



SPECIAL RADIOLOGICAL PROCEDURES

CONTRAST MEDIA

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جامعة ساوة الاهلية

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كلية التقنيات الصحية والطبية

Department of Radiology Tech.

قسم تقنيات الاشعة والسونار

Stage second

المرحلة الثانية

محاضرة رقم 4

الجانب النظري

Lecture No4.

Theoretical

تدريسي المادة : سهى رحيم هلال

BARIUM SWALLOW



Defination

Barium swallow is the non invasive contrast procedure used in assessing the anatomy, physiology & pathology of upper GI tract including esophagus & GE junction.

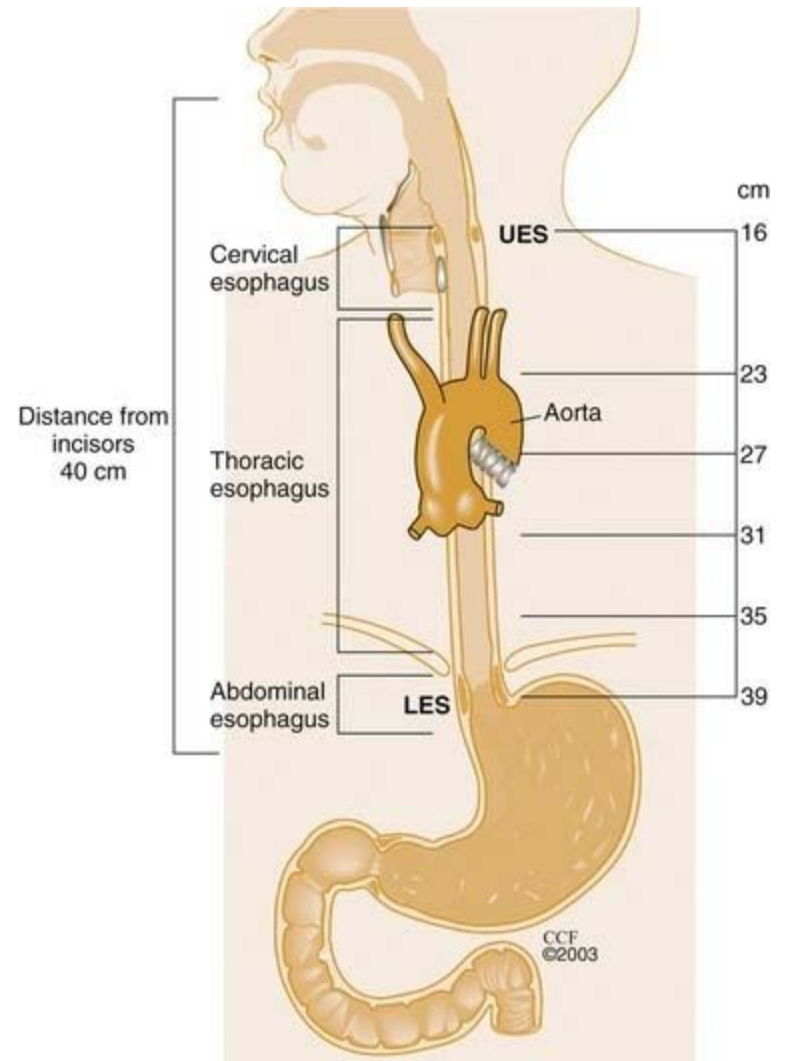
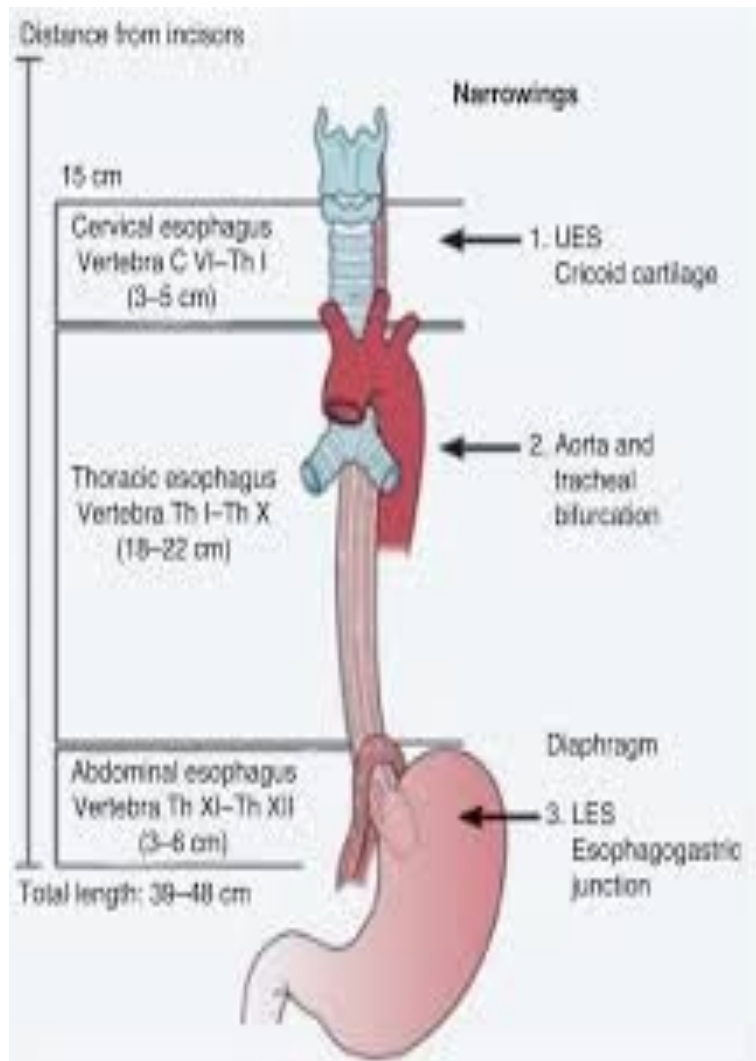
Anatomy Review



The esophagus is a muscular tube that is normally 25cm long and 2-3 cm wide. The esophagus is found anterior to the vertebral column and begin from C6 level down , following the curvature of the vertebral column. It passes through the esophageal hiatus to end with stomach at the gastro-esophageal sphincter .

The esophagus is divided into three segments:

1. Cervical segment.
2. Thoracic segment.
3. Abdominal segment.



Indication



- 1- Dysphagia (difficult swallowing)
- 2- Reflux Esophagitis
- 3- Stricture formation
- 4- Esophageal carcinoma
- 5- Motility disorder like Achalasia

Contraindications



1. Suspicion of perforation
2. Suspicion of fistula (connection between esophagus and trachea)

In these cases we will not use barium so, LOCM contrast agents should be used instead

Patient preparation



- Nothing by mouth for 6 hours prior to exam.
- Avoid smoking at the day of exam .
- Check pregnancy status for female of child bearing age.
- Procedure should be explained to the patient.

Contrast medium used



- 1- E-Z HD 250% or Baritop 100% w/v..
- 2- 100 ml (or more, as required)..
- 3- In form of suspension or paste



Types of study



- 1.** Single Contrast study (to detect any gross lesion)..
- 2.** Double contrast study (to detect mucosal lesion)..
- 3.** Fluoroscopic study (continuous X-ray image on a monitor, like an X-ray video recording).. for assessment of the laryngopharynx and upper esophagus during swallowing

Technique



- 1- Start with the patient in the erect position,
- 2- Ask the patient to full his mouth with contrast but not swallow it until you tell him to do so
- 3- Take frontal and lateral projections of the neck as shown

Barium Swallow

PROBES



Radiographer
The radiographer ensures that you are comfortable and then positions the X-ray machine



X-ray machine

Patient



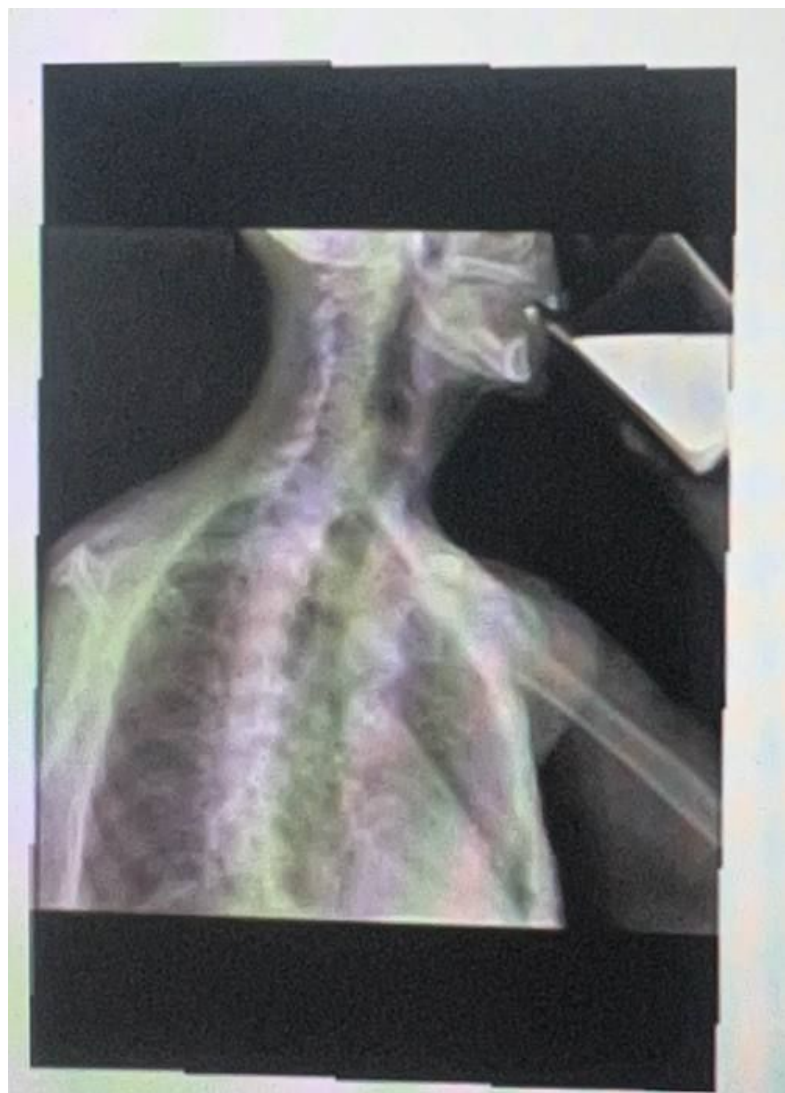
X-ray table

AP/LAT VIEW WITH BARIUM





- 4- Now position the patient in RAO , right anterior oblique, to project the esophagus clear of the spine.
- 5- mouth full of barium is swallowed and this bolus is observed under fluoroscopy to assess the function of the esophagus.
- 6- Then further mouthfuls swallowing with spot exposure(s) to include the whole esophagus distended with contrast.



RAO position



- 1- Aim is To throw the esophagus clear of the spine.
- 2- Patient should be rotated 35– 40 degrees
- 3- Center of beam about 2 inches lateral to mid sagittal plane.
- 4- Bottom of cassette below xiphoid process



Either full length view or at least two spot films

1. Showing the upper & mid part ..
2. Showing mid & lower part







Lateral projection:

- Place patient in lateral position.
- Center of beam mid coronal plane .
- Bottom of cassette below xiphoid process.
- Patient must drink continuously before and during exposure





AP or PA Projection:

- Patient supine or prone or erect .
- Center of beam mid sagittal plane .
- Bottom of cassette should be placed just below tip of xiphoid..
- Patient drinks contrast before exposure and continues drinking during exposure.

Patient swallows
in 15-30 seconds



Radiographs at 1, 2 and 5 minutes



Barium sulphate
(45% weight/volume)
100-250 mL



GE-sphincter assessment

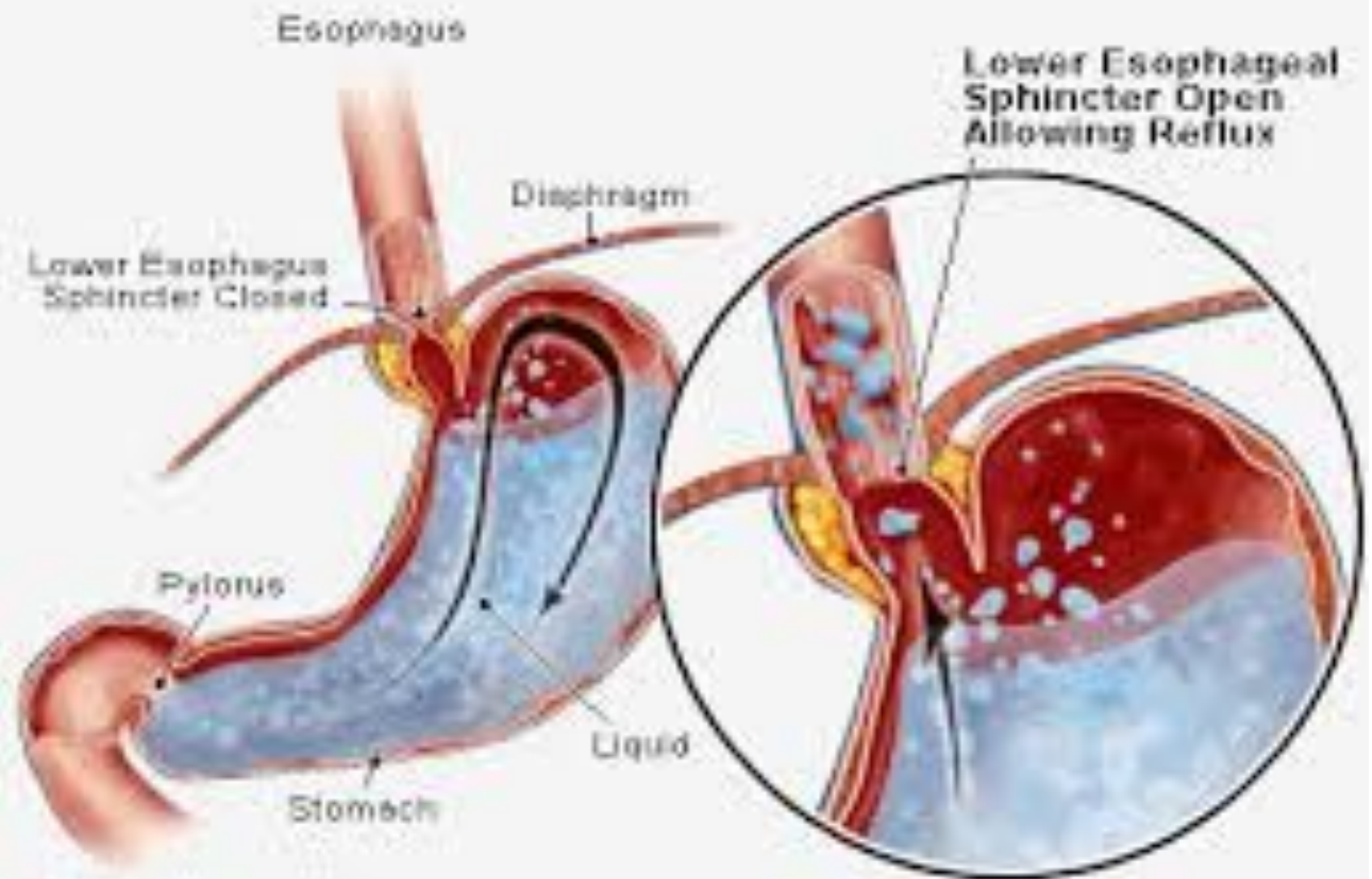


- While patient is supine turned onto the left side and then onto the back (Trendelenburg position) so that barium pools in the gastric fundus,
- GE junction is then observed fluoroscopically, looking for elicited gastro-esophageal reflux.



Trendelenburg position





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Gastroesophageal Reflux

VS



Normal



Reflux





- The past procedure is single contrast study ..
- **Double contrast** study done by adding effervescent (air producing material) with another bolus of barium swallowed quickly ..
- So , the esophagus will be distended with air and give better mucosal details .



Thank
you

