The background of the slide is a photograph of surgeons in an operating room. The image is heavily desaturated, appearing in shades of light blue and white. Several surgeons are visible, wearing surgical masks and caps. Their hands, wearing blue gloves, are seen holding surgical instruments like forceps and scalpels. The overall tone is clinical and professional.

**HU - PYQ**

# **Surgery**

# **miniOSCE**

**Done By: Yazan Alawneh**

***Note: the answers in this file are based on the PYQ, so there is a possibility of inaccurate answers***

# Contents

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An anatomical illustration of the human thoracic cavity. The image shows a translucent blue human figure from the neck down to the waist. The internal organs are highlighted in a reddish-pink color. The trachea is visible at the top, leading down to the bronchi which branch out into the lungs. The heart is located in the center of the chest, between the lungs. The rib cage and spine are also visible. The word "Thoracic" is overlaid in large white letters with a black outline across the center of the chest.

Thoracic



**Q: This is a chest X-Ray for a 35-years old female with a history of breast cancer 3 years ago, who presented to the clinic with progressive shortness of breath and cough.**

**Q1: What is the Dx?**

- Malignant Pleural Effusion

**Q2: What is the next step in Mx?**

- Tube thoracostomy (Chest tube)





## **Q1: What is the Dx?**

- Right sided hemothorax

## **Q2: Name 2 other findings?**

- 1) Absence of diaphragmatic angle
- 2) Right side multiple rib fractures
- 3) Right side clavicle fractures

## **Q3: What are the indication of needle thoracotomy after chest tube insertion?**

- initial loss  $>1.5$  L of blood
- Continuous blood loss of 200 ml per hour over 2-4 hour



**Q: Hx of motor vehicle accident (MVA):**

**Q1: What is the Dx?**

- Left sided hemothorax

**Q2: What is the Mx?**

- Chest tube insertion



**Q: A patient after a motor vehicle accident?**

**Q1: What is the Dx?**

- left sided hemothorax  
(obliterated costophrenic angle)

**Q2: What is the rapid initial Mx?**

- Needle decompression

**Q3: What is the definitive Mx?**

- Chest tube





**Q: A scuba diver came to ER, his CXR shows the following:**

**Q1: What is the immediate MX?**

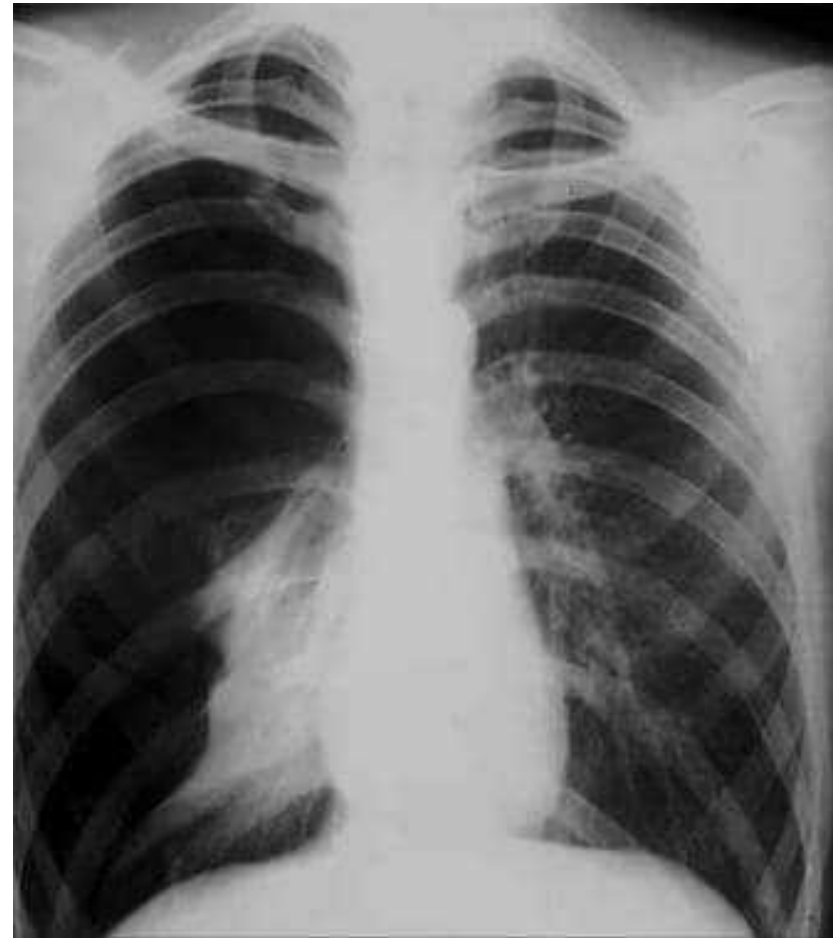
- Needle thoracostomy

**Q2: Where to insert the needle?**

- 2<sup>nd</sup> intercostal space

**Q3: What is the procedure you want to do next?**

- Pleurodesis



### **Q1: What is the Dx?**

- Right sided tension pneumothorax

### **Q2: Mention 2 signs on CXR?**

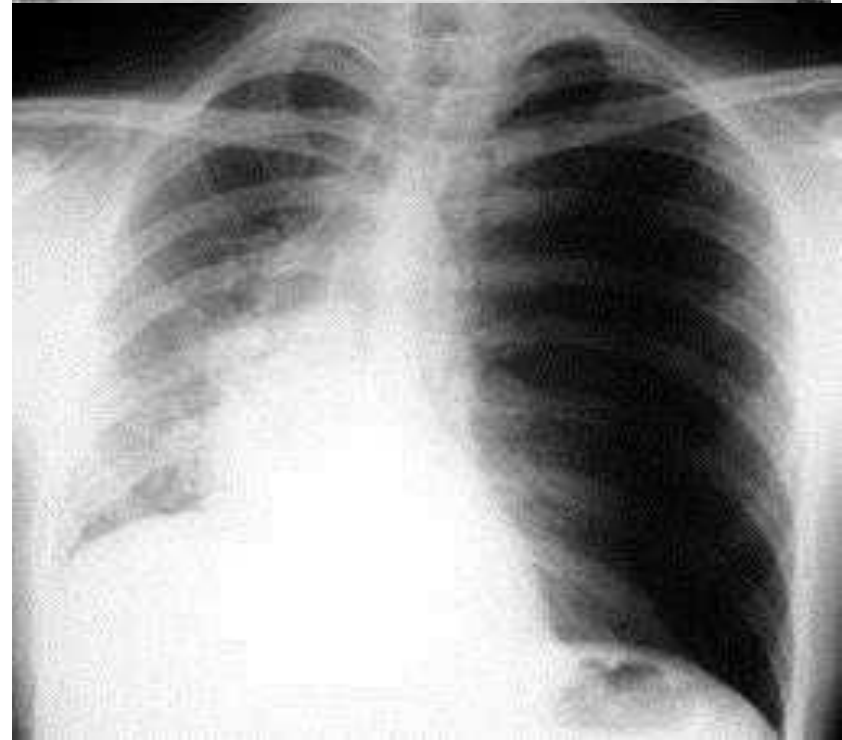
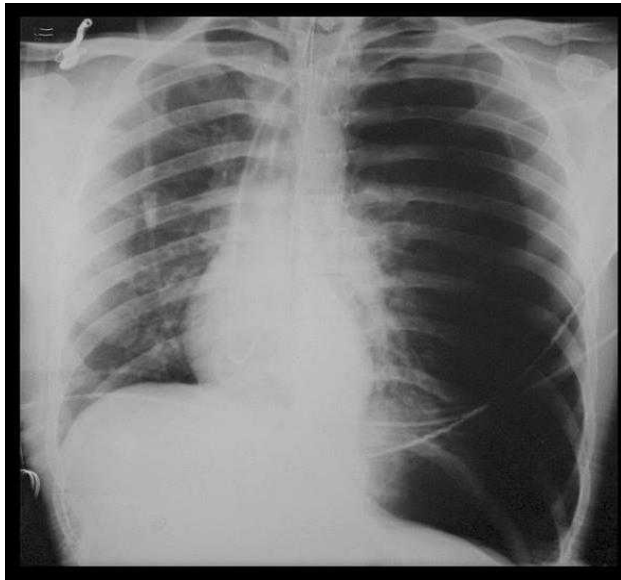
- 1) Tracheal deviation
- 2) Left lung compressed or collapsed

### **Q3: Mention 2 signs on PE?**

- 1) Absent breath sounds in affected side
- 2) Jugular venous distention

### **Q4: What is the Mx?**

- Needle decompression
- Chest tube



**Q: 18 year old male presented with sudden progressive shortness of breath and underwent this investigation:**

**Q1: What is the Dx?**

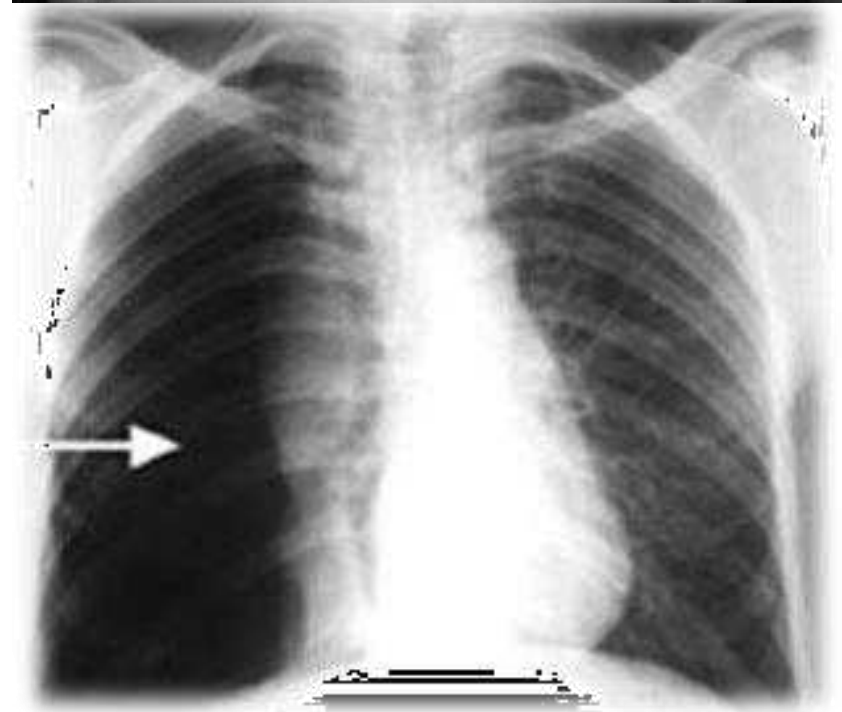
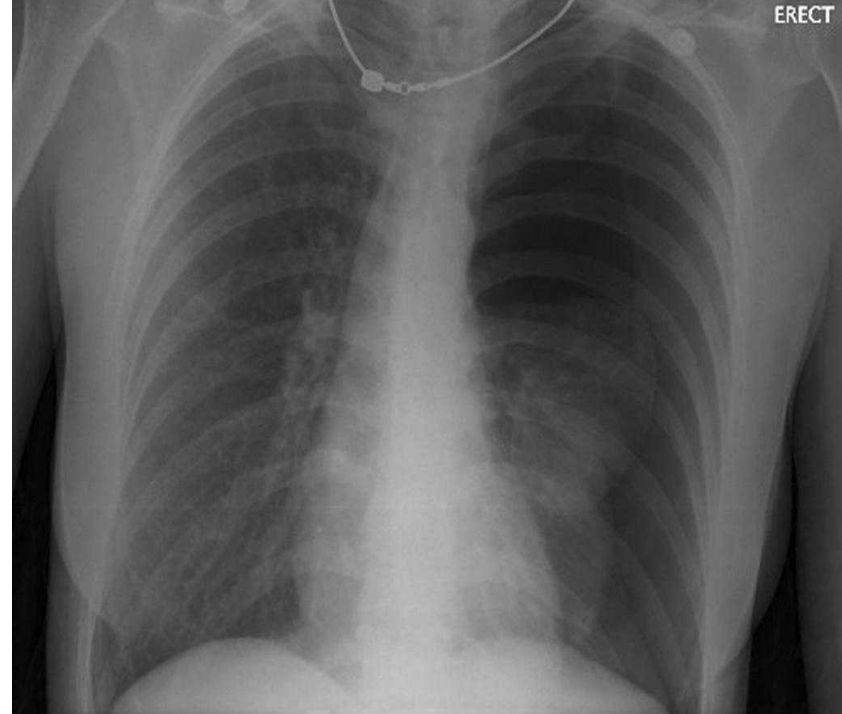
- Spontaneous Pneumothorax

**Q2: What is the Mx?**

- Chest tube/needle

**Q3: Give 2 indications to do surgery?**

- Failure of decompression  
- Hemo-pneumothorax





A detailed medical illustration showing a cross-section of a blood vessel. A catheter with a blue tip is inserted into the vessel. A stent, made of a mesh of light gray rectangular cells, is positioned inside the vessel, partially covering the vessel wall. The vessel wall is shown in layers of red and orange. The background is a soft-focus view of the vessel's interior with various colored structures.

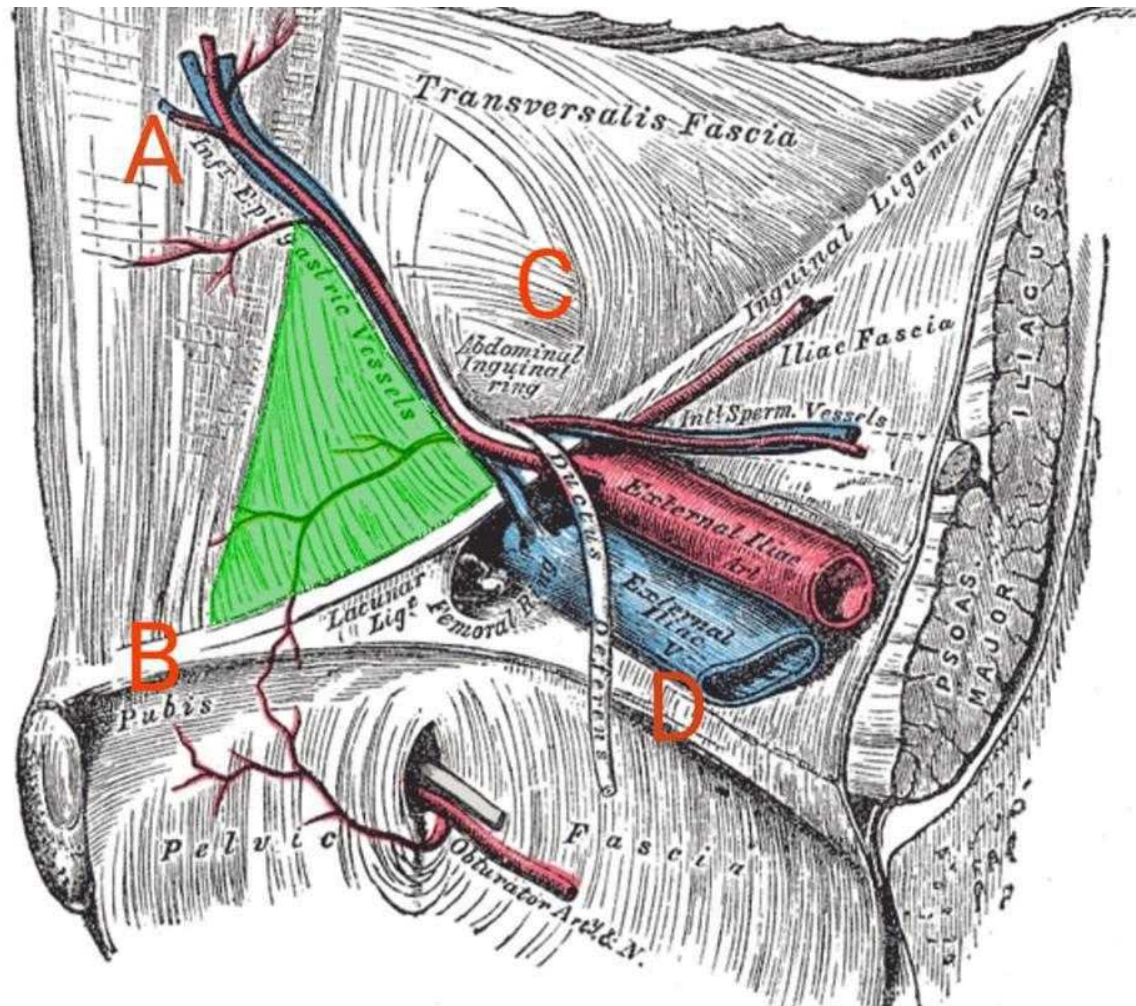
Vascular

**What's A:** inferior epigastric artery

**What's B:** direct inguinal hernia

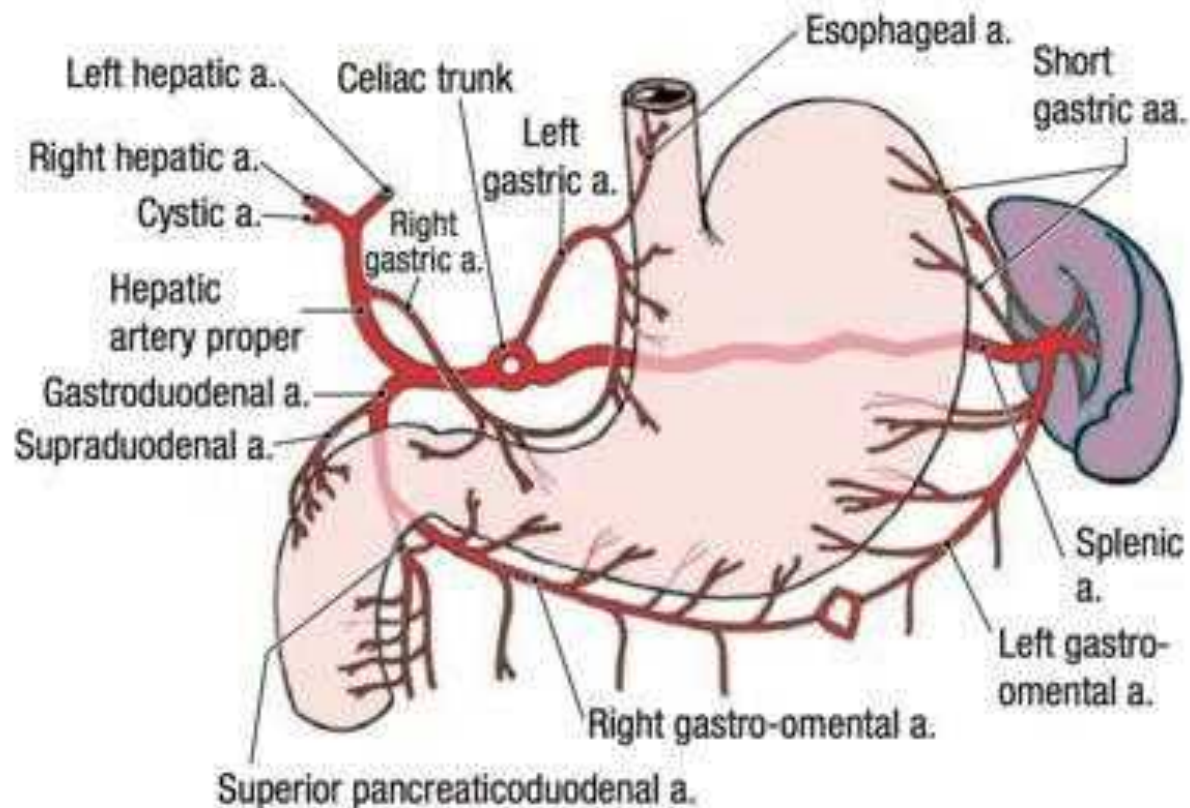
**What's C:** indirect inguinal hernia

**What's D:** femoral hernia



## Q: A Question was asking about the following arteries?

- 1- Left gastroepiploic artery
- 2- Gastroduodenal artery
- 3- Short gastric arteries





**Q: Patient had hip replacement 5 days ago:**

**Q1: What is the Dx?**

- DVT

**Q2: What is the Mx?**

- LMWH & Warfarin on discharge

**Q3: Mention 4 DDx?**

- 1) DVT
- 2) Cellulitis
- 3) Lymphadenopathy, lymphatic obstruction
- 4) Chronic Deep Vein Insufficiency
- 5) Rupture of baker's cyst

**Q4: What are the complications:**

- 1) Pulmonary embolism
- 2) Ulcers
- 3) Ischemia



**Q1: What is the Dx?**

- Varicose veins

**Q2: What is the system involved in this part (name the vessel)?**

- Great (long) Saphenous vein  
(Superficial Venous System)

**Q3: Name 2 modalities of Mx?**

- 1) High ligation and vein stripping
- 2) Sclerotherapy

**Q4: Mention 2 complications?**

- 1) Ulcers
- 2) Bleeding
- 3) Thrombophlebitis
- 4) Discomfort, pain



**Q5: Mention 2 minimally invasive procedures to do for this condition?**

- 1) Sclerotherapy
- 2) Radiofrequency Ablation
- 3) Endovenous Laser Ablation

**Q6: Best imaging test?**

- Doppler US or Venogram

**Q7: How to determine the level of defect in the varicose veins?**

- Turncate test





**Q1: What is this?**

- AV shunt

**Q2: Done in patients that undergoes what?**

- Hemodialysis

**Q3: What is the complication seen in the picture?**

- Aneurysm



**Q: A 60 year old female with CKD on hemodialysis:**

**Q1: What is the following complication?**

- Pseudoaneurysm

**Q2: Mention other complications that may occur?**

- Thrombosis, Steal syndrome, CHF, infection



**Q: Patient complained of abdominal pain and a pulsatile mass:**

**Q1: Name of this study?**

- Angiogram

**Q2: What is this pathology and where is its location?**

- AAA (Abdominal aortic aneurysm)  
near the bifurcation

**Q3: Mention 2 lines of Mx?**

- 1) Open surgical repair
- 2) Endovascular surgery



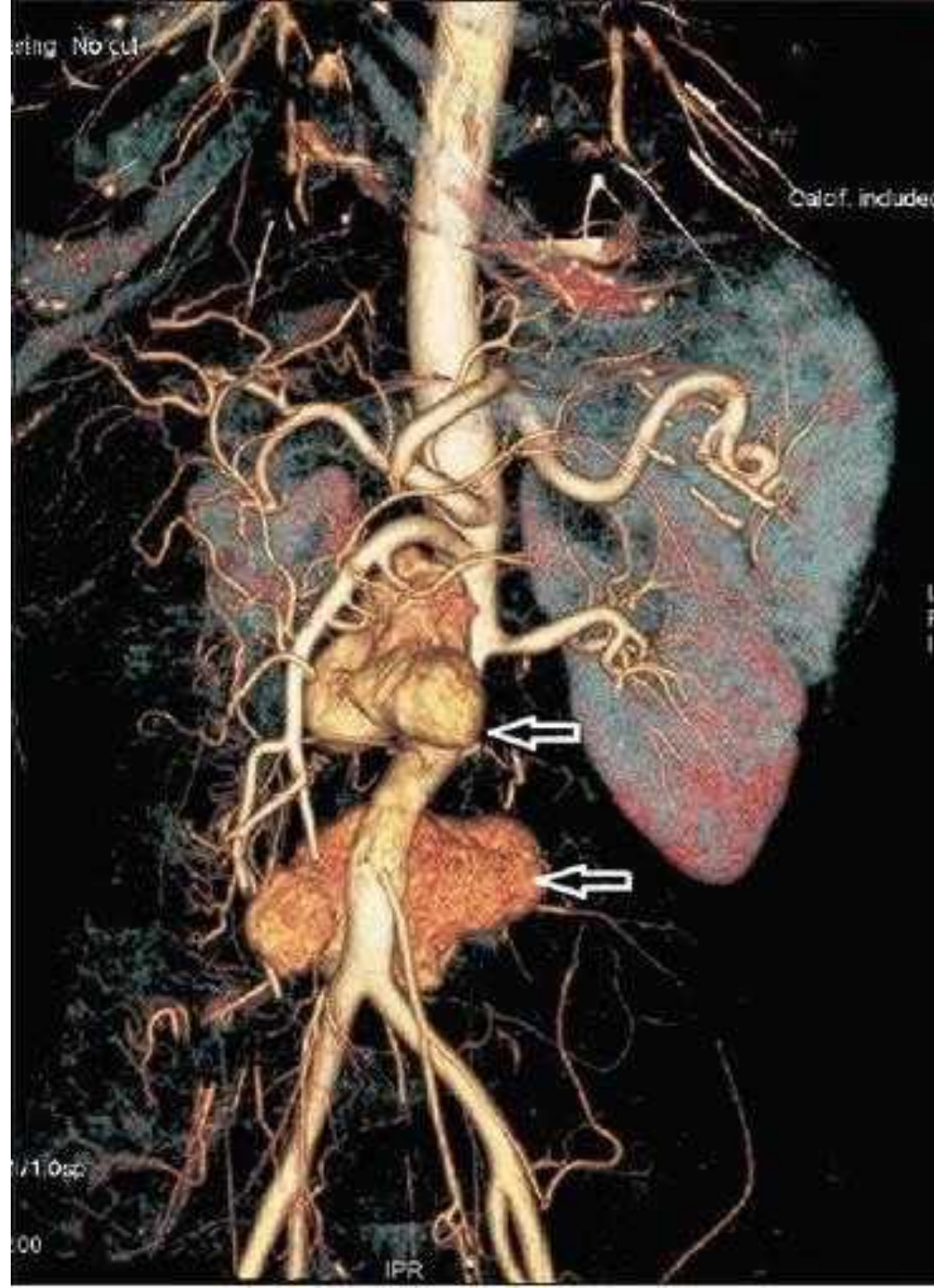


**Q1: Name of this study?**

- 3D angiography

**Q2: What is your Dx?**

- AAA





**Q: A patient with a hx of atrial fibrillation, presented with a sudden severe abdominal pain:**

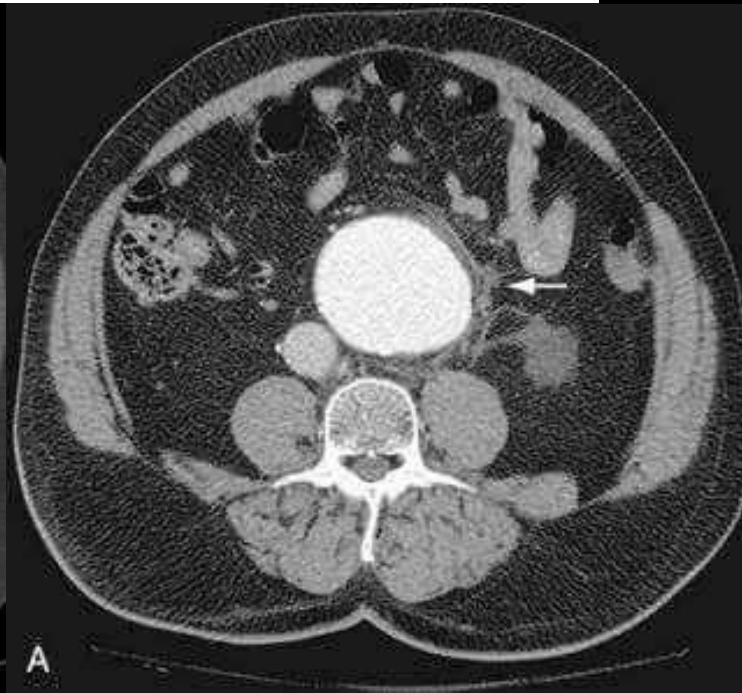
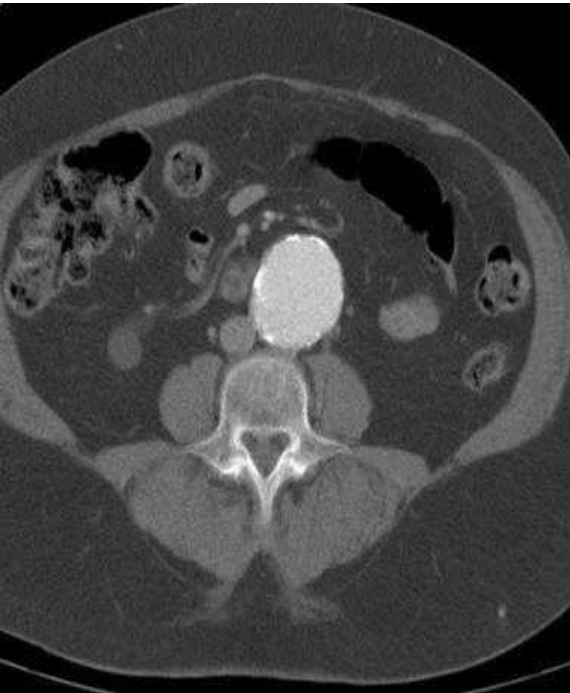
**Q1: Name of this study?**

- CT Angiogram

**Q2: Dx?**

- AAA (Abdominal aortic aneurysm)

based on the Hx: Rupture AAA is more accurate

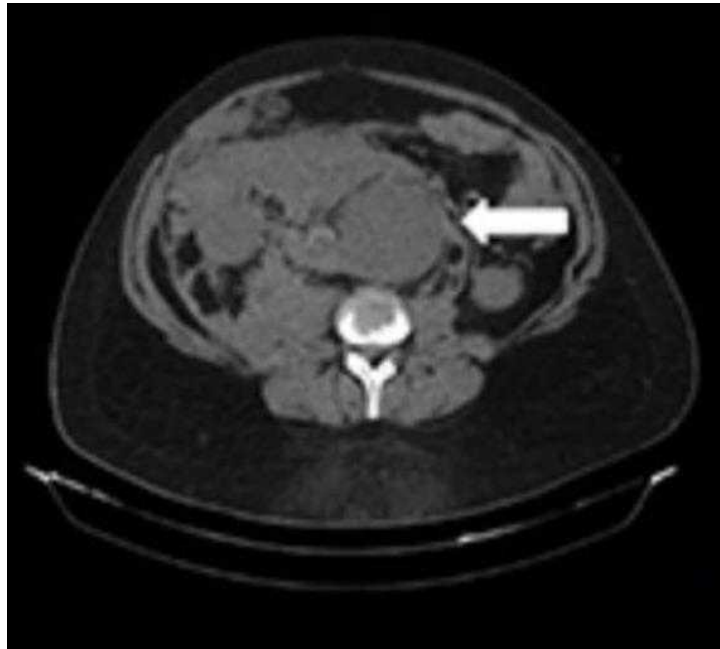
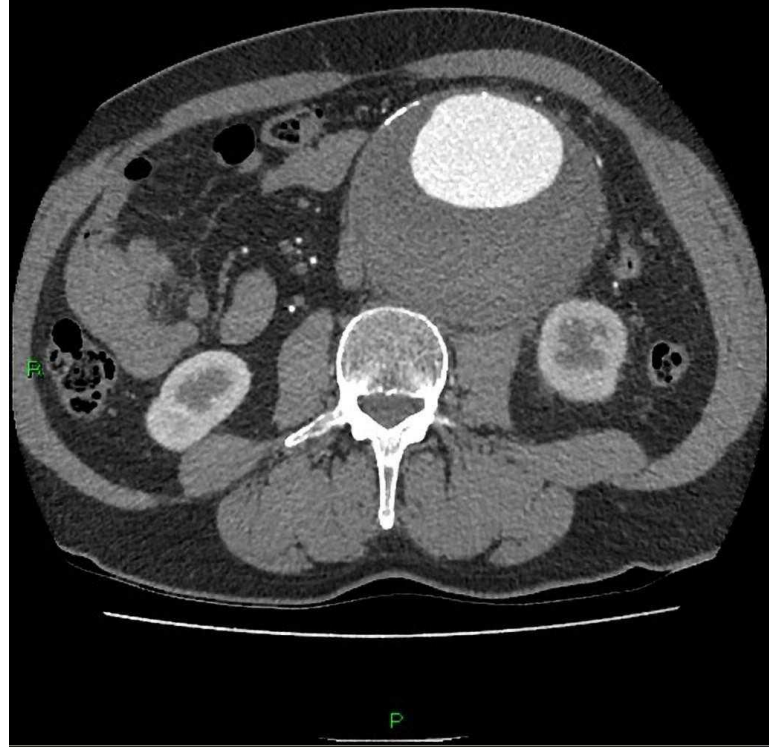


**Q1: What is the structure?**

- Abdominal Aorta

**Q2: What's the best repair method for this?**

- Stent



**Q: This is a CT Angio for the renal arteries:**

**Q1: What is the Dx?**

- Bilateral Renal Artery Stenosis

**Q2: What is your Mx?**

- Renal Angioplasty & Stenting



**Q: After RTA, the patient present with dilated veins?**

**Q1: Mention 2 causes?**

- 1) Pericardial Effusion
- 2) Cardiac Tamponade

**Q2: What is your Mx?**

- Pericardiocentesis





### Q1: What is the Dx?

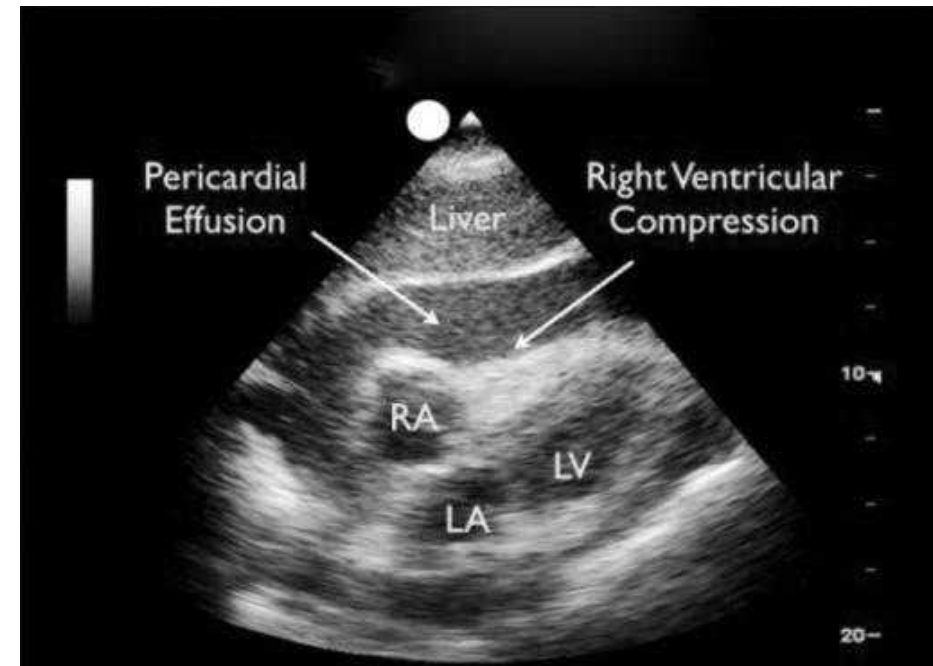
Cardiac Tamponade

### Q2: What is the C/P that the patient come with?

- 1) Beck's triad :  
hypotension  
increased JVP  
muffled heart sounds.
- 2) Pericardial effusion
- 3) Kussmaul's sign.

### Q3: What is the Mx?

immediate decompression via  
needle pericardiocentesis.



**Q: Post-RTA patient came to ER, he was hypotensive with SOB:**

**Q1: What is the pathology?**

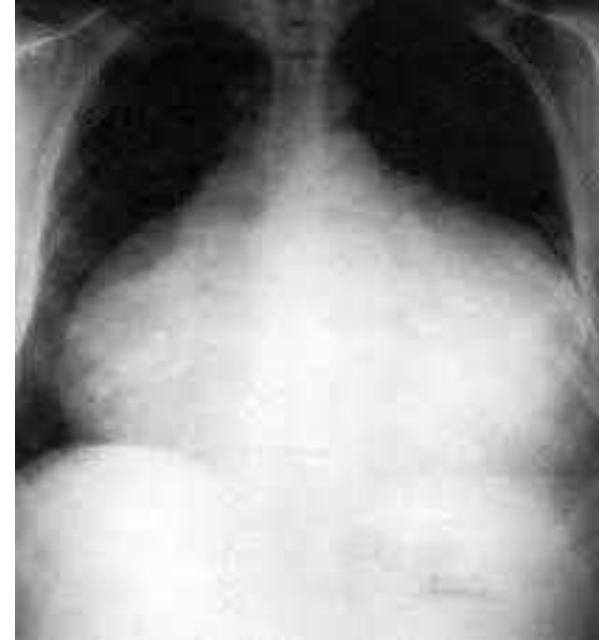
- Cardiac tamponade

**Q2: What is the next step in Mx?**

- Pericardiocentesis

**Q3: What is the consequence for this pathology?**

- Obstructive shock
- Pulmonary Edema
- Beck's Triad



**Q: a Pt experienced sudden severe pain radiating to the back:**

**Q1: What is the X-Ray finding?**

Widened Mediastinum

**Q2: What is the Dx?**

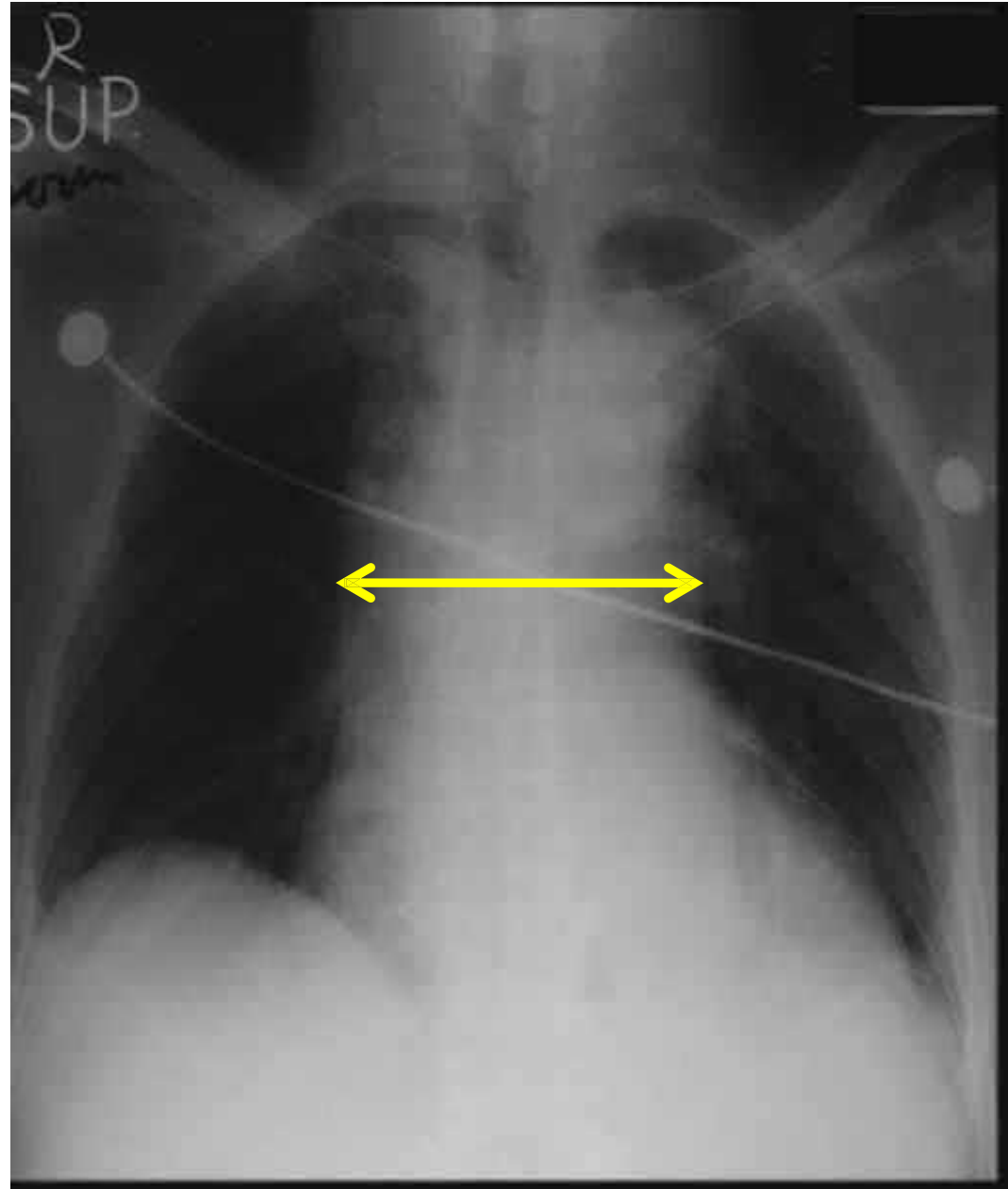
Aortic dissection

**Q3: What is the gold standard for Dx? And what is the disadvantage for it?**

Aortography, time consuming

**Q4: What is the Mx:**

- 1) Stanford A: Surgical
- 2) Stanford B: Medical (control BP)



**Q1: What is the Dx?** Venous Ulcer

**Q2: What is the pathophysiology?**

- Blood stasis and increased Pressure inside the veins due to venous valves insufficiency

**Q3: if this happened after 5 days of surgery what is the main cause?**

DVT

**Q4: Risk of transformation to?** SCC

**Q5: Name 2 causes?**

- venous insufficiency and stasis (as DVT, varicose veins)

**Q6: What is the sign?**

- Lipodermatoseclerosis





**Q7: What is the most common site?**

Most Common site is lower 1/3 of the leg just above the medial malleolus.



**Q8: Name 2 points that goes with your Dx?**

- 1) Location: lower medial aspect of the leg
- 2) Hyperpigmentation around the ulcer



**Q: A 75 year old male, heavy smoker, presented with this lesion.**

**Q1: Identify the lesion:**  
ischemic arterial ulcer

**Q2: Give two symptoms which might be associated with the condition:**

- 1) claudication
- 2) rest pain



**Q1: What is the most probable cause for this patient's condition?**

Lower Limb Ischemia

**Q2: What is the best imaging test to put a treatment plan?**

CT Angio, Angiogram,  
Doppler US



## Q1: What is the pathology?

- Gangrenous necrosis of the big toe

## Q2: Mention 4 signs of peripheral ischemic disease?

- 1) Pale
- 2) Hair loss
- 3) Cold
- 4) Pulselessness



**Remember the 6 P's of peripheral vascular disease:**

**P**allor

**P**ain

**P**aresthesia

**P**aralysis

**P**ulselessness

**P**oikilothermia



**Q: A patient walks 400 meters before feeling pain and having to rest, his job requires him to walk for 1 kilometer everyday, what do you do for this patient?**

- a) Lifestyle modification
- b) Medical therapy
- c) Bypass
- d) Angiogram **(correct answer)**

A medical professional in a white lab coat and stethoscope is holding a tablet in their left hand and pointing with their right index finger at a digital illustration of the human genitourinary tract. The illustration shows the kidneys, ureters, bladder, and reproductive organs in a stylized, glowing red and yellow color scheme, overlaid with a white geometric wireframe pattern. The text "Genitourinary Tract" is written in a large, white, bold font across the center of the image.

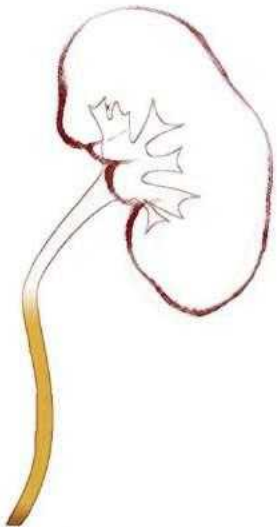
# Genitourinary Tract

## Q1: What is the imaging?

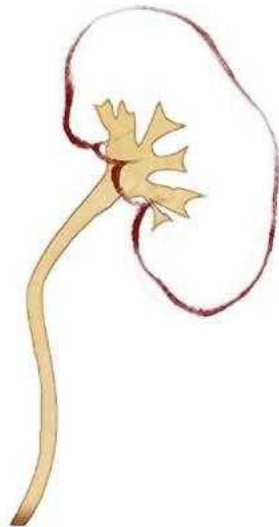
- MCUG

## Q2: Mx?

- Antibiotic for UTI
- Endoscopic injection
- Surgery



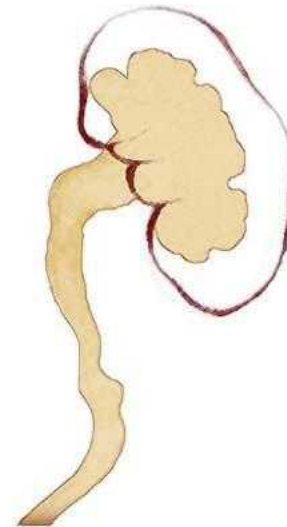
Grade I



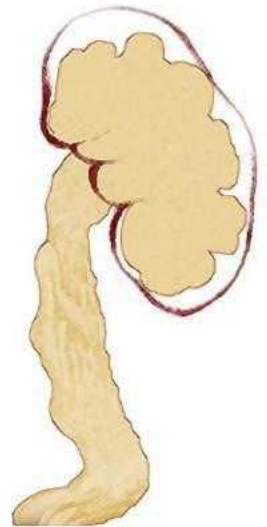
Grade II



Grade III



Grade IV



Grade V

**Q1: What is the name of this study?**

- MCUG

**Q2: What is the name of this pathology (without abbreviation)?**

- Vesicouretral reflux (VUR)





**Q1: What is the pathology?**

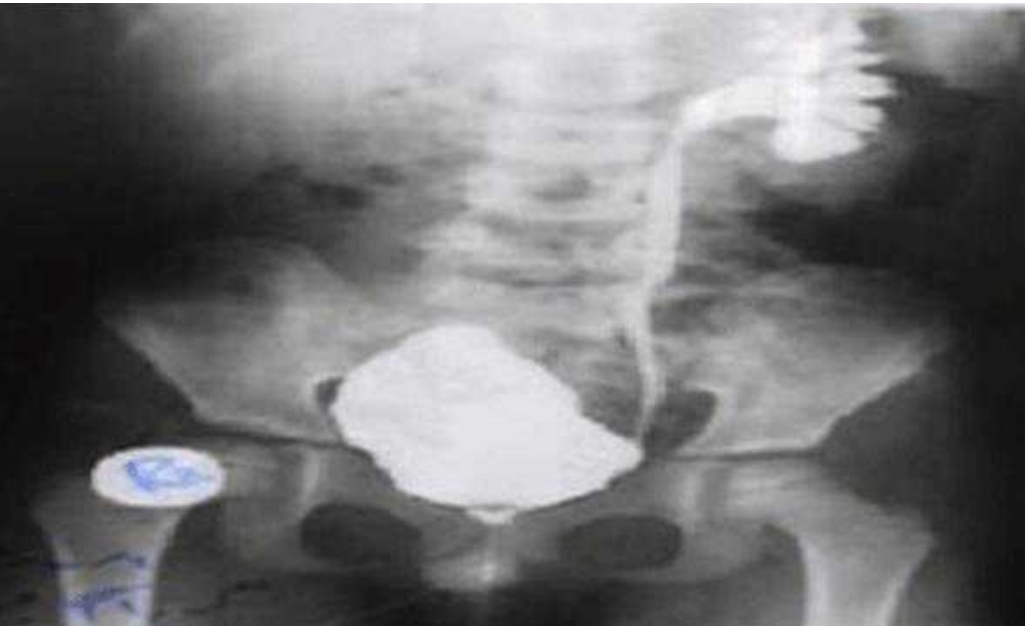
- Left dilated tortuous ureter and hydronephrosis (right pic)

**Q2: What is the cause behind this?**

- Posterior urethral valve
- Congenital

**Q3: What are the 2 complications that might occur?**

- 1) Recurrent UTIs
- 2) Kidney scarring



**Q1: Name the finding?**

- Staghorn stone or Struvite stone

**Q2: What is the Etiology?**

- Urease producing bacteria (proteus, klebsiella, pseudomonas)



A person wearing a grey button-down shirt and a black belt is shown from the waist up. They are holding their right hand over their stomach, specifically the upper right quadrant, suggesting abdominal pain. The background is a plain, light grey.

# Gastrointestinal Tract (Esophagus, Stomach & Intestines)

**Q: Patient came complaining of dysphagia for both liquids & solids:**

**Q1: What is the sign?**

- Bird peak sign

**Q2: Name the study?**

- Barium swallow

**Q3: What is the definitive Dx?**

- Achalasia

**Q4: What is the definitive diagnostic test?**

- Manometry

**Q5: Mention 2 modalities of Mx?**

- 1) Esophageal sphincter (Hellers) Myotomy
- 2) Balloon dilation



May lead to esophageal carcinoma 2ry to Barrett's esophagus from food stasis.





**Q: a pt came complaining of dysphagia for both solids and liquids.**

**Q1: What is the Dx?**

Diffuse Esophageal Spasm (DES)

**Q2: What is the sign?**

corkscrew appearance

**Q3: How to Diagnose?**

- 1) Barium
- 2) Manometry (most accurate)

**Q4: What is the Mx?**

diltiazem or nifedipine and nitrates

**Q5: How to differentiate it from Nut-cracker esophagus?**

By manometry (the nut cracker: peristaltic contractions with high amplitude, while the DES is non-peristaltic with high contractions)



## **Q1: Define Barret's esophagus?**

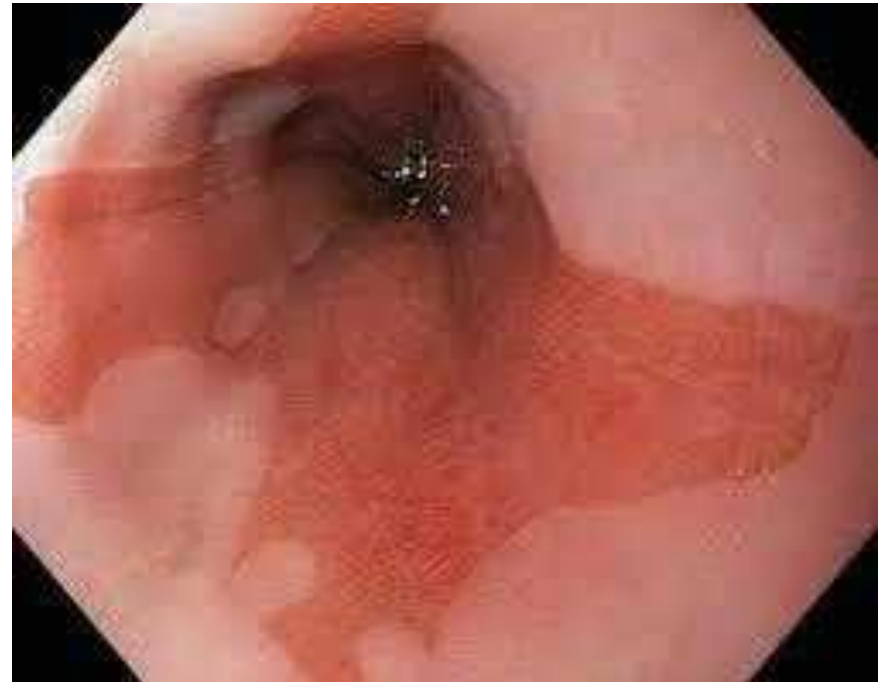
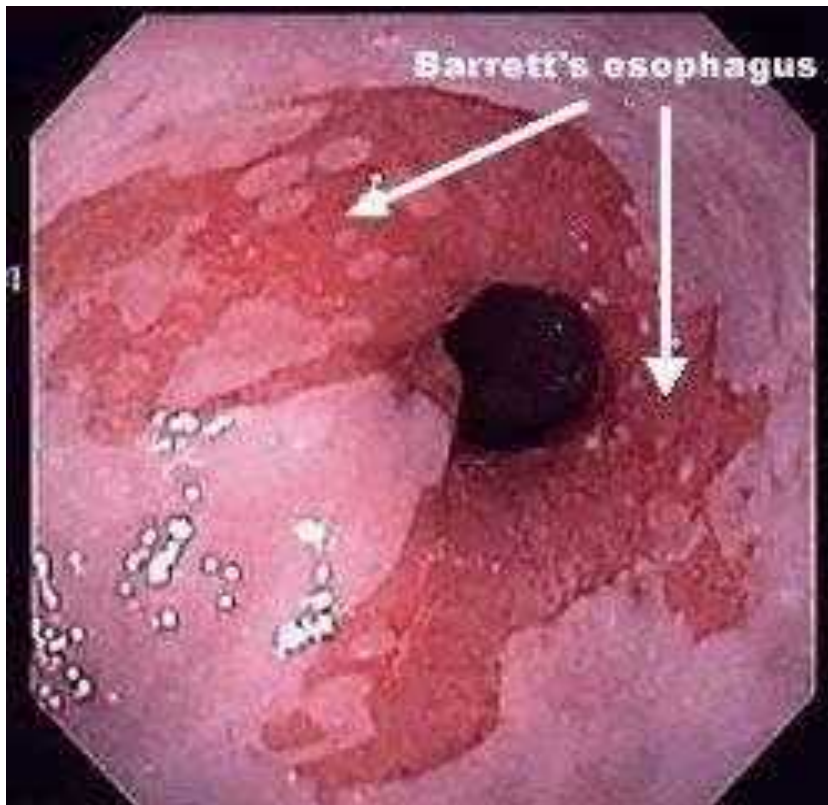
Change in the normally squamous lining of the lower esophagus to columnar epithelium (metaplasia)

**Q2: What common type of cancer you will see?** Adenocarcinoma

**Q3: What is the cause?** Chronic GERD

**Q4: How to Dx?** Endoscopy

**Q5: Mx?** PPI and follow up



## Q1: What is the Dx?

Esophageal Varices

## Q2: Mx?

- 1) Therapeutic endoscopy
- 2) Ligation, banding, sclerotherapy
- 3)  $\beta$ -blockers (e.g. propranolol).



**Q1: What is the Dx?**

Gastrointestinal Stromal Tumor  
(GIST)

**Q2: What is the MC site?**

Greater curvature (Stomach)

**Q3: What are the cells of origin?**

Cells of Cajal

**Q4: Name the Gene Mutation?**

C-KIT

**Q5: How to Mx?**

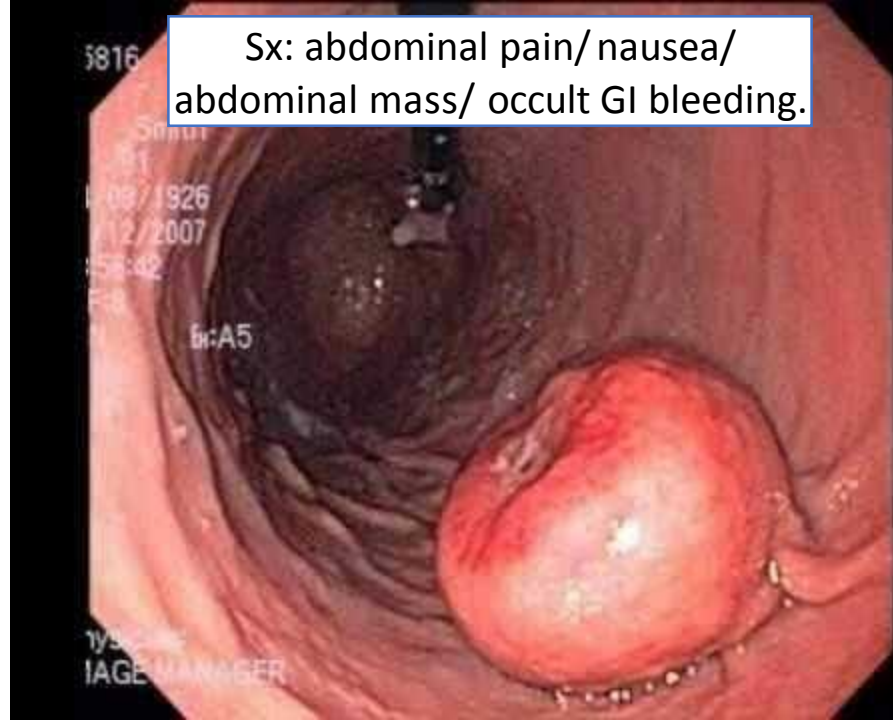
Resection

Chemo (Imatinib)

**Q6: How to Diagnose?**

CT / EGD/ colonoscopy

Sx: abdominal pain/nausea/  
abdominal mass/ occult GI bleeding.





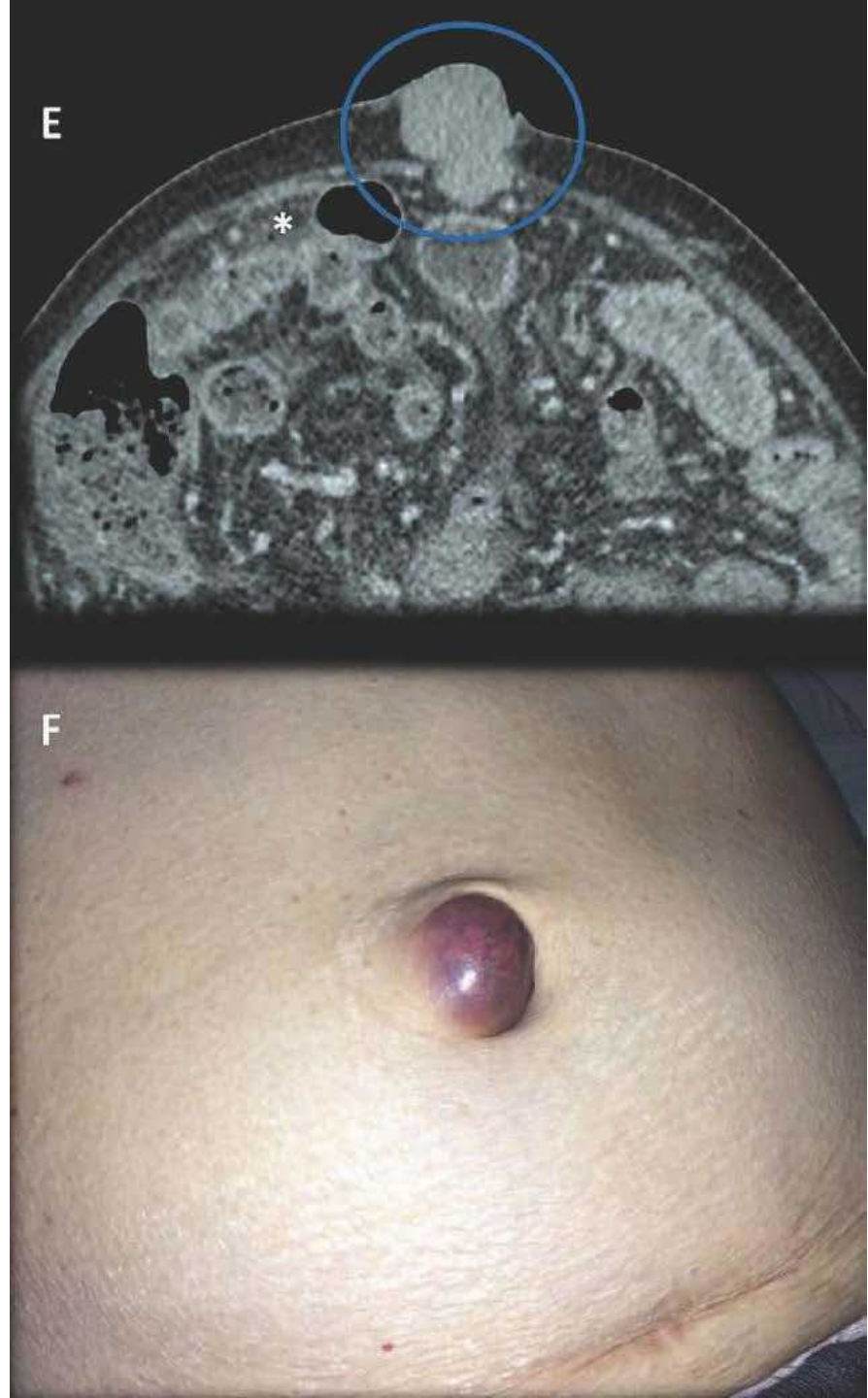
**Q: A 50-years old male patient has recently become cachectic and developed ascites.**

**1. Name the findings on examination (lower picture) and CT scan (upper picture).**

- Sister Mary Joseph Nodule

**2. Mention 2 possible sources for this lesion.**

- GI cancers, Gynecological cancers, Melanoma



**Q: You are doing endoscopy and you found this lesion?**

**Q1: Describe what you see?**

- Comment on the shape, size, location, color, presence of necrosis, discharge, etc..

**Q2: What is the likely Dx?**

- Stomach cancer or ulcer

**Q3: Next step in Mx?**

- Biopsy



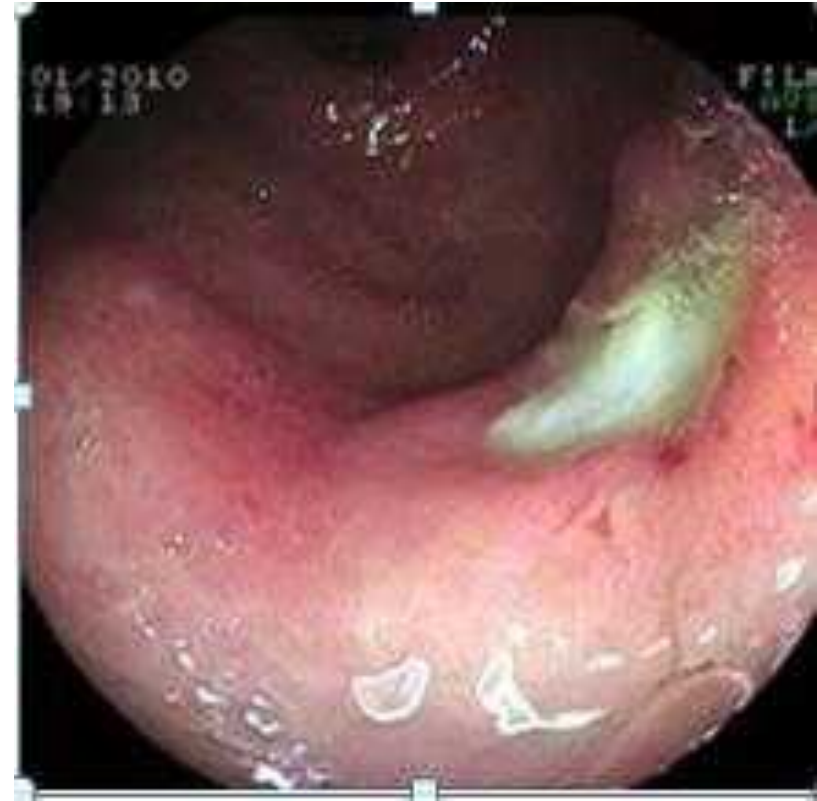
**Q: You are doing endoscopy and you found this lesion, pain is relieved by eating and exacerbated in empty stomach?**

**Q1: What is the likely Dx?**

- Peptic (duodenal) ulcer

**Q2: name 2 complications?**

- 1) Perforation
- 2) Bleeding



**Q1: What is A and B?**

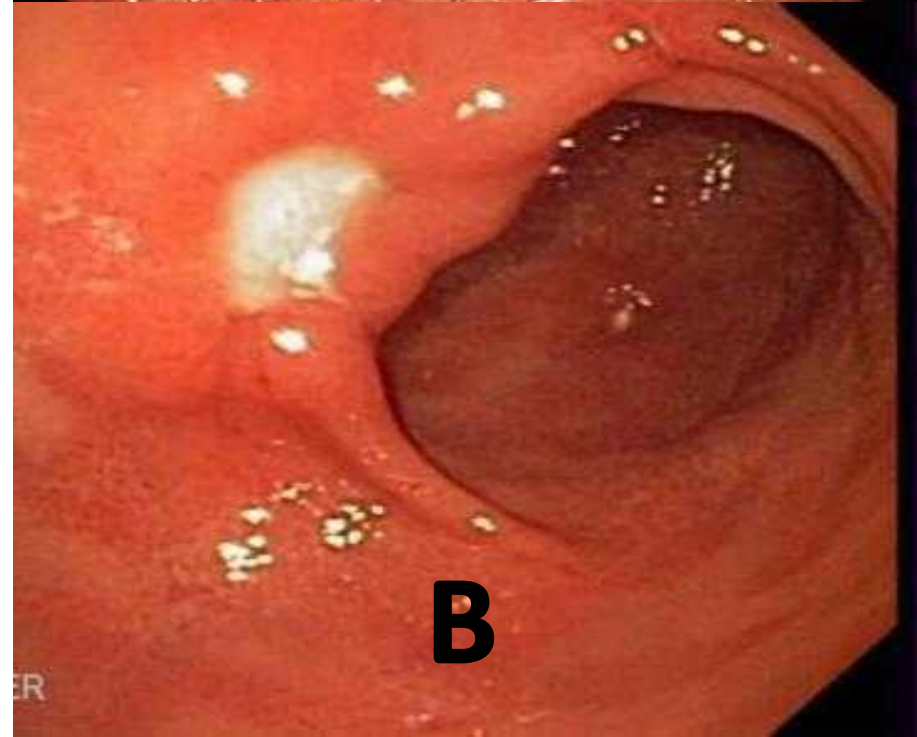
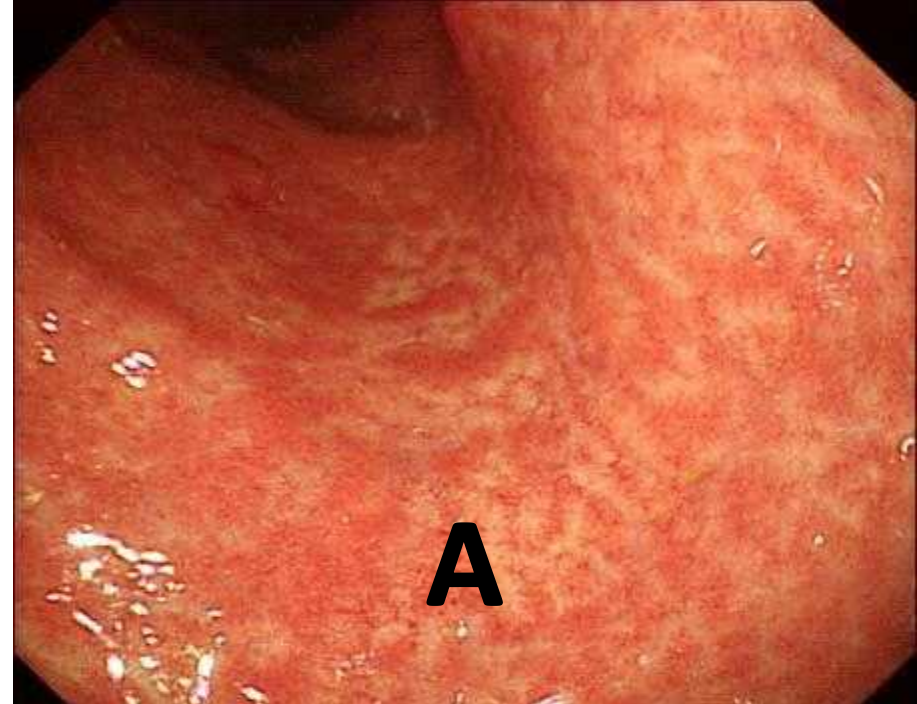
**A** > Gastritis “not sure”

**B** > Duodenal Ulcer

**Q2: Name 2 causes?**

1) NSAID

2) H. Pylori





**Q: The patient presented with sudden severe pain and abdominal distension:**

**Q1: What is the sign?**

- Coffee bean sign



**Q2: Name the signs you?**

- 1) Dilated large bowel
- 2) Coffee bean sign

**Q3: What is your Dx?** Sigmoid volvulus

**Q4: What is the MC site?** in Sigmoid

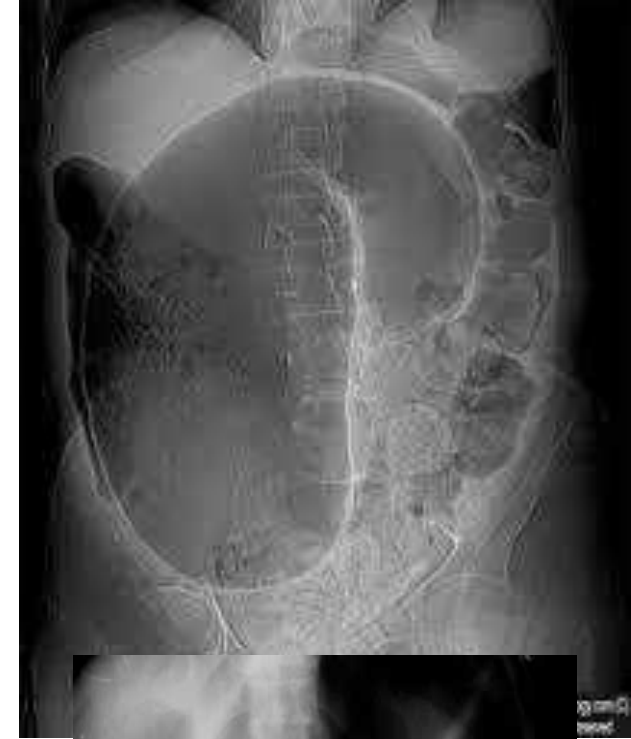


### Q5: Mx?

- Resuscitation and untwist (detorsion) the bowel and go for surgery (this is done by means of sigmoidoscopy or colonoscopy)

### Q6: Mention 2 causes for this condition?

- Chronic constipation
- Sigmoid tumor



**Q1: What is the study?**

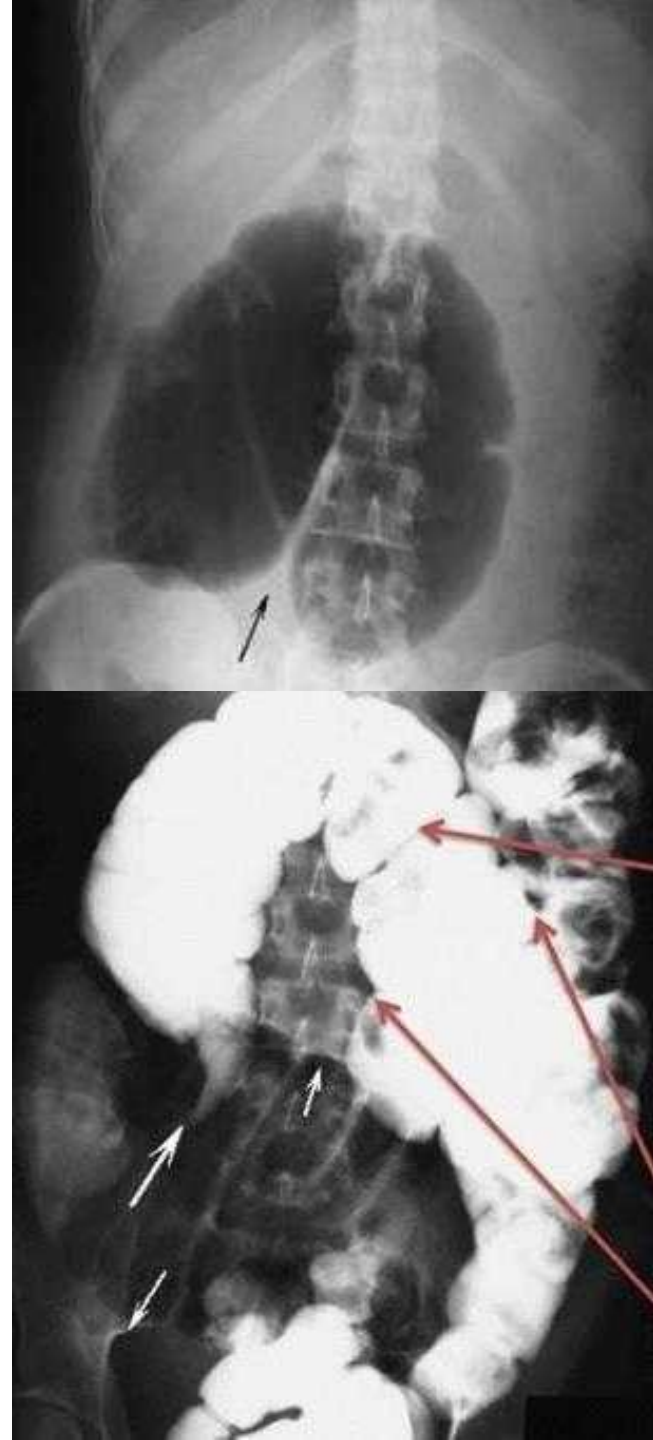
- Barium Enema

**Q2: What is the Dx?**

- Volvulus

**Q3: What is the Mx?**

- Detorsion

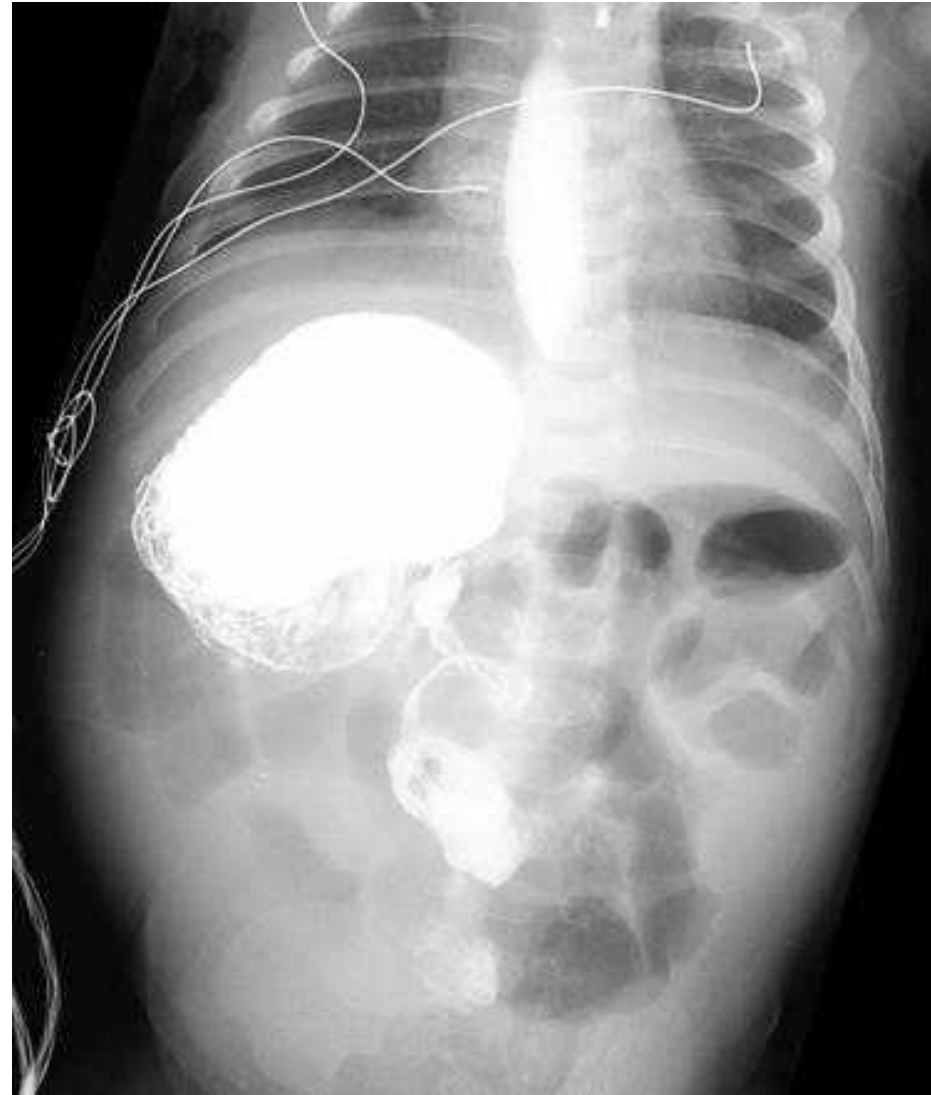


**Q1: What is the study?**

- Barium follow through

**Q2: What is the pathology?**

- Midgut volvulus



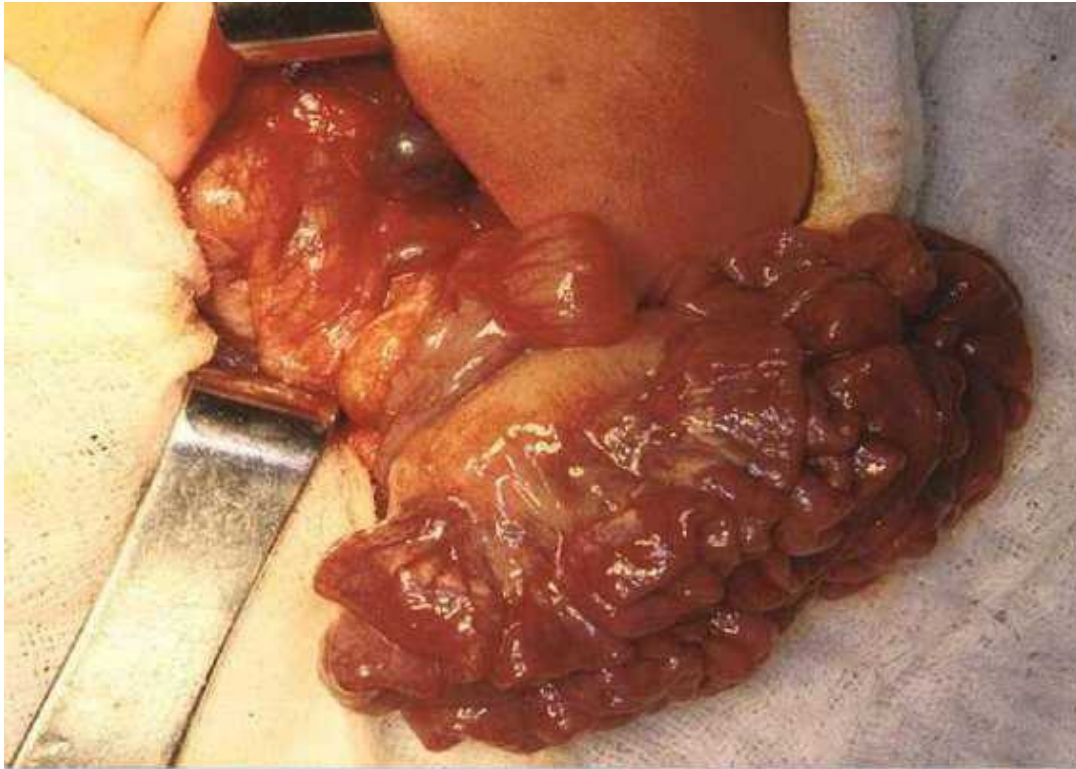


## Q1: What is the Dx?

- Volvulus (Midgut)

## Q2: If the bowel was viable and not gangrenous, what to do?

- Viable SB > Close and observe
- Other option: Ladd's Procedure



### **Q1: What is the study?**

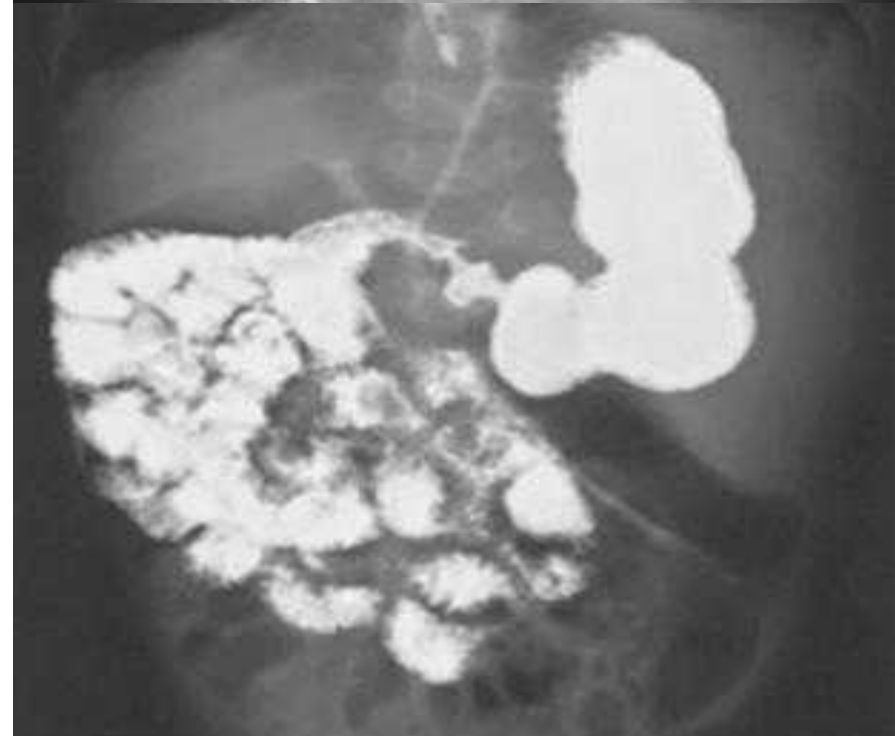
- Barium follow through

### **Q2: What is the pathology?**

- Midgut volvulus due to malrotation

### **Q3: What is the Clinical ER Presentation?**

- acute abdominal pain , distention , constipation , vomiting



### Q1: What is the Dx?

Small intestinal obstruction

### Q2: What is the radiological findings?

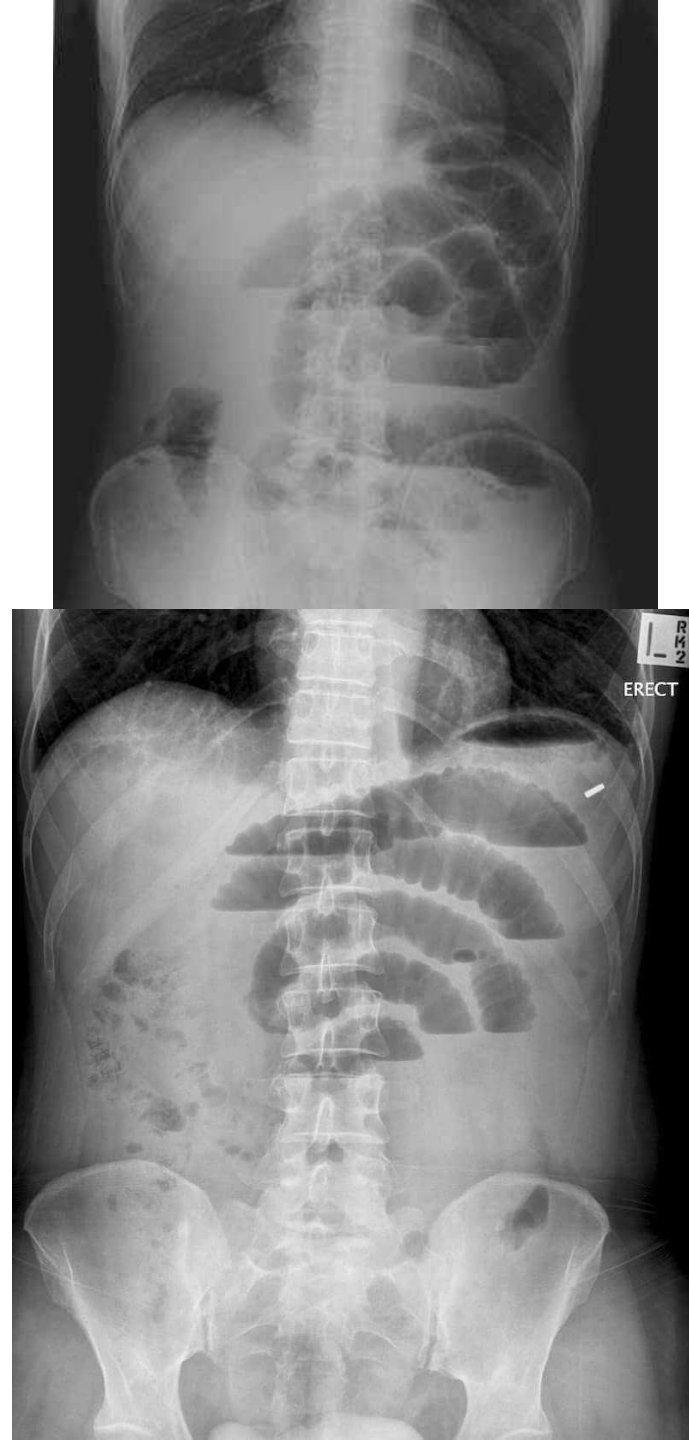
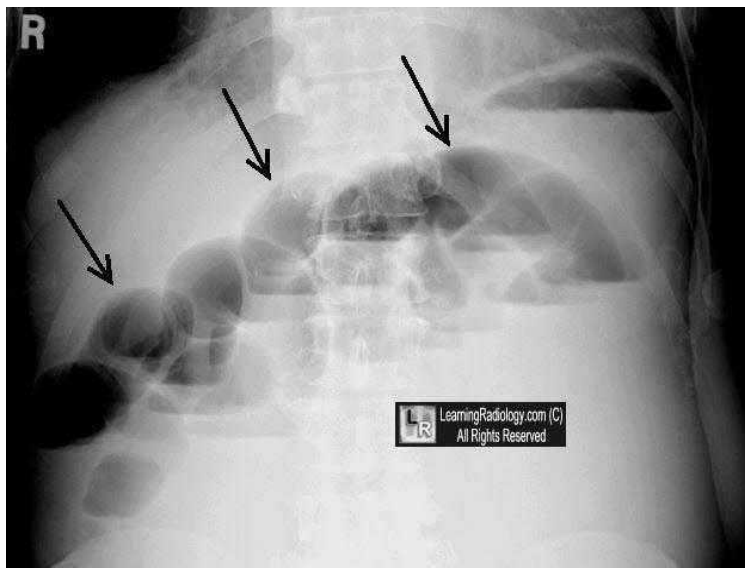
Dilated bowel loops (Jejunal), and air in the rectum

### Q3: This is a picture of obstruction, Is it partial/complete? Why?

- Partial obstruction
- Because there is air in rectum

### Q4: What is the appearance?

Step-ladder appearance



**Q: A 30 year old female presented with sudden abdominal pain and fever and diffuse tenderness of the abdomen:**

**Q1: What is the Dx?**

Perforated viscus

**Q2: What is the radiological finding?**

Air under diaphragm

**Q3: What is the Mx?**

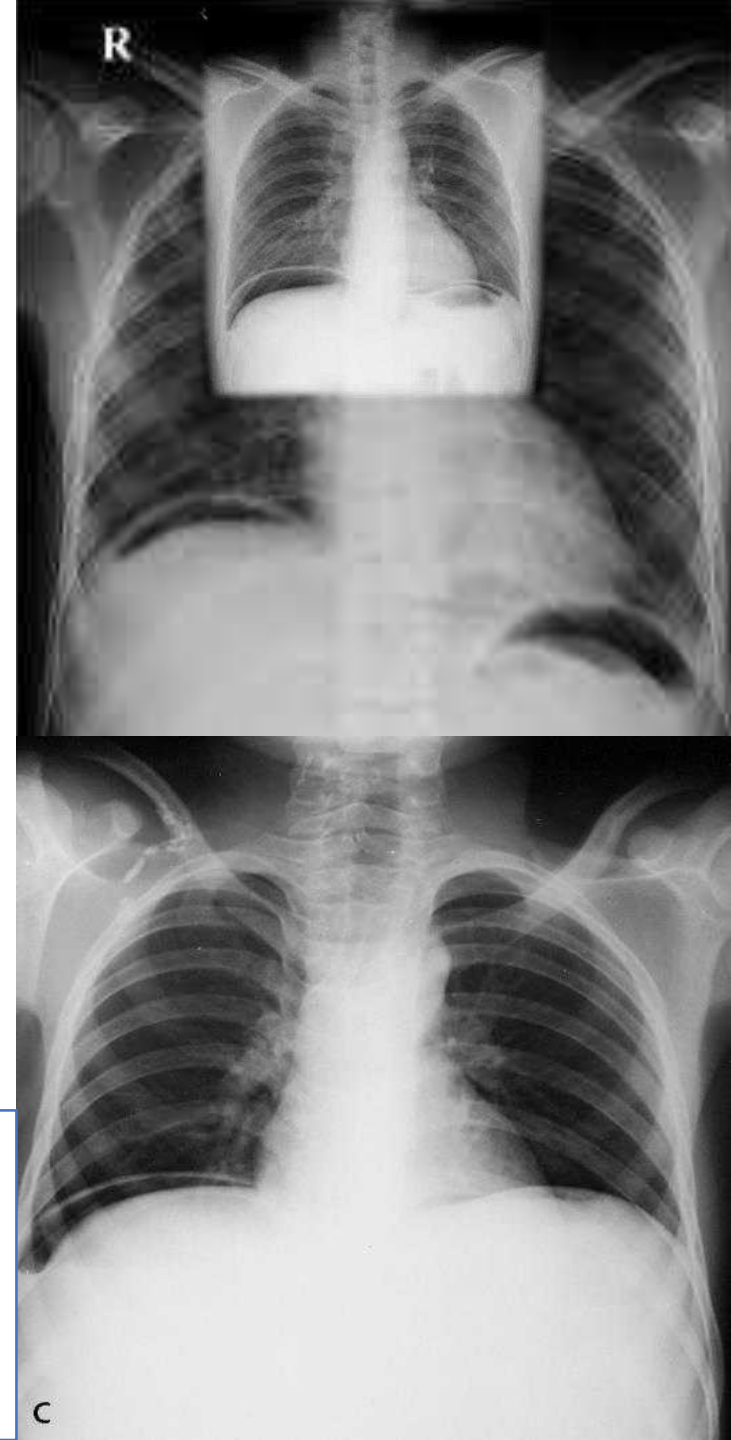
Laparotomy and exploration

**Q4: What is the mcc?**

Post-op

**Causes:**

1. Perforation of duodenal ulcer.
2. Following Laparoscopic procedure
3. Following Tubal Insufflation Test
4. Infection with gas forming organisms
5. Most common cause is post operative.
6. Chilaiditi's sign - due to interposition of colon between the Diaphragm and the Liver such a gas shadow can be obtained even in a normal individual.





**Q: A 55 years old patient with PUD came with forceful vomiting:**

**Q1: What is the pathology?**

- Gastric outlet obstruction (pyloric obstruction) – Pyloric Stenosis

**Q2: What is the electrolyte disturbances the patient has?**

- Hypokalemic hypochloremic metabolic alkalosis

**Q3: What is the gold standard for Dx?**

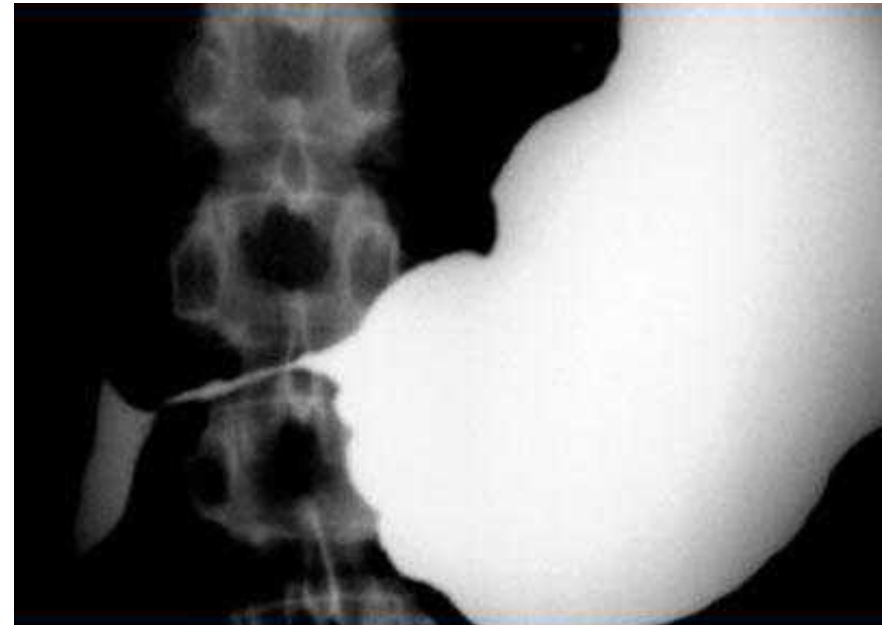
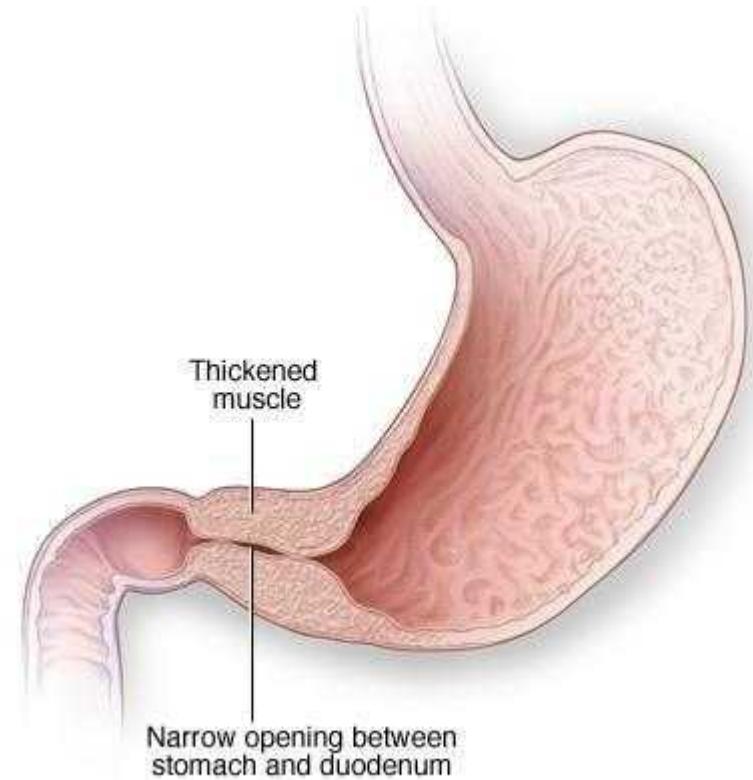
- US “not sure”

**Q4: Mention 2 causes?**

- 1) Gastric Carcinoma
- 2) Peptic ulcer disease (PUD)

**Q5: Name it's effect on ventilation?**

- Hypoventilation



**Q: A 48-years old patient presented with acute abdomen. PMH shows atrial fibrillation. Laparotomy was done:**

**Q1: What is the Dx?**

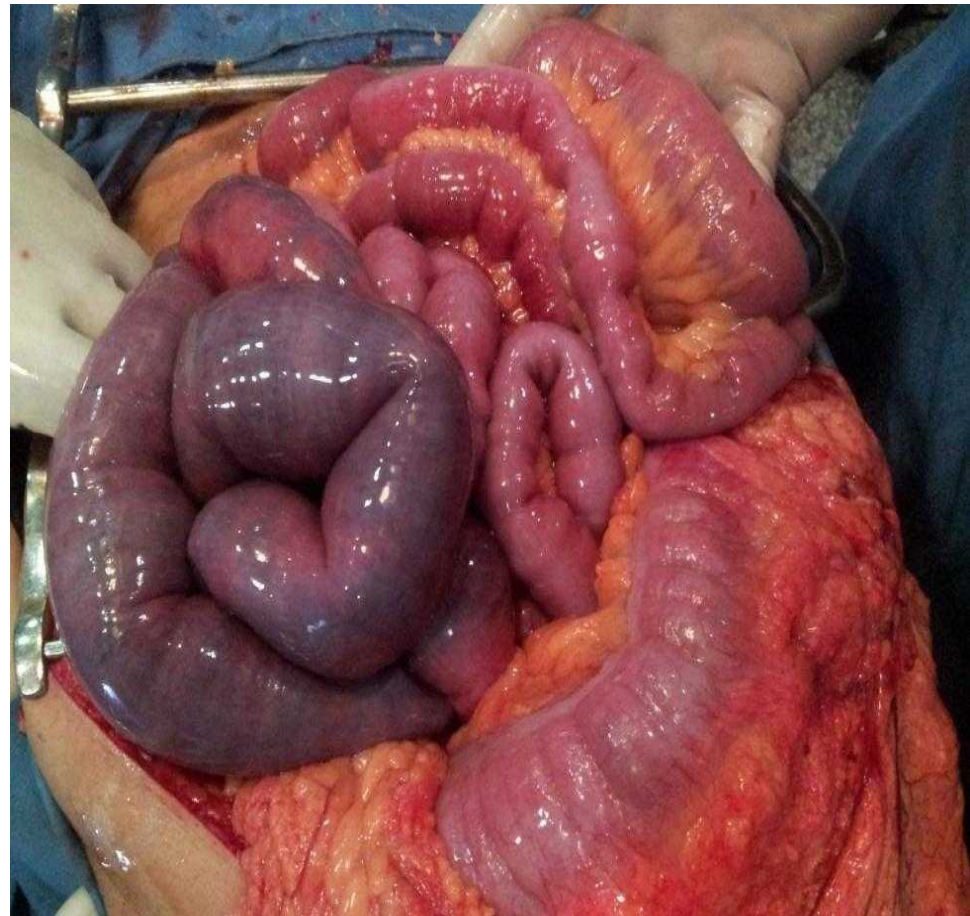
- Acute Mesenteric Ischemia

**Q2: What is the most affected artery in this condition?**

- Superior mesenteric artery

**Q3: Appropriate Mx?**

- Resection & Anastomosis



**Q1: What is the Dx?**

- Diverticulosis

**Q2: Mention 2 complications?**

- 1) Infection
- 2) Perforation
- 3) Obstruction

**Q3: What is the most common site?**

- Sigmoid





**Q: Female patient came complaining from fistulas and other symptoms and a colonoscopy was done:**

**Q1: What is the Dx?**

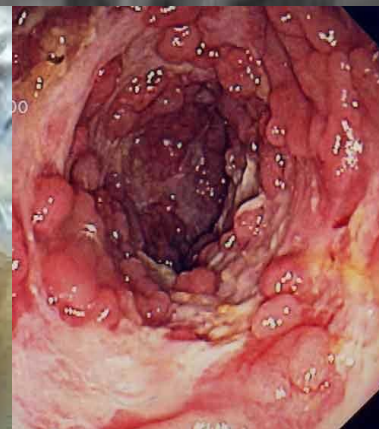
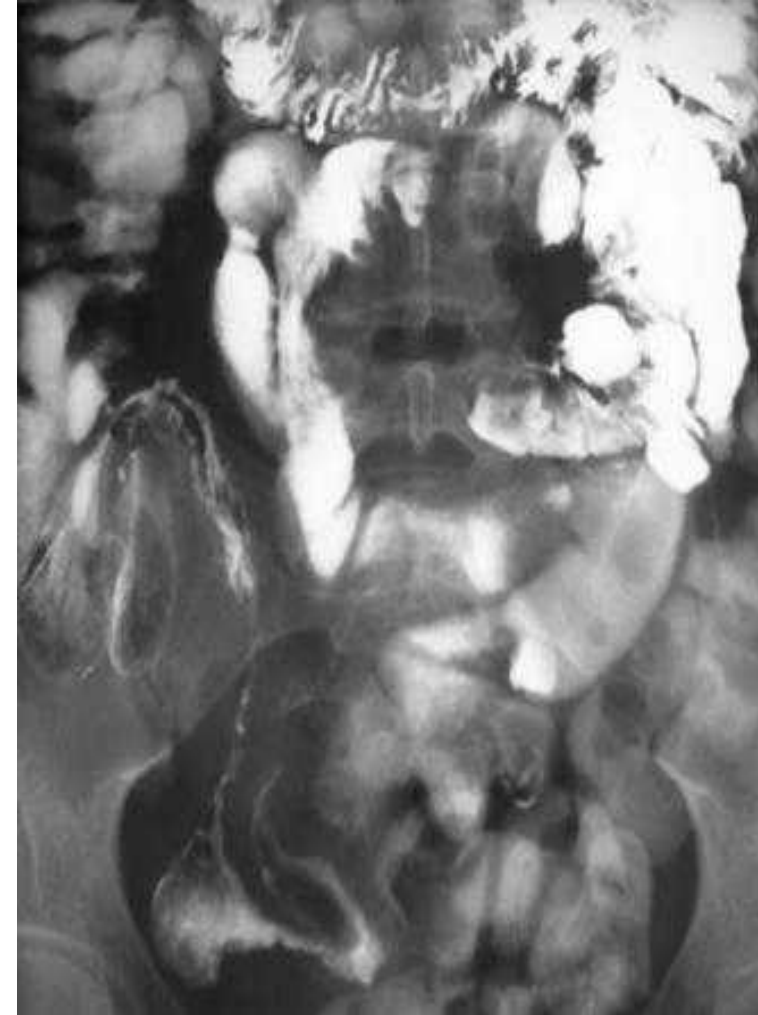
- Crohn's Disease

**Q2: What are the usual Sx?**

- Abdominal pain
- Fever with weight loss
- Diarrhea

**Q3: How do we treat those patients?**

- Azathioprine (6 mecaptopurine) + steroids



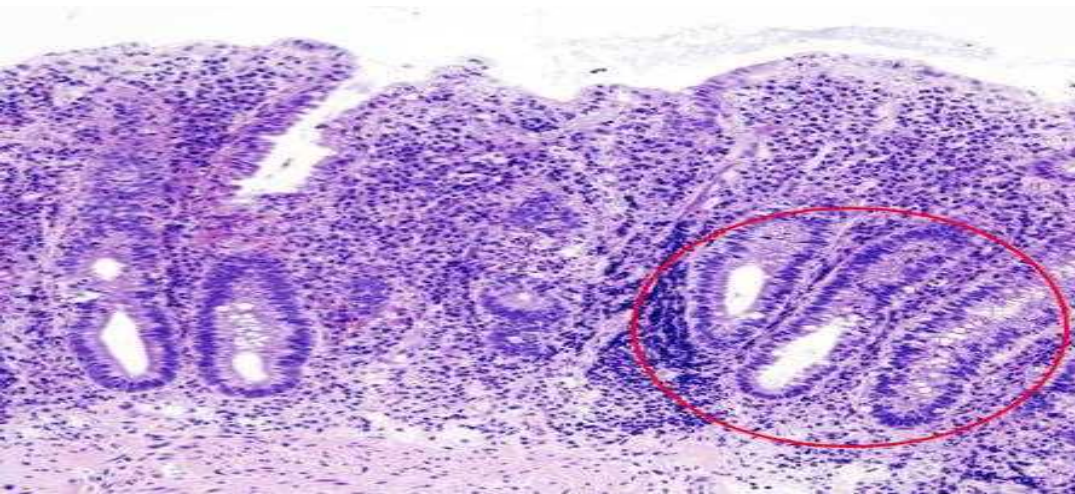
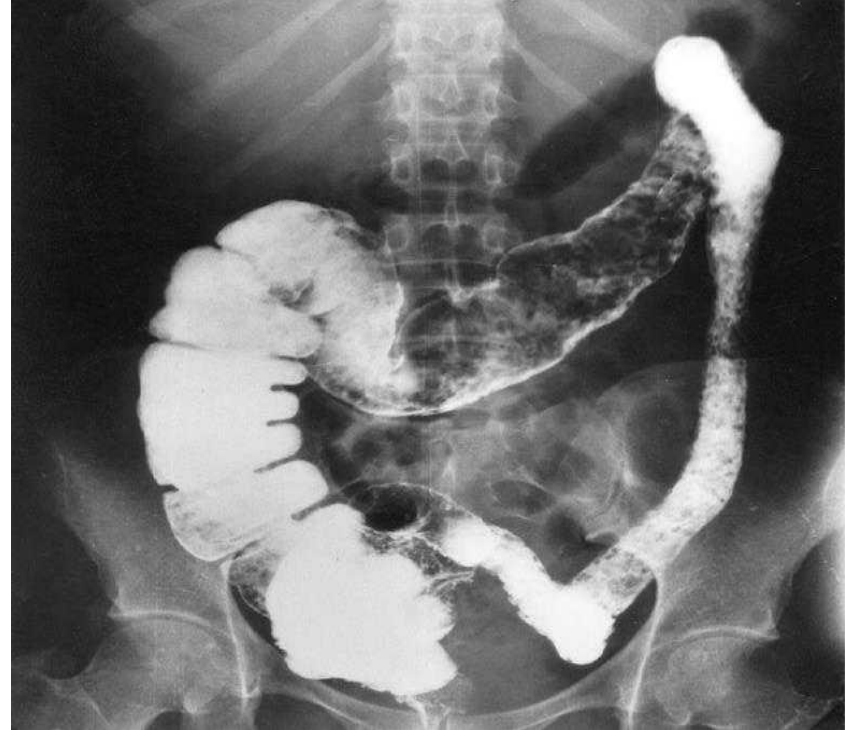


**Q1: What is the Dx?**

- Ulcerative colitis

**Q2: Mention 2 drugs used in  
Mx?**

- 1) Steroid
- 2) Azathioprine



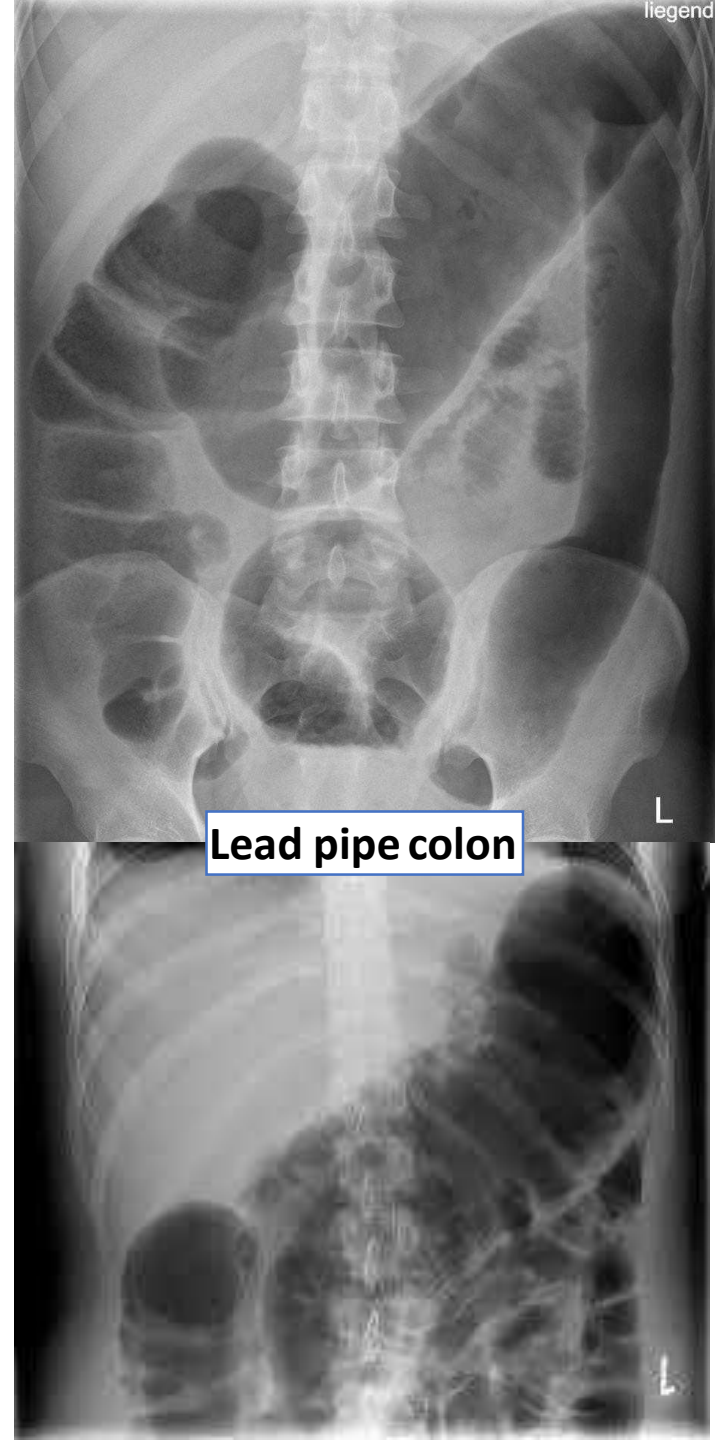
**Q: Known case of UC, with Hx of bloody diarrhea and abdominal pain:**

**Q1: What is the abnormality?**

- Transverse Toxic megacolon

**Q2: One complication?**

- Perforation
- Peritonitis



## **Q: Appendicitis Scenario:**

### **Q1: What is the pathology?**

- Acute Appendicitis

### **Q2: What is the name of it's scoring system?**

- Alvarado scoring system

### **Q3: What is the sequence of the pain?**

- Visceral somatic sequence of pain

### **Q4: Write 2 features found on US?**

- 1) Blind-ending tubular dilated structure >6mm
- 2) Appendicolith with acoustic shadow
- 3) Distinct appendiceal wall layers
- 4) Periappendiceal fluid collection
- 5) Periappendiceal reactive nodal enlargement

# Alvarado scoring system (Appendicitis)

Mnemonic (MANTRELS)	Value
Symptom	
Migration	1
Anorexia-acetone	1
Nausea-vomiting	1
Signs	
Tenderness in right lower quadrant	2
Rebound pain	1
Elevation of temperature $>37.3^{\circ}\text{C}$	1
Laboratory	
Leukocytosis	2
Shift to the left	1
Total score	10



**Q: patient with Hx of lower GI bleeding  
& this is the colonoscopy:**

**Q1: What is the Dx?**

- Angiodysplasia

**Q2: the Cause?**

- Degeneration of submucosal venous  
wall and formation of AVM

**Q3: the Mx?**

- 1) Laser
- 2) Electrocoagulation
- 3) Surgery

**Q4: What is the most common site?**

- the cecum or ascending colon



## Q: What is the Dx?

- Peutz-Jeghers syndrome

\*\* Note: PJS is an autosomal dominant inherited disorder characterized by intestinal hamartomatous polyps in association with a distinct pattern of skin and mucosal macular melanin deposition



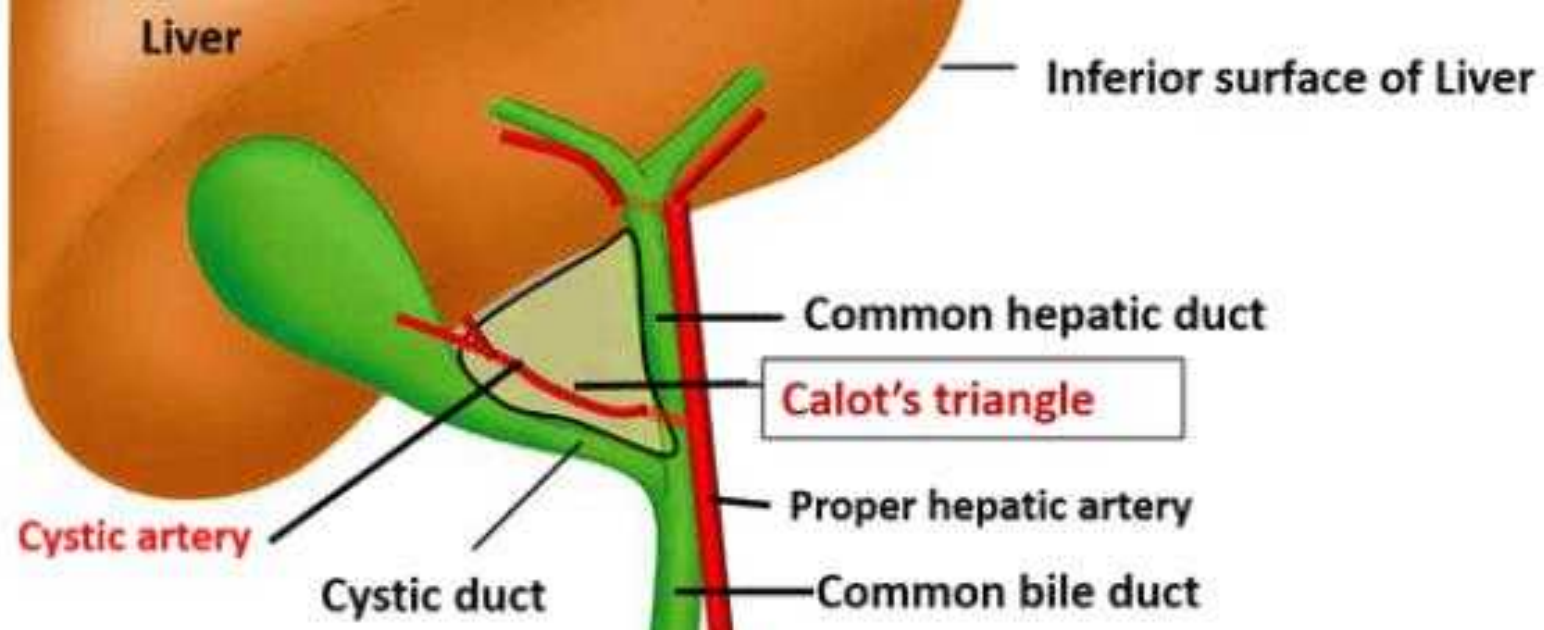
Name	Region & info	Indications
<b>Barium Swallow</b>	to visualize the area from the mouth to the stomach (esophagus)	a. Symptoms of gastro-esophageal reflux b. Dysphagia, related to: Esophageal (Web, stricture, tumor, achalasia), vascular abnormalities
<b>Barium Meal</b>	Double contrast (gas+barium) to visualize the stomach and the duodenum	a. Gastro-esophageal reflux b. Gastric or duodenal ulcer c. Hiatus hernia d. Gastric tumors
<b>Barium follow-through</b>	To visualize the small intestine, taken every 1/2 hr till we reach the large intestine (stool white)	a. IBS (crohns mostly) b. small bowel tumor/lymphoma (filling defect) c. Small bowel obstruction
<b>Barium Enema</b>	Double contrast (barium + air), to visualize the colon, and it's the only contrast given in the rectum (by Folly's)	a. Abdominal mass b. Large bowel obstruction / volvulus c. Diverticular disease d. Colonic tumor



An anatomical illustration of the human torso, focusing on the abdominal cavity. The rib cage is visible on the left, and the spine is on the right. The liver is shown in a reddish-brown color, occupying the upper right portion of the abdomen. The spleen is a smaller, reddish organ located to the left of the liver. The pancreas is a long, yellowish organ situated behind the stomach. The gallbladder is a small, pear-shaped sac located below the liver. The adrenal glands are two small, triangular glands, one sitting atop each kidney. The text is overlaid in the center of the image.

# Liver, Spleen, Pancreas, Gallbladder & The Adrenals





**Q1: What is this triangle?**

- Calot's Triangle

**Q2: Name 3 borders?**

- 1) Inferior border of the liver
- 2) Cystic duct
- 3) Common hepatic duct

**Q: Name the following complications of liver cirrhosis:**

**A >** Ascites

**B >** Caput medusa (dilated veins)

**C >** Hematoma (easily bruised)



**Q1: What is the sign?** Caput Medusa

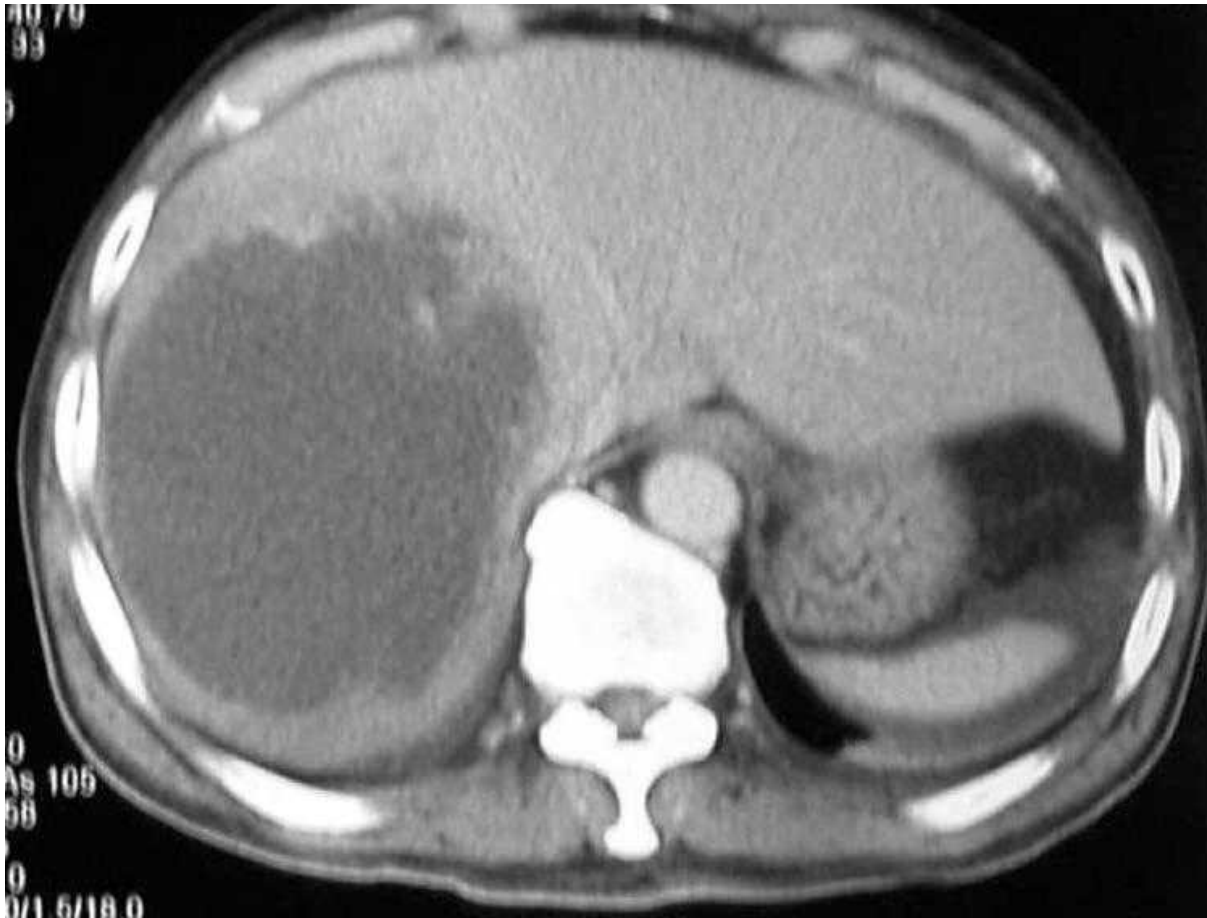
**Q2: What is the Dx?** Liver Cirrhosis



**Q: This 60-years old patient developed abdominal pain, bloody diarrhea and fever. He came back from a tour trip to a south west Asian country 3 weeks ago. CT was done.**

**1. What is the most likely diagnosis?** Liver Abscess (Ameobic)

**2. What is the treatment of choice?** Metronidazole





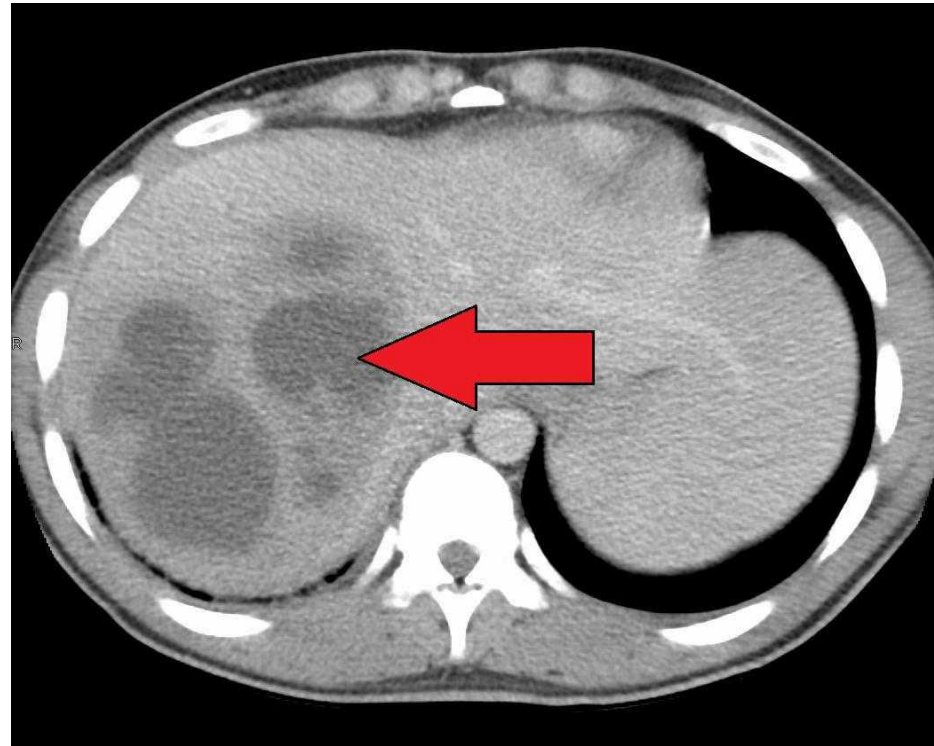
**Q: Patient presented  
lethargic and febrile a week  
after a surgery for  
choolangitis:**

**Q1: What is your Dx?**

- Liver abscess

**Q2: Mx?**

- Percutaneous drainage, &
- Antibiotic administration



**Q: A 45 year old male presented with RUQ discomfort and pain, this is his abdominal CT.**

**Q1: What is the radiological finding?**

Peri-cyst and daughter cysts  
(hydatid cyst disease).

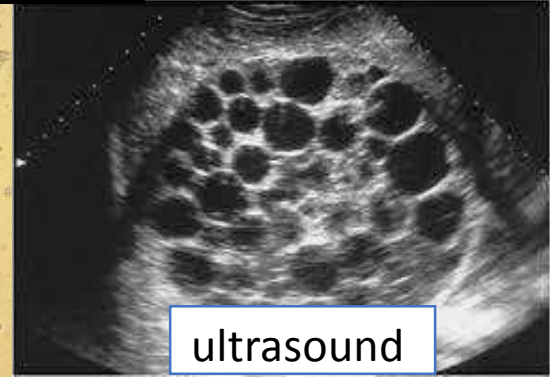
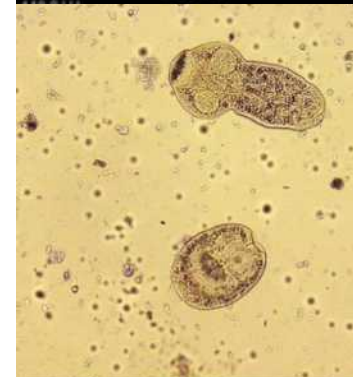
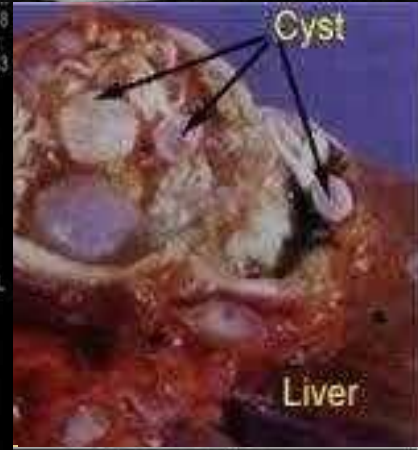
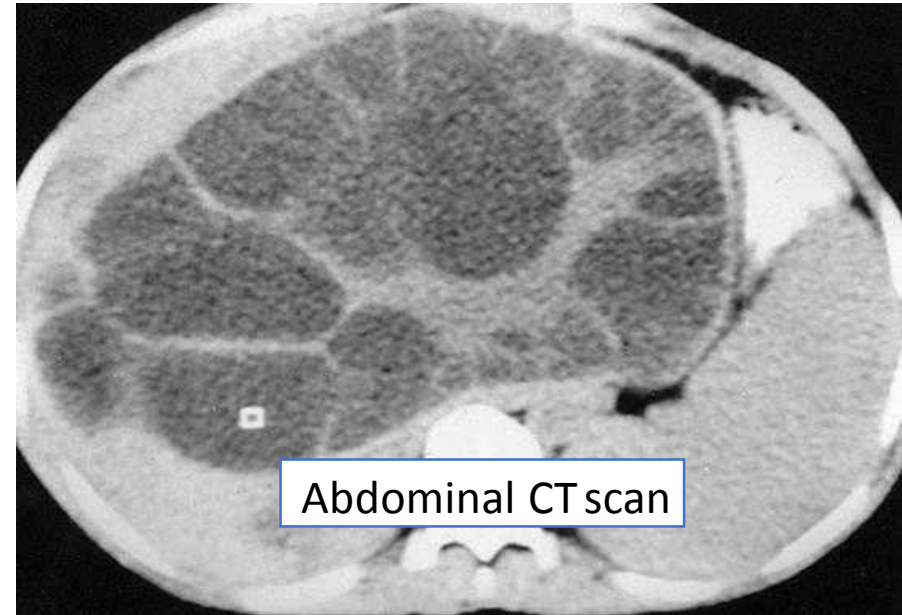
**Q2: Mention 2 complications:**

Rupture and anaphylaxis/  
obstructive jaundice.

**Q3: Give 2 drug that can be used?**

Albendazole, Mebendazole

is a **parasitic infestation** by a tapeworm of  
the genus **Echinococcus**.



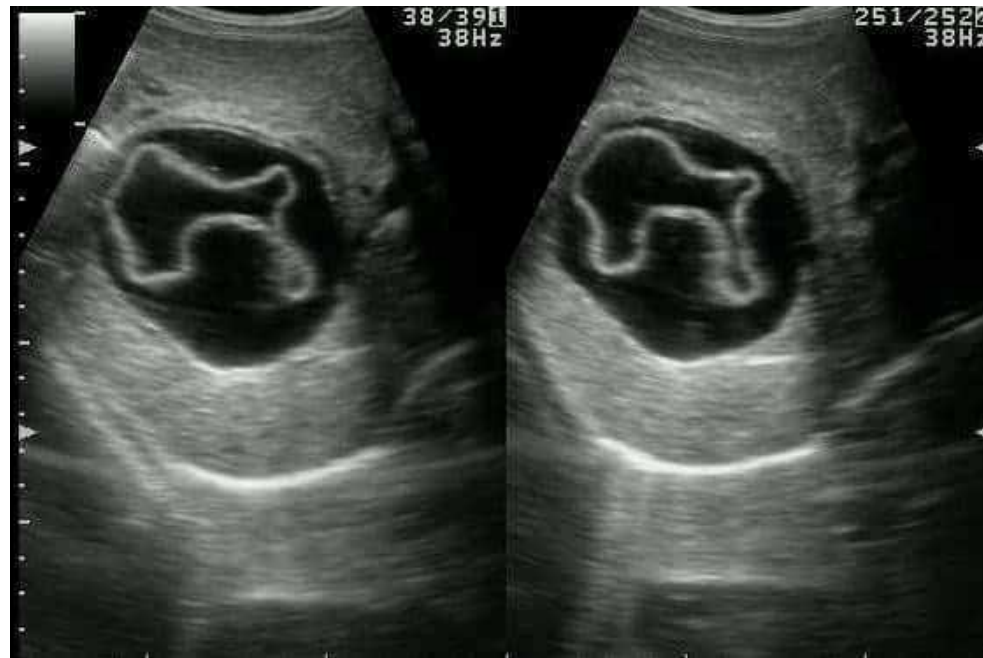
**Q: Abdominal US image for a woman lives in rural area:**

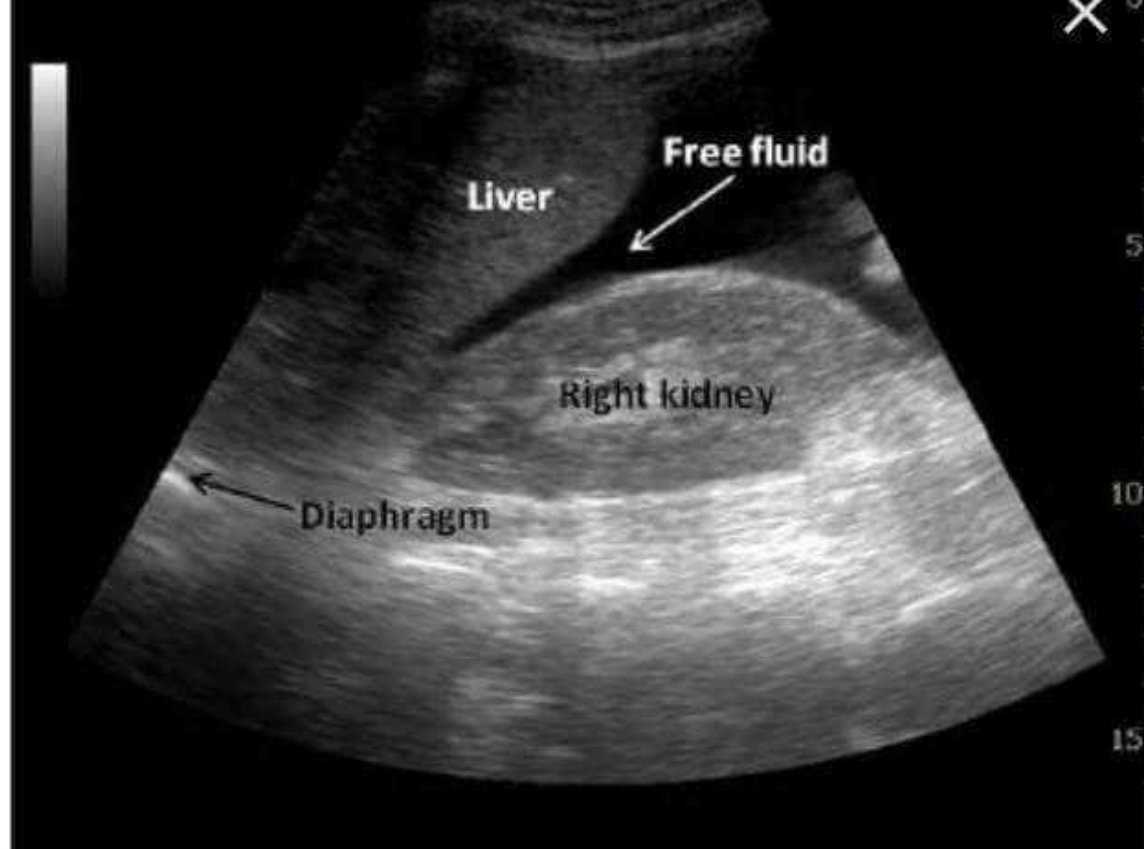
**Q1: What is the name of this sign?**

- Water lily sign

**Q2: Most probable etiology for this sign?**

- Caused by tapeworm *Echinococcus granulosus*
- Another cause is *E. multilocularis*





### Q1: What is the finding?

- Fluid in Morrison's pouch

### Q2: The Dx?

- Hemoperitoneum (blood)
- Ascitis (fluid)

*Morison's pouch:* The hepatorenal recess is the space that separates the liver from the right kidney.



**Q: a patient with RUQ pain:**

**Q1: What is the Dx?**

- Porcelain gallbladder

**Q2: What is the major risk?**

- Adenocarcinoma of  
gallbladder

**Q3: What is the Mx?**

- Elective Cholecystectomy



**Q: A 40 year old female patient after a bariatric surgery, presented with this US?**

**Q1: What is the Dx?**

- Gallstone

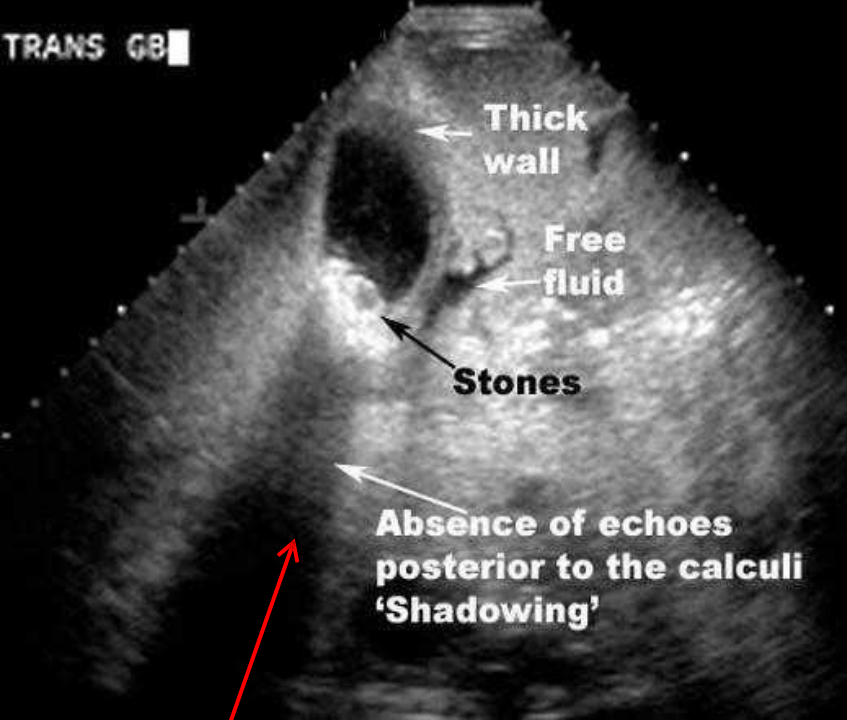
**Q2: What are the indications of performing a surgery in asymptomatic patient for this condition?**

- Porcelain gallbladder
- Congenital hemolytic anemia
- Gallstone >2.5 cm

**Q3: If the organ got inflamed where would be the pain and where it would radiate?**

- Pain would be in the RUQ, and radiate into the right subscapular area





acoustic shadow

### Sonographic findings in acute cholecystitis

- Impacted stone in cystic duct or GB neck
- Positive sonographic Murphy's sign
- Thickening of GB wall ( $>3$  mm)
- Distention of GB lumen ( $>4$  cm)
- Pericholecystic fluid collections (frequent)
- Hyperemic GB wall on color Doppler (**supportive test**)

**None of above signs pathognomonic**  
**Combination of multiple signs make correct diagnosis**

**Q: After RTA, the patient present with left shoulder pain:**

**Q1: What is your Dx?**

- Splenic Rupture

**Q2: What is your Mx?**

- Splenectomy

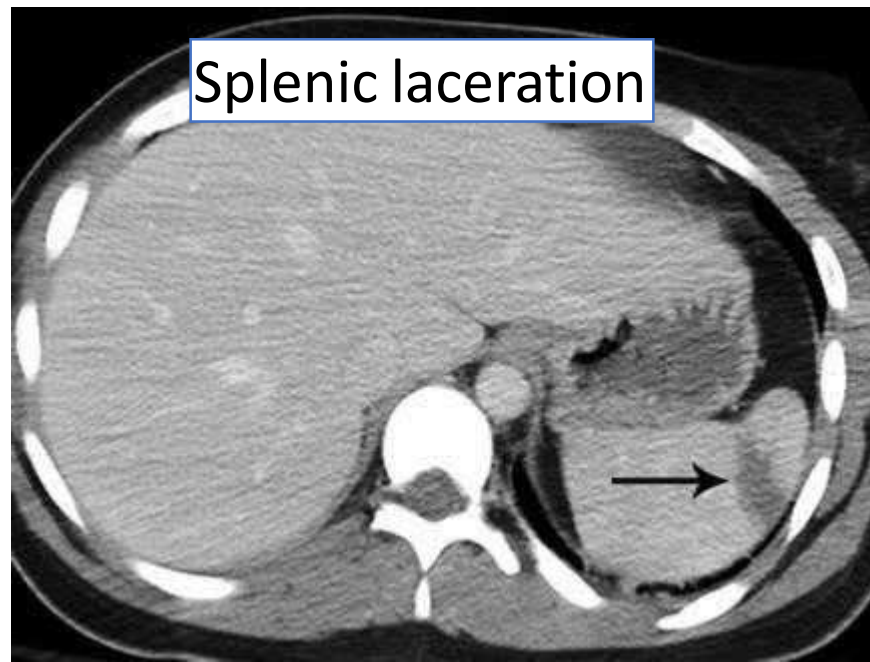




Grade <sup>a</sup>	Type	Description of Injury
1	Hematoma	Subcapsular, < 10% surface area
	Laceration	Capsular tear, < 1 cm parenchymal depth
2	Hematoma	Subcapsular, 10–50% surface area Intraparenchymal, < 5 cm in diameter
	Laceration	1–3 cm parenchymal depth; does not involve a trabecular vessel
3	Hematoma	Subcapsular, > 50% surface area or expanding; ruptured subcapsular or parenchymal hematoma
	Laceration	> 3 cm parenchymal depth or involved trabecular vessels
4	Laceration	Laceration involving segmental or hilar vessels and producing major devascularization (> 25% of spleen)
5	Laceration	Completely shattered spleen
	Vascular	Hilar vascular injury that devascularizes spleen

Note—Adapted with permission from [2].

<sup>a</sup>Advance one grade for multiple injuries up to grade 3. The American Association for the Surgery of Trauma uses roman numerals.



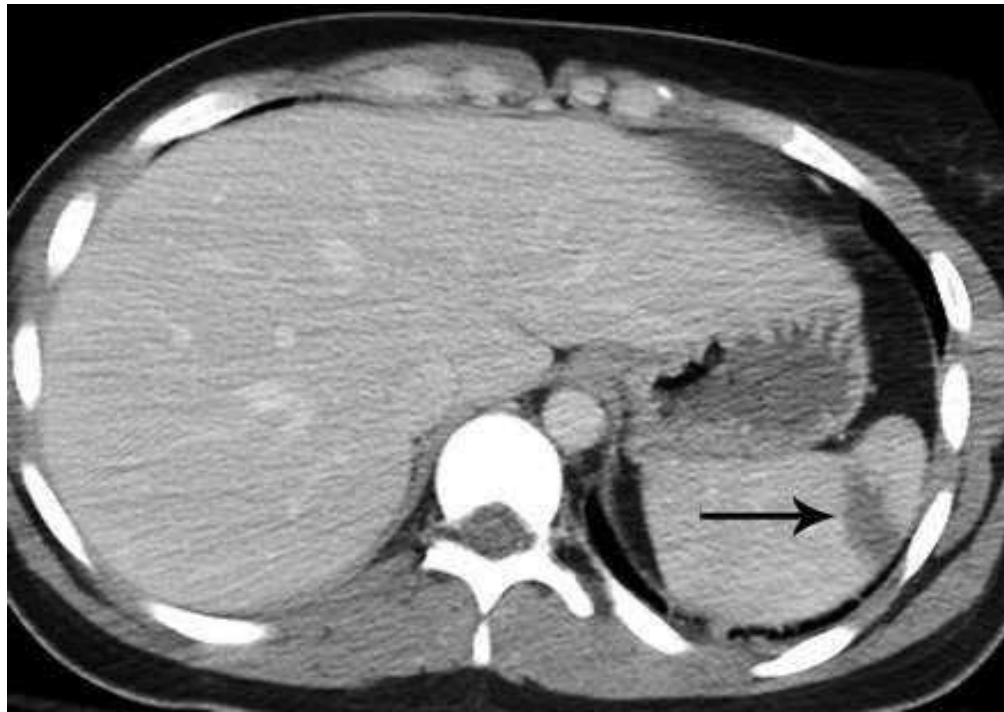
**Q: RTA patient, HR = 130, he was hypotensive, a CT was done and shows the following?**

**Q1: How much blood did he loss?**

- Stage 3 hypovolemic shock – 30-40% - 1500-2000 ml

**Q2: What does the CT show?**

- Splenic Rupture



**Table 7-4 Signs and Symptoms of Advancing Stages of Hemorrhagic Shock**

	<b>Class I</b>	<b>Class II</b>	<b>Class III</b>	<b>Class IV</b>
Blood loss (mL)	Up to 750	750–1500	1500–2000	>2000
Blood loss (%BV)	Up to 15%	15–30%	30–40%	>40%
Pulse rate	<100	>100	>120	>140
Blood pressure	Normal	Normal	Decreased	Decreased
Pulse pressure (mmHg)	Normal or increased	Decreased	Decreased	Decreased
Respiratory rate	14–20	20–30	30–40	>35
Urine output (mL/h)	>30	20–30	5–15	Negligible
CNS/mental status	Slightly anxious	Mildly anxious	Anxious and confused	Confused and lethargic

BV = blood volume; CNS = central nervous system.

**Q: A 45-years old male patient, alcoholic, presented with a 24-hour history of upper abdominal pain and repeated vomiting. On examination of the abdomen, he was found to have these signs.**

**Q1: Name those signs?**

**A > Cullen's**

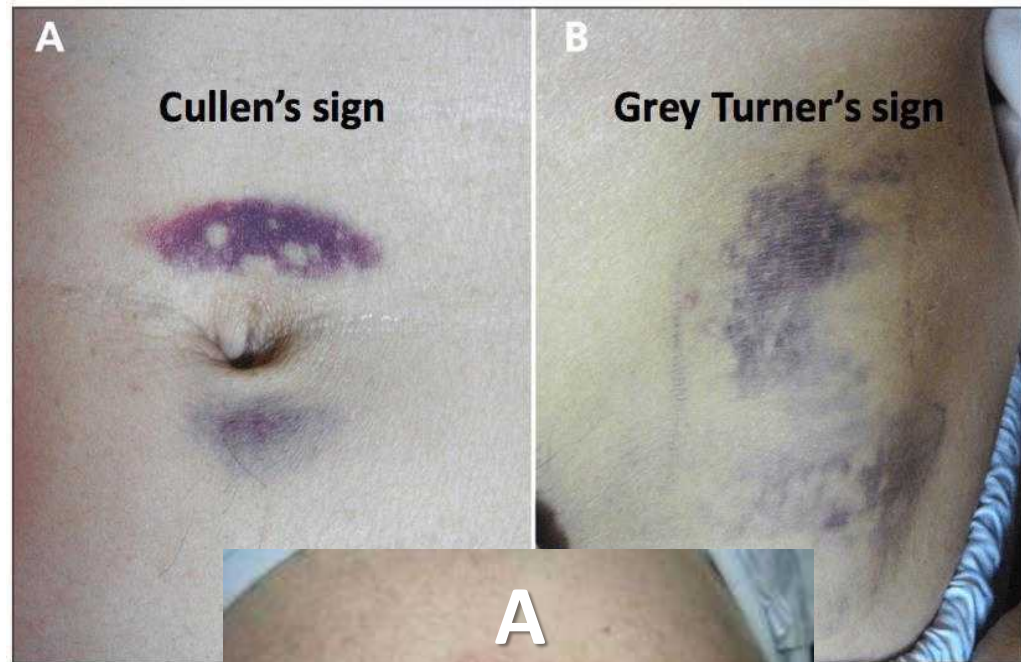
**B > Grey Turner's**

**Q2: Mention 2 causes?**

- Any retroperitoneal hemorrhage

1) Acute hemorrhagic pancreatitis

2) Abdominal trauma bleeding from aortic rupture





**Q1: What is the type of imaging?**

- MRCP

**Q2: Mention 2 abnormalities?**

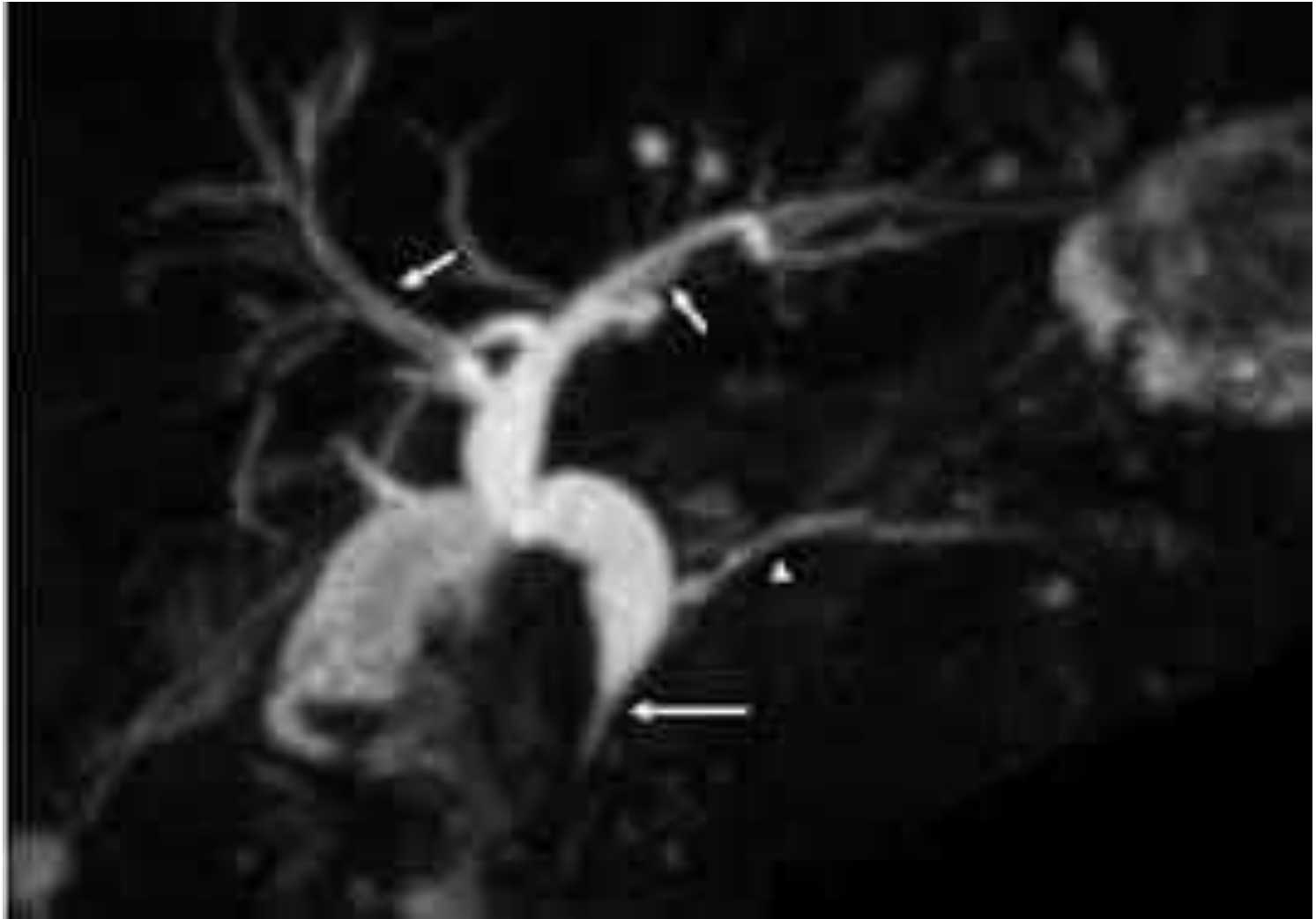
- 1) Stone in the CBD  
(arrow – filling defect)
- 2) Dilated CBD



**Q1: What is the study?** MRCP

**Q2: The structure pointed?** Pancreatic duct (Stricture)

**Q3: What is the next step?** ERCP



**Q: 60 year old female with RUQ pain and fever.**

**Q1: Identify this type of image:**  
MRCP

**Q2: Give two radiological findings:**  
CBD stone shadow/ CBD dilation.

**Q3: What is your diagnosis?**  
Ascending cholangitis.



**Q1: What is the name of this investigation?** ERCP

**Q2: Mention two abnormalities seen in this picture:**

Filling defect & distended common bile duct





**Q1: What is the type of imaging?**

- ERCP

**Q2: Indications?**

- Obstructive jaundice

**Q3: Complications of ERCP?**

- Pancreatitis

**Q4: Mention 2 findings?**

- 1) Dilated CBD
- 2) Multiple stones



### **Q1: What is the Dx?**

- Primary sclerosing cholangitis  
(Beading)

### **Q2: Which disease is associated with it?**

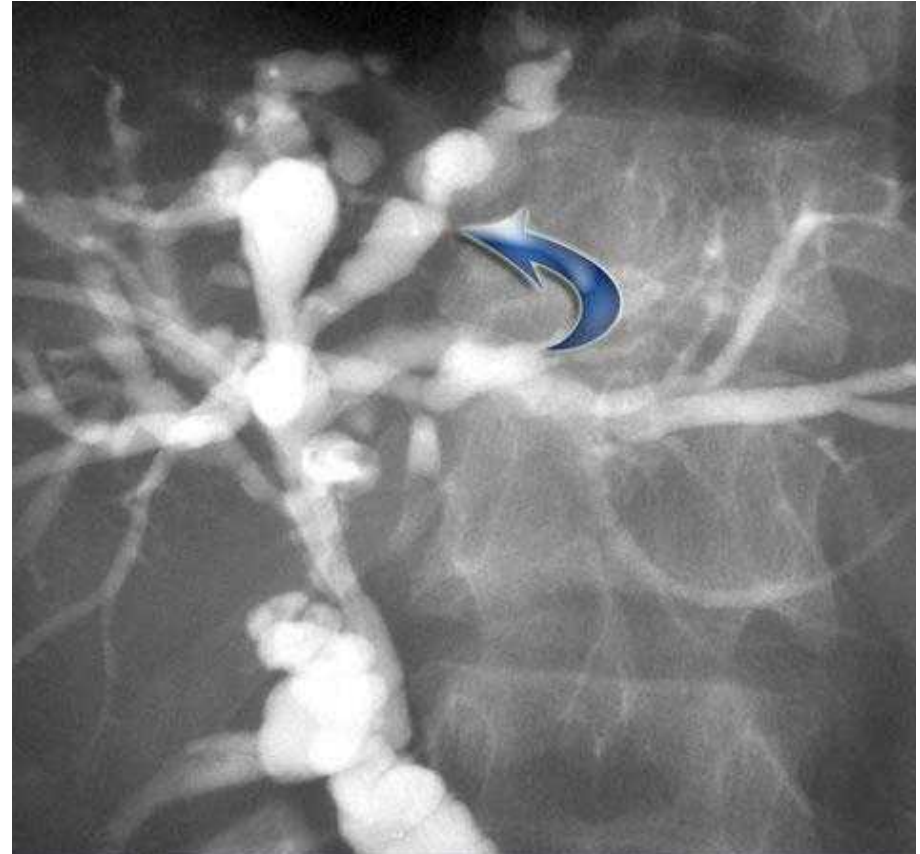
- Ulcerative colitis

### **Q3: Which type of malignancy the patient may develop?**

- Cholangiocarcinoma

### **Q4: Diagnostic test?**

- ERCP



**Q: a patient with thyroid medullary cancer, & a CT was done:**

**Q1: What is your next step? (not sure what the dr. meant so here is the possibilities):**

- Assess the functionality of the adrenal tumor by hx, physical ex and ordering lab tests: KFT (Na, K, Creatinine, Urea) / Aldosterone levels/ cortisol/ metanephrine / noremetanephrine / vanillyl mandelic acid (VMA)
- pheochromocytoma
- 24h urine analysis for catecholamine metabolites (VMA/Meta)

**Q2: If the patient has no genetic abnormality and the lesion is not functioning what will you do next?**

- Because it is very large > surgery adrenalectomy, the dr said : If it was more than 4 cm then you have to remove it immediately



**Q: a patient presented with episodic sweating and hypertension:**

**Q1: What is the Dx?**

- Pheochromocytoma

**Q2: What is the 1<sup>st</sup> thing to do?**

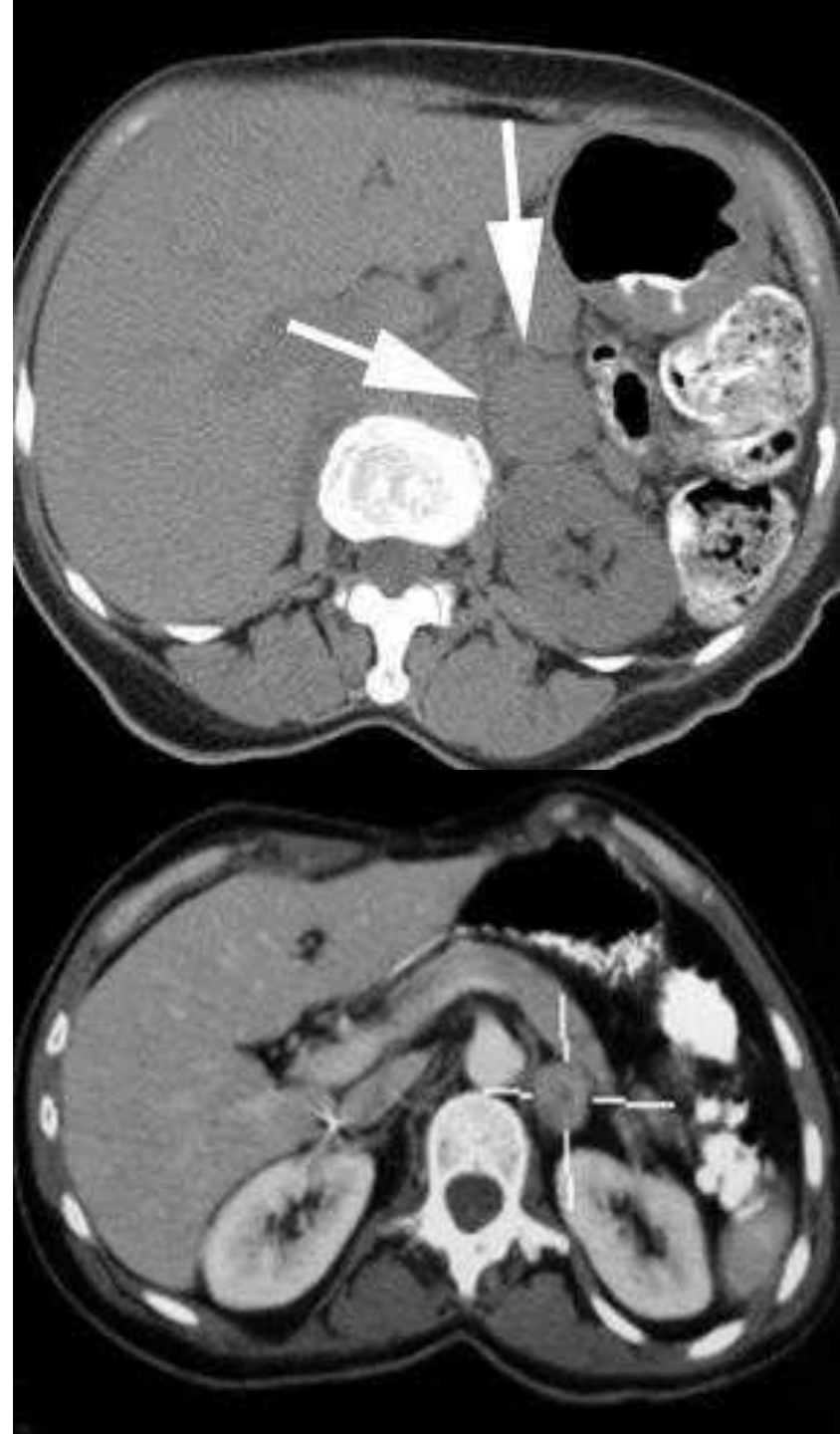
- Check if functional or not by checking cortisol, renin, angiotensin and VMA,... etc

**Q3: What raise the possibility of malignancy?**

- >4 cm
- necrosis
- hemorrhage

**Q2: What is the size that would be considered an indication for surgery?**

- >4 cm





**Q: Lab investigations show high aldosterone level and high ratio of PAC to PRA:**

**Q1: What is your Dx?**

- Conn's tumor

**Q2: Mention a common presentation for this patient?**

- Hypertension



Functional adrenal tumors can cause several problems depending on the hormone released. These problems include:

## 1. Cushing's Syndrome:

This condition occurs when the tumor leads to excessive secretion of cortisol. While most cases of Cushing's Syndrome are caused by tumors in the pituitary gland in the brain, some happen because of adrenal tumors. **Symptoms of this disorder include diabetes, high blood pressure, obesity and sexual dysfunction.**

## 2. Conn's Disease:

This condition occurs when the tumor leads to excessive secretion of aldosterone. **Symptoms include personality changes, excessive urination, high blood pressure, constipation and weakness.**

## 3. Pheochromocytoma:

This condition occurs when the tumor leads to excessive secretion of adrenaline and noradrenaline. **Symptoms include sweating, high blood pressure, headache, anxiety, weakness and weight loss.**

**Q: A 40-years-old female,  
previously healthy, presented with  
acute abdominal pain, fever and  
itching**

**1. What is the diagnosis?**

Ascending Cholangitis

**2. What is the next imaging test to  
order for this patient?**

MRCP, ERCP

**3. Why is she having itching?**

Bile salts accumulation



**Q: Female present  
with fever and itching  
and jaundice:**

**Q1: What is the Dx:**  
Ascending cholangitis

**Q2: Why she is having  
Itching?**

Bile salts  
accumulation





A person wearing a red long-sleeved shirt and blue jeans is sitting on a blue surface. Their hands are resting on their knees. The word "Anorectal" is overlaid in white text with a black outline.

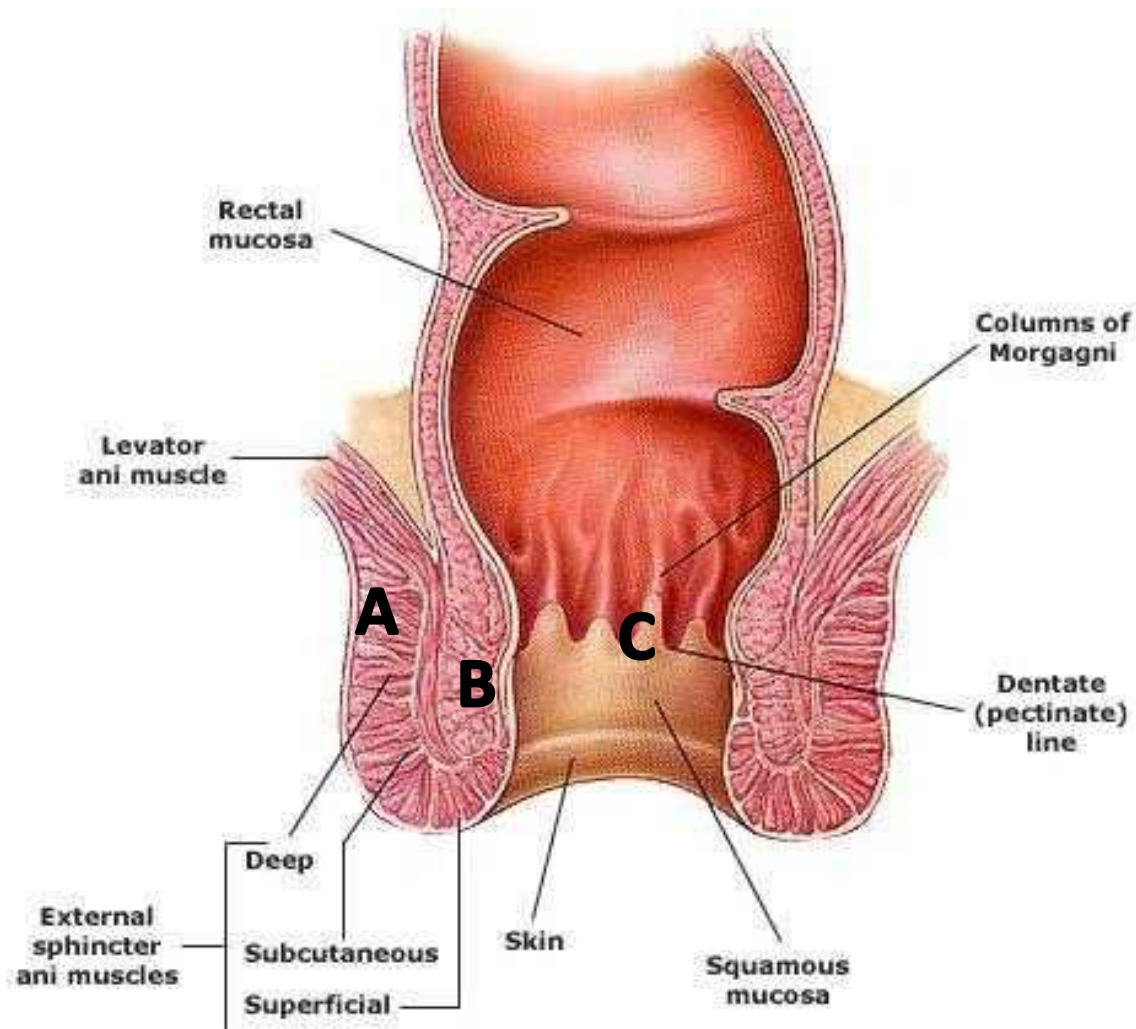
**Anorectal**

**Q: About the anatomy of anal canal:**

**A:** External anal sphincter

**B:** Internal anal sphincter

**C:** Dentate line



**Q: Patient has anal pain and itching:**

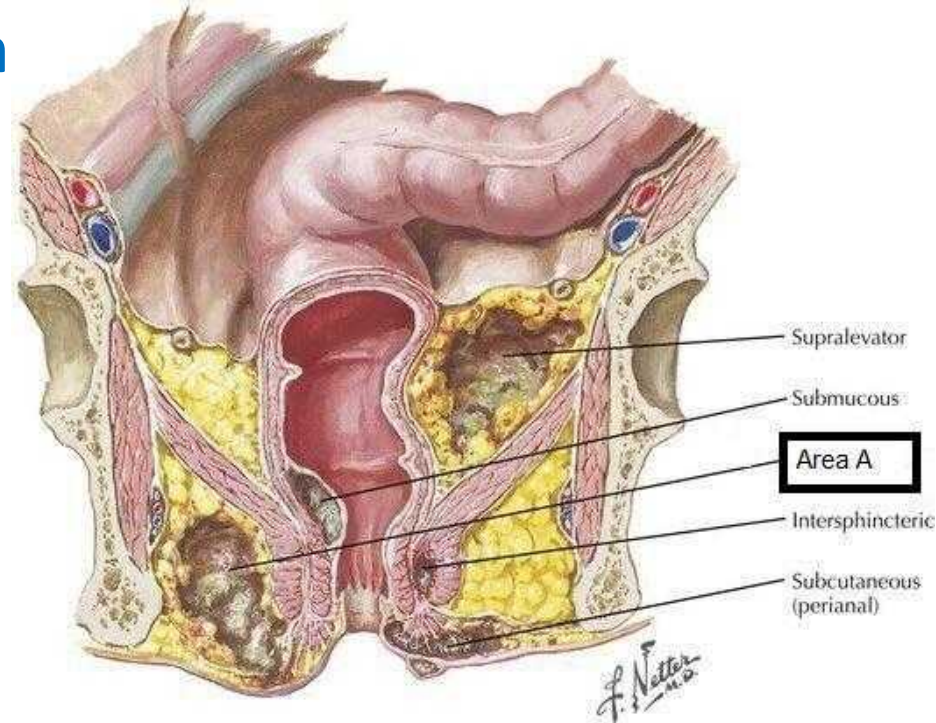
**Q1: What type of anal condition in this area (Area A)?**

- Ischiorectal abscess

**Q2: What is the Mx?**

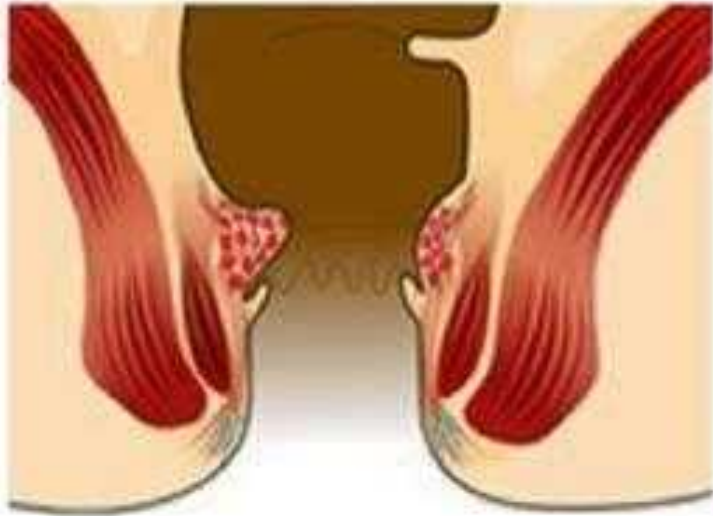
- Cruciate incision with drainage with drainage of pus (without antibiotic)

- Extra: we use antibiotic in: systemic inflammatory response or sepsis extensive cellulitis, diabetes, immunosuppression

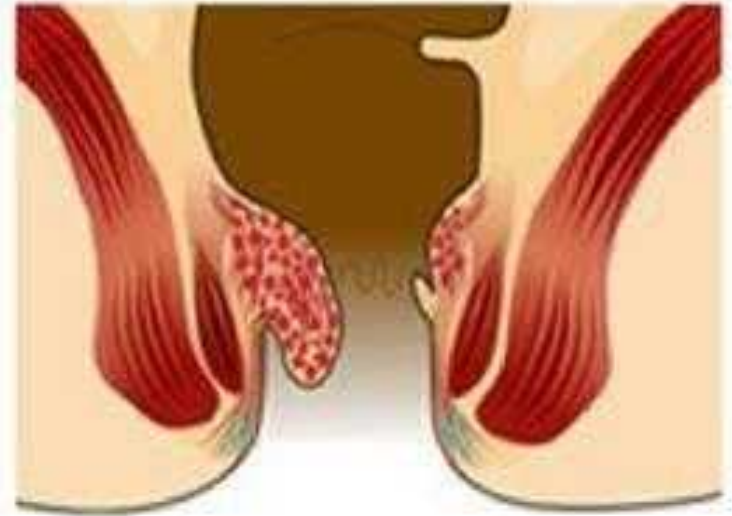




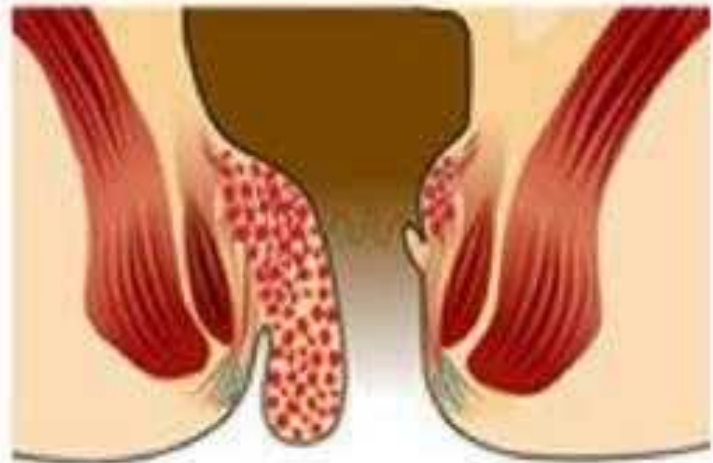
**1st Degree: No Prolapse**  
Just prominent vessels



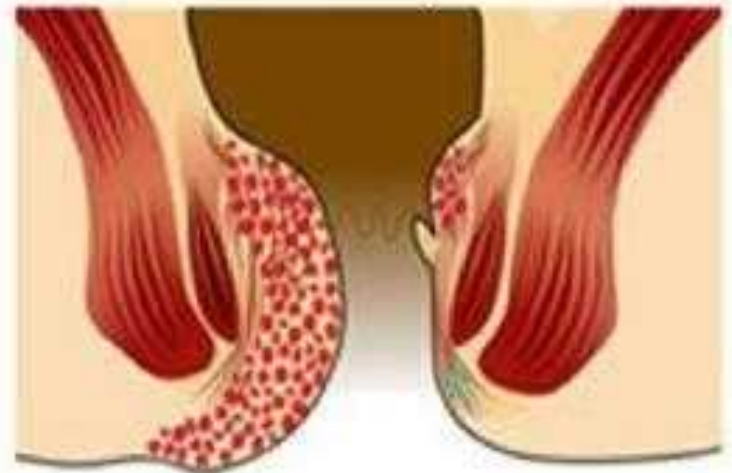
**2nd Degree: Prolapse (come out) with strain**  
but spontaneously reduce (go back in)



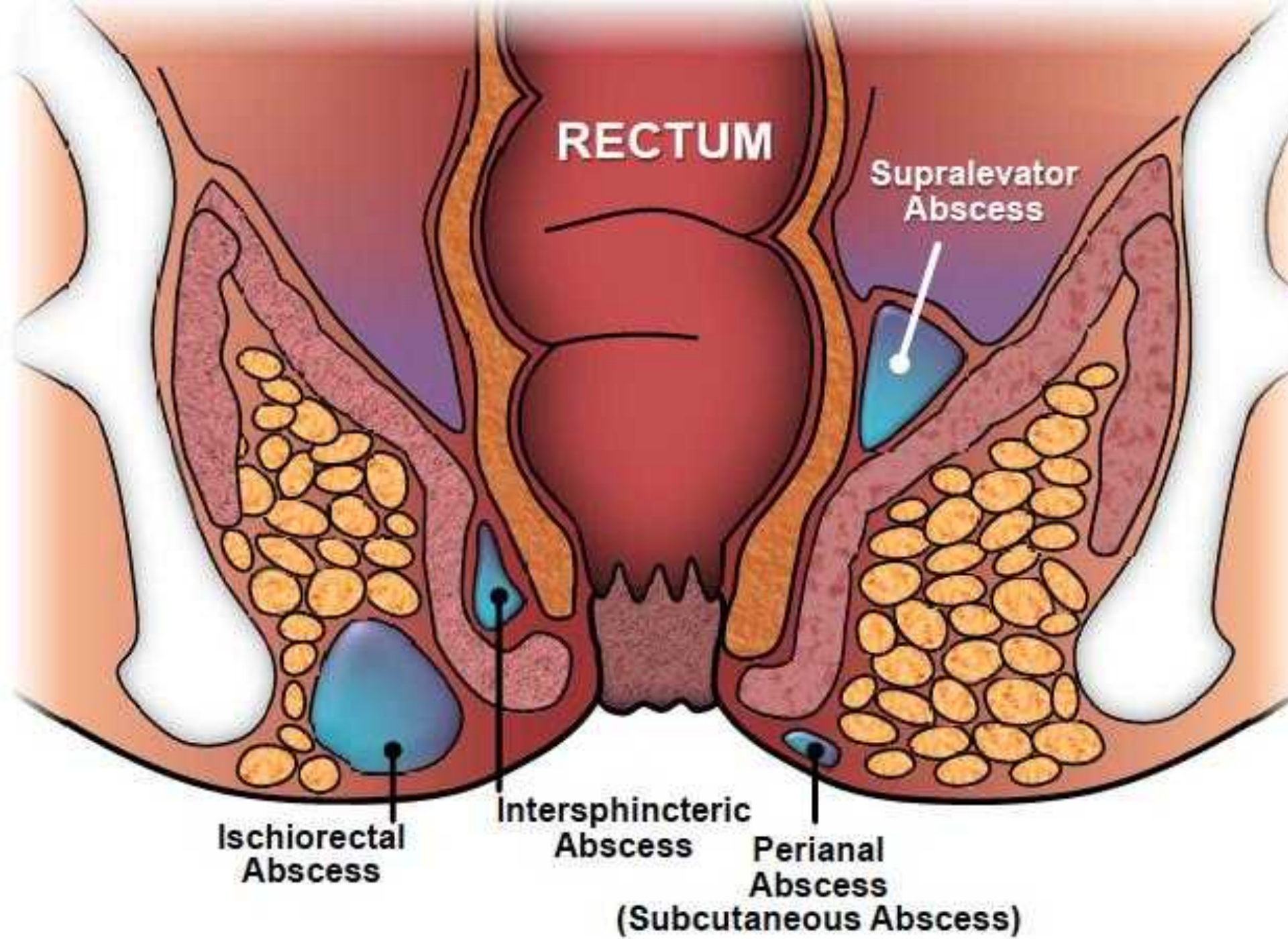
**3rd Degree: Prolapse with strain**  
and have to be pushed back in



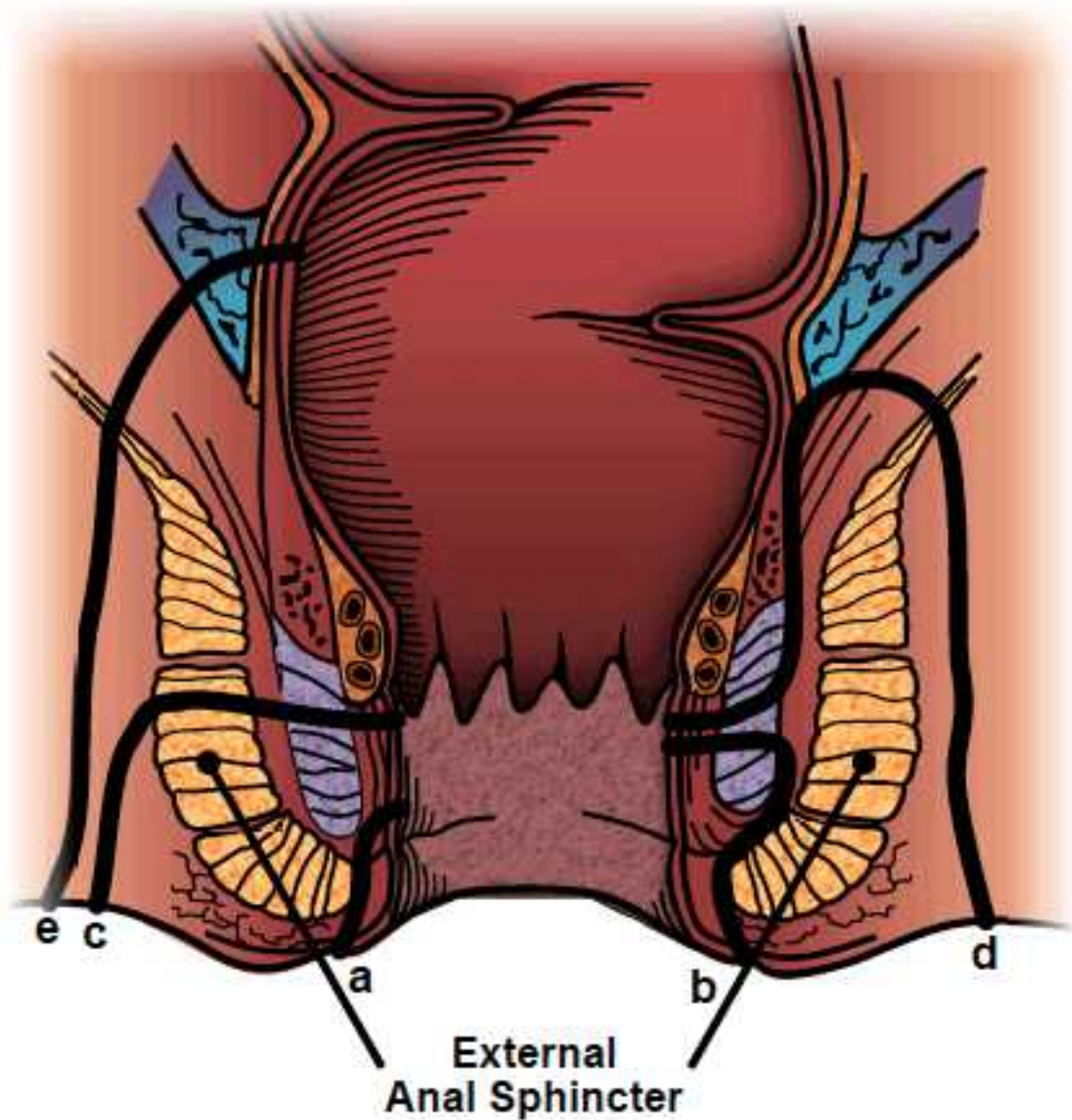
**4th Degree: Prolapsed out and**  
cannot be reduced or pushed back in







- a: superficial fistula
- b: intersphincteric fistula
- c: transsphincteric fistula
- d: suprasphincteric fistula
- e: extrasphincteric fistula



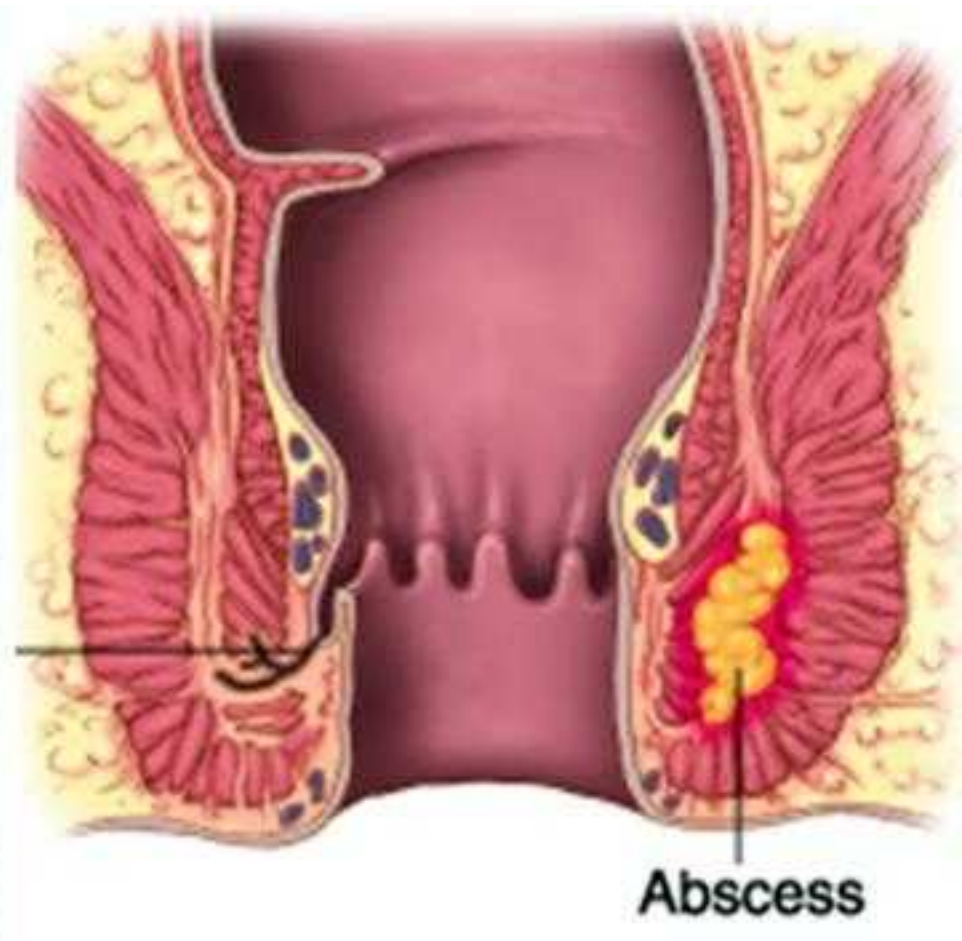


**Q: This is a 35-years-old patient c/o severe anal area pain**

**1. What is the diagnosis?** Perianal Abscess

**2. What is the treatment?** Drainage & Antibiotics Cover

**3. What is the possible sequel for this condition?** Fistula



**Q: A 25 year old male presented with anal pain and fresh blood PR, the peri-anal area is shown:**

**Q1: What is the Dx?** Bleeding Hemorrhoids

**Q2: What do you recommend?**

1) Bath sitz    2) Laxatives    3) High-fiber diet

**Q3: Beside bleeding, name 2 more complications?**

1) thrombosis    2) Infection    3) Ulcers

**Classification:** Internal (above dentate line)  
external (below dentate line).

**Risk factors:** constipation/ straining/  
pregnancy/ ascites/ portal HTN.

**Hemorrhoidectomy:**

- \* contraindicated in chron's.
- \* complications: pelvic infection/ anal stricture/ incontinence.





## Q1: Name the Dx?

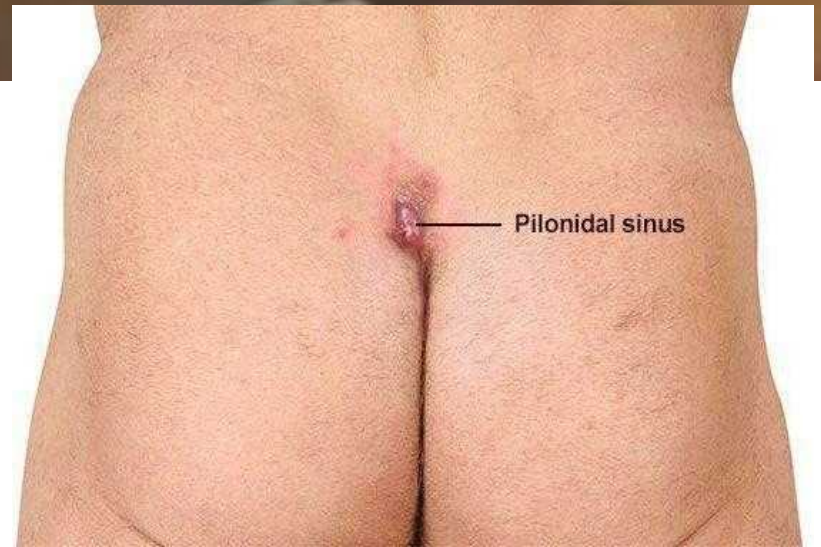
- Pilonidal Sinus (PNS)

## Q2: Name 4 sites for it?

- 1) Inter-digital space
- 2) Natal cleft
- 3) Between breast
- 4) Axilla

**Treatment** If your PNS does get infected, surgery will most likely be recommended and may include the following:

- 1) Incision and Drainage
- 2) Wide Excision (reduce your chances of a reinfection. However; Your wound may take a long time to heal)
- 3) Excision and Primary Closure (reinfection chances are higher)



**Q: A 22-years old male patient presented with upper natal cleft area increasing in pain for the last 3 days.**

**1. What is your diagnosis?**

Gluteal Cleft Abscess of a Pilonidal Sinus

**2. What is the treatment?**

Incision & Drainage



**Q: This pt has painful defecation:**

**1. Name the findings on examination of the anal area.**

A > Anal Fissure

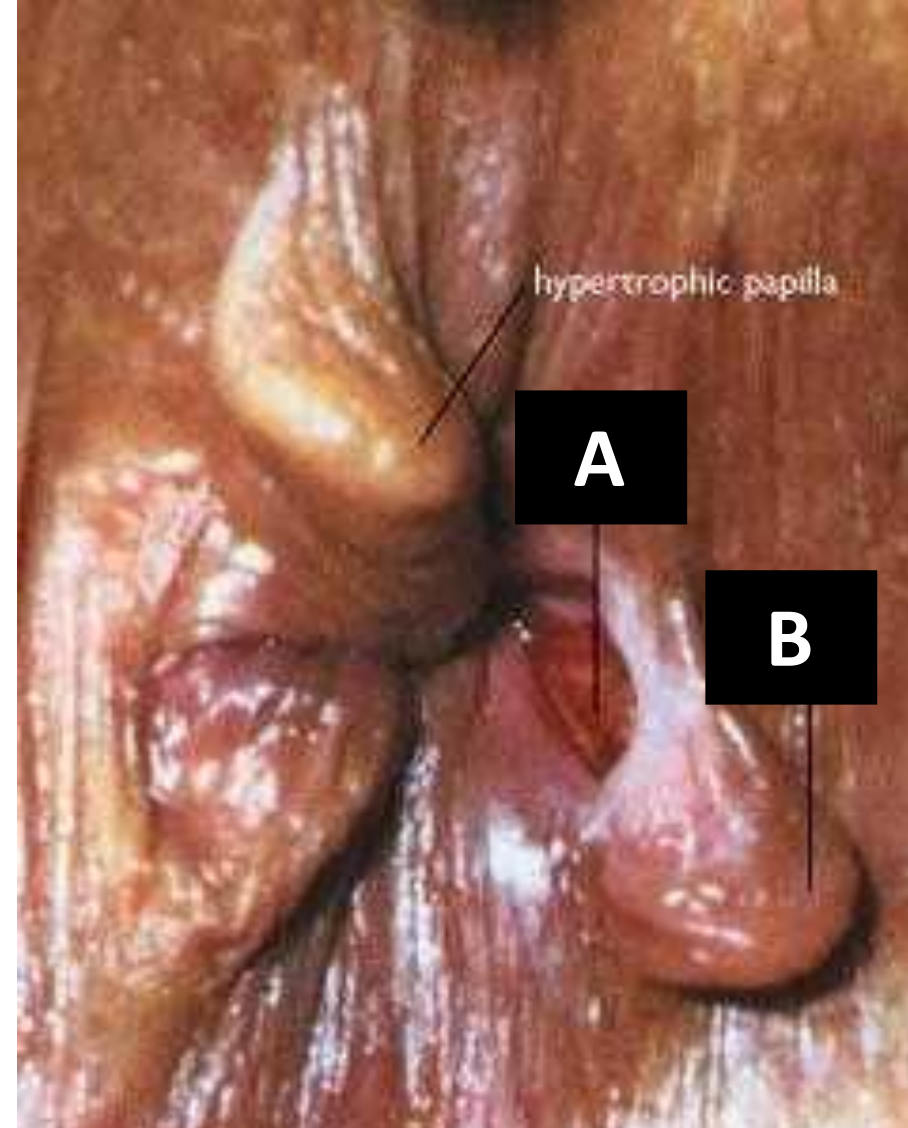
B > Sentinel Pile

**2. Mention 2 treatment options.**

- **Lifestyle modification** with high fiber diet and increase fluid intake

- **Medical Management** (Laxatives, stool softeners, local anesthetic creams, botulinum toxin injection, sitzbath...etc)

- **Surgical Management** (Sphincter dilatation, Lateral internal sphincterotomy, Fissurectomy)



This is a chronic fissure with hypertrophied papilla & pile formation, the guidelines state that for chronic fissures medical management with botulinum toxin, stool softeners and anesthetic creams is indicated first. If the fissure is refractory to medical management then surgical intervention with lateral internal sphincterotomy is highly indicated, but sphincter dilatation could also be used.

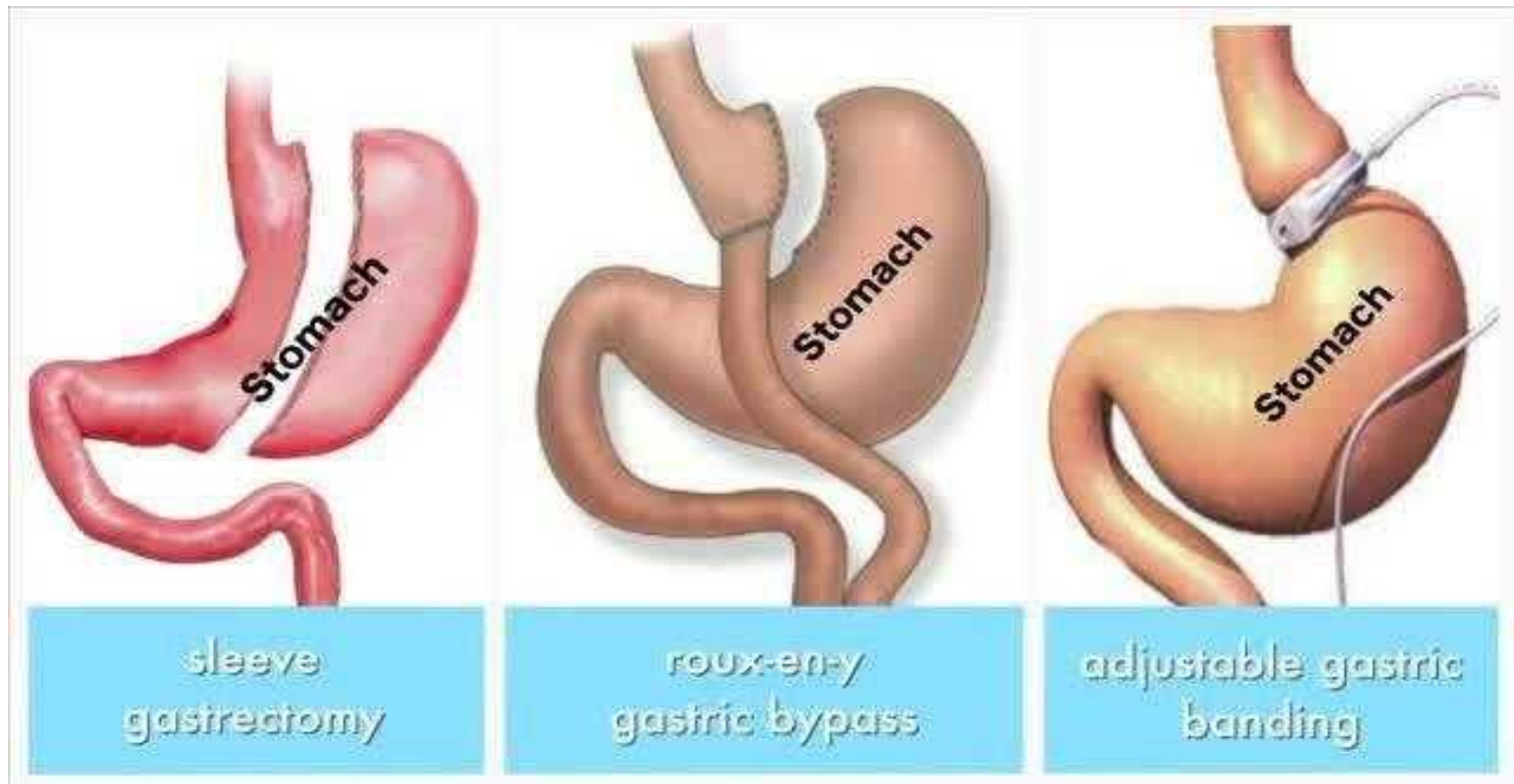




# Bariatric Surgery



- Weight reduction surgery for the morbidly obese.
- Morbid obesity : BMI > 40 or BMI > 35 with a medical problem related to morbid obesity (sleep apnea/ CAD/ DM/ HTN/ pulmonary disease/ breast cancer/ colon cancer/ arthritis/ sex hormone abnormalities/ venous stasis ulcers).



**Q1: Name this surgery?**

- Gastric bypass

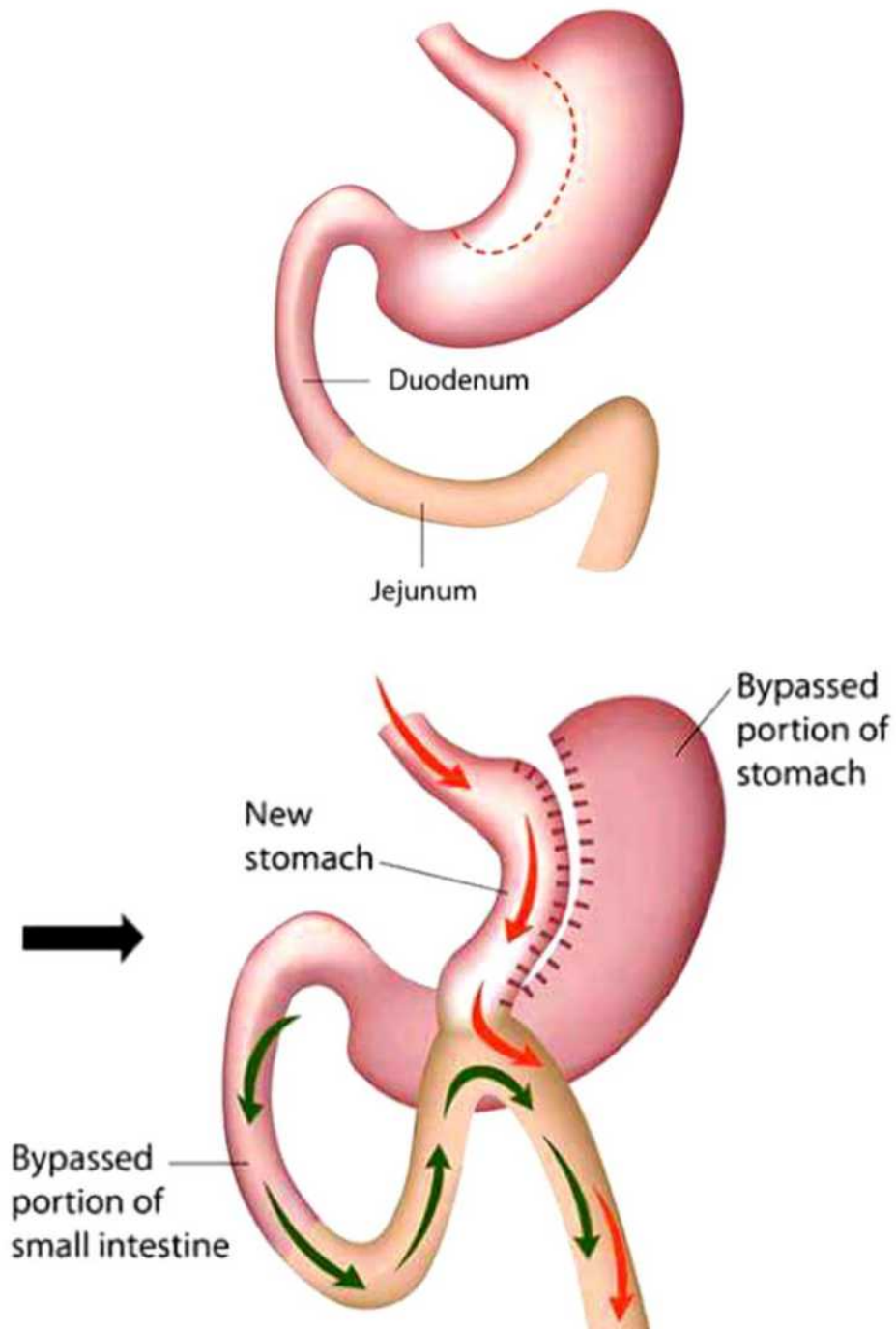
(Single Anastomosis Gastric Bypass)

**Q2: Mention 2 types?**

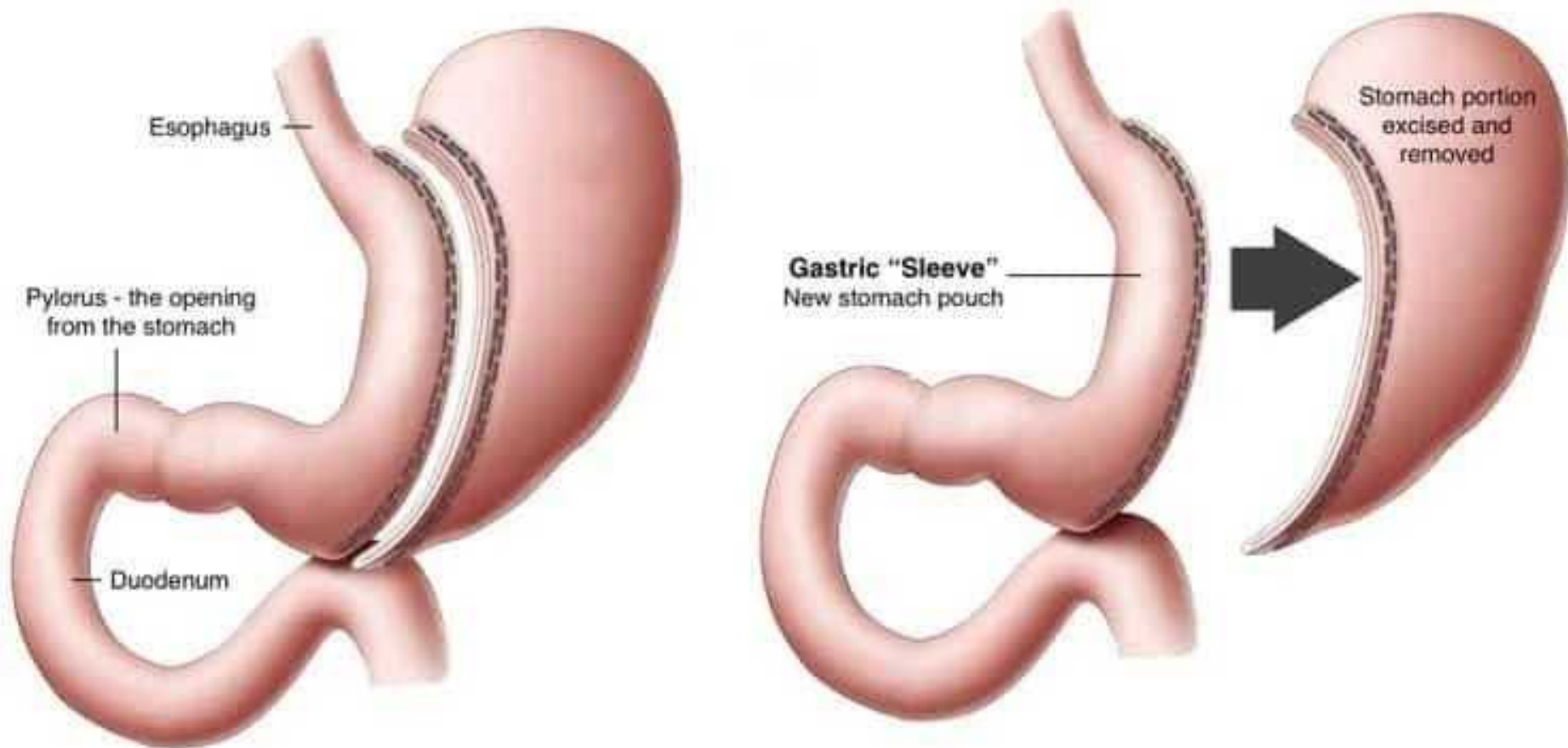
- 1) Gastrojejunostomy
- 2) Duadenoileostomy

**Q3: What BMI is an indication for a surgery in a DM patient?**

- >35



# Lap Sleeve Gastrectomies (LSG)



**Q: A Patient that needed to reduce weight ASAP, and this surgery was done:**

**Q1: Which procedure is this?**

- Gastric Sleeve

**Q2: 2 Complications for it?**

- 1) Blood clots.
- 2) Gallstones
- 3) Hernia.
- 4) Internal bleeding
- 5) Leakage.
- 6) Perforation
- 7) Stricture



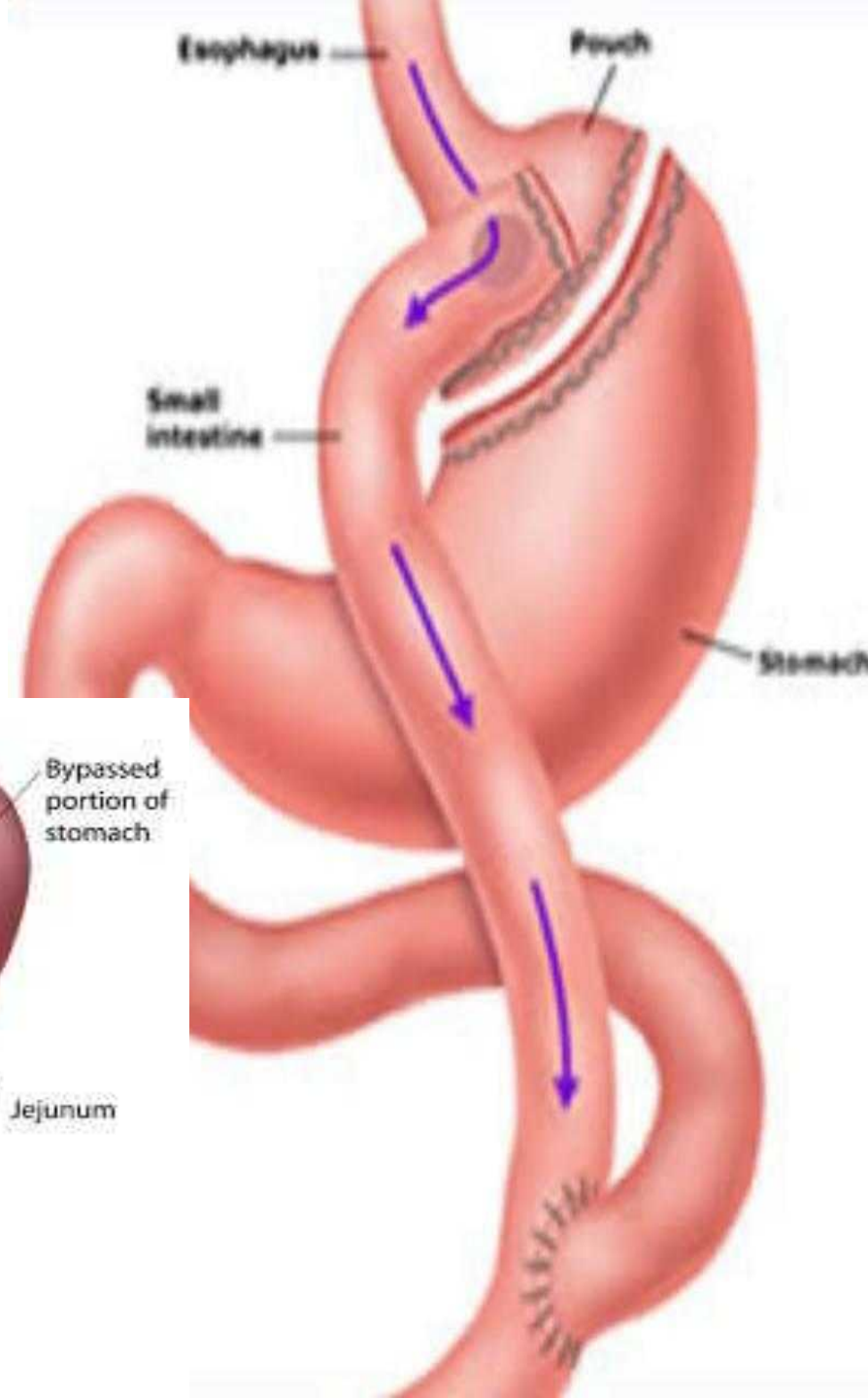
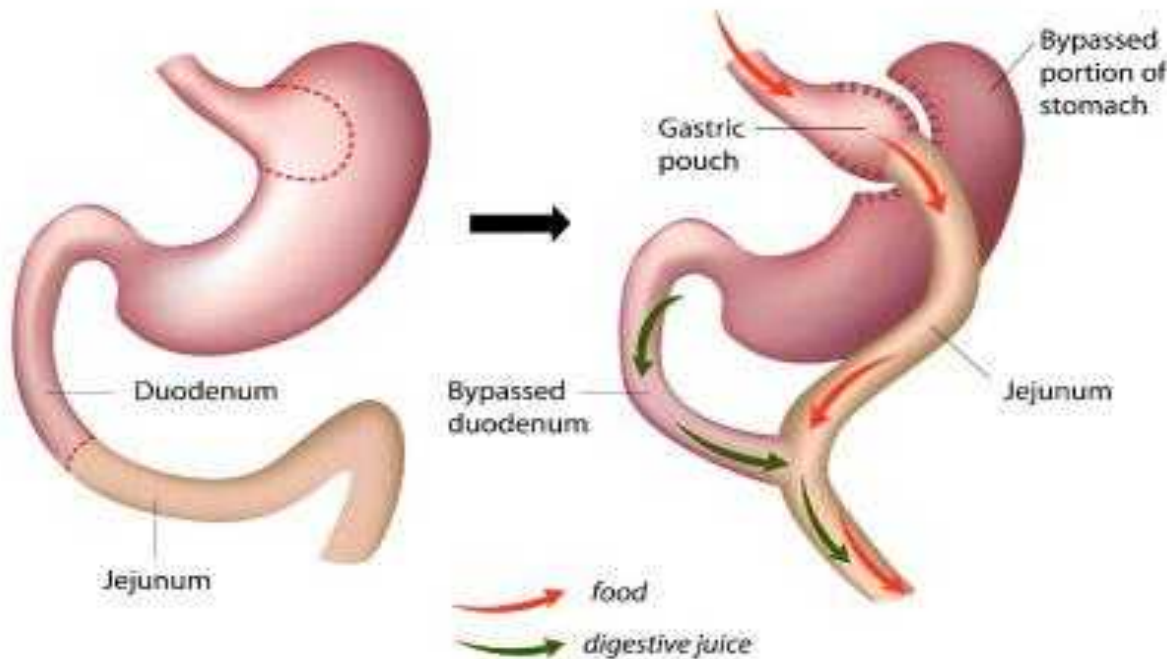


## Q1: Name this surgery?

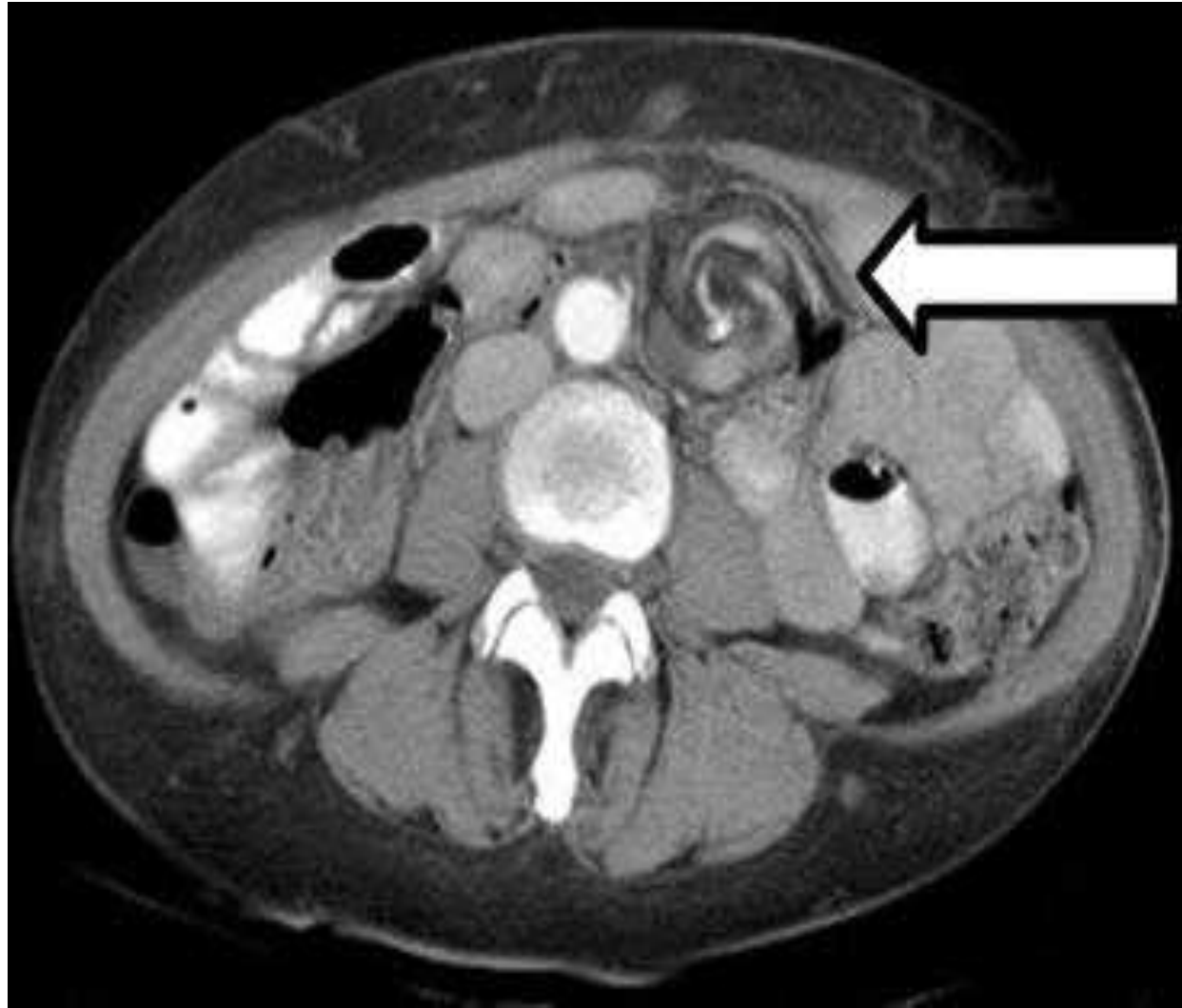
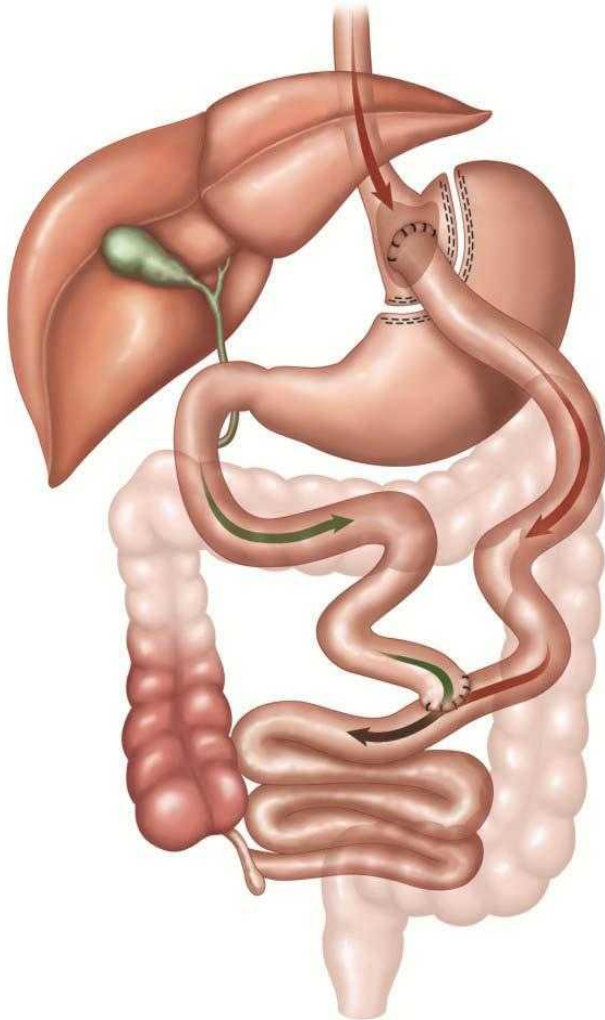
- Roux-en-y gastric bypass (RYGB)

## Q2: Mention 2 mechanisms?

- 1) Malabsorption  
(Decrease gastric absorption)
- 2) Less space for food  
(early satiety)



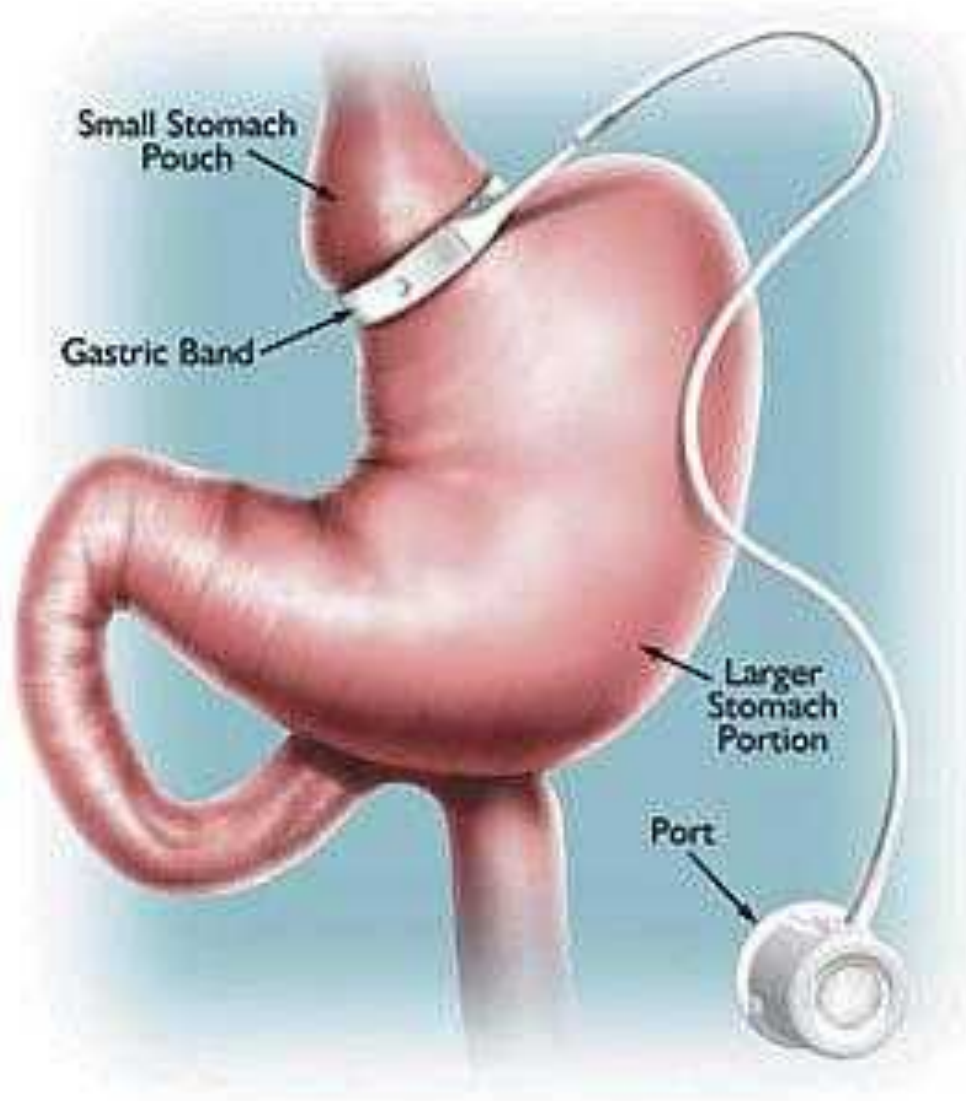
# Roux-en-Y gastric bypasses (RYGB)



Gastric Balloon



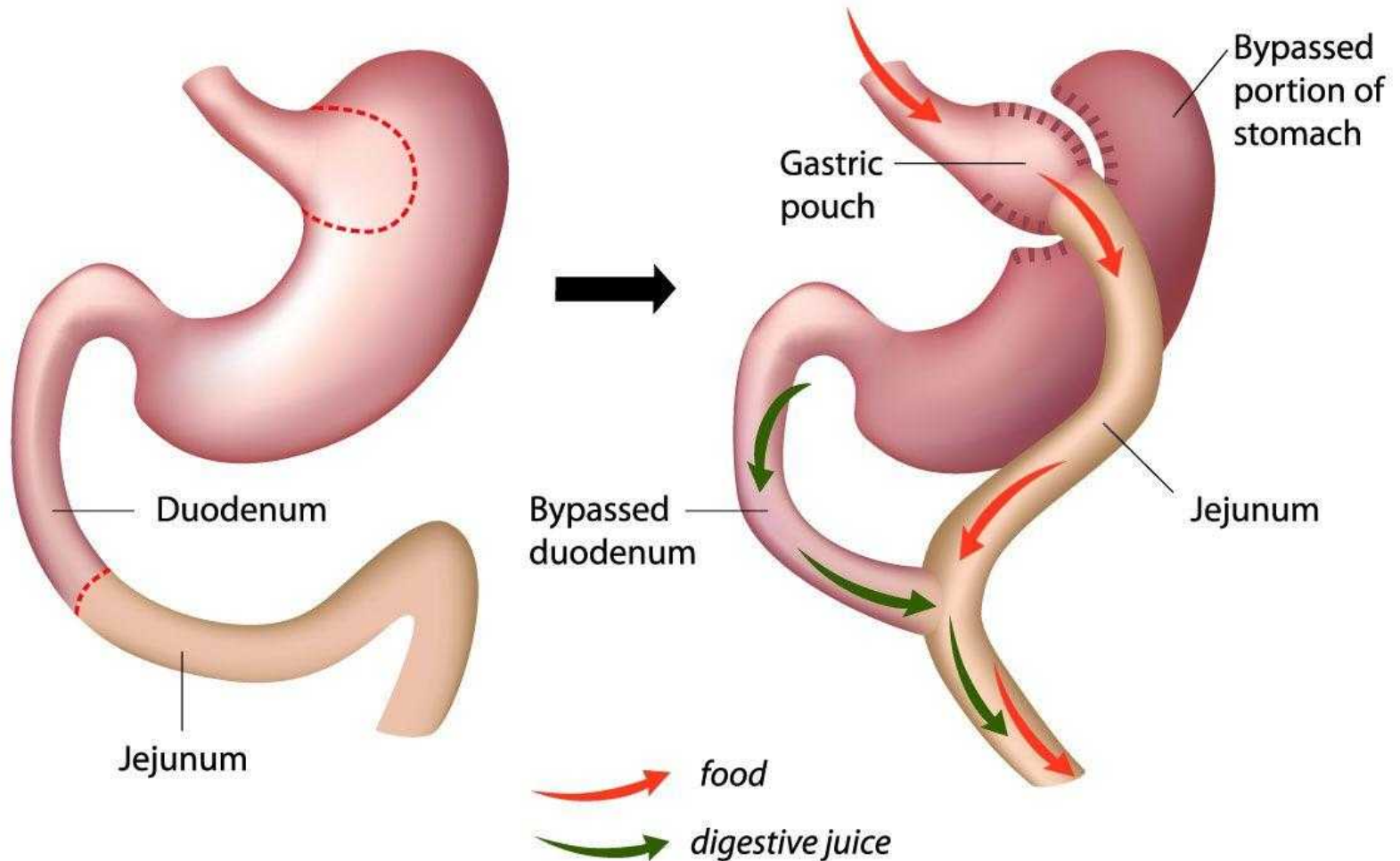
# Gastric Band (LAGB)





# Mini Gastric Bypass

## Gastric Bypass



An anatomical illustration of a human head in profile, facing right. The skin is semi-transparent, revealing the underlying muscles and salivary glands. The parotid gland is visible in the lower front of the face, and the submandibular gland is located below the jawline. A network of yellow nerves is shown branching across the face. The text "Salivary Glands" is overlaid in the center in a large, white, sans-serif font with a black outline.

# Salivary Glands

**Q1: What is the organ affected?**

- Parotid gland

**Q2: What is the most likely Dx?**

- Parotid Pleomorphic Adenoma

**Q3: What is the most common subtype?**

- Myxoid

**Q4: What is 1 sign that will confirm your Dx?**

- Rubbery-hard, does not fluctuate and of limited mobility on physical examination

- **Benign** salivary gland tumor.
- The most common salivary gland tumor.
- Usual location : parotid gland.
- single firm, mobile, well- circumscribed mass.
- **Painless.**
- Slow growing.



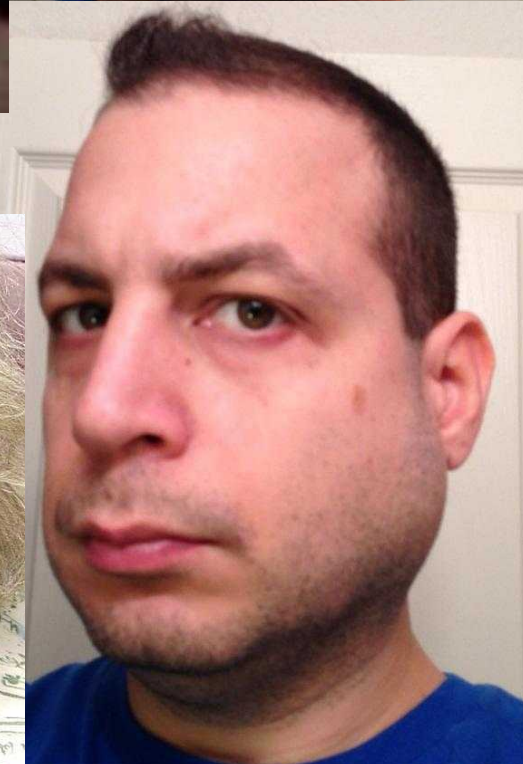


## Q5: How do we treat this pt?

- Superficial parotidectomy, some said total parotidectomy

## Q6: Histology?

Epithelial  
Myoepithelial  
Stroma  
Pseudopods  
No true capsule





**Q: a patient had a superficial parotidectomy:**

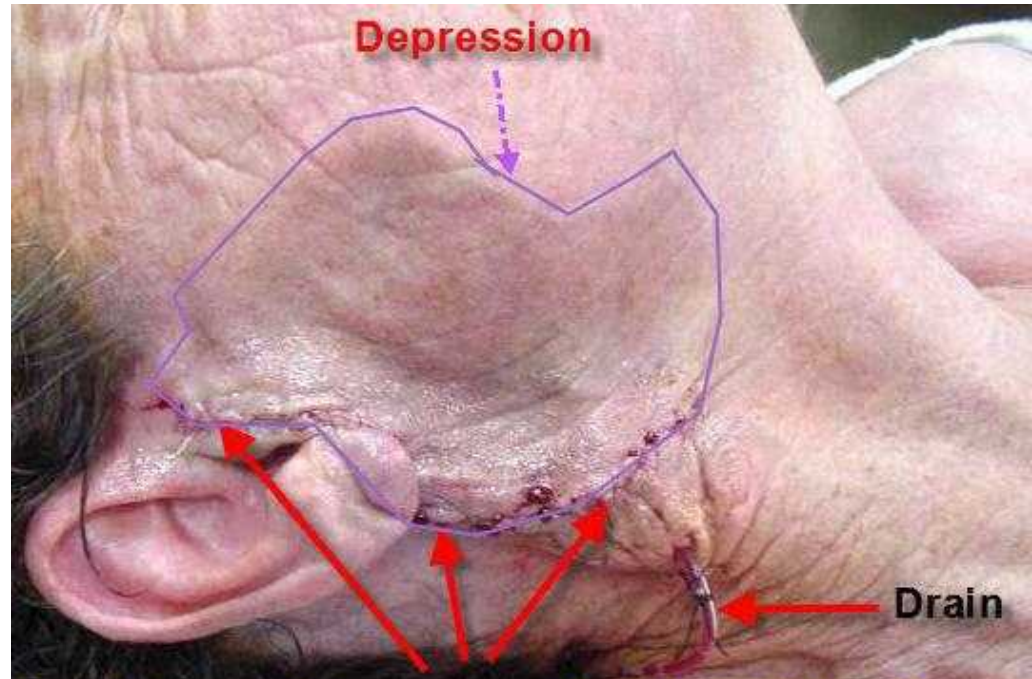
**Q1: What is the most likely indication?**

- Parotid gland tumor (most likely pleomorphic adenoma)

**Q2: What is the nerve in risk of being damaged?**

- Facial nerve

Some said: great auricular nerve



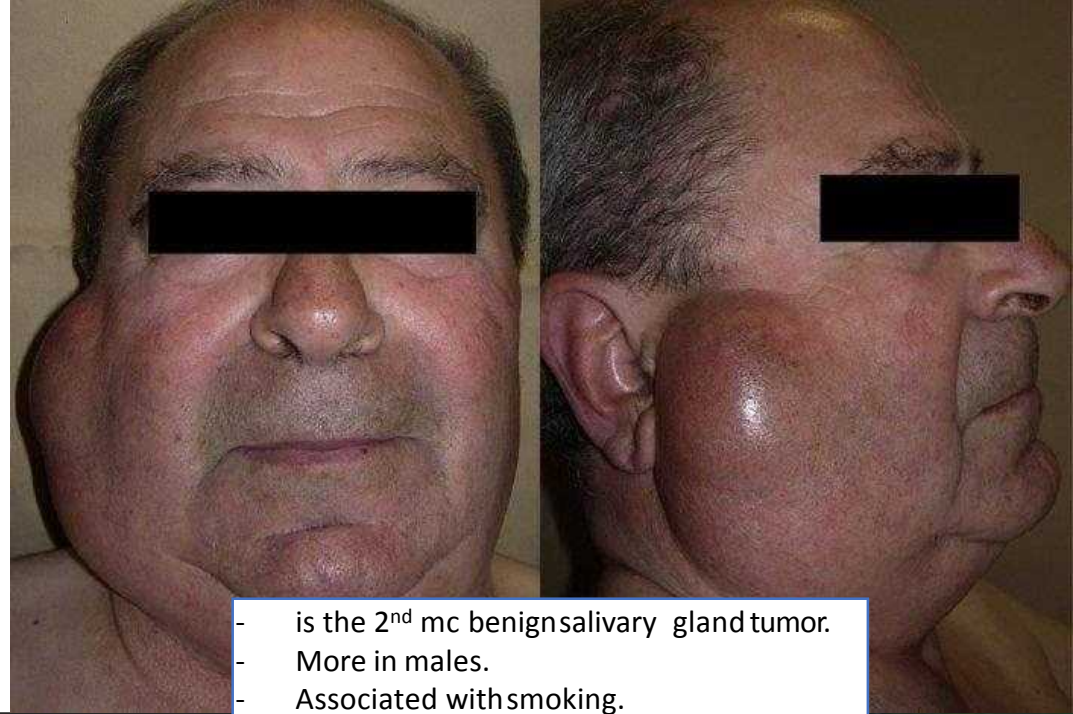
Q: 50 yo pt presented with  
bilateral neck swelling:

Q1: What is the Dx?

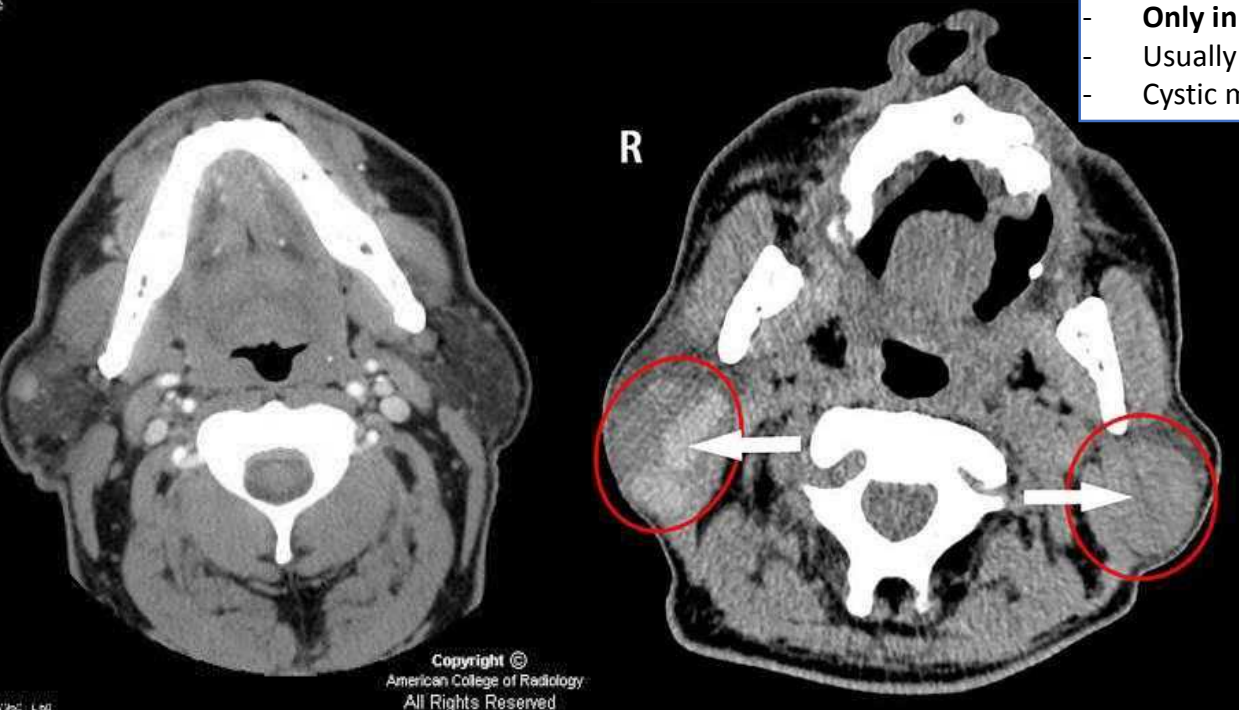
- Warthin's tumor

Q2: What is the malignancy  
risk?

- 0.3%



- is the 2<sup>nd</sup> mc benign salivary gland tumor.
- More in males.
- Associated with smoking.
- **Only in parotid.**
- Usually at parotid tail.
- Cystic mass.





**Q1: if a surgery was done  
what is the nerve at risk to  
be injured?**

- Marginal Mandibular Nerve

**Q2: What is the risk of  
malignancy?**

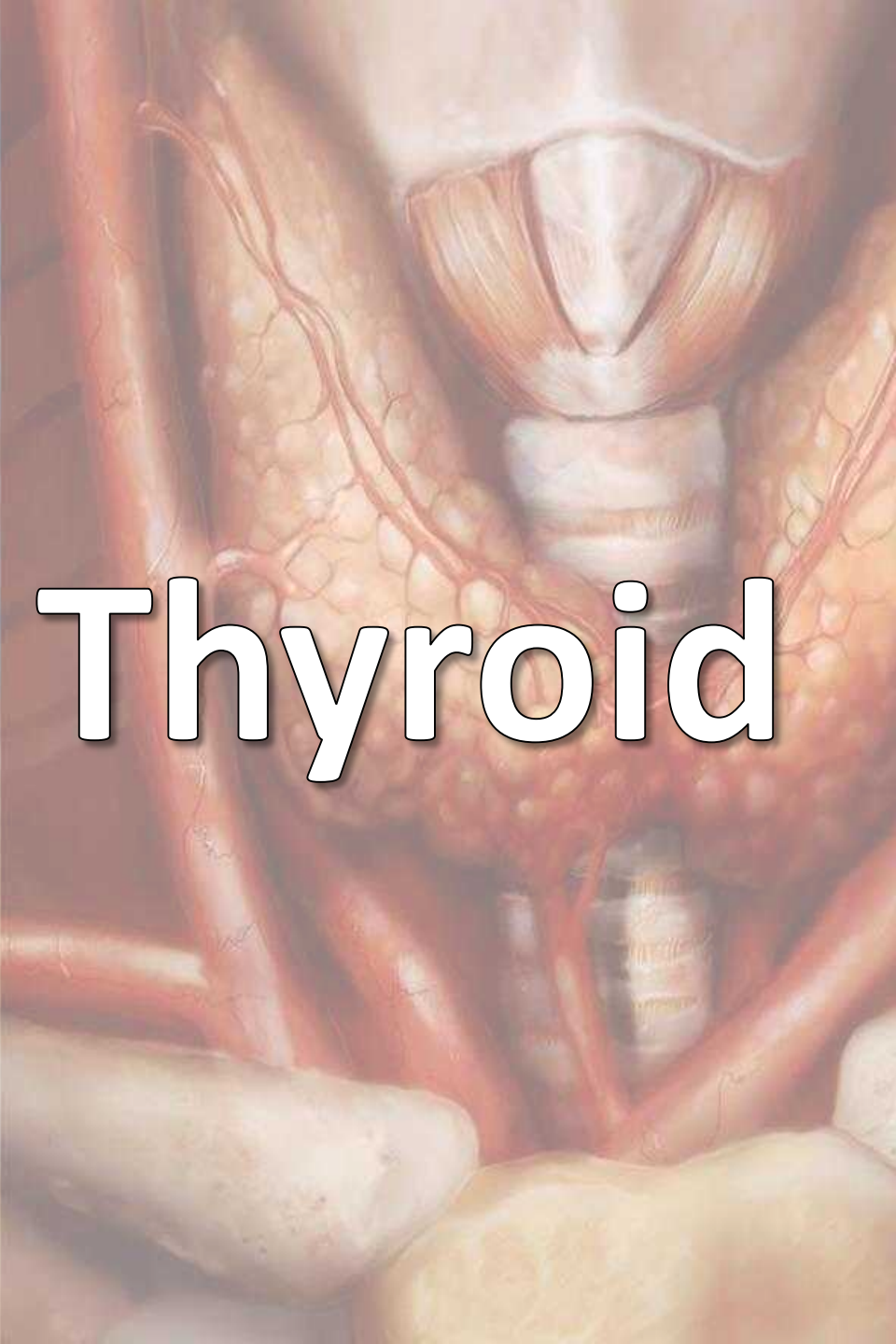
-50%



Salivary Gland	Malignancy Rate	Incidence of Tumor
Parotid	20%	80%
Submandibular	50%	15%
Sublingual & Minor	70%	5%



# Neck & Thyroid





# DDx of neck lumps

	Midline	Lateral
<b>Neoplastic</b>	Thyroid Parathyroid Pharyngeal/Laryngeal	Most tumors (lymphoma, carotid...)
<b>Congenital</b>	Thyroglossal duct cyst Laryngocele	Cystic Hygroma Branchial cleft cyst
<b>Infectious</b>	Ludwig's Angina	Most infections (cat-scratch, mononucleosis, sialadenitis...)
<b>Inflammatory</b>	Submental reactive lymphadenopathy Thyroiditis	Most reactive lymphadenopathy

## **Q1: What is the Dx?**

- Lacerated neck wound

## **Q2: What zone?**

- Zone 2

## **Q3: Name the borders for it?**

- From the angle of the mandible to the cricoid cartilage

## **Q4: When to intubate the patient?**

- 1) Expanding hematoma
- 2) Obstructive complication
- 3) Cervical vertebrae injury



## **PENETRATING NECK INJURIES**

---

**What depth of neck injury must be further evaluated?**

Penetrating injury through the platysma

**Define the anatomy of the neck by trauma zones:**

**Zone III**

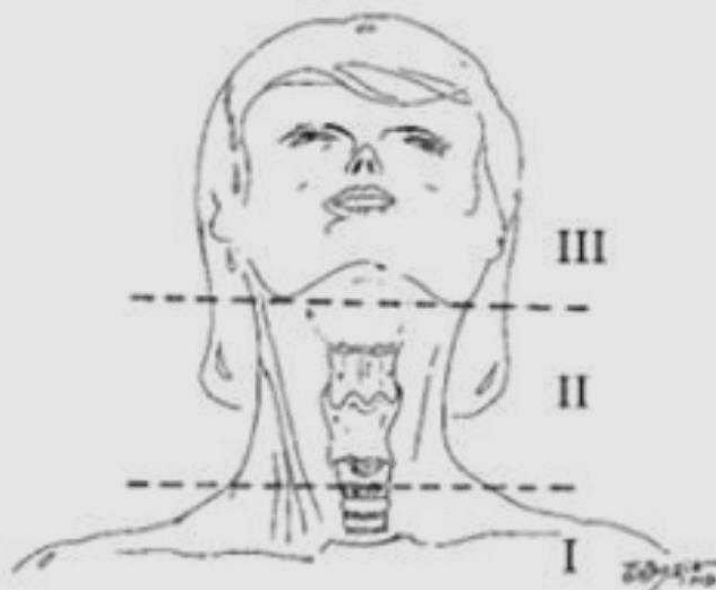
Angle of the mandible and up

**Zone II**

Angle of the mandible to the cricoid cartilage

**Zone I**

Below the cricoid cartilage



How do most surgeons treat penetrating neck injuries (those that penetrate the platysma) by neck zone:

Zone III

Selective exploration

Zone II

Surgical exploration vs. selective exploration

Zone I

Selective exploration

What is selective exploration?

Selective exploration is based on diagnostic studies that include A-gram or CT A-gram, bronchoscopy, esophagoscopy

What are the indications for surgical exploration in all penetrating neck wounds (Zones I, II, III)?

**"Hard signs"** of significant neck damage: **shock**, exsanguinating hemorrhage, expanding hematoma, pulsatile hematoma, neurologic injury, subQ



## Bethesda diagnostic category

**VERY COMMON QUESTION!**

## Risk of malignancy

## Usual management

<b>I</b>	<b>Nondiagnostic or unsatisfactory</b>	Cyst fluid only Virtually acellular specimen Other (obscuring blood, clotting artifact, etc.)	1% to 4%	Repeat FNA with ultrasound guidance
<b>II</b>	<b>Benign</b>	Consistent with a benign follicular nodule (includes adenomatoid nodule, colloid nodule, etc.) Consistent with lymphocytic (Hashimoto) thyroiditis in the proper clinical context Consistent with granulomatous (subacute) thyroiditis Other	0% to 3%	Clinical follow-up
<b>III</b>	<b>Atypia of undetermined significance or follicular lesion of undetermined significance</b>		5% to 15%	Repeat FNA
<b>IV</b>	<b>Follicular neoplasm or suspicious for a follicular neoplasm</b>	Specify if Hurthle cell (oncocytic) type	15% to 30%	Surgical lobectomy
<b>V</b>	<b>Suspicious for malignancy</b>	Suspicious for papillary carcinoma Suspicious for medullary carcinoma Suspicious for metastatic carcinoma Suspicious for lymphoma Other	60% to 75%	Near-total thyroidectomy or surgical lobectomy
<b>VI</b>	<b>Malignant</b>	Papillary thyroid carcinoma Poorly differentiated carcinoma Medullary thyroid carcinoma Undifferentiated (anaplastic) carcinoma Squamous cell carcinoma Carcinoma with mixed features (specify) Metastatic carcinoma Non-Hodgkin lymphoma Other	97% to 99%	Near-total thyroidectomy

## Q1: What is the Dx?

- Thyroglossal duct cyst

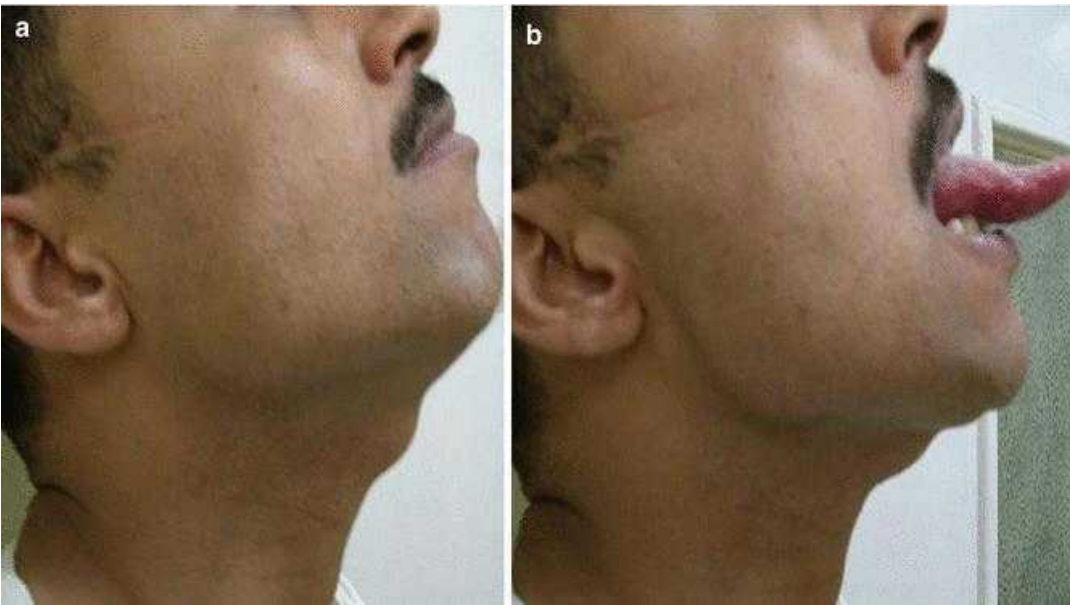
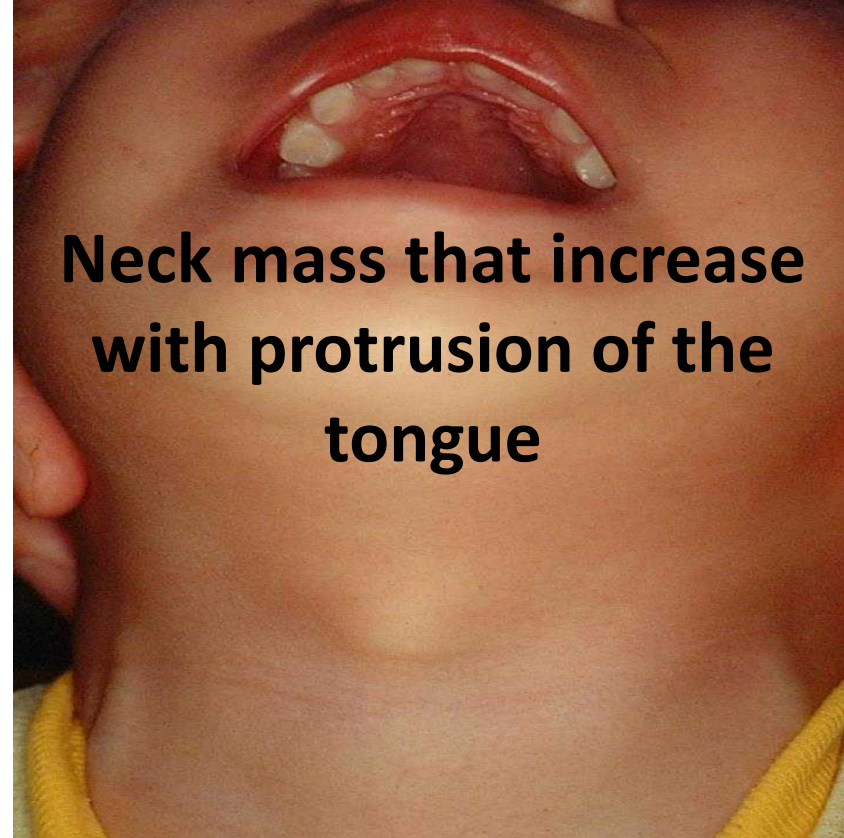
## Q2: What is the structure on U/S (involved bone)?

- Hyoid bone

## Q3: What is the Mx?

- Sistrunk's procedure

(if the hyoid bone not removed the recurrence rate is > 50-60%)



**Q4: What is the malignancy risk?**

- 2%

**Q5: Name the malignancy that does not occur here?**

- Medullary Ca

**Q6: Complications?**

- Infection, malignant risk

**Q7: Sign to confirm your Dx?**

- Movement with tongue protrusion

**Q8: What is the risk of recurrence?**

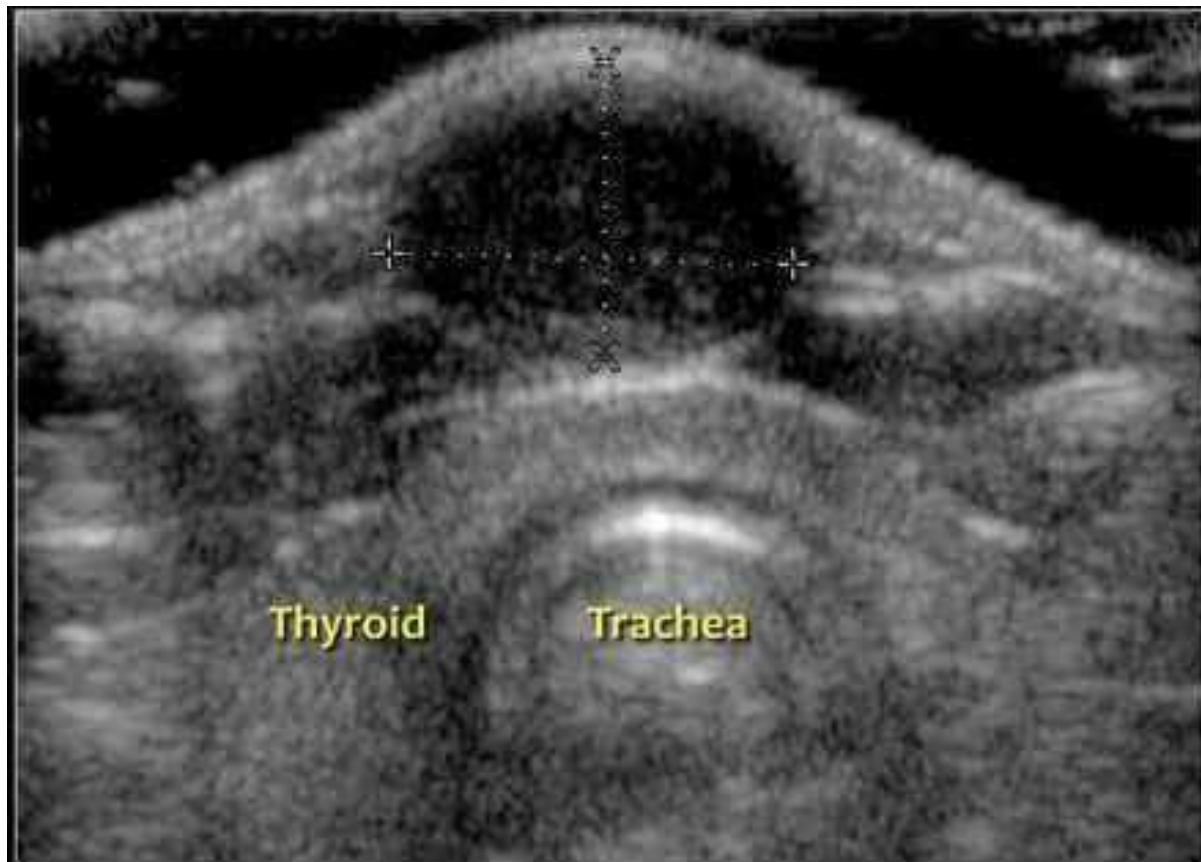
- Sistrunk procedure reduces the recurrence risk from 60% to < 10%



**Q: This is the US of a 20 yo male with a neck lump.**

**1. What is the next step in approaching his condition? FNAC**

**2. What is the most likely Dx? Thyroglossal Duct Cyst**

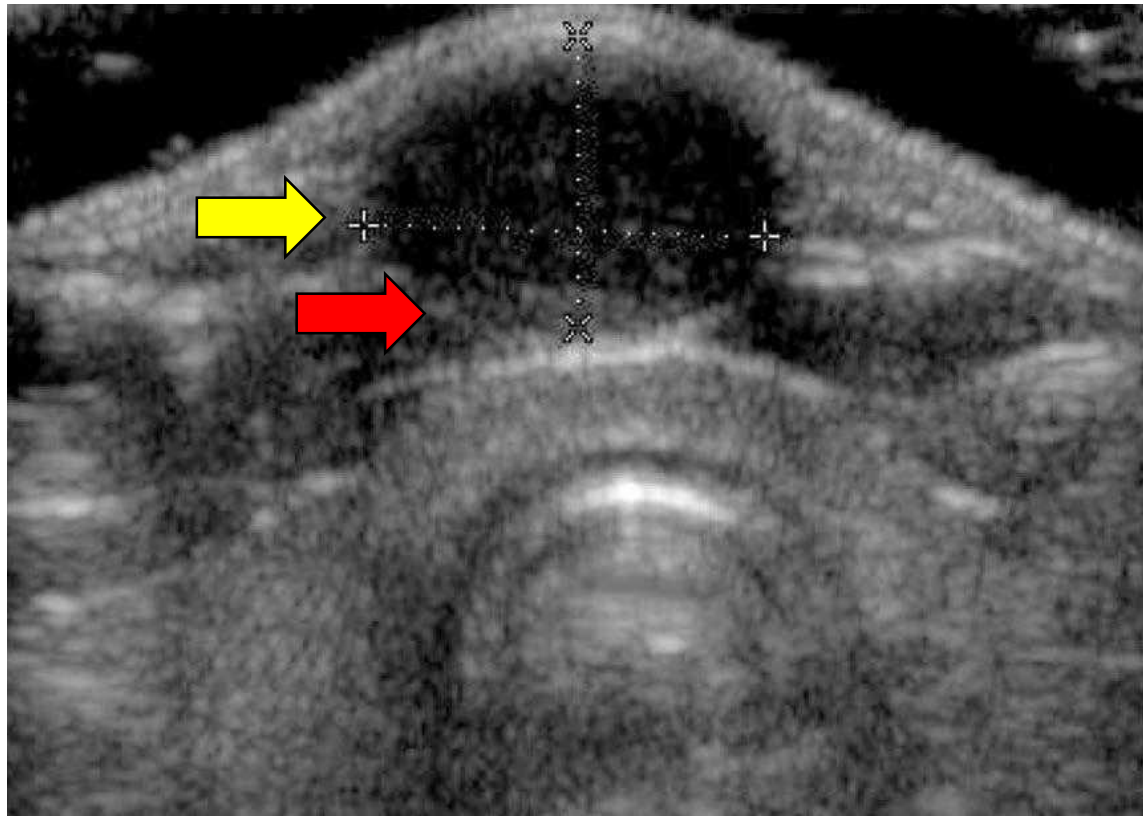




**Q: This patient underwent surgery for the pathology depicted by the yellow arrow. Histology reported a malignancy of non-thyroid origin.**

**What is the most likely malignancy? SCC**

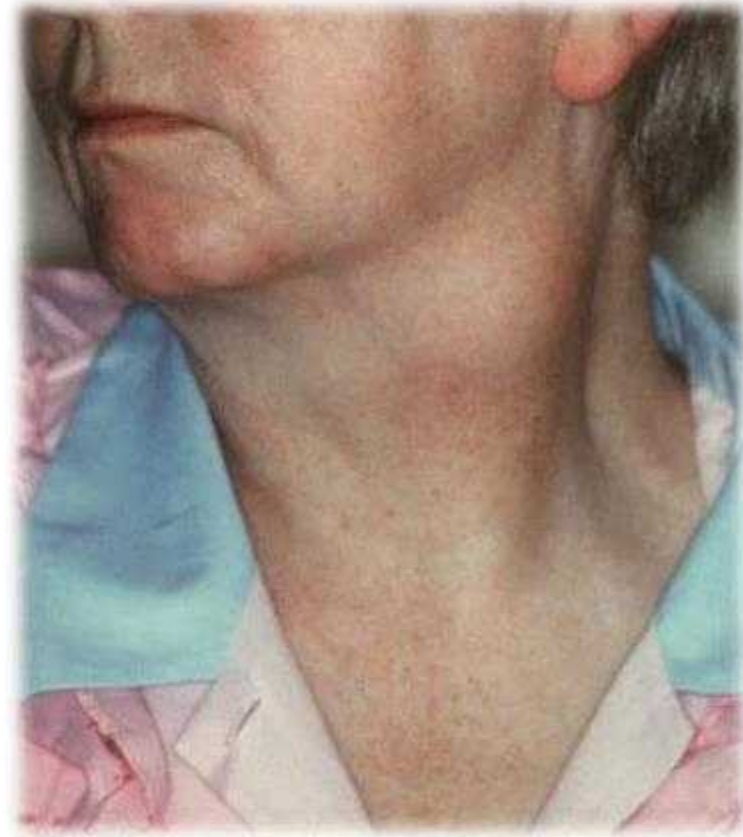
**What structure does the red arrow point to? Hyoid bone**



**Q1: Name the triangle of the neck in which the lesion is situated:**

anterior triangle.

**Q2: Give 2 DDx for the lump:**  
sialodenitis/ lipoma.



**Q: Hx that suggest a thyroid nodule:**

**Q1: What is the Dx?**

- Multi-nodular goiter

**Q2: How to approach the patient with this Dx?**

- TFT
- US

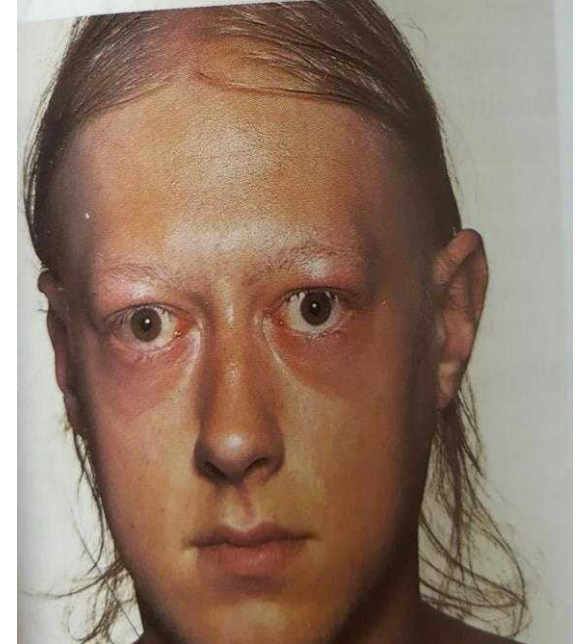


## Q1: What is the Dx?

- Graves disease

## Q2: Mention 2 signs that you can see?

- Exophthalmos
- Significant hair loss
- Lid retraction



## Q3: What is the 1<sup>st</sup> Sx patient will develop if she develops ophthalmoplagia?

- Diplopia or Proptosis (not sure)



## Q4: What is a drug you can give this patient before getting into surgery?

- PTU (Propyl thiouracil), propranolol





**Q: 50 year old female patient  
present with hypothermia:**

**Q1: What is the endocrine  
disorder?**

- Hypothyroidism

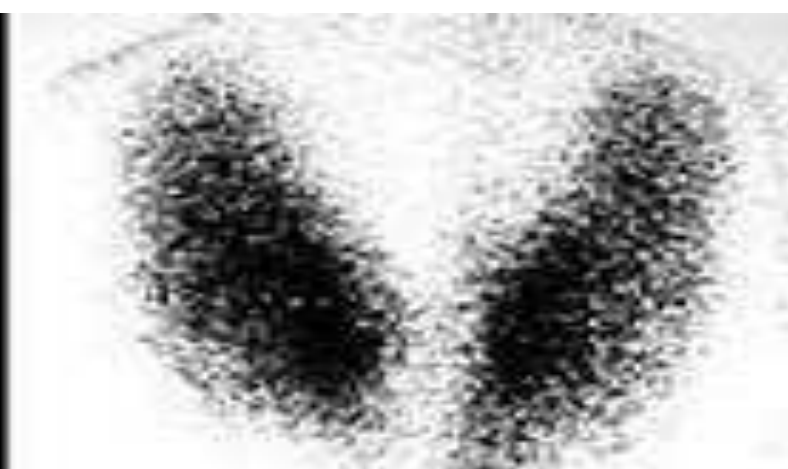
**Q2: Mention 3 signs on face?**

- 1) Puffy face
- 2) Periorbital edema
- 3) Coarse hair





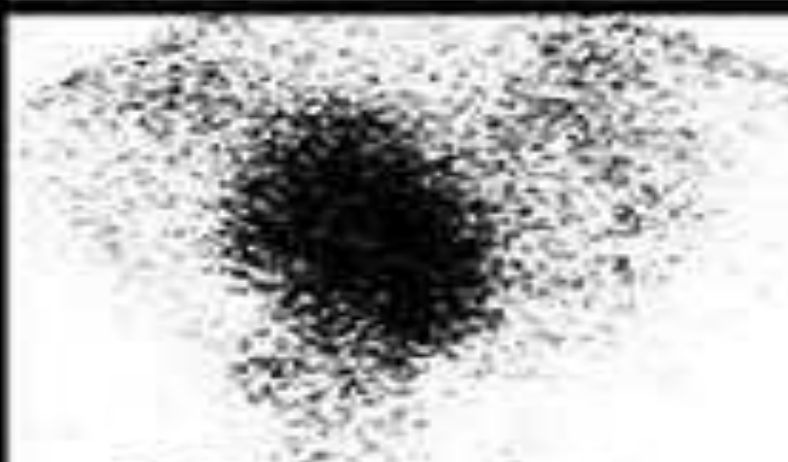
**A. Normal**



**B. Graves' disease**



**C. Toxic mng**



**D. Toxic adenoma**

**Q: Patient with hyper diffuse functioning thyroid:**

**Q1: What is the Dx?**

- Graves Disease

**Q2: What is the serological marker?**

- TSI (thyroid stimulating immunoglobulin)

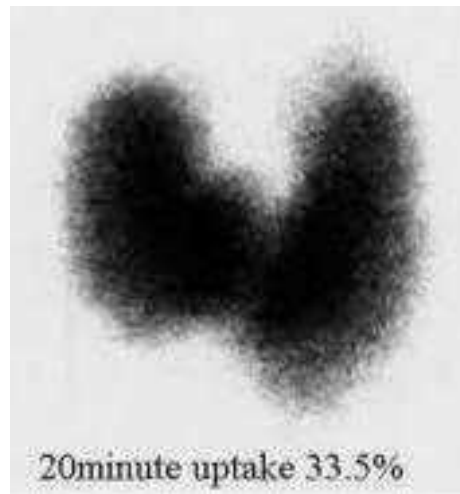
**Q3: Mention 3 lines of Mx?**

1) Anti-thyroid drugs (carbimazole) +  $\beta$ -blockers

2) Radio-iodine

3) Surgery

\*\* All 3 are considered 1<sup>st</sup> line Mx



**Q1: What is the pathology?**

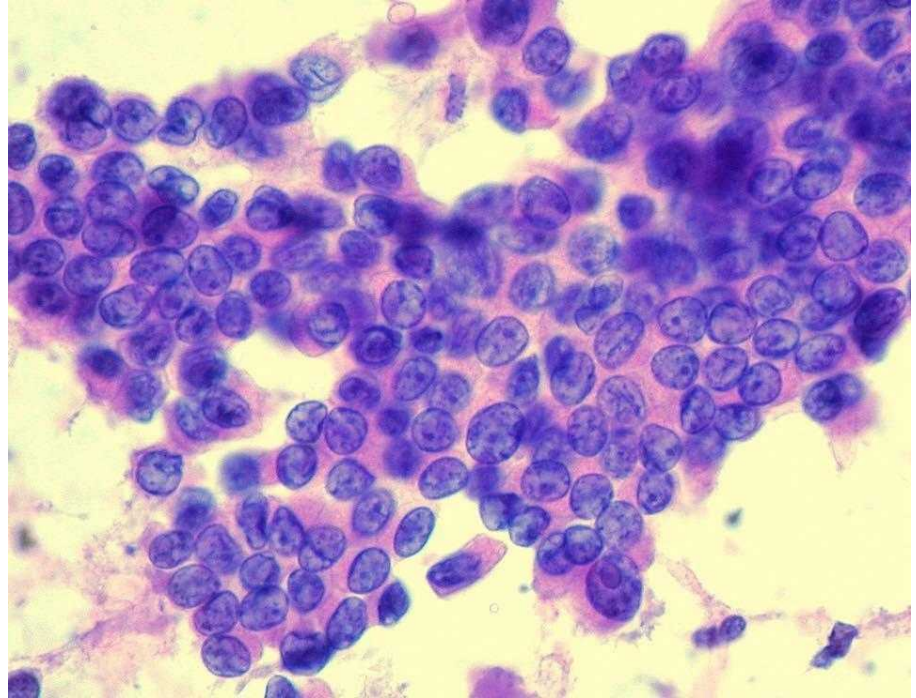
- Papillary Thyroid Carcinoma

**Q2: What is the rate of the malignancy?**

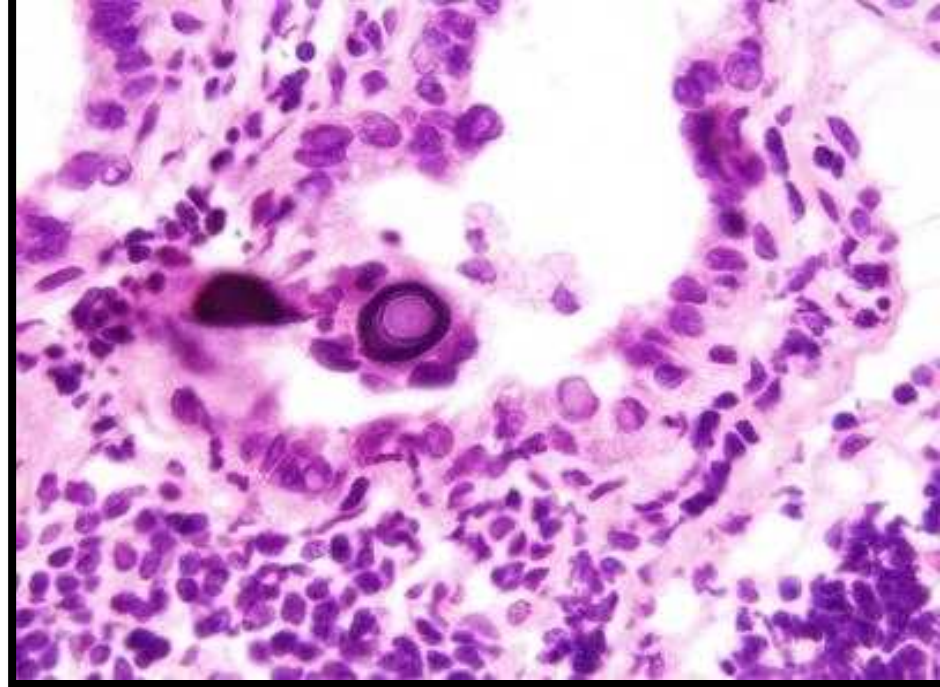
- 97-99%

**Q3: Mention 2 features seen in the picture?**

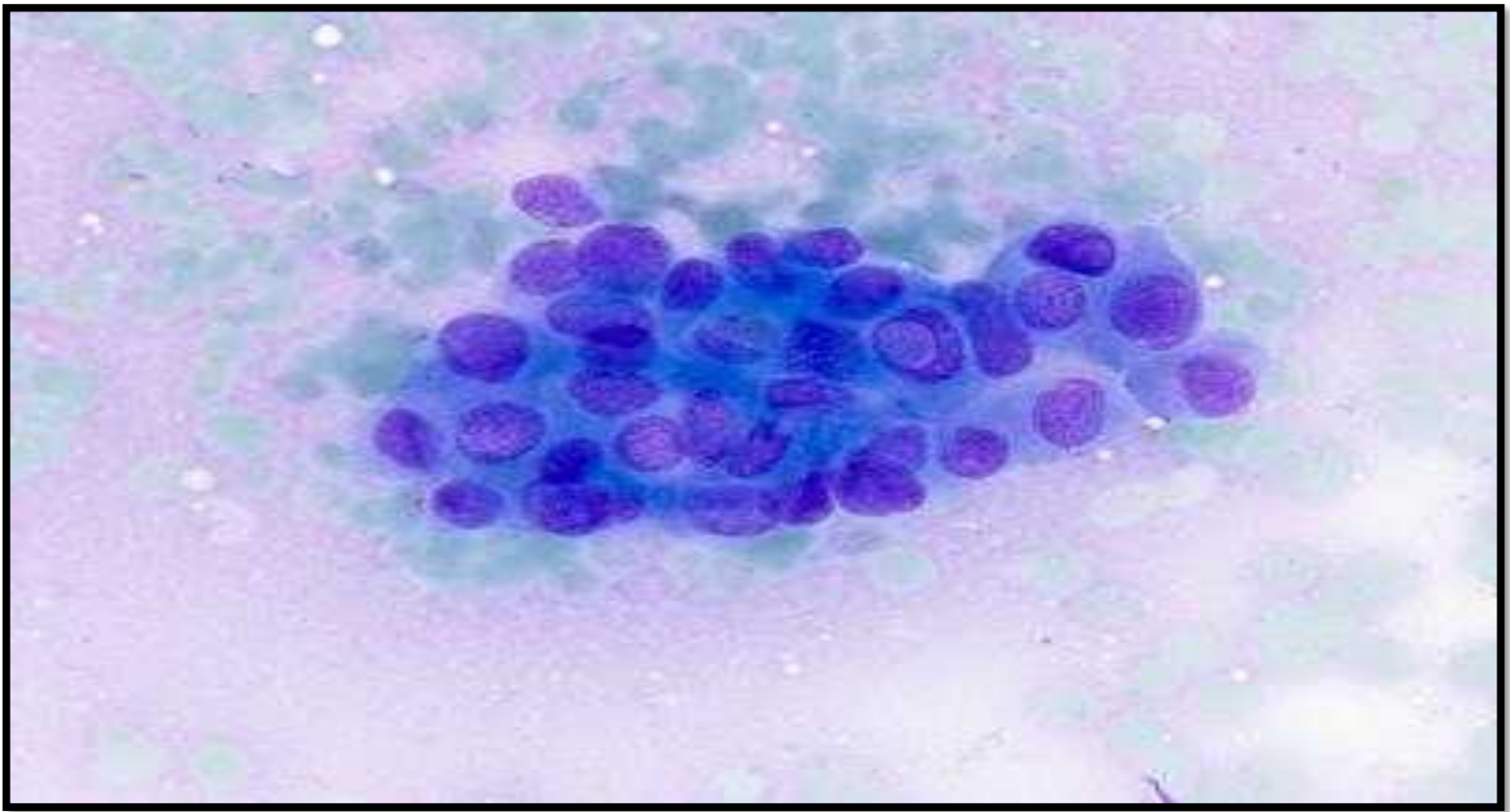
- 1) Nuclear Crowding
- 2) Orphan Annie Nuclei







- Papillary thyroid carcinoma:**
- a. Nuclear groove (blue arrow).**
  - b. Psammoma body.**



**Papillary thyroid carcinoma:**  
**(Intranuclear cytoplasmic inclusions)**

**Q1: What type of thyroid cancer do you expect to see in this patient?**

- Medullary

**Q2: What's the marker?**

- Calcitonin





**Q1: What type of thyroid cancer do you expect to see in this patient?**

- Medullary cancer

**Q2: Before surgery what type you must exclude?**

- MEN 2 (Pheochromocytoma)





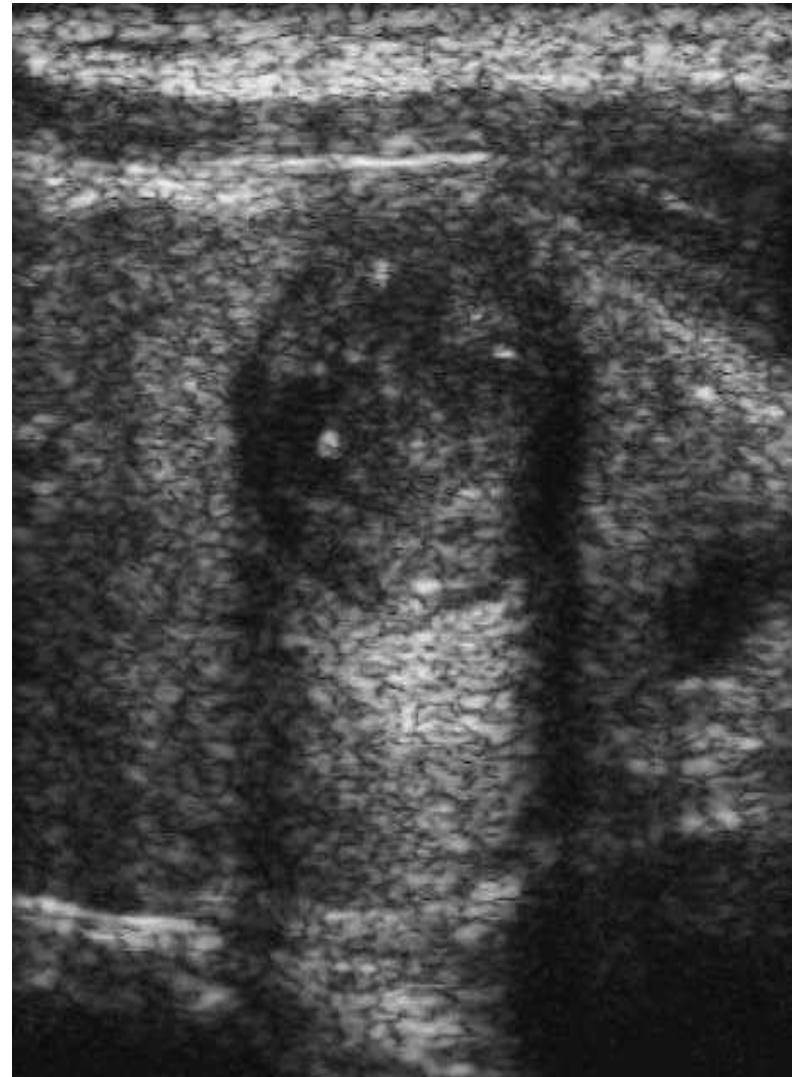
**Q: Hx of thyroid nodule, US showing: micro-calcifications, investigation of blood vessels and reactive LN:**

**Q1: Bethesda Grade?**

- Bethesda 6

**Q2: What is your Mx?**

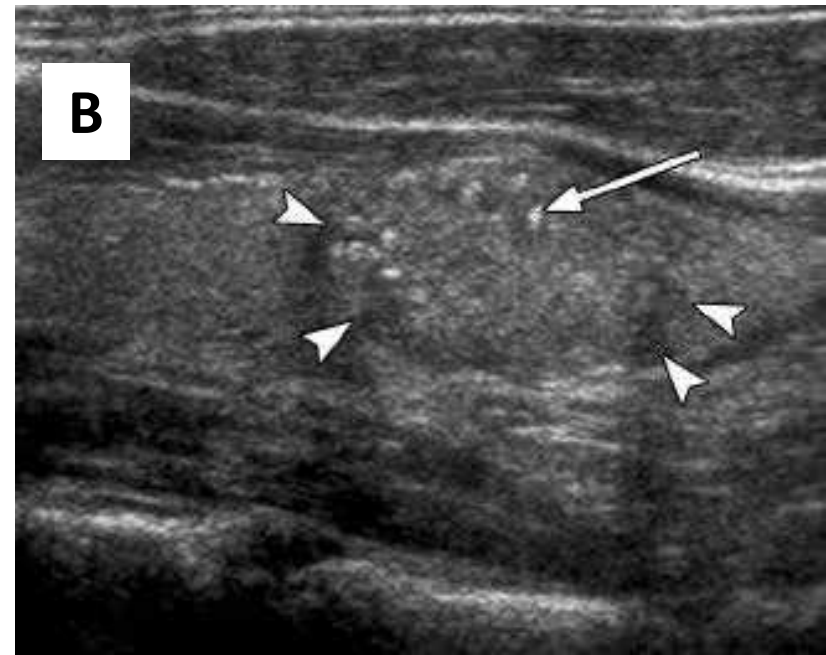
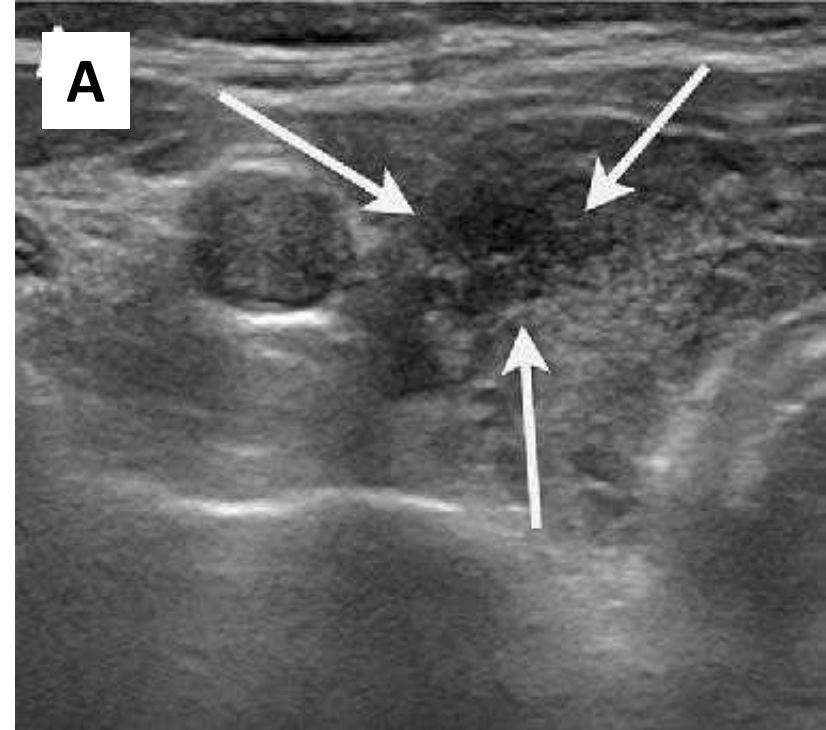
- Total Thyroidectomy



**Q: Images A & B demonstrate thyroid nodules that are considered sonographically suspicious for malignancy. Name the feature labelling each nodule suspicious.**

**A > Heterogeneous**

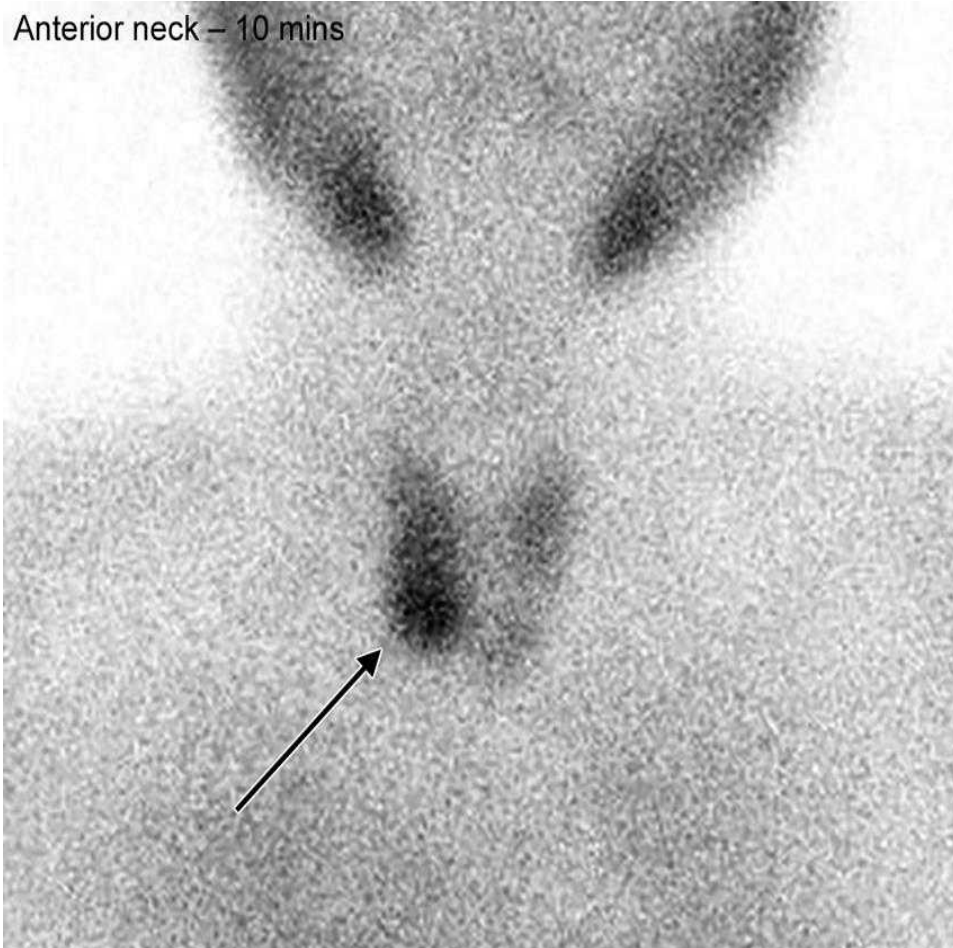
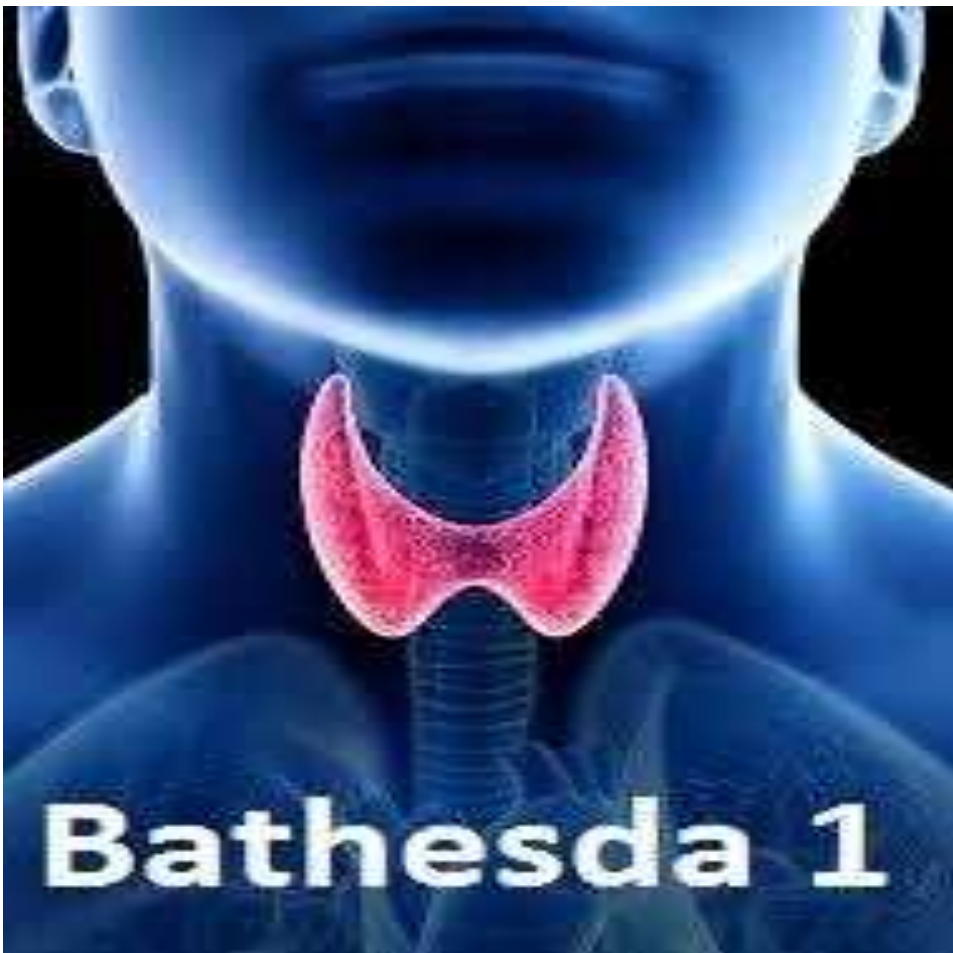
**B > Calcification**



**Q: What shall you do in the following cases ?**

**A. Thyroid** → repeat cytology

**B. Parathyroid** → removal (parathyroid adenoma)



## **Q1: Name the study?**

- Sestamibi scan of parathyroid

## **Q2: What is the most common cause of the condition?**

- Adenoma



**15 minutes**



**2 hours**

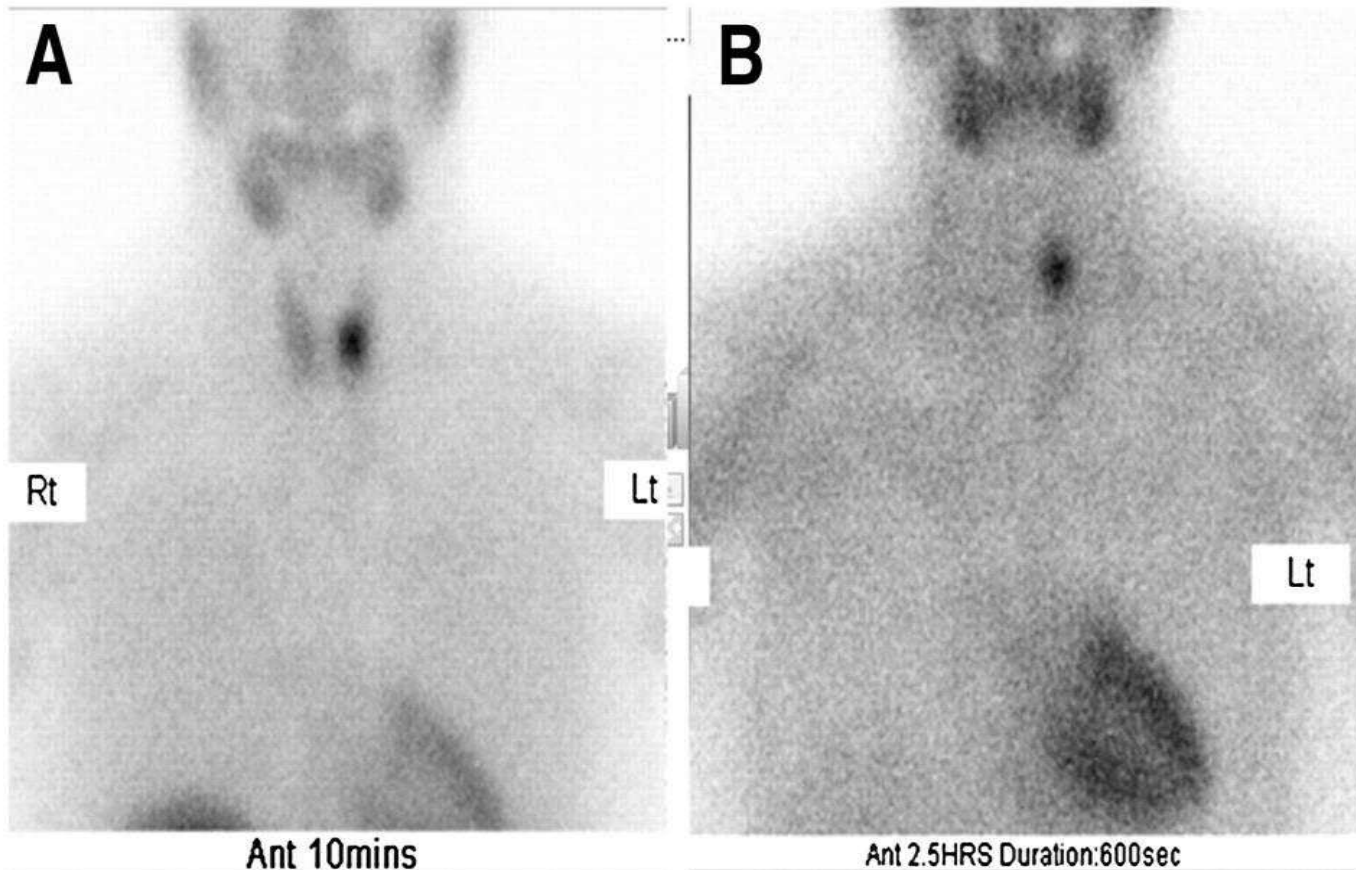


## Q1: Name the study?

- Sestamibi scan

## Q2: What is the pathology you see?

- Hyperfunctioning parathyroid glands



**Q1: Risk of disease to be from single nodule?**

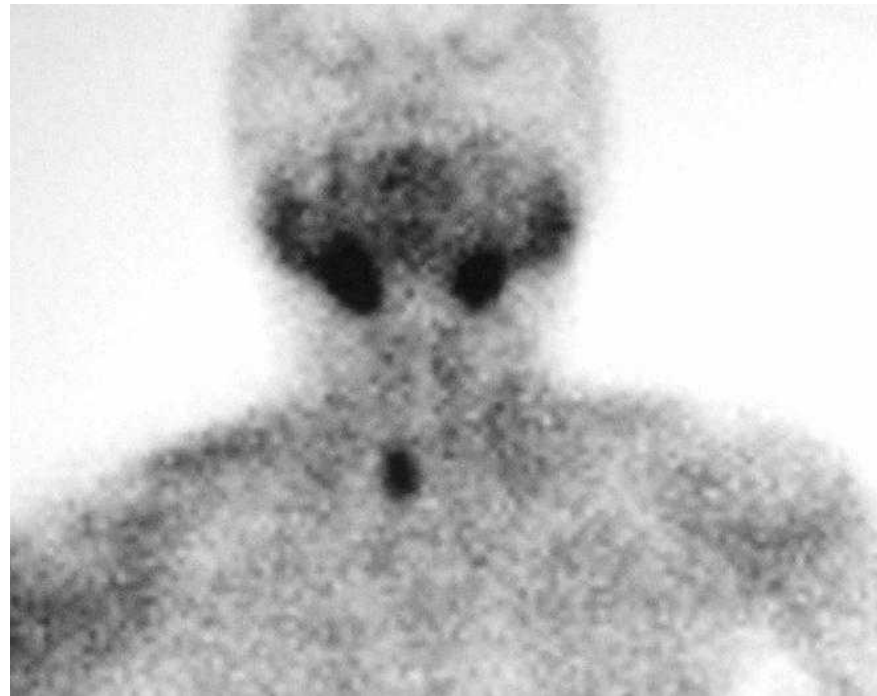
- 85-90% Adenoma

**Q2: What is your Dx?**

- Single parathyroid gland adenoma

**Q3: What is your Mx?**

- Removal

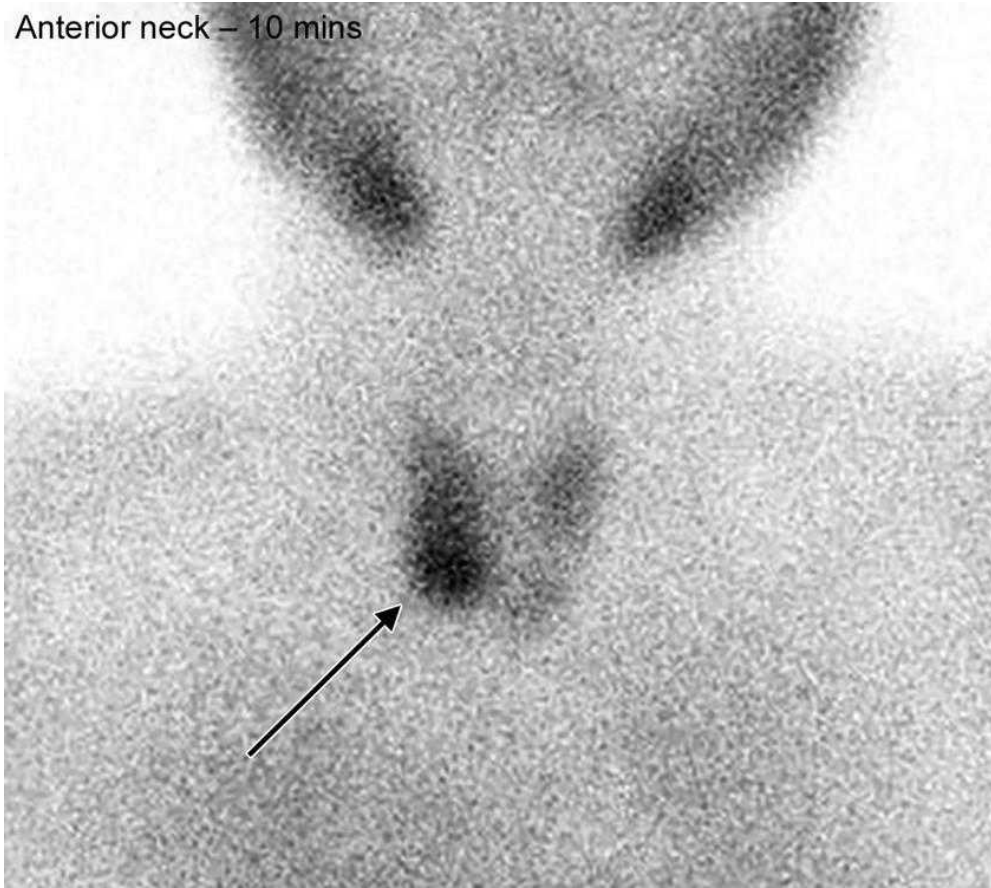


## Q1: What is the Dx?

- Parathyroid adenoma (1ry hyperparathyroidism)

## Q2: The 1<sup>st</sup> Sx to develop if the patient had high PTH & Calcium?

- Bone pain (Since it's Hyper)
- if Hypo: Peri-oral numbness, carpal spasm



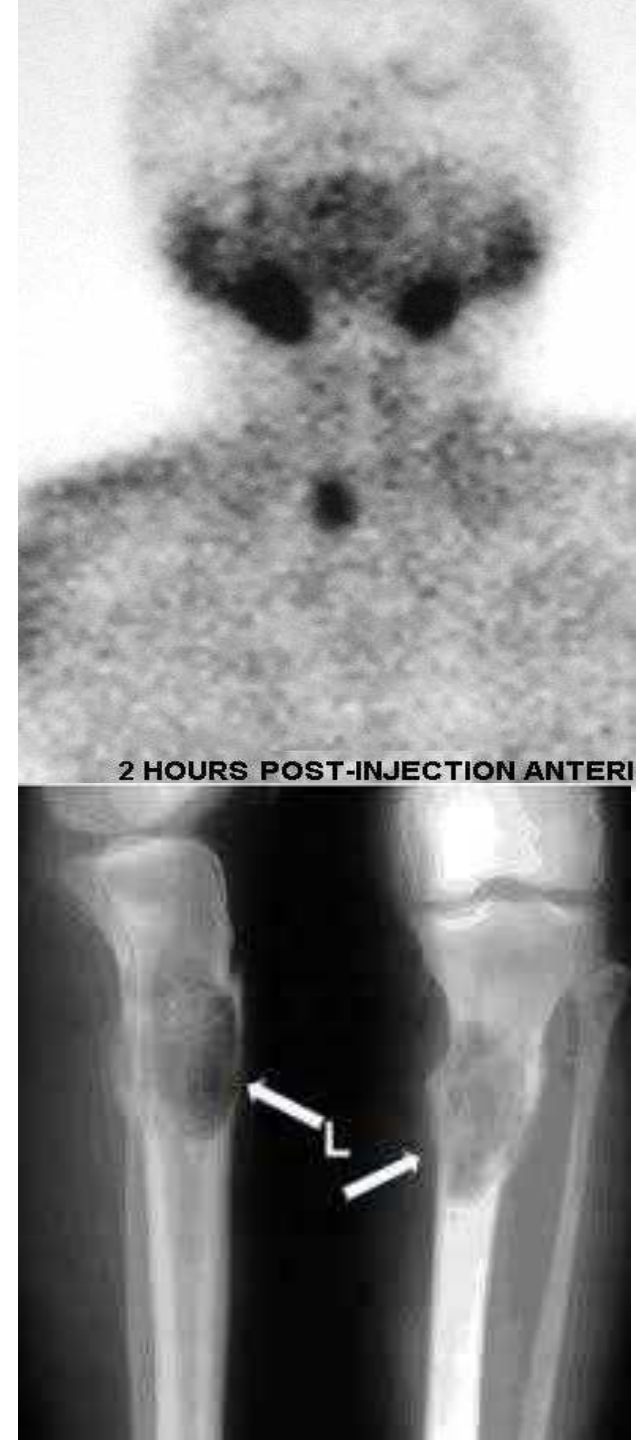
**Q: A 60-years old female complains of pain in her bones. She presents with a palpable central neck lump below the cricoid cartilage that moves upward upon swallowing.**

**1. What does the lump mostly represent?**

Parathyroid Carcinoma

**2. What is the bone condition called?**

Osteitis Fibrosia Cystica





**Q1: Name the Dx?**

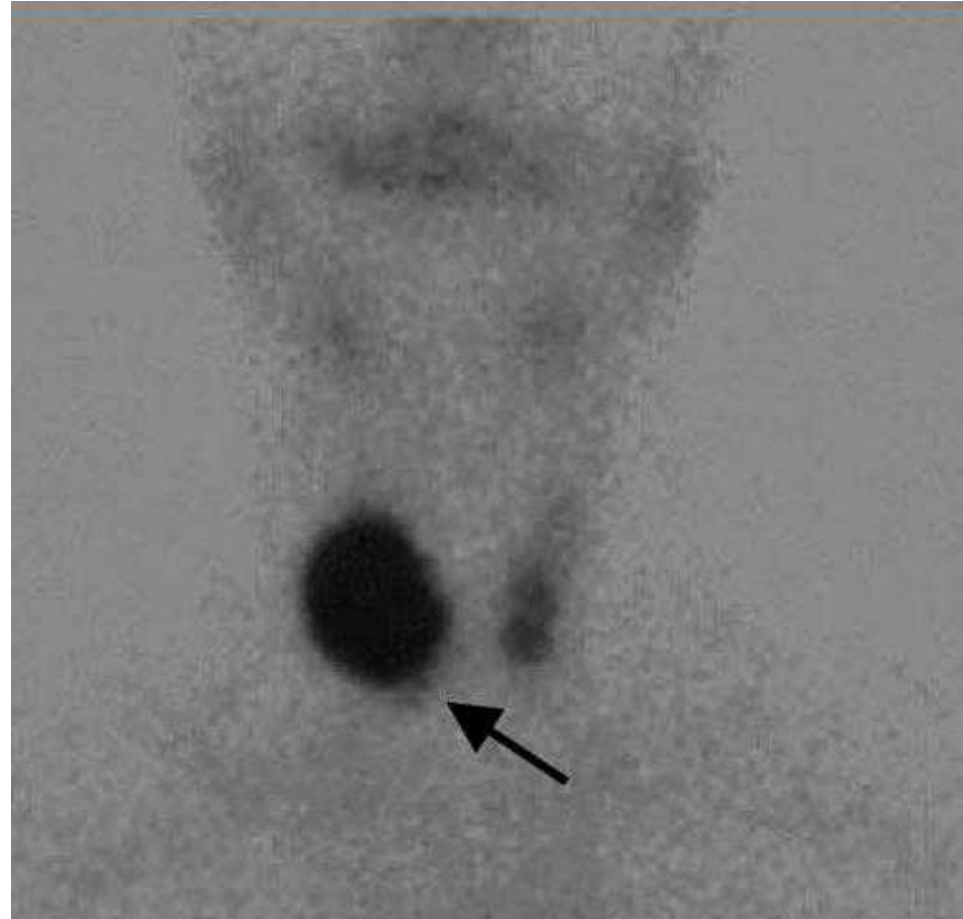
- Parathyroid hot nodule

**Q2: Name the Rx?**

- Surgery (Lobectomy)

**Q3: Risk of malignancy?**

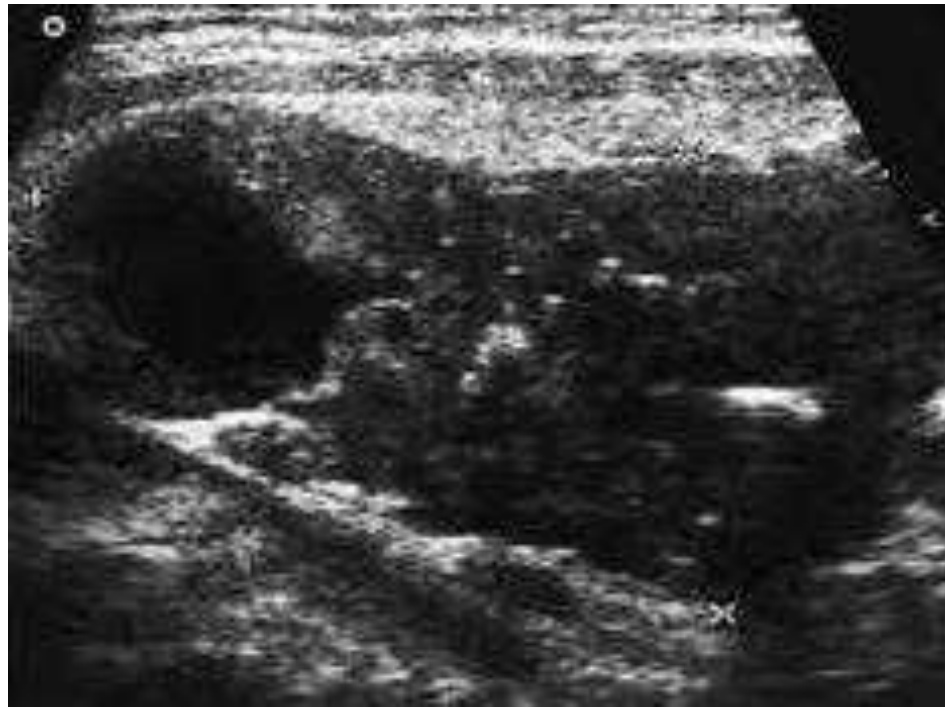
- Low risk (<3-5%)



**Q: Hx of palpable neck mass,  
recurrent renal stone, high  
level of calcium and  
parathyroid hormone:**

**Q1: Name the Dx?**

- Parathyroid carcinoma



**Q2: What is the minimal Mx to be done?**

- Parathyroidectomy or en-bloc resection of the parathyroid mass and any adjacent tissues that have been invaded by tumor . (from uptodate)

\*\*\* Note: En-bloc resection could include the ipsilateral thyroid lobe, paratracheal alveolar and lymphatic tissue, the thymus or some of the neck muscles, and in some instances, the recurrent laryngeal nerve

**Q: The morning post-total thyroidectomy the patient developed the sign seen in this figure:**

**Q1: Name of the sign?**

- Trousseau Sign

**Q2: What is the cause?**

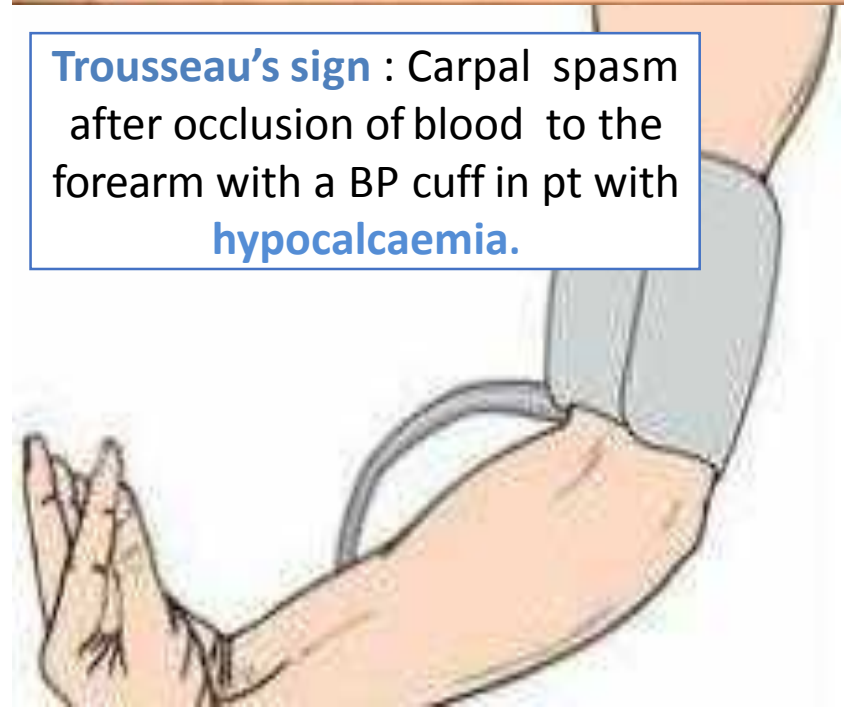
- Hypocalcemia after removal of parathyroid glands

**Q3: What is the most likely cause of hypoparathyroidism?**

- Ischemic Injury



**Trousseau's sign** : Carpal spasm after occlusion of blood to the forearm with a BP cuff in pt with **hypocalcaemia**.





**Q1: What are the signs?**

- Chvostek and Trousseau signs

**Q2: What is the cation that influx and cause this sign?**

- Na<sup>+</sup> Sodium



A woman with blonde hair, wearing a pink V-neck gown, stands in a clinical setting. She has her hands clasped in front of her and is looking down. To her left is a piece of medical equipment, possibly a mammography unit, with a circular component. In the background, there is a corkboard with several papers pinned to it. The word "Breast" is overlaid in large white text with a black outline.

# Breast

<https://radiologyassistant.nl/breast/bi-rads-for-mammography-and-ultrasound-2013>

## BI-RADS CATEGORIES

**BI-RADS 0 (incomplete):** Recommend additional imaging -- mammogram or targeted ultrasound

**BI-RADS 1 (negative):** Routine breast MR screening if cumulative lifetime risk  $\geq 20\%$

**BI-RADS 2 (benign):** Routine breast MR screening if cumulative lifetime risk  $\geq 20\%$

**BI-RADS 3 (probably benign):** Short-interval (6-month) follow-up

**BI-RADS 4 (suspicious):** Tissue diagnosis

**BI-RADS 5 (highly suggestive of malignancy):** Tissue diagnosis

**BI-RADS 6 (known biopsy-proven malignancy):** Surgical excision when clinically appropriate

## Final Assessment Categories

Category		Management	Likelihood of cancer
0	Need additional imaging or prior examinations	Recall for additional imaging and/or await prior examinations	n/a
1	Negative	Routine screening	Essentially 0%
2	Benign	Routine screening	Essentially 0%
3	Probably Benign	Short interval-follow-up (6 month) or continued	>0 % but ≤ 2%
4	Suspicious	Tissue diagnosis	4a. low suspicion for malignancy (>2% to ≤ 10%) 4b. moderate suspicion for malignancy (>10% to ≤ 50%) 4c. high suspicion for malignancy (>50% to <95%)
5	Highly suggestive of malignancy	Tissue diagnosis	≥95%
6	Known biopsy-proven	Surgical excision when clinical appropriate	n/a

## **FNAC (Breast)**

**C1: Unsatisfactory**

**C2: Benign**

**C3: Atypical cells**

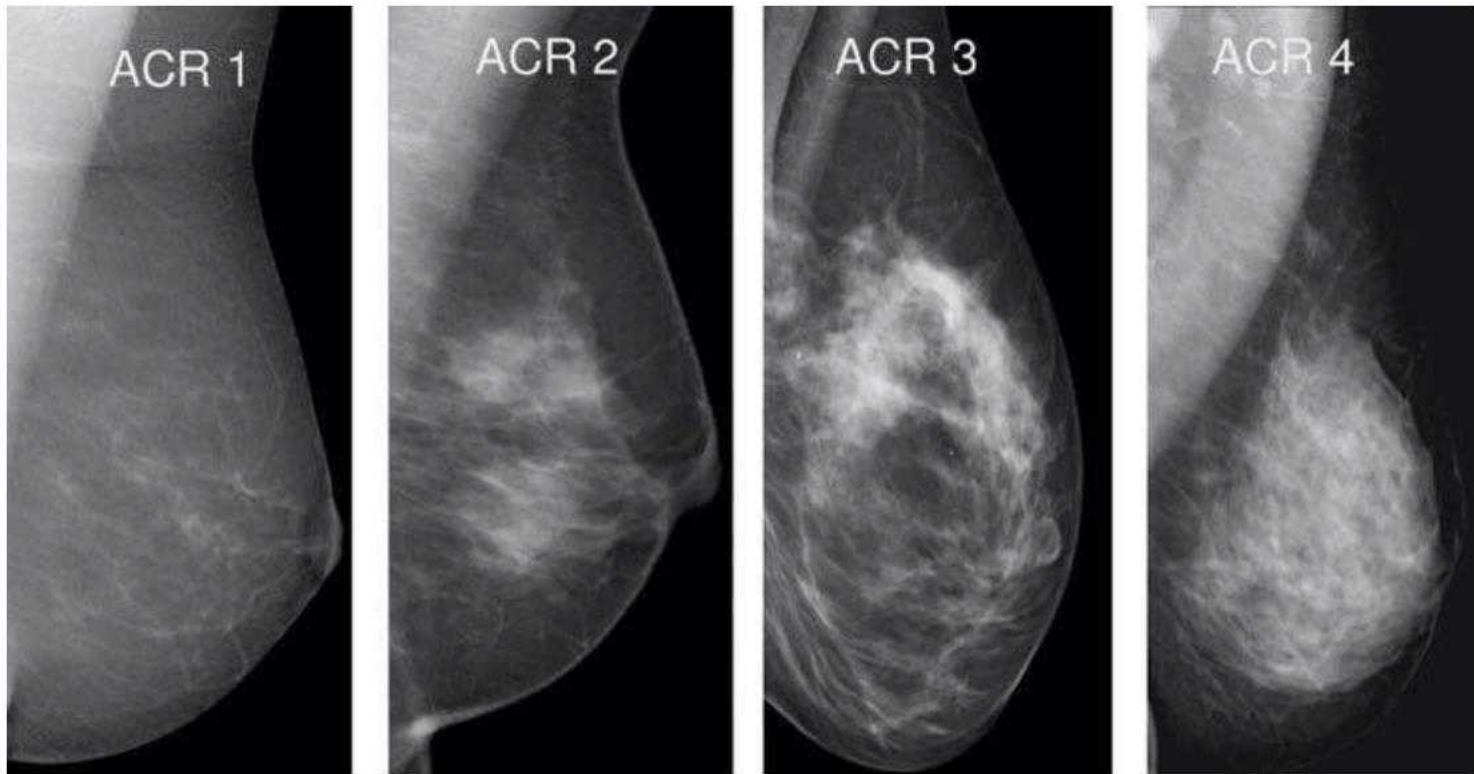
**C4: Suspicious cells**

**C5: Malignant**



## ACR classification of breast density

ACR = American College of Radiology



There are four categories of mammographic density :

**ACR 1** : almost entirely fatty.

**ACR 2** : scattered areas of fibroglandular density.

**ACR 3** : heterogeneously dense.

**ACR 4** : extremely dense.

Metrics	Results	ACR type	Density percentage value (%)	Sensitivity (%)	Specificity (%)	Accuracy (%)
TP	97	1 (fatty breast)	<10	90.65	73.59	85.00
FP	14					
TN	39					
FN	10					
TP	66	2 (Fibro-glandular dense)	25-50	61.68	90.57	71.25
FP	5					
TN	48					
FN	41					
TP	22	3 (Heterogeneous dense)	50-75	20.56	96.23	45.63
FP	2					
TN	51					
FN	85					
TP	6	4 (Extremely dense)	75>	5.61	98.11	36.25
FP	1					
TN	52					
FN	101					

## TNM Class

## Criteria

T0 No evidence of primary tumor

T1a Carcinoma in situ

T1 < or = 2 cm

T1m1c microinvasion .1 cm or less

T1a >.1 to .5 cm

T1b >.5 to 1 cm

T1c >1 to 2 cm

T2 >2 to 5 cm

T3 >5cm

T4 Any size tumor with direct extension to : a) Chest wall or b) skin

T4a Chest wall, not including pectoralis muscle

T4b Skin edema, ulceration, satellite skin nodule

T4c 4a and 4b

T4d Inflammatory carcinoma

TNM Class	Criteria
Nx	Regional lymph nodes cannot be removed
N0	No regional lymph node metastasis
N1	<input type="checkbox"/> Metastasis to movable ipsilateral axillary lymph nodes <input type="checkbox"/> 1–3 ALN
N2	<input type="checkbox"/> Metastases in ipsilateral axillary lymph nodes fixed or matted (N2a) or met. only in clinically apparent ipsilateral mammary nodes without clinically evident axillary lymph nodes. ( N2b) <input type="checkbox"/> 4–9 ALN
N3	<input type="checkbox"/> Metastases in ipsilateral axillary or infraclavicular lymph nodes (N3a) or clinically apparent ipsilateral internal mammary lymph nodes (N3b) or ipsilateral supraclavicular lymph nodes (N3c) <input type="checkbox"/> 10 or more ALN
MX	Distant metastasis cannot be assessed
M0	No distant metastasis
M1	Distant metastasis



**Q1: What is the finding?** Male breast nipple changes

**Q2: Most common gene mutation associated with male breast cancer?** BRCA 2



**Q: A nipple biopsy for a female patient shows large cells with a clear cytoplasm, high grade nuclei and prominent nucleoli:**

**Q1: What is your Dx?**

- Paget disease of the breast/nipple (PDB)

**Q2: Mention 2 immuno-histochemical tests to differentiate it from melanoma?**

- 1) CEA (pos. in PDB)
- 2) Protein S100 (neg. in PDB)



### **Q1: What is the Dx?**

- Breast mastitis, Abscess

### **Q2: MCC?**

- S. Aureus

### **Q3: Mx?**

- Abx
- Incision & Drainage



**Q: 50 yo female has breast pain,  
breast only shows skin redness?**

**Q1: What is the Dx?**

- Inflammatory breast cancer

**Q2: Diagnostic procedure?**

- Tissue biopsy

**Q3: Mx?**

- Mastectomy + Radiotherapy

**Q4: What is the modality of Dx?**

- Triple assessment
- Mammogram + US

**Q5: According to TNM stage system  
the T stage is?**

- T4d





**Q1: What is the pathology?**

- Carcinoma en cuirasse

**Q2: What is its TMN?**

- T4

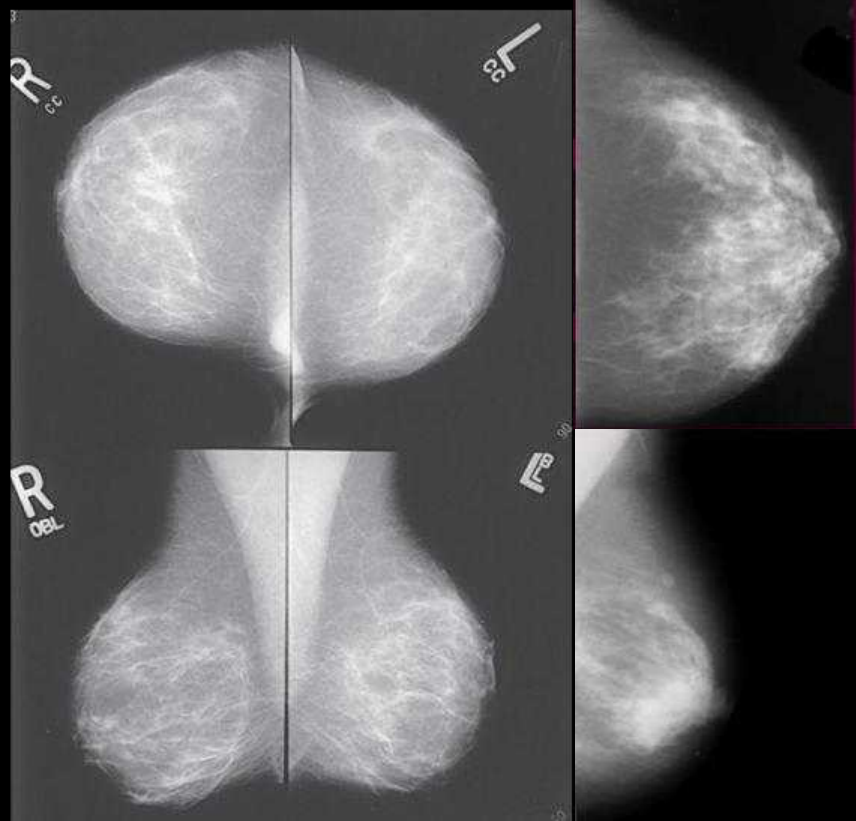


## Q: Name the following views for mammogram:

- Craniocaudal (CC)
- Mediolateral Oblique (MLO)

Craniocaudal (CC)

Mediolateral oblique  
(MLO)



**Q1: Name the study?**

- Mammogram

**Q2: Mention 2 abnormalities?**

- Mass with irregular border and  
calcification

**Q3: What is the Dx?**

- Breast Ca

**Q4: How to confirm your Dx?**

- Biopsy



**Q1: What is this view?**

- Mediolateral oblique

**Q2: What is this structure (arrow)?**

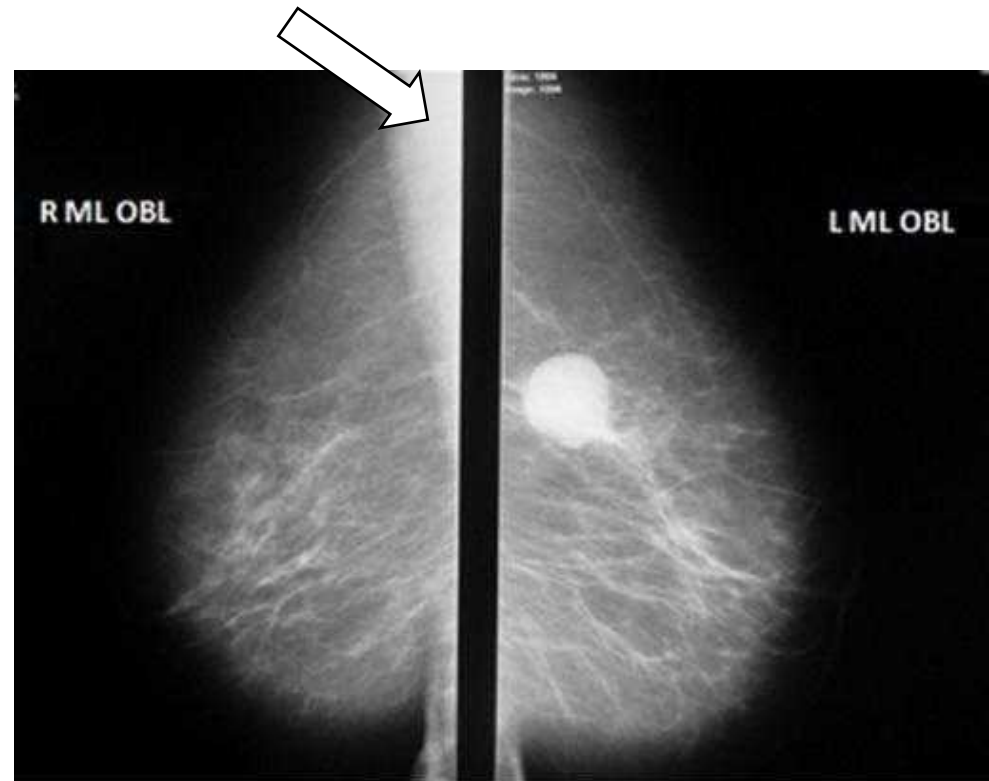
- Pectoralis major muscle

**Q3: What are the malignant changes seen on mammograms? Mention 3?**

1) Calcifications

2) Speculations

3) Mass with greater density than normal tissue





**Q: A 23-year-old single female presented to the clinic with rapidly growing (9cm) left breast mass over the last 6 months. The mass was irregular, hard and fixed at the time of examination:**

**Q1: Your Dx?**

- Phyllodes tumor

**Q2: What is this structure (arrow)?**

- Pectoralis major muscle

**Q3: if it is malignant, what is the common route of METS?**

- Hematogenous

**Q4: The mc site of METS?**

- Lungs



**Q: Female with ACR of 4 and BIRAD 0:**

**Q1: What is the % of breast density?**

- >75%

**Q2: What to do next?**

- Birads score: requires further investigations

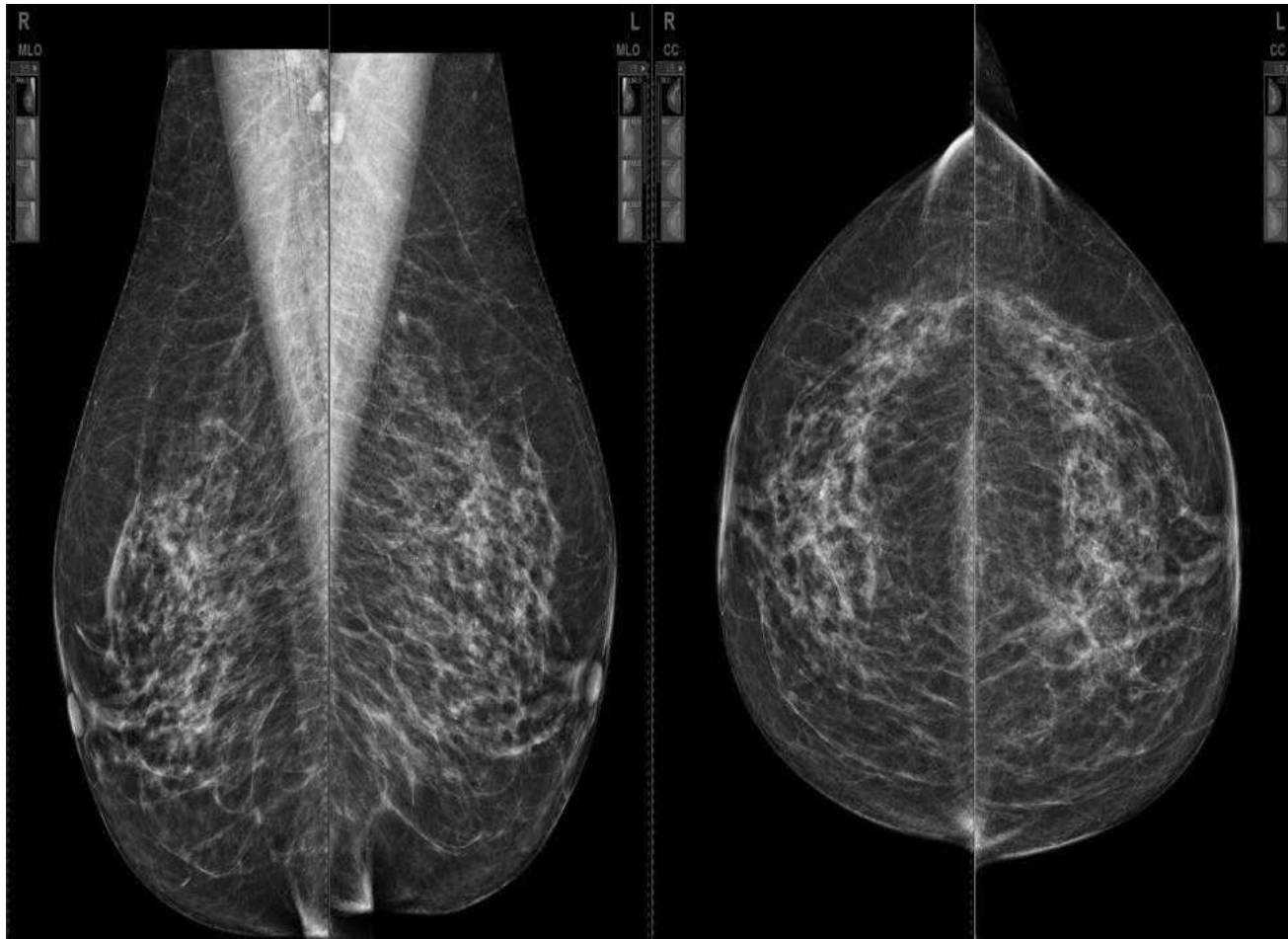
## **Q: Breast with Birad 2:**

**Q1: What is the next step in Mx?**

- Routine screening

**Q2: What is the view in B?**

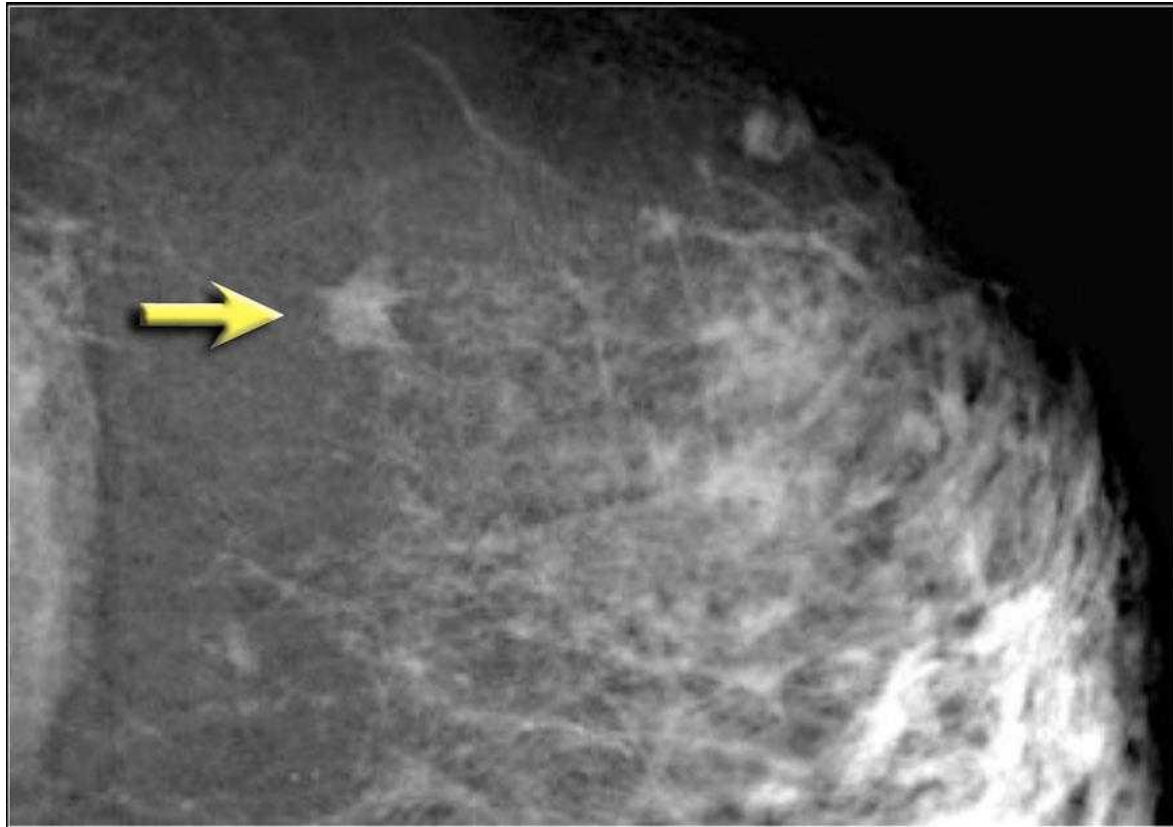
- Mediolateral oblique view



**Q: A 37-year-old female presented with right breast pain for the last 3 months. A breast ultrasound showed these findings consistent with BIRAD 4c.**

**Q1: The likelihood of malignancy is: 50-90%**

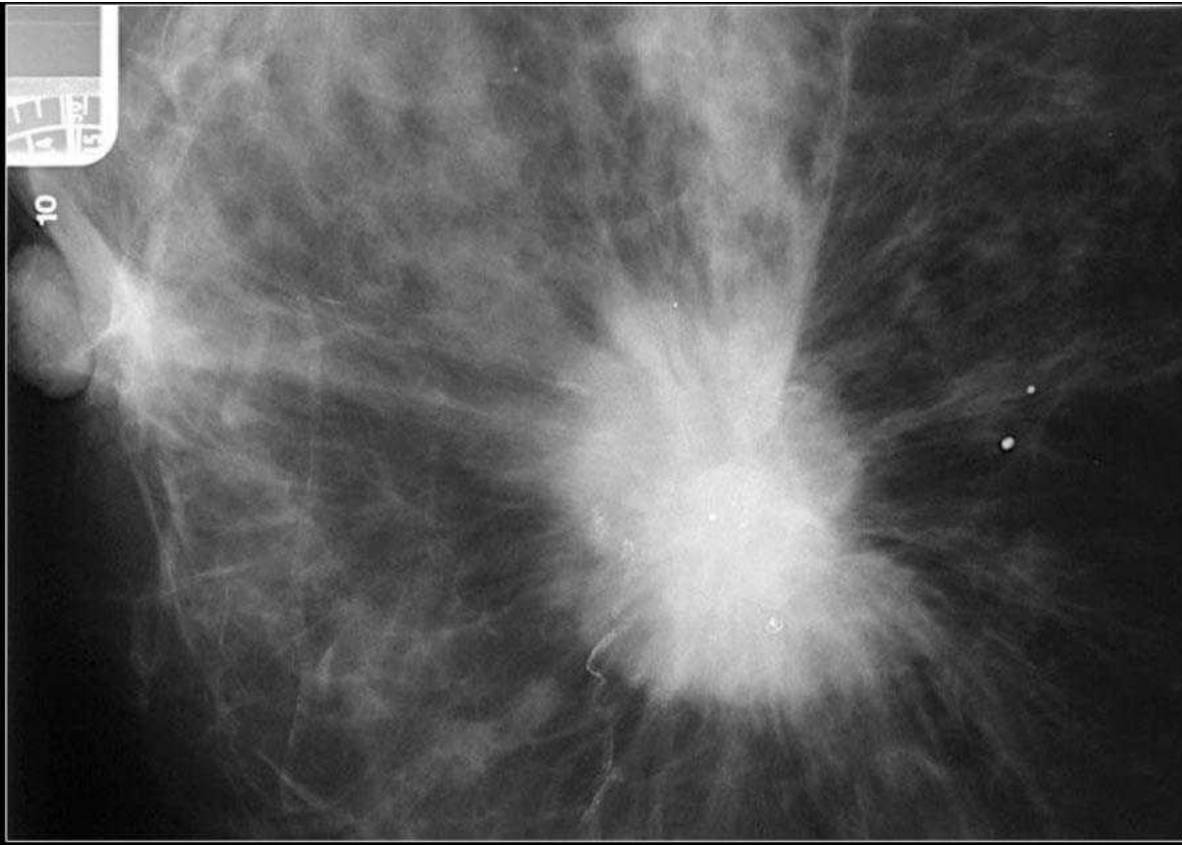
**Q2: The clinical T stage “if a diagnosis of invasive carcinoma is proved” is: T4**





**Q: A 40-years old married female presented with a right breast mass for 1-year duration. The patient had a history of a right breast mass excision 3 years ago. Physical exam showed a 4cm hard right breast mass which is fixed to the chest wall & the skin. Mammogram and ultrasound were consistent with BIRADS 5.**

- 1. Based on the TNM, the clinical T stage for this patient is? T4c**
- 2. The likelihood of malignancy based on imaging findings is? >95%**



**\*\*T4a : to chest wall only\*\***

**\*\*T4b : to skin only\*\***

**\*\*T4c : to both\*\***

**\*\*T4d: Inflammatory breast cancer\*\***

### **Q1: What is the pathology?**

- Infiltrative ductal carcinoma

### **Q2: What is its TMN?**

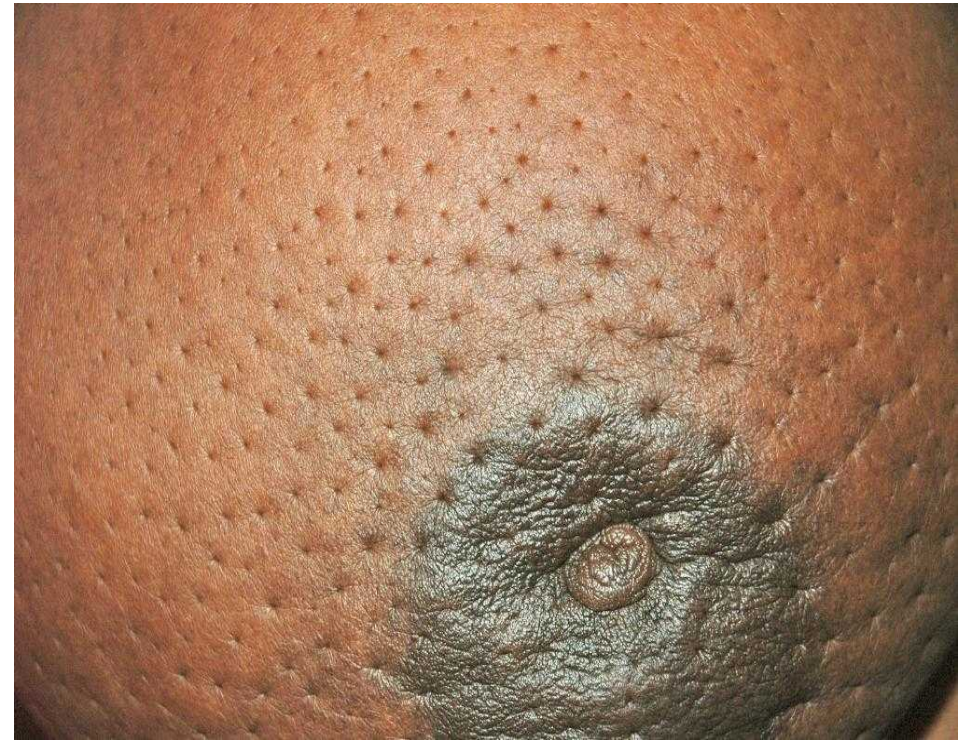
- Stage T3

### **Q3: What is the sign?**

- Peau'd orange and nipple retraction, skin dimpling

### **Q4: Give 2 DDx?**

- 1) Invasive ductal carcinoma
- 2) Inflammatory breast cancer



### **Q5: What is the cause of this?**

- Invasion of lymphatics, causing lymph nodes obstruction

**Q: A pt came complaining of a tender cord like subcutaneous structure, pain, swelling and redness of the left breast:**

**Q1: Dx?** Mondor's Disease (Superficial Thrombophlebitis)

**Q2: What is the Mx?**

- NSAIDS
- Usually benign and self-limiting condition



**Q1: What is the name of this study?**

- Mammogram

**Q2: Mention 2 signs you see.**

- 1) Speculated mass
- 2) Microcalcifications

**Q3: What is the Dx?**

- Infiltrative Ductal Carcinoma





## **Q1: What is the pathology?**

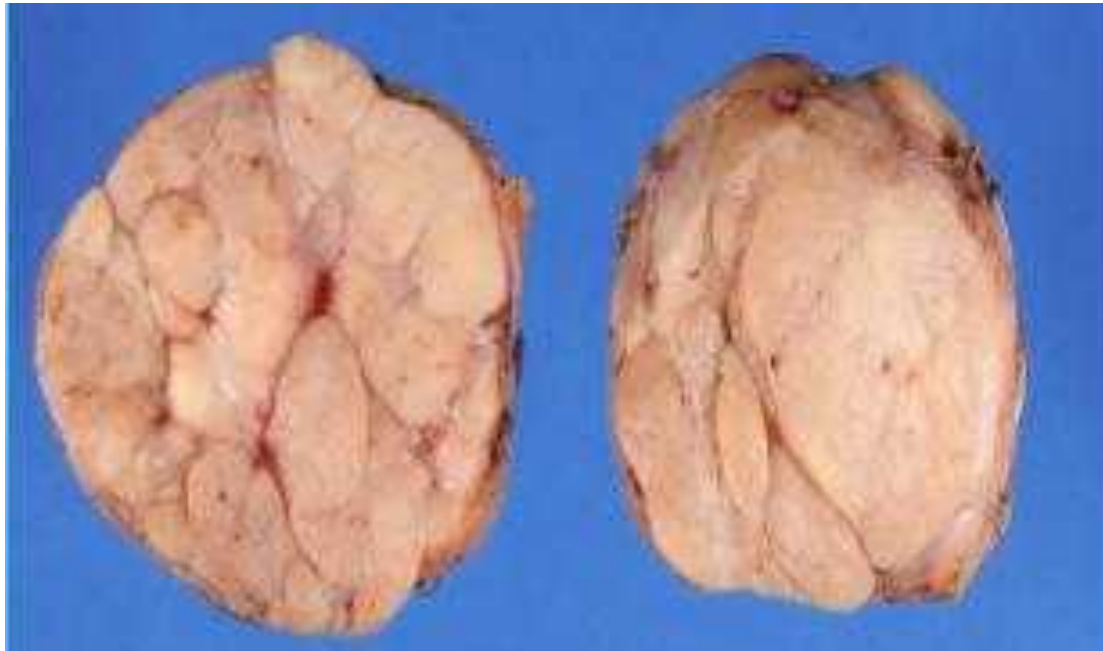
- Phyllodes tumor (Brodie's)

## **Q2: What is the Mx?**

- Wide local excision

## **Q3: What is the like hood (%) of this tumor to be benign?**

- 90% benign



**Q: Female with mobile, mouse like lump in one breast:**

**Q1: What is the Dx?**

- Fibroadenoma

**Q2: What is the stage according to FNA?**

- C2



C1 = unsatisfactory.

C2 = cells present all benign; no suspicious features.

C3 = cells suspicious but probably benign.

C4 = cells suspicious but probably malignant.

C5 = Definitely malignant.

**Q: a 35 yo female patient:**

**Q1: What is the Dx?**

- Breast Cyst

**Q2: Name the sign (black arrow)?**

- Acoustic enhancement

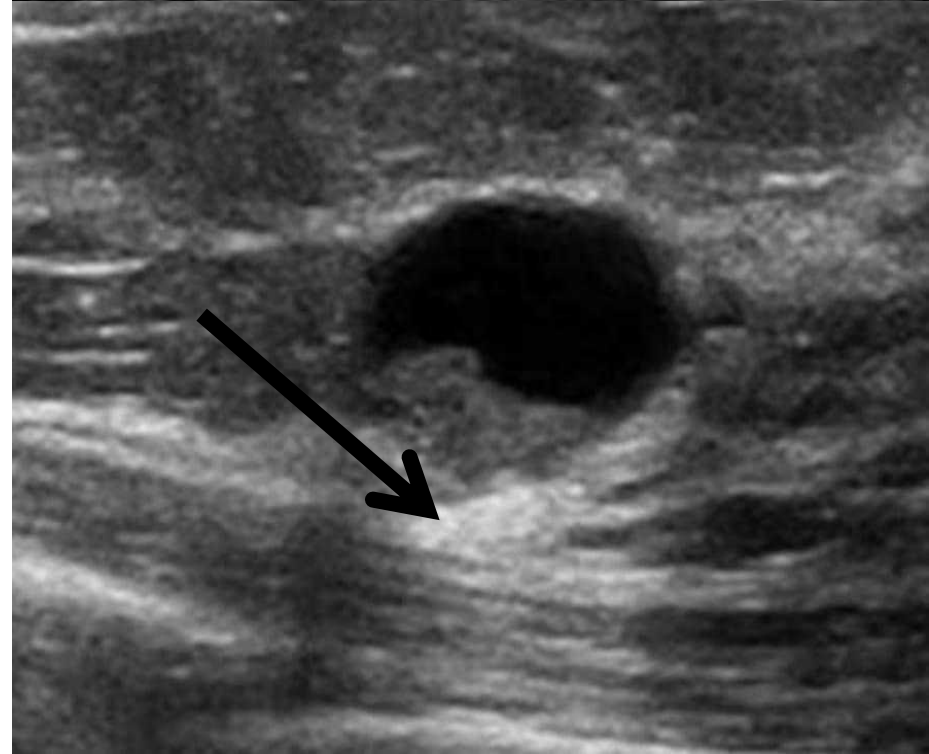
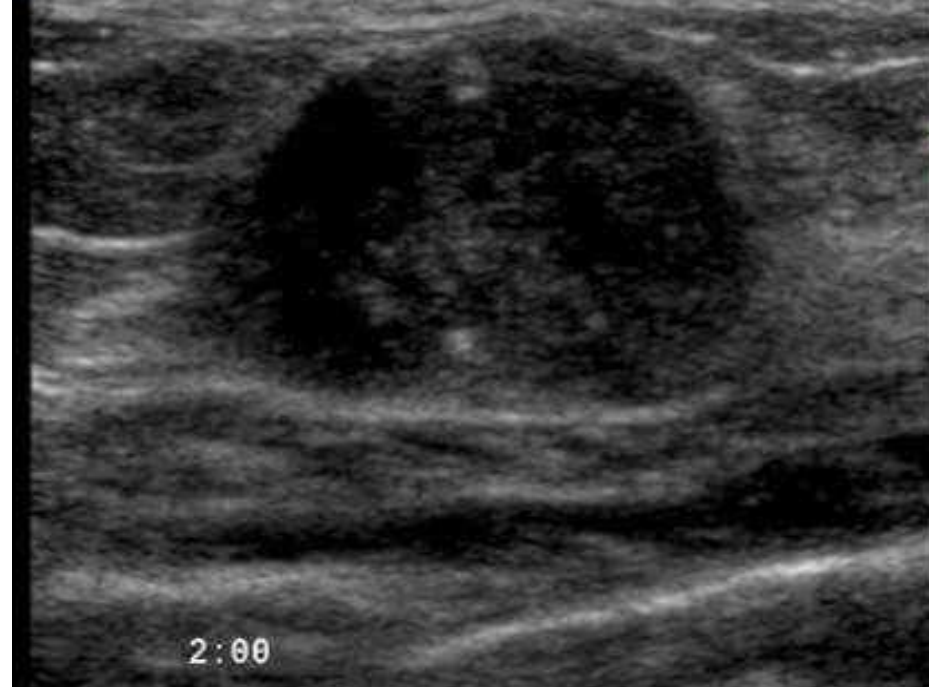
**Q3: What are the indications for a biopsy in this female?**

1) Bloody aspiration

2) Failure to completely resolve

3) Recurrence after 2<sup>nd</sup> aspiration

4) Atypical cells



### **Q1: Describe the discharge?**

- Uniductal Bloody Discharge

### **Q2: What is the pathology?**

- Intraductal papilloma

### **Q3: Give a DDx?**

- Intraductal papilloma
  - Duct Ectasia
- Ductal invasive carcinoma

### **Q3: 2 imaging studies?**

- 1) Ductogram, Ductoscope
- 2) Mammogram, US

### **Q4: What is the risk of malignancy of this lesion?**

- 15%





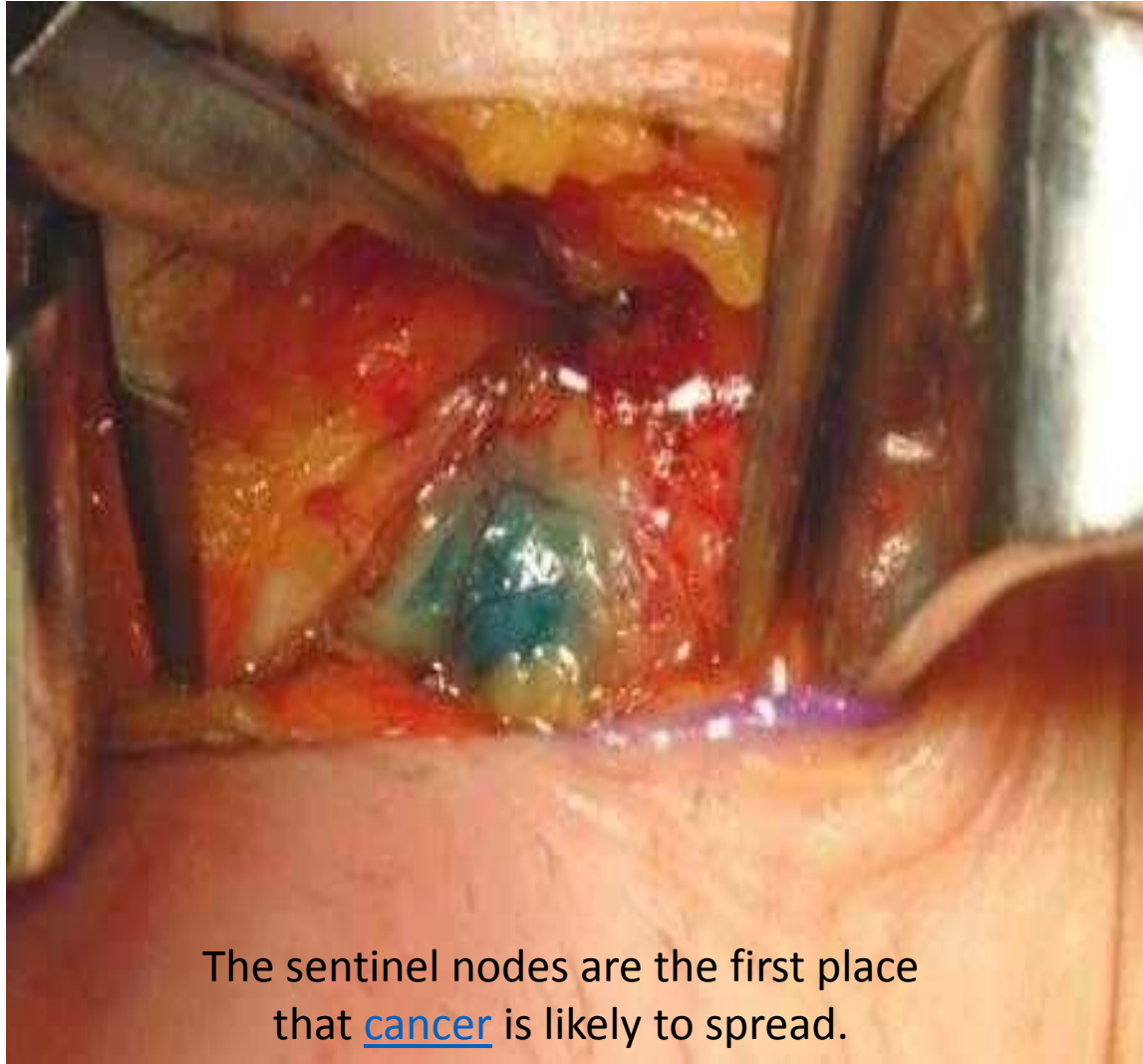
**Q: What is the mechanism  
that the breast cancer causes  
hypercalcemia?**

- Parathyroid hormone - related  
protein  
(not due to osteoclastic METS)

**\*\* Note:** The main pathogenesis of hypercalcemia in malignancy is increased osteoclastic bone resorption, which can occur with or without bone metastases. The enhanced bone resorption is mainly secondary to PTH-related protein



# Sentinel Lymph Node



The sentinel nodes are the first place that [cancer](#) is likely to spread.

**Q1: What are the skin changes indicative of breast cancer in this image?**

Nipple retraction

Peau d'orange



**Q2: What is this procedure?**

Core needle biopsy

(true-cut biopsy)





# Pediatric Surgery



**Q1: What is the Dx?** Prune belly syndrome

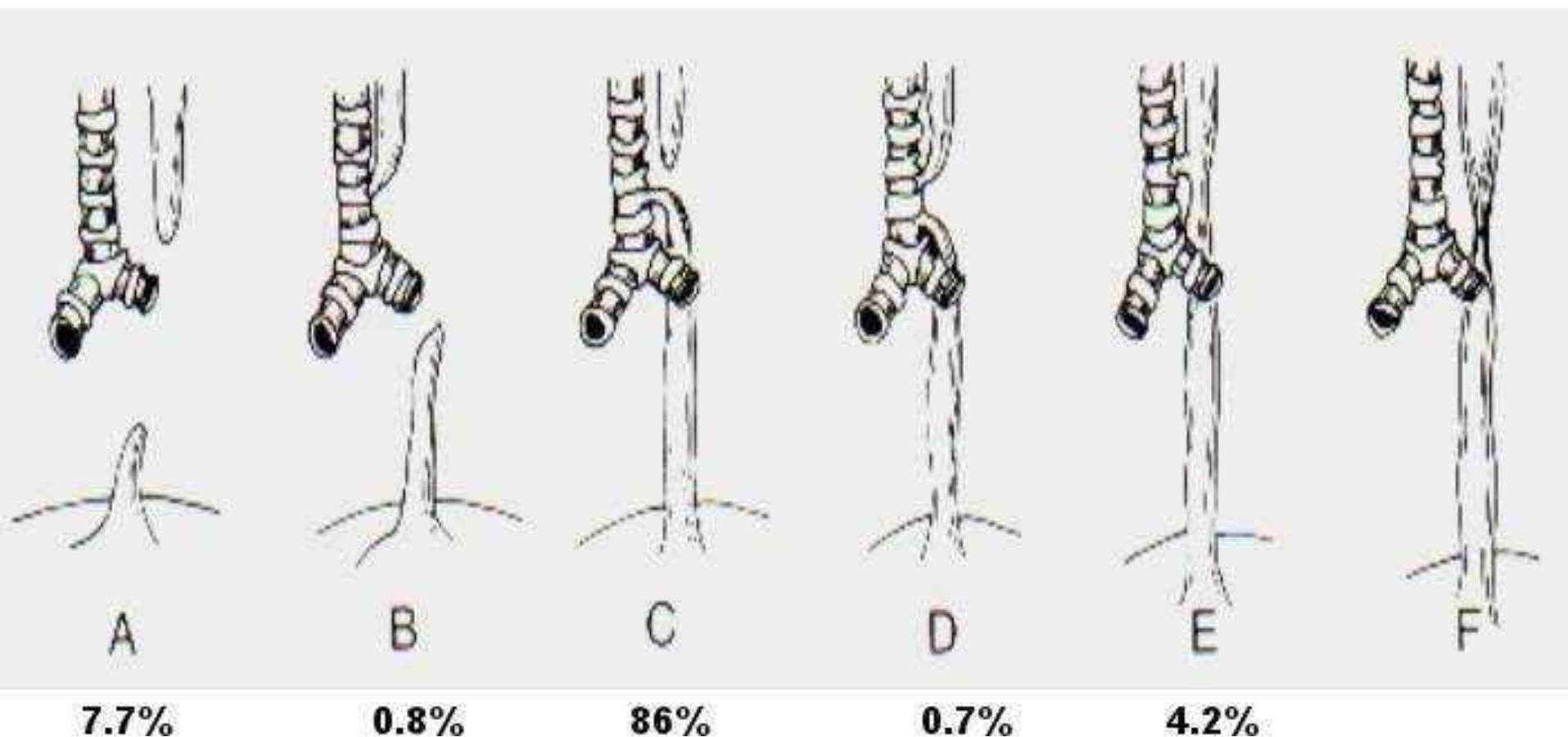
**Q2: Mention 2 associated anomalies?**

- 1) Undescended testicles
- 2) Urinary tract abnormality such as unusually large ureters, distended bladder, Vesicoureteral reflux, frequent UTI's
- 3) VSD
- 4) Malrotation of the gut
- 5) Club foot

- thin flaccid abdominal wall.
- AKA eagle Barrett syndrome.
- absent abdominal wall musculature.
- dilation of bladder, ureter and renal collecting system.
- **95% in Males.**



# Esophageal atresia and tracheoesophageal fistula



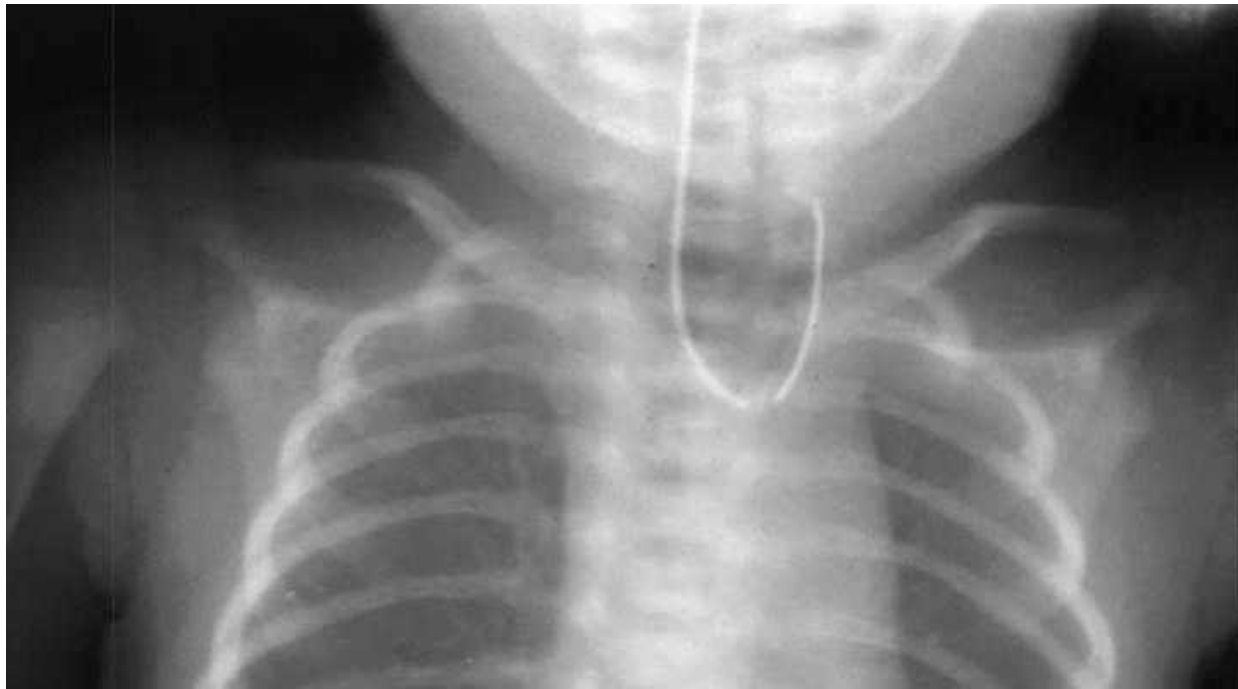
## **Q: New born x-ray, cyanosis and distressed:**

### **Q1: What is your Dx?**

- Tracheoesophageal fistula (because of the cyanosis)

### **Q2: Characteristic sign?**

- Failure to pass the nasogastric tube



**Q: A new-born baby had inability to swallow milk and frothy mouth secretions, this is his x-ray.**

**Q1: Mention two radiological signs?**  
inability to pass nasogastric tube/air in the stomach.

**Q2: What is the diagnosis?**  
Esophageal atresia with tracheo-esophageal fistula.





	Omphalocele	Gastroschisis
Incidence	1:6,000-10,000	1:20,000-30,000
Delivery	Vaginal or CS	CS
Covering Sac	Present	Absent
Size of Defect	Small or large	Small
Cord Location	Onto the sac	On abdominal wall
Bowel	Normal	Edematous, matted

	Omphalocele	Gastroschisis
Other Organs	Liver often out	Rare
Prematurity	10-20%	50-60%
IUGR	Less common	Common
NEC	If sac is ruptured	18%
Associated Anomalies	>50%	10-15%
Treatment	Often primary	Often staged
Prognosis	20%-70%	70-90%

**Q1: What is the Dx?** Gastroschisis

**Q2: Name the procedure?** Silo

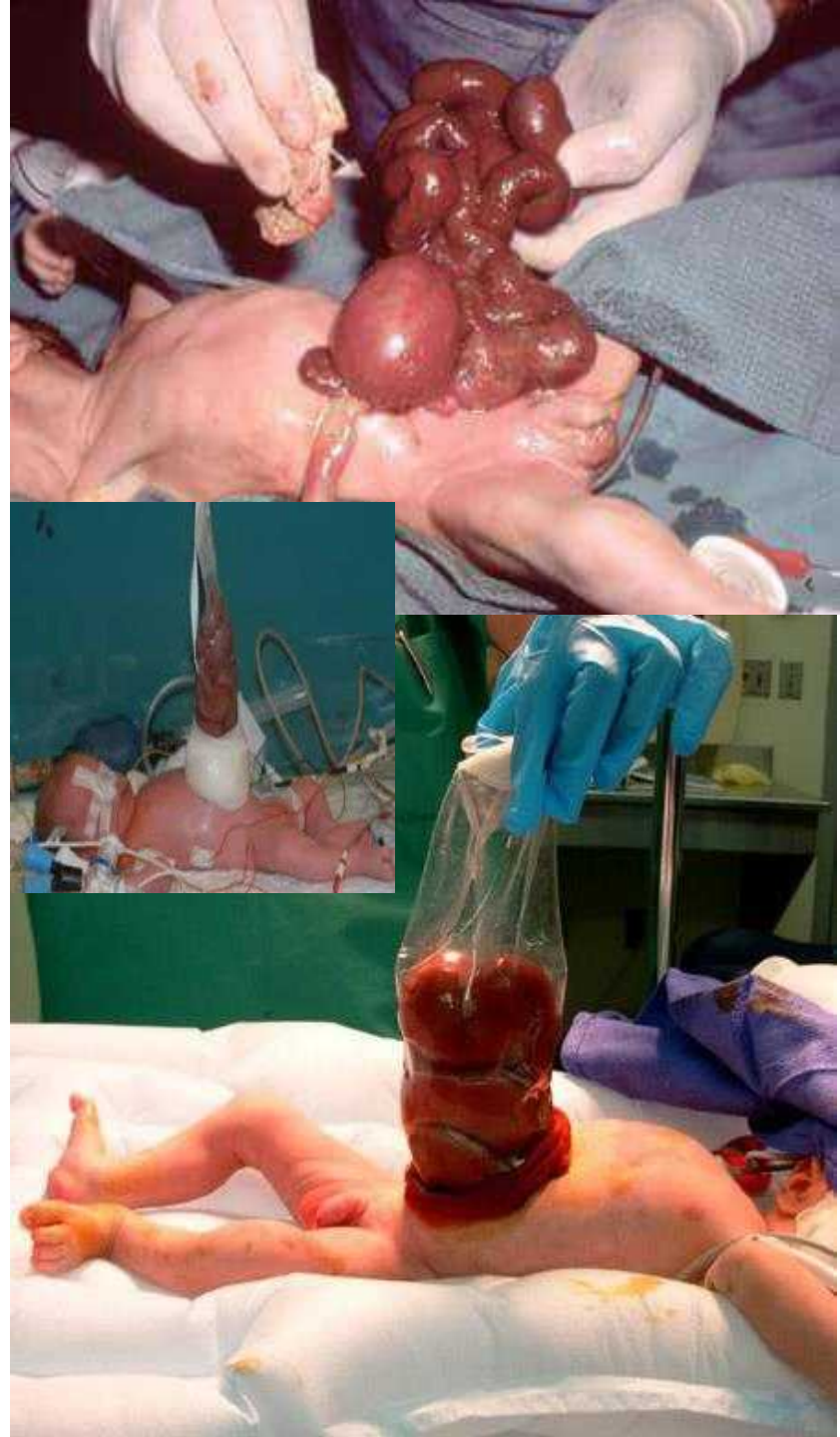
**Q3: The prognosis depends on?**

- Bowel status

**Q4: The indication of this procedure?**

- if the bowel is inflamed and primary closure is not possible
- to prevent dehydration, hypothermia, contamination

- **location : lateral to the umbilicus ( to the right ).**
  - defect size : 2-4 cm.
  - no sac.
  - cord is normally inserted into umbilicus.
- **contents : only bowel (edematous and matted ).**
  - GIT function : **prolonged ileus.**
  - associated anomalies : infrequent.



# Q1: What is the Dx?

- Omphalocele

# Q2: How is the GI function?

- Normal



- location : umbilical ring.
- The protrusion is covered by peritoneum.
  - defect size : >10 cm.
- cord : inserted into the sac.
  - GIT function is normal.
- contents : bowel +/- liver.
  - malrotation : present.
- associated anomalies : common (30-70 % ).





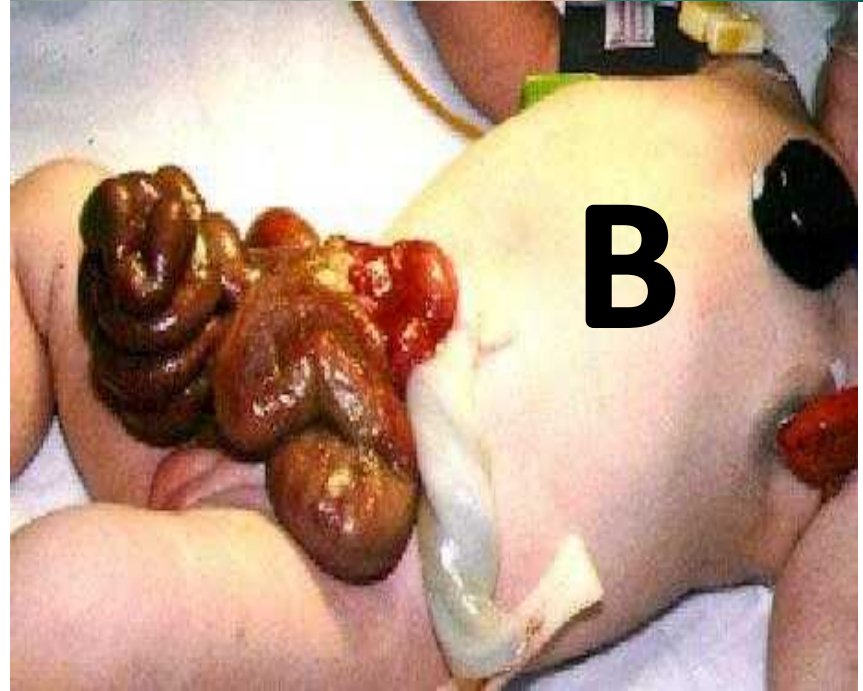
**Q1: What is the diagnosis in A,B?**

**A > Omphalocele**

**B > Gastroschisis**

**Q2: Which of these are more associated with congenital anomalies?**

**- Omphalocele**



### Q3: What is the 1<sup>st</sup> aid Mx for both?

- Carefully wrap in saline-soaked pads.
- Support without tension.
  - NG tube.
- Abdominal ultrasound.



**Q: Malrotation:**

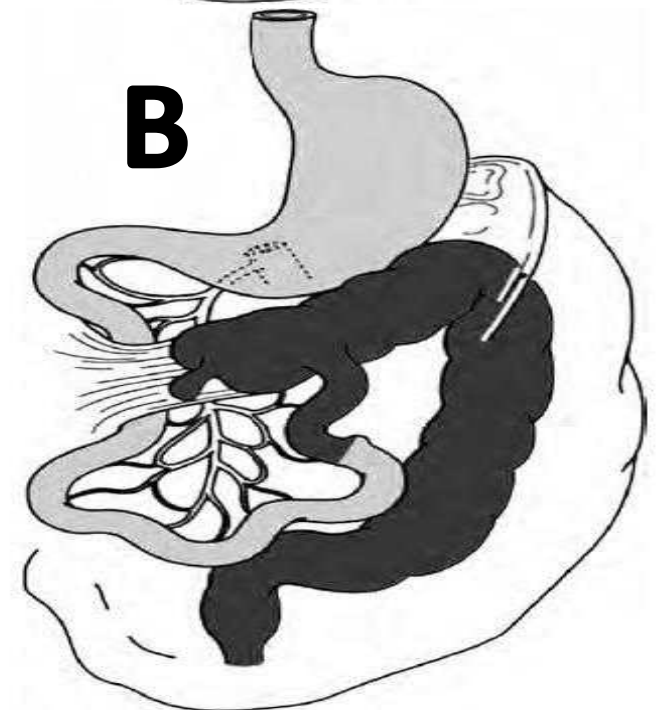
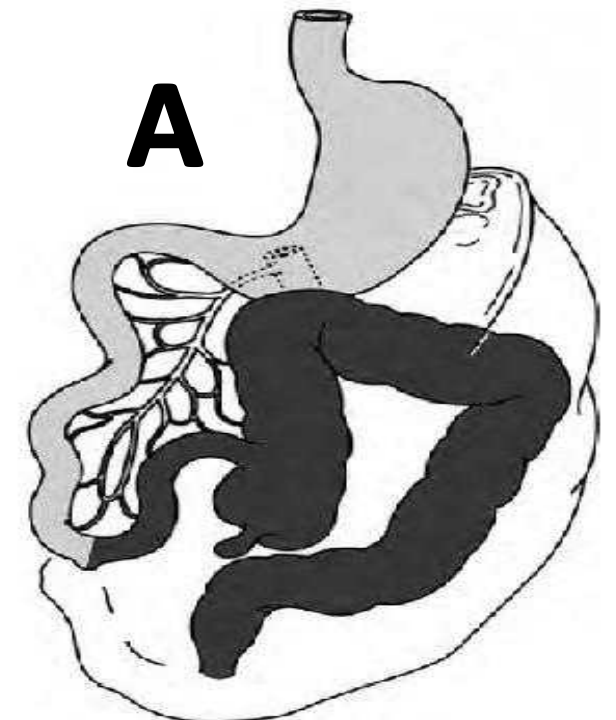
**Q1: What's A and B?**

**A > Non-Rotation**

**B > Incomplete Rotation**

**Q2: Which one is the most commonly associated with volvulus?**

**- B**



**Q: What is the Dx according to:**

**A: Preterm baby > Necrotizing enterocolitis (NEC)**

**B: Full-term baby > Hirschsprung disease**





**Q1: What is the investigation?**

- Abdominal US

**Q2: Name of the sign?**

- Target sign

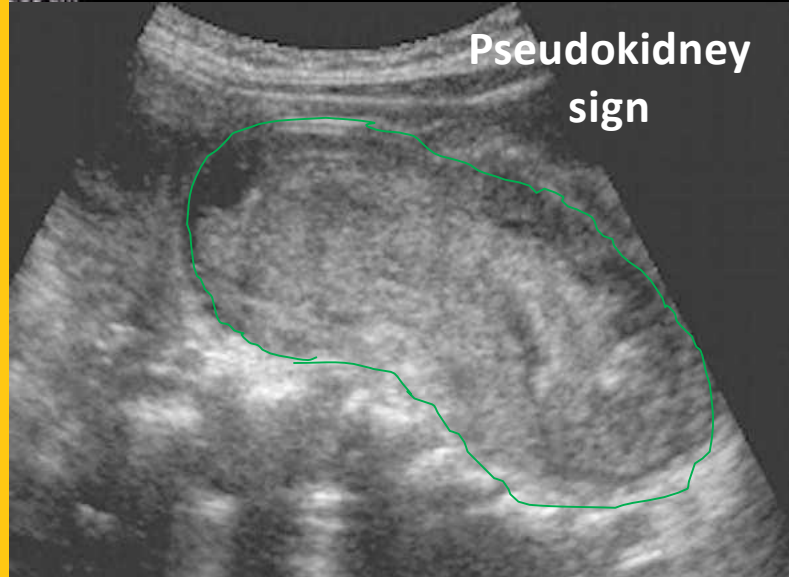
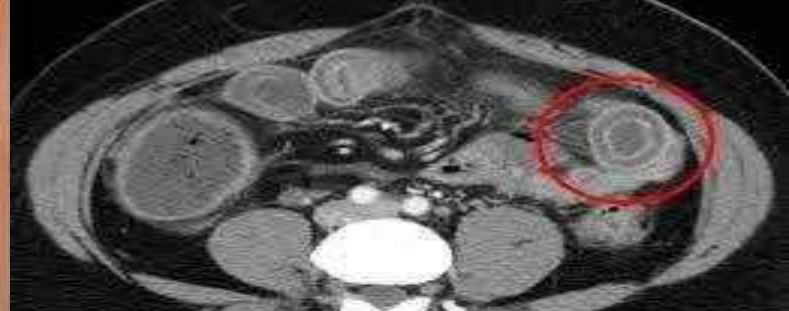
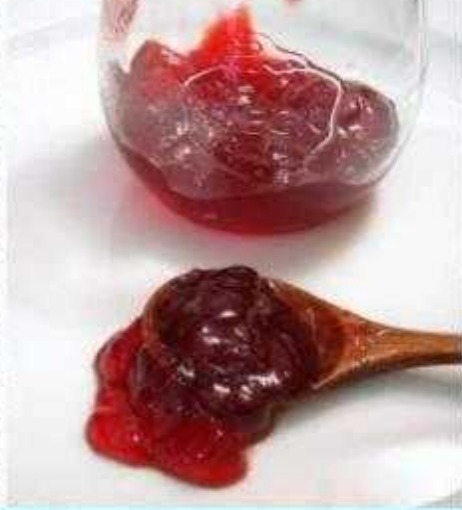
**Q3: What is the pathology?**

- Intussusception

**Q4: How do we treat those patients in uncomplicated cases (stable)?/1<sup>st</sup> line of Mx?**

- Resuscitation, Hydrostatic (pressure) reduction using gas air or barium enema



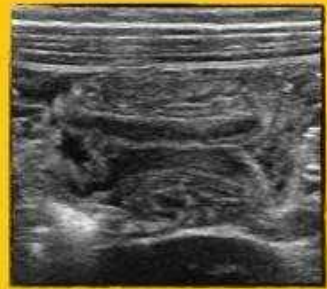


Red currant jelly

Stool



# • INTUSSUSCEPTION •





### **Q1: What is this?**

- Meckel's Diverticulum

### **Q2: Name 2 complications?**

- 1) Intestinal hemorrhage
- 2) Intestinal obstruction
- 3) Diverticulitis

### **Q3: Mention one common ectopic tissue you can find?**

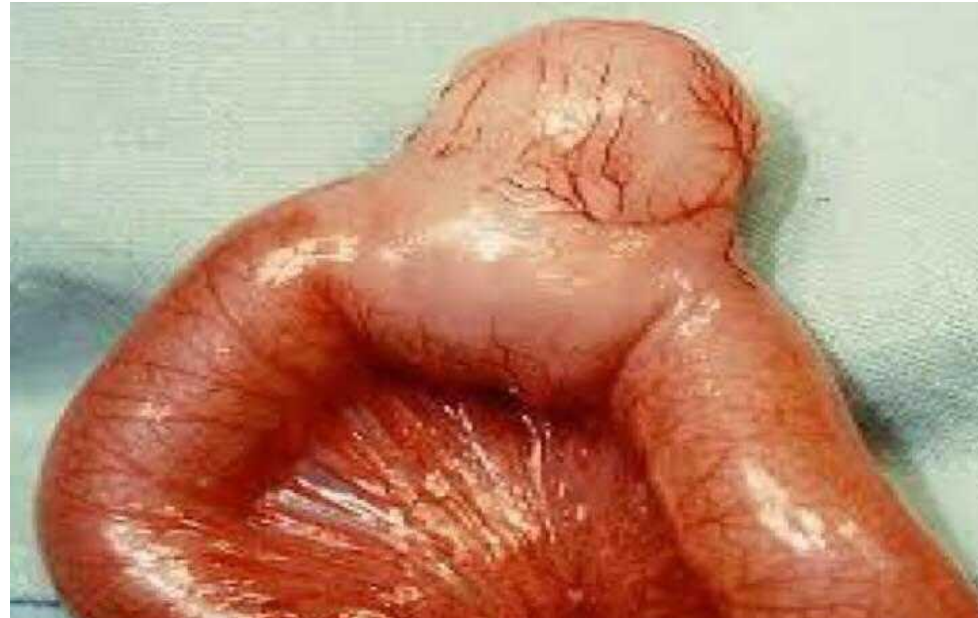
- Gastric and pancreatic tissues



# Q4: Is it a true or pseudo-diverticulum?

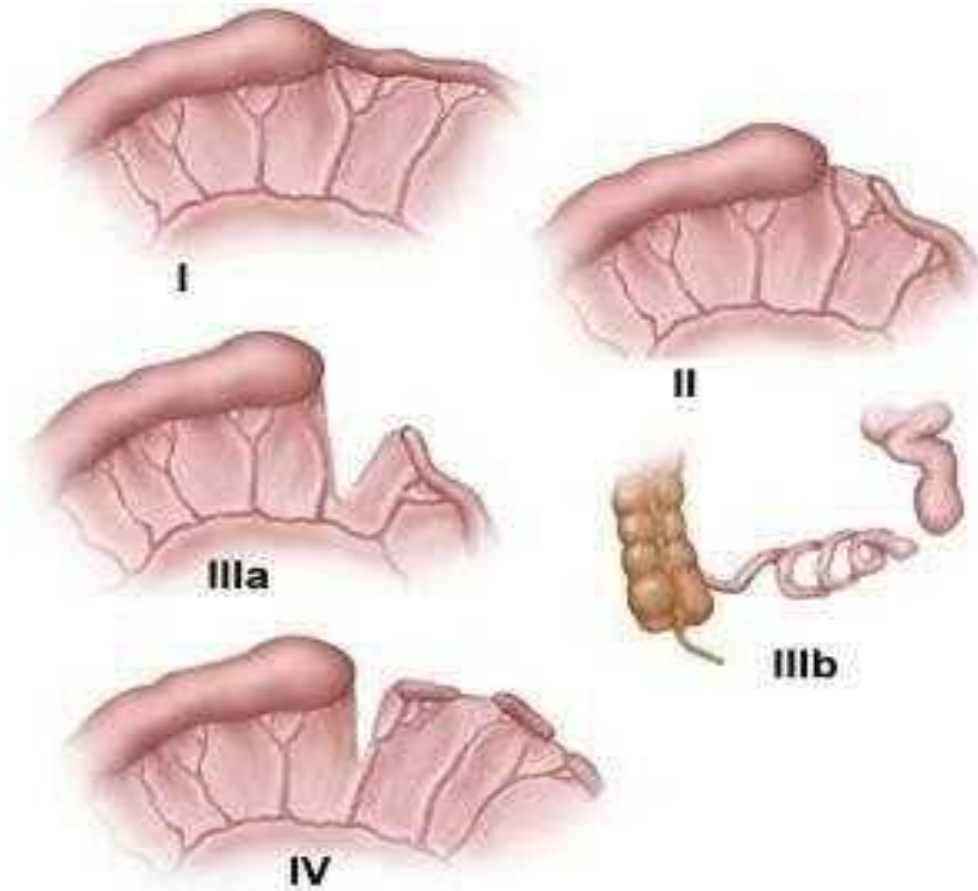
## - True Congenital Diverticulum

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





# Types of intestinal atresia



**Q1: What is the Dx?**

Jejunal atresia.

**Q2: Age of presentation?**

Neonate (till one month)

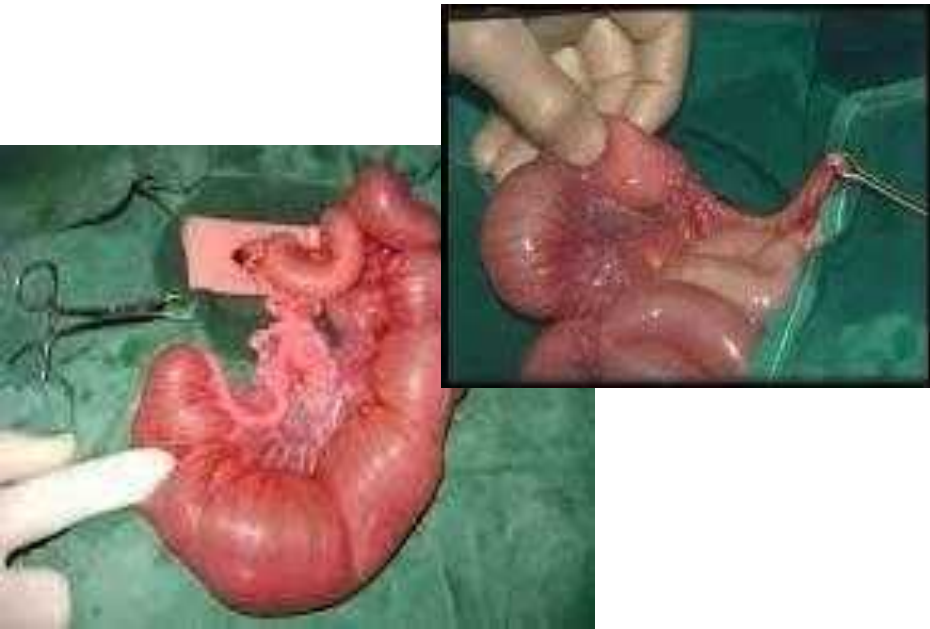
**Q3: How would u manage?**

Admit to NIC

fluid resuscitation

Antibiotic

NG suction and parental nutrition.



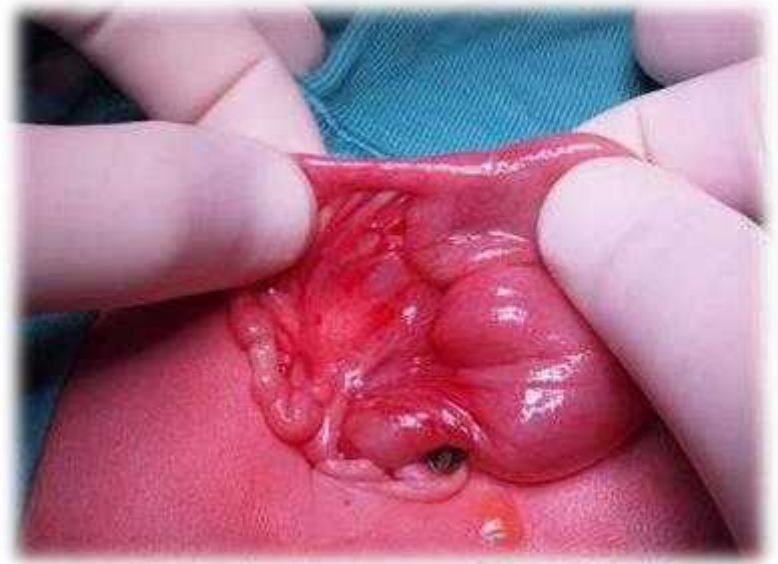
**Q: Intra-op image of a baby with symptoms of obstruction.**

**Q1: Give two findings:**

Dilated proximal loop,  
collapsed distal loop.

**Q2: What is the diagnosis?**

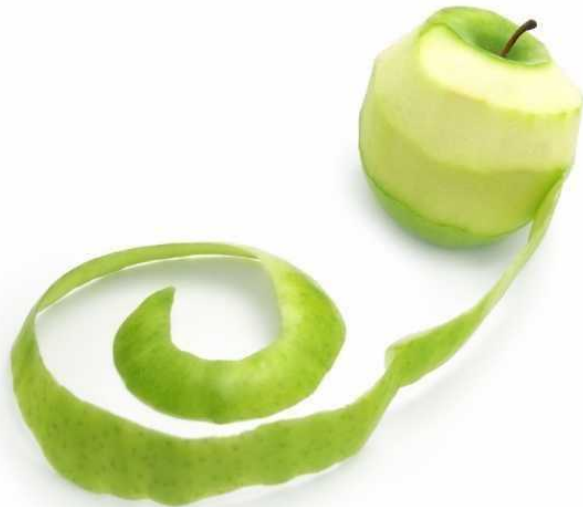
Type 1 intestinal atresia.



- **Apple peel intestinal atresia**  
(also type IIIb or **Christmas tree atresia**).

- Due to vascular accident.

- All the intestine is atretic, and forms a loop around the superior mesenteric artery.



**Q: A neonate failed to pass meconium, so a barium enema was done and shows this:**

**Q1: What is the Dx?**

- Hirschsprung disease

**Q2: What does the arrow indicate?**

- Transition zone

**Q3: What is the diagnostic test?**

- Biopsy
- Full thickness or rectal suction

**Q4: Name the radiology study?**

- Barium enema





### **Q1: What is the pathology?**

- Right scrotal swelling (Hemi-scrotal swelling)

### **Q2: Give two benign DDx?**

- Inguinal hernia, hydrocele

### **Q3: What is the name of peritoneal part remain patent?**

- Patent processus vaginalis



## Q1: What is the Dx?

- Epispadias and Hypospadias

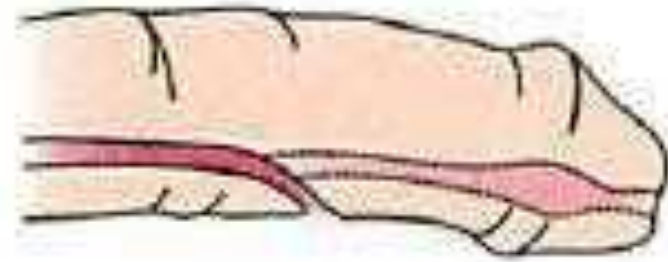
## Q2: Mention 2 associated anomalies?

- 1) Bladder extrophy
- 2) Bifid penis
- 3) Rectum prolapse

## Q3: Name 2 commonly associated features with this pathology other than the abnormally located urethral meatus:

- 1) Chordee  
(downward bending of the penis)
- 2) Hooded appearance of the penis

**Hypospadias**



**Epispadias**



## Q1: What is the Dx?

- Hypospadias

## Q2: What is the classification?

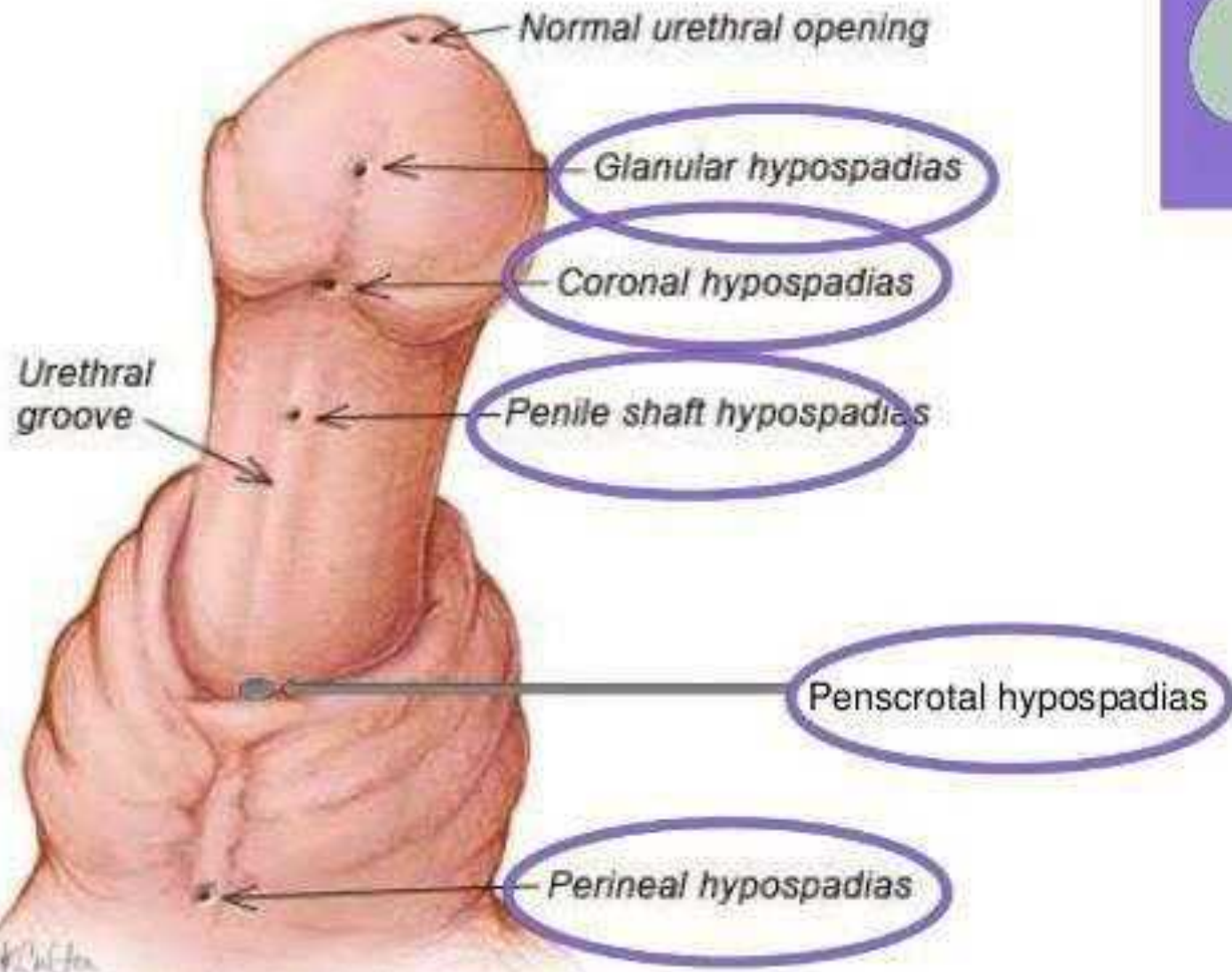
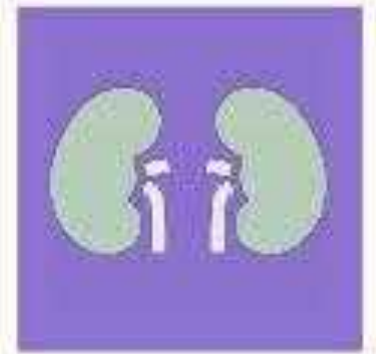
- 1) Anterior (50%)
- 2) Bifid Middle (30%)
- 3) Posterior (20%)

## Q3: When is the surgery performed?

6 – 18 months of age



- Glanular (opening on the glans) is the most common.





**Q: This is a 5 yo boy.**

**Q1: Give two clinical findings:**

scrotal swelling  
transillumination

**Q2: What is the Dx?**

hydrocele

- Fluid filled sac ( fluid in a patent processus vaginalis or in the tunica vaginalis around the testicle).
- Communicating with the peritoneal cavity VS non communicating.
- **In most infants it will resolve in the 1<sup>st</sup> year.**
- If there is increase in size >> operation
- Any hydrocele appearing after a 1<sup>st</sup> year must be operated as it will not resolve.



## Q1: What is the Dx?

- Testicular torsion

## Q2: What is your Mx?

- Orchiectomy

### DDx for Acute scrotum:

1. Testicular torsion.
2. Torsion of testicular appendages.
3. Epididymorchitis.
4. Scrotal edema.
5. Complicated hernia.

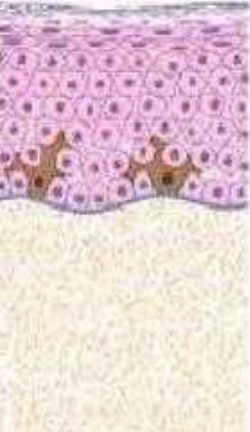
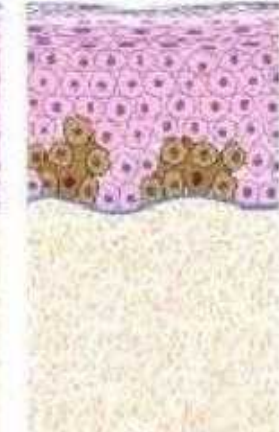
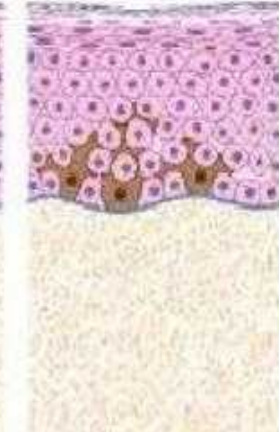


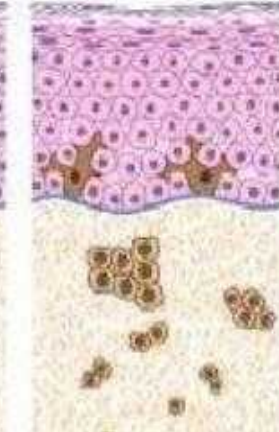





Skin



**Mole (Melanocytic nevus): increased no., abnormal clusters, normal or increased production**

Normal	Ephelides (freckle)	Lentigo	Junctional naevus	Compound naevus	Intradermal naevus	Blue naevus
						
Position Density Production	Normal no. Normal position Increased production	Increased no. Normal position Normal production	Nests of naevus cells	Nests in dermis but cells get smaller with depth	Naevus cells only in dermis	Nodules of dendritic cells deep in dermis





**Q1: Name the Dx?**

- Melanoma



**Q2: What is the most accurate prognostic factor?**

- The Depth

**Q3: Increased melanin production with normal number of cells is known to cause?**

- Freckles



**Q4: Mention 2 staging systems?**

1) Clark's level

2) Breslaw's thickness

**Q: a patient with pain and fever:**

**Q1: What is the Dx?**

- Cellulitis

**Q2: What is the micro-organism causing this?**

- Group A streptococci (GAS – mc!), Staph. Aureus



**Q: a patient post-splenectomy due to RTA:**  
**Q1: What is the micro-organism causing this?**  
- Meningococcus

**Q2: How can you prevent it?**  
MCV Vaccine

Vaccine should be 14 days BEFORE surgery , and in case of emergency surgery like this case it should be as soon as possible after surgery not 14 days after, others said in elective surgeries, it should be given 14 days before the operation But in emergent surgeries, it should be given at least 14 days post operatively.

**Post-  
Splenectomy:**  
We Give MCV,  
PCV, HiB



# Post Splenectomy Vaccination

- **Non-elective**

- Non-elective splenectomy patients should be vaccinated on or after postoperative day 14.
- Asplenic patients should be revaccinated at the appropriate time interval for each vaccine.

- **Elective**

- Elective splenectomy patients should be vaccinated at least 14 days prior to the operation.
- Asplenic or immunocompromised patients (with an intact, but nonfunctional spleen) should be vaccinated as soon as the diagnosis is made.
- Pediatric vaccination should be performed according to the recommended pediatric dosage and vaccine types with special consideration made for children less than 2 years of age.
- When adult vaccination is indicated, the following vaccinations should be administered:
  - ***Streptococcus pneumoniae***
    - Polyvalent pneumococcal vaccine (Pneumovax 23)
  - ***Haemophilus influenzae* type B**
    - *Haemophilus influenzae* b vaccine (HibTITER)
  - ***Neisseria meningitidis***
    - Age 16-55: Meningococcal (groups A, C, Y, W-135) polysaccharide diphtheria toxoid conjugate vaccine (Menactra)
    - Age >55: Meningococcal polysaccharide vaccine (Menomune-A/C/Y/W-135)

Vaccine	Dose	Route	Revaccination
Polyvalent pneumococcal	0.5 mL	SC*	Every 6 years
Quadravalent meningococcal/diphtheria conjugate	0.5 mL	IM upper deltoid	Every 3-5 years <sup>†</sup>
Quadravalent meningococcal polysaccharide	0.5 mL	SC*	Every 3-5 years
Haemophilus b conjugate	0.5 mL	IM*	None

\*Administered in the deltoid or lateral thigh region.

<sup>†</sup>Contact the manufacturer for the latest recommendations prior to revaccination.



**Q: Lesion on the face <1cm:**

**Q1: What is the Dx?**

- Basal cell carcinoma (BCC)

**Q2: What is the MCC?**

- Long exposure to sunlight



**Q3: Mention 2 ways of Mx?**

A) Non surgical:

(topical immunotherapy, intralesional interferon INJ, photodynamic)

B) Surgical (Excisional or destructive):

- Destructive: cautery, curettage, cryotherapy, CO laser ablation

- Excisional: Moh's micrographic surgery (MMS), Wide local excision

**Q4: What is the safety margin?**

- 4-10mm

**Q5: Write an alternative Mx?**

- Moh's micrographic surgery (MMS)



### Q6: Name 2 complications?

- METS, Ulceration

### Q7: Potential METS rate:

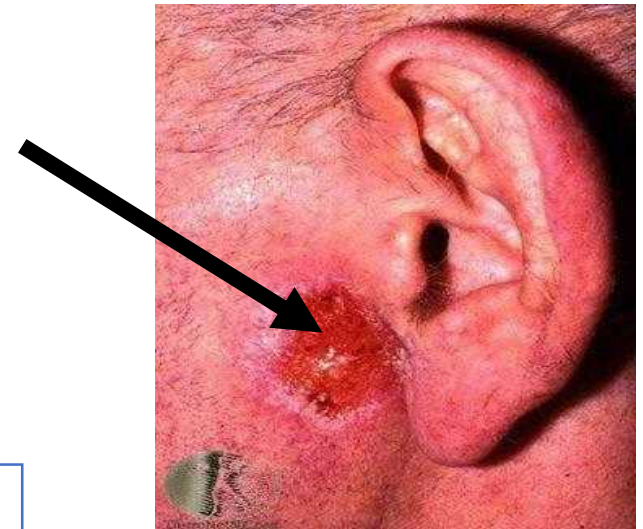
- <0.55 (from google)

### Q8: Do you expect to find enlarged LN?

- No (local disease)

### Q9: What does the arrow indicate?

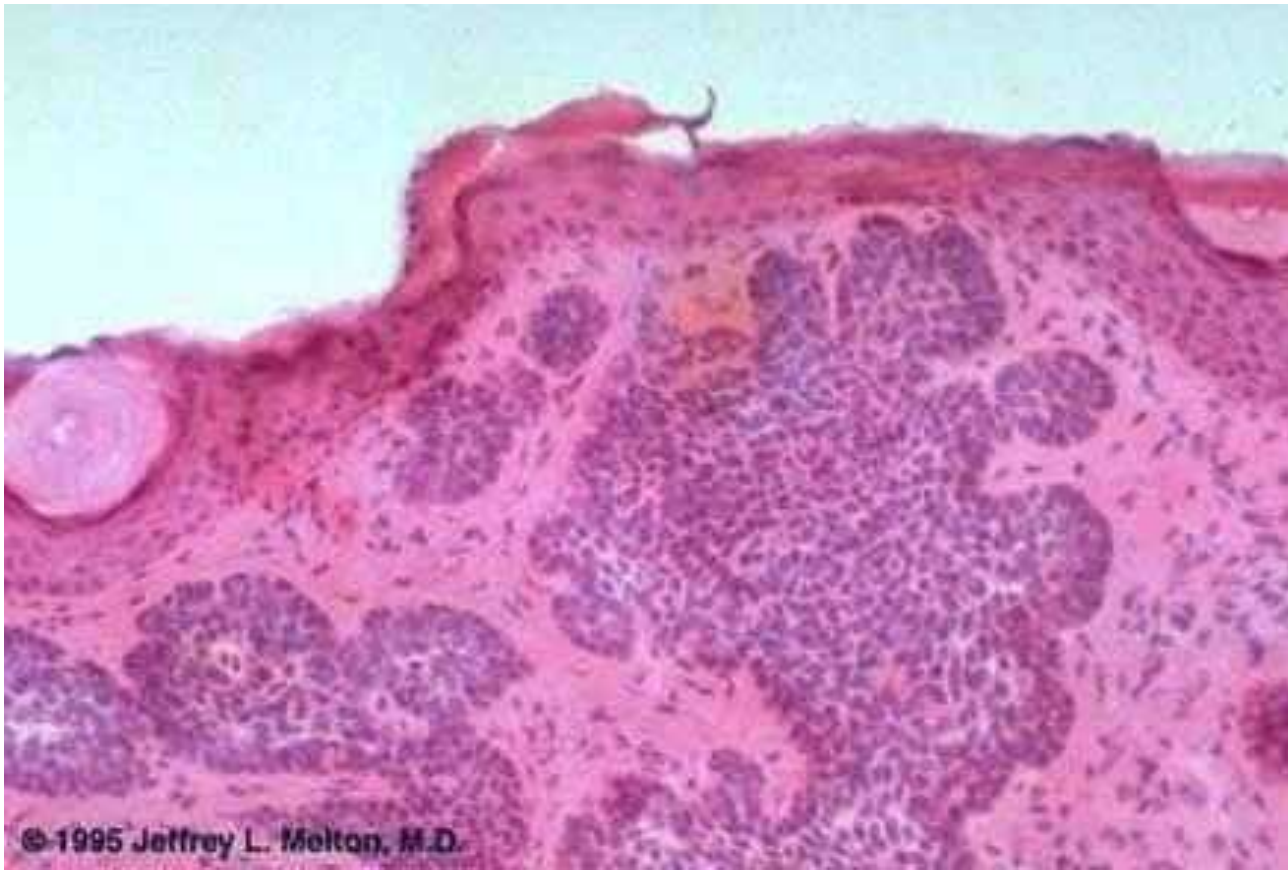
Rodent ulcer (complication of BCC)



- Arising in the germinating basalcell layer of epithelial cells.
- **Nodular** ( ulceration, telangiectasia, pearls).
- **Morphea** ( many sites at the same time/ more aggressive than the nodular type).
- Slow growing.
- Local ( rare risk of metastasis).

**Q: What is the type of cancer seen in this histology (biopsy taken from the nose tip):**

**- Basal Cell Carcinoma**





**Q: A 75 year old male farmer, heavy smoker presented with this lesion.**

**Q1: What is the most probable Dx?**

Squamous cell carcinoma.

**Q2: What is the LN of this area?**

Submental and submandibular??

**Q3: What will you do to confirm Dx?**

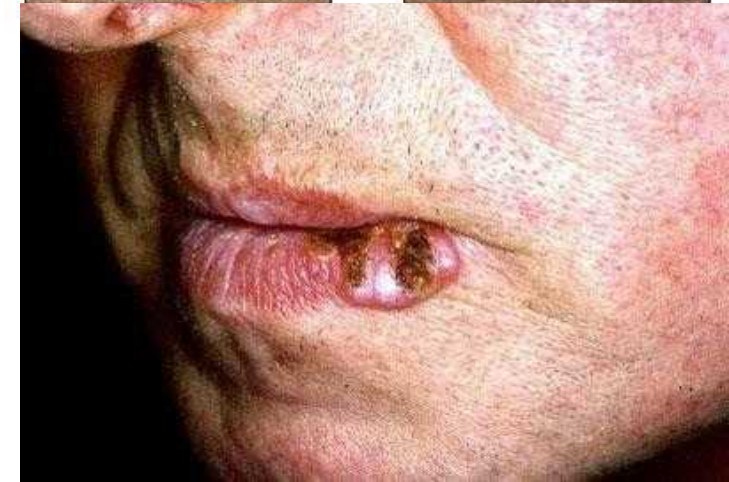
Biopsy for histopathology.



Basal cell carcinoma



Squamous cell carcinoma



- Arising from epidermal cells.
- Risk factors: sun exposure/pale skin/ arsenic/ xeroderma pigmentosum/ immunosuppression.
- **Actinic keratosis : the precursor skin lesion.**
- Raised, slightly pigmented skin lesion/ ulceration/ exudate/ itching.
- Dx: excisional biopsy for small lesion/ incisional biopsy for large lesions.
- Most common sites : head, neck and hand.
- **Involves the lower lip and BCC involves the upper lip or above this level.**



**Q1: Name the lesion?**

- Onion cluster cells

**Q2: Mention the Dx?**

- SCC (Squamous cell carcinoma)



**Q: Two patients came to ER  
complaining of neck swelling:**

**Q1: What is the pathology?**

- Carbuncle

**Q2: MCC?**

- Staphylococcus Aureus

**Q3: Mx?**

- Incision, drainage and antibiotics



Carbuncle is an abscess larger than furuncle, usually with one or more openings draining pus onto the skin



**Q1: Identify this picture:**

Furuncle

**Q2: Mention one risk factor?**

DM

**Q3: it is more common in?**

In the back of the neck

**Q4: Name 1 treatment?**

Incision and drainage plus  
antibiotics





**Q1: Dx of picture (1)?** Keratoacanthoma

**Q2: Dx of picture (2)?** Actinic Keratosis

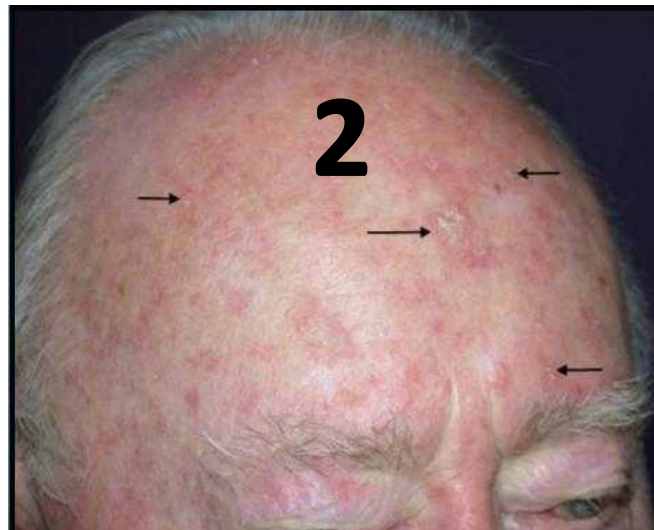
**Q3: Dx of picture (3)?** Seborrheic Keratosis

**Q4: Dx of picture (4)?** Necrobiosis Lipodica

**Q5: Which doesn't have pre-malignant potency?**

3

**Q6: Picture 2 can convert to?** SCC



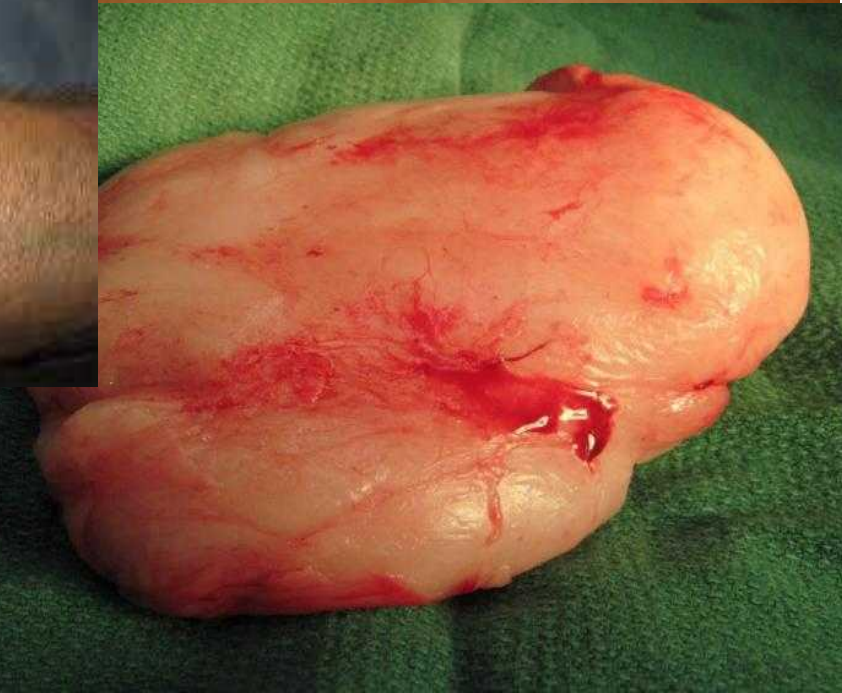


**Q1: What is this?**

- Lipoma

**Q2: What is the risk of wound infection after removal (% of wound infection)?**

- 1-3% (clean wound)



**Q: Give 2 DDx of a scalp lump?**

- 1) Sebaceous cyst
- 2) Epidermoid cyst





**Q1: Describe what you see?**

- 1) Café au lait macules
- 2) Neurofibromas

**Q2: What is your Dx?**

- Neurofibromatosis

**Q3: Mention type of inheritance?**

- Autosomal Dominant





### **Q1: Name the Dx?**

- Keloid

### **Q2: Name 2 RF?**

- 1) Dark skin
- 2) FHx

### **Q3: Name two characteristics?**

- 1) Extend beyond borders of original wound
- 2) More common in darker skin
- 3) Require years to develop
- 4) Thick collagen





# Keloid Scar



# Hypertrophic Scar



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	

### Treatment :

- Surgery (Z- plasty, W- plasty) / artificial skin/ steroids/ pressure therapy/ topical silicon/ low dose radiation/ laser (CO2 and argon)/ calcium channel blockers/ interferon.

# Inspection .....

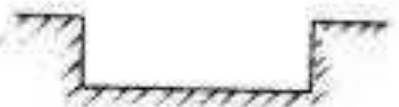
## ○ Edge: five types:-

- *Sloping edge* e.g. healing ulcer
- *Punched out edge* e.g. Gummatous ulcer, deep trophic ulcer
- *Undermined edge* e.g. tuberculous ulcer-destroy subcutaneous faster the skin
- *Raised edge* e.g. Rodent ulcer
- *Rolled out (everted)* e.g. Squamous Cell Carcinoma

Sloping  
(a healing ulcer)



Punched-out  
(syphilis, trophic)



Undermined  
(tuberculous)



Rolled  
(basal cell carcinoma)



Everted  
(squamous cell carcinoma)



**Figure 1.15** The varieties of ulcer edge.



## Q1: Name the Dx?

- DM/Peripheral arterial disease

## Q2: Causes?

- Prolonged pressure
- Uncontrolled long standing DM



### **Neurotrophic Ulcers:**

punched-out appearance  
painless.

Muscle atrophy may be noted.



**Q1: What is the most common etiology of this ulcer.**

- Neuropathic Diabetic Ulcer

**Q2: What is the most important step to accelerate healing?**

- Diabetic control, Decrease pressure at the area, Try to prevent infection and increase perfusion to the area



**Q: What is the name of the Mx done to this patient?**

- Split thickness skin graft



# Burns





# 1st, 2nd, and 3rd Degree Burns





# Table 1. Classification of Burns by Depth

Burn Thickness	Deepest Skin Structure Involved	Appearance	Pain	Prognosis (Without Surgical Intervention)
Superficial (first-degree)	Epidermis	Dry, blanching erythema	Painful	Heals without scarring, 5-10 days
Superficial partial-thickness (second-degree)	Upper dermis	Blisters; wet, blanching erythema	Painful	Heals without scarring, < 3 weeks
Deep partial-thickness (second-degree)	Lower dermis	Yellow or white, dry, nonblanching	Decreased sensation	Heals in 3-8 weeks; likely to scar if healing > 3 weeks
Full-thickness (third-degree)	Subcutaneous structures	White or black/brown, nonblanching	Decreased sensation	Heals by contracture > 8 weeks; will scar

First degree

Partial thickness burns.

- ✱ Characterized by erythema (localized redness).
- ✱ Appear sunburn-like.
- ✱ Are not included when calculating burn size.
- ✱ Usually heal by themselves.

Second degree

Partial thickness burns.

- ✱ Part of skin has been damaged or destroyed.
- ✱ Have blisters containing clear fluid.
- ✱ Pink underlying tissue.
- ✱ Often heal by themselves.

Third degree

Full thickness burns.

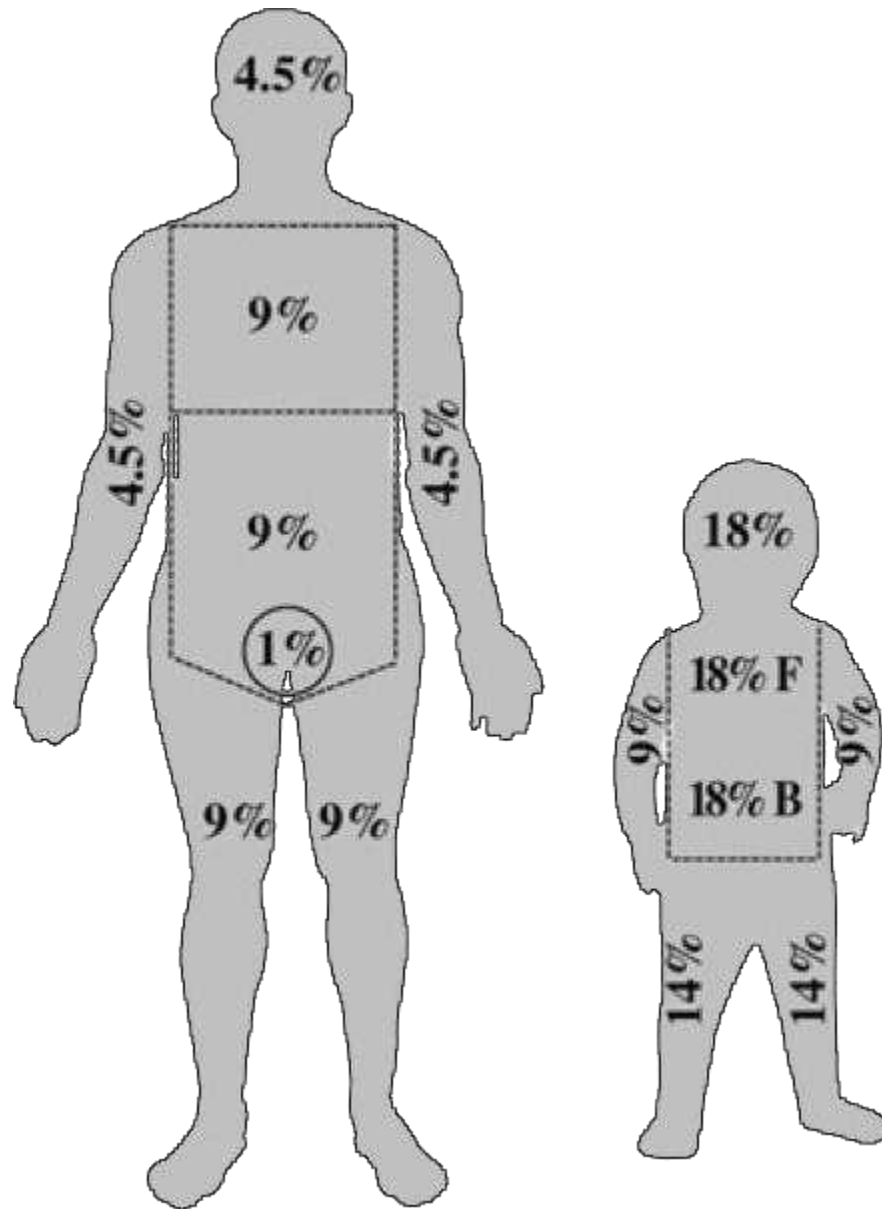
- ✱ Full skin has been destroyed.
- ✱ Deep red tissue underlying blister.
- ✱ Presence of bloody blister fluid.
- ✱ Muscle and bone may be destroyed.
- ✱ Require professional treatment.

Fourth degree

Full thickness burns.

- ✱ Penetrate deep tissue to fat, muscle, bone.
- ✱ Require immediate professional treatment.

# Role of 9's in Burns



# Parkland Formula

Volume of Lactated Ringers solution:

$$4\text{ml} \times \text{BSA}(\%) \times \text{weight}(\text{kg})$$

Give half of the  
solution for the

**first 8 hours**

Give the other half  
of the solution for the

**next 16 hours**

**Q: What is the Dx?**

- 2<sup>nd</sup> degree burn





**Q1: What is the degree of burn in this image?**

- 3<sup>rd</sup> Degree

**Q2: What is the name of the scar?**

- Escharotomy

**Q3: if the burn was circumferential and the patient weight was 100 kg, calculate:**

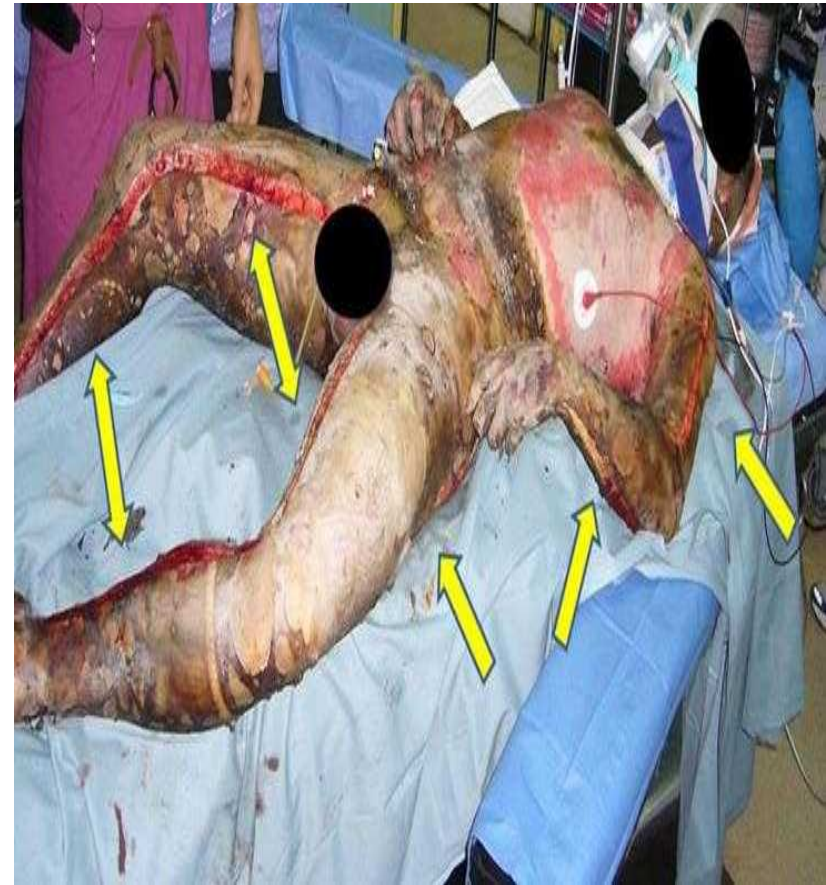
**1. TBSA%:**

- 100% (all the areas affected!)

**2. Fluid that needed in the 1<sup>st</sup> 8 hours if the TBSA is 40%:**

- 8 L

( $4 \times 40 \times 100 = 16\text{K ml}/1000 = 16\text{ L}$ , in the 1<sup>st</sup> 8 hr we give  $\frac{1}{2}$  (so 8))



**Q1: What category of burn does this patient have?**

-It's a facial flame burn ( facial edema ).

**Q2: What is the main risk of this burn?**

-the patient will have upper airway obstruction and risk of CO poisoning.

**Q3: What should you do?**

-The patient should be intubated before reaching to complete obstruction and give 100% oxygen if CO poisoning is suspected.



**Q: This lady had a flame burn 2 years ago.**

**Q1: What does the image show?** Post-burn fibrosis and contracture.

**Q2: What was the degree of her burn?** 3<sup>rd</sup> degree.

**Q3: Name the most suitable type of skin graft to use in reconstruction?**  
Full thickness

**Q: Serious complication that you fear from?** Transformation into SCC





A photograph of surgeons in an operating room, wearing blue scrubs and masks, with a large surgical light in the background. The text "General Surgery & Others" is overlaid in the center.

# General Surgery & Others



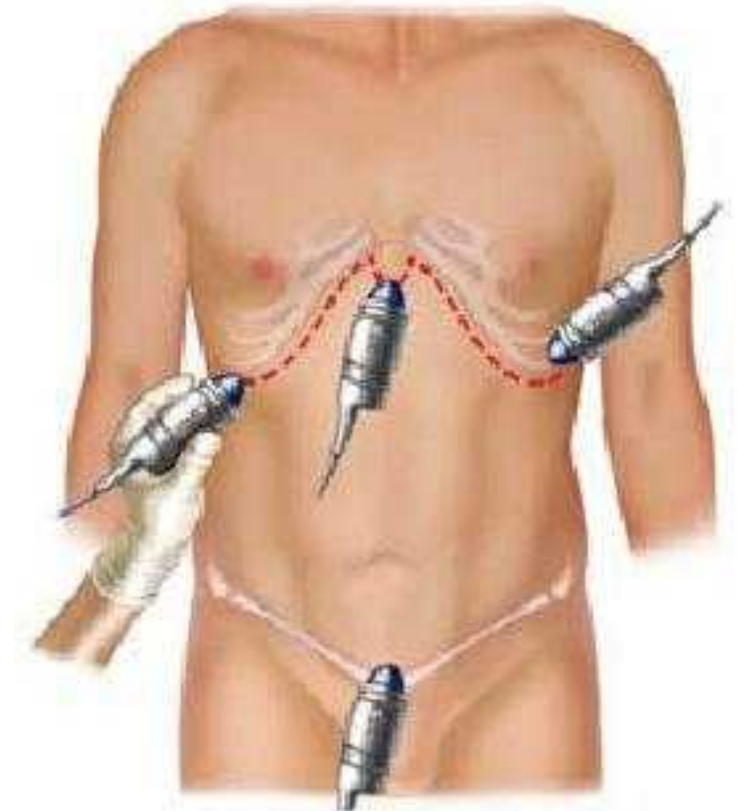
**Q: A trauma pt presented to the ER and was assisted with FAST:**

**Q1: What does FAST stand for?**

- **F**ocused **A**ssessment with **S**onography for **T**rauma

**Q2: What are the 4 sites that we look at in FAST?**

- 1) RUQ (Morison's pouch – Perihepatic)
- 2) LUQ (Perisplenic area)
- 3) Subcostal (Pericardiac)
- 4) Pelvic space



**Q: A patient presented to the ER  
after RTA:**

**Q1: What's your 1<sup>st</sup> priority?**

- ABC

(some said only airway)

**Q2: What's your 2<sup>nd</sup> priority?**

- Stop bleeding

(some said only breathing)



# Bleeding Classes

Parameter	Class I	Class II	Class III	Class IV
Blood loss (ml)	<750	750-1500	1500-2000	>2000
Blood loss (%)	<15	15-30	30-40	>40
Pulse rate (beats/min)	<100	100-120	>120	>140
BP	Normal	Decreased	Decreased	Decreased
Respiratory rate	14-20	20-30	30-40	>40
Urine output (ml/h)	>30	20-30	5-15	Negligible
CNS symptoms	Normal	Anxious	Confused	Lethargic

CNS: Central nervous system, BP: Blood pressure

**Q: This patient arrived to your ER after being stabbed as shown 15 minutes ago. He was anxious and his vital signs were BP: 95/55 mm Hg, pulse 105 BPM, and RR 25 Per minute.**

- 1. What is his class of hemorrhage? Stage 2**
- 2. How much blood has he lost? 750-1500 ml**





**Q: A patient fell and broke her leg, then the doctor who saw her put a cast on the leg, afterwards she complained from pain, swelling, redness and numbness in the same limb:**

**Q1: What is the Dx?**

- Compartment Syndrome

**Q2: Next step in Mx?**

- Decompression
- Remove the cast
- Fasciotomy

## **Q1: Name this sign?**

- Seat belt sign

## **Q2: Name 4 associated injuries?**

1) Flail chest

2) Small bowel injury

3) Cervical spine injury

4) Fracture of the sternum, ribs, clavicle & the vertebral bodies



**Q1: In penetrating trauma most affected organ?**

- Liver

**Q2: What type of injury more severe (blunt or penetrating)?**

- Blunt

**Q3: In a penetrating wound, what should you do?**

- Exploration Surgery



## *Blunt Vs Penetrating abd. Trauma...*

- Blunt trauma
  - spleen (45%)
  - liver (40%)
  - *Small bowel (10%)*
- Penetrating injuries
  - Stab wounds:-
    - the liver (40%),
    - small bowel (30%),
    - diaphragm (20%),
    - colon (15%);
  - gunshot wounds
    - small bowel (50%),
    - colon (40%),
    - liver (30%), and
    - vessels (25%).



**Q: picture of multiple abdominal bruises, he asked about the zones of retroperitoneal bleeding and types of hemorrhage and where is the least likely place to check and when to go for surgery:**

- Traumatic retroperitoneal hematomas divided into 3 zones:

**Zone 1:** Centrally located, associated with pancreaticoduodenal injuries or major abdominal vascular injury

**Zone 2:** Flank or perinephric regions, associated with injuries to the genitourinary system or colon

**Zone 3:** Pelvic location, frequently associated with pelvic fractures or ileal-femoral vascular injury

- **Indication for exploration in retroperitoneal hematomas :**

mandatory exploration should be performed in retroperitoneal hematomas resulted from penetrating injury, but the selection of treatment mode in blunt injury depend on the anatomical position of hematoma, visceral injury and the hemodynamic status of patients.

**Q: Hx of surgery for diverticulitis before 10, the amount collected over 24 hr is 1500 cc:**

**Q1: What is the pathology?**

- Enterocutaneous fistula  
(high output)

**Q2: What is the complication?**

- 1) Electrolyte disturbance
- 2) Skin excoriation
- 3) Sepsis

**Q3: What is the prognosis?**

- In most patients it closes spontaneously





**Q1: Type of stoma?**

- End Colostomy

**Q2: Mention 2 indications?**

- IBD

- Rectal Tumors

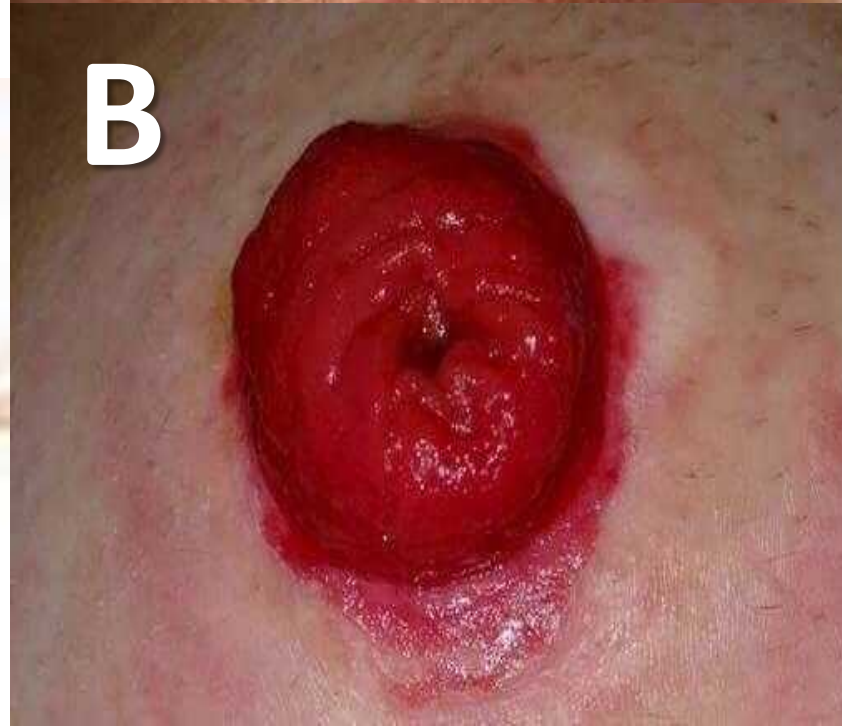
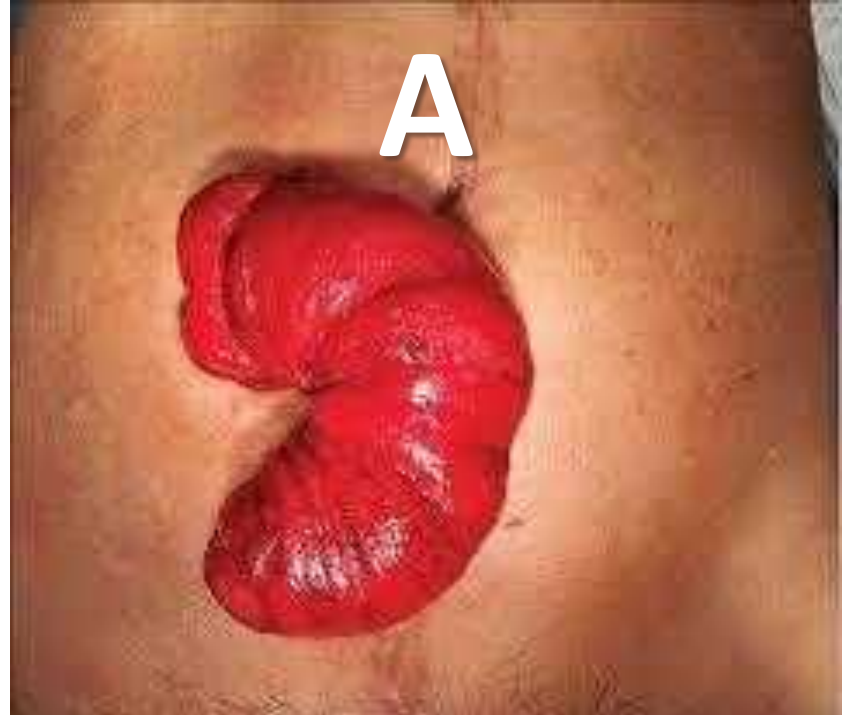


**Q: What is the complications in A, B, C?**

A) Prolapsed Stoma

B) Infected Stoma

C) Stoma Necrosis





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



**Q1: What is the type of his stoma?**  
End colostomy.

**Q2: What is the complication shown?**  
Prolapse.



## **Q1: What is this?**

Ileostomy.

## **Q2: How can you confirm?**

By its site and skin irritation around the stoma.

## **Q3: What is the disease that probably was treated by this?**

Chron's disease.

### **End Ileostomy**

- Edges are spouted.
- Site: right iliac fossa.



## Q1: Name of the test?

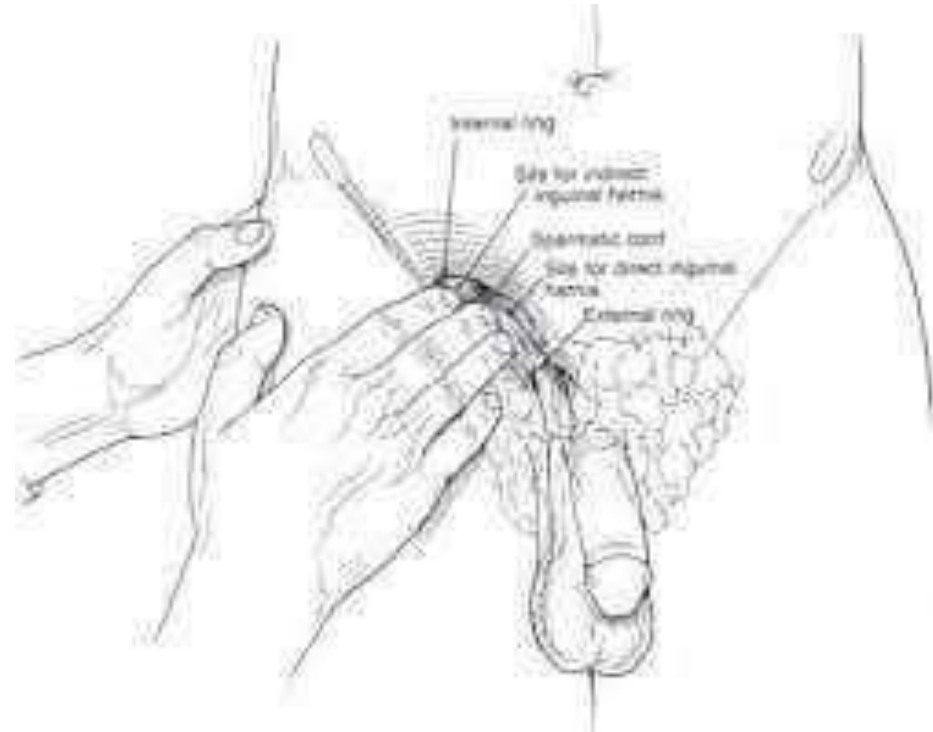
- Ring occlusion test

## Q2: If you ask the patient to cough while you maintain pressure and you notice a bulge, what is your Dx?

- Direct inguinal hernia

\*\* Note: Ring occlusion test differs from 3 fingers test, You Ask the patient to cough> Impulse felt on the index finger> Indirect hernia So; Zieman's Test (3 Finger Test) is used to differentiate type of hernia.

- Index: deep inguinal hernia (indirect)
- Middle: superficial inguinal (direct)
- Ring: Saphenous opening (femoral hernia)



Indirect Inguinal Hernia	Direct Inguinal Hernia
Pass through inguinal canal.	Bulge from the posterior wall of the inguinal canal
Can descend into the scrotum.	Cannot descent into the scrotum.
Lateral to inferior epigastric vessels.	Medial to inferior epigastric vessels.
Reduced: upward, then laterally and backward.	Reduced: upward, then straight backward.
Controlled: after reduction by pressure over the internal (deep) inguinal ring.	Not controlled: after reduction by pressure over the internal (deep) inguinal ring.
The defect is not palpable (it is behind the fibers of the external oblique muscle).	The defect may be felt in the abdominal wall above the pubic tubercle.
After reduction: the bulge appears in the middle of inguinal region and then flows medially before turning down to the scrotum.	After reduction: the bulge reappears exactly where it was before.
Common in children and young adults.	Common in old age.



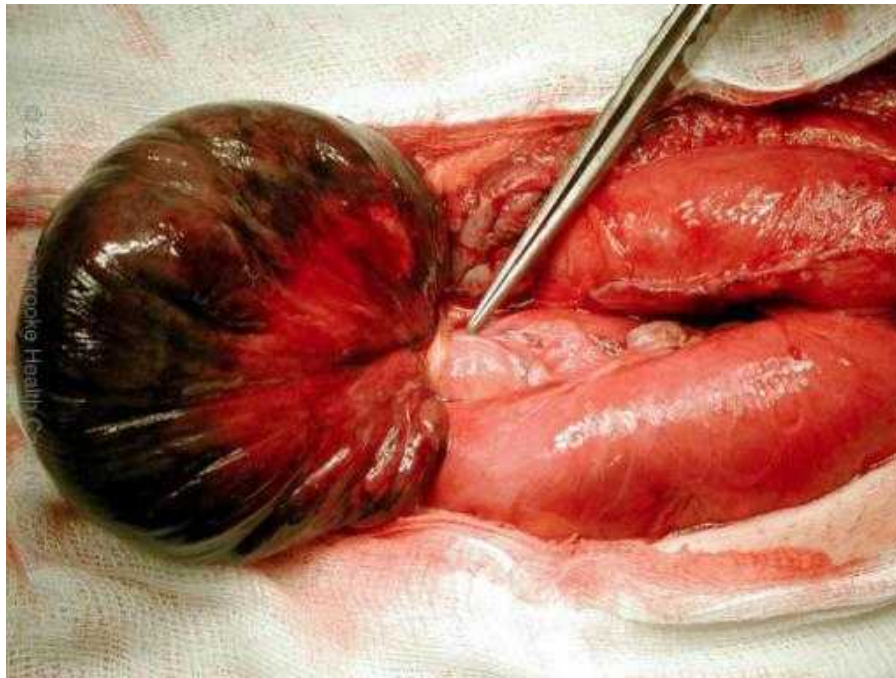
**Q: Patient presented with painful lump in his belly button:**

**Q1: What is the Dx?**

- Strangulated Hernia

**Q2: If the bowel still the same despite of all measures, what's your next step?**

- Resection and Anastomosis



## Q1: What is the Dx?

- Cushing Syndrome

## Q2: Causes?

- Iatrogenic (cortisol administration)
- Pituitary Adenoma

\*\* Note: Cushing triad:

- 1) Irregular, decreased respirations
- 2) Bradycardia
- 3) Systolic hypertension



**Q1: White arrow?**

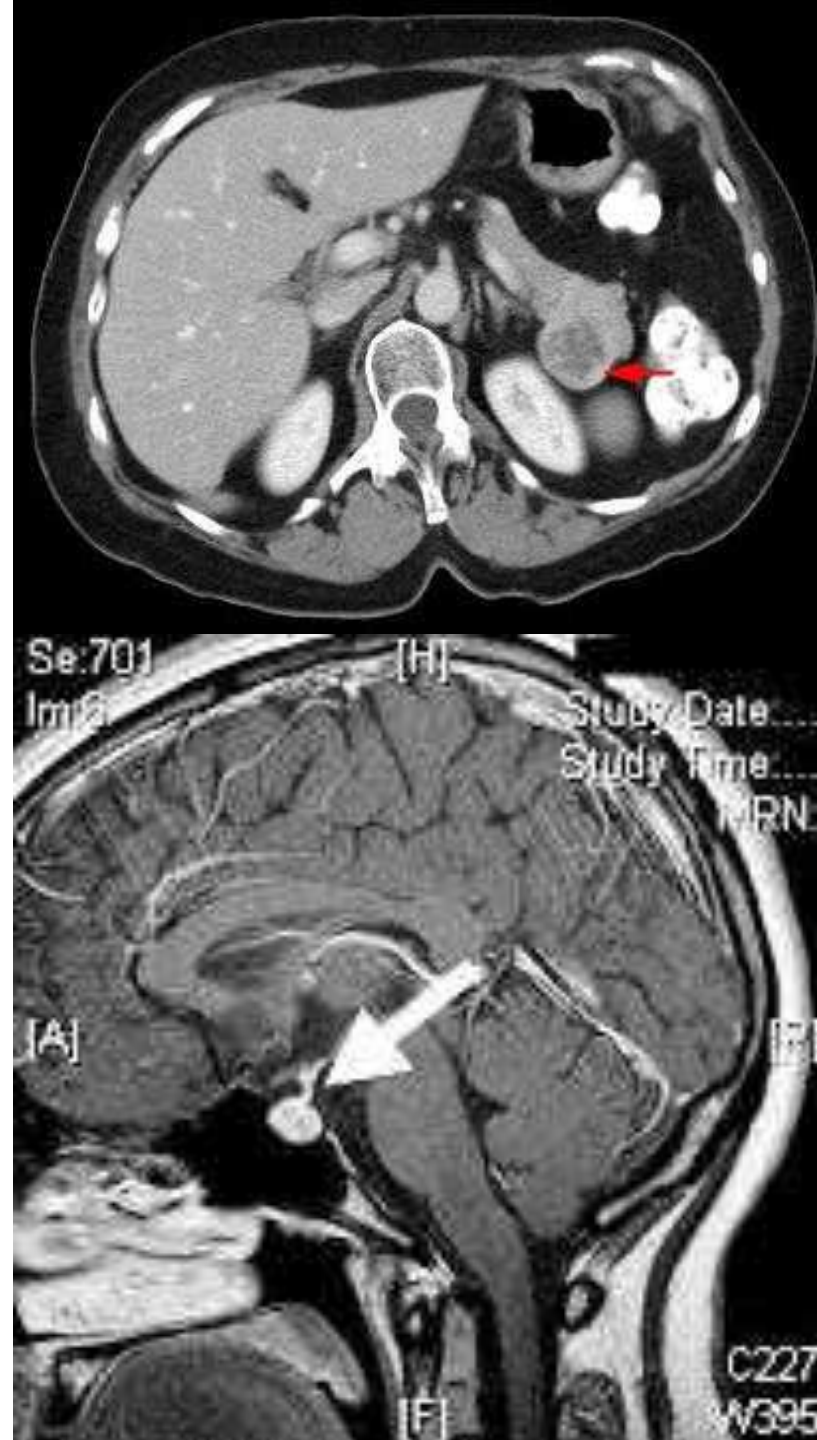
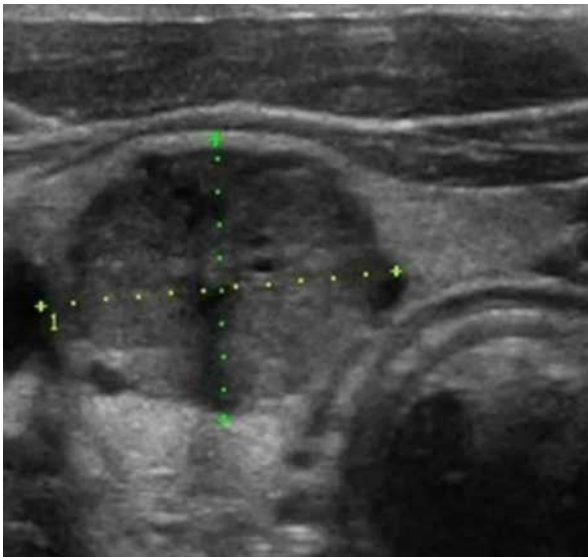
- Pituitary Adenoma

**Q2: Syndrome name?**

- MEN

**Q3: The most important thing surgically to do for this patient?**

- Pancreatic tumor “not sure”





3P

2P 1M

1P 2M

## MEN 1

Pituitary  
adenoma

Parathyroid  
hyperplasia

Pancreatic  
tumors

## MEN 2A

Parathyroid  
hyperplasia

Medullary  
thyroid  
carcinoma

Pheo-  
chromo-  
cytoma

## MEN 2B

Mucosal  
neuromas

Marfanoid  
body  
habitus

Medullary  
thyroid  
carcinoma

Pheo-  
chromo-  
cytoma

- **MEN I (3 Ps)**

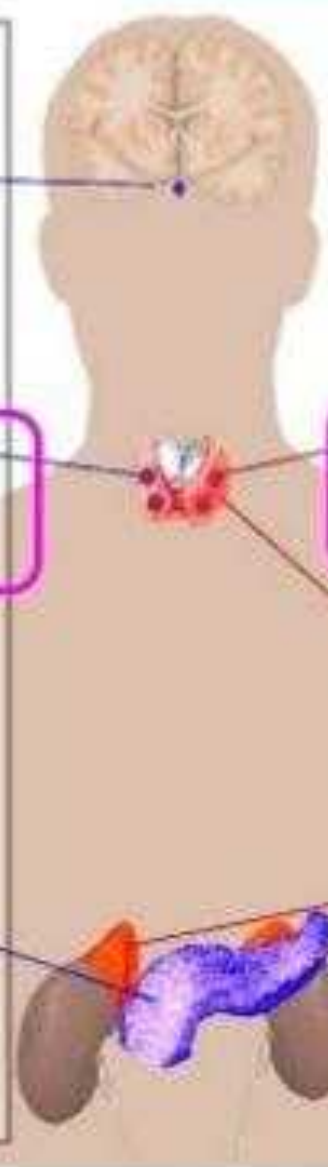
- Pituitary,
- Parathyroid,
- Pancreatic

- **MEN 2A (1M,2Ps)**

- MTC
- Pheochromocytoma
- Parathyroid

- **MEN 2B (2Ms,1P)**

- MTC,
- Marfanoid  
habitus/Mucosal  
neuroma
- Pheochromocytoma





**Q: This is pelvic x-ray of a patient post RTA:**

**Q1: What is the pathology?**

- Pelvic fracture

**Q2: What is the most serious complication?**

- Bleeding (Femoral artery)



**Question: about post-operative fever:**

1. Lung Atelectasis
2. ECG change MI
3. UTI
4. wound surgical site infection
5. drugs

**Question A: which of the following picture are consider as a source of fever after 1-3 days?**

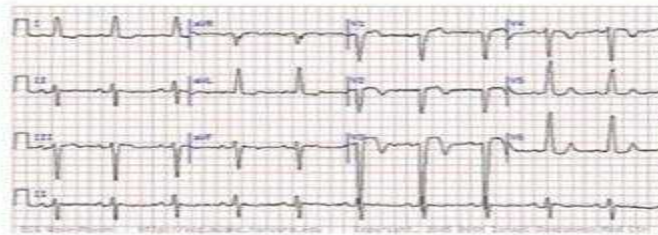
-Atelectasis (1)

**Question B: which of the following picture are consider as a source of fever after 5-7 days?**

-Wound infection (4)



**1**



**2**



**3**



**4**



**5**

Category	Day	Description
Wind	POD 1-2	the lungs, i.e. <a href="#">pneumonia</a> , aspiration, and pulmonary embolism; <a href="#">atelectasis</a> has been commonly cited as a cause of post-operative fever, but supporting evidence is lacking <sup>[2][3]</sup>
Water	POD 3-5	<a href="#">urinary tract infection</a> , possibly catheter-associated (if a urinary catheter was inserted during surgery or remains in place currently i.e. <a href="#">Foley catheter</a> )
Wound	POD 5-7	infection of the surgical incision(s), either superficial or deep <sup>[4]</sup>
(W)abscess	POD 5-7	infection of an organ or space <sup>[5]</sup>
Walking (or VEINS pronounced like "Weins")	POD 5+ (risk may persist for months post-operatively)	<a href="#">deep vein thrombosis</a> or <a href="#">pulmonary embolism</a>
Wonder drugs or "What did we do?"	Anytime	<a href="#">drug fever</a> or reaction to blood products, either a <a href="#">febrile non-hemolytic transfusion reaction</a> or <a href="#">transfusion-related acute lung injury</a>
Wing/Waterway	Anytime	bloodstream infection, phlebitis, or cellulitis related to intravenous lines, either central or peripheral

## Diagram of Tumour Markers

### Oesophagus

(CEA, SCC)

### Lung

parvicellular: NSE (CYFRA 21-1)  
non-parvicellular: (CEA, CYFRA 21-1)

### Liver/Biliary ducts

AFP, CA 19-9

### Bladder

(CYFRA 21-1)

### Uterus

SCC (CEA)

### Prostate gland

PSA

### Testes

AFP, HCG

### Thyroid gland

Thyroglobulin,  
Calcitonin (C-cell,  
CEA)

### Mamma

CA 15-3, CEA

### Stomach

CA 72-4 (CEA)

### Pancreas

CA 19-9 (CEA)

### Colorectal

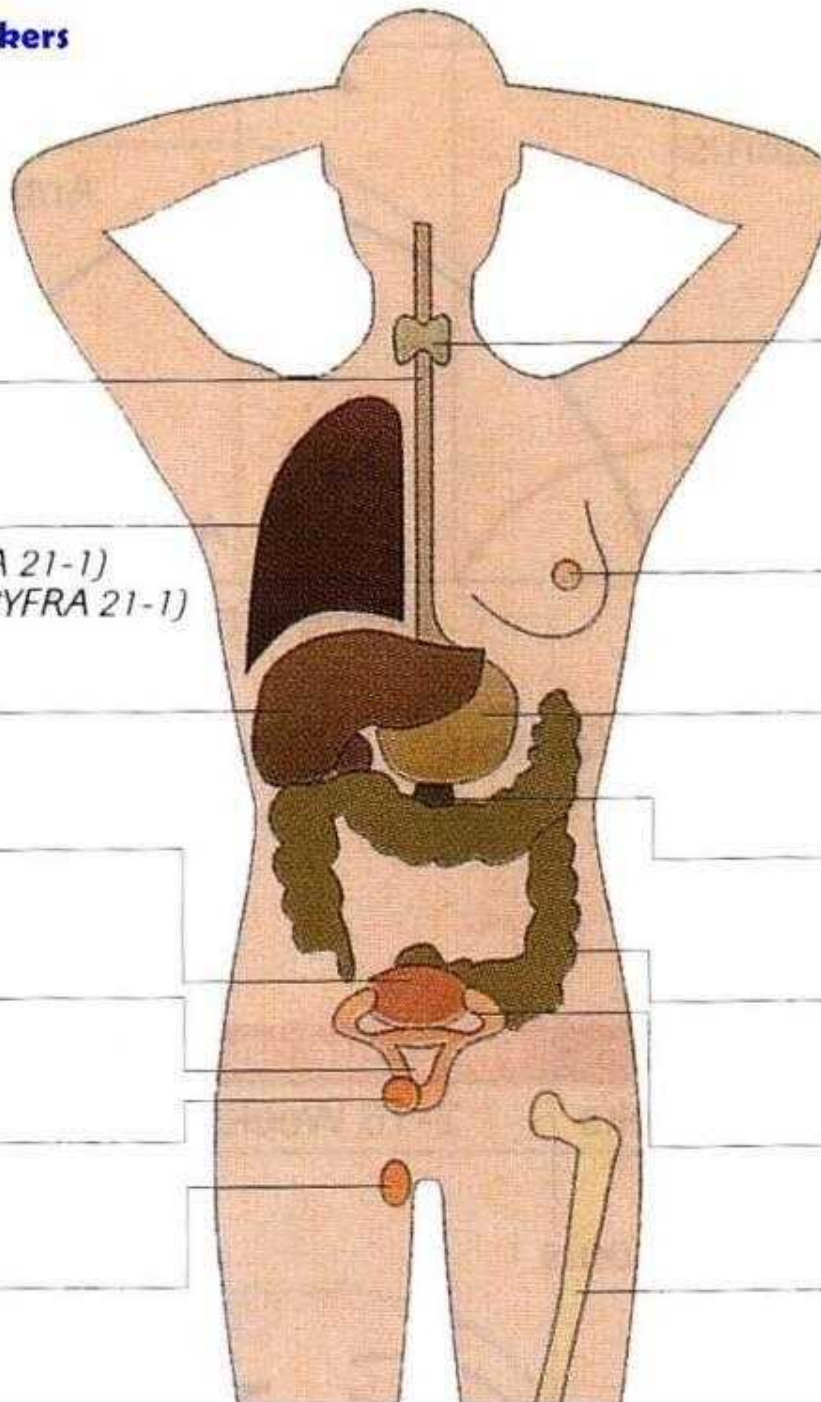
CEA (CA 19-9)

### Ovaries

CA 125 (CA 72-4)

### Multiple Myeloma

$\beta_2$ -Microglobulin





A close-up photograph of a surgical team's hands in white gloves, positioned over a blue sterile drape. Various surgical instruments, including forceps and scissors, are laid out on the drape. The background is blurred, showing more of the surgical team in blue scrubs. The text "Tools & Instruments" is overlaid in a large, white, bold font with a black outline.

# Tools & Instruments

**Q1: What are the names of those tools?**

- Central line and cannula

**Q2: What is better to insert in a trauma patient & for fluid administration, why?**

- Cannula, because it is easier to use, require less experience and time, it also deliver the largest volume of fluid

**Q3: The smallest cannula in diameter is?**

- Purple

(Cannula's in the picture – Blue)

**Q4: Cannula for large amount of fluid?**

- Orange

(cannula's in the picture - Green)



**Triple Lumen**

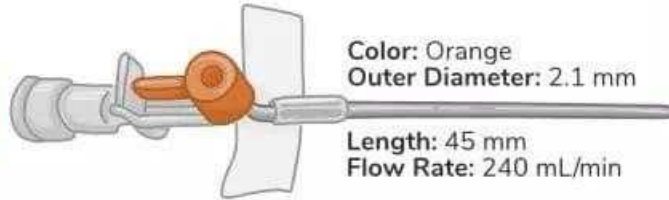


**Double Lumen**



## IV NEEDLE GAUGES SIZE CHART

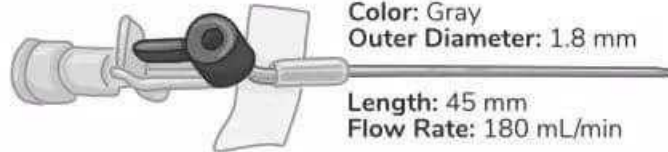
**14 GAUGE**



Color: Orange  
Outer Diameter: 2.1 mm

Length: 45 mm  
Flow Rate: 240 mL/min

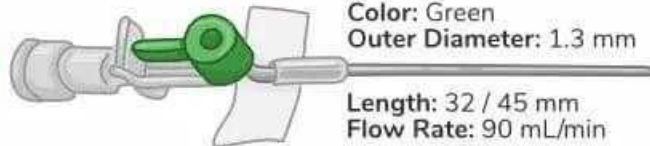
**16 GAUGE**



Color: Gray  
Outer Diameter: 1.8 mm

Length: 45 mm  
Flow Rate: 180 mL/min

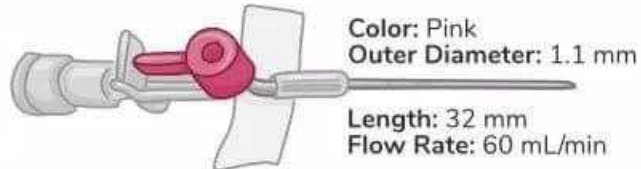
**18 GAUGE**



Color: Green  
Outer Diameter: 1.3 mm

Length: 32 / 45 mm  
Flow Rate: 90 mL/min

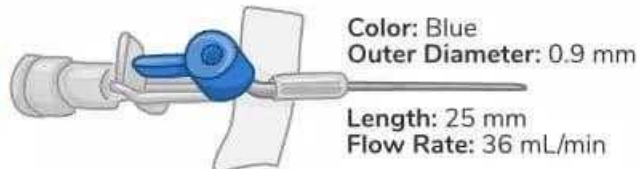
**20 GAUGE**



Color: Pink  
Outer Diameter: 1.1 mm

Length: 32 mm  
Flow Rate: 60 mL/min

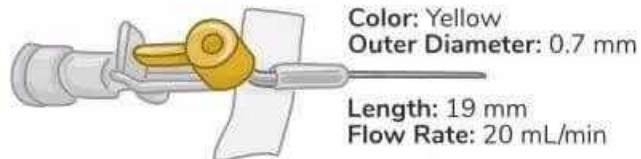
**22 GAUGE**



Color: Blue  
Outer Diameter: 0.9 mm

Length: 25 mm  
Flow Rate: 36 mL/min

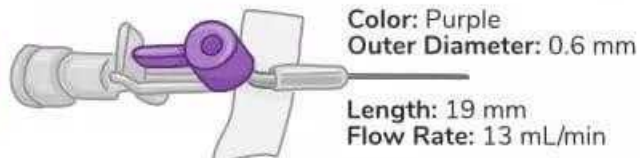
**24 GAUGE**



Color: Yellow  
Outer Diameter: 0.7 mm

Length: 19 mm  
Flow Rate: 20 mL/min

**26 GAUGE**



Color: Purple  
Outer Diameter: 0.6 mm

Length: 19 mm  
Flow Rate: 13 mL/min

**Q1: Name this tube?**

- Chest tube

**Q2: Give 4 indications?**

- 1) Hemothorax
- 2) Pneumothorax
- 3) Chylothorax
- 4) Empyema
- 5) Hydrothorax
- 6) Pleural Effusion
- 7) Post-op





## **Q1: What is this device?**

- Nasogastric tube

## **Q2: Give 3 indications?**

- 1) Feeding
- 2) Decompression
- 3) Administration of medication
- 4) Bowel irrigation

## **Q3: The tip of it should reach?**

- Stomach body

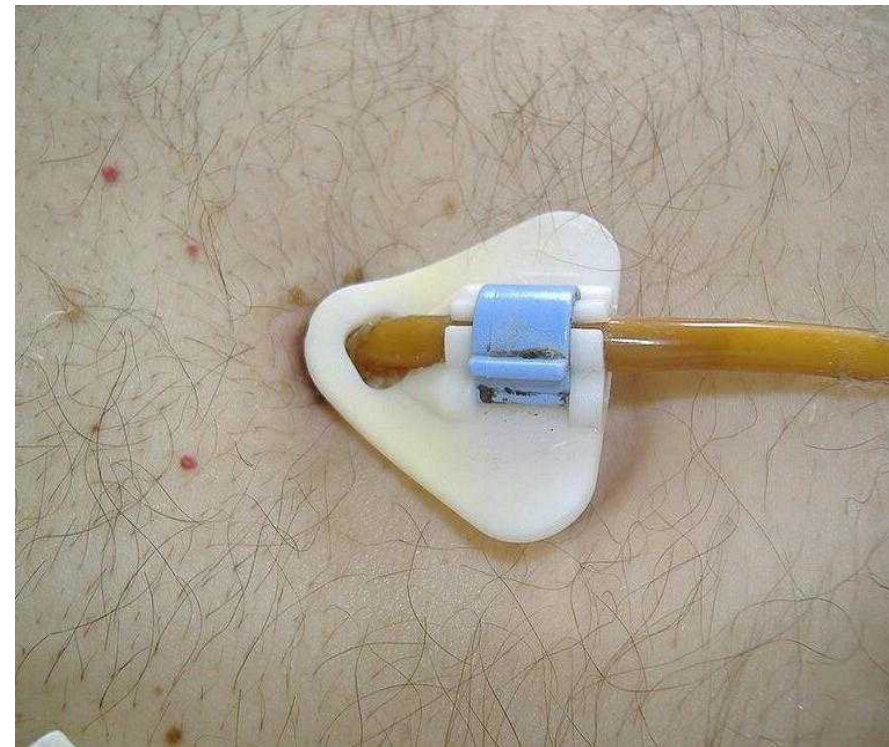
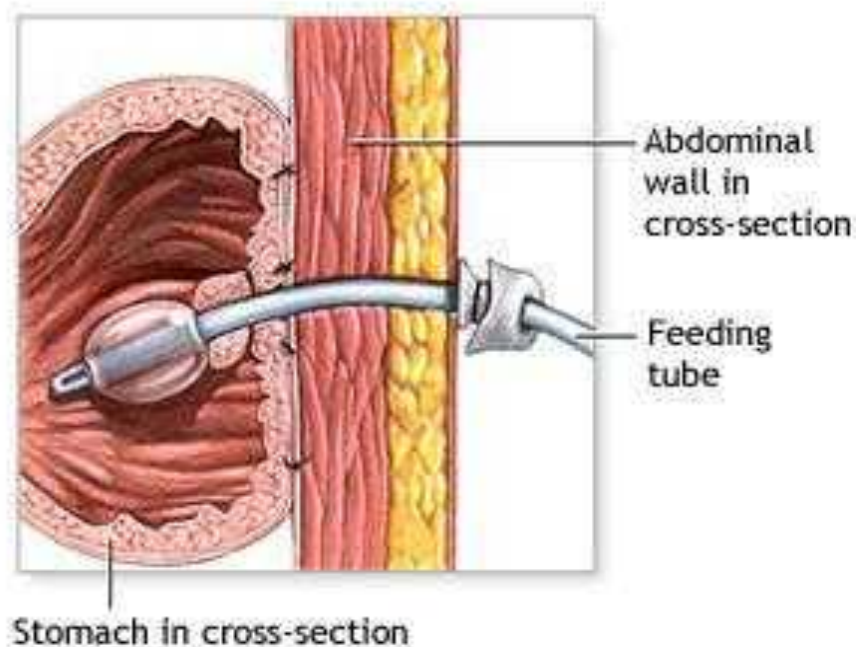


## Q1: What is this?

- Gastric tube/G-tube/PEG tube/ Gastrestomy

## Q2: What is the main indication for it?

- Feeding



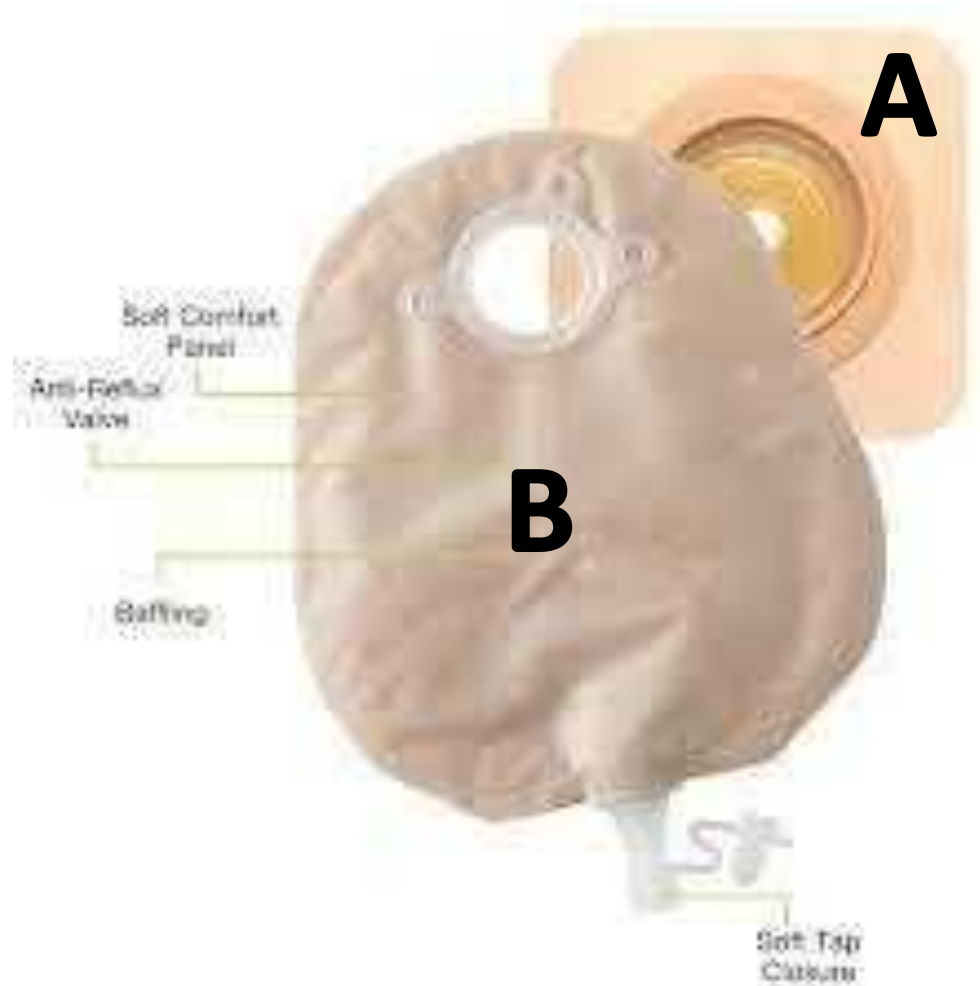
## Q1: What is A,B?

**A** > Stoma base (Flange)

**B** > Stoma bag

## Q2: Mention 3 indications?

- After proctocolectomy
- Imperforated anus
- Secondary healing
- Some said (colectomy, ileostomy, double barrel)



## **Q1: What is this?**

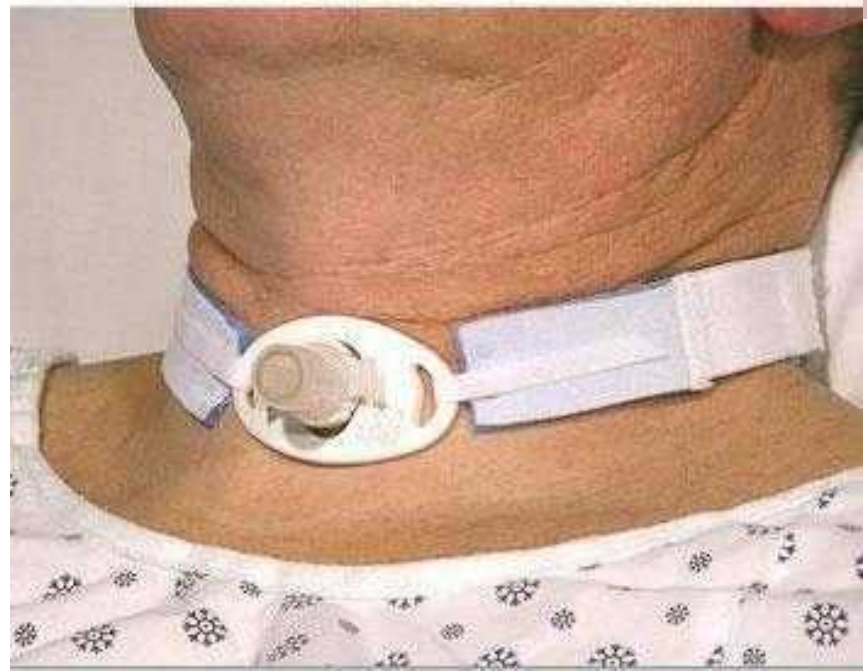
- Tracheostomy

## **Q2: Mention 2 complications?**

- 1) Infection
- 2) Blockage (Obstruction)
- 3) Bleeding
- 4) Pneumothorax

## **Q3: Mention 2 indications?**

- 1) Upper airway obstruction
- 2) Obtaining an airway in severe facial or neck trauma
- 3) Upper airway edema and copious secretions
- 4) Failure to wean from mechanical ventilation
- 5) Acute respiratory failure with need for prolonged mechanical ventilation  
(mc indication, 2/3 of all cases)



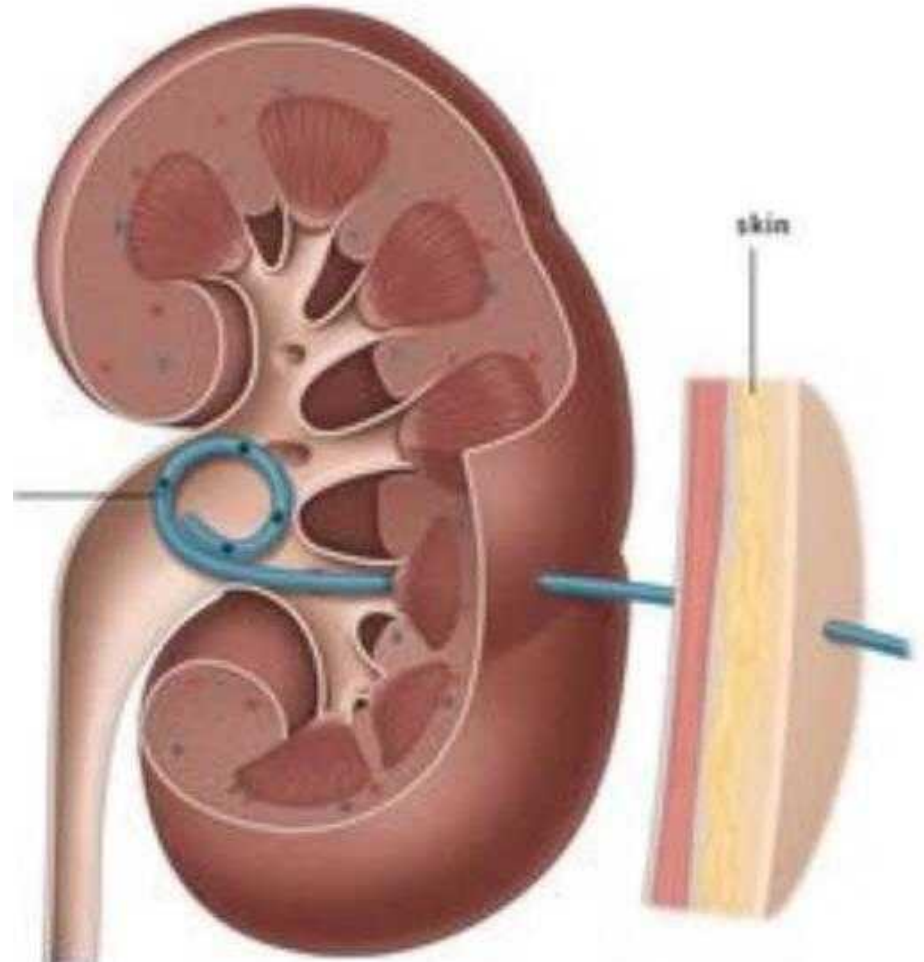


**Q1: Name the tube?**

- Nephrostomy tube

**Q2: Write 2 indications?**

- 1) Urinary obstruction secondary to calculi
- 2) Hemorrhagic cystitis

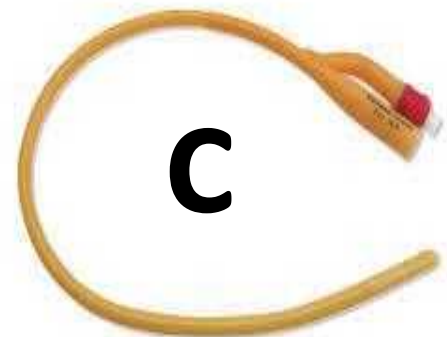
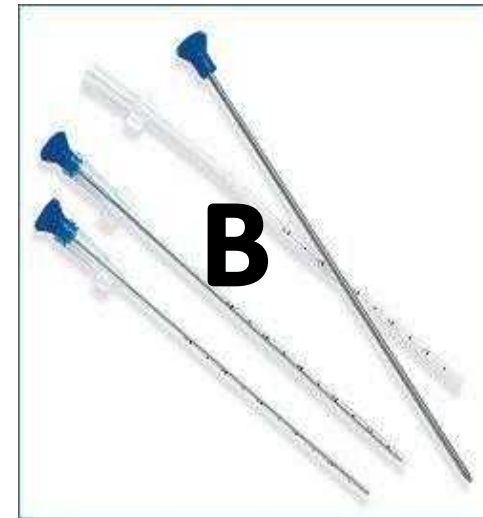
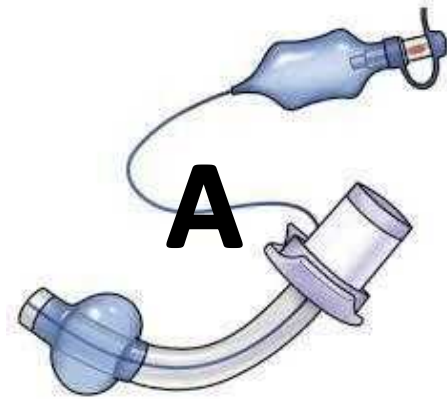


**Q1: Which one is not used in primary survey?**

- C (Foley's Catheter)

**Q2: Which one is your 1<sup>st</sup> priority?**

- D (Neck collar), some said (B)



**Q1: What is the name of device?**

- Foley's Catheter

**Q2: What is the unit used in measurement??**

- French



**Q1: What is the name of the drain?**

- Penrose

**Q2: Type of the drain?**

- Open drain





# Q: Name of the drain?

- Corrugated Drain



# T-tube

used for post operative drainage of  
common bile duct.



# Redivac drain

Drains can be:  
**Open or closed**  
**Active or passive:**





### **Q1: What is this device?**

Intermittent pneumatic compression technique  
(Inflatable leg sleeves).

### **Q2: Uses?**

To prevent DVT.



## **Q1: what is this?**

incentive spirometer

## **Q2: Why do we use it?**

used after surgery to prevent atelectasis .  
(used while inspiration not expiration).





## Q1: Name of device seen in the CT?

- Inferior vena cava filter

## Q2: Give 1 indication for it?

- 1) Proven VTE with contraindication for anticoagulation.
- 2) Proven VTE with complications of anticoagulation.
- 3) Recurrent VTE despite adequate anticoagulation.



### **Q1: Name of device?**

- Central venous catheter (CVC)

### **Q2: Where do you insert it?**

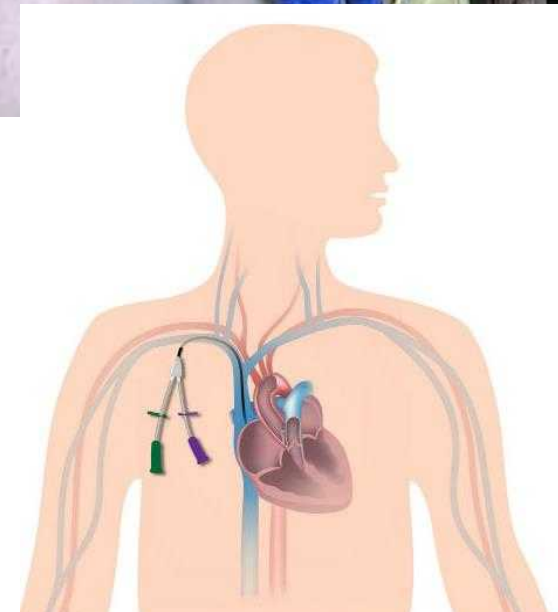
- Subclavian vein
- Internal jugular vein

### **Q3: Mention 2 indications?**

- 1) Total parenteral nutrition (TPN)
- 2) Hemodialysis
- 3) Chemotherapy

### **Q4: Mention 2 complications?**

Pneumothorax, Hemothorax, Recurrent laryngeal nerve injury, Arterial or Venous injury, Arterial access instead of venous, Hematoma, Infection, Thrombosis and occlusion of the line...etc



**Q1: What is this?** Colonoscopy

**Q2: Name 2 pathologic finding?**

- 1) Angiodysplasia
- 2) Diverticulosis
- 3) Colon tumor
- 4) Polyps, masses

**Q3: Name 2 therapeutic procedures done with it?**

- 1) Laser Ablation
- 2) Polyps Resection





**Q1: What is this device?**

- Pulse Oxymeter

**Q2: What does it calculate?**

- O2 Saturation
- Pulse Rate (HR)



A photograph of surgeons in an operating room, wearing blue scrubs and masks, performing a procedure. The scene is dimly lit with a bright light source focused on the surgical site.

Best of Luck!



دعواتكم