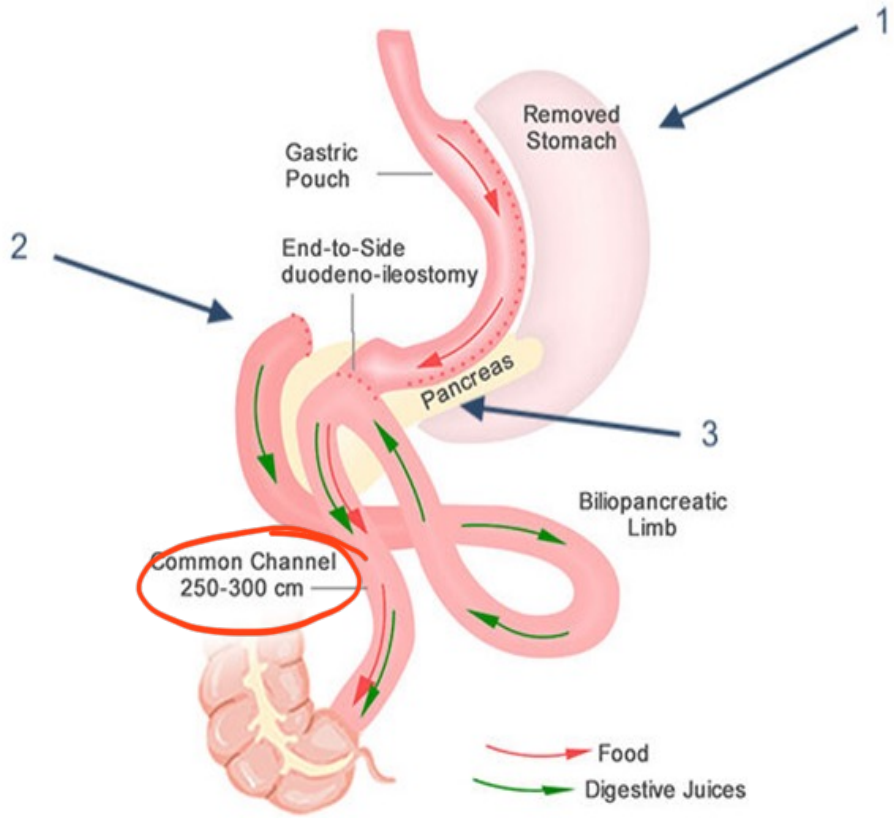
TRICKY CONCEPTS

SURGERY / ORTHOPEDICS/ RADIOLOGY

SURGERY

Identify the procedure shown

a) SADI-S
b) Sleeve gastrectomy
c) Roux-en-Y gastric bypass
d) Biliopancreatic diversion with duodenal switch



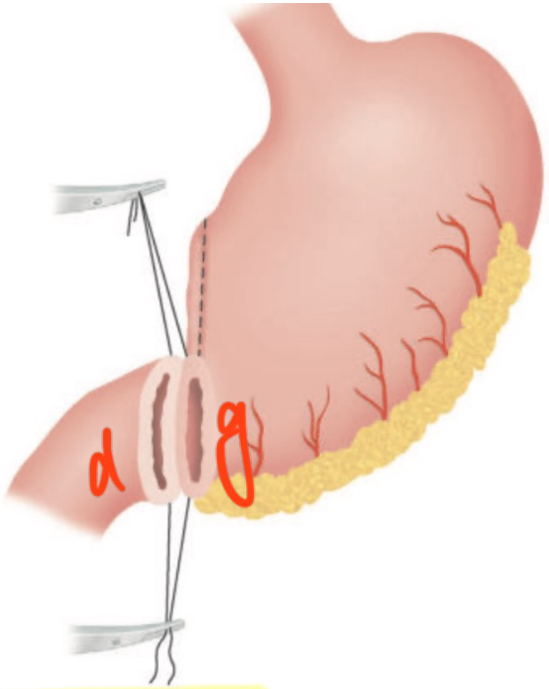


Figure 67.14 Billroth I gastrectomy. The lower half of the stomach is removed and the cut stomach anastomosed to the first part of the duodenum.

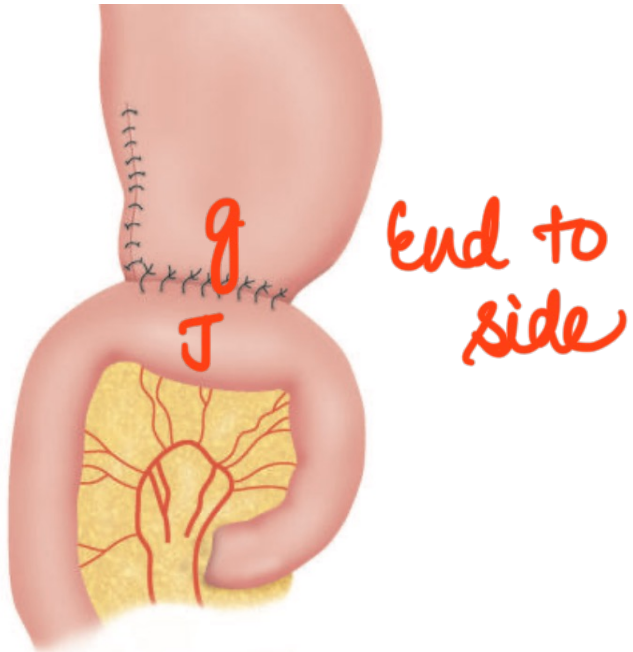


Figure 67.15 Billroth II. Two-thirds of the stomach is removed, the duodenal stump is closed and the stomach anastomosed to the jejunum.

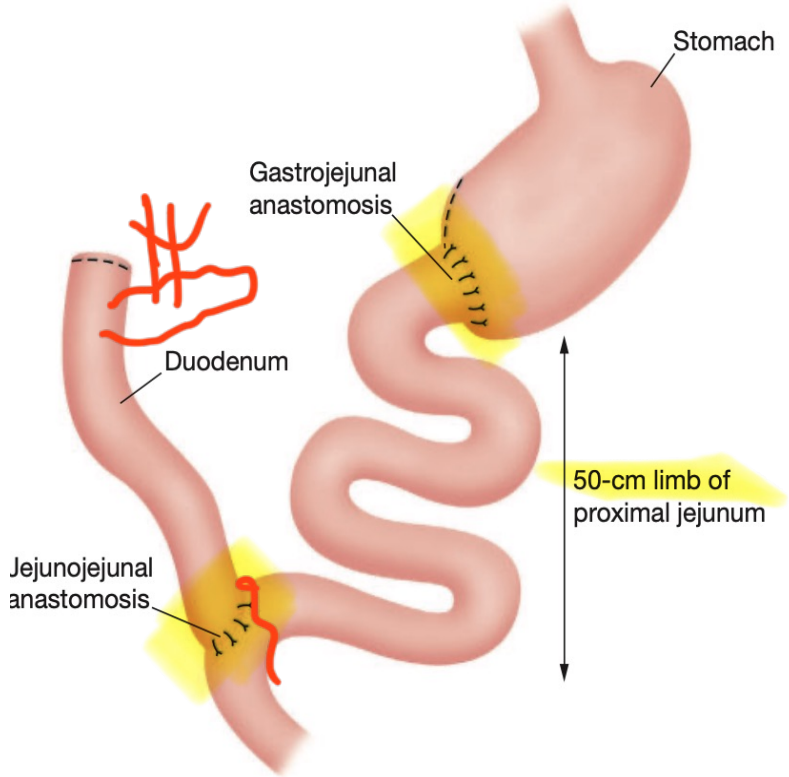


Figure 67.20 Roux-en-Y reconstruction following Billroth I gastrectomy. Note the length of the proximal jejunal limb required to minimise bilious reflux.

Nutritional deficiencies: Iron deficiency > Vitamin B12, Vitamin D3
Internal hernia

- **Petersen's hernia**: Bowel loop herniates behind Roux limb
  - *Antecolic reconstruction*
- **Stemmer hernia**: Bowel loops herniate through the transverse mesocolon
  - *Retrocolic reconstruction*

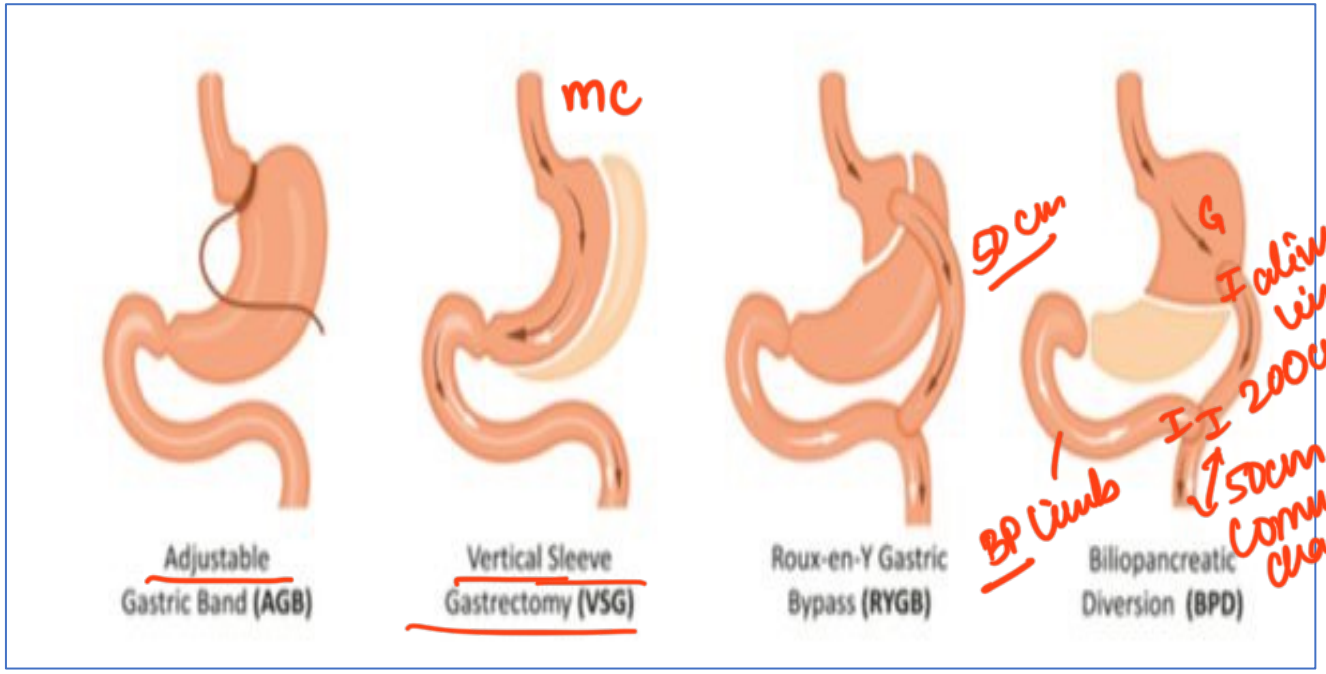
BARIATRIC SURGERY

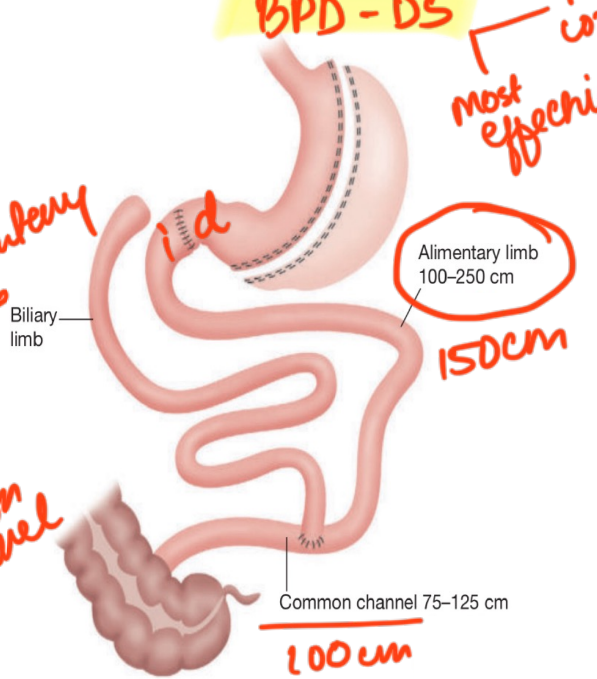
Classification	Procedures
Restrictive	• Vertical band gastroplasty • Adjustable band gastroplasty • Sleeve gastrectomy
Malabsorptive and restrictive (ideal balanced)	• Roux-en-Y gastric bypass
Mainly malabsorptive and mildly restrictive	• Biliopancreatic diversion • Duodenal switch (DS–BPD) • SADI-S (Single anastomosis duodenal–ileal sleeve gastrectomy)

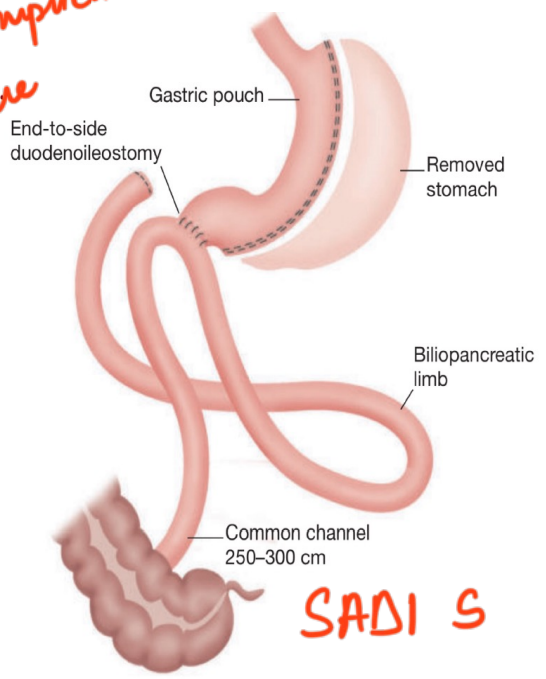
EDMONTON SCORE:

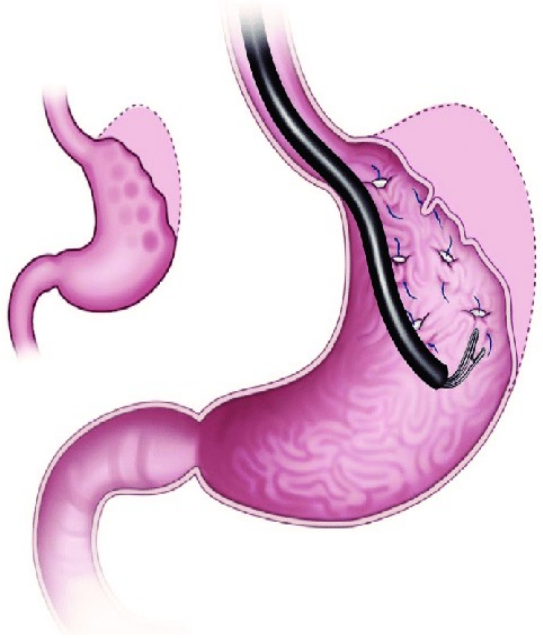
Morbidity after Bari. Sx

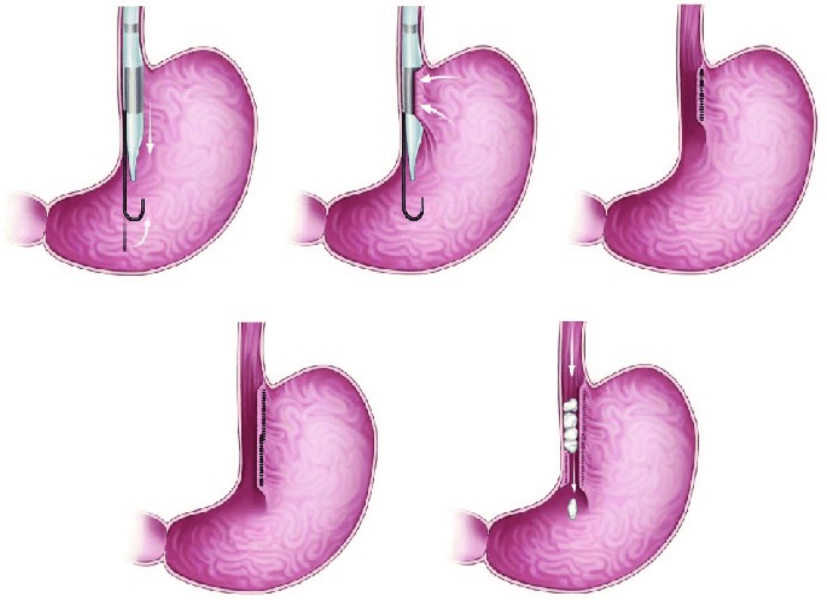
	AL Limb	CC
BPD	200 cm	50 cm
BPD-DS	150 cm	100 cm







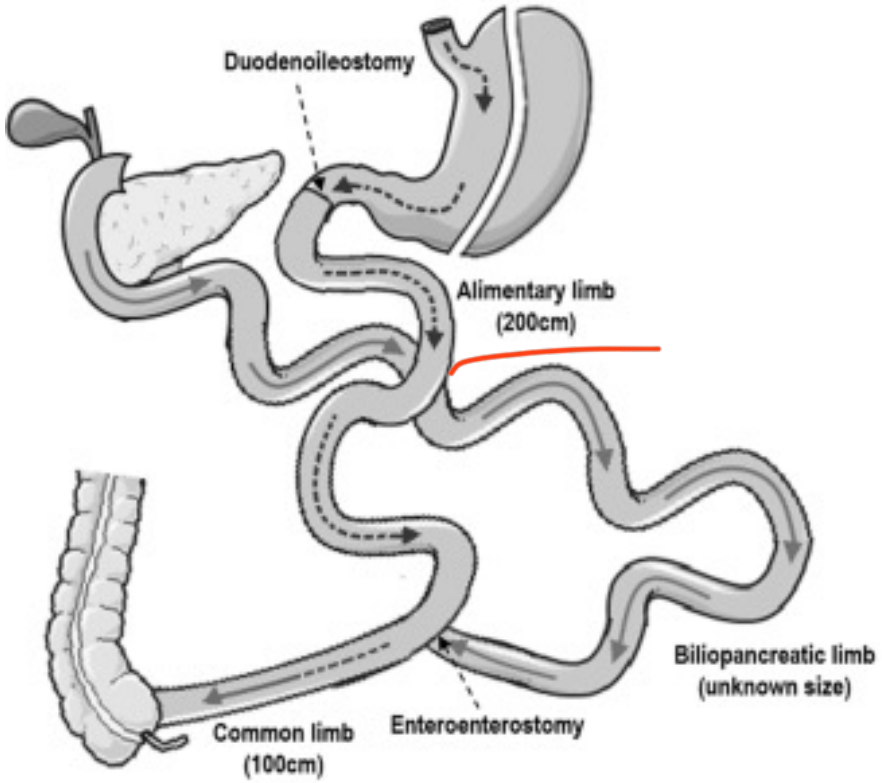




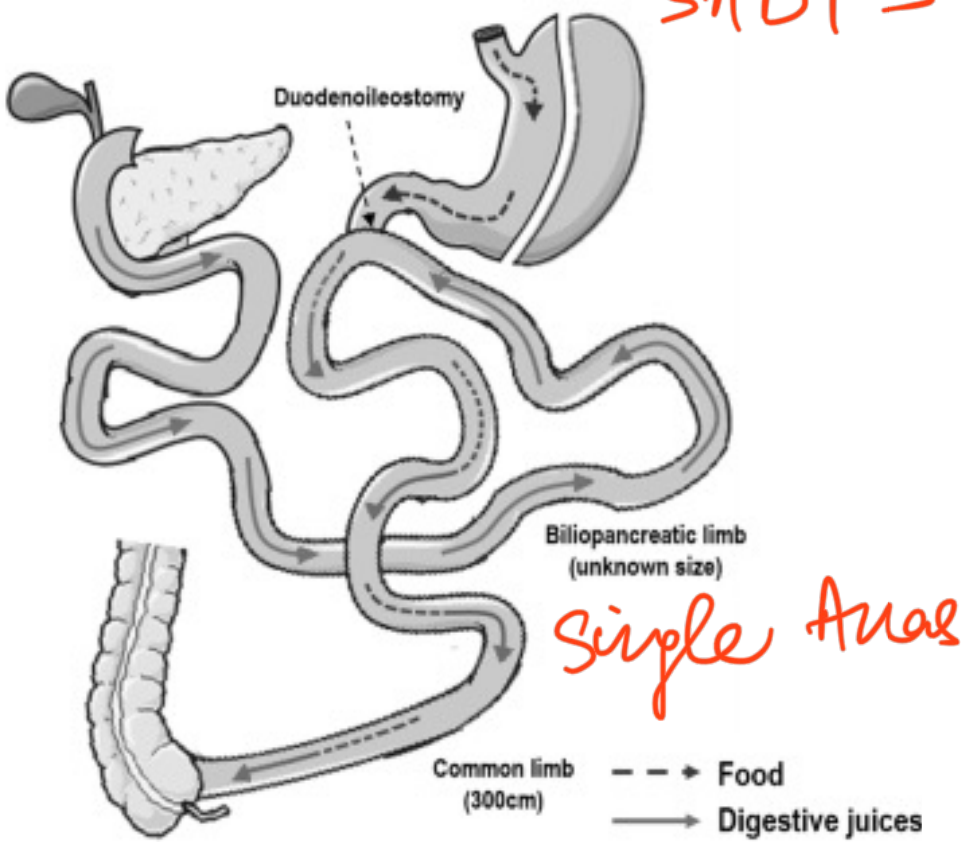
NOTES

Acronym	Full Form
POSE →	Primary Obesity Surgery Endoluminal
ROSE	Restorative Obesity Surgery Endoluminal
ESG	Endoscopic Sleeve Gastroplasty
TOGA	Transoral Gastroplasty

BPD DS



SADIS

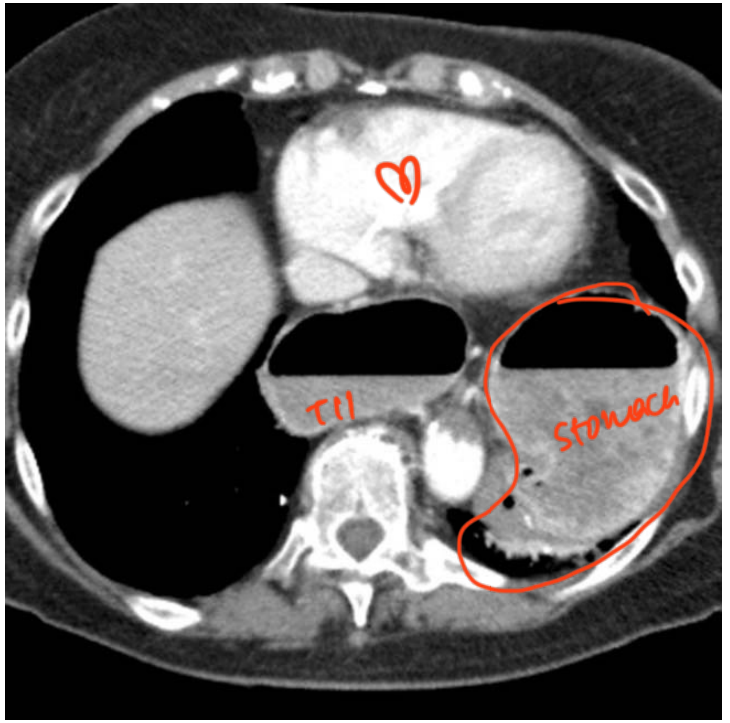


Simple Anas

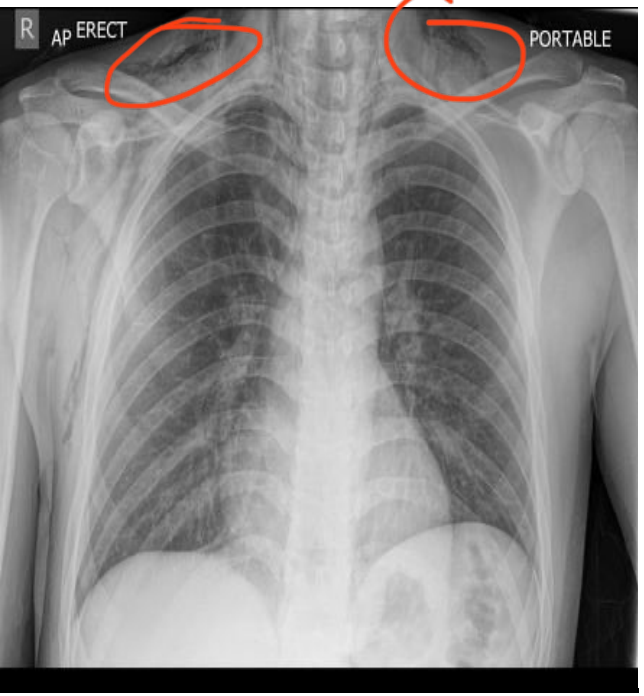
A 58-year-old man presents to the emergency department with severe epigastric pain that began suddenly after an episode of forceful retching following alcohol intake. He now complains of persistent nausea but says he “cannot vomit anything out” despite repeated efforts. He also reports difficulty swallowing even liquids. On examination, he is tachycardic, mildly hypotensive, and has upper abdominal distension with marked epigastric tenderness. CECT with oral contrast is shown below. Which of the following classic clinical triads best explains his current condition?

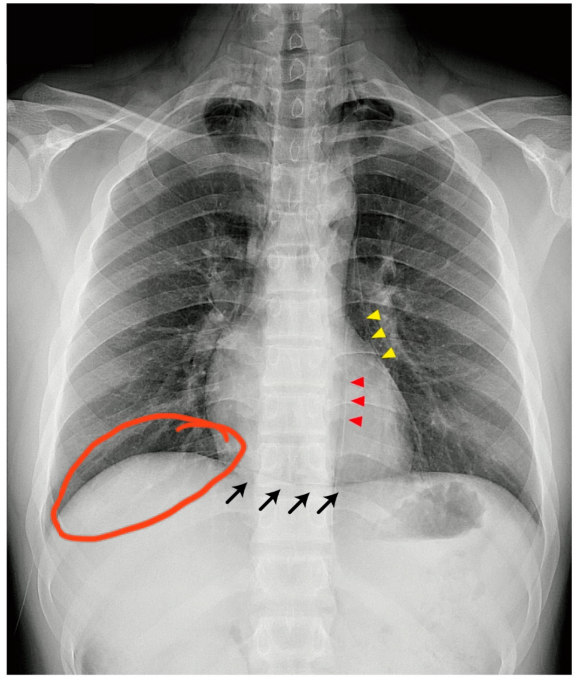
Rolling Hiatus Hernia → leads → Hamman crunch

a) Gastric volvulus
b) Boerhaave syndrome
c) Mallory-Weis tear → Hematemesis
d) Congenital diaphragmatic hernia



BOERHAAVE / MALLORY WEISS/ BORCHARDT





Subcutaneous emphysema + Pneumomediastinum

Ⓛ posteo-lateral

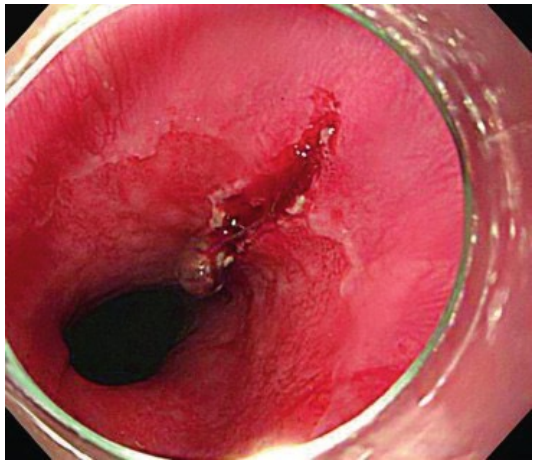
Boerhaave

Mackler's Δ

Hamman's crunch / chest pain / vomiting

Spontaneous esop. rupture

· Alcohols, retching



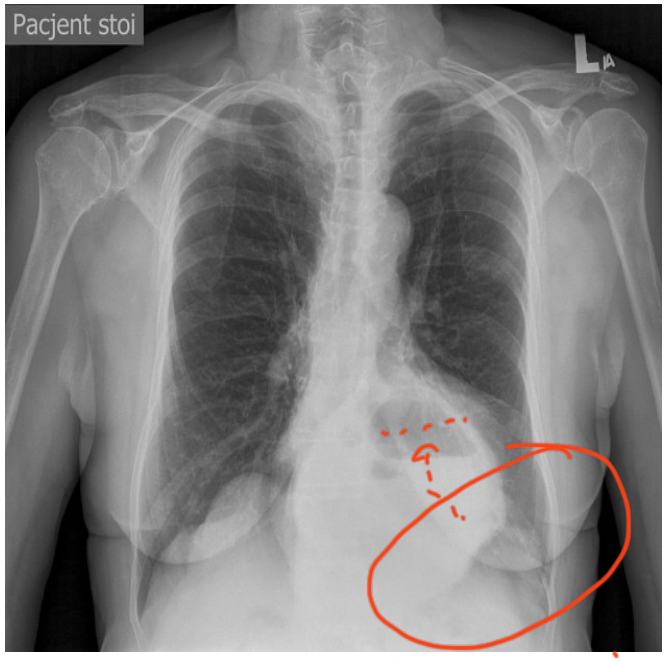
Alcohol + Retching

Hemetemesis

Rx → Mucosal tear → conservative

↓x

UGIE + cogn



Rolling Hiatal Hernia

Sliding (mc)

GE junct (UGIE)

A 58-year-old man presents to the emergency department with severe epigastric pain that began suddenly after an episode of forceful retching following alcohol intake. He now complains of persistent nausea but says he “cannot vomit anything out” despite repeated efforts. He also reports difficulty swallowing even liquids. On examination, he is tachycardic, mildly hypotensive, and has upper abdominal distension with marked epigastric tenderness. CECT with oral contrast is shown below. Which of the following classic clinical triads best explains his current condition?

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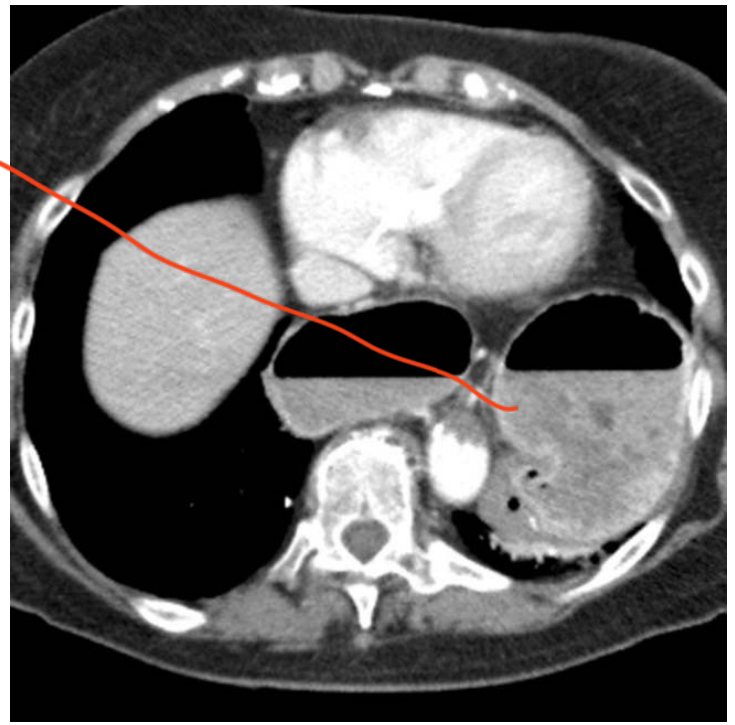


HERNIA SURGERY

Open Hernia (Herniorrhaphy)

A trainee is observing a hernia surgery where the **conjoint tendon is sutured to the inguinal ligament**, creating a tensioned repair. No layered reconstruction is done, and no mesh is used.
This describes:
A. Shouldice
B. Bassini 1st repair
C. Desarda
D. Lichtenstein

A 38-year-old man undergoes open repair of an inguinal hernia. During surgery, the surgeon performs **four-layer imbrication of the transversalis fascia**, followed by reconstruction of the posterior wall without using mesh.
Which hernia repair is being performed?
A. Bassini
B. Desarda
C. McVay
D. Shouldice ↓ risk of recurrence

double breasting

A 32-year-old man undergoes a non-mesh hernia repair where the surgeon creates a **strip from the external oblique aponeurosis**, uses it as a **dynamic posterior wall**, and avoids fascial imbrication.
Which technique is this?
A. Bassini
B. McVay
C. Shouldice
D. Desarda (Indian)

A 55-year-old man is advised to undergo a repair that is **tension-free**, involves suturing the **mesh to the inguinal ligament and conjoint tendon**. Which technique is this?
A. Bassini
B. Desarda
C. Lichtenstein MC
D. Shouldice

PROLENE mesh
Large pore
Low wt.

During repair of a femoral hernia, the surgeon performs a **Cooper's ligament repair**, suturing the transversus abdominis aponeurosis to Cooper's ligament.
Which repair is this?
A. Desarda external oblique
B. Shouldice
C. Bassini
D. McVay

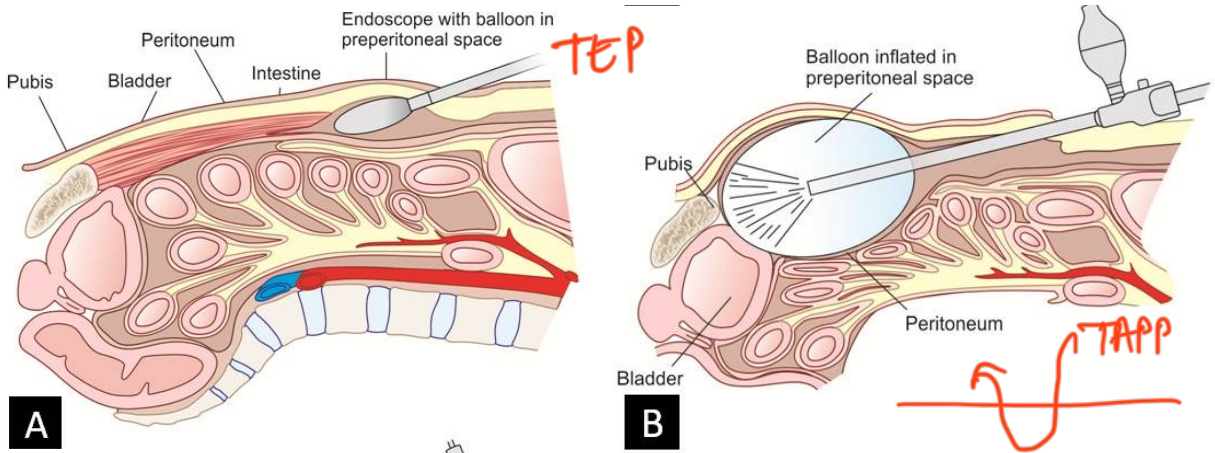
A 69-year-old man presents with **bilateral direct inguinal hernias**. The surgeon chooses a technique where a **large mesh is placed in the pre-peritoneal space**, reinforcing the visceral sac using **Pascal's law**.
Which repair is being performed?
A. Shouldice
B. Lichtenstein
C. Nyhus
D. Stoppa (Recurrent)

Giant prosthetic reinfor of visceral sac

A repair is planned through a **posterior approach**, with exposure of the **internal ring from behind**, allowing anatomical narrowing of a widened deep ring in a **recurrent indirect hernia**.
Which repair matches this?
A. Bassini
B. Shouldice
C. Lichtenstein
D. Nyhus

Congenital inguinal hernia
Congenital hydrocele
→ Herniotomy

Patent processus vaginalis



BILE LEAKS

A 45-year-old woman undergoes laparoscopic cholecystectomy for acute cholecystitis. On postoperative day 2, she develops increasing abdominal pain, low-grade fever, tachycardia, and bilious output of 200 mL/day from the drain. Laboratory tests show mild leukocytosis, but bilirubin is normal. Ultrasound reveals a localized collection near the gallbladder bed.
The surgical team suspects a postoperative bile leak.
Which of the following is the most appropriate next step in management?
A. Re-exploration laparotomy
B. Immediate percutaneous drainage of the collection
C. ERCP with sphincterotomy
D. Expectant management with antibiotics alone

T-tube
↓
while doing Open ccx
↓
CBD stone

A 47-year-old woman is post–lap chole day 1. Drain output is 600 mL of pure bile, and she has fever, tachycardia, diffuse peritonitis, and rising WBC. ERCP with sphincterotomy and stenting was attempted but cannulation failed.
What is the next best step?
A. Repeat ERCP
B. Broad-spectrum antibiotics only
C. Percutaneous drainage
D. Immediate surgical re-exploration

OBSTRUCTIVE JAUNDICE

A 58-year-old man presents with **progressive jaundice**, dark urine, pale stools, pruritus, and weight loss for 1 month. He has no history of alcohol use. Examination shows scratch marks and a palpable, nontender gallbladder.

Courvoisier's law

Laboratory tests show:

- Total bilirubin: 14 mg/dL (direct: 11 mg/dL)
- ALP: markedly elevated
- ALT/AST: mildly elevated

Δ- Periamp ca

1st → USG → CBD dil^n ≥6mm

IOC: MRCP (T2W) → CBD stone → ERCP (Gold std)

Ultrasound reveals **dilated intrahepatic and extrahepatic ducts**, but the lower CBD is **not well visualized** due to bowel gas. Which of the following is the **next BEST diagnostic investigation?**

A. ERCP

B. CT abdomen with contrast < MRCP

C. HIDA scan

Double duct sign

except to Courvoisier

Mirizzi / double-impacted stone

D. Percutaneous transhepatic cholangiography (PTC)

E. Endoscopic ultrasound (EUS)

A 67-year-old female presents with painless jaundice. US shows **normal CBD**, but MRCP reveals **intrahepatic duct dilatation.** Most likely cause?

A. CBD stone

B. Ampullary carcinoma

C. Distal cholangiocarcinoma

D. Klastiskin tumor

perihilar cholangio ca

Q. A 56yrs old male with obstructive jaundice reveals dilated CBD and intrahepatic biliary radicles on USG. No stone was identified. CT confirmed the findings. Which of the following investigation would be most useful to localize the cause?

A. Endoscopic USG

B. ERCP

C. MRI

D. PET scan

Q. A 48-year-old lady presents with right upper quadrant abdominal pain. USG reveal multiple GB calculi but no wall thickening, CBD diameter 12mm, gamma glutamyl transferase 5times increased, alkaline phosphatase was high also 400IU. Other parameters are normal. What is the next step ?

A. MRCP

B. ERCP

C. Semi-urgent cholecystectomy

D. EUS

Q. 40 year old female presents with jaundice and pain abdomen. LFT reveals raised bilirubin and GGT. USG reveals scleroatrophic GB with dilated CDB with impacted calculi. What is the next step of management?

A. Cholecystectomy

B. ERCP

C. PET scan

D. MRCP

TRAUMA APPROACH

c A B C D E
↳ Airway
c C-spine stabilisation

A 24-year-old male is brought to the emergency department after a high-speed road-traffic accident. He is conscious but restless. Peripheral pulses are weak, BP is 120/80 mmHg, HR 140/min, and capillary refill time is > 3 seconds. FAST shows free fluid in the abdomen. Which of the following is the MOST appropriate next step in the management of this patient?

A. Needle thoracostomy on the left side
B. Immediate whole-body CT scan
C. Start IV crystalloids through two large-bore cannulas **(Correct)**
D. Apply pelvic binder

1° survey: E-FAST, CXR

28-year-old man is brought to the trauma bay after a stab injury to the left chest. On arrival, he is anxious and tachypneic (RR 36/min). Airway is patent. Trachea is central. On the left side, breath sounds are markedly reduced, percussion note is dull, and there is decreased chest expansion. HR 132/min, BP 88/54 mmHg. Neck veins are flat. eFAST is positive. According to the ABCDE trauma protocol, what is the MOST appropriate next step?

A. Immediate needle decompression in the 2nd intercostal space
B. Urgent thoracotomy
C. Insert an intercostal chest drain (tube thoracostomy)
D. Perform whole-body CT scan

Hypovol → Hemothorax
↓
Stable/unstable
↓
ICD

A 45-year-old man is rushed to the emergency department following a high-speed road traffic collision. His heart rate is 124/min and BP is 78/56 mmHg in the right arm. A portable chest X-ray shows a widened mediastinum with normal lung and cardiac silhouette. What is the investigation of choice for this patient?

Aortic injury (unstable)

A) Transesophageal echocardiography
B) CT angiography → stable
C) MR angiography
D) Transthoracic echocardiography

A 12-year-old child presents with abdominal pain following a road traffic accident. Vitals are stable, and tenderness is present in the left lumbar region. Urine analysis shows >50 RBC/hpf. What is the investigation of choice?

A) Contrast-enhanced CT scan
B) Retrograde urethrogram
C) Wait and watch
D) Emergency laparotomy

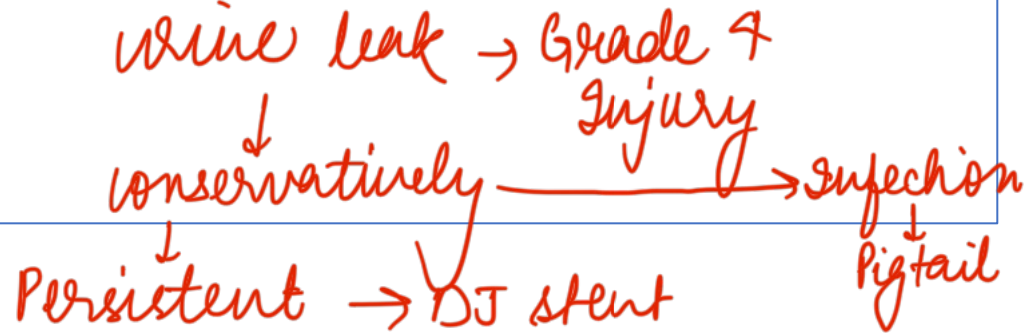
urography

Renal / UB / urethral Inj
- Blood at meatus
- Inability to void

CT cysto

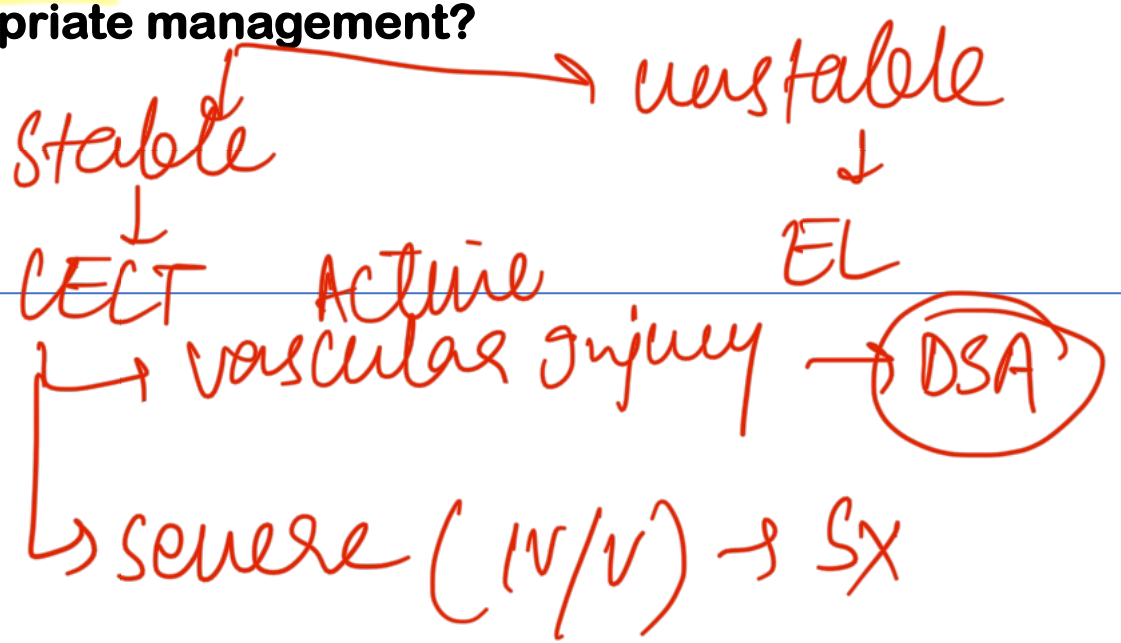
A 38-year-old man with renal laceration and urine extravasation initially managed conservatively now presents with a persistent urinoma after a few days. What is the next best management?

A) Ureteral stenting
B) Surgical repair and exploration
C) Observation
D) Percutaneous drainage



A 10-year-old child presents with Grade 3 splenic injury following blunt abdominal trauma. There are no signs of active bleeding. What is the most appropriate management?

A) Conservative management
B) Splenectomy
C) Embolization
D) Splenorrhaphy



Q. A 25-year-old man was stabbed in the chest during a street fight. Blood pressure is 90/58 mm Hg, pulse is 124/min, and respirations are 30/min. The patient is in severe respiratory distress. Breath sounds are present on the left and absent on the right. Heart sounds are normal. The neck veins are distended. The patient becomes obtunded during examination. Which of the following is the best next step in management?

A. Cricothyroidotomy
B. Needle thoracostomy
C. Endotracheal intubation
D. Rapid volume resuscitation

⇒ Maxillofacial injury

A B C D E

A 60-year-old man is brought to the emergency department by ambulance for right-sided weakness and slurred speech that started 30 minutes ago. The wife reports that her husband said he was dizzy, and shortly after, he developed acute right arm and leg weakness and was unable to speak. Medical history includes hypertension, for which he takes amlodipine. The patient also takes an aspirin daily. Blood pressure is 225/110 mm Hg, pulse is 90/min, and respirations are 20/min. On examination, the patient is alert but aphasic with 0/5 strength in the right upper and lower extremities. Examination of the left upper and lower extremities is normal. A nicardipine infusion is started and CT scan of the head is performed. After returning from the CT scanner, the patient is minimally responsive and has developed hyperextension of all four extremities. CT scan shows a left-sided intracerebral hemorrhage with a 5-mm midline shift to the right.
Which of the following is the best next step in management of this patient?

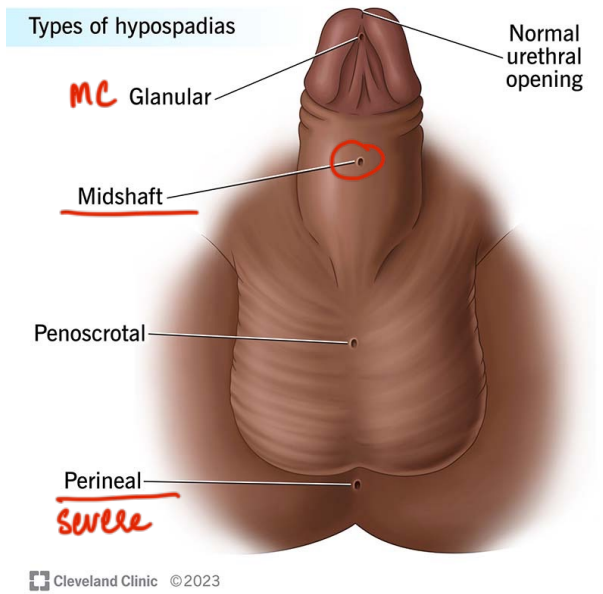
A. Administer intravenous corticosteroids
B. Decompressive craniectomy
C. Burr-hole
D. Intubate and mechanically ventilate

HTN ICH

Decerebrate posturing

HYPOSPADIAS

Hypospadias → urethral opening on ventral surface



- **Do NOT circumcise** (foreskin needed for repair)
- Age: **6–18 months** (preferred)

Orthoplasty-Urethroplasty-> Meatoplasty -> Glanuloplasty-> Skin cover

QQ

↳ chordae correct

DVGM

Abbe-Estlander flap is primarily used in the reconstruction of which region?

A. Floor of mouth
B. Tongue
C. Palate
D. Lip

FLAPS

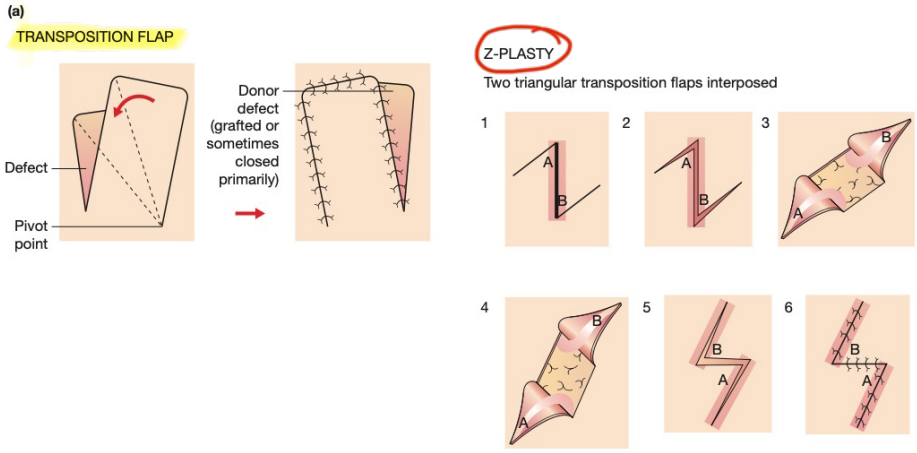
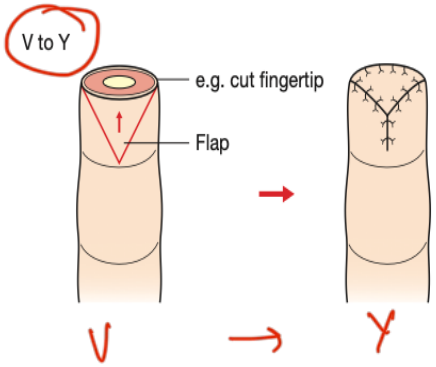
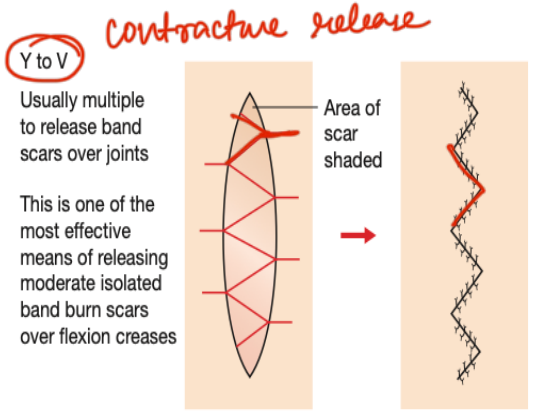
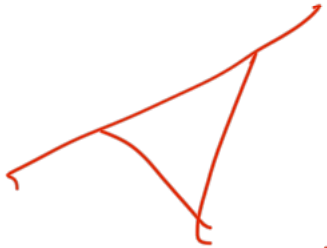


Figure 47.12 Local flap diagrams. (a) Transposition and Z-plasty flaps. (b) Bilobed and bipedicled flaps. (c) Rhomboid and rotation flaps. (*continued overleaf*)

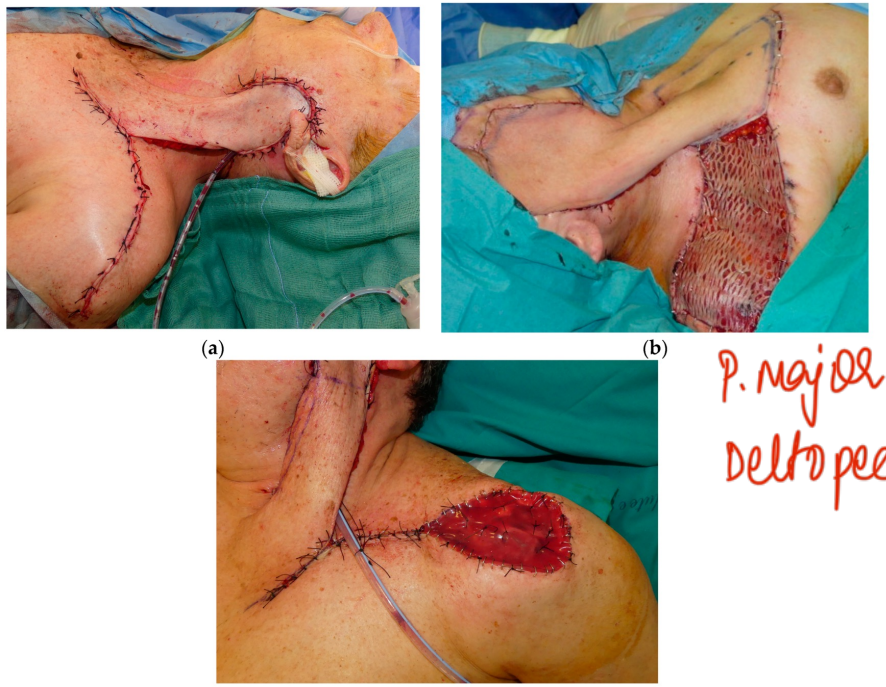






Dog-ear → extra skin
↓
during suture

Figure 47.13 Bilobed flap reconstruction of a nasal defect following excision of a basal cell carcinoma. **(a)** Excision markings. **(b)** Bilobed flap raised. **(c)** Transposition of bilobed flap. **(d)** Immediate postoperative appearance.



P. Major
Deltopectoral

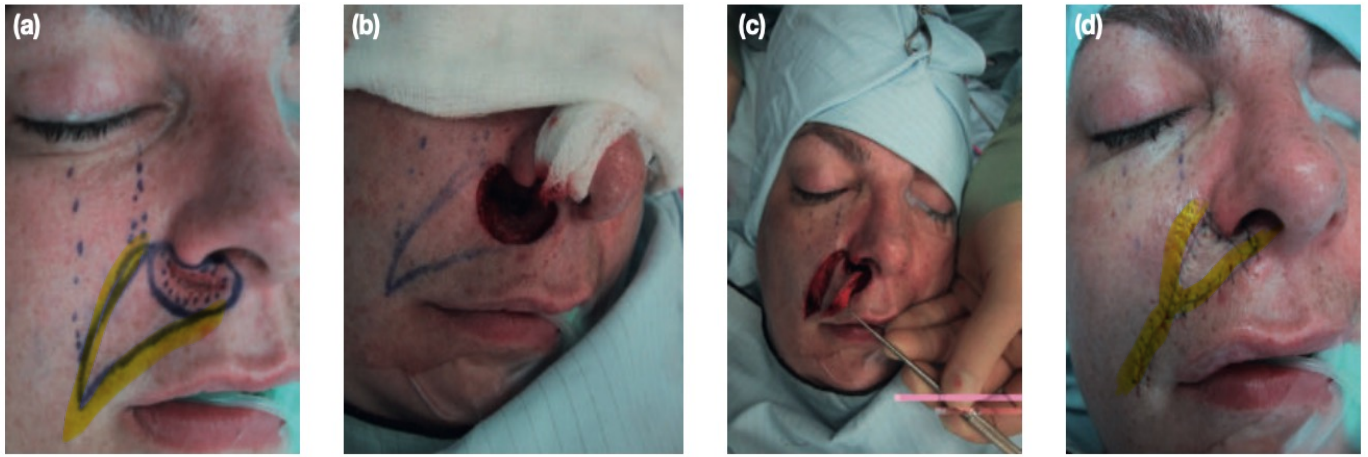
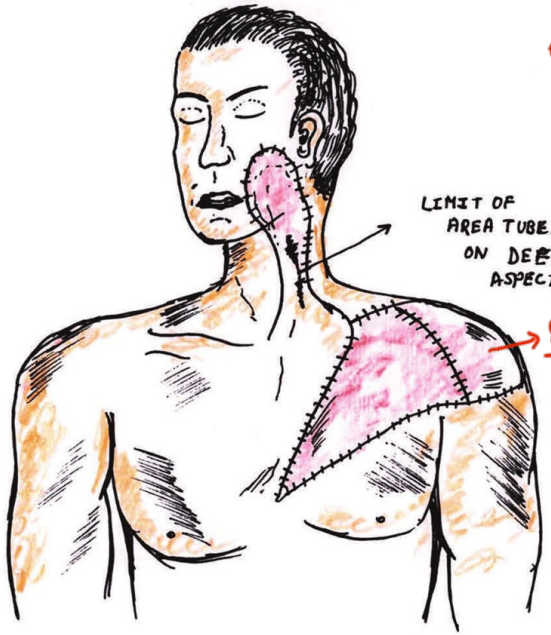
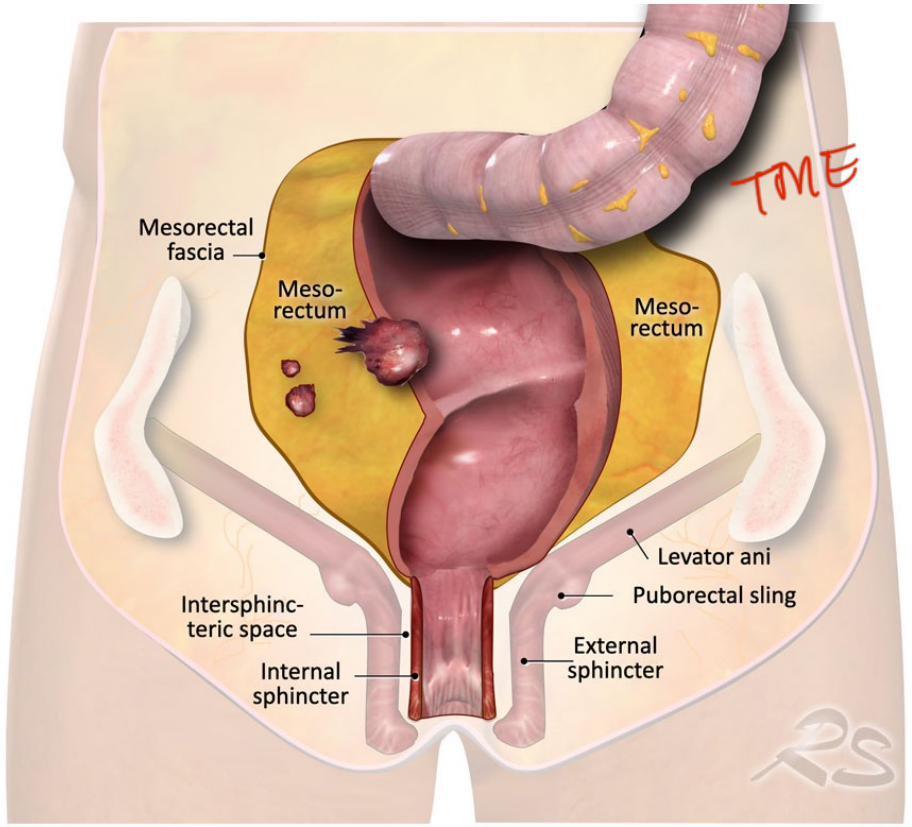


Figure 47.18 Excision of a basal cell carcinoma of the right alar groove and reconstruction with a V-to-Y nasolabial advancement flap. **(a)** Tumour excision margins and flap design markings. **(b)** The defect following excision of the basal cell carcinoma. **(c)** Raising the nasolabial flap. **(d)** Advancement and inset of the flap.

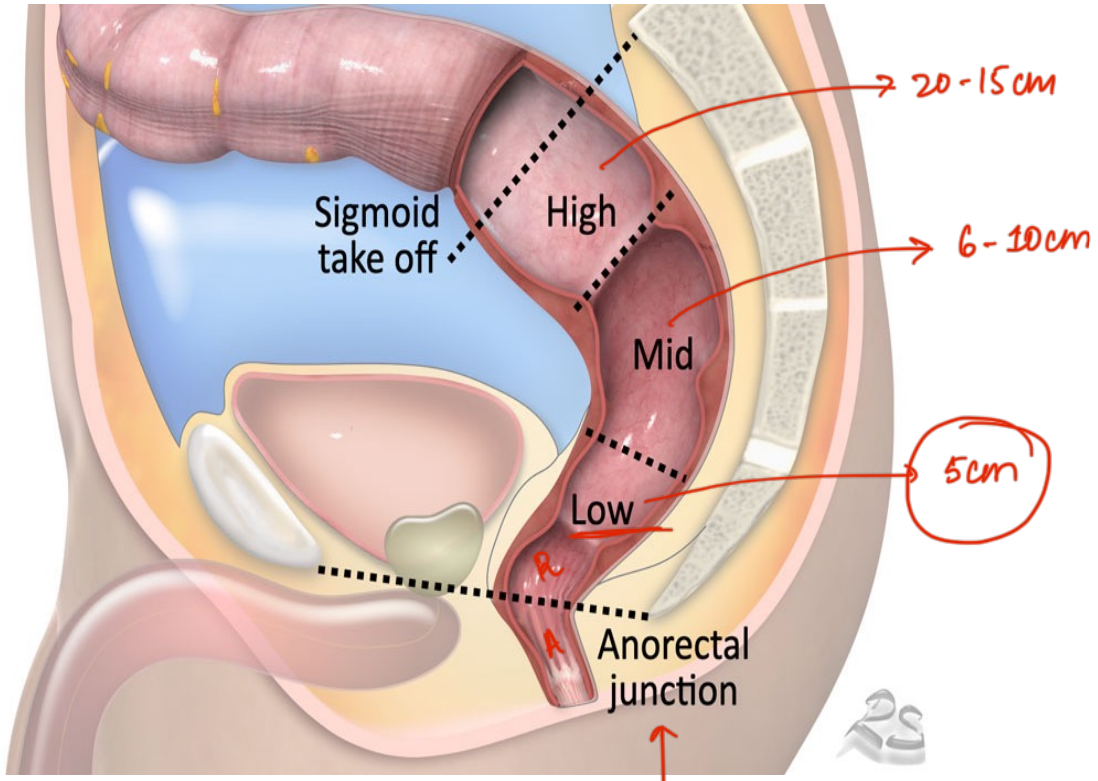


'Head & Neck reconstruction'

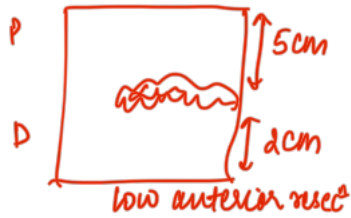
CA RECTUM



Total mesorectal excision



c in 2cm → APR



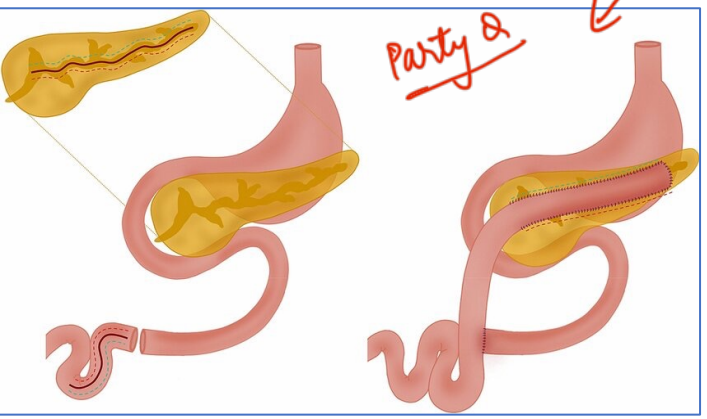
Acute obstruc → Frail/unfit for Sx → Hartmann

ultra-low resec → 0.5cm distal
↳ skilled surgeon

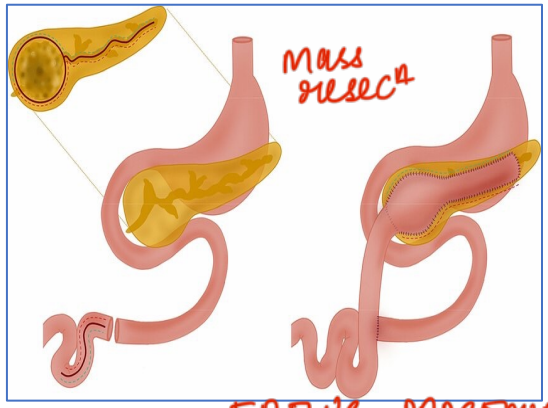
Feature	Ileostomy	Colostomy
Enzymes	Rich in digestive enzymes → **irritant to skin**	Less enzymatic → **less skin irritation**
Output/day	**600–1200 ml/day**, high output	**200–600 ml/day**
Electrolyte loss	**High Na^+, K^+, HCO_3^- loss Dehydration MC**	Minimal
Odor	Less odorous	More odorous
Prolapse	Less common	**More common**
Parastomal hernia	Less	More
Retraction	Common	Less
Pouting	Yes	Flush with skin
Indications	Ulcerative colitis surgery, FAP, CRC emergencies, ileal perforation	Obstructing left colon cancer, trauma, sigmoid perforation, Hartmann's
Reversal	Easier	Depends on disease

CHRONIC PANCREATITIS

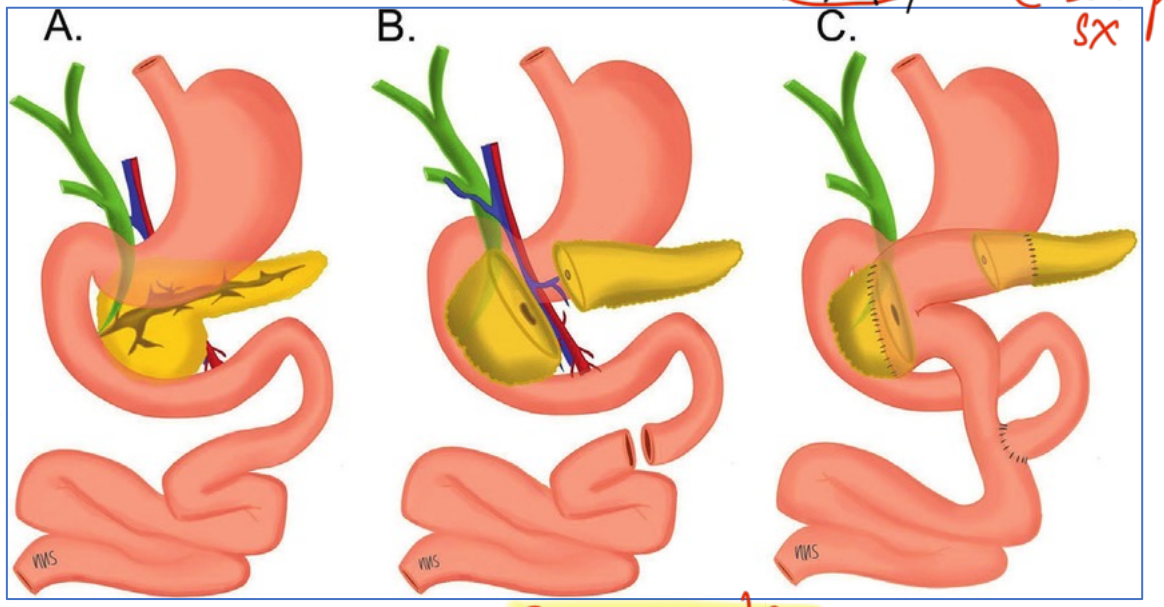
Indications for Surgery
- **Intractable abdominal pain** despite maximal medical + endoscopic therapy
- **Dilated pancreatic duct (>5mm)** with obstructive stones/strictures



Puestow
(Side - side Pancreaticojejunostomy)

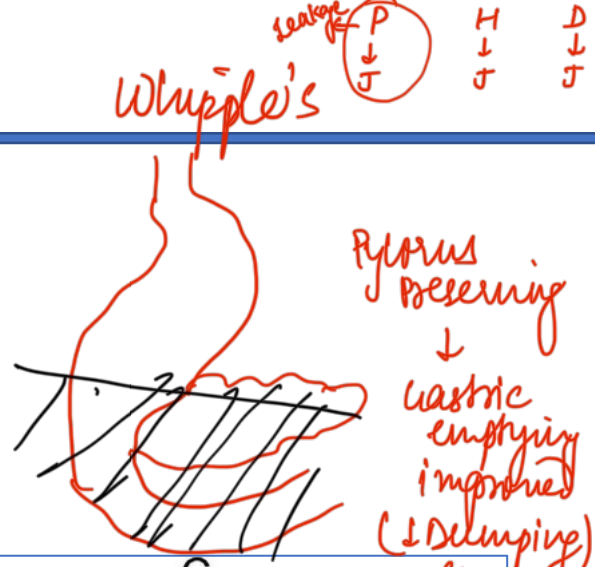


FREY'S PROCEDURE
(mass)



BEGER'S Procedure
Pancreatic Head resect

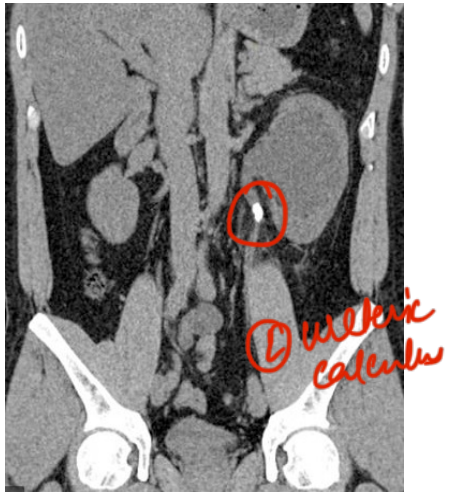
Duct normal: Distal pancreatectomy

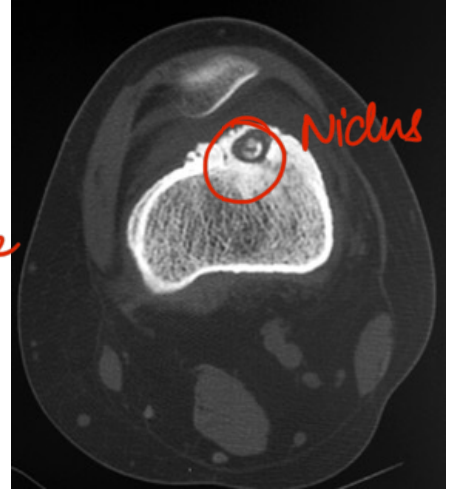


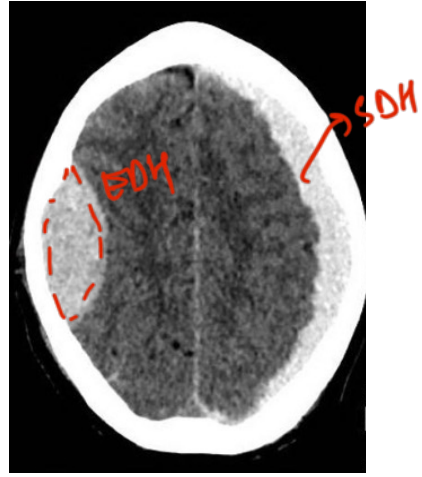
RADIOLOGY

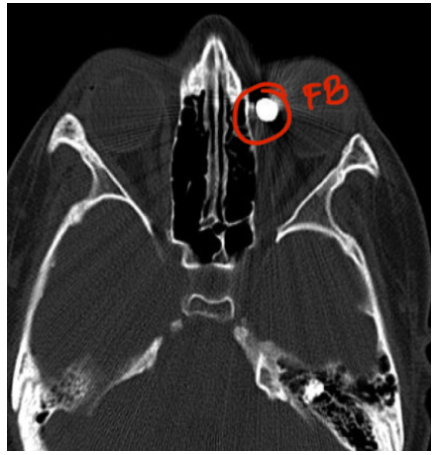
INVESTIGATION

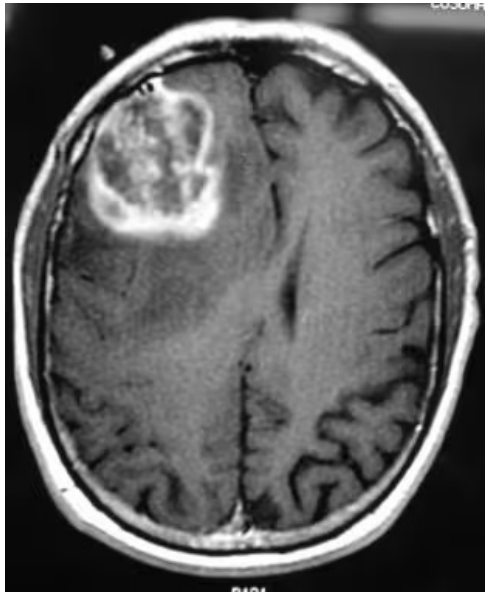
- Cortex NCCT → # IOC except Stress # MRI
- Bone marrow MRI → Stress # (STIR)
- Cartilage MRI
- Ligaments/ soft tissue MRI
- Bone tumors MRI except Osteoid osteoma
- Calcification NCCT
- Calculi NCCT (Renal/ Ureteric/Salivary)
- Brain tumors
- Spinal cord } MRI — SCIWORA
- Nerves → Pancoast
- Fluid/ cyst USG
- Gall bladder USG
- Foreign body NCCT (CI MRI)
- Head trauma NCCT except DAI (SWI)
- Stroke 1st → NCCT
- Acute pancreatitis initial USG, Best CECT (>48-72hrs) → Necrosis
- Chronic pancreatitis IOC → ERCP → chain of lakes (Secretin MRCP) → Best
- DVT, varicose vein Doppler
- CBD stones → MRCP



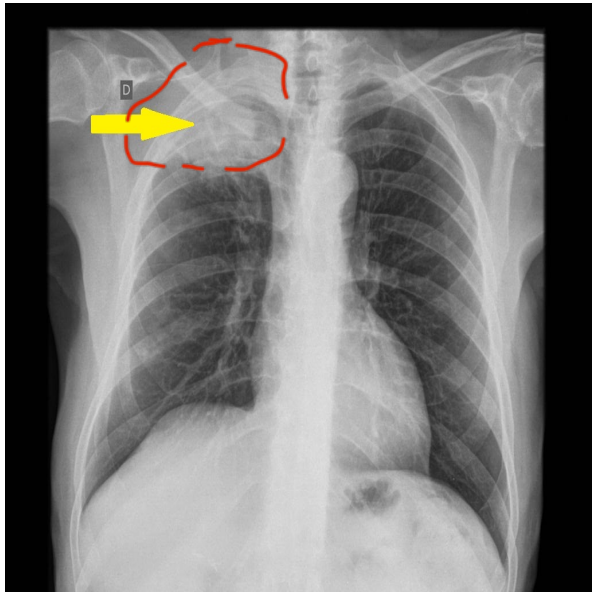


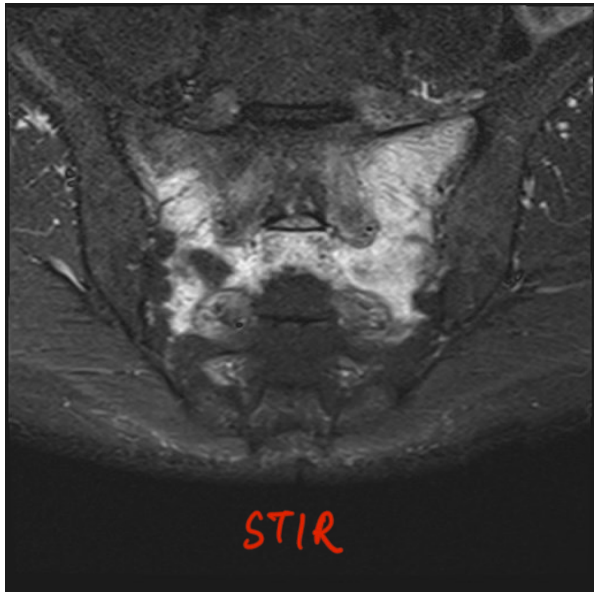




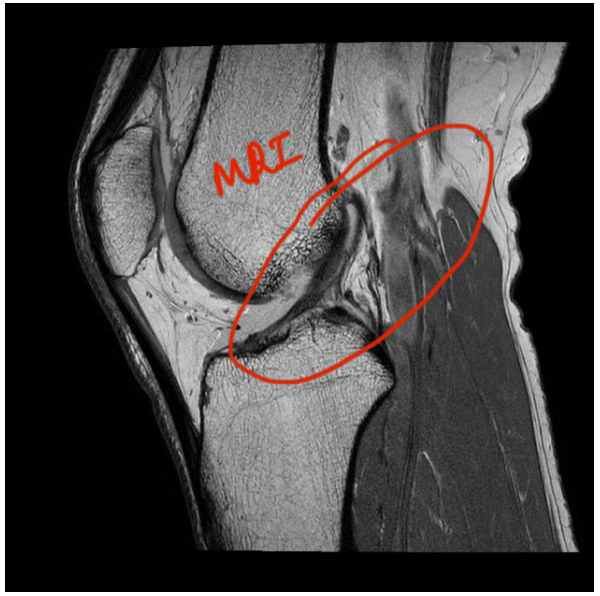


CECT



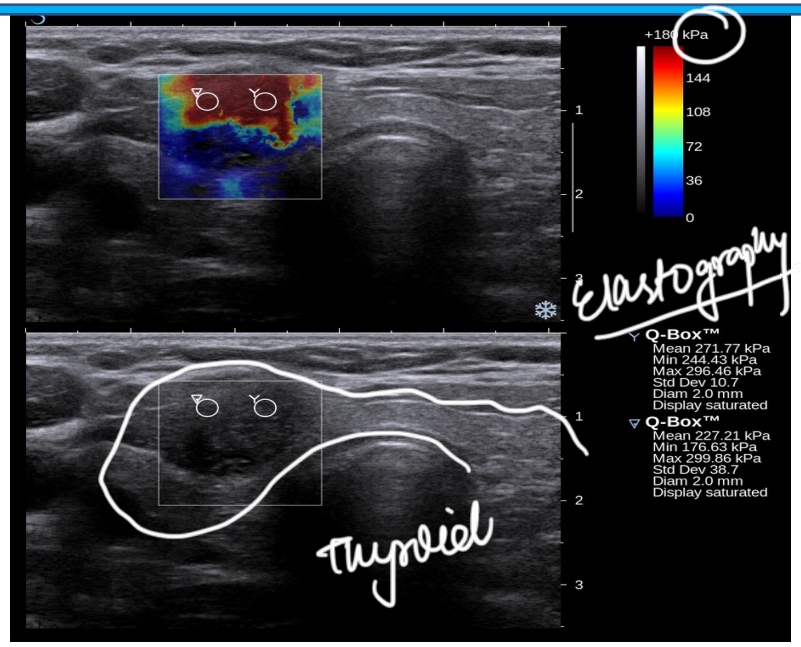


HONDA sign
sacral insufficiency #



ACL

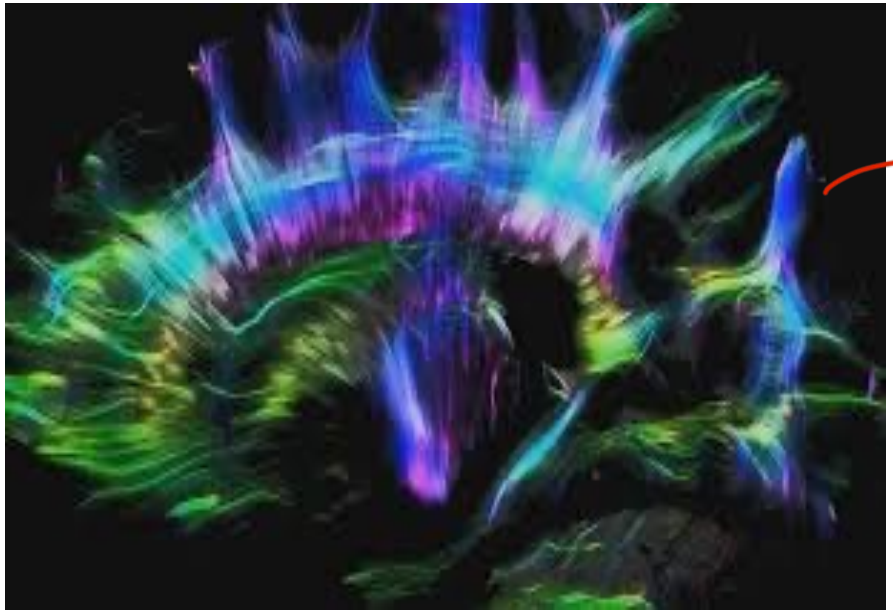
COLOURS IN RADIOLOGY



Fibroscan
↓
Liver

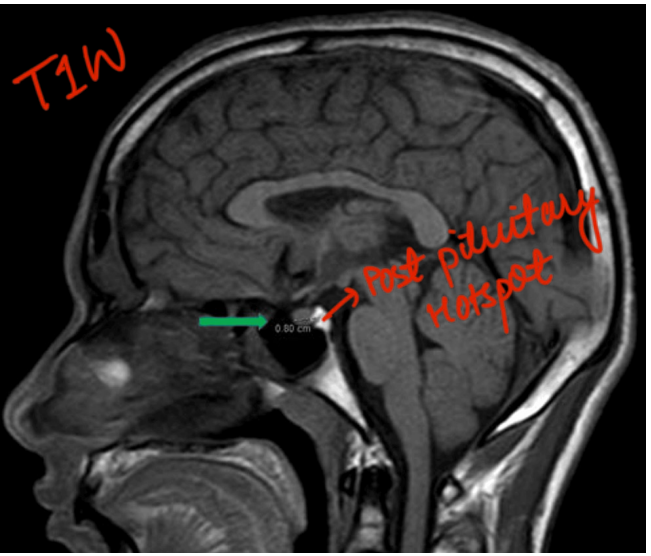
CEUS

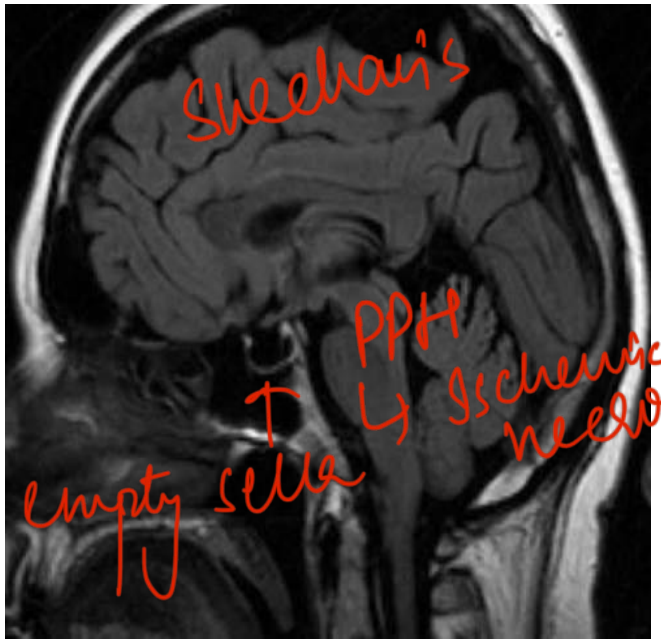
→ Renal Doppler USG

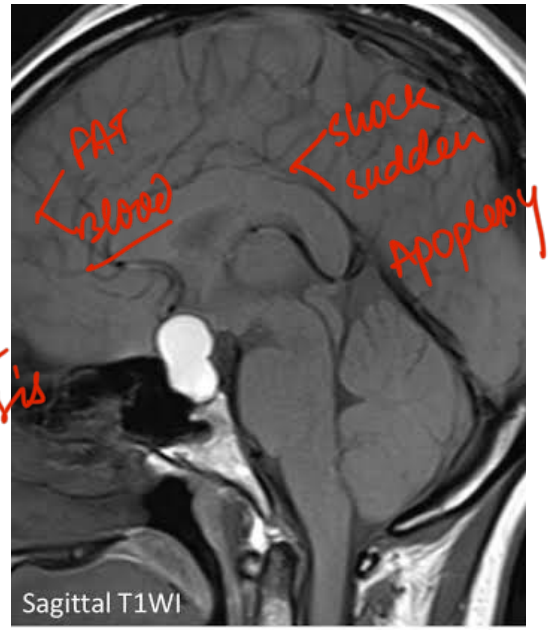


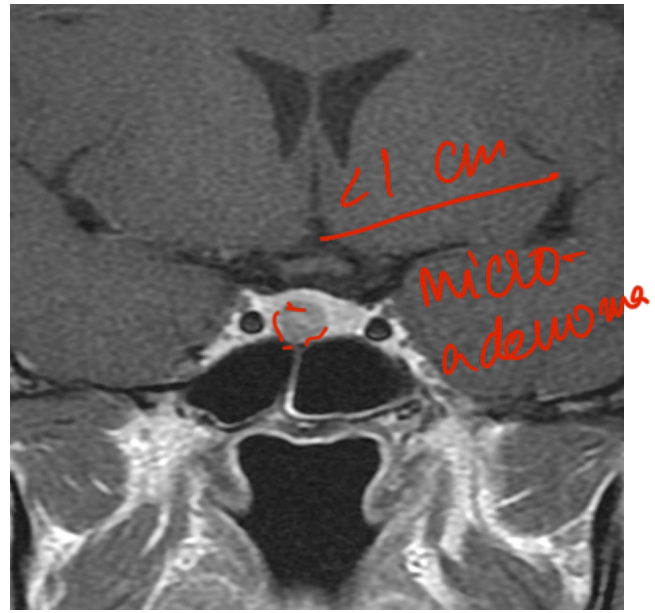
→ Tractography

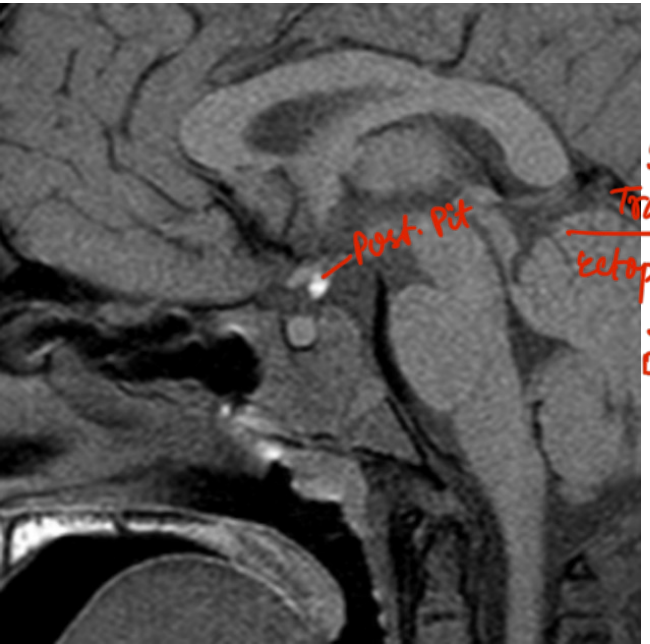
SELLA LESIONS

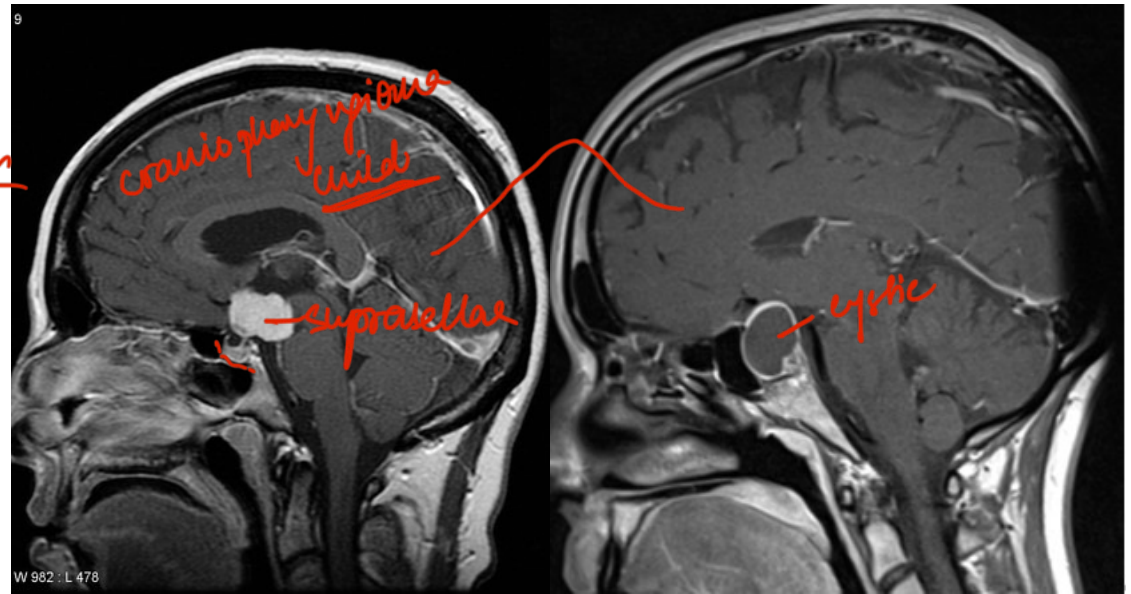


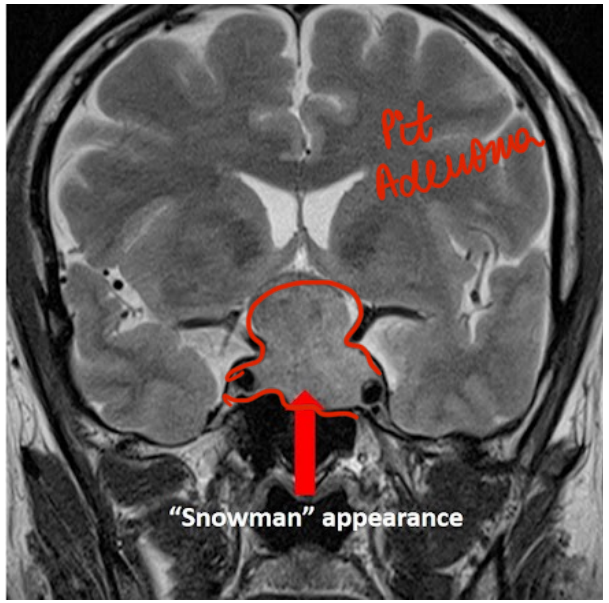




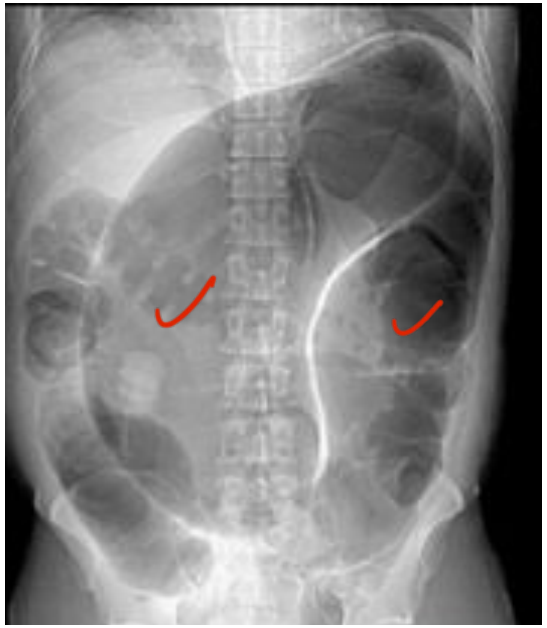


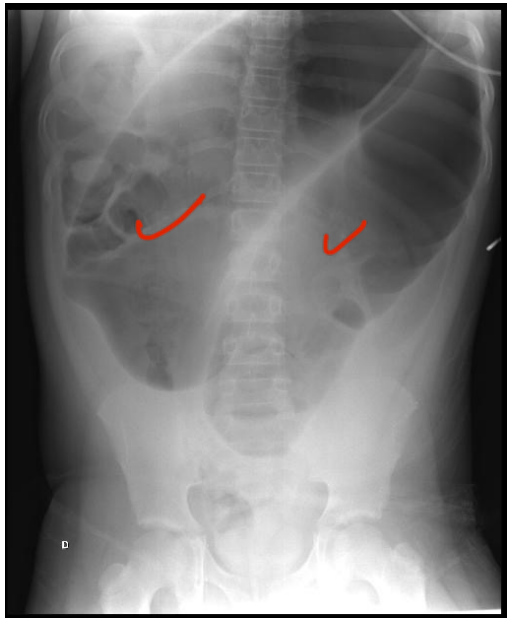




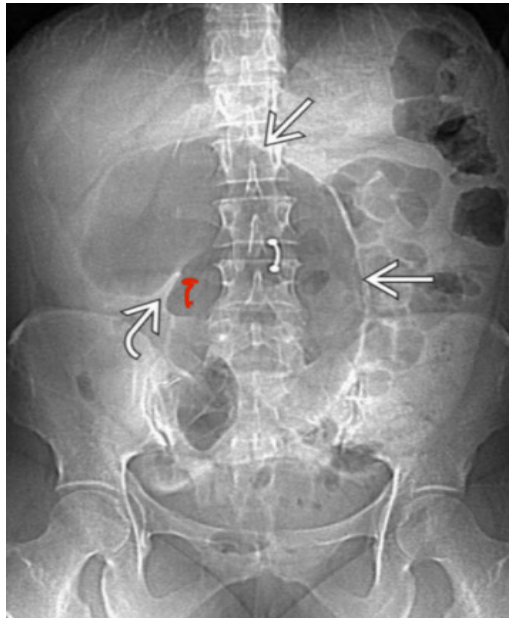


SIGMOID VS CECAL VOLVULUS



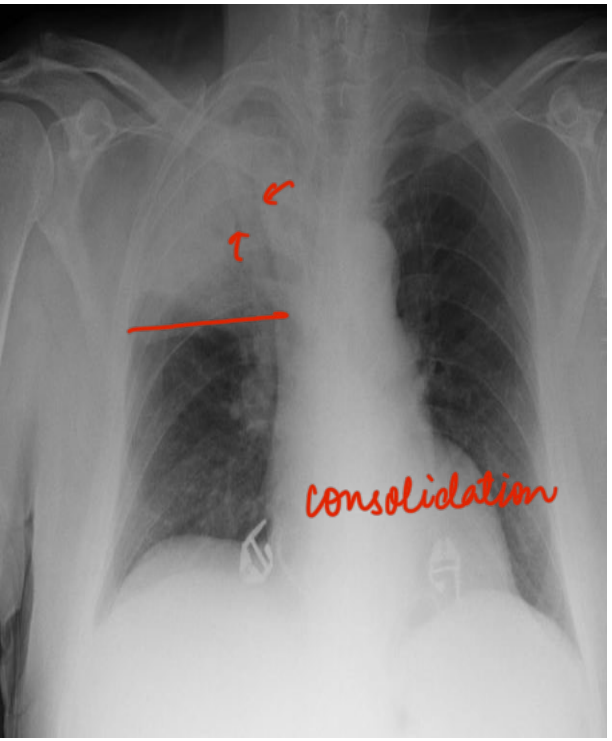


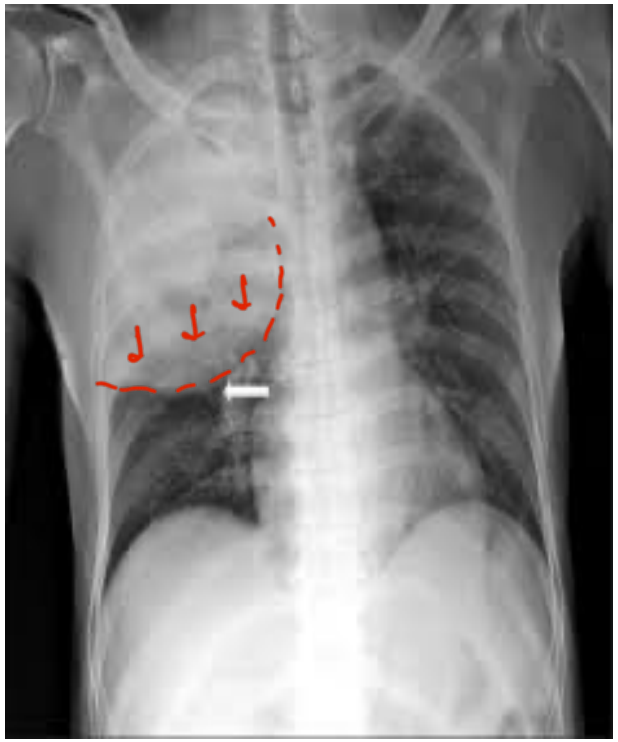
Sigmoid



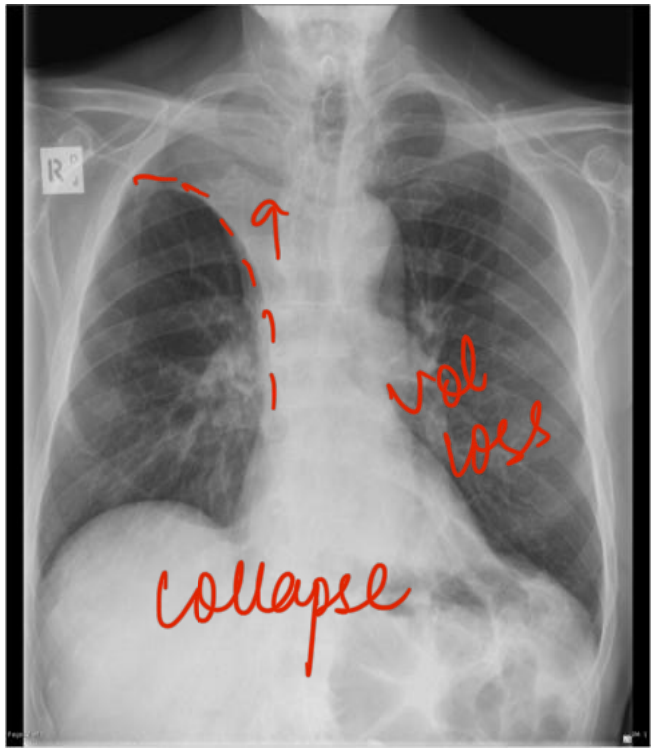
Cecal
Haustations ⊕

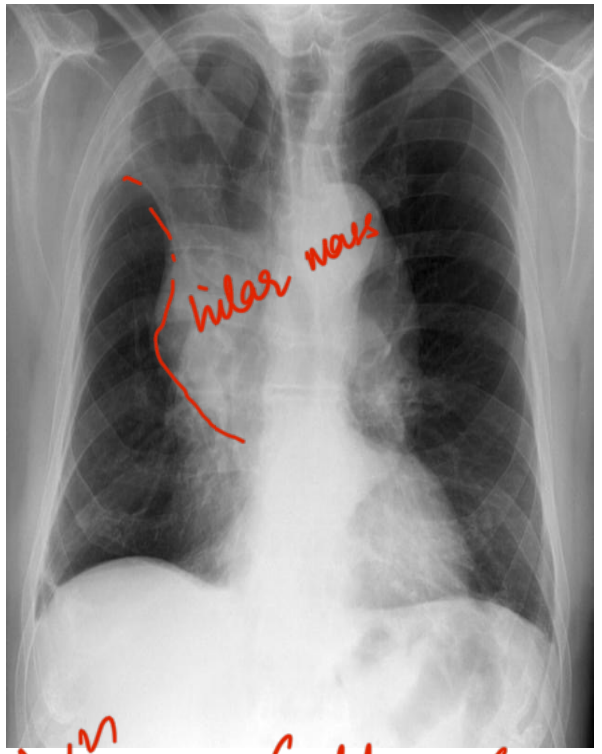
CONSOLIDATION VS COLLAPSE





bulging fissure
↳ Klebsiella





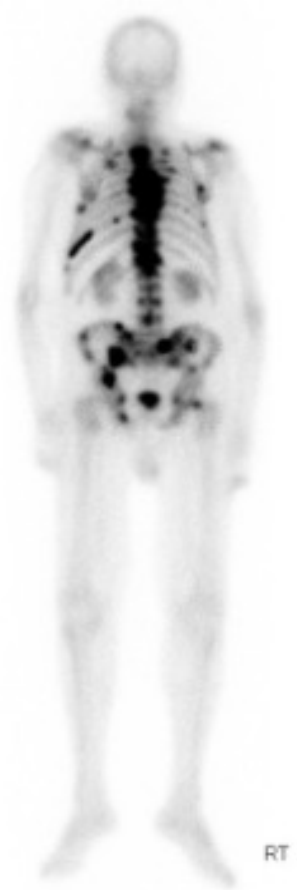
consolidn

Golden S sign

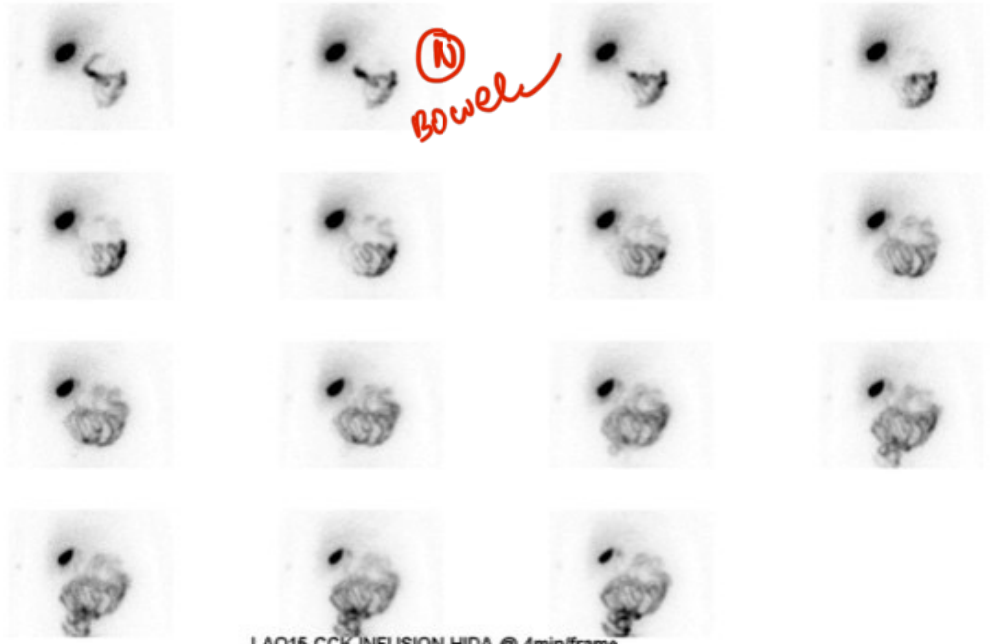
vol loss (collapse)

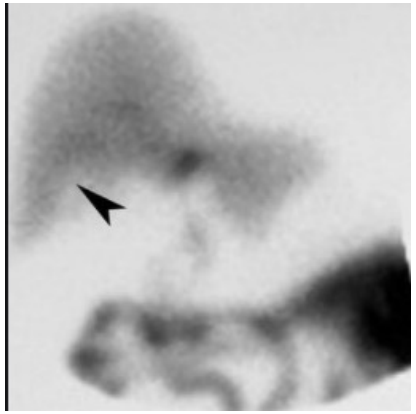
Radioisotope	Test
Tc99m-MDP (methylene diphosphonate)	Hot spot: Mets / Tumor OR Triple phase (flow, blood pool, bone): osteomyelitis Cold spot: multiple myeloma
Tc99m-HIDA	Bile leaks- ↑↑ NPV / Intraop cholangio > HIDA IOC EHBA - Acute cholecystitis- Non visualisation of GB
Tc99m Sulphur colloid	FNH (Kupffer cells)
Tc99m pertechnate	Meckel's diverticulum: IOC Rule of 2: 2% Popn, 2 mucosa, 2 ft from IC, 2X ♂ > ♀ Thyroid imaging Salivary gland hot spot: Warthin's
Tc99m DMSA	Renal scarring
Tc99m DTPA / MAG3	Renal function
Captopril renography	Renal Artery stenosis


N

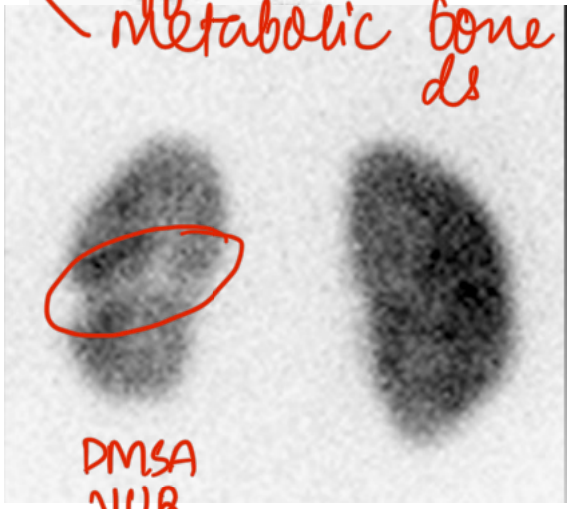

RT

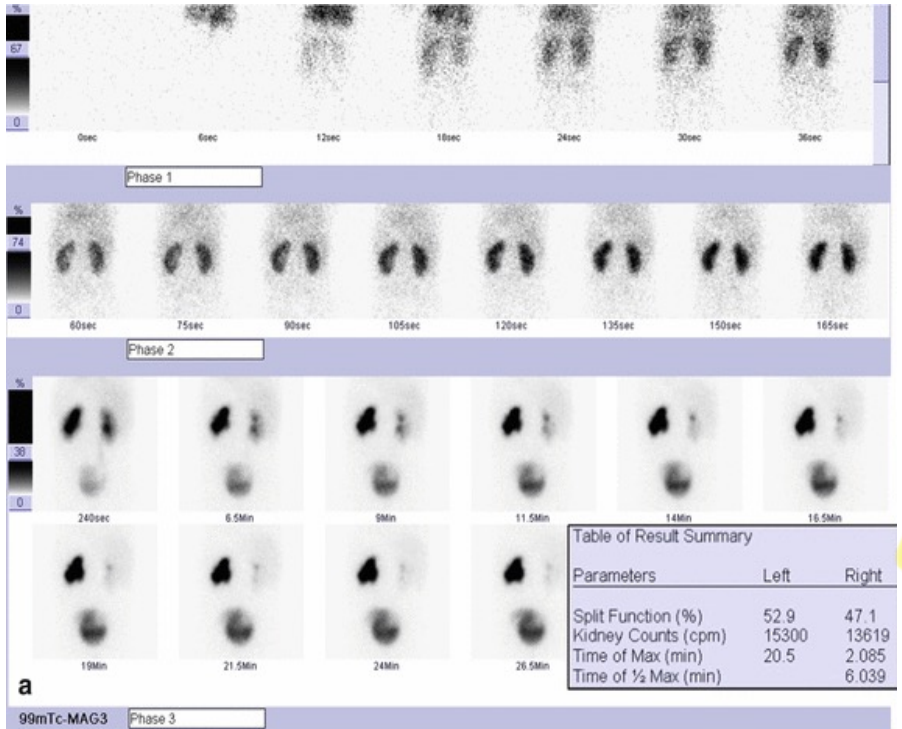

Super Scan
Diffuse mets
Metabolic bone ds

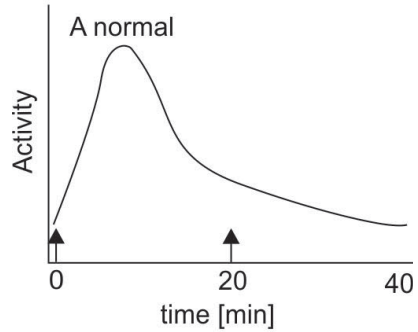

N
Bowel
LAO15 CCK INFUSION HIDA @ 4min/frame

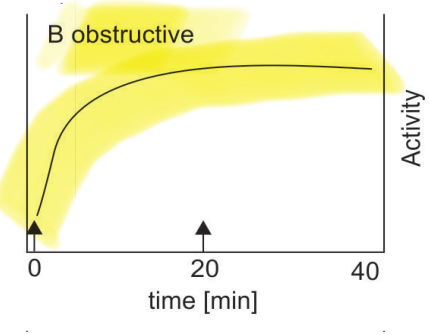



A
R
L
P
scar


DMSA
VUR

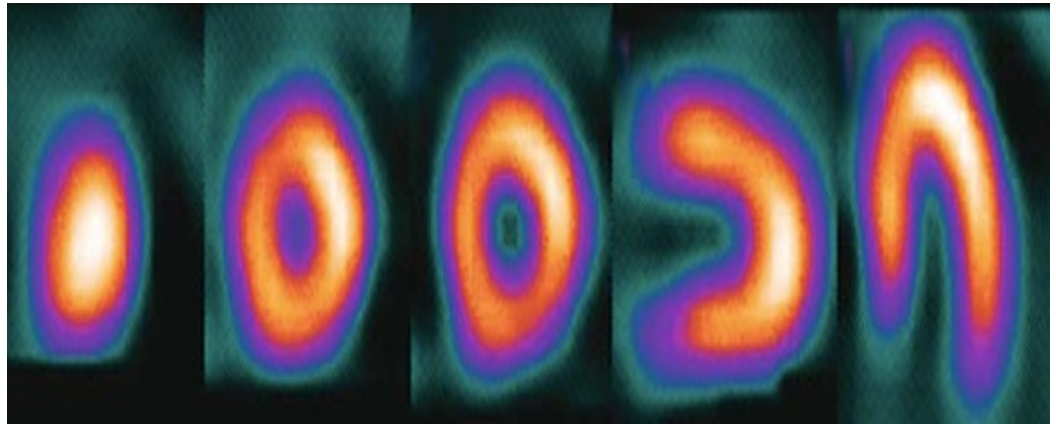

Phase 1
Phase 2
Phase 3
99mTc-MAG3
a
Table of Result Summary
Parameters Left Right
Split Function (%) 52.9 47.1
Kidney Counts (cpm) 15300 13619
Time of Max (min) 20.5 2.085
Time of ½ Max (min) 6.039

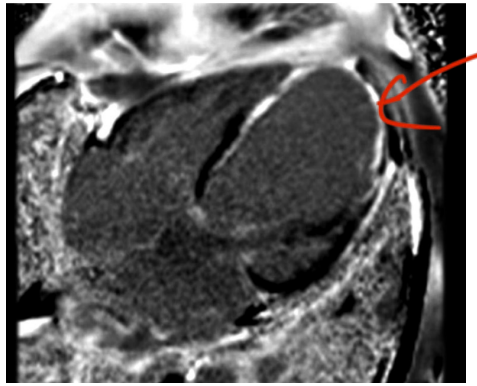

A normal
Activity
0
20
40
time [min]


B obstructive
Activity
0
20
40
time [min]

Cardiac imaging

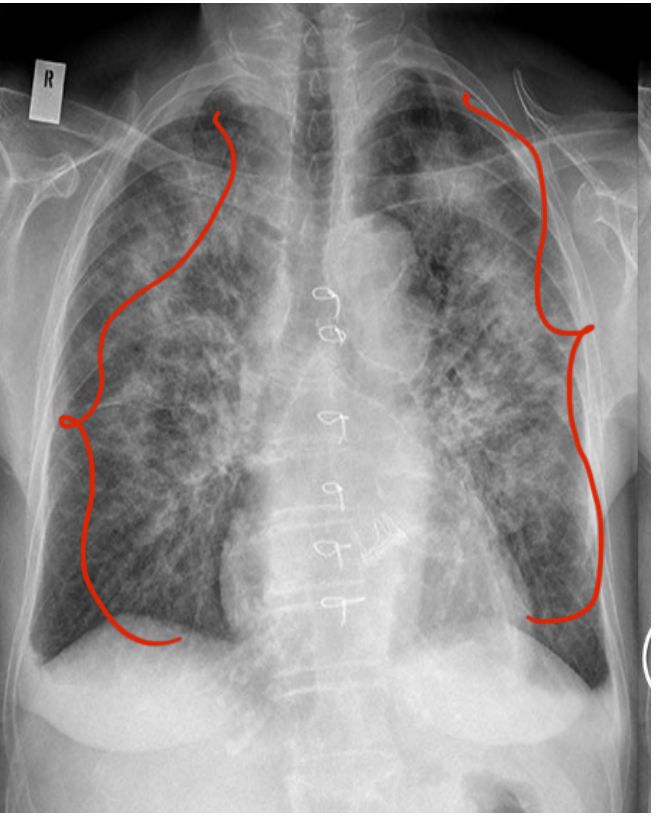
Scan	USE
Thallium-201 Tc99m-tetrafosmin Tc99m-Sestamibi	Myocardial perfusion imaging cold spot
Tc99m-pyrophosphate scan	HOT SPOT (infarct)
18-FDG PET	Myocardial viability ♡ function
MRI Best Tc99m-MUGA ECHO	



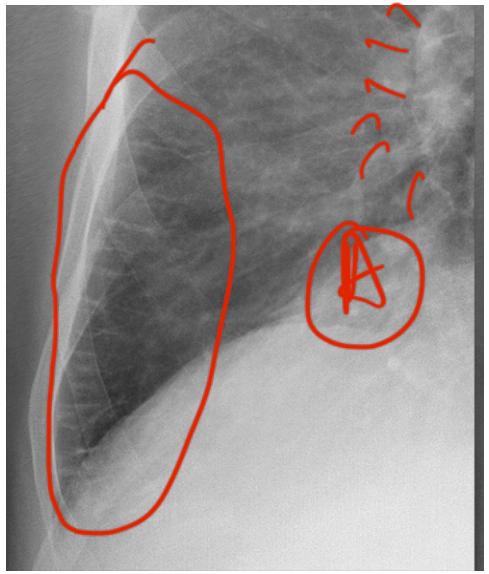


Delayed Gd enhancement (ischemic)

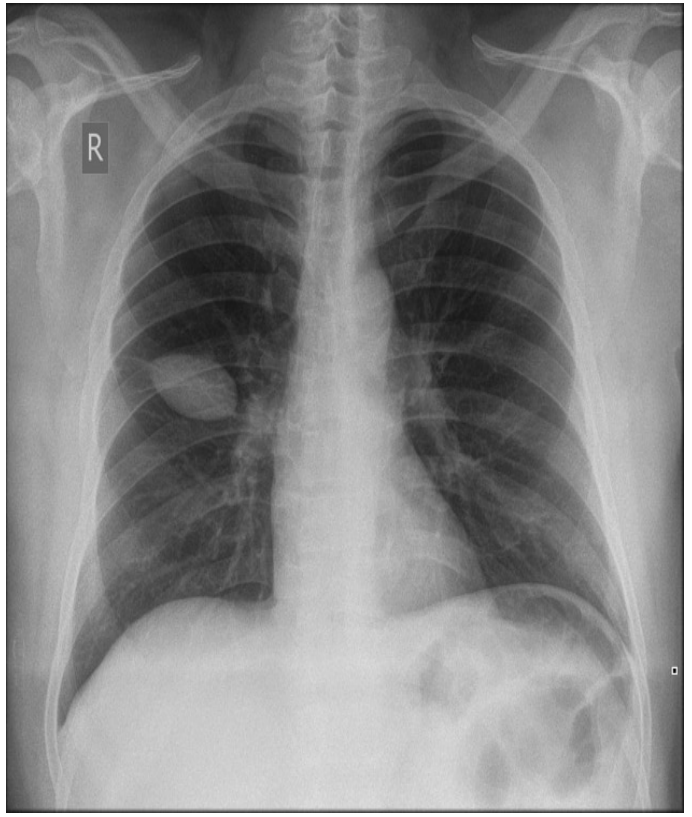
PULMONARY EDEMA



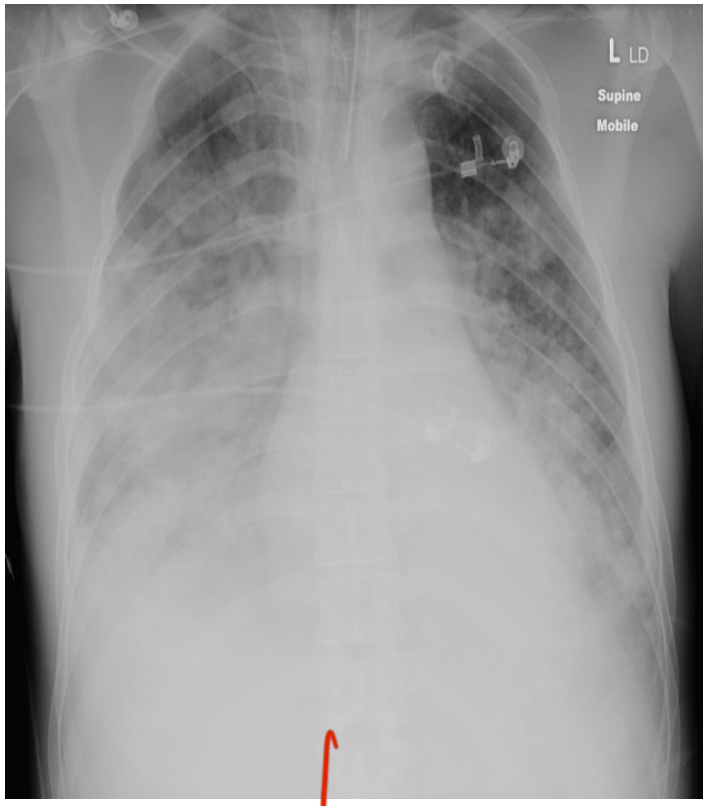
Batwing
♡ P. Edema



Kerley B
MC



Phantom
Tumor
(Pulmonary
Pseudotumor)

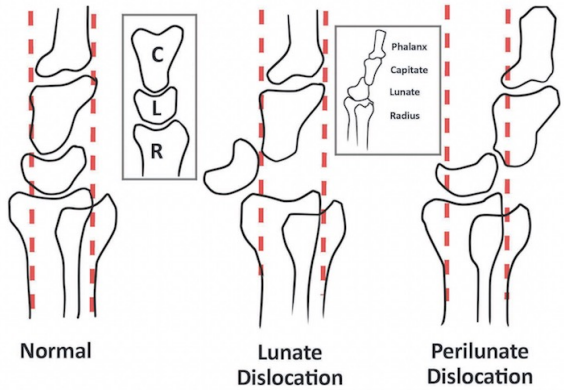


ARDS

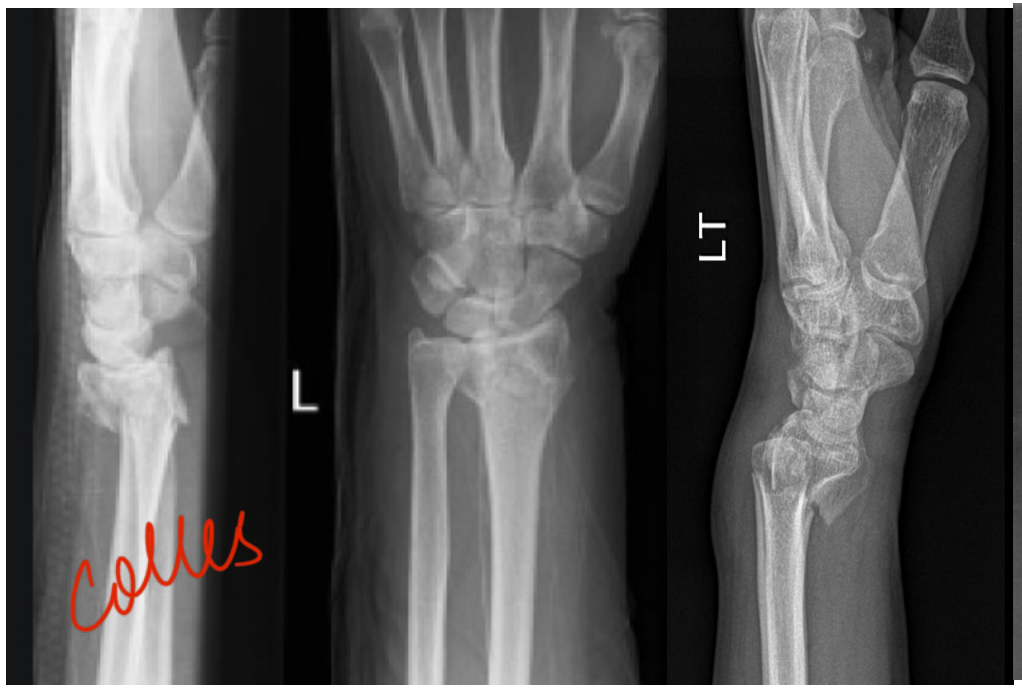
→ fluid → Disappear

ORTHOPEDICS

Colles': FOOSH in
Deformity:
Smith: FOOSH in
Deformity:



IMPORTANT



Radial styloid ↓ Chauffeur

Scaphoid #

Bennet #

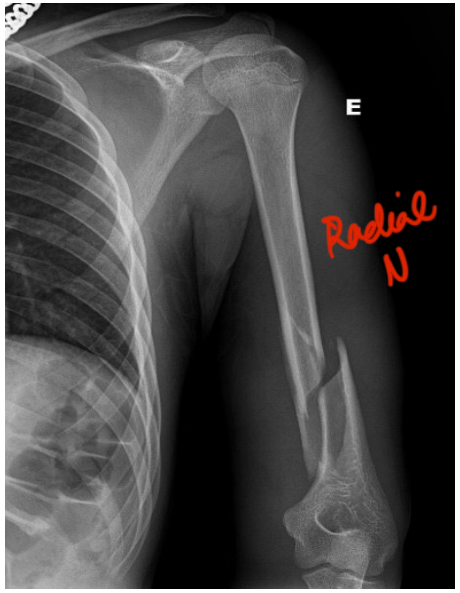
Boxer's

6-8 wks cast

NOF

Inbacap

ITF

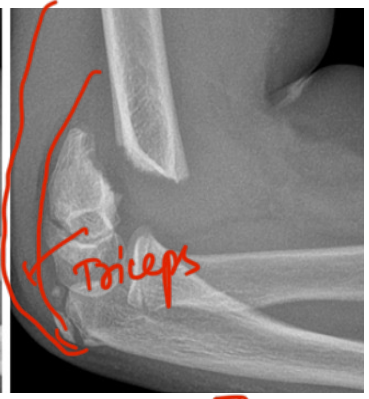


undisplaced

(I)

II

Gartland (SCH)



III

CALINE

NF 1

Pseudo arthrosis