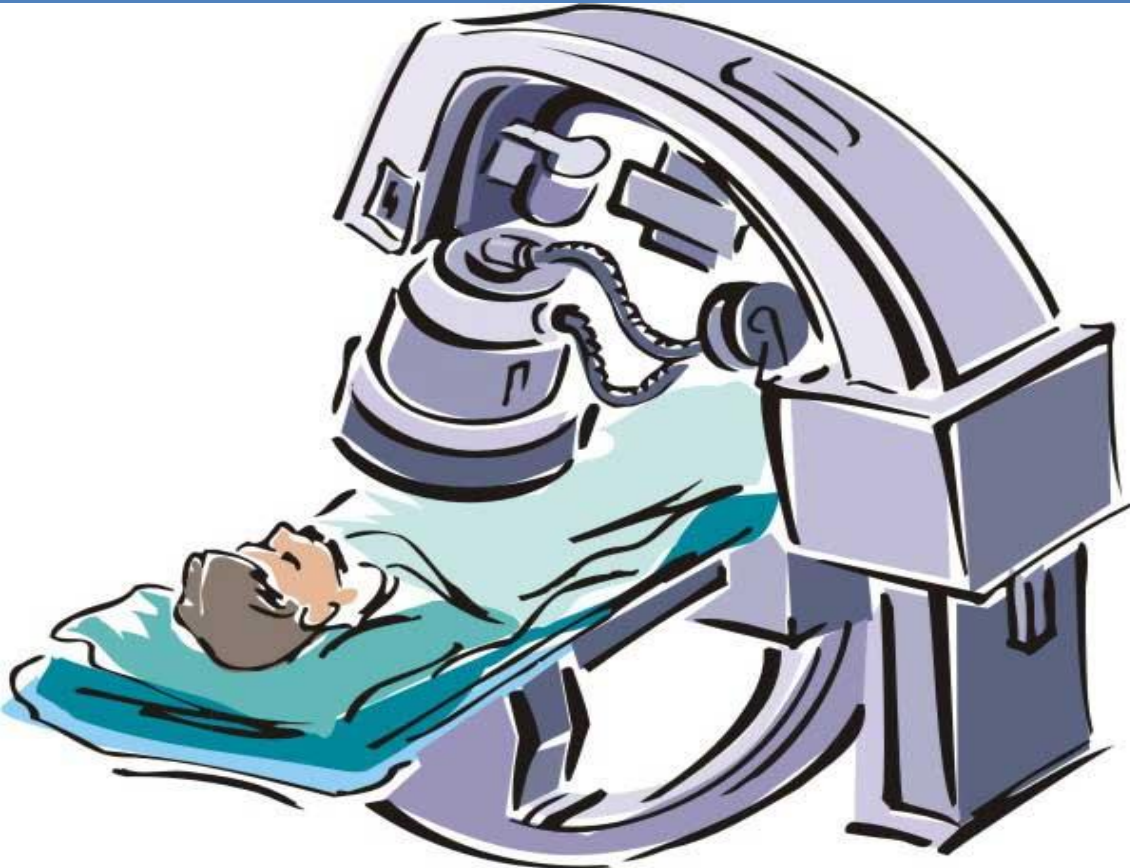


[www.ferdauscolorectalcare.info](http://www.ferdauscolorectalcare.info)



# X-Ray

***Dr. Md. Ashek Mahmud Ferdaus***

**FCPS (SURGERY), MS (Colorectal Surgery), FISCP(India).**

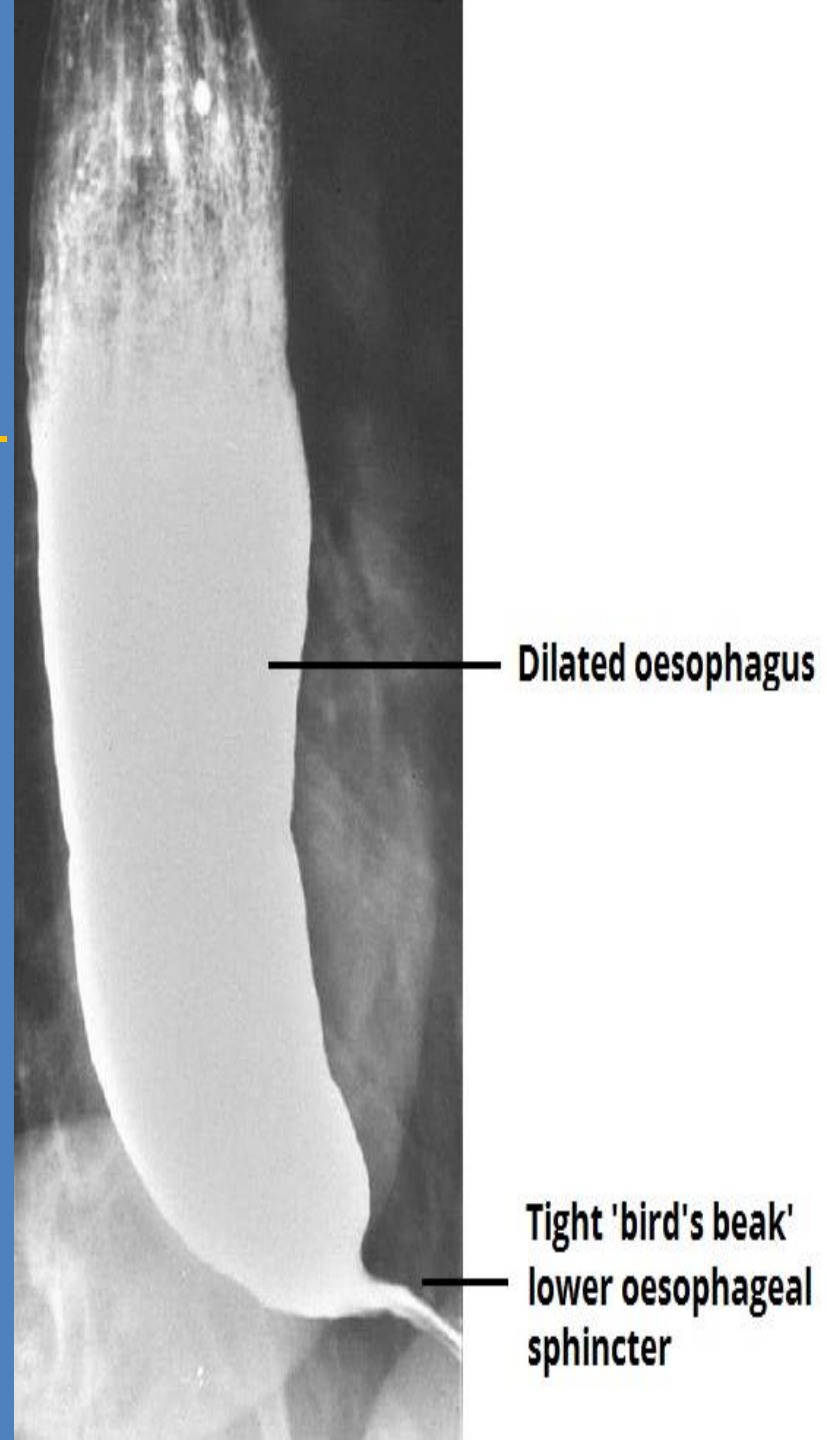
**Fellow International Society of Coloproctology.**

**Assistant Professor (Colorectal Surgery)**

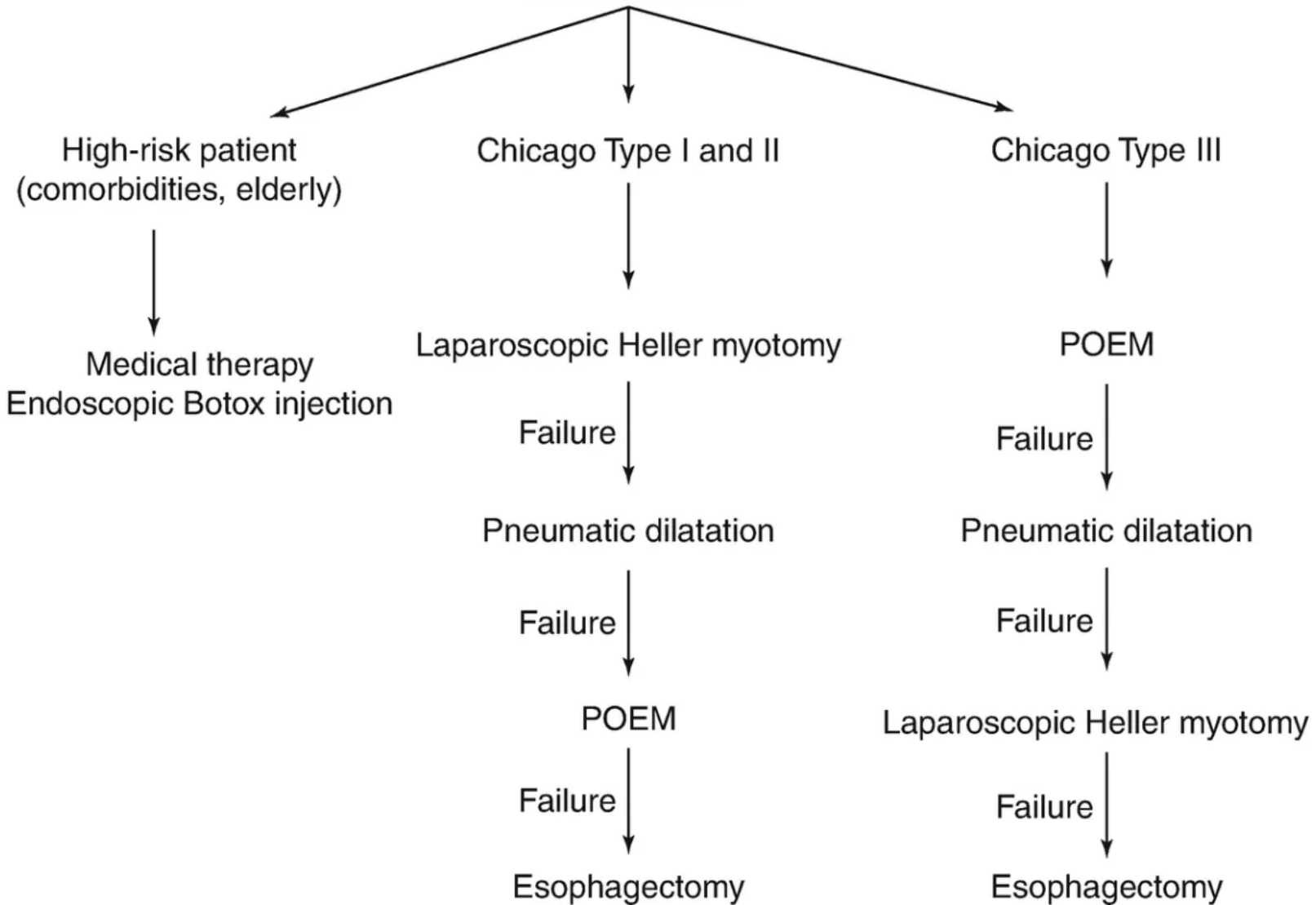
**Mymensingh Medical College.**

## Barium swallow x-ray of oesophagus-

- Smooth pencil shaped narrowing at the lower end of oesophagus.
- Proximal dilatation.
- No irregularity of wall.



# ACHALASIA

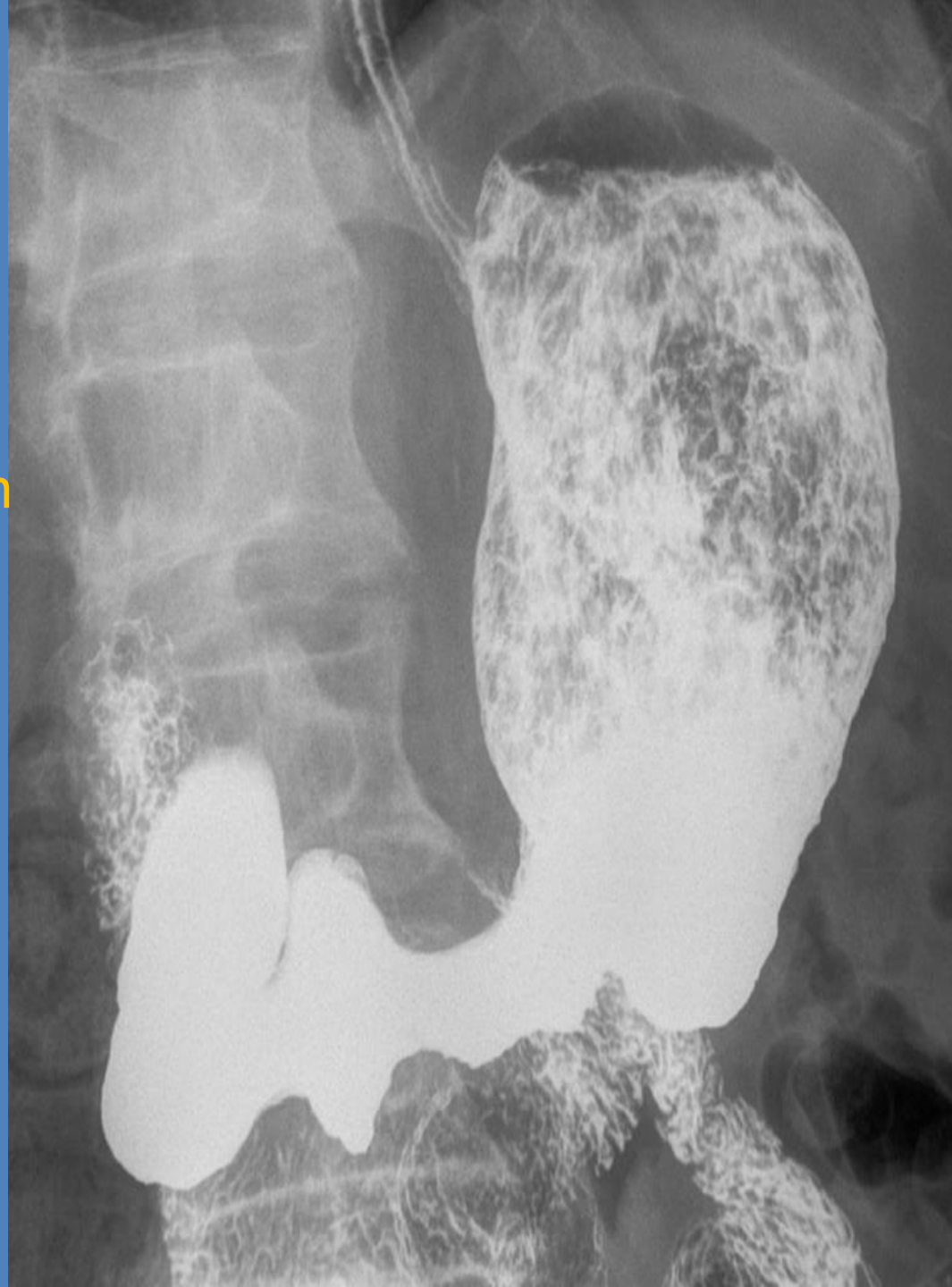


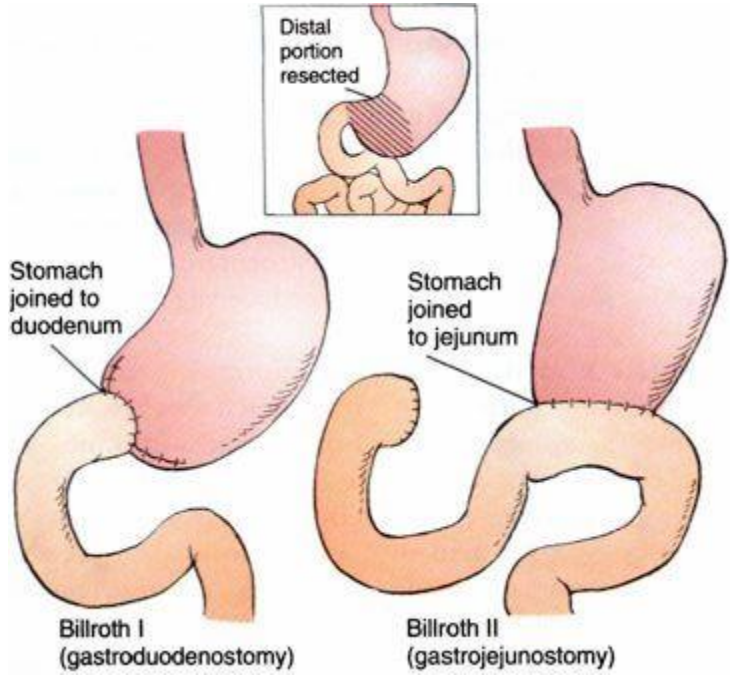


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## Barium meal x-ray of stomach & Duodenum-

- Irregular filling defect.
- Narrowing.
- Distended.
- Negative shadow.

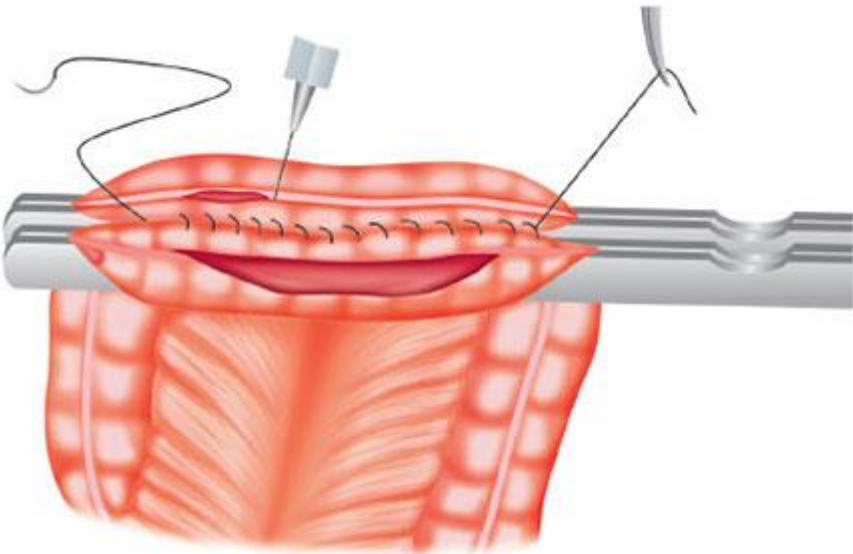
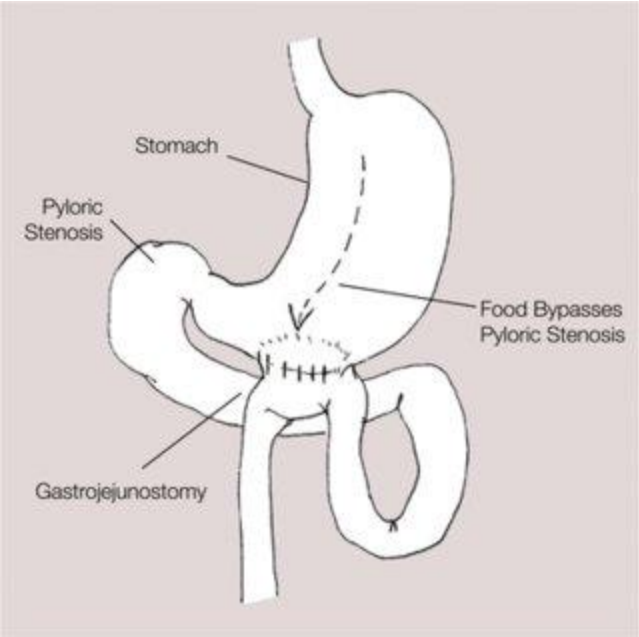




- Stomach is hugely distended.
- Multiple negative shadow.
- No dye enters into the duodenum.

Gastric outlet obstruction  
due pyloric stenosis









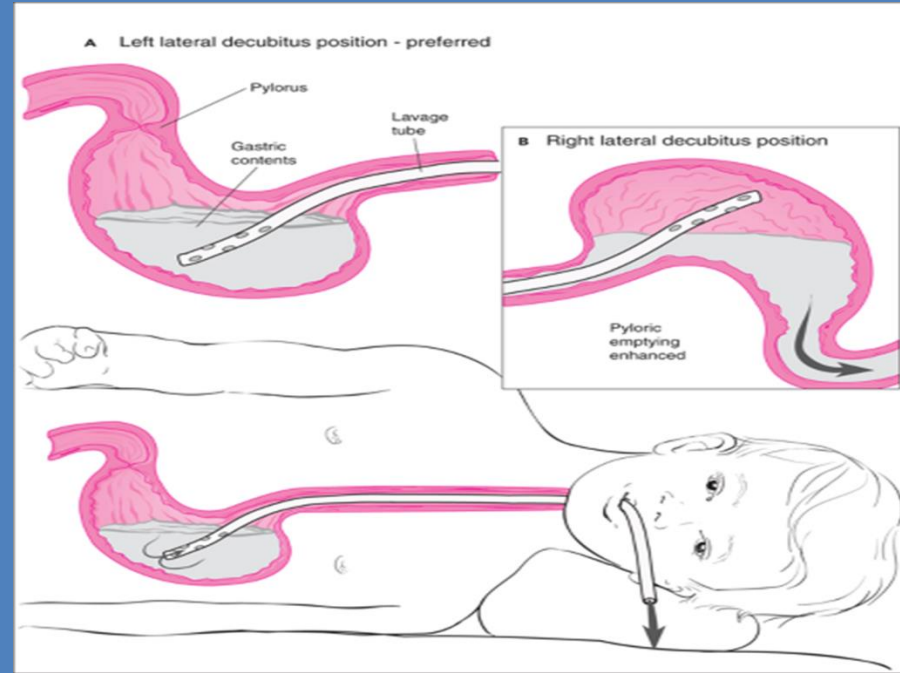
Stomach, screw, surgeon.

## Functions-

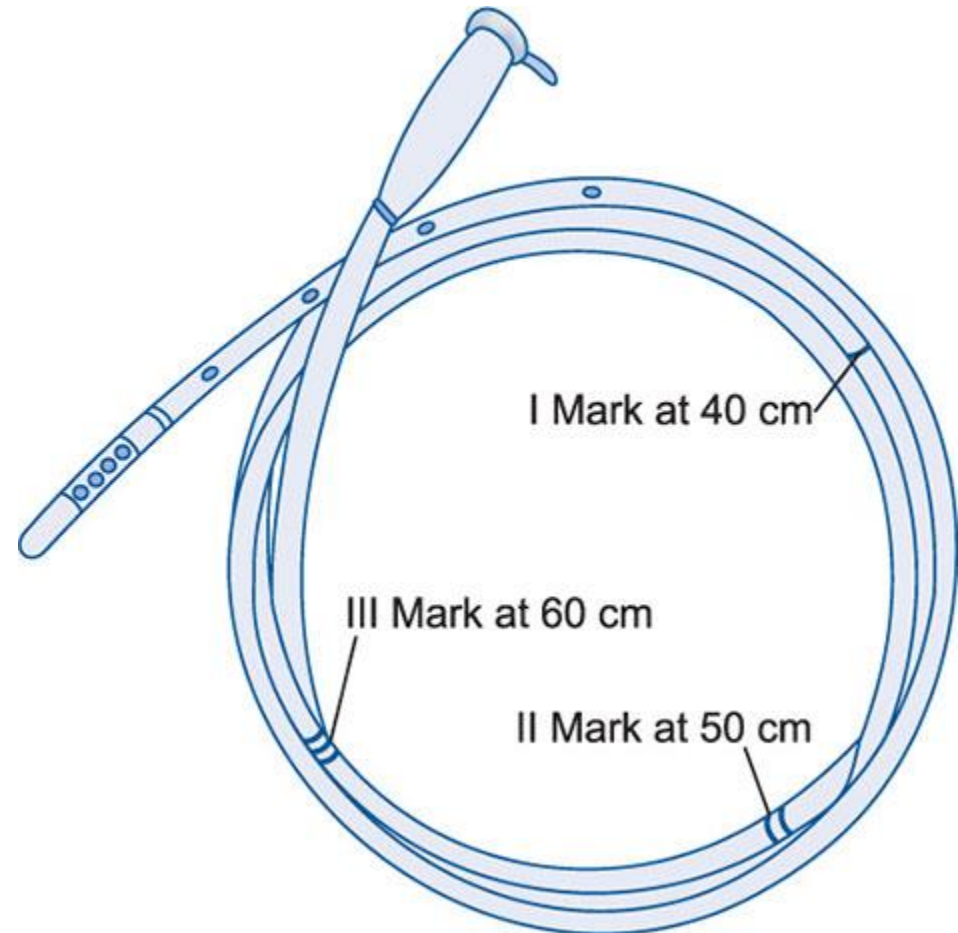
- Occlusion.
- Haemostasis.
- Fixation.
- Apposition.

# Gastric lavage

- With normal saline.
- Until clear fluid comes out.
- Benefits-
  - Gastric decompression.
  - Increases muscle tone.
  - Reduce oedema.
  - Reduce the chance of bleeding.
  - Reduce chance of anastomotic leakage.



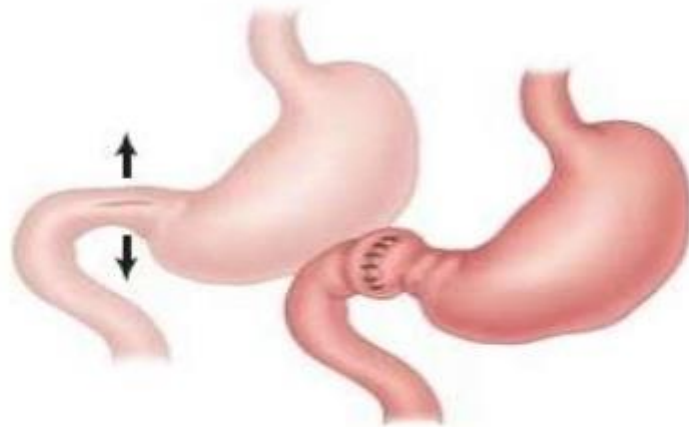
# N-G tube





***INFANTILE HYPERTROPHIC PYLORIC STENOSIS.***

- Fred-Ramstedt's Pyloromyotomy



## X-ray chest including upper part of abdomen in erect posture-

- Crescentic.
- Free gas shadow.
- Under Rt/ both dome of diaphragm.

Perforation of  
GCHV.



## Causes-

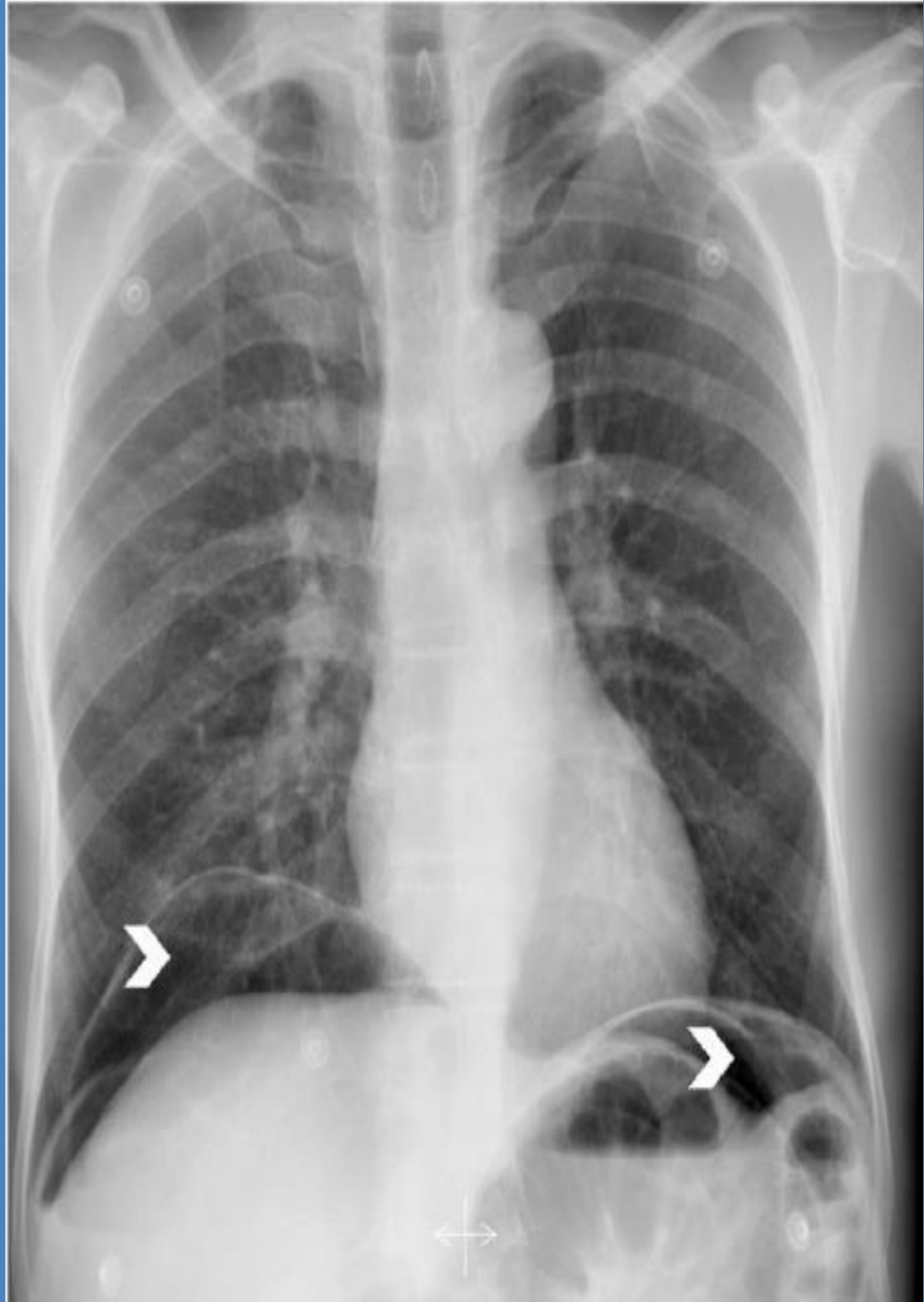
- Perforated PUD.
- Ileal perforation ( typhoid, TB).
- Burst appendix.
- Iatrogenic- ERCP, Colonoscopy.
- Traumatic.
- Laparotomy, laparoscopy.
- Tubal insufflation test.

## Stages-

- Chemical peritonitis- upto 3 hrs.
- Illusion- 3- 6 hrs.
- Bacterial peritonitis.

## Shock-

- Neurogenic.
- Hypovolumic.
- Septic.

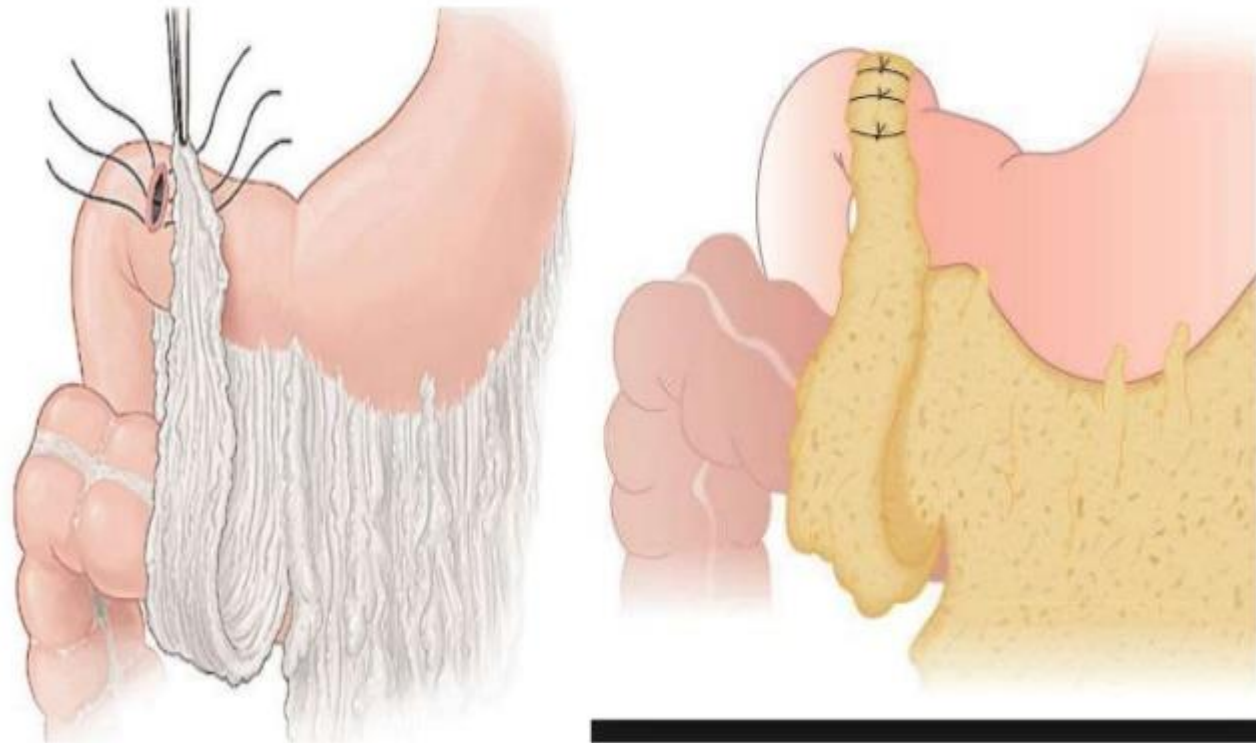


## Signs and Symptoms

- ***Perforated Peptic ulcer***
  - Sudden-onset, severe, generalised abdominal pain
  - Tachycardia
  - Board-like rigidity
  - Distension
  - Obstipation
  - Fever(not initially)
  - Hypotension(later stage)



## Graham's patch

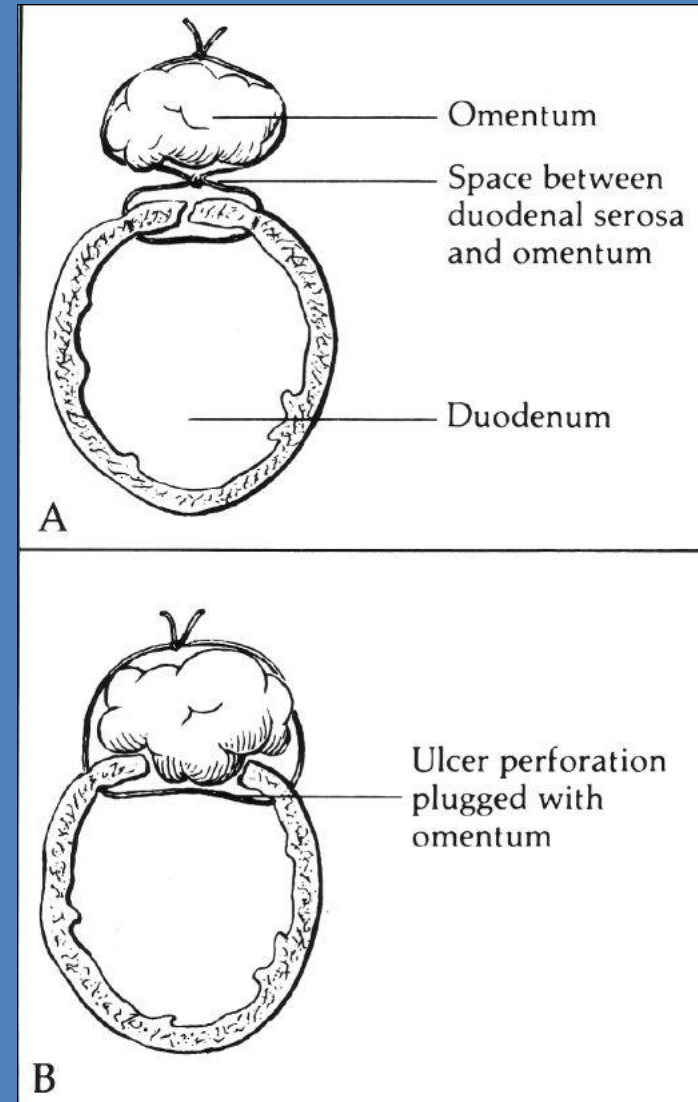


## Treatment-

- Resuscitation.
- Laparotomy.
- Thorough peritoneal toileting.
- Repair of perforation with Graham's patch.

# Complications-

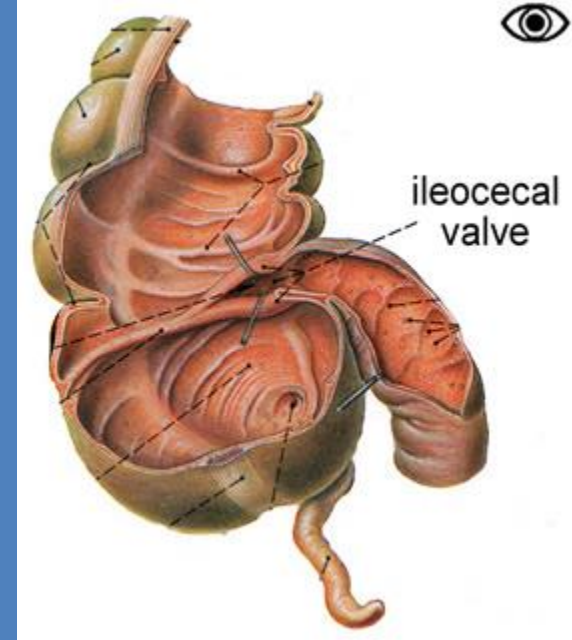
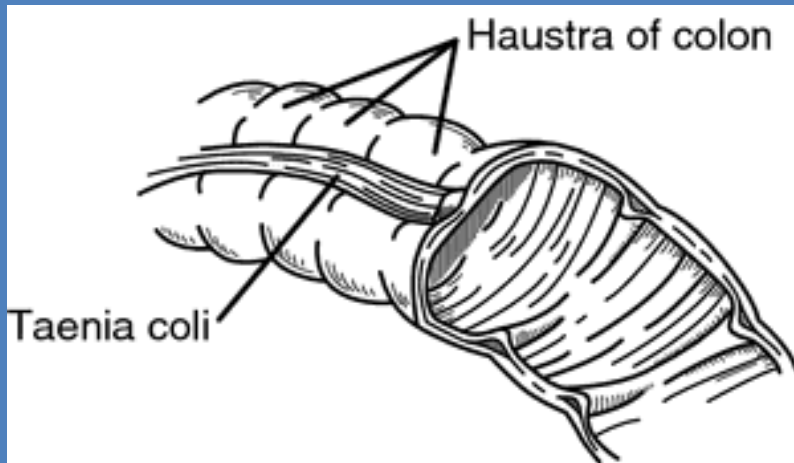
- Shock.
- SIRS.
- DIC.
- MODS
- Residual abscess.
- Portal pyemia.
- Liver abscess.
- Adhesions- IO.



## Valvulae conniventes-

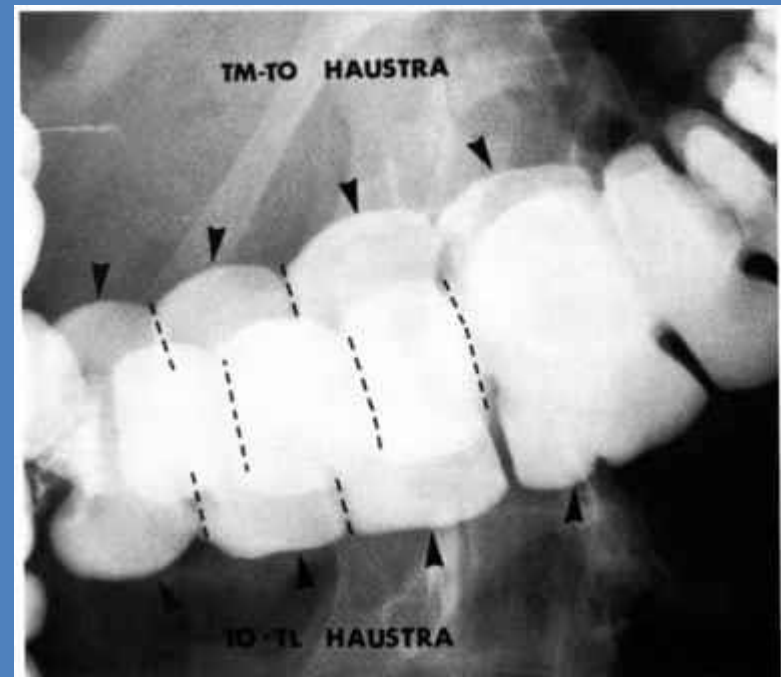
- Kerkcring folds/plicae circulares.
- Circular mucosal folds.
- Complete.
- Closely set.
- Uniform distance.

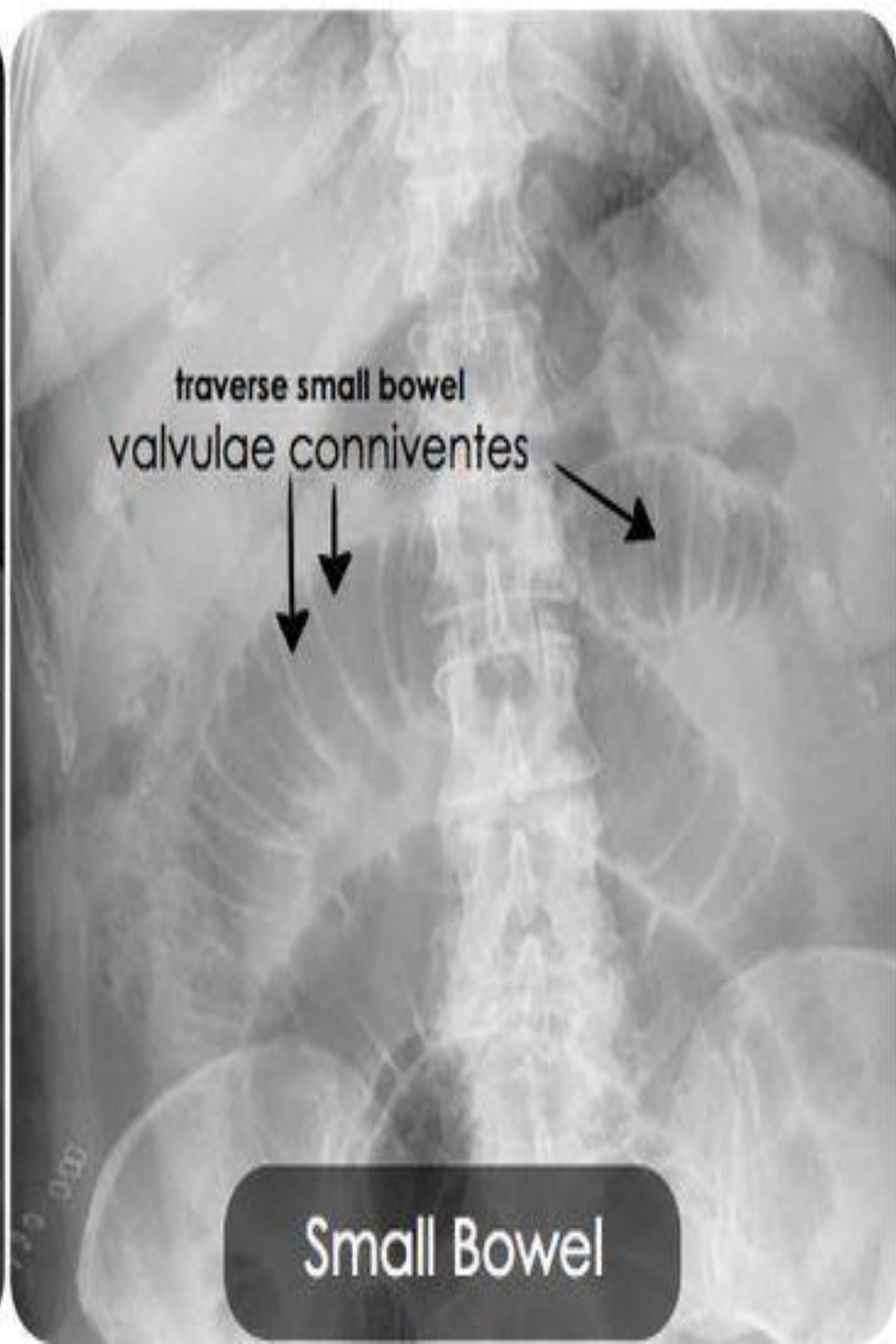
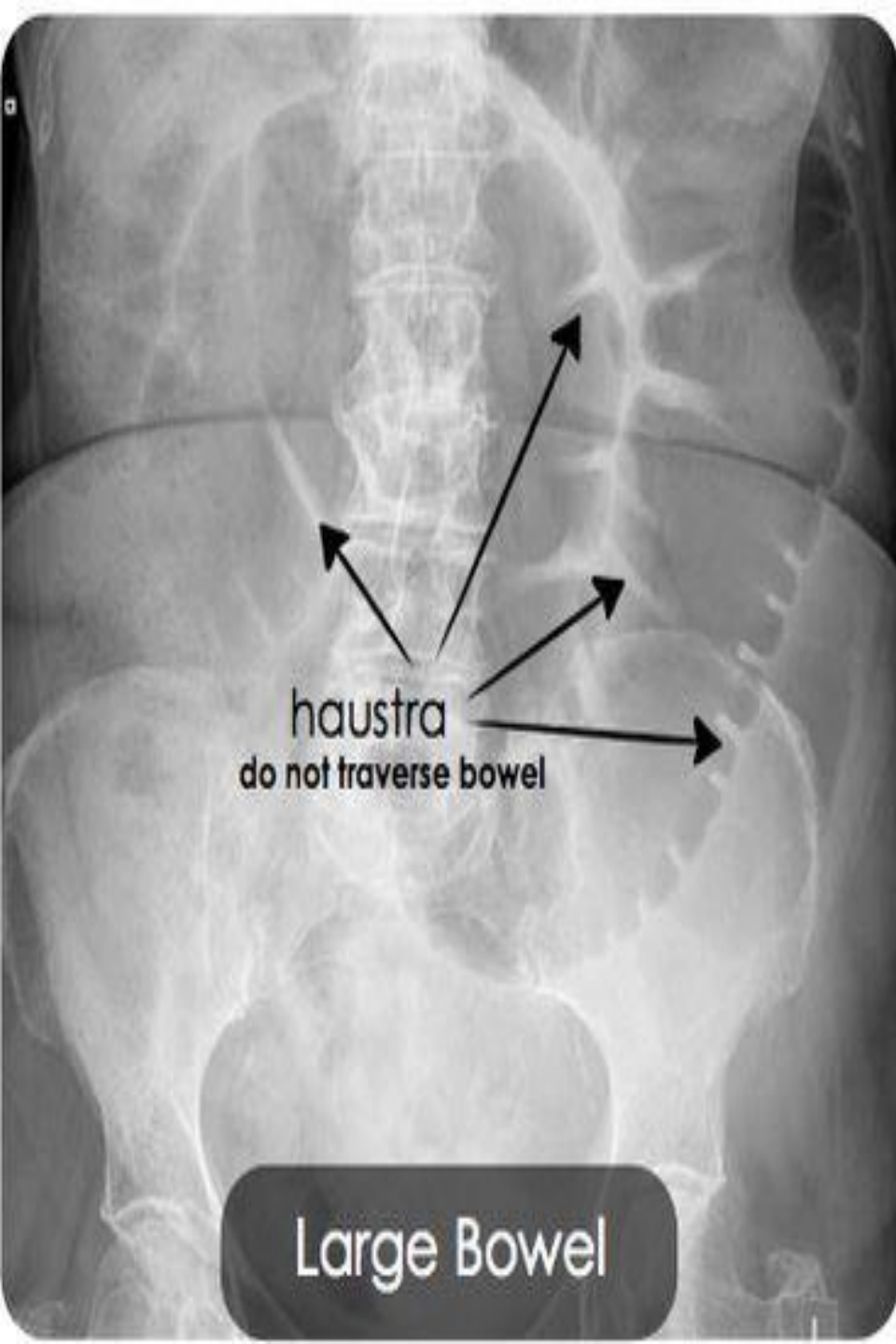




## Haustra--

- Circular mucosal folds.
- Incomplete.
- Sparsely set.
- Not Uniform distance.





## After birth-

- Atresia or agenesis ( ARM, duodenum, ileum).
- Meconium ileus.
- Volvulus neonatorum.
- Hirschprung disease.

## • 3 weeks-

- CHPS.
- Hirschprung's disease.

## • 6-9 months-

- Intususception.
- Hirschprung's disease.
- Ascariasis.

## • Adult-

- Postoperative.
- Obstructed hernia.
- Intestinal TB.
- Crohn's disease.

## • Elderly-

- Volvulus.
- Malignancy
- Diverticulitis
- CD.
- Faecaloma.



# Signs of bowel obstruction

Absolute constipation  
~ cannot open bowels  
or pass wind

nausea / vomiting



abdominal pain  
& distension

evidence of  
trauma / surgery



Ciléin



# Comparison of large and small bowel obstruction radiological features

---

## Small bowel

- Bowel diameter:  $> 3$  cm and  $< 5$  cm
- Position: Central
- No. of loops: many loops
- Fluid level on erect film: many, short
- Bowel markings: Valvulae conniventes (all the way across)

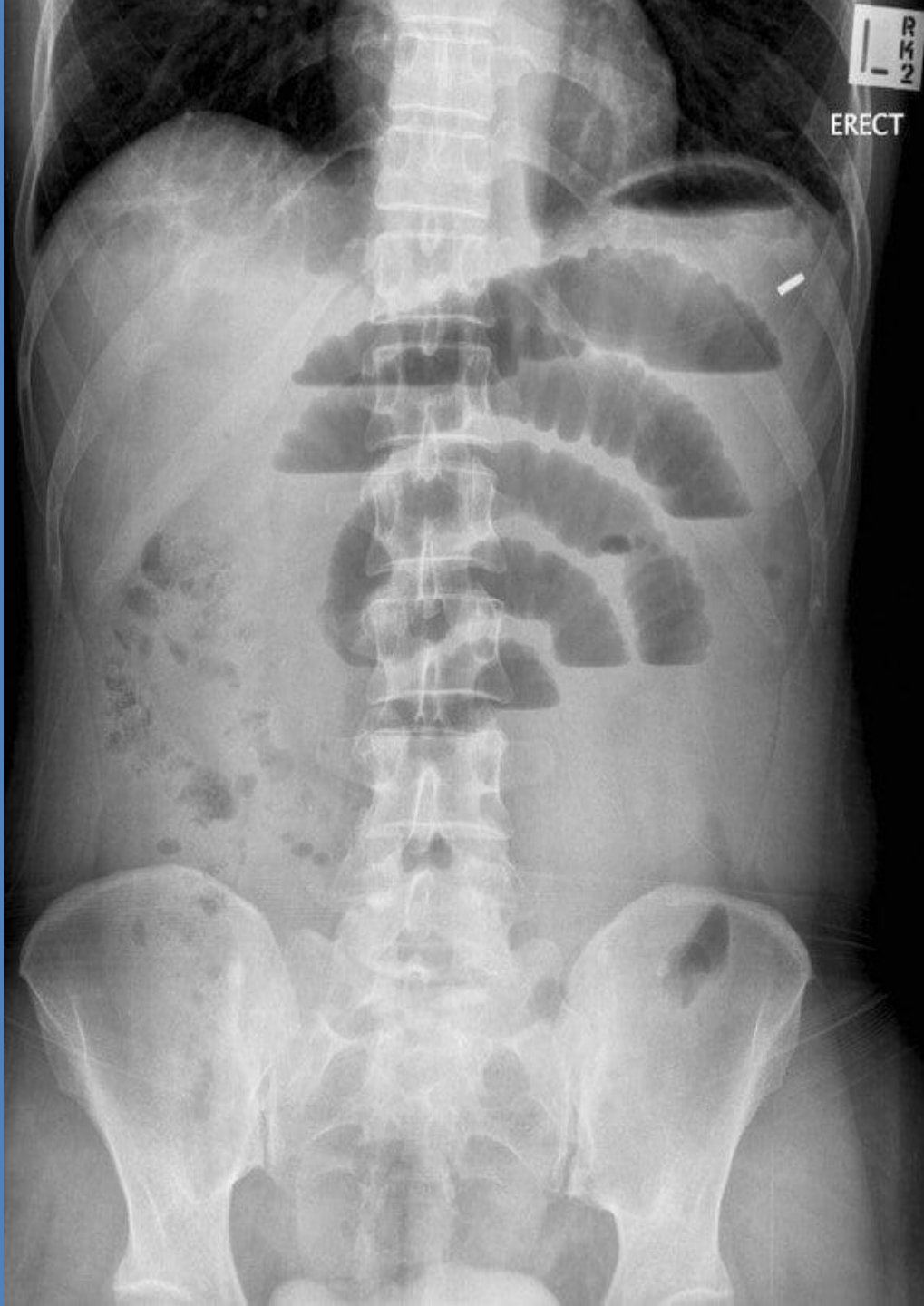
## Large bowel

- $> 5$  cm (Except caecum  $> 9$  cm)
- Peripheral
- Few
- Few, long
- Haustrations (partially across)



R  
M  
2

ERECT



- Distended small bowel loops.
- Transverse lie.
- Multiple air-fluid level.
- Centrally placed.
- Step ladder pattern.

### Normal air-fluid level-

- Fundic gas.
- 1<sup>st</sup> part duodenum.
- Terminal ileum.
- SI (children).

- Distended bowel loop.
- Presence of haustra.
- Wider diameter.
- Peripherally placed.
- Horizontal & vertical arrangement of loop.
- Air-fluid level-
  - Longer length
  - Small number.



- Large pneumatic tyre like shadow.
- Without haustra or septa.
- arising from pelvis.
- Inverted U or Coffee bean sign.
- 2 lumen, 3 walls (Dahl Froment sign).

--Sigmoid volvulus.



# Coffee Bean Sign

## Sigmoid volvulus

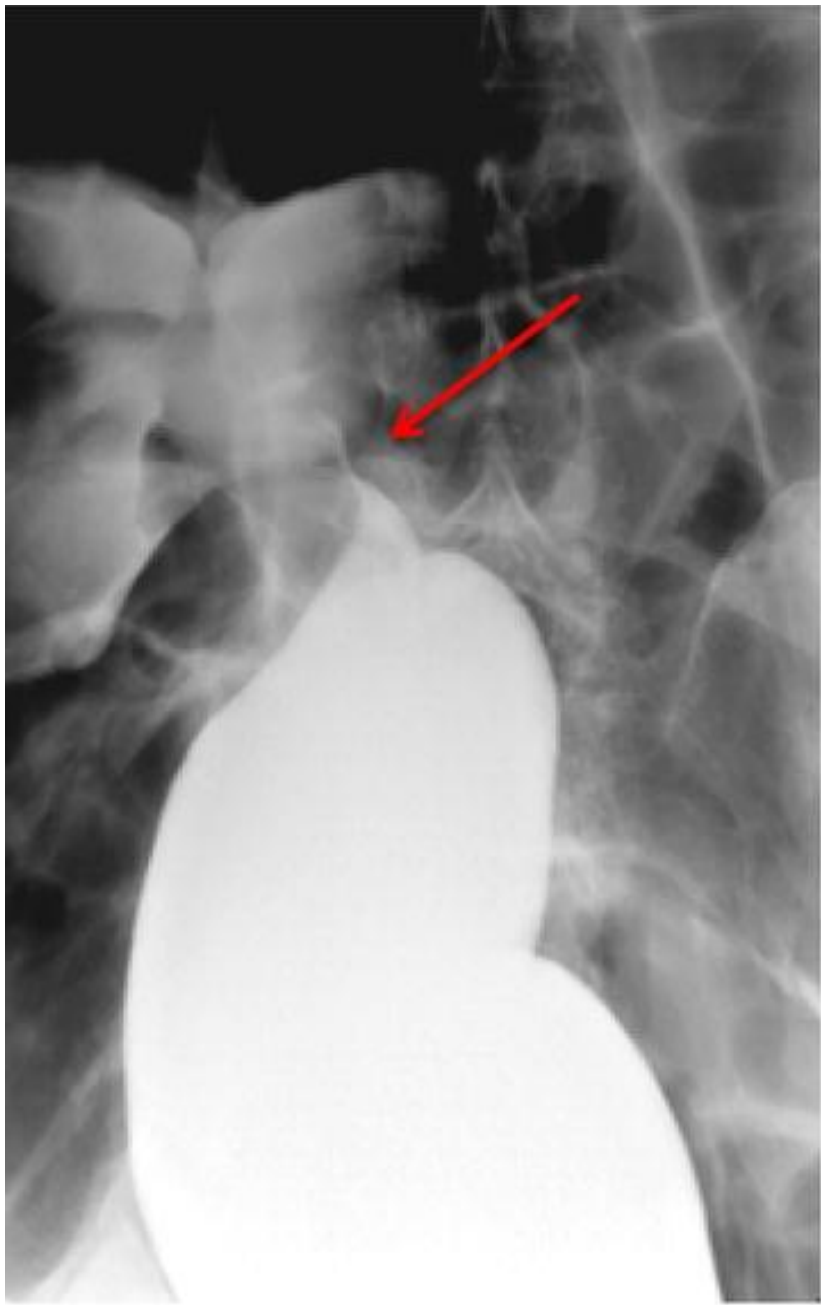
- 2 twisted loop.
- Central double walled component.

Massively dilated sigmoid loop



## Barium enema X-ray-

- Bird beak appearance



A



B

## Predisposing factors-

- Long sigmoid mesocolon.
- Narrow attachment.
- Long, redundant, & pendulous sigmoid.
- Loaded colon.



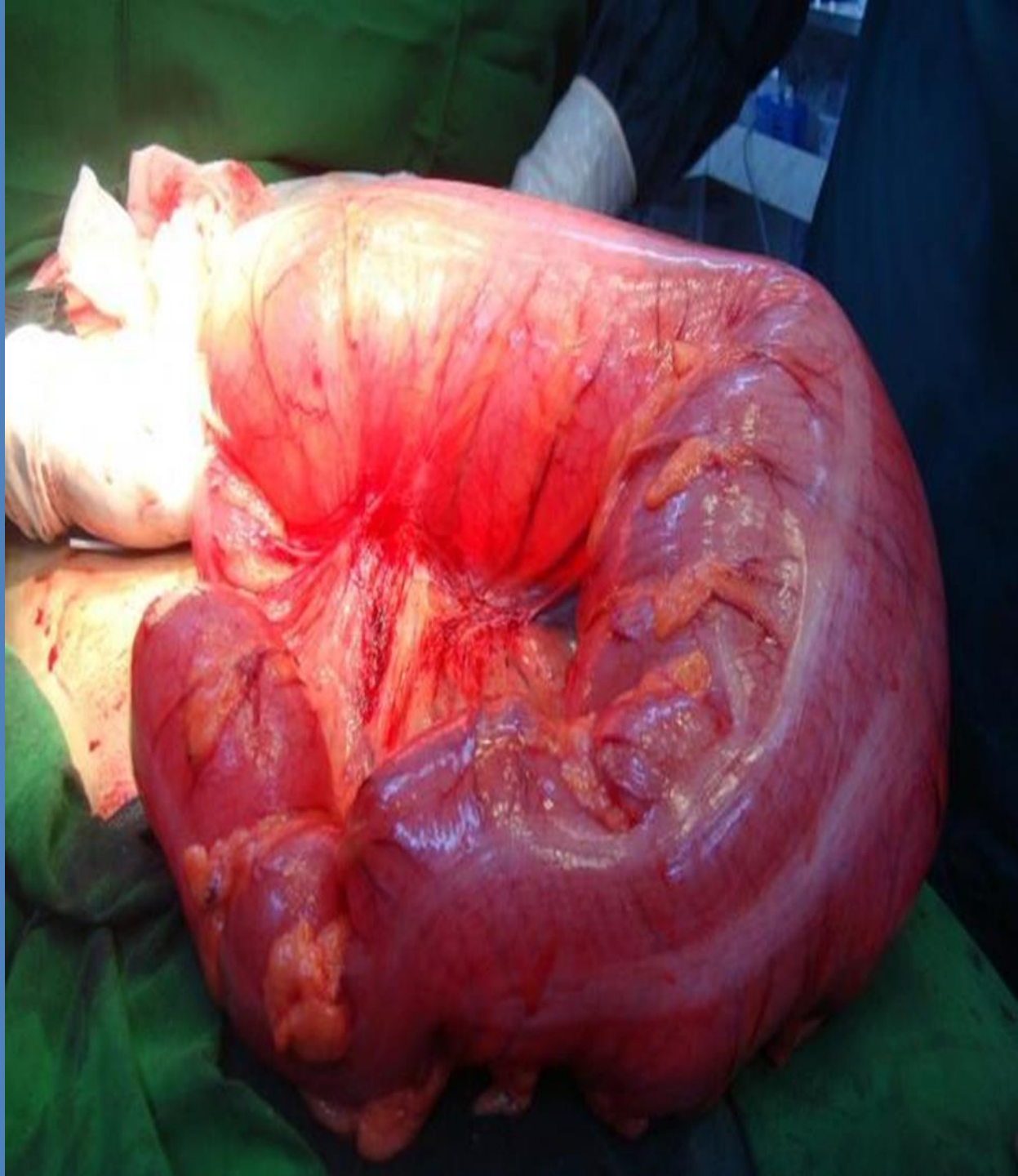
## Per operative findings-

- Gut is hugely distended & twisted.
- Blackish discoloration.
- No peristalsis.
- No bleeding on pin prick.
- No colour change on hot mop compression.



## Options-

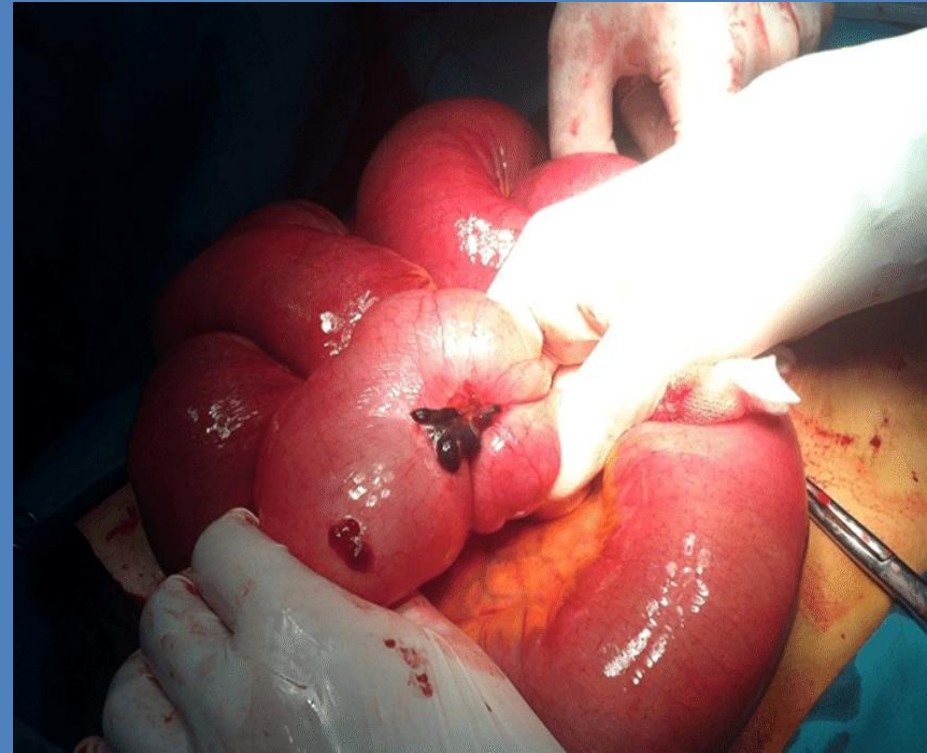
- Sigmoidopexy.
- Primary Resection & anastomosis.
- Resection anastomosis With proximal ileostomy.
- Hartmann's procedure.
- Paul Mikulicz operation.



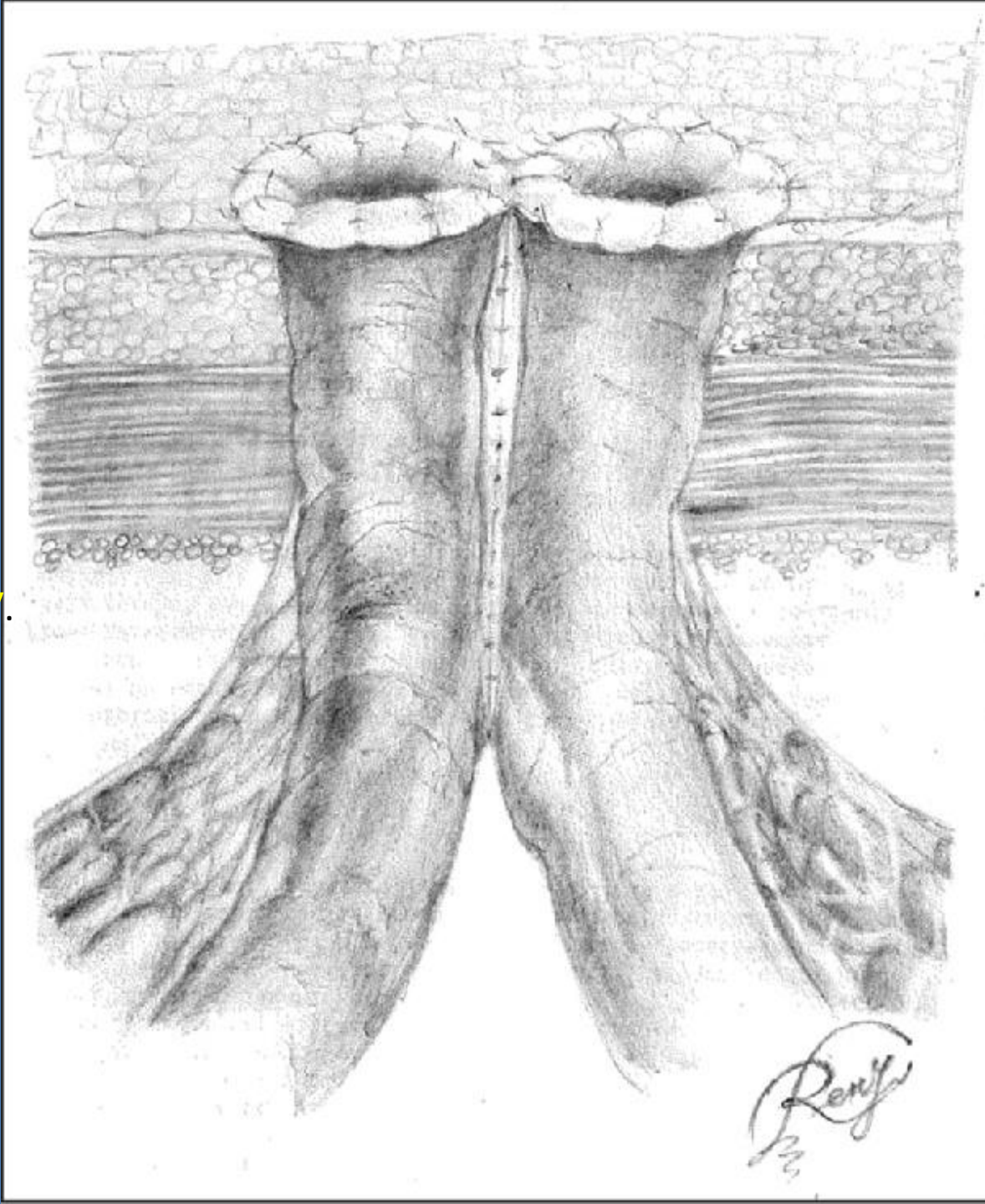


# Assessment of gut viability-

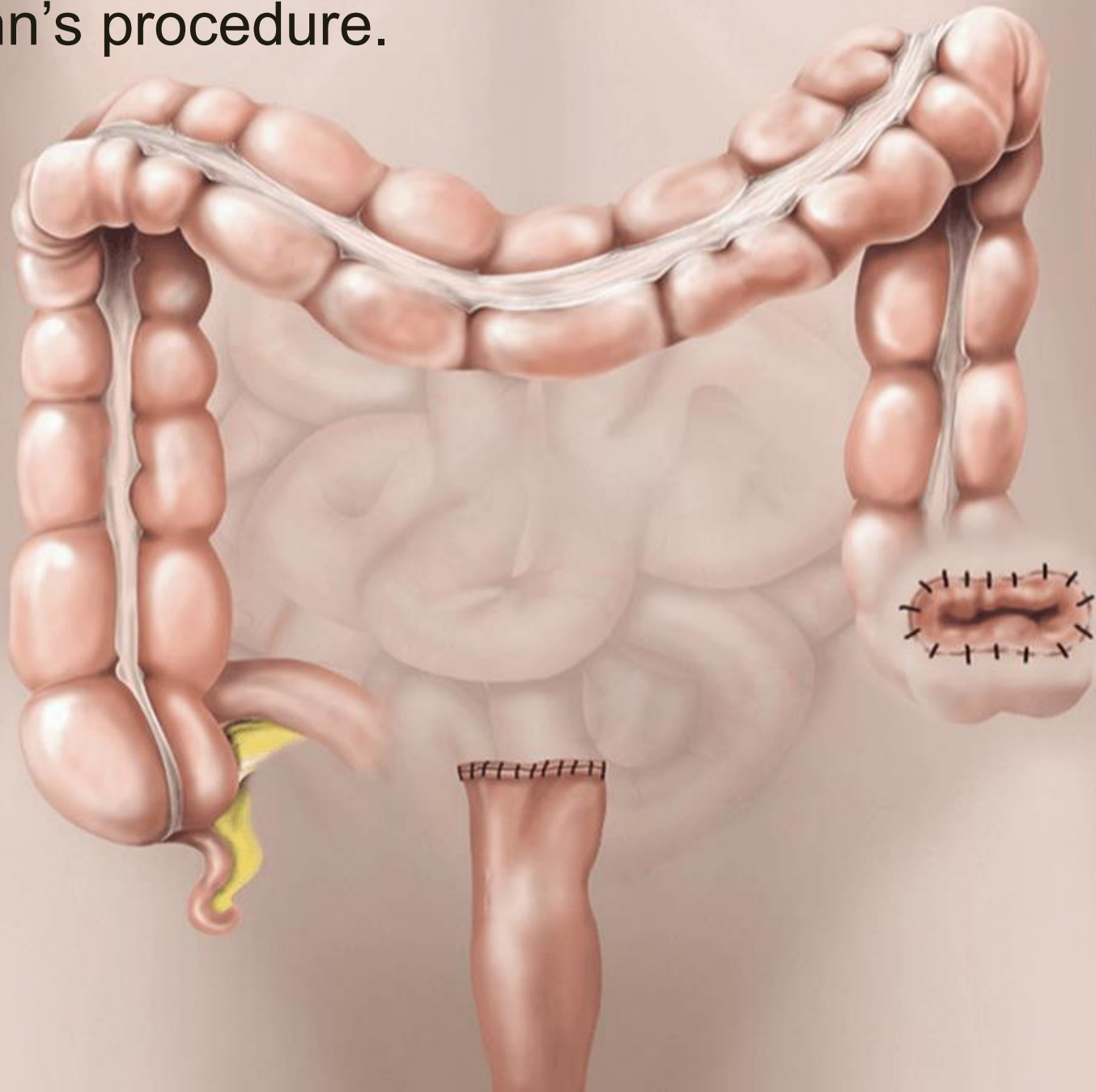
- Clinically-
  - Pink serosa.
  - Peristalsis.
  - Positive pulsation.
  - Bleeding on pin prick.
  - Color change on hot compression.
- Doppler USG- detects antimesenteric blood flow.
- Fluorescein dye test- IV 1 gm Na fluorescein.



Paul mikilicz operation.  
Double ended colostomy.



Hartmann's procedure.



## DCBE-

- Persistent irregular filling defect.
- Gross narrowing.
- Apple core appearance.
- Shouldering effect.

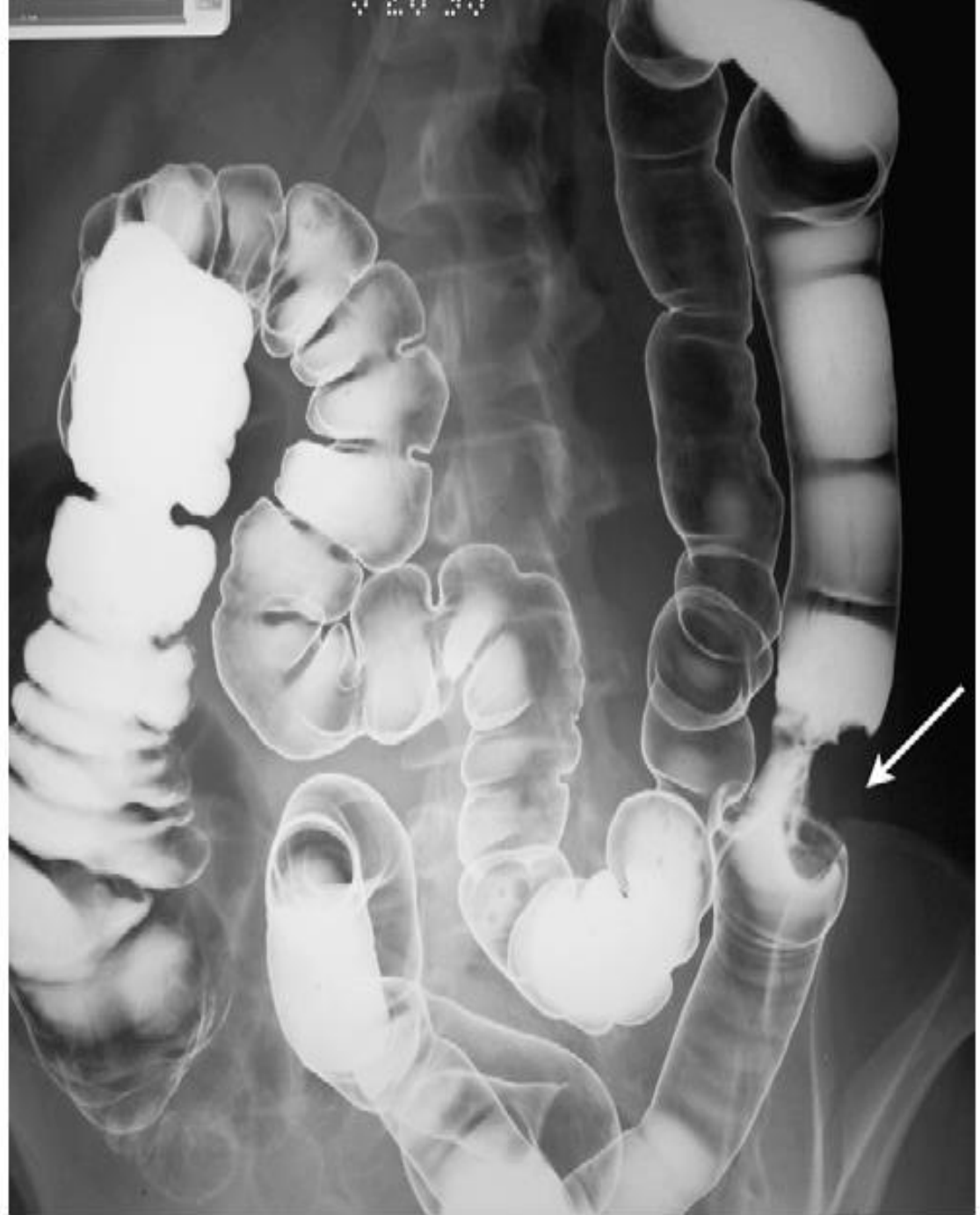


Fig. 5. Double-contrast barium enema reveals an

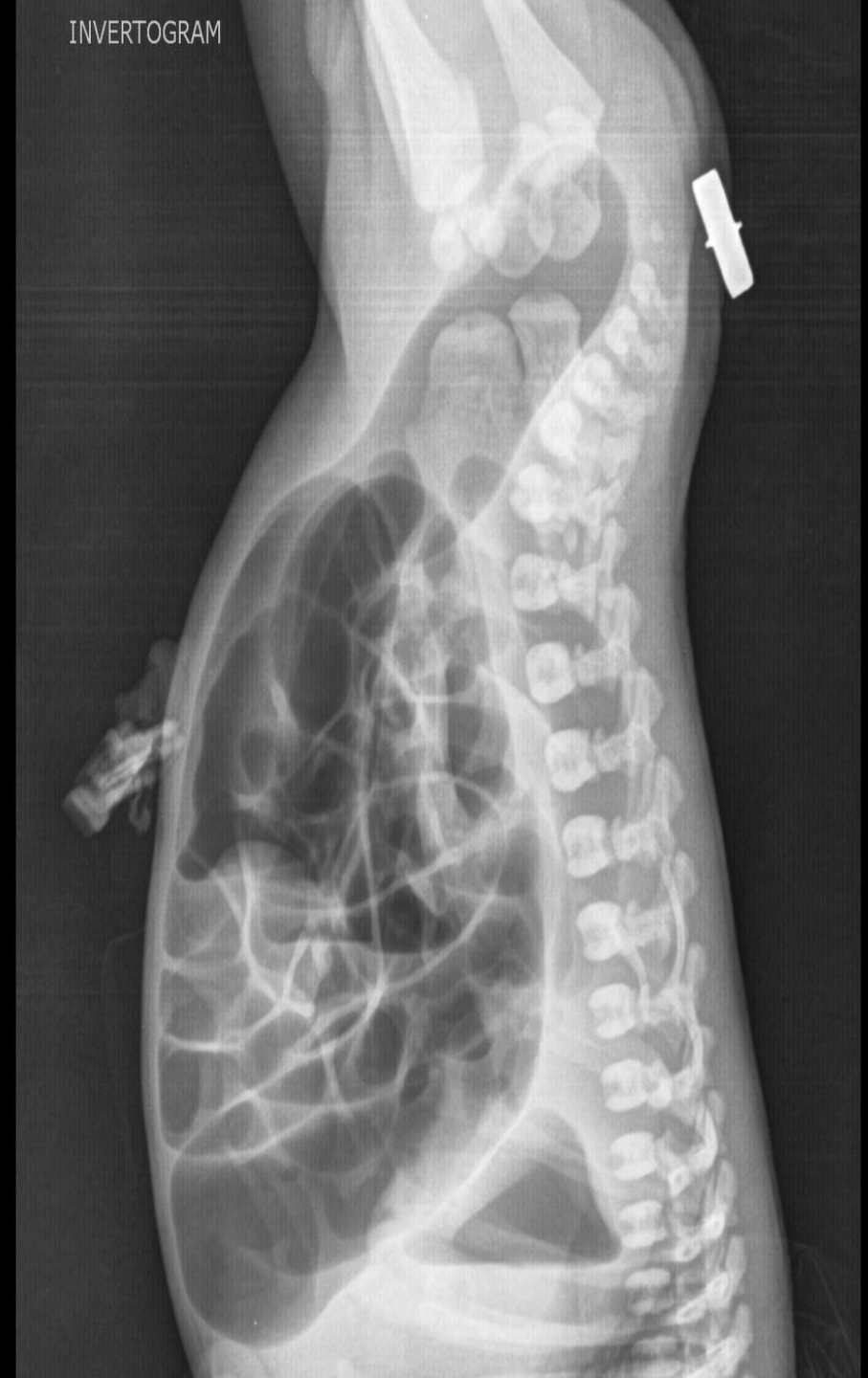


## Invertogram-

- distance between the air-filled distal rectal pouch and the anal dimple.
- classify ARM.
- 24 hours after birth.

## Patient position-

- Inverted.
- no rotation of hips and shoulders
- remove any radiopaque items.
- in full inspiration
- a radio-opaque marker (i.e. a coin) is placed over the expected anus using radiolucent tape.



**X-Table**

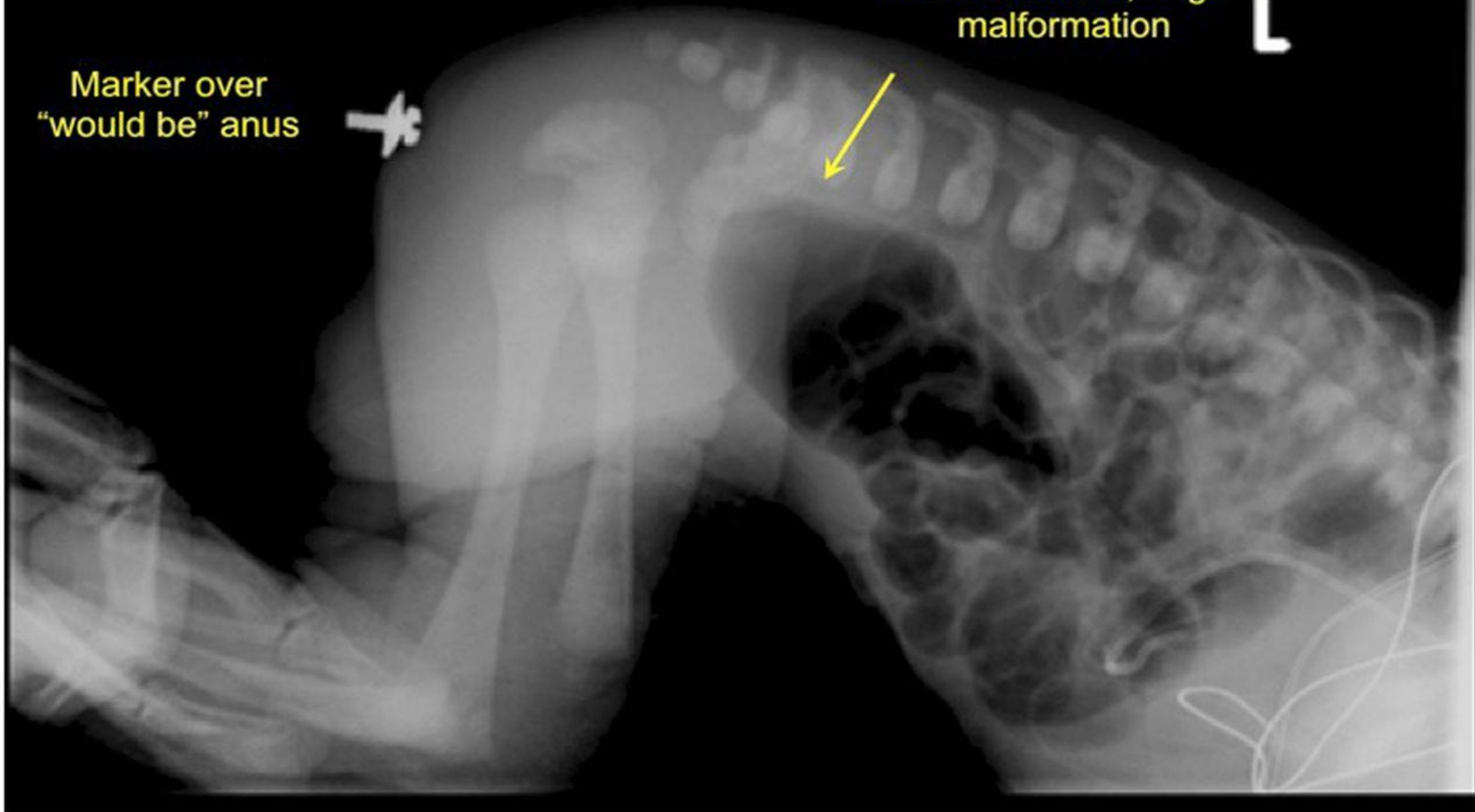
**PRONE**

**Portable**

Marker over  
"would be" anus

Dilated rectum, "high"  
malformation

L



Prone cross table lateral view

## Low variety- MECS (<2.5 cm)

- Membranous
- Ectopic
- Covered.
- Stenosed.

## • High variety-

- Agenesis.
- Atresia.
- Cloaca.







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