

GIT

Imaging Technique

1 - Plain film :

- a — Supine (AP) view .
- b - Erect (.AP) view .

2 - Contrast examinations:

- a - Barium sulphate used to opacified the bowel & shows the mucosa .
- b — Water-soluble contrast like gastrografen used when perforation or leakage from anastomosis are suspected .

3 — Ultrasound :

- a - Conventional transabdominal ultrasound
- b — Endoscopic ultrasound used in the assessment esophageal, gastric, rectal, pancreatic tumors

4 - Computed tomography (C.T) :

- a — It shows the whole wall of the organ & the surrounding structure .
- b — Evaluation of the lumen by using gastro graphin or air (CT pneumocolon& virtual coloscopy)
- c - Diagnosis & staging of G.I.T tumors .
- d — Evaluation of acute abdomen like acute appendicitis , intestinal obstruction & bowel perforation .

5 - M.R.I :

- a — Used in the assessment of liver metastases .
- b— Assessment of local spread of rectal tumor before surgery .
- c — Assessment of perianal fistula & abscess .

6 - Nuclear medicine : PET / C.T used to shows metastases in patients with GIT tumors

Esophagus

* Started at the upper esophageal sphincter at the level of C6 & finishes at the lower esophageal sphincter at the level of D11, it is about (25) cm in length.

- * Consist of inner circular & outer longitudinal muscles coat which predominately striated muscle in the upper third & predominantly smooth muscle in the lower two thirds.
- * The esophageal mucosa is stratified squamous epithelium & changes to columnar epithelium at the gastro-esophageal junction .
- * The aortic arch & left main bronchus indent the left anterolateral wall of the esophagus.
- * Lymphatic drainage of the upper esophagus into cervical nodes, mid esophagus into pre-aortic nodes & the lower esophagus drain to the coeliac & gastric nodes.

Plain film

Chest x Ray can shows the following:

- 1 - Dilated esophagus with air fluid level through heart shadow as in case of achalasia.
2. - Opaque foreign body.
- 3 — Check the position of nasogastric tube.

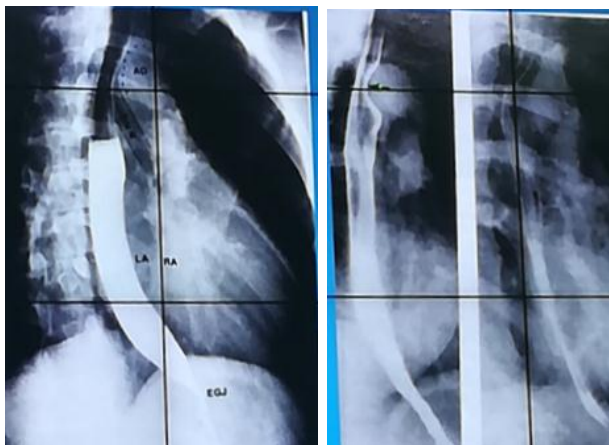
Ba swallow

Is the standard contrast examination, normal esophagus has smooth outline when filled with Ba, when empty seen as 3-4 longitudinal parallel lines .

Indications of Ba swallow:

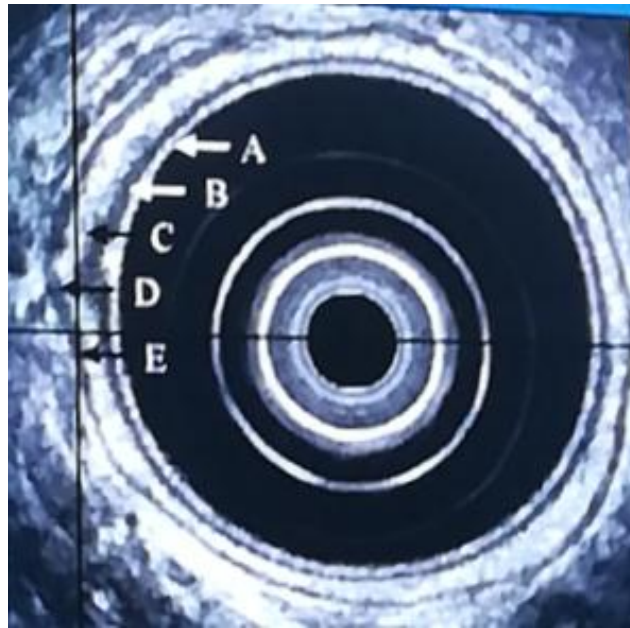
- 1- swallowing disorders (functional abnormalities).
- 2- Determining the length of esophageal structure (structural abnormality).
- 3- Assessment of gastroesophageal reflux.
- 4— postoperative assessment of esophageal anastomosis, anti reflux & obesity reduction surgery.

Normal esophagus Ba swallow:



Normal endoscopic ultrasound

A - mucosa B- muscularis mucosa C – submucosa D- muscularis propria E-adventitia



Esophageal abnormalities

1 - Esophageal carcinoma 60 % are squamous cell carcinoma, the main risk Factor are cigarette smoking & alcohol consumption.

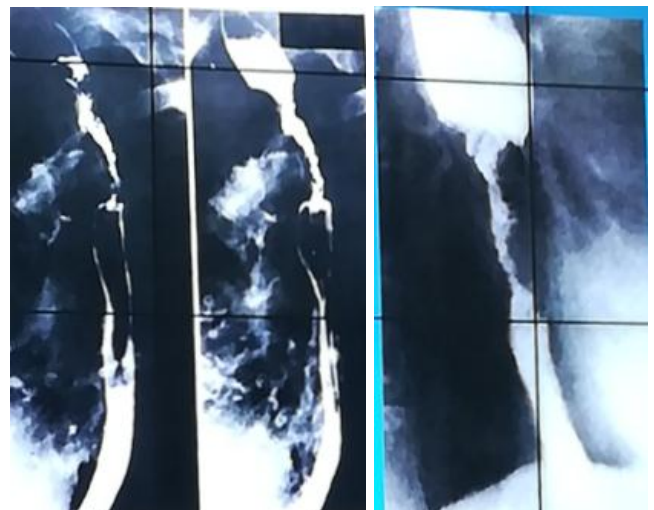
Adenocarcinoma form 40 % of esophageal malignancy arising in the lower esophagus due to columnar epithelial metaplasia as a result of longstanding reflux esophagitis (Barrett's' esophagus)

Most patient with esophageal carcinoma presented with dysphagia with tumor already spread to regional L.N, 5 years survival less than 10 % .

Ba swallow shows constant irregular stricture with dilatation of the upper end (shouldering) .

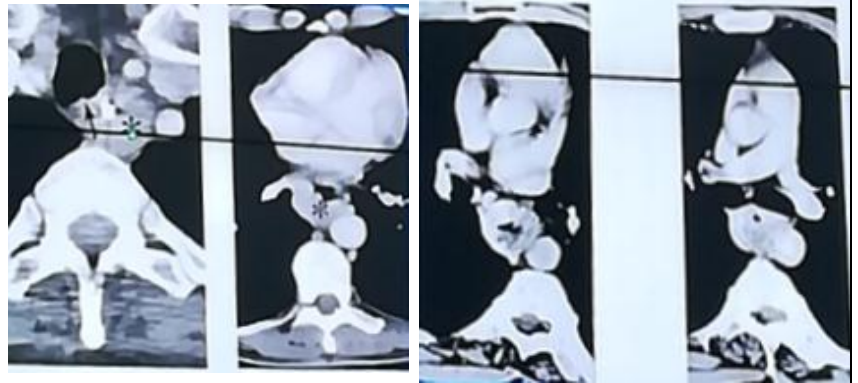
Endoscopic ultrasound shows the tumor as hypoechoic mass , it also can shows adjacent LN enlargement.

C.T shows the tumor as esophageal wall thickening & shows local spread to the mediastinal LN, far spread to the liver & lung.



Esophageal carcinoma Ba swallow:

CT appearance of esophageal carcinoma:



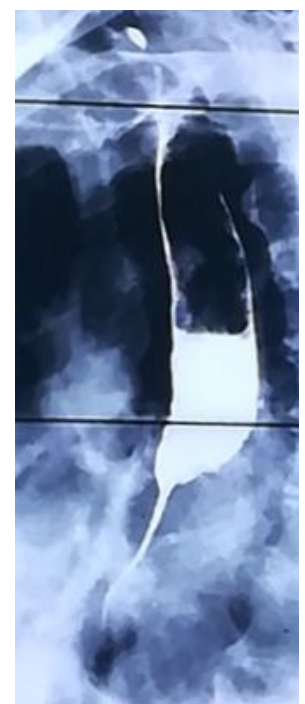
2- Peptic stricture: found at the lower part of esophagus usually associated with hiatus hernia & gastro-esophageal reflux.

The peptic stricture is short with smooth outlines & tapering ends, about 10% of patients with reflux esophagitis have Barrett's esophagus 15% of them develop adenocarcinoma

Peptic stricture:



3- Corrosive stricture result from incidental or suicidal swallowing of strong acids or alkaline, the stricture is long & started at the level of aortic arch which usually smooth with tapered ends as seen in Ba swallow.



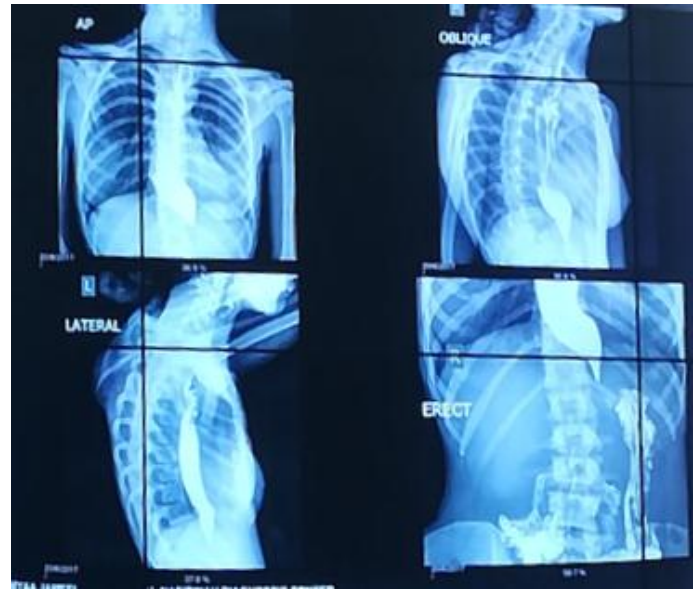
4- Achalasia is a motor disorder of the esophagus caused degeneration of Auerbachs plexus in the lower esophagus resulted into failure of relaxation of the cardioesophageal sphincter, it cause dysphagia for both solid and liquids.

Ba swallow show gastro-esophageal junction as smooth tapering stricture give rat tail or bird beak appearance with intact mucosa.

Widening mediastinum due to dilated esophagus:



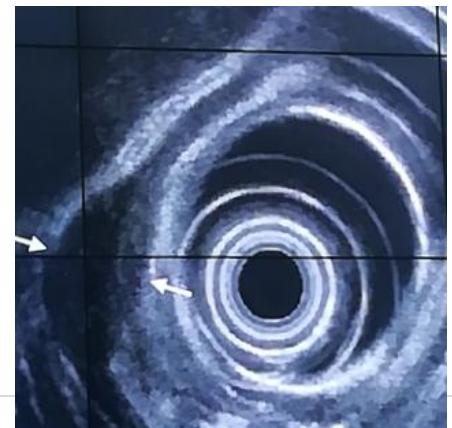
Achalasia Ba Swallow:



5- Leiomyoma: well-encapsulated smooth muscle submucosal tumor commonly found In the low two thirds of the esophagus. it is usually large all the time of diagnosis.

Ba swallow seen as Intramural mass forming obtuse angle with the normal esophagus wall. unlike gastric Leiomyoma it rarely ulcerated & have no malignant potential.

Endoscopic ultrasound leiomyoma:



6- Anomalous right subclavian artery arise as last major branch from the aortic arch pass behind the upper esophagus cause smooth indentation.



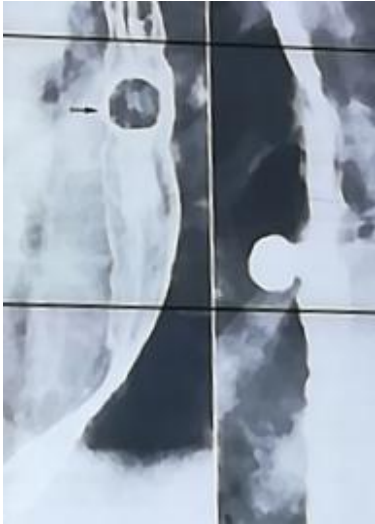
7- Esophageal web is thin shelf like projection arise from the anterior wall of upper esophagus, it may be isolated or as part of Plummer -Vinson syndrome.



8— Esophageal diverticulum are of the following types

- a- pulsion diverticulum develops due to motility abnormality when intramural pressure increased, they are wide necked and at the level of carina.
- b- Traction diverticulum occurs in the mid esophagus resulted from fibrosis of healing tuberculous L.N.
- c- Pharyngeal pouch (Zenkers diverticulum) arise through congenital weakness in the inferior constrictor muscle of the pharynx and lie behind the esophagus cause displacement and compression of the esophagus.

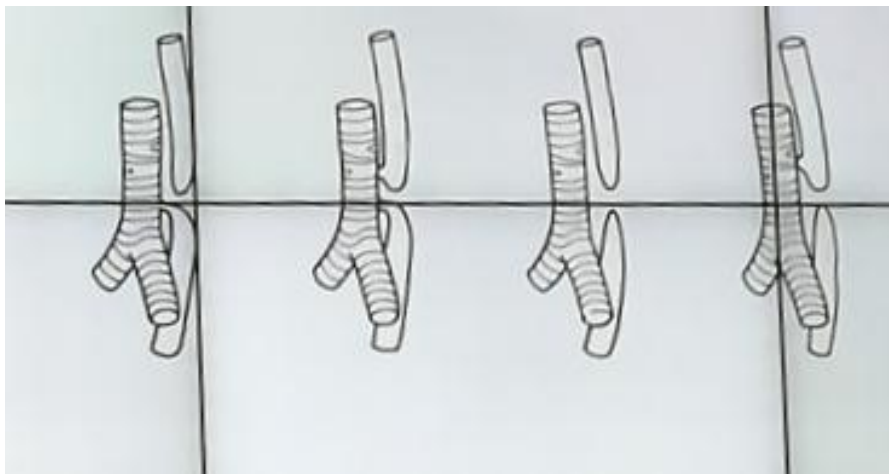
Pulsion diverticulum:



Posterior pharyngeal diverticulum:



9- Esophageal atresia in which the esophagus ends as blind pouch in the mediastinum, the most frequently type is blind sac like upper part with fistula between the lower segment and the trachio bronchial tree .



Thank you,,,