
لجنة
الطب و الجراحة

تشكر لجنة الطب والجراحة – جامعة مؤتة الزملاء :

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لجهدهم الكبير في إعداد هذا الملف والذي يحتوي على أهم النقاط التي تأتي في امتحان المبني أوسكي لمادة

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Pediatric surgery

Before You Start ..

A very imp. Note before you start ”management“ is NOT included so please ask your dr. About it

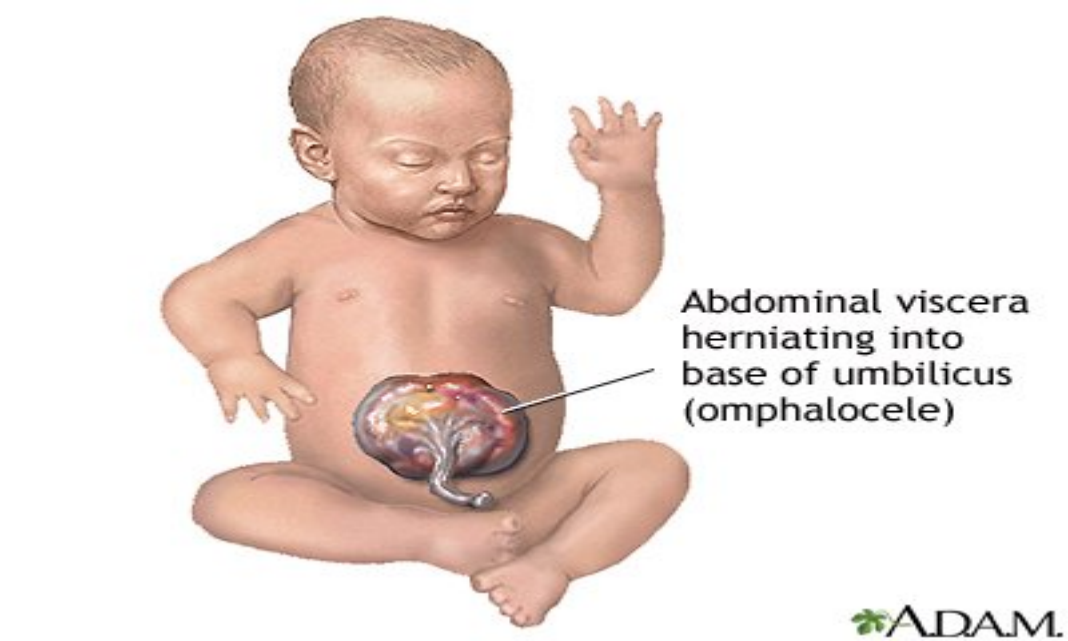
Presentation = signs and symptoms

Findings = what we use to help us identify the problem + physical exa.

Types

Titles and *important points*

Be careful to the presentation & the findings the Dr. Asks alot about them + if there are differences between any diseases

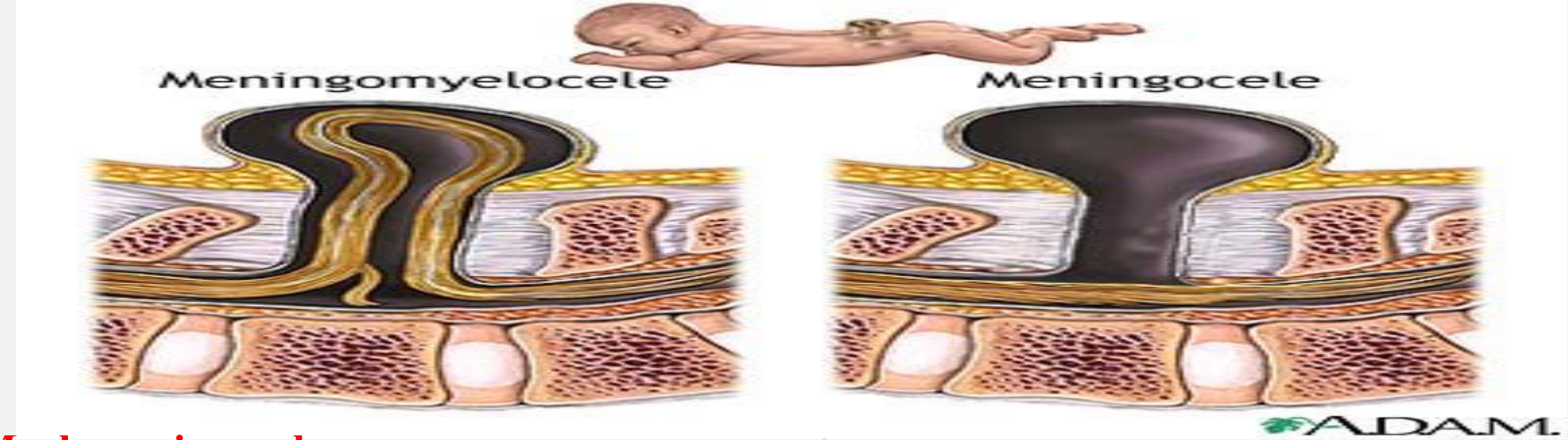


Exomphalos (omphalocele) :

1- the herniated viscera is surrounded by a membrane.
2-diameter exceeds 5 cm.
3-located centrally
4-associated with cardaic and neural tube anomalies
5- detected by? Alpha fetoprotein screening or detailed ultrasound

Gastroschisis (paraomphalocele) :

1-no overlying sac
2-size is less than 4 cm
3-located at junction of the umbilicus and normal skin almost always to the RIGHT
4-rarely associated with other anomalies



Myelomeningocele :

-parts of spinal cord are included within the hernia
-its either Spina bifida aperta (open) :complete agenesis of the wall Or Spina bifida occulta (hidden/closed) :some covering fascia still present
-most commonly seen type? Spina bifida aperta and diagnosed from birth
Associated with : numbness and weakness in the parts of the body below the lesion ,neurogenic bladder ,paralysis of anal sphincter causing incontinence .

Meningocele :

- Herniation of meninges covering the sacroiliac part (mostly the quada equine)
- the defect is due to ? Incomplete closure of the posterior wall of the vertebral canal and covering fascias.

Intestinal obstruction in children

Duodenal atresia

-Type of ? Intrinsic duodenal obstruction .

- Diagnosed from birth

-there is no lumen.

-may take the form of completely obstructing membrane or the proximal and distal duodenum are completely separated .

-findings ?

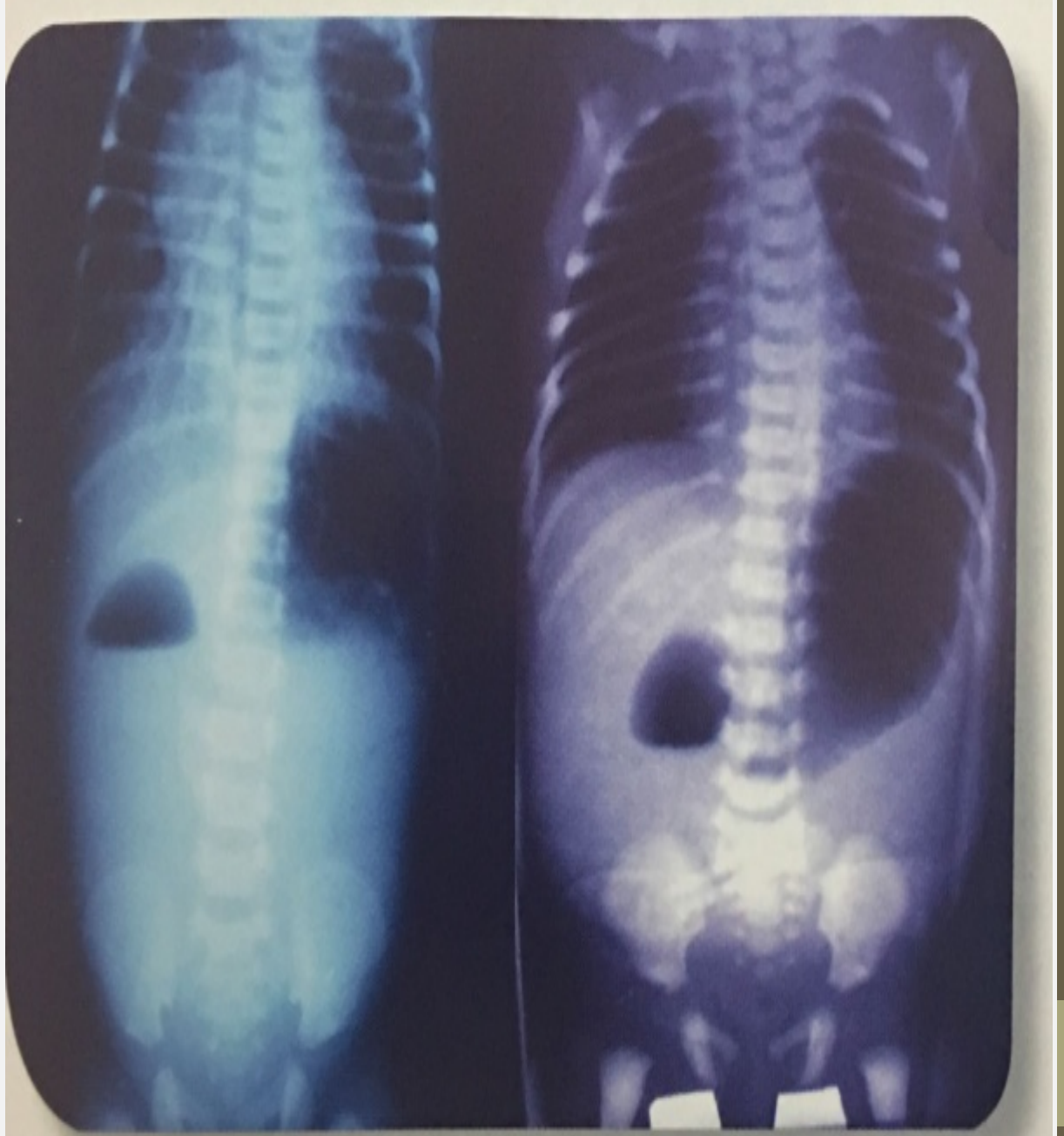
1- double bubble on abdominal x-ray (erect + supine)

2- maternal polyhydramnios .

-associated with Down's syndrome (30%)

-The vomiting is ?

Bilious –if the atresia is distal to the ampulla- (85%)



Double bubble pattern x-ray

Volvulus neonatorum

1- duodenojejunal flexure lies to the right of the midline

2-ceacum is central

3-narrow base for the small bowel mesentery

Presentation :

30% in 1st week

50% before 1st month

-Bilious vomiting may be the only sign

-blood stained stool is a sign of strangulation

-- findings ?

-Absence of c-shaped deuodenum with barium meal

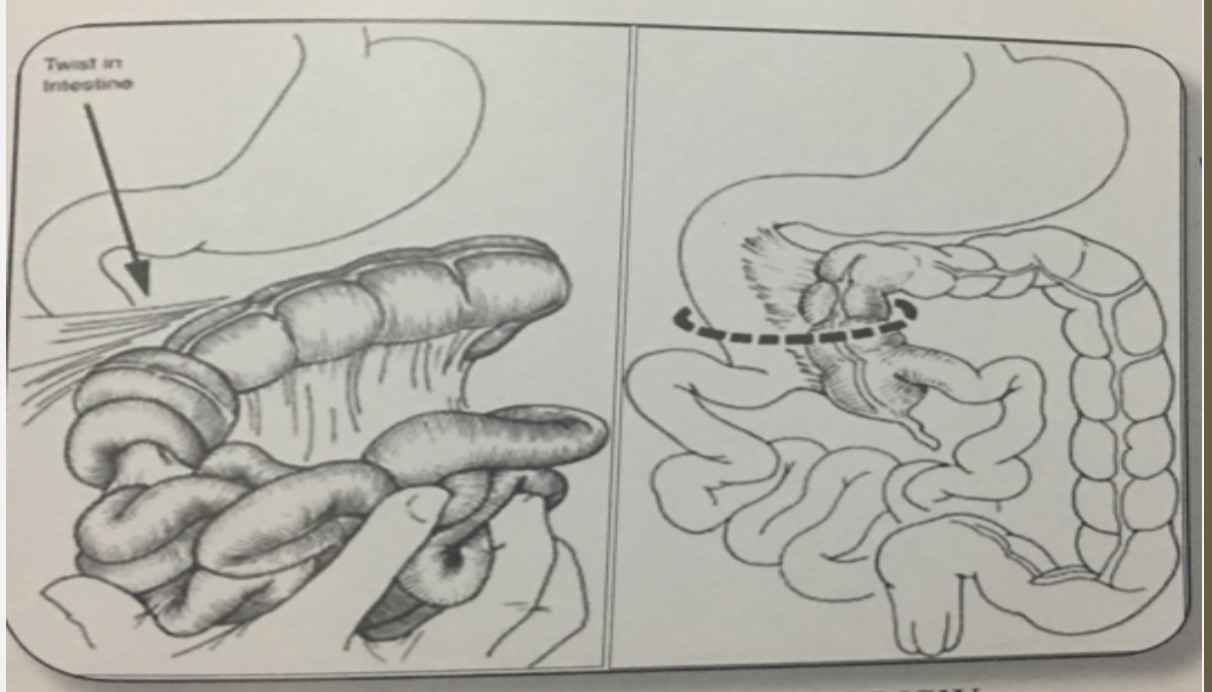
-- urgent surgery is done :

ladd's procedure :

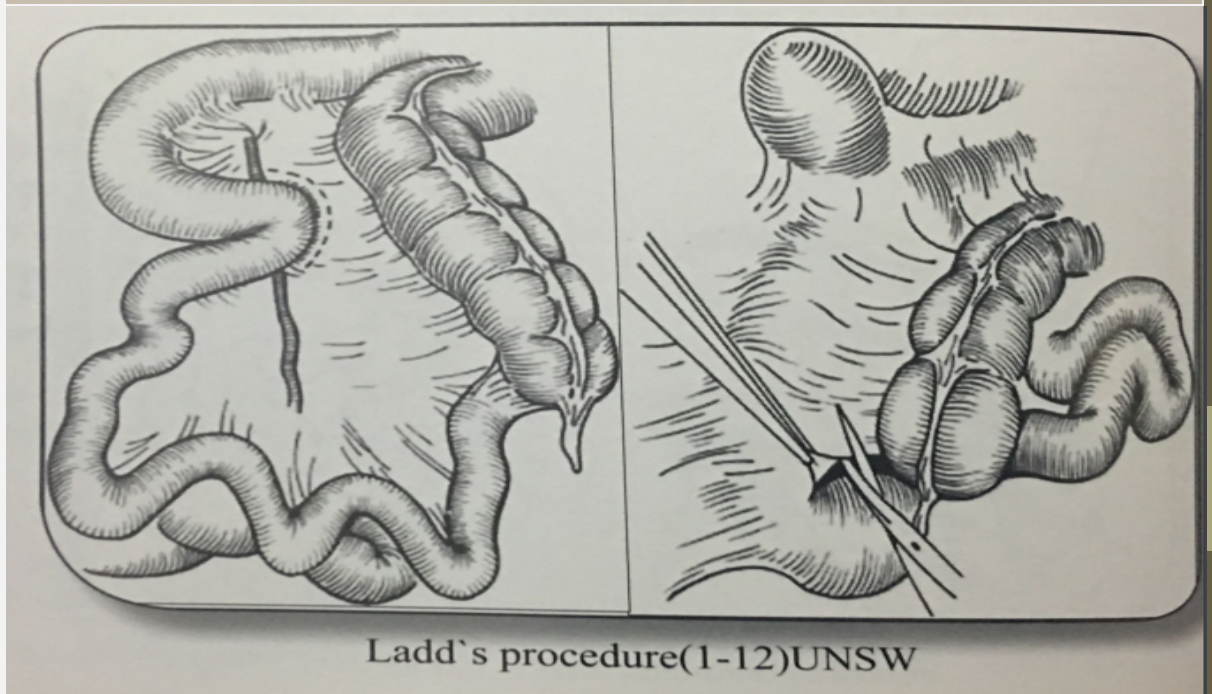
-1- lysis of cecal and duodenal bands

-2-broadening the mesentery

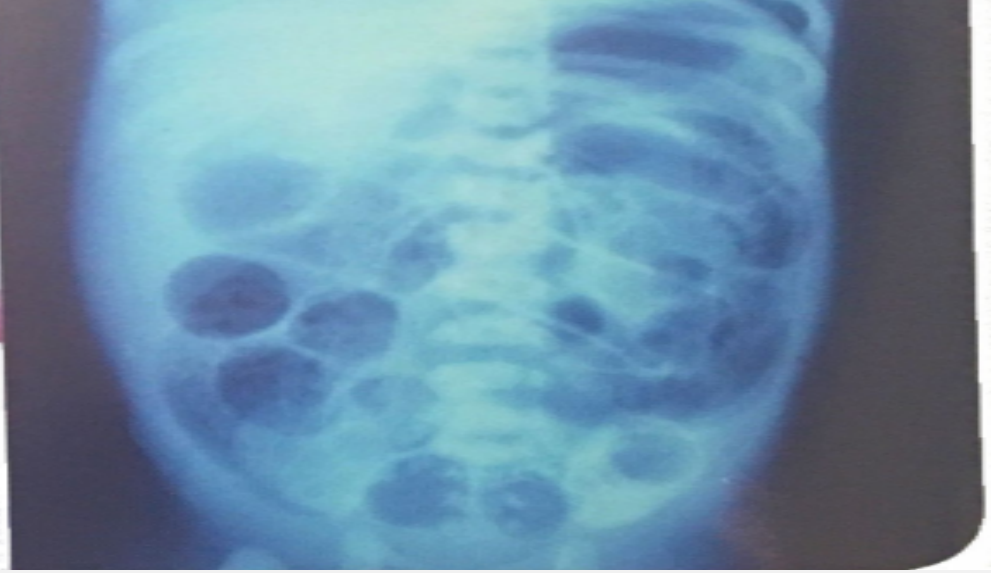
-3- appendectomy.



Volvulus Neonatorum (1-12) UNSW



Ladd`s procedure(1-12)UNSW



Meconium ileus

-**incidence?** Occurs in 16% of infants with cystic fibrosis , **why?**

Because they have characteristic pancreatic enzyme deficiency + abnormal chloride secretion = viscous, water poor meconium .

-**Meconium impaction occurs in the ?** Ileum

-**Presentation :** abdominal distention ,failure to pass meconium ,intermittent bilious vomiting and palpable abdominal mass .

-**Findings?**

-**Simple (uncomplicated):**

-1- NO air fluid levels

-2- soap – bubble appearance on radiograph pattern

-3- proximal dilatation

- **Complicated :**

1-free air under the diaphragm

2-intraperitoneal calcifications producing egg shell

3- frank distention

Hirschsprungs disease

- Commonest cause of intestinal obstruction in newborn 1/5000 births.

-Congenital absence of intramural ganglion cells (aganglionosis) & the presence of hypertrophic nerves in the distal large bowel .

-Presentation :

-Delayed passage of meconium

-Abdominal distintion

-Bilious vomiting

-- types ?

-1- short aganglionic segment 75%

-2- long aganglionic segment 17%

-3- total colonic aganglionosis 8%

-Findings:

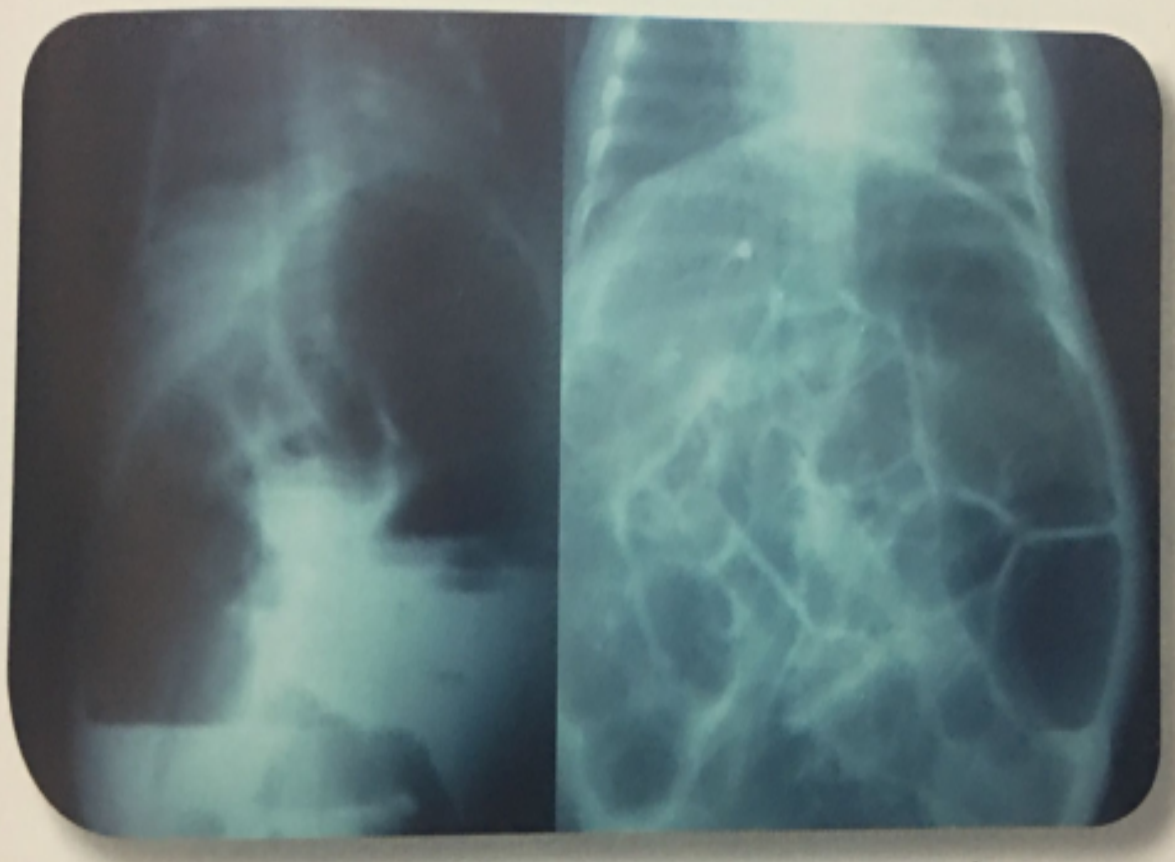
-1-*Transition zone* between the dilated ,proximal , normally innervated bowel and the narrow ,distal ,aganglionic segment .

-2-histologically : increase staining for *acetylcholinesterase* activity.

(Transition Zone) Barium Enema

Hirschsprungs disease features in children

Hirschsprungs disease



Erect Supine

Hirschsprung`s Disease, plain x-ray , erect and supine

Transition Zone (the cone of Hirschsprungs)

Necrotizing enterocolitis :

-Most common lethal GI disorder 3/100 births.

-Risk factors ?

-1- premature

-2- low birth weight (less than 1.5 kg)

-3- exchange transfusion

-4- congenital heart disease

-5- maternity cocaine abuse.

-- most common affected segment ? Terminal ileum

-Gross findings :

-1-bowel distention

-2-patchy areas of necrosis

-3- hemorrhage

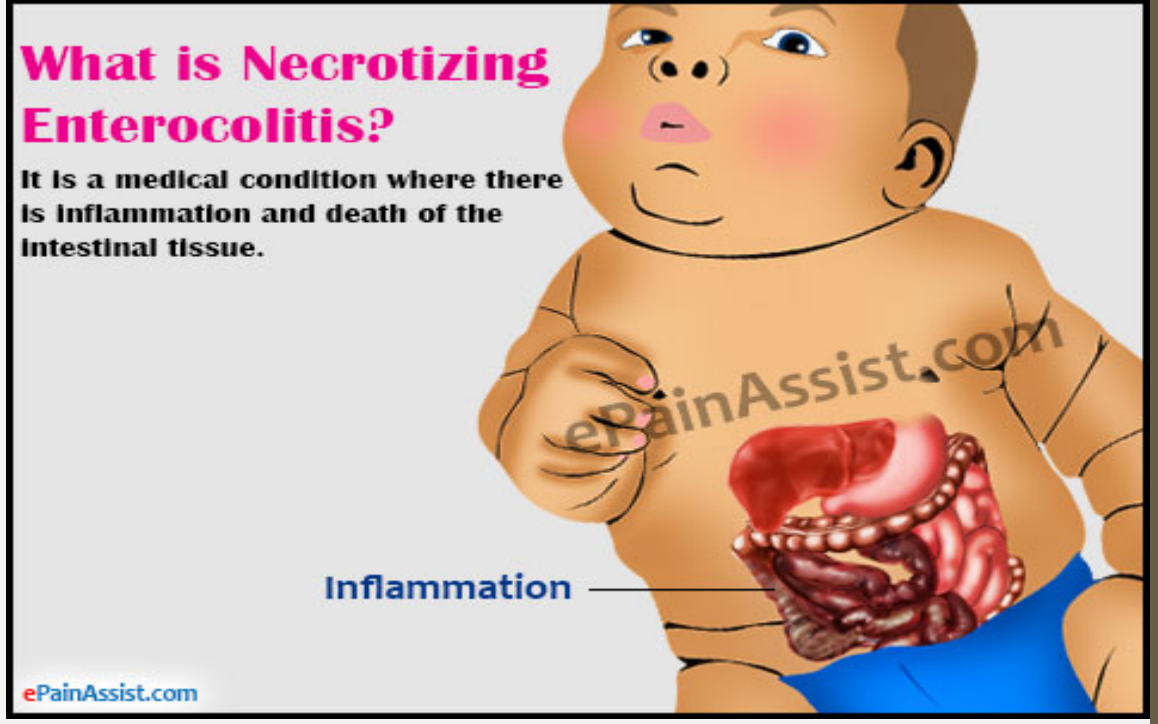
-4-mucosal ulceration

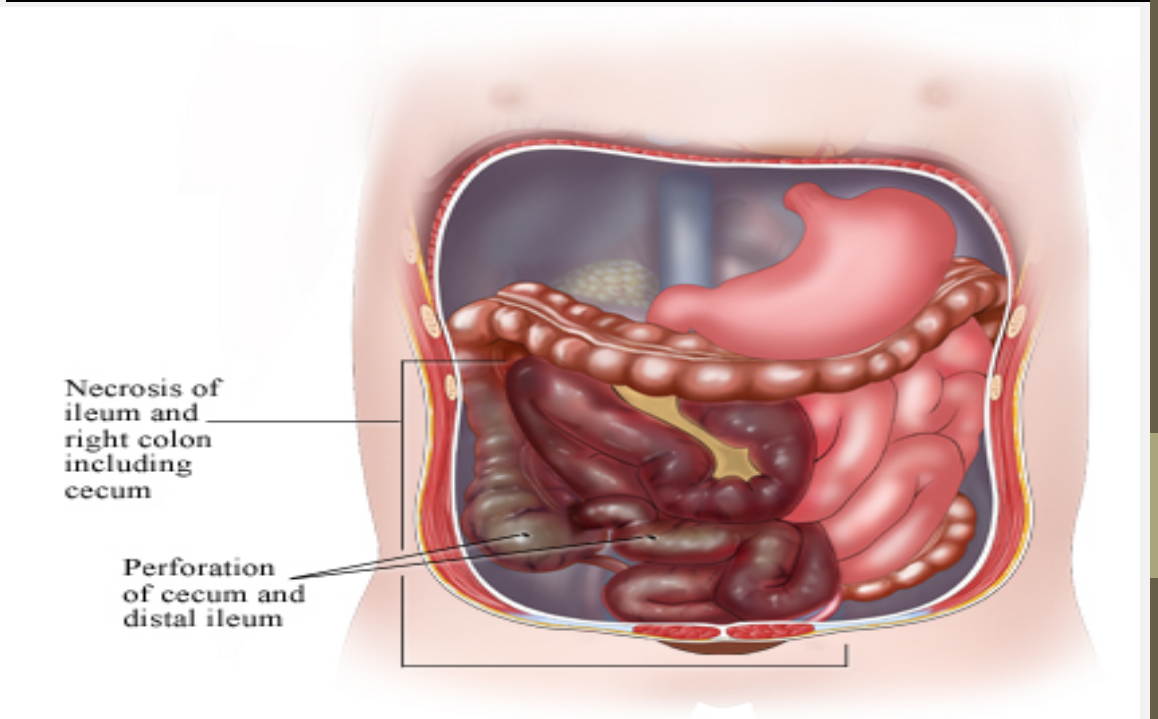
-5-thinning pneumatosis

--microscopic findings:

bland infarcts characterized by thickness necrosis

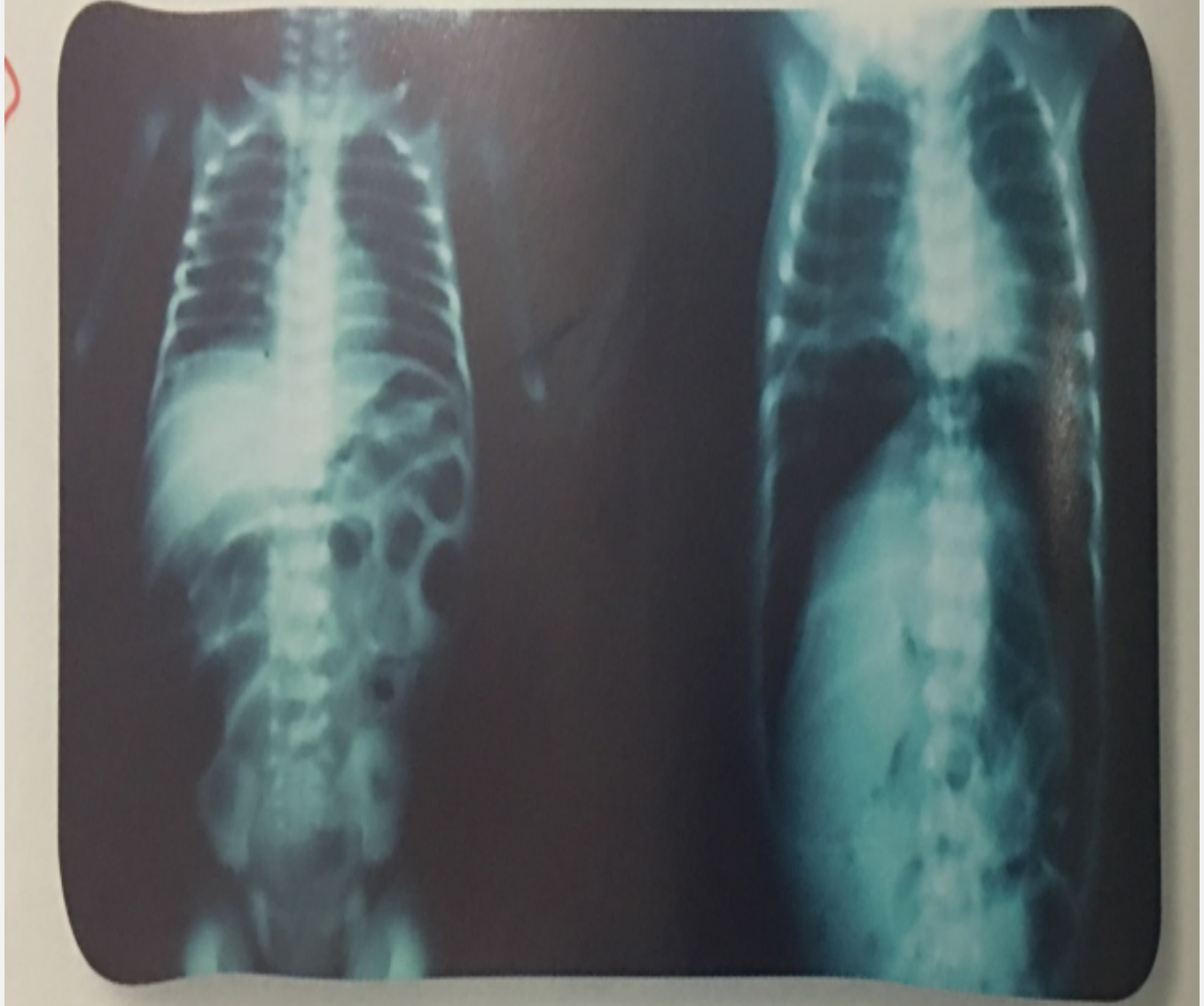
- Hematologic evaluation reveals either leukocytosis or leukopenia . Increase in the blood urea nitrogen and plasma creatinine levels with METABOLIC ACIDOSIS .





•Presentation :

-Earliest stage vomiting
-Late stage abdominal distention ,tenderness ,bilious nasogastric aspirate and bloody stool
-Abdominal examination palpable mass
-The infant may appear systemically ill decreased urine output ,hypotension ,tachycardia and non cardiac pulmonary edema.



NEC

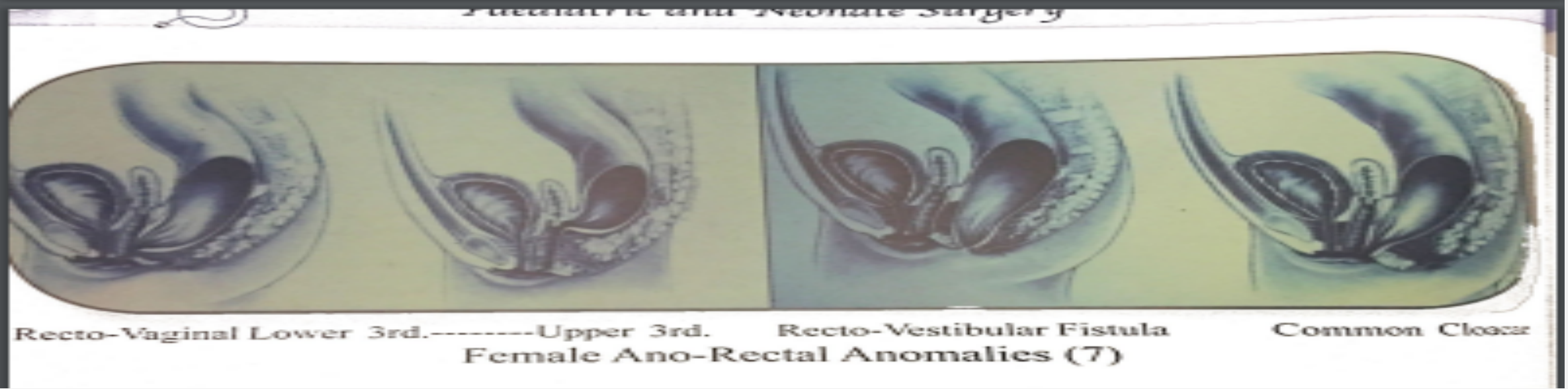
Intramural gas.
"Pneumatosis Intestinalis"

Free intraperitoneal air
"Pneumoperitonium"

Anorectal malformation

Recto-perineal. Recto- urethral , Recto-vesical Fistula

Male Ano-Rectal anomalies (7)



Recto-Vaginal Lower 3rd.--------Upper 3rd. Recto-Vestibular Fistula Common Cloaca

Female Ano-Rectal Anomalies (7)

Two typs of malformations

***in Boys :**

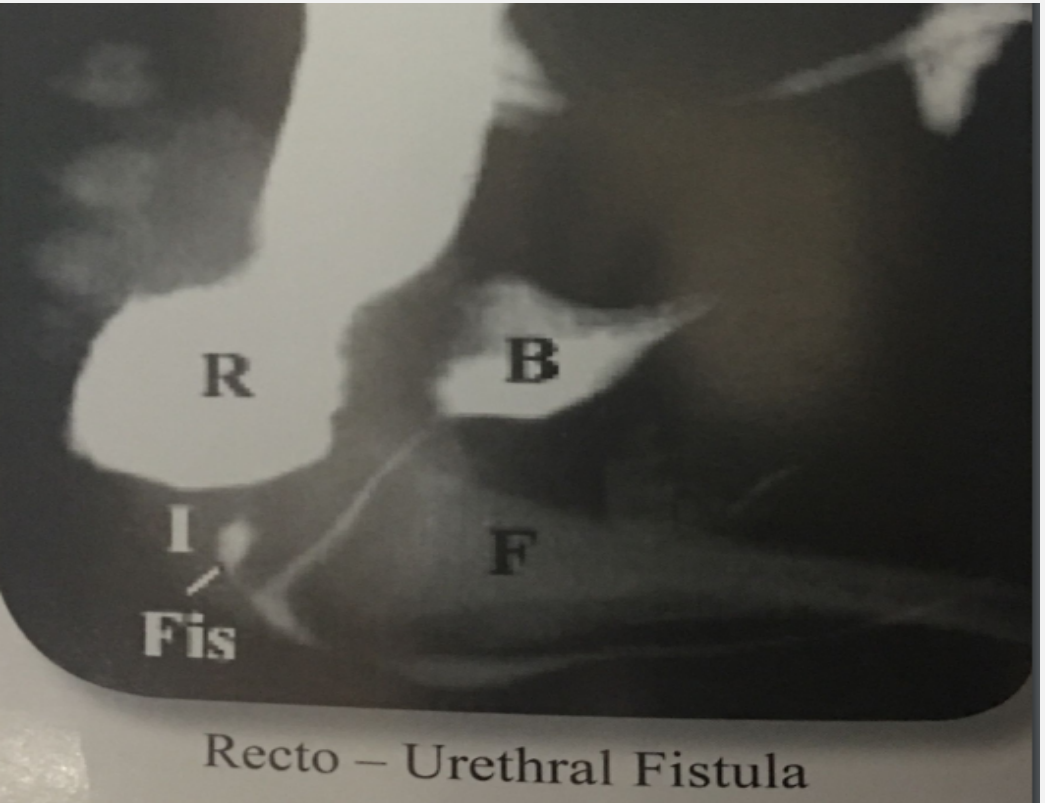
-Low fistula perineal fistula

-High fistula imperforate anus with a rectourethral fistula “most common”

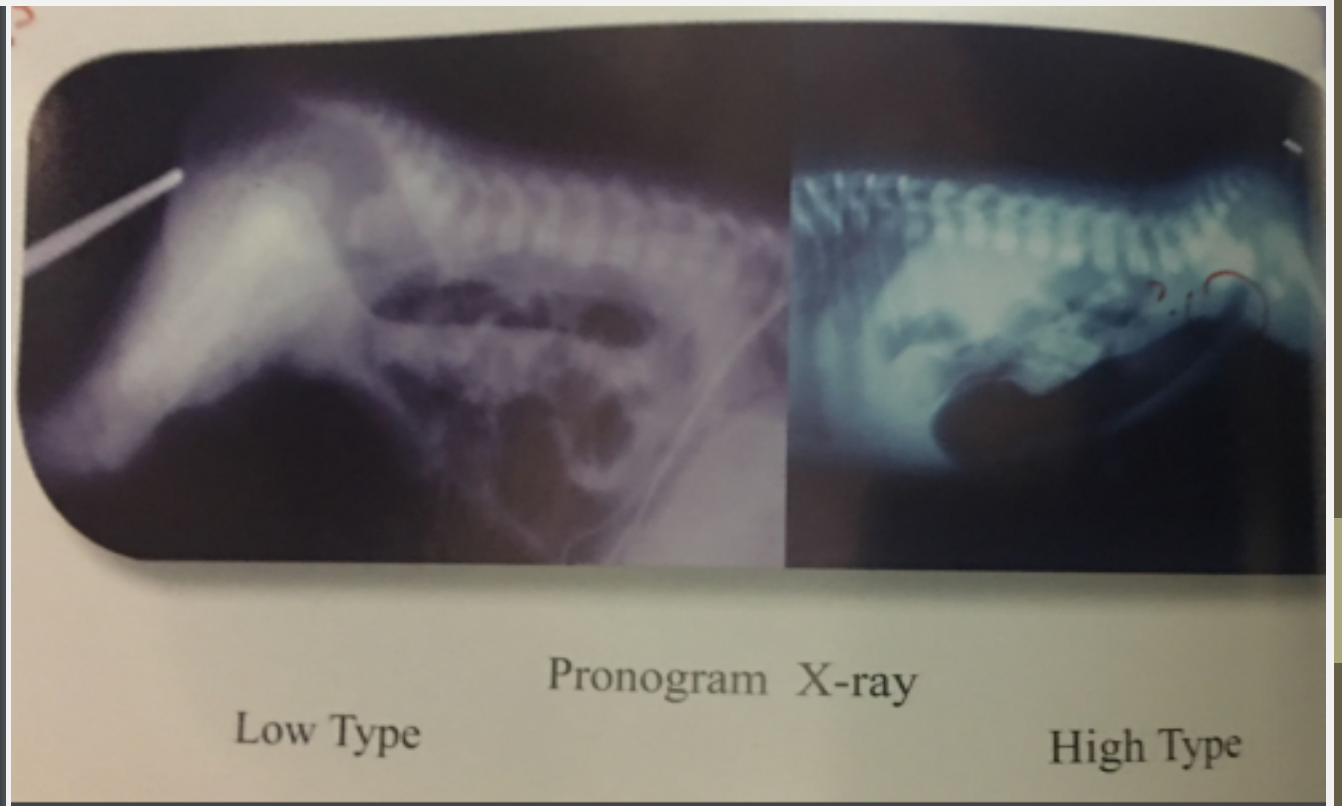
***in girls :**

-Low fistula anterior anus or imperforate anus with a fistula opening in the posterior vestibule “most common”

-High fistula rectovaginal fistula



Recto – Urethral Fistula



Pronogram X-ray

Diaphragmatic hernia

-One of the most common congenital anomalies associated with neonatal respiratory distress

-8% of neonates are born dead .

-Associated conditions include :

1-malrotation

2- cns defects

3- cadiovascular defects

4- chromosomal disorders (trisomy 18 & 21)

*development of the diaphragm :

1- anterior portion of central tendon from the septum transversum morgagni hernia

2- posterolateral portion from lateral folds “pluriperitoneal membranes” bochdalek hernia - 95% of all congenital hernias ,80% in the left side (because liver is present on the right side)

3- crura from the esophageal mesentry

4- peripheral muscular portion from the thoracic intercostal muscles diaphragmatic eventration

.

•Herniation of stomach through esophagus = hiatus hernia

*clinical features :

-Either symptoms of intestinal obstruction or as respiratory distress symptoms.

-vomiting indicates strangulation ,most commonly seen with morgagni H.

-on examination:

1- shifting of apex beat to the unaffected side

2- reduced air entry

3- bowel sounds detected in chest

4- absent breath sounds on the affected side

5- scaphoid (flat) abdomen

6- on x-ray : gasrointestinal loops in the chest ,mediastinal shift .

Pre operative X- ray

Post operative X-ray

Post operative with sub costal scar

Eventration of the diaphragm :

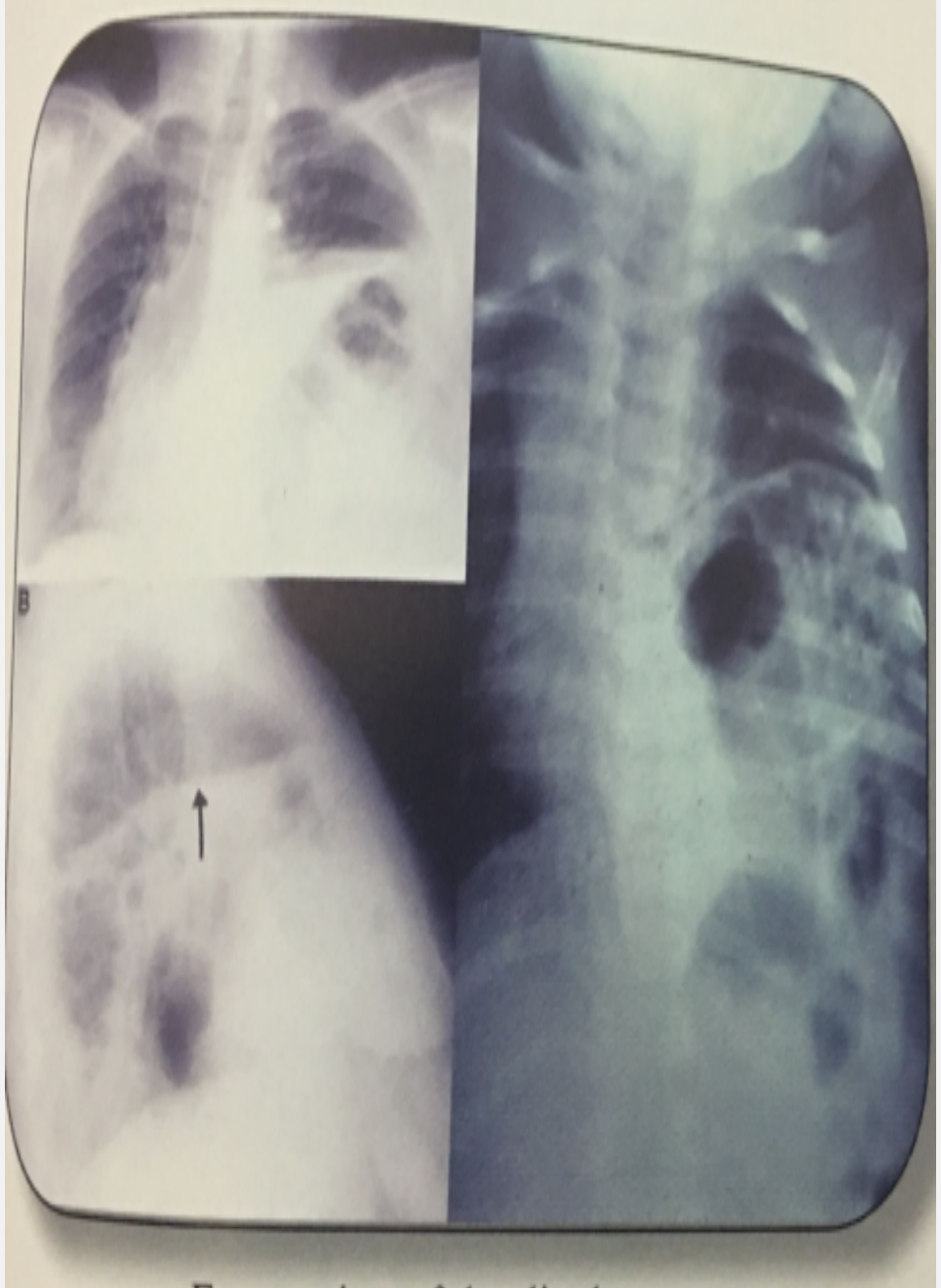
* Two possible causes :

1- Absence of muscularization of the peripheral portion of the diaphragm

2- Or weakness of that portion secondary to phrenic nerve injury.

- findings:
- On x-ray :presence of bowel covered by aradiopaque layer
- Fluoroscopy shows paradoxical diaphragmatic elevation on inspiration .

- Treatment strengthening the diaphragm by plication with non absorbable sutures .



Eventration of the diaphragm

Hiatus hernia

*note that paraesophageal hiatus hernia = rolling hernia

* Types :

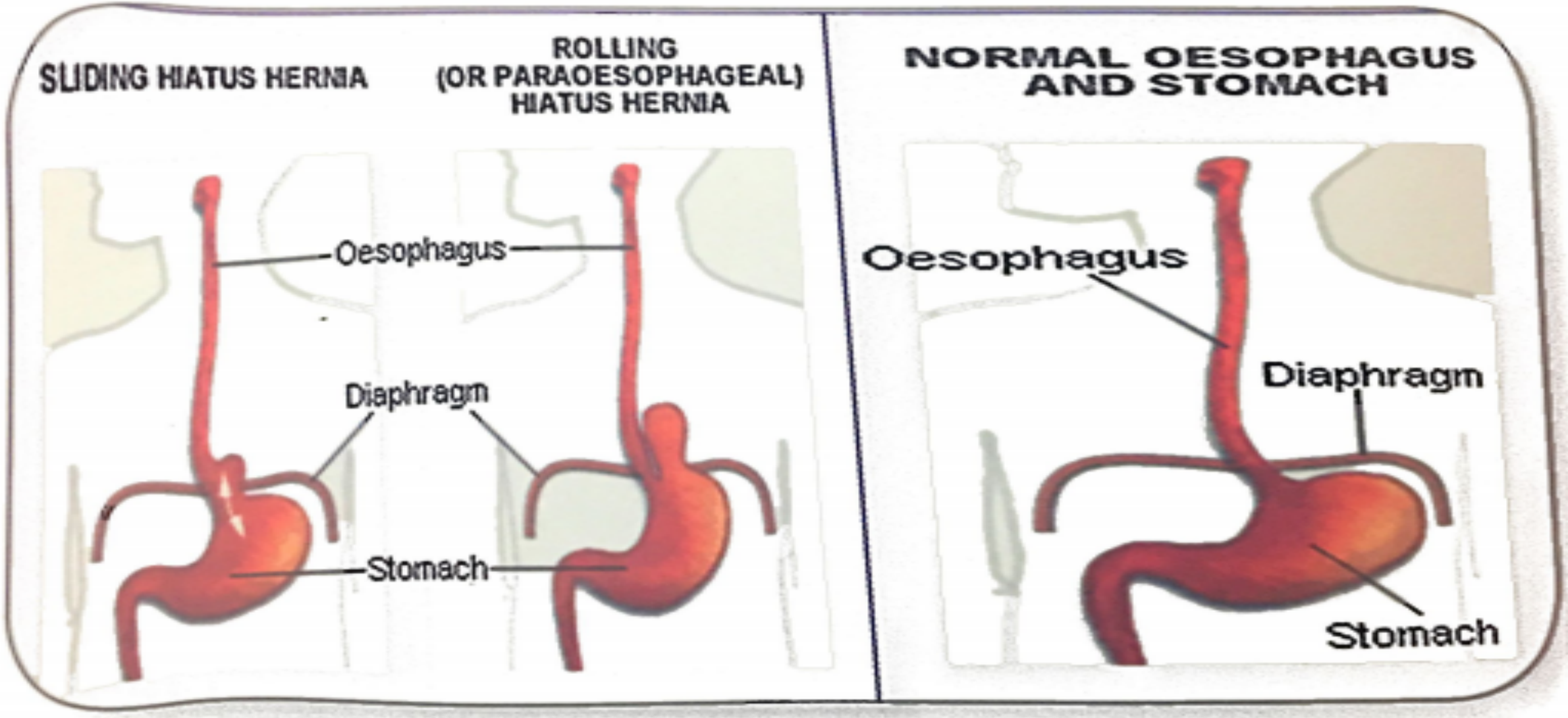
-sliding HH. : 90% ,gasroesophageal junction lies within the chest cavity

-rolling HH. : 10% ,cardioesophageal sphincter remains intact .

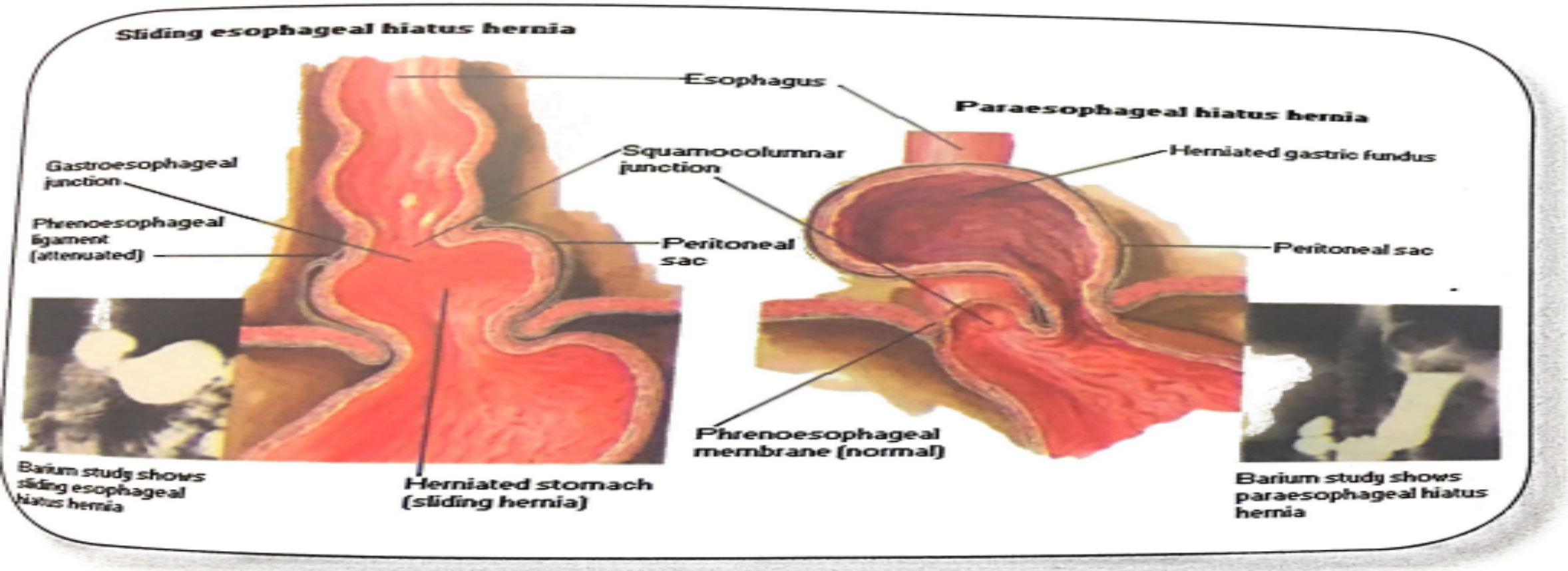
•findings:

-chest x-ray may show a fluid level behind the heart and a widened mediastinum.

•Treatment by nissen's fundoplication



Hiatus Hernia:(a part of the stomach protrudes through the Oesophageal hiatus of the diaphragm in to the chest (14)



Hiatus Hernia (14)

- **Presentation :**

-Heart burn and regurgitation
-Esophagitis
-Epigastric and lower chest pain
-Palpitation
-Vomiting from gastric outflow obstruction
-Nocturnal asthma and cough

Morgagni hernia :

*findings :

-on x-ray may show the presence of intestinal loops in the chest and mediastinum .

*distinguished from hiatus hernia only by barium contrast on lateral chest films :

-Anterior morgagni hernia

-Posterior hiatus hernia.

•Presentation :

-Rarely symptomatic

-Bilious vomiting

-Coughing

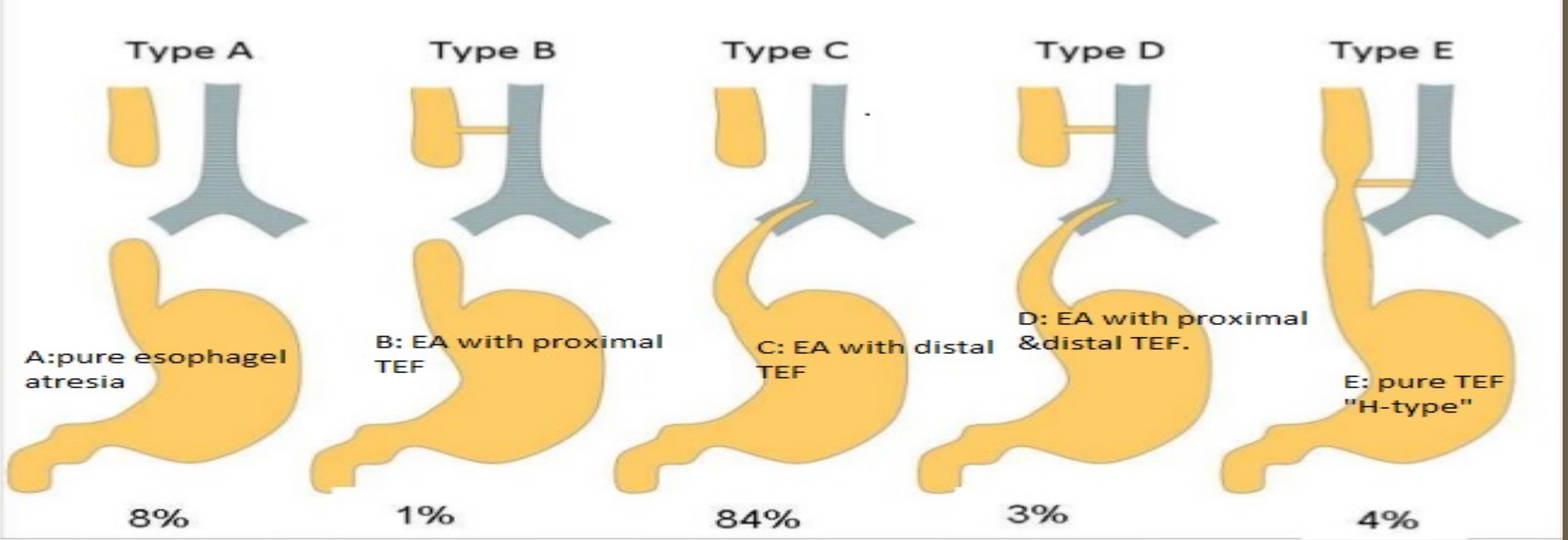
-choking

Morgagni Hernia X-ray

Esophageal malformation

- **May be associated with other congenital anomalies**

VACTERRL



Clinical presentation depends on the type :

- Type (A & B) excessive drooling followed by choking or coughing immediately after feeding aspiration occur through the tract .

-Type (C & D)

1- air is transmitted through the fistula into the stomach abdominal distention difficulty in breathing (atelectasis) .

2- regurgitated gastric juice passes through fistula chemical pneumonitis

Oesophageal Malformations

Diagnosis

- Maternal hydromnios – Present in 60%
- Oesophageal Catheter – arrested about 10cm.from lips

Symptom

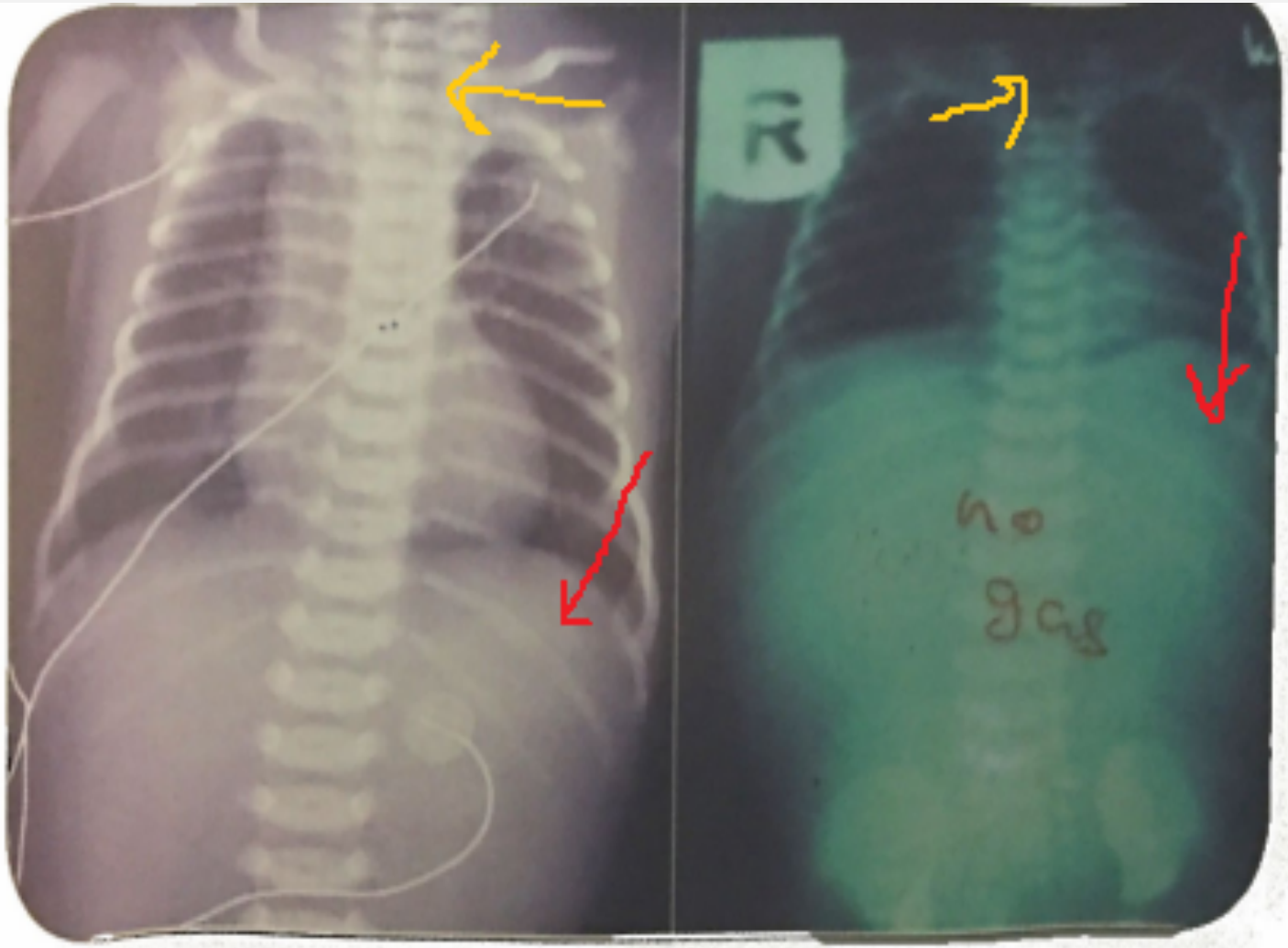
- Rattling respiration
- Excessive salivation
- Fine frothy white bubbles of mucus at the nostrils&lips
- Feeding cause choking
- Acute episode of spluttering
- Coughing and cyanosis
- Regurgitation & aspiration of milk

X – ray thorax & abdomen to confirm the :

- Upper pouch – Catheter (Radio – Opaque)
- State of the lung or other abnormalities
- Presence of air in the stomach

absence of a gastric bubble may indicate the absence of an associated fistula.

Oesophageal Atresia with T.O.F. the upper pouch visualized by Ng/ tube.



Oesophageal Atresia with out fistula,
shows the catheter in the proximal pouch and no air in the bowel.

Red arrow

No gastric bubble under the diaphragm which we normally see , so there is an obstruction in the esophagus above the level of stomach .

Yellow arrow the air is stuck in the upper part of the esophagus indicates an obstruction “atresia” of the esophageal orifice .

H- type fistula

-uncommon

-mostly at the level of C7 or T1

•Presentation :

-coughing that is aggravated by feeding

-cyanosis

-recurrent chest infections

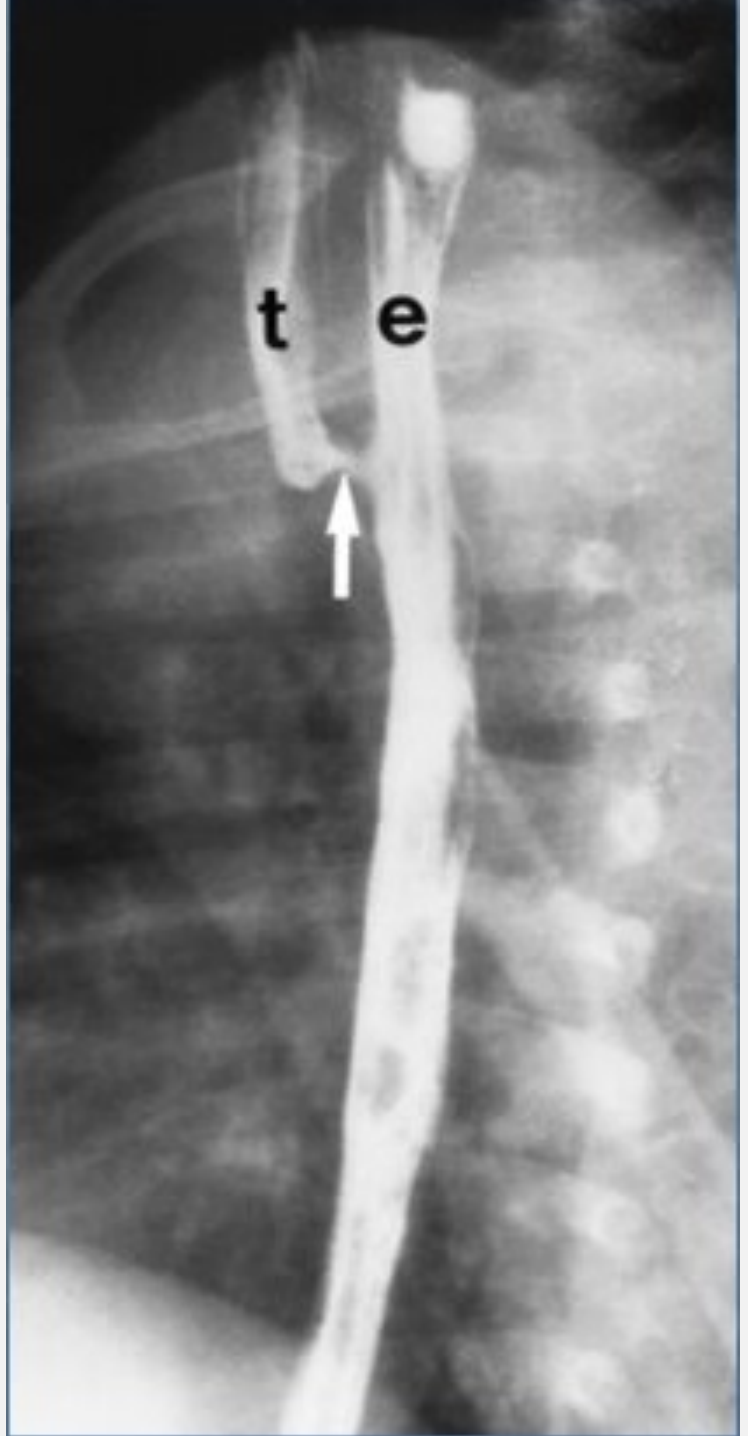
-bronchospasm

-failure to thrive

*diagnosis :

-suspected by barium esophageography

-confirmed by endoscopic visualization



Abdominal emergencies in children

-Most common presentation is pain –expressed by screaming &crying attacks.
-Pain is either visceral “due to distention of capsules surrounding abdominal organs ,and its not localized (generalized)” . Or somatic more (localized).

•Cardinal symptoms of abdominal emergency : pain ,vomiting & diarrhea .
• any pain lasting 3-4 hours or more is considered as an abdominal emergency until proven otherwise .

Hypertrophic pyloric stenosis

-Hypertrophy of the circular muscle layer increases the length and the diameter of the pylorus outflow obstruction.

- M > F ,2-6 weeks old .

-familial link

*presentation :

-recurrent *non-bilious* vomiting that becomes projectile

-Cycles of feeding and vomiting results in dehydration hypochloremic ,hypokalemic metabolic alkalosis .

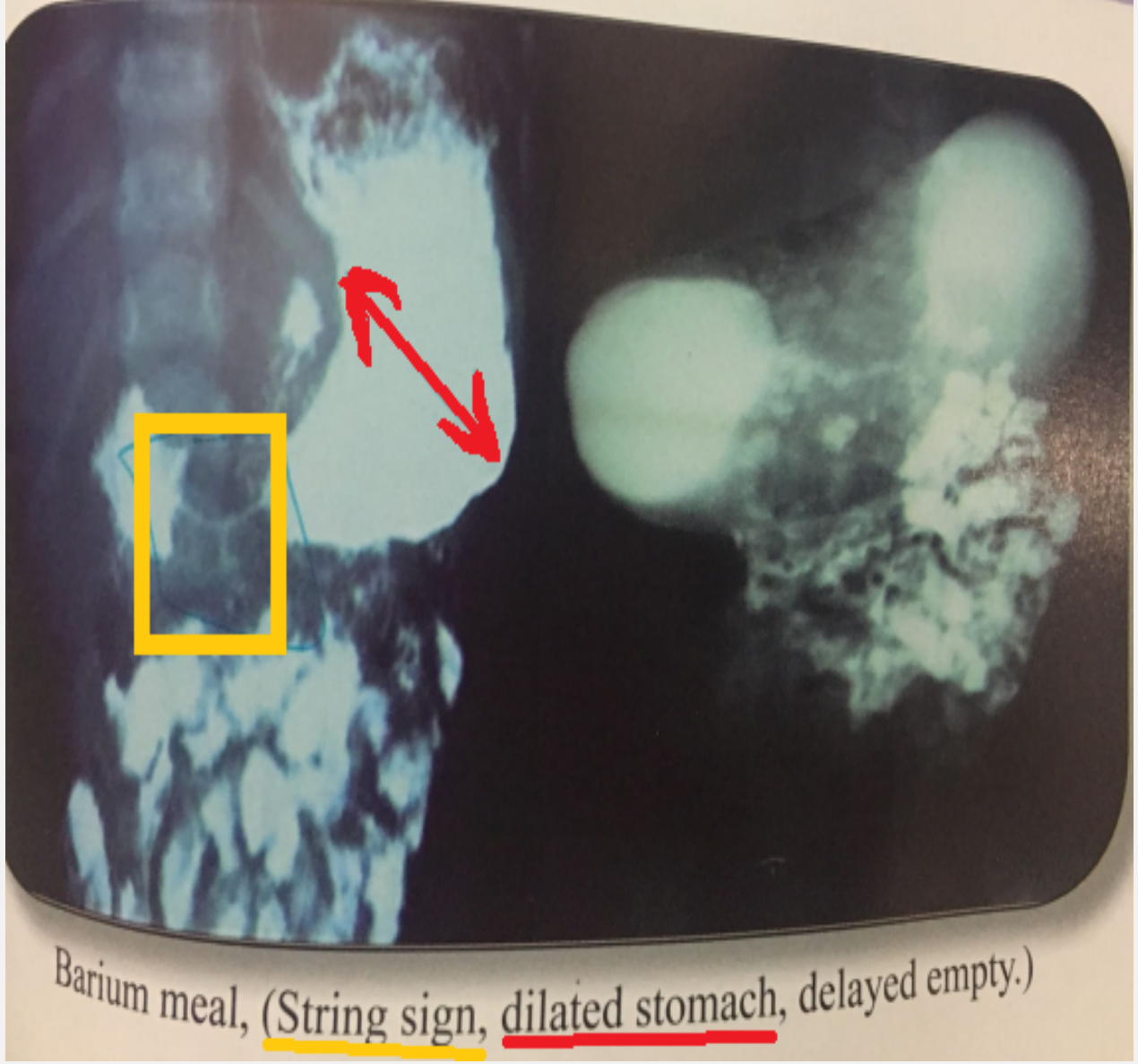
- coffee ground vomitus indicates the development of gastritis.

*findings :

-on examination palpable “olive” like mass in the RUQ.

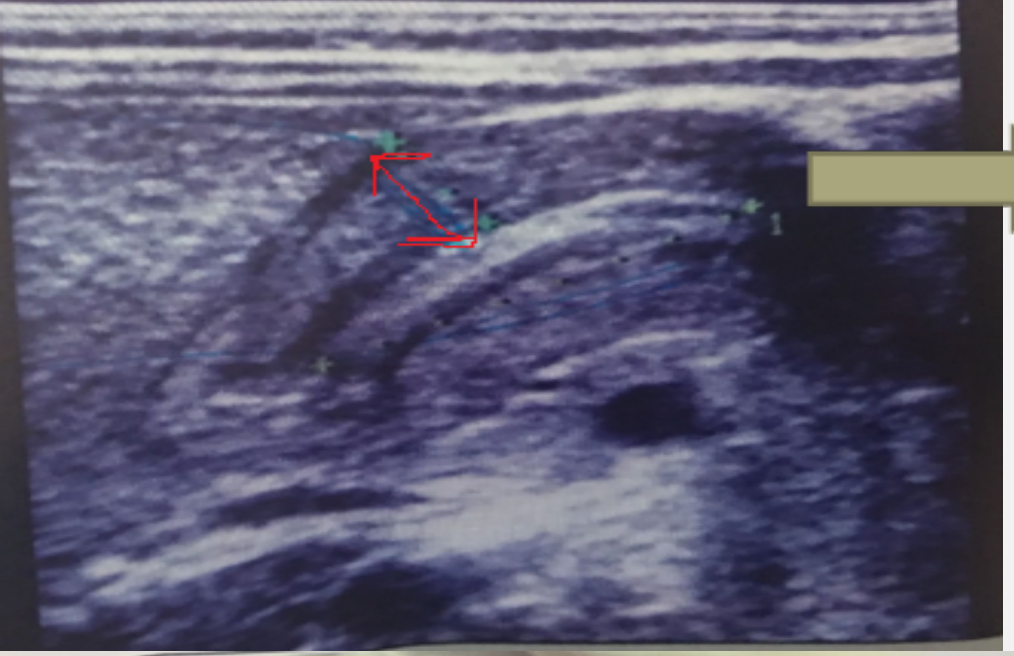
-Ultra sound canal length > 16mm ,muscle wall thickness >3mm .

-Barium meal string sign = filling defect .



Barium meal, (String sign, dilated stomach, delayed empty.)

DDx : over feeding – malrotation – GERD – intracranial conditions e.g :meningitis – septicemia .



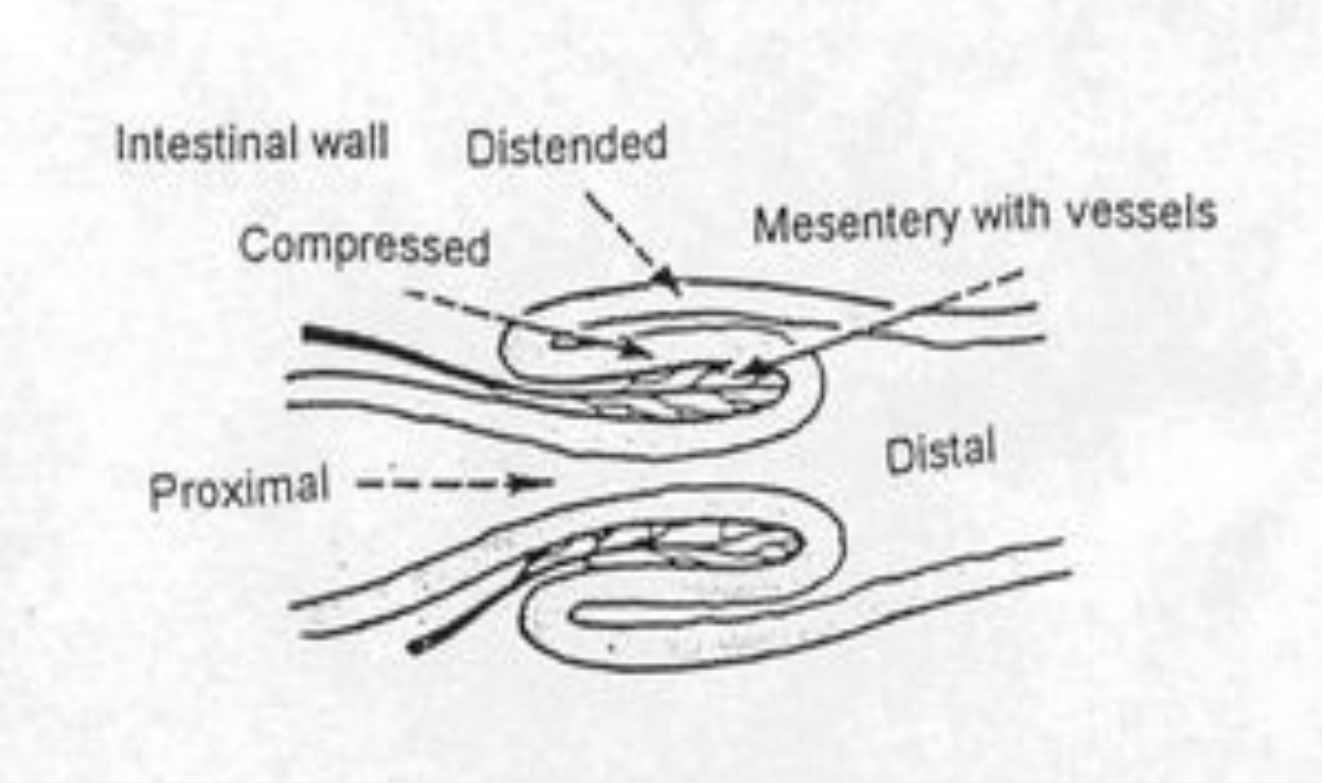
Ultrasound :

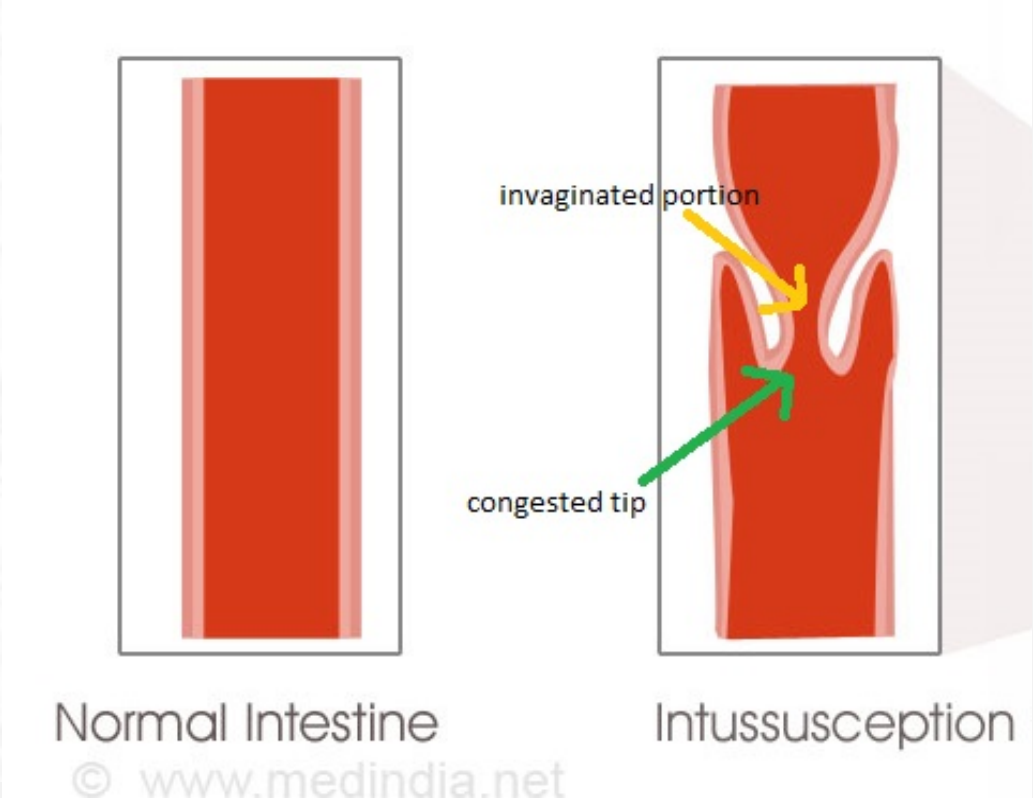
Muscle wall thickness > 3mm

Canal length > 16 mm

Pyloromyotomy (Ramstedt's Operation)

Operative finding of IHPS





intussusception

-The leading cause of intestinal obstruction in children .

- means the invagination of one portion of the intestine in the adjacent segment ,80% are Ileocolic "terminal ileum".

- compression of the mesenteric vessels causes strangulations ,which may progress and cause gangrene &perforation.

-M>F .

-causes are not clear yet ,but we can classify them into :

1- Primary (unknow) :

*Peak incidence is between **5 – 10 months** old children ,**80% under the age of 2 yrs**.

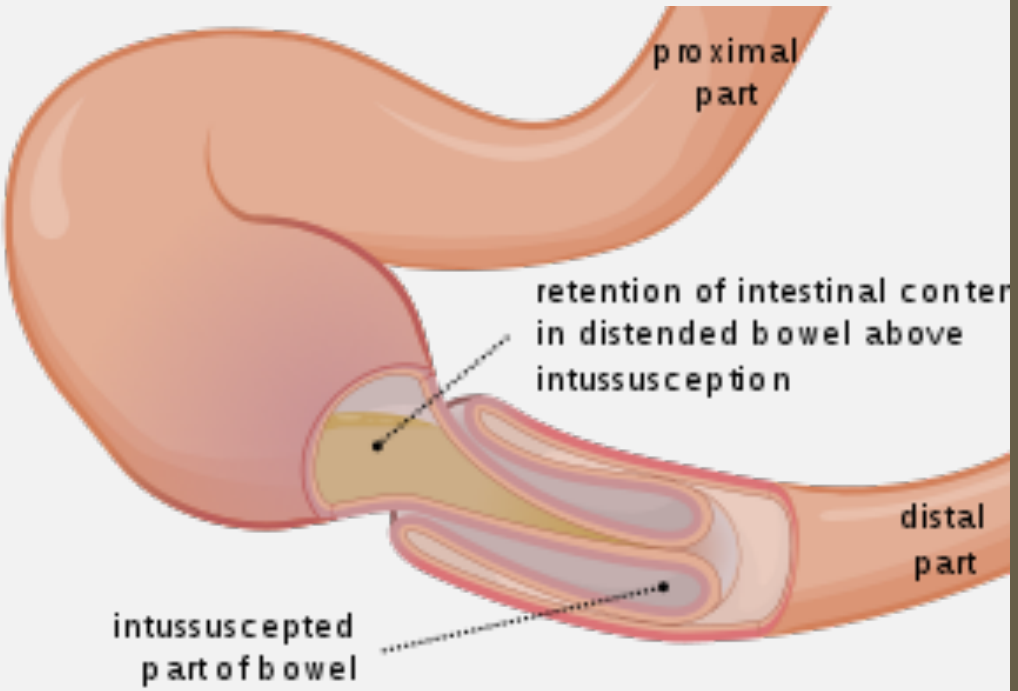
*Hypertrophy of the peyer's patches in the terminal ileum from **viral infection** "respiratory & GI Infections" acts as the starting point, or vaccination (rotavirus vaccine).

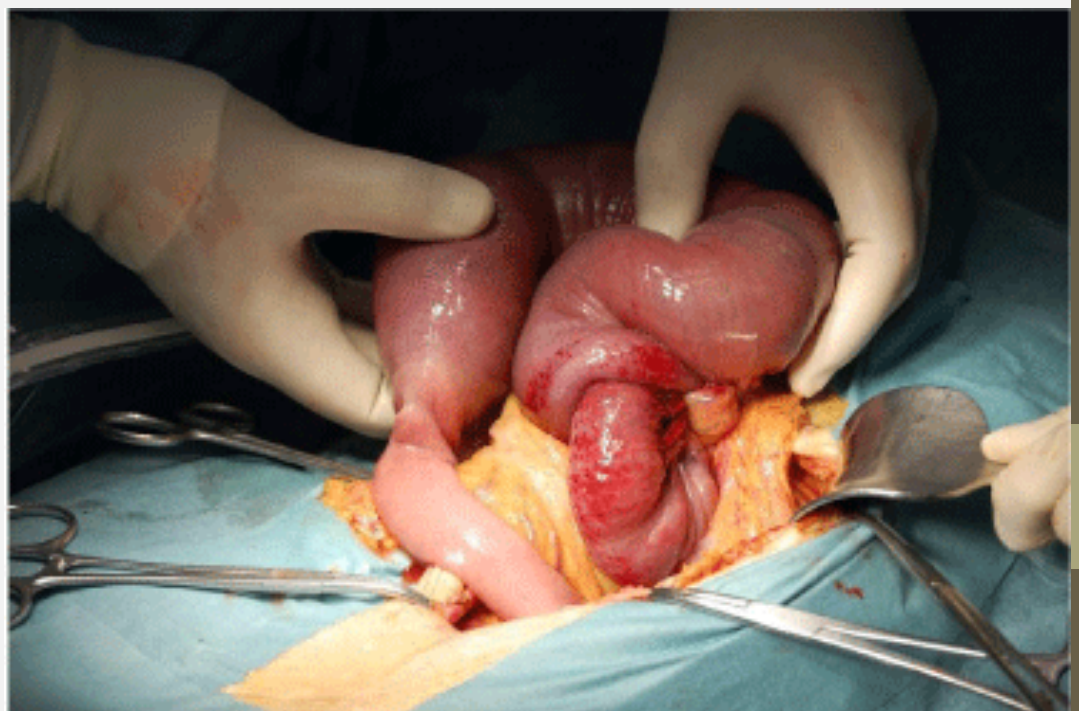
*weaning may lead to change in the bowel flora ,which produce edematous peyer's patches.

2- Secondary :

*peak incidence is between **6 – 24 months ,more in children over 2 yrs**.

*2% of children ,secondary to a pathological lead point ,such as : Meckel's diverticulum ,Enteric duplication cyst ,Mucosal polyp ,Bowel malignancy (lymphoma).





***presentation :**

-crampy abdominal pain lasting 2-3 min.

-intermittent vomiting “milky then becomes bilious”

-redcurrant jelly stool

-pallor, exhaustion & drowsiness

***findings :**

-on examination palpable sausage mass found anywhere around the umbilicus

-x-ray signs of inestinal obstruction with soft tissue opacity

-confirmed by contrast barium enema show **coiled spring sign** ,a crescent or meniscus sign ,or a fist sign .

-ultrasound kidney like mass & **target sign .**

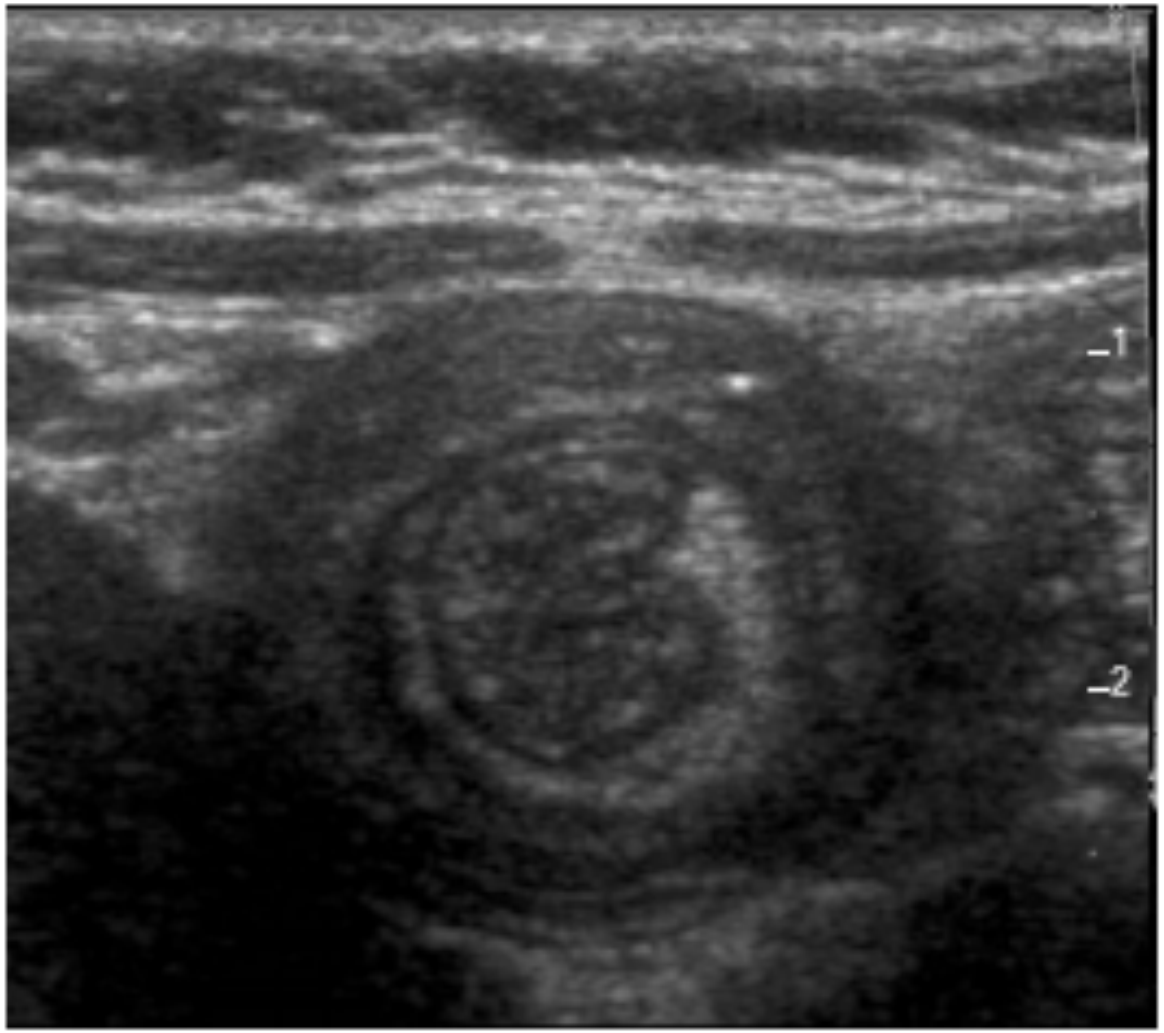
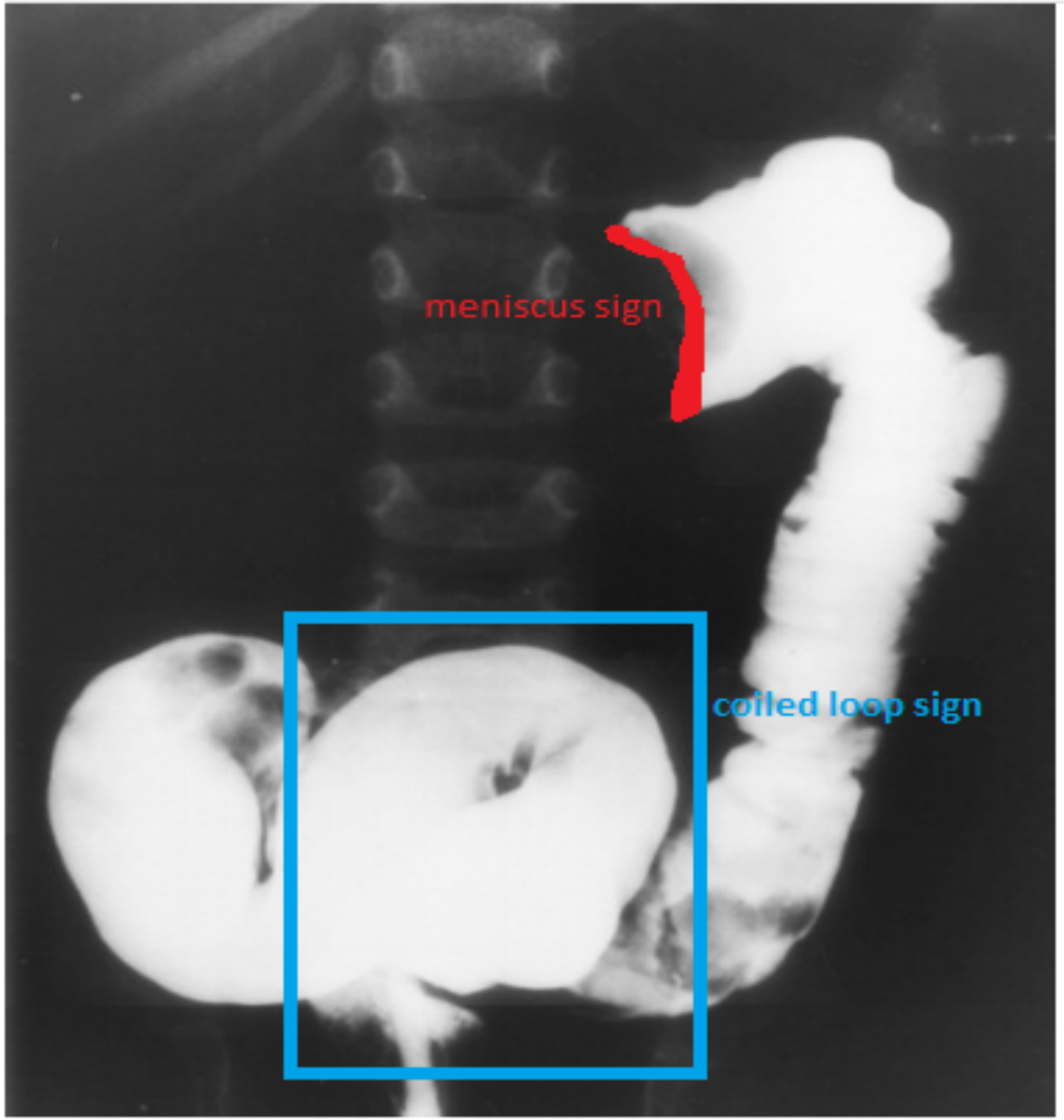


Figure 6 Target sign on transverse ultrasound of an intussusception. The concentric layers of the mass represent the different tissues in the bowel wall of the intussusceptum and the intussuscipiens. The curved, echogenic (bright) area is due to trapped mesenteric fat.

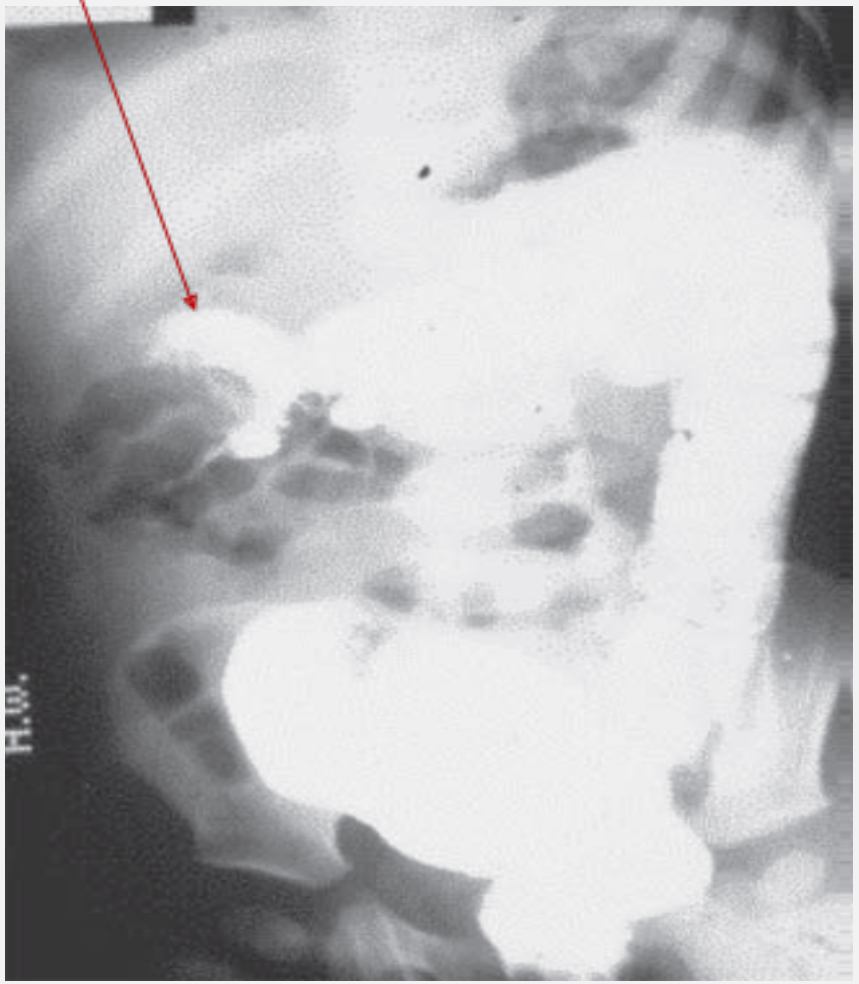


CASE :

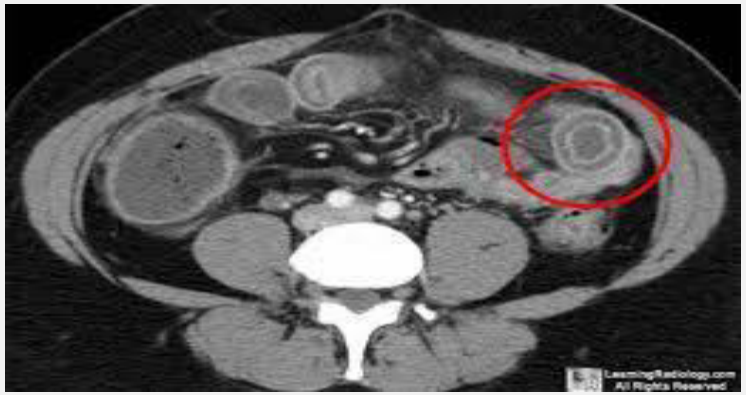
A 2 years old male patient present with intermittent vomiting

- What are the finding and diagnosis ??

-This is a barium enema in a child, shows complete arrest of barium just distal to the hepatic flexure with a crab-claw deformity



-This is an ileocaecocolic intussusception.



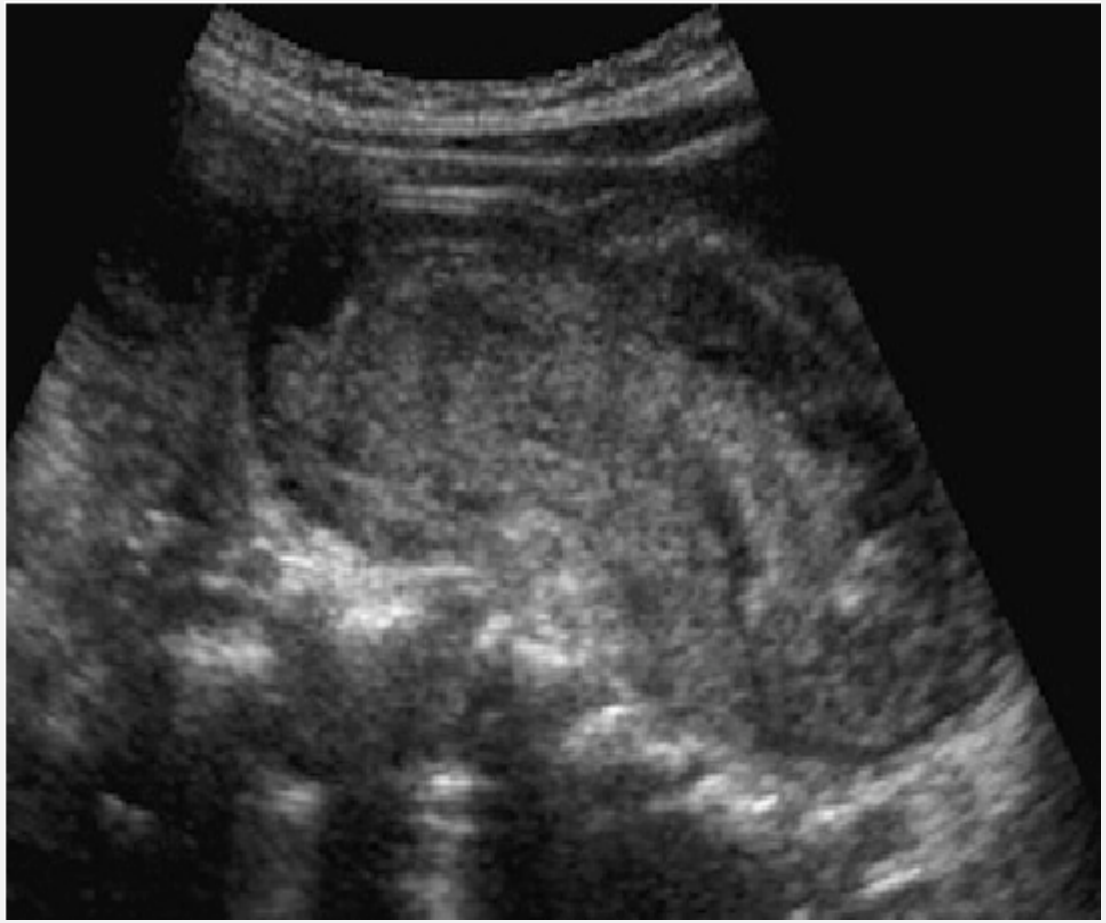
Target sign on

Characteristic Stool

Red currant jelly

Stool

Intussception



Acute appendicites :

*The commonest abdominal emergency in children

.

*obstruction of the lumen is the dominant causal factor ,usually by “fecolith” or foreign body ,parasite ,lymphoid tissue or tumor.

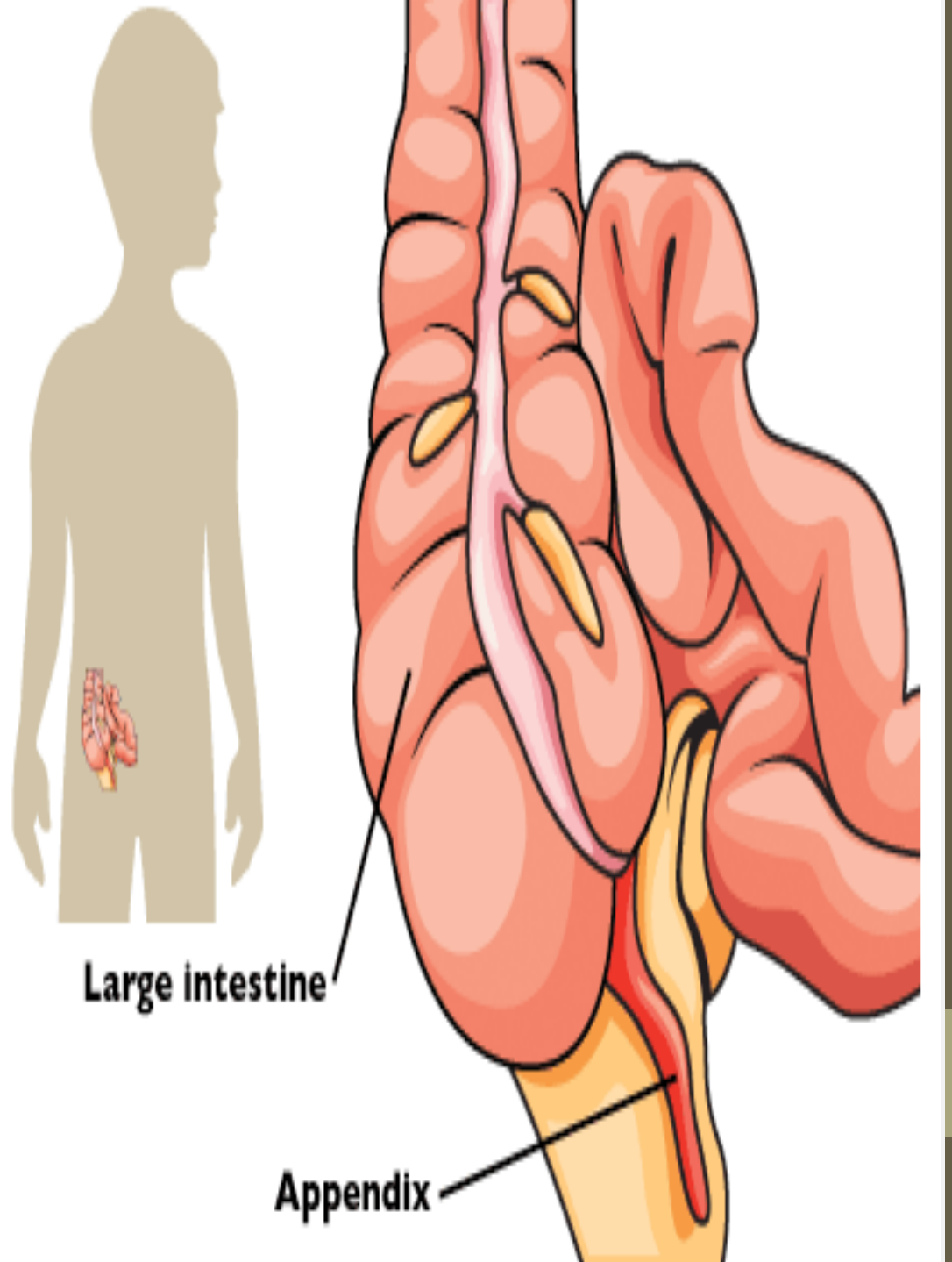
-non obstruction causes like direct infection from the lumen or haematogenous spread of micro-organisms to the lumen.

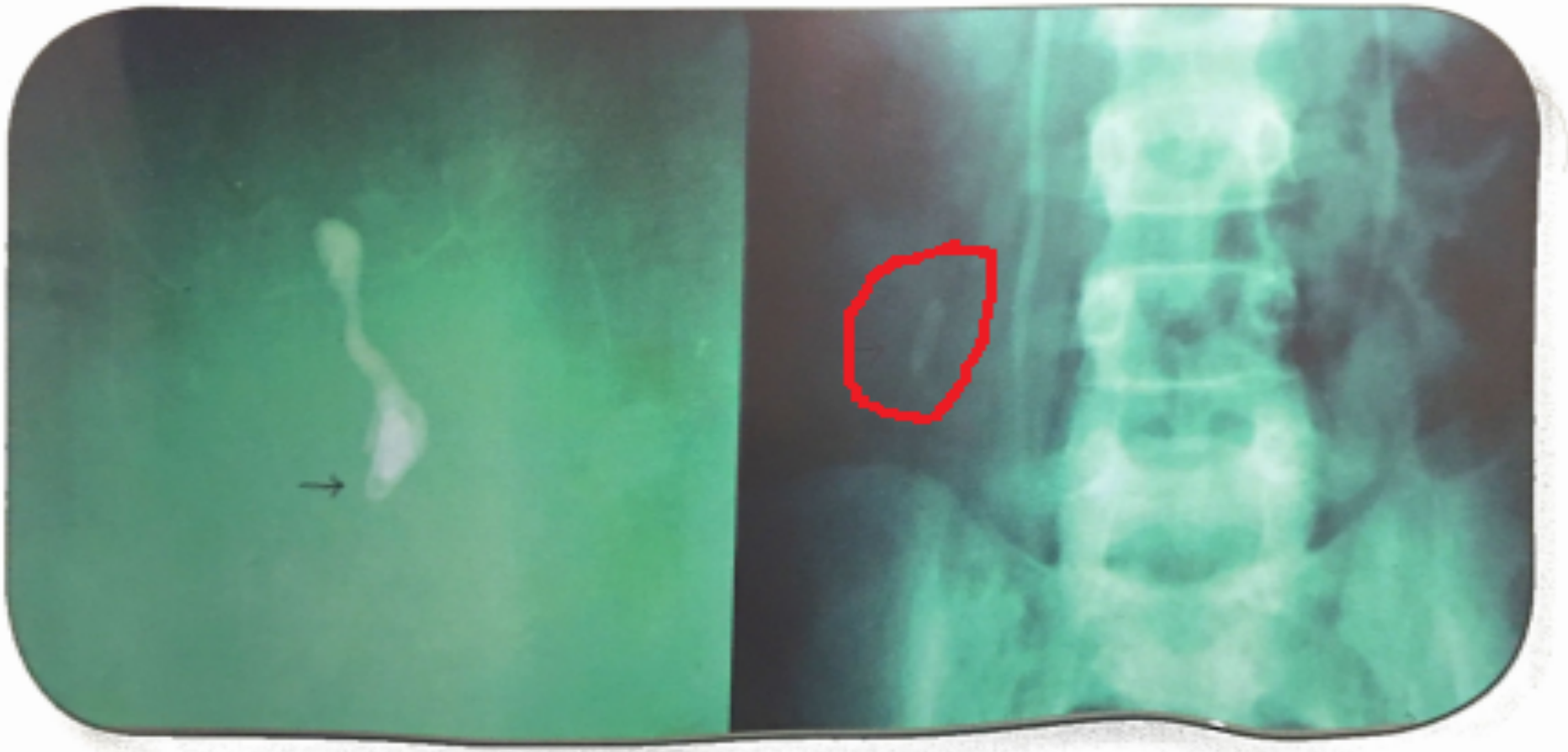
*findings :

-blood count :neutrophil leukocytosis

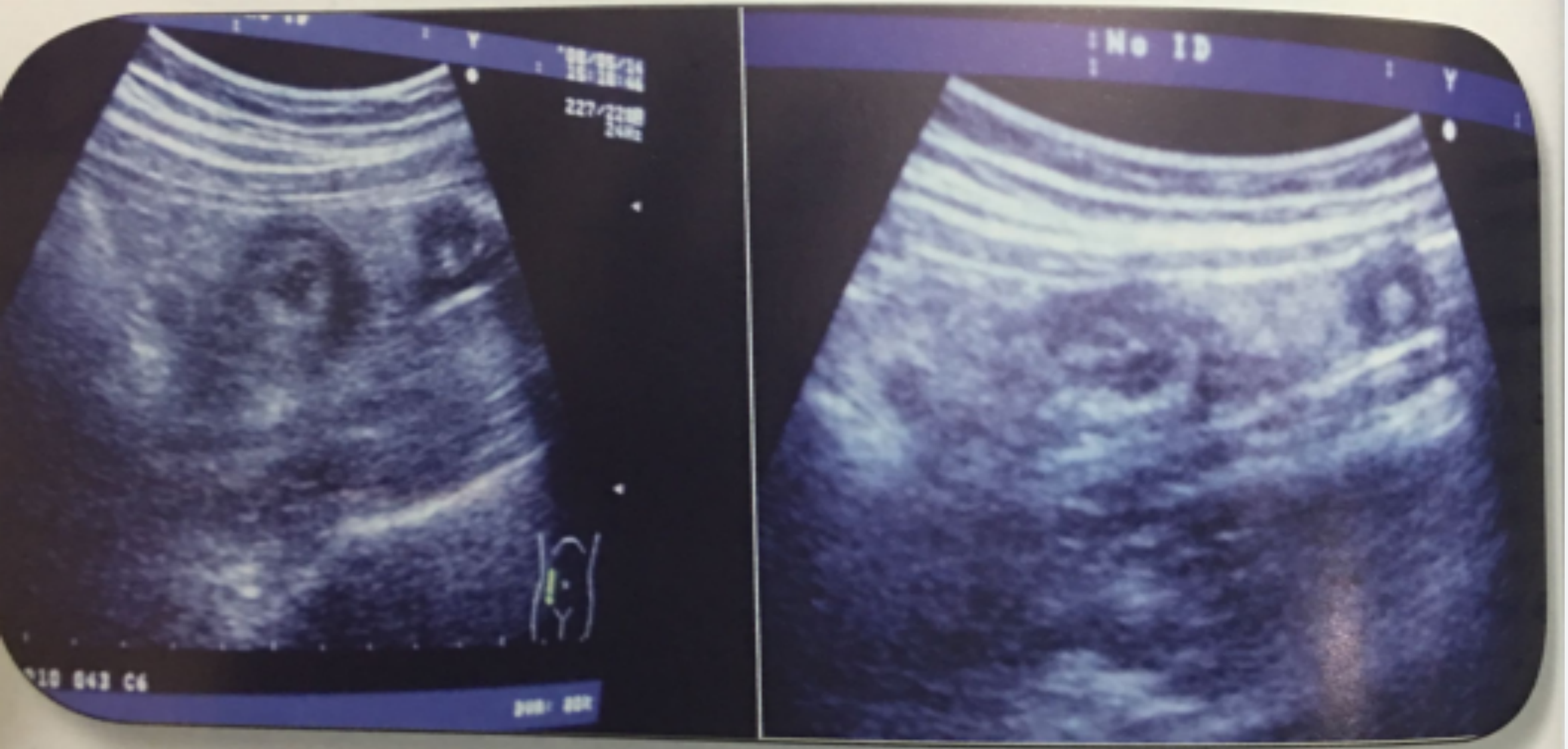
-abdominal x-ray: abnormal bowel dilatation ,fecolith calcification.

-Ultrasound findings :non-compressable tubular mass ,free peritoneal fluid ,mesenteric thickening , target sign ,appendicular mass or frank abscess.





Appedicular fecolith as radio-opaque shadow shown out side the course of the ureter. Positively seen at the appedicular specimen.



Target Sign

Localise the fecolith

(Ultrasound for Appendicitis)

Gastro-intestinal bleeding in children

*depend on :

1- the age of the pt.

2- type & quantity of bleeding

3- associated symptoms

•Small hemorrhage <20 ml

•Massive hemorrhage > 200 ml .

*most often in the anal canal ,less from the rectum & infrequently in the colon.

•Causes of ano-rectal bleeding :

Common	Rare
Anal fissure	Familial polyposis
Juvenile polyp	Haemangiomas
Rectal prolapse	Ulcerative colitis
Meckel's diverticulum	Multiple polyposis
	malignancy

*** According to the nature of the blood ,ano-rectal bleeding can be classified as :**

1- fresh blood pathology between anal margin & lower sigmoid colon.

2- blood clots (cherry red blood) colonic bleeding.

3-melena (black ,tarry ,greasy stool) hemorrhage in GIT between esophagus & small bowel.

4- occult bleeding somewhere among the whole GIT but not visible on stool.

Can be detected with a haemoccult blood test.

Usually associated with recurrent anemia and mostly indicates malignancy.

Anal fissures

•Most common cause of fresh ano-rectal bleeding in children between 1 – 10 yrs old

*presenatation:

• painful defecation

• few streaks or drops of blood on the surface of the stool

• constpation

• usually posterior position (midline)

*Characters of anal fissure :

•1- anal sphincter hypertrophy

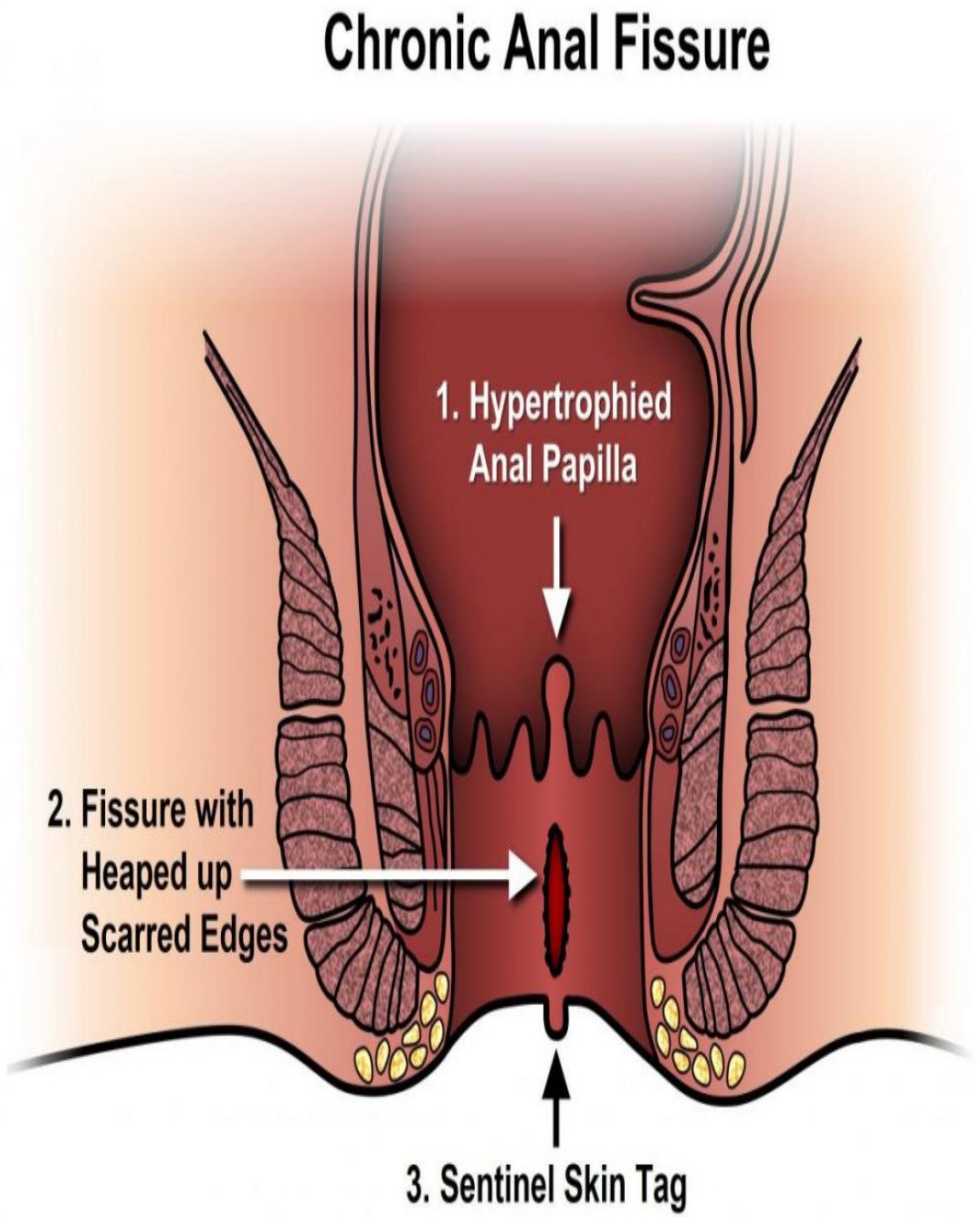
•2- chronic ulceration

•3- sentinel skin tag “caused by edema and hypertrophic response to inflammation”

•4- anal papilla

-Acute fissures may settle spontaneously

-Chronic fissure : ulcer that has been present for at least 6 weeks.



Polyps as a cause of ano-rectal bleeding:

Common types of polyps :

Juvenile polyps **	80%	-Hamartomatous tissue -Not premalignant
Lymphoid polyps	15%	
Adenomatous polyps	3%	-Dysplastic growth -Premalignant

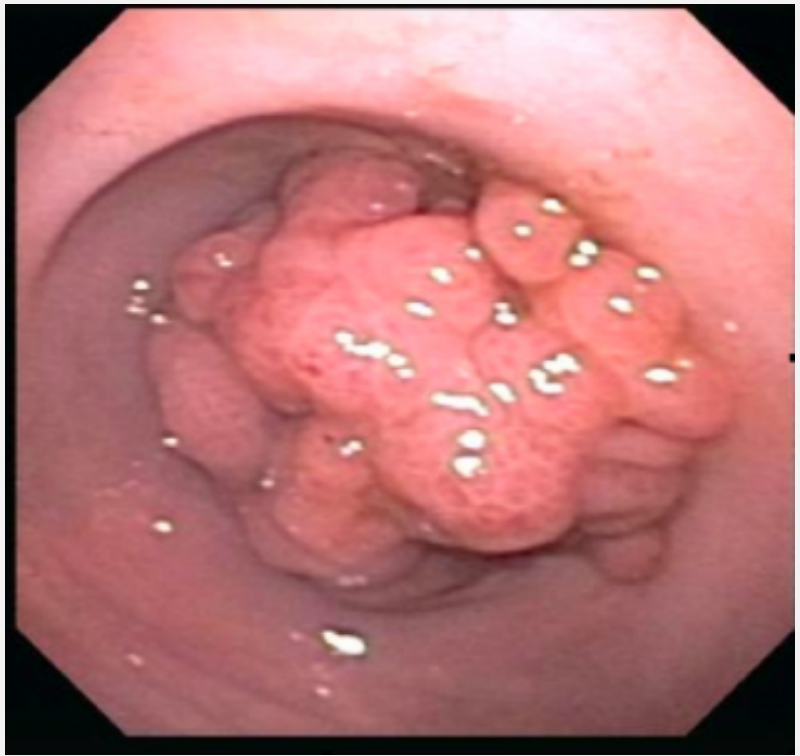
- **Presentation : ****

-Rectal bleeding 93% ,bright bleeding ,painless &intermittent

- blood streaked faeces ,at the end of defecation.

multiple polyposis syndrome

- more than 5 polyps without family history of polyposis syndrome
- any number of polyps with family history of polyposis syndrome
- familial polyposis coli (multiple adenomatous polyps)
- carry high risk of malignancy during adult life.



Peutz-jeghers syndrome

- rare, Autosomal dominant disorder
- most common in the jejunum
- polyps are found anywhere in the GIT
- presence of pigmented freckles on the mucocutaneous margins of the lips & anus
- presented as massive bleeding or intussusception and iron deficiency anemia .
- risk of cancer = 60% at the age of 70

Rectal prolapse

- Passage of part of the rectal wall through the anal canal
- more common in children. Predisposed by :

1- prolonged straining during defecation in a child with constipation

2- frequent diarrhea as a part of :

- malabsorbtion syndrome
- cystic fibrosis
- celiac disease

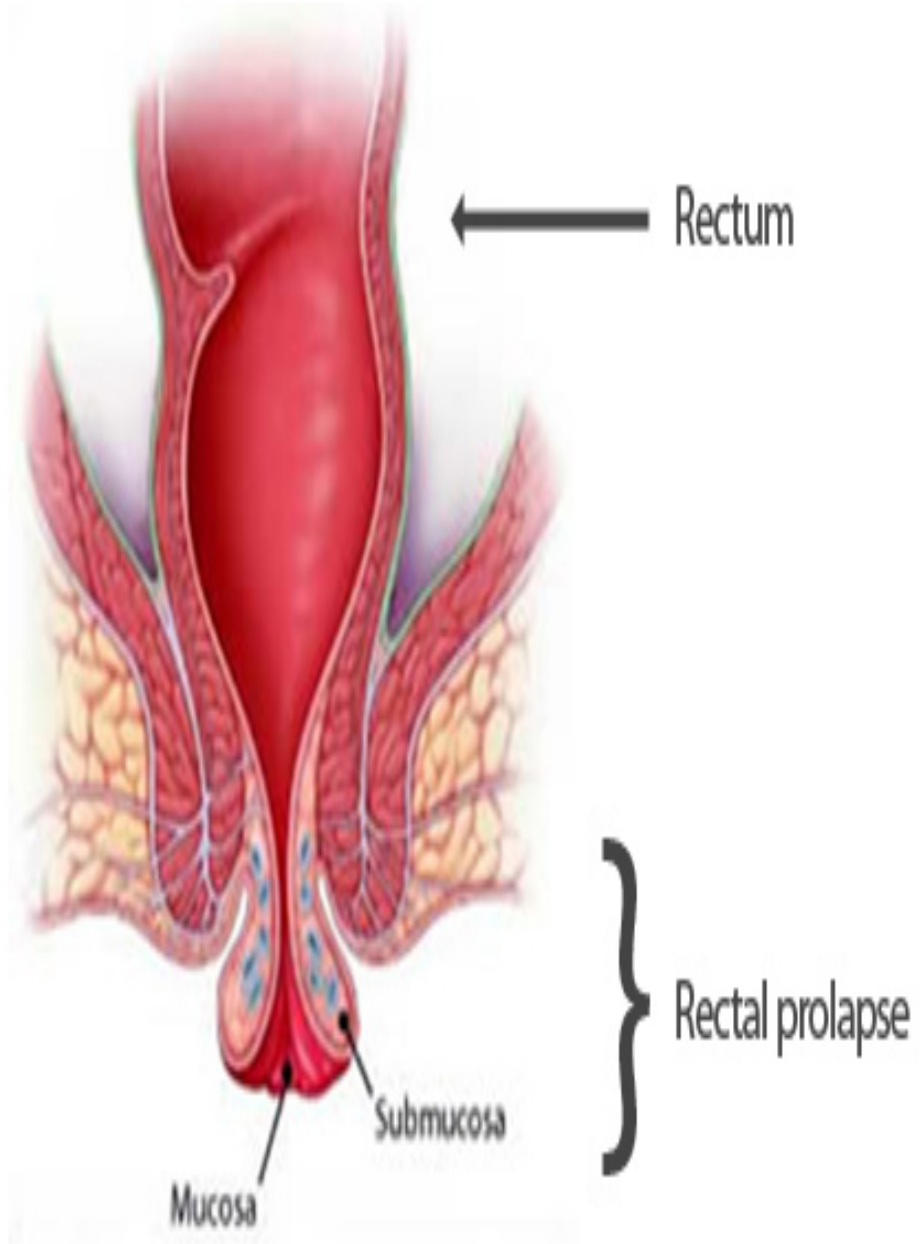
3- hyperkinetic children ,there act of ill training prolong the attempts to defecate producing excessive straining without constipation

- Other causes includes :

1-paralysis of anal sphincter in myelomeningocele or sacral agenesis

2- undrnourished ,hypokinetic infant

3- ectopic vesicae ,due to divarcation of the puborectalis muscle secondary to separation of the symphysis pubis.



•Present in children 1 – 3 years
• prolapse rolls out painlessly during defecation
• usually returns spontaneously ,manual replacement infrequently required
• the prolapsed mucosa causes bleeding.

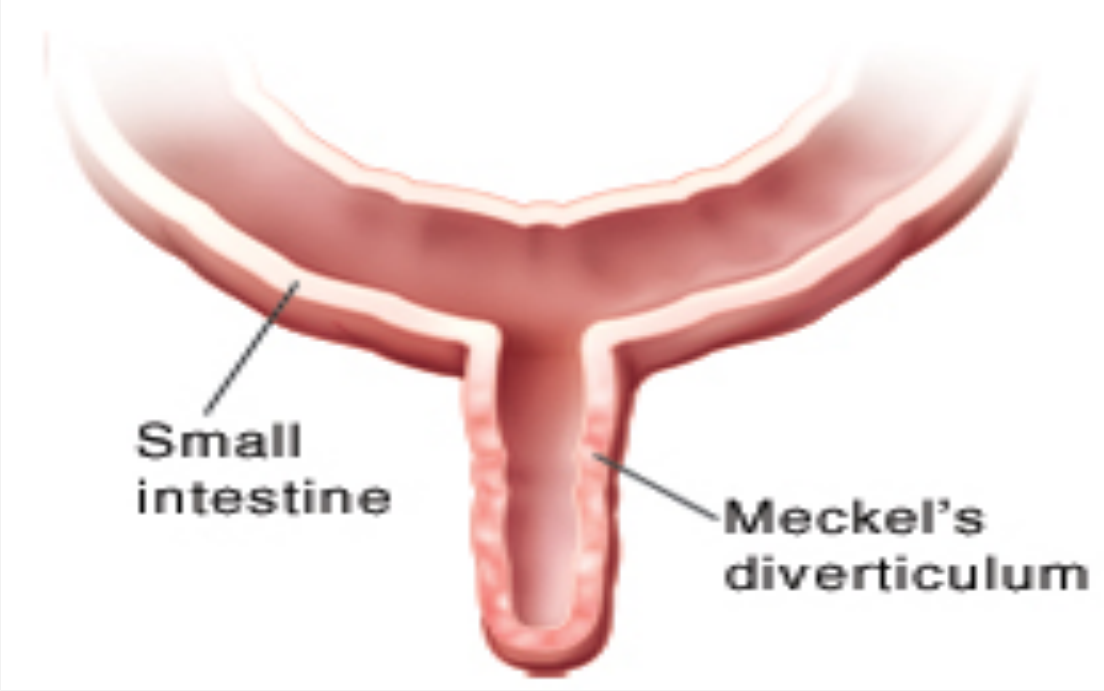
DDX:

1-rectal polyps which may prolapse
2- the apex of an intussception
3- external hemorrhoids .

Meckel's diverticulum

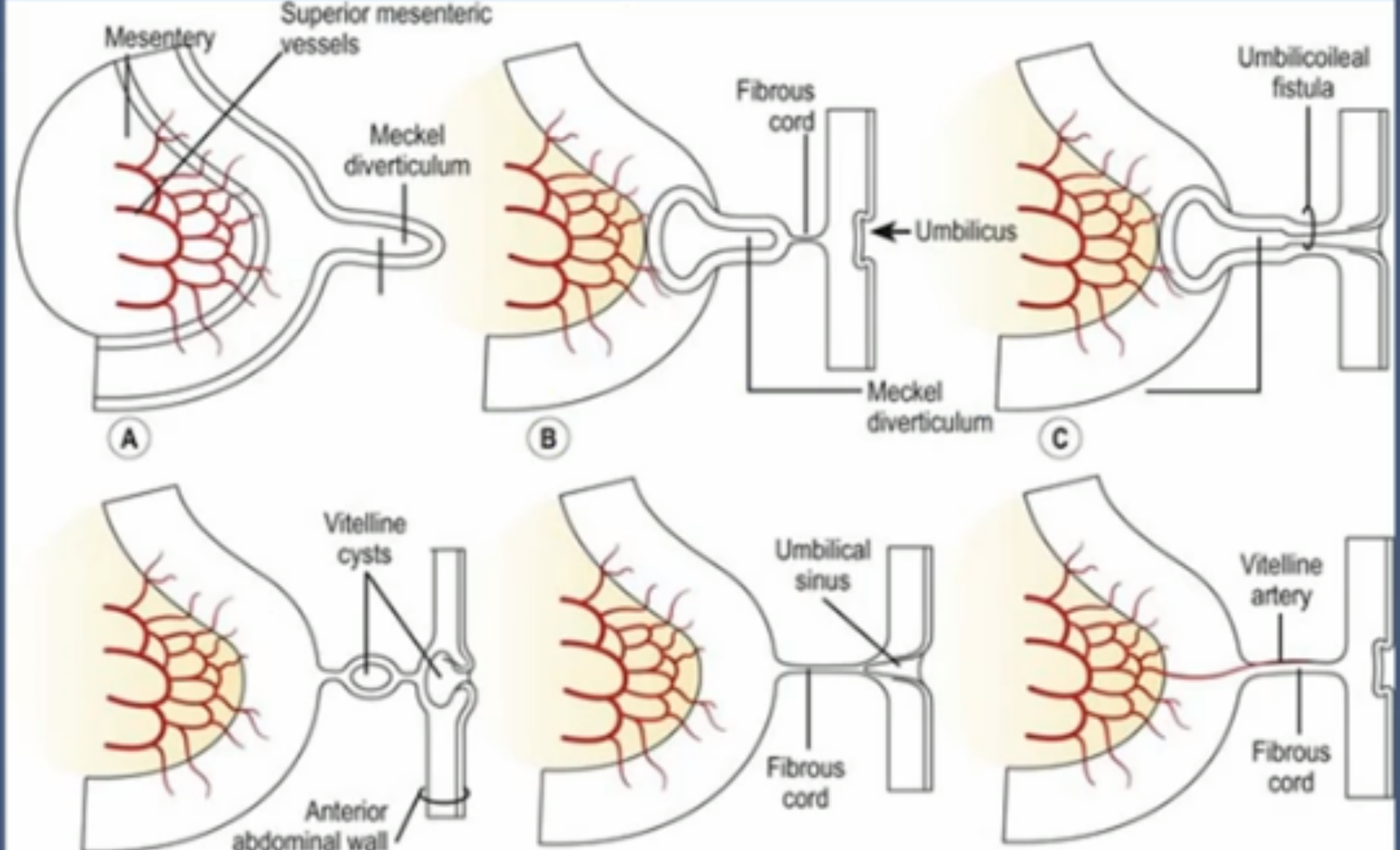
- It's a remnant of a portion pf the embryonic omphalomesenteric (vitelline) duct
- it's a true diverticulum contains all intestinal layers
- associated congenital anomalies:

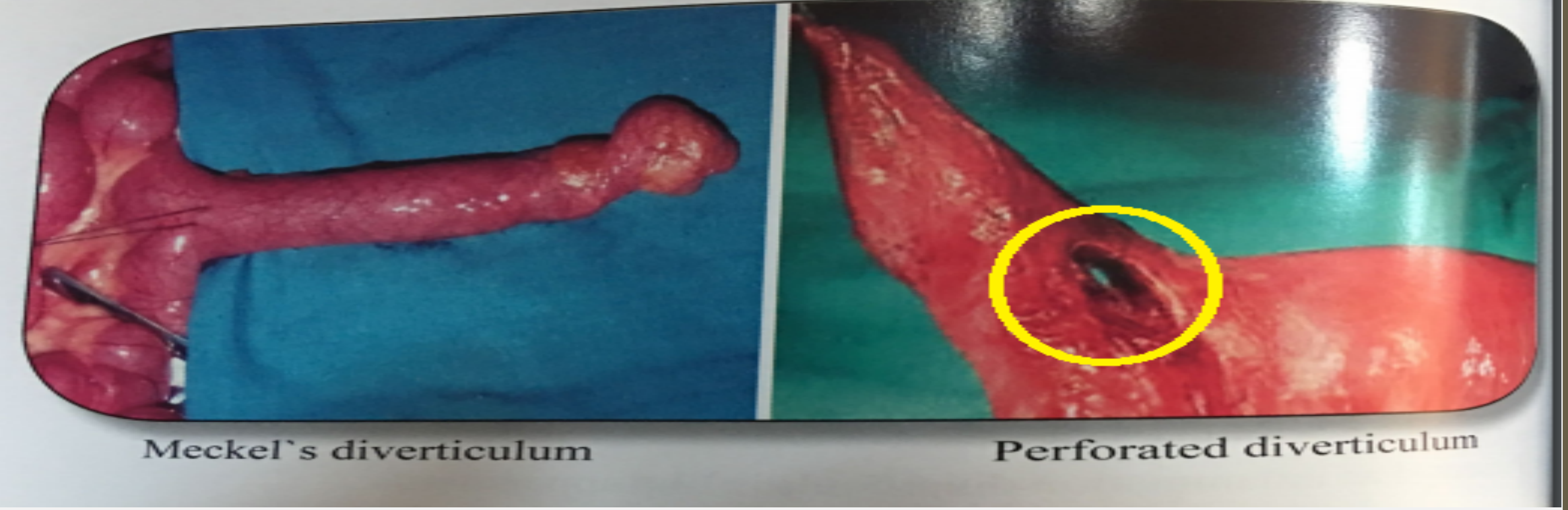
1- cardiac defects
2- congenital diaphragmatic hernia
3- duodenal atresia
4- esophageal atresia
5- imperforate anus
6- gastroschisis
7-omphalocele
8- malrotation
9- down's syndrome
10- hirschsprung's disease



- The rule of 2*7 :

1- 2 feet from the ileocecal valve
2- 2 inches long
3- 2cm in diameter
4- 2 heterotopic tissue (pancreatic & gastric)
5- 2% of the population
6- 2 times more common in males
7- Presents before the age of 2.


Mesentery
Superior mesenteric vessels
Meckel diverticulum
A
Fibrous cord
Umbilicus
Meckel diverticulum
B
Umbilicoileal fistula
C
Vitelline cysts
Anterior abdominal wall
Umbilical sinus
Fibrous cord
Vitelline artery
Fibrous cord



- **Presentation depends on the age**
- **Symptoms include :**

-**Abdominal pain**
- **vomiting**
- **abdominal distenation**

- **Due to: intestinal obstruction / intussusception**

- **Older infants and young children present with painless lower GI bleeding**
- **Older children presented as inflammation diverticulitis like appendicitis**

Hemorrhage accompanied by other clinical feature :

1- intussusception	- Rectal bleeding (red currant jelly)
2- ulcerative colitis	-Bloody diarrhea with mucus - anemia & weight loss
3- bleeding in gastro-enteritis	-Bloody diarrhea with dehydration
4- familial polyposis	-rectal bleeding with anemia -positive family history -muco-cutaneous pigmentation

Massive haematamesis or melena :

1- esophageal varices in portal HTN
2- meckel's ulceration
3- necrotizing enterocolitis
4- stress ulcer in : - burns (curling's ulcer)
- intracranial injury (cushing's ulcer)
- sever toxic infection

Intestinal Abnormalities

1. what is the sign in the picture?
2. ddx?
3. give one presentation?
4. How to diagnose afetus in these cases (prenataly) ?
5. What is the management?

Answeres

1.Double bubble sign

2.Duodenal atresia

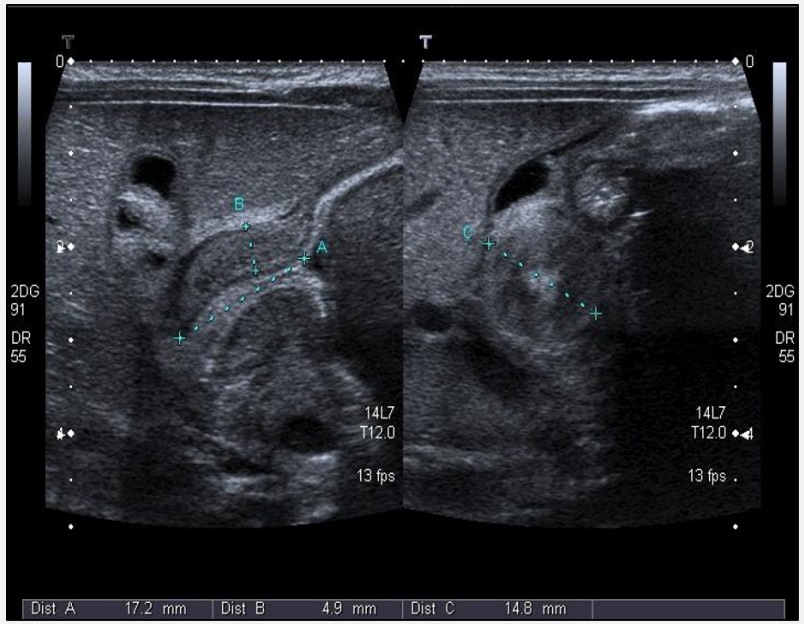
3.Upper Abdominal distention,no pass of meconium, vomiting, scaphoid abdomen on examination

4.On US {polyhydramnios}

5. duodenoduodenostomy.

HPS

1.what are the findings on US& Barium meal?
2.findings on physical examination?
3. symotomes that the patient come with?
4. Metabolic abnormalities the patient has?
5. management?



1. Signs of pyloric stenosis (thickness>4mm, length> 16 mm) & string sign on barium meal
2. Olive mass , guarding, rigidity , visible peristaltic waves in the upper abdomen
3. progressive projectile nonbilious vomiting without signs of infection
4. Hypocloremic hypokalemic metabolic acidosis
5. Pyloromyotomy

Intestinal atresia

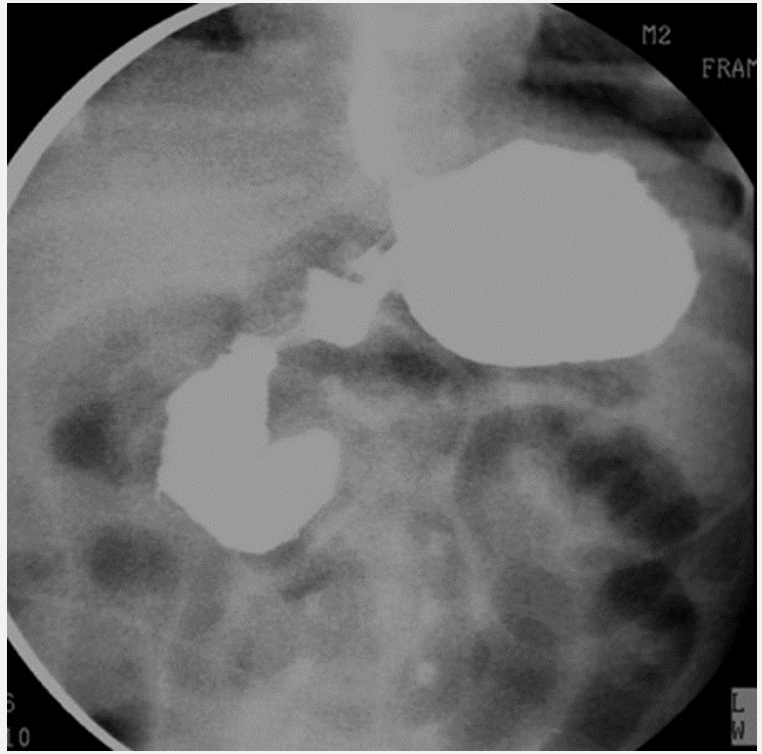
- What is the sign seen in the picture ?
- Ddx?
- Symptoms the patient come with?
- How to diagnose it prenatally?
- Management?

Answers

- triple bubble sign
- Jejunal or ilial obstruction
- Bilious emesis is always present, abdominal distention, failure to pass meconium.
- Polyhydraminos on US
- Abdominal exploration with resection of proximal, dilated bowel with primary end-to-end anastomosis.

Malrotation

- Finding?
- Cause?
- Symptoms the patient come with?
- Treatment ?

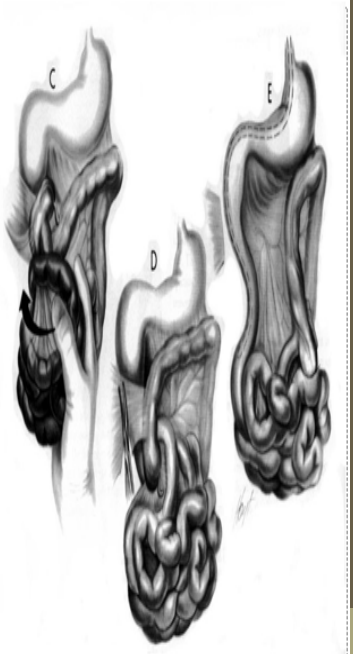


Answers

- DJ junction lies right to spine
- abnormal rotation or non-rotation of intestines
- Bilious emesis
- Open Ladd's Procedure
-

Operation

- **Open Ladd's Procedure**
  - RUQ transverse incision or midline laparotomy
  - Eviscerate intestinal contents
  - Detorse counter-clockwise if volvulus is present
    - Resect grossly necrotic bowel
  - Release Ladd's cecal bands
  - Broaden the small intestine mesentery
  - Incidental appendectomy
  - Place small bowel on right and colon on left

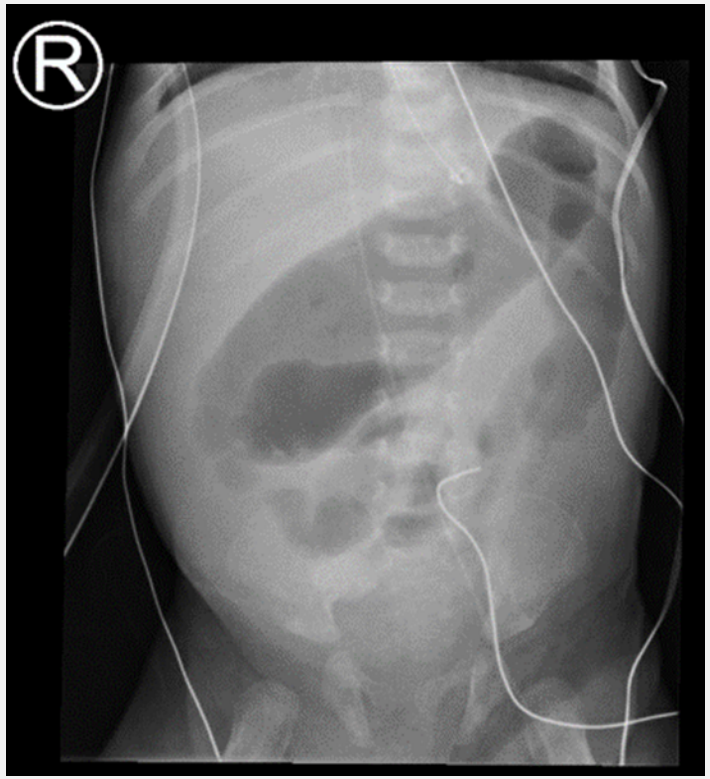


Meconium ileus (mi)

- Definition: obstruction of an intact distal small intestine due to inspissated meconium in the ileum and sometimes colon
- Present at birth: failure to pass meconium and abdominal distention
- Simple (50% of cases): obstruction with intact intestine
- Complicated: perforation, peritonitis, ascites
- Incidence: 1/3500 live births
- Occurs in10-20% of patients with cystic fibrosis (CF) (earliest manifestation)
- CF is autosomal recessive genetic disorder, mutation in the CF transmembrane regulator (CFTR) gene on 7q31 locus.
- Altered CFTR gene causes abnormal chloride transport.
- Meconium thickened due to pancreatic and intestinal glandular insufficiency, thickened secretions.
- Treatment: Contrast enema if simple, resection if complicated, treat underlying CF disease if present.

Hirschsprung Disease (HD) congenital aganglionic disease

- Findings ?
- Pathophysiology of the disease?
- Presentation?
- Diagnostic modalities of choice?
- Management?



Note:
Rectum is involved in all patients

Answers

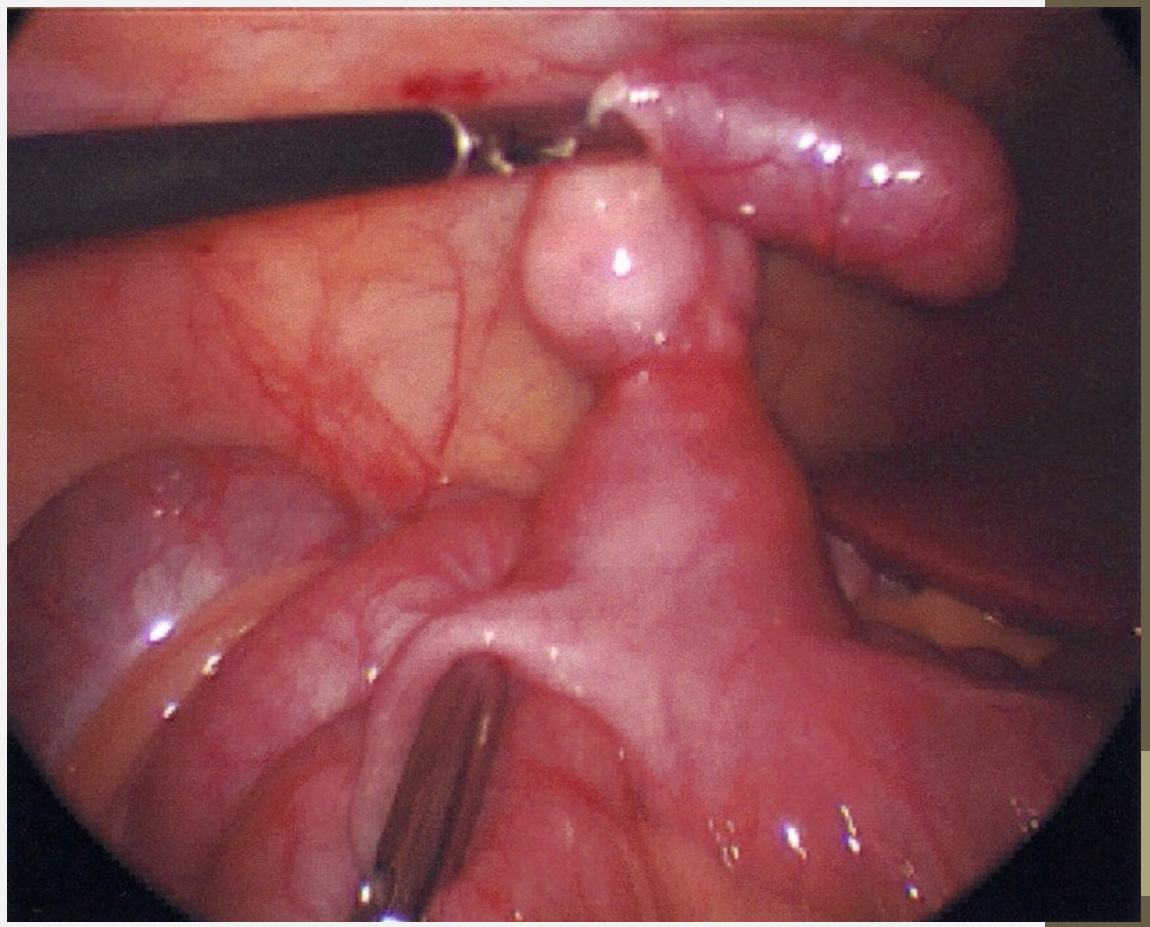
- dilated bowel with no gas in the rectum
- absence of parasympathetic ganglion cells in the myenteric and submucosal plexuses of the intestine due to failure to migrate to distal bowel (craino-caudal migration).
- Signs of intestinal obstruction
- Abdominal x-ray +Contrast enema (not “barium enema”) +Rectal biopsy

Management

- NPO
- IVF
- IV antibiotics with anaerobic coverage
- Rectal irrigation
- Pull through procedure is the definitive treatment, usually after age of 3 months.
- If rectal irrigation is not working at any time, or diagnosis was made at old age, leveling colostomy is the better choice before pull through procedure (at level of ganglionic cells)

Meckles diverticulum

- Presentation?
- What labs are needed?
- Imaging of choice?
- Management?



Answers

- Bleeding&obstruction&perforation if inflamed
- Cbc&electrolyte
- Meckle scan for bleeding&US &CT

- **Management**
  - **Pre-op:**
    - Hydration/transfusion
    - NG decompression
    - Antibiotics
  - **Operative:**
    - Laparoscopy/laparotomy
    - Bowel resection (Wide base) vs. diverticulectomy (Narrow base)

Intussusception

- What is this finding?
- Give ddx?
- What are the symptomes that the patient presented with?
- If the patient came with tachycardia&hypotension , it is indicator for?
- Ttt?
- Finding on US ?

Answeres

1.red current jelly like stool

2.Intussception

3.Symptoms of intestinal obstruction

4. dehydration due to severe vomiting

5. Either hydrostatic or pneumatic reduction Under fluoroscopic guidance + Gentle manipulation by pushing the intussusceptum out of the intussuscipiens + resection and primary anastomosis

6. Target sign

Inguino-scrotal conditions

Examination of groin and scrotum :

Principles :

- Always examine both sides
- examine the patient while lying supine and standing erect
- cough impulse is not feasible in babies and is replaced by crying or straining

Look for :

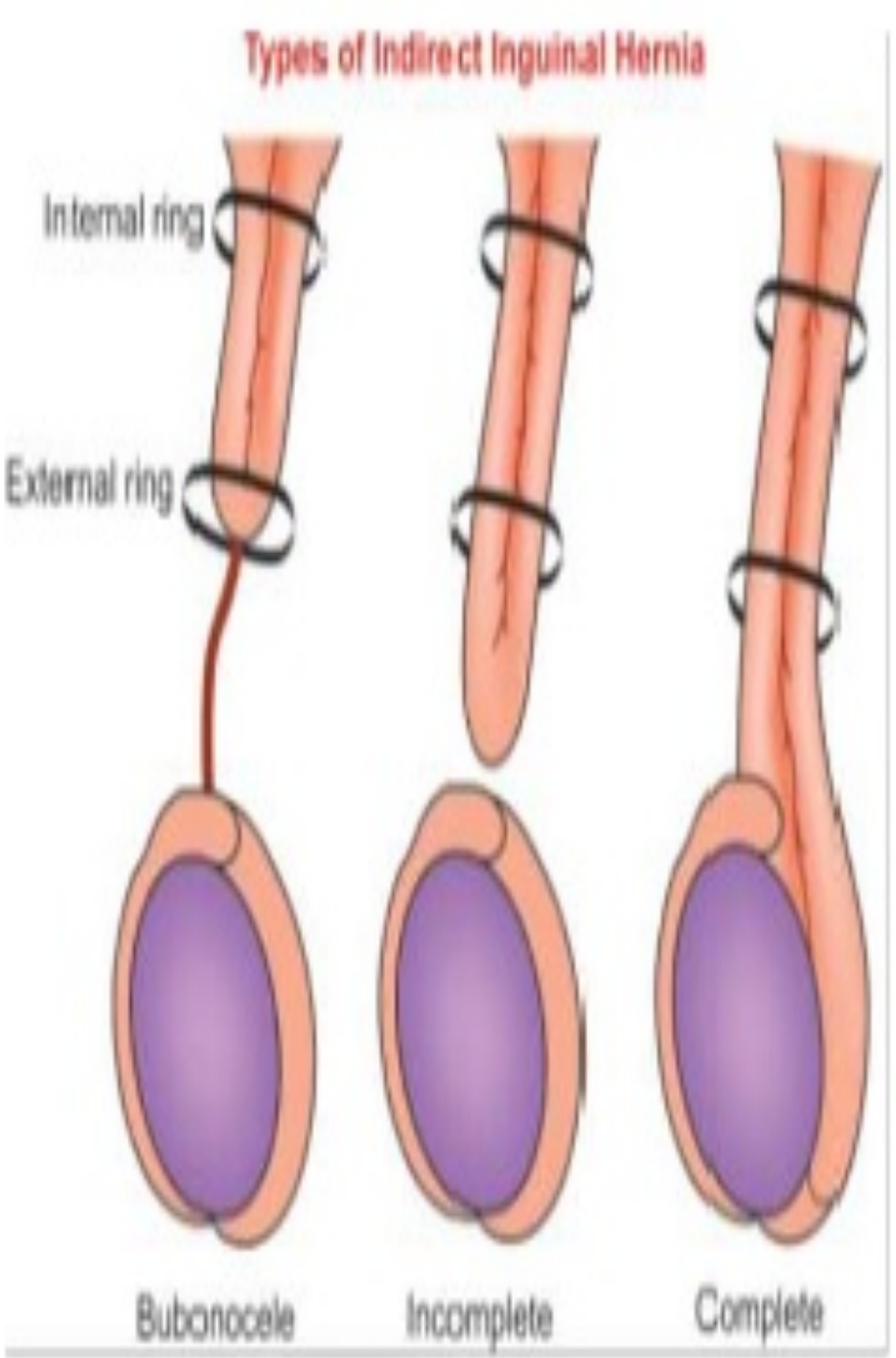
- Normal scrotal development
- Mass
- A lump and a cough impulse (crying)
- redness ,sinuses or scars
- transillumination

Feel :

- Examine both testes ,epididymi and cords to asses :
- tenderness and induration
- palpate for cough impulse
- can you get above it
- relation to the testis (above ,below ,within)
- consistency
- does it move separately or with the testis
- digital rectal examination

Inguinal hernia

- painless swelling in the inguinal area
- Persistence of the processus vaginalis can allow abdominal viscera to herniate through the internal inguinal ring
- bubonocele : sac doesn't extend beyond the external ring
- funicular (incomplete) : there is an obliterated segment that intervens between the tunica vaginalis and the herniating sac ,it may extend beyond the external ring
- complete (scrotal) : extends beyond the external ring into the scrotum and is in communication with tunica vaginalis.



Complete Right Inguino- Scrotal Hernia

Left Inguino - Scrotal Hernia

DDx:
-hydrocele
-retractile testis
undescended testis
inguinal lymph nodes.

•General Presentation :
-Painless swelling
- positive impulse on crying ,straining or coughing
- if no obvious hernial sac, (silk glove sign) sensation of rubbing two pieces of peritoneum indicates thick cord indicates the patency of processus vaginalis

•Incidence =1 – 2% of infants with male predominance ,peak age 1-3 months
• high familial incidence
• 60% on the right side ,30% on the left ,10% bilateral.
• content : loops of small bowel – omentum – ovary in girls or fallopian tube .

CASE 4:

Mom came to clinic with her baby who had this swelling

Q1: What would you ask the mother?

Q2: What are your differential diagnosis?

Q3: Complication and management?

A1: onset, duration, age, reducibility, increase in size with crying (cough impulse), projectile vomiting, constipation, distention.

A2:

1) inguinal harnia
2) hydrocele
3) undescended testis
4) retractile testis
5) inguinal lymphadenopathy

A3: obstruction, strangulation

in this age herniotomy

A)Obstructed inguinal hernia :

-A loop of small bowel becomes trapped in the hernial sac
-Almost always at the level of external ring
- usually seen in infants < 6 months months of age.

•**Presentation :**

-Infant cries lustily
- swelling in the groin
- no impulse on crying
- tense ,tender extends to the external inguinal ring
- generalized abdominal pain ,vomiting and abdominal distention
- later intestinal obstruction is established .

Strangulated Inguinal Hernia

U/S for strangulated hernia shows entrapped bowel loops

DDx :

-encysted hydrocele of the cord
-torsion of an undescended testis
-Torsion of fully descended testis
- lymphadenitis

B) Strangulated inguinal hernia :

•Implies there is an impairment of the blood supply ,it can follow incarcerated hernia.

• presentation

-Painful ,tender and irreducible lump in the groin

- intestinal obstruction ,strangulation progress to gangrene and perforation

- vomiting followed by volume depletion

•Effect :

-The testicular vessels can be severely compressed by tense hernia

□ 15% will develop some degree of atrophy

- in girls ,ovary can be trapped and strangulated

On exploration shows the strangulated loop of bowel & black testis

Incarcerated Inguinal Hernia

Management

- Reduction of the obstructed hernia by " Taxis "

Taxis

- The tip of the fingers are applied to the fundus of the hernia. while the fingertips of the other hand are cupped at the external ring.
- Gentle pressure with relaxing the other fingers reciprocally.
- Taxis is a manipulative trick.
- not a matter of force, while the infant is taking a bottle of feed, or after a sedative and elevation of the legs.
- Avoid reduction en- masse

Successful reduction

- Operation should be performed in 48 hours, to allow oedema of the sac to subside.

Unsuccessful reduction or strangulated hernia.

- Immediate operation

Operation

- Herniotomy

•**Complications :**

-**Bleeding**

-**Infection <1%**

-**Injury to cord structures <2%**

-**Recurrence 0.5-1%**

-**Iatrogenic cryptorchidism.**

*primary 90% communicate via a patent processus vaginalis with the peritoneum

•General Presentation :

- painless cyst containing fluid
-Transilluminate
- can get above it ,irreducible
- no impulse on coughing ,straining or crying

* Secondary due to infection, trauma and torsion .

• presentation according to age :

•In infants :

-unilateral or bilateral

-Strong tendency to close and absorb spontaneously ,90% of cases

- virtually all disappear by the age of 1 year

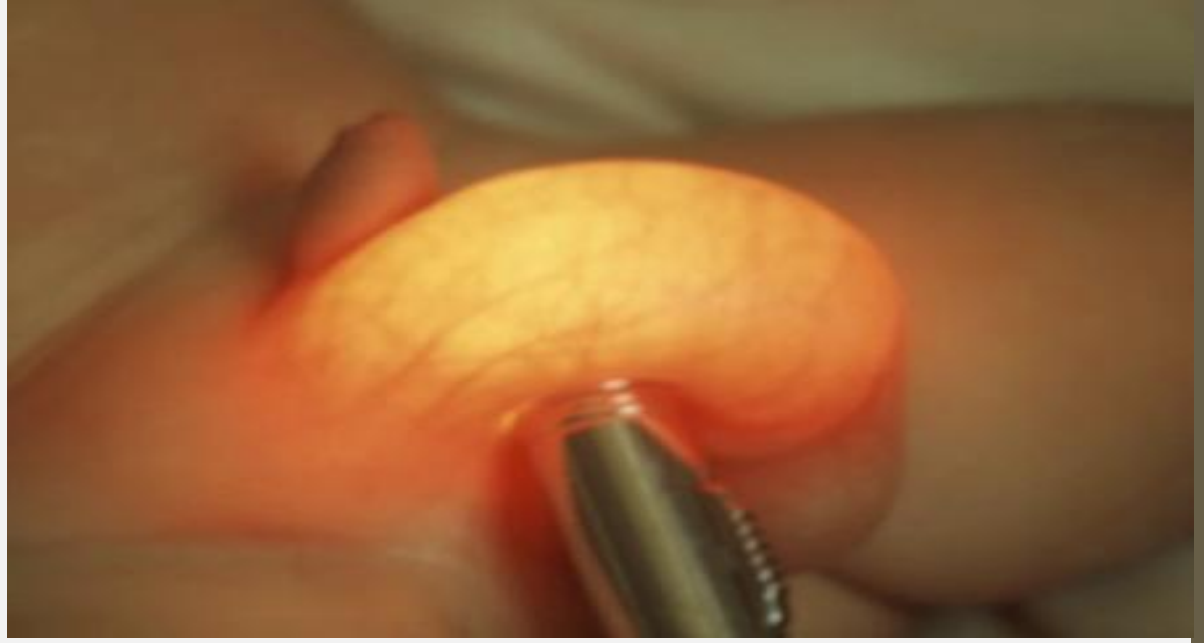
•In older children:

-Diurnal variation

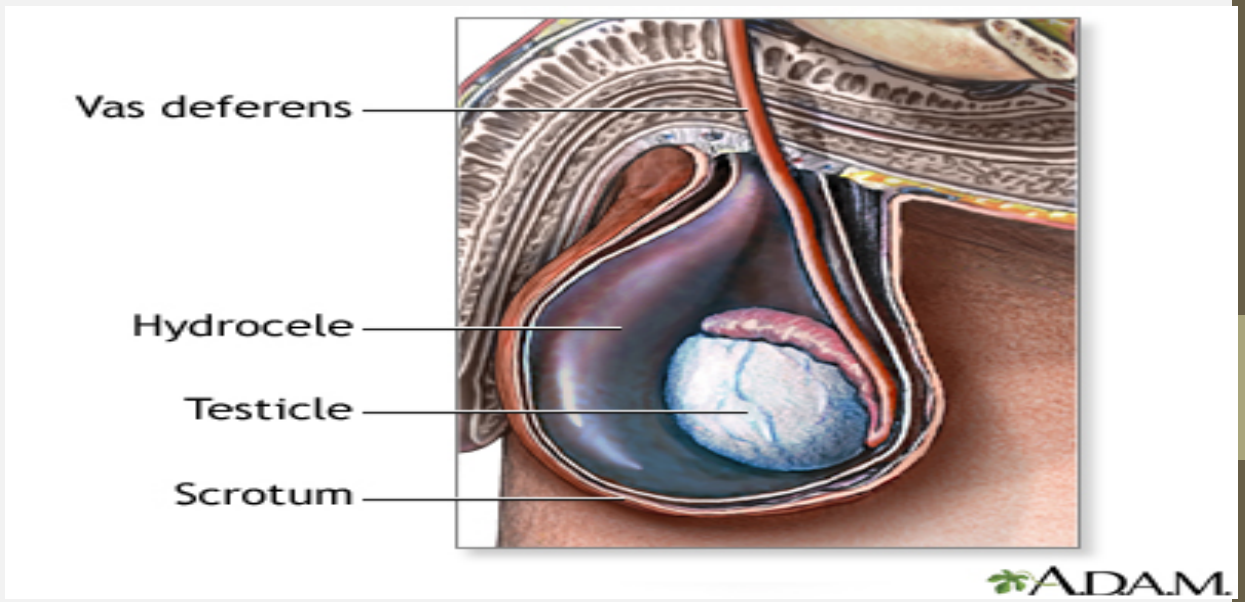
- Narrow ,tortuous communication

- rarely disappear spontaneously

- required high ligation of the communicating track .



Transillumination in a child with unilateral hydrocele



CASE :

This is a 5 year old boy

Give two clinical findings:
scrotal swelling/ transillumination

• What is the diagnosis?
hydrocele

•**Normal descent testis :**

-Occurs in the 7th and 8th months on intrauterine life

-Testicles descend along the inguinal canal into the upper scrotum

-Processus vaginalis is formed and pulled along with the migrating testicles

-At birth ,95% of infants have the testicle normally positioned in the scrotum .

***in undescended testis look for :**

-Associated hernia

-Ectopic testis

-Retractile testis

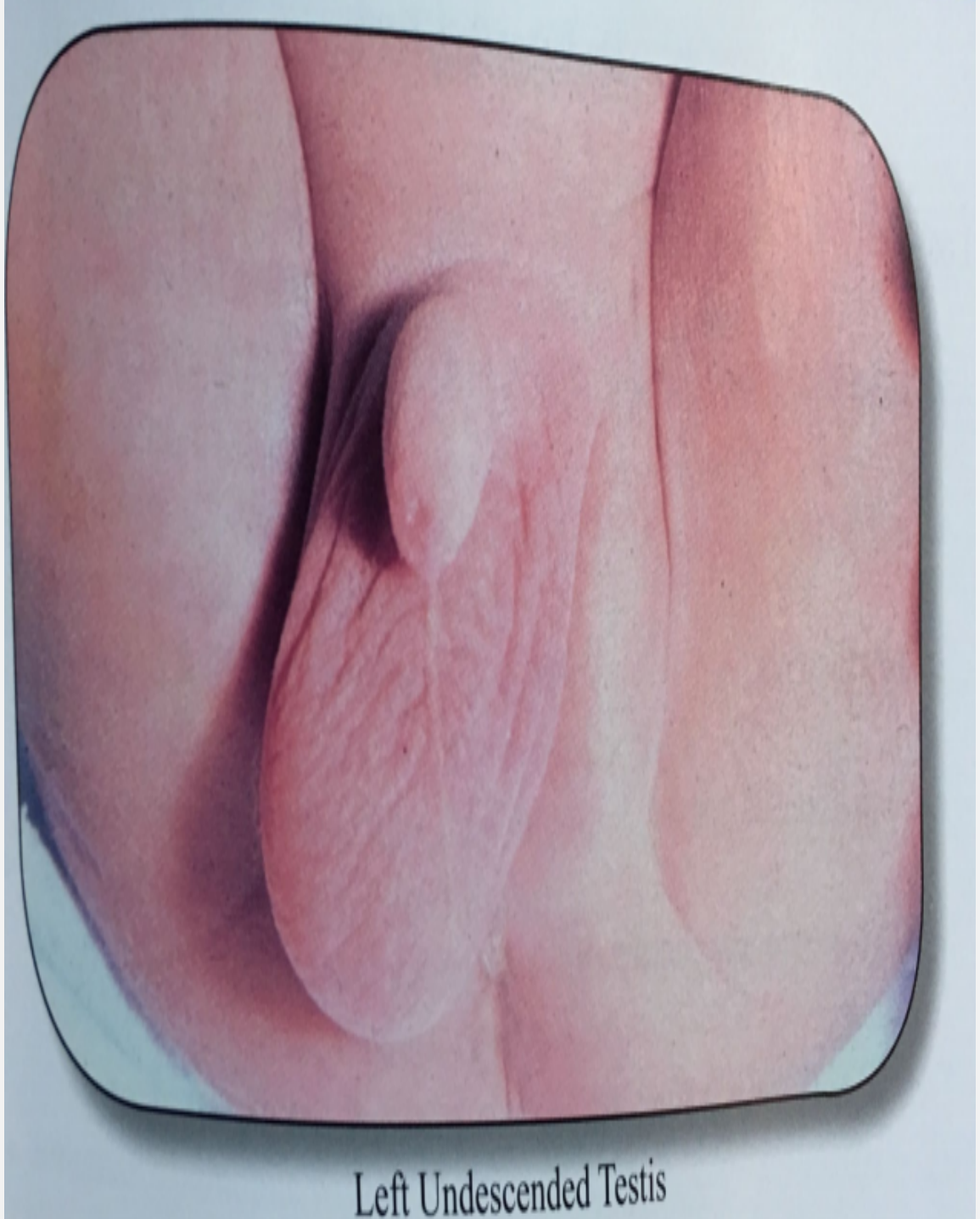
-Bilateral arrested descent

-Asses general development

-Other congenital abnormalities.

Undescended testis:

- Testis not in scrotum
- Can be arrested anywhere along its normal pathway of descent
- Cryptorchidism (hidden testis) = testis does not descend into its normal intra scrotal position
- 90% Unilateral 70% in the right side
- 10% Bilateral



Left Undescended Testis

Retractile testis

- Normally descended testis but retracts in to the upper scrotum or groin due to hyper active cremasteric response.
- Can be manipulate the testis down into the scrotum, where it should lie with out tension or restriction.
- Second examination a few months later, to confirm it.
- By increasing age causes the testis to spontaneously reside for longer periods in the scrotal pouch.
- No further intervention is needed.

Ectopic testis

- Accounts for about 10% of extrascrotal testes.
- Descended normally through the inguinal canal but then deviate into unusual sites.
- Normal size testis, and good length of spermatic cord.with no shortage of vascular length.

*** Sites of the ectopic testis :**

-At SIP = superficial inguinal pouch

-Inguino – perineal

-Perineal

-At the base of the penis (prepubic)

-At the thigh (femoral triangle)

•Complications of undescended testis :

-trauma

-torsion

-tumor

-poor function (spermatogenesis)

Management of undescended testes

Diagnosis

- Clinical information.
- Ultrasound, Ct, and MRI.
- Laparoscopy,

Treatment

- Orchidopexy is best performed at 6 – 24 months of age.
- To repair an associated hernia.
- To improve future fertility.
- To place the testis in an easily palpable position.
- To afford cosmetic and psychological benefit.

- 10 – 20% of undescended testes are associated with a clinical Inguinal hernia, the orchidopexy can be done at the same Time however young the child is.

- **Acute scrotum :**
- **Presentation :**

-Scrotal pain

-The child refuse to walk

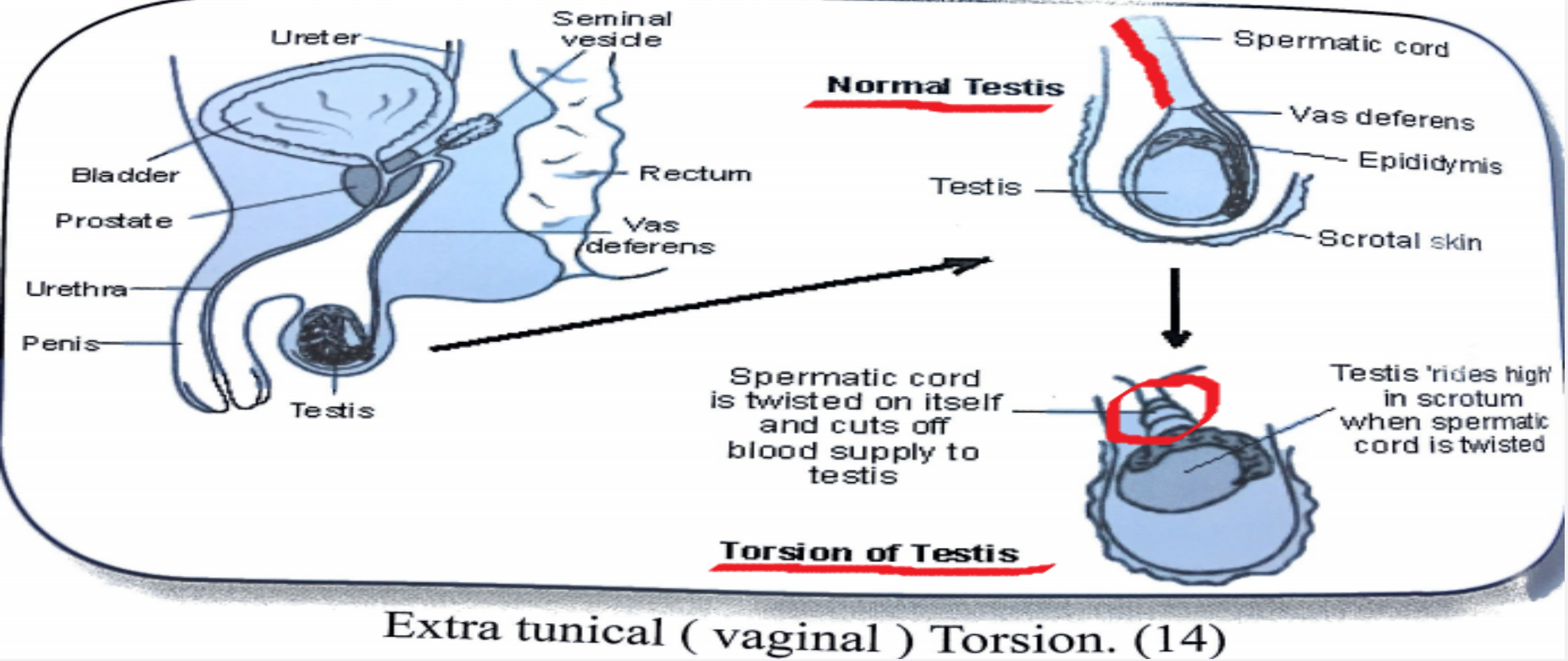
-Abnormal gait with abducted thighs.

#	Causes of acute scrotum:
1	Obstructed inguinal hernia
2	Torsion of the testis
3	Torsion of one of its appendages
4	Epididymo –orchitis
5	Idiopathic scrotal oedema
6	Inguinal lymph adenitis

•Testicuar torsion

•Occurs due to twist of the testis upon the spermatic cord causing venous congestion ,oedema leads to arterial obstruction and form gonadal necrosis.
•Is the commonest cause of acute scrotum among all age groups (1/4000 male)
•Incidence peaks in late childhood and early adolescence
•Predisposing abnormality (e.g: undescended testis) is almost always present .

•Types :
1- intra tunical (intravaginal): the testis rotates on the spermatic cord, but within the tunica vaginalis (tunica vaginalis doesn't rotate). Caused by Bell-Clapper deformity.
2- extra tunical (Extrvaginal): the epididymis, testis, and tunica vaginalis twist with the spermatic cord.



Extra tunical (vaginal) Torsion. (14)

- **Presentation :**

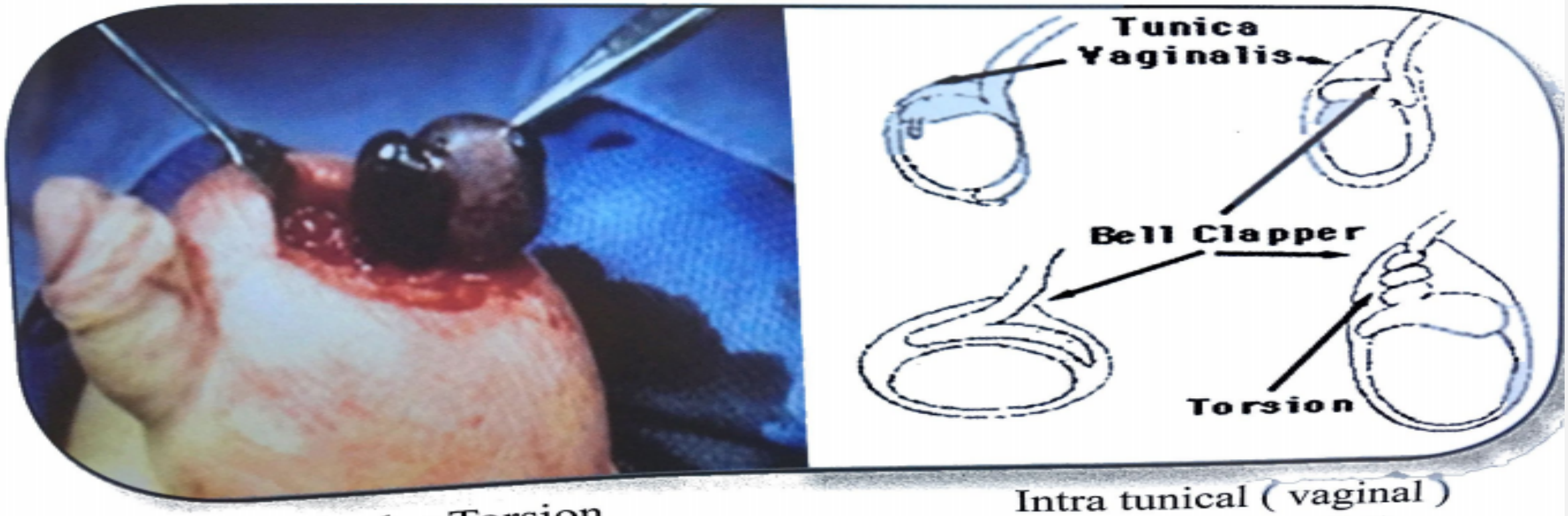
-Sudden onset of pain in the scrotum and lower abdomen

-Acute unilateral scrotal swelling

-Palpation of spermatic cord it will be thickened or twisted

-The testis is elevated within the hemiscrotum

-May see erythema of the overlying skin



Testicular Torsion
Gangrenous testis
Operative finding

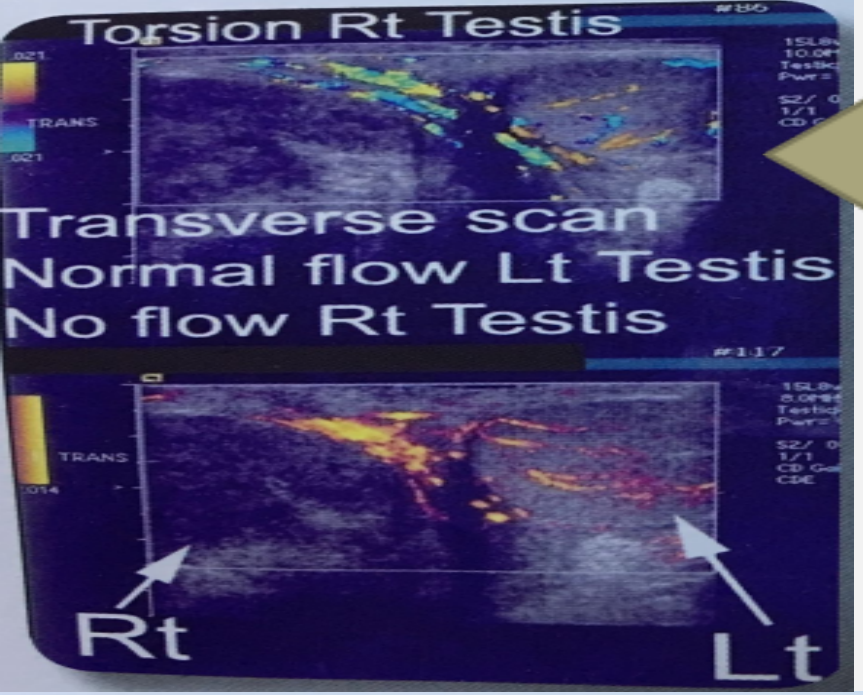
Intra tunical (vaginal)
Torsion (14)

*diagnosis :

-Clinical information

-Ultrasonography with color doppler

-Nuclear isotope testis scan.



Color doppler shows the blood flow

Ultrasound for the testicular torsion

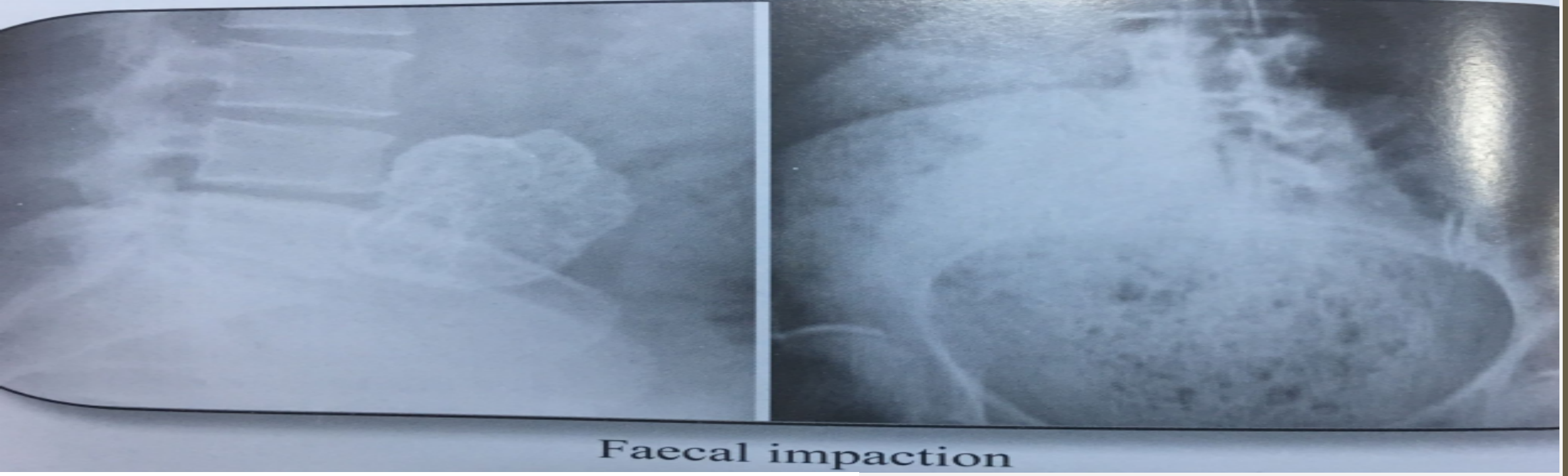
*Nuclear isotope testis scan

*Rt. dark gray area represents a testis with impaired perfusion (Doesn't take up the isotope).

Abdominal masses in children

- **Commonest abdominal masses in children :**

-The liver (below the costal margin until they reach 3 – 4 yrs.)
-Faecal impaction
-Full bladder.


Faecal impaction

Palpable masses related to GIT
1- appendicular mass
2- congenital hypertrophic pyloric stenosis
3- intussuception
4- volvulus ,tense loop of bowel
5- entrogenous cyst ,type of duplication
6- intestinal lymphoma
7- crohn’s disease

*** Common among children under 1 year of age**

Hydrocolpos X-ray
Soft tissue mass raise from pelvis

Imperforate hymen

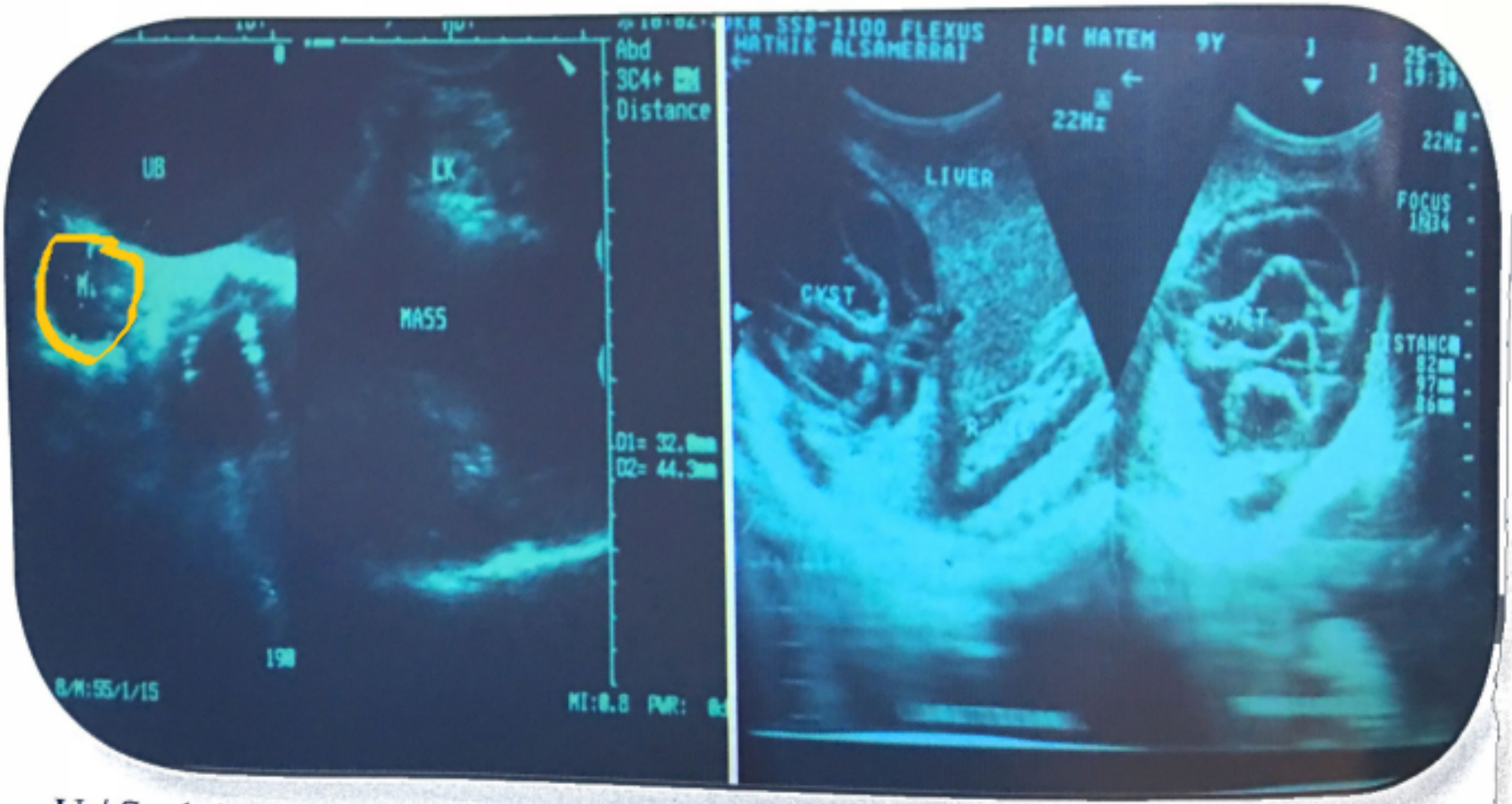
Lower abdominal mass in girls
1- imperforate hymen (hydrocolpos ,haemocolpos)
2- ovarian cyst
3- ovarian tumor

Right subcostal ,related to the liver :
1- hepatomegaly (cirrhosis – hepatitis)
2- biliary atresia
3- choledochal cyst
4- hydatid cyst
5- hepatoblastoma

Left subcostal
1-splenomegaly
2- hydatid cyst

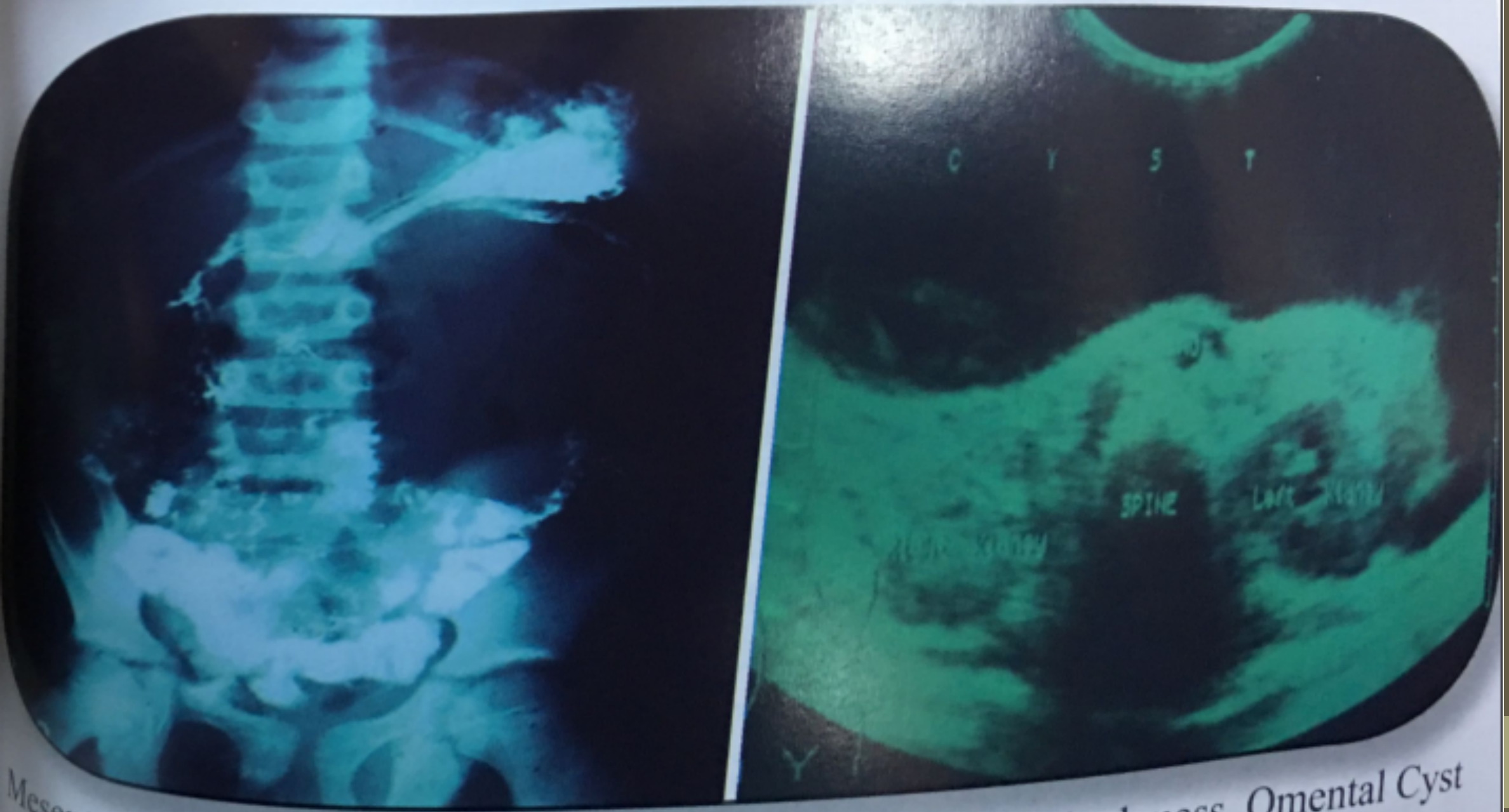
Mass in the loin ,relateto GU system
1- wilm’s tumor (nephroblastoma)
2- hydronephrosis
3- multicystic kidney

Others
1-neuroblastoma
2- retroperitoneum teratomas



U / S, abdominal mass (Lymphoma)

U / S Hydatid cyst in the liver



Mesenteric mass as shown by barium U / S ,Abdominal mass Omental Cyst

Nephroblastoma (wilm's tumor)

- The most common primary malignant tumor of the kidney in children
- Originates from the primitive embryonic cells
- Pathologically ,it is formed of renal tissue with various degrees of differentiation ,produce a mixed histological picture of epithelial calls

- **Presentation:**

-60% present before the age of 3 yrs ,with symptoms as hypertension ,hematuria ,weight loss

-10% bilateral

-90% present as abdominal mass (asymptomatic)

-40% metastatic spread at presentation ,but with good prognosis

- **Diagnosis:**

-ultrasound

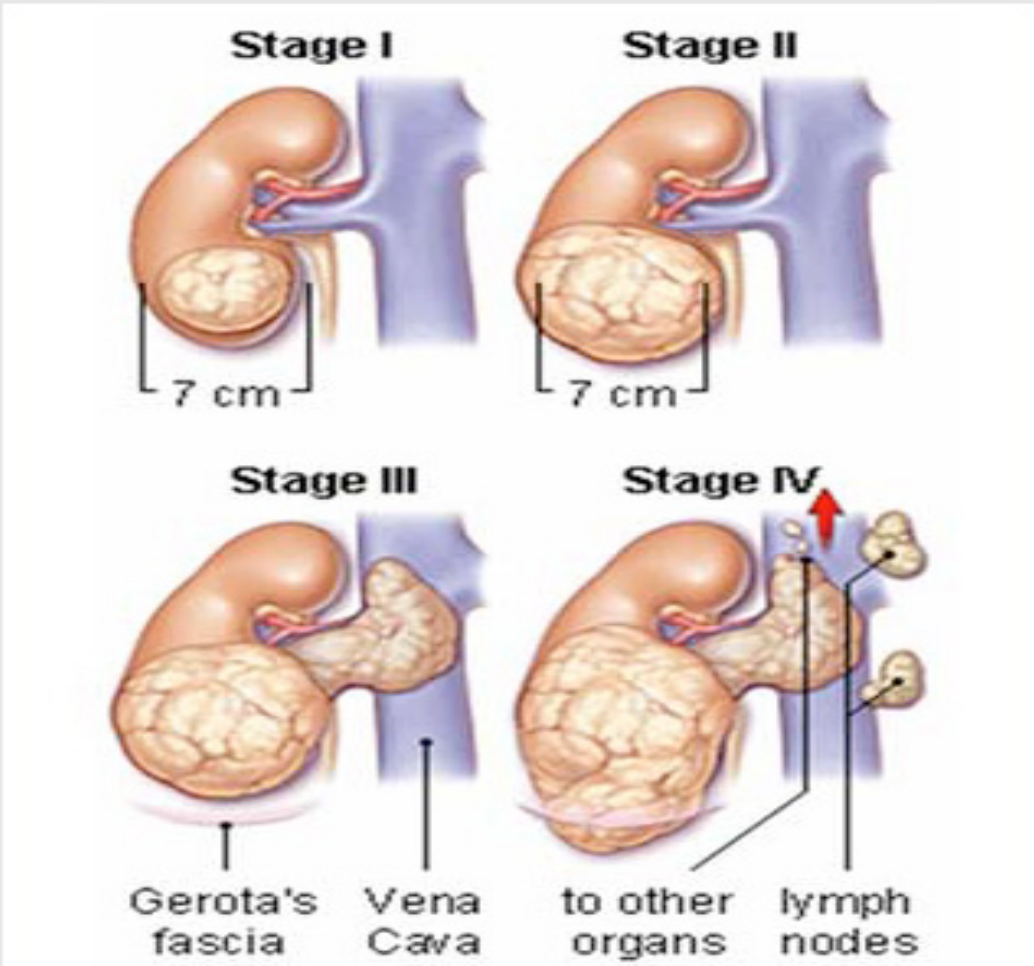
- CT scan

•**Stage 1:**

- Limited to the kidney and completely resected

•**Stage 2:**

- Extend beyond the kidney ,completely resected ,L.Ns do not contain tumor



Stages of Kidney Cancer

•**Stage 3:**

-Tumor may be of any size and has spread to nearby major veins or L.Ns

-Deposites of tumor are found around the lining of the abdominal space

-Cancer cells are found along the edge of the removed sample

-The tumor is removed in more than one piece.

•**Stage 4:**

-the cancer has spread through the blood to organs away from the kidneys.

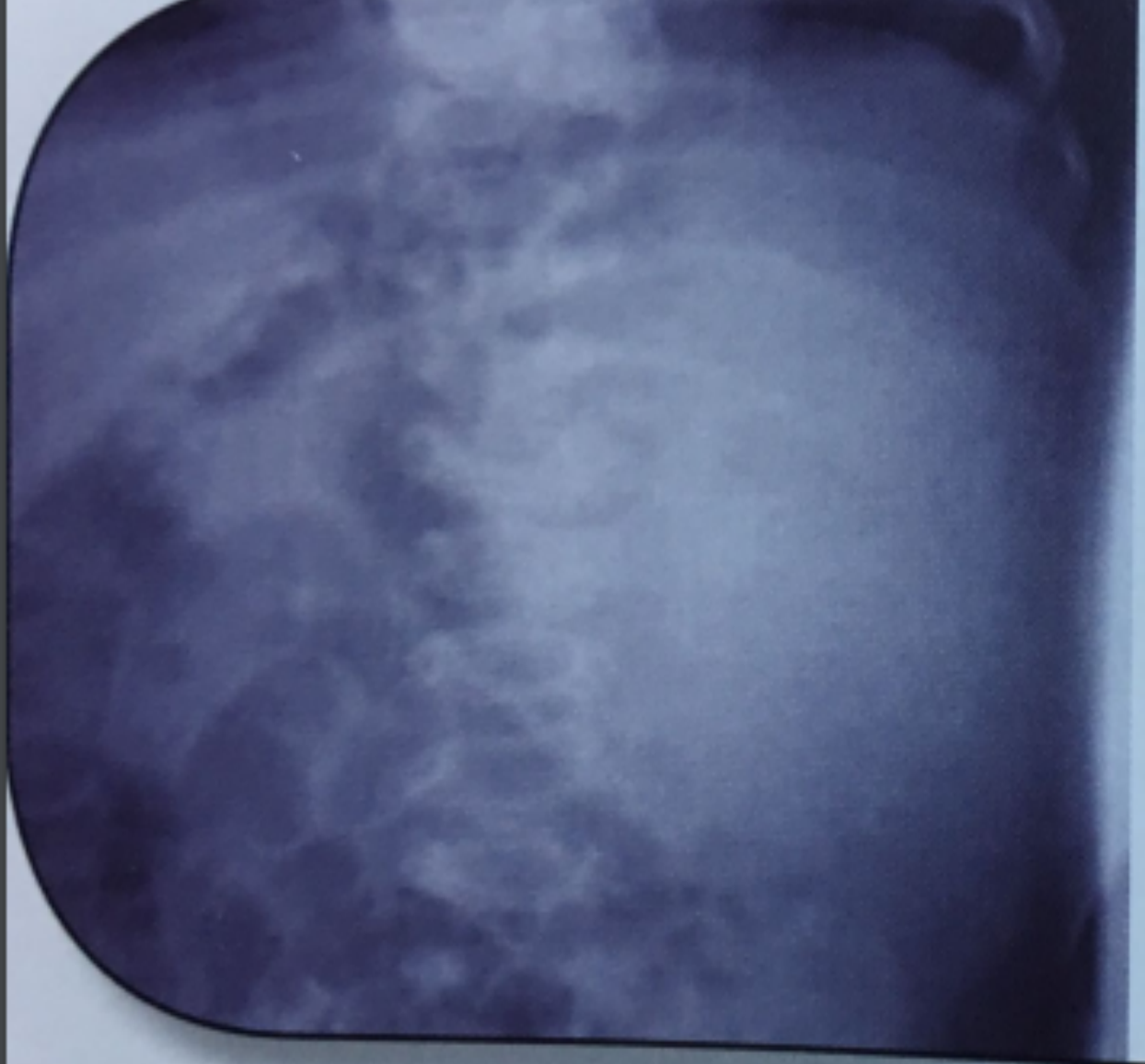
•**Stage 5:**

- Bilateral renal involvement at diagnosis

CT scan for huge Wilms tumour crosing the midline

Operative Specimen

CT Scan



Plain abdomen (soft tissue mass)
Retroperitoneal displaced the bowel

IVP, distortion left kidney
(Wilms Tumour)

Neuroblastoma

- Most highly malignant and the THIRD most common pediatric malignancy
- Arises from neural crest tissue –usually adrenal medulla or sympathetic ganglia
- 75% are abdominal
- Usually occurs if first 5 years of life
- Presentation: depended on the site of tumor and presence of metastases (bone and pulmonary metastases are common)

-Pallor ,weight loss

-90% have increased urinary VMA and MHMA

-Abdominal x-ray may show diffused speckled calcifications

- Diagnosis :

-Confirmed by ultrasound and CT-scan

-Bone scan and bone scintigraphy can detect bone metastases

International Neuroblastoma Staging System (INSS)

1- On one side of the body,
- All visible tumor is totally removed by surgery.
- Lymph nodes out side the tumor are free.

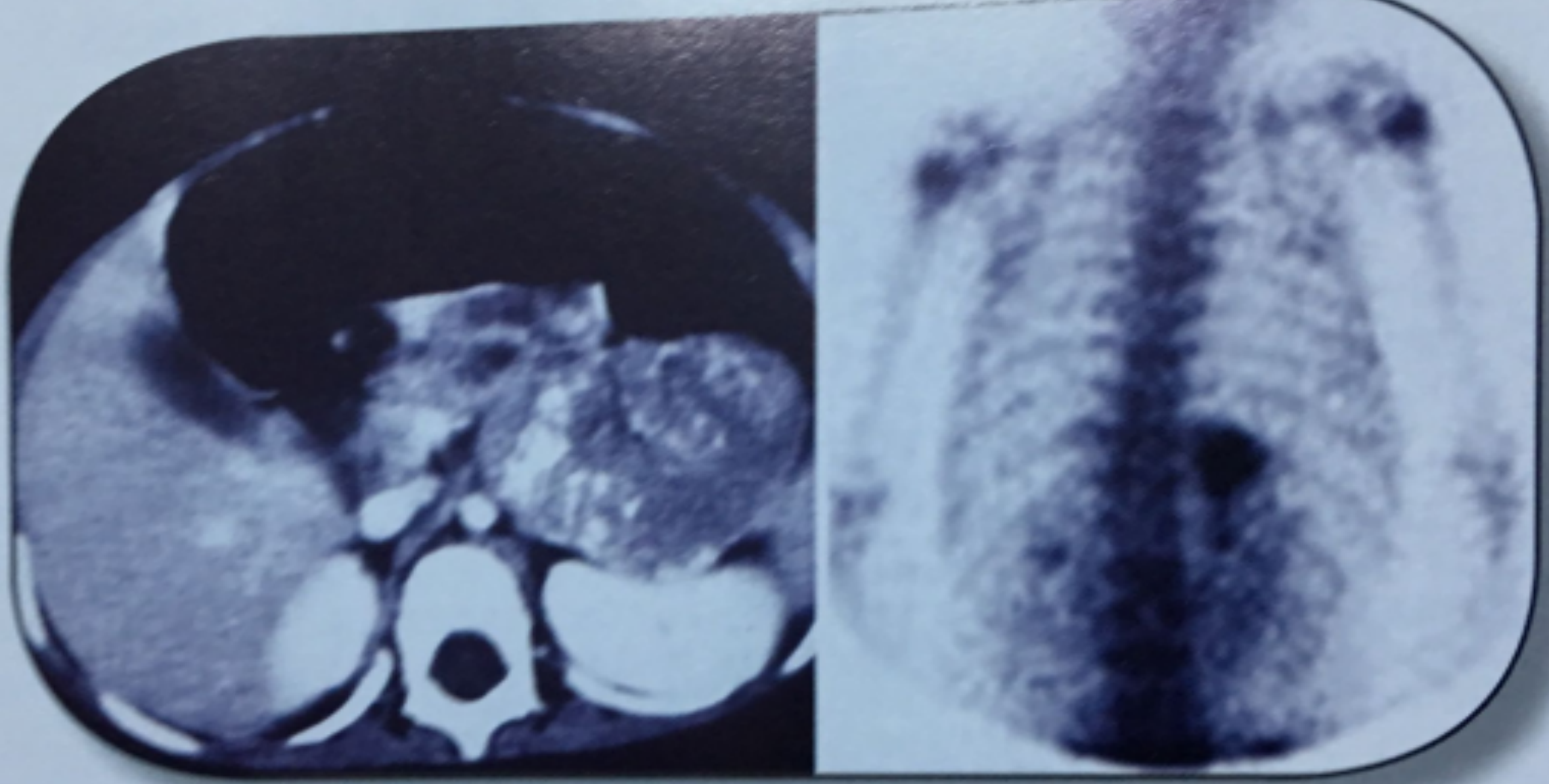
2A- On one side of the body.
- Not all the visible tumor can be removed.
- Lymph nodes out side the tumor are free.

2B- On one side of the body.
- May or may not be able to be totally removed.
- Lymph nodes out side the tumor are involved.
- Other sides of the body or elsewhere are free.

3- The cancer has not spread to distant parts of the body.
One of the following is true.
1- Can not be completely removed, crossed the midline.
2- It has spread to lymph nodes on the other side of the body.
3- Tumor is in the middle of the body and growing toward
Both sides directly or by spreading to lymph nodes.

4- Spread to distant site, lymph nodes, bone, liver, skin, bone marrow.

4S- (Special neuroblastoma)
- Child younger than 18 months old.
- On one side of the body.
- May spread to lymph node on the same side of the body.
- Spread to the liver, skin and or the bone marrow.



CT scan

Positive bone scan

Neuroblastoma

Nephroblastoma (wilms)	Neuroblastoma
2 – 5 yrs	<1 year
M=F	M>F
Renal tumor	Neural tumor
Commonly metastasis to lung	Rarely metastasis to lung
Abdominal mass	Abdominal mass
Non calcified mass	Calcified mass
Doesn’t cross midline	Cross midline
Usually a smooth mass	Usually a hard mass

hydronephrosis

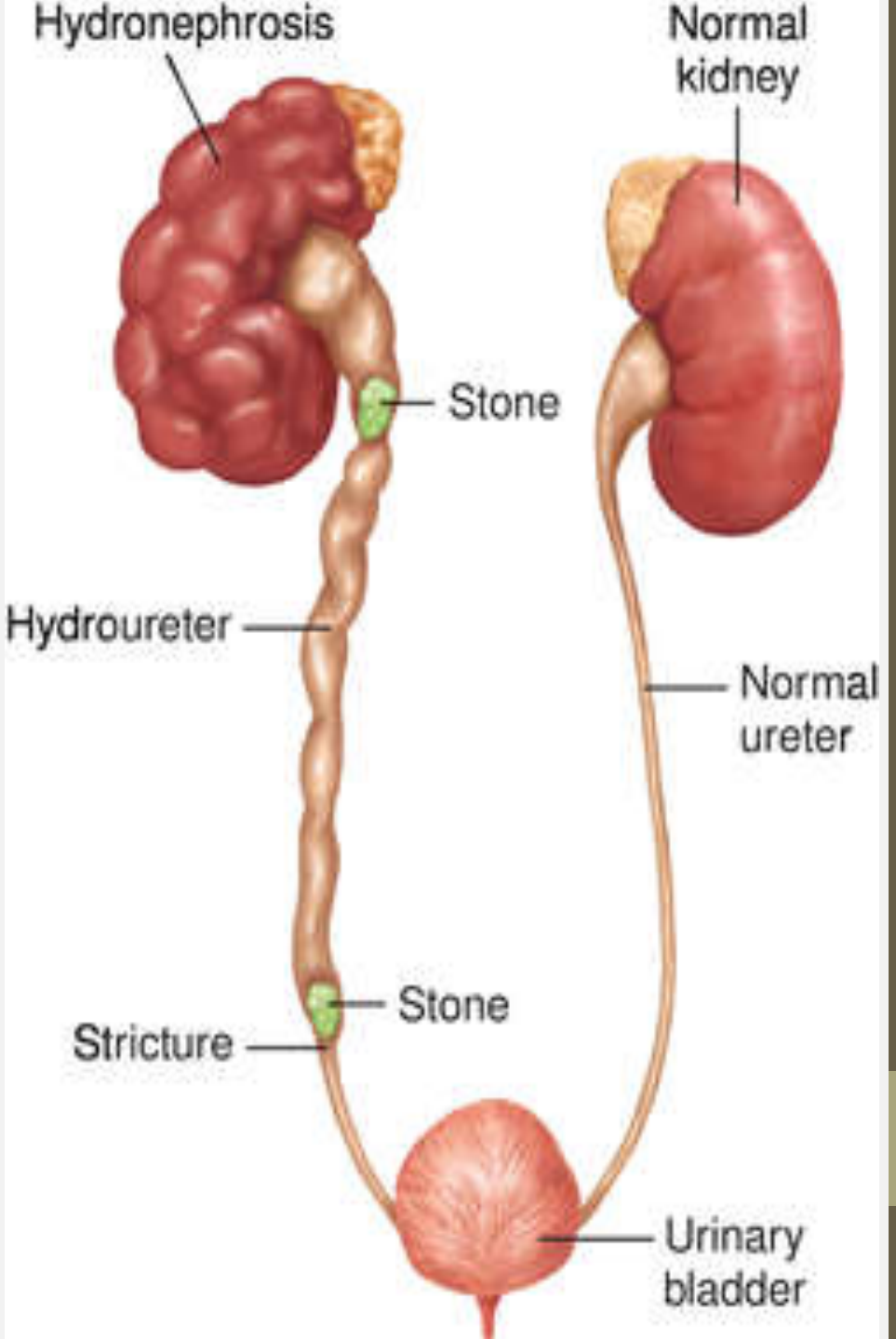
- Dilatation of renal pelvis and calyces ,with atrophy of the parenchyma
- 4 to 5 times more common in M than F
- Can occur in one or both kidneys
- Most mild to moderate cases resolve spontaneously while severe cases may require surgery

- Common conditions responsible for it:

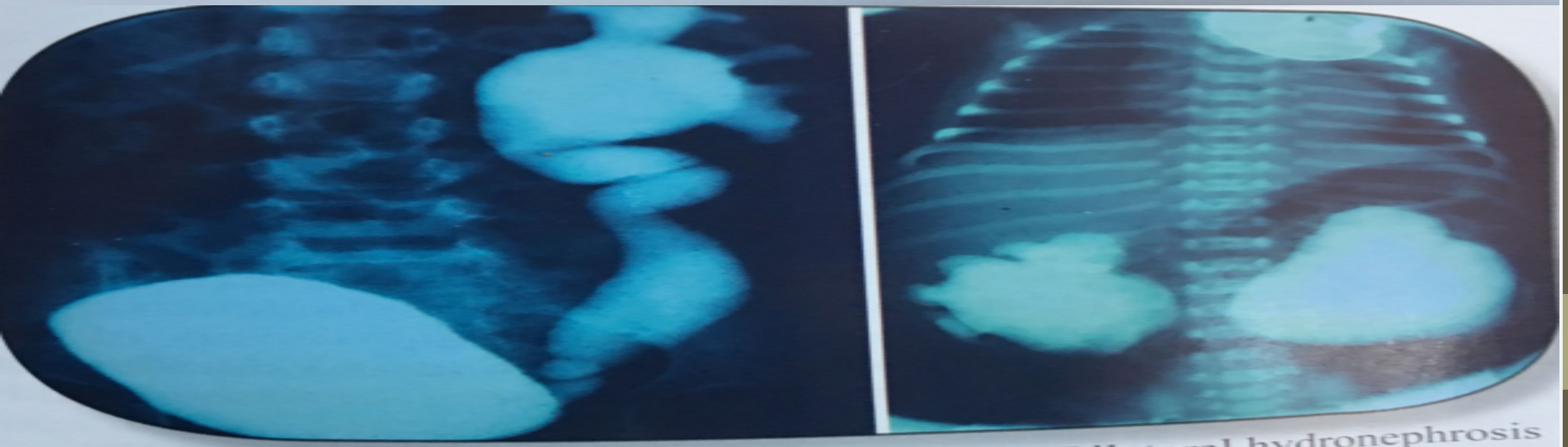
-Uretro pelvic junction obstruction
-vesico-urethral reflux
-Posterior urethral valves
-Ectopic ureter
-Uretrocele

- Diagnosis :

-Voiding cystourethrogram (VSUG)
-Renal ultrasound
-Intravenous pyelogram (IVP)
-Kidney scan (MAG3 ,DTPA ,DMSA)



Left Hydronephrosis



Left hdronephrosis

Bilateral hydronephrosis

Head and neck lumps

Neck masses

Anterior midline

-Thyroid

-Thyroid associated lumps : - ectopic thyroid

- thyroglossal cyst

-Plunging ranula

-Dermoid cyst

Anterior triangle

-Branchial cyst /sinus

-Carotid aneurysm

Posterior triangle

- Lymph nodes

Supraclavicular fossa

-Innominate or subclavian aneurysms

-Lymph nodes (virchow's nodes)

Submandibular area

-Submandibular salivary glands

Parotid area

- Parotid gland

Others

-Cystic hygroma

-Extra angular dermoid

-Buccal cysts and sublignual ranula

Examination of a lump

Look (7XS)

- Site, Position
- Size, in two direction
- Shape
- Surface, scar, sinuses,
- Surrounding, regional lymph nodes
- Skin, colour at rest and with pressure
- Shine a light, translucency

Feel (5XT)

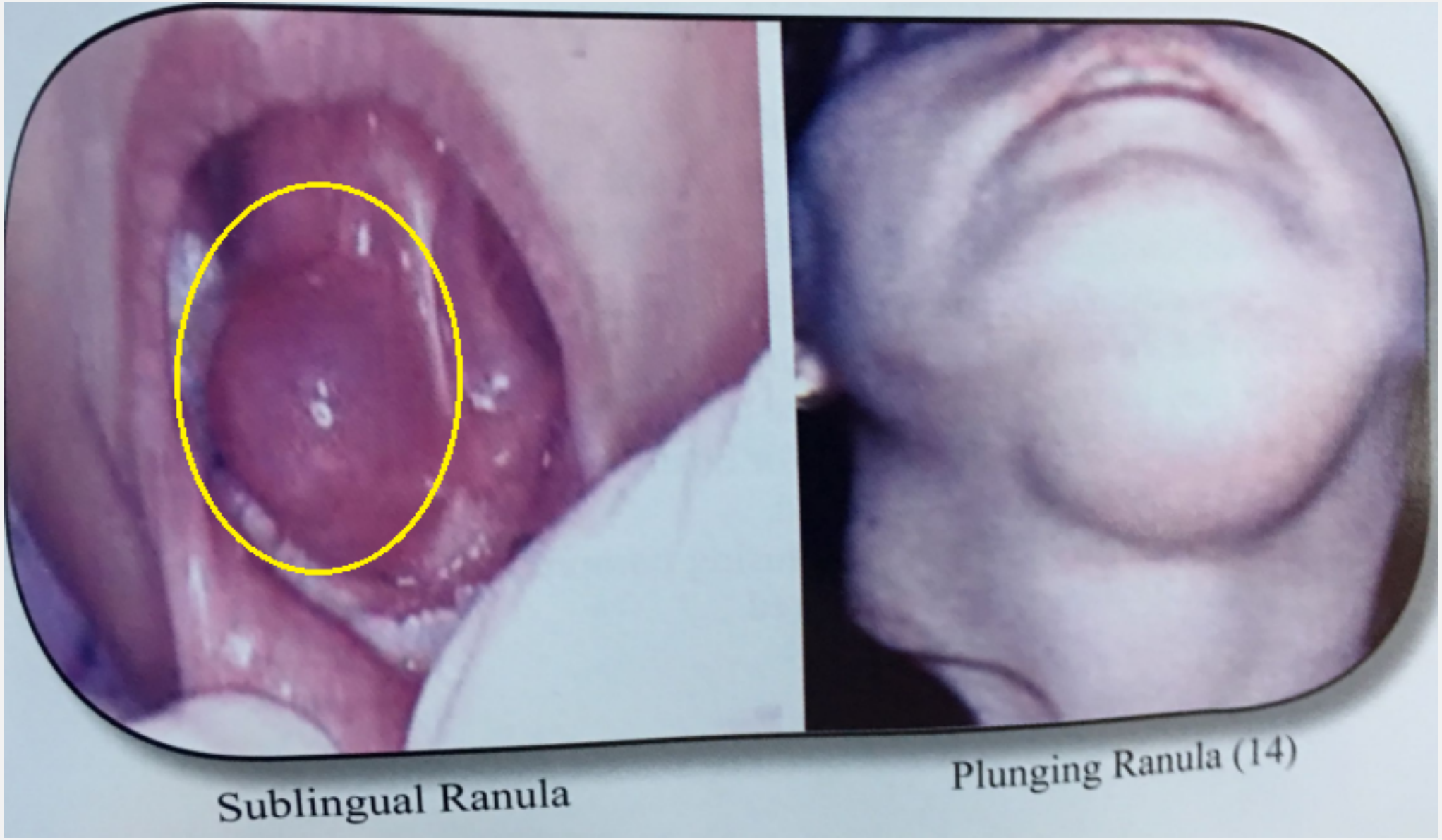
- Tenderness
- Temperature
- Texture, smooth, rough, hard, soft, rubbery, spongy
- To press on it, Pulsatile, compressible, thrill.
- To feel its edge, discrete, ill defined, to get above/ below/ beside it.

Move (3XD)

- Does the lump move spontaneously with respiration.
- Does the skin move over the lump
- Does the lump move over the underlying structures.

Listen

- Bruit


Sublingual Ranula
Plunging Ranula (14)

Neonatal goiter (cretinism)

- Generalized enlargement of the thyroid
- Most cases are sporadic or due to mother's ingestion of iodine ,uracil containing preparations
- May be caused by a congenital enzymatic defect in the thyroid hormones pathway.
- May lead to hypothyroidism if left untreated

- **Presentation :**

-The child may come with symptoms of respiratory distress with or without obstruction of upper airways

* Small doses of thyroxine may be required

Thyroglossal duct cyst

- **Fluid filled sac locate at the midline of the neck ,it is a congenital defect –found from birth-**
- **Due to the presence of residual thyroid tissue in the thyroglossal duct after the normal descent of the thyroid gland**

- **Most commonly occur in children before the age of 5 yrs.**
- **Majority are found at the level of the thyrohyoid membrane ,under the deep cervical fascia**
- **Occasionally ,they appear after upper respiratory tract infections when they become enlarged and painful**
- **Presentation :**

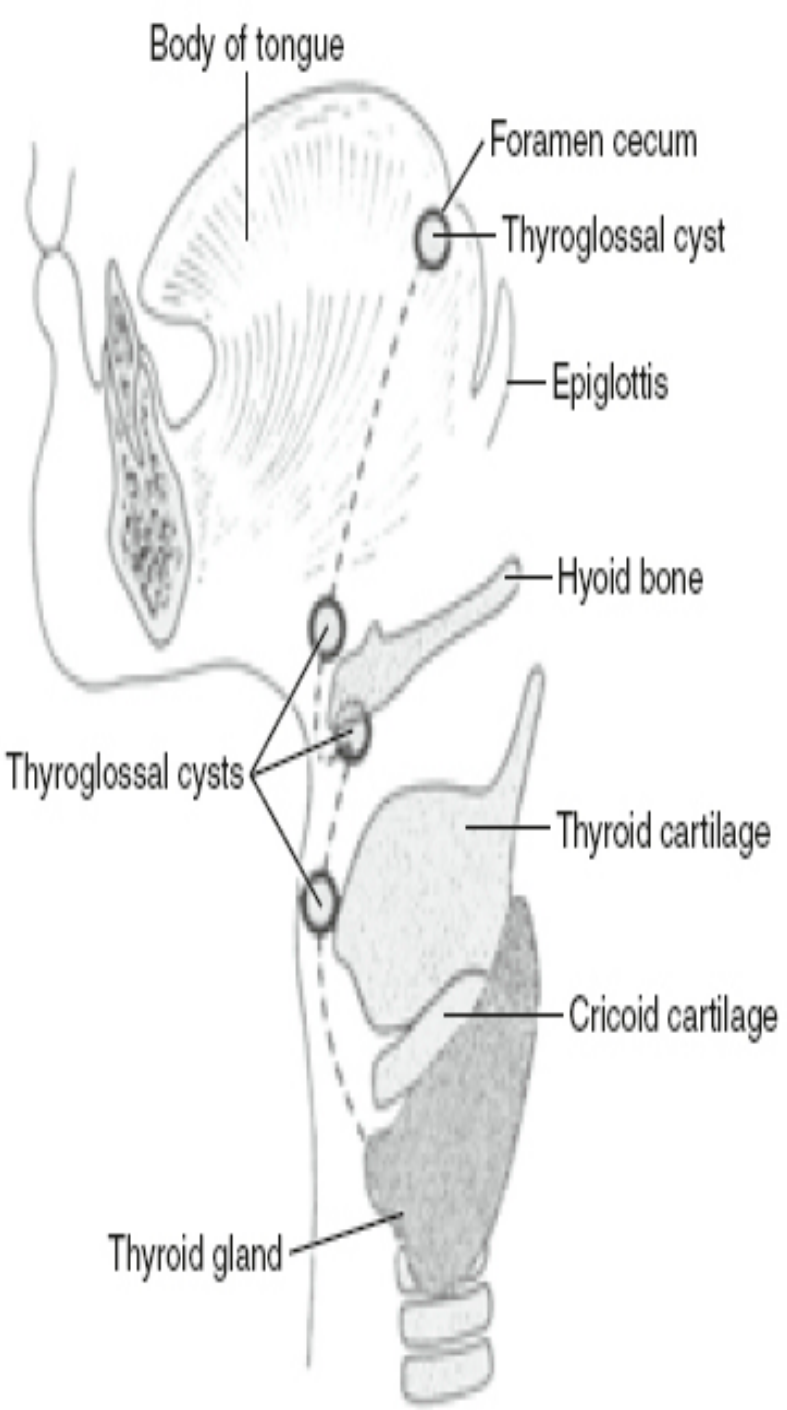
-Midline lesion occurs any where along the path of the duct

-Painless ,fluctuant ,movable mass

-Midline or just off midline

-Move up and down upon swallowing or protrusion of the tongue

-Fistula will occasionally develop



•**Findings :**

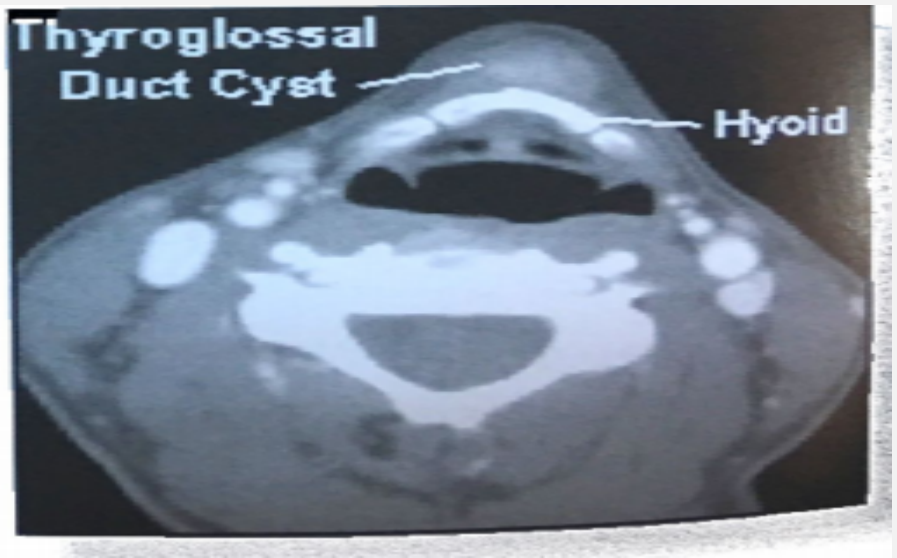
-**Physical examination** protrustion of the tongue causes it to move up & down

-**Ultrasound** important to determine if the thyroid gland is in its normal position

-**Ct scan** on occasions if its necessary

***DDx :**

- Thyroid neoplasm (teratoma ,MEN-2)
- Dermoid cyst
- Submental L.N.
- Lipoma ectopic thyroid
- Sebaceous cyst

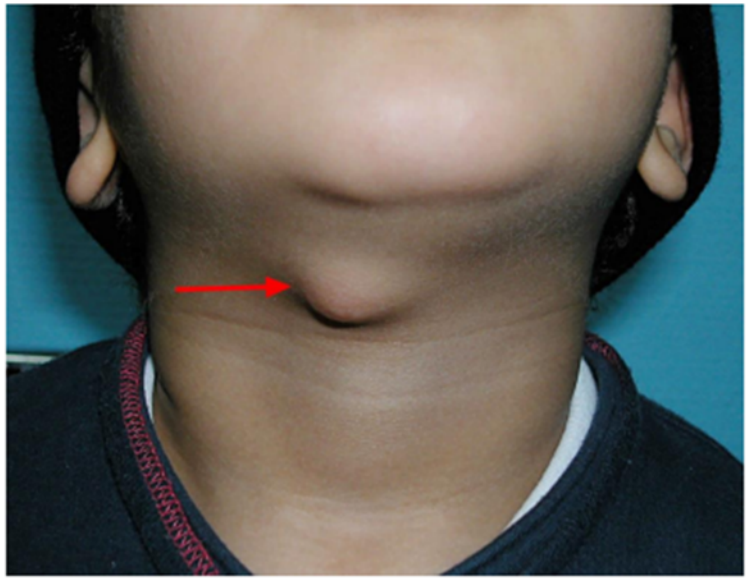


Thyroglossal abscess

Thyroglossal cyst

NECK ANOMALIES

- 1. ddx?
- 2.what is the origin of this mass?
- 3.how to distinguish it?
- 4.give 2 presentation?
- 5. what is the treatment?what bone is involved?
- 6.complications?

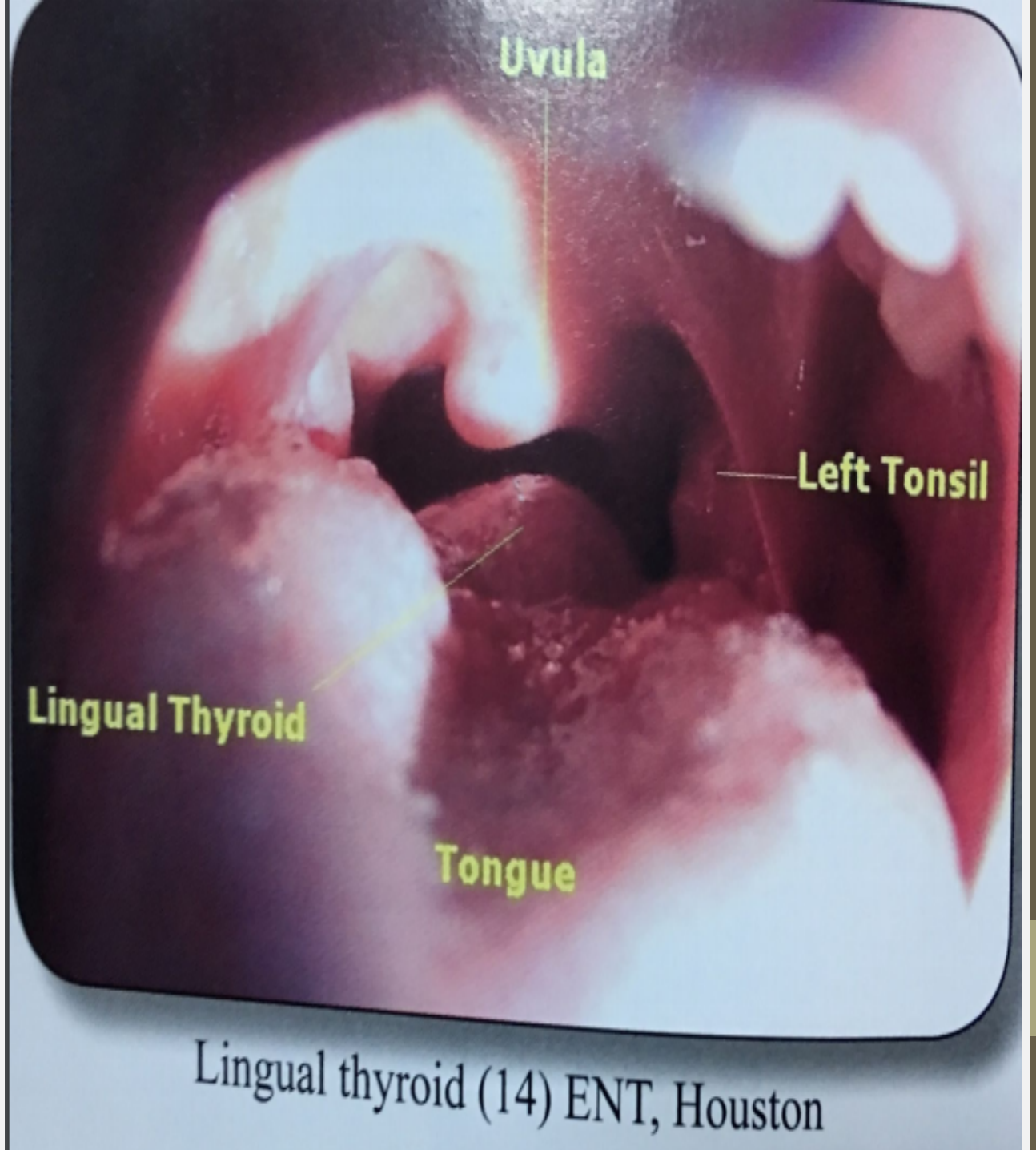


Answers

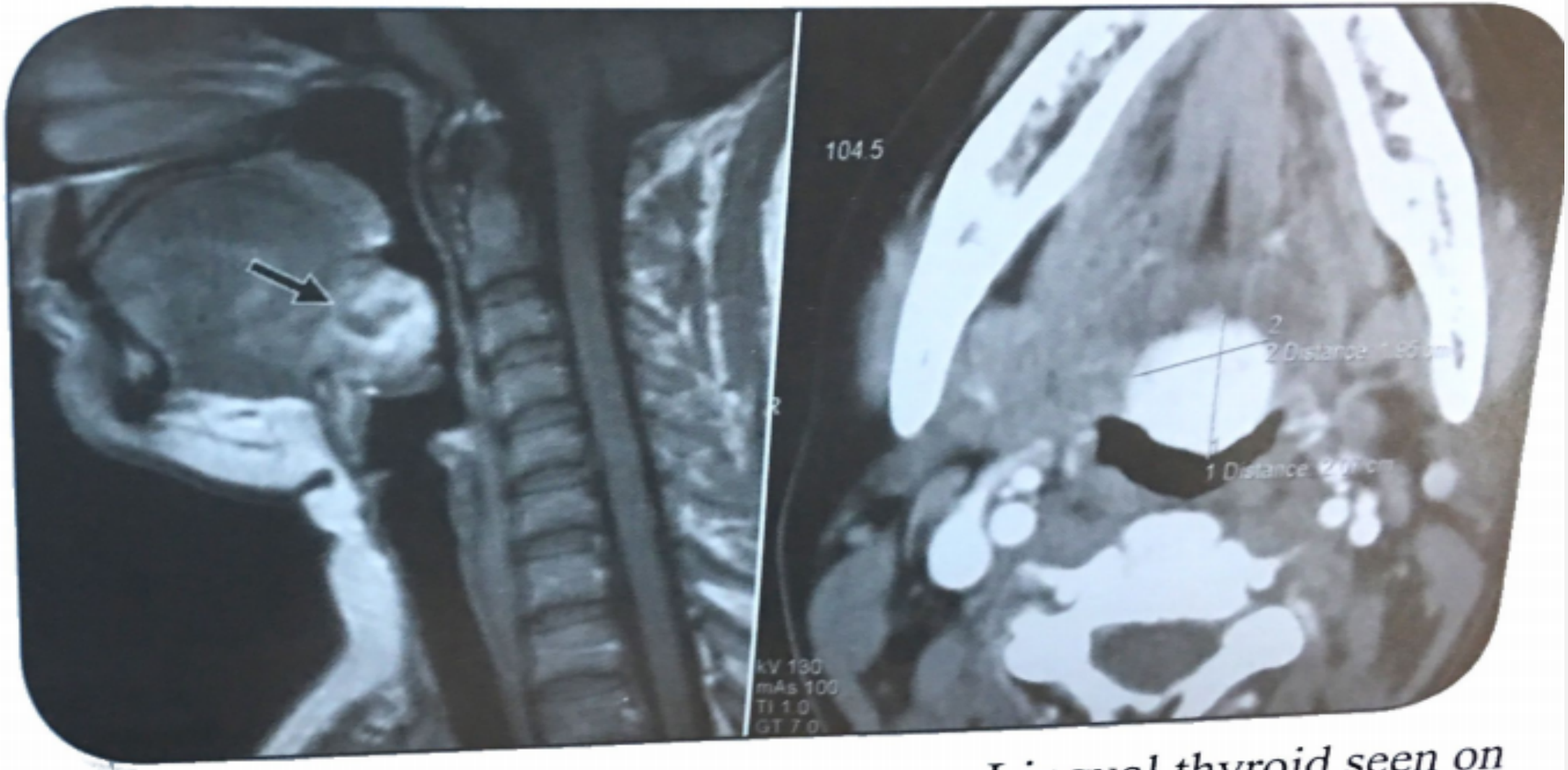
- Thyroglossal duct cyst
- Non obliterated thyroid divrerticulum
- It moves when patient protrude his tounge
- Dysphagia&dyspnea
- Cistrunck procedure, hyoid bone
- Inflammation, fistula, sinus

Lingual –ectopic- thyroid

- The normal thyroid fail to migrate properly and can be found anywhere in the central neck compartment
- Its 4 times more common in F
- They are asymptomatic midline nodules found in the posterior aspect of the tongue
- Usually < than 1 cm in size but can reach >4 cm



Lingual thyroid (14) ENT, Houston



Sagittal reconstruction of CT scan of the neck, showing The lingual thyroid at the base Of the tongue.

Lingual thyroid seen on axial CT scan of the neck (14)

Branchial cyst

- A congenital lesion formed by incomplete involution of branchial cleft structures during embryonic development
- **Presentation :**

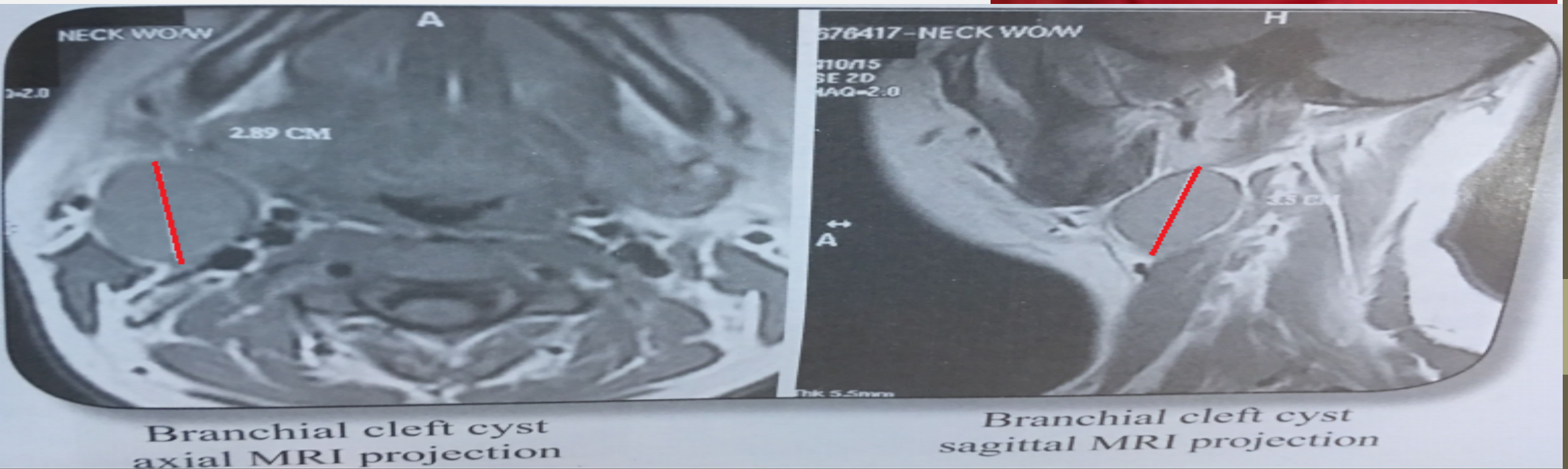
-Solitary painless neck mass

-Smooth ,non-tender ,fluctuant

-Usually grow in carotid triangle

-10% are bilateral

-If the mass is inflamed it may become tender



Branchial cleft cyst
axial MRI projection

Branchial cleft cyst
sagittal MRI projection

Branchial sinuses

* Opening at the skin over the anterior border of the sternomastoid

- Arising from the 2nd branchial cleft
- More common than fistula
- Mucoid or purulent discharge

Branchial fistula

* One end open into the tonsillar fossa ,and the other in the skin over the anterior border of the lower third of sternomastoid muscle

Cystic hygroma (lymphangioma)

- They are hamartomas of the lymph sacs
- Multicystic ,ill-defined ,fluctuant mass of lymphatic cysts ,they are of all sizes contain crystal – clear fluid
- **Presentation :**

-Depends on the size and site

-It may occur :

-In the neck 70%

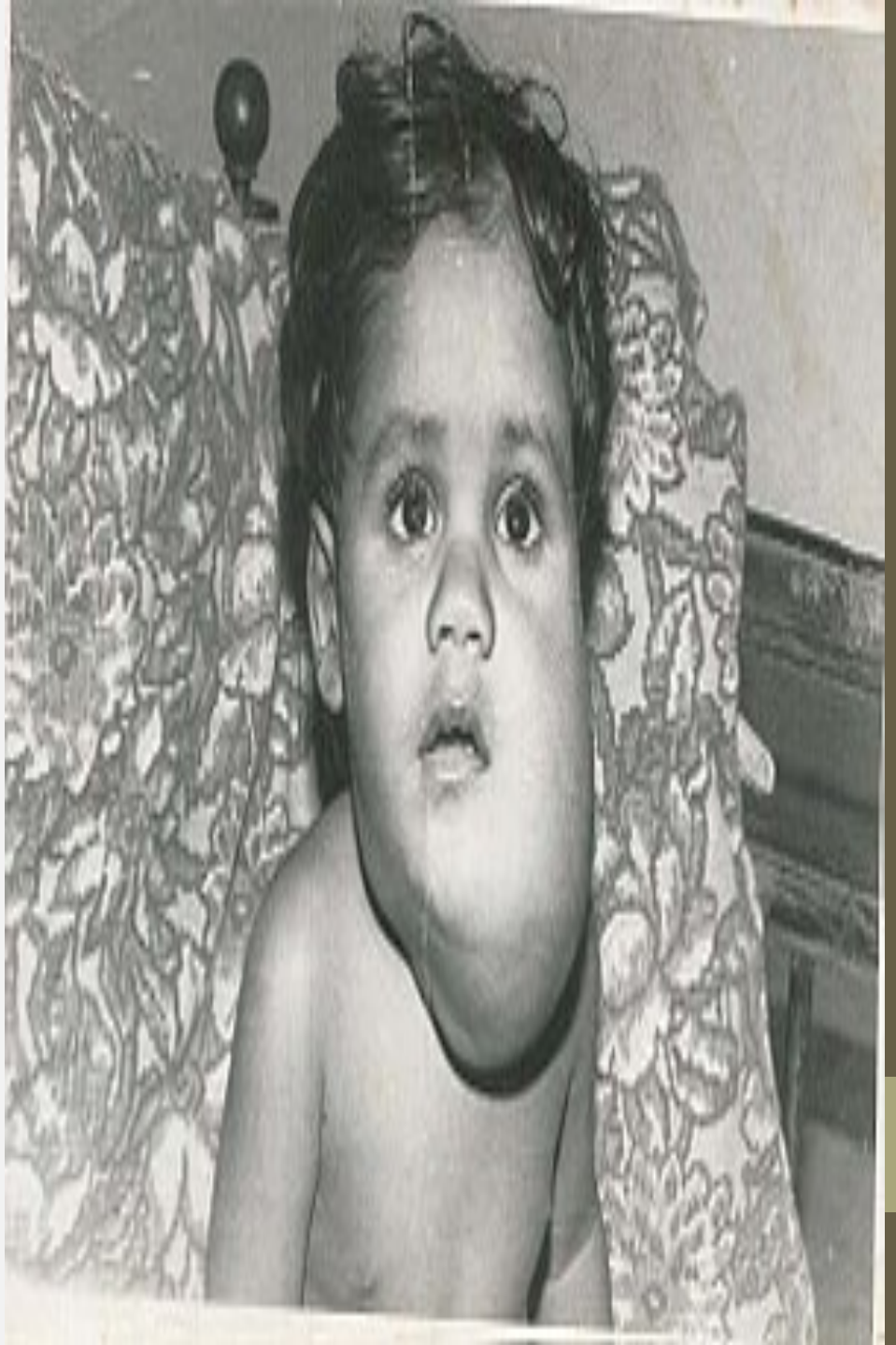
-Axillary region 20%

-Superior mediastinum

-Mesentery

-Retroperitonium

-Pelvis and groin

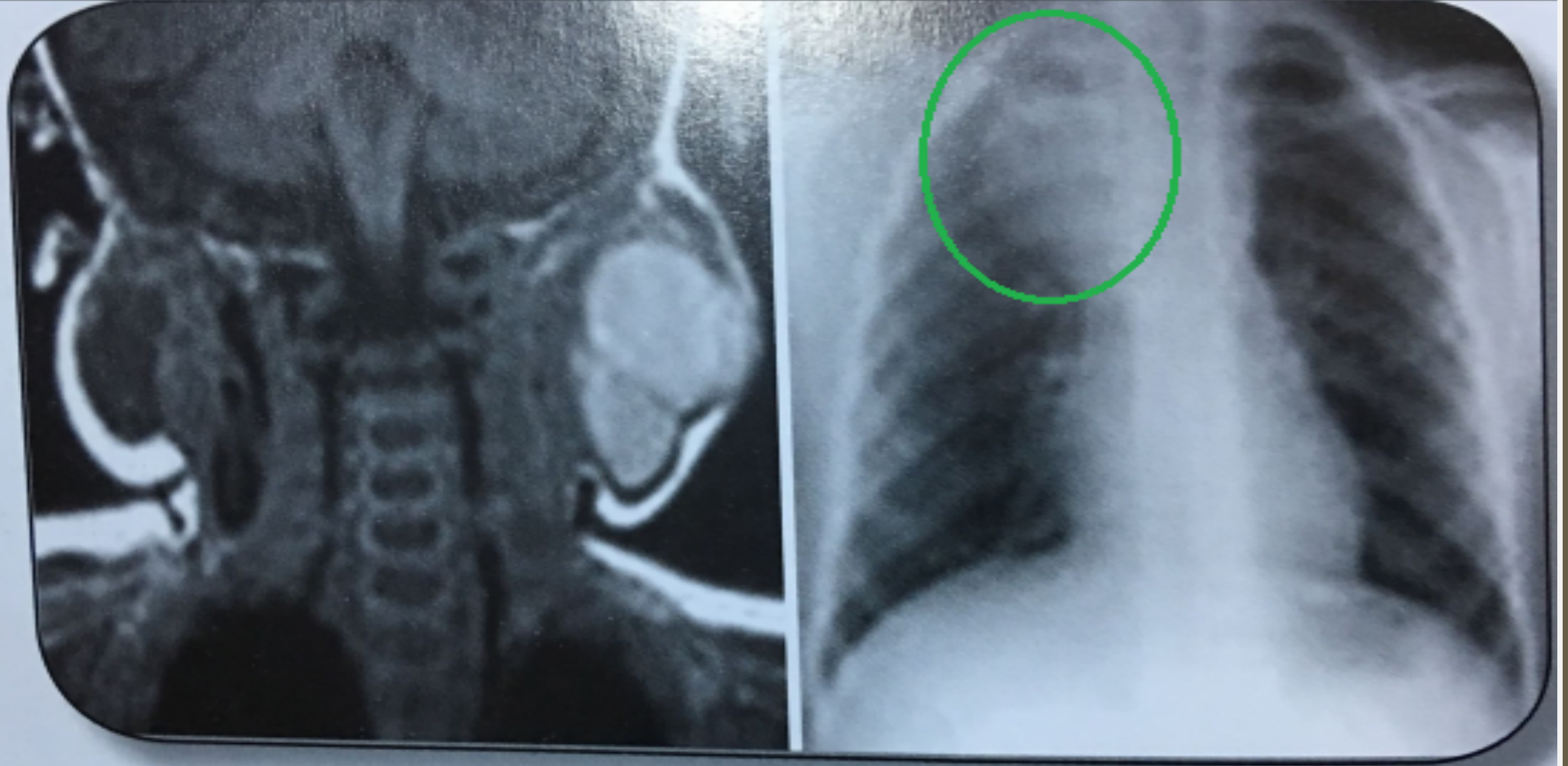


Cystic hygroma (lymphangioma)

-Associated with Turner syndrome, Down syndrome, and Noonan syndrome.

Cystic Hygroma

Lymphangioma



Neck CT Scan

Chest x-ray

Cystic Hygroma (Lymphangioma)

ARM

1. What is the findings in the picture below?

2.name one syndrome associated with this anomaly ?

3.Mention two presentations for this patient?

4. Mention two modalities for investigation?

5. What is the ttt?

Answers

1. A normal anal opening is nonexistent
2. Down syndrome
3. Signs of intestinal obstruction + meconiump per urethra/vagina
4. chest&abdomen xray + invertogram
5. Anorectoplasty + psarp

Plastic surgery

Burn

Thermal burn

- Temperature > 45 degrees.

- Duration of exposure is more important than degree of temperature.

- Classification:
  1- direct flame burn
  2- scald burn (with hot liquids).
  3- contact burn with hot metals.
  4- friction burn.

Scald burn

Contact burn

Friction burn

1st degree burn

- Pain and erythema.
- Limited to the dermis.
- No contracture.
- (1-6) days , heals by regeneration.
- Applies only to thermal burns.

2nd degree burn

- Necrosis of the epidermis and varying depth of the dermis (superficial/ intermediate/ deep).
- Pain, erythema, blisters, blanching, burned area is wet with exudate.
- Applies only to thermal burns.

3rd degree burn

- Full thickness.
- Eschar (dead tissue, insensitive, lethargy, inelastic, hard).
- Applies only to thermal burns.

- **Post burn contracture.**
- a complication of 3rd degree burns.
- they should have put skin graft for the patient to prevent this complication.

(17) This baby presented to the ER with scald burn.

- What is the degree of burn?
  2nd degree.

- Mention three lines of acute management of the burn:
  Fluid resuscitation/ pain control/ dressing.

(16) This lady had a flame burn 2 years ago.

- What does the image show?
  Post-burn fibrosis and contracture.

  What was the degree of her burn?
  3rd degree.

- What is the most suitable type of skin graft to use in reconstruction?
  Full thickness??

This a picture for a patient that was involved in an electrical burn with a high voltage:

1- what is the cause of pain in this case?
Ischemia (compartment syndrome)

2-what is the management in this case?
Fasciotomy

3- what causes the urine colour in this case?
Myoglobin

what is the cause of urine color ? Myoglobin.

what to do ? Fasciotomy.

Diagnosis?
Neurofibromatosis.

what is the mode of inheritance ?
AD.

What are the skin spots associated with this disease? Café au late spots.

A leg with Hx of crashed injury for 8 hours

.

What's the procedure in the figure ?

Fasciotomy.

What's the cause of doing this procedure?

Compartment syndrome.

Mention 2 other clinical settings cause the same condition.

Severe burns, arterial injury.

What's the indication for surgery?

Prolonged limb ischemia (more than 6 h)

9 YO boy. Hot water spilled on his Rt. Limb.

. What's this burn called?

Scaled burn.

. What percentage of burn of Rt. upper limb for this age?

9 %.

. What's the possible complication?

Keloid.

. What's the degree?

Deep partial burn.

. What's the definitive tt?

Plastic surgery.

A 20 YO male pt with bilateral upper limbs scald burn.

1. **What's the % of burned surface area in this pt?**

   18%

2. **Mention one complication can happen in this pt.**

   Compartment syndrome, Infection, Keloid formation.

3. **What's the tt for this complication?**

   Escharotomy, Anti tetanic vaccine.

Burned pt.

Mention 2 life-saving procedures in this pt.

Intubation and hyperbaric oxygen 100%

Mention 2 indications of surgery.

Internal Bleeding? circumferential burn?

What's the surface area of the head in children?

19%

4. Explain the pathophysiology of burns in the following:

1) Burn shock:

Excessive leakage of plasma → systemic hypo-proteinemia & inflammatory mediators → hypovolemia, hypo-proteinemia, hypo-perfusion.

2) Curling's ulcer:

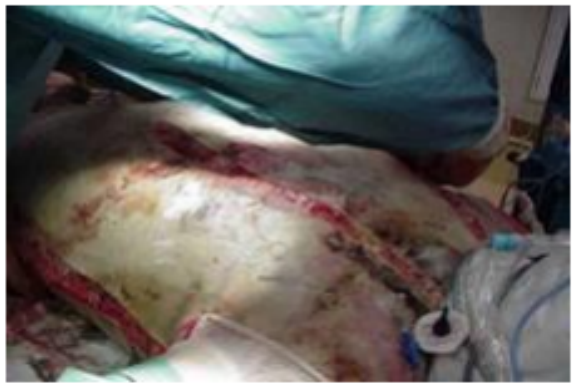
Severe burns → reduced plasma volume leads to ischemia & cell necrosis (sloughing) of the gastric mucosa.

Escharotomy VS fasciotomy

- fasciotomy is done in management of compartment syndrome after electrical burn. Escharatomy is done to decompress tissues in 3rd degree burns.

- Beneath escharotomy you will see granulation tissue, beneath fasciotomy you will see muscles.

- If ischemia is suspected, escharotomy is indicated.



Escharotomy

Chemical burns

- Caused by acids or alkali.
- Acids produce less damage and less penetration.
- Acids produce coagulative necrosis.
- Alkali produce liquifactive necrosis.
- Management : dilution by water for 2-4 hrs in alkaline burn, and 30 minutes for burns caused by acids.

Electrical burns

- Caused by either direct injury by the electrical current, or by clothes catching fire from electricity.
- Alternative current (AC) causes more injure than Direct current (DC).
- Low frequency AC causes more damage than high frequency AC.
- The skin findings may not correlate well with the internal damage caused by the electrical current.
- May see Lichtenberg figures on the skin indicating electrical injuries or lightening strike.

hypertrophic scar

is a cutaneous condition characterized by deposits of excessive amounts of collagen which gives rise to a raised scar, but not to the degree observed with keloids.

They do not extend beyond the boundary of the original wound, but may continue to thicken for up to six months.

They usually improve over the one or two years, but may cause distress due to their appearance or the intensity of the itching; they can also restrict movement if they are located close to a joint.

Keloid scar

You are more likely to develop a keloid if:
You are black, Latino or Asian
You are younger than 30 years of age
You are pregnant
You are a teenager going through puberty
You have a history of keloids in your family
People who have darker skin are 15% to 20% more likely to develop keloids.
Certain areas of the body are more likely to scar than others. Keloids usually develop on the chest, shoulders, earlobes and cheeks.

Hypertrophic scar	Keloid scar
Improves with time (2 years)	No improvement with time
No genetic predisposition	Genetic predisposition
Less collagen	More collagen
Less cytokines	More cytokines
fibers parallel to the dermis	Fibers random in orientation
Remains within the borders of the original scar	Extends beyond the original scar margins
Regress spontaneously or by medication	

Contains type III collagen
Low risk of recurrence

Contains type 1 collagen
High risk of recurrence

Treatment :

- Surgery (Z- plasty, W- plasty) / artificial skin/ steroids/ pressure therapy/ topical silicon/ low dose radiation/ laser (CO_2 and argon)/ calcium channel blockers/ interferon.

What's the most likely Dx?

Keloid.

What's the DDx?

Hypertrophic Scar.

Mention one difference between previous answers.

Keloid: extend above & beyond the area of trauma/ recur.

Hypertrophic scar: remains within the area of trauma/ not.

Mention 3 susceptible areas for the Dx to happen.

Deltoid, Para-sternal area, Post-auricular area.

Mention 2 modalities of tt.

Surgical: excision, Medical: steroid injection.

Mention the most common complication

Skin graft

1. **Define grafts :**

tissues that are transferred without their blood supply, which therefore have to revascularise once they are in a new site

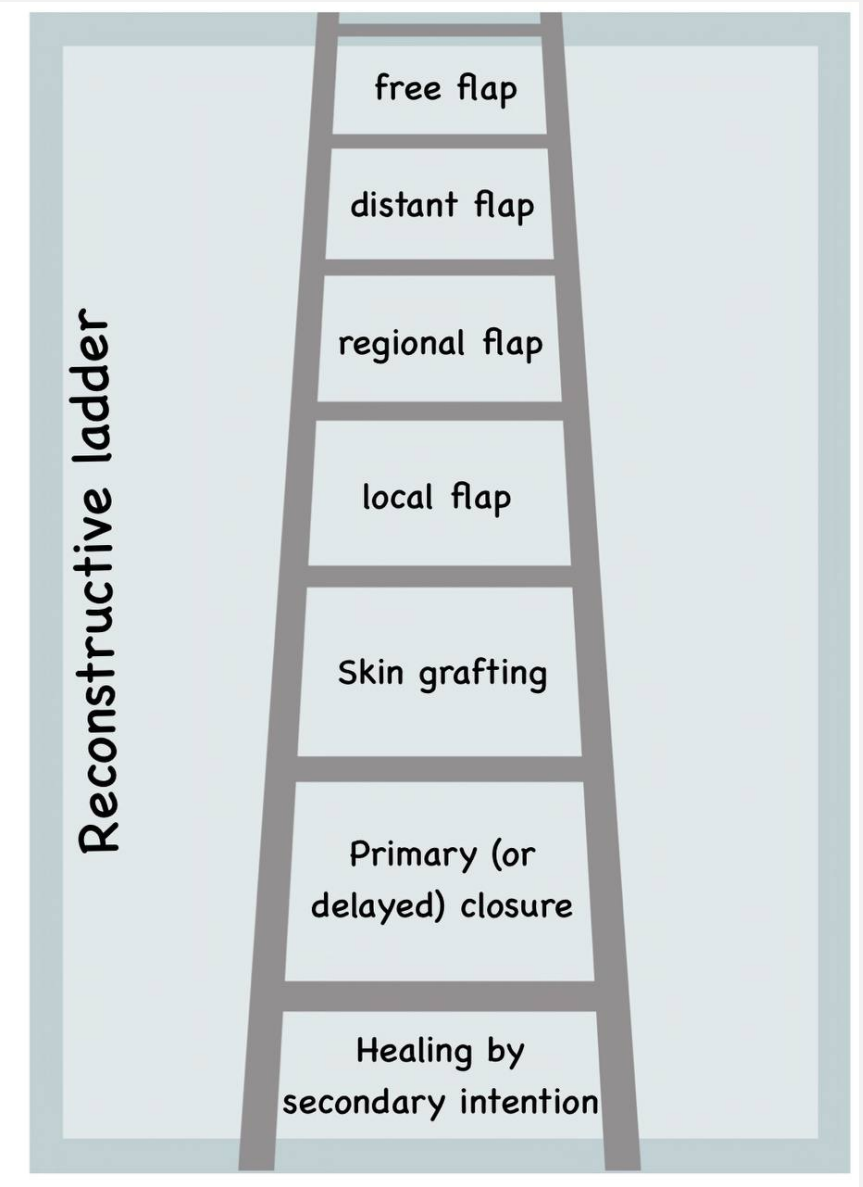
2. Types of grafts:

1. Autograft: From same individual
2. Allograft: From another individual of same species (aka homograft/cadaver graft)
3. Xenograft: From another species (aka heterograft)

3. What factors can affect take ?

-Vascularity of the recipient site

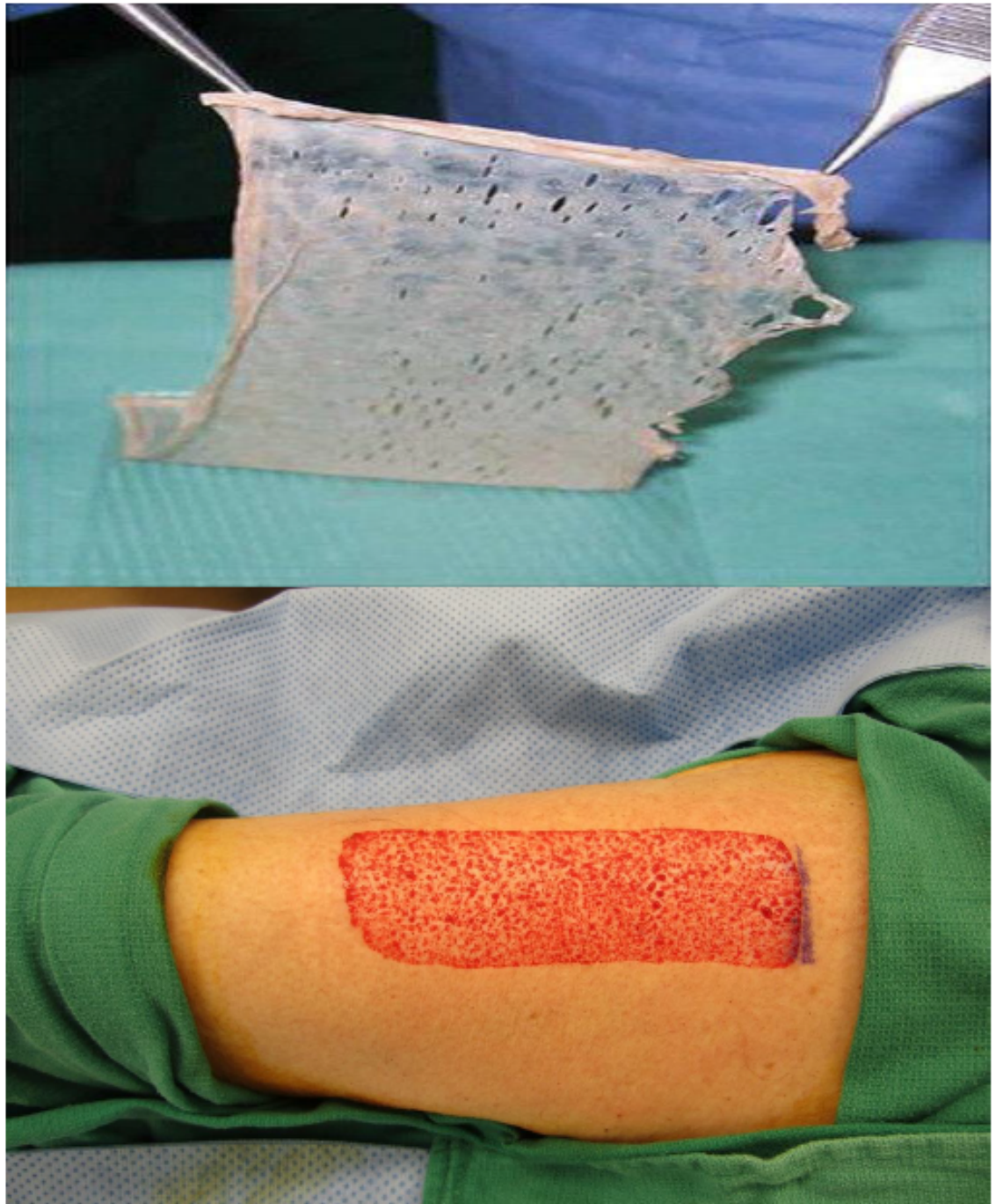
-Bacterial load



1- what is the type of this skin graft?
Split thickness skin graft

2- what we can do to increase the size of the graft to cover larger areas?
Meshing of the graft.

3-How you can say that this graft is taken?
-the graft is pink
-the graft is adherent to the reciepent site
- blanching with pressure denoting vascularity



1. What is the type of this skin graft ?

Split thickness skin grafts(STSG)

2. Consist of?

Epidermis and part of the dermis

3. How does the donor area heals?

By regeneration

4. Which areas of the body can be used as donor site ?

Almost any area of the body may be used as a donor site, so large areas of skin defects may be covered with STSG.

Skin grafts

1- split thickness skin grafts :

- Epidermis and thin part of dermis.
- The donor site heals by epithelialization within 2 weeks.
- Used for large areas.

2- full thickness skin grafts:

- Taken from areas of loose skin as the donor area is closed by approximation of the edges (direct closure).
- Used for small areas.

What is the type of this skin graft ?

Full thickness skin grafts (FTSG)

Consist of ?

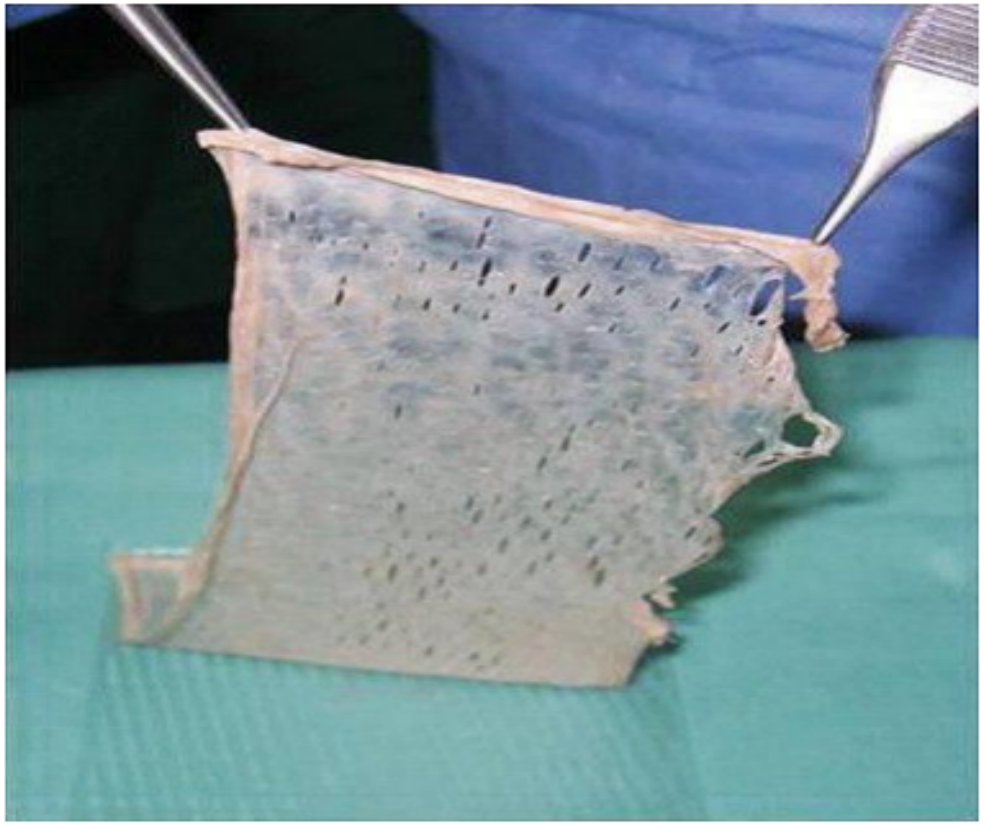
whole skin (epidermis and dermis)

Taken from where ?

Taken from areas of loose skin as the donor area is closed by approximation of the edges (direct closure),

*due to this fact, only small areas could be covered by FTSG.

- This is dermatome.
- It's used for taking a split thickness skin graft.



Split thickness skin graft after it has been meshed, showing the small perforations that allow the graft to be expanded and cover a greater area and also allows any blood/serum to drain away.

Which one is better ?!

FTSG is superior to STSG from functional and cosmetic aspects :

Better texture,

better color matching with less pigmentation problems,

more durable,

less wound contraction;

they have better sweat and sebaceous glands function,

it grows with the child, and they have better final innervation.

Although FTSG are better they have 2 drawbacks :

-they are less available to cover large areas

-they are more difficult to take.

The thicker the graft, the better. But: less available, and more difficult to take!!!!!

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Primary contraction vs Secondary contraction

Primary contraction

a. Occurs at the time of graft harvest/application

b. Due to elastin fibers in dermis

c. Greater in FTSGs (>40%) compared with STSGs (<20%)

Secondary contraction

a. Occurs after graft take

b. During healing phase of graft over 6 to 18 months

c. greater in STSGs

d. Dermal components of FTSGs suppress myofibroblast activities responsible for secondary contraction

Flaps

- A flap is a piece of tissue carries its own blood supplies that is moved from its original site, to cover a defect.
- Skin flaps/ muscle flaps/ myocutaneous flaps/ fasciocutaneous flaps/ osseofasciocutaneous flaps.
- Flaps are used when grafts are insufficient to cover the defect, or they wouldn't be taken.
- **To cover an avascular area.**
- When we need a more bulky tissue to deal with the defect and skin is not enough.
- **The donor area is managed by approximation if it was loose or by skin graft.**

Flaps

Definitions

Segment of tissue that is transferred with its own blood supply (in contrast to graft, which is revascularized from recipient bed).

Pedicled flap: Remains attached to native vascular supply

Free flap: Fully detached from vascular supply and reconnected to recipient vessels using microvascular technique.

-Skin flaps/muscle flaps/myocutaneous flaps/ fasciocutaneous flaps/ osseofasciocutaneous flaps.

- Flaps are used when grafts are insufficient to cover the defect, or they wouldn't be taken.

To cover an avascular area.

When we need a more bulky tissue to deal with the defect and skin is not enough.

The donor area is managed by approximation if it was loose or by skin graft.

Tissue expansion:

Definition

1. An artificial filling device is used to grow and expand local tissue to reconstruct an adjacent soft tissue defect when primary closure is not possible.

2. A silicone elastomer reservoir is placed beneath the donor tissue and slowly filled over time with saline, causing the overlying soft tissue envelope to stretch with a net increase in surface area per unit volume.

Tissue Expansion Advantages

- Reconstructed tissue is a similar color & texture to defect
- Allows reconstruction with sensate skin with appendages
- Limited donor site morbidity

Disadvantages:

- Painful
- Prolonged
- Multiple procedures and clinic attendances
- No role in acute injury

Contra-indications:

- Immature scars
- Presence of infection
- Use underneath skin grafts or irradiated tissues

Cleft lip and palate

1. Identify the condition ?

Left cleft lip

2. mention the requirments before surgery of cleft lip ?

1-weight 10 pounds

2- hb 10

3- WBC < 10000

4- age 10 weeks

3. How does cleft lip occur, and is it always associated with cleft palate?

Cleft lip can occur as an isolated condition or may be associated with a cleft palate.

4. mention the indications of orthodental treatment ?

1- unilateral CL including the alveolus to correct it's obliquity

2- unilateral complete CL\CP with collapse of lesser segment

3- bilateral complete clefts with collapse of lateral segments + moderately protrusion of the premaxilla

5. What is the prevalence of cleft lip affecting the left side compared to the right side?

In cleft lip, 60% affect the left side, 30% affect the right side, and 10% affect both sides.

5. Which gender is more commonly affected by cleft lip, and what about cleft palate?

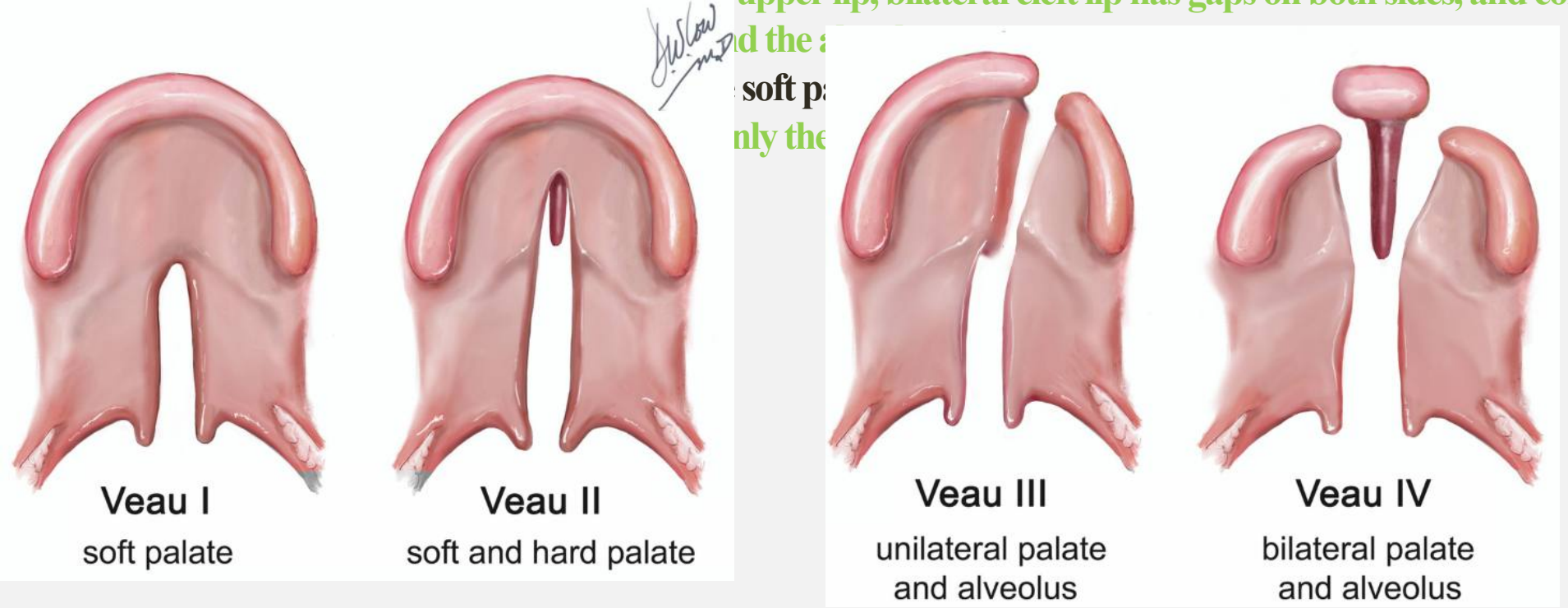
Cleft lip is more common in males, while cleft palate is more common in females.

6. Can you explain the left :right : bilateral ratio in cases of cleft lip?

The left : right : bilateral ratio in cleft lip is 6:3:1, with the left side being more commonly affected due to the left side being the last to fuse during development.

8. What are the different types of cleft lip, and how do they differ?

Unilateral cleft lip involves a gap on one side of the upper lip, bilateral cleft lip has gaps on both sides, and complete cleft lip e… …d the a… …soft pa… …nly the…



Class I –incomplete cleft involving only the soft palate

1. Identify the condition ?

Left cleft palate

2. When is the best to treat this condition ?

15-18 months

3. mention three complications of repair of cleft palate ?

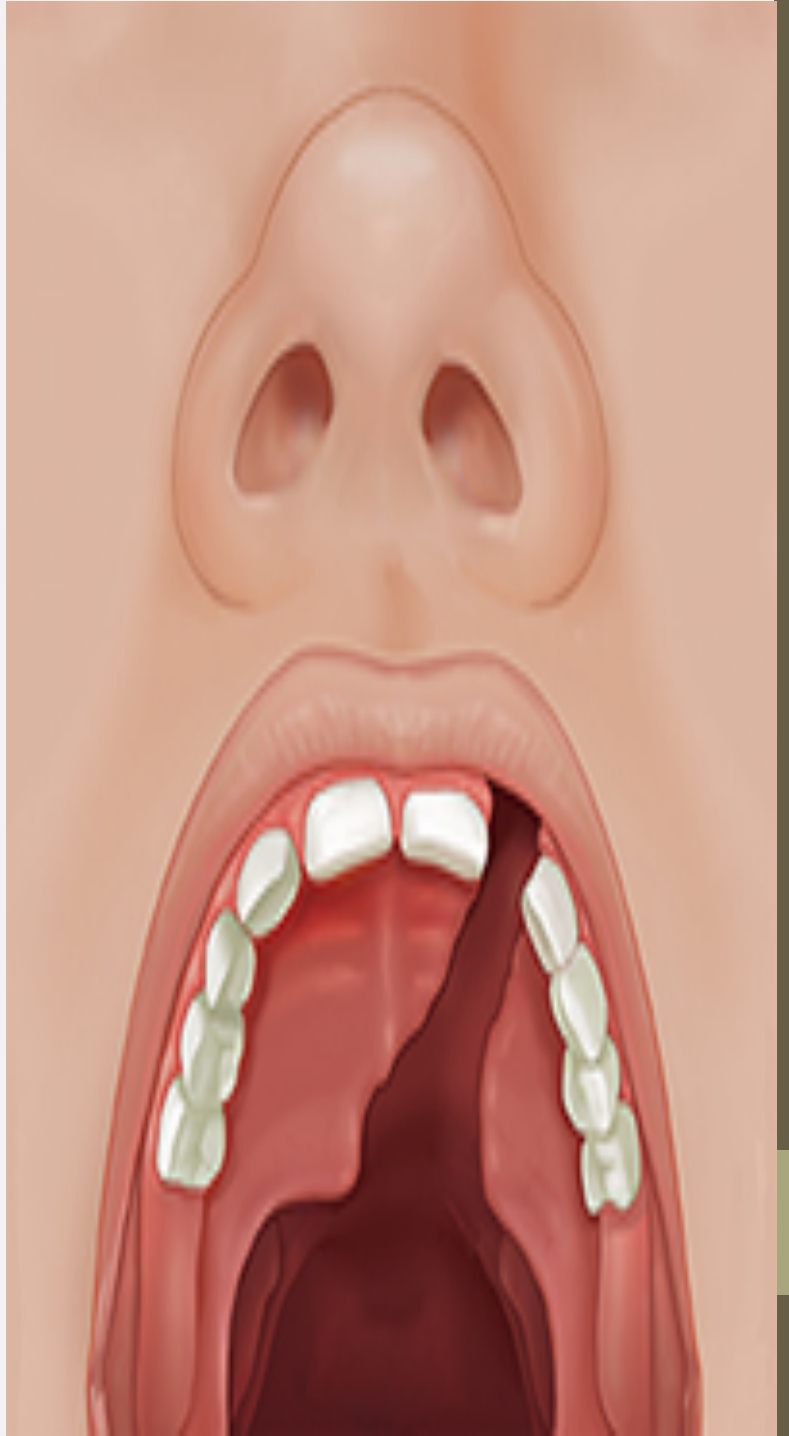
Bleeding , palatl fistula (commonest) , dehiscence of wound

4. what is the cause of nasal speech ?

Due to short palate

5. What is the etiology of cleft palate, and what factors contribute to its development?

The etiology of cleft palate is not known, but it is believed to be a combination of genetic and environmental factors.
Vitamin deficiency in pregnancy (folic acid),
drug use such as steroids,
gestational viral infections,
irradiation,
loss of amniotic fluids,
maternal smoking,
and alcohol consumption are associated factors.



6. How is cleft palate diagnosed, and what methods are used for prenatal screening?

Cleft palate can be diagnosed through prenatal screening may include imaging techniques like ultrasound , and clinical evaluation after birth.

7. Name some drugs that are associated with an increased risk of cleft palate when used during pregnancy.

steroids .

8. When is clinical evaluation for cleft palate typically performed, and what methods are used after the baby's birth?

Clinical evaluation for cleft palate is typically performed after birth.
Various diagnostic methods, including physical examination and imaging, may be used to assess the extent of the cleft and plan appropriate interventions.

9. In what percentage of cases is isolated cleft palate associated with other syndromes?

Isolated cleft palate is associated with other syndromes in 30% of cases.

1. identify the condition ?

Bilateral cleft lip and palate

2. when to treat this condition ?

Cleft lip >> 10 weeks

cleft palate >> 15 -18 months

3. how to feed this baby ?

By upright position and elevation the head in

45 degrees to avoid aspiration

4. mention three complication of this condition ?

Delay speech , difficulty in breathing ,

recurrent ear infictions, feeding becomes difficult

5. What is the incidence of cleft lip or cleft palate in live births?

The incidence of cleft lip or cleft palate is 1:750 live births, making it the most common craniofacial anomaly.

Identify this condition ?

Rt. Cleft lip & palate.

What's the best time to treat the lip defect?

3 mon.

When is the time to treat the palate defect?

9 mon.

Mention 2 possible complications of this condition?

Feeding & breathing problems, Delay in speech, Recurrent ear infections.

Name one syndrome associated with this anomaly?

Trisomy 13, Trisomy 18, Trisomy 21, Pierre robin sequence, Stickler, Shprintzen

What is the probability of the 2nd child to have the same problem?

12–19%; any number between this range is right.

Write 2 risk factors for this anomaly.

Folate deficiency, Maternal epilepsy, Drugs (steroid).

How does cleft lip and cleft palate affect feeding in babies, and what are some strategies to address feeding challenges?

Babies with cleft lip and cleft palate may have defective sucking but normal swallowing.

Feeding challenges can be addressed by widening the opening of the bottle nipple and nursing the baby in a semi-sitting position.

What role does air leakage through the nose play in speech difficulties for individuals with cleft lip and cleft palate?

Individuals with cleft lip and cleft palate are unable to create positive intra-oral pressure, leading to air leakage through the nose, resulting in nasal escape or abnormal nasal speech.

How can cleft palate lead to ear infections and hearing loss, and what interventions are used to manage these issues?

Cleft palate patients may experience fluid accumulation behind the eardrums, leading to ear infections and hearing loss.

ENT surgeons may use drugs or Grommet tubes to treat secretory otitis media and suitable antibiotics for acute otitis media.

Why is maintaining good oral hygiene crucial for individuals with cleft lip and cleft palate, and what dental issues may arise?

Good oral hygiene is essential to prevent dental problems. Individuals with cleft lip and cleft palate may have missing teeth, particularly in the cleft line, and may require orthodontic interventions for issues like malocclusion and misalignment.

What is the impact of cleft lip and cleft palate on speech, and why is normal speech challenging for affected individuals?

Cleft lip and cleft palate make normal speech challenging as individuals are unable to create positive intra-oral pressure, leading to air leakage through the nose, resulting in nasal escape or abnormal nasal speech.

What psychosocial impact can cleft lip and cleft palate have, and what strategies can be employed for support?

Cleft lip and cleft palate can have a psychosocial impact, and support strategies include early education, counseling, support groups, and encouraging positive self-image

What are the key components of the comprehensive management of cleft lip and cleft palate?

The management includes surgical procedures (cleft lip and cleft palate repair), speech therapy, hearing monitoring, orthodontic and dental care, and psychosocial support.
Early intervention and ongoing care are crucial for the best outcomes.

How do orthodontic interventions contribute to the management of individuals with cleft lip and cleft palate?

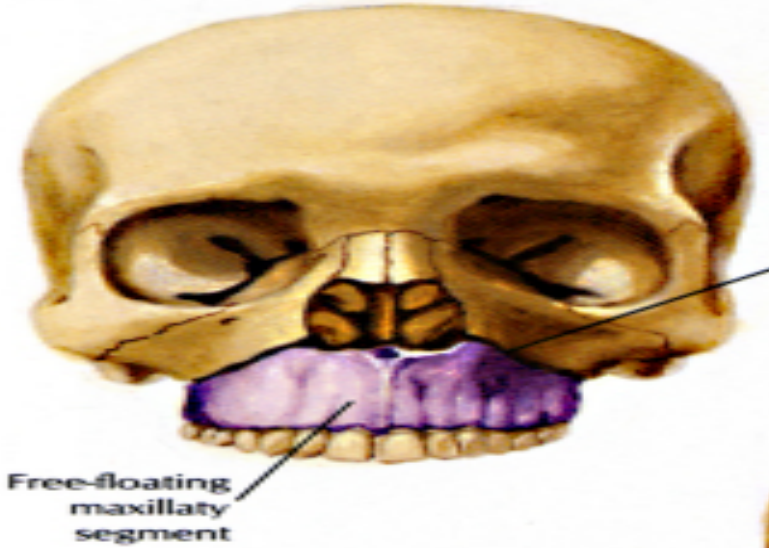
Orthodontic interventions aim to address issues like malocclusion, misalignment of teeth, and jaw discrepancies in individuals with cleft lip and cleft palate.

What role does early intervention play in achieving the best outcomes for individuals born with cleft lip and cleft palate?

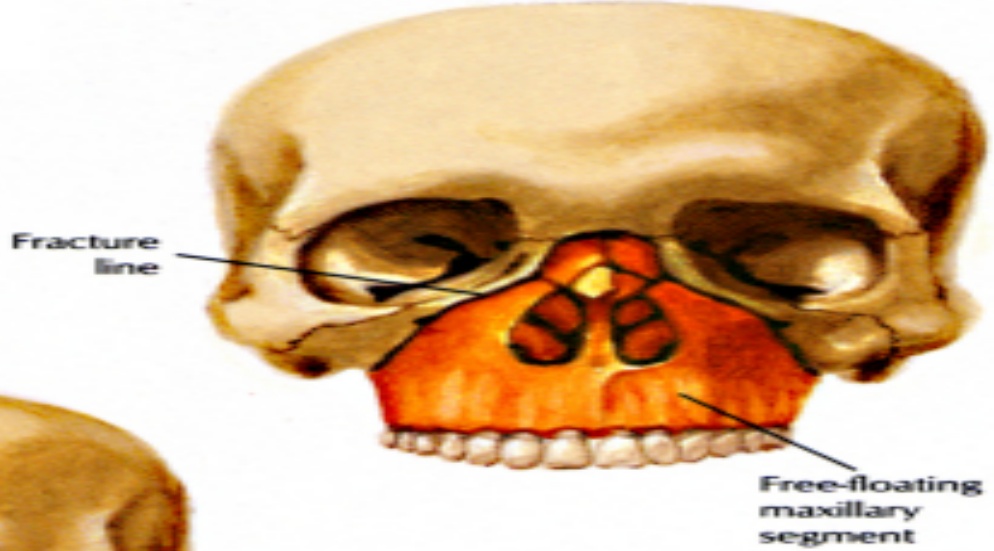
Early intervention is crucial for the best outcomes in individuals with cleft lip and cleft palate.
Comprehensive treatment, including surgical procedures, speech therapy, and psychosocial support, can help them lead healthy, fulfilling lives.

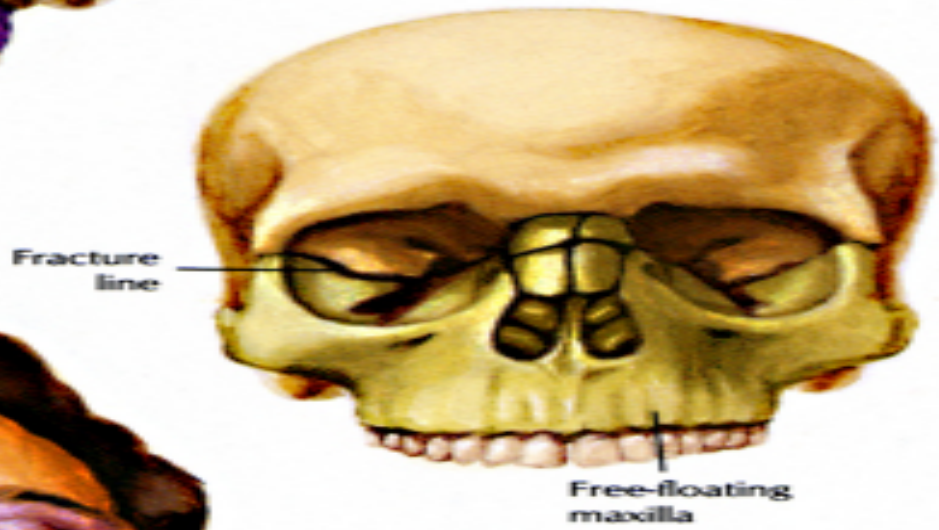
Maxillofacial injury

Le Fort I fracture: horizontal detachment of maxilla at level of nasal floor



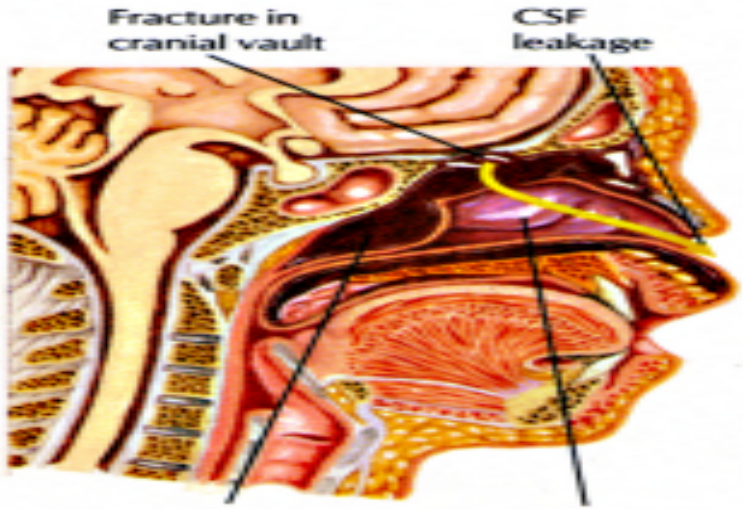
Le Fort II fracture: fracture through maxillae, antra, nasal bones, and infraorbital rims





Le Fort III fracture: fracture through zygomatic bones and orbits, separating facial bones from cranial vault

Craniofacial dysjunction in Le Fort III fracture distorts facial symmetry



Hematoma and massive edema may occlude nasal ariway, necessitating tracheostomy

JOHN A. CRAIG, MD
© IGN

:Accourding to fracture maxilla

1. Mention the classification ?

-Alveolar

-Transverse (Forte 1)

-Pyramidal (Forte 11)

- craniofacial (Forte 111)

2. Mention two early complication ?

Hemorrhage, airway obstruction , infection , loose tooth

3. Mention two late complication ?

Nonunion , malunion , lacrimal system obstruction , infraorbital anesthesia

4. How to treat the condition ?

Emergency treatment (airway and control hemorrhage) and definitive treatment (reduction and fixation)

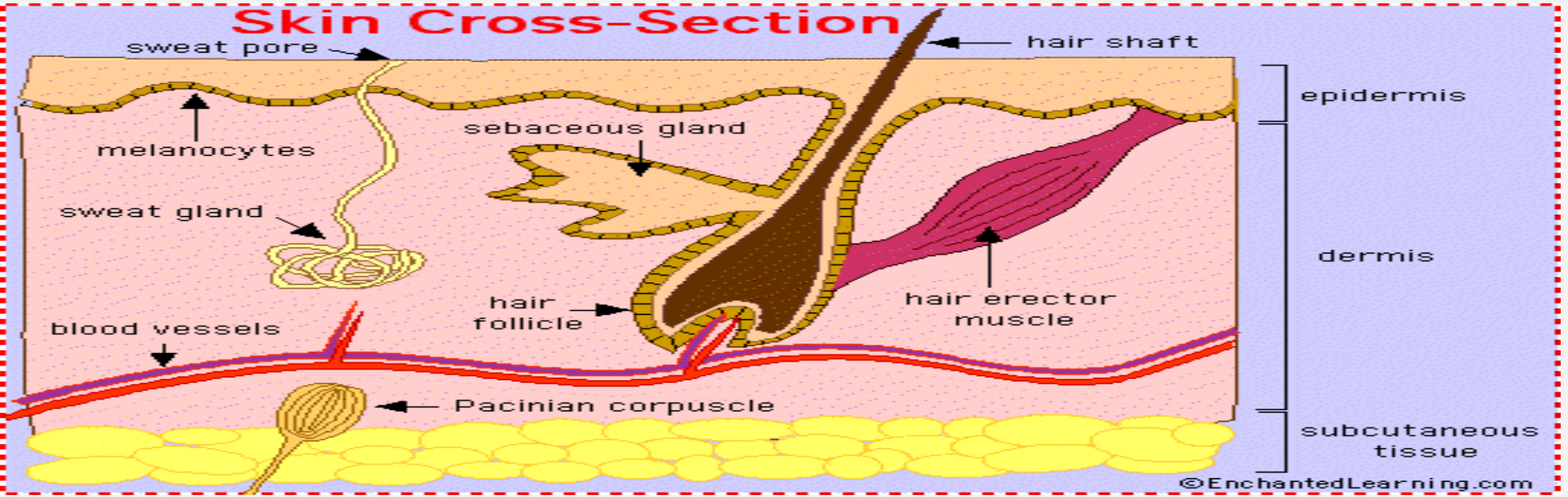
5. What are the investigations ?

X-ray and CT scan

6. Mention two postoperative care for maxillary fracture ?

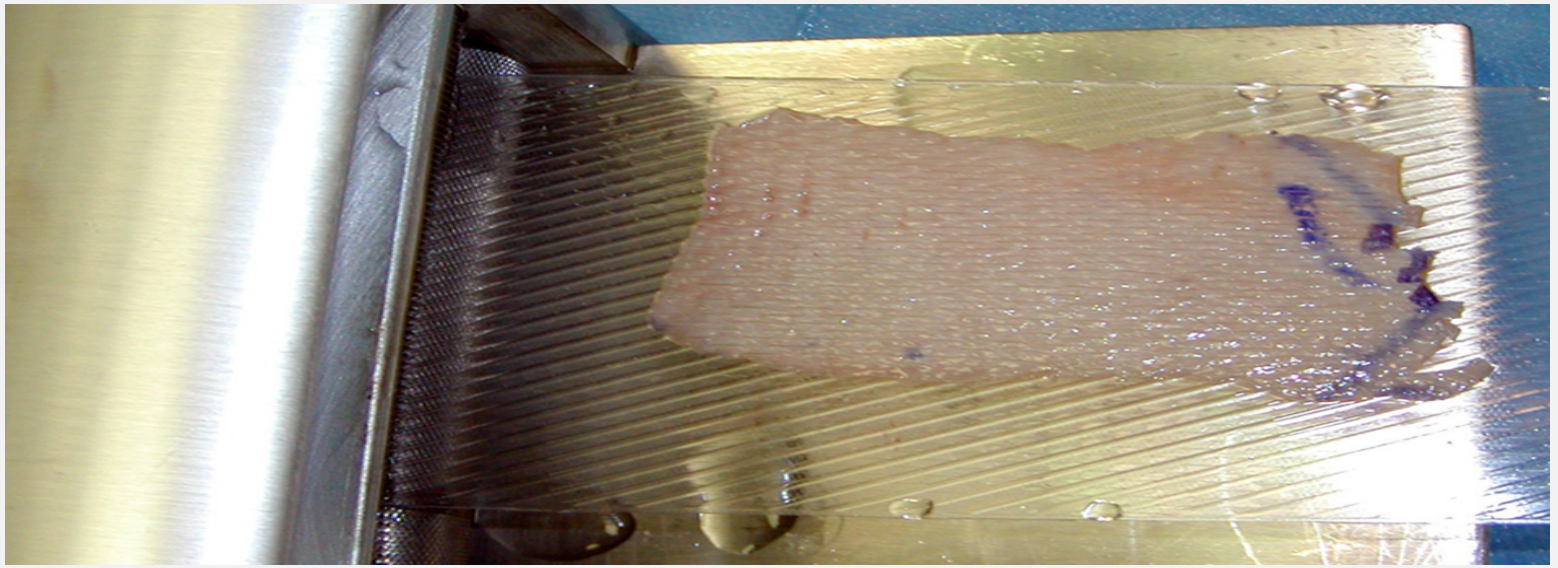
General care (nutrition and antibiotic) , oral hygiene frequent suction

Reconstruction by soft tissue



What are the elements of regeneration of the skin:

1. **Hair follicles**
2. **Sebaceous glands**
3. **Sweat glands**

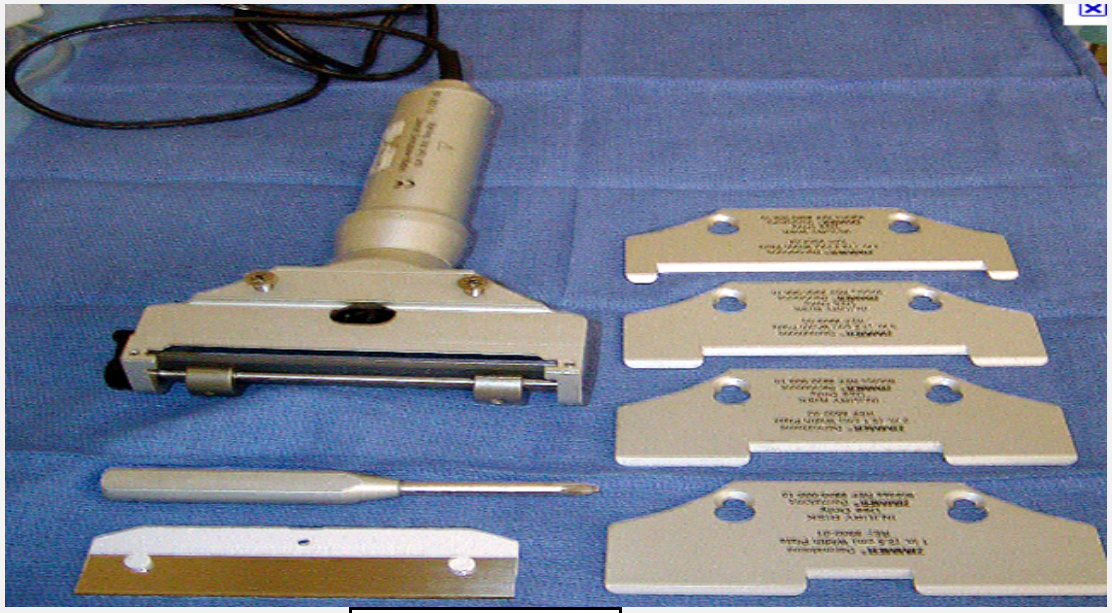


1. Identify the instrument ?

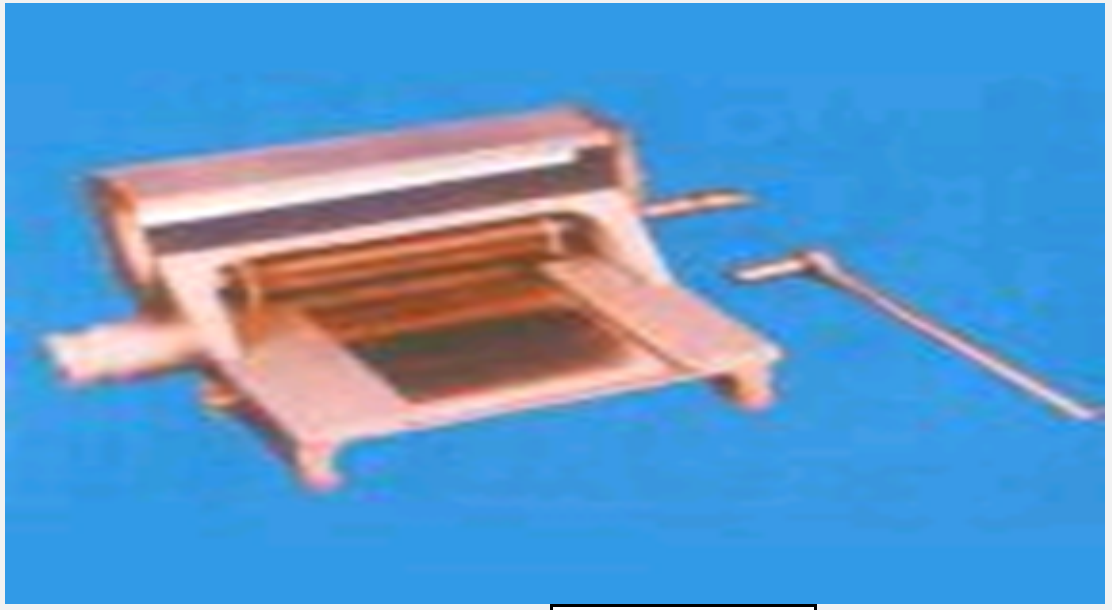
Mesher

2. Why we use it ?

To increase the size of skin graft 1.5 fold



A



B

1.Name A and B ?

A- electric dermatome

B- manual meshers

2.Which is better and why ?

(A) because it gives constant thickness , quicker , gives larger areas and easier to surgeon

Accourding to skin graft :

Compare between split and full thickness skin grafts

Split skin graft	Full thickness graft	
Depends on thickness	Relatively constant	Properites of normal skin
The thinner the better chance (used in difficult condition)	Need optimal conditions	Take
can be easily traumatised	Stands trauma better	Stability
The thinner the more will contract	Remains as it’s original size	contraction
Heals spontaneously	Closed directly or by SSG if the area is wide	Donor site

1. identify the picture ?

Axial pattern flaps

2. give example of flaps ?

Groin flap (superior circumflex artery)

3. mention two factors that embarss the circulation of flaps ?

Kinking , edema , inflammation and mechanical tension

4. What is the dimensions of axial pattern falps ?

2 length : 1 width

Skin tumors

1. identify the photo ?

Giant hairy nevi

2. How to treat ?

By surgery

3. Does it convert to malignancy ?

10% becomes malignant

1. Identify the picture ?

Seborrheic keratosis

2. How to treat ?

Shave , if any doubt >> excise

3. Is it malignant ?

No it’s benign lesion

1. What is the probable diagnosis ?

Sebaceous cyst

2. Write down two questions must be asked to pateint ?

1) When did you notice it ?

2) Is it painful or painless ?

This image displays a large, tense cyst at the temple.

1. Identify the picture ?

Squamous cell carcinoma

2. is it malignant ?

Yes malignant lesion

3. Write down three risk factors ?

Chemical , sunlight , hereditary, previous burns in the area

4. What is the most essential investigation ?

Biopsy

Identify this photo ?

Rodent ulcer (basal cell ca.)

1. Identify the picture ?

Malignant melanoma

2. Mention three etiology of this case ?

A- Chronic irritation

B- Repeated trauma

C- Excessive exposure to sunlight

Give a Spot Dx.

Strawberry Hemangioma.

Ulcer

Types of ulcer

Types of ulcer (edges)

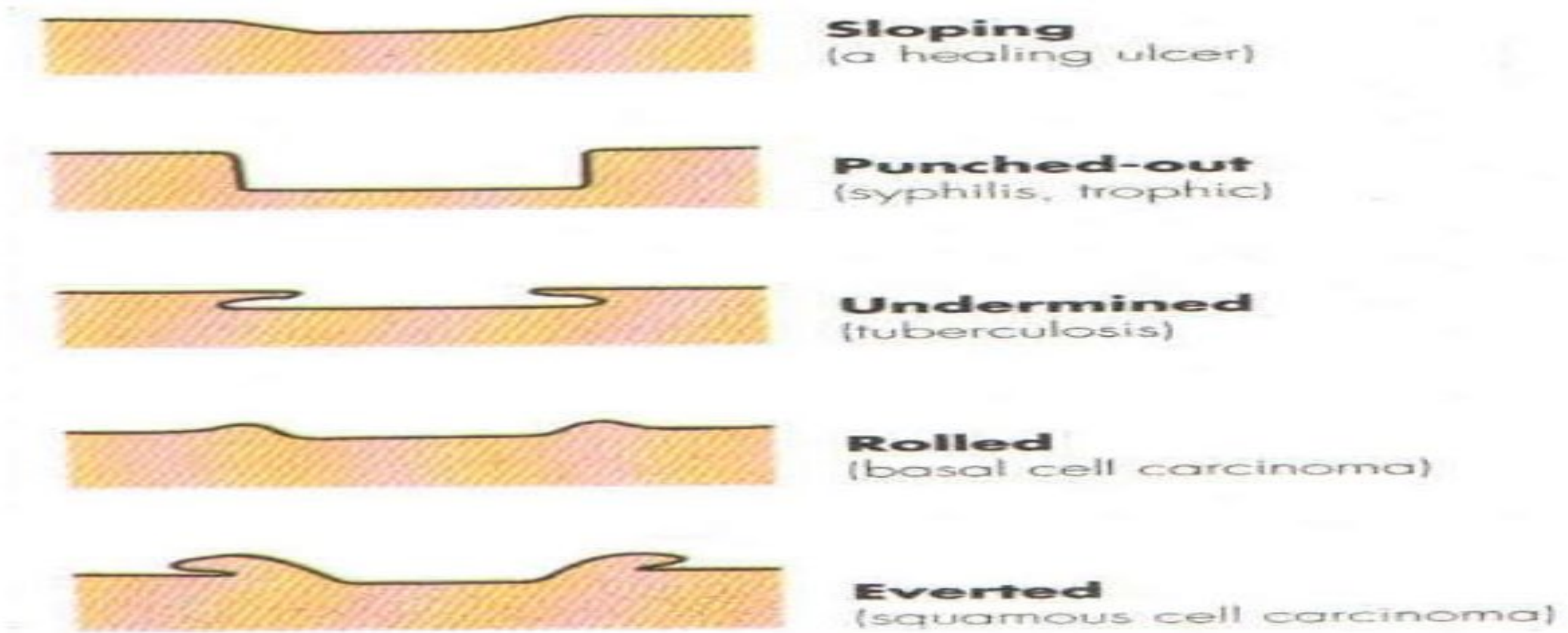


FIG 1.15 The varieties of ulcer edge.

1- Sloping

The ulcer is shallow & the epithelium is growing in from the edge in an attempt to heal

"Punched out" appearing ulcer with sharply demarcated borders

Undermined edge

Rodent ulcer with rolled edge (bcc)

1- Identify the condition:

Venous Ulcers

2- Deferential diagnosis:

Venous ulcer
Arterial ulcer
Neuropathic ulcer
Malignant ulcer

3-Causes:

Initiated by venous hypertension that develops because of inadequate calf muscle pump action and after the onset of either primary (idiopathic) or secondary valvular incompetence (eg: after deep venous thrombosis).

4- Clinical presentation:

5- Investigations:

Hand held Doppler, Duplex ultasound

Biopsy (if suspecting a malignancy)

6- Management:

Treating underlying cause (venous insufficiency)

Treatment of comorbid factors (eg: anamia)

Adequate drainage and desloughing of the base

Large ulcers may require excision, skin grafting or use of skin flaps

Antibiotic treatment not required in healthy wound, only when infected.

Dressing at least twice a day

7- Epidemiology:

80% of leg ulcers

Age	40-45
Sex	Women > men
History	DVT
Pain	1/3 pt, not sever Released by elevation of leg
Site	Medial aspect of leg in relation to the great saphenous vein (above m. malleolus)
Edge	Sloping, Irregular
Floor	Pink, granulating
Depth	Shallow
Surrounding skin	Lipodematosclerosis
Discharge	More
Swelling	Present
Temperature	Normal, worm
Pulses	Present
Veins	Full (varicose, telengectasia)
Capillary refill	Normal
Hair	Normal
Infection	Less frequent

1- Identify the condition:

Areterial Ulcers

2- Deferential diagnosis:

Venous ulcer
Arterial ulcer
Neuropathic ulcer
Malignant ulcer

3-Causes

Caused by either progressive atherosclerosis or arterial embolization. Both lead to ischemia of the skin and ulceration

4- Clinical presentation:

5- Investigations:

Hand held Doppler, Duplex ultasound

Biopsy (if suspecting a malignancy)

6- Management:

Treating underlying cause (arterial insufficiency)

Treatment of comorbid factors (eg: anamia)

Adequate drainage and desloughing of the base

Large ulcers may require excision, skin grafting or use of skin flaps

Antibiotic treatment not required in healthy wound, only when infected.

Dressing at least twice a day

Age	> 60
Sex	Men > women
History	PAD
Pain	Sever pain except in DM
Site	Lateral aspect of the leg, toes, pressure areas (lateral malleolis, heel, 5th metatarsal base)
Edge	Punched out, regular
Floor	Necrotic (gray/black), no granulation
Depth	Deep
Surrounding skin	No venous changes
Discharge	Minimal
Swelling	Absent
Temperature	Cold
Pulses	Absent
Veins	Empty
Capillary refill	Delayed
Hair	Loss, thickened nails
Infection	Frequent

1- Identify the condition:

Neuropathic Ulcers

2- Deferential diagnosis:

Venous ulcer
Arterial ulcer
Neuropathic ulcer
Malignant ulcer

3-Causes:

DM, nerve injury, leprosy

4- Clinical presentation:

5- Investigations:

Hand held Doppler, Duplex ultasound
Biopsy (if suspecting a malignancy)
Nerve conduction test?

6- Management:

Treating underlying cause (arterial insufficiency, control diabetes)
Treatment of comorbid factors (eg: anamia)
Adequate drainage and desloughing of the base
Large ulcers may require excision, skin grafting or use of skin flaps
Antibiotic treatment not required in healthy wound, only when infected.
Dressing at least twice a day

Age	Variable
Sex	
History	Numbness, DM, nerve injury, leprosy
Pain	Painless
Site	Sites of pressure
Edge	Punched out, Hyperkeratotic
Floor	Granulating
Depth	Deep
Surrounding skin	Dry, cracked
Discharge	Variable
Swelling	Absent
Temperature	Normal
Pulses	Present
Veins	Normal
Capillary refill	Normal
Hair	Normal

1- Identify the condition:
Rodent Ulcers (in Basal cell carcinoma)

2- Deferential diagnosis:
Marjolin ulcer (in Squamous cell carcinoma)

3-Causes:
Long history of unprotected exposure to ultraviolet light

4- Clinical presentation:
Slowly growing malignancy of the epidermis
95% on upper part of the face

5- Investigation:
Biopsy

6- Management:

1- Identify the condition:

Marjolin ulcer (in Squamous [illegible])

2- Deferential diagnosis:

Rodent Ulcers (in Basal cell carcinoma)

3-Causes:

Long history of unprotected exposure to ultraviolet light

4- Clinical presentation:

Slowly growing malignancy of the epidermis

95% on upper part of the face

5- Investigation:

Biopsy

6- Management:

Excision, skin grafting or use of skin flaps

BCC & SCC

Surgical margin for wide excision of **BCC**

- Current litreature recommends **4mm** margin for small brimary BCC on the face or other low risk lesions

- **10 mm** margins are recommended for primary resection of high risk larger tumors on trunk or extremities

Surgical margin for wide excision of **SCC**

small <2cm ,Grade 1 , low risk region , depth to dermis **4mm**

large >2cm , Grade 2,3,4 , high risk region , depth to SC fat **6mm**

General surgery

Hydatid cyst

A 24 YO woman with RUQ abdominal pain for 6 months, this shows liver.

1. **What's your Dx.?**

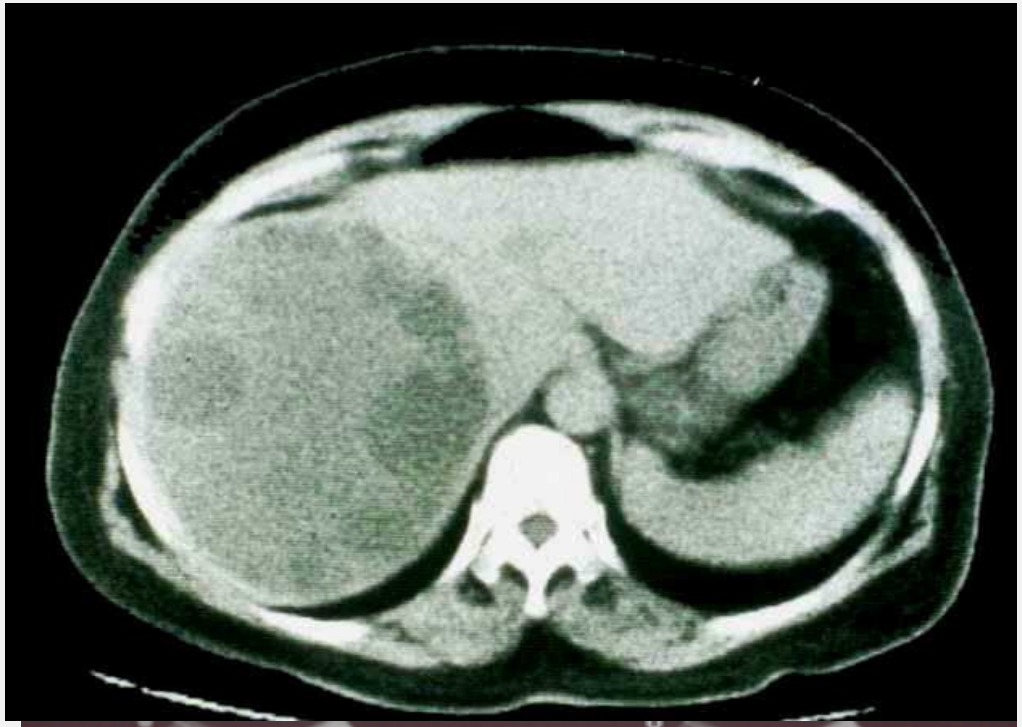
   Hydatid Cyst.

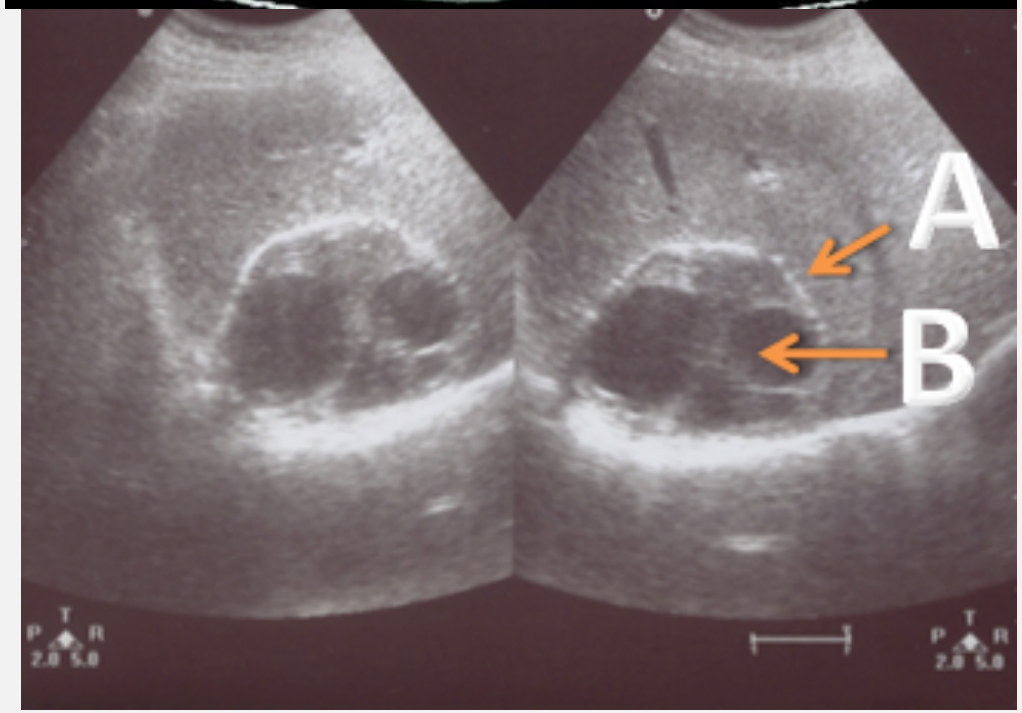
2. **Mention 2 causative pathogens (organisms).**

   E. Granulosous, E. multilocularis.

3. **Mention 3 complications.**

   Infection (Abscess), Rupture intra-(biliary, pleura, peritoneum, cardiac), Anaphylactic shock, Obstructive Jaundice.





Name a biochemical test that you will use to confirm the Dx.

ELISA (Indirect hemagglutination & latex agglutination).

What are the parts at A & B?

A:Pericyst. B:Endocyst (Daughter cyst).

After few days the pt started to complain of jaundice, biliary colic & urticaria. What's the cause of these symptoms?

Biliary rupture.

Mention 3 characteristic of hydatid fluid.

Colorless, Opalescent, Alkaline.

Mention 2 adjuvant drugs used in tt.

Albendazole, Mebandazole.

9. **If cyst ruptures, what happen for each one:**

Brain: decreased level of consciousness? headache? Dizziness?

Lung: Expectoration of cyst membranes and fluid in intrabronchial rupture, cough, dyspnea..

Vascular: Anaphylaxis.

Biliary tree: erode biliary radicals & form a communication between cyst itself & CBD & daughter cysts impact there & obstruct it & causes obstructive jaundice / cholangitis.

Peritoneum: peritonitis.

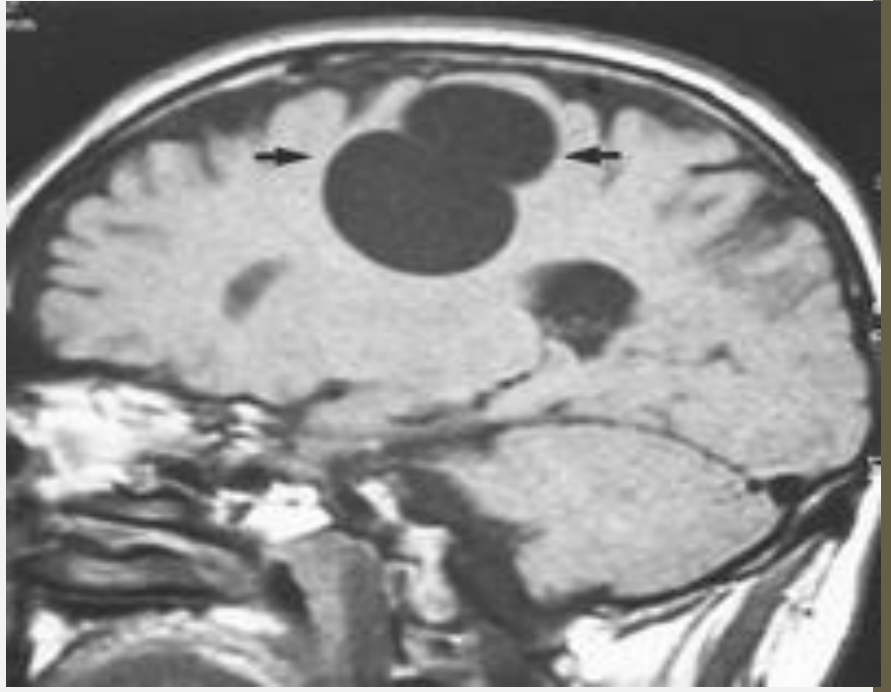
Pericardium: Pericarditis/pericardial effusion.

- Hydatid Cyst in the Rt lobe of the liver.
- **What is your differential diagnosis?**
- Hepatoma (Hepatocellular carcinoma), Hepatic adenoma.
- **What is the possible clinical presentation of <u>this</u> case?**
- Abdominal Pain (or discomfort), Abdominal mass, Obstructive Jaundice & Anaphylactic shock (rupture)…

- ***Remember: it could be asymptomatic.**

- **What is the main risk factor?**
- **Exposure to canines (dogs).**
- **What are the investigations that can help?**
- **CT, Ultrasound, ELISA, Immunoelectropheresis.**
- **What is the management?**
- **Medical treatment (Albendazole or Mebendazole) or surgical removal (aspiration\ albendazole pre- & post-op\ omentoplasty).**

Hydatid Cyst in the brain.

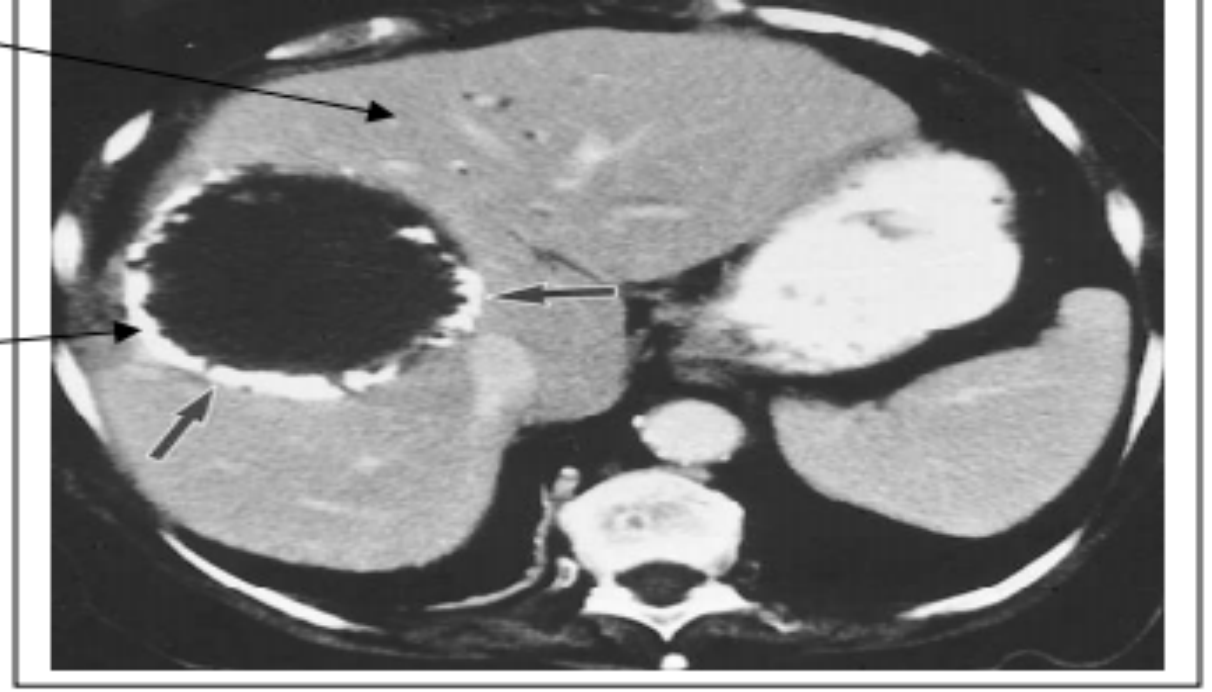


- **What is your differential diagnosis?**
- **Astrocytoma, Glioblastoma.**

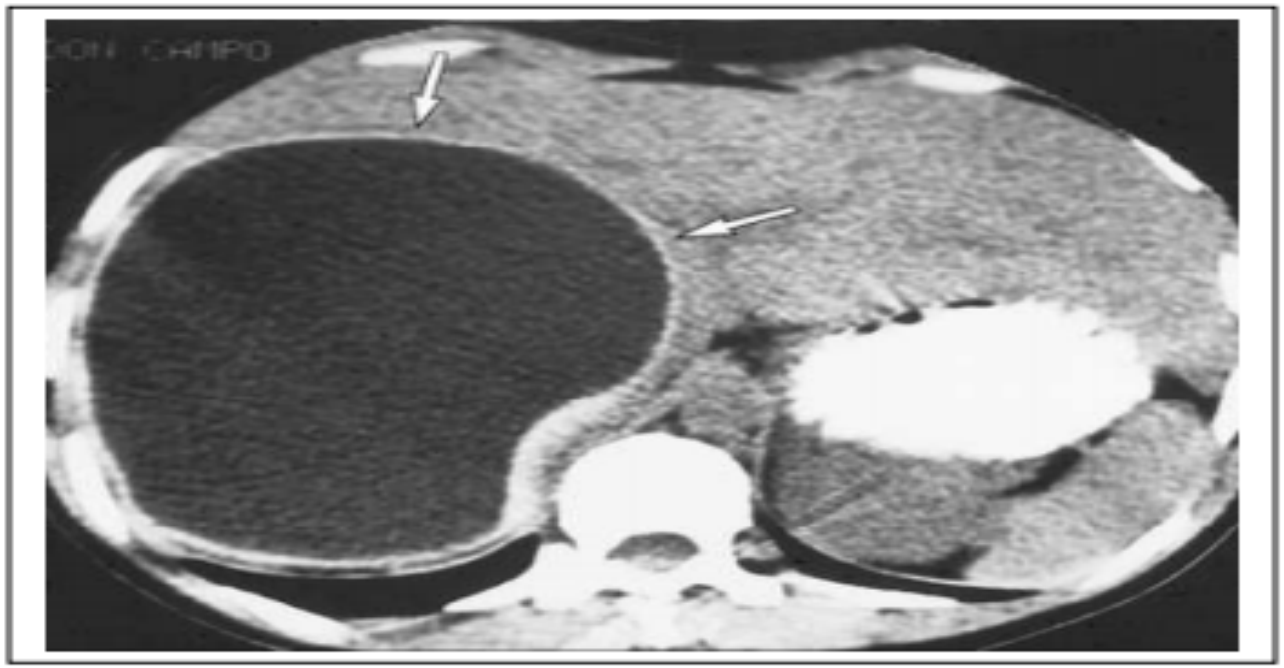
- **What is the possible clinical presentation of this case?**
- **Blindness , epilepsy, increase ICP & unexplained headache.**
- **Give one reason that made you exclude brain tumor?**
- **It has smooth border (brain tumors have irregular ones).**

liver

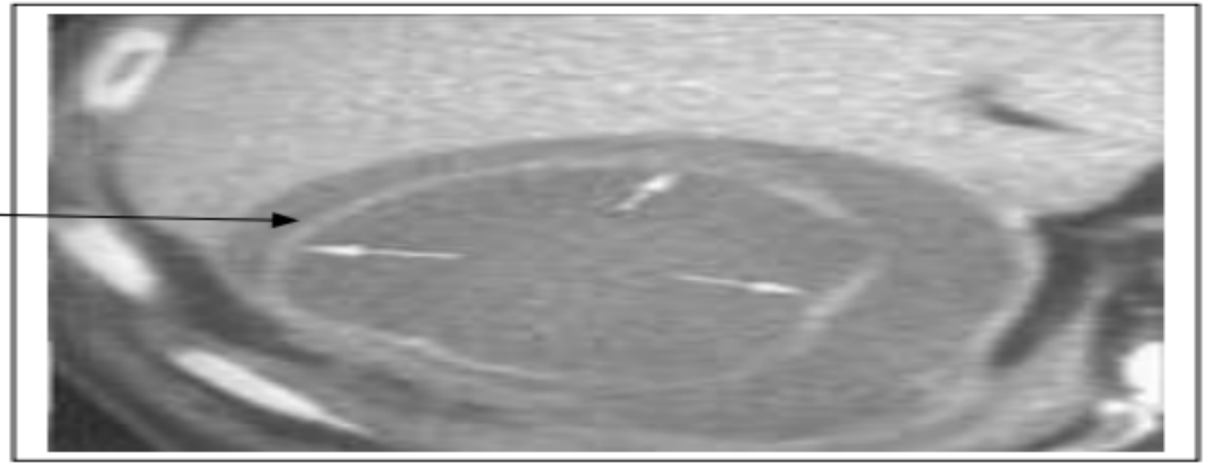
Hydatid cyst with calcification of its wall.



Most of the cysts are found in the right lobe of the liver.

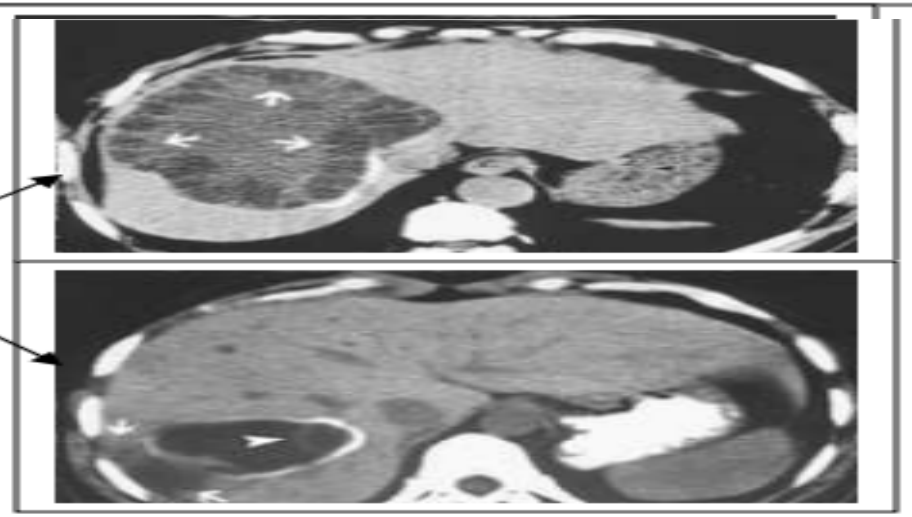


Laminated membrane collapsed due to : Intracystic rupture but it stills enclosed by ectocyst.

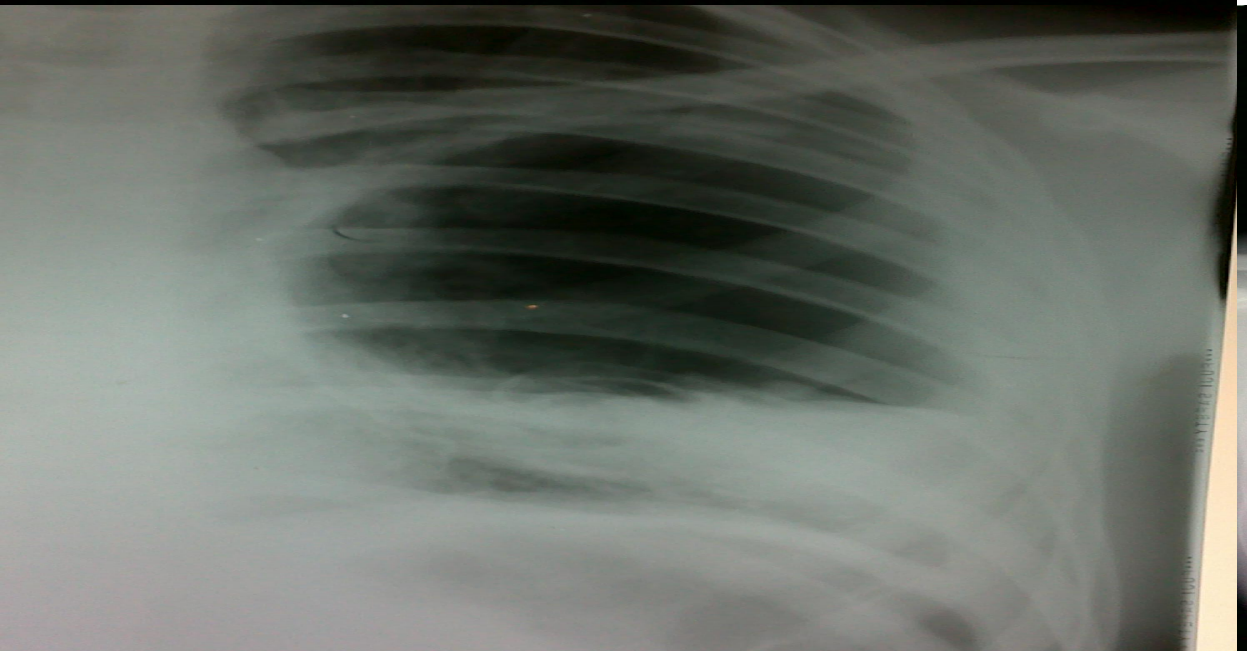


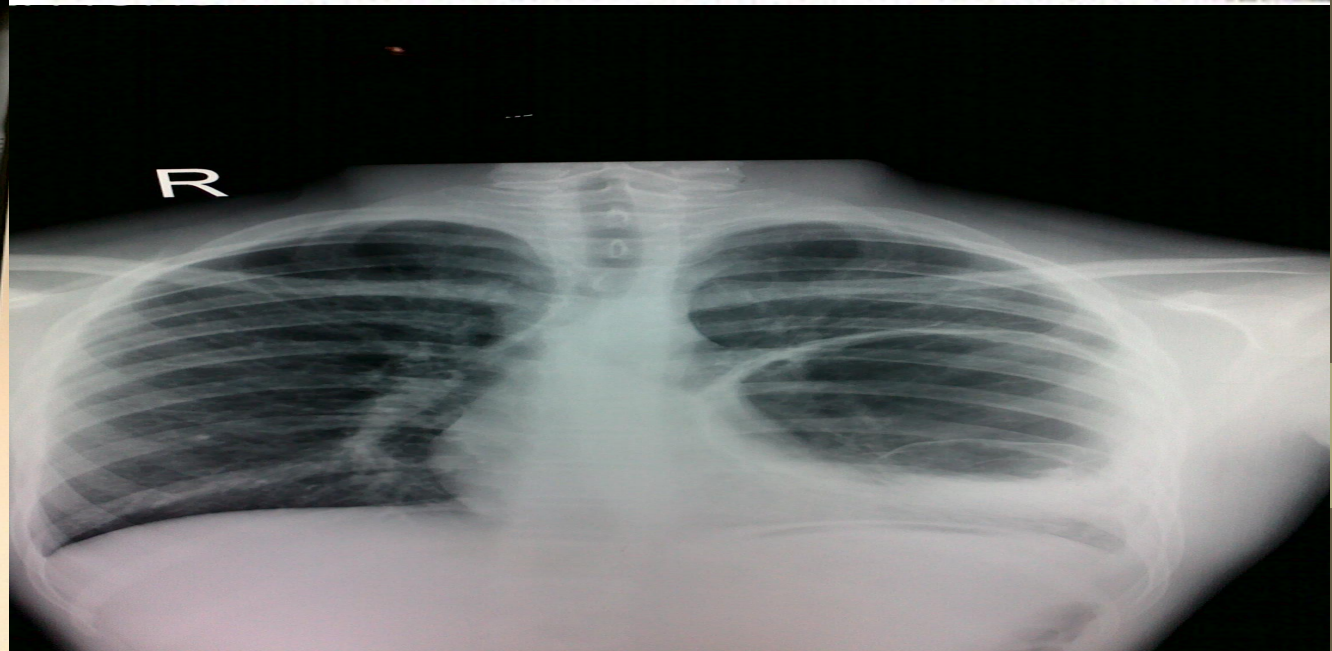
*This what can we see in the ultrasound as multiple cysts.

*Multiple cysts in the liver




R

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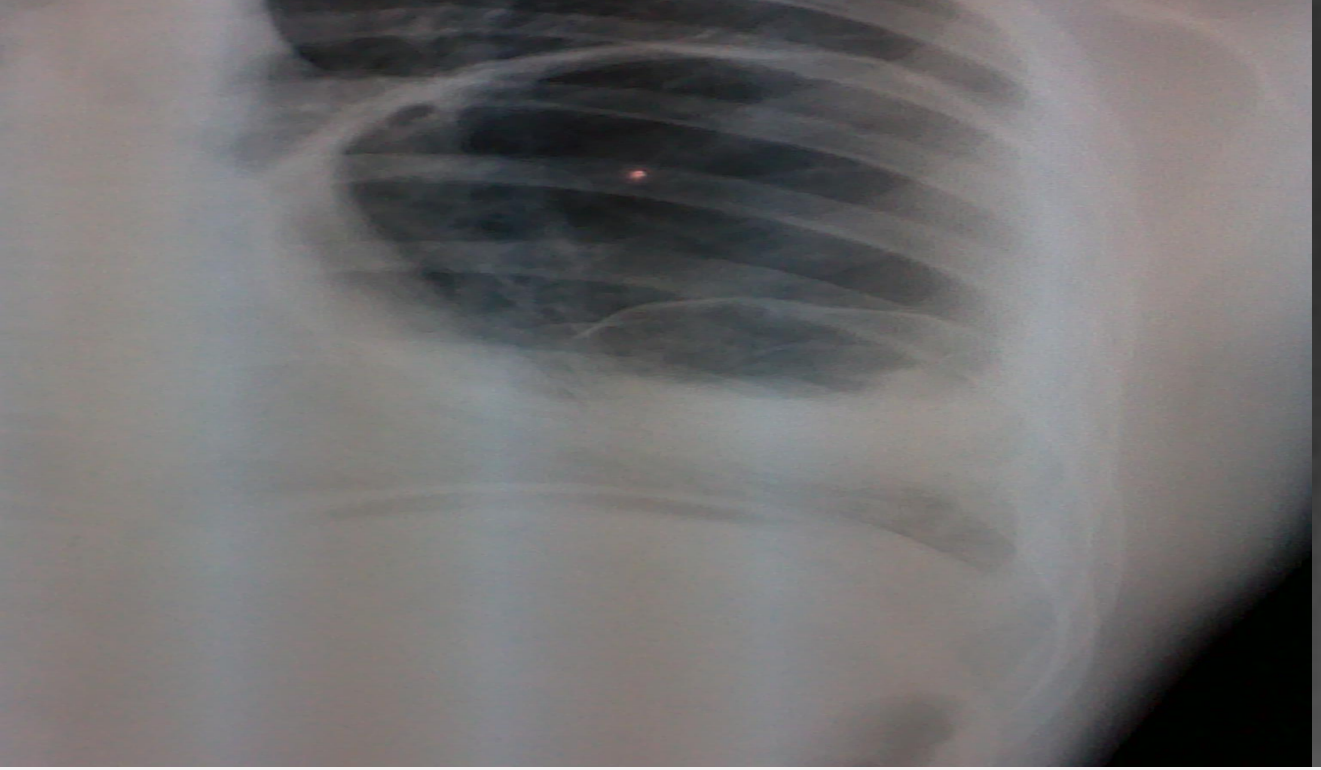
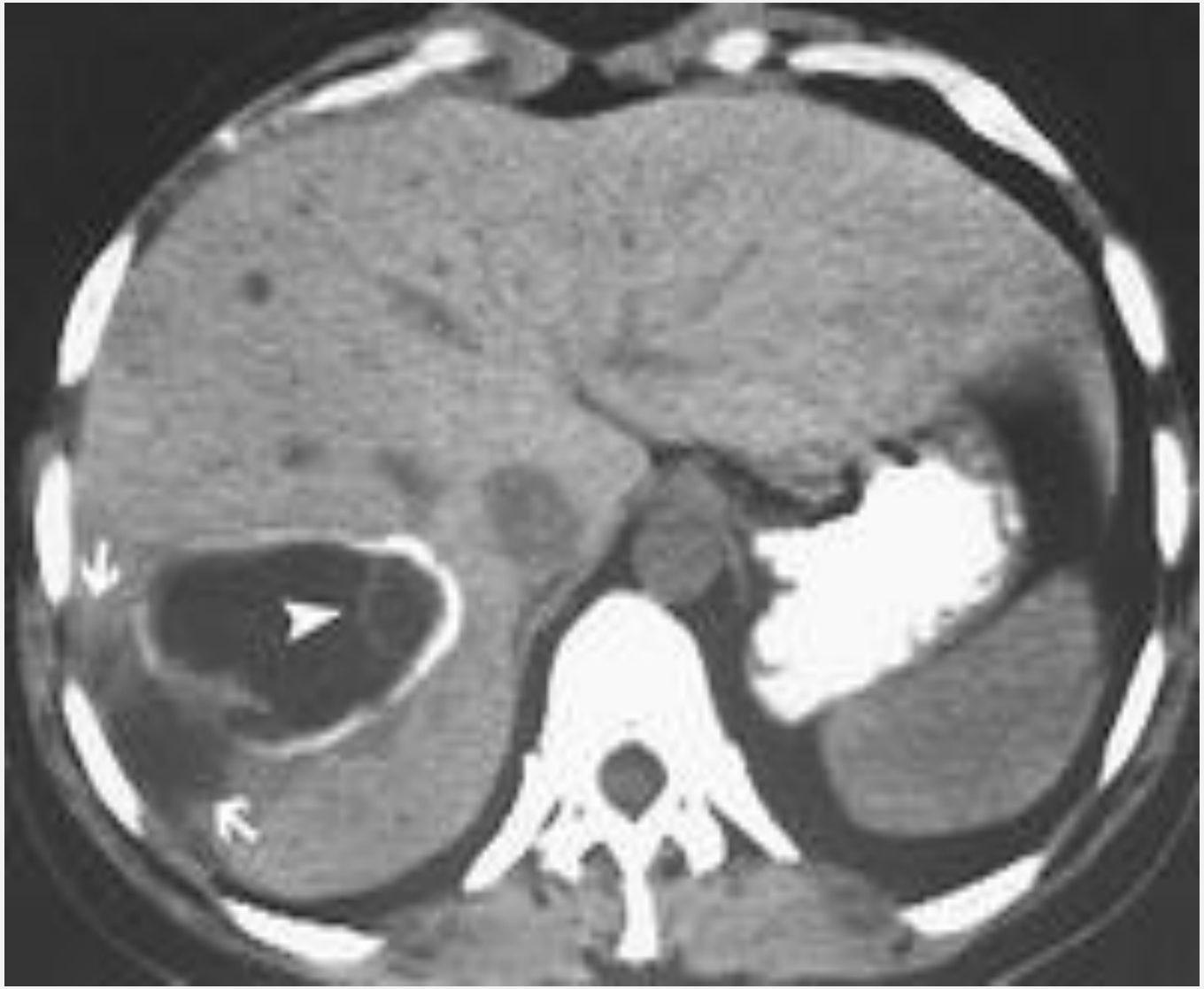



AUTO
100 AWB
F4 0dB

1. This CT was done for a 32 years old male farmer lives in Jordan Valley:



1. **Identify this condition.**

   Hydatid Cyst in the Rt lobe of the liver.

2. **What is your differential diagnosis?**

   Hepatoma (Hepatocellular carcinoma), Hepatic adenoma.

3. **What is the cause?**

   Mainly E. granulosus.

4. **What is the possible clinical presentation of this case?**

   Abdominal Pain (or discomfort), Abdominal mass, Obstructive Jaundice & Anaphylactic shock (rupture)… *Remember: it could be asymptomatic.

5. What is the main risk factor?

Exposure to canines (dogs).

6. What are the investigations that can help?

CT, Ultrasound, ELISA, Immunoelectropheresis.

7. What is the management?

Medical treatment (Albendazole or Mebendazole) or surgical removal (aspiration\ albendazole pre- & post-op\ omentoplasty).

2. This X-ray was done for a 51 years old British female who was in ER due to RTA, she did not remember anything about the accident except drinking many cups of alcohol to forget the death of her lovely dog:

- **Identify this condition.**

Hydatid Cyst in the right lung.

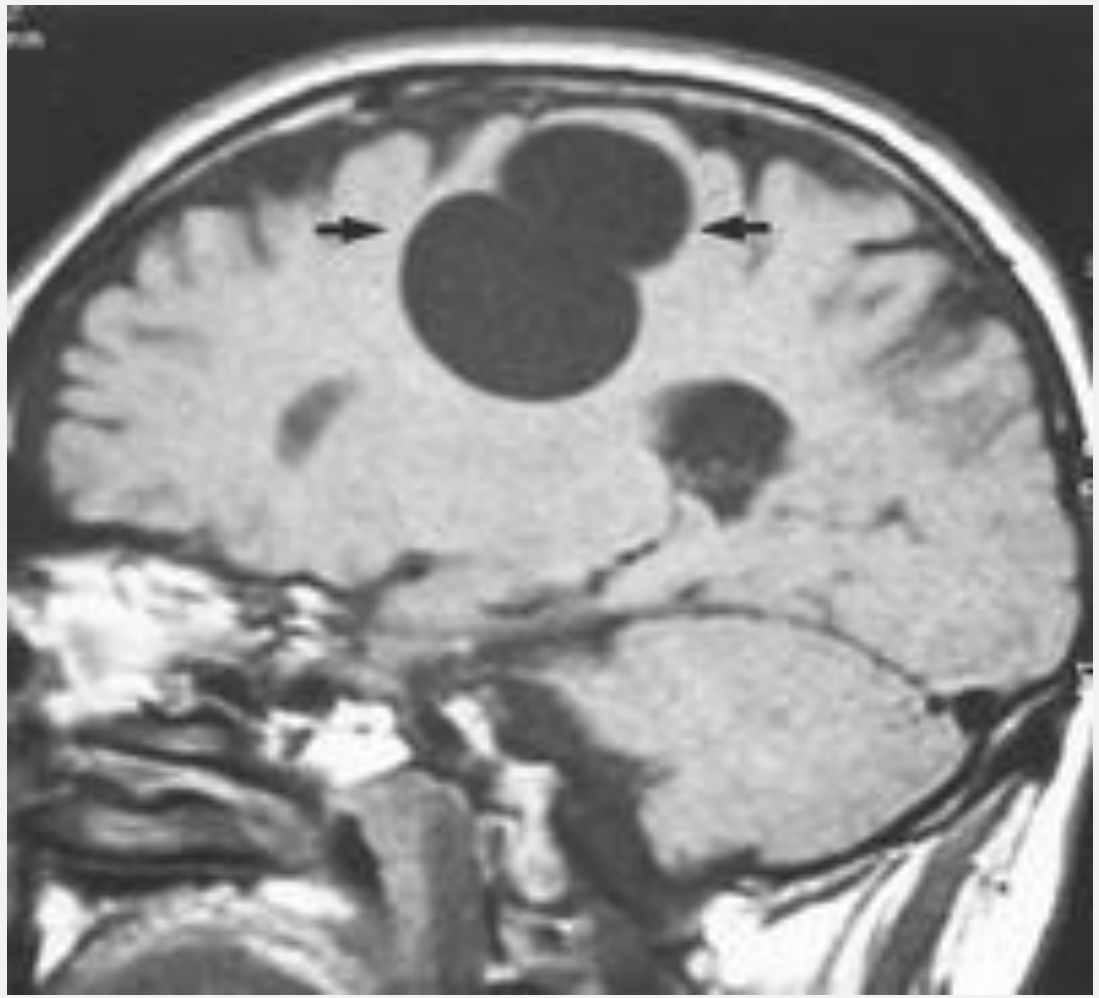
- **What is your differential diagnosis?**

Lung cancer.

- **What is the possible clinical presentation of this case?**

Dyspnea & Chest pain.

3. A 63 years old male was living in UK 10 years ago with his wife & her dog:



- **Identify this condition.**

Hydatid Cyst in the brain.

- **What is your differential diagnosis?**

Astrocytoma, Glioblastoma.

- **What is the possible clinical presentation of this case?**

Blindness , epilepsy, increase ICP & unexplained headach.

- **Give one reason that made you exclude brain tumor?**

It has smooth border (brain tumors have irregular ones).

CASE 3:

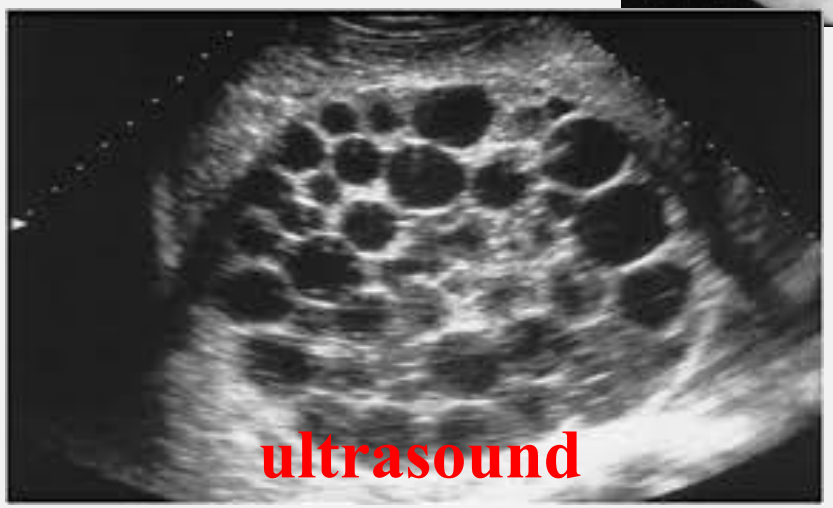
Patient presented with chronic pain and swelling in RUQ , with history of dealing with sheep.

Q1: What are your investigation for diagnosis (serological, radiological)?

Q2: mention the layers of the cyst?

Q3: mention 3 complications.

Abdominal CT scan



ultrasound

A1:

- ELISA, Haemaglutination test, Casoni intra-dermal test, immunoelectrophoresis
- CBC: eosinophilia
- If juandice: direct bilirubin, alkaline phosphatase
- US: thick wall, daughter cyst, size, site
- CT: multiple cyst(number), site, calcification
- Xray: diaphragm elevation, calcified cyst, lung affection

A2: 1) advintitia 2)laminated 3)germinal

A3: 1)rupture 2)secondary inf 3)hemorrhage
4)spread to ather organ

Lung CA

A 65 YO smoker for 20 yrs, his CT shows the following peripheral 1cm solid nodule.

Give the best radiological investigation for this t to be done.

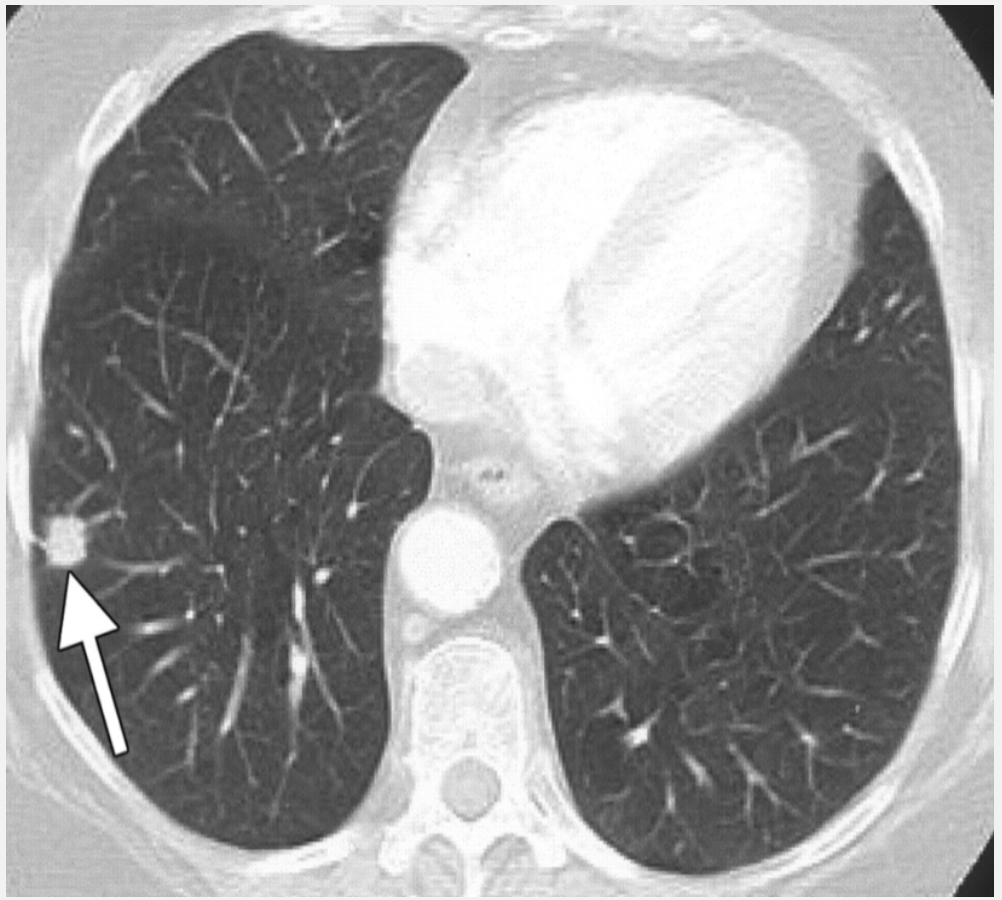
PET scan.

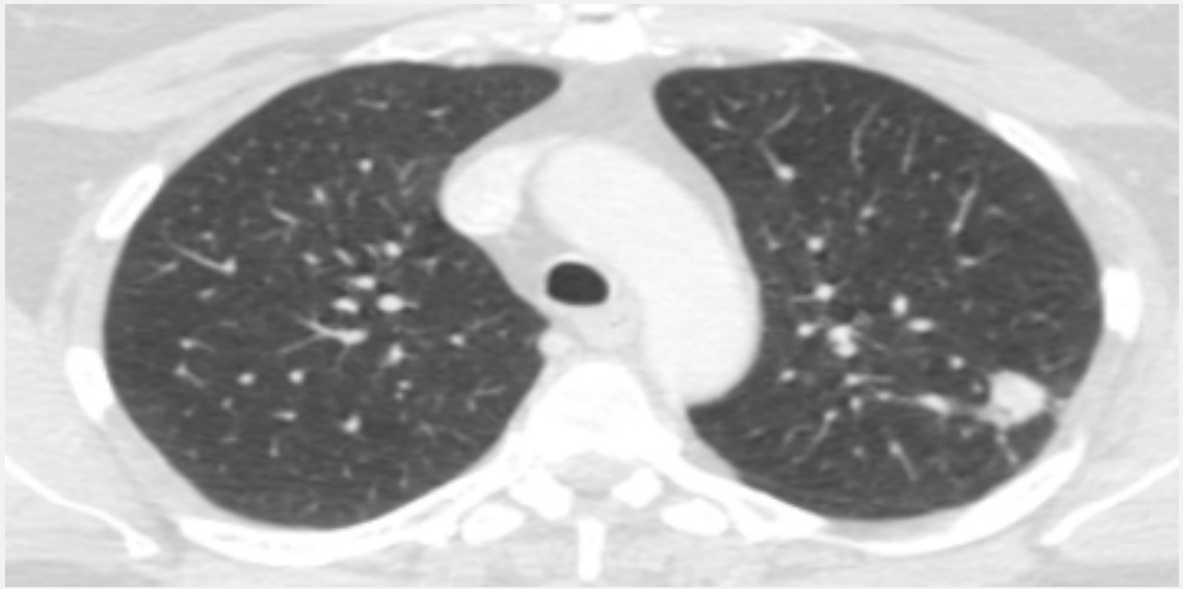
Give 2 DDx for such a case.

Adenocarcinoma, Carcinoid tumor, Granuloma.

Give 2 modalities for taking biopsy.

CT-guided aspiration, VATS, Open biopsy.

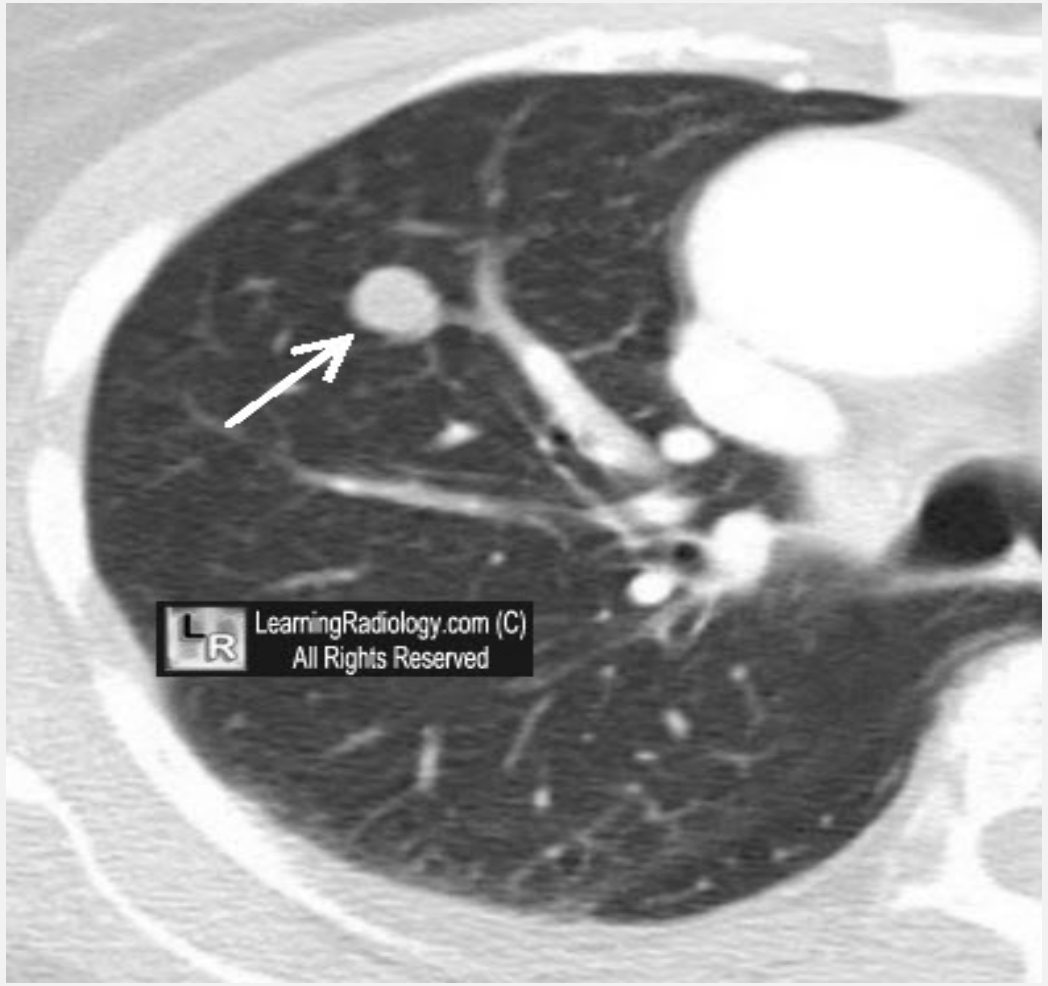




1. **Give DDx.**
2. **What's the management? VATS.**
3. **How you can evaluate the pt before surgery? PFT (FERV1, DLCO).**

Solitary pulmonary nodule less than 3 cm.

- **Give 2 signs of malignancy that you can see.**
- **What's the next diagnostic step?**
  bronchoscopy and biopsy or sputum cytology if present
- **What's the type of tt if pt is fit & lesion is localized?**
  surgical excision with safe margin LN clearance
- **What's the type of tt if there are distant metastasis?**
  chemo / radiotherapy



A CXR for a 50YO male, heavy smoker, with a lung nodule.

1. **What's the most important radiological test you are going to do next?**

   Chest CT or PET-CT.

2. **If the mass is central, what's the best way to get a biopsy?**

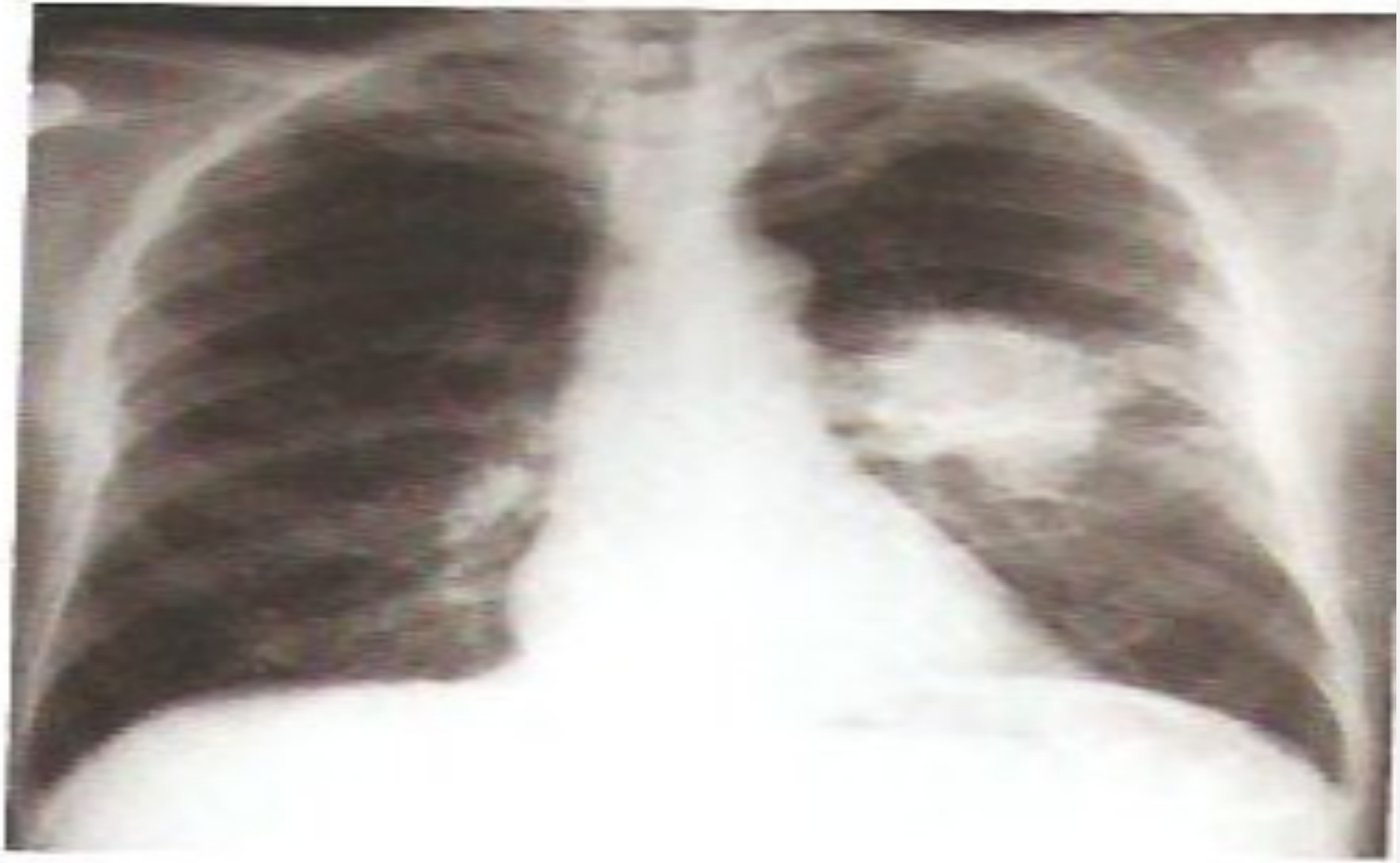
   Bronchoscopy.

3. **If this mass is malignant, what you expect its type?**

   Squamous Cell Carcinoma (SCC).

4. **What are the 2 most important parameters in PFT?**

   FEV1, DLCO.



Summary: LUNG

TX	Positive cytology only
T1	≤3 cm
T1a	≤2 cm
T1b	>2-3 cm
T2	Main bronchus ≥2 cm from carina, invades visceral pleura, partial atelectasis
T2a	>3-5 cm
T2b	>5 cm-7 cm,
T3	>7 cm; chest wall, diaphragm, pericardium, mediastinal pleura, main bronchus <2 cm from carina, total atelectasis, separate nodule(s) in same lobe
T4	Mediastinum, heart, great vessels, carina, trachea, oesophagus, vertebra; separate tumour nodule(s) in a different ipsilateral lobe
N1	Ipsilateral peribronchial, ipsilateral hilar
N2	Subcarinal, ipsilateral mediastinal
N3	Contralateral mediastinal or hilar, scalene or supraclavicular
M1	Distant metastasis
M1a	Separate tumour nodule(s) in a contra-lateral lobe; pleural nodules or malignant pleural or pericardial effusion
M1b	Distant metastasis

Acute vascular disease

A 47 YO male, who has this situation in his Leg.

What's your Dx?

Varicose vein.

What's the most common system affected?

Superficial vein system.

The most common vein affected?

Saphenous vein.

What type of superficial vein involved in (A)?

Non-truncular varicose veins (reticular veins).

What's the non-invasive investigation (Golden Slandered)?

Doppler US.

Name one complication.

Ulceration.

What's the tt?

Elastic stocking, Stripping of the veins, sclerotherapy, endovenous thermal ablation.

Mention 2 indications of surgery.

Intractable heaviness or discomfort, Cosmetic.

Identify the photo ?

Abdominal aortic Aneurysm

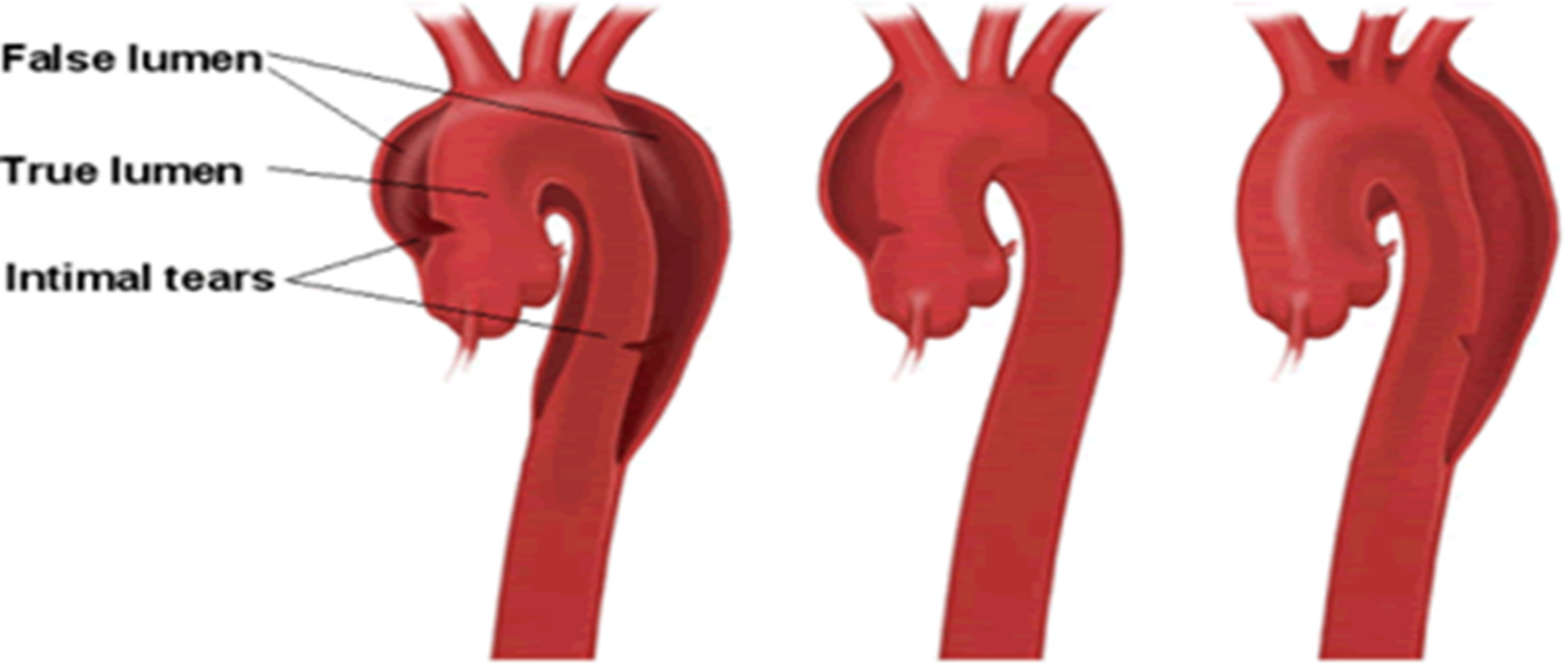
2. Mention three methods for investigations ?

US , CT scan , MRI , Angiography

3. Mention three clinical presentation for this pateint ?

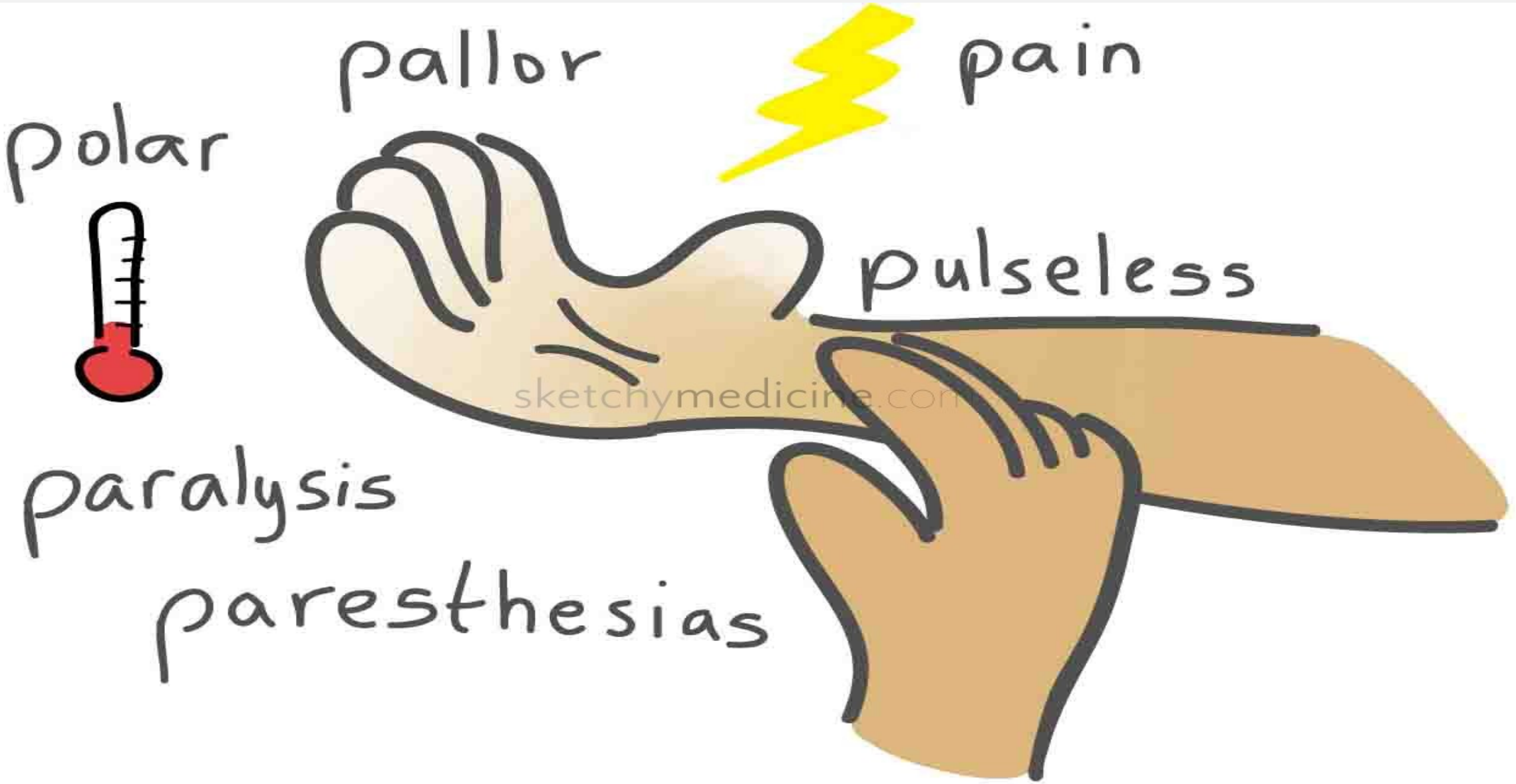
Pulsatile mass , hypotension , abdominal pain

Anatomy and Classification of Aortic Dissection



DeBakey	I	II	III
Stanford	A		B

Acute arterial ischemia

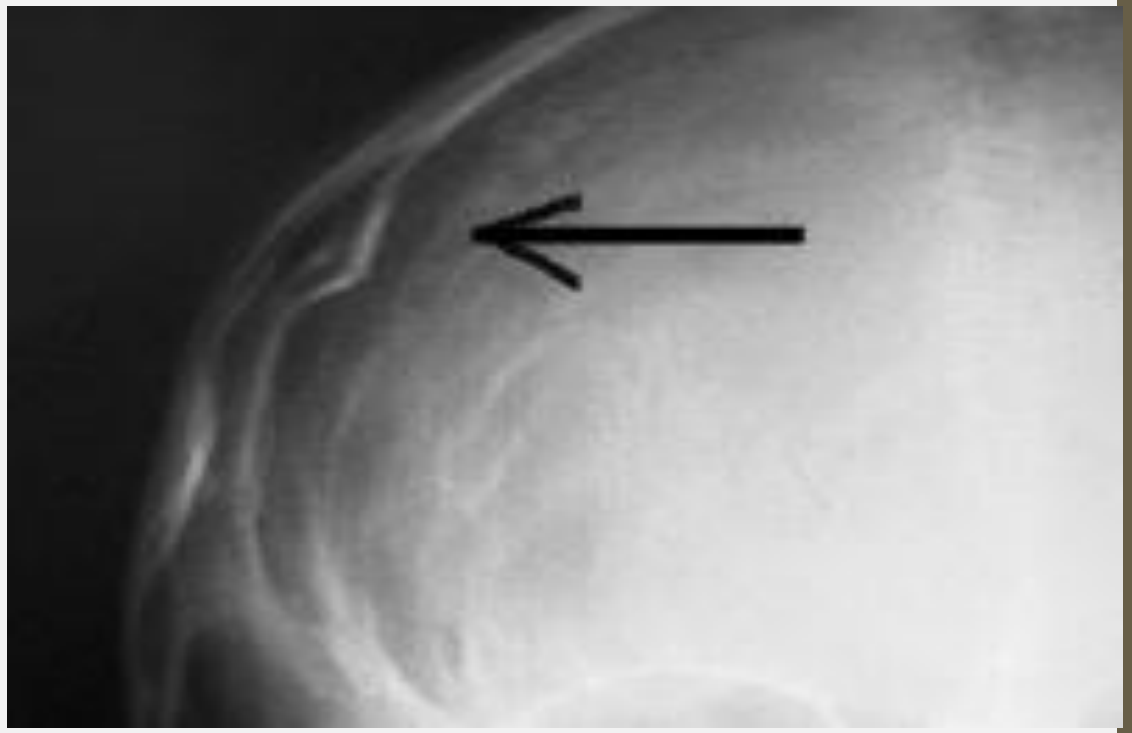


Head Trauma

Ping-pong fracture :

depressed skull fracture in children

no need for elevation



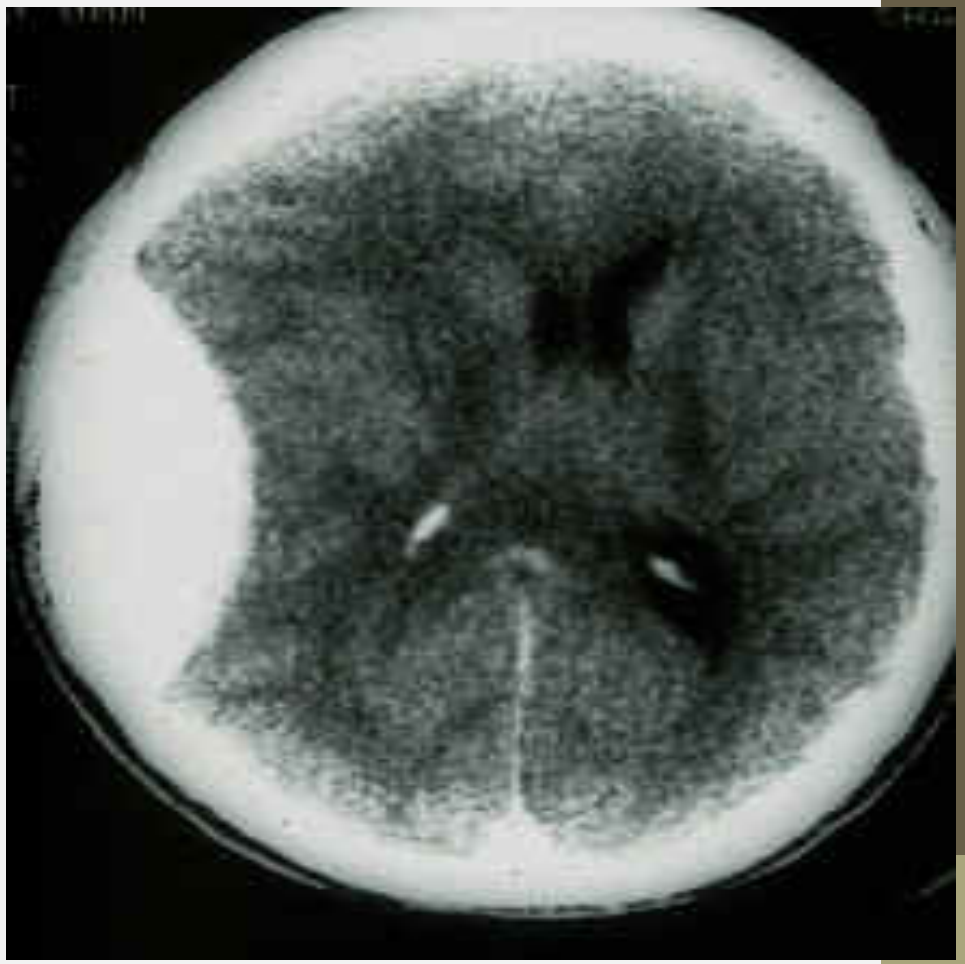
Diagnosis?

Epidural hematoma (lucid interval)

what s the source of bleeding ?

Middle meningeal artery

NO serious brain tissue damage



Diagnosis ?

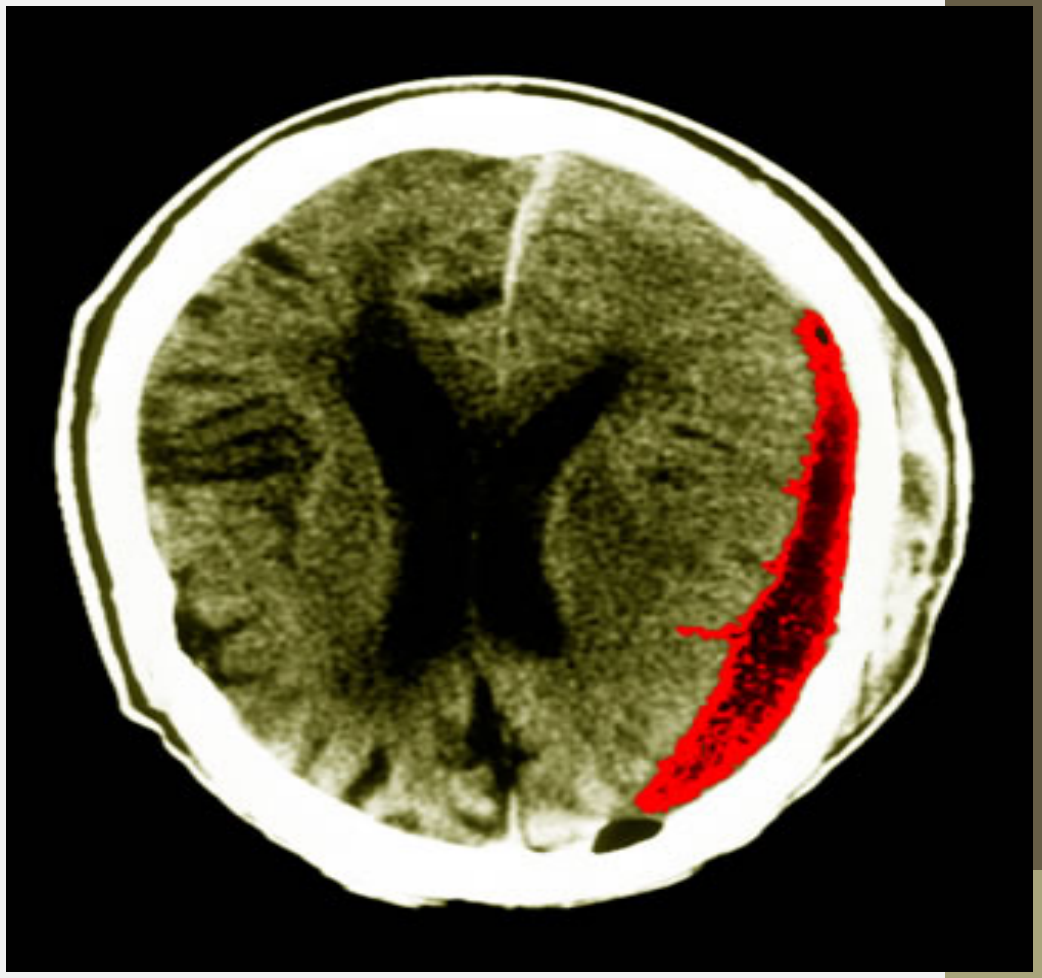
Subdural hematoma

source of bleeding?

Venous

[Veins Bridging the cortex & the dura]

always associated with brain injury



5 years child presented to ER with Hx of falling down on his lower limbs (standing position)

Describe what you see?

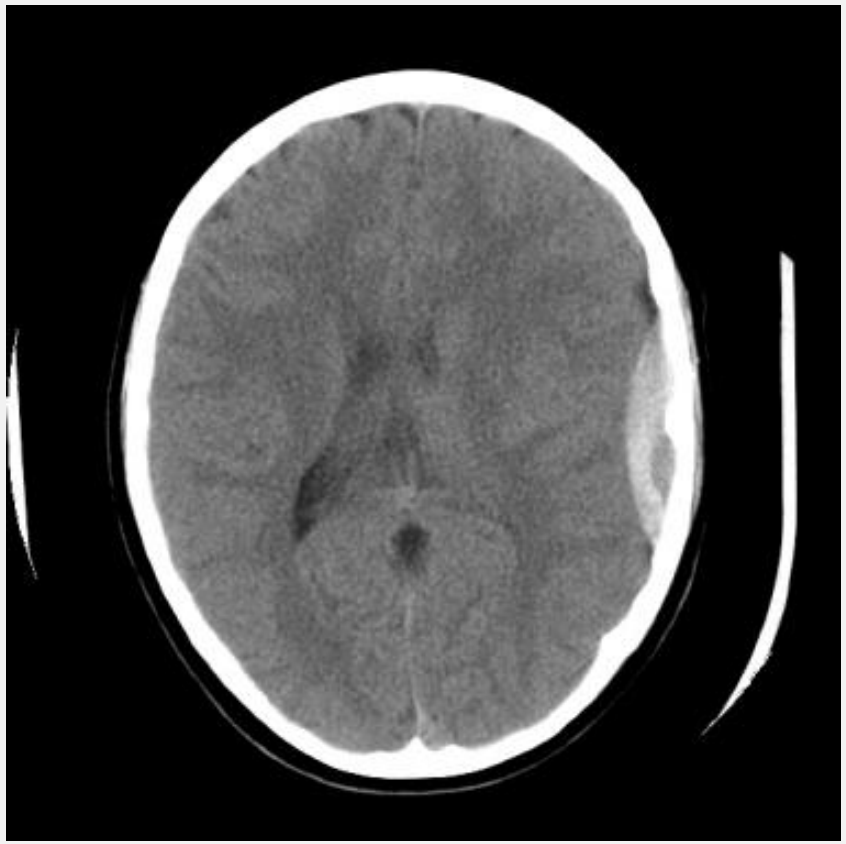
1) Periorbital ecchymosis
2) Post auricular ecchymosis

Name of these signs ?

3) Raccon eye
4) Battles sign

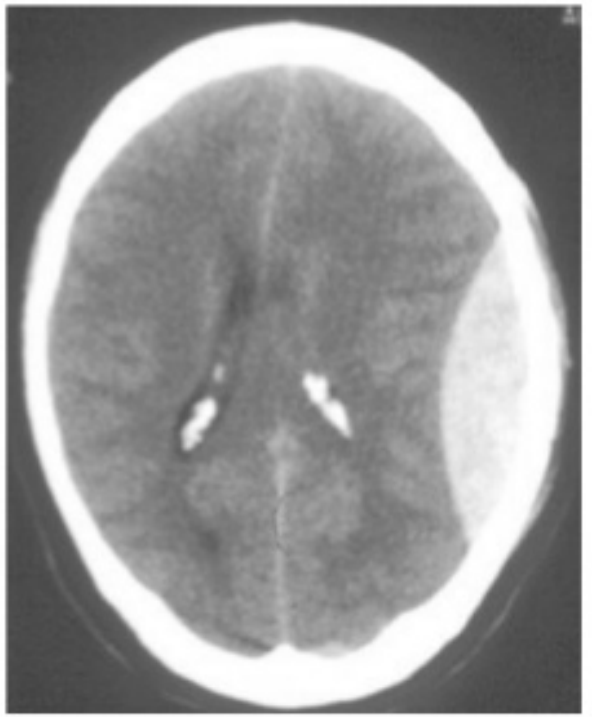
What is your most likely diagnosis ?

Basal skull fracture

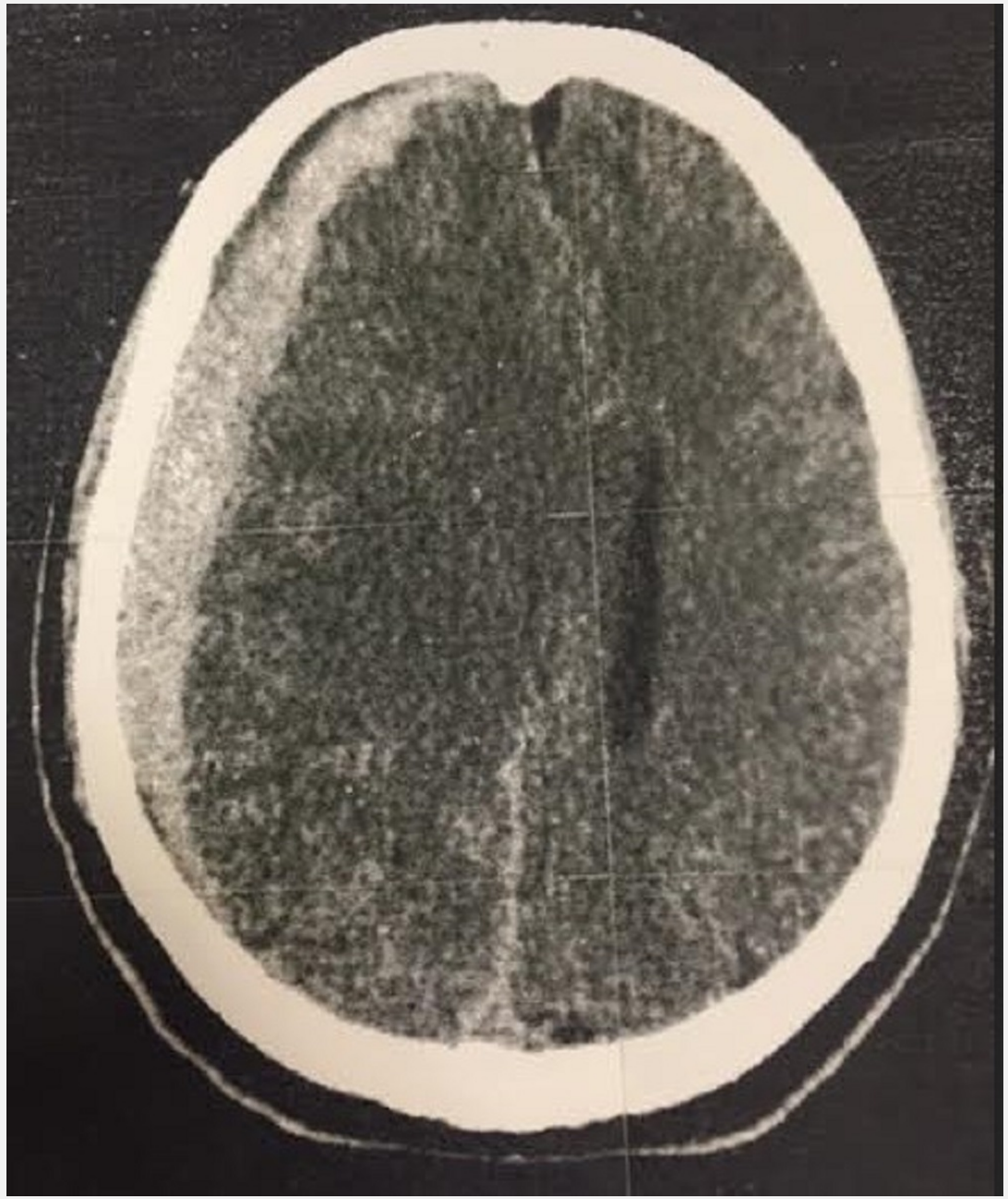


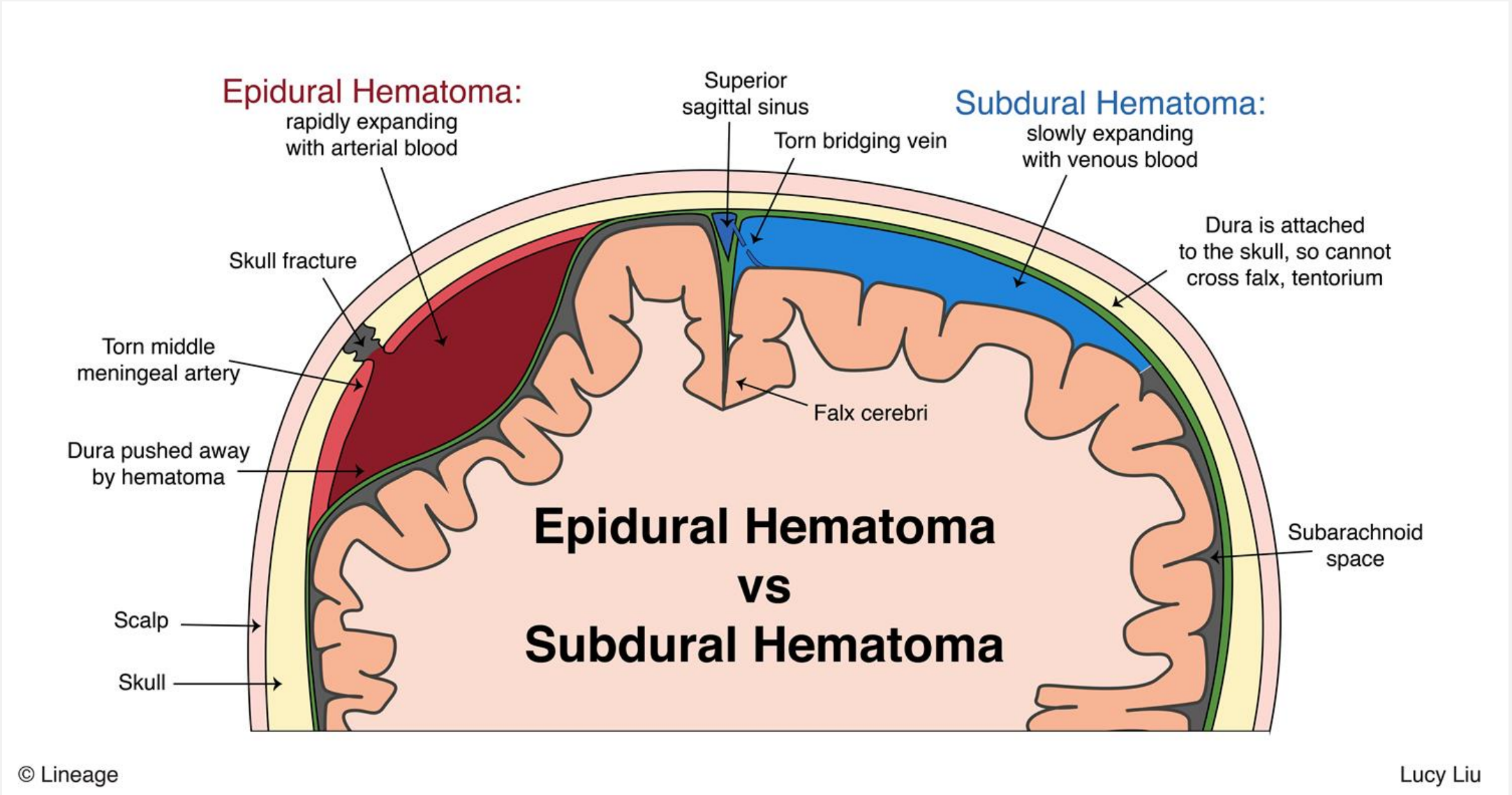
Epidural Hematoma

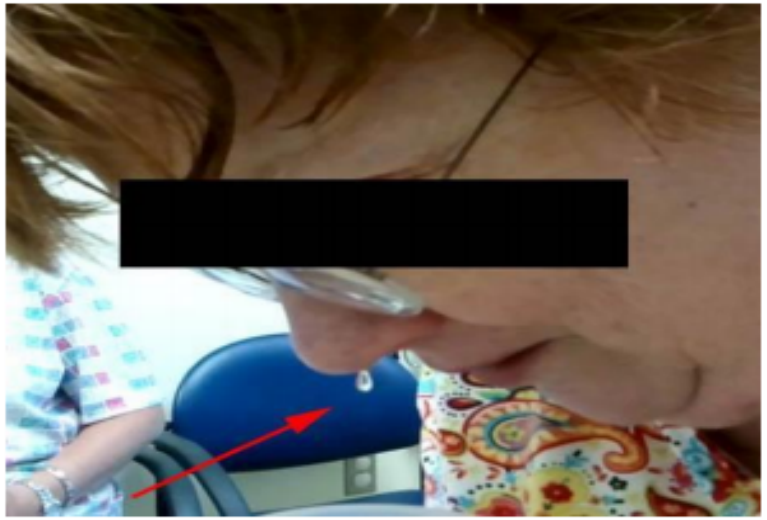
- Collection blood between inner table of the skull and dura matter.
- Associated injury middle meningeal artery and branches (75% temporoparietal location)
- Expanding hematoma does not cross the suture line (in adult)
- Biconvex shape with hyperdense from CT Scan



Anzai, Y., Fink, K., 2015. Imaging of Traumatic Brain Injury: Neuroimaging of Traumatic Brain Injury. Thieme. New York. P12-16



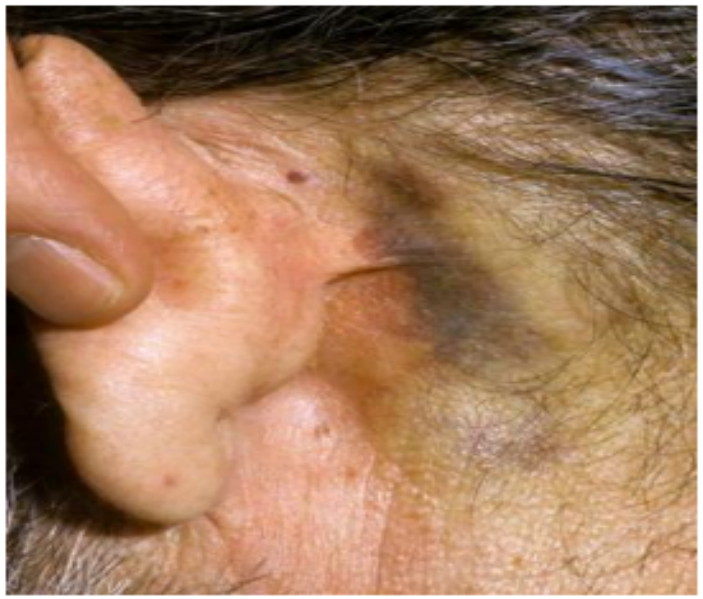

Epidural Hematoma:
rapidly expanding
with arterial blood
Superior
sagittal sinus
Torn bridging vein
Subdural Hematoma:
slowly expanding
with venous blood
Dura is attached
to the skull, so cannot
cross falx, tentorium
Skull fracture
Torn middle
meningeal artery
Falx cerebri
Dura pushed away
by hematoma
Epidural Hematoma
vs
Subdural Hematoma
Subarachnoid
space
Scalp
Skull
© Lineage
Lucy Liu



Clear rhinorrhea

raccoon eyes

otorrhea

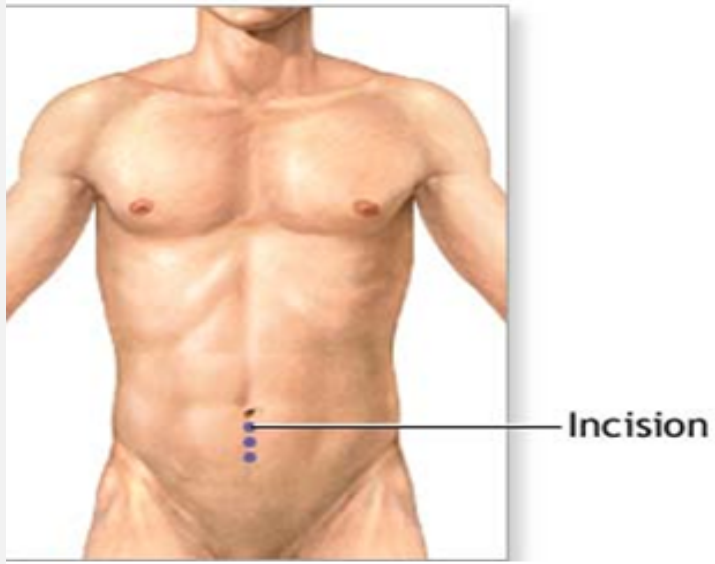


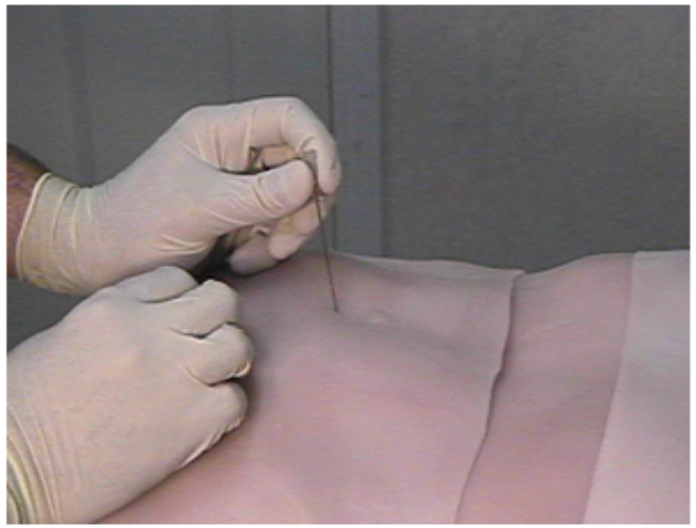
battle's sign (ecchymosis behind the ear)

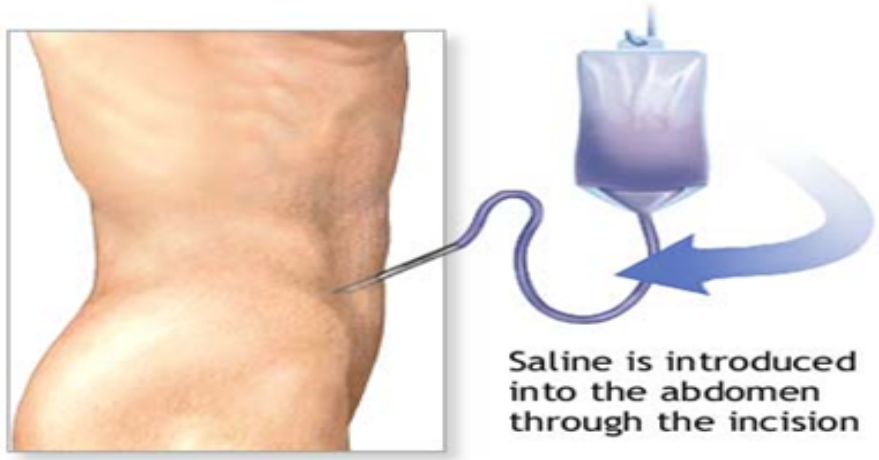
hemotympanum

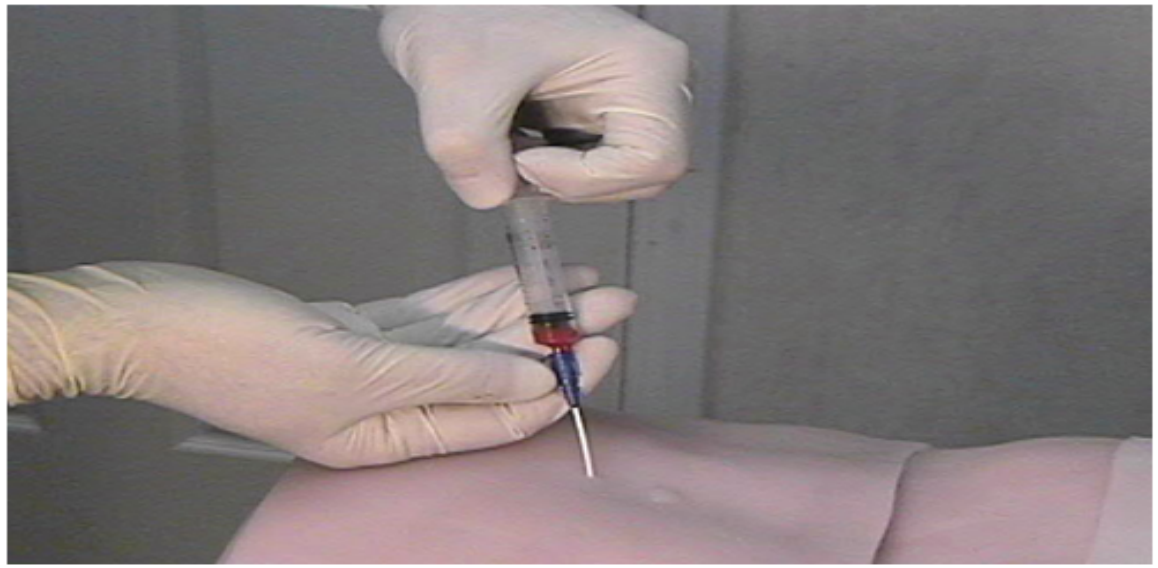
Abdominal trauma

DPL Technique









DPL (diagnostic peritoneal lavage)

Why done ?

To find out if there is blood in the peritoneal cavity (internal bleeding or injury to the intestine)

Indication :

- Equivocal clinical examination
- Difficulty in assessing patient
- Persistant hypotension despit adequate resuscitation
- Multiple injuries

Positive signs in DPL

1. > 5mls of blood aspirated before fluid is infused.
2. Bloody irrigated fluid
3. the presence of bile,
4. enteric contents.
5. Hematological & biochemical tests for the aspirated fluid:
    a. RBC > 100,000/cmm
    b. WBC > 500 /cmm
    c. Amylase > 175 units

Identify this organ.

Spleen.

Mention 3 findings in the examination of this organ.

Can't go above it, Notch, Not ballotable, moves with respiration, grows diagonally (into the right iliac fossa).

What's the hematological problem that is cured by its excision?

Hereditary Spherocytosis.

Name one organ that could be mistaken with it?

Left Kidney.

What's the gold standard inv. of splenic trauma in <u>stable</u> pt?

Abdominal CT.

What's the gold standard inv. of splenic trauma in <u>un-stable</u> pt?

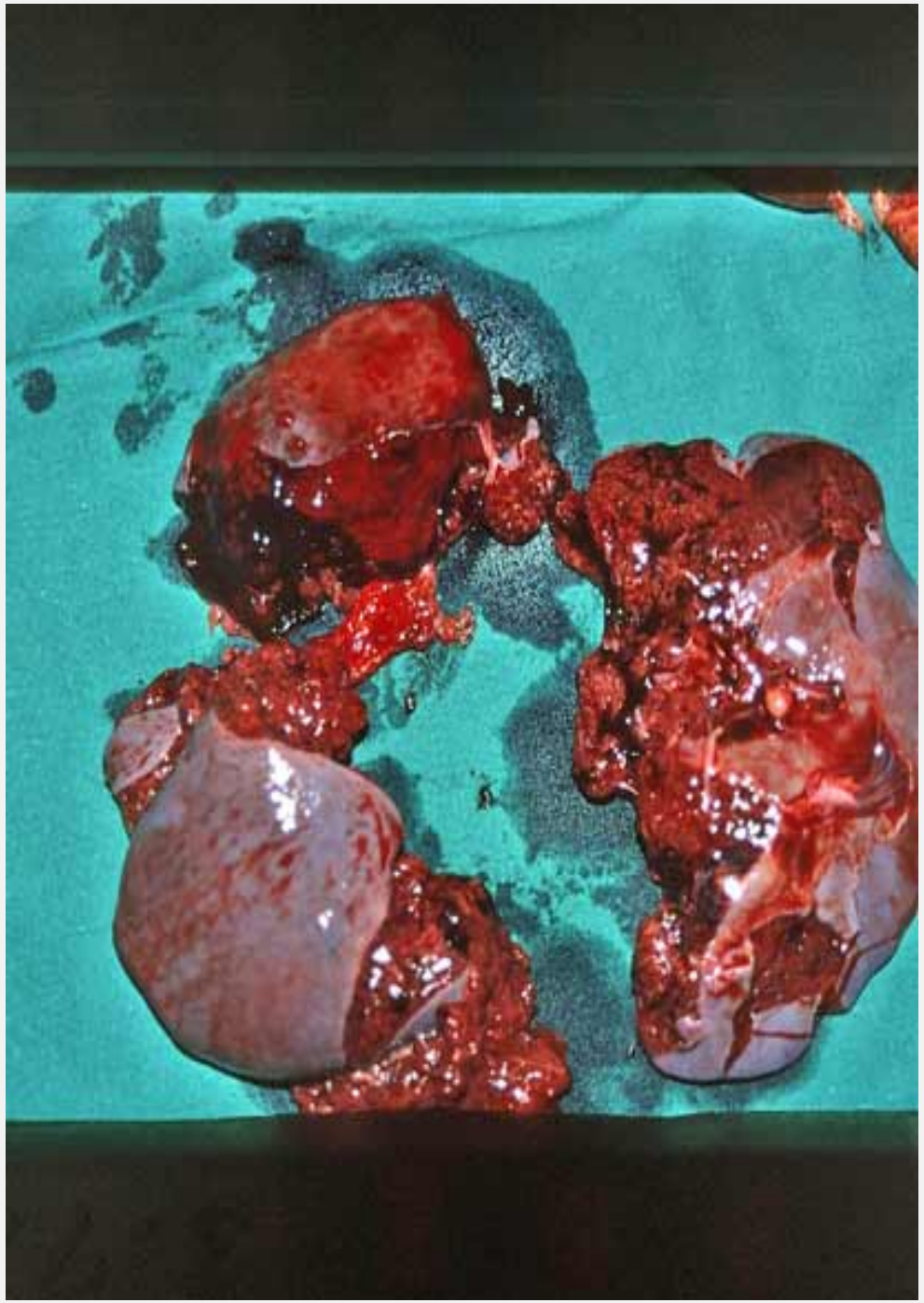
DPL or FAST exam.

What's the most serious complication of splenectomy?

OPSS.

What cause it? & How to prevent it?

Increased susceptibility to encapsulated organisms, prevented by pre-op. vaccination for pneumococcus, meningococcus & HI.



What's your Dx?

Splenic Laceration.

What's the most serious complication?

Hemorrhage.

What's the tt?

ICU admission, frequent US or CT, Splenectomy.

What's the post-discharge follow up?

Pneumoccocal + infleunza B vaccination.

A pt had trauma to lower lateral thoracic cage presented with this X-ray (air fluid level).

What's the organ most likely to be injured?

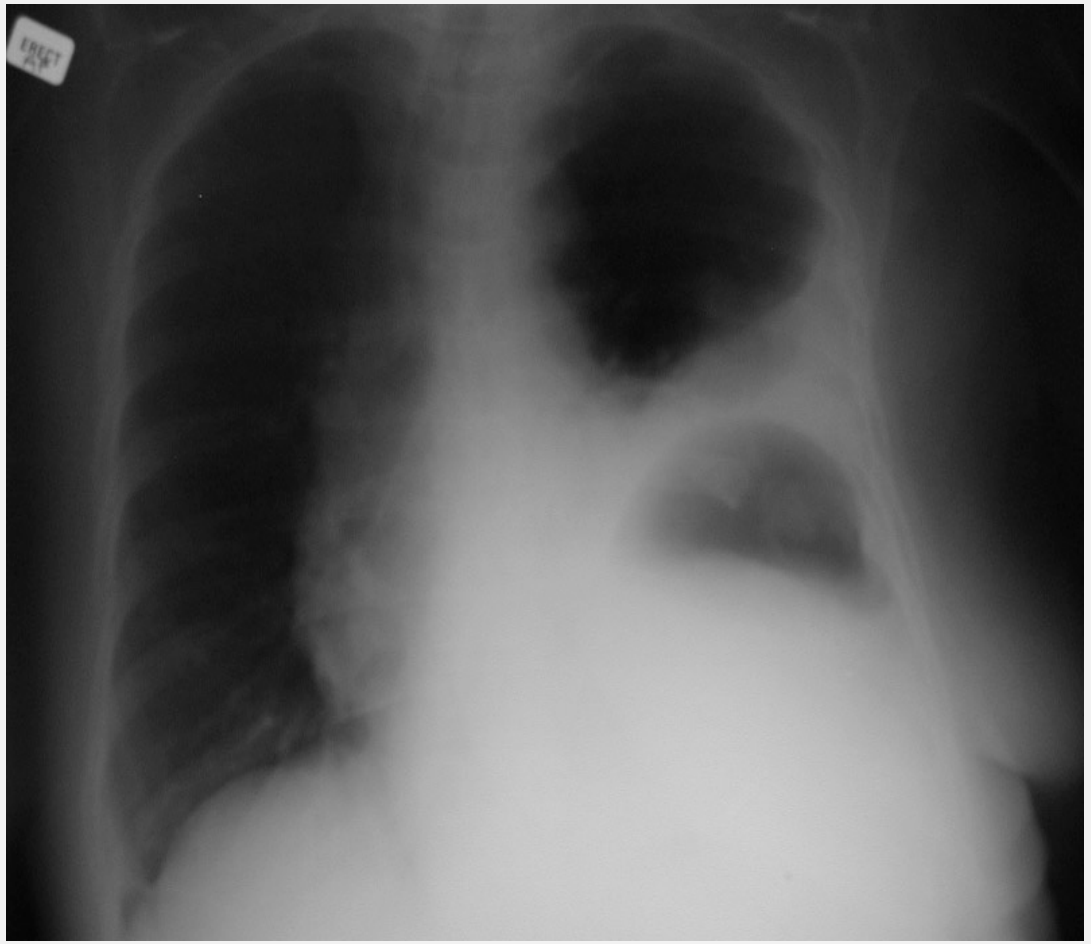
Spleen.

Name 2 investigations if the pt is hemo-dynamically stable.

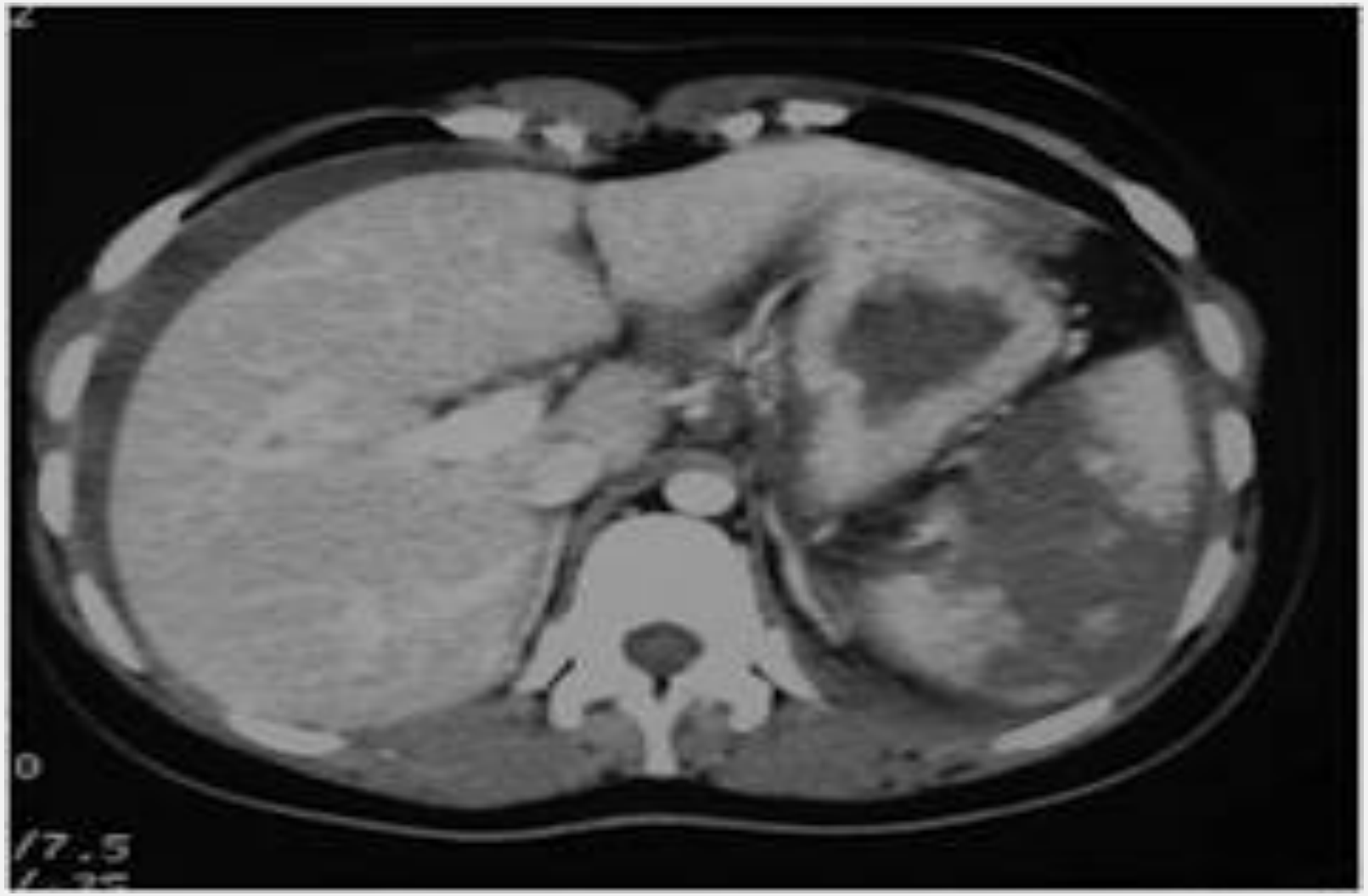
CT & FAST (focused assessment with sonography trauma).

Name 2 complications.

Hypovolemic shock, Hemothorax & respiratory distress(?).



Hx of pt after RTA , hypotensive with abdominal pain & shoulder tip pain .



. **What's the Dx?**

Splenic trauma/rupture (not sure!).

. **Give 2 other tests that to assess the pt.**

Abdominal US, Diagnostic peritoneal lavage (DPL).

. **What's the most common cause of death after surgery?**

Sepsis (due to encapsulated organisms).

. **What should the pt do all through his life.**

Prophylactic penicellin for all minor infections/illnesses & immediate medical care if febrile illness develops.

What is the Dx?

Splenic infarction.

Mention a systemic cause.

Systemic cause: thrombophilia, CA, embolic dis. (AF,...).

Mention a cause from the spleen.

Local cause: splenomegaly (sickle cell, ...).

Mention 2 lines of tt.

tt of underlying problem, adequate pain relief. Splenectomy.

Trauma

Cricothyrotomy

Tracheostomy

Insert tracheostomy tube between tracheal rings so this allows air to enter even whennupper airway are occluded , the tube has a cuff on it to prevent air leakage & to prevent aspiration .

In children under 9year old we can't do cricoidstomy so we do tracheostomy directly .

Flail chest

or segment occurs when three or more contiguous ribs are fractured in two or more places.

It typically occurs after high impact **trauma.**

Flail segment of chest wall that moves paradoxically (opposite to the rest of chest wall)

This pt had RTA , with distended jugular veins.

. **What's your DDx?**

Tension pneumothorax/ hemothorax, cardiac tamponade.

. **How you can differentiate between your DDx by physical exam?**

Pneumothorax: hyper-resonance on percussion, decreased or no air entry.

Cardiac tamponade: muffled heart sounds, elevated JVP.

. **What are the 1st steps of management you should do to?**

Primary Survey (ABCDE) ...

. **What's your management?**

ABC, Chest tube/pericardio-centesis.

Chest tube drain

1. Identify the picture ?

Chest tube insertion

2. Where is the identical site in case of pnuemothorax ?

apically

3. where is the identical site in case of hemothorax ?

basally

4. mention the indications of thoracotomy ?

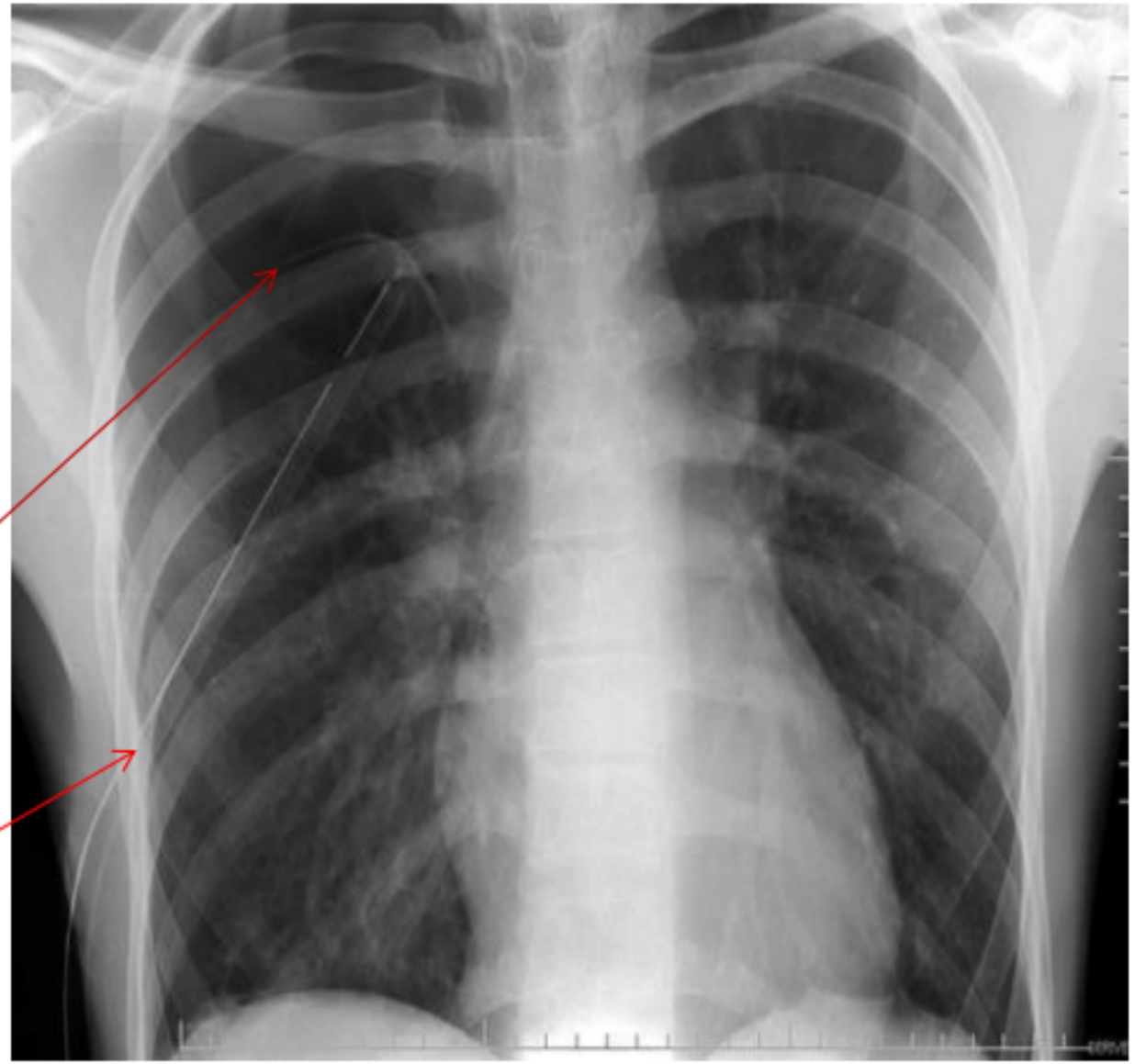
A- Initial chest tube output > 1500 cc.

b- Hourly output > 200 cc/hour for 2-4 hours.

C-Progressive opacification of CXR.

right-sided pneumothorax with a chest tube inserted.

- pneumothorax localizes more towards the apex of the lung.
- Notice that the markings are absent from the apex down to some degree.
- Notice the white visceral line.



This x-ray is for a 18 year old male patient after a road traffic accident :

1- what is your diagnosis?

Rt hemothorax

2-what is your management?

Chest tube insertion

Indications for chest tube :

1-**Pneumothorax:** accumulation of air or gas in the pleural space.

2-**Pleural effusion:** accumulation of fluid in the pleural space.

3-**Chylothorax:** a collection of lymphatic fluid in the pleural space.

4-**Empyema:** a pyogenic infection of the pleural space.

5-**Hemothorax:** accumulation of blood in the pleural space.

6-**Hydrothorax:** accumulation of serous fluid in the pleural space.

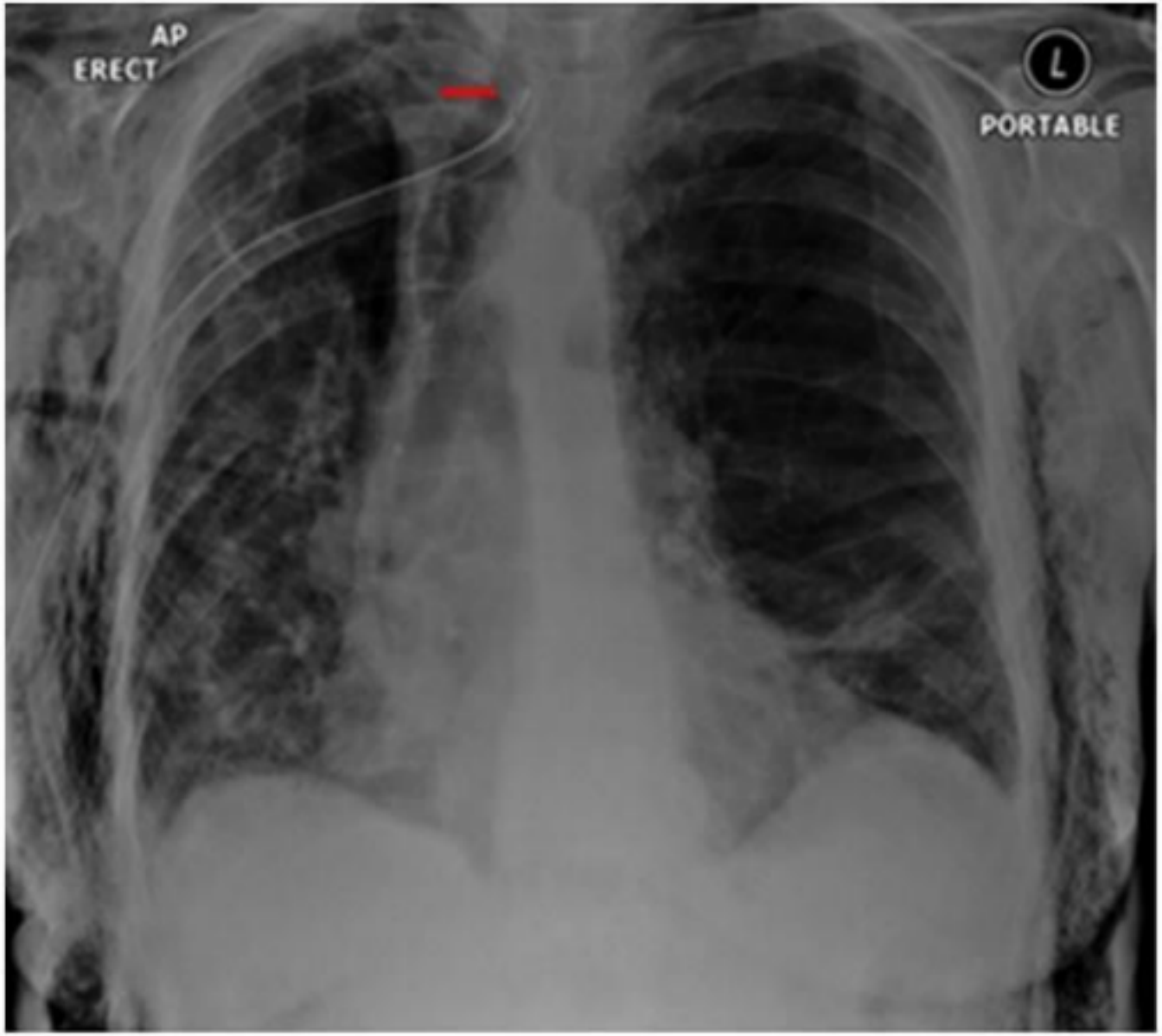
7-**Postoperative:** for example, thoracotomy, oesophagectomy, cardiac surgery.

Scenario of a pt, after RTA,
Lt.-sided pneumothorax,
diffuse Rt.-sided subcutaneous emphysema.

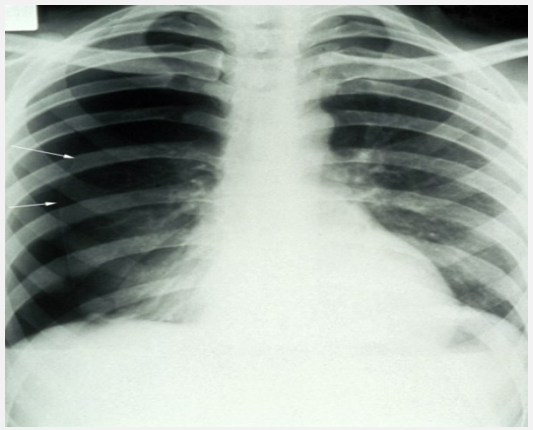
Crumpled paper

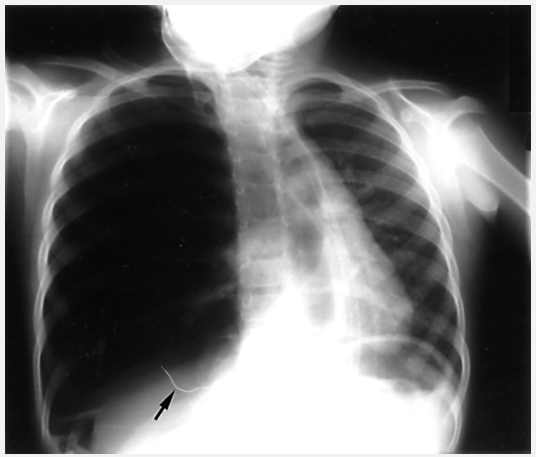
Surgical emphysema

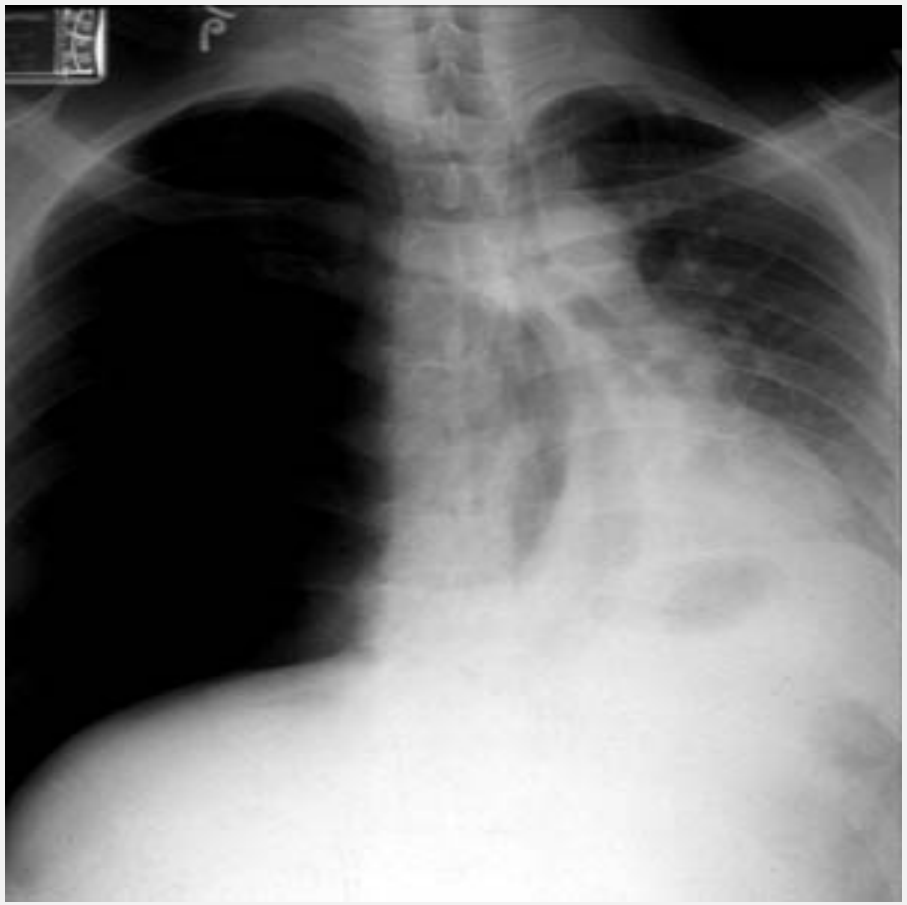
- Subcutaneous emphysema.
- Radiolucent striations outlining pectoralis major due to air surrounding the muscle fiber bundles.
- It is usually benign, and treatment is directed at reversing the underlying cause.

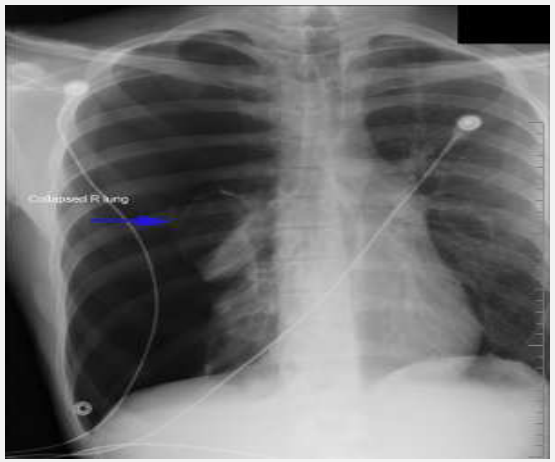


25 YO man was involved in a motor vehicle collision. He was an unrestrained passenger who was ejected from the vehicle.









What's your Dx?

Rt. Sided tension pneumothorax.

What's the mechanism of this Dx?

Injury in the visceral pleura acts as one-way valve, Air is unable to escape from inside the pleural space, Buildup of air under pressure in the pleural cavity.

Give 2 abnormalities in this X-ray.

Lt. sided tracheal deviation, Rt. Hyper-lucency.

What's the most common cause of death associated with this condition (pathophysiology)?

Hypoxia which is a combined effect of VQ mismatch and decreased venous return.

What's the immediate tt?

Needle thoracostomy.

What's the definite tt?

Tube thoracostomy (chest tube).

7. **Give 3 findings in physical exam.**
   1. Distended neck veins.
   2. Hyper-resonance on percussion.
   3. Hypotension & distant heart sounds.

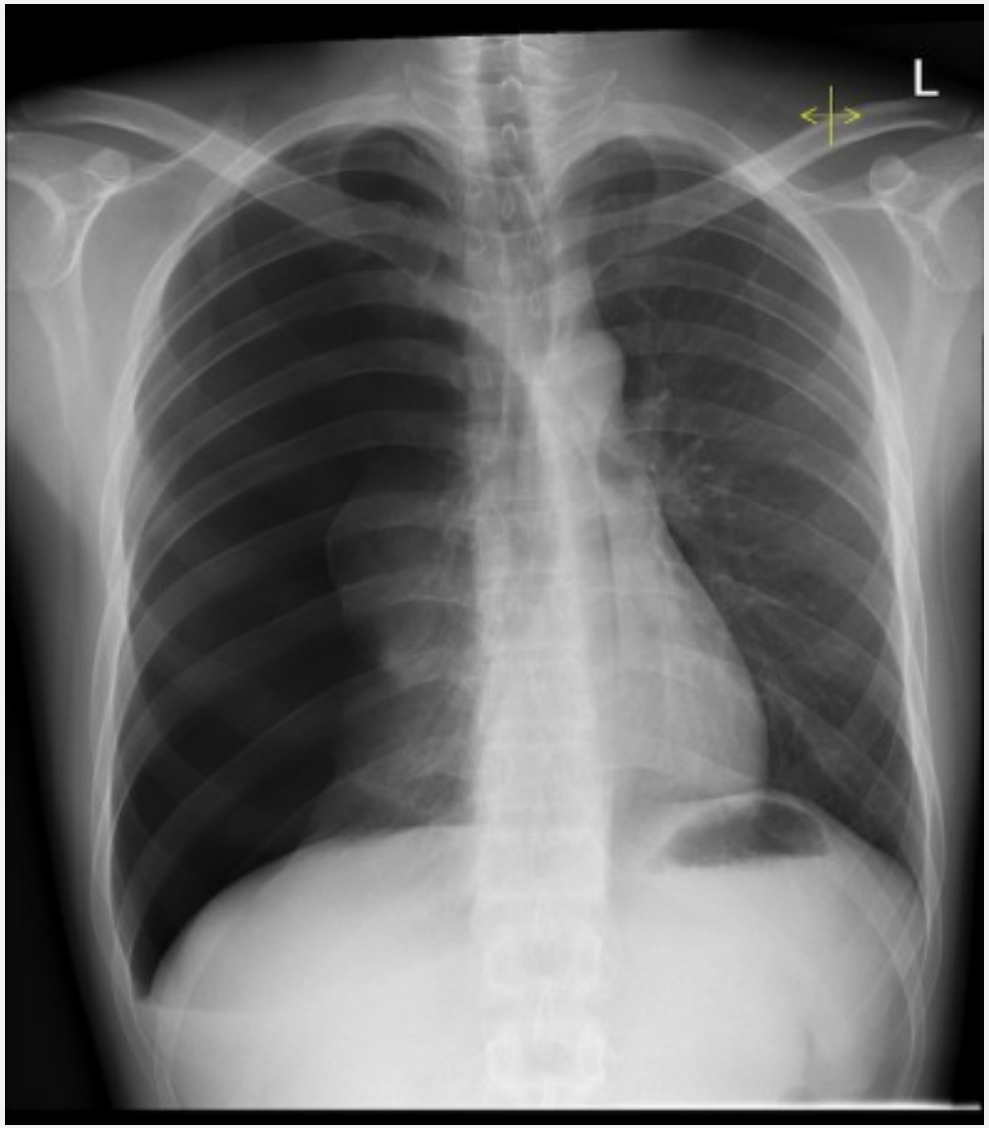
. **What's the cause of primary spontaneous pneumothorax?**

It occus from the rupture of asymptomatic blebs and bullae, causing air to leak into the pleural space.

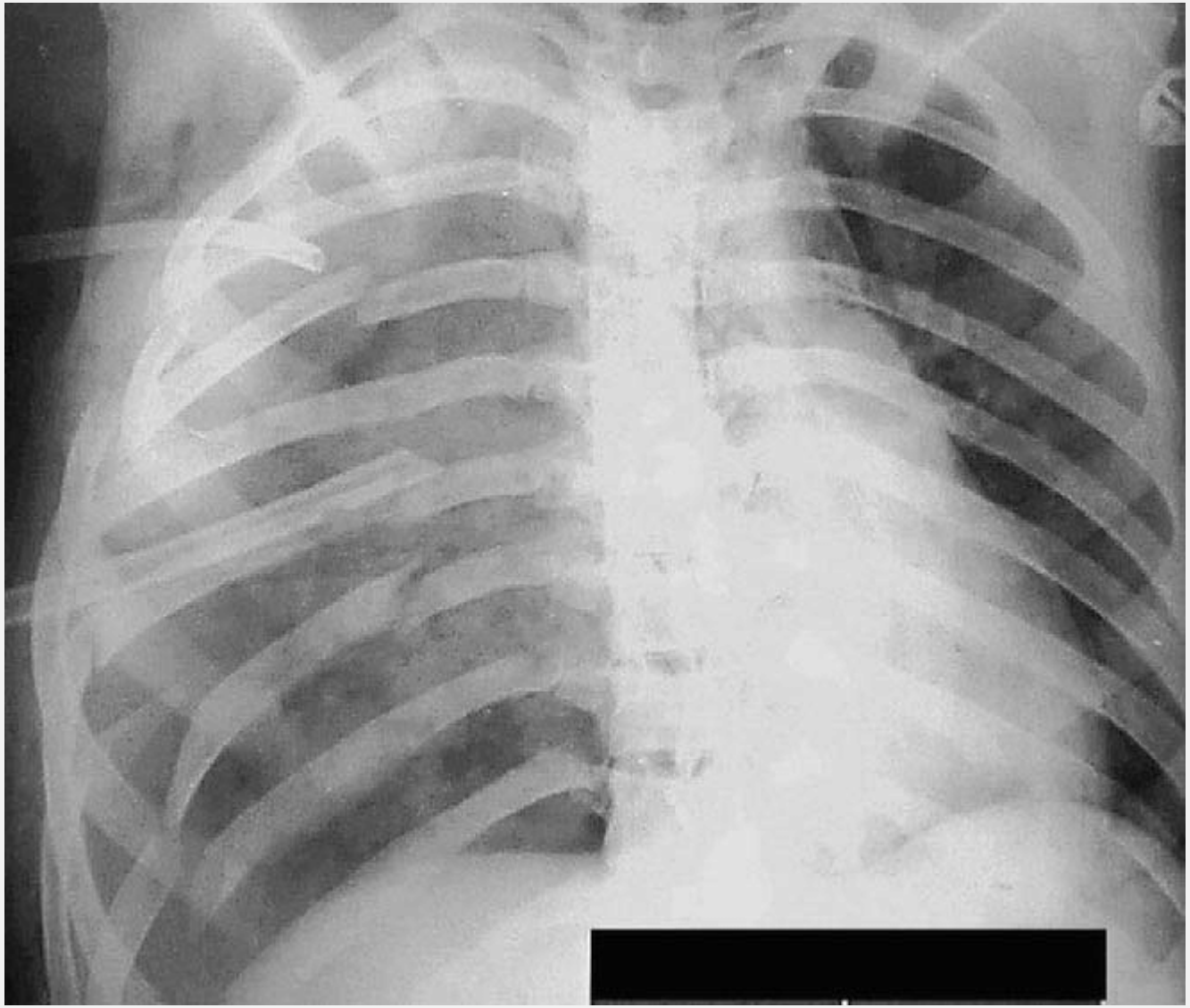
. **If the problem recurs after 6 months, what you will do to the pt?** VATS & pluerodesis.

*Note that a possible complication of pneumothorax is >> Tension pneumothorax & death.

Tension ptx



Flail chest



Hx of pt with hemothorax presented one week later on with fever & SOB.

What's the Dx?

Lt. Pleural Empyema.

Mention 2 biochemical tests on pleural fluid to confirm the Dx?

Gram stain & culture, pH, LDH, Protein.

Mention 2 lines of management?

Pleural fluid drainage, Antibiotics.

Name of this abnormality.

Pectus Excavatum.

Mention 2 Investigations.

CXR, CT.

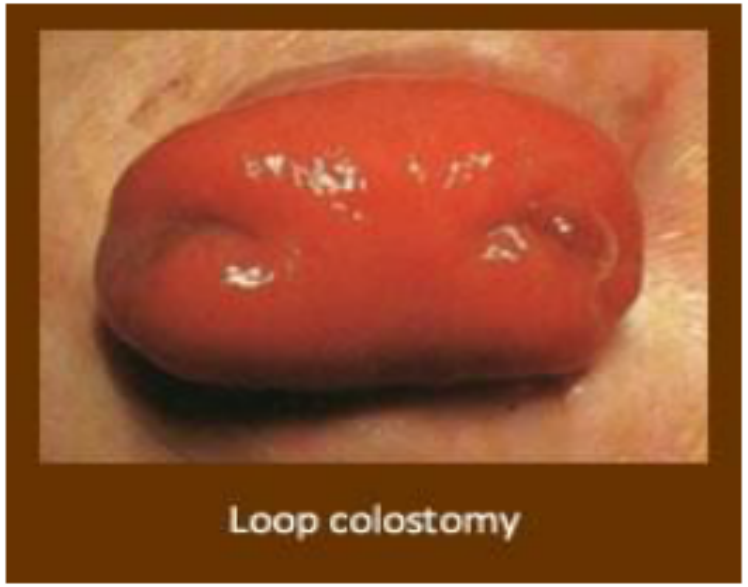
Mention 2 evaluation tests.

PFT, Echo.

Give One indication for surgery?

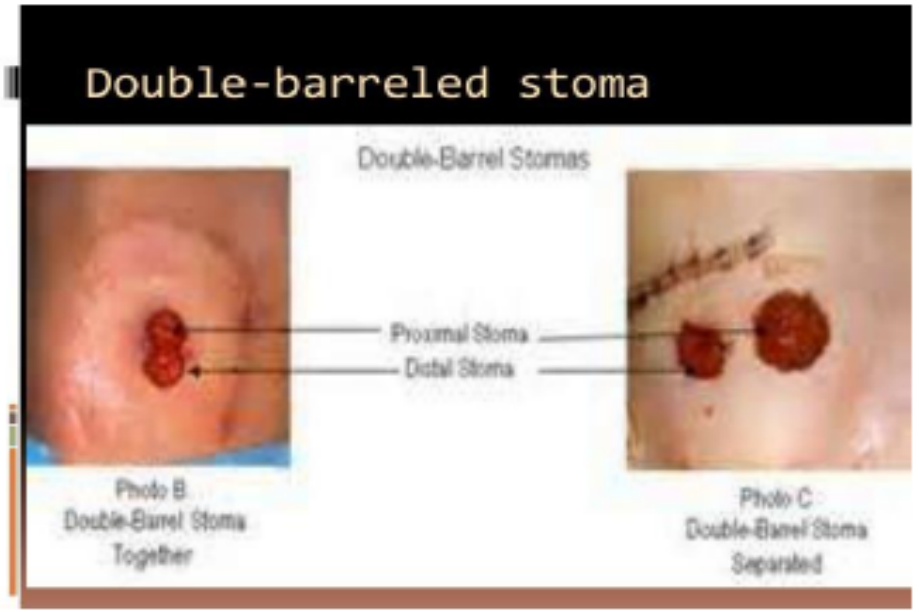
Dyspnea.

Colostomy and ileostomy

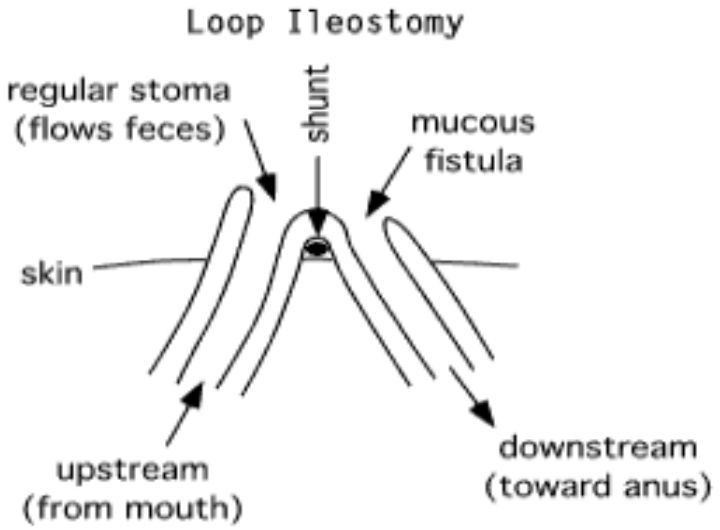


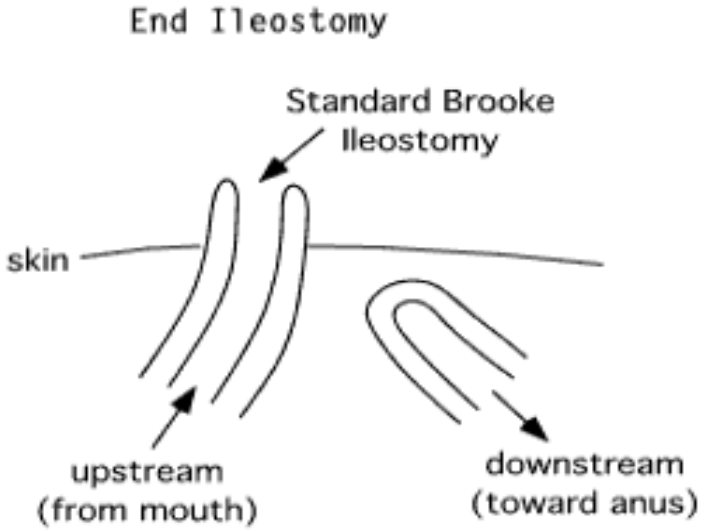
End colostomy

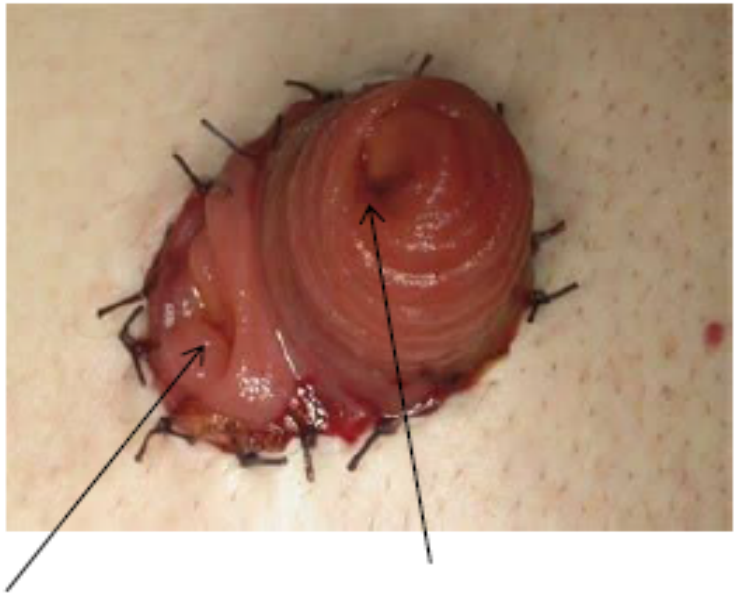
- Sites : LLQ (sigmoid colon)/ RUQ (transverse colon) / RLQ (cecostomy)
- Formed stool in bag.
- No skin changes.
- Sigmoid colostomy expels stool 1/day.



Double barrel colostomy : together on left picture and separated on right picture.

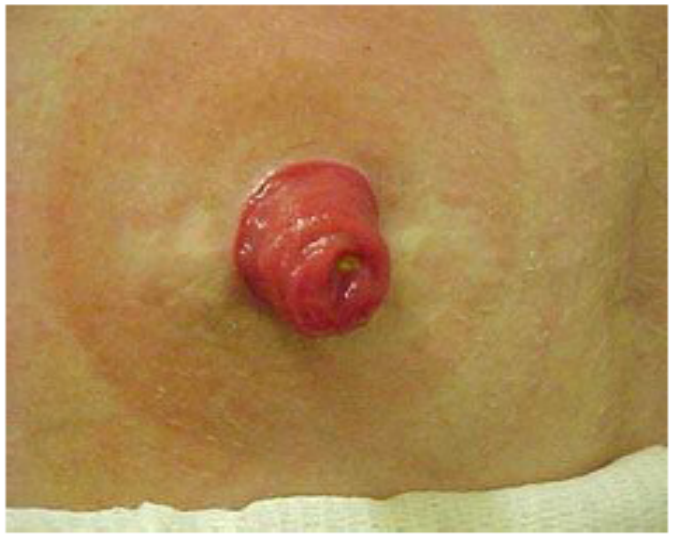






Loop ileostomy

2 openings



End ileostomy

- Usually at the RLQ.
- Bag contents : watery stool.
- Offensive smell.
- Surrounding skin is usually inflamed (irritated from acid).
- Median or paramedian scar is usually seen.

End Ileostomy

-edges are spouted.

-site: right iliac fossa.

Stoma prolapse : one of the complications of stoma.

What is this?
Ileostomy.

How can you confirm?
By its site and skin irritation around the stoma.

What is the disease that probably was treated by this?
Chron's disease.

A 65 year old man underwent abdomino-perineal resection 2 years ago after diagnosis of rectal ca

What is the type of his stoma?

End colostomy.

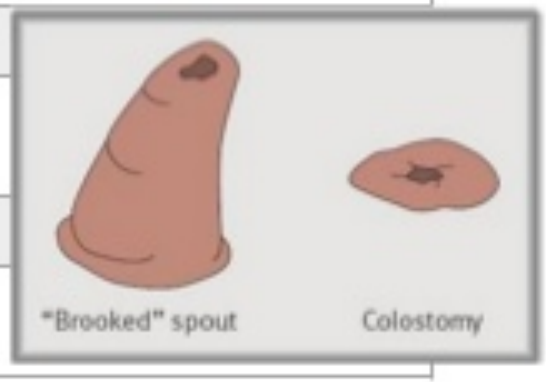
What is the complication shown?

Prolapse

Colostomy vs ileostomy

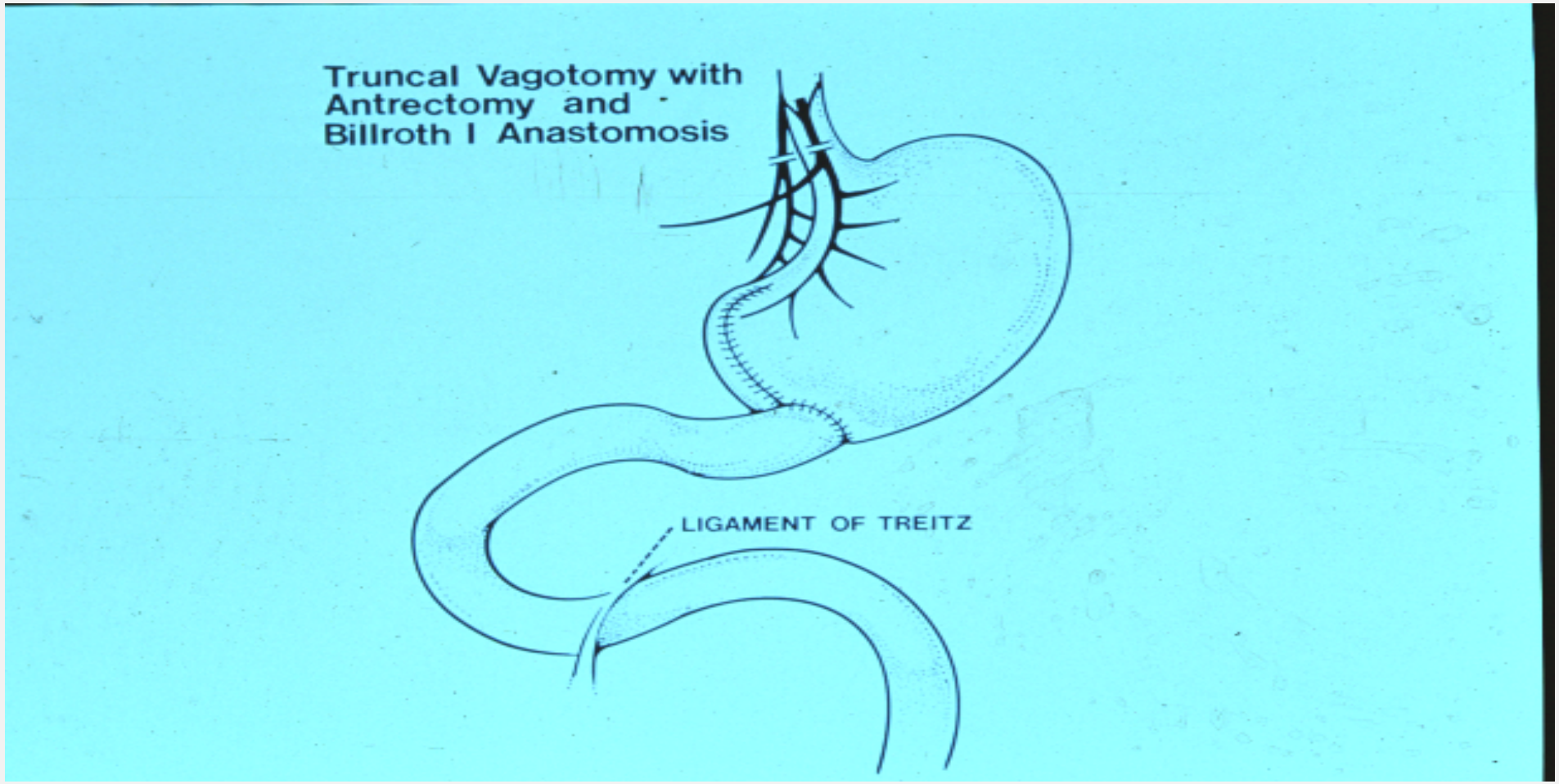
	Ileostomy	Colostomy
	Sprout +	No sprout / flush
Site	Usually in RIF	Temporary colostomy – transvers or right upper quadrant End colostomy – usually in LIF
Effulent	Liquid contain some amount of enzymes (alkali and proteolytic enzymes) → excoriation of skin + (Autodigestion)	Solid, hard stools compaired to ileostomy
	Watery liquid stools	Hard stools
Oddor	Oddor +	Oddor is more
Frequency of discharge	Higher	Lower
	Circular folds on the ileum +	no
	More likely to develop fluid and electrolyte problems	

JMJ

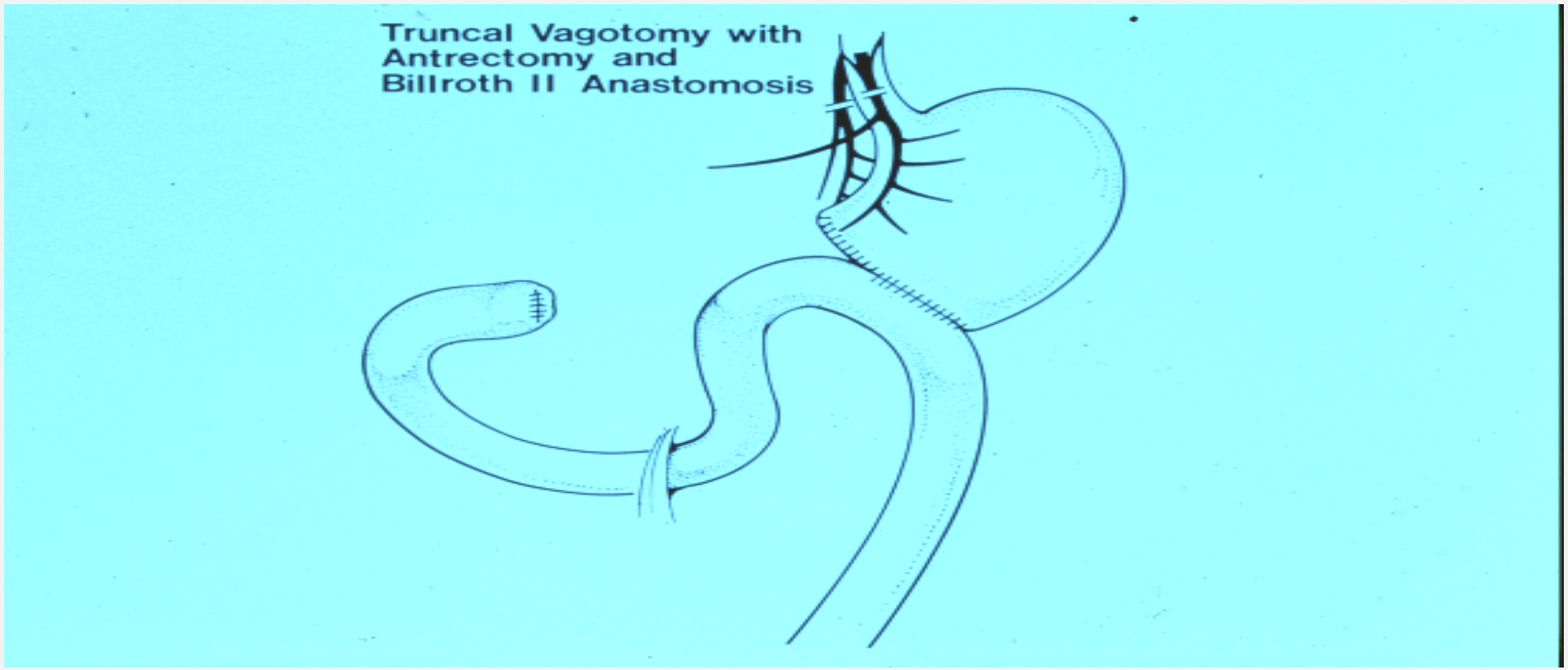


Stomach

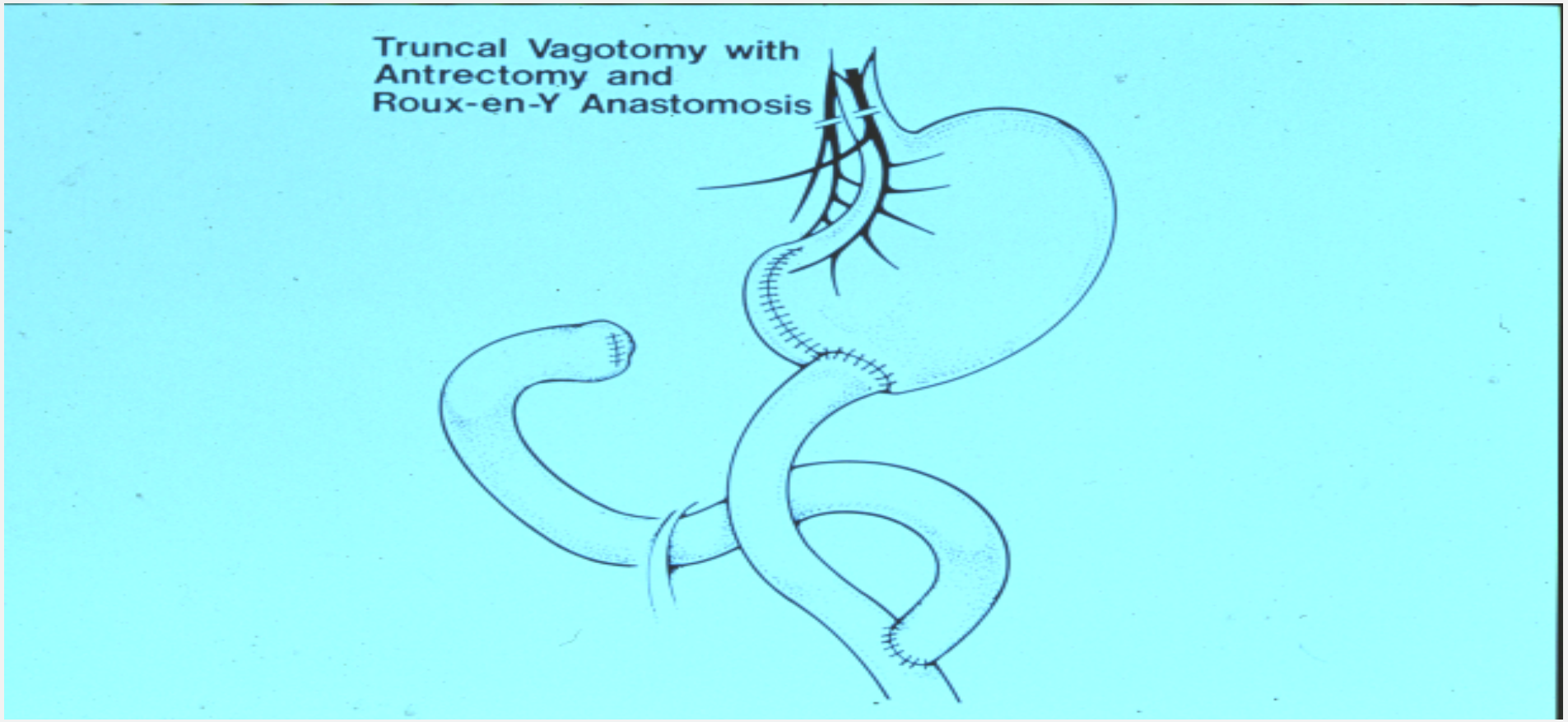
Surgical Treatment Truncal Vagotomy -- Antrectomy & Billroth I Anastomosis



Surgical Treatment Truncal Vagotomy -- Antrectomy & Billroth II Anastomosis



Surgical Treatment Truncal Vagotomy – Antrectomy & Roux-en-Y Anastomosis



المحاضرة طويلة بس في نقاط بركز عليها الدكتور

risk factors : the most important is atrophic gastritis

ممكن D1 D2……..

ممكن يسأل عن diffuse and intestinal type

ممكن يسأل عن نوع العملية حسب موقع الcancer

ممكن يسأل عن early and late dumping .....

Diagnostic workup

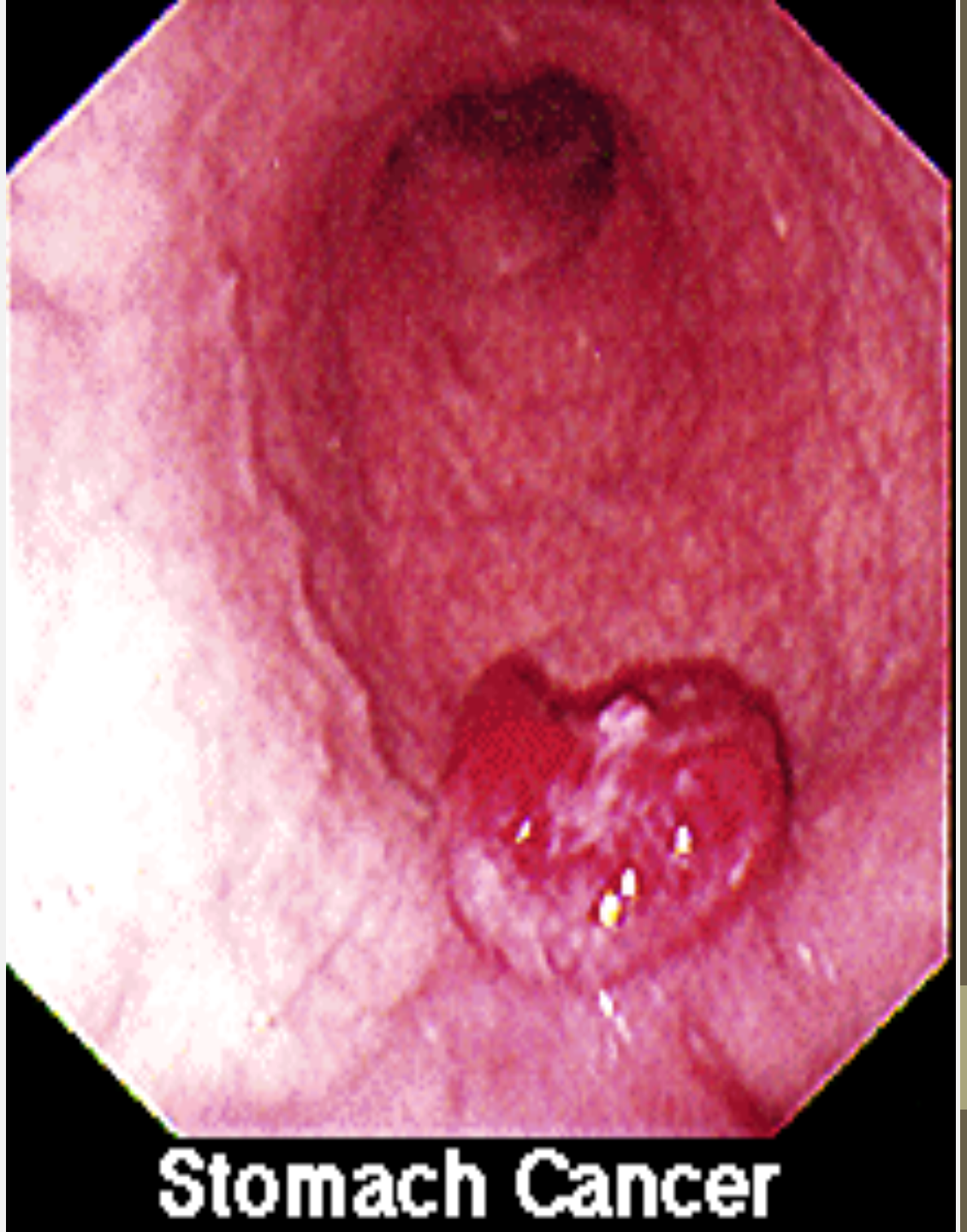
Upper GI endoscopy

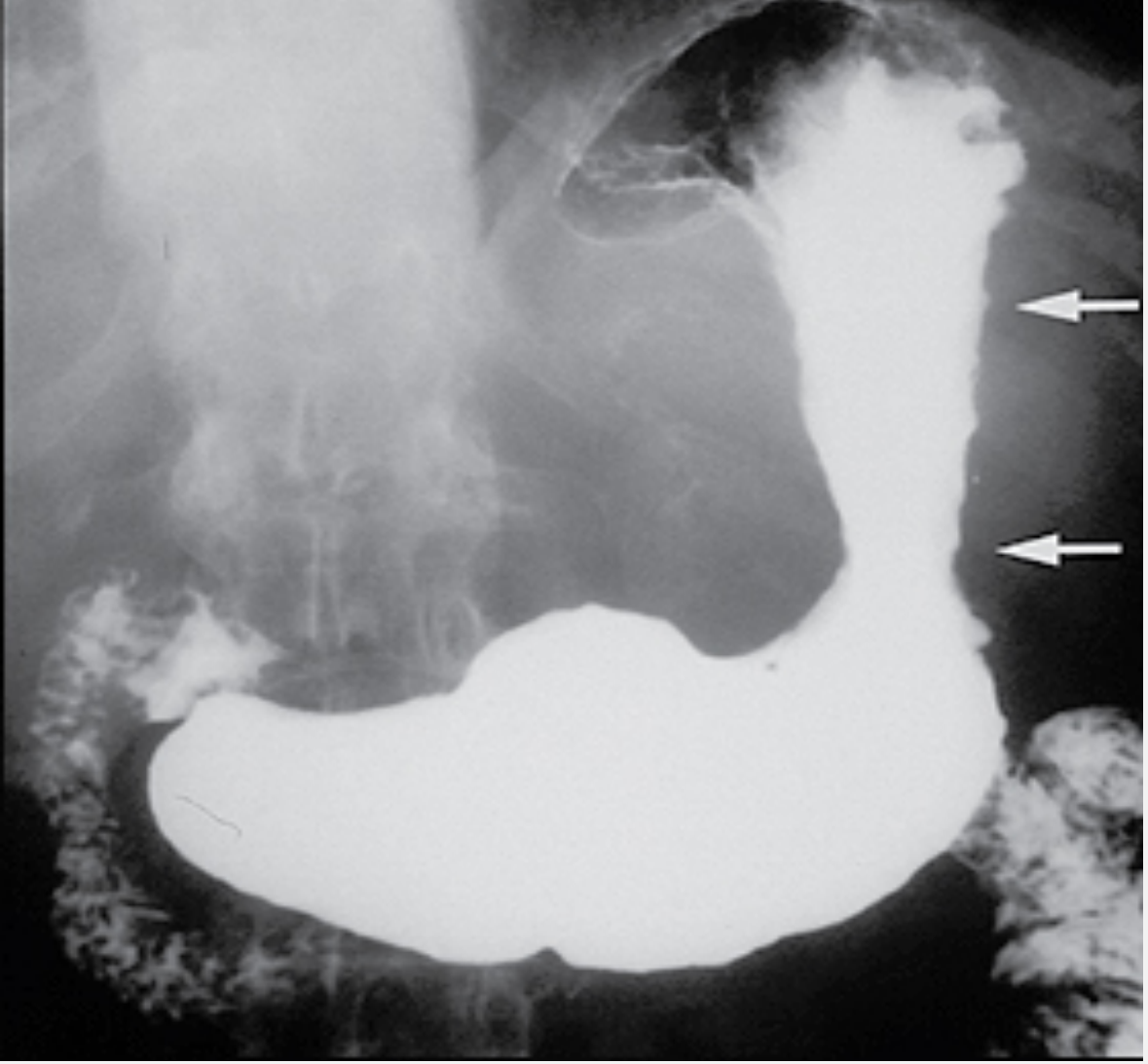
95 % accuracy

Tissue diagnosis

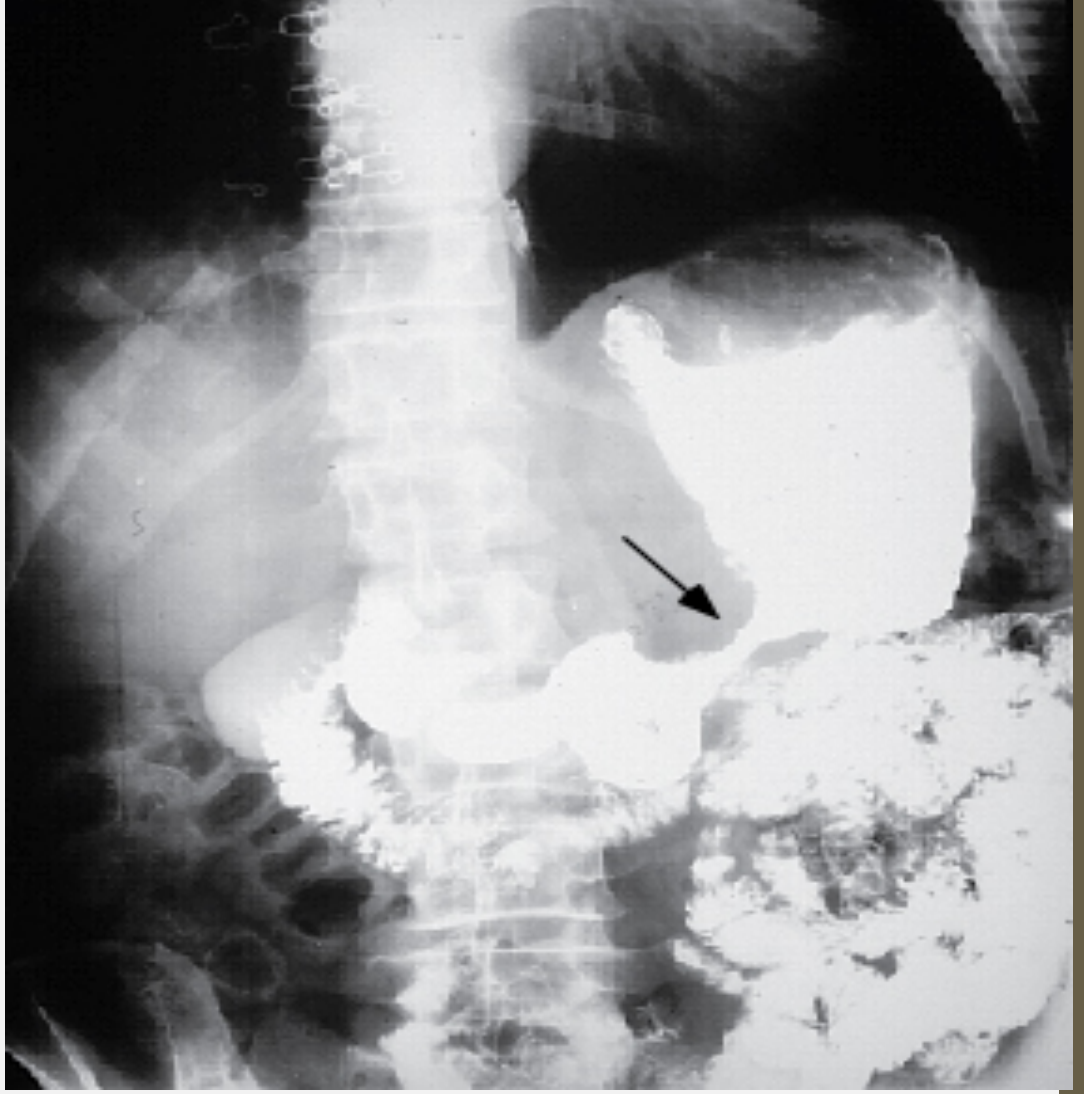
Ulcerated lesion

(take 6 biopsies around the lesion)





Linitis plastica "leather-flask" appearing stomach



Apple core sign”

classic physical findings that represent Mets and incurable disease :

1-**virchows node** **enlargement (left supraclavicular** nodes).

2-**sister merry josephs nodules** **: infiltration of the** umbilicus.

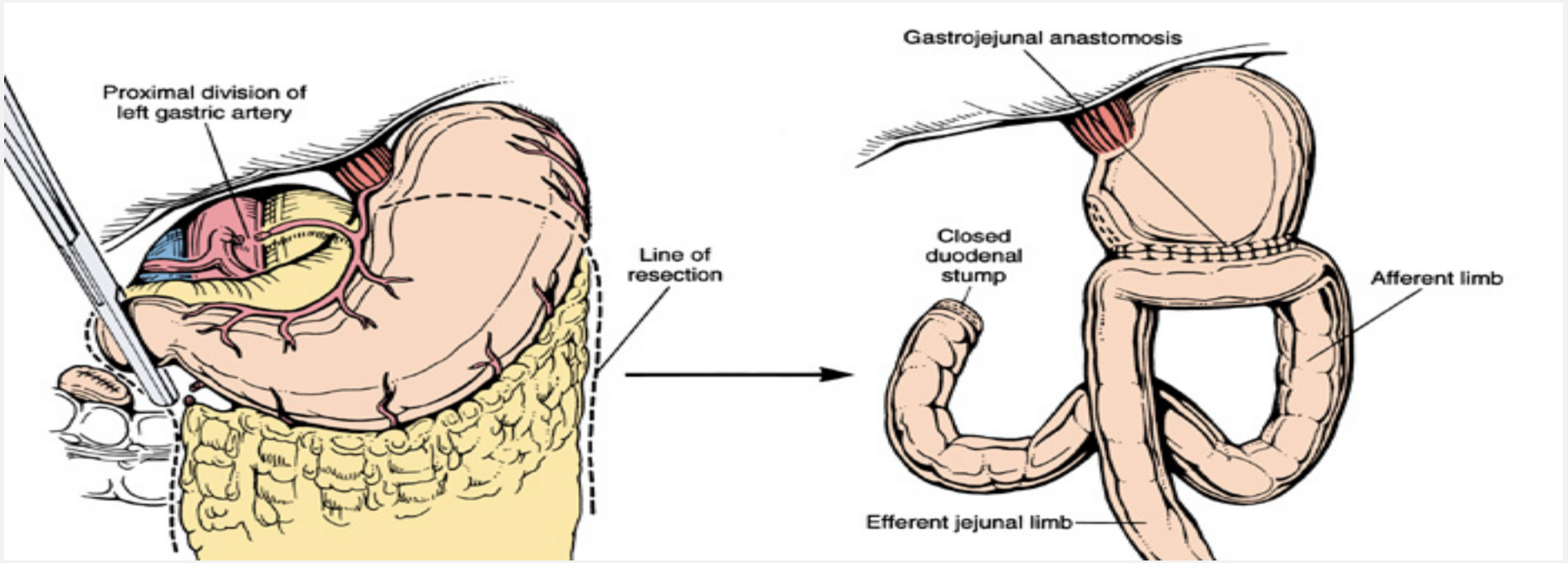
3- **Blumer's shelf :fullness in the pelvic ,cul-de-sac** (solid peritoneal deposit anterior to the rectum forming a shelf palpated on PR).

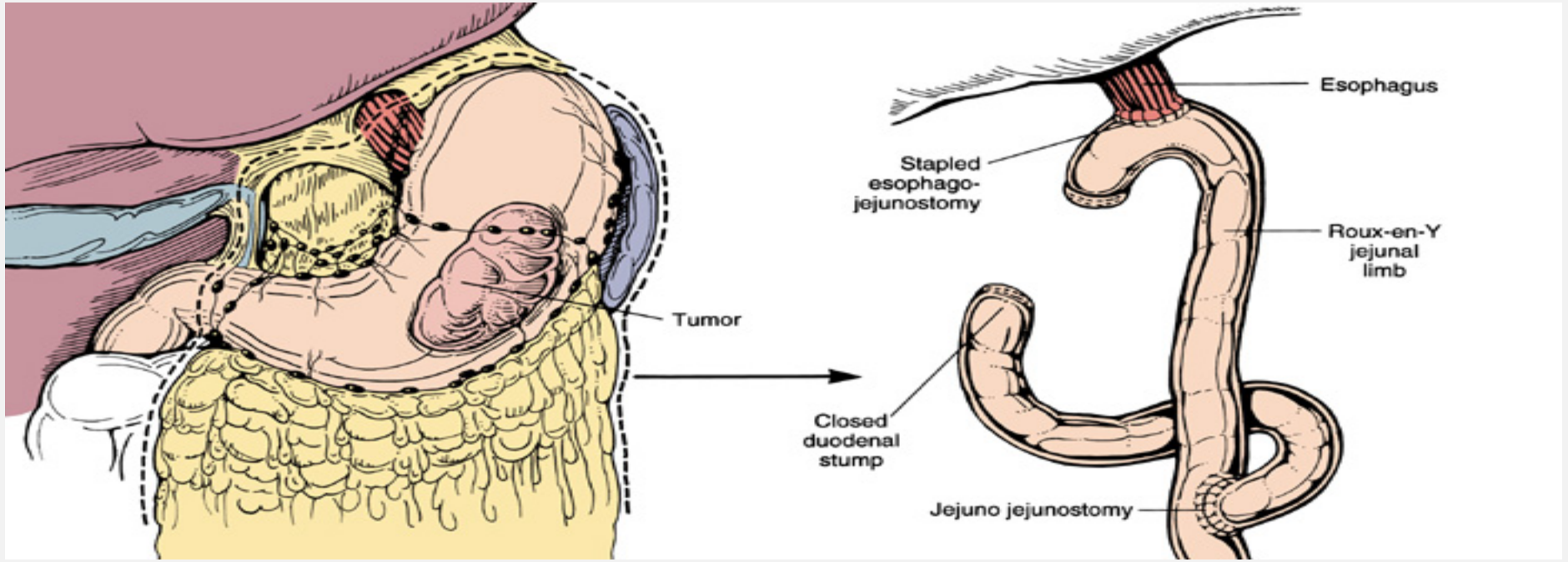
4- **Krukenburgs tumor: enlarged ovaries on pelvic** examination (Mets to ovaries).

5-hepatosplenomegaly with ascites and jaundice.

6- cachexia.

7- **Irishs node :left axillary adenopathy**.


Proximal division of left gastric artery
Line of resection
Gastrojejunal anastomosis
Closed duodenal stump
Afferent limb
Efferent jejunal limb


Tumor
Esophagus
Stapled esophago-jejunostomy
Roux-en-Y jejunal limb
Closed duodenal stump
Jejuno jejunostomy

This is upper endoscopy.

- What's your Dx.?

GIST, or Lieomyoma.

- Mention 2 signs of malignant conversion in this type of tumors.

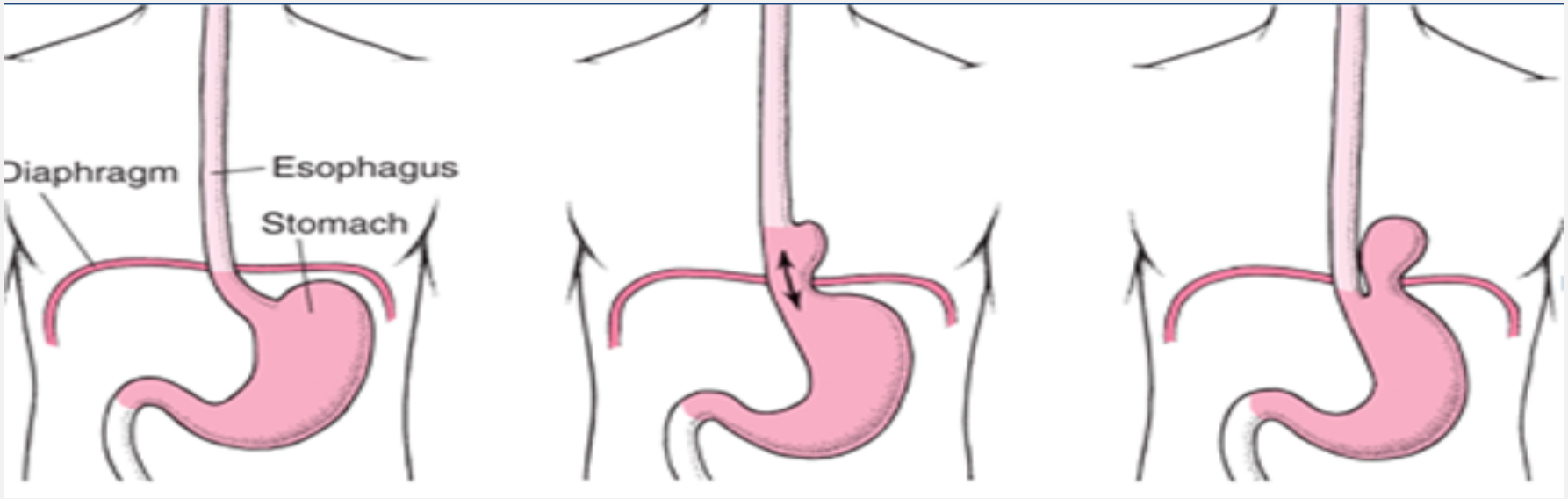
Mitotic figures, Size > 5cm.

- What's the most common site of this tumor?

Stomach.

- What's the tt?

Recest with –ve margin +/- chemo (Imatinib).



- What's B, & C?

  B. Sliding Hiatus hernia.

  C. Para-esophaheal Hiatus hernia.

- Which one is more common?

B

- Which one mostly needs surgery?

C (not sure!)

- Which one associated with acute complication?

Peptic Ulcer seminar / dr- notes

- **PU complications starting from most common:**
  1- Bleeding 2- Perforation 3- Obsruction
- **Stages of perforation:**
  1- Chemical perotinitis: causes severe pain
  2- Dilution stage: pain becomes less severe due to dilution of chemicals by other alkaline fluids.
  3- Bacterial perotinitis: the pain returns.
- **Analgesics may mask signs and symptoms.**
- **Management:**
  resuscitation, NPO, systemic antibiotics, NG tube, then go into surgery, use NS toilet, and use an omental patch to seal off the perforation. We may also do pyloroplasty.
- **DU complications:**

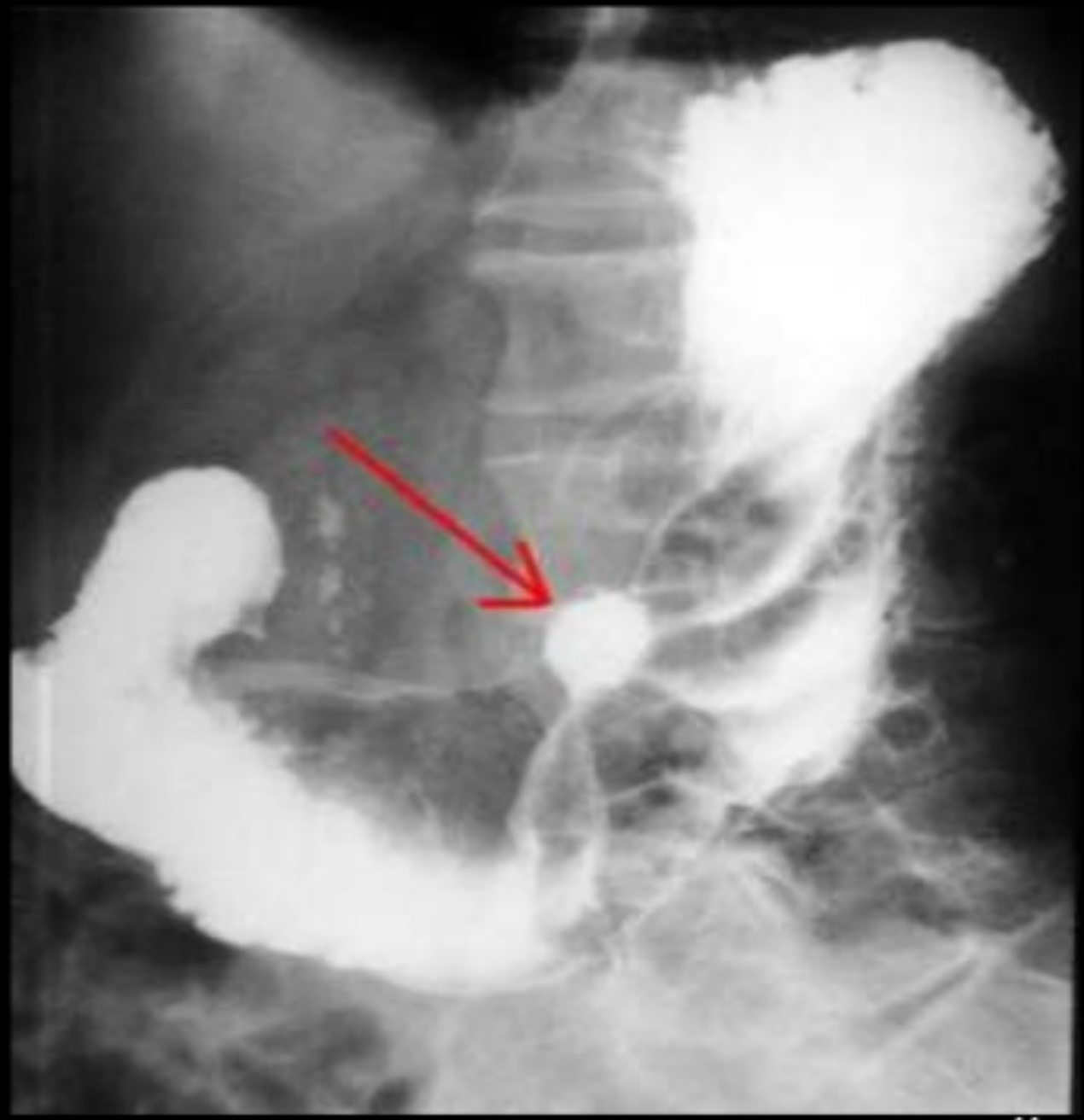
Posterior ulcer: bleeding

- **Management of bleeding ulcer:**
  endoscopic cauterization
  Injection of adrenaline
  embolization
  sclerotherapy
- **Indications of surgery:**
  - Age less than 60, with >6 transfusions
  - Age more than 60, with >4 transfusions
- **Most common cause of gastric outlet obstruction is malignancy. Previously it was PU.**
- **Gastric outlet obstruction metabolic changes:**
  hypochloremic metabolic alkalosis with paradoxical acidic urine.

Barium study demonstrating:
a benign duodenal ulcer;

Upper GI Pathology

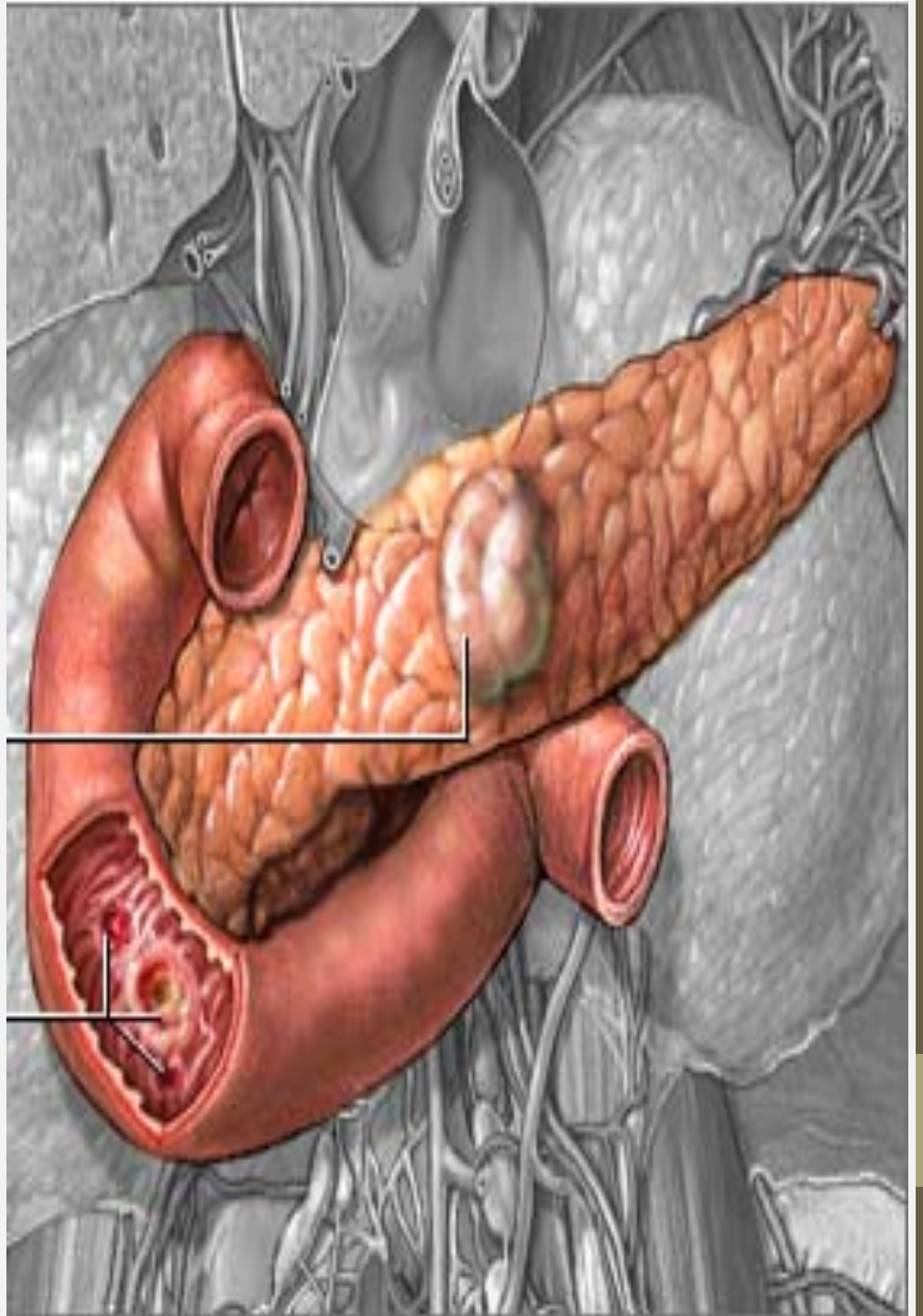
Peptic Ulcer



Gastric ulcer

Perforated peptic ulcer

- **By far the most common site of perforation is the anterior aspect of the duodenum.**
- **However, the anterior or incisural gastric ulcer may perforate into the lesser sac, which can be particularly difficult to diagnose.**
- **These patients may not have obvious peritonitis.**



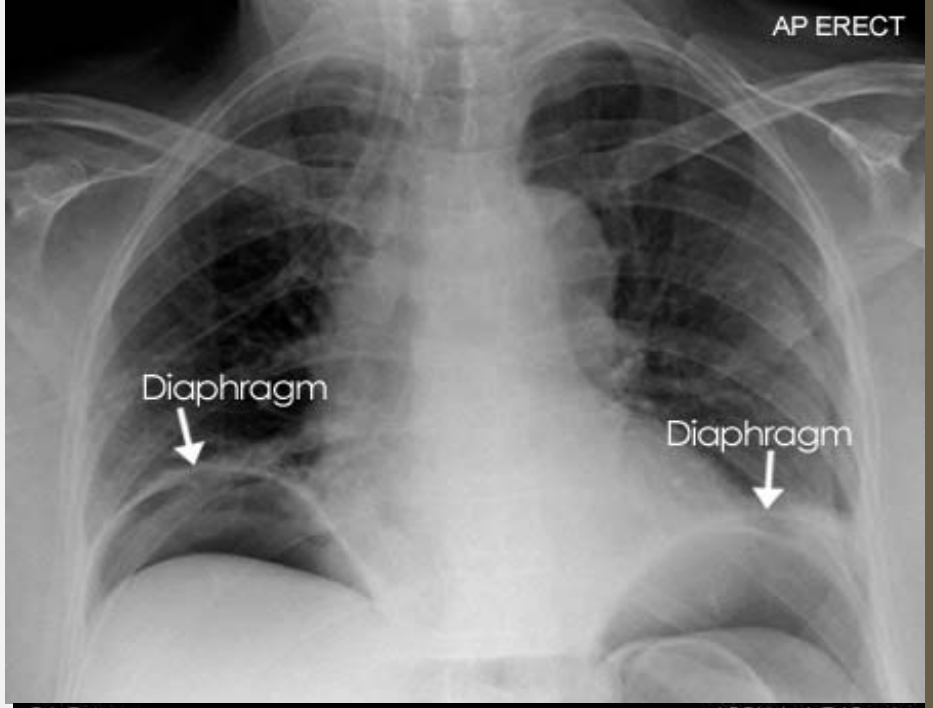
Perforated peptic ulcer

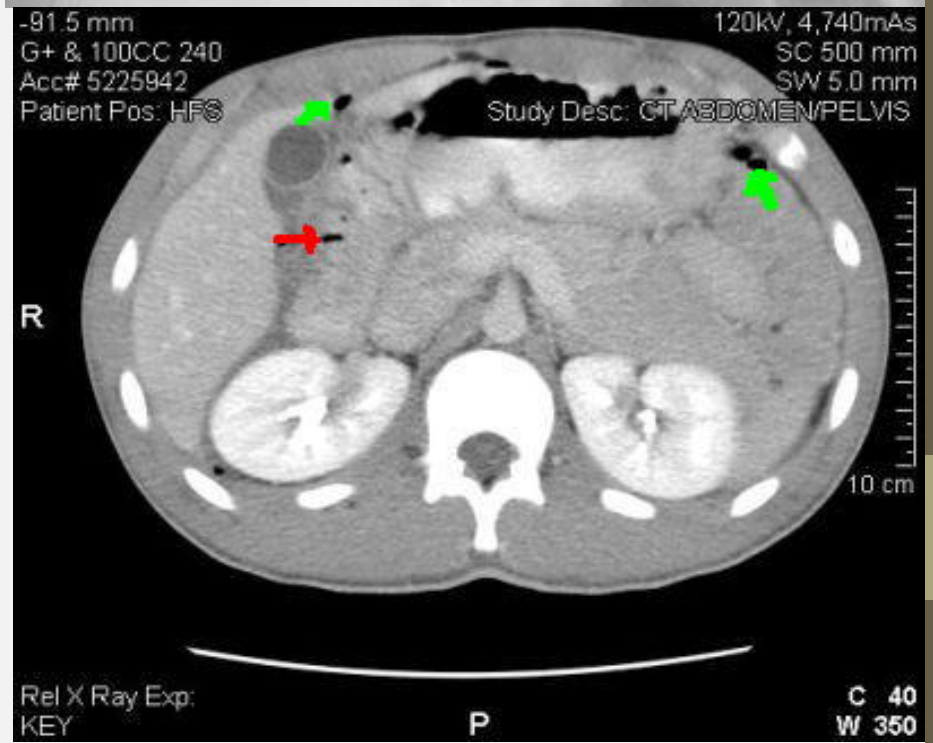
Perforated peptic ulcer

Investigation:

An erect plain chest radiograph will reveal free gas under the diaphragm in more than 50% of cases.

but CT imaging is more accurate.



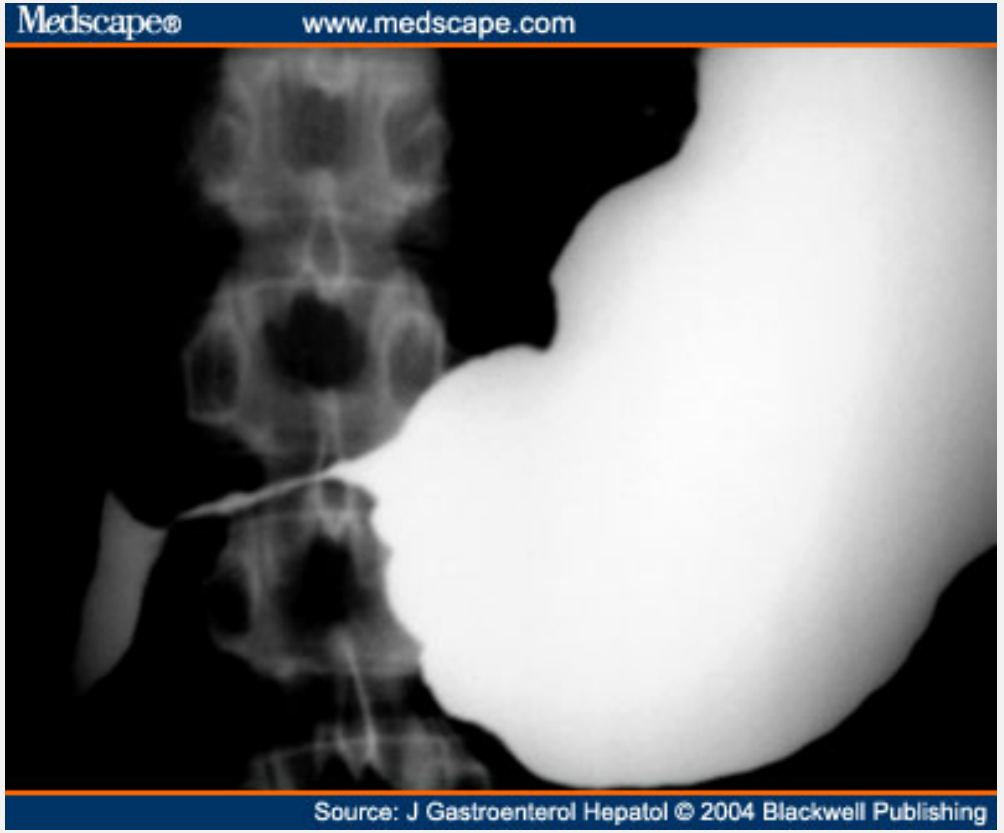


Q1: Identify the condition :
Gastric Outlet Obstruction

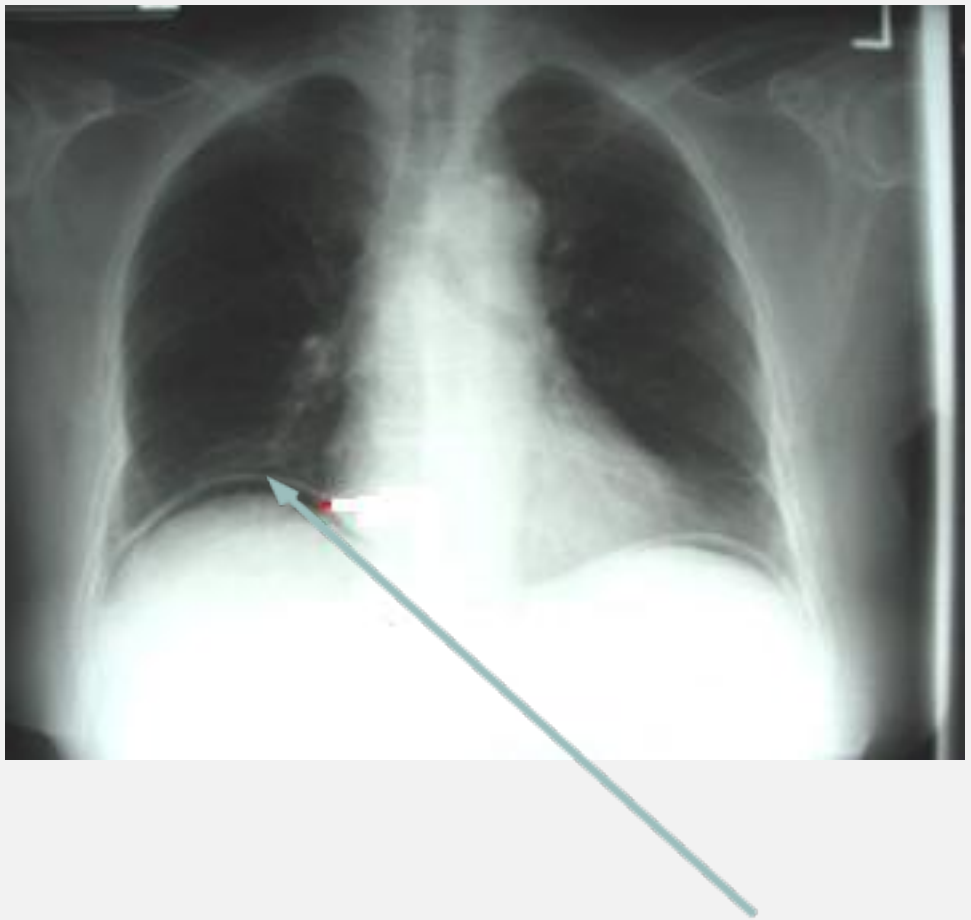
Q2: Differential Diagnosis :

1. Gatric CA.
2. Pancreatic CA
3. PUD

Q3: Treatment / Management :
1.Vagotomy and gastrojejunostomy or with
2.Antrectomy, selective or truncal vagotomy, and gastroduodenostomy or gastrojejunostomy.



The Complications are :
A)Bleeding B)penetration C)perforation D)Obstruction



Q1: Identify the condition : (what is the sign that you see?)
Air under diaphragm

Q2: Differential diagnosis :

1. **Perforated Peptic Ulcer**
2. Perforated Viscous

Q3: Clinical Presentation :
1.sudden onset of severe epigastric pain
2.board like rigidity “peritonitis”.
3.10% has an associated episode of melena

Q4: Causes :
long standing PUD with alcoholic intake or NSAID ingestion

Q5: Treatment / Management : In Brief **: Closure of perforation**
1) Resusitation and analgesia “adequate”
2) Surgical treatment of perforation includes closure of the perforation with an omentum patch
3)Medication and Nasogastric tube to empty the stomach
4)peritoneal toilet to remove the acid and food derbis
5)Don’t forget to give antibiotics before any surgery

CASE :

- A 30 year old female presented with sudde
  tenderness of the abdomen.

- **What is the radiological finding?**

Air under the diaphragm.

- **What is the diagnosis?**

Perforated viscus (probably perforated PUD)

من السلايد Bariatric surgery

Morbid obesity

Morbid obesity is defined as when BMI is more than 40 kg/ m2 or more than 35 kg/ m2 in the presence of co-morbidities

Classification of obesity as per fat distribution

Android (or abdominal or central, males)

Collection of fat mostly in the abdomen (above the waist)

apple-shaped

Associated with insulin resistance and heart disease

Gynoid (below the waist, females)

Collection of fat on hips and buttocks

pear-shaped

Treatment goals

Prevention of further weight gain

Weight loss to achieve a realistic, target BMI

Long-term maintenance of a lower body-weight

How much weight loss is significant?

A 5-10% reduction in weight (within 6 months) and weight maintenance should be stressed in any weight loss program and contributes significantly to decreased morbidity

Indications for Surgery

BMI >40 kg/m2, or >35 kg/m2 with significant co-morbid illnesses

Multiple failed weight loss attempts

Acceptable surgical risk

Age 18-60

Demonstrates commitment and understanding of weight loss following bariatric surgery

Ineligible Patients

Exclusion Criteria:

- Obesity related to a metabolic or endocrine disorder
- History of substance abuse or untreated major psychiatric disease
- Surgery contraindicated or high risk
- Women who want to become pregnant within the next 18 months

Surgical Treatment

Restrictive من اسمها بتقلل نسبة الأكل الواصلة

Horizontal gastroplasty
Vertical banded gastroplasty (VBG)
Adjustable gastric band
Sleeve gastrectomy
Roux-en-Y gastric bypass

Malabsorptive بقلل الامتصاص

Jejunoilial bypass
Biliopancreatic diversion (Scopinaro)
Biliopancreatic diversion w/ duodenal switch

Restrictive Surgery

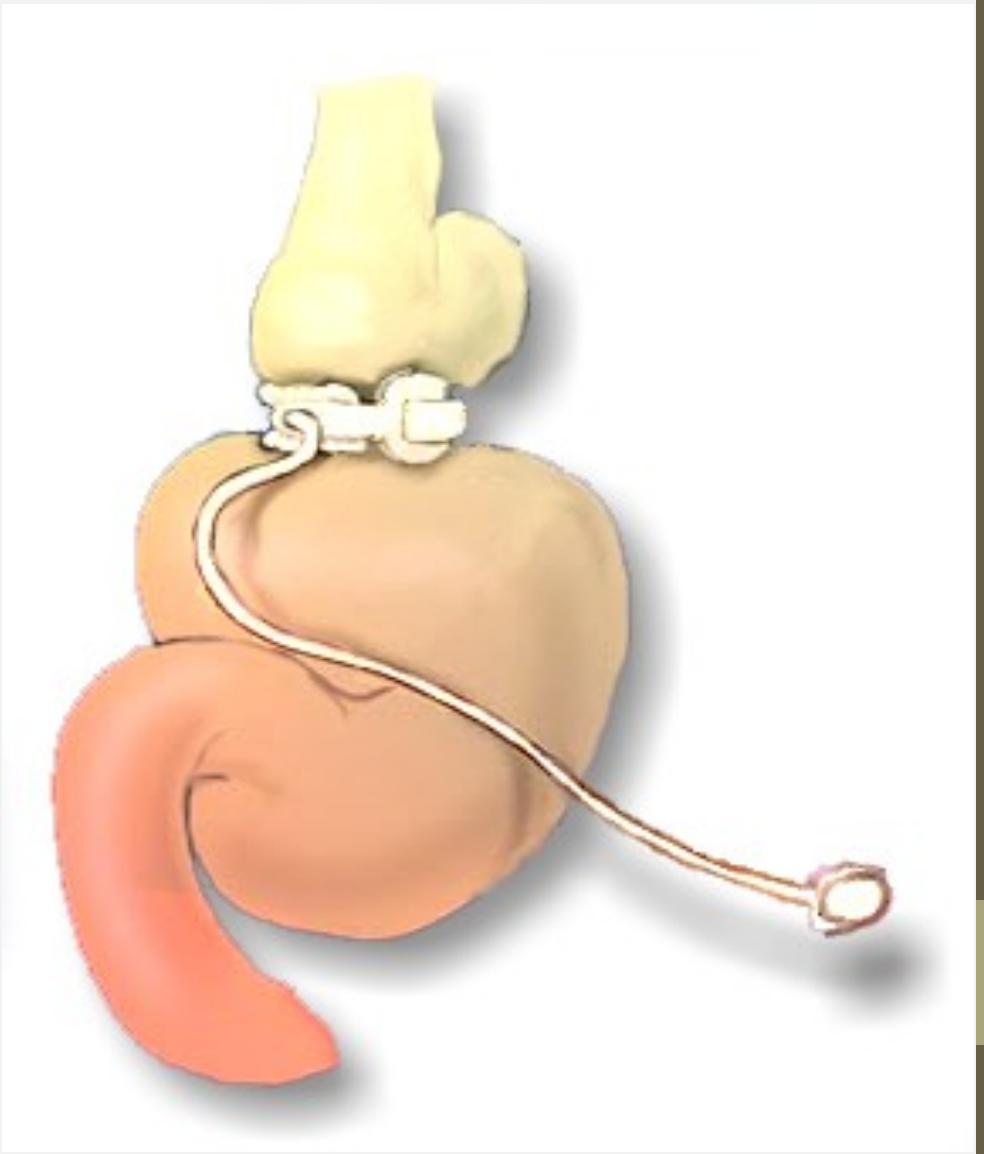
Relatively easy surgical procedure
Less dietary deficiencies

Less weight loss

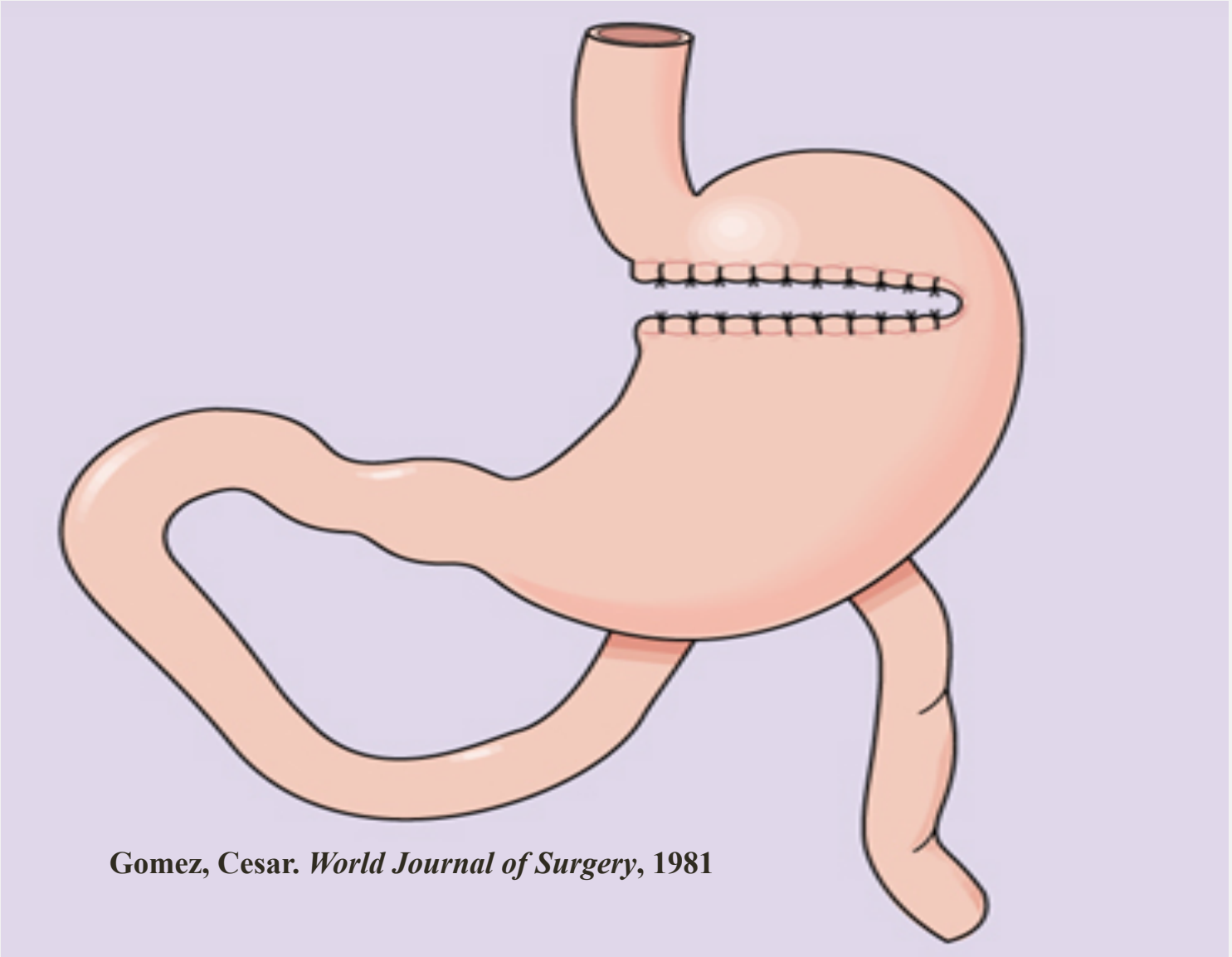
More late failures due to dilation

Less effective with sweet eaters

Significant dietary compliance

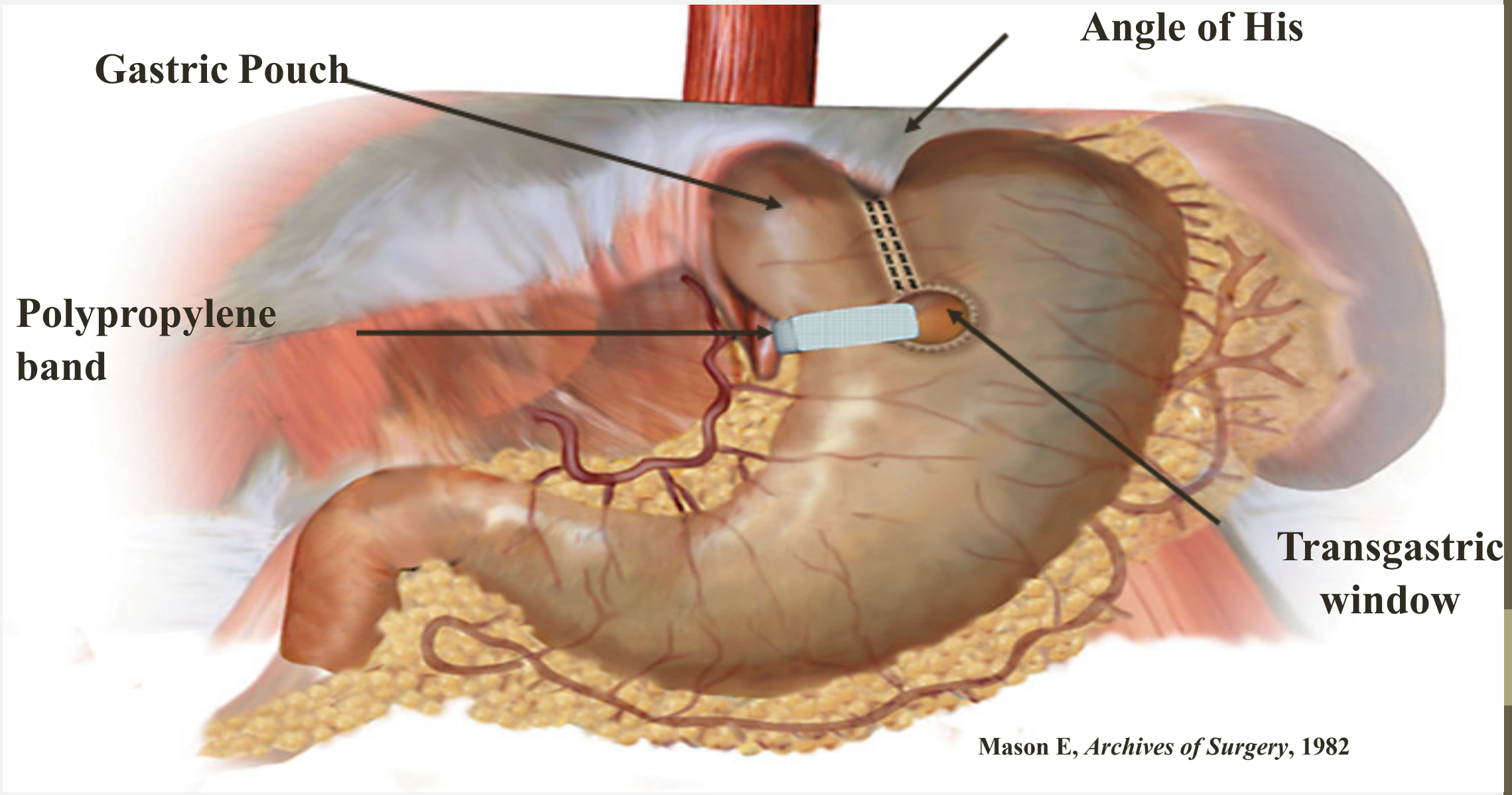


Horizontal Gastroplasty (HG)

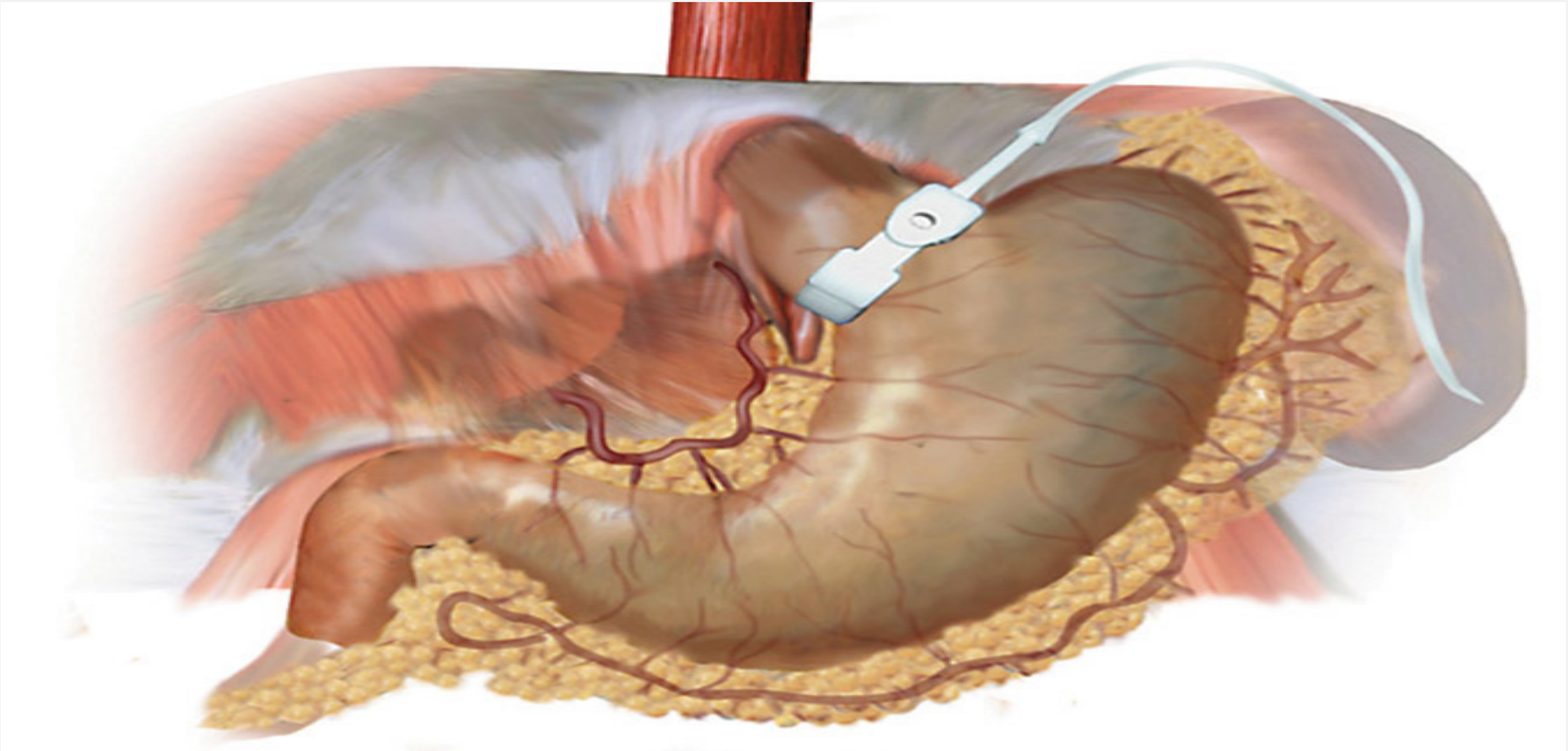


Gomez, Cesar. *World Journal of Surgery*, 1981

Vertical Banded Gastroplasty (VBG)



Lap Adjustable Band



Sleeve gastrectomy

Sleeve gastrectomy

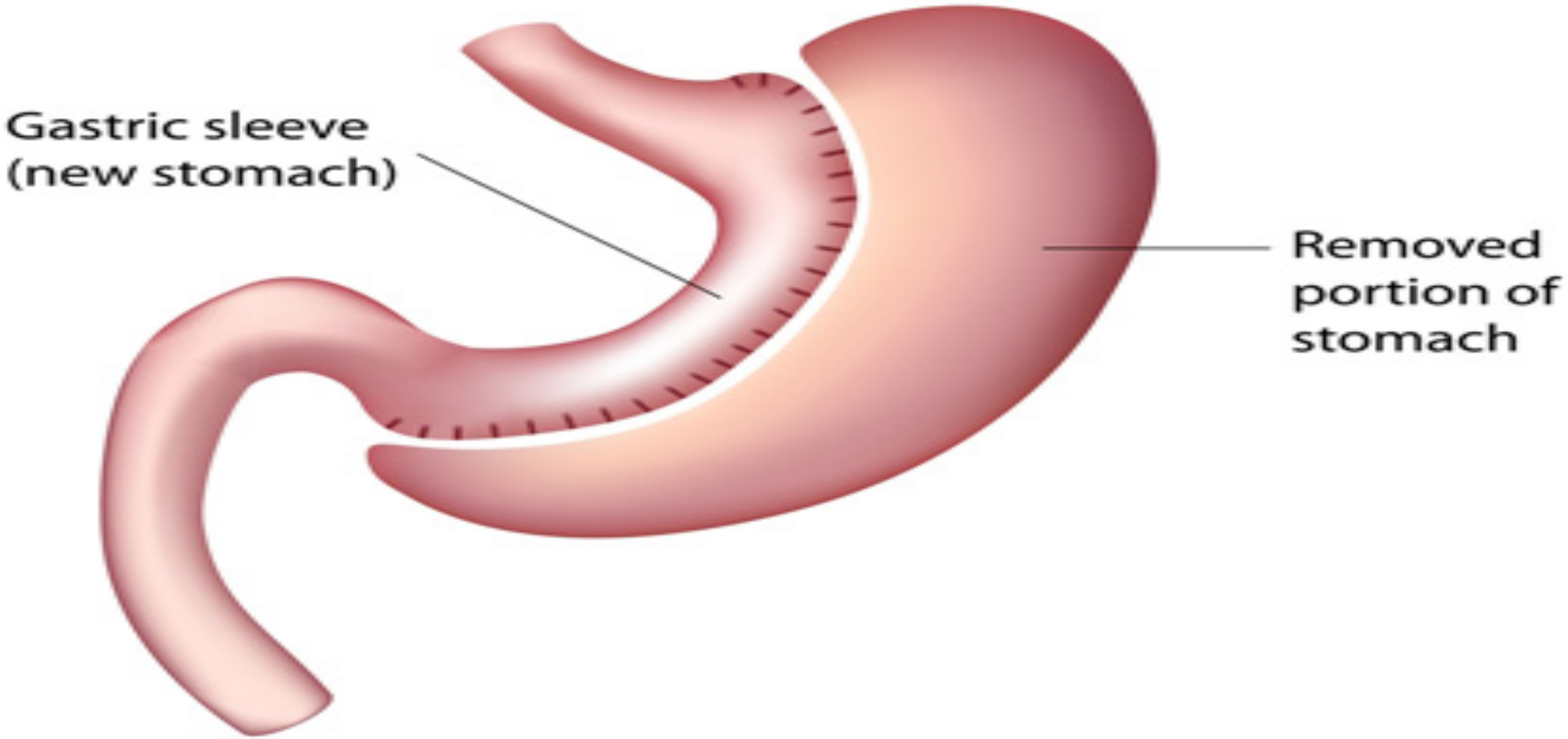
It is a surgical weight-loss procedure in which the stomach is reduced to about 15% of its original size, by surgical removal of a large portion of the stomach, following the major curve .

The open edges are then attached together (often with surgical staples) to form a sleeve or tube with a banana shape.

The procedure permanently reduces the size of the stomach.

The procedure is performed laparoscopically and is not reversible.

Vertical Sleeve Gastrectomy



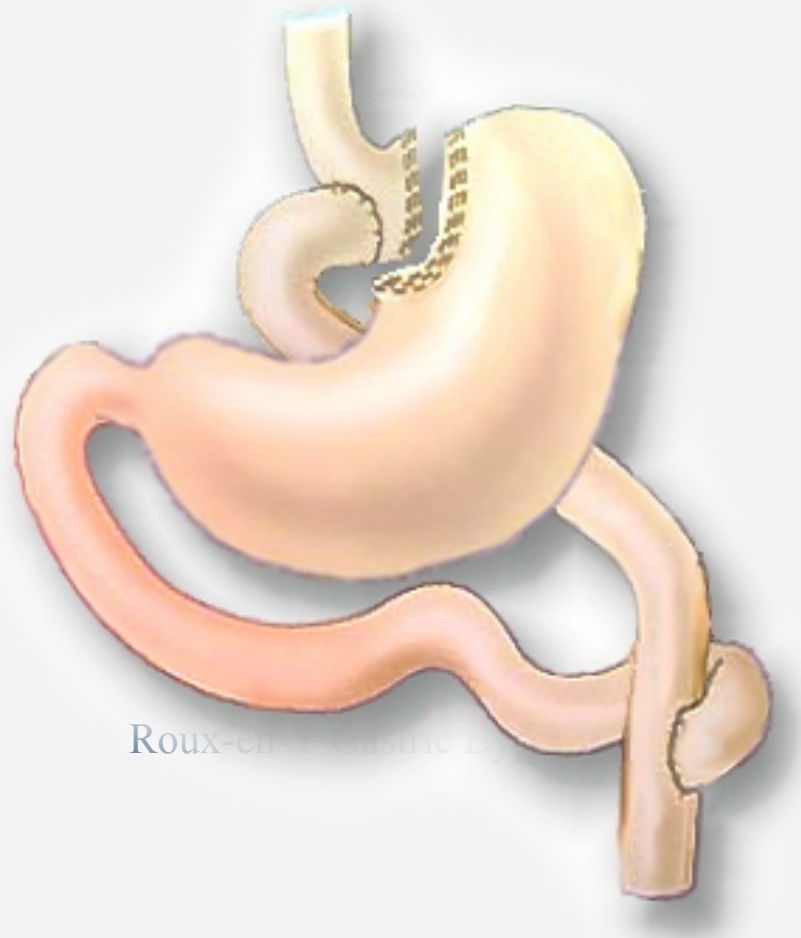
Roux-en-Y Gastric-Bypass

Long-term sustained weight loss

No protein-calorie malabsorption

Little vitamin or mineral deficiencies

Technically difficult procedure



The Roux-en-Y Gastric Bypass

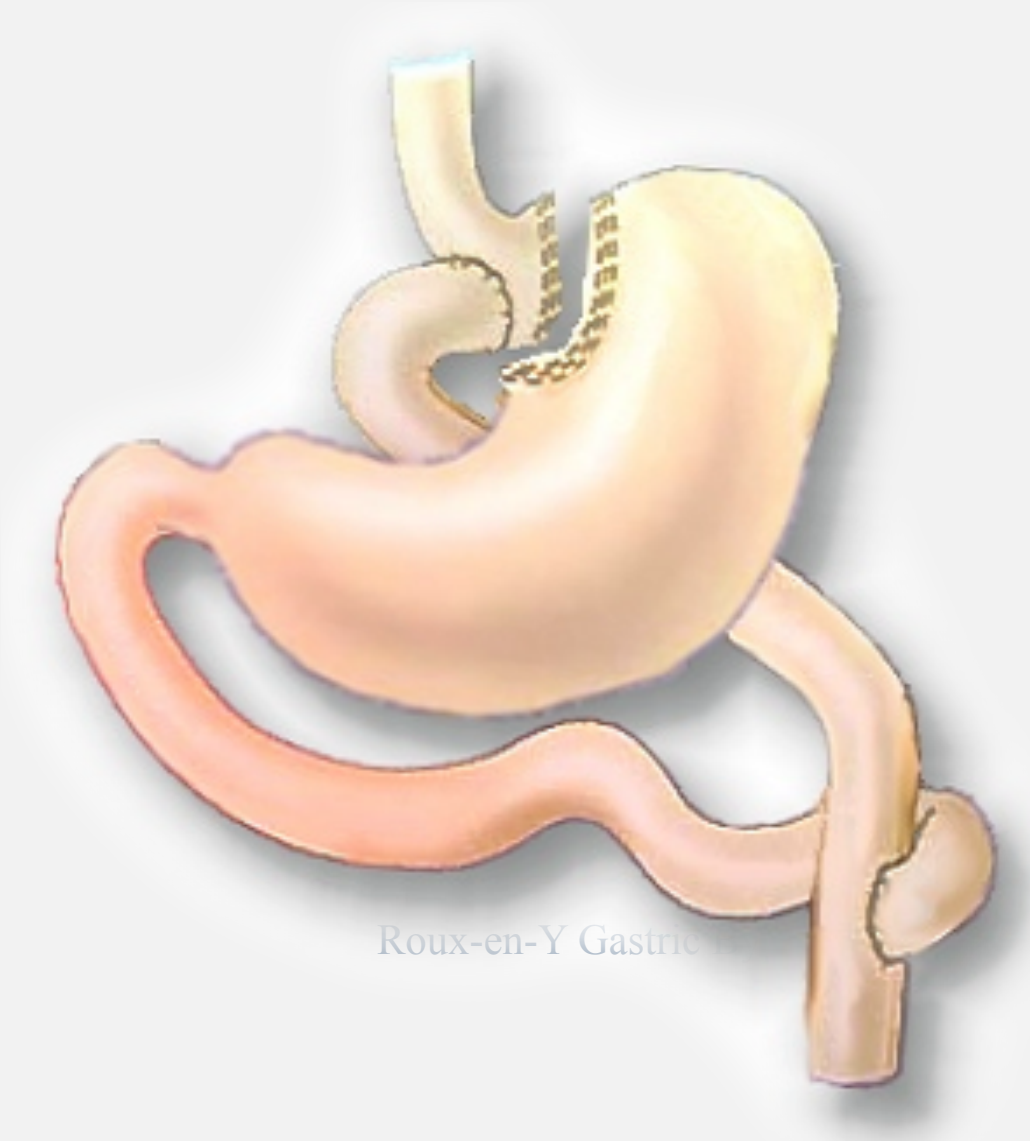
A small, 15 to 20cc, pouch is created at the top of the stomach.

The small bowel is divided. The biliopancreatic limb is reattached to the small bowel.

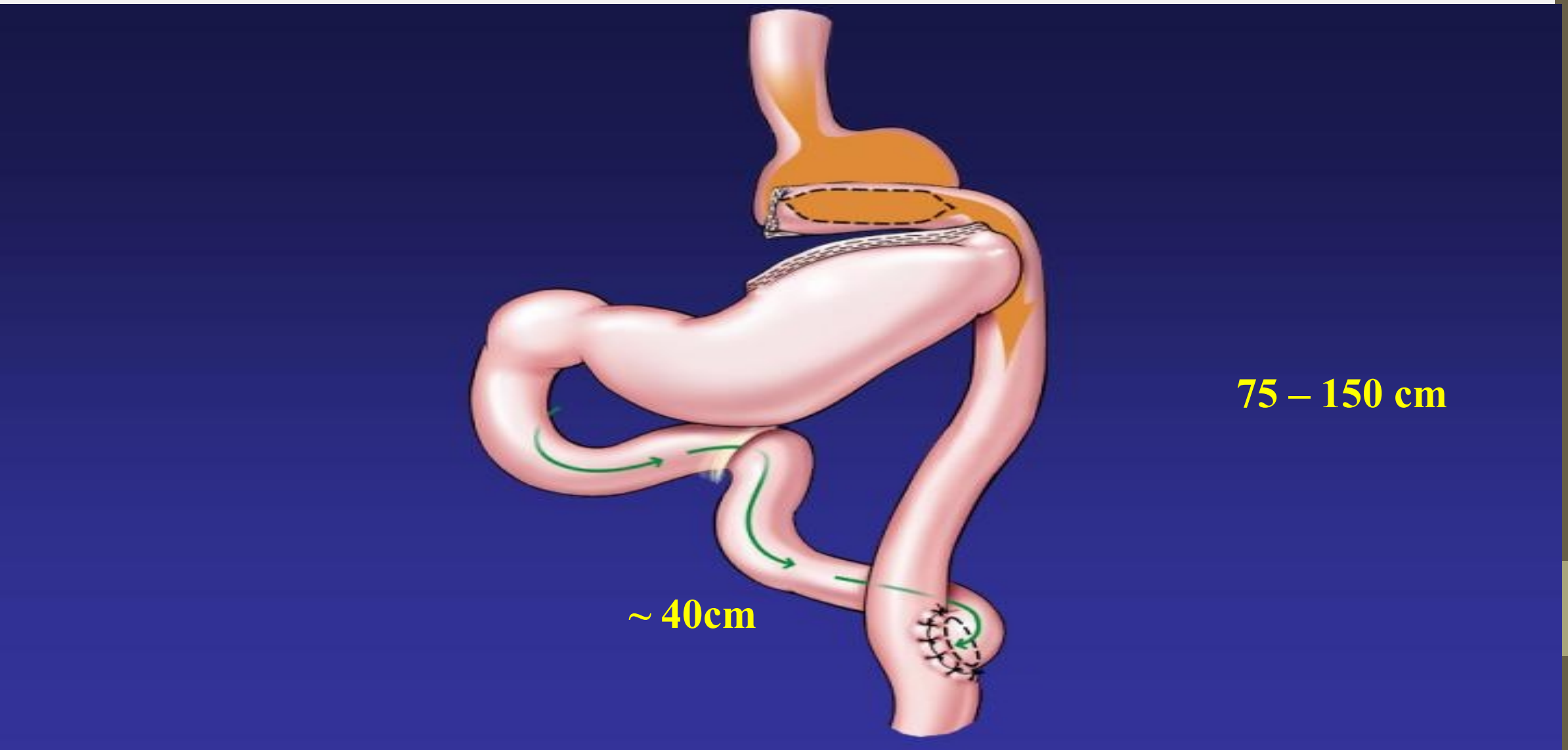
The other end is connected to the pouch, creating the Roux limb.

The small pouch releases food slowly, causing a sensation of fullness with very little food.

The biliopancreatic limb preserves the action of the digestive tract.



Gastric Bypass + Roux-en-Y

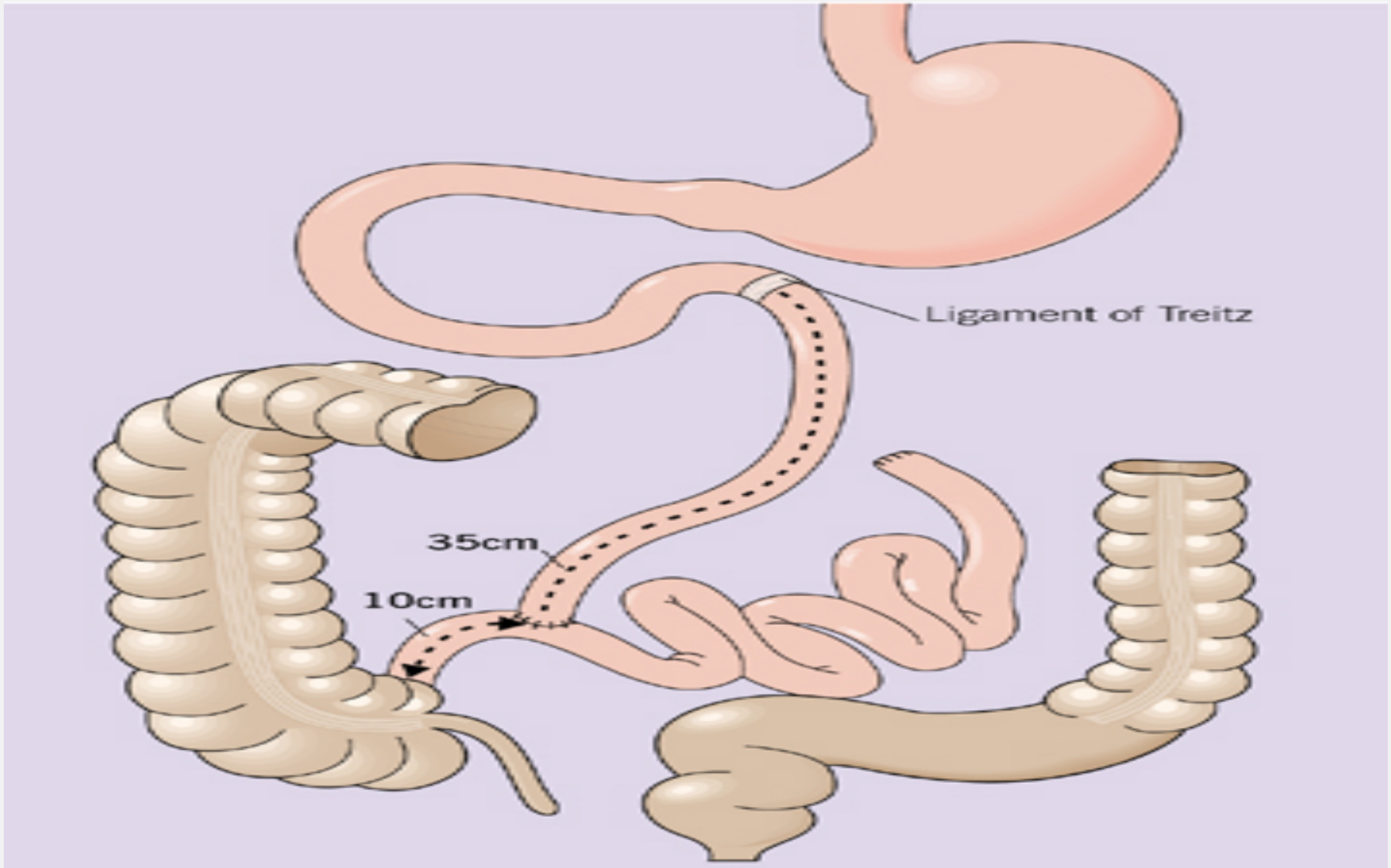


Malabsorptive Surgery

- Greater sustained weight loss with less dietary compliance
- Increased risk of malnutrition and vitamin deficiency
- Constant follow–up to monitor increased risk
- Intermittent diarrhea

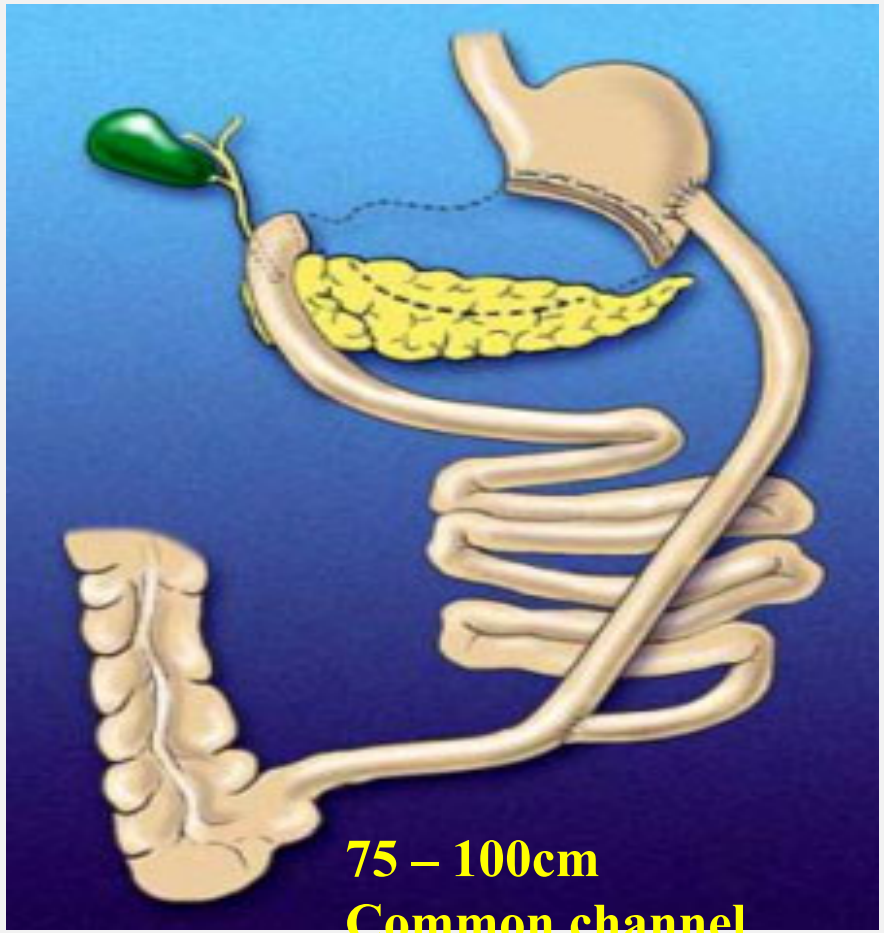
Biliopancreatic Diversion with Duodenal Switch

Jejunoileal Bypass

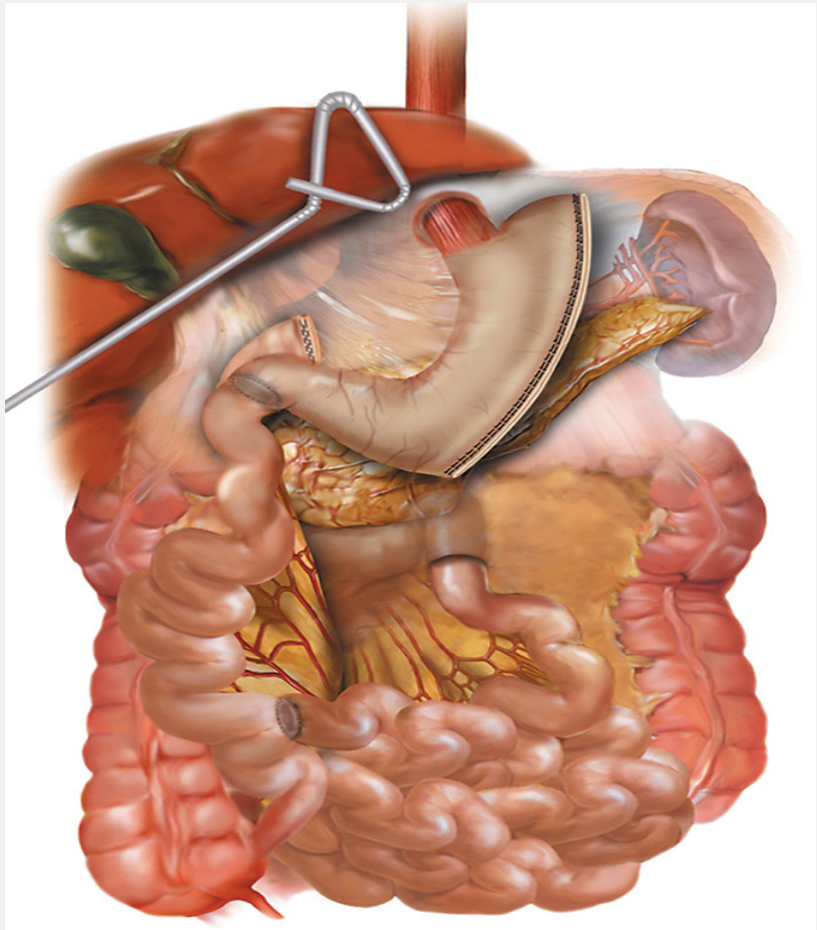


Biliopancreatic Diversion

w/o duodenal switch



w/ duodenal switch



Marceau, et al. *World Journal of Surgery*, 1998

hernia

- ما تنسوا سلايد د. عزاوي

DDx of inguinal hernia :

Hydrocele/ saphena varix/ testicular torsion/ psoas abscess .. Etc.

- Indirect :

most common type in both males and females.

- Indirect : lateral to the inferior epigastric artery.

- Direct : medial within hesselbach's triangle.

Inguinal hernia

Herniotomy :

only in peds patients.

Herniorrhaphy :

tension due to approximation/ high recurrence.

Hernioplasty :

using a mesh/tension free/ open or laparoscopic.

A 80 YO female presented with a bulge in her Lt. groin area that is partially reducible.

- Mention 2 DDx.

Femoral Hernia, Inguinal Hernia.

- Mention one way in examining the pt to differentiate between the 2 conditions.

Identify pubic tubercle; then in femoral hernia the bulge in below & lateral.

- Mention 2 complications.

Stangulation, Obstruction.

A bulge on the scrotum of a child, becomes more prominent upon crying.

- What's the most possible Dx?

Indirect inguinal hernia.

- Give 2 DDx.

Hydrocele/ Inguinal hernia.

- How can you differentiate between your DDx by physical exam ? (4points)

Hydrocele: not reducible, transilluminate, no cough impulse …

- What's the initial tt?

Try to reduce it manually, if not reduced, give the pt sedative (to relax the skeletal muscles & hernia will be reduced subsequently), NPO, IVF, NGT & prepare for surgery as soon as possible.

- What's the definitive tt & when?

Herniotomy.

- What's the complication that we are afraid of?

- What's this?

Epigastric Hernia.

- Give 2 DDx.

- Epigastric hernia, lipoma.

- What's the reason?

Weakness of linea alba or abdominal wall muscles.

- Give 2 possible physical signs on examinaton.

Expansile cough impulse, Reducibility.

- What's the tt?

Hernioplasty (with mesh repair).

- What's your Dx?

Umbilical Hernia.

- What's the cause of this condition?

The umbilical scar fails to form or is weak. The abdominal contents bulge through the weak spot & Evert the umbilicus.

- When we should interfere surgically?

If there's still a defect at the age of 4.

- What's the tt?

Herniotomy.

Pt with gastric cancer came with this pic.

1. What's this?

Umbilical Hernia.

2. What are the causes?

In adults, it's usually secondary to increased intra-abdominal pressure (pregnancy, ascites "such as in this case; as a complication of gastric CA").

- What's your Dx?

It inguinal swelling, not reaching scrotum.

- What's the relation of this hernia to the internal ring?

Hernial mass is Medial to the internal ring.

- What's the most serious complication?

Strangulation.

- Give 2 surgical procedures for this problem.

Herniorrhaphy, Hernioplasty.

- Describe the abnormality in shape of the umbilicus of this 35 YO female.

Crescent shape, semi-lunar.

- What is the Dx?

Para-umbilical hernia.

- What is/are most likely contents?

Omentum.

- Mention 2 possible complications.

Obstruction.

Strangulation / incarceration.

A pt with advanced gastric CA presented with this picture.

- Give 2 DDx.

Sister Joseph nodule, Umbilical hernia.

- How to differentiate between them?

Cough impulse & Reducibility in hernia.

If the intestine in this pathology was incarcerated, give 2 lines of tt.

1- Resuscitation of patient and management the precipitating factor ?

2- Surgical treatment ?

A 56 year old man has had several abdominal operations in the past. He presents complaining of a discomfort associated with a small lump which has developed in the midline wound near the umbilicus.

- What is the likely diagnosis (shown at "C")?

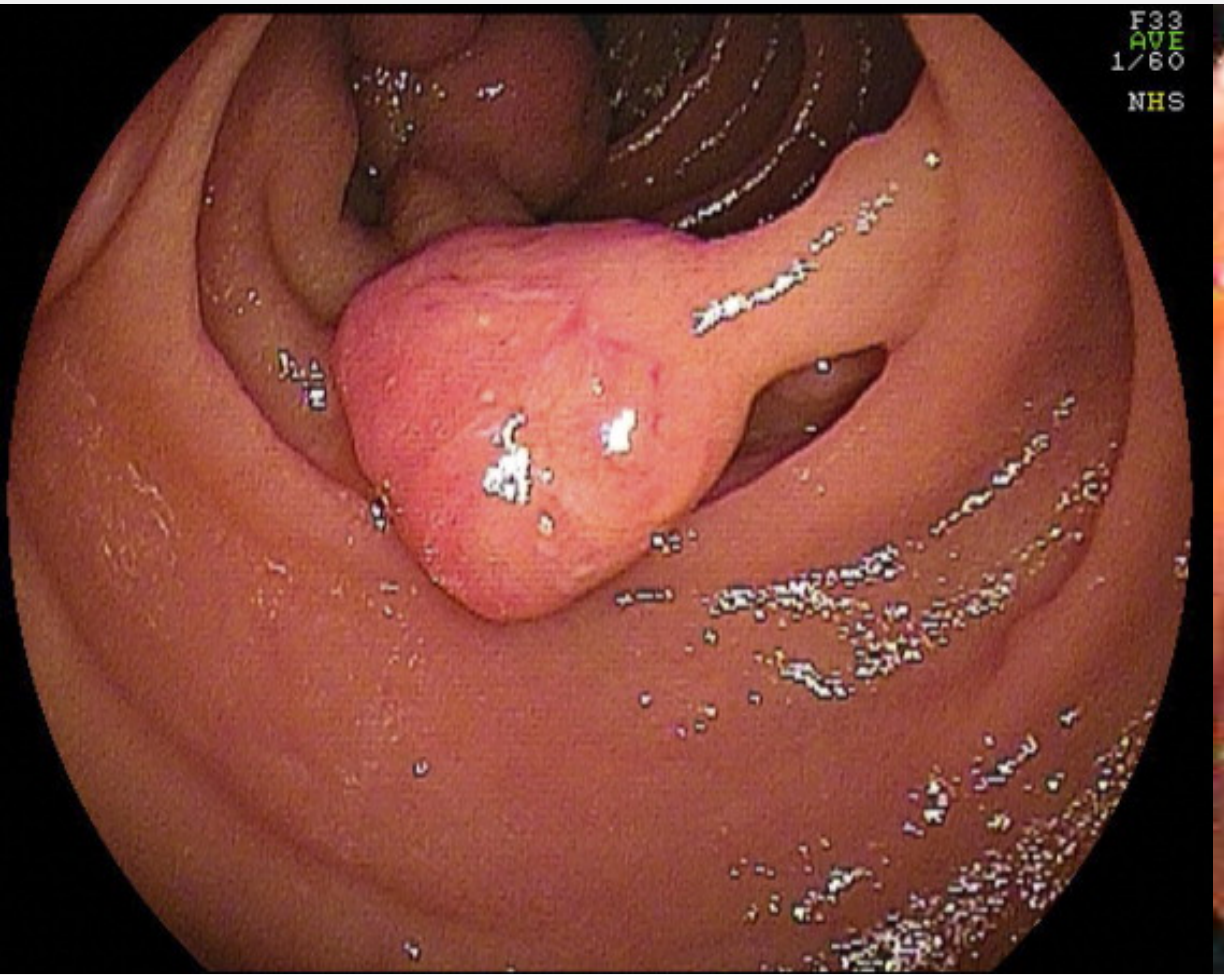
Incisional hernia near the umbilicus.

- Mention 2 possible complications for C.

Intestinal obstruction, strangulation, perforation.

Colon

Lady with a mass in colon.



Describe this lesion.

Fungating mass in colon! (Colon polyp).

What's the histopathological type for this lesion?

Adenomatous polyp.

What are the most common histological sub-type?

Tubular polyp (85% of adenomatous polyps).

What other 2 histological sub-types?

Villous, Tubulo-villous.

What's the most common symptom of this condition?

Bleeding per rectum.

What's the metabolic disorder that is associated with it?

Hypokalemia.

What's the risk of leaving it?

Malignant conversion (Colon Ca).

7. What's your management?

Surgery & adjuvant or neoadjuvant chemoradiotherapy.

A case suggested colorectal cancer.

- What's the most common histological type of polyp?

Adenomatous polyp.

- Mention 3 other histological types.

Hyperplastic.

Hammartomatous.

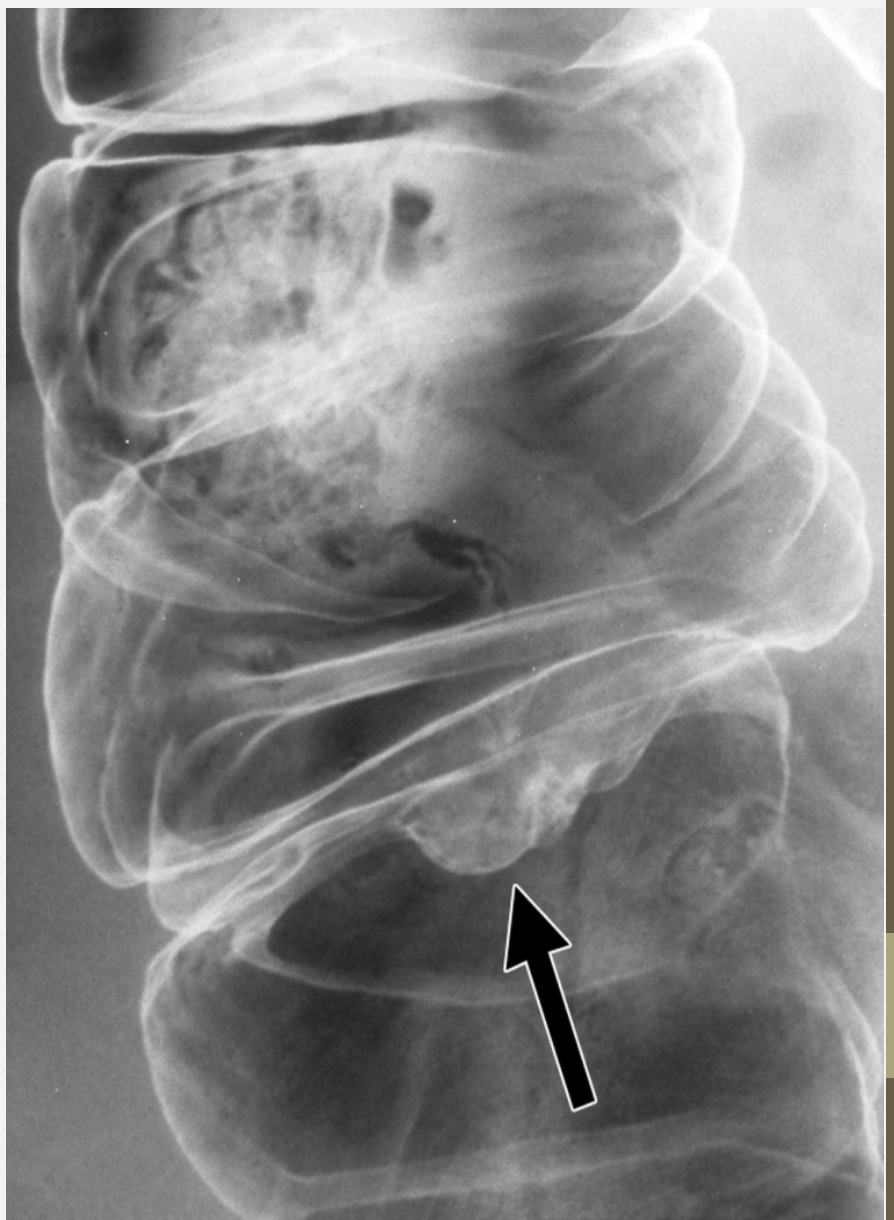
Inflammatory.

- What's the most risky type (transform into malignancy)?

Adenomatous (mostly of Villous type).

- Where is the most common site of polyps?

Sigmoid colon or Rectosigmoid area.



A pt with long Hx. of bleeding & diarrhea since 4 yrs.

. **What's the Dx?**

Toxic Mega-colon.

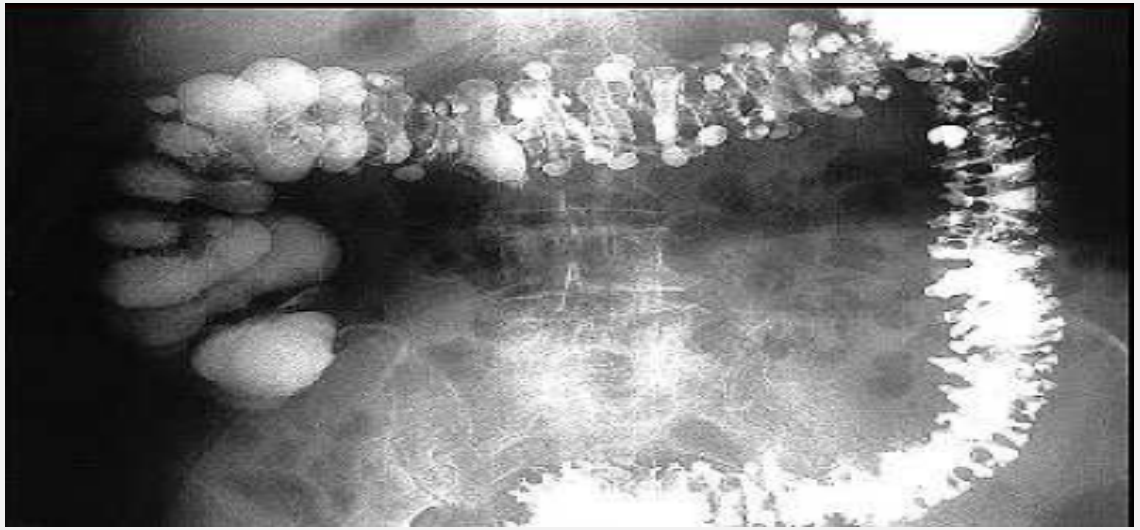
. **If you know that this pt needed urgent surgery, what's the cause of his symptoms?**

IBD (Ulcerative Colitis).

3. Mention 3 indications of surgery in this pt.

Toxic megacolon, massive bleebing, CA prophylaxis.

An X-ray of barium swallow Showing Large Intestine.



- What's your Dx.?

Colonic Diverticulosis.

- Mention one risk factor for this condition.

Constipation, Increased age, low-fiber diet, Connective tissue disorders.

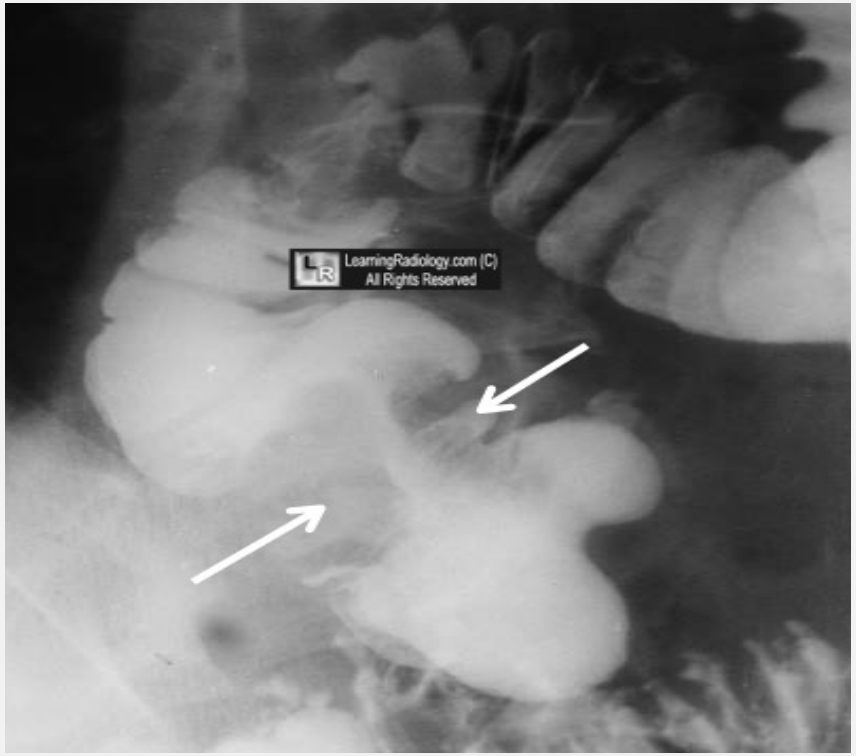
- Mention the most Serious Complication.

Diverticulitis, massive bleeding.

- Mention a non invasive modality of tt.

High-fiber diet, Laxatives

Chief complaint is constipation.



- What's your Dx.?

Colon CA.

- Give 4 complication.

Intestinal obstruction, Anemia, Abdominal discomfort, Metastasis (to liver, …).

- What is the gold standered investigation?

Gold standard- Colonoscopy+ Biopsy

- What is the aim of surgery ?

To excise the primary lesion with adequate margin ~5 cm of normal bowel proximal and distal to the tumor and its draining locoregional lymph nodes.

To reconstitute bowel continuity

- The prognosis depends mainly on :

The most important determinant of prognosis is tumour stage and, in particular, lymph node status

- Mention 4 risk factors :

Environmental & dietary factors
Male sex
Family history of colorectal cancer
Personal history of colorectal cancer, ovary, endometrial, breast
Excessive BMI

CASE :

- 70-year-old woman ,has known case of acute diverticulitis, who recovers without complications or need for surgery.
  A subsequent colonoscopy shows an area of sigmoid diverticula with scarring and a mild stricture of the involved area. Biopsies are negative for tumor.
  She does well at home but returns several months later with a sensation of voided air when she urinates

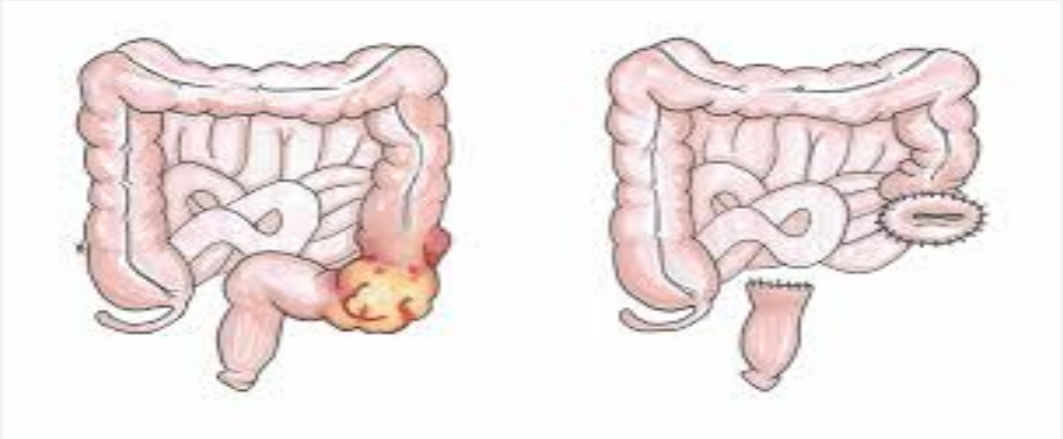
- What is the diagnosis?

  Colovesical fistula

What are other causes of colovesical fistula ?

colon CA , crohn's , radiotherapy ,trauma

Name this procedure and when use it

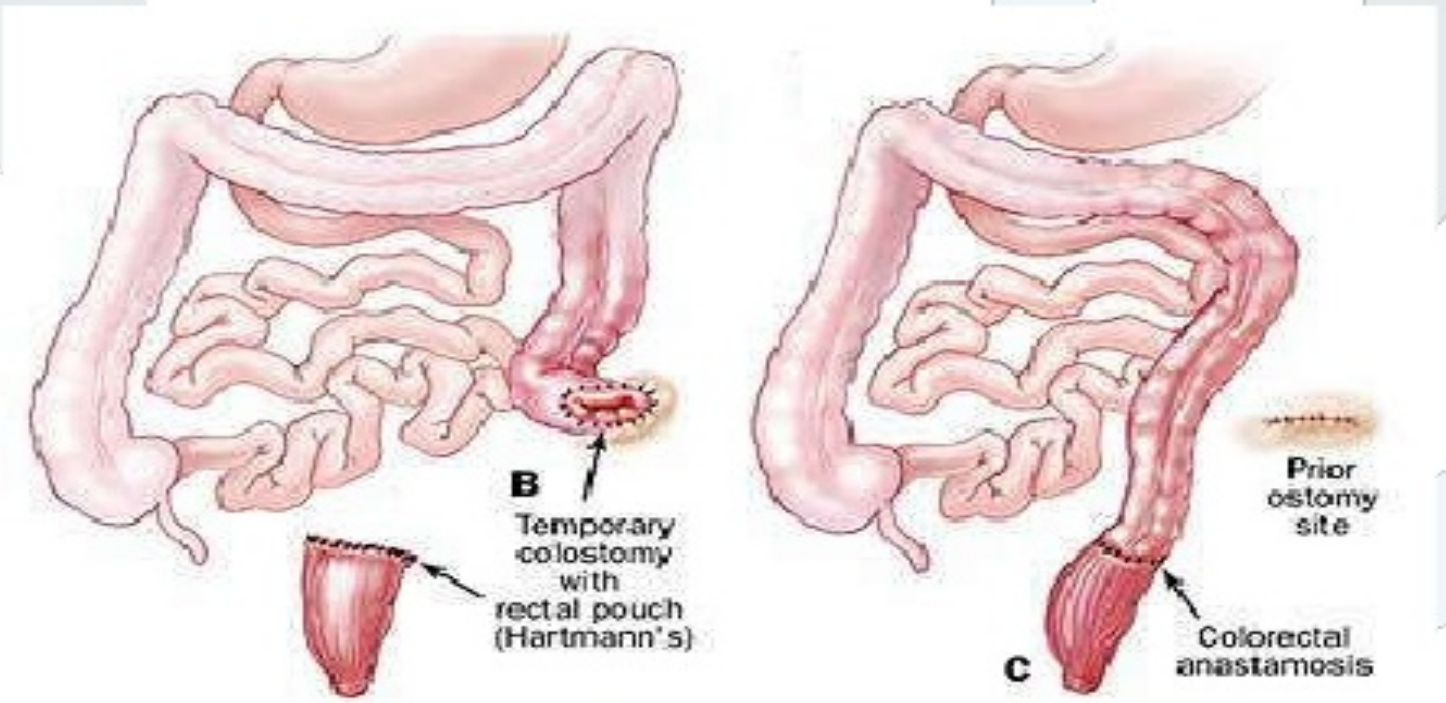


Perforation with substantial contamination or if the patient is unstable, it may be advisable to bring out an ileo/colostomy rather than anastomosing bowel in these circumstances.

For a left-sided lesion, the decision-making process is similar to that in diverticular disease between a Hartmann's procedure and resection and anastomosis

Hartman Reversal/Closure

There are several special considerations with this procedure.



- What's this investigation?

Colonoscopy.

- What's your most likely Dx.?

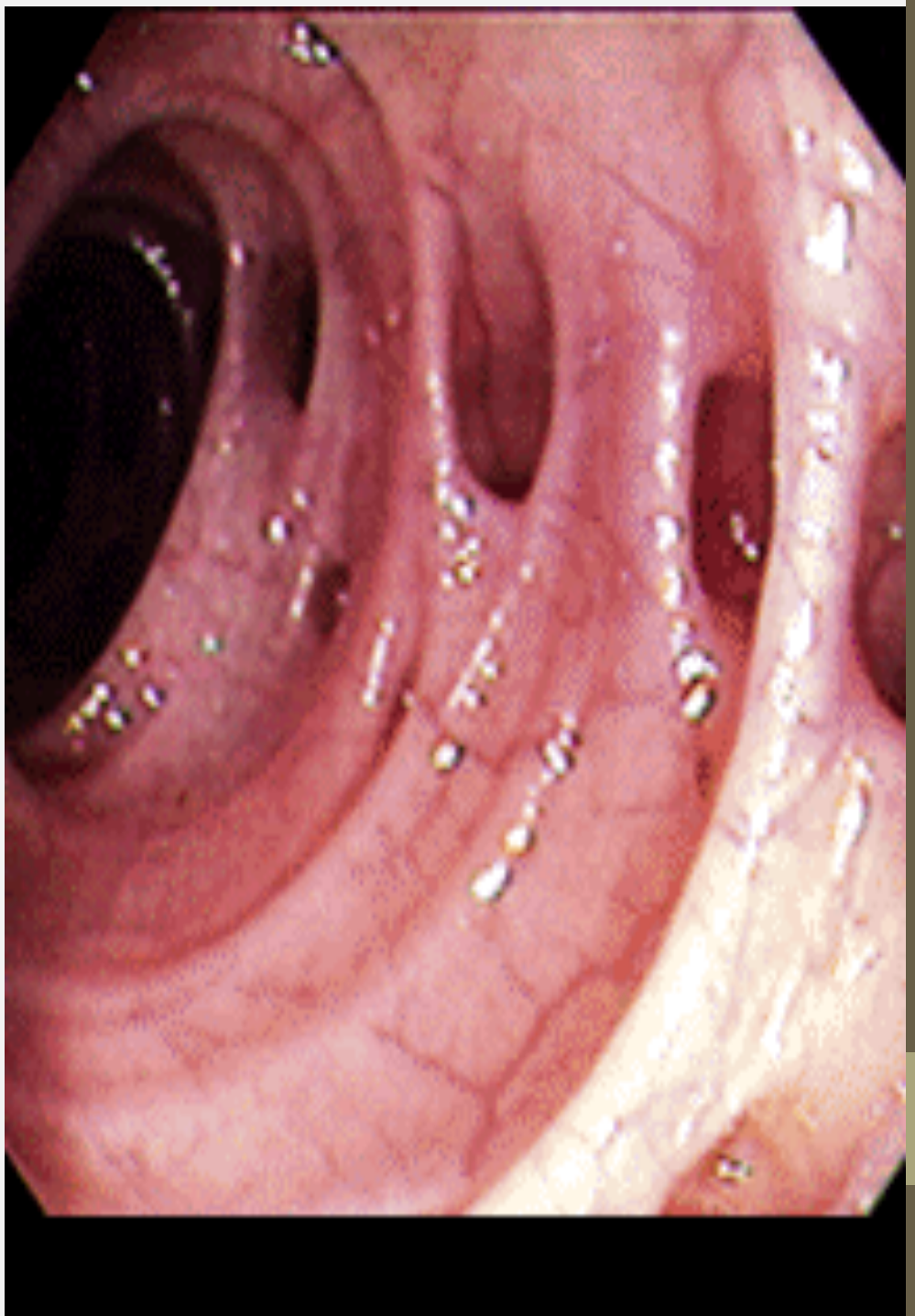
Diverticulosis.

- Mention 2 acute presentations.

Infection (diverticulitis), Perforation.

- Mention 1 chronic complication .

Fistula formation



- What is this procedure?

Colonoscopy.

- Give 2 diagnostic values ?

Taking biopsies, view of mucosal changes.

- Give 2 therapeutic uses ?

Resection of polyps, reduction of intussusception through barium enema.

1. FAP : - It is a rare disease .

- Autosomal dominant inheritance .
- Accounts for about 0.5% of all colon cancers .
- Associated with alterations in APC gene which is located on 5q .In addition to that alterations in APC gene appear to play a role in sporadic colon cancer .
- Phenotypically characterized by hundreds to thousands of adenomas in the colon .
- A very small proportion of those adenomas will progress. into carcinoma but eventually all patients with FAP will develop colon cancer .

Familial Adenomatous Polyposis (FAP)

Inherited as an autosomal dominant

Mutations in the adenomatous polyposis coli *(APC) gene*

Presence of more than 100 colorectal adenomas

Characterised by duodenal adenomas and multiple extraintestinal manifestations.

Accounts for 1 % or less of all colon cancer

The risk of colorectal cancer is 100 %

Associated with benign mesodermal tumours such as desmoid tumours and osteomas

50 % of patients have congenital hypertrophy of the retinal pigment epithelium (CHRPE), which can be used to screen affected families if genetic testing is unavailable.

Hereditary non-polyposis colorectal cancer (Lynch syndrome)

Characterised by increased risk of colorectal cancer and also cancers of the endometrium, ovary, stomach and small intestines.

Accounts for about 5 – 10 % of all colon cancers .

Autosomal dominant condition caused by a mutation in one of the DNA mismatch repair genes
(MLH1 , MSH2).

The lifetime risk of developing colorectal cancer 80 %, and the mean age of diagnosis is 45 years.

Most cancers develop in the proximal colon.

30–50 % lifetime risk of developing endometrial cancer.

Diagnosed by genetic testing or the Amsterdam II criteria.

Patients with HNPCC are subjected to regular (every one to two years) colonoscopic surveillance.

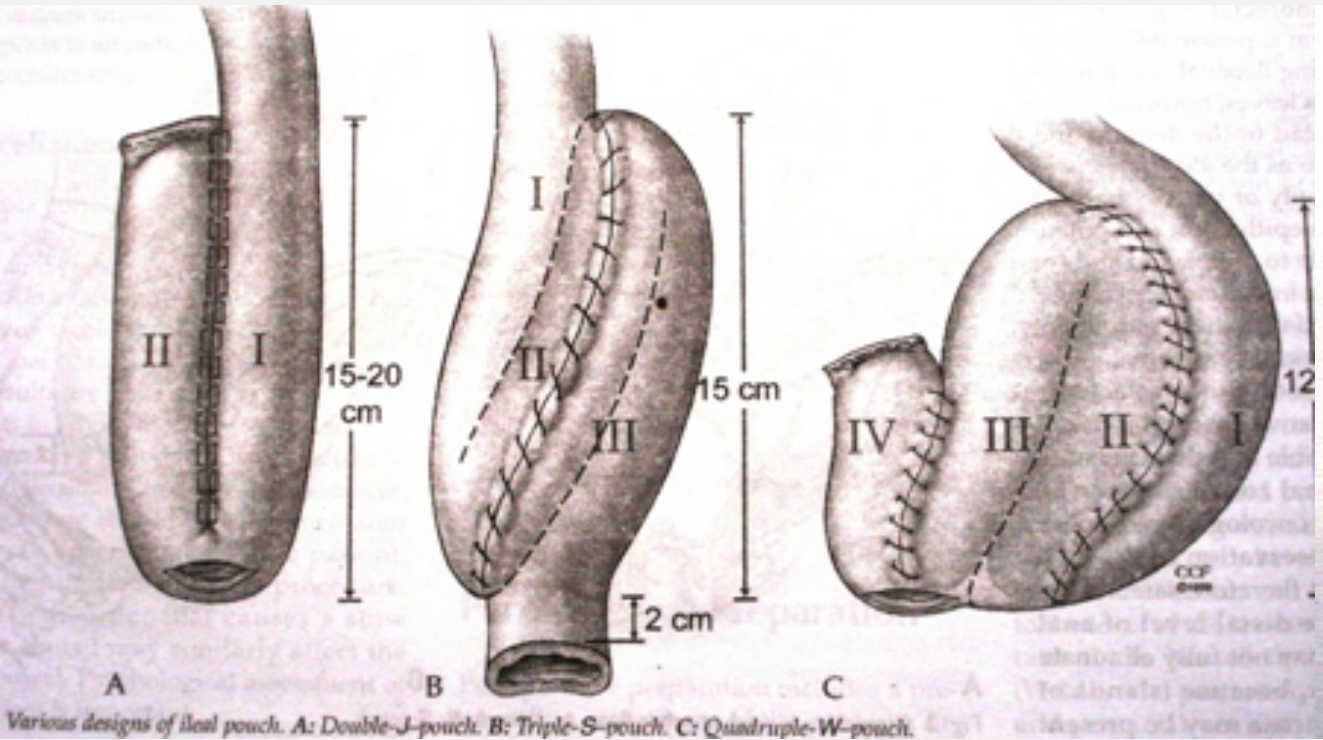
Amsterdam II criteria

- Three or more family members with an HNPCC-related cancer (colorectal, endometrial, small bowel, ureter, renal pelvis), one of whom is a first-degree relative of the other two
- Two successive affected generations
- At least one colorectal cancer diagnosed before the age of 50 years
- FAP excluded
- Tumours verified by pathological examination.

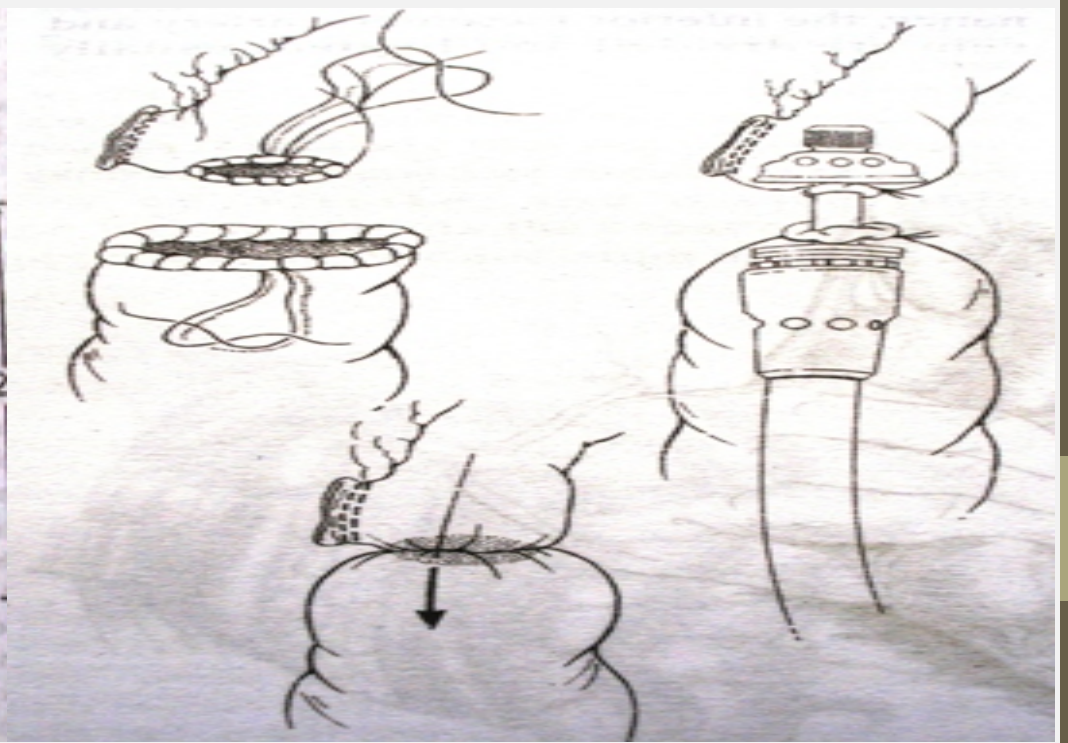
FAP

Total proctocolectomy and IPAA

Various designs of ileal pouchs



Various designs of ileal pouch. A: Double-J-pouch. B: Triple-S-pouch. C: Quadruple-W-pouch.



Peutz jeghers syndrome

- autosomal dominant.
- hereditary intestinal polyposis syndrome.
- hamartomatous polyps in the GI tract.

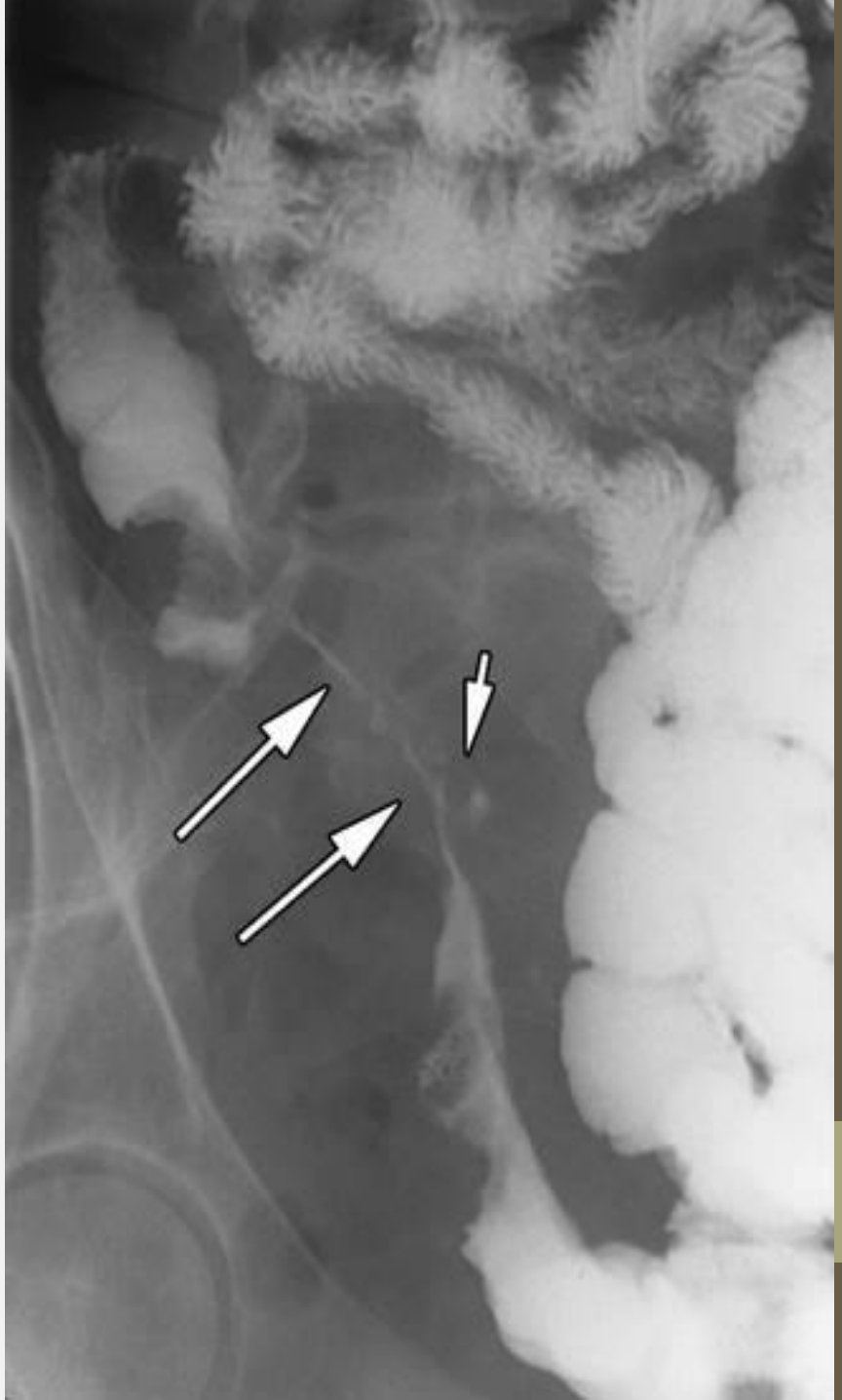
- circumoral pigmented nevi.

Crohn's disease (IBD)

- Autoimmune disease
- Site : can occur anywhere in the GI tract including the colon and frequently perianally , the disease is patchy (SKIP LESIONS) , the m.c site is the terminal ileum ,and often no involvement of the rectum (in UC the rectum is always involved)
- Symptoms are very varied including :

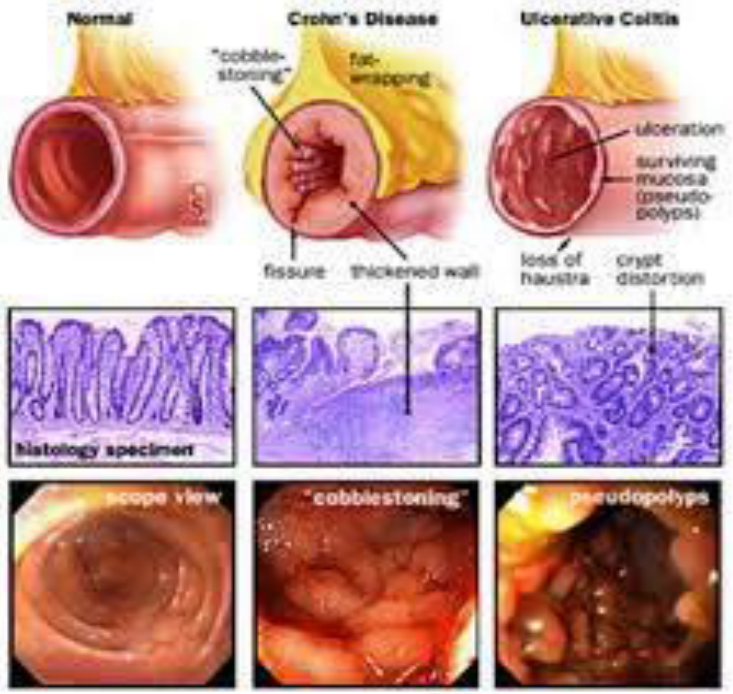
Abdominal pain , wt loss , sometimes presenting with a picture of acute Appendicitis (right iliac fossa pain, pyrexia and vomiting) , may also present as acute intestinal obstruction* ,abdominal mass , and with multiple perianal fissures and abscesses .

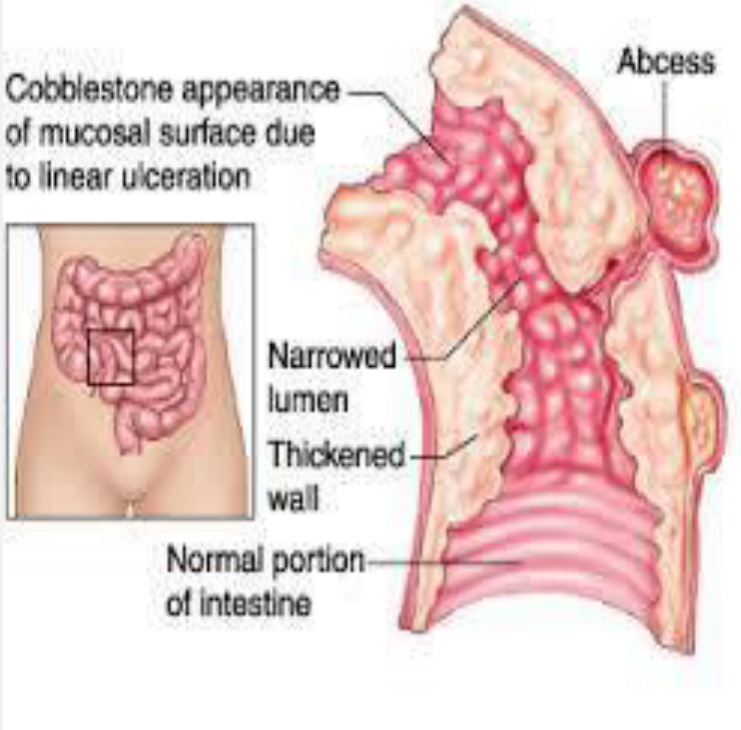
- Extraintestinal manifestations:



it involves the full thickness of the bowel wall , with the serosa ,mesentery and regional LNs (while in UC it was only the mucosa that's involved)

- **Macroscopically :** the bowel wall in thick and red (in UC its very thin), the mucosa has a cobblestone appearance with deep fissures , and the mesentery is shortened
- **Microscopically** we will find non- caseating granulomas , with narrow deep fissure ulcers.
- **Complications :** mainly strictures and fistulae (in UC : hemorrhage , perforation , CA , and toxic megacolon)
- **Radiology :**
  Barium enema --> STRING SIGN (indicative of narrowing of the lumen)
- surgery plays a minor role in the treatment





Ulcerative colitis (IBD)

a hx of chronic abdominal pain with bloody diarrhea

age = 30-40

after excluding the possibility of malignancy is highly suggestive of UC .

UC is an autoimmune disease ,

Affects females>males

the rectum is always involved but the proximal extent is variable.

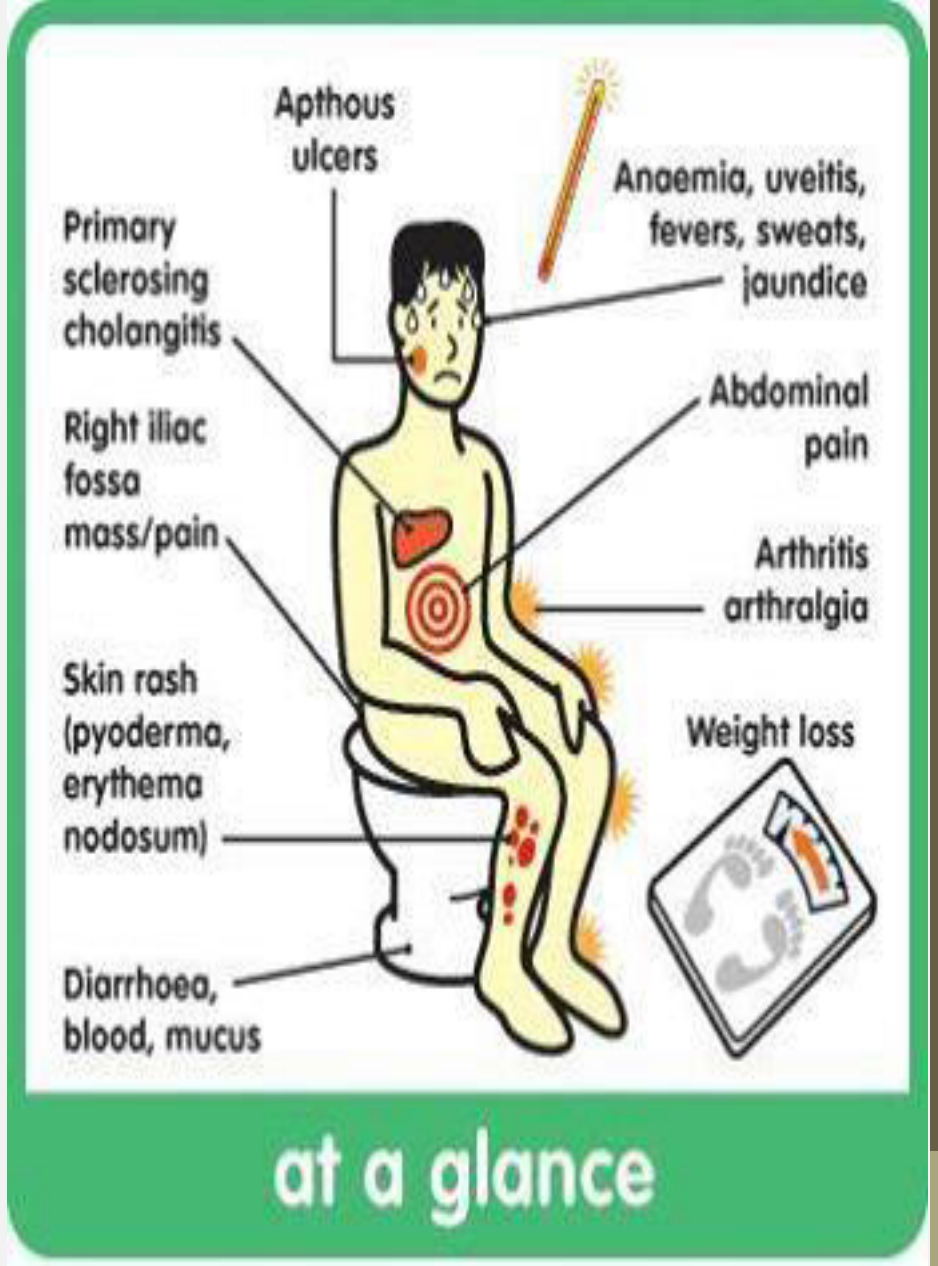
* high incidence among relatives of pts.

* smoking: protective.

* clinical features :

- bloody diarrhea with pus and mucus .
- wt loss ,low grade fever and anorexia.
- abdominal pain .
- extracolonic manifestations :

arthritis (sacroiliitis and ankylosing spondylitis) , eyes



investigations:

- if perforated --> Air under diaphragm on AXR

-in chronic UC --> barium enema will show loss of colonic haustrations ,rigidity and shortening of the colon = LEAD PIPE colon + and TOXIC MEGACOLON on AXR .

- **Treatment :**
- **medical** : mainly steroids
- **surgery** (proctocolectomy with Brooke ileostomy)
- **is indicated when :**

medical treatment is failed

toxic megacolon

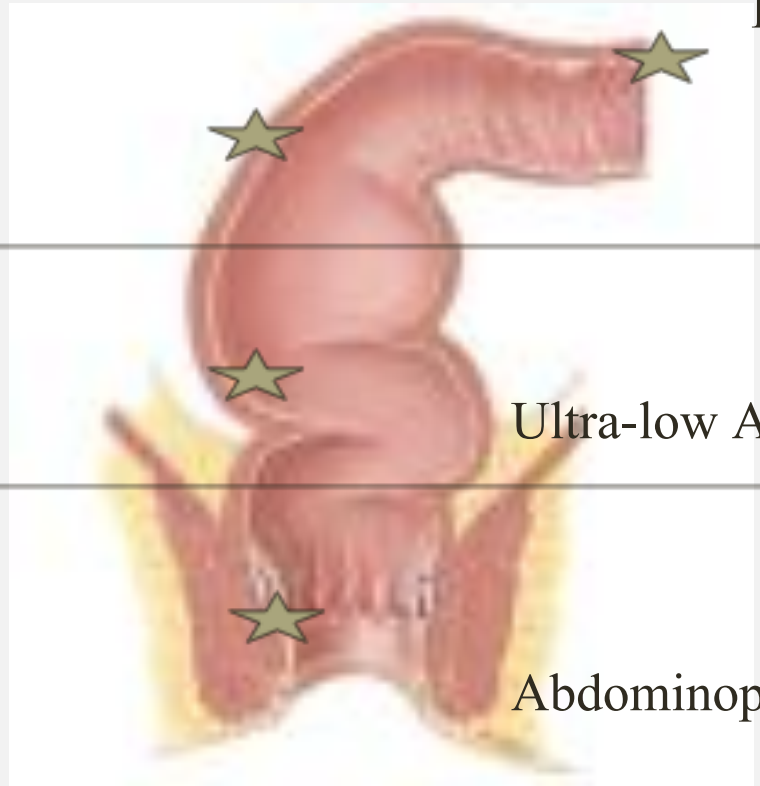
perforation and subsequent peritonitis

Too frequent relapses

duration of more than 10 years (>15 years -->5% risk of CA)

Rectal tumor

15 cm



High Anterior Resection

Low Anterior Resection

Ultra-low Anterior Resection

Abdominoperineal Resection (APR)

Esophagus

CASE :

Patient present with dysphagia for both solids and liquids (worse for liquids) and postural regurgitation, radiograph comes back as shown.

Q1: How to diagnosed this case ?

Q2: What is the name of this appearance and diagnosis ?

Q3: what is the management?

A1: barium swallow
esophageal manometry
A2: bird's beak appearance, achalasia

A3: 1- endoscope injection of botulinum toxin
2- high pneumatic pr balloon
3- plummer hydrostatic balloon

CASE :

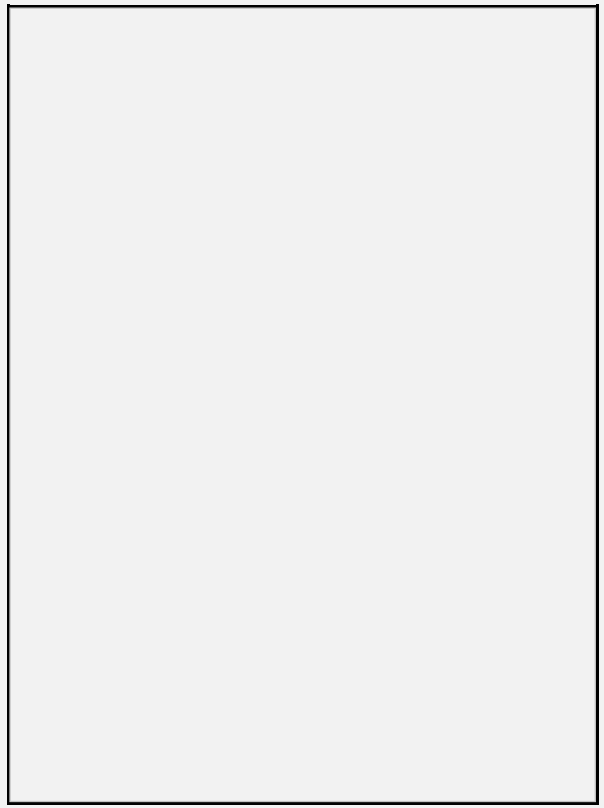
Patient present with intermittent dysphagia, iron deficency anemia and glossitis.

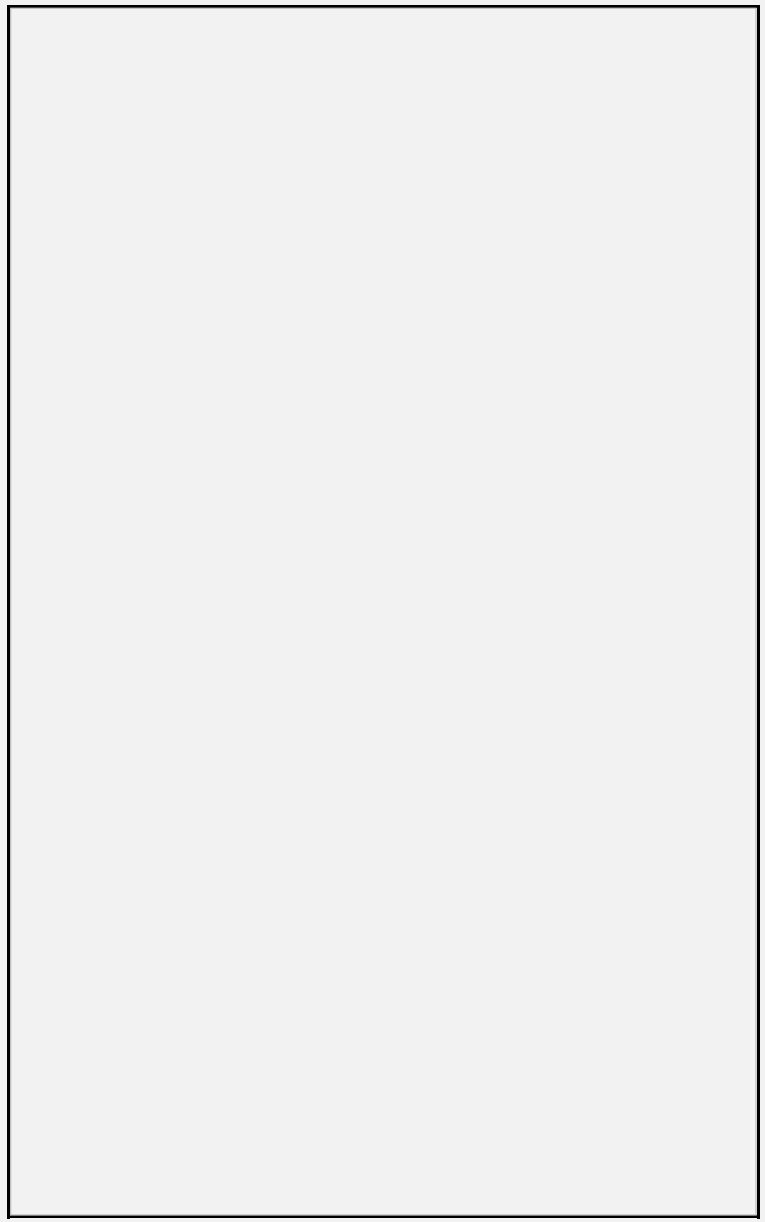
* radiograph comes back as shown.

Q1: What's the name of characteristic appearance? Diagnostic test?

Q2: What's your diagnosis?

Q3: What's your management?





A1: Esophageal webs, barium swallow.

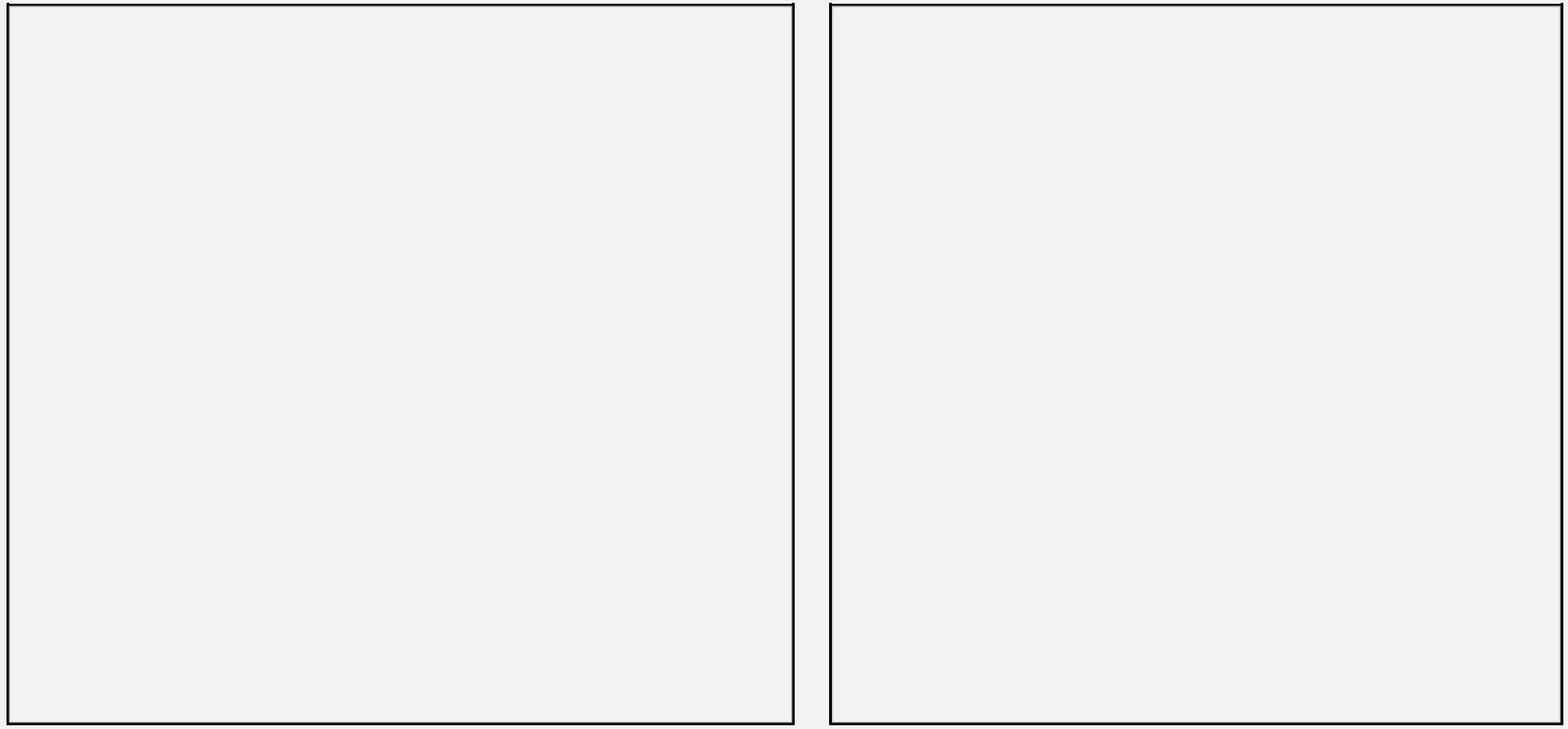
A2: Plummer-Vinson syndrome.

A3: dilation.

Tracheoesophageal fistula

Pharyngeal diverticulum

An X-ray of barium swallow Showing Esophagus.



- Give 2 radiological signs.

Bird Peak sign, & dilatation of the esophagus.

- What's your Dx?

Achalasia.

- Mention 2 invasive tt modalities in this case.

Heller's myotomy, Balloon dilatation.

- What is the most serious complication of the Dx?

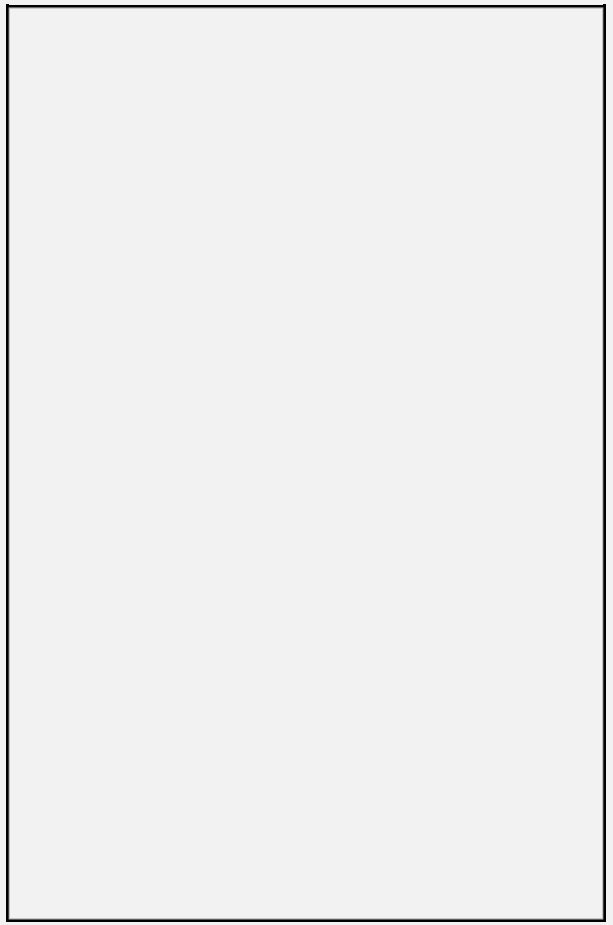
Esophageal Cancer.

Diffuse Esophageal Spasm

simultaneous onset and repetitive non- peristaltic contractions in the esophageal body

Normal LES relaxation

Patients present with intermittent non progressive dysphagia, chest pain or heartburn.



Nutcracker Esophagus

- **high pressure peristaltic contractions**
- Manometer shows **avg pressure >180 mm Hg**
  - **33% have long duration contractions (>6 sec)**

Normal manometry

For GERD caused by hiatus hernia

Ulceration & stricter in lower esophagus, by biopsy it's premalignant. Pt has solid food dysphagia for 3 mon.

What's your Dx?

Barrett's esophagus.

What's the histological change?

Metaplasia (replacement of the normal stratified squamous epithelium lining of the esophagus by simple columnar epithelium).

What do you think the cause of dysphagia?

Esophageal stricture, Esophageal CA.

What's the underlying disease?

GERD, Esophagitis.

What's the most common presenting symptom for the malignant disease?

Progressive dysphagia.

What's the histological subtype of the malignant disease?

Adenocarcinoma.

How to assess T & N of esophageal CA?

Endoscopic US.

What's the pathophysiology of the Dx?

Metaplasia of the squamous epithelium of the esophagus to become columnar.

Do u want to follow up? why?

Yes, due to risk of adenocarcinoma.

A pt with progressive dysphagia to fluids only.

What's your Dx?

Esophageal CA.

Give other 2 investigations?

Double-contrast Ba-swallow, Endoscopic US, CT chest & abdomen.

Give 2 modalities of tt ?

Esophagectomy with gastric pull-up, Chemo-radiation, esophageal stent

- What are main types of cancer ?

Sqamous(most common) and adenocarcinoma

- Risk factors :

squamous , alcohol , tobacco , long history of achalasia , environmental factor

- Adenocarcinoma:

Barrett's esophagus is the most common predisposing factor

Upward spread from gastric carcinoma

- Site:

sqamous midthird VS adeno distal third

Neck masses and thyroid

Painless neck swelling. On examination; it was midline, firm, non-tender mass, elevated on protrusion of tongue.

. What's the most probable Dx?

Thyroglossal Cyst.

. What's the bone involved?

Hyoid bone.

. Give 2 DDx?

Dermoid cyst, Goitre, Lymph node (Delphian LN).

4. If it was cystic, what's the congenital pathophysiology?

Persistence of thyroglossal tract.

. Name 2 possible complications.

Fistula, infection, Malignant transformation.

. What's the most common age of presentation?

In browse: between 15 and 30 years old.

In recall : around 5 years of age.

7. What's the tt?

Surgical Resection (Sistrunk Procedure).

Name the triangle of the neck in which the lesion is situated:

anterior triangle.

- **Give two differential diagnoses for the lump:**

sialodenitis/ lipoma.

Bilateral cervical lymphadenopathy caused by Hodgkin's lymphoma.

An infected thyroglossal cyst

Branchial cyst

- Smooth surface and globular.

- At the level of junction
between upper and middle
1/3 of SCM

which had become painful.

This commonly follows recurrent bouts of tonsillitis,
especially if the infection has been treated inadequately

Branchial fistula

- formed by the 2nd branchial cleft and pouch.
- lined by ciliated columnar epithelium.
- Discharge : mucus or muco-pus.
- in anterior triangle.
- at junction between middle and lower third of SCM.
- congenital.
- surgery (excision).

Ranula :

cystic mucosa extravasation from sublingual salivary gland.

Plunging :

if extended through myelohyoid muscle.

Treatment : excision

The picture was for a male patient , with ahistory of this swelling for 1 year duration:

1- describe what you see?

Oval neck swelling in the anterior triangle of the neck (carotid triangle).

2- give two differential diagnosis?

carotid body tumor, lipoma, firoma, neuroma…..

A 75 YO pt presented with this neck mass.

What's the most probable Dx?

Goiter (thyroid enlargement).

Mention the most important sign to prove its origin.

Moves with swallowing.

What are the 2 important questions to suspect malignancy?

Hoarseness? Dysphagia? Dyspnea?

Is there any sign you can see to suspect malignancy?

Lymph nodes enlargement.

Mention 3 surgical causes for hyperthyroidism.

Single benign thyroid adenoma, Toxic Multi-nodular Goiter, Grave's Disease

If not treated, we are afraid from what?

Thyrotoxic storm?

What's the long term complication on the cardiovascular system?

dilated cardiomyopathy, right heart failure with pulmonary hypertension, diastolic dysfunction, and atrial fibrillation

For Grave's; name 2 investigations & 2 tt options.

TFT, thyroid isotope scan.

Tt: Medical (PTU, methimazole), radioactive iodine ablation, surgery (total thyroidectomy).

Identify this condition.

Exophthalmous.

Give one lab test you want to order.

Thyroid Function Test (TFT).

Mention a radiological investigation.

Neck U/S.

Mention 2 modalities of tt.

Medical: anti-thyroid drugs (PTU).

Surgical: thyroidectomy.

- Give two signs .

exophthalmos and lid retraction .

- What is the Most common cause ?

grave's disease

- mention two indication for iso-top scanning ?

1 – Evaluate cause of hyperthyroidism in case presenting with a palpable thyroid nodule (suspected toxic adenoma)

2- Evaluate function of thyroid nodule in euthyroid patients :

solitary or dominant thyroid nodule (suspected cold nodule or to R/O thyroid cancer)

3 - Evaluate thyroid anatomy & location of thyroid gland :

neonatal hypothyroidism , suspected ectopic thyroid

- When suspect thyrotoxicosis or cancer ?

Throid ca :

1- A lump that can be felt through the skin on your neck.
2 - Changes to your voice, including increasing hoarseness.
3 - Difficulty swallowing.
4 - Pain in your neck and throat.
5 - Swollen lymph nodes in your neck

Throtoxicosis :

1 - Appetite change (decrease or increase)
2 - Difficulty sleeping (insomnia)
3 - Fatigue.
4 - Frequent bowel movement—perhaps diarrhea.
5 - Heart palpitations.
6 - Heat intolerance.
7 - Increased sweating.
8 - Irritability

- What is method of investigation used before surgery?

CT

Exophthalmos and lid retraction.

Severe lid retraction but no exophthalmos

Pretibial myxoedema.seen in graves disease

45 YO female, did thyroidectomy for papillary carcinoma. Mention 5 complications post-operatively.

- Hypocalcemia (hypoparathyrodism).
- Hematoma (dangerous).
- Recurrent laryngeal nerve injury (Hoarseness of voice).
- Wound infection.
- Scar (cosmetic).

Identify this condition.

Branchial cleft cyst.

What's the embryological origin of it?

Remnants of the 2nd or 3rd branchial cleft.

What's the important nearby structure that is related to it?

Carotid artery (not facial nerve!).

Mention a possible complication after surgery.

Infection, open into a sinus, malignancy.

What's the investigation we do to confirm Dx before we send it to surgery?

Neck CT scan.

What's your tt?

Surgical excision or resection.

The facies of myxoedema. Thinning of the hair, loss of the outer third of the eyebrows, ‘peaches and cream’ complexion, thickening and heaviness of the eyelids.

This child presented with a swelling in his neck post URTI, it was firm, & tender.

What's your initial Dx?

Lymphadinitis

What's your management in this case?
"1point"

Antibiotics.

If the child has fever, rigors, & appears toxic, fluctuation in the mass, what's your 2nd Dx?

Abscess formation.

What is your management for this case?
"2points"

Surgical drainage, IV antibiotic.

parathyroid

Whats the name of this sign and when see it ?

Trousseau's sign :

Carpal spasm after occlusion of blood vessel of forearm with a BP cuff in patients with hypocalcaemia

mention two causes:

iatrogenic (thyroidectomy) , renal failure ….

Trousseau's sign

Chvostek's sign

The Pearls for NCLEX Review Course

Hypocalcemia Assessment

- ↑ Muscle Twitching, Tetany, Seizures
- ↑ Respiratory Difficulty and Laryngospasm
- ↑ Irritability and Memory Impairment
- ↑ Calcium moving out of the bone → bone pain
- + Chvostek's and Trousseau's signs (level < 6 mg/dL)

Positive Chvostek's

Tap on the facial nerve just below the zygomatic process.

Spasm of the muscles supplied by the facial nerve

Positive Trousseau's

BP cuff inflated to 20 mmHg > SBP for 3 minutes

Spasm of the wrist and hand

Causes of Hypercalcemia

knowmedge

Mnemonic: "Chimpanzees"

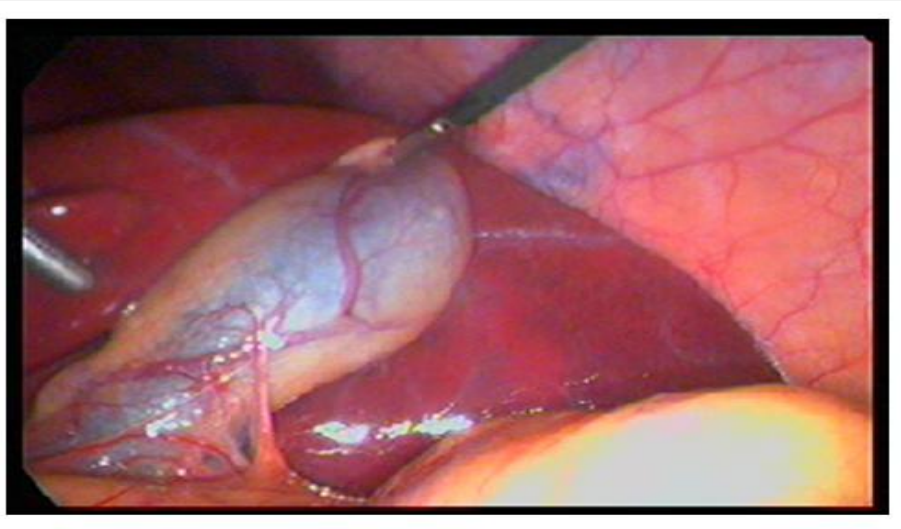
Causes of Hypercalcemia	
C	Calcium supplementation
H	Hyperparathyroidism
I	Iatrogenic, immobilization
M	Multiple myeloma, milk-alkali syndrome, medication (e.g Lithium)
P	Parathyroid hyperplasia or adenoma
A	Alcohol
N	Neoplasm (e.g breast cancer, lung cancer)
Z	Zollinger Ellison syndrome
E	Excessive vitamin D
E	Excessive vitamin A
S	Sarcoidosis

Most comon cause inpatient is: hyperparathyroidism but inpatient is cancers

Gall Bladder and Biliary Tract

cholecystitis

This is a laparoscopic view during lap chole.



What are the components of Calot's triangle "hepato-cystic triangle" ?

Cystic duct, cystic artery & common hepatic duct.

What is the normal diameter of the CBD?

the mean diameter is 6mm, & any diameter above 8 mm is strongly suggestive of a problem.

What is the 1st step in formation of cholesterol stones?

Supersaturation (followed by crystallization & stone formation).



Give 2 other sites you can examine.

Hand creases, Under the tongue.

Why is this site is the best place to look for this state?

Because it's rich in elastic fibers (high affinity of bilirubin to elastin).

Give 2 lab tests to confirm Dx.

CBC (prehepatic), LFT

What's the minimal bilirubin level to cause this state?

Higher than 2.5 mg/dL leads to jaundice.

Name 2 causes of this condition.

Hemolysis, Biliary tract obstruction, Hepatitis, HCC.

Mention 2 radiological test we can do to confirm Dx.

Abdominal US, MRCP.

Mention one invasive investigation.

ERCP

First choice of investigation is US .

What's this procedure?

ERCP.

Give 2 Indications for it.

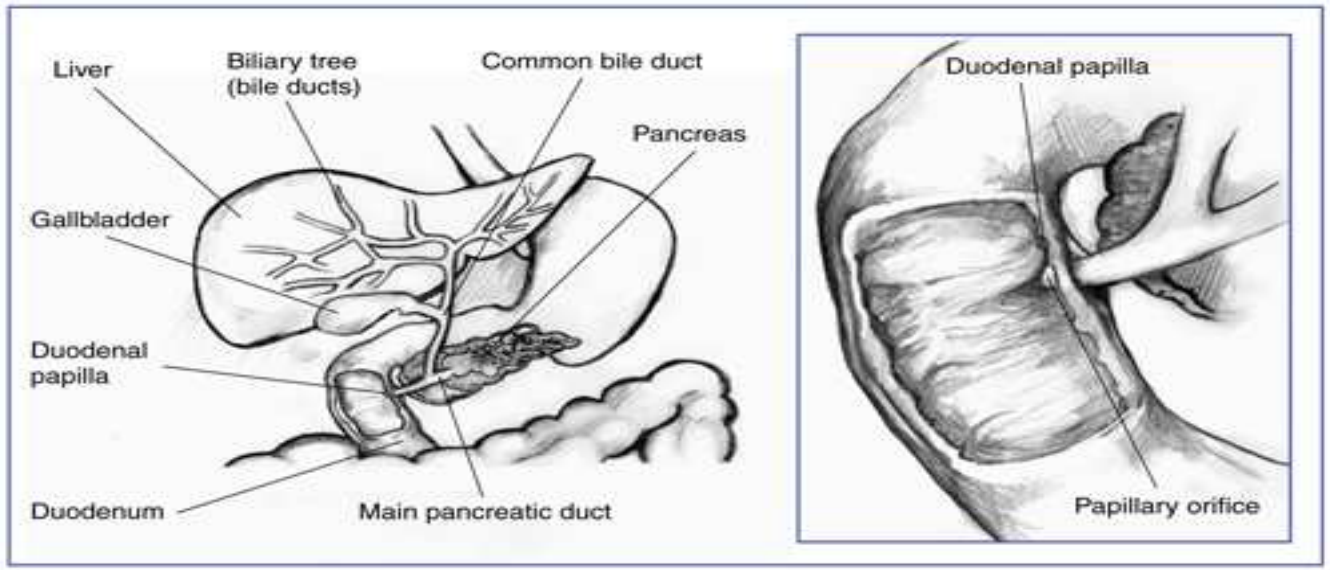
- **Diagnostic (Obstructive jaundice, take biopsy…).**
- **Therapeutic (stone removal, stent insertion, …).**

Give 2 Complications.

- **CBD injury, Ascending pancreatitis, hemorrhage, perforation.**

موجودين في دوسية الجراحة

ERCP pic with multiple arrows. سؤال مستبعد



Name the anatomical structure.

Gallbladder, ERCP probe "which most of the students get it wrong", Main pancreatic duct, Common hepatic duct.

A 60 year old female with RUQ pain and fever.

- Identify this type of image:

MRCP

- Give two radiological findings:

CBD stone shadow/ CBD dilation.

- What is your diagnosis?

Ascending cholangitis

What are components of charcoats triad?

Fever, rt upper qadrant pain, Jauindice.

1- identify this structure and what does it contain?

Gall bladder , containing gall stone

2- mention one acute condition for this ?

Acute cholecystitis,…….

3-Mention 2 predisposing factor for this ?

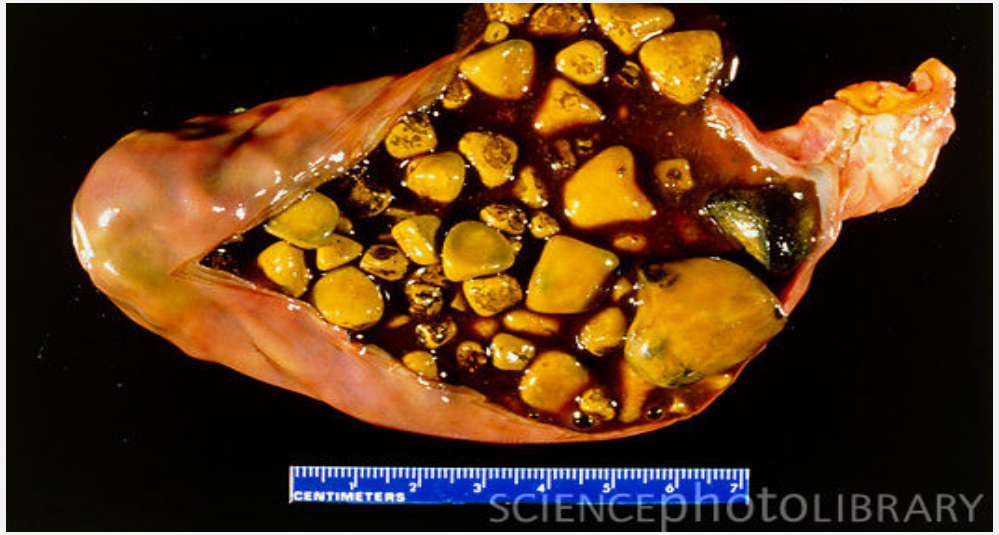
Female, fatty , fertile,…..

4- what is most common type of stone?

Mixed type

5-complication of stone

biliary colic , Acute cholecystitis , chronic cholecystitis , empyema of the gall bladder , mucocele , perforation , biliary obstruction , acute cholangitis , acute pancreatitis , intestine obstruction (gallstone ileus)



1. **What can you see?**

Cholesterol GBS.

2. **Mention 2 other types of stones.**

Mixed, Pigmented.

3. **Mention risk factors for this disease.**

1. **Obesity.**
2. **Female, fertile, forty...**

4. **What's the most sensitive investigation to be done?**

Abdominal US.

Mention 2 complications for this conditions.

Acute Cholecystitis, Acute Pancreatitis, Obstructive Jaundice.

What's the physical sign can be founded in this pt related to his breathing? Murphy's sign.

What is the definitive tt?

Cholecystectomy.

Mention type of colecystectomy

early cholecystectomy 3 – 5 days

Elective or delayed cholecystectomy 4 – 6 weeks

بحبهم د.عماد

Mention indications of urgent cholecystectomy.

Done only when pyrexia and tachycardia don't subside in the first few hours and the patient develops rigors and tender mass in RUQ, because this indicates the formation of empyema and an increased risk of perforation

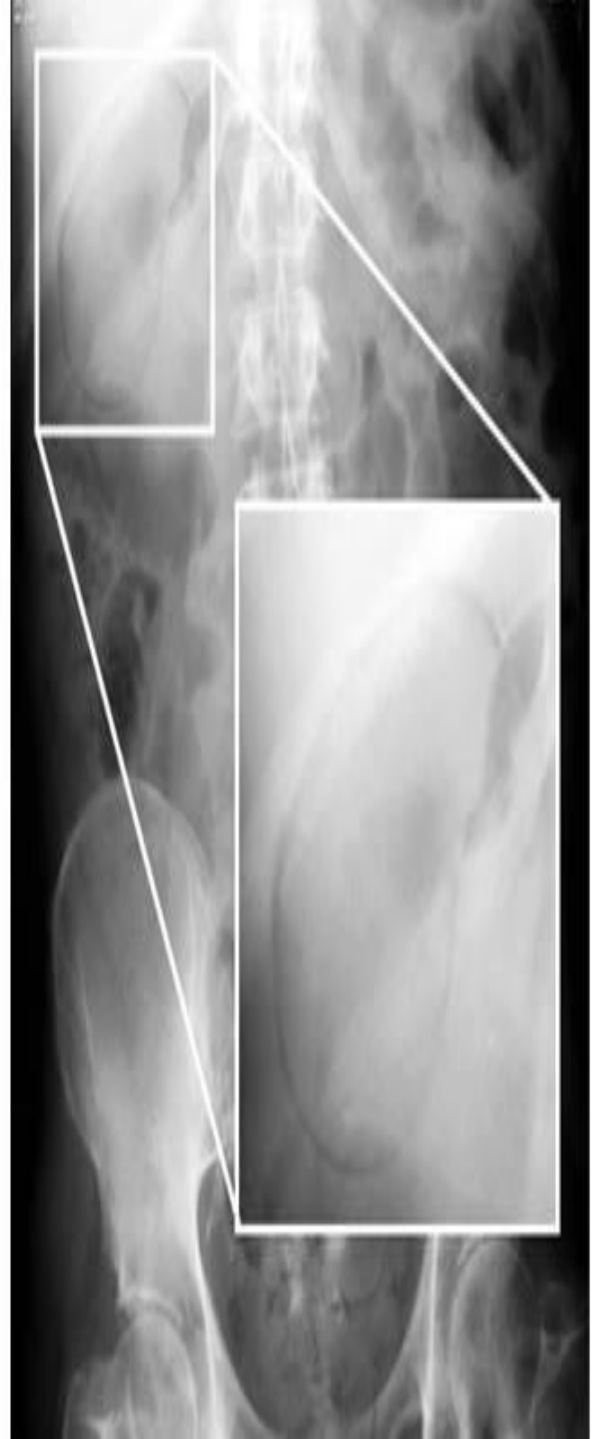
احنا حكولنا اي complication

More difficult question when cholecystectomy indicated without symptoms??

Large stone ,gallblader polyp, typhoid carrier…. رح يحكيهم د. بسام

Emphysematous Cholecystitis

- Gas forming bacteria (E.coli).
- Often results in perforation.
- Usually in males/ elderly/ DM.



Gallstone ileus

- **occurs when a large gallbladder stone erodes into the**

A pt with Hx of anorexia, wt. loss, pale stool, dark urine, jaundice & mass in RUQ.

Mention 2 causes for pale stool.

Obstructive jaundice (absence of stercobilin), Steatorrhea.

What's Courvoisier's law?

Palpable distensible non-tender gallbladder is unlikely to be due to gallstone.

Mention 2 investigations.

US, CT, ERCP.

What is the lowest level to detect jaundice in the sclera?

Serum total bilirubin > 2.5 mg/dL.

Mention the 3 mechanisms of pathogenesis of gallbladder stones.

When Bile is super-saturated with cholesterol;

1. Excessive cholesterol excretion (like in obese ppl).
2. Resection of terminal ileum (decrease bile salt & licithin).
3. over-absorption of water in GB during bile concentration.

What is the most dangerous side effect of stone in CBD?

Ascending cholangitis **Raynauds pentad (charcots triad +hpotention and altered mental status).**

CASE 6

:

Q1: What's the name of this modality?

Q2: Mention 3 diagnostic and 2 therapeutic value?

Q3: The most common complications are?

A1: ERCP

A2: 1)visualization of stone
2) visualization of intrahepatic, extrahepatic biliary system
3)sample of bile or pancreatic juice
4)biopsy lower CBD
5) visualization of pancreatic duct

1)Endoscopic sphincterotomy and extraction of stone
2)stricture dilatation
3)insertion of stent to drain malignant obstruction of the duct

A3: 1)acute pancreatitis 2)bleeding
3)perforation 4)ascending cholangitis

The "Polo" Sign

What is this device and how is it used?
What complication has occurred?
What are the other long term complications?

This is a biliary J stent used for long-term stenting and is an alternative therapeutic modality for high-risk elderly patients with common bile duct stones. The main biliary complications are cholangitis and migration of the stent. If left in situ for a long period, stones may form on the proximal end of the stent, taking its shape and resulting in occlusion as illustrated in this picture.

Pancreatitis

Acute Pancreatitis

-Cut off sign and Ileus.

-White arrow points to Transverse colon cut off at Splenic flexure.

-No air in descending colon.

-TC: Transverse colon.

- I: Represents small bowel loops with air suggestive of Ileus.

Treatment :

supportive (90% resolve spontaneously)

A picture for abdomen shows grey turner and cullen's sign

the abdomen is distended, (but the 2 signs weren't too obvious)

And it was for a female pt , presented to the ER with abdominal pain that radiates to the back and she has a history of gall stones

1-give two clinical findings?

Cullen's and gray turner

2- what's your diagnosis?

Acute pancreatitis (most common cause is gallblader stone)

3- give 2 laparatory findings?

Elevated serum lipase + amylase, elevated WBCs, …..

Ranson Criteria
Criteria for acute gallstone pancreatitis

Admission

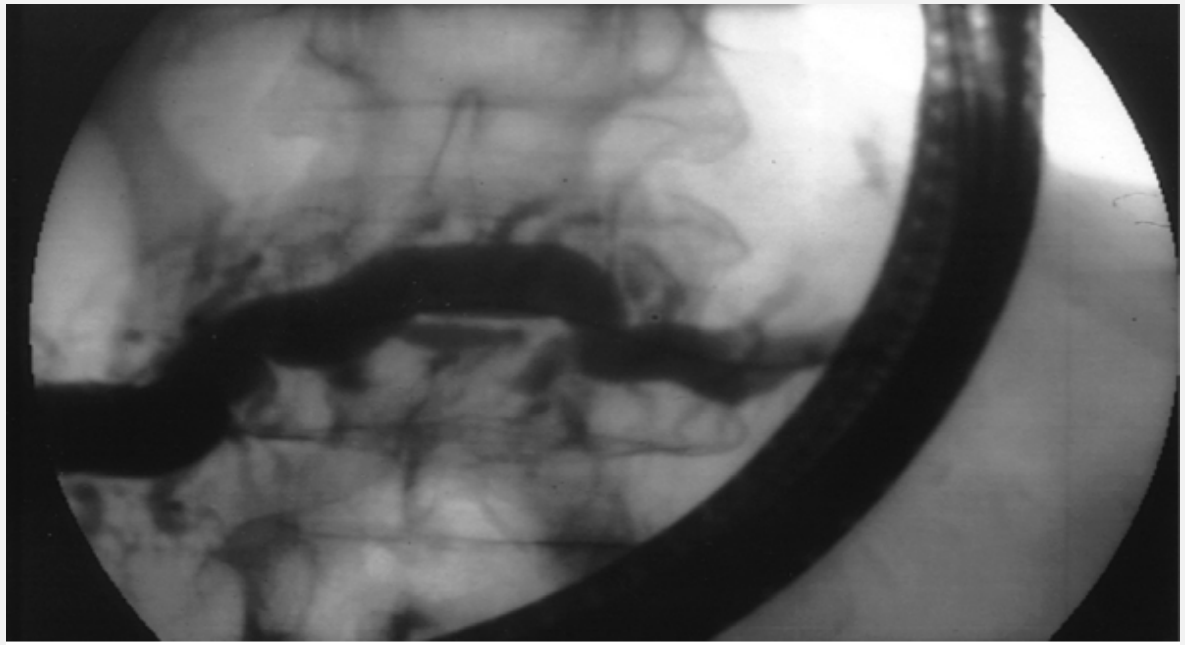
- Hematocrit drop > 10
- Pao2 less than 60mm Hg
- Serum calcium < 8
- Base deficit > 4
- Increase in BUN > 5
- Fluid sequestration > 6l

Within 48 hours

Age > 55

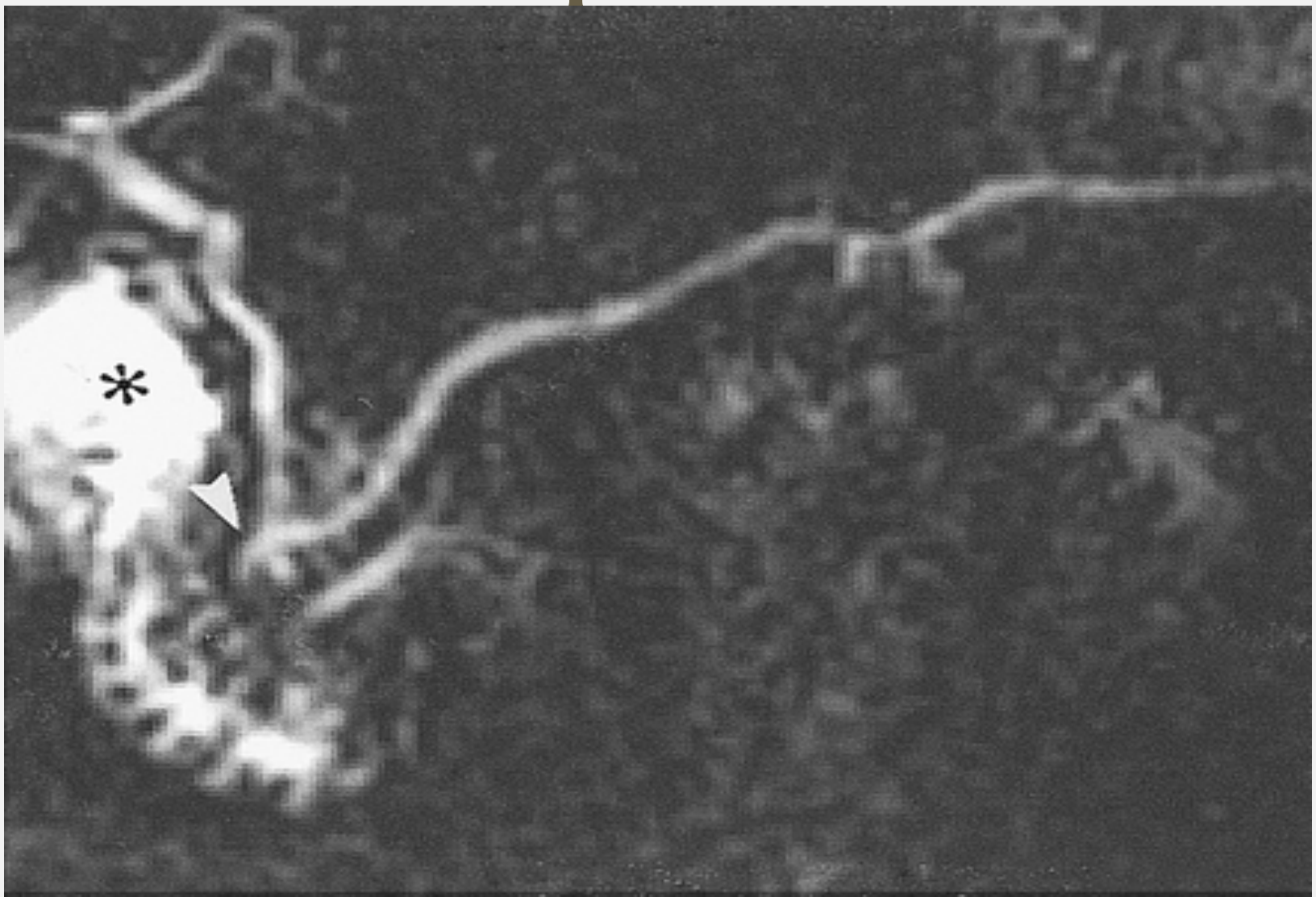
WBC > 16
Glucose > 200
LDH > 350
AST > 250

Pancreatic calcifications.
CT scan showing multiple, calcified, intraductal stones in a patient with hereditary chronic pancreatitis



Endoscopic retrograde cholangiopancreatography in chronic pancreatitis.
The pancreatic duct and its side branches are irregularly dilated

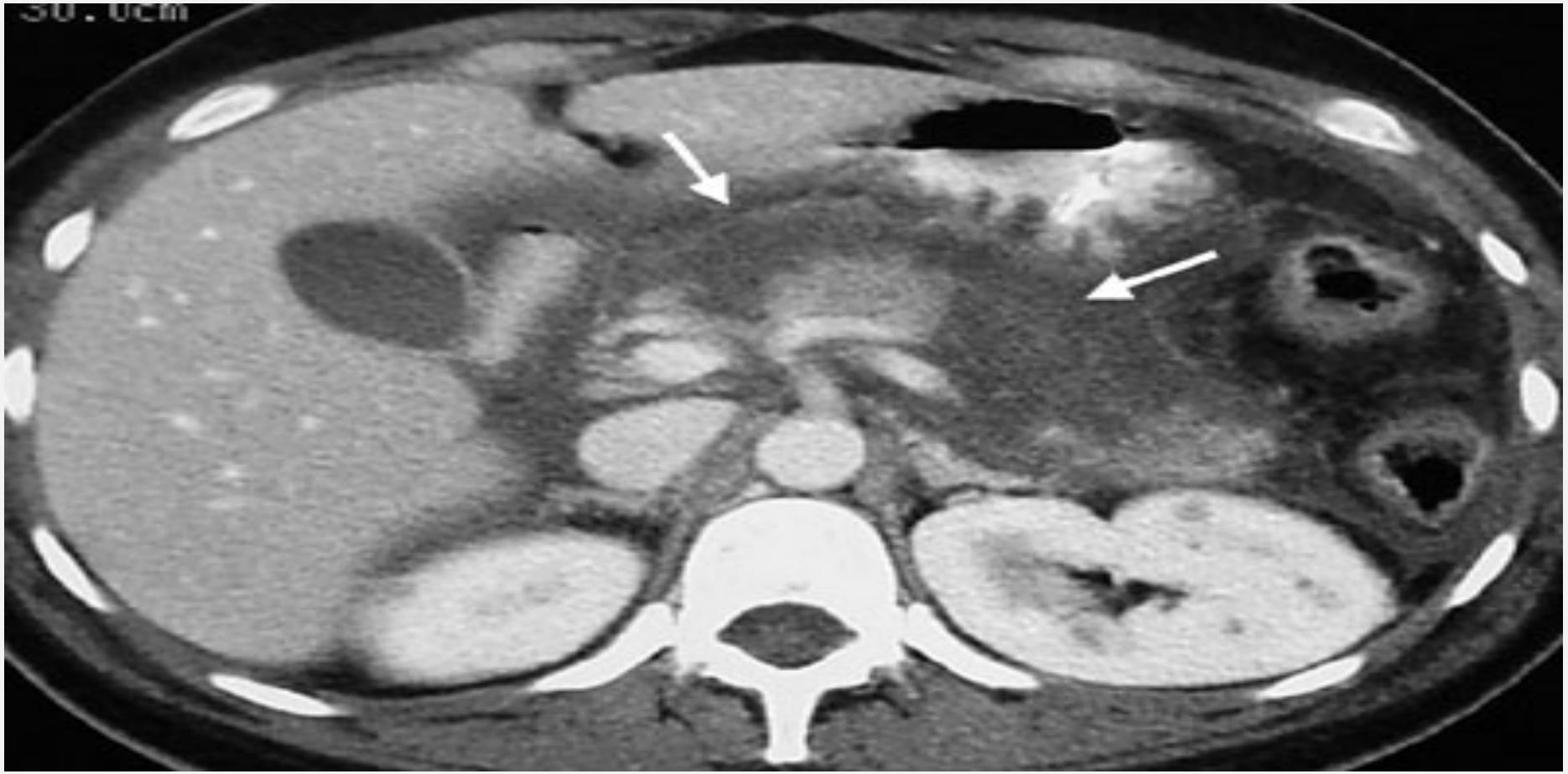
MRCP of pancreas divisum



CT features

- The cardinal CT features of CP are pancreatic atrophy, calcifications, and main pancreatic duct dilation .

Pancreatic Necrosis



Pancreatic pseudocyst

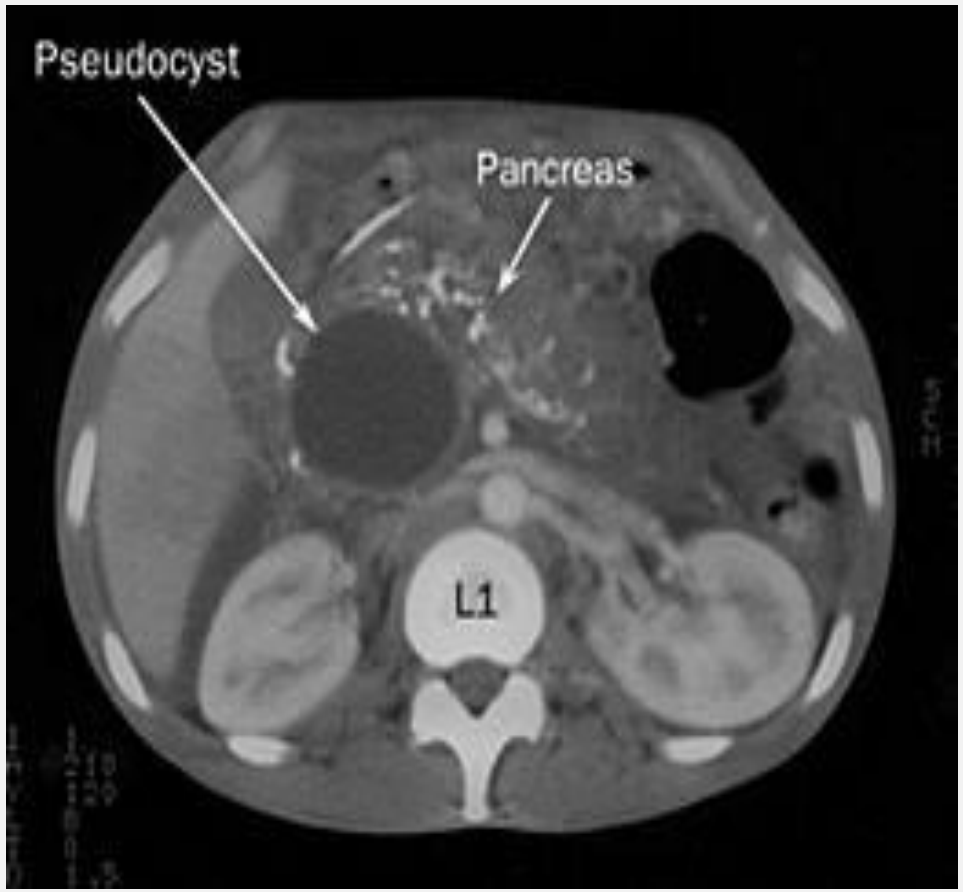
- The MCC is chronic alcoholic pancreatitis.
- findings :

high amylase/ fluid filled mass on ultrasound/

- it is a collection of fluid rich in pancreatic enzymes, blood, and necrotic tissue.
- to exclude malignancy >>you have to check the level of CA 19-9 (tumor marker).
- Complications:

bleeding into the cyst/ infection/ pancreatic ascites.

- If not resolved spontaneously within 6 weeks : drainage.



CASE 2:

The patient experiences intermittent attacks of severe epigastric pain, and occasionally radiating in a band like fashion or localized to the midback. The pain may occur either after meals or independently of meals, and tends to last at least several hours.

Q1: What's your differential diagnosis?

*radiograph comes back as shown.

Q2: What's radiograph would you ask for? finding?

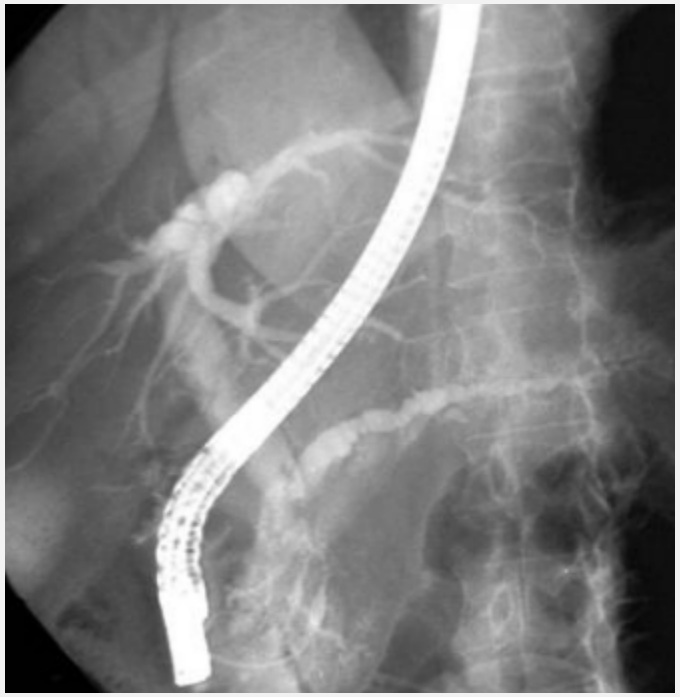
Q3: What's the most common cause of this case?

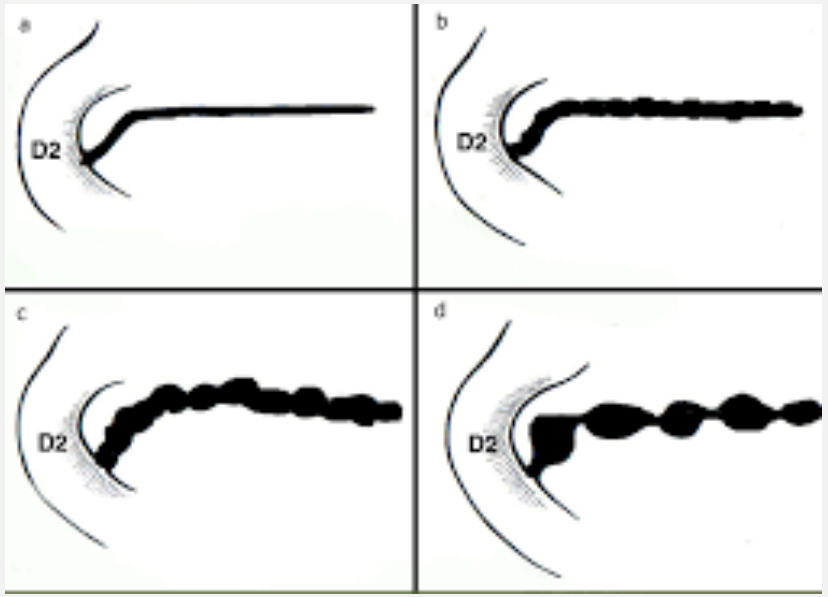
A1: pancreatitis, peptic ulcer, cholecystitis

A2: Abdomen x-ray, pancreatic calcifications

ERCP, alternating stricture and dilatation of pancreatic duct (chain of lakes)

A3: chronic alcoholism

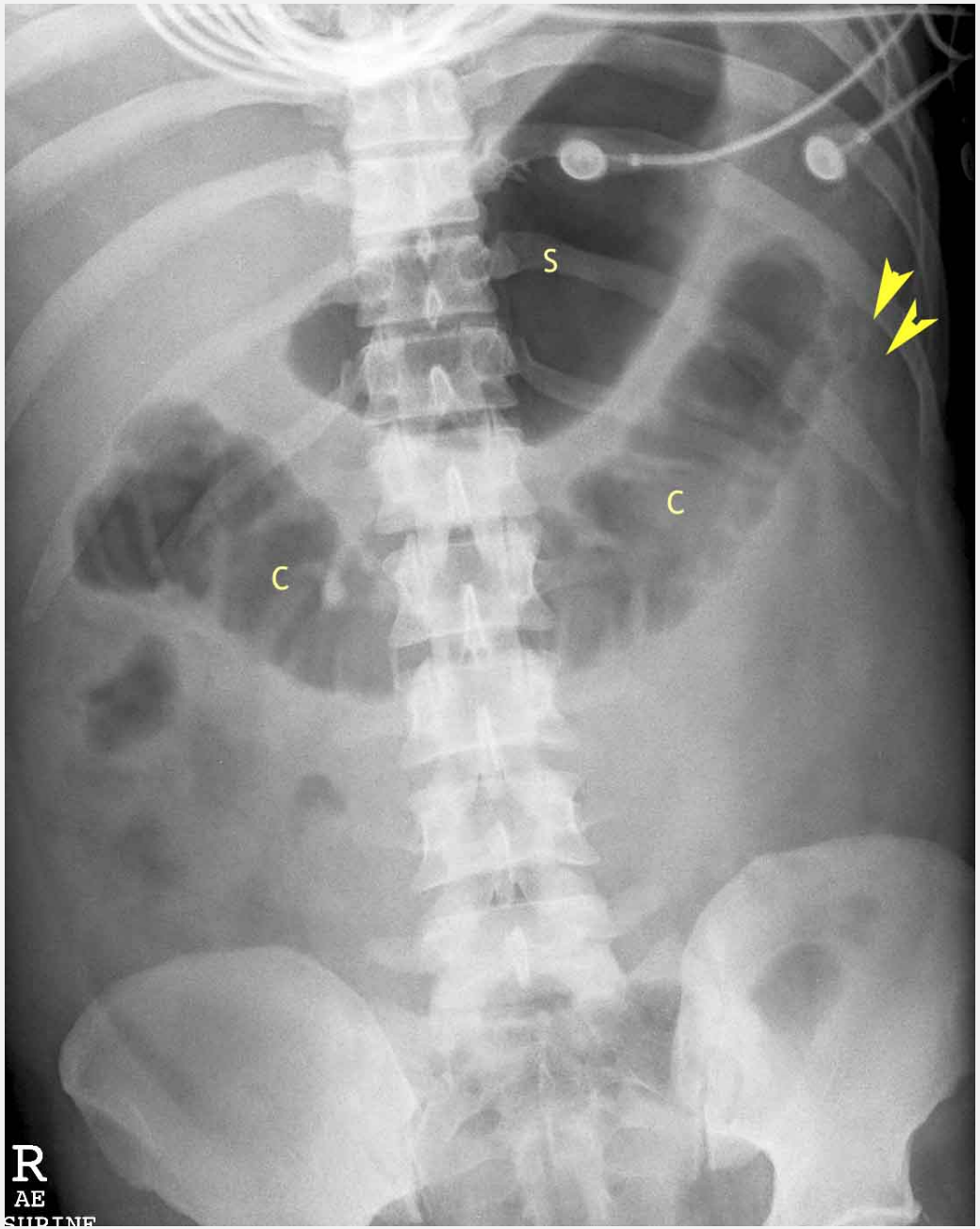




Acute Pancreatitis

Sentinel Loops

colon cutoff



Breast

A 16 YO male pt presented with breast enlargement. مستبعد (باطنى)Without tenderness or redness.

What's your Dx?

GYNECOMASTIA.

Mention 2 causes for this situation.

Hypogonadism, Hyperthyroidism, Drugs, Liver failure & cirrhosis, Puberty (commonest cause among adolescents).

What are the risk factors?

Adolescence, Older age, Use of anabolic steroids or androgens to enhance athletic performance.

Name 1 long-term complication.

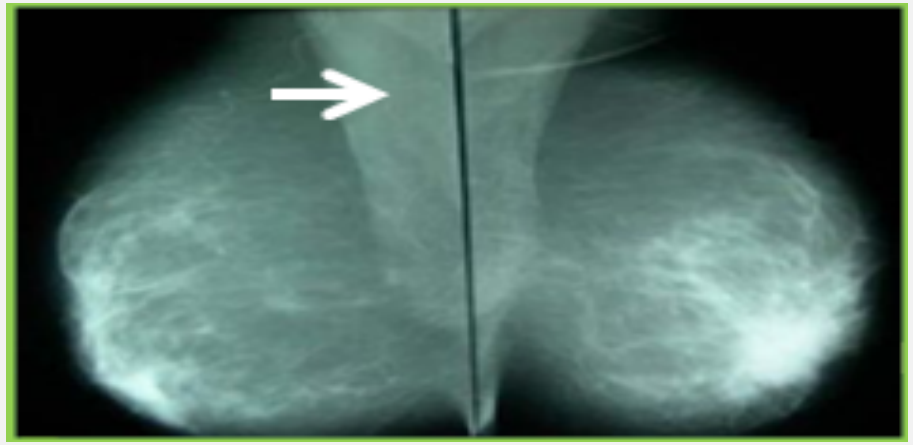
Malignancy.

What's the tt?

Tt of the underlying cause, if persist Mastectomy (not sure).

Fixation to the skin and the underlying muscle.

Retraction, deviation and displacement of the nipple.
Puckering and tethering of the skin.



What's the structure pointed by arrow? مستبعد

Pectoralis major muscle.

What's the next step?

FNA cytology or core biopsy (incisional or excisional biopsy are wrong).

Histologically, it was medullary CA stage II, choose the best tt?

A: Chemotherapy B: Tamoxifen C: Radiotherapy D: …

(A: chemotherapy).

What's the most important prognostic factor in early breast CA?

Ipsilateral axillary LN involvement.

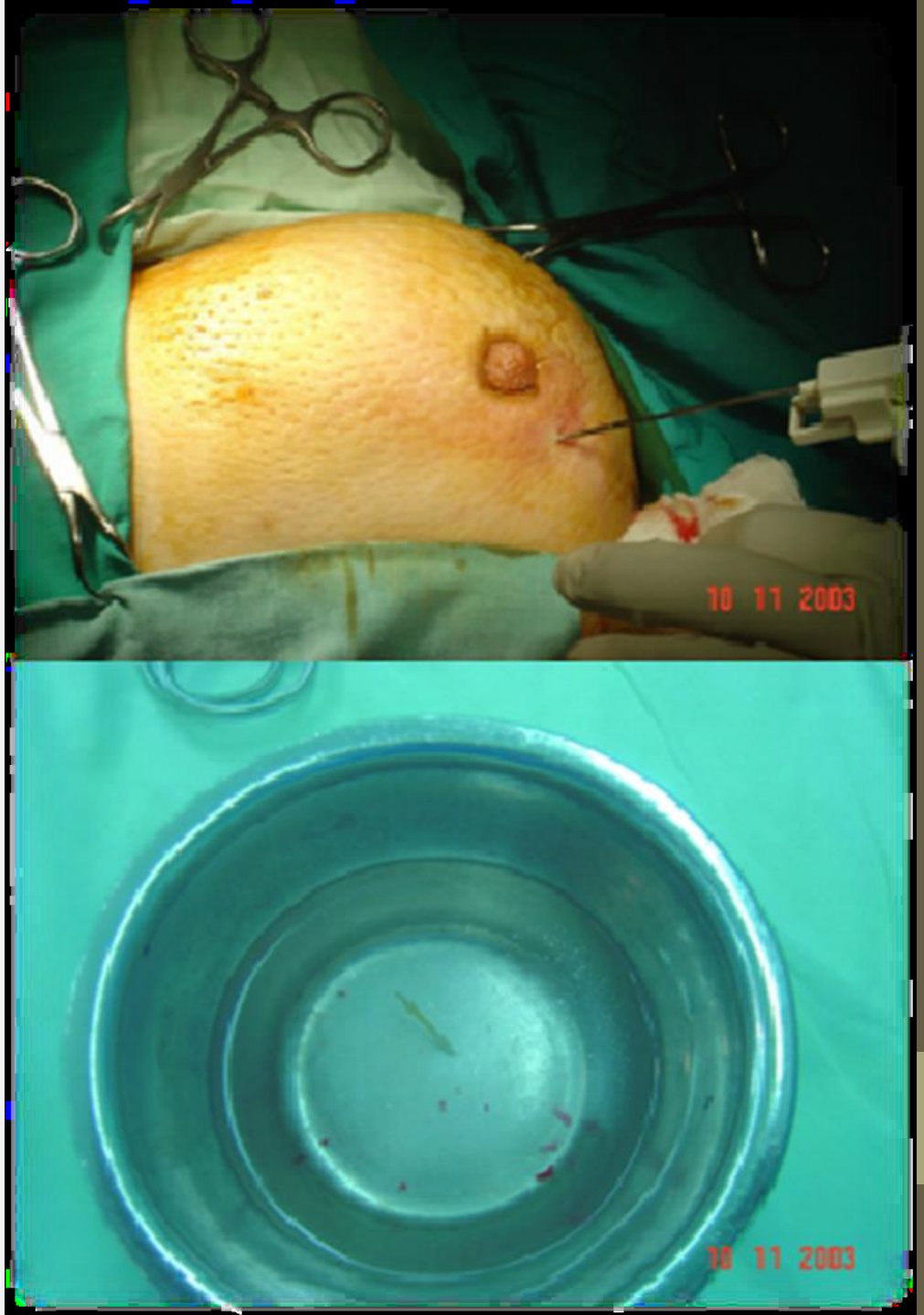
What are the skin changes indicative of breast cancer in this image?

Nipple retraction/ peau dé orange

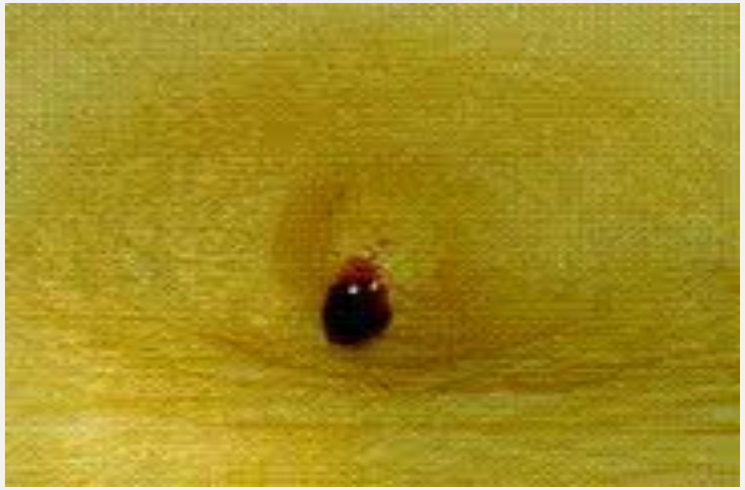
What is this procedure?

Core needle biopsy(true-cut biopsy)

Most common type of cancer is Invasive ductal carcinoma araise from (large duct) Where as lobular (intermediate or Small ducts)



A 45 YO female pt, complains of bloody nipple discharge.



. **What's the most common Dx?**

Duct papilloma; most common

2. Mention 2 other DDx for this condition.

Duct ectasia; very common

Duct carcinoma; very rare

3. What's the tt of choice in this pt?

Microdochectomy

4. Mention 2 features of malignant discharge.

unilateral , uniductal , spontanous , persistent ??

What are 2 signs of malignancy that you can see?

Nipple retraction, Puckering.

Define N2, N3.

N2: Fixed axillary LNs./N3: Palpable supraclavicular LNs.

What's the most common histological type of breast cancer?

Infiltrative ductal CA (not NOS).

What's the most common sub-type?

Non otherwise specified.

Mention 2 histobiochemistry (receptors to test)!

HER2/NEU, Estrogen & Progesterone receptors.

Mention 2 investigations.

US, Mammogram.

Is tt of choice chemo or anti-estrogen?

Chemo.

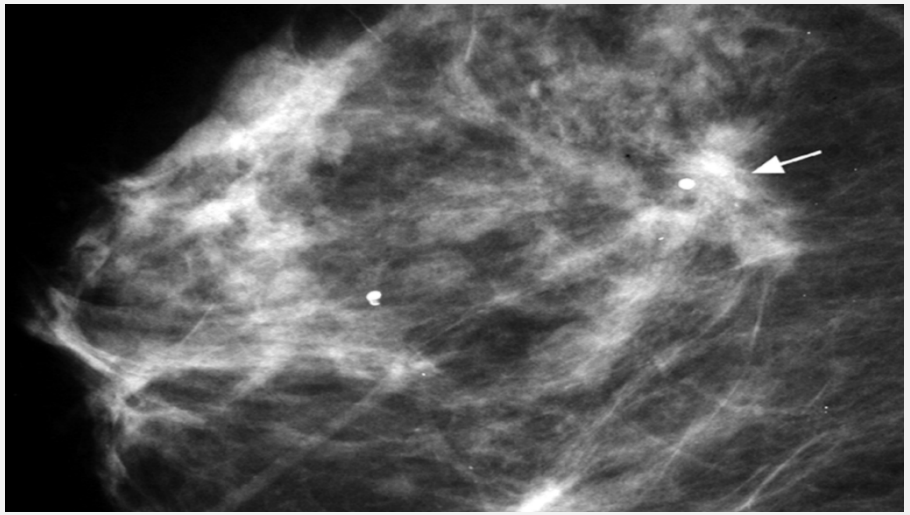
What is the definition of Sentinel L.N?

The 1st lymph node or group of nodes draining a CA.

Name 2 risk factors of breast CA.

- Nulliparity.
- Early age of menarche & late age of menopause.

A 47YO female complaining of a painful lump in her Lt. breast. A mammogram of the breast is shown.



Mention 2 histological features suggest malignancy.

Poor differentiation of tubules, High mitotic count, Nuclear pleomorphsim, High amount of necrosis, Calcifications.

What are the modalities of management for this pt?

Hormonal tt, radiotherapy, chemotherapy, radical mastectomy.

A 32 YO female with 3 days duration of this condition.

What's your Dx?

Acute Mastitis.

What's the most common predisposing factor?

Lactation.

Give another DDx.

Breast Abscess, inflammatory breast cancer

What's the most common organism responsible of this?

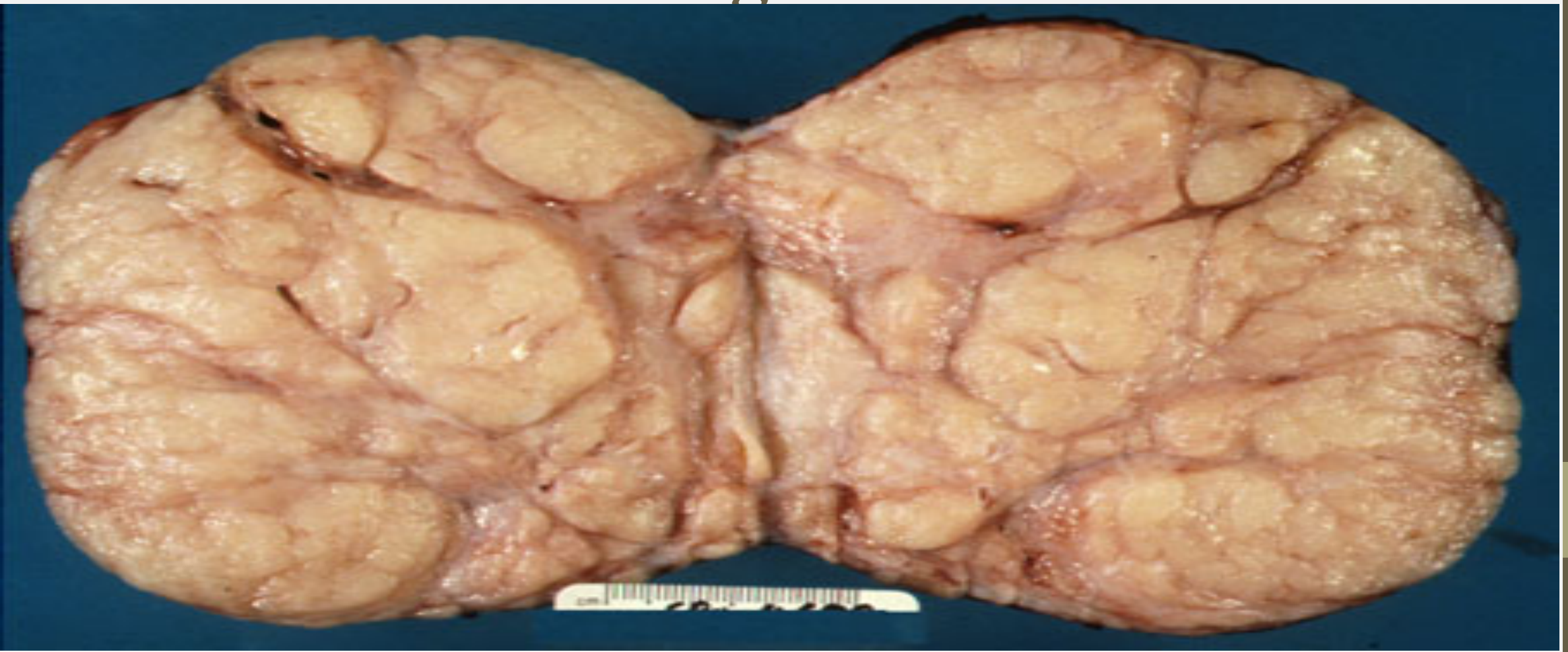
Staphylococcus aurous.

What' s the tt?

TYPES OF MASTITIS:

- Mastitis neonatorum
- Mastitis of puberty
- Lactating mastitis
- Specific mastitis;
    1- T.B mastitis
    2- Syphilitic mastitis
    3- Actinmycosis

Giant fibroadenoma> 5 CM
CAN BECOME MALIGNANT
must surgical excised

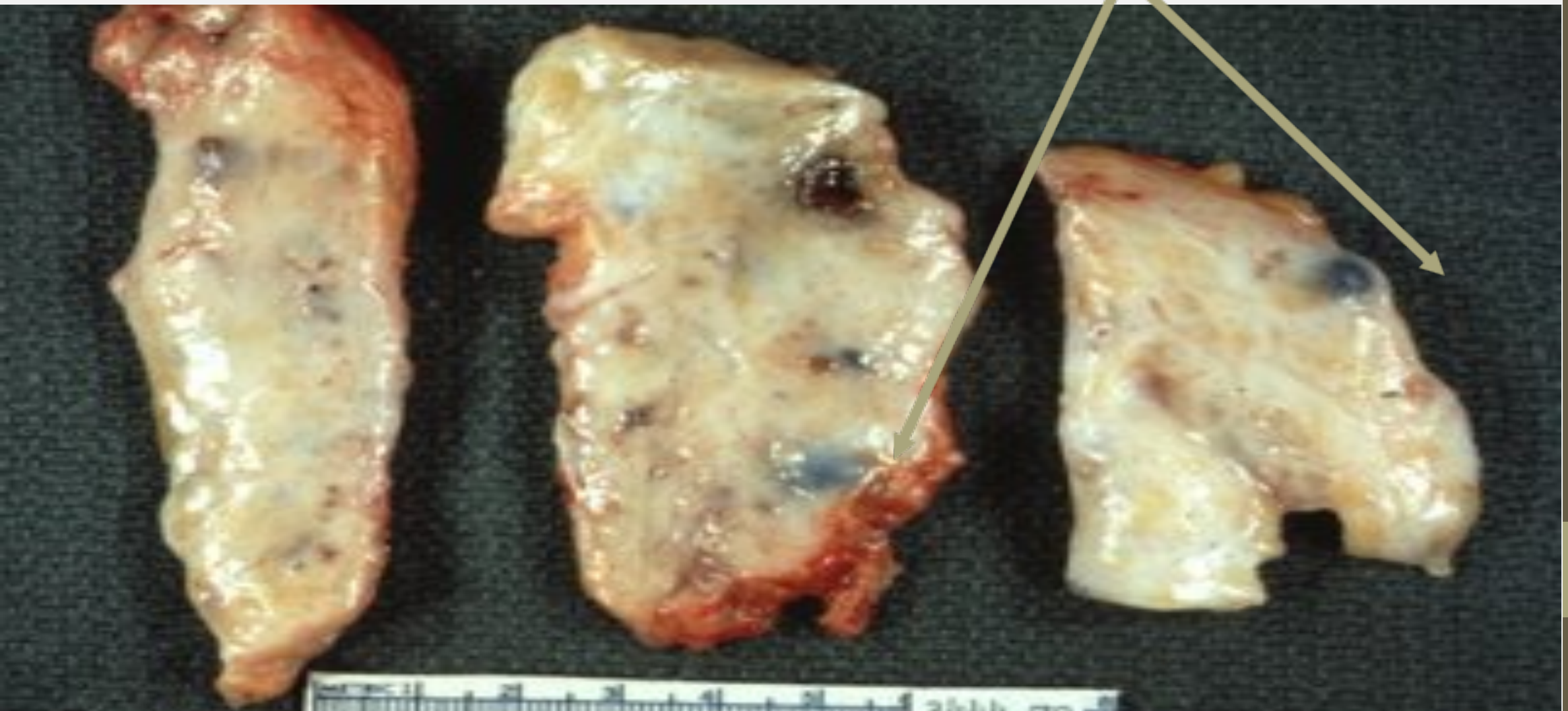


DUCTECTASIA with milk fistula

Treatment; like fistula in ano

Features of benigin lesion :

BLUE DOMED CYST mallignant : gray, concave



This a picture of female brast with history of right breast lump:

1-describe 2 findings?

peau d'orange

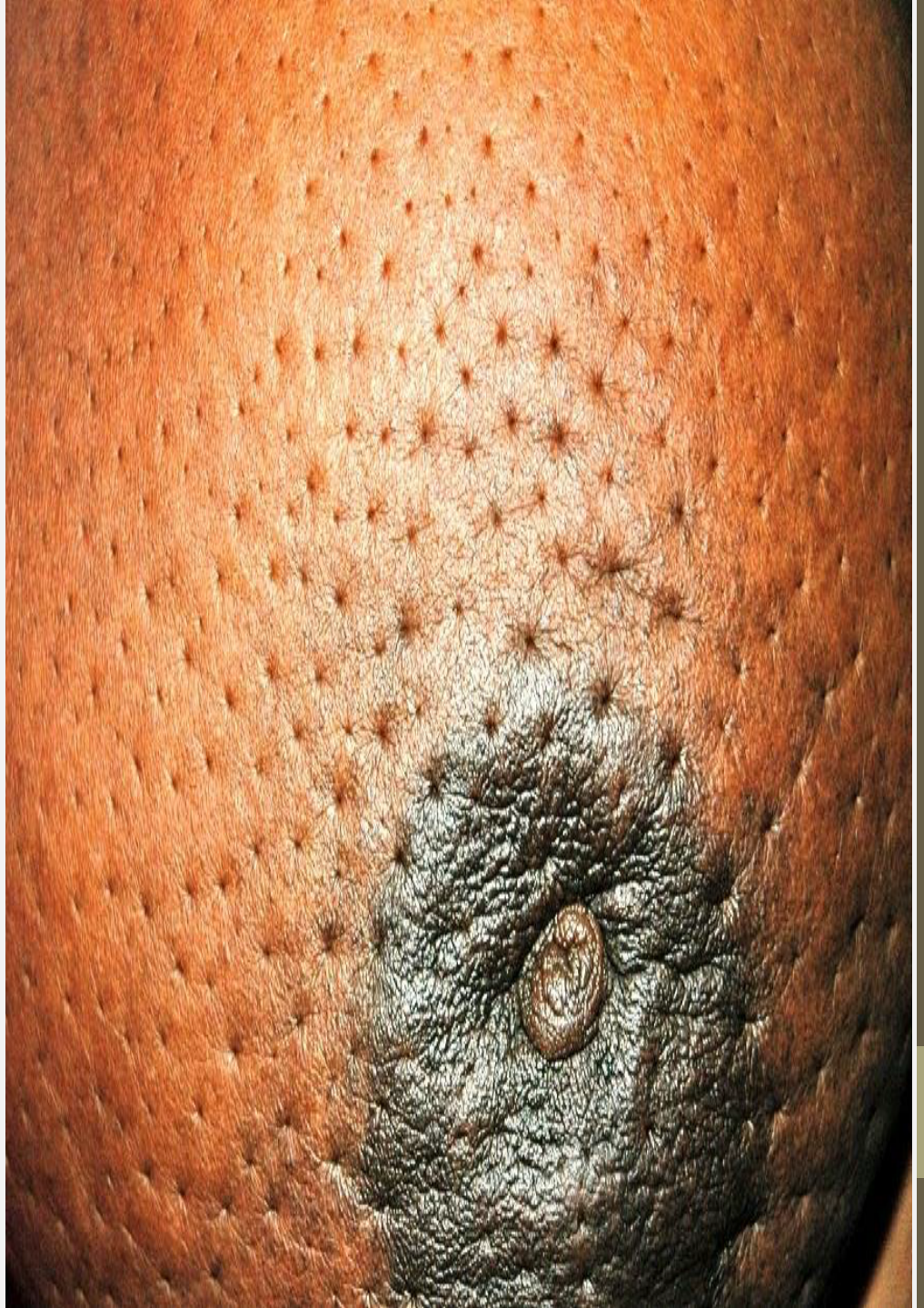
nipple retraction

2 - what's the triple assessment?

clinical (history and exam)

B) radiological (US and mammogram)

C) pathological (FNA)



What Are the Risk Factors for Breast Cancer?

1- Age; Increasing age
25:1/20,000. 45:1/100. 50:1/50. 55:1/33. 60:1/24. 80:1/10.
2- race;white++.Rare in japan,
3- Individual or family history of breast cancer
4- A history of ovarian cancer
5- A genetic predisposition
(mutations to the BRCA1 or BRCA2 genes cause 2% to 3% of all breast cancers)
6- Estrogen exposure; menarche,menopause
7- Atypical hyperplasia of the breast
8- Lobular carcinoma in situ (LCIS)
9- Lifestyle factors (obesity, lack of exercise, alcohol use)
10- Radiation

This mobile non-tender mass remove from the breast

1-Type of this mass?

Fibroadenoma

2-in which age it appear ?

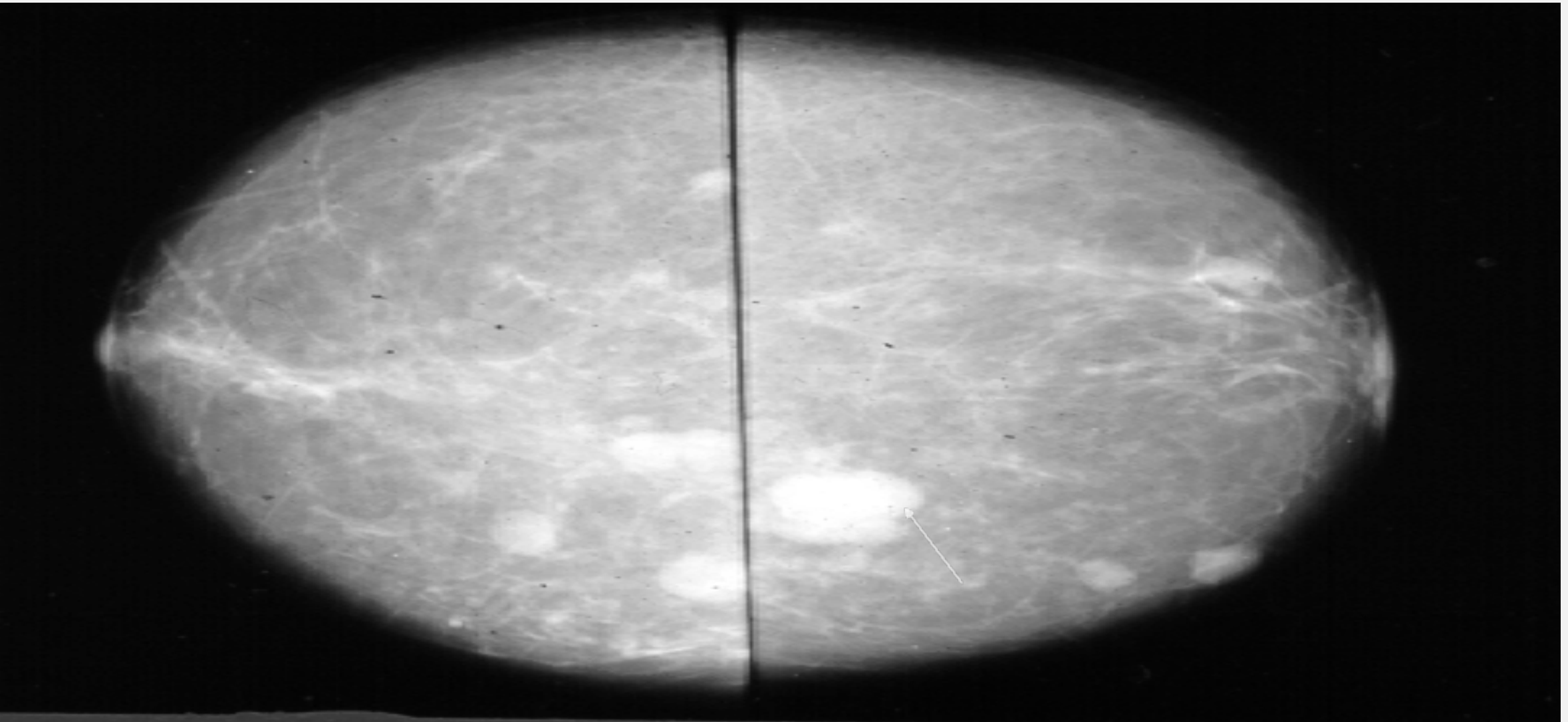
a- 5 b- 15 c- 50 d- 80

3-which investigation not required ?

a- US b- mammogram

c- CT d- FNA

FIBROADENOMA ON MAMMOGRAM



Mammogram

Malignant

1-calcification;

Cluster[5-6] of branched fine microcalcification

2-architectural changes;

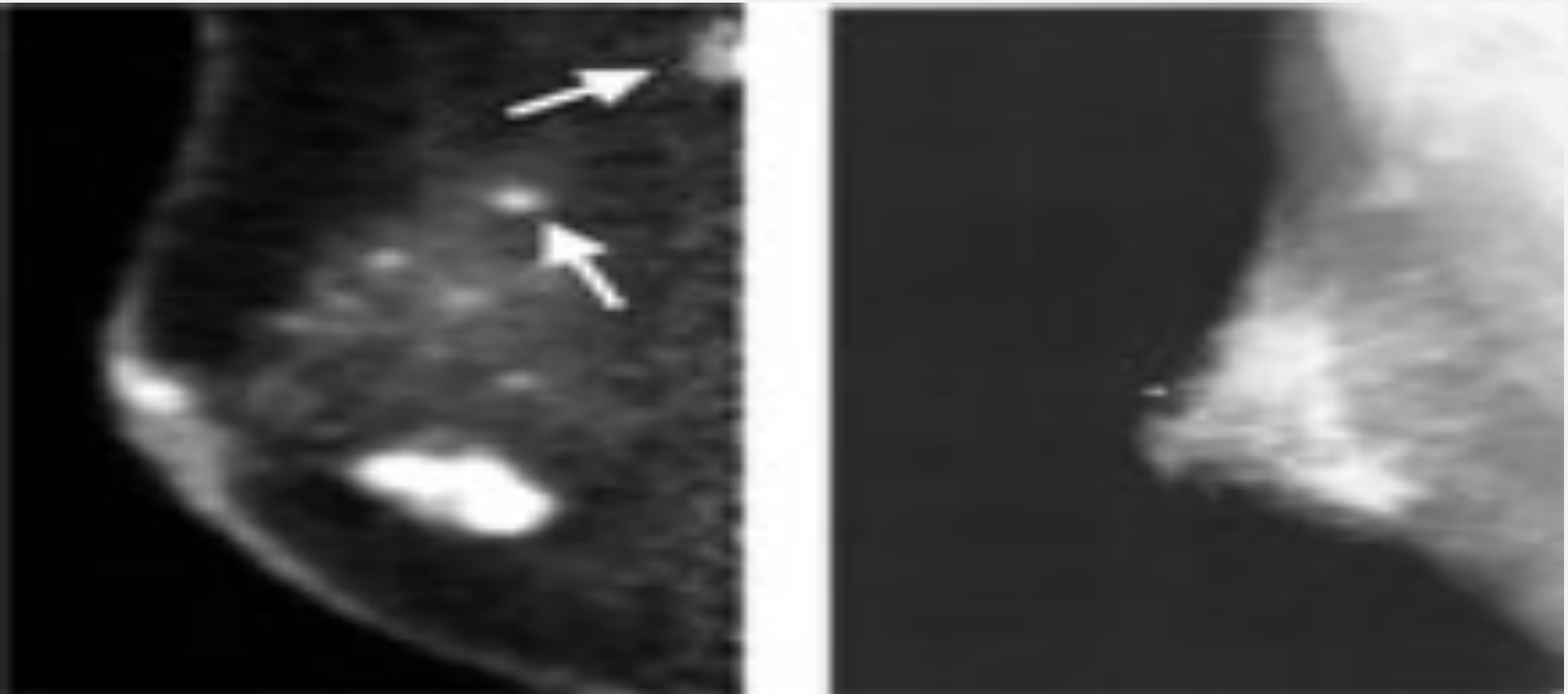
Spiky dense irregular mass

Benign

Well defined rounded mass with

Halo sign; cyst,fibroadenoma

Positron emission mammogram shows [multifocal lesion]

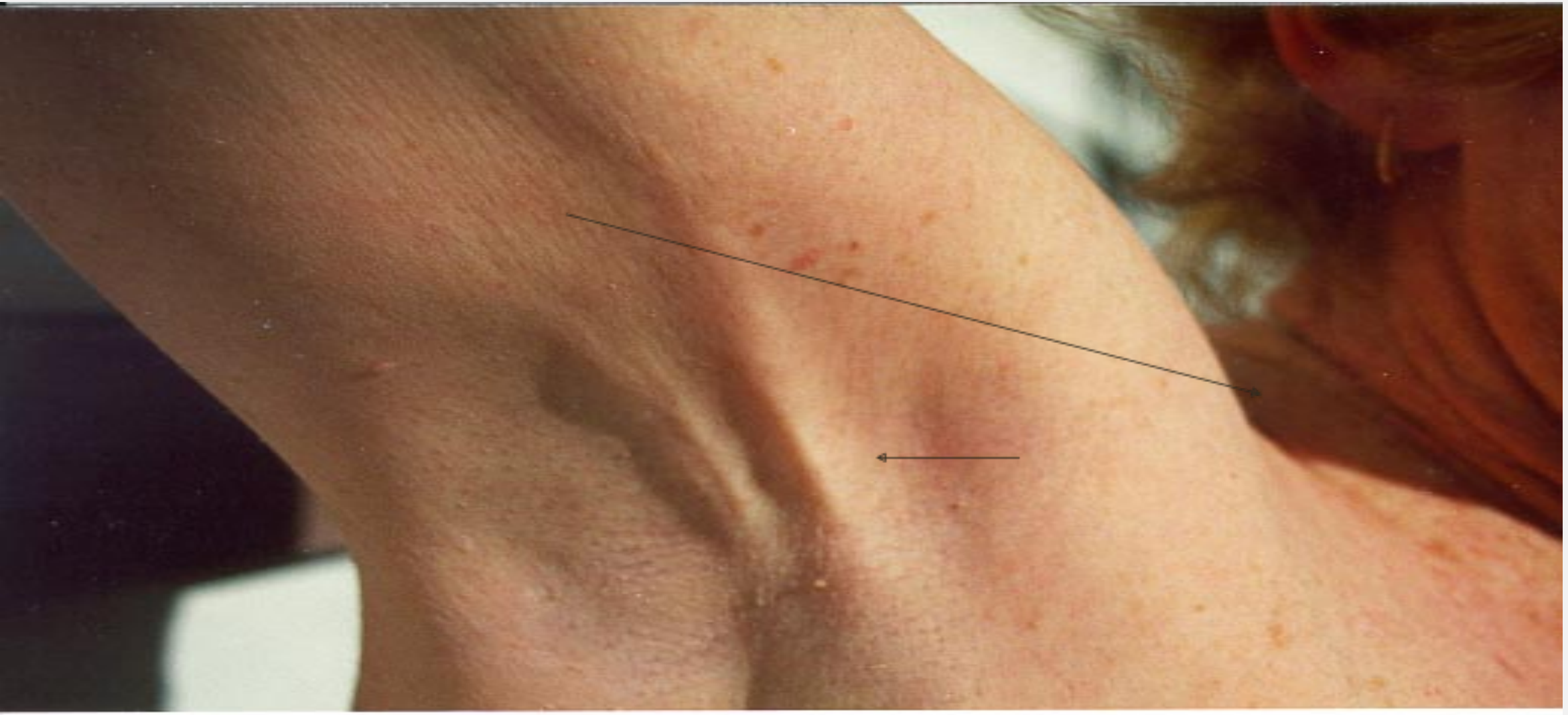


MULTIPLE LOCAL RECURRENCE

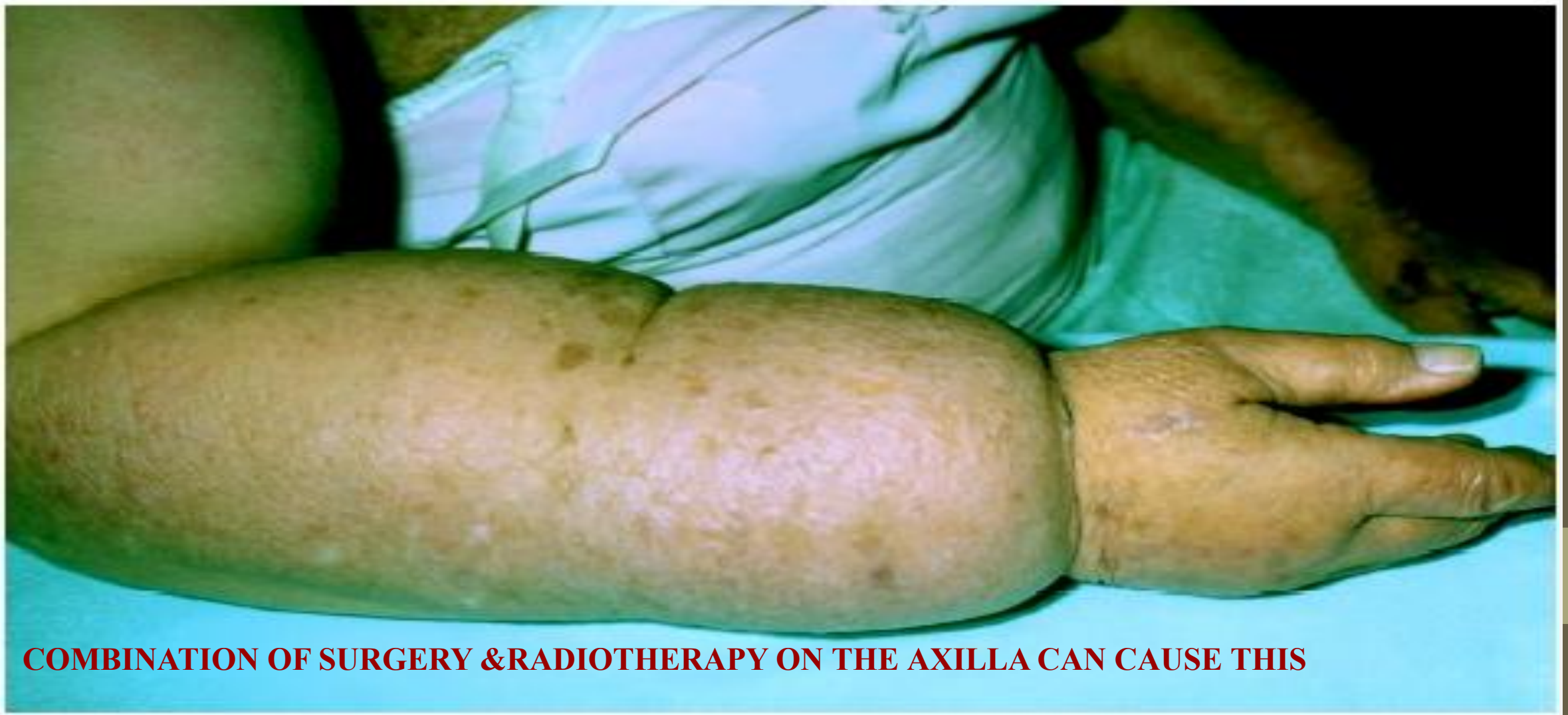
CANCER EN-CUIRASSE

درع المحارب

Axillary venous thrombosis in ca. breast

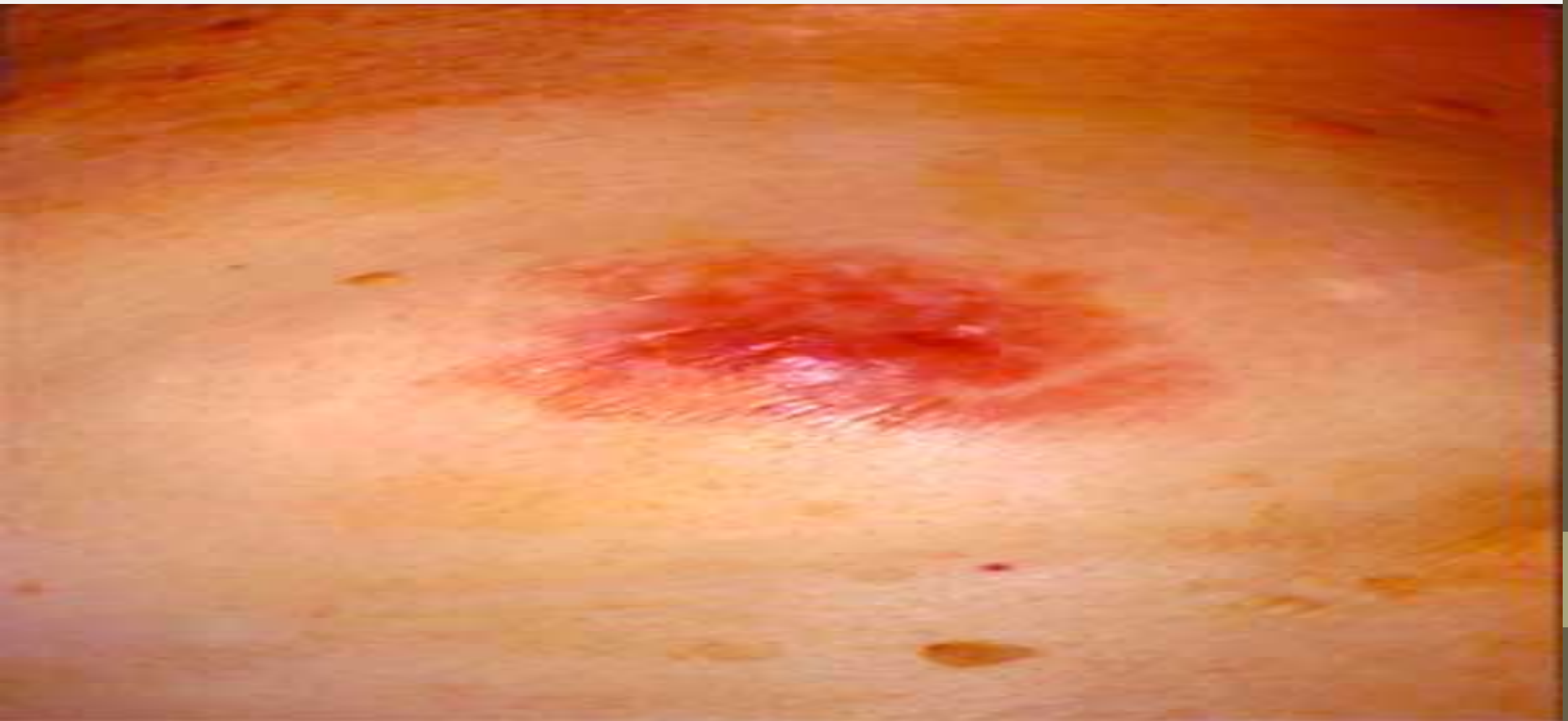


LYMPHOEDEMA CAN BE COMPLICATED BY LYMPHANGIOSARCOMA



COMBINATION OF SURGERY &RADIOTHERAPY ON THE AXILLA CAN CAUSE THIS

PAGET`S DISEASE OF THE BREAST



PAGET`S DISEASE OF THE BREAST

MALE BREAST CANCER

MALE BREAST CANCER

peade orange

Inverted nipple

Duct milky discharge

Single duct milky discharge

Duct bloody discharge

Single duct bloody discharge

What is your diagnosis?

This is likely to be a Juvenile Fibro adenoma

Why?

Juvenile fibroadenomas present as rapidly growing, large sized lumps occurring around menarche.

What is the differential diagnosis?

Giant fibroadenoma or benign phylloides tumour. If there was no underlying lump, consider asymmetric adolescent hypertrophy of breasts

How do you confirm the diagnosis?

The diagnosis of juvenile fibroadenoma is made on clinical grounds. There is no reliable way to differentiate the above alternatives. Histology can confound even experienced Pathologists. Imaging and FNAC are not definitive.

How do you treat it?

By local excision (**remember the previous Dr Kamal Bani Hani's mini OSCE lecture- local incision vs. mastectomy and conservative/cosmetic vs. malignancy**). There may be a discrepancy in breast size even after excision.

Anorectal condition

1 - What do you see in the image?

Perianal lump with surrounding erythema

2- What is your diagnosis?

Perianal abscess

3 - What is the type of pain?

Throbbing pain

4 - What is the treatment?

Incision and drainage (definitive) and antibiotics

5 - What is the most likely complication after treatment?

Fistula formation

A 25 year old male presented with anal pain and fresh blood per rectum, the peri-anal area is shown.

- **What is the diagnosis:**

bleeding hemorrhoids.

- **Give two other complications of the same pathology:**

thrombosis/ infection.

hemorrhoids

First degree haemorrhoids are confined to rectum and do not prolapse out of the anal canal.
Second degree haemorrhoids prolapse through the anus on defaecation but reduce spontaneously.
Third degree haemorrhoids prolapse and require manual digital reduction whilst **fourth degree** ones are permanently prolapsed.

Treatment options range from conservative dietary advice to surgery depending on the degree.

What's your Dx?

Anal fissure.

What's the most common complication of this Dx?

Pain persistence & recurrence.

What's the type of pain?

Burning in nature.

What's the Conservative & Definitive tt?

Conservative: Sitz baths, Laxatives.

Definitive: lateral partial internal sphincterotomy.

5. **Give another surgical tt.**

Dilatation under GA.

A 28 YO man with Hx of chronic constipation, presents to the ER complaining of anal pain for 2 wks. The pain relieved by laxative but it returns worse than before.

What's this condition?

Perianal Abscess.

What do you see?

Perianal lump with surrounding erythema.

What's the pathophysiology of it?

Crypto-glandulitis.

Mention 1 other DDx?

Perianal Hematoma

What's the character of pain caused by it?

Throbbing.

What's the tt?

Incision & drainage, IV antibiotics, tt of the underlying cause.

What's the most common complication after tt?

Perianal 50% Fistula.

What's the rare complication that we are afraid of & may kill the pt if he is Immunocompromised?

ما حكوه Fournier gangrene.

Identify this condition.

Perianal Fistula.

What's the most common symptom the pt comes with?

Soiling (discharge on the underwear).

Give 2 complications of this condition.

Abscess, CA.

What's the complication after tt?

Incontinence.

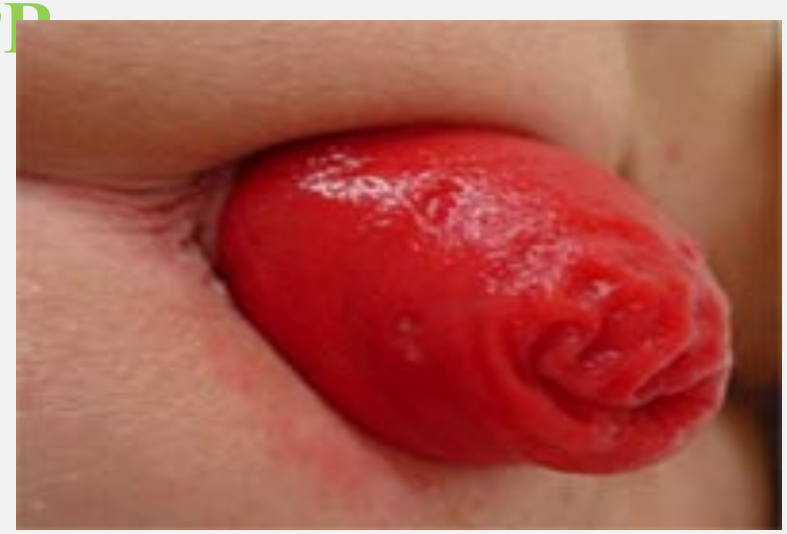
Perianal Fistula.

In most cases there is no underlying condition but it can occur in Crohn's disease, TB, anal carcinoma, HIV, etc

Standard surgical treatment involves laying open of the fistula, taking care not to injure the anal sphincter muscles.

Chronic fistula is managed by insertion of a Seton suture through the tract.

A 70 YO pt presented with this mass PR



What's this condition?

Rectal Prolapse.

Mention 2 common complications.

Ulceration, Bleeding, Infection, fecal incontinence.

What's the effect of this condition on defecation?

Feeling of incomplete emptying

What other 2 possible complaints beside a mass that comes out?

Tensmus, bleeding PR.

This is a picture of a wound that was left to heal by secondary intension :

1- name this tissue?

Granulation tissue

2-give two components of this ?

Fibroblasts, collagen,network of blood vessels,…

Similar

Prolapsed, strangulated, thrombosed haemorrhoids. Note the bloody serous discharge.

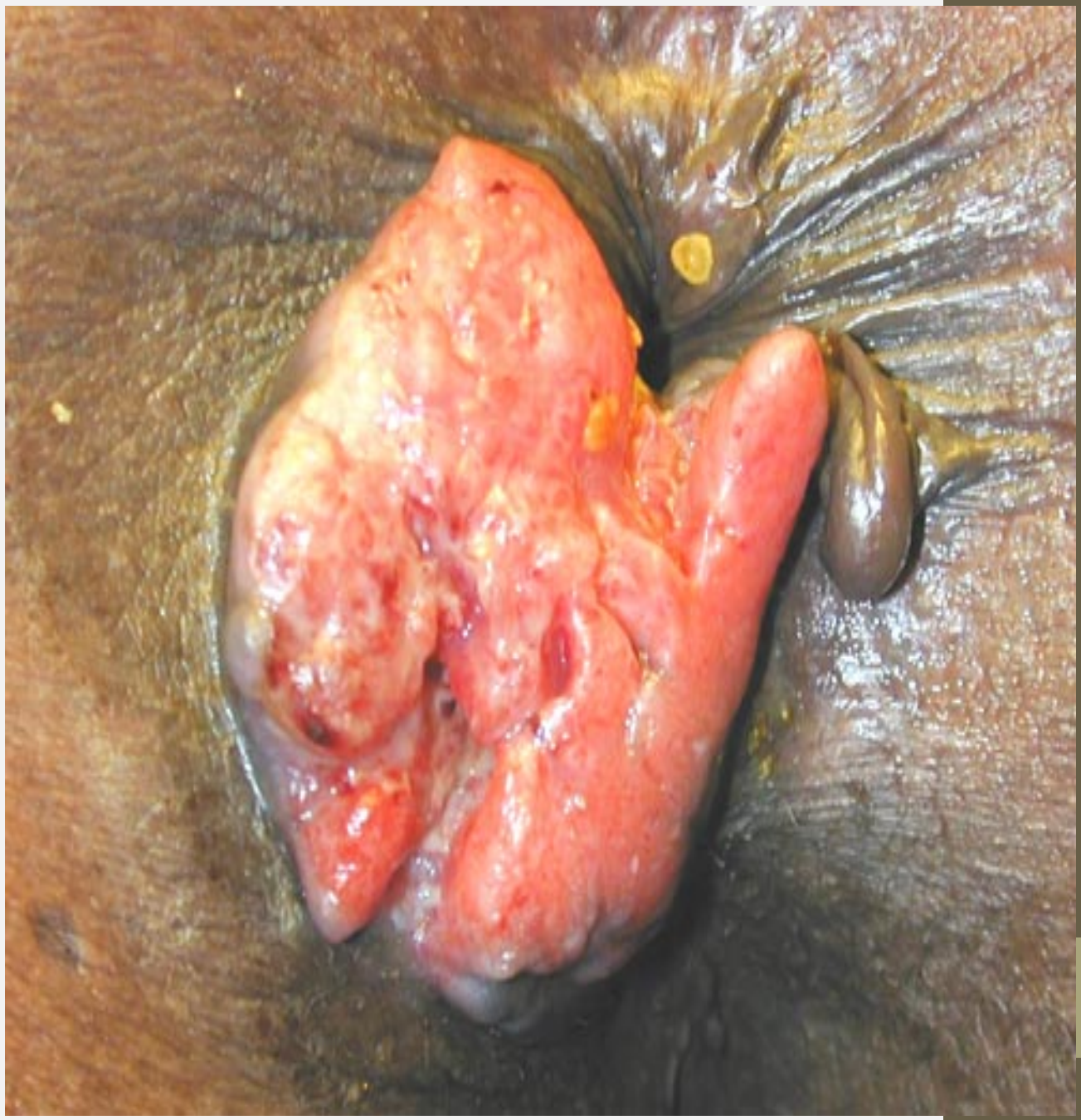
Fistula-in-ano

What is this?
What are its causes?
How is it investigated and managed?

This is an anterior anal fistula. In most cases there is no underlying condition but it can occur in Crohn's disease, TB, anal carcinoma, HIV, etc. Investigations would include proctoscopy, flexible sigmoidoscopy, anal ultrasound, and MRI scan can be useful in chronic cases. Standard surgical treatment involves laying open of the fistula, taking care not to injure the anal sphincter muscles. Chronic fistula is managed by insertion of a Seton suture through the tract. This can either be removed after 2 months or, alternatively, tightened progressively until it erodes out through the skin.

What is the most likely diagnosis in this elderly patient?
What epidemiological factors are known?

Anal squamous carcinoma - poorly differentiated on histological examination. This is linked to human papilloma virus type 16. It can develop in anal condylomas and can be related to HIV



What is this peri-anal condition? How is it treated?

This is a full thickness rectal prolapse. There are a number of surgical approaches including rectopexy, resection rectopexy, Delorne procedure etc. There are also reports of laparoscopic approaches to rectopexy.

What is this condition and how is it classified? How does staging affect management?

This photograph shows prolapsed and thrombosed haemorrhoids with some superficial skin ulceration. Primary haemorrhoids are characteristically located at the 3, 7 and 11 o'clock positions with the patient lying in the lithotomy position and secondary haemorrhoids lie between these three classical positions. They are also classified by degree of prolapse (or stage). First degree haemorrhoids are confined to rectum and do not prolapse out of the anal canal. Second degree haemorrhoids prolapse through the anus on defaecation but reduce spontaneously. Third degree haemorrhoids prolapse and require manual digital reduction whilst fourth degree ones are permanently prolapsed. Treatment options range from conservative dietary advice to surgery depending on the degree.

CASE :

Q1/ What is the diagnosis?

Q2 / What is the most common site ?

Q3 / What is the manegment?

Q4 / What are the Triad of chronic fissure?

Q5 / What is the anal fissure triad for a chronic fissure

- Q1:

Anal fissure

- Q2:
- Posterior medline

- Q3:
- 1-90% of patient resolve with medical treatment include : increased fiber , sitz baths , and topical nifedipine .
- 2- BOTOX therapy
- 3- lateral internal sphincterectomy .

- Q4 :

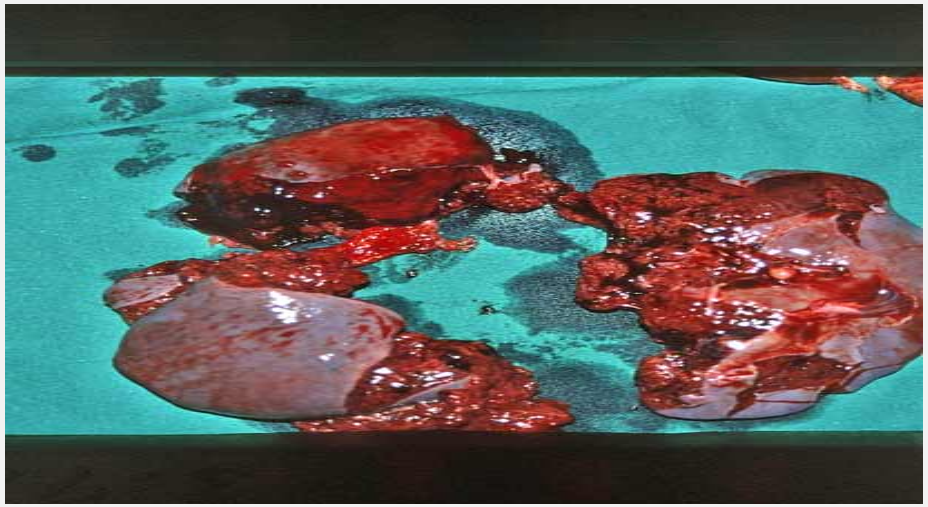
fissure, sentinel pile and hypertrophoid anal papilla

- Q5 :

chrons disease ,tuberculosis, chlamydia CMV,HSV and syphilis

Liver and spleen

مستبعد بس احتياط



What's the gold standard inv. of splenic trauma in <u>stable</u> pt?

Abdominal CT.

What's the gold standard inv. of splenic trauma in <u>un-stable</u> pt?

DPL or FAST exam.

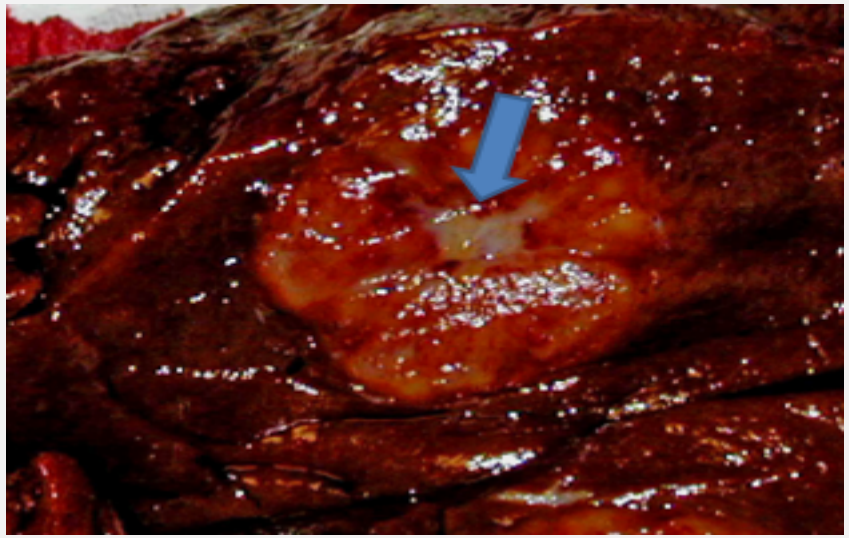
What's the most serious complication of splenectomy?

OPSS.

What cause it? & How to prevent it?

Increased susceptibility to encapsulated organisms, prevented by pre-op. vaccination for pneumococcus, meningococcus & HI.

A pt with benign liver tumor.



Identify structure indicated by the arrow.

Central scarring or necrosis (?).

What's your Dx?

FNH.

What's the most common benign liver tumor?

liver hemangioma.

What's the most common primary malignant liver tumor?

HCC.

Mention 1 curative tt for malignant liver tumor.

Surgical resection if possible (lobectomy0, liver transplant.

Use of estrogen OCP may have a role.

- Not premalignant.
- Most are solitary, 20% multiple.
- **Most common indication** for surgery is inability to exclude malignancy.
- **LFT :**

  normal.
- **Angiography :**

hypervascular mass with enlarged peripheral vessels and a single central feeding artery.

- **ttt :**

  nucleation/ diagnostic uncertainty will require an open excisional biopsy.

Classic CT finding:

liver mass with central scar.

Focal Nodular Hyperplasia

Liver abscess

- Pyogenic (bacterial “gram negative”) / parasitic (amebic) / fungal.
- **Most common site** is right lobe.
- **Treatment :**

pyogenic (IV antibiotics + percutaneous drainage) / amebic (metronidazole+ drainage).

- **Indications of surgical drainage in pyogenic :**

multiple lobulated abscesses/ multiple percutaneous attempts failed.

- **Indications of surgical drainage in amebic:**

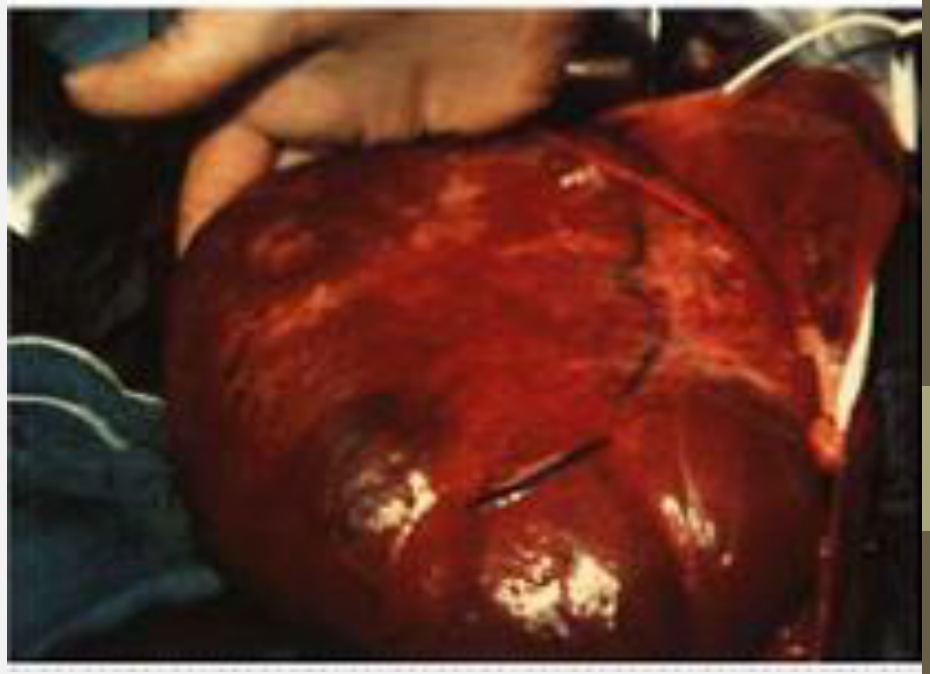
refractory to metronidazole/ bacterial coinfection/

Hepatic Hemangioma

- Most common benign solid tumor.
- Variants:

- Capillary : M.C / <2cm / no need for surgery.
- Cavernous : giant.

- Vague upper abdominal tenderness with no mass.
- Not premalignant.



Hepatic adenoma

Risk factors:

Female/ birth control pills/ anabolic steroids/ glycogen storage disease.

it is estrogen sensitive (pregnancy may cause it to increase in size, OCP).

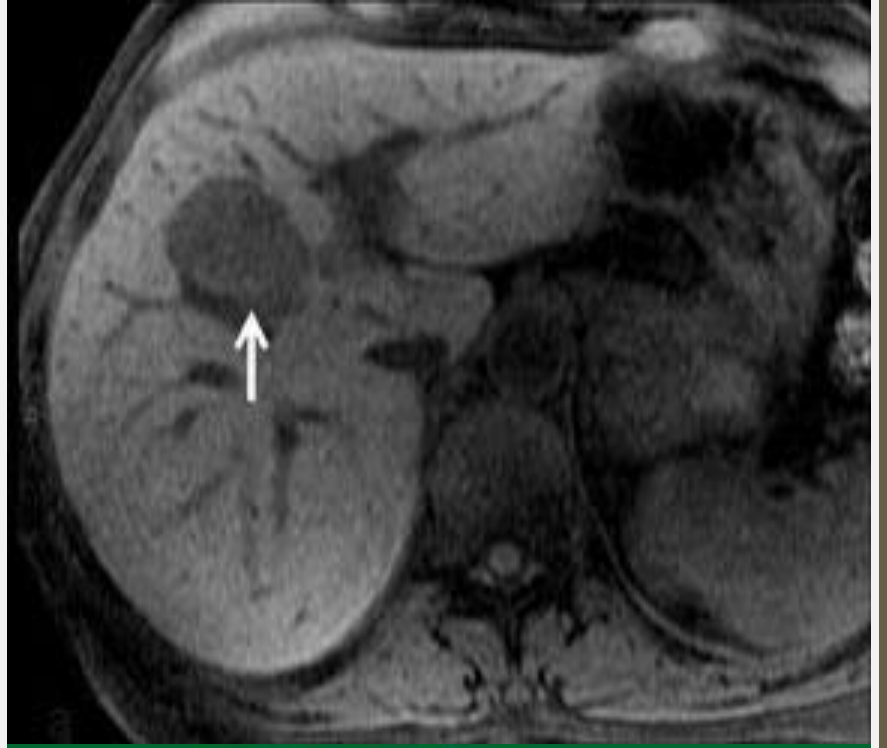
Complications:

rupture with bleeding/ necrosis/ risk of cancer.

Treatment:

if small, stop pills> it may regress> if not, surgical resection.

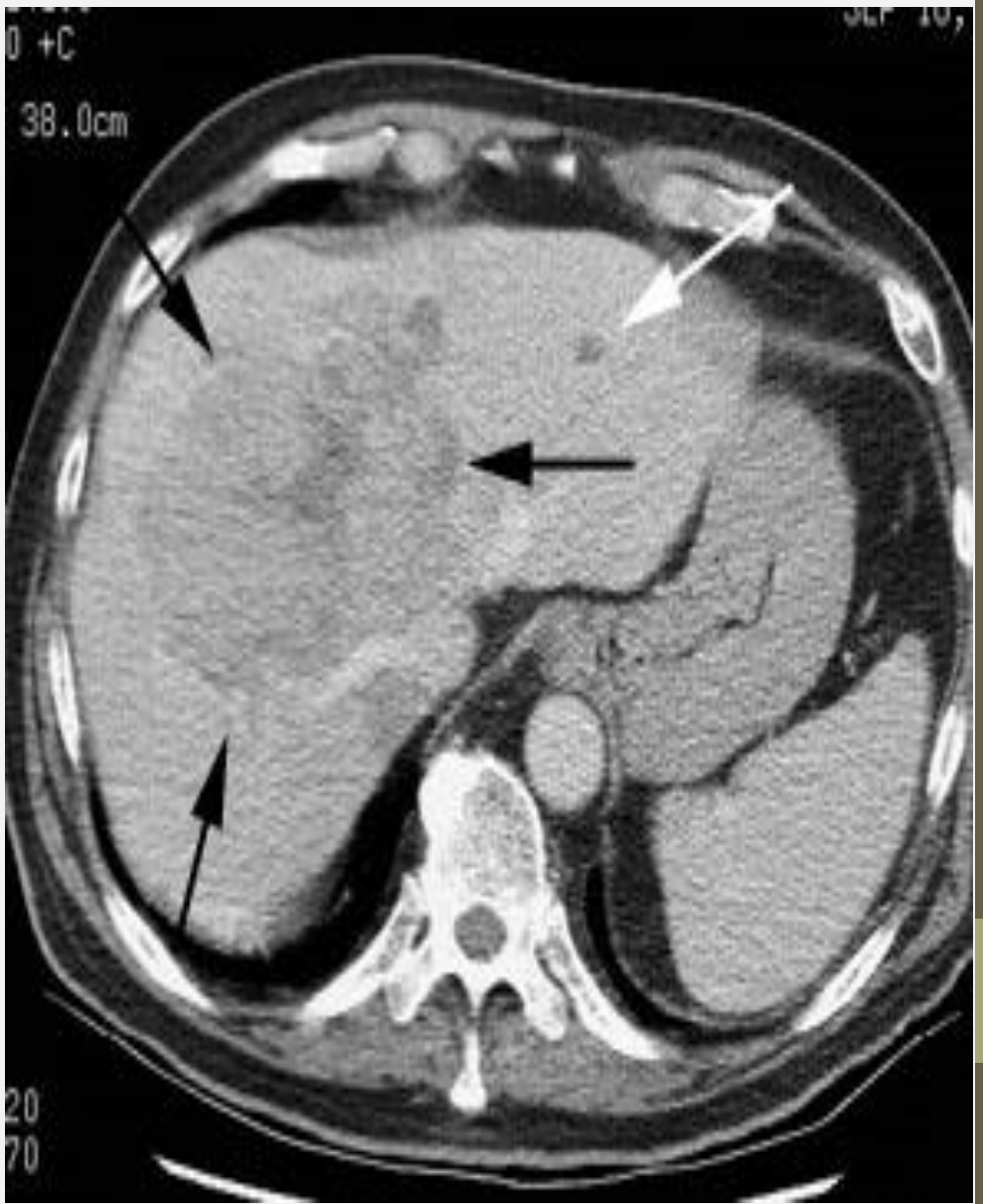
If large or complicated : surgical resection



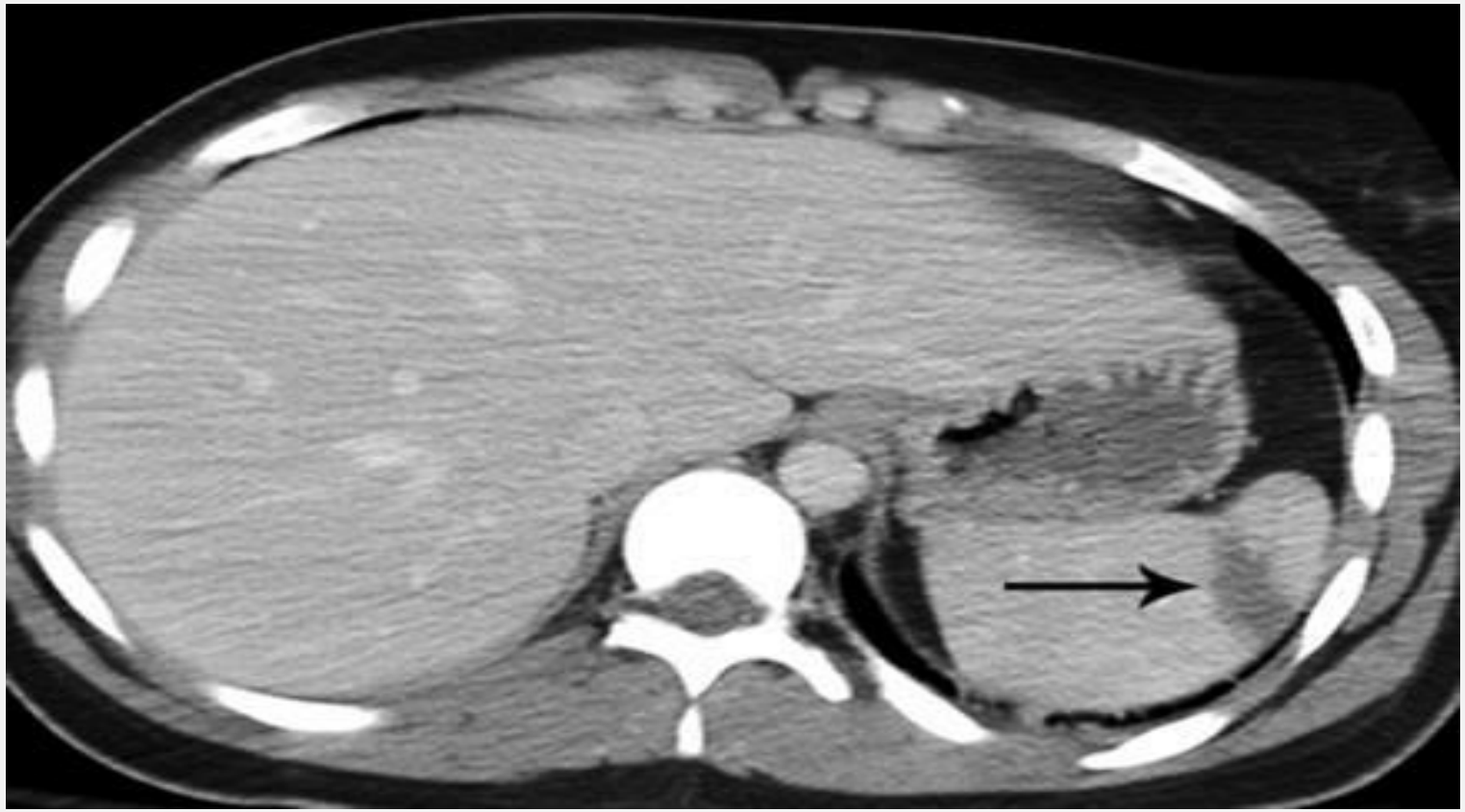
Hepatocellular carcinoma

(hepatoma)

- Most common 1ry malignant liver tumor.
- **Risk factors:**
  hepatitis B / cirrhosis/ Alfa toxin/
  alpha 1 antitrypsin deficiency.
- Painful hepatomegaly.
- **Tumor marker:**
  alpha fetoprotein.
- **Dx:**
  needle biopsy with CT or U/S guidance.
- **The M.C site of Metz :**
  lungs.



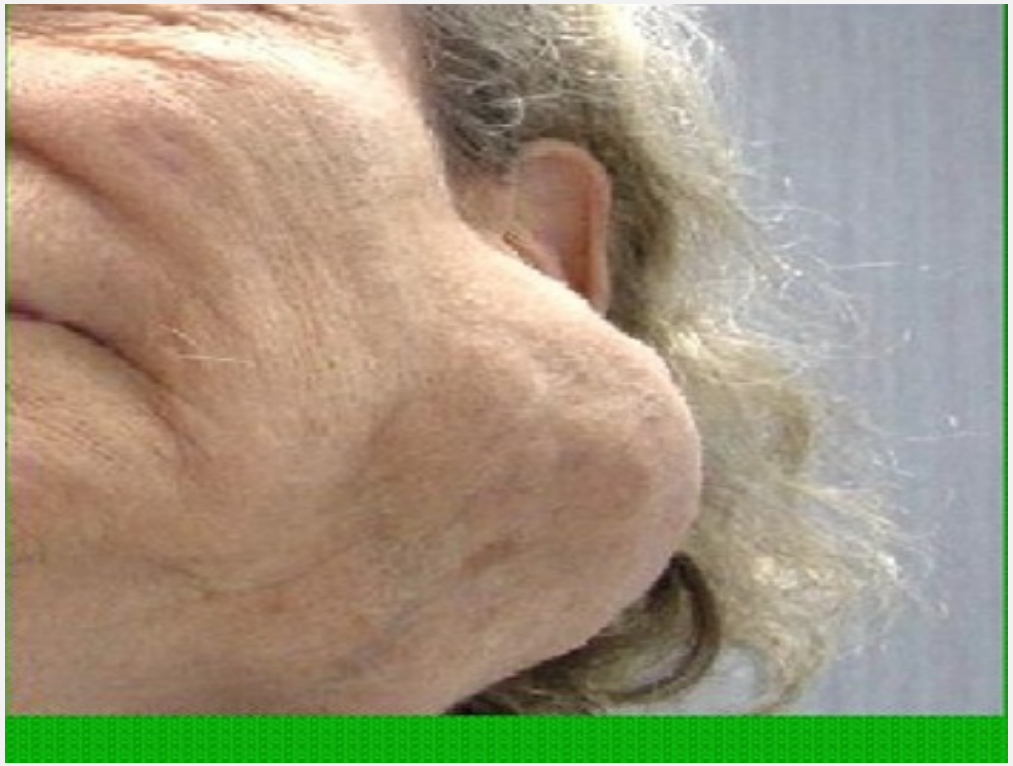
Splenic laceration



Salivary Gland

Pleomorphic Adenomas account for:

- 60-80% of Parotid Gland Tumors
- 50-60% of Submandibular Gland Tumors
- 25% of Sublingual Gland Tumors
- 50% or Minor Salivary Gland Tumors



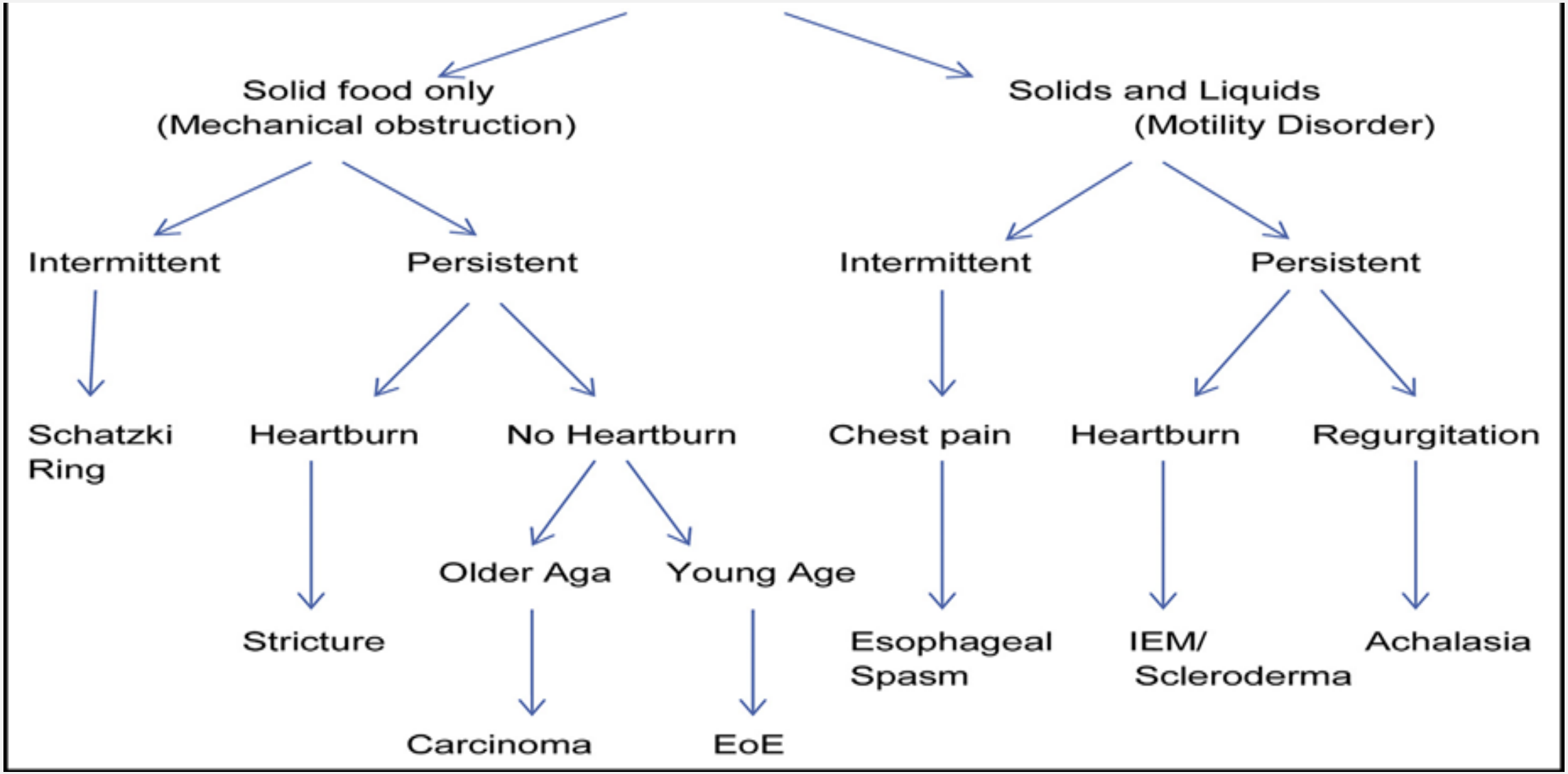
Management ?

Superficial parotidectomy (benign tumor **with risk to become malignant , so during surgery we remove all the superficial lobe**
not only the tumor , because it capsule is not 100% intact

in general , invasion of facial nerve indicate malignancy

Dysphagea

Esophageal dysphagea (approach)



Dysphagia
أهم ملاحظات د.محمد نوفل على السمنار

- Injury of submucosa □ leak , why ?
  Because the is NO adventitia
- Approach slide مهم
- Drugs cause dysphagia like :
  - NSAIDs □ mucosal injury
  - Atropine □ reduces sphincter tone
- H-pylori associated with acid reflux
- Acid reflux is less dangerous than bile (alkaline) reflux :
  - acid □ coagulative necrosis □ال ع حاجز غطا زي بصير submucosa
  - alkaline □ liquificative necrosis

- Eosinophilic esophagitis common in young ages
- Approach to esophageal condition :
  - heart burn medical Rx (anti-reflux)
  - stricture/fibrosis Nissen fundoplication
  - Barrette Nissen fundoplication + endoscopy every 6 months
  - Carcinoma in situ Esophageal resection
  - Adenocarcinoma Gastro-esophageal resection
- SCC upper & middle esophagus
- Barrette (adenocarcinoma) lower esophagus

- Tumor invasion of submucosa Advanced stage
- If the tumor is near submucosa resection by endoscopy
- If distant (in the muscle) resection by thoracic procedure
- (the important thing is to not injure the submucosa and keep it intact)
- Surgical margin 6 cm

Enterocutaneous fistula (ECF)

- **what do u see ?** Enterocutaneous fistula
- **the most common site for it ?** The ileum
- **How to diagnose ?** 1. CT , 2. fistulography, 3. barium follow through and enema
- **How to manage ?**

1. resuscitation; control fluid and electrolytes imbalance, acid base imbalance and albumin administration

2. control sepsis; watch for signs of sepsis like fever and leukocytosis, drainage of abscess , may need laparatomy, cover with antibiotics

3. skin care; skin barriers, wound pouch dressing

4. control effluent; somatostatin analogue, PPI , infliximab in crohn's

5. nutritional management, enteral/parenteral

Consider surgical closure if no spontaneous healing in 2-3 months

DECISION

FACTORS RESPONSIBLE FOR SPONTANEOUS CLOSURE

Factor	Favorable	Unfavorable
Organ of origin	Esophageal, Duodenal stump, Pancreatic, Biliary, Jejunal, Colonic	Gastric, Lateral duodenal, Ligament of Treitz, Ileal
Etiology	Postop (anast leak), Appendicitis, Diverticulitis	Malignancy, IBD
Output	Low (<200-500cc/day)	High (>500cc/day)
Nutritional status	Well nourished, Transferrin >200	Malnourished, Transferrin <200
Sepsis	Absent	Present
State of bowel	Intestinal continuity, absence of obstruction	Diseased adjacent bowel, Distal obstruction, Abscess, Discontinuity, Irradiation
Fistula characteristics	Tract >2 cm, Defect <1cm	Tract <1cm, Defect >1cm
Miscellaneous	Original operation at same institution	Referred from outside institution

Fistulogram

Enteroatmospheric fistula: The occurrence of an enteric fistula in the middle of an open abdomen; it's a morbid complication of an open abdomen

Peritonitis

HIPPOCRATIC FACIES

In late generalised peritonitis, circulatory failure ensues, with cold, clammy extremities, sunken eyes, dry tongue, thready (irregular) pulse and drawn and anxious face

facies Hippocratic

- **The most common bacteria causing peritonitis ?**

  In **primary** peritonitis (rare usullay in children) streptococci .

In **secondary** it's a mixed infection but usually we find bacteroids (G –ve anerobes), strep & staph (G +ve aerobes), closridium (G +ve anerobes), E.coli pseudomonas (G –ve aerobes)

Diagnostic aids in patients with peritonitis

Blood
- CBC and differential
- Blood grouping (for cross and matching)
- Blood culture
- Blood urea nitrogen, creatinine, electrolytes (kidney function test)
- Serum amylase
- Arterial blood gases

Urine
- Urine Analysis
- Urine output

Radiology
- Abdominal X-ray
- ultrasound or CT of the Abdomen

ECG monitoring and oximetry

Complications of peritonitis

Systemic
- endotoxic shock
- Bronchopneumonia/respiratory failure
- Renal failure
- Bone marrow suppression
- Multisystem failure

Local (abdominal)
- Adhesional small bowel obstruction
- Paralytic ileus
- Residual or recurrent abscess
- Portal pyemia/liver abscess

- **Management of peritonitis :**

1. resuscitation; control fluid and electrolytes imbalance, and albumin administration
2. GI decompression by NG tube until paralytic ileus resolves
3. urinary catheterization : hourly check urine output
4. broad spectrum antibiotics
5. analgesia with opiates
6. vital system support if needed : mechanical ventilation for example
7. surgery : to treat the cause and to wash the peritoneum with saline containing dissolved tetracycline

** subphrenic abscess(complication) presents with constitutional symptoms and swinging pyrexia on CXR we notice basal pleural effusion and elevated diaphragm (tented) on the affected side . Rx : percutaneous drainage under U/S or CT guidance.

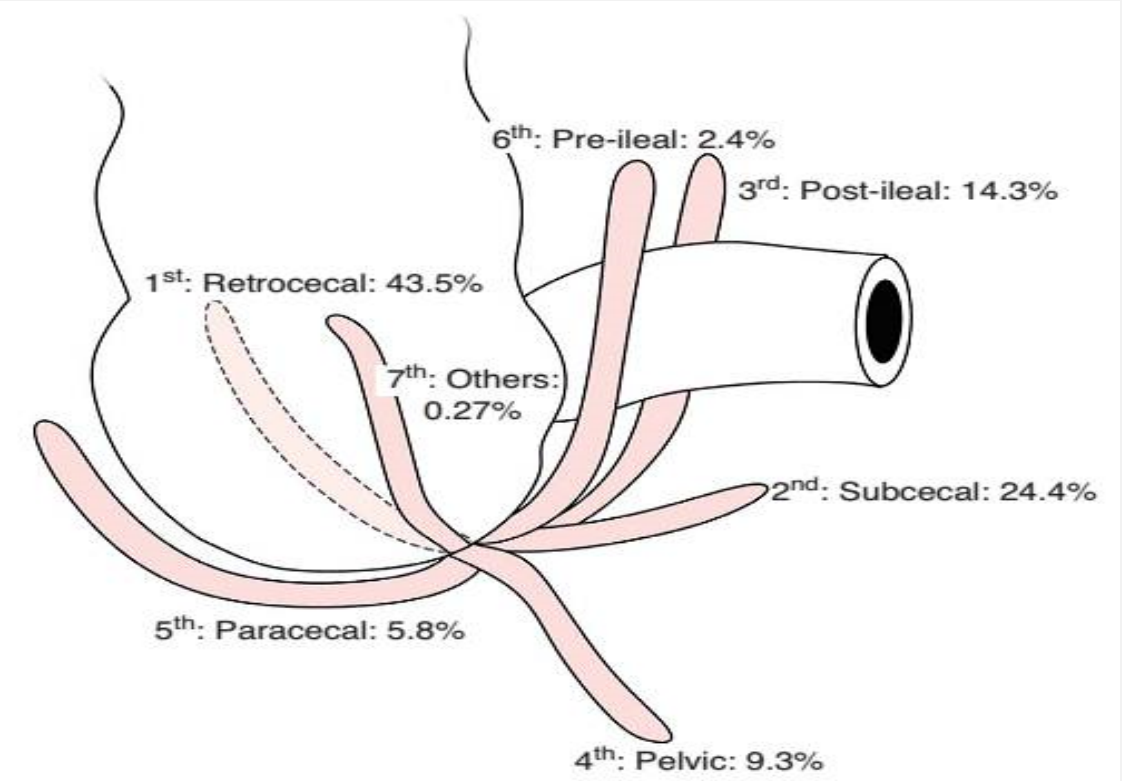
Appendicitis

Acute Appendicitis: US

- Non-compressible
- Maximum outer diameter >6 mm
- Use of threshold alone cautioned - not always true (normal appendix can be >6 mm, filled c feces and air)
- Sensitivity 100% but specificity 68%

Clinical fratures of anatomical variations	
Retrocecal	• Possible absence of rigidity • tenderness on deep palpation • positive psoas sign
pelvic	• Diarrhea and frequency of micutrition. • Absence of abdominal findings, iower abdominal tenderness on deep palpation • tenderness on rectal examination. • Positive psoas and obturator signs.
postileal	• Diarrhea • Retching • Tenderness immediately right to the umbilicus • Hard to identify

- Most common symptom in appendicitis : anorexia then abdominal pain
- Special signs :
  pointing sign , rebound tenderness, rovsing sign , obturator and psoas sign .



Differential diagnoses of acute appendicitis	
Old age	
Diverticulitis	CT scan to differentiate
Intestinal obstruction	In elders, conservative management with lapratomy
Colonic carcinoma	Palpable mass, unexplained anemia, altered bowel habit. Require CT scan
Mesenteric infarction	Post prandial pain, requires angiography
adults	
Ureteric colic	Radiates to the groin, severe pain, diagnosed by urinanalysis
Perforated peptic ulcer	History of upper abdominal pain that suddenly increased in severity, gas under diaphragm.
Testicular torsion	Examination of the scrotum rules out.
Regional enteritis	Weight loss, diarrhea, serum titers for *Yersinia*
Pancreatitis	Pain is diffuse, relieved by bending forward, amylase levels are very high.
Rectal sheath hematoma	History of harsh exercise or anticoagulation, mass and pain with no gastrointestinal upset.
Female	
Mittelschmerz	No systemic upset, midcyclic pain
Pelvic inflammatory disease	Bilateral pain, vaginal discharge, dysmenorrhea, dysparunia, dysuria.
Pyelonephritis	Chills, flank pain and abnormal urinanalysis.
Ectopic pregnancy	Amenorrhea, positive pregnancy test, tenderness on bimanual examination hemoperitoneum
Torsion or rupture of an ovarian cyst	Difficult, requires gynecological counseling.

Investigations :

* **CBC** reveals neutrophilic leukocytosis >12x10^9
***ultrasound** : to r/o any gynecological problem and shows blind ended tube noncompressible appendix > 6mm
* **urine analysis** : shows pyuria and hematuria if ureters and bladder involved
***CT** : for complications and to r/o gyne causes
* **laproscopy**

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

- **Management of appendicitis :**
  emergency appendectomy due to high risk of rupture in the first 12 hours (gridiron incision at the mcburney point , lanz incision in mcburney point but more transverse and more cosmetic, lower midline incision if diagnosis is suspected)
- Give IV fluid and prophylactic antibiotics

- **complications of appendicitis :**
  1. appendiceal rupture
- 2. appendicular mass or abscess
- 3. fecal fistula
- **Post op :**
  most common is iliohypogastric nerve injury .

Intestinal obstruction

Intestinal obstruction

- It’s either mechanical or functional
- Mechanical obstruction is so called because in early stage we can hear peristaltic waves and it’s either complete or incomplete obstruction

Causes of simple mechanical obstruction

Extramural
- Adhesions
- Hernias: external and internal
- Compression tumors (nodal tumor deposits)

Intramural
- Inflammatory disease; Crohn's disease, diverticular disease.
- Tumors; carcinomas, lymphomas, etc.

* Strictures

Intraluminal
- Fecal impaction
- Swallowed foreign bodies
- Bezoars
- Gallstone

Small vs large bowel ??

symptoms	Small bowel	Large bowel
onset	Acute	Insidious
Pain	Colicky	More as discomfort
N & V ?	Early billious vomiting and late constipation	Early constipation and late feculent vomiting
Abd distension	Less likely	Occur early
Water and electrolytes	Increased loss	Less than in small bowel obstruction
Causes	1. Adhesions 2. hernias 3. malignancy	1. Malignancy 2. diverticular disease 3. volvulus

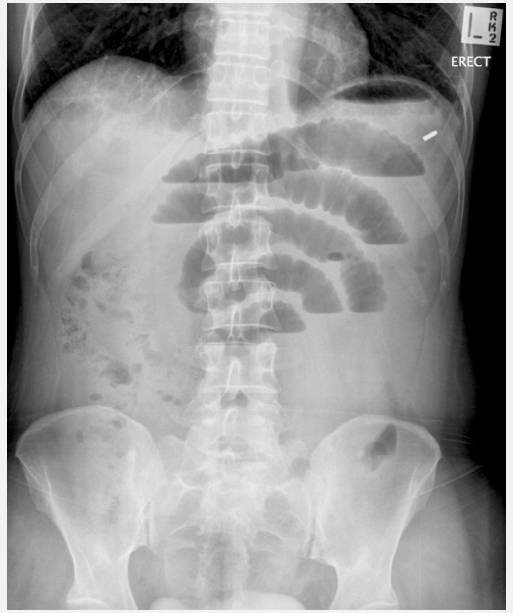
How fluid and electrolytes are lost ?

- Sequestered 3rd space losses
- Vomiting
- Decreased oral intake
- Defective absorption

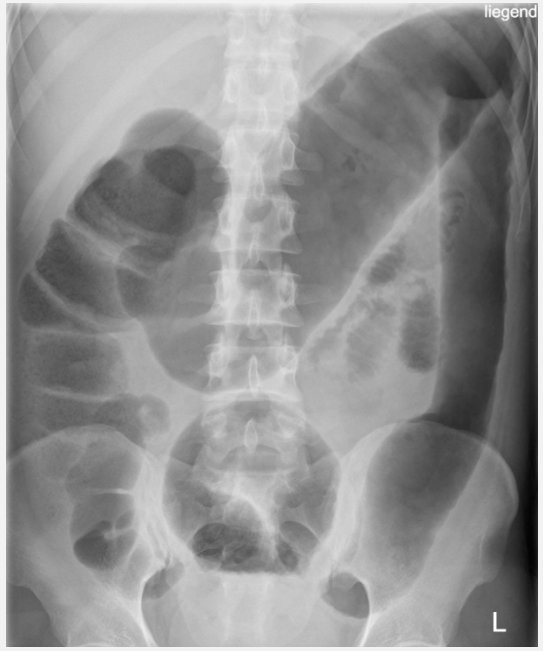
Investigations

- **CBC:** elevated hemoglobin due to hemoconcentration// slightly elevated or normal WBCs if markedly elevated suspect infarction or peritonitis
- **KFT:** elevated urea as element of prerenal failure due to hypovolemia
- **Electrolytes :** serum Na and Cl are low , K might be low but if intestinal infarction occur : hyper K+
- **Erect AXR :**
  <u>in small intestine</u> shows more air fluid levels centrally located in a ladder fashion

  <u>in large bowel :</u> less air fluid levels located in the periphery



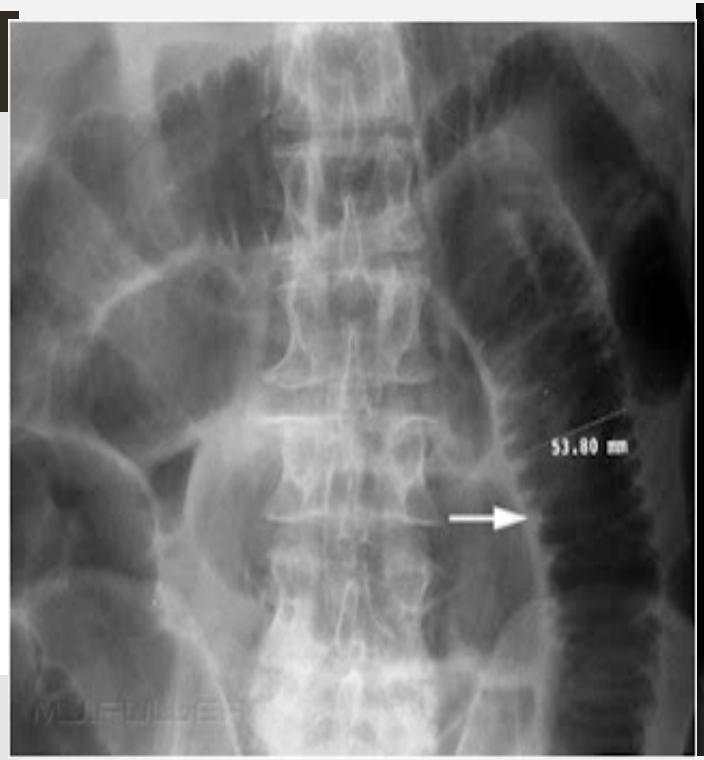
SBO, step ladder appearance



LBO, peripherally distributed gas

- **Supine AXR :** to assess the level of obstruction
- **Other findings (in strangulation) :** pneumatosis intestinalis, air in the portal vein

	Small bowel	Large bowel
Diameter	>2.5 cm but < 5 cm	Up to 10 cm
Outline	Jejunum : valvula conniventes (white lines passing across the whole width of the wall)	Shows haustrations (crescentic white lines not traversing the whole width of the wall)
	Ileum : featureless	



Haustration in LBO

Jejunum valvula conniventes

Management

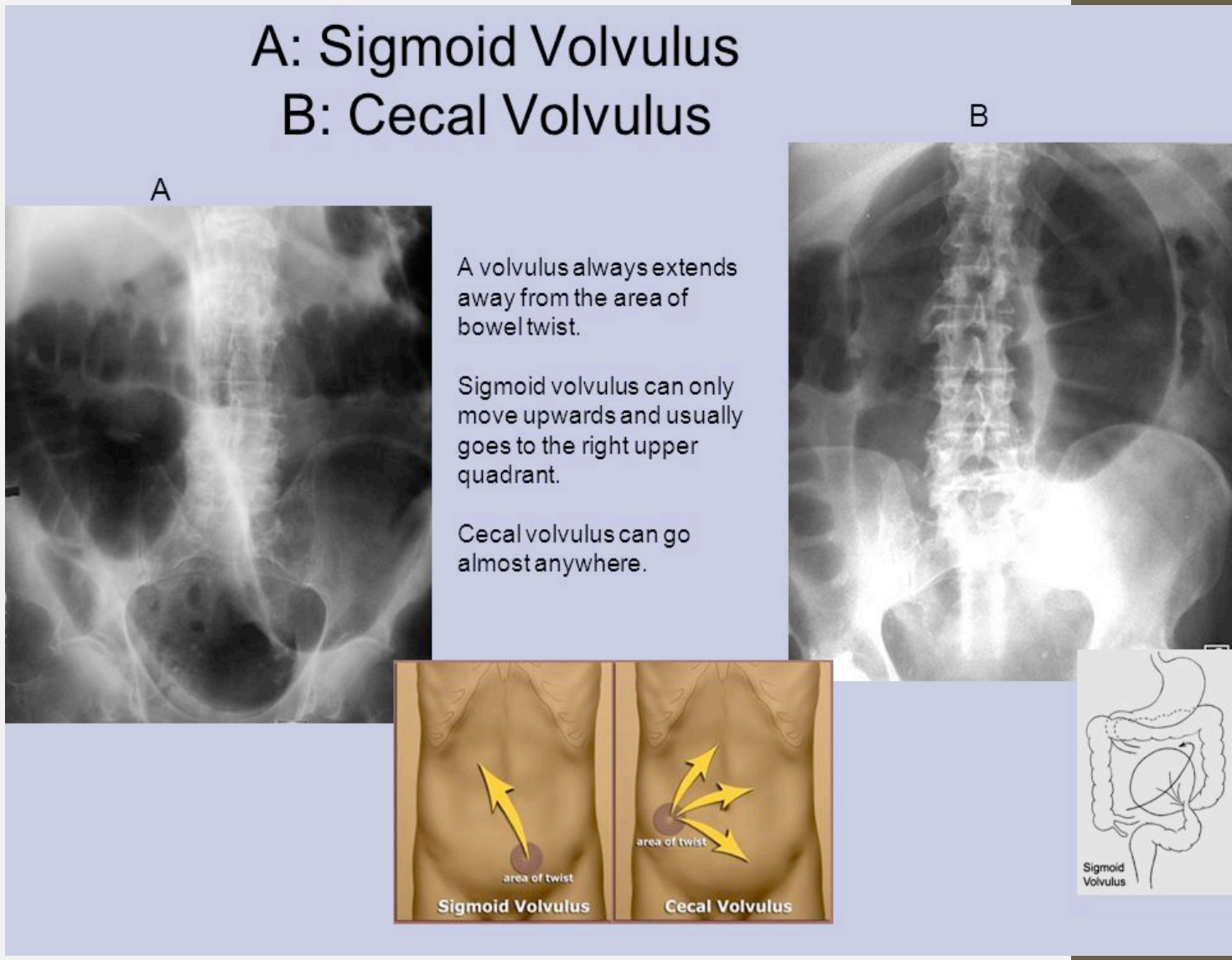
- Keep NPO and NG tube for decompression
- Replacement of fluid and electrolytes
- May need antibiotics for either bacterial overgrowth
- **Definitive Mx :**
- If not responding to conservative then treat the cause
- **Adhesions :** enterolysis only for the obstructing adhesion and cover the affected segment with omental patch
- **Inflammatory strictures :** strictureplasty

Strangulating intestinal obstruction

- **1. intussusception :**
  mostly in infants 3-18 months
- **2. volvulus :** causes :

* malrotation in infants (cecal volvulus)
* adhesions or bands between antemesentric border of the bowel and ant. Abd. wall
*In elderly with chronic constipation and redundant pelvic mesocolon on exam: may show palpable tympanic sausage shaped mass

On radiology : omega or coffee bean sign

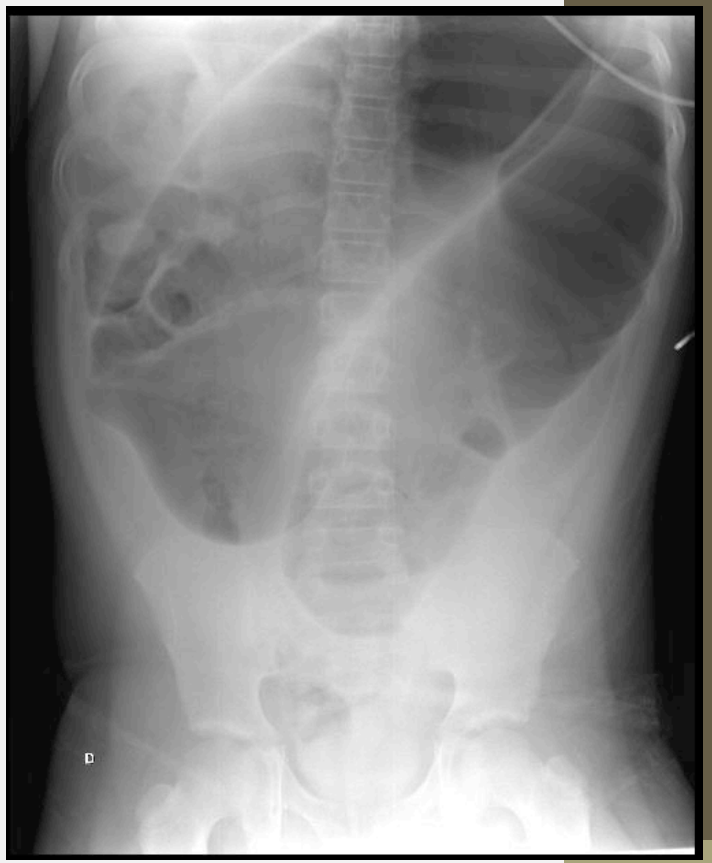


Management of volvulus

- Keep NPO and NG tube for decompression
- Replacement of fluid and electrolytes
- May need antibiotics for either bacterial overgrowth
- Definitive Mx :

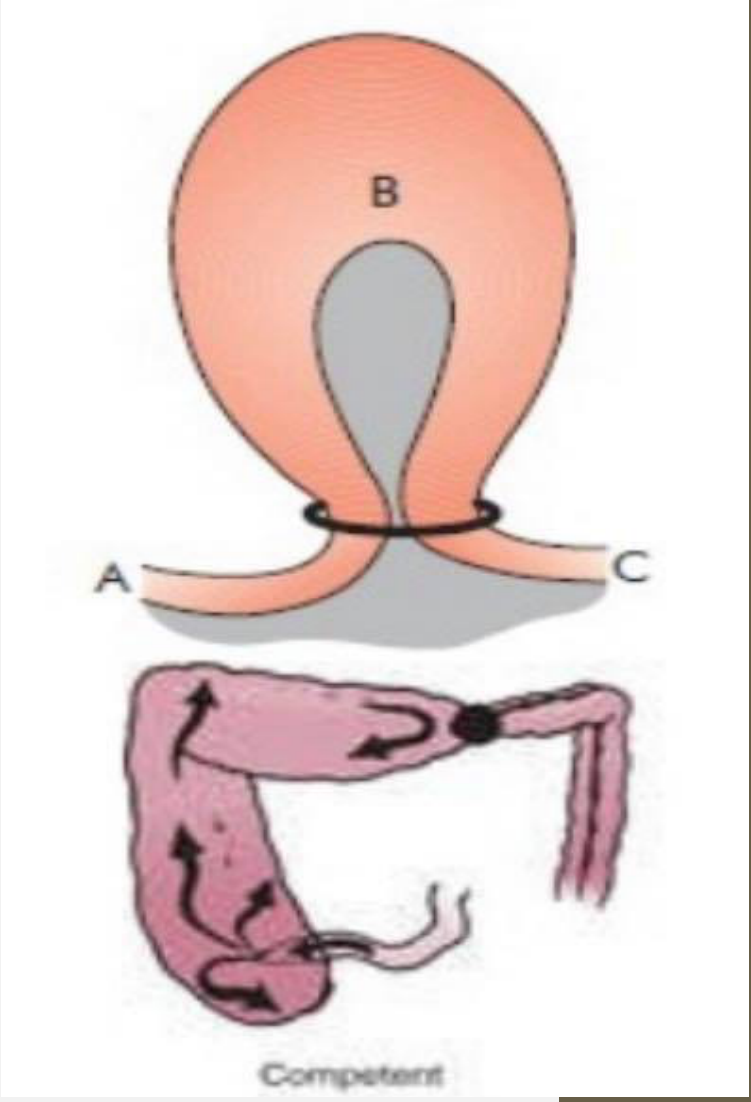
** cecal volvulus : viable cecum is reduced at the operation by needle decompression, cecopexy or cecostomy is then performed . If non viable Rt hemicolectomy

** sigmoid volvulus : Rx temporarily untwisting it with flexible/rigid sigmoidoscopy; if failed untwist it by laprotomy. Then if viable it's fixed to the post. Abd. Wall if not sigmoid colectomy is done.



3. Closed loop obstruction

- Volvulus is an example .
- Resembles complete colon obstruction with competent ileocecal valve
- Due to rapid build up of fluid and gases leading to cecal ischemia and perforation in a clear cut hole “pistol shot perforation”



4. Mesentric infarction :

It’s considered a strangulating MECHANICHAL obstruction although it’s adynamic

Functional obstruction

1.Paralytic ileus

- Treat the cause , in physiological ileus Mx is conservative (NGT, IV fluids and TPN)

2.Pseudo-obstruction (oglivie's syndrome)

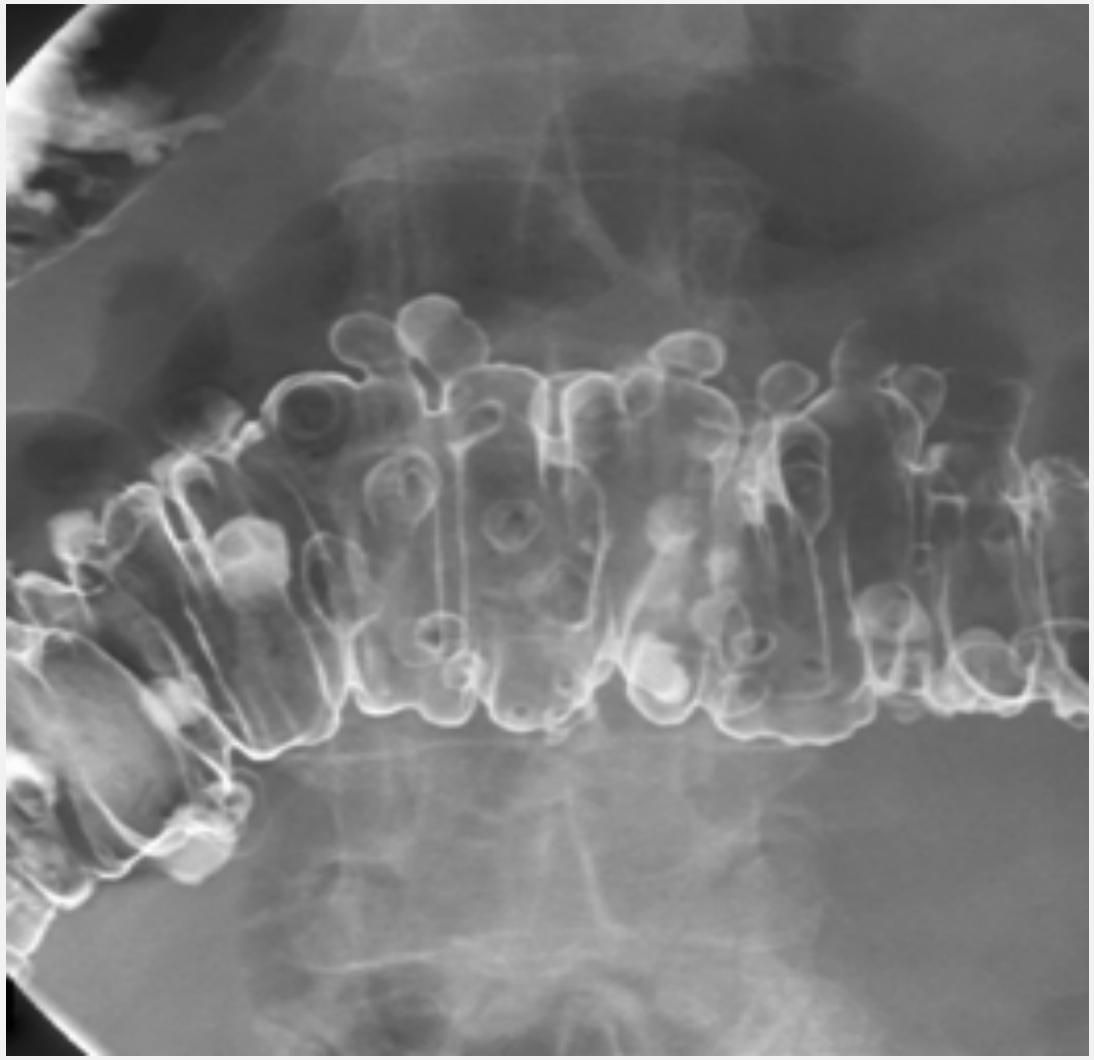
It's obstruction with no mechanical cause , encountered mostly in elderly with severe extra abdominal illness / injury (Heart failure, sepsis, trauma) or chronic use of hypnotics and sedatives

Management : Rx the cause , Supportive measures such as colon decompression via rectal tube or colonscope

Causes of paralytic ileus

- **Post operative ileus**
- **Metabolic**
  - Hypokalemia
  - Uremia
  - Hyponatremia
  - Dehydration
  - Diabetic ketoacidosis
  - Hypothermia
  - Hypoxia
- **Infective**
  - Generalized peritonitis
  - Pancreatitis
- **Drugs**
  - Tricyclic antidepressants
  - General anesthesia
- **Reflex ileus**
  - Retroperitoneal hematomas
  - Retorperitoneal malignancies
  - Pelvic and spinal fractures

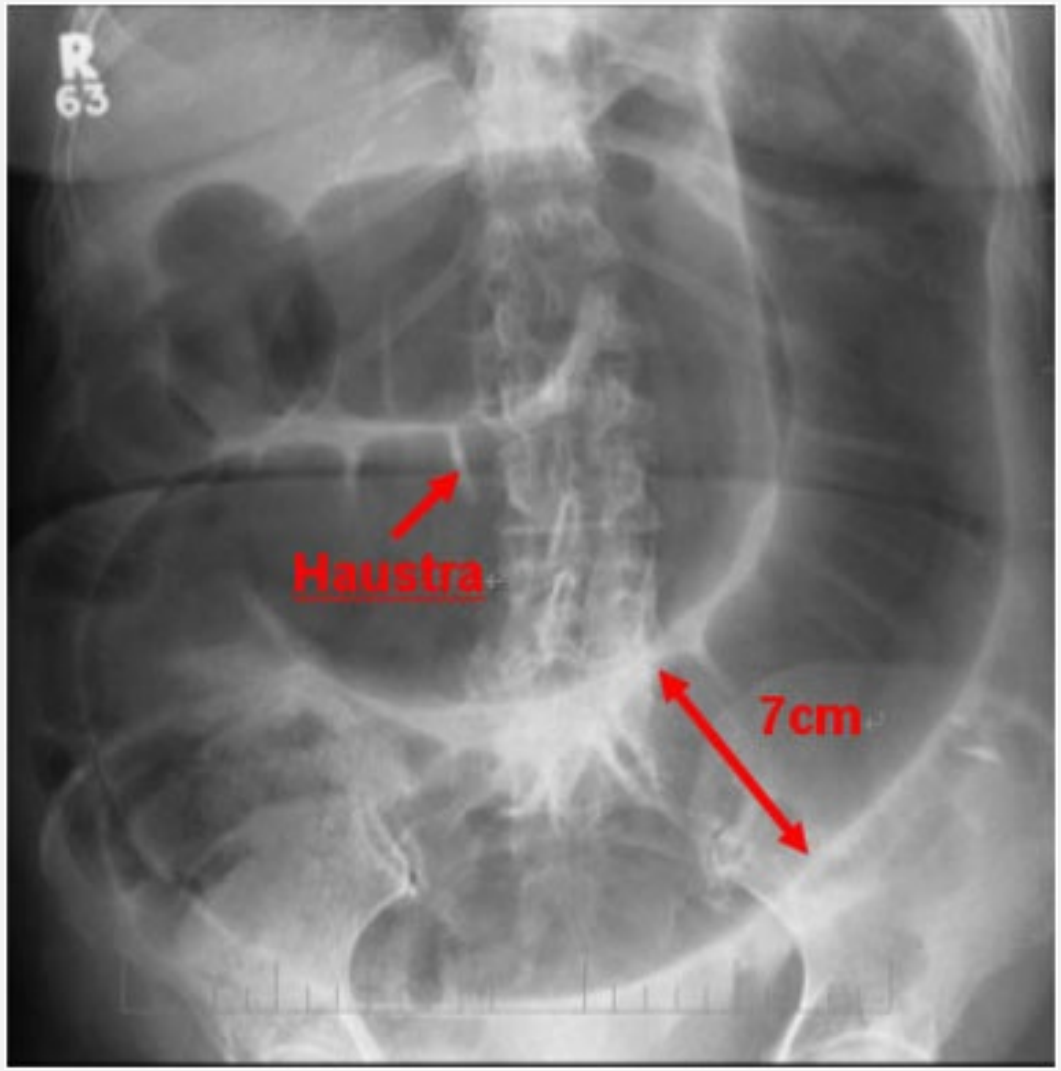
diverteculosis saw tooth appearence



I.O

ladder sign

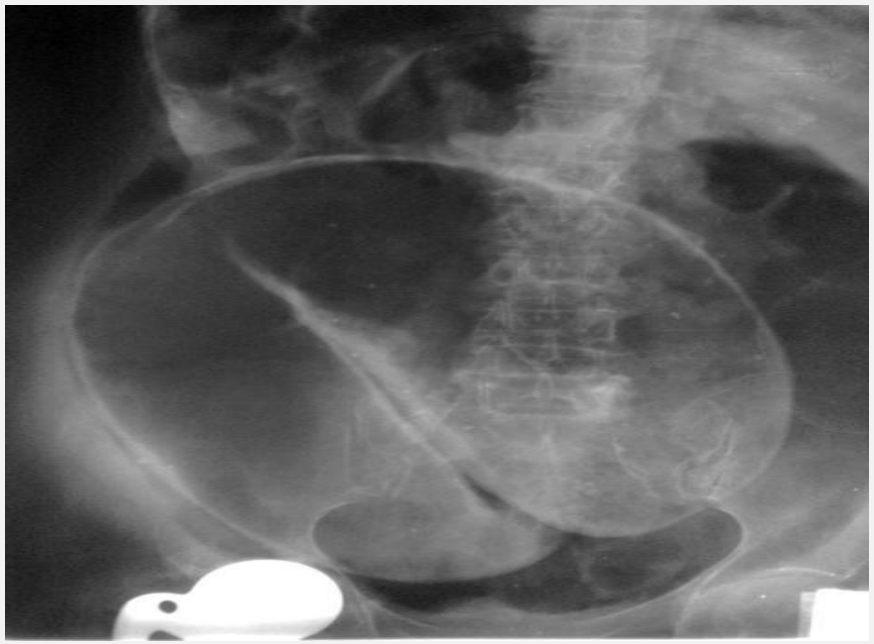
haustra



CASE 10 :

- An 88-year-old woman who is receiving long-term care in a nursing home is brought to the emergency department with a history of constipation . She has abdominal distention.

and Rectal examination reveals no stool.



- **What is the sign ?**

Coffee bean sign

- **What is the diagnosis?**

Sigmoid volvulus

- **What is the managements ?**

1- decompressive sigmoidscopy

2- elective sigmoid colectomy

Abdominal incisions

abdominal incisions

Midline Incision , laparotomy celiotomy

- 1-exploratory
  2- Some procedures only done through it
- 1-Avascular
  2-No nerves 3-Best visualiation
- 1-More pain 2-Less cosmetic
  3-Immediately (cut vessel, anesthesia difficulty, injuries)

Para-median

- 3cm lateral to the midline
- To reach laterals organs (spleen, kidney)

Supra-umbilical Infra- umbilical

- Gain access to peritoneum around umbilicus
- 1-can be vertical or horizontal(hernia)
  2-cosmetic (inverted "OMEGA" shape around umbilicus)
- 1-make sure to provide adequate blood supply if incision along umbilical ridge

Kocher Incisions (Subcostal)

- 1-to reach liver &biliary tree
  2-To reach spleen
- 1-VASCULAR (superior Epigasrtic)
  2-Nerve damage(intercostal)
  3-pain (rectusmuscle)
  4-closure by layer

chevron/rooftop incision

- sub-costal incision that extends from the mid to lateral costal ridge, across the midline to the contralateral side
- gastrectomy, hepatic resection or liver transplantation
- 1-Good view (intra/extra peritoneal/ retroperitoneal)
  2-no devascularization due to collaterals
- 1-if another surgery from lower abdomen is done > loss of collateral > devascularization

Mercedes Benz

- adequate exposure for debulking or total removal in liver or stomach problems

Gridiron McBurney

- 1-Ilioinguinal and iliohypogastric nerves injury
  2-superficial epigastric/inferior Epigastric artery injury
  3-can be modified for cosmetic

Lanz (Rockey-Davis)

- horizontal incision for appendectomy
- muscle splitting incision

Inguinal (Groin)

- open inguinal hernia repairs.
- superficial epigastric veins ligated

McEvedy

- Opening into femoral canal
- Femoral hernias
- Gibson
- Femoral artery , vein, nerve could be injured

Gibson

- (3cm) above and parallel to the inguinal lig.
- For urological procedures

Pfannenstiel (Kerr/Pubic)

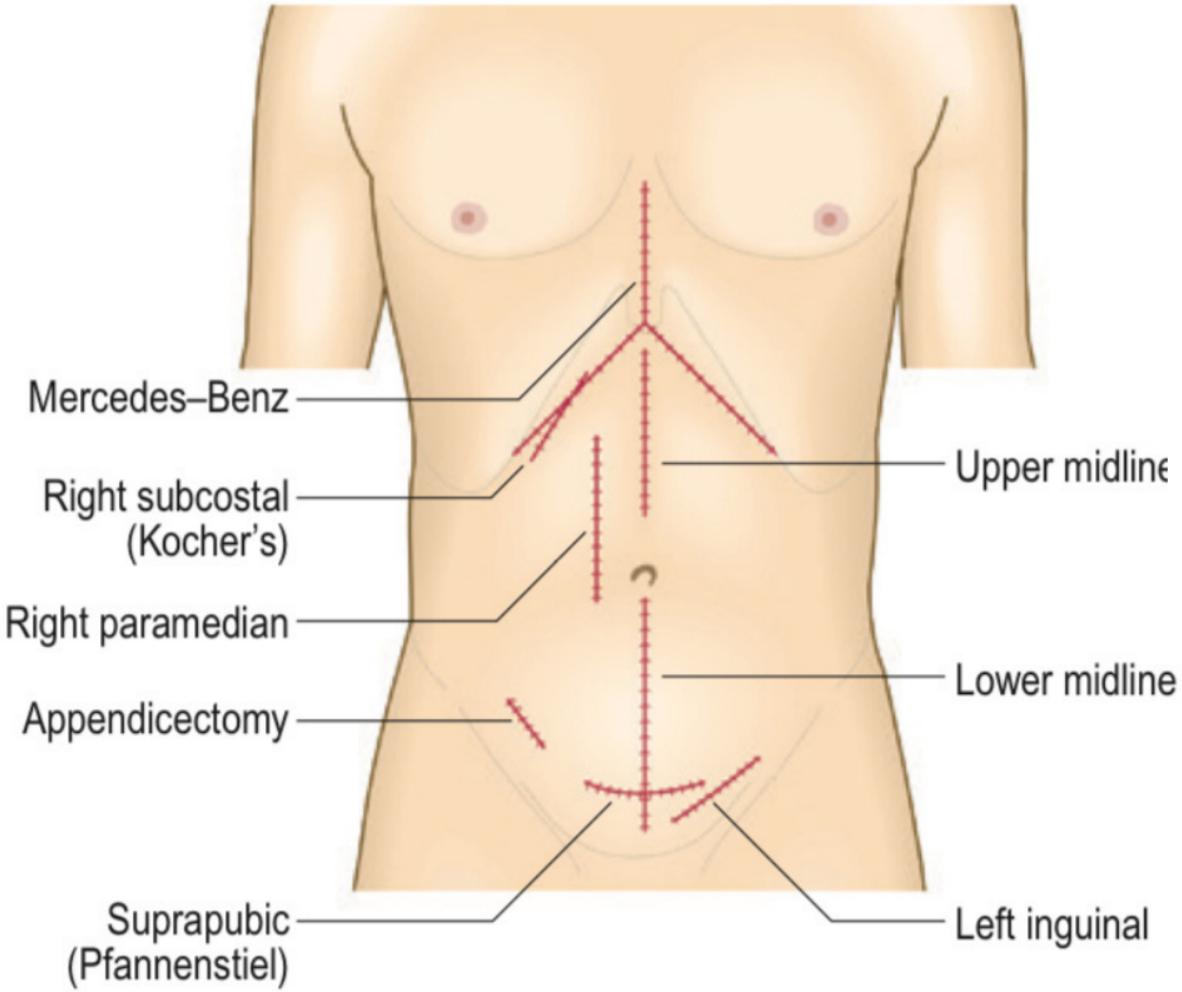
- urologic, orthopedic, pelvic, and cesarean sections
- 1-be careful for superficial/inf. Epigastric arteries
  2-iliohypogastric and Ilioinguinal nerves injury

Maylard (Mackenrodt)

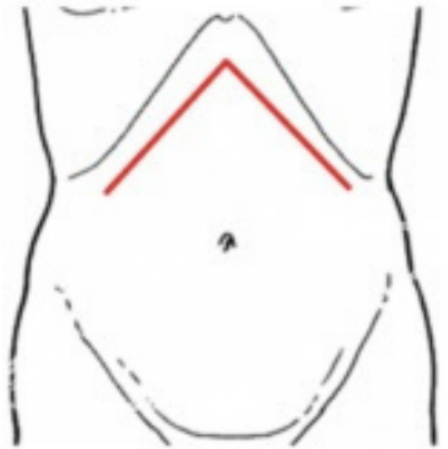
- transverse incision 6cm above the pubic tubercle
- Pelvic organ access
- 1-be careful for superficial/inf. Epigastric arteries
  2-iliohypogastric and Ilioinguinal nerves injury

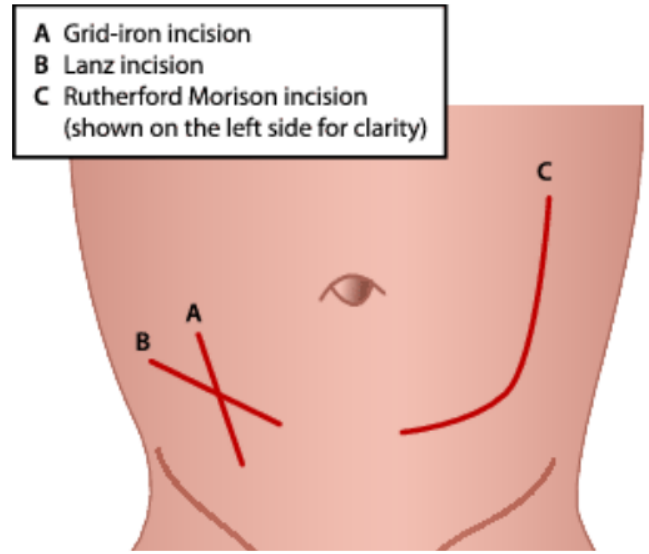
Laparoscopic

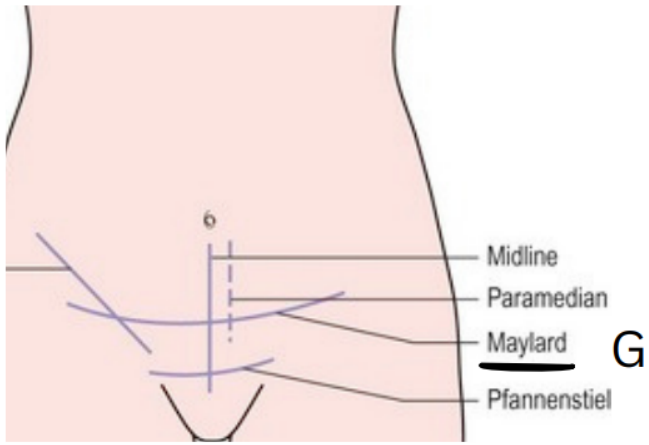
1 cm incision near the belly button for the laparoscope and gas. Then the surgeon makes small 5 mm incisions in the lower corners of the abdomen



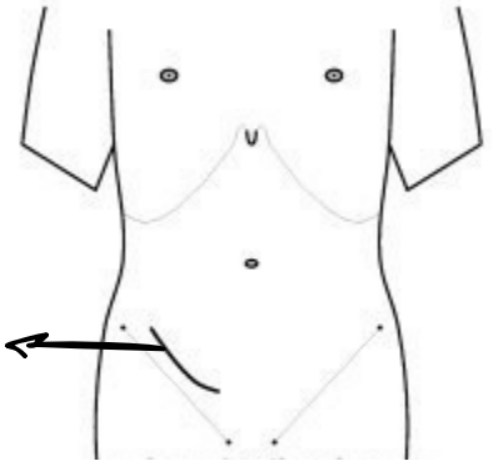
Chevron Incision







Gibson



What is Criteria for ideal incision:

1-. Avoid nerve or vessel

2-Anatomical structure : avoid bony prominences & crossing skin creases

3-Cosmetic

4-Adequate access for the procedure : the incision must be functionally effective for the procedure in hand as any compromise purely on cosmetic grounds may render the operation ineffective or even dangerous.

5-muscle should be split not cut, and being easily opened and closed

What is the Common side effects for all incisions :

1. Wound infection. 2. seroma. 3. Hematoma. 4. Fascial dehiscence. 5. Incidental hernia 6. DVT. 7. Bowel obstruction. 8. Intestinal injury.

Drains

surgical drain?

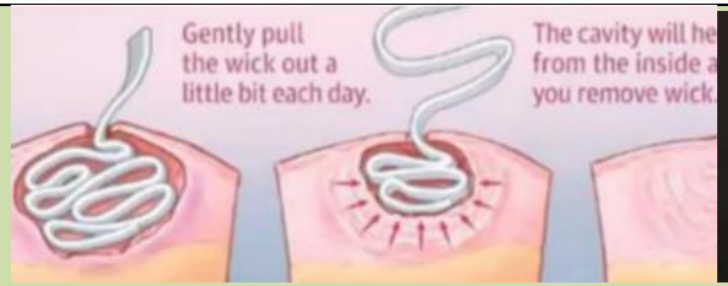
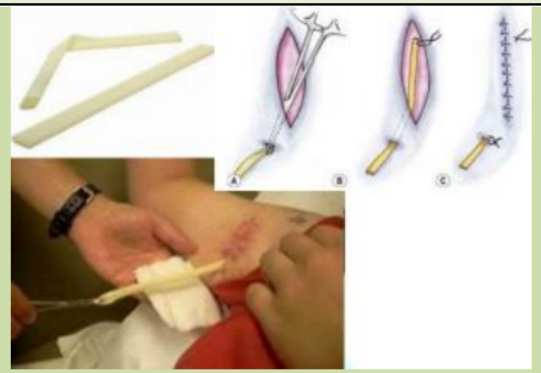
Tubes used to remove pus, blood or other fluid, preventing it from accumulating in the body.

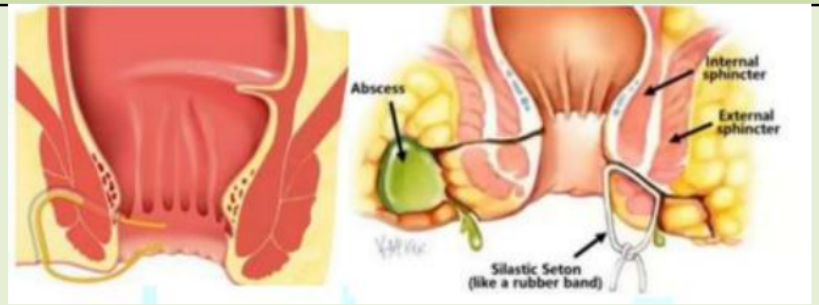
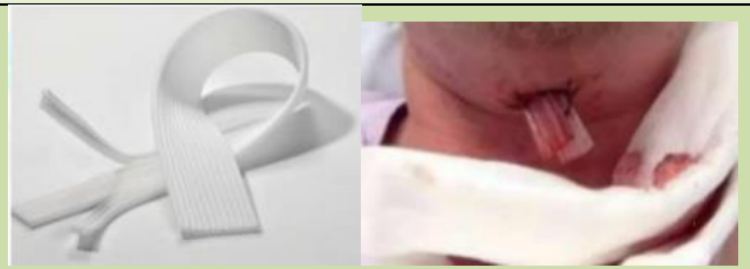
Complications of Drains:

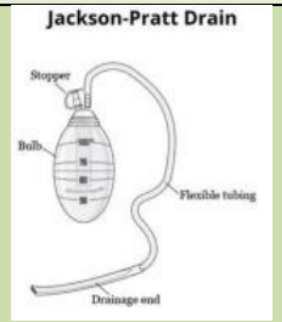
-Pain -Irritation -Bleeding -Displacement -Occlusion -Infection -Leaking around drain -Loss of fluid , electrolytes and proteins.

Indications:

drain of wound , prevent of fluid collection , prophylactic , diagnostic.

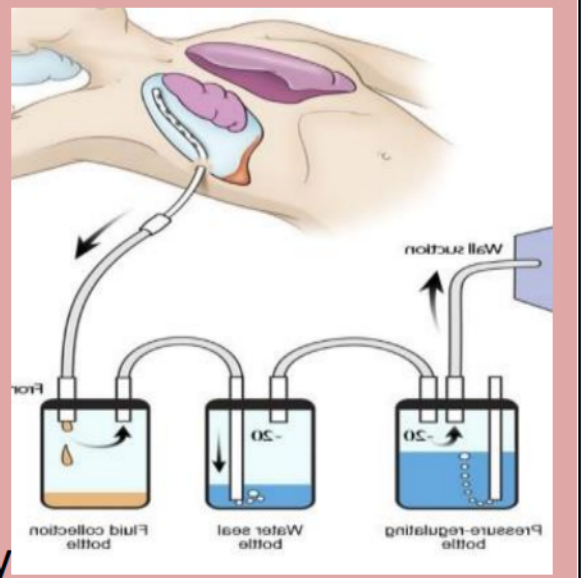
Gauze wick drain	Open passive	 
Corrugated drain	Open passive	  
Penrose drain	Open passive	

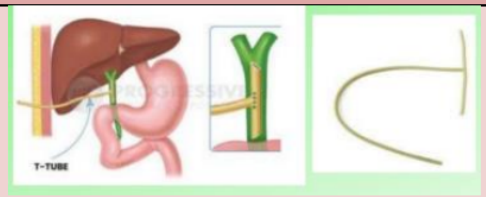
Setons drain	Open passive	
Yates drain	Open passive	
Rabinson drain	Closed passive	
Stump drain	Open active	

Redivac	Closed active	
Jackson pratt drain	Closed active	

Special Drains

Special drain

Chest tube:	For pneumothorax, the tube is usually inserted in the 4th intercostal spaceand in the 5thintercostal space, in the mid-axillary or anterior axillary line *it inferoposteriorly for effusions *apically for	where is the Identical site pnuemothorax ? apically where ls the identical site in case ofhemothorax ?basally 

	pneumothorax **Contraindication :** • Bleeding diathesis • Cardiac temponade • Coagulopathy • atelectasis	
T-tube	a tube consisting of a stem and a cross head is placed in to the common bile ductwhile the stem is connected to a small pouch (i.e. bile bag)	
Nasogastric tube (NG tube)	used for patients who: 1.Need a mechanical ventilator to breath. 2.Have an intestinal obstruction 3.admenstration medication 4.feeding contraindications:Severe maxillofacial trauma ,esophageal obstruction, coagulation abnormality	Complications: Diarrhea, Nausea & Vomiting,Sinusitis and sore throat,Pulmonary aspiration,esophageal or gastric hemorrhage or perforation. 

Foley's Catheter:	Indication:Urin retention, kidney dis, monitoring output Complication:urethra injury PT refuse, traumatic injury	contradiction:UTI, urethra injury 

وآخر دعواهم أن
الحمد لله رب العالمين