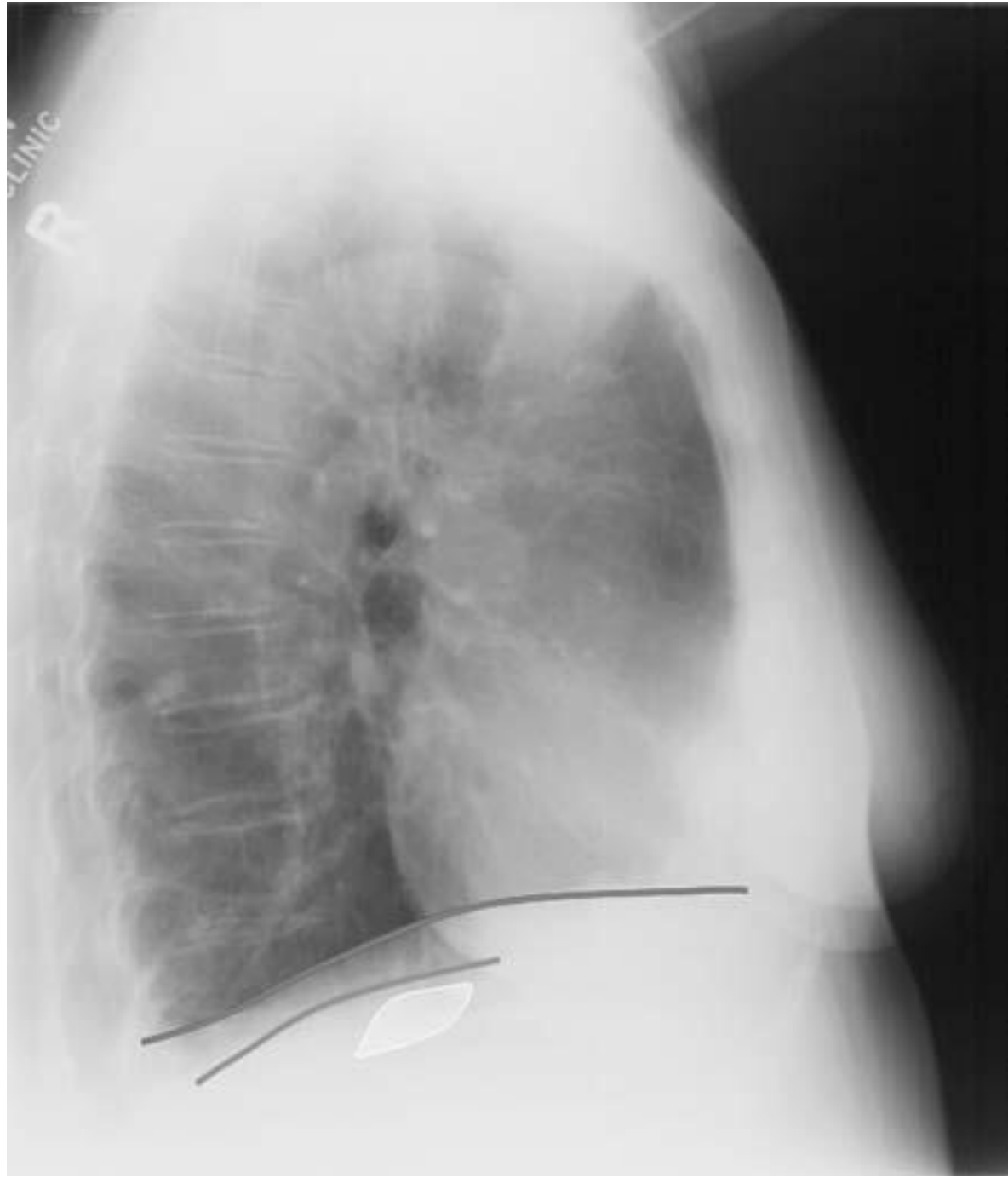
= Left upper lobe bronchus

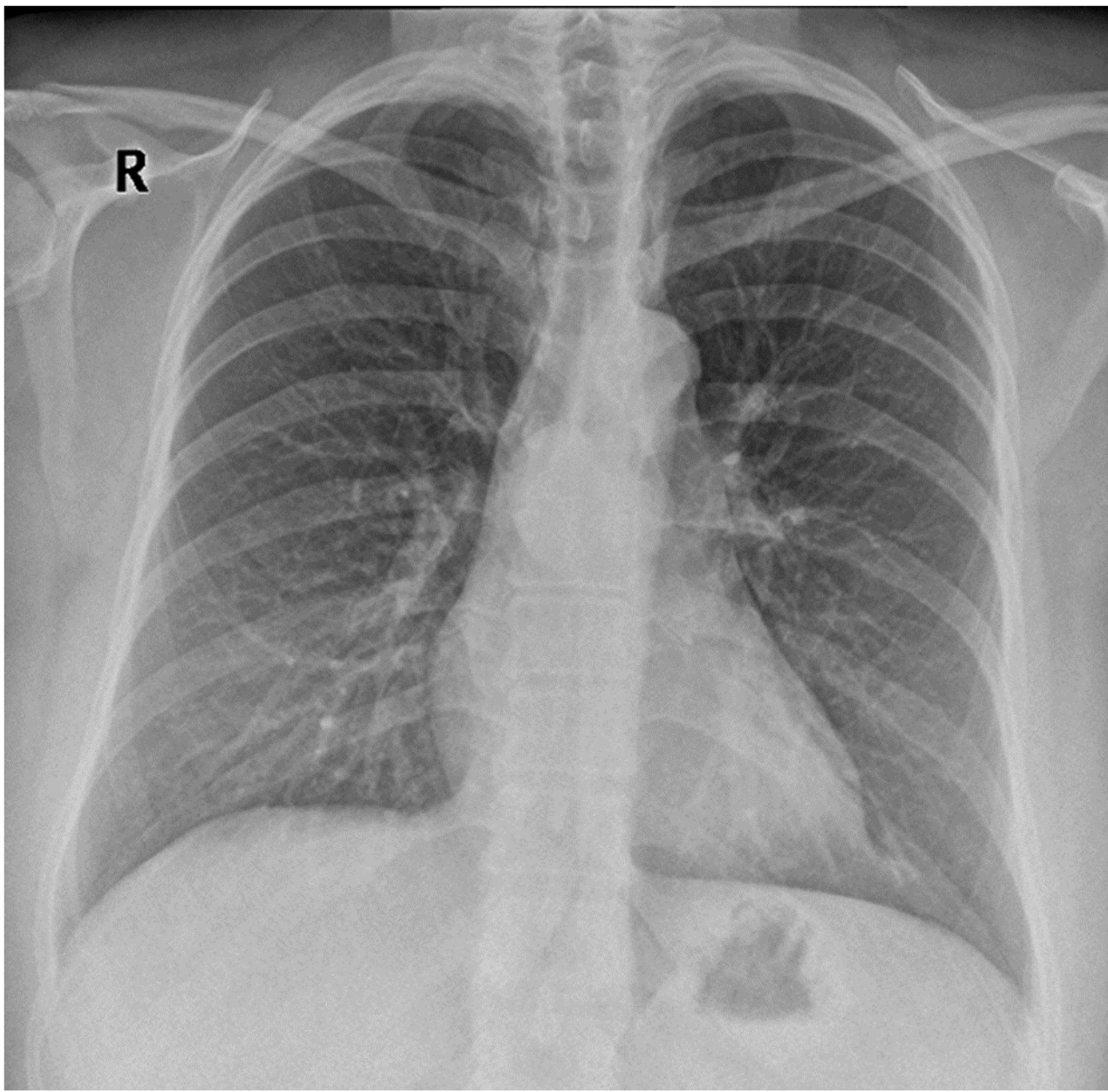


= Left pulmonary artery



= Aortic arch

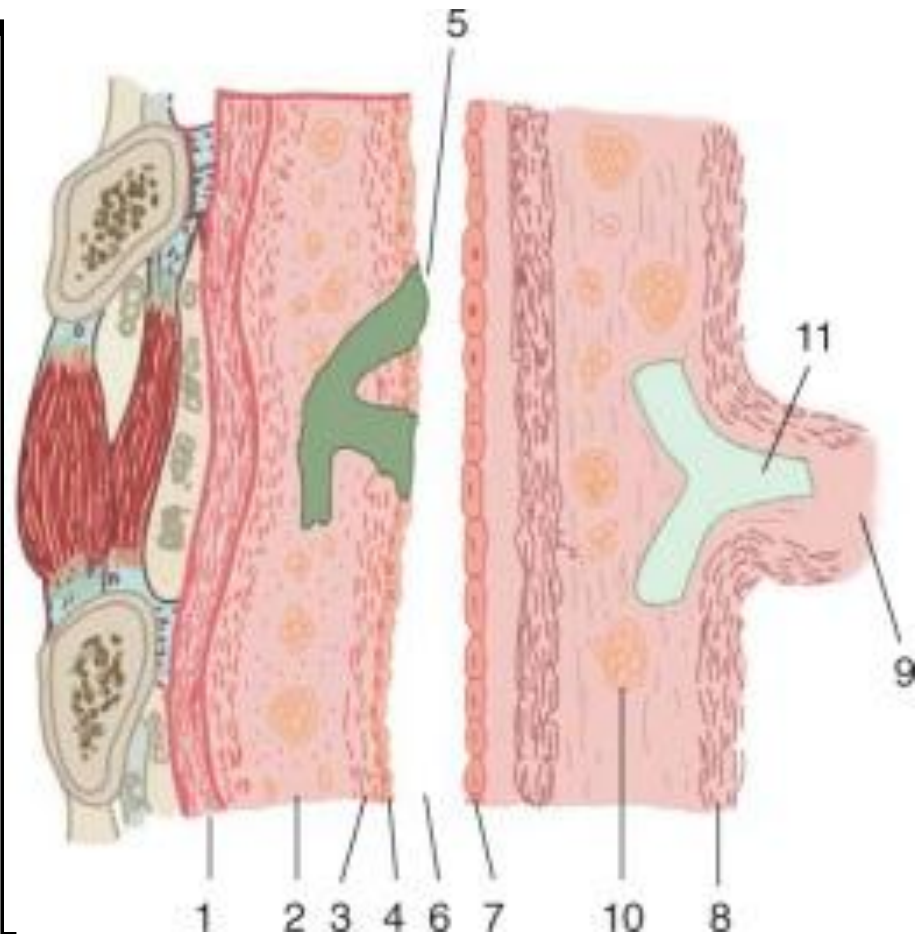


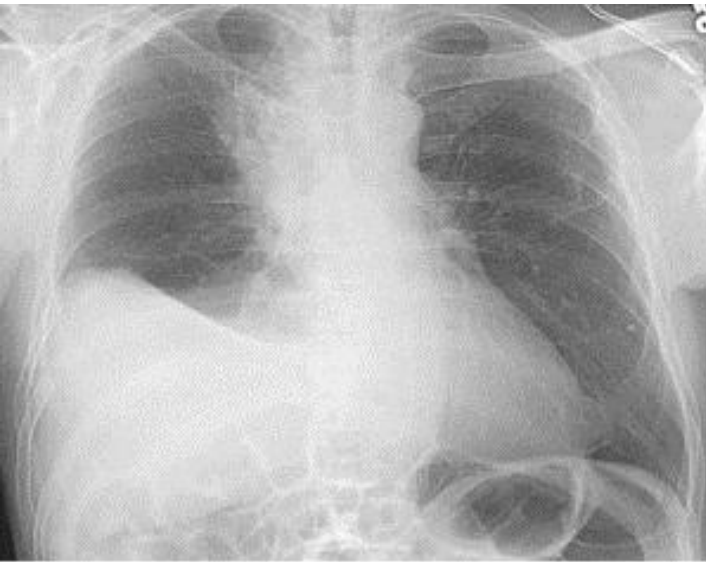


Pleural Diseases lecture

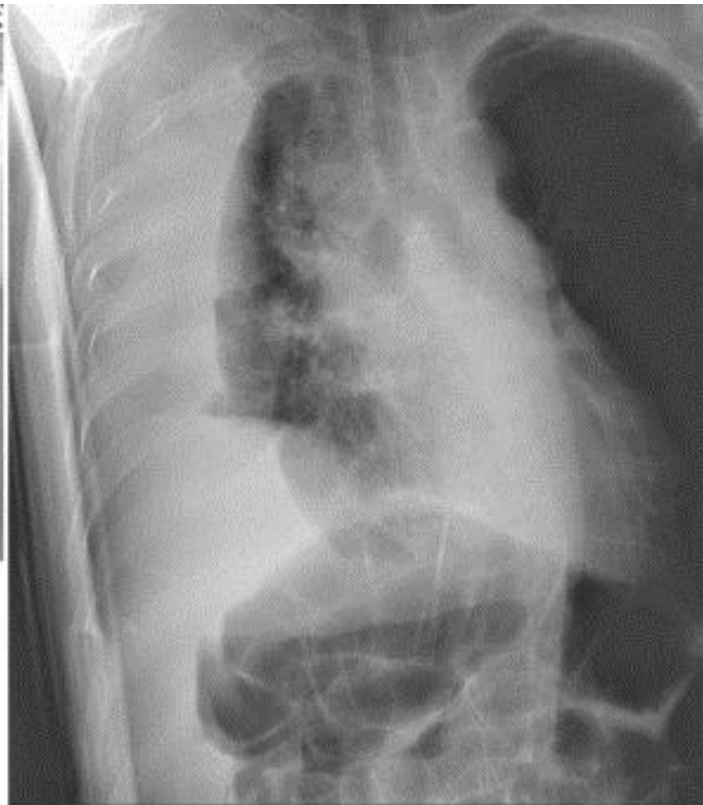
ANATOMY

The layers of the parietal and visceral pleurae: 1, endothoracic fascia; 2, subpleural connective tissue layer; 3, superficial elastic layer; 4, parietal mesothelial layer; 5, lymphatic stoma; 6, pleural space; 7, visceral mesothelial layer; 8, deep elastic layer; 9, interlobular septa; 10, connective fiber; 11, interlobular lymphatics.





A



B

Figure A ??

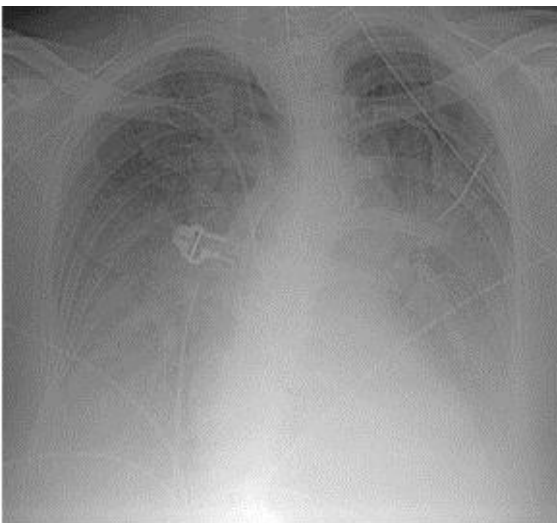
Shows obscured right costophrenic angle with the presence of fluids.

Figure B ?

Shows **multiple air fluid levels** . The patient is lying on his side(lateral decubitus)

-which is the best x-ray position to detect pleural effusion ?

Lateral decubitus,since it detects small effusions that might be hidden in AP,PA positions.



A



B



C

This figure shows malignant pleural effusion in a patient with colon cancer ,the effusion is **BILATERAL** .

*what is the most common metastatic tumor that causes Pleural effusion in men and women ?

-men : lung cancer

-women : breast cancer.

*aspirated fluid from malignant pleural effusion will show ?

Exudate with features of malignancy in the cells

*what is the best diagnostic way to determine the exact cause ?

Video assistant thoracic surgery(VATS) "highly sensitive and specific"

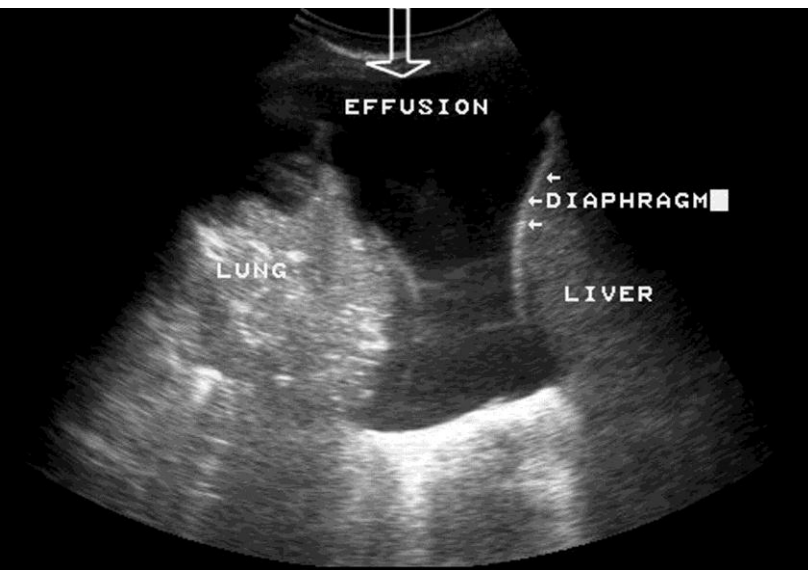
Define malignant pleural effusion ?

its the pleural effusion in any patient **with** or **has had** a malignancy before.

What is the most commonly noticed symptom in pleural effusion ?

Shortness of breath.

WHAT IS YOUR MANAGEMENT PLAN FOR A PATIENT WITH MALIGNANT PLEURAL EFFUSION ?

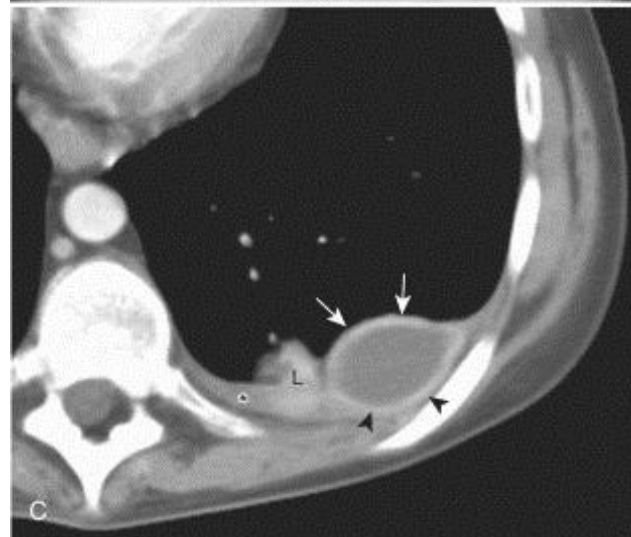
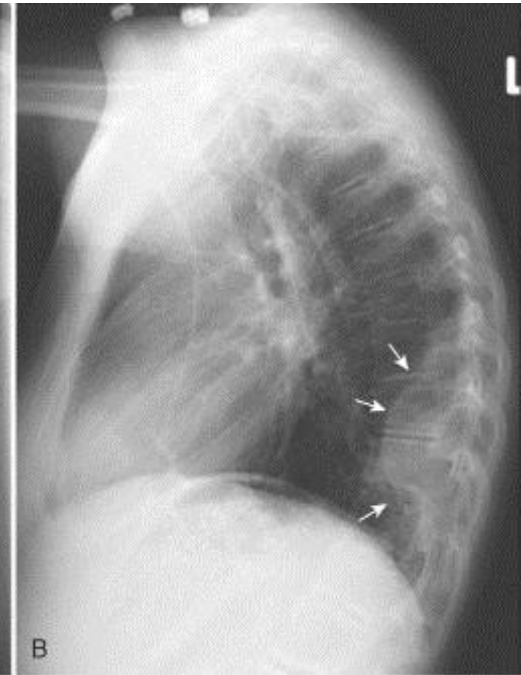
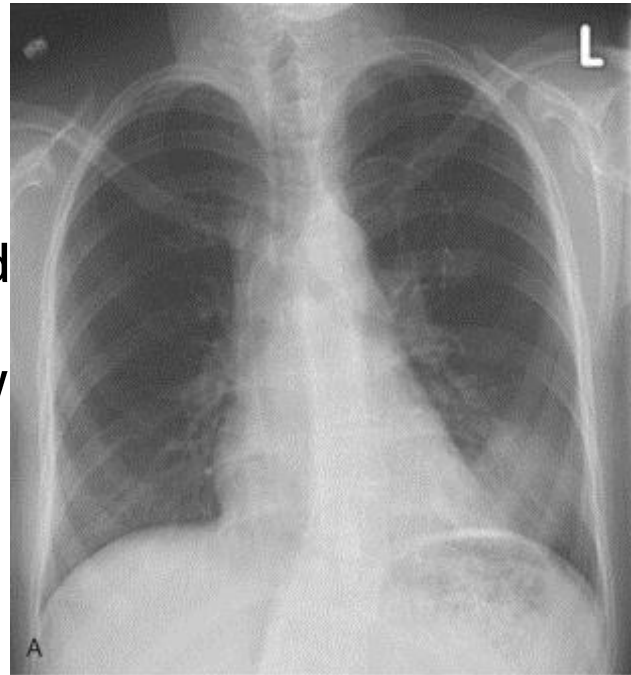


- 1- **observing** : if the malignant process is developing slowly and pt is asymptomatic.
- 2- **repeated aspirations** to relieve symptoms
- 3- chest tube
- 4- **pleurodesis** : creation of scar tissue in the pleural space, by enhancing inflammatory reaction, we inject antibiotic like tetracyclin or “talc” powder in the whole pleural space. so both visceral and parietal adhere to each other ,thus preventing development of effusion again.
- 5- **permanent pleural catheter** in patients having non-expansile lung.

A:PA X-Ray reveals a poorly defined opacity projecting over the left lung base.
the patient was diagnosed to have pneumonia and thoracentesis was performed.and it showed transudate fluid with :
Low ph ,high protein content,low glucose level,high LDH.

What is your Dx ?
Empyema ,probably.

What you want to do to confirm your Dx ?
VATS ,best for diagnosis and treatment !





What u can see in this chest x-ray ??
Inverted D sign very suggestive of
loculated empyema. (important)

B: Lateral radiograph shows this to be a posterior, pleural-based, lenticular opacity suspicious for a pleural process.

What is your definition for empyema ?

Presence of pus in the pleural space.

What are the stages of empyema ?

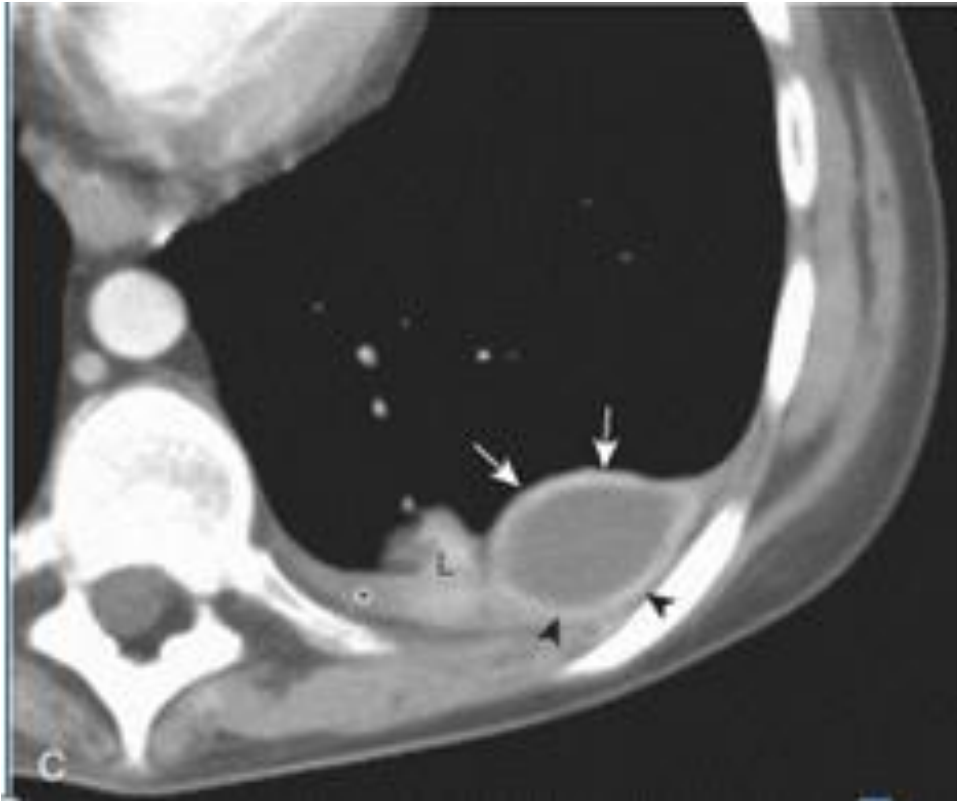
1- exudative

2-fibrinopurulent stage

3-organization stage

What is the most common cause of empyema formation ?

Para-pneumonic effusion.



What can you see in this figure ?

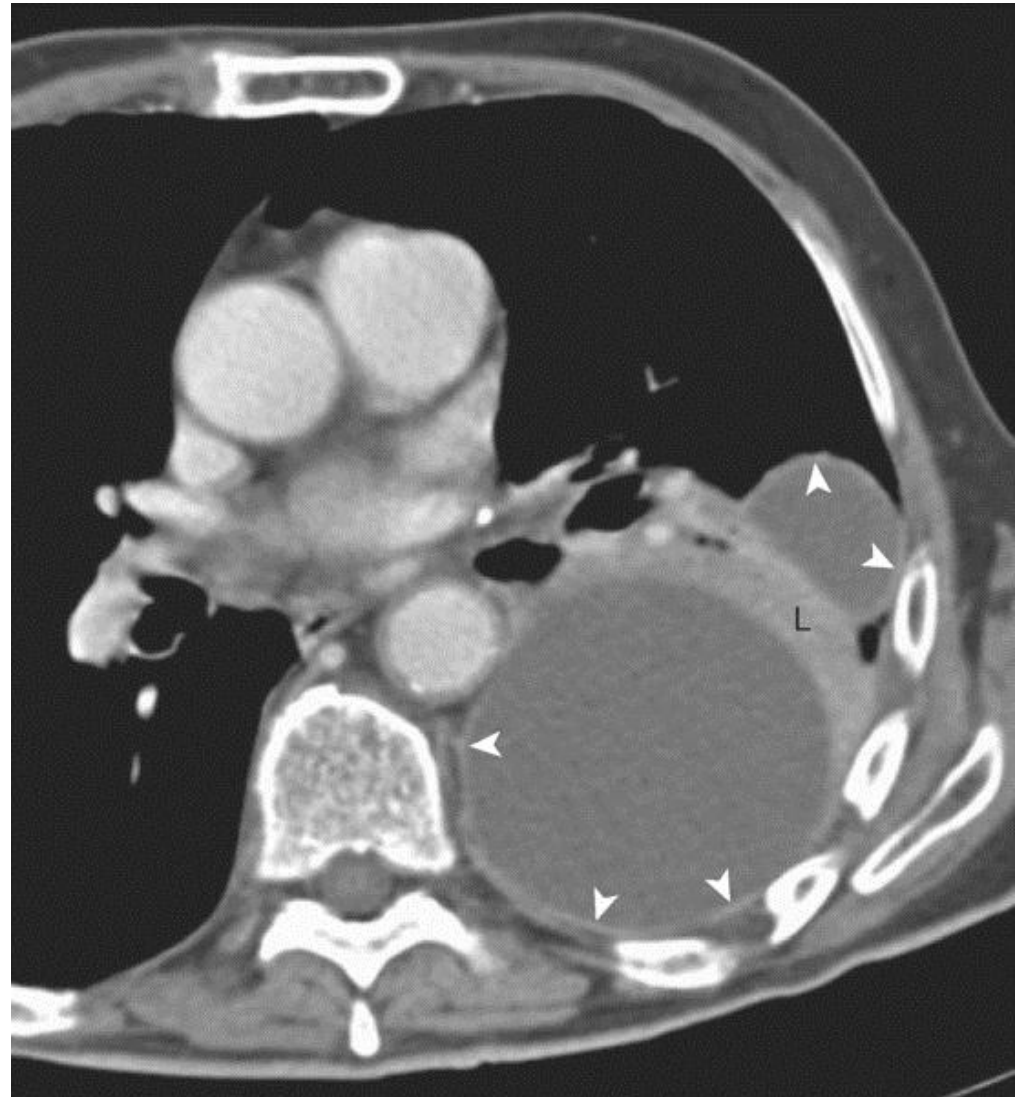
CT scan shows a loculated pleural fluid collection with thickening and enhancement of visceral and parietal pleura (*split pleura sign*), representing an empyema. Note enhancing adjacent atelectatic lung and a small amount of free pleural fluid.

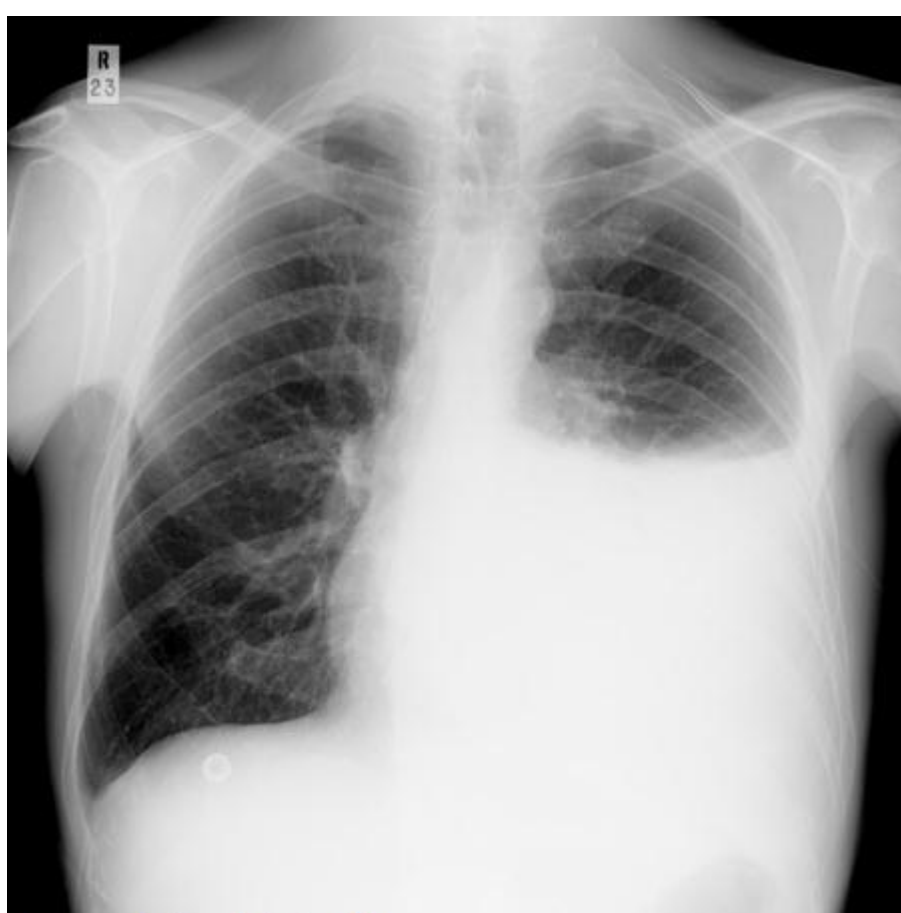
Generally, what is your management plan ?

- 1- evacuate the pus
- 2- get rid of infection (antibiotics)
- 3- re-expand the lung.

CT scan in a patient with an empyema shows a multiloculated fluid collection with pleural enhancement (*arrowheads*) compressing the adjacent enhancing, atelectatic lung.

Can you perform drainage for these multiple fluid collections ?
No , because fibrin walls that are developed prevent the chest drain to get in.so we need to perform thoracostomy or (VATS) to drain the fluids and remove the fibrinopurulent walls,to allow normal lung expansion and prevent developing potential spaces in the lung.





What can you see in this chest x-ray ?
Pleural effusion at the left side of the lung.

Tell the name of a special sign that can be seen here ?

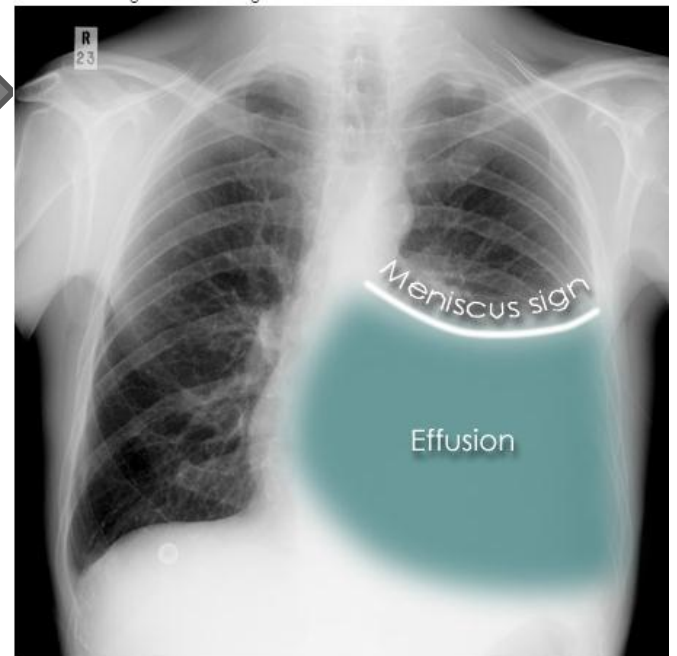
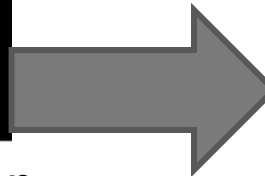
- Meniscus sign .

*Mention 3 of the pleural effusion causes ?

- Inflammatory (e.g → pneumonia, TB)
- Presence of tumor (usually gives massive pleural effusion)

e.g → lymphoma, mesothelioma, bronchial carcinoma) or metastatic spots .

- Heart failure.



When do we say that a patient has gotten
“pleural effusion” ?

When fluids accumulating in the pleural space
are higher than 10 ml .

Apart of x-ray, what are the other investigations
done for further understanding ?

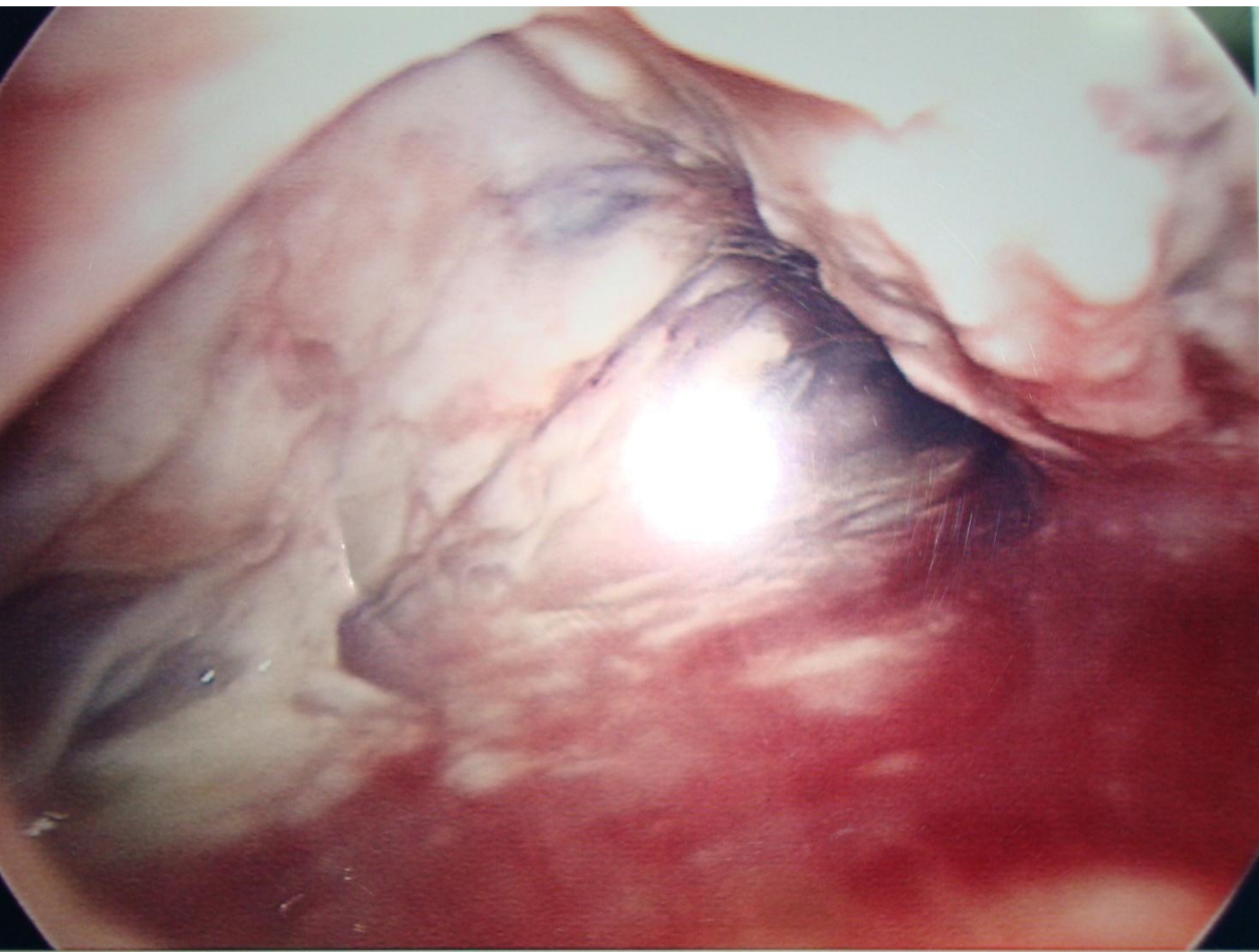
US , CT scan.

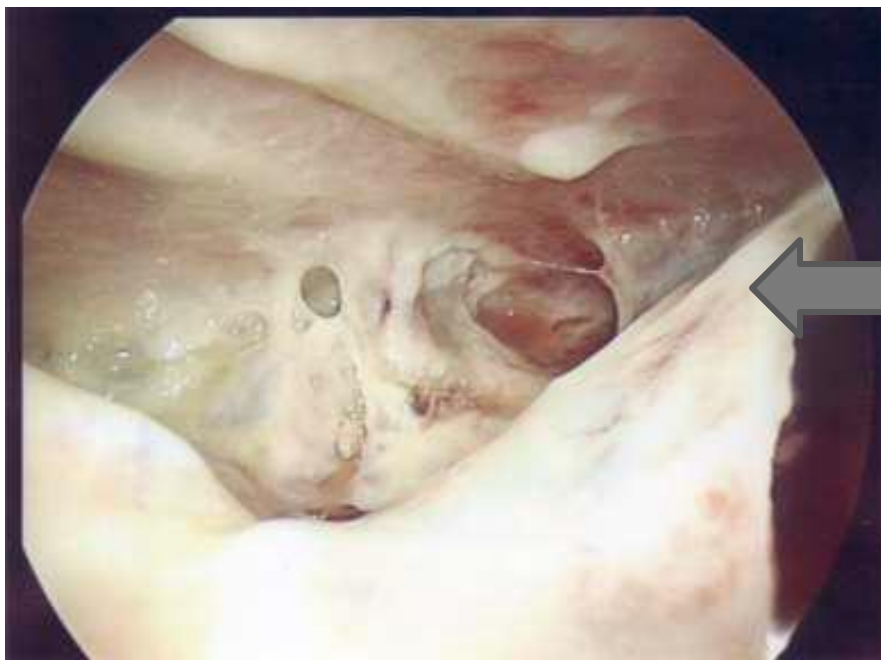
Thoracentesis : to check the type of fluid
(transudate or exudate)



The three incisions from which surgeons enter the thorax in VATS .

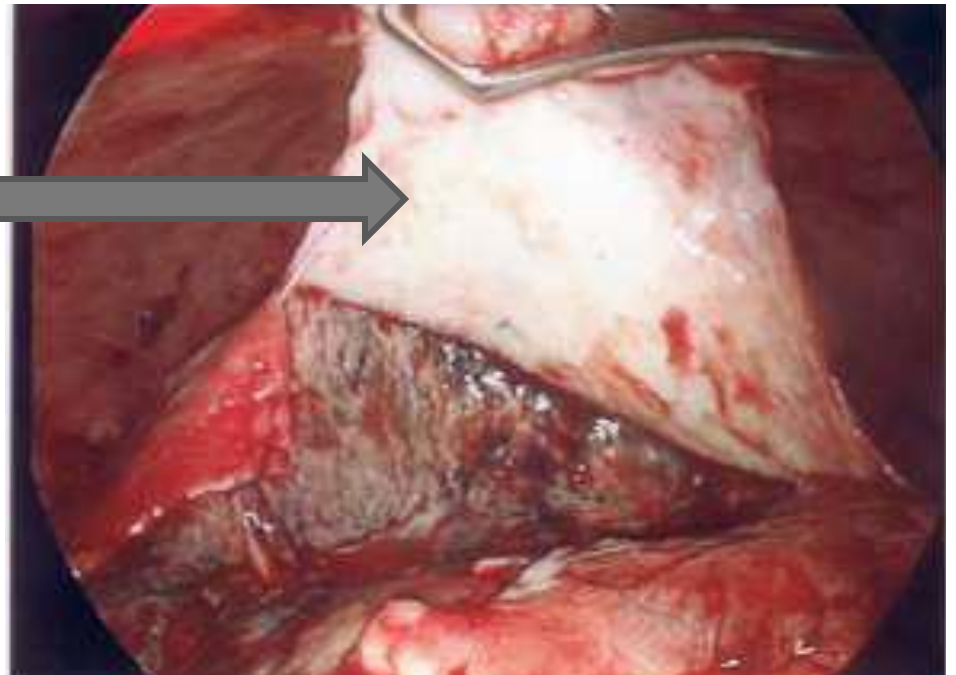




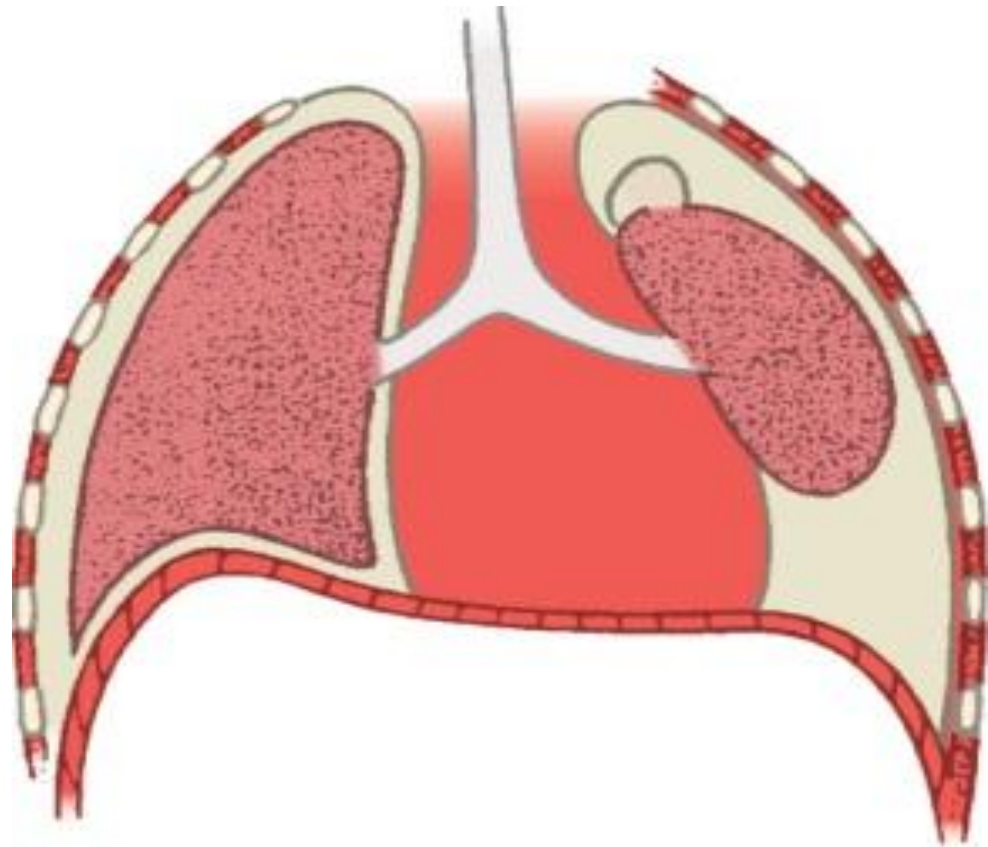


Fibro-purulent
material

Fibrous peel that
prevent lung
expansion
What to do ?
It must be removed
during surgery.

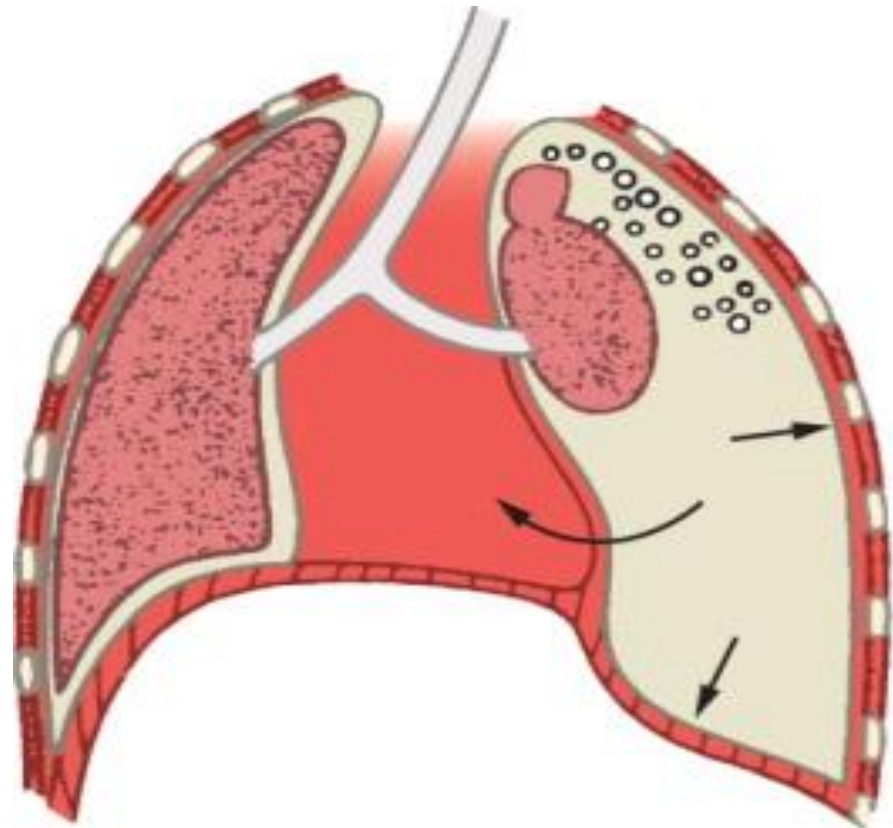


**Some of the
physiologic
characteristics of
simple spontaneous
pneumothorax**



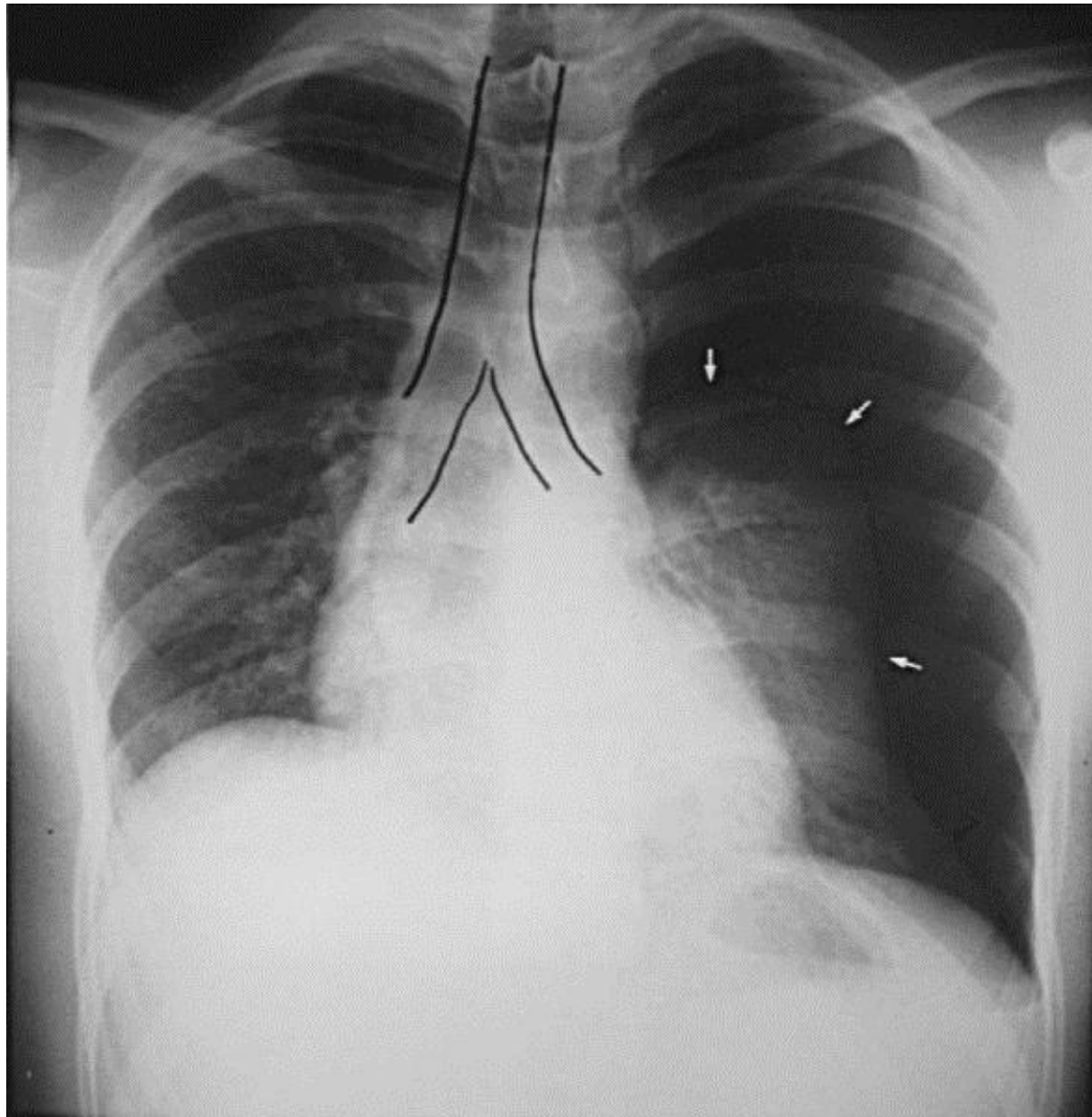
- ↑ Air flow until no pressure difference
- ↓ Apex to base pressure gradient
- ↓ Lung compliance
- ↓ Functional residual capacity
- ↓ Ventilation
- ↓ Oxygenation
- Slight shunt

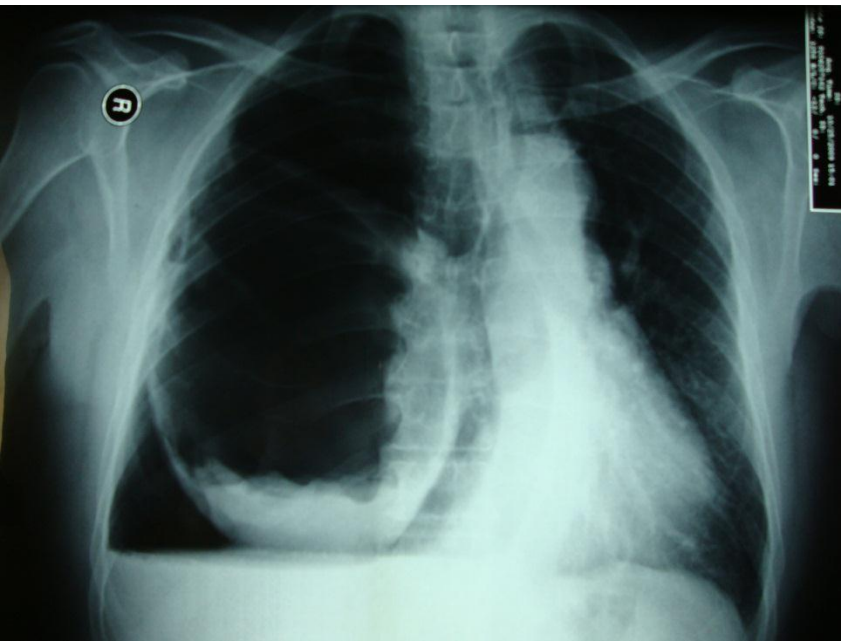
Physiologic characteristics of a *tension* pneumothorax



- ↑ Continuous air flow (one-way valve)
- ↑ Intrapleural pressure
- ↑ Mediastinal shift (alteration of lung mechanics)
- ↓ Ventilation
- ↑ Shunt
- ↓ Oxygenation
- ↑ Cardiac stroke volume
- ↑ Heart rate

Chest radiograph showing a tension pneumothorax with mediastinal shift and deviated trachea. The trachea is outlined. *Arrows* indicate location of visceral pleura of the collapsed lung.



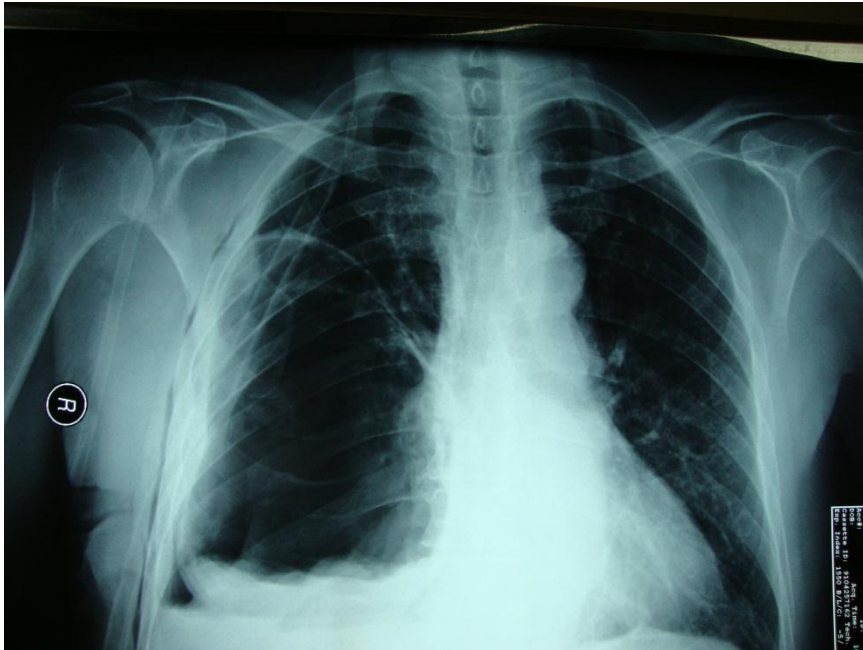


What do you see in this chest x-ray ?

Tension pneumothorax " life threatening condition" ,with large air space in the right lung compressing the mediastinum to the contralateral side and causing tracheal deviation.

What are the signs and symptoms pt come with ?

- 1- sever sharp pleuritic chest pain.
- 2-sever shortness of breath
- 3- hypotension with distended jugular veins.
- 4- the affected side is hyper-resonant on percussion
- 4- on auscultation, there are absent breath sounds at the affected side.



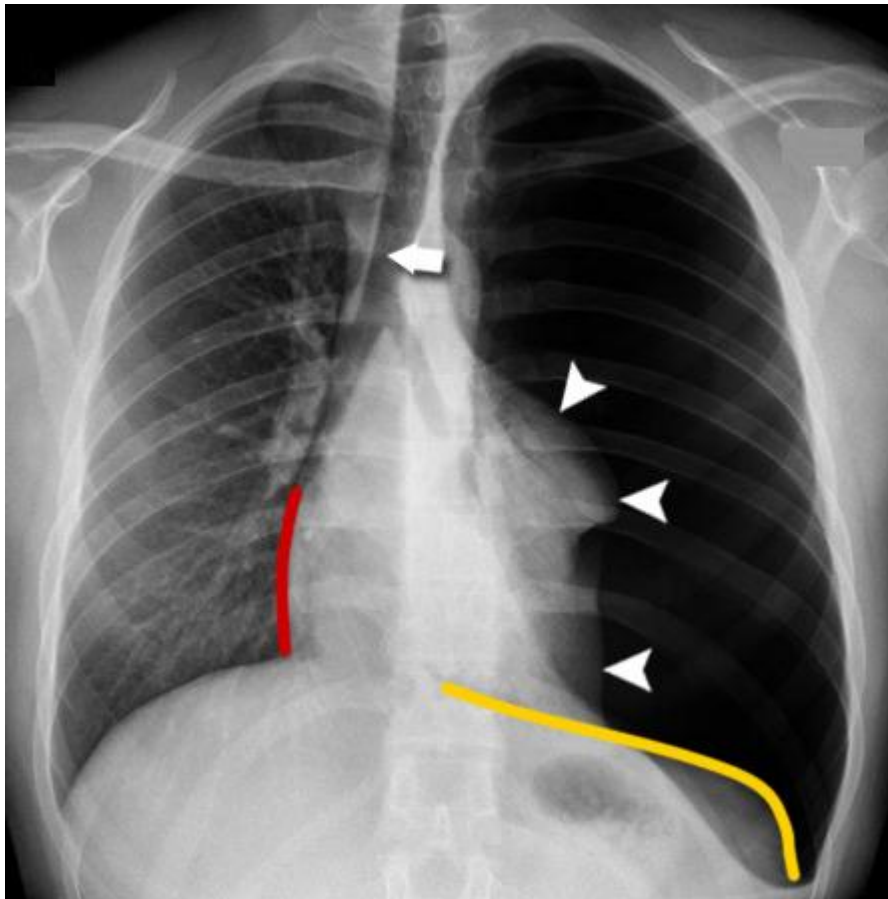
Mention 3 of the indications for surgical intervention ?

- 1- continuous air leak through the chest tube (5-7days)**
- 2- recurrence either at the same or contralateral side.**
- 3-bilateral pneumothorax or pneumothorax in a pt with unilateral lung.**

The x-ray shows the chest after dealing with the case. Do you think the management was proper ? And why ?
Yes, because the trachea and mediastinum came back to normal position.

What your intervention should include ?

- **If in a clinic , needle decompression in the 2nd intercostal space at the midclavicular line. (temporary because air may re-accumulate)**
- **- in the emergency room, put a chest tube in the 5th intercostal space at the anterior axillary line.**
- **if symptoms are still not relieved, do thoracotomy or thoracoscopy and the best is "vats"**



Extra

3 features you should look at in the chest x-ray if you suspect tension pneumothorax :

1-shifted trachea and mediastinum —look at the right border of the heart here,it' s shifted to the right also.

2-collapsed lung at the side of pneumothorax (3 arrows)

3- depressed hemi-diaphragm at the site of pneumothorax.

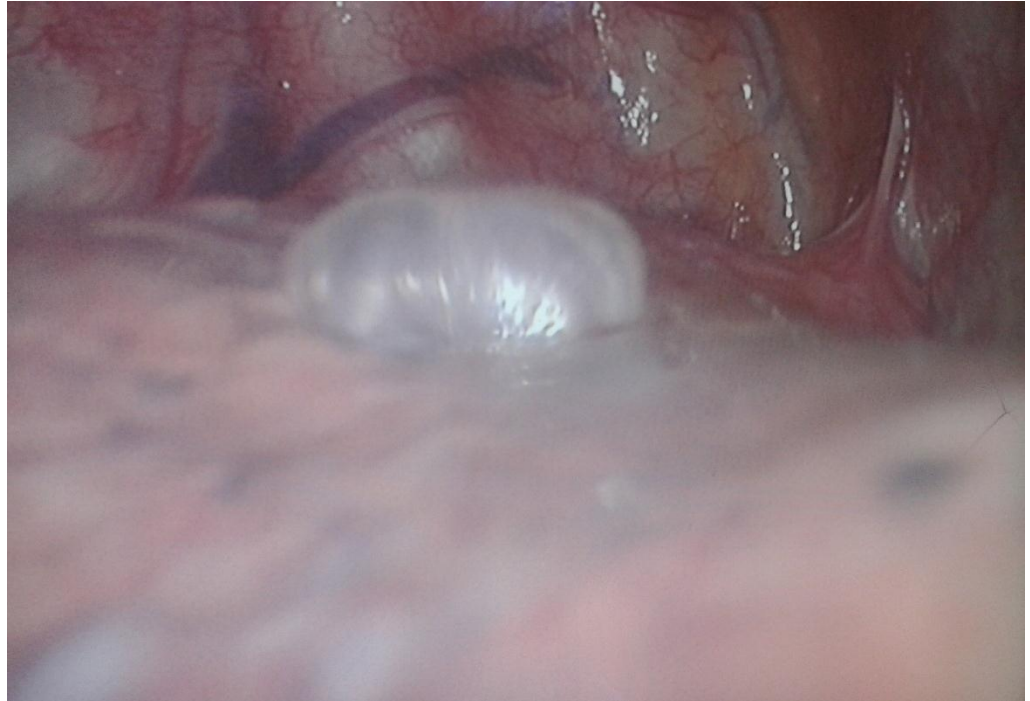
Define “pneumothorax” ?

Presence of free air in the pleural cavity.

Mention its types ?

1-Primary spontaneous,2-secondary spontaneous , 3-traumatic and 4-iatrogenic.

WHAT IS THE FIGURE
SHOWING HERE ?
AIR BULLA ,AT THE
SURFACE OF THE
LUNG,COVERED WITH
VISCERAL PLUERA.
WHAT IS THE
SIGNIFICANCE OF ITS
PRESENCE ??
IT MAY RUPTURE AFTER
EXERCISE OR
SPONTANEOUSLY
,RELEASING AIR TO THE
PLEURAL SPACE AND
CAUSING A
PNEUMOTHORAX IF WAS
ENOUGH TO DECREASE
RESPIRATORY RESERVE IN
THE PATIENT.

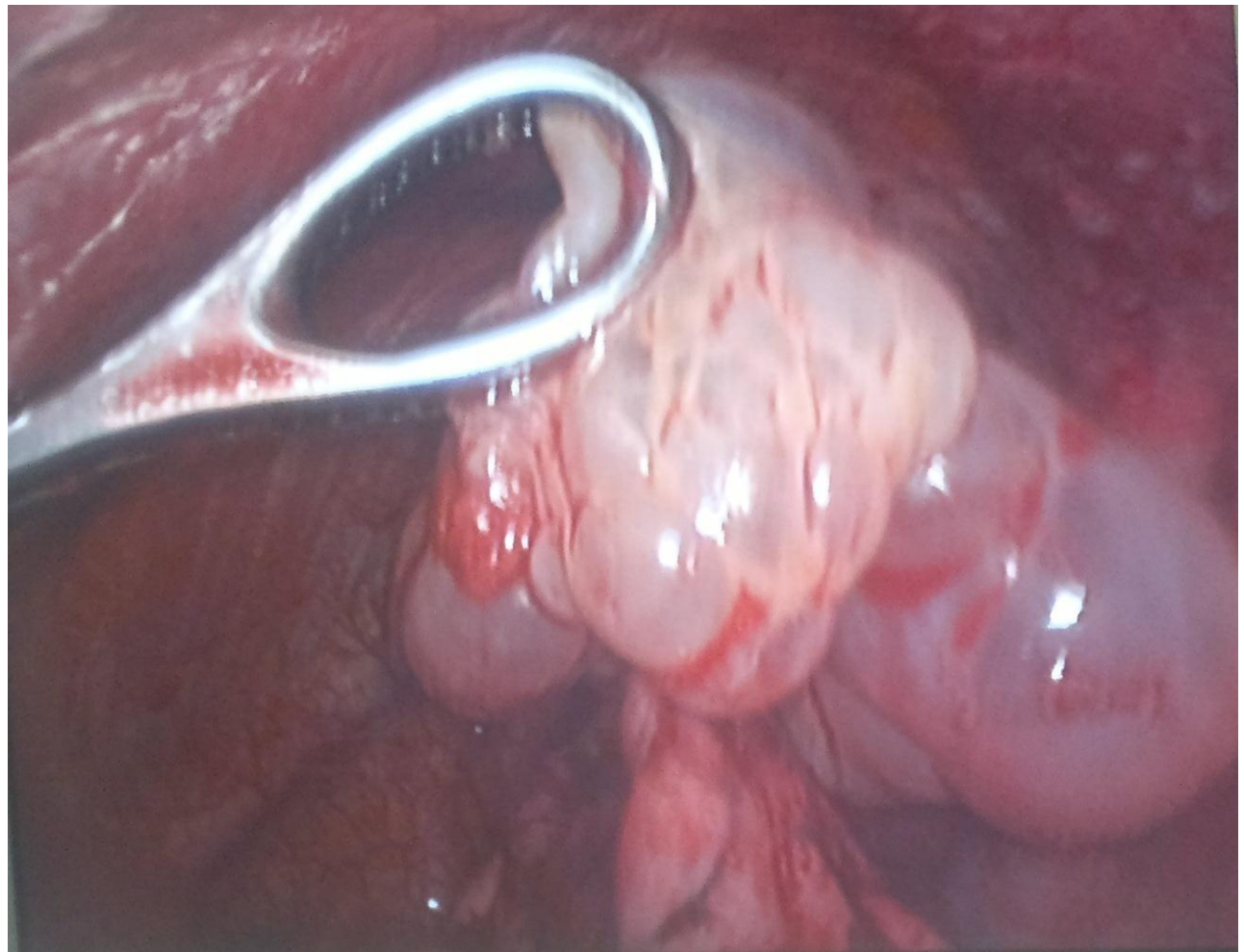




Which people are more suspected to develop these blebs or bullae ?

- **People who have underlying lung disease ,like emphysema (most commonly) or cystic fibrosis .**
- **they may develop “primarily” in a healthy,tall,then and young males.**
- **Smoking , is a risk factor for recurrence.**

This bulla is attached to the lung with “narrow neck” “small base” ..





This figure shows ?

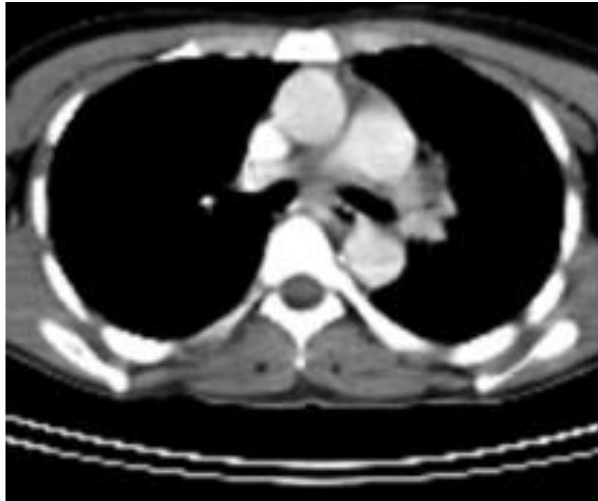
Resected bolla of air, with it's bearing area of lung parenchyma – not more than few cms-
“blebectomy”

What do we remove also ?
Part of the parietal pleura, in order to enhance adhesions and help in getting pluerocentesis in the future.

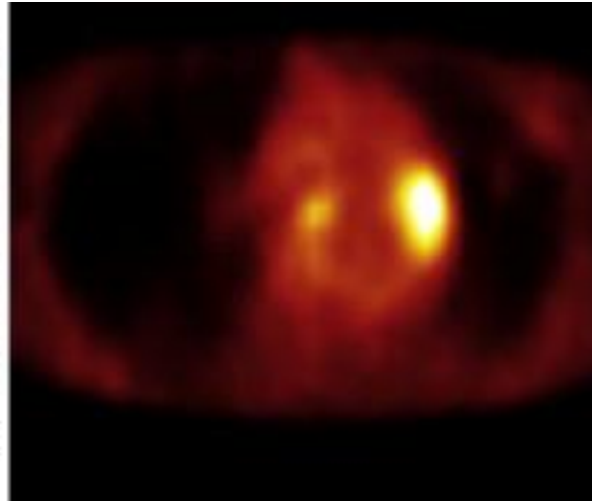


Lung neoplasms lecture

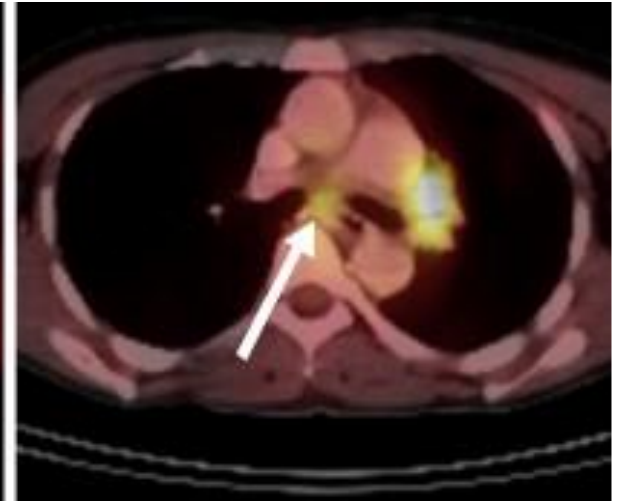
CT-Scan



FDG-PET



FDG-PET-CT



What are the non-invasive investigations I should do ??

CXR

CT chest and upper abdomen(liver and adrenals)

Bone isotope scan

Brain MRI

Or FDG-PET + Brain MRI + CT-Chest

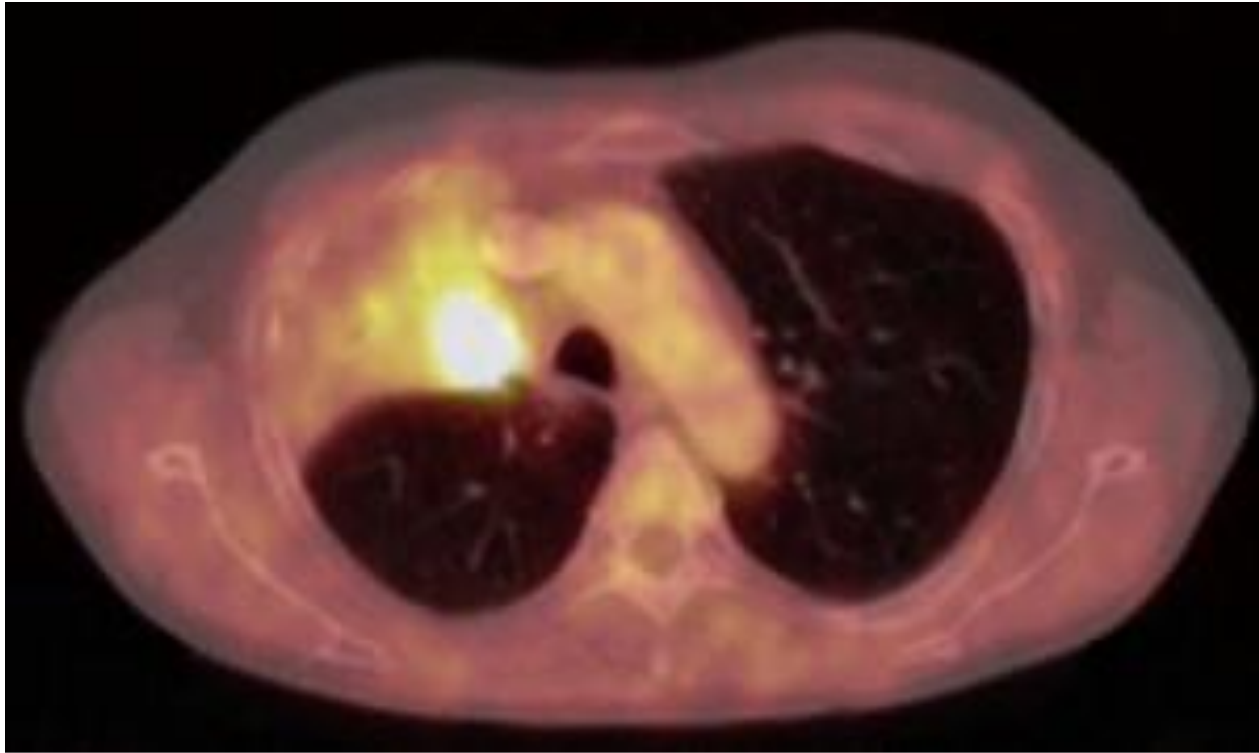
Or FDG-PET-CT + Brain MRI

MRI chest

PET scan (proton emission tomography) : showing the tumor as illuminated area. (not enough for initial Dx.

PET scan with CT (combination is much better)
Showing : exact location and if the tumor is active or not.

FDG-PET-CT



PET scan showing atelectasis of the right upper lobe, inside the atelectasis there's a tumor.

**** so , PET scan is very useful in differentiating between atelectasis caused by a tumor or TB .**

**** lung cancer is the 2nd most common cause of death in both males and females.**

****smoking is the most common risk factor (*22 fold increased risk)**

****very poor prognosis of tumor (5years survival is 18%)**

These figures show CT scan for patient with tumor obstructing the right bronchi. We didn't know if the right lung was affected totally or partially, so we made laser resection for the tumor "it's non invasive" to check the functional status of the lung.

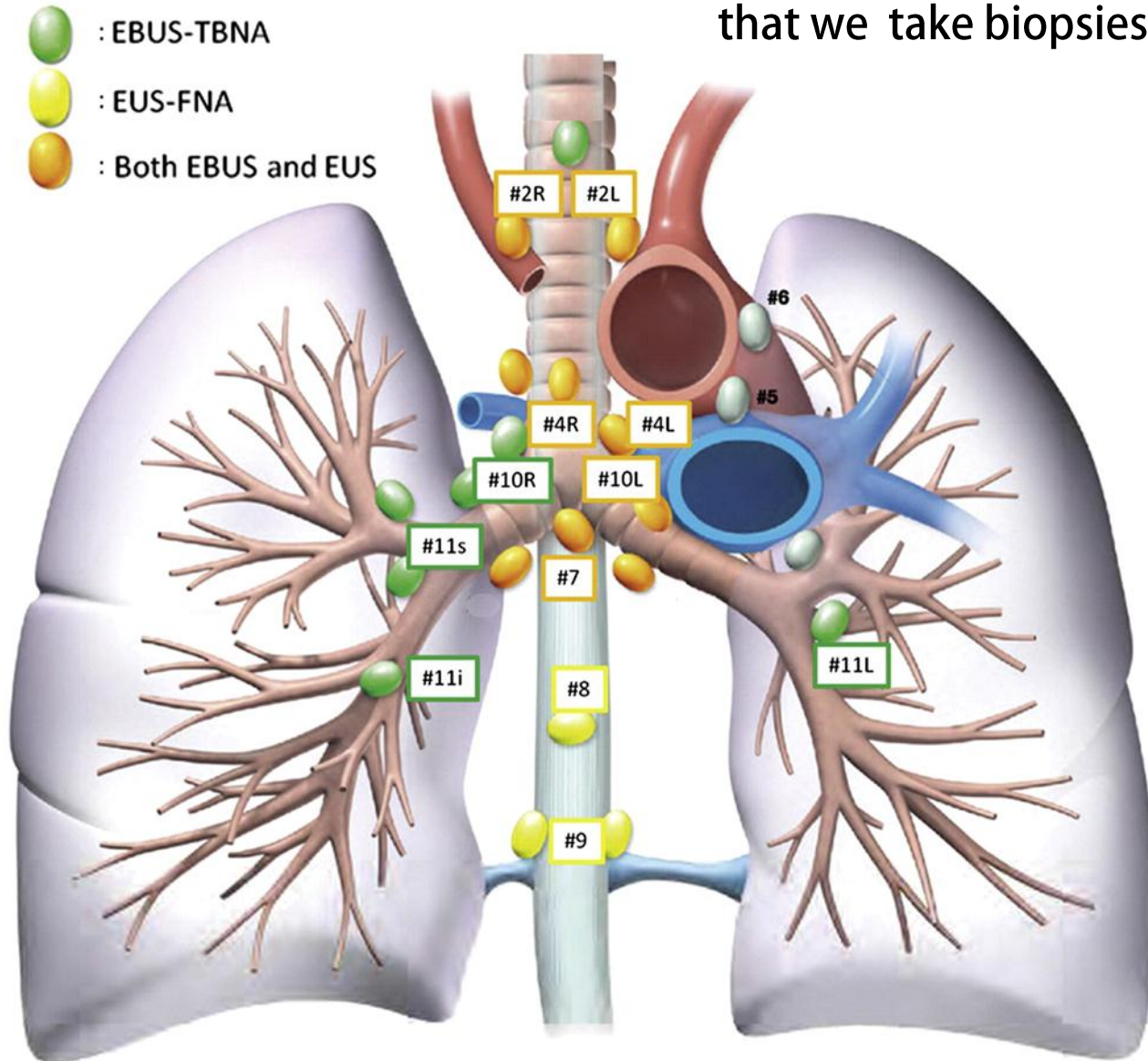


****What are the invasive staging methods for lung cancer ?**

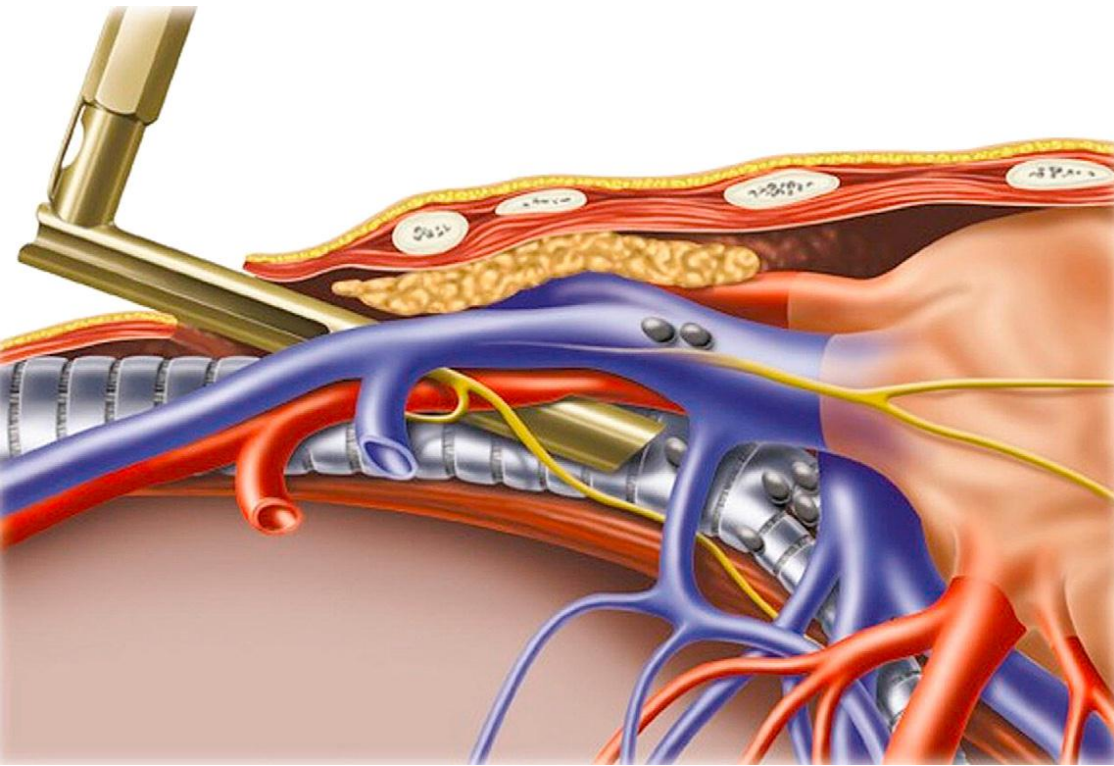
- **Bronchoscopy and Biopsy**
- **Video-Mediastinoscopy**
- **Endobronchial US and Biopsy (EBUS)**
- **Endo-esophageal US and Biopsy (EUS)**
- **Anterior mediastinoscopy → (widely replaced nowadays)**
- **Video-assisted thoracoscopy**
- **Transthoracic CT-guided biopsy**

I don't think that such figures will come in the exam !

Demonstration of lymph nodes that we take biopsies from.



Video-Mediastinoscopy



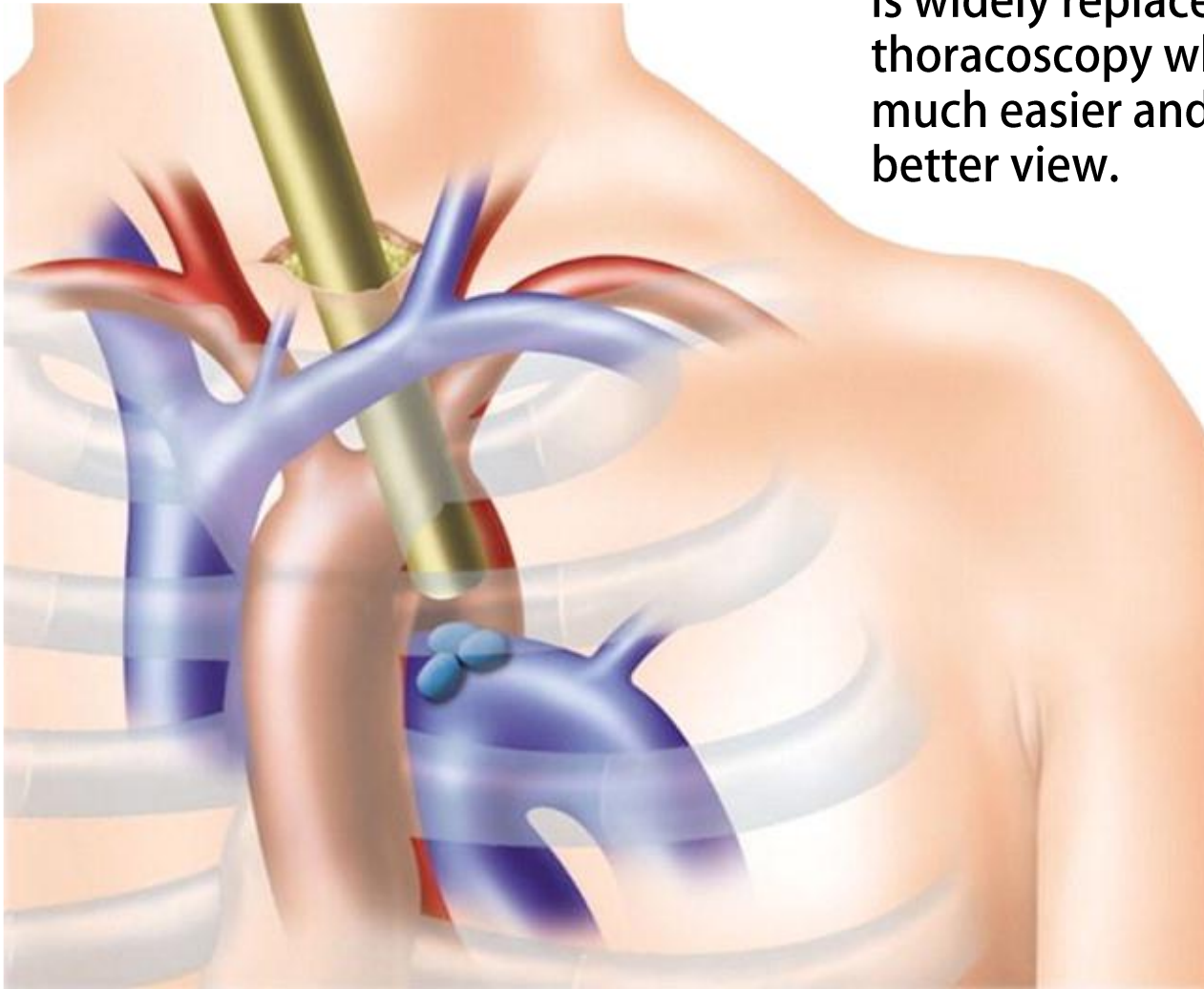
How to perform it ?

1- make an incision in the suprasternal notch.

2- insert the scope ,below it the trachea and insert it under superior vena cava and brachiocephalic veins.

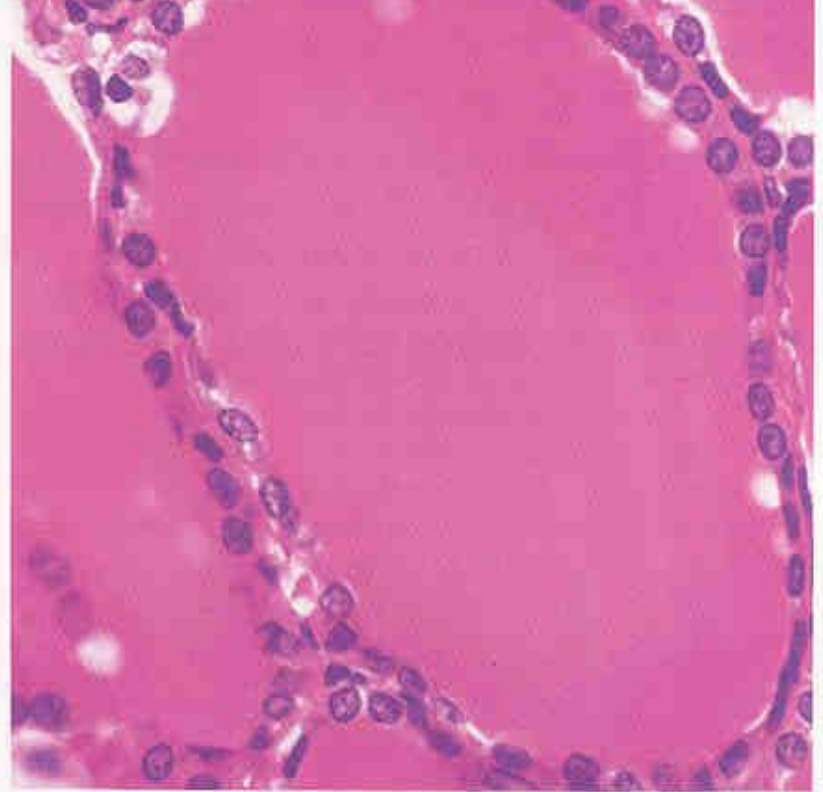
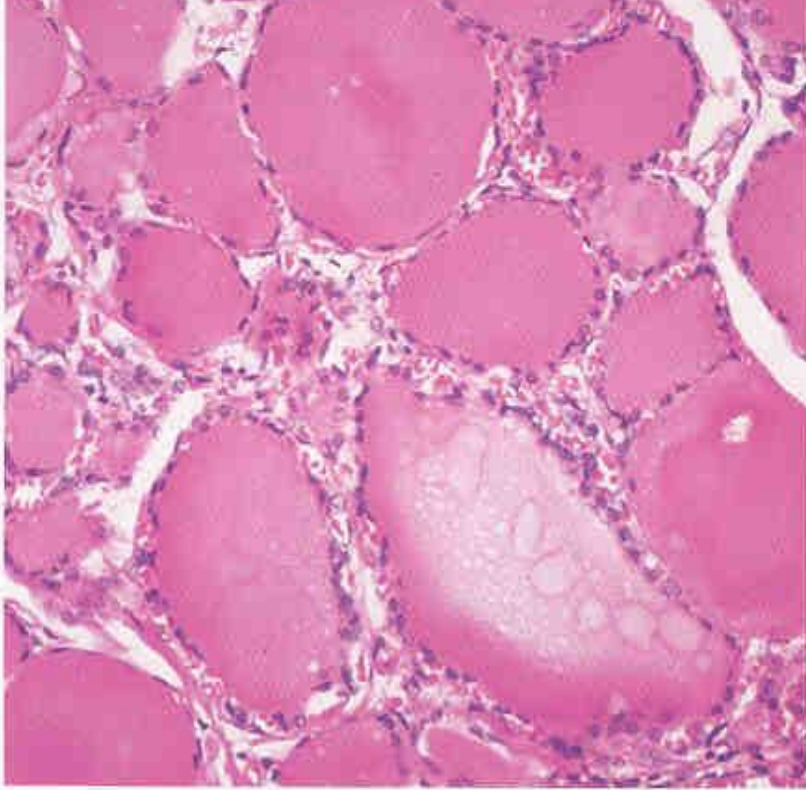
Very safe procedure with low risk of complications.

Anterior
mediastenotomy that
is widely replaced by
thoracoscopy which is
much easier and gives
better view.



Thyroid Gland





This is the histology of thyroid gland

Goiter (enlargement of the thyroid gland (local or diffuse) Dx?? Goiter



1>> your Dx? Diffuse nontoxic goiter

2>> its cause? Iodine deficiency

3>> result?? Hypothyroidism and increase TSH



1>>what is your Dx? Multinodular Goiter

2>>Characterized by what ? Follicles may become autonomous;
(greater intrinsic growth and functional capability



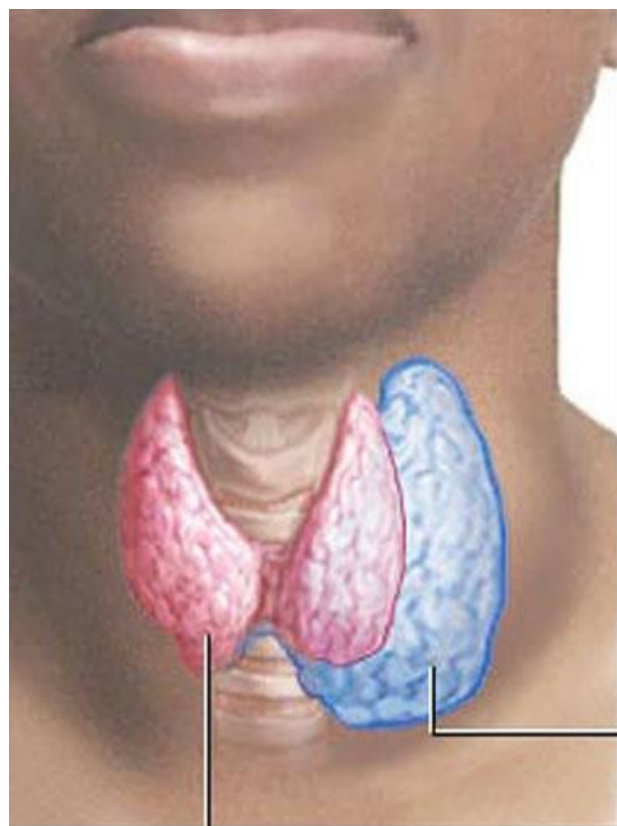
1>>What is your diagnosis? TOXIC multinodular goiter



The detailed case on the nxt page



- 42 y.o. male with no active medical problems. During routine physical, note a thyroid nodule. Told by a surgeon last year not to worry about it.
- •PE: 1 x 2cm R lower pole nodule.
- What information do you want from the patient



Thyroid gland



Goiter
(visibly enlarged
thyroid gland)

16.5 1834 L7.5M/40mm L10ME:



What is the benefit of using US for thyroid cases?

- Can identify presence of nodules.
- •May be able to characterize follicular vs. solid.
- •Not able to rule out malignant nodule
- •Aid in biopsy

1>>What is your Dx? Graves disease

2>>female : male ratio? 5:1

3>>its cause?

Thyroid receptor stimulating antibody unique to Graves' disease; other autoantibodies present (TgAb, TPOAb)

4>> what are the symptoms?

Thyrotoxicosis: palpitations, nervousness, easy fatigability, diarrhea, excessive sweating, intolerance to heat, weight loss

- Eye signs
- Diffuse goiter



Following GD case

- 5>>What is the clinical diagnosis?
- 1>>A radioactive iodine uptake
- 2>>diagnostic of GD; a thyroid scan should be added in the presence of thyroid nodularity.**1/+00**

- The treatment ???
 - 1>>Antithyroid Drugs
 - 2>Radioactive iodine
 - 3>•Surgery
- Potassium iodide two weeks prior to surgery
can decrease the vascularity of the gland

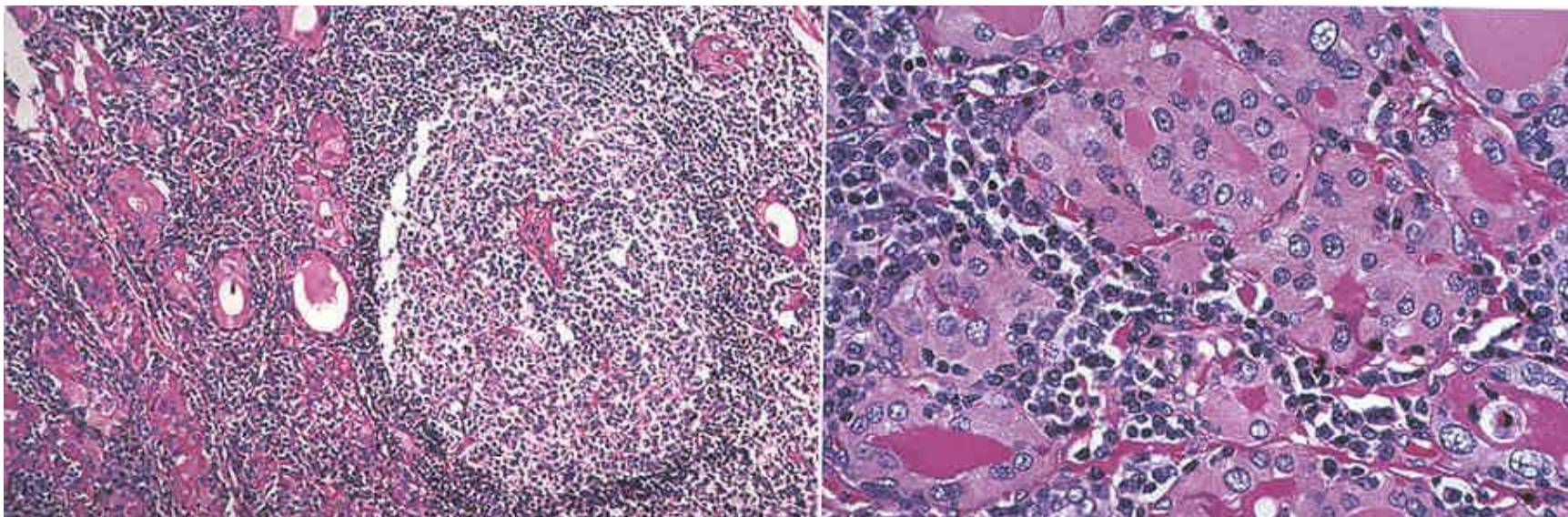
1>>What is the pathology? Chronic thyroiditis

2>>what is the main microscopic finding?

Hurthle cells or oncocytes -these are metaplastic.

3>>Histologic features?

- A dense infiltrate of plasma cells and lymphocytes with germinal center formation is seen in this thyroid.



A) This is ?? Subacute thyroiditis

B) its cause? viral infection

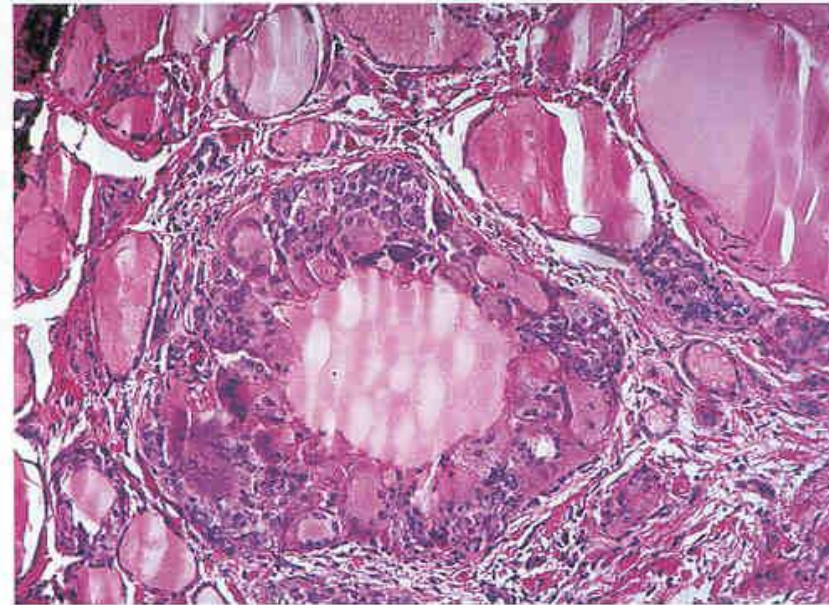
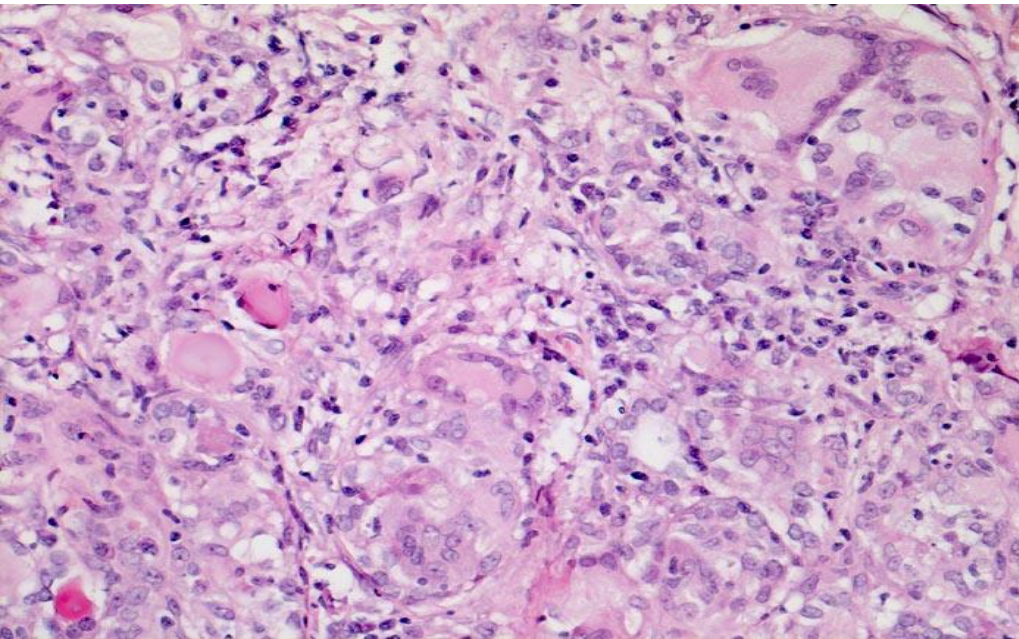
C) its characteristic? 1>> Most common cause of thyroid pain and tenderness

2>> Transient hyperthyroidism followed by transient hypothyroidism;
permanent hypothyroidism or relapses are uncommon

D) what are the symptoms?

– Painful swallowing (odynophagia), sore throat, thyroid region tenderness,
fever, fatigue, malaise

E) The inflammation?? GRANULOMA



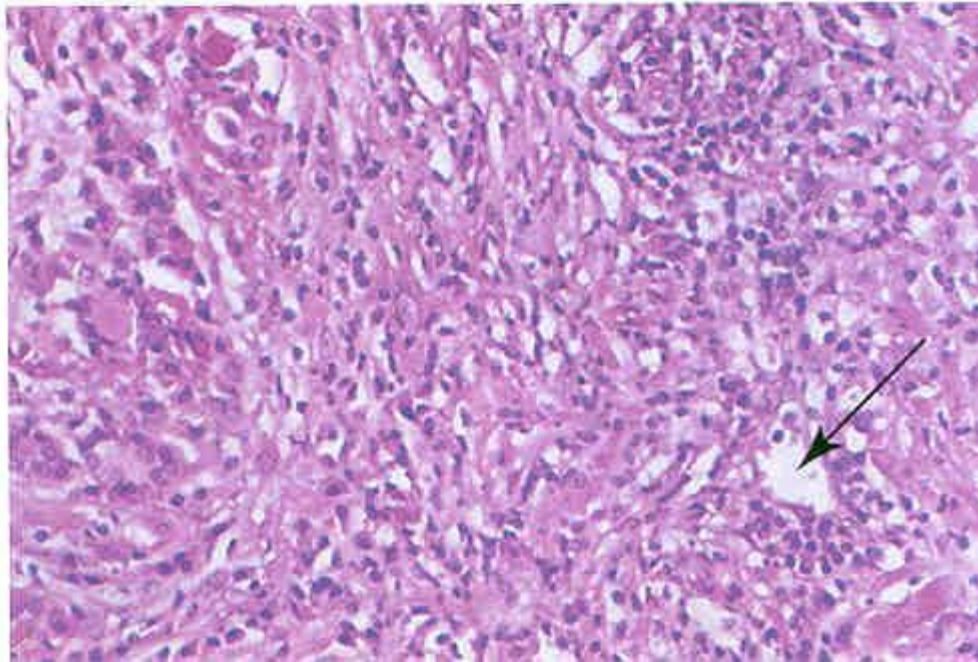
1>>Histopathology? Riedel's thyroiditis

2>>what does the arrow indicate for?

keloid-type collagen located

3>>what is the treatment?

corticosteroids, tamoxifen OR Surgery



Thank YOU

Good Luck all



1)What is presented in the following picture?

2)Where can it occur?

3)State four common reasons that impede wound healing??

4)State two complications of chronic wounds?

Answers:

1)Hypertrophic scar

2) It can occur anywhere on the body and is preventable

3) 1-infection

2-ischemia

3-diabetes

4-ionising radiation

4)Septicemia

Fistula and sinus formation

Keloid scar





- 1)What is the probable diagnosis?
- 2)Commonest sight for such pathology?
- 3)Give three predisposing risk factors?
- 4)How is it managed??

Answers:

1-Venous ulcer

2-gaiter area

3- a-varicose viens

B-obesity

C-history of leg fracture

D-deep vien thrombosis

4-compression,debridment , dressing

Gangrenous toes





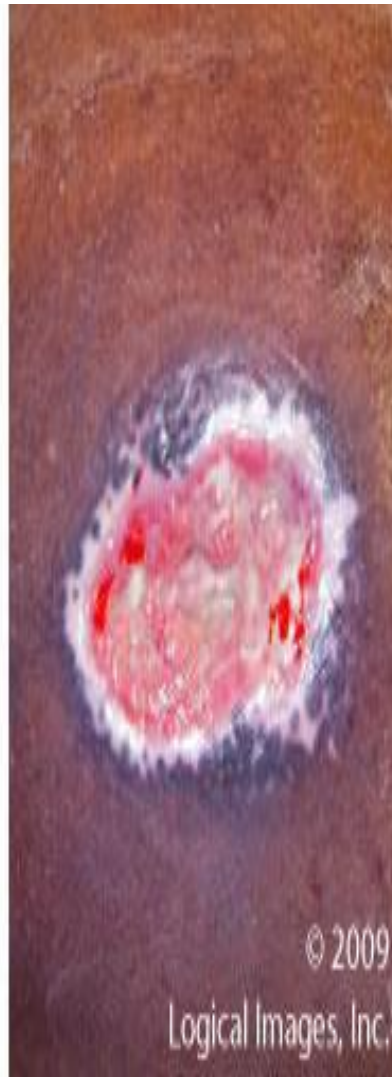
1)What is presented in the picture?
What are the underlying features??

1-pressure ulcer stage 1
2-Nonblanchable erythema of intact skin. Discoloration, warmth, induration, or hardness of skin may also be used as indicators, particularly in people with darker skin



- 1)What is presented in the picture?
- 2)What are the underlying features??

1-pressure ulcer stage 2
2-Partial thickness skin loss, involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion or blister



- 1)What is presented in the picture?
- 2)What are the underlying features??

1-pressure ulcer stage 3
2-Fullthickness skin loss involving damage to or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia



1)What is presented in the picture?
2)What are the underlying features??

1-pressure ulcer stage 4
2-Extensive destruction, tissue necrosis or damage to muscle, bone, or supporting structures, with or without full thickness skin loss

Pediatric Intestinal Obstruction

a mother is presented to the ER with her infant , who has cyanosis and choking to feeding , after physical examination excessive salivation was also noted , a Chest x ray was preformed for the infants shown in this image ?

- 1) What is the diagnosis ?
- 2) Mention 3 points from the history related to the diagnosis ?
- 3) What is the sign on the x-ray confirming the diagnosis ?
- 4) What are the types of this disease and what is the most common type ?
- 5) Mention 4 associated anomalies with this disease ?
- 6) Can this disease diagnosed prenatally ?
- 7) Mention 2 investigations that should be done for the infant preoperatively ? And why we should perform them ??
- 8) What is the treatment of this disease ?



ANSWERS :

- 1) Esophageal atresia(EA) with or without TE fistula (depends on the type)
- 2) Cyanosis , choking to feeding , excessive salivation
- 3) failure to pass NG tube (coiling of NGT on x ray
- 4) There are 5 types of this anomaly : a) pure EA without fistula b) EA and proximal TEF c) EA and distal TEF (the Most common type) d) EA with distal and proximal TEF E) pure TEF without EA (H type)

5) VACTERL : **V**ertebral , **A**norectal , **C**ardiac , **T**racheoesophageal fistula , **R**aidal **L**imb deformities

6) YES (maternal US)

7) A) ECHO : to see the location of the aortic arch , normally it is located on the left side , so the thoracotomy will be performed on the right side for better exposure of the esophagus (if the aortic arch was on the right side , and we perform right side thoracotomy the esophagus will not be clear for the surgeon and we have to close and open on the left side)

b) Bronchoscopy : to know if there is fistula , and to locate the exact site of fistula if it is presented → to help in the correct insertion of Endotracheal tube (if the ET tube was inserted proximal to the TEF, oxygen will enters through the tube → fistula → esophagus → stomach → stomach distention will compress the diaphragm → respiratory distress

So the tube should be inserted distal to the TEF (so the air will pass directly to the lungs)

8) Right thoracotomy (if the AA on the left side) → Close the fistula and anastomosis of the 2 esophageal segments

A 12 weeks old infant presented with projectile non bilious vomiting , constipation , on physical examination sunken fontanelle and dry mucous membrane was noted , an x ray was ordered for this infants ...

- 1) What is the most likely diagnosis ?
- 2) What are the signs and symptoms from the history indicate this diagnosis ?
- 3) What other specific signs could be seen on physical examination ?
- 4) How the diagnosis could be confirmed (the gold standard imaging study for this disorder ?
- 5) What metabolic changes u could find in this pt ?
- 6) What is the first step in the management of this infant (medical or surgical)?
- 7) What is the definitive treatment of this case ?
- 8) In which age group this anomaly usually occurs ?
- 9) Give 4 differential diagnosis for this case ?



Answers :

- 1) Congenital hypertrophic pyloric stenosis
- 2) Projectile non bilious vomiting , constipation and signs of dehydration
- 3) Olive mass sign , visible peristalsis



- 4) ULTRASOUND (measure pyloric channel length , muscle length and thickness and pyloric diameter)
- 5) Hypochloremic hyponatremic alkalosis and dehydration
- 6) Medical (it's a medical emergency rather than surgical emergency) → so first correct the dehydration and the metabolic disturbances
- 7) ramstedt's pyloromyotomy
- 8) 3-12 weeks
- 9) Gastroenteritis ,GERD , other obstructive lesion of the intestine , increase intracranial pressure (causes projectile vomiting)

a full term infant born to a mother whose pregnancy complicated by polyhydramnios , the infant presented with bilious vomiting , physical examination shows jaundice , and visible peristaltic wave on the abdomen and no abdominal distention , an x ray is performed to the infants

- 1) What is the sign shown on this x ray , and what is the most likely diagnosis ?
- 2) What is the pathophysiology of this disease ?
- 3) What are the signs and symptoms from the history indicate this diagnosis ?
- 4) What genetic disease is associated with this condition ?
- 5) What are other congenital disease associated with this disease ?
- 6) Mention an extrinsic cause of this disease ?
- 7) What is the initial treatment of this disease ?
- 8) What is the definitive treatment of this disease ?

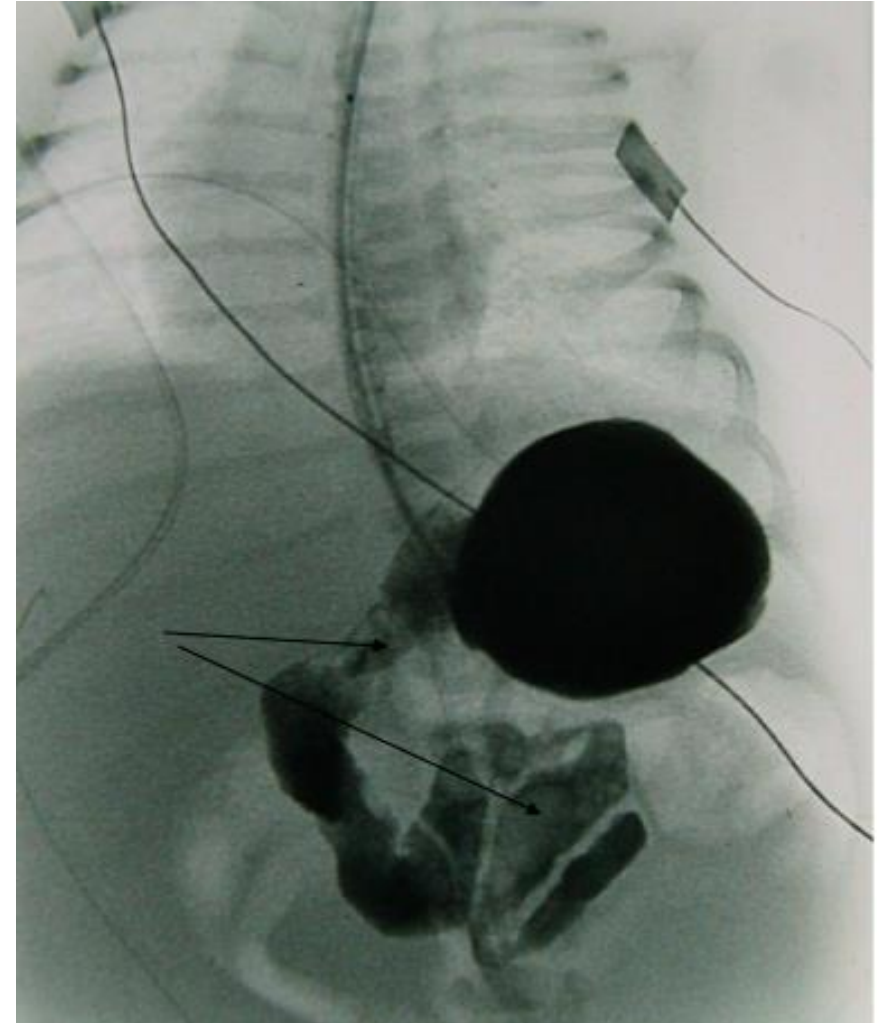


Answers :

- 1) Double bubble sign on xray → duodenal atresia
- 2) Failure of recanalization of the lumen in the 4th and 5th week of gestation
- 3) History of polyhydramnios in pregnancy , jaundice (presents in 1/3 of cases due to obstruction of ampulla of vater), visible peristaltic waves on the abdomen
- 4) Down syndrome (trisomy 21)
- 5) Other congenital anomalies that are associated with duodenal atresia include malrotation (20%), esophageal atresia (10–20%), congenital heart disease (10–15%), and anorectal and renal anomalies (5%)
- 6) Annular pancreas (ventral pancreatic bud encircles the 2nd part of duodenum → duodenal atresia
- 7) A) Initial - Nasogastric or Orogastric decompression and intravenous fluid replacement.
B) Echocardiogram and radiology of the chest and spine should be performed to evaluate for associated anomalies.
C) Definitive correction of the atresia is usually postponed to evaluate and treat these life-threatening anomalies.
- 8) Surgery (duodenoduodenostomy)

A full term baby presented at first day with abdominal distension ,bilious vomiting and failure to pass meconium , a contrast study is performed to him shown in this image

- 1) What is the most likely diagnosis
- 2) What signs on the contrast study confirm the diagnosis ?
- 3) What is the other disease commonly associated with this condition ?
- 4) What are the signs and symptoms from the history indicate the diagnosis ?
- 5) Mention another disease associated with failure to pass meconium
- 6) What are the types of this condition
- 7) What is the management



Answer :

- 1) This image shows perforated meconium ileus (complicated meconium ileus)
- 2) Hazy or ground glass appearance
- 3) cystic fibrosis
- 4) Signs of I.O and Failure to pass meconium
- 5) hirschsprung disease
- 6) Simple meconium ileus

Complicated meconium ileus → associated with volvulus , atresia , perforation

7) Initial -fluid and electrolyte balance

☐ Prophylactic antibiotics

☐ In uncomplicated meconium ileus,

☐ Gastrografin enemas will diagnose the obstruction and wash out the inspissated material. Gastrografin is hypertonic and care must be taken to avoid dehydration, shock, and bowel perforation, may have to be repeated after 8–12 hr

- 50% of patients with simple meconium ileus do not adequately respond to water-soluble enemas and need laparotomy.

☐ Operative management is indicated when the obstruction cannot be relieved by repeated attempts at nonoperative management and for infants with complicated meconium ileus.

☐ In simple meconium ileus, the plug can be relieved by manipulation or direct enteral irrigation with Nacetylcysteine following an enterotomy.

☐ In complicated cases, bowel resection, peritoneal lavage, abdominal drainage, and stoma formation may be necessary.

☐ Total parenteral is usually required

This pic shows

Type IIIb jejunal atresia (19%) (“apple peel”) consists of a proximal jejunal atresia, often with malrotation with absence of most of the mesentery and a varying length of ileum surviving on perfusion from retrograde flow along a single artery of supply.

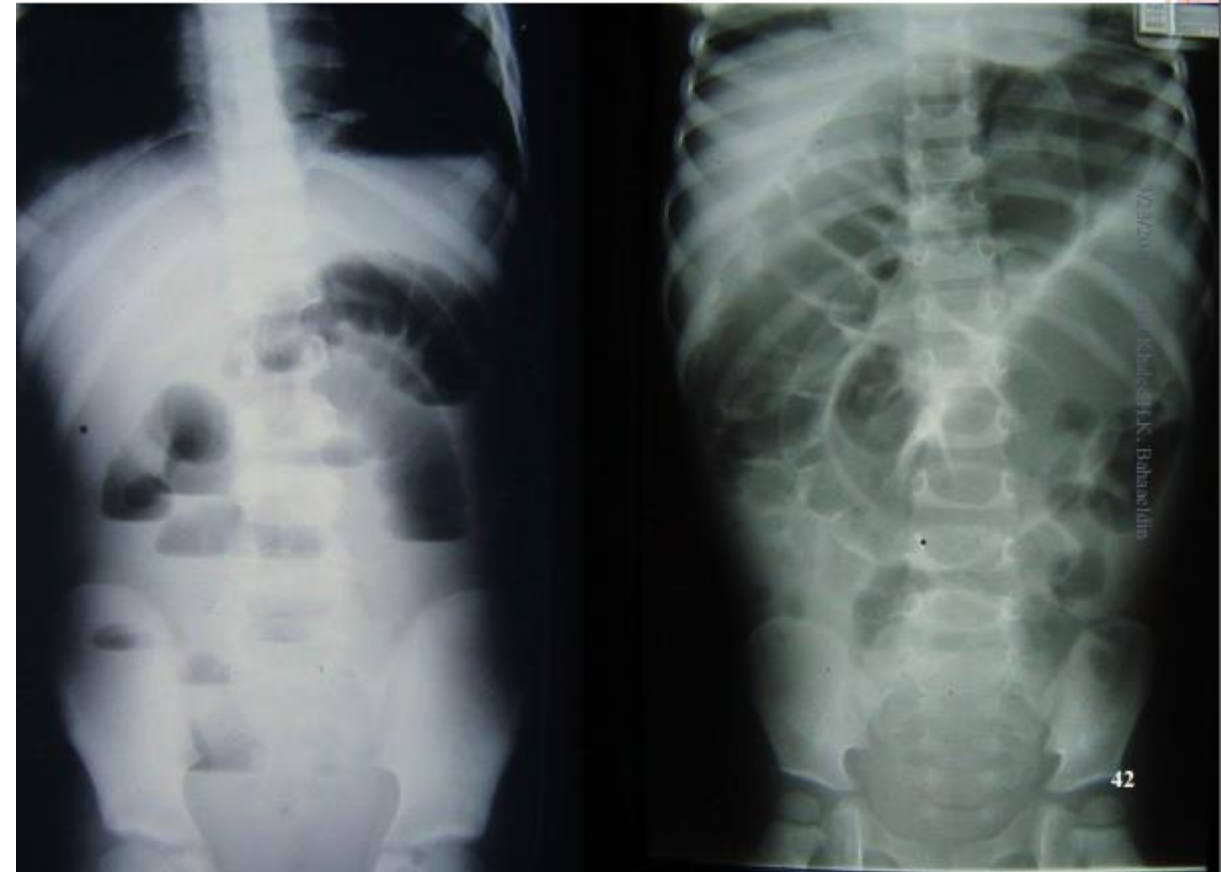
Jejunal atresia is associated with cystic fibrosis



This pic shows

Dilated bowel loop and air fluid level
Which indicates intestinal obstruction

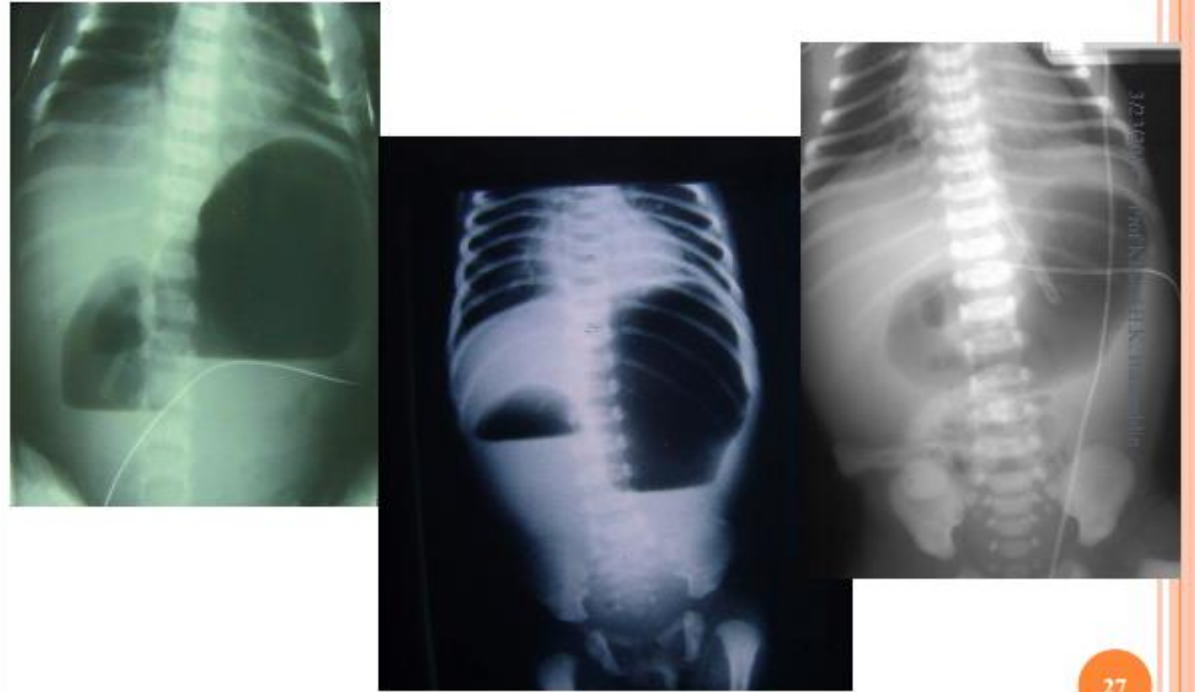
in this case the cause is colonic atresia



Ramstedt's
pyloromyotomy (treatment of pyloric
stenosis)



Double bubble sign
Duodenal atresia



Peptic ulcer disease complications and management

Peptic ulcer

sites:

*common sites:

- first part of duodenum
- lesser curvature of the stomach.

*other sites:

- stoma following gastric surgery
- esophagus
- meckel's diverticulum

causes:

- 1- infection with H.pylori (most important factor)
- 2- acid overproduction
- 3-NSAIDs
- 4-cigarette smoking (predisposes to PU and causes relapses)

Complications of peptic ulcer:

- 1- perforation
- 2- bleeding
- 3- stenosis
- 4- penetration (which includes bleeding too).

treatment : Medical Vs Surgical

- Treatment of “uncomplicated” peptic ulcer is medical.
- Now, there is no role of surgery in treating uncomplicated peptic ulcer.
- Surgery indications:
 - *intractable disease (failed medical treatment)
 - *complications
- Note: in the following slides (duodenal ulcers surgical treatment), the doctor said that they are **NOT** used anymore.

Duodenal ulcers surgical treatment

Q: what is this procedure?

A: Billroth gastrectomy I

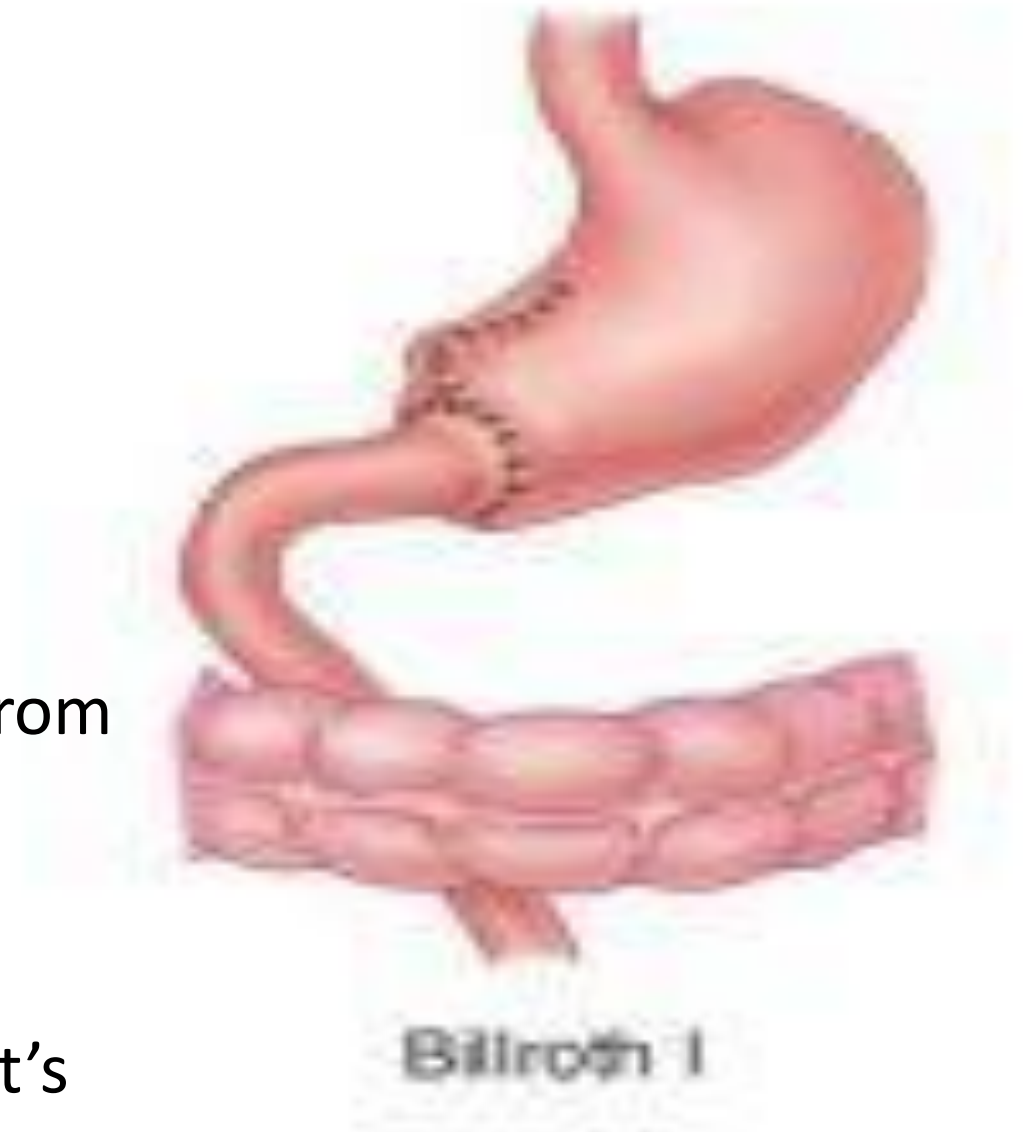
Q: what are its indications?

A: duodenal ulcer and gastric ulcer

Q: what is its aim? (aim of all duodenal procedures)

A: to exclude the damaging effects of acid from the duodenum

Dr: we cut the antrum of the stomach and connect the stomach with the duodenum. It's less used than type 2



Duodenal ulcers surgical treatment

Q: what is this procedure?

A: Billroth gastrectomy 2

Q: indications?

A: duodenal ulcers.

Dr: we cut the antrum and connect the stomach to jejunum.



Duodenal ulcers surgical treatment

Q: what is this?

A: Billroth gastrectomy 2

Q: what are the possible complications after PU surgery? (for all surgery types)

A: 1-recurrent ulceration

2- small stomach syndrome

3- bile vomiting

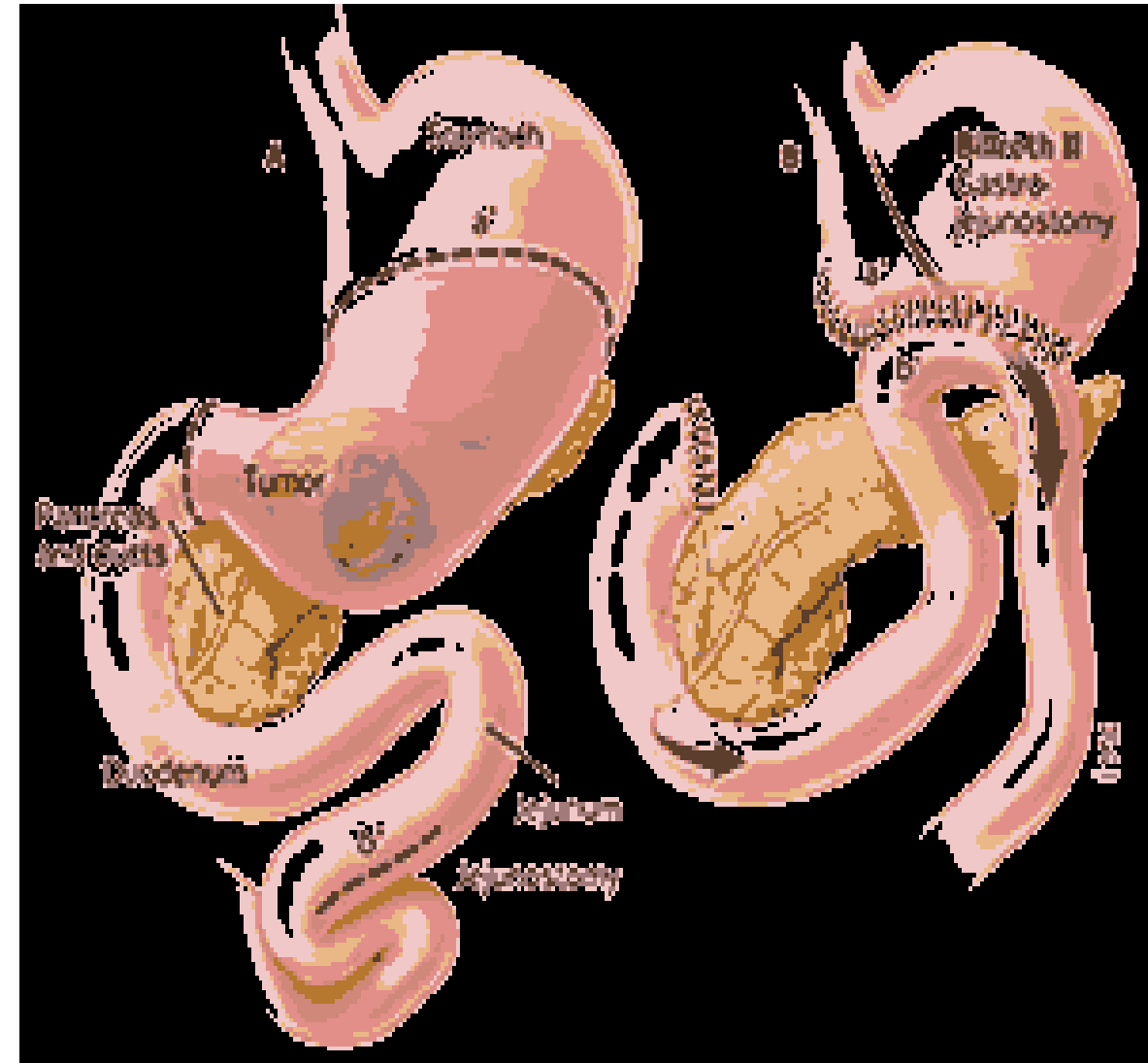
3- early and late dumping syndrome

4- postvagotomy diarrhea

5- Malignant transformation (after truncal vagotomy and drainage or gastrectomy. Bile reflux gastritis > intestinal metaplasia> gastric cancer)

6- nutritional: weight loss and anemia, iron deficiency, vitamin B12 deficiency(after total gastrectomy)

7-gallstone(post truncal vagotomy)



Duodenal ulcers surgical treatment

Q: what is this procedure?

A: Vagotomy

Q: Indications?

A: duodenal ulcer

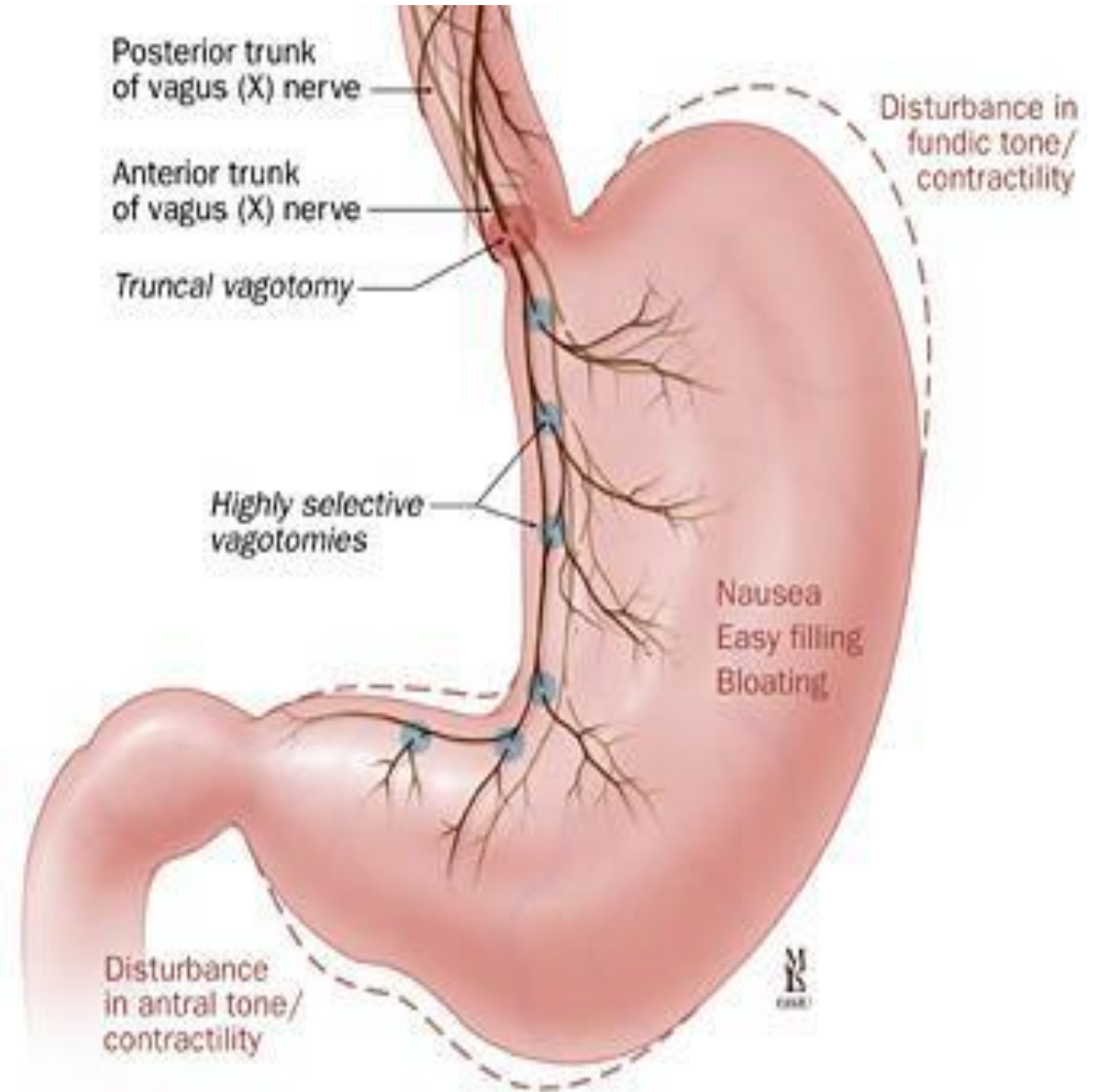
Q: Types?

A: 1- truncal: division of main trunk of vagus

2- selective: division of the anterior and posterior gastric nerves

3- highly selective: denervation of only the fundus and body of the stomach

Dr: note the truncal and highly selective cut level in the picture. In highly selective, we're cutting the fibers that innervates the stomach only and the pylorus is still functioning.



Duodenal ulcers surgical treatment

Q: what is this procedure?

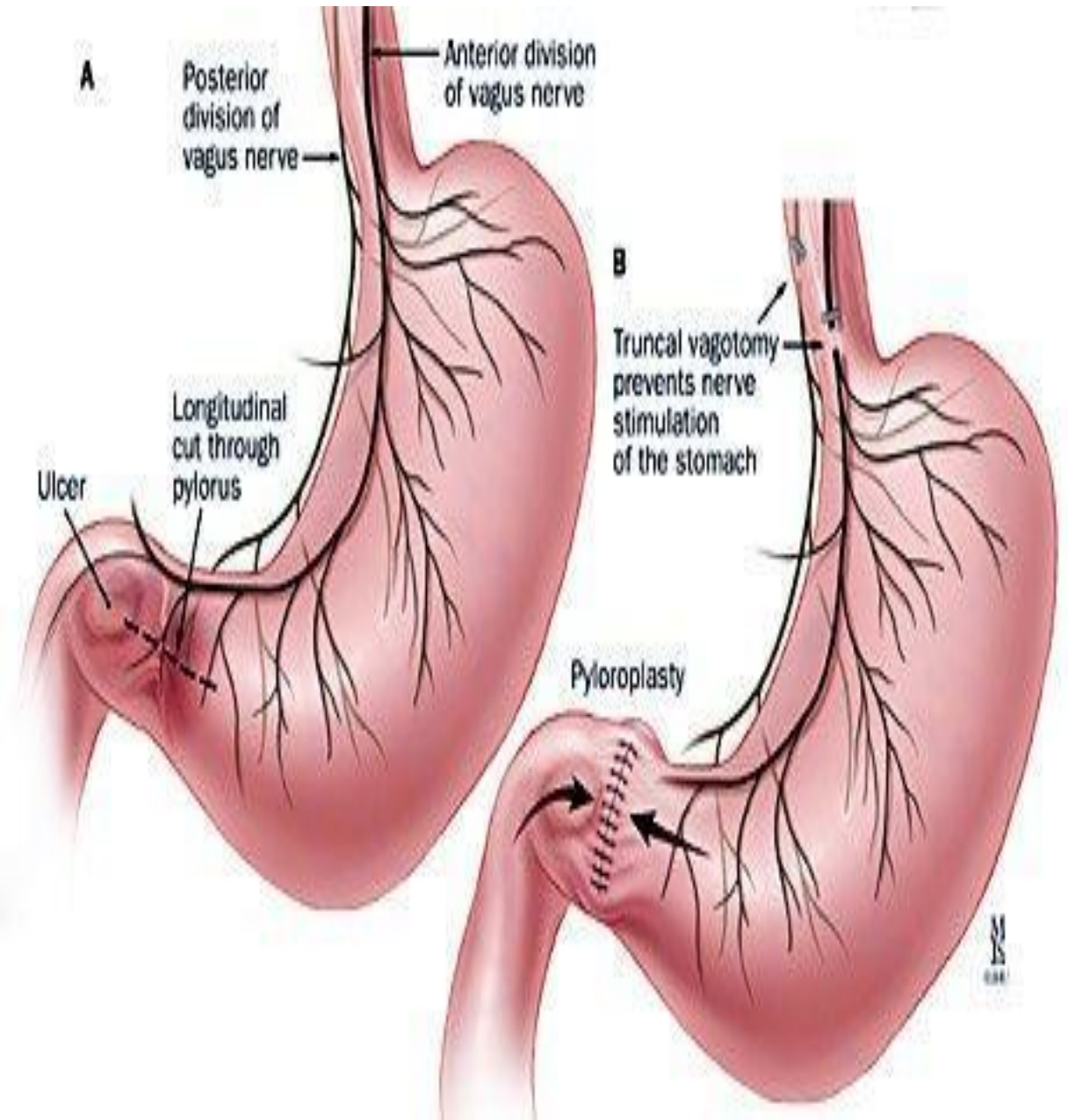
A: truncal vagotomy and pyloroplasty

Q: what is pyloroplasty?

A: it's a drainage procedure which involves a longitudinal incision across the pylorus that is closed transversely so that the pylorus will be wider.

Q: why do we do pyloroplasty?

A: because we're cutting the vagus trunks which means that the pylorus will be denervated so we need a drainage procedure that would make it wider to permit food passage from stomach to duodenum.



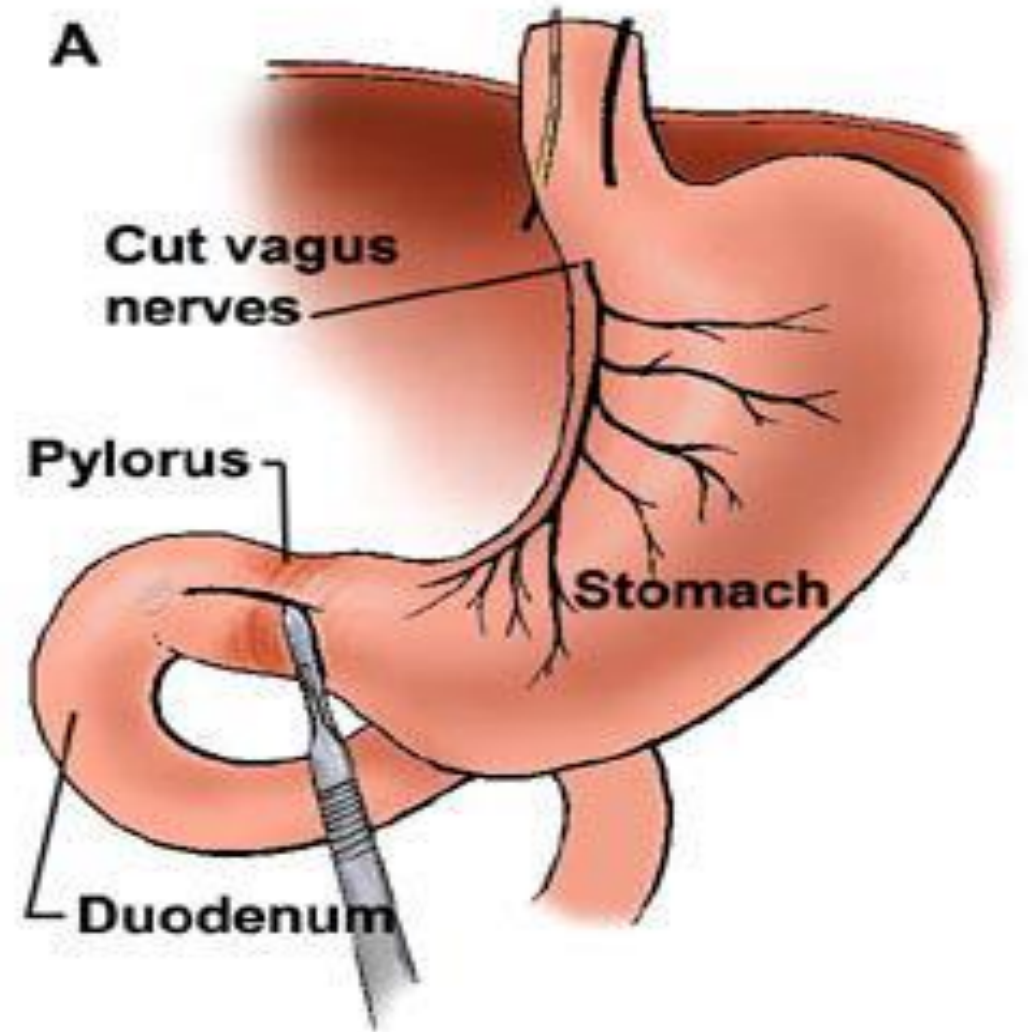
Duodenal ulcers surgical treatment

Q: what is this procedure?

A: truncal vagotomy and pylroplasty

Q: what drainage procedures can be done with truncal vagotomy?

A: pylroplasty and gastrojejunostomy



Perforated peptic ulcer:

Q: what is this?

A: erect plain chest radiograph

Q: what radiological sign can you see?

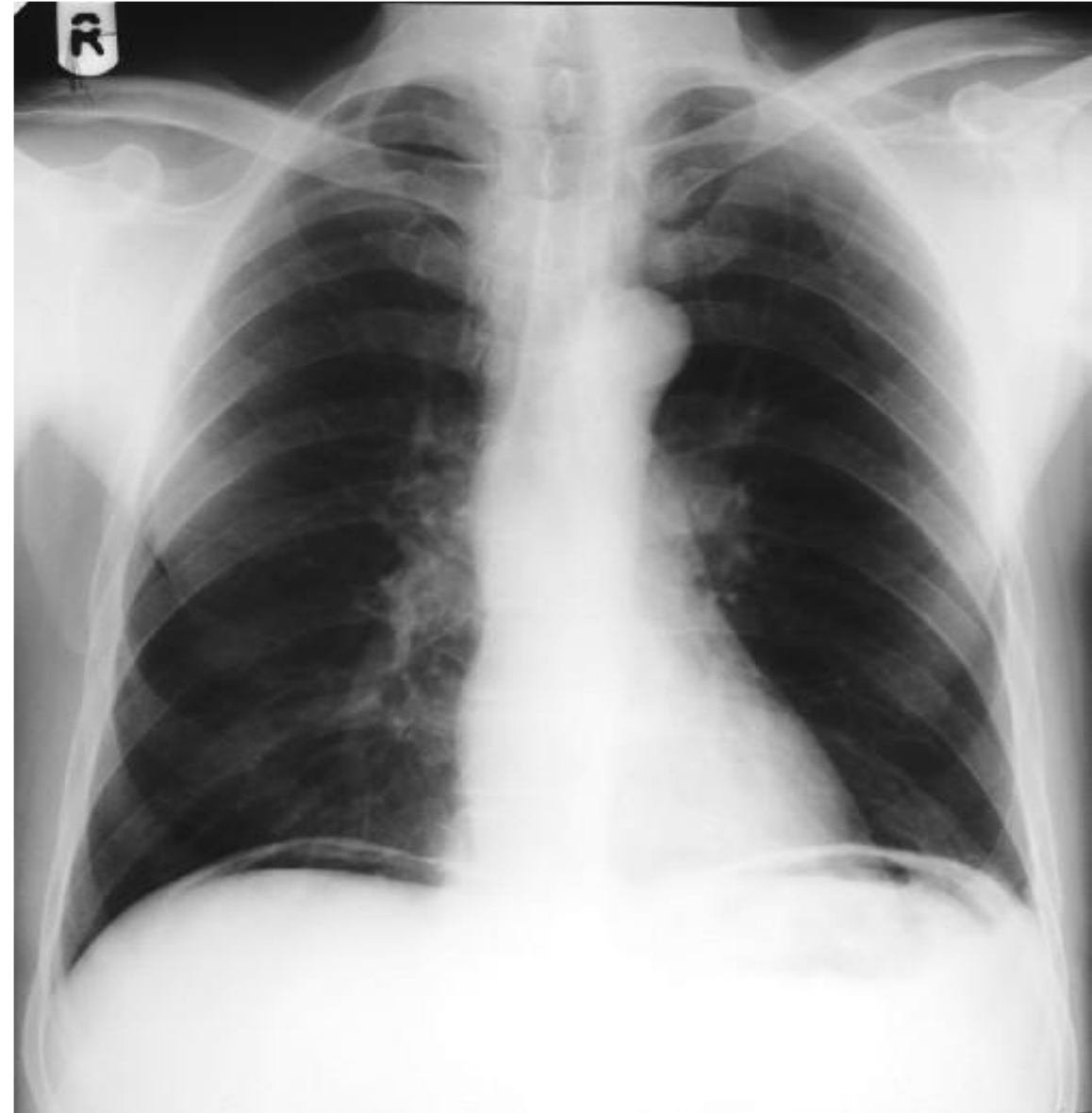
A: FREE gas under diaphragm (appear in 50% of cases of perforated PU)

Q: what is your diagnosis?

A: Perforated peptic ulcer

Q: differential diagnosis (for free gas under diaphragm) ? (the answer is from Wikipedia)

A: Bowel obstruction, Ruptured diverticulum, Penetrating trauma, Ruptured inflammatory bowel disease, and after laparotomy or laparoscopy.



Perforated peptic ulcer:

Q: what other investigations can be done?

A: Amylase level (R/O pancreatitis) and CT scan of the abdomen (when you are in doubt)

Q: what is the most common cause of perforated PU?

A: NSAID

Q: clinical presentation?

A: Sudden onset severe generalized pain with tachycardia, pyrexia, board-like rigid abdomen, and abdominal splinting. The pt might P/W shock sometimes.

Q: what is the most common site of perforated PU? (important)

A: anterior aspect of duodenum (other sites: anterior or insisural part of GU, GU perforating into lesser sac/ Dr: PERFORATING ULCERS ARE USUALLY LOCATED ANTERIORLY WHILE POSTERIOR ULCERS PENETRATE AND BLEED)

Perforated peptic ulcer:

Q: what is the management?

A: first : Resuscitation, analgesia and antibiotics. (Dr: most important thing in pts with perforation or shock is resuscitation)

Second: The treatment is **principally surgical**> Midline incision (laparotomy) > Thorough peritoneal toilet> then IF:

- Duodenal ulcer> close and patch with omentum
 - Gastric ulcer> should, if possible, be excised and closed
 - If suturing is not possible, Billroth gastrectomy
- >after operation: use PPI + H.pylori eradication.

Q: when do we use conservative treatment?

A: in special cases only in which the patient P/W minimal abdominal signs and evidence of ceiling>> we give IV fluid and antibiotic (Dr: this is not the rule. The rule is laparotomy)

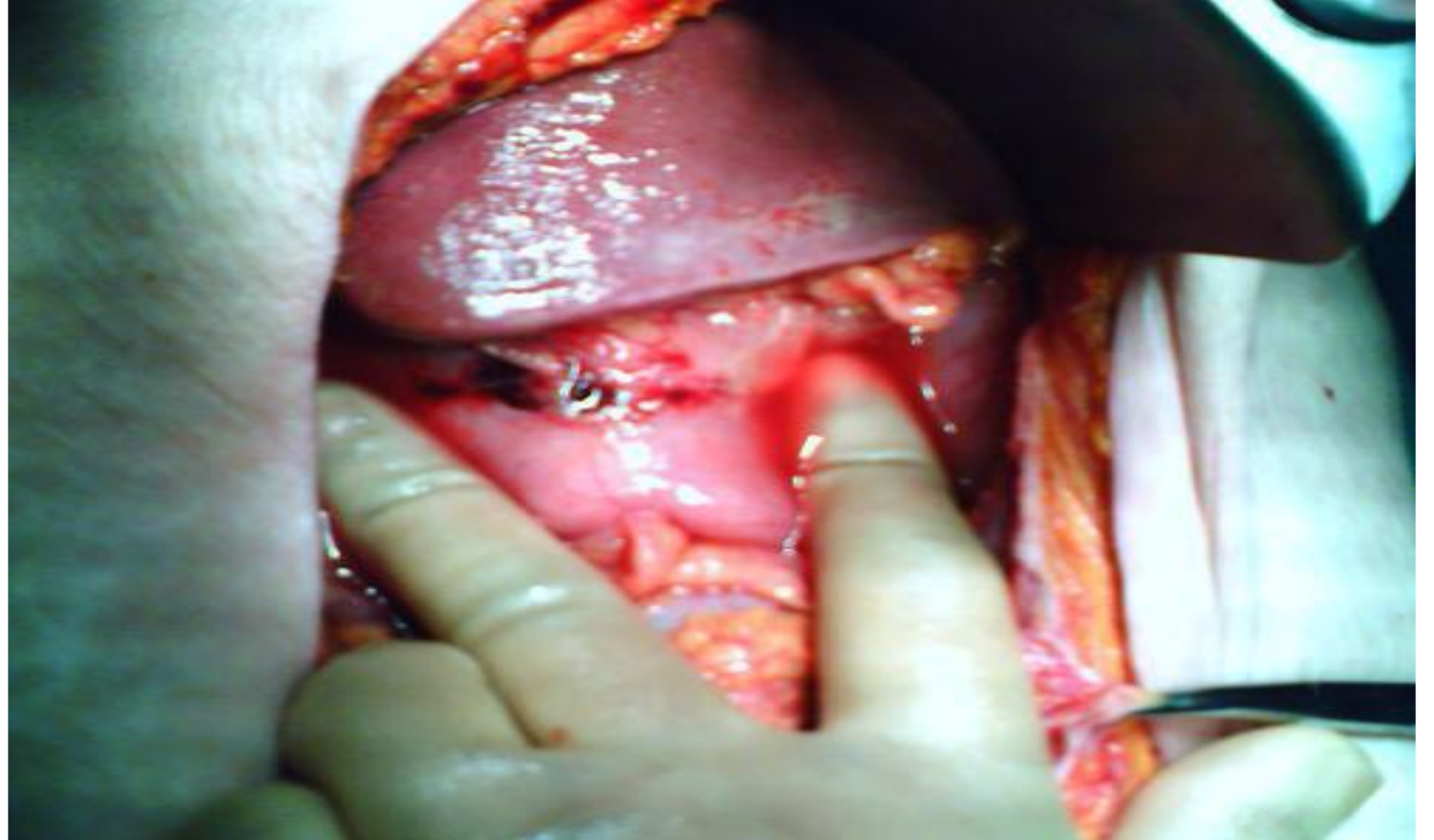
Perforated peptic ulcer:

from here, I'll be writing what the Dr commented about these pictures (all the questions in the preceding 3 slides can be applied to any picture of perforated PU).



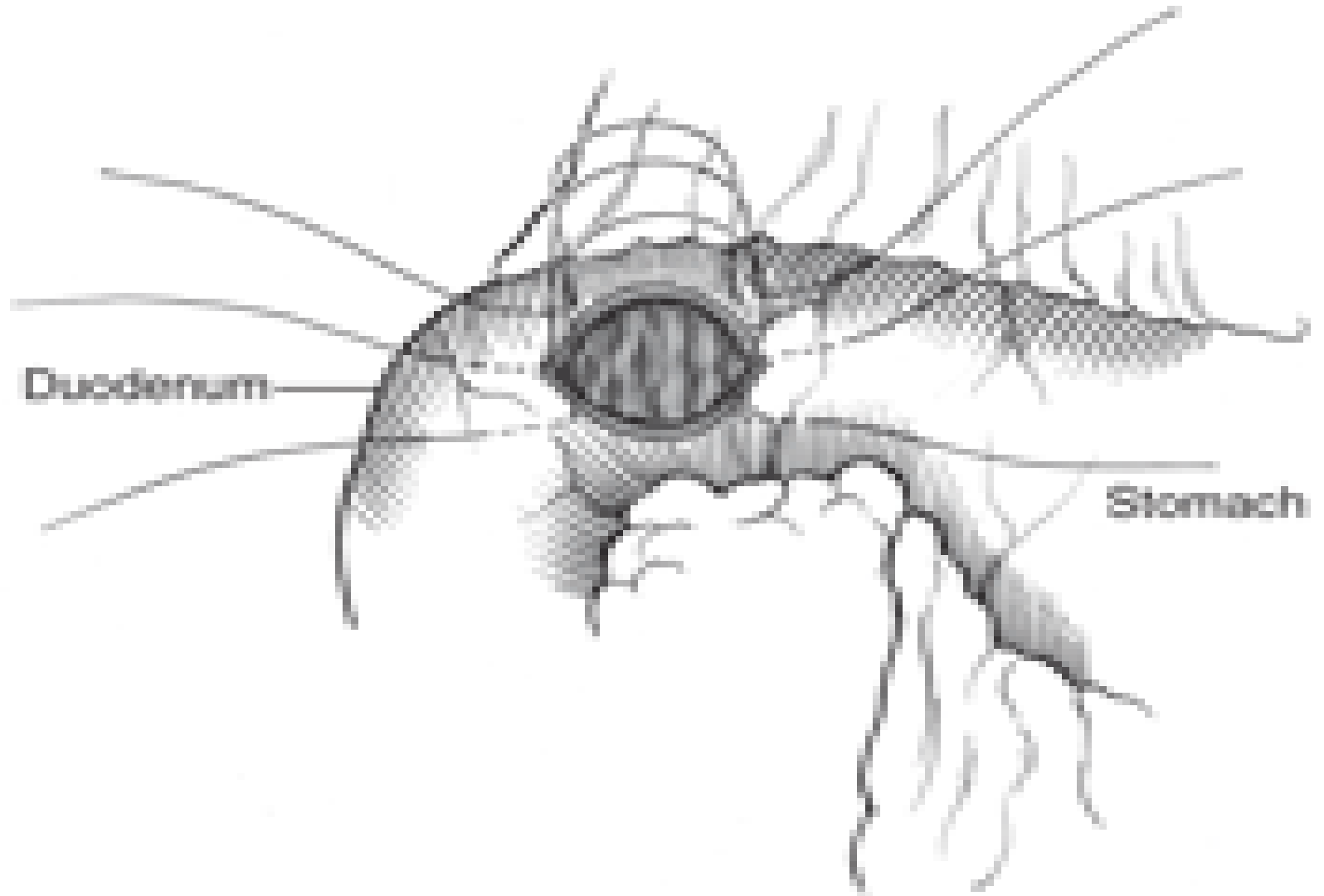
Perforated peptic ulcer:

- Dr: Perforation in second part of duodenum



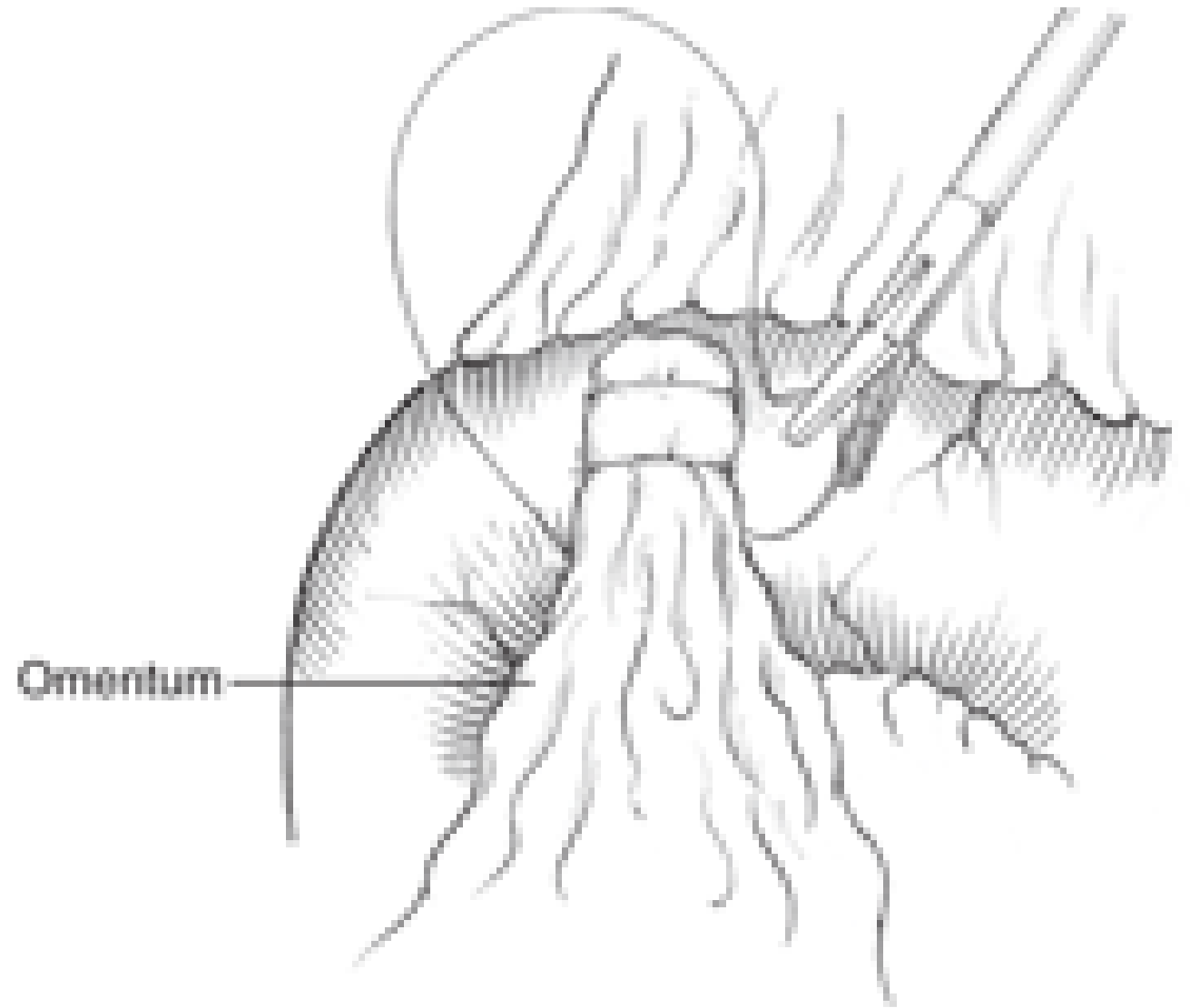
Perforated peptic ulcer:

- Suturing of perforated PU
- Dr: suture then patch with omentum



Perforated peptic ulcer:

- Graham omental patching



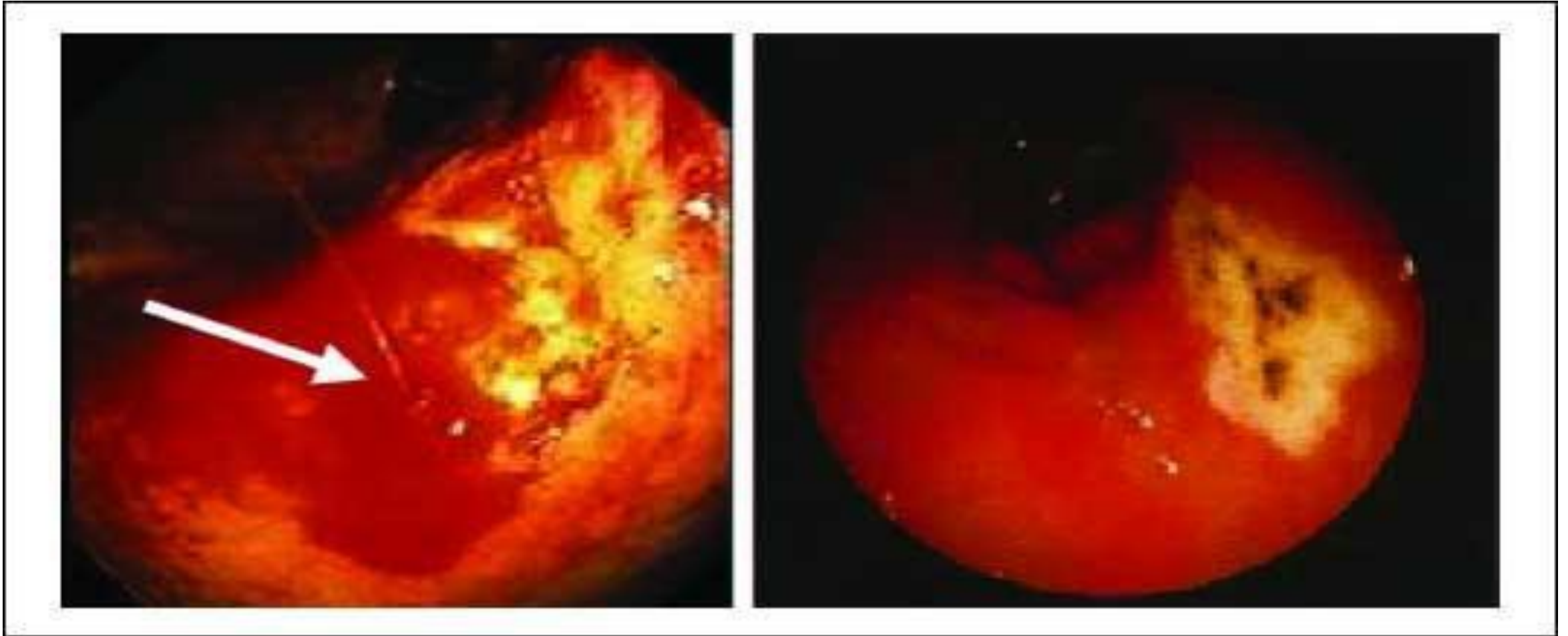
Bleeding Peptic ulcer:

Peptic Ulcer Bleeding

- 5% of emergency admissions
- 80% stop spontaneously
- 10% of patients die
- Rebleeding increases mortality by 10x



Bleeding Peptic ulcer:



Bleeding Peptic ulcer:

Q: what is the most probable underlying cause of a bleeding PU?

A: NSAID

Q: what is the management?

A: *medical: limited efficacy/ all pts are started on PPI then do endoscopy

*surgical: upper midline incision (the site is usually localized by prior endoscopy) the:

-duodenal ulcer: duodenal mobilization, pyloro-duodenotomy, suture that under-run the bleeding vessel (suture is number 8 shape)

-gastric ulcer: excise ulcer if possible/ if not, under-run bleeding vessel and take biopsies.

Dr: bleeding PU treatment: stabilize the pt and do endoscopy which can be repeated for a second time , but if it fails after the second time, surgery is the treatment.

Endoscopy is effective in minor bleeding, but not in major vessels bleeding

Bleeding Peptic ulcer:

Q: what are the methods to stop bleeding by endoscopy?

A: -laser and argon diathermy

-injection (adrenaline injection causes vasoconstriction)

-put clips

-coagulation

Q: what are the indications for surgery in bleeding PU?

A: -pt continue to bleed

-visible vessel in ulcer base

-spurting vessel

-ulcer with a clot

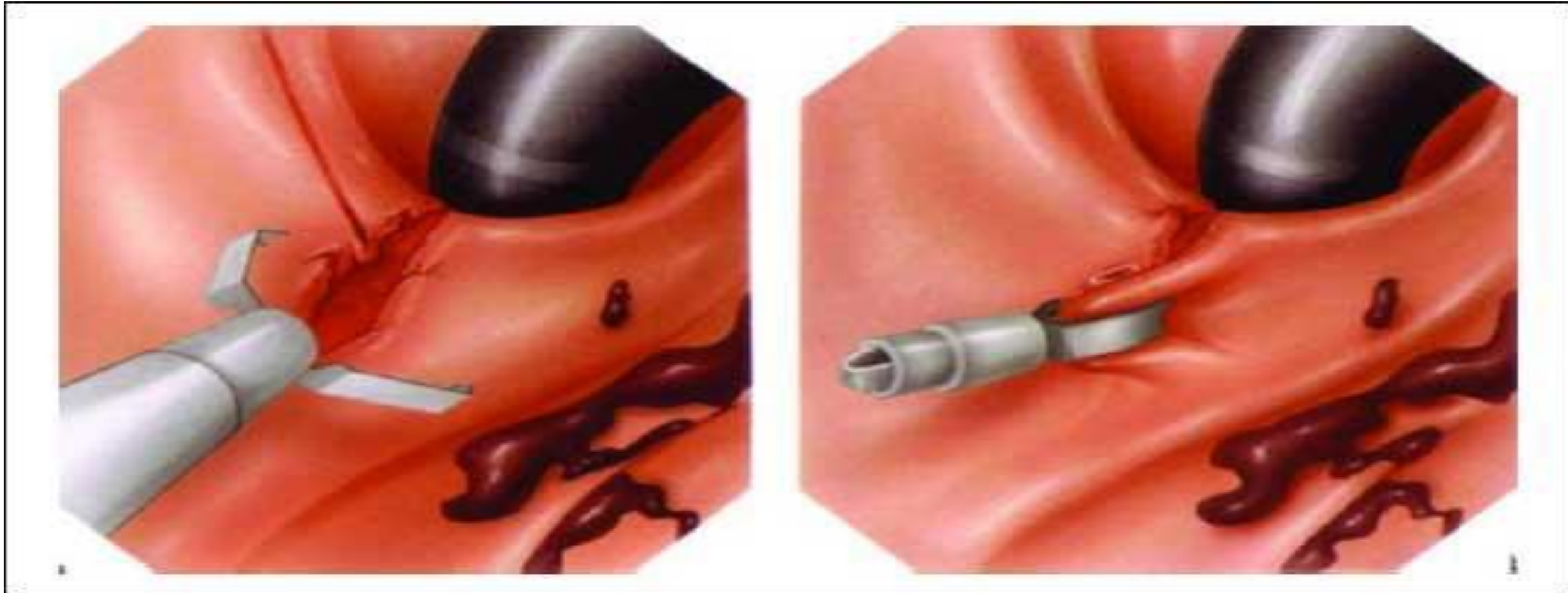
-elderly

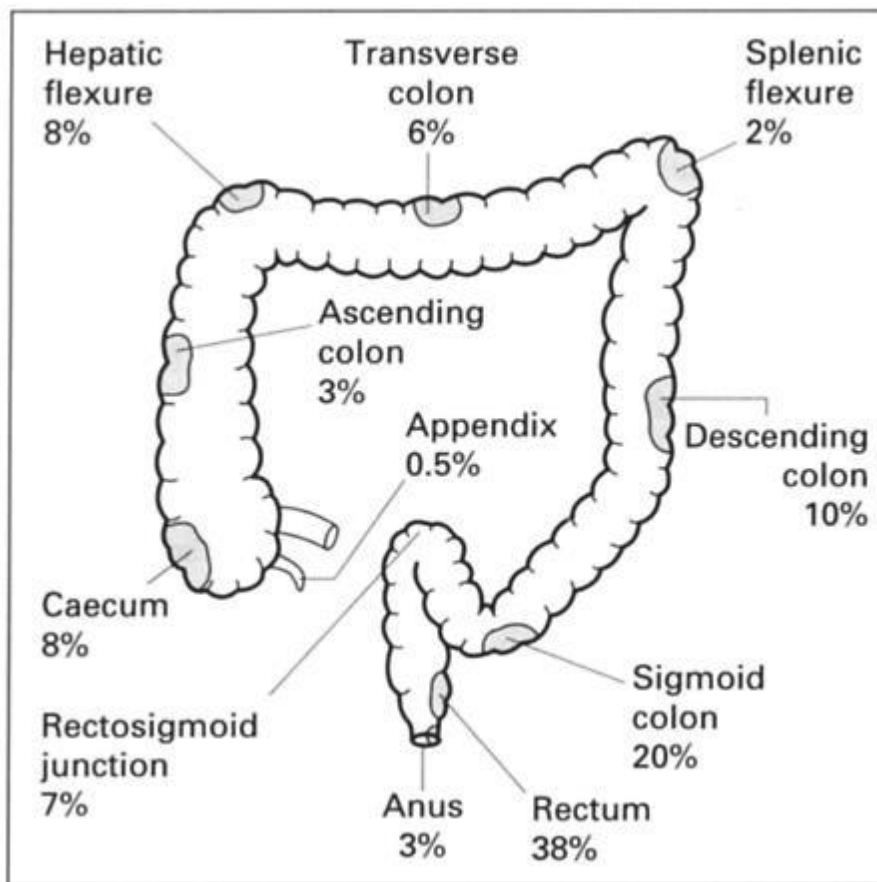
-pt who has required more than 6 units of blood

Q: what do we do after a surgery for a pt with bleeding PU? PPI and anti H.pylori (no need for definitive acid lowering surgery)

Bleeding Peptic ulcer:

Clipping a bleeding vessel.

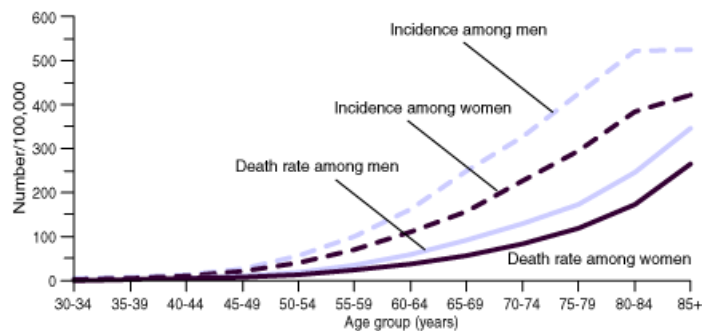




What is the most common site of Colorectal Cancer?

Rectum

Cancers of the Colon and Rectum: Incidence and Death Rates, by Sex, United States, 1990–1996 *



*Average annual age-specific data; age-adjusted to 1970 U.S. population.
Source: National Cancer Institute, *SEER Cancer Statistics Review, 1973–1996*.

Individuals over 55 year of Age should start getting screened from Colorectal Cancer because incidence increases greatly.



Polyp – Pedunculated - Raspberry Color - This Polyps Bleeds

Dr. Ali said that classification of polyps is a common OSCE question.

Polyps are classified according to shape or cell of origin.

Polyp: Clinical description of any elevated tumour.

Classification of polyps:

1-Epithelial:

- a. Adenoma
 - a. tubular
 - b. tubulovillous
 - c. villous
- b. Metaplastic

2-Mesodermal:

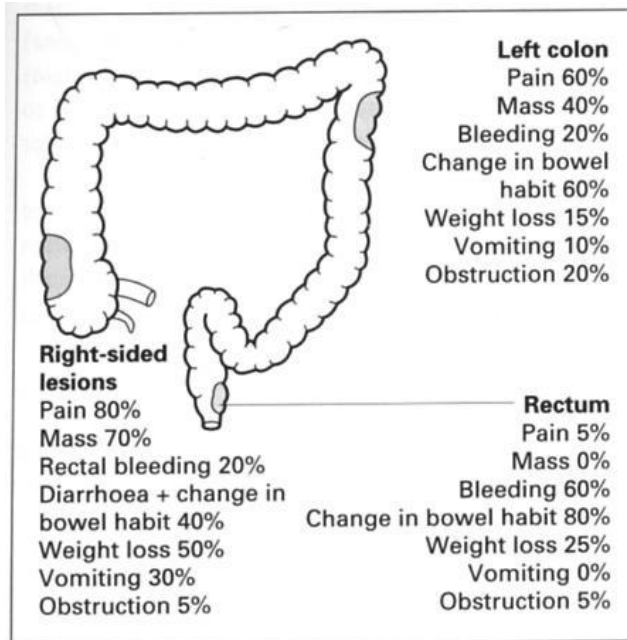
- a. Lipoma
- b. Leiomyoma
- c. Haemangioma.

3-Hamartoma:

- a. Juvenil
- b. Peutz-Jeghhers.



FAP (Familial Adenomatous Polyposis)- Autosomal dominant genetic syndrome that is associated with increased risk of Colorectal Cancer. In general sporadic type of Colorectal Cancer is the most common and genetic syndromes associated with Colorectal Cancer are rare.



Symptoms of colorectal cancer:

1. Change in bowel habit
2. PR bleeding
3. Present with features of iron-deficiency anemia
4. Abdominal Pain
5. Mass
6. Despite all advances and screening, 1/3 of patients present as an emergency:
 - a. Bleeding
 - b. Obstruction
 - c. Perforation

Tumor in the cecum is very unlikely to present with obstruction (wide lumen), unless in ileocecal area (in this case patient presents with small bowel obstruction)

Left side of the colon is the narrowest part of the colon and therefore presents with obstruction more commonly than tumor in other parts of the colon.

Rectal cancer presents with change in bowel habit but not in the form of obstruction but rather in the form of tenesmus and diarrhea as well as bleeding.

When to refer patient for suspected Colorectal Cancer?

Patient of any age with:

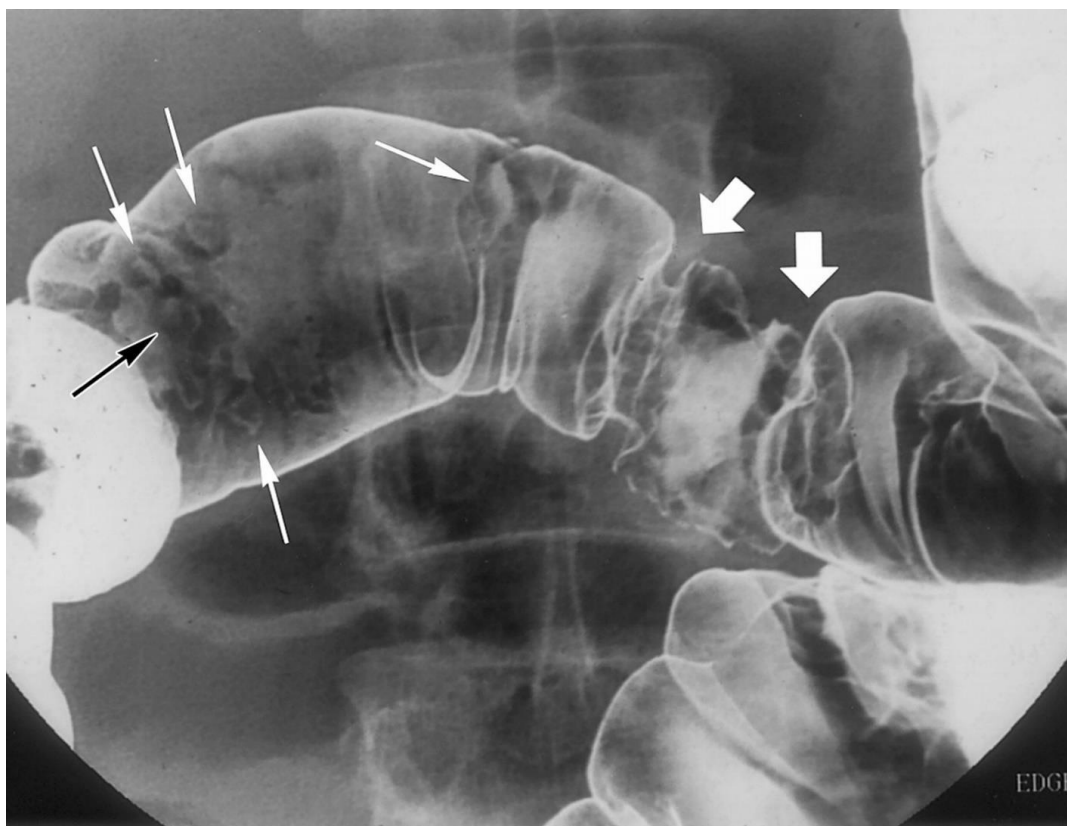
1. PR bleeding and change in bowel habits lasting for longer than 6 weeks
2. RIF or rectal mass
3. Iron-deficiency anemia in non-menstruating women

Patient over 60 years of age with:

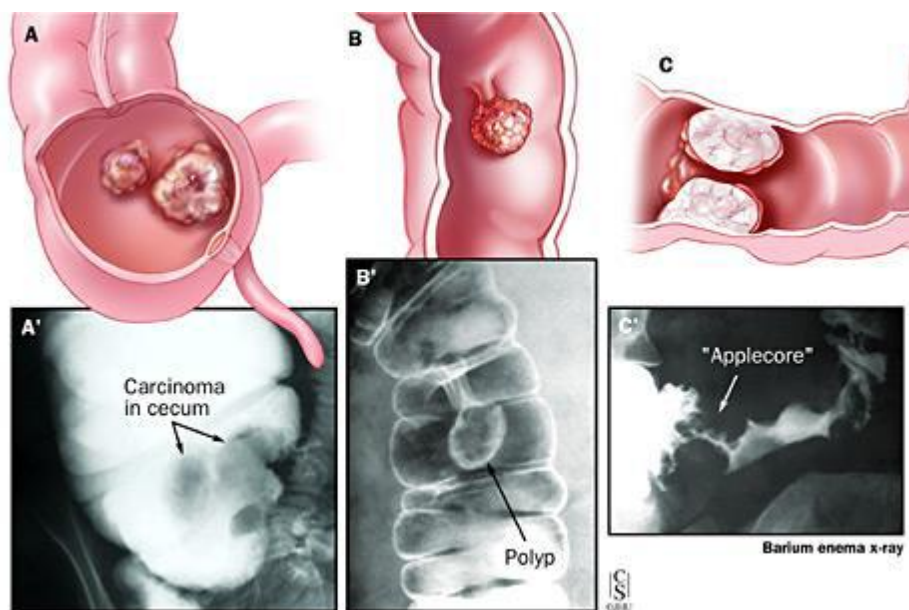
1. PR bleeding (no anal symptoms) for more than 6 weeks
2. Change on bowel habit for more than 6 weeks



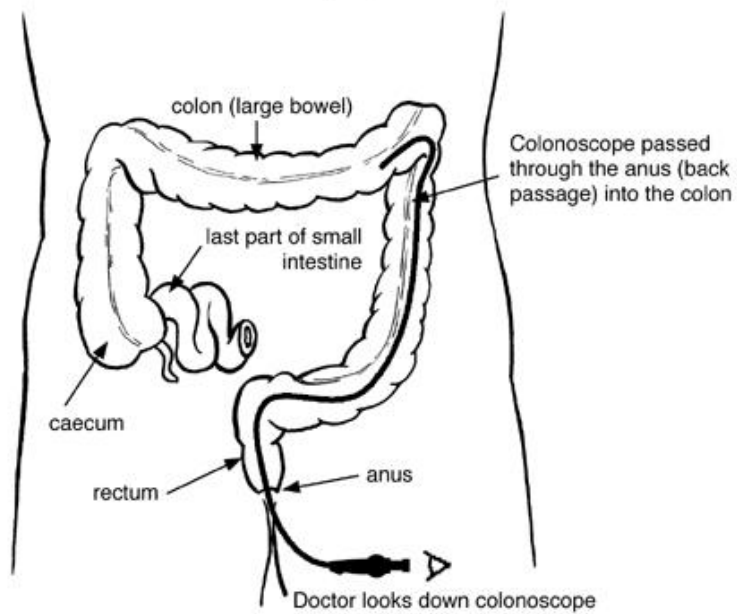
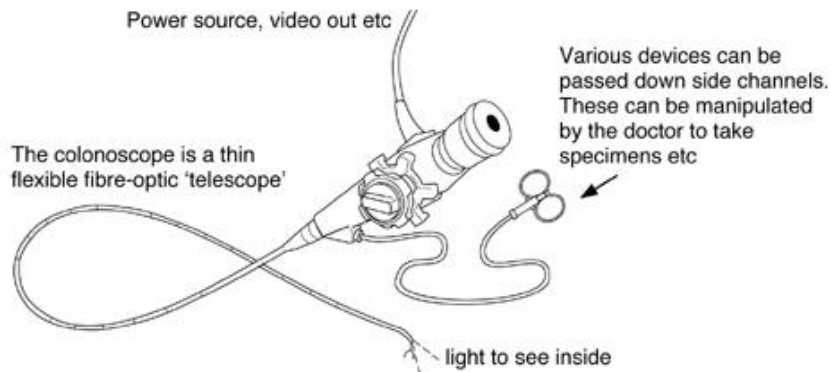
Rectal Cancer – Ulcerating – Felt Per Rectum



Double Contrast Barium Enema (DCBE)- On colonoscopy this will show a stricture



Double Barium Contrast Enema (DCBE)

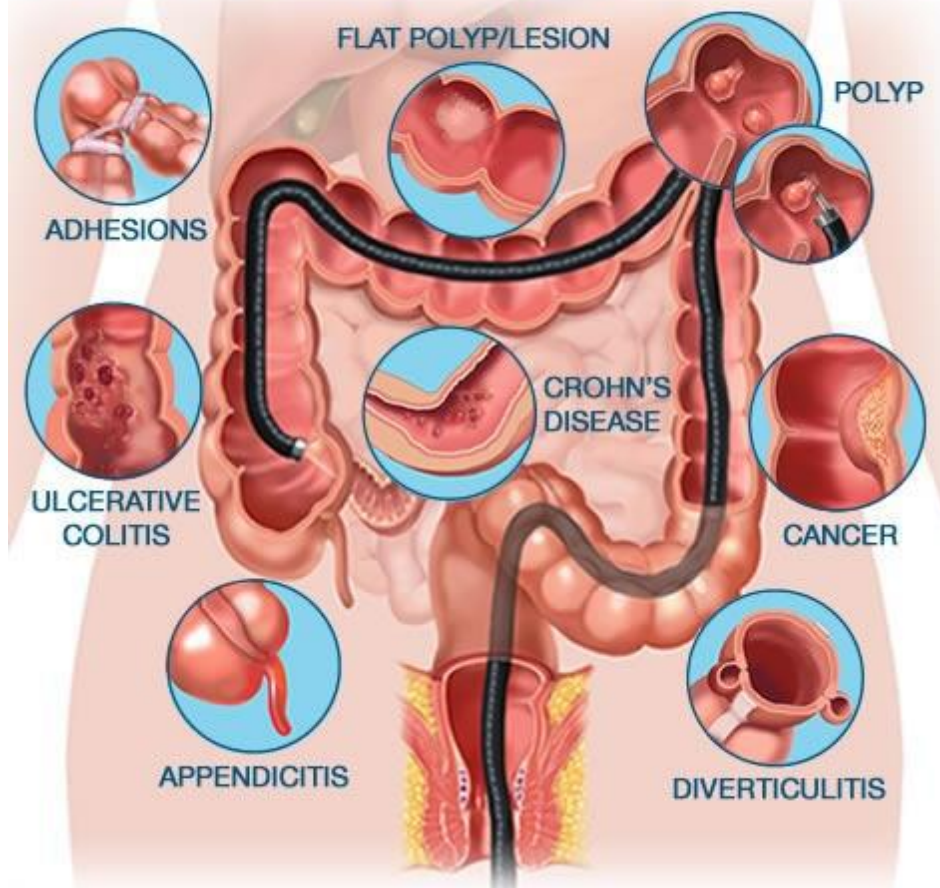


Colonoscopy is the examination of the colon (large bowel) using a flexible fibre-optic colonoscope

Follow Up Program for Colorectal Cancer involves

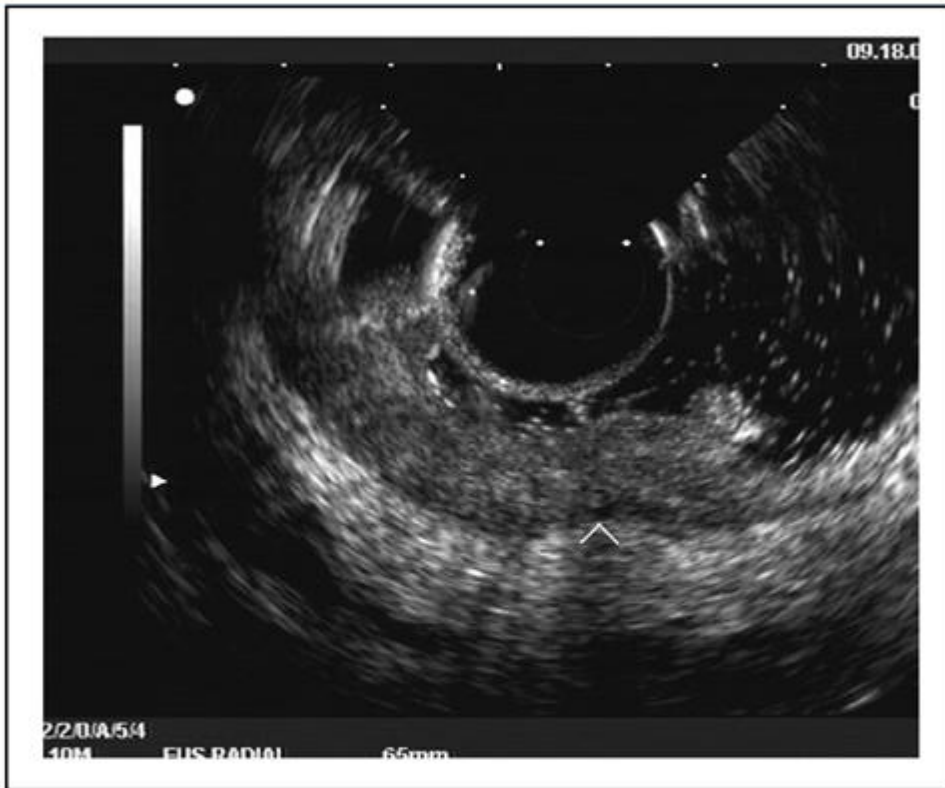
1. Clinical review for any symptoms
2. CEA (Tumor Marker)
3. Colonoscopy

The COLONOSCOPY



Pathologies that can be diagnosed by colonoscopy

1. Cancer
2. Diverticulitis
3. Inflammatory Bowel Disease (Crohn's – Ulcerative Colitis)
4. Polyps
5. Flat Polyps
6. Adhesions
7. Appendicitis

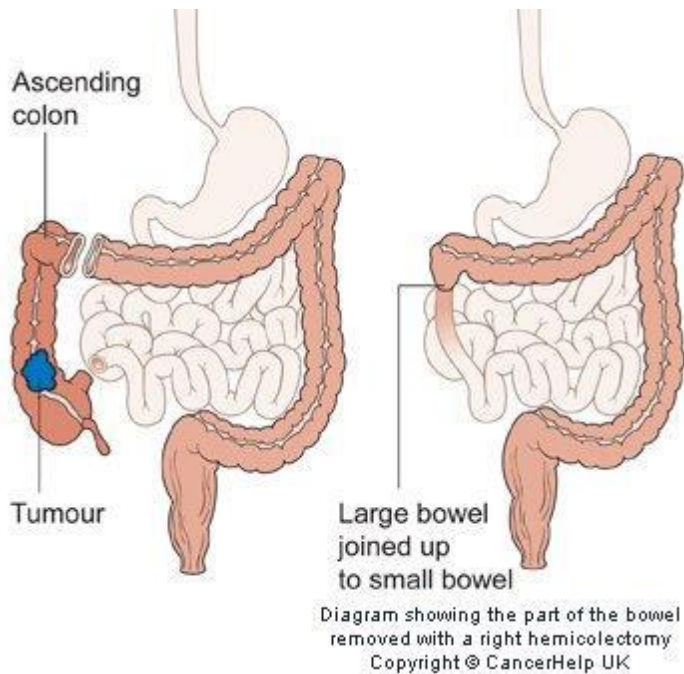


The image shows that the tumor has infiltrated the muscularis propria (arrow head) consistent with a T2 lesion but there does not appear to be evidence of penetration through the muscularis propria into peri-rectal fat (T3).

Source: Curr Opin Gastroenterol © 2007 Lippincott Williams & Wilkins

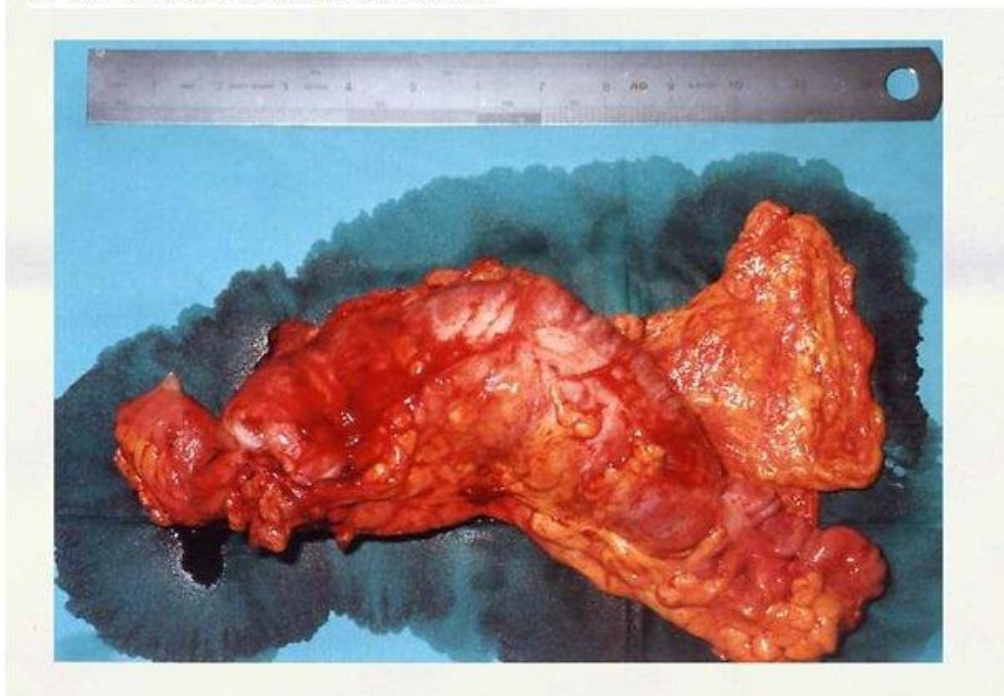
Endoanal Ultrasound

Very important staging modality in rectal cancer (not in colon cancer), particularly useful for tumor (T) staging in the TNM staging system.



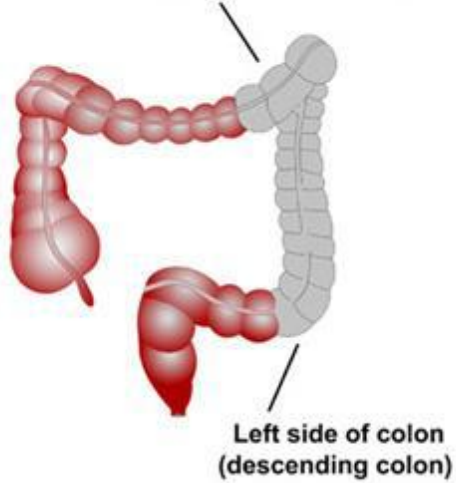
Cancer in the right colon is treated by right hemicolectomy (Involves the removal of part of the terminal ileum, cecum, the ascending colon, the hepatic flexure, first one third of transverse colon)

Operative specimen of the intussusception mass involving caecum to the mid transverse colon.....



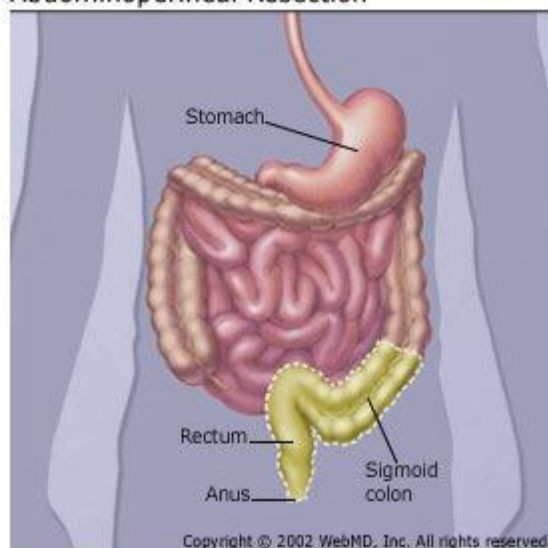
Right Hemicolectomy

Section to be removed during surgery



Treatment of left colon cancer is by left hemicolectomy (Involves the removal of transverse colon to the left of the middle colic vessels to the level of the upper rectum)

Abdominoperineal Resection



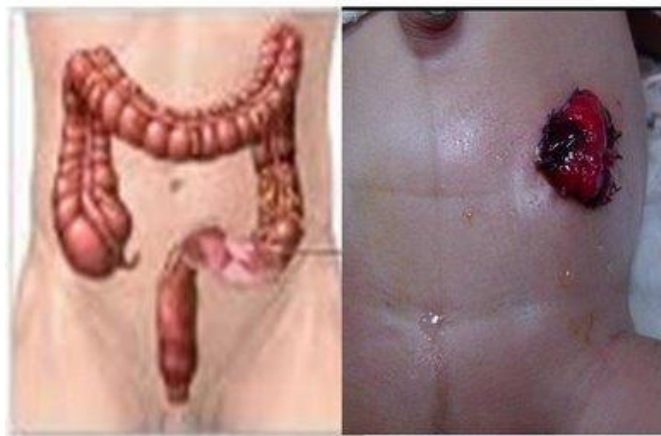
Cancer very low in the rectum are treated by Abdominopelvic resection involving the removal of the anus, rectum and sigmoid colon (It gives the patient a permanent stoma)



End Colostomy (Proximal end of the colon is brought to the skin for stool drainage)



Colostomy Bag



Complications of Colostomy:

1. Ischemia
2. Retraction
3. Bleeding
4. Leakage
5. Skin irritation, infection
6. Bowel prolapsed
7. Diversion colitis
8. Obstruction
 - a. Stricture (mostly)
 - b. Stool
 - c. Stenosis



Liver Metastasis (Easily Resectable) Liver is the most common site of colorectal cancer metastasis.



Liver full of mets.