

GIT imaging

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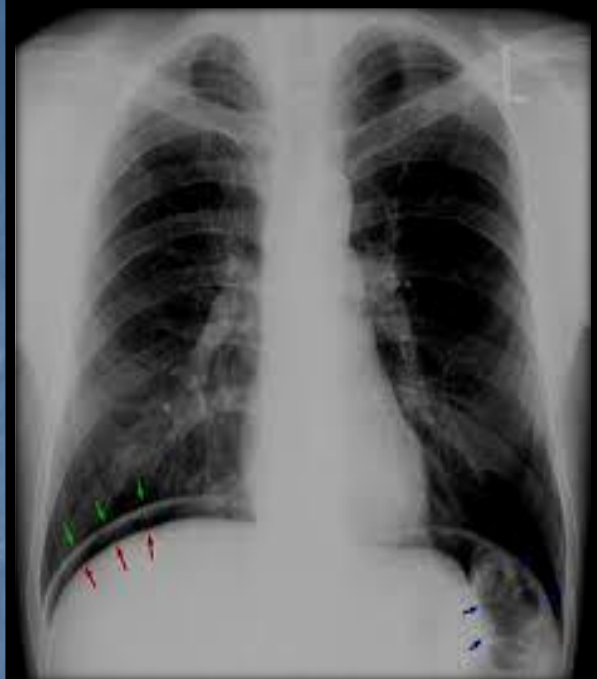
- Imaging modality in GIT
- Esophageal disease.
- Stomach diseases.
- Small bowel diseases.

GIT imaging

- Plain Abdominal x-ray.
- Contrast examination on fluoroscopy.
- Ultrasound abdomen
- Computed tomography
- Magnetic resonance imaging

Plain abdominal x-ray

- It is first line imaging of acute abdomen
- Can be given diagnosis for most of
 - Bowel obstruction [multiple air fluid levels]
 - Bowel perforation [air under diaphragm]
 - Sigmoid Volvulus [Bean Sign]
 - Toxic Mega colon [T. colon diameter > 6 cm]



GIT fluoroscopy

- It was used contrast media to opacify lumen of GIT and show mucosal pattern .
- Now most of studies replaced by endoscopy
And limited for some situation just as post operative leaking bowel fistula , or unaviable endoscopy
- Can be single and double contrast ,,Most common contrast used

Barium:

excellent opacification and mucosal coating

- Can not be used on
bowel obstruction
bowel perforation and leaking
CT abdomen
- **Gastrographin** [Ionic water soluble contrast]
used for perforation and leaking
- Can not be used for
Cases of aspiration and tracheoesophgeal
fistula [chemical pneumonitis]

- Non ionic water soluble contrast
used on case of perforation , leaking aspiration , TOF
- gas and air negative contrast :
Used for double contrast study and for
pneumonic reduction of intussusception

Barium contrast

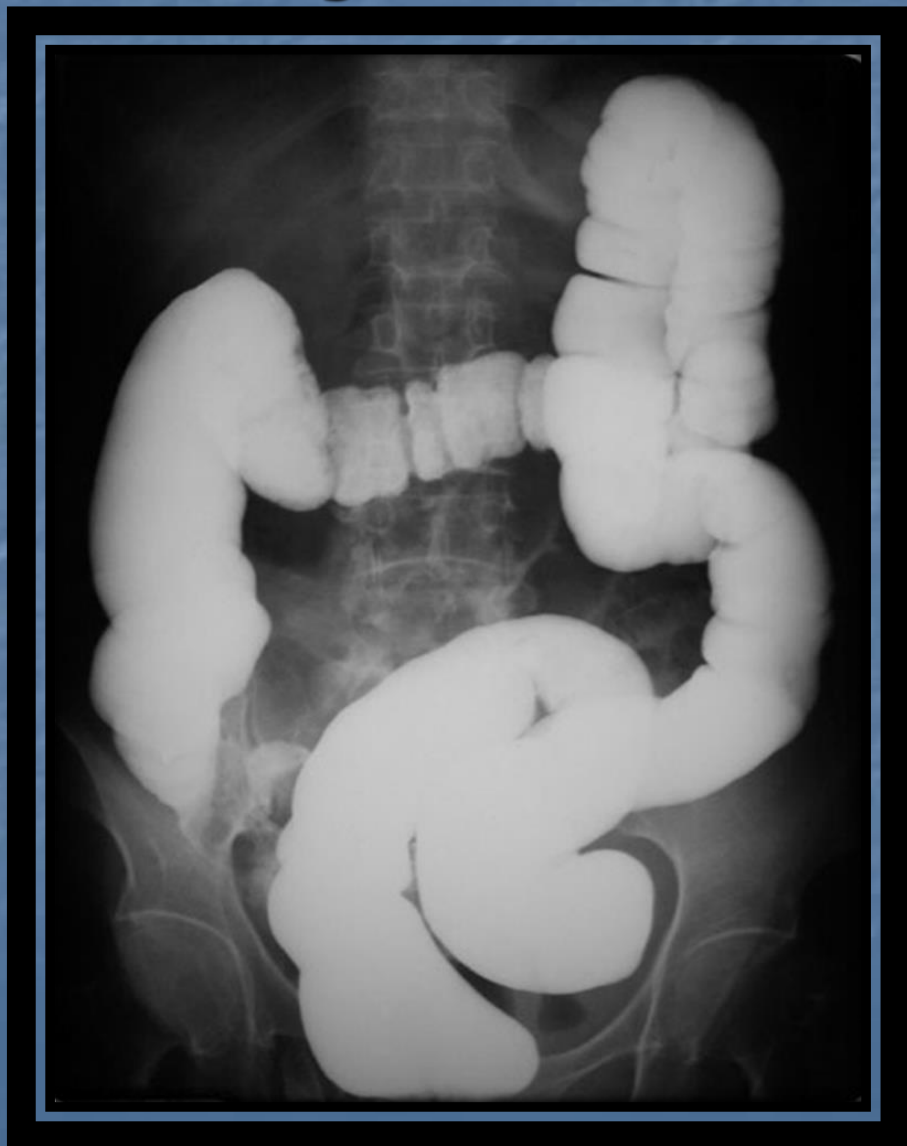


Water soluble contrast

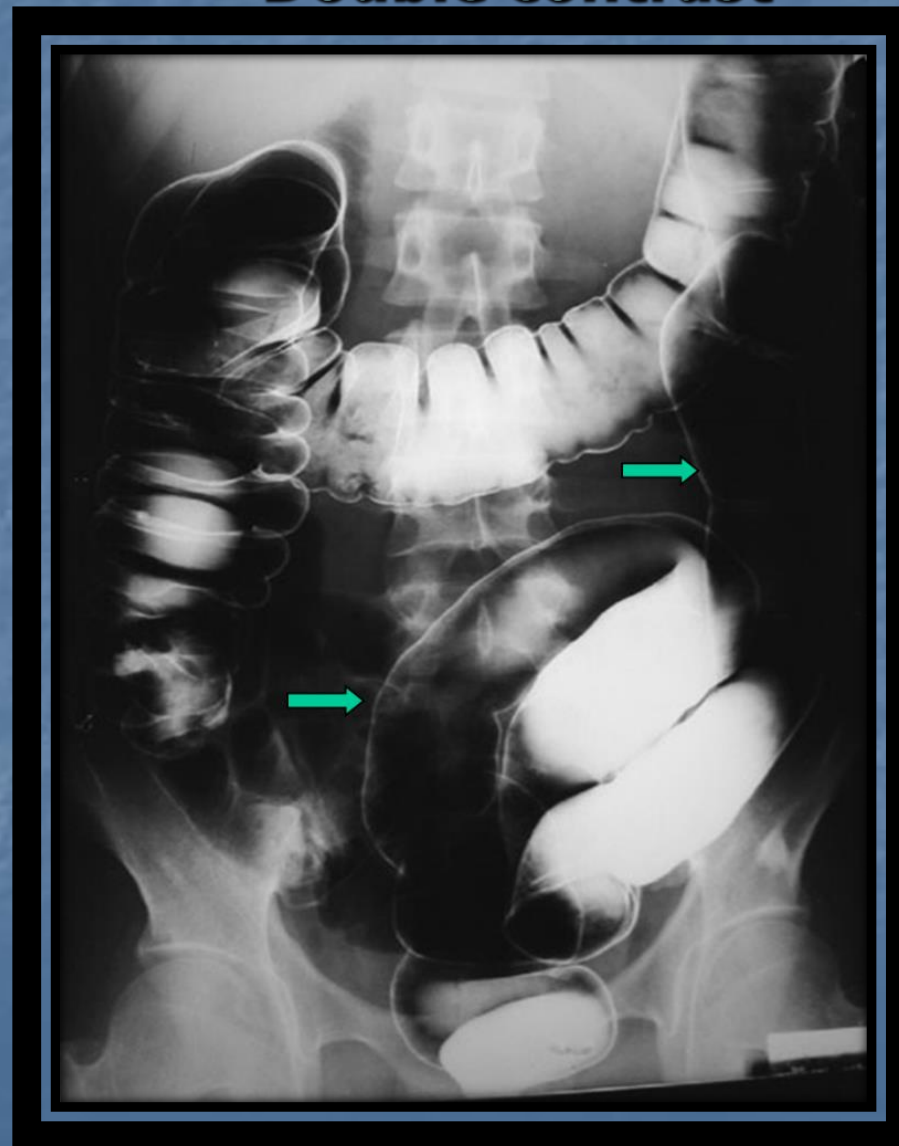


Barium enema

Single contrast



Double contrast

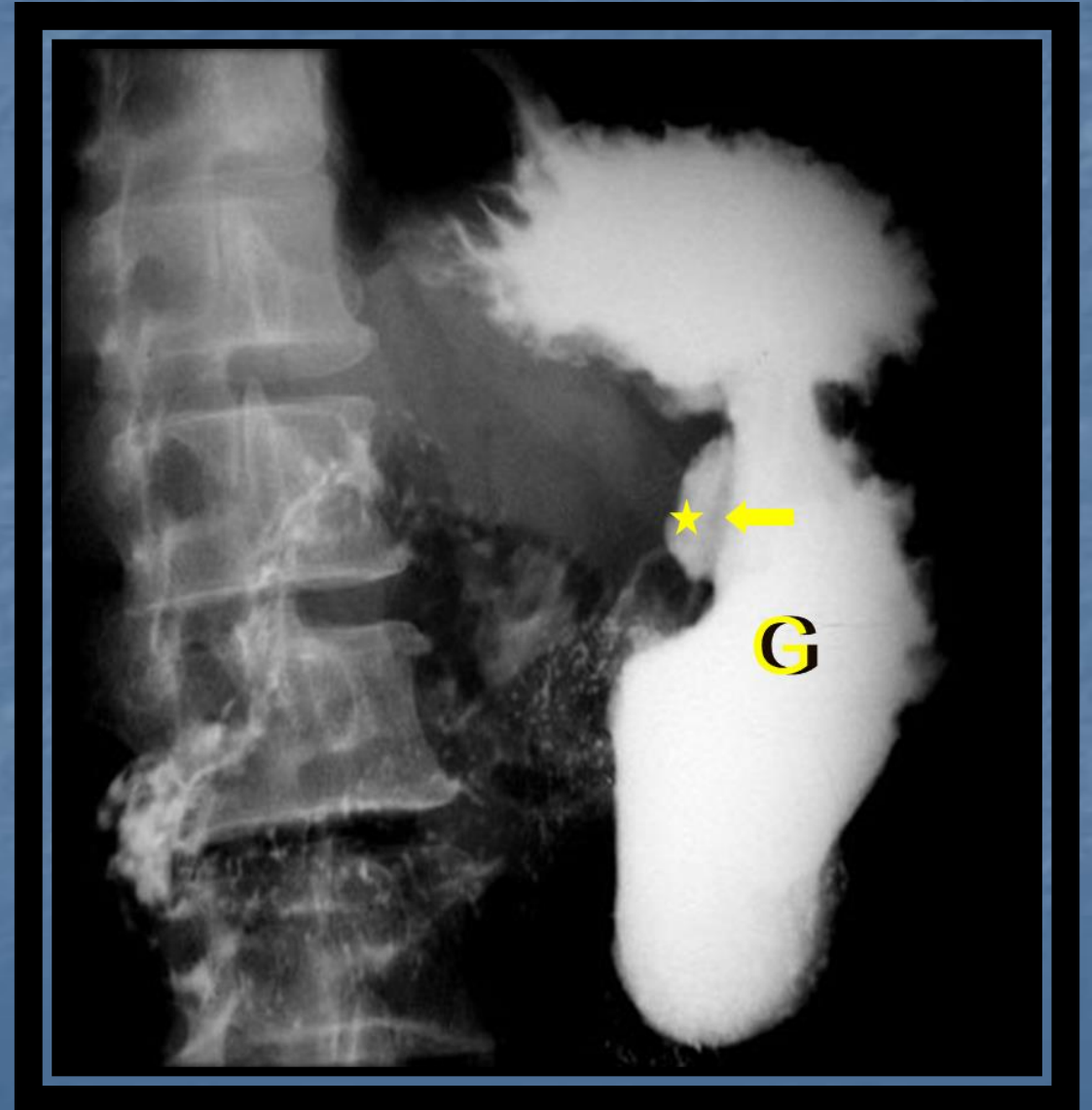


- By contrast fluoroscopy examination can be evaluated :
 - Mucosal pattern and ulceration
 - Lumen narrowing and stricture
 - Filling defect

Stricture



Ulceration



Filling defect



Mucosal pattern

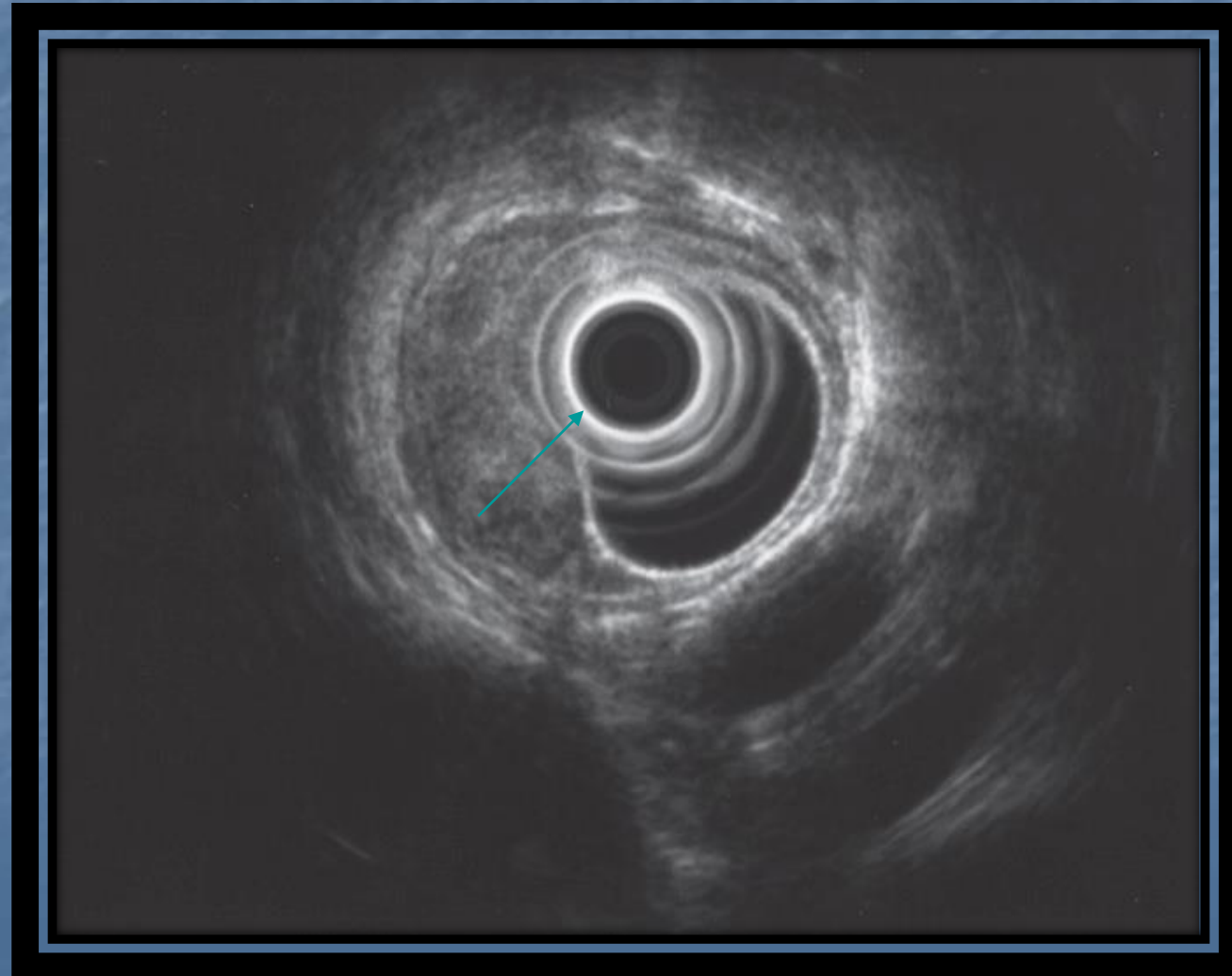


Ultrasound abdomen

- It is common imaging used for routine and urgent abdomen evaluations
- limiting details for bowel loop due to presence of air with in lumen
- Can made diagnosis of infantile pyloric stenosis , intauscesption , appendicitis
- Used for fast evaluation of acute abd. And Trauma
-

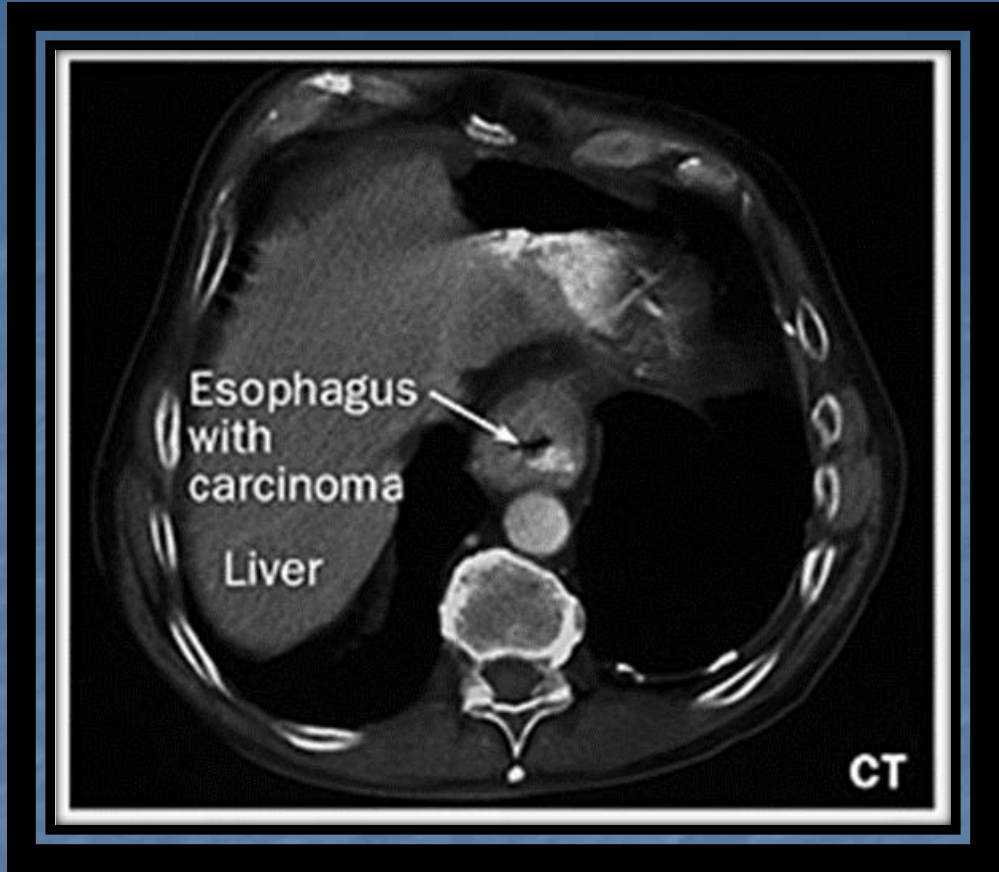
- **Endoscopic ultrasound** commonly used for local staging of bowel and pancreatic tumor[depth of tumor , wall invasion , regional lymph nodes]

Endoscopic ultrasound



Computed tomography CT

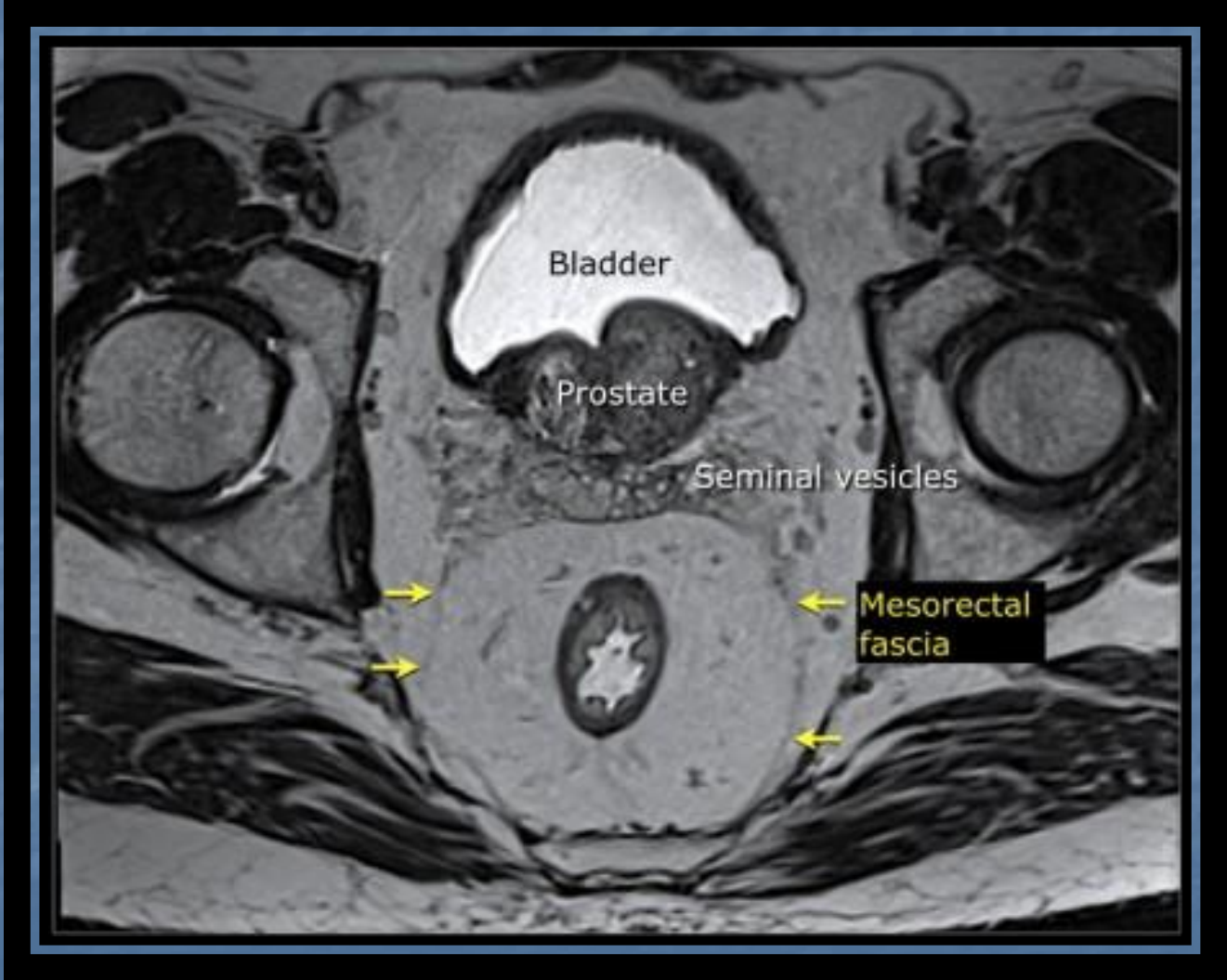
- Used intravenous and oral contrast media
- Useful for tumor staging [locally invasion , lymph nodes, and distant metastasis]
- Used for acute abd.[pancreatitis , abd. Collection , obstruction , diverticulitis , mesenteric ischemia , AAA,] And trauma
- Limited role for tumor transmural wall invasion specially rectal tumor



MRI

- Limiting role for GIT imaging due bowel peristalsis which blurred image.
- Give excellent anatomical details specially at pelvis
- Excellent evaluation of rectal tumor wall and locally invasion .
- Excellent evaluation of anal canal disease like fistula and congenital anomaly

- Excellent evaluation of biliary system.

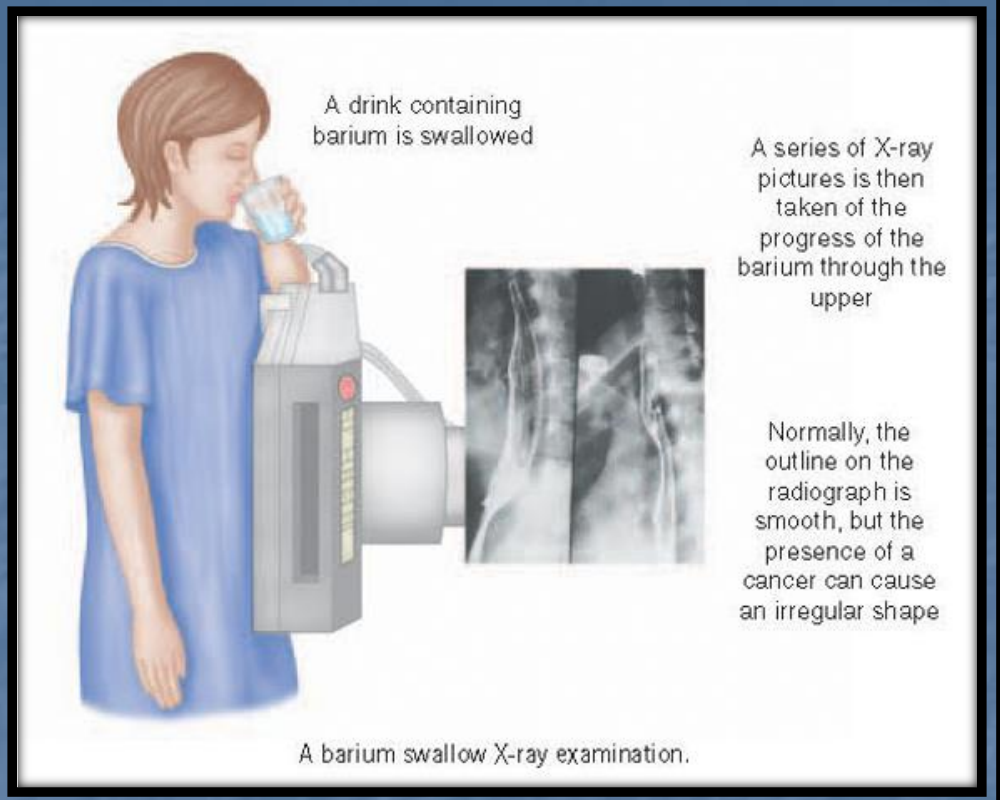
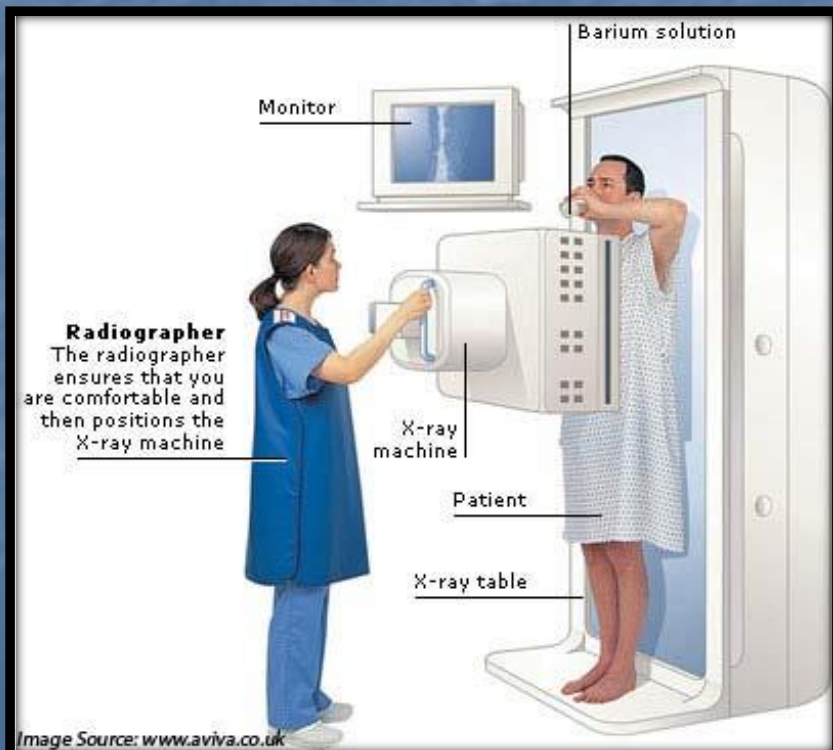


Esophagus

- plain x-ray limited [some cases of Achalasia, esophageal perforation]
- Barium swallow
- CT and endoscopic USS for tumor staging

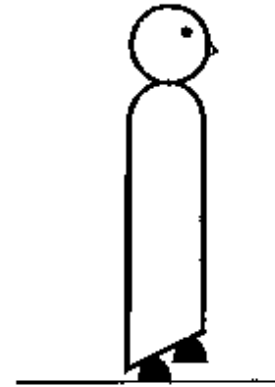
Barium swallow

- Most common indications are TOF, dysphagia, motility disorder, unavailability of endoscopy
- Barium most commonly used unless contraindicated.
- Performed in erect RAO position
- Images taken during swallowing the barium bolus





Swallow RAO



Oesophagus

Barium swallow

- it is used for investigating the esophagus

Steps

1. The patient is in the erect RAO.
2. Patient take barium and hold within mouth, Dose not swallow
3. The barium is swallowed, then spot films of the upper and lower oesophagus are taken.

Normal

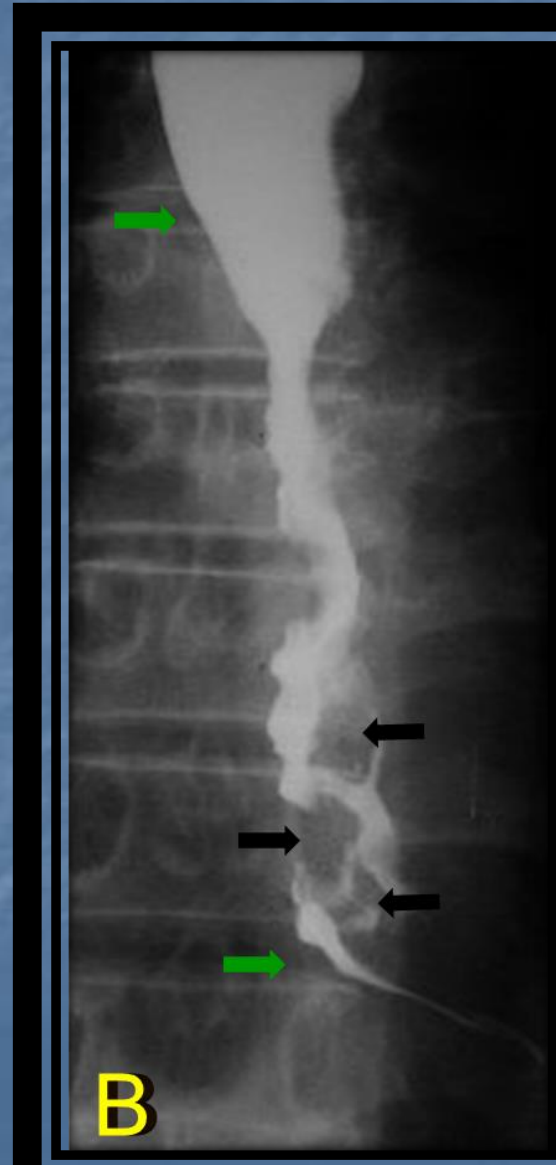


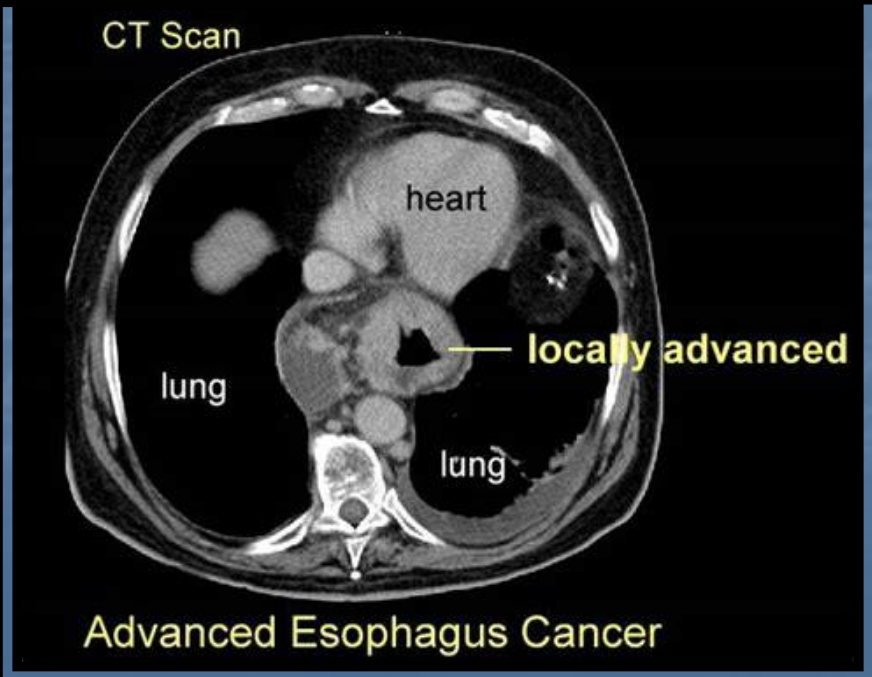
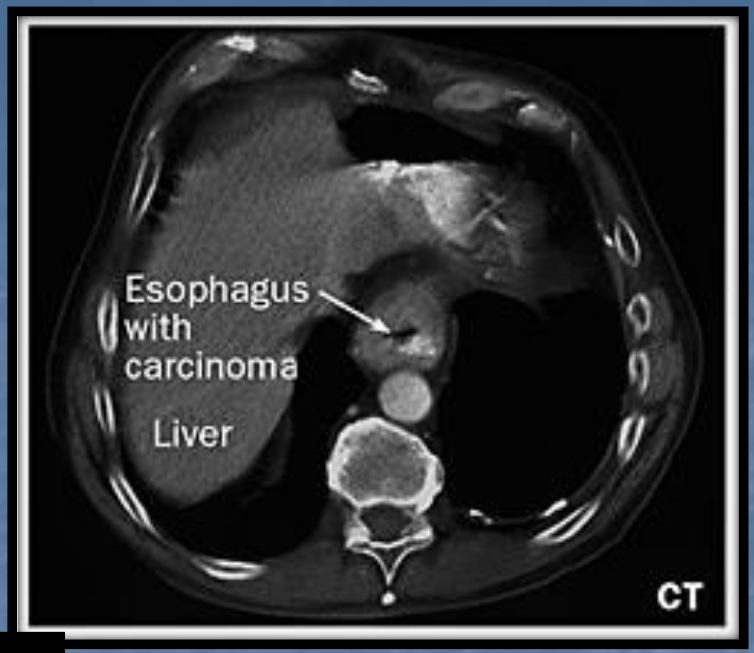
Abnormal barium swallow

- stricture : usually due to carcinoma peptic disease , achalasia , and corrosive
- Filling defect : tumor , foreign body , food impaction and External compression

Carcinoma stricture

- Can be affected any part of esophagus
- Usually irregular with Abrupt end
- Short length < 6cm
- Its shape Can be circumferential stricture , eccentric shouldering apple core stricture





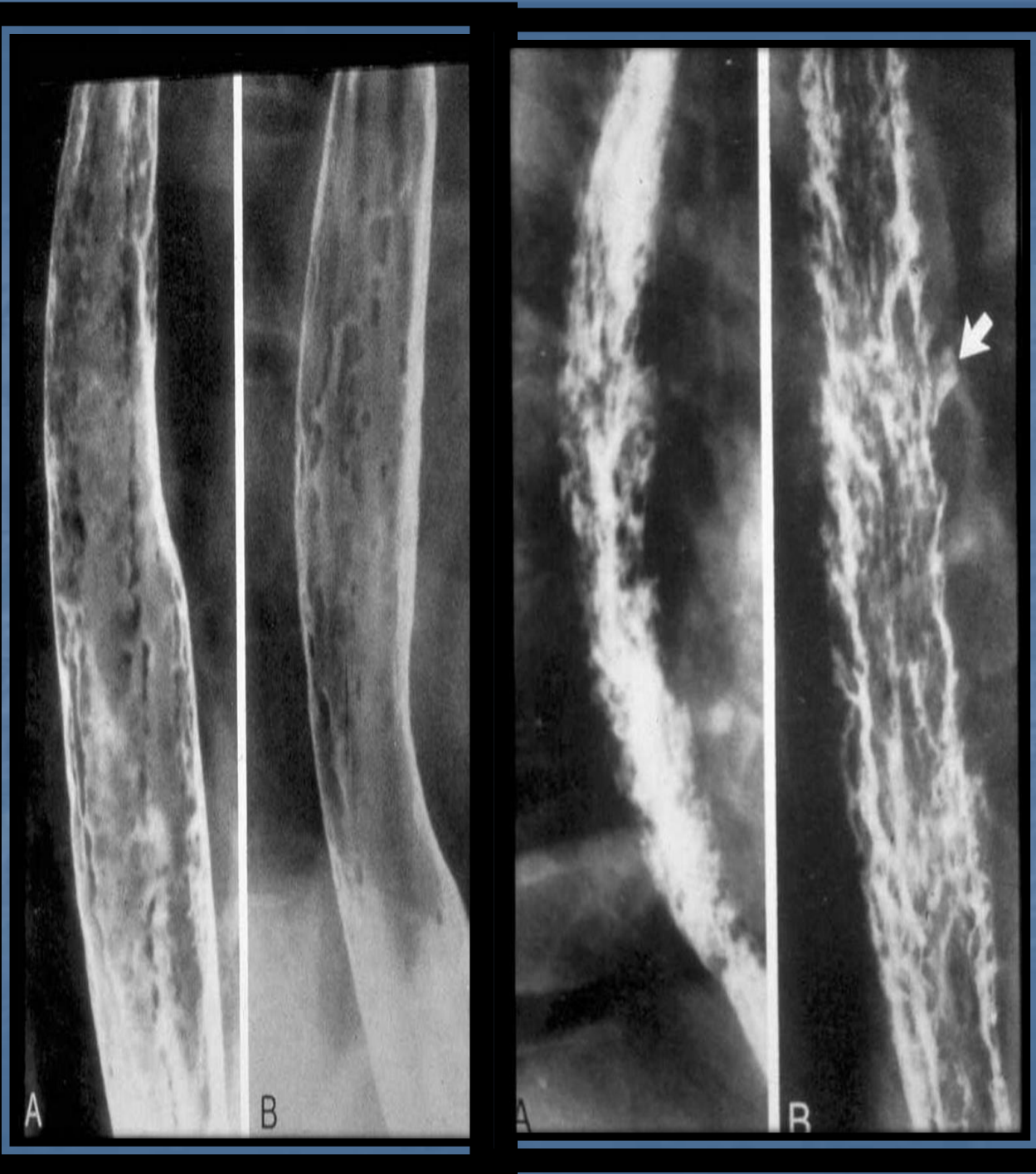
Peptic disease

- Due to reflux esophagitis
- Usually at lower third
- Smooth short tapering end
- Some mucosal ulceration and irregularity at near lower end due to esophagitis



ESOPHAGITIS

- Irregular, nodular mucosal pattern
- Multiple ulcerations of various sizes
- Common viral infection and candidiasis



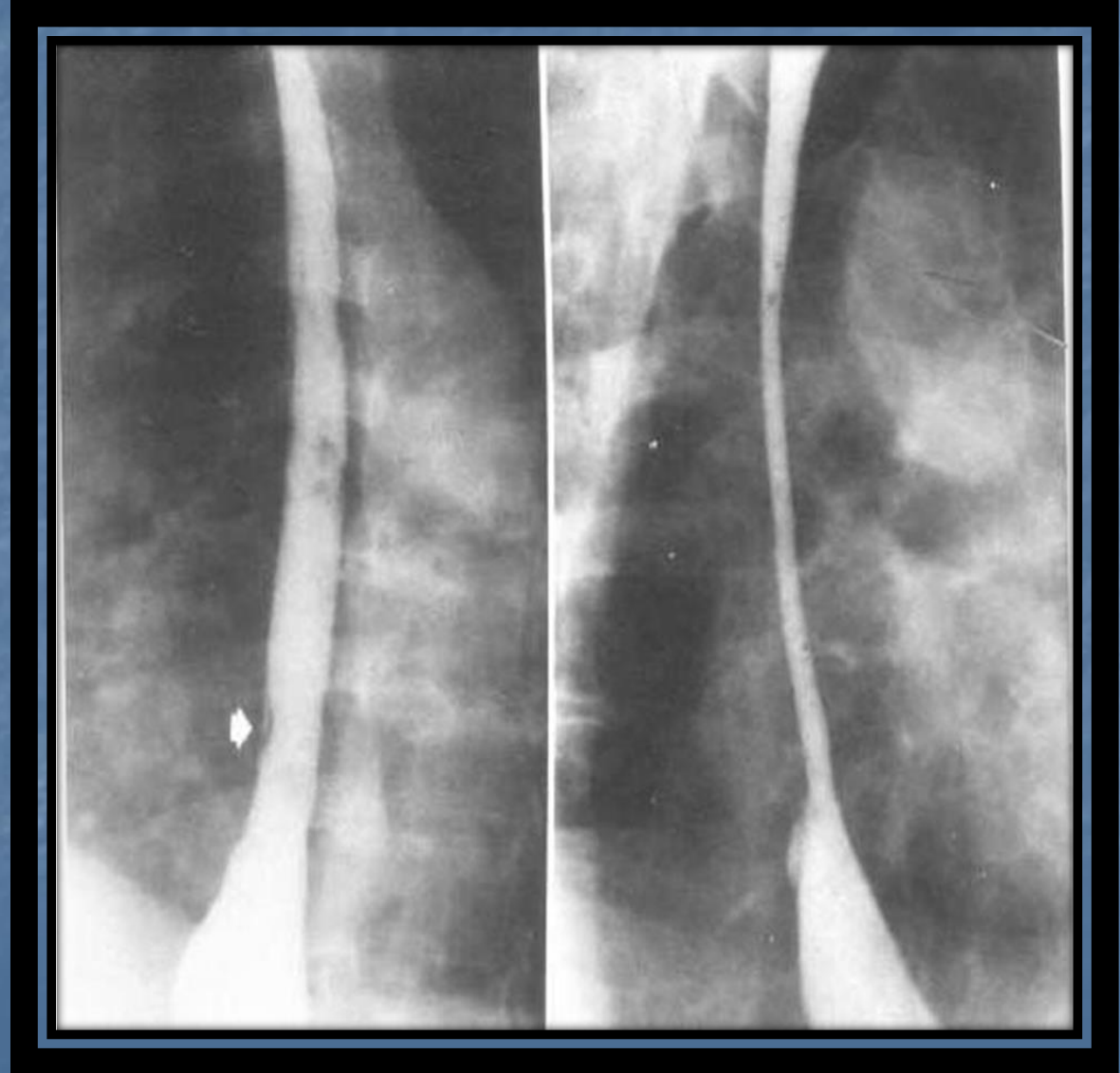
Achalasia

- Is a ganglionic segment of GE sphincter resulting of failure relaxation of sphincter
- Is smooth tapering stricture with beaking end
- Dilation of esophagus superior to stricture appears on x ray
- Pulmonary infiltration on plain x ray due to recurrent pulmonary aspiration



Corrosive stricture

- Usually at mid of esophagus at level of AA
- Long tapering end .
- Can be smooth or irregular due to fibrosis adhesion



Filling defects on barium swallow

- Intra-luminal filling defects

A lump of food may be impacted in the oesophagus and may cause complete obstruction.

Polyp

- An intramural filling defect

- leiomyoma - smooth, rounded indentation into the lumen of the oesophagus

- carcinoma

Extramural filling defect

Compressing the oesophagus includes:

- carcinoma of the bronchus

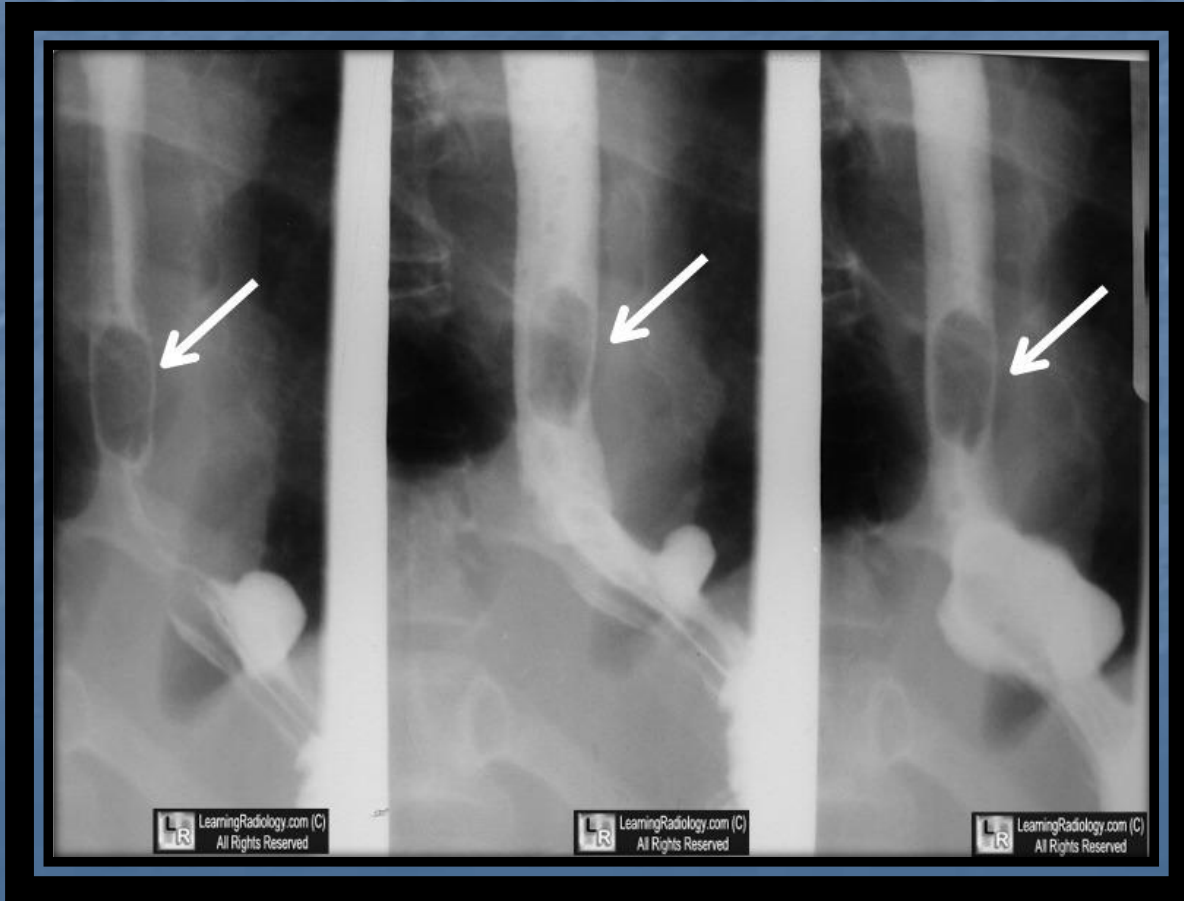
- enlarged mediastinal lymph node

- aneurysm of the aorta

Filling defect lesion

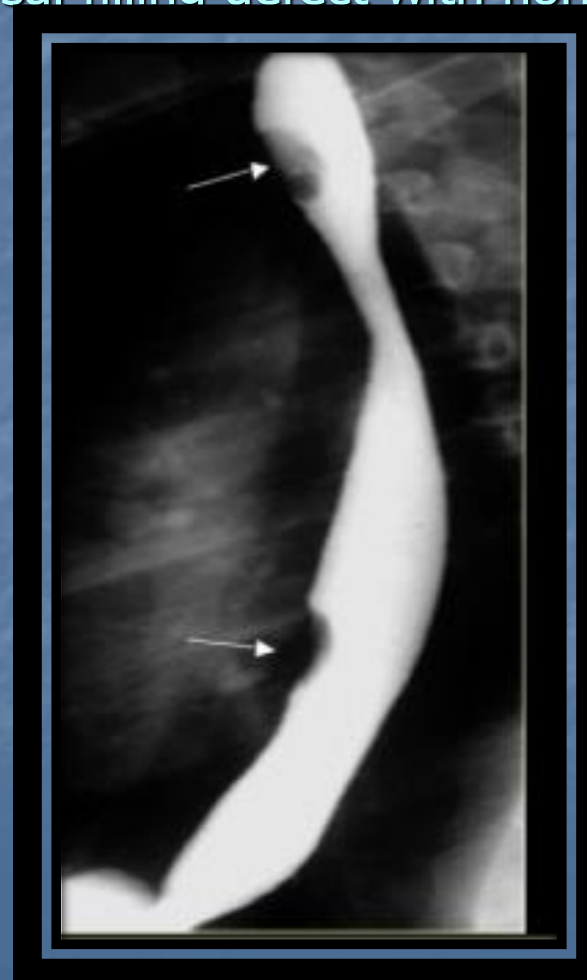
Poly

- Well defined radiolucent defect within lumen



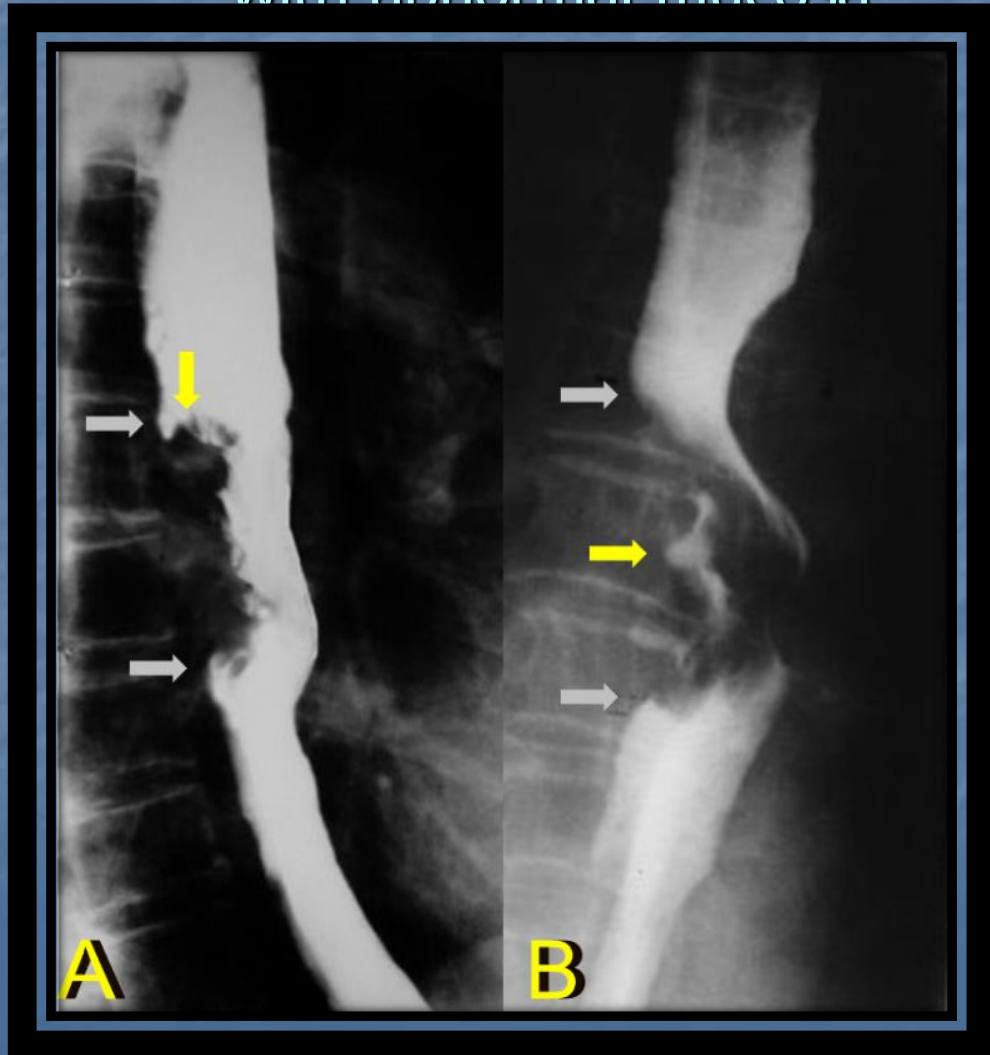
Leiomyoma

- Submucosal filling defect with normal overlying mucosa



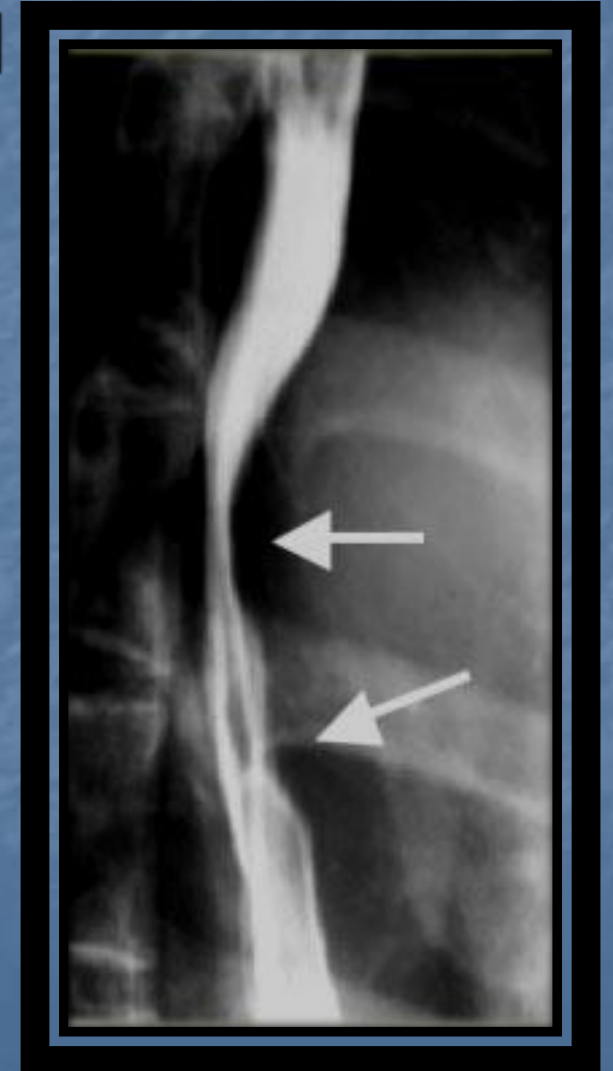
Carcinoma

- Irregular filling defect with abnormal mucosa



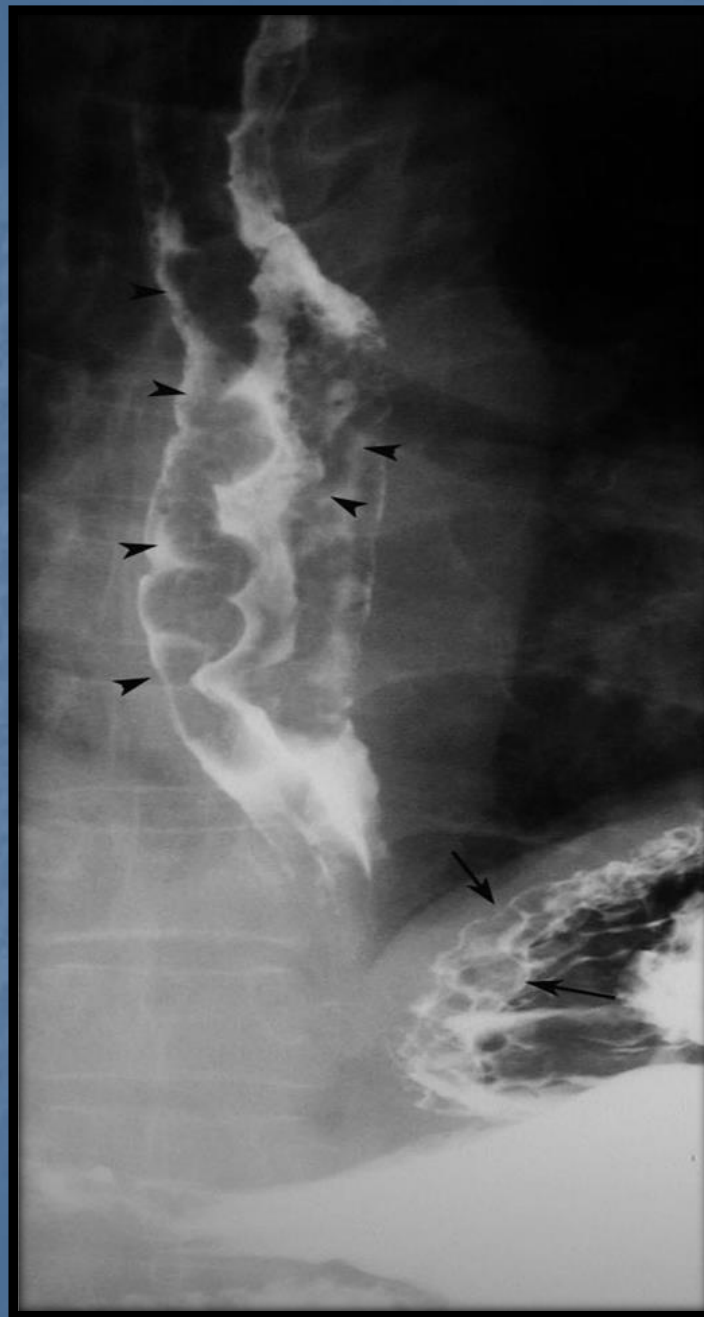
External compress

- by mediastinal mass effect [L.N., tumor ,aneurysm]



Varices

- Varices related to portal hypertension are most commonly demonstrated in the lower third of the esophagus
- Worm like filling defect with mucosal distortion
- Changes size and appearance on respiration and position



Oesophageal web

- Thin, shelf-like projection arising from anterior wall of cervical portion of the oesophagus.
- Thin combination of a web, dysphasia and an iron deficiency anaemia is known as the Plummer Vinson syndrome.

