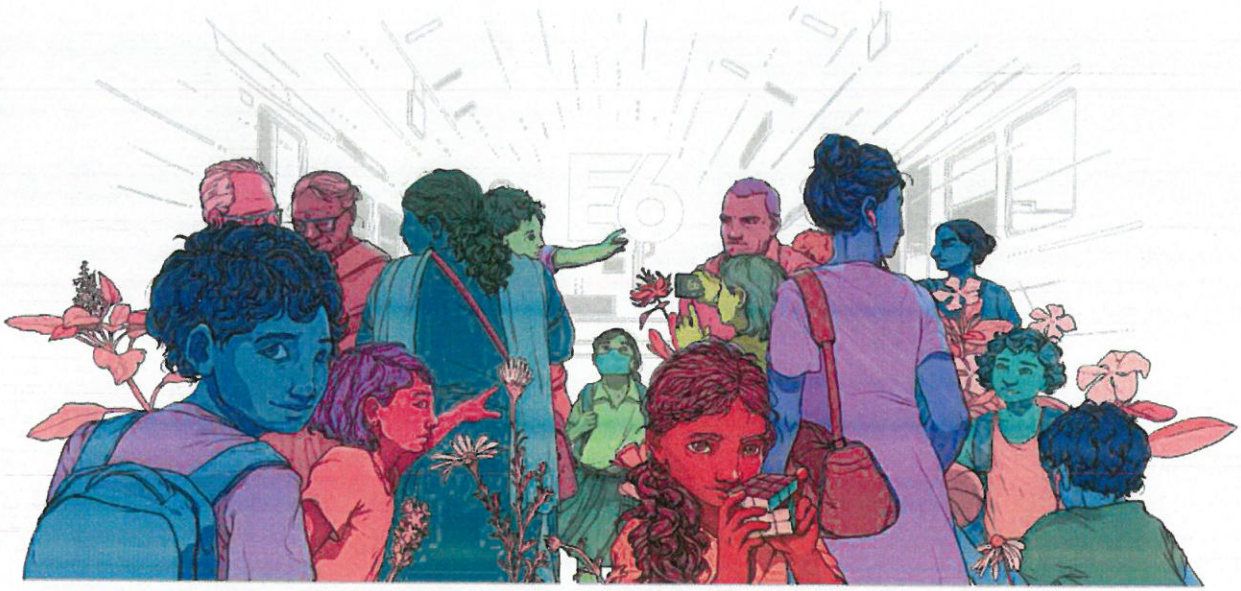


A NEET SS (SURGERY) PREPARATION COURSE
BY MARROW, WITH A TEAM OF SELECTED
SUPER-SPECIALITY FACULTY

SURGERY NEET SS

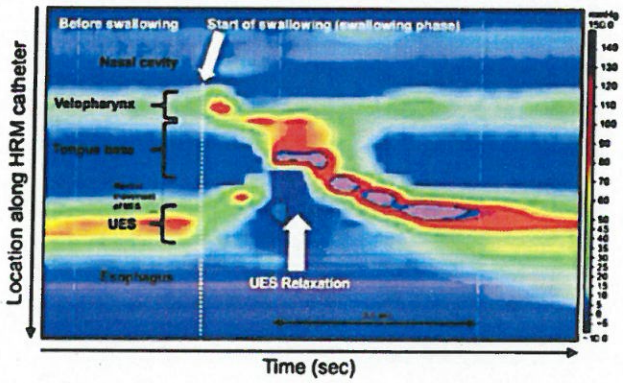
GASTRO SURGERY

PREPARATION COURSE
BY MARROW, WITH A TEAM OF
SELECTED
SUPER-SPECIALITY FACULTY

ANATOMY AND PHYSIOLOGY OF ESOPHAGUS

Upper Esophageal Sphincter 00:01:17

- Cricoid cartilage at the ventral (anterior) border.
- Cricopharyngeal muscles in the lateral and posterior borders.
- Pressure profile (High Resolution manometry) asymmetric.
- Innervation is mainly by the Vagus, also by 9th & 12th cranial nerves.

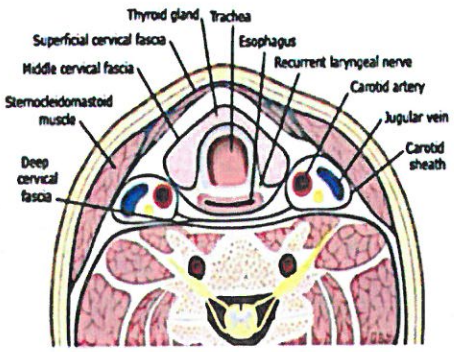


Cervical Esophagus 00:04:10

- 5 cm in length.
- Extends from the : cricoid cartilage at C6 vertebra
  to
  - Supra sternal notch anteriorly.
  - T1-T2 Interspace posteriorly.

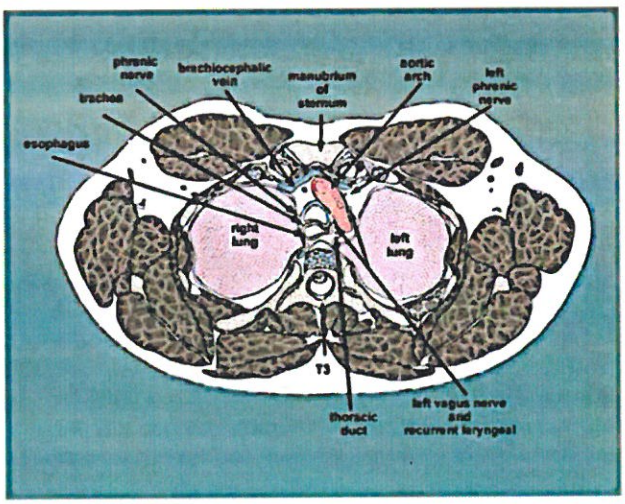
- Blood supply : Superior and Inferior thyroid arteries and drains into the Inferior thyroid veins.
  middle thyroid vein is divided for exposure of cervical esophagus.
- Nerve supply : Recurrent laryngeal nerves.

Active space



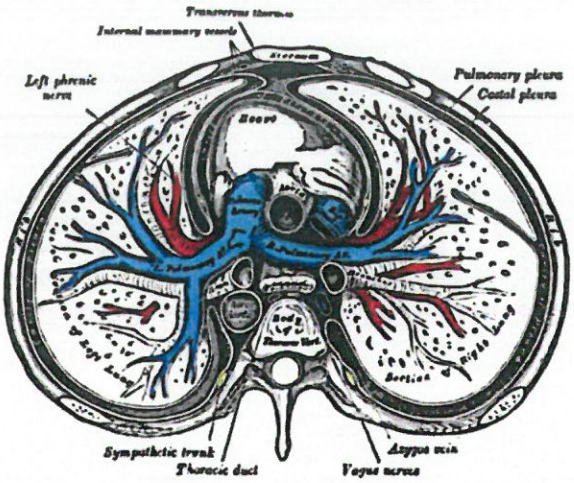
Thoracic Esophagus 00:07:00

- 20 cm long, extends from thoracic inlet → Diaphragmatic hiatus.
- Blood supply: Bronchial arteries, branches from descending aorta. Venous drainage → azygous and bronchial veins.
- Upper thorax : Anteriorly → Trachea ; Right → Azygous vein ; Left → Left subclavian artery and aortic arch.
- Upto T8 : Descending aorta turns posteriorly and runs to the left of esophagus.
- From T8 : Esophagus moves anterior to the aorta.

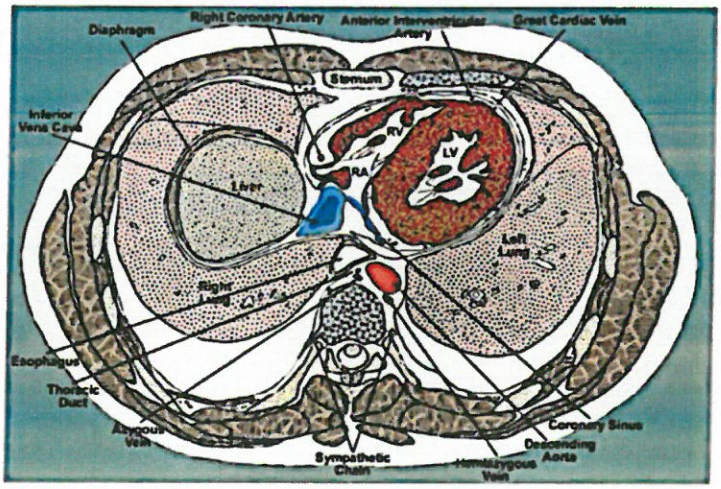


Esophagus at T4.

Active space



Esophagus at Carina.



Esophagus at T9.

Lower Esophageal Sphincter 00:13:39

- Mechanical description: Demeester School.
- 3 manometrically assessed components : Overall length of the high pressure zone (minimum 3 cm), sphincter pressure and sphincter position expressed by intra abdominal length of high pressure zone.
- Dynamic concept by gastroenterologists → Dent and Dodds → Transient LES relaxations (tLESR) → To explain GERD.

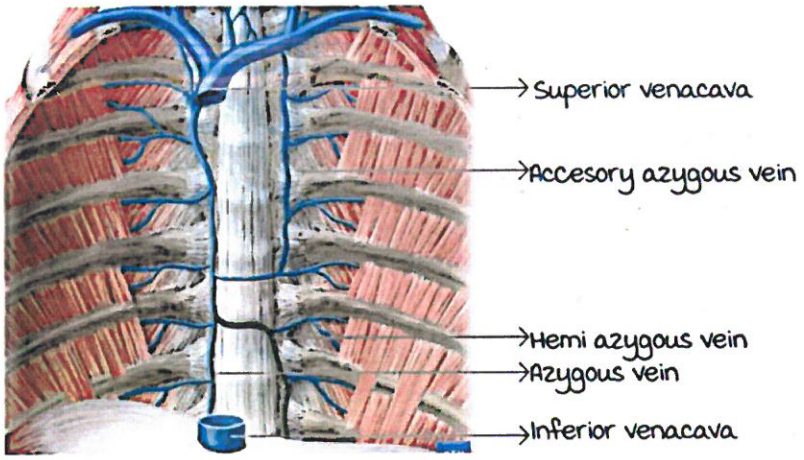
Active space

- If duration or number of relaxation of LES more, then called as pathological tLESR.

Azygous Vein

00:15:46

- Origin : Lumbar azygous vein at the level of IVC.
- Tributaries : Hemiazygous and accessory hemiazygous vein.
- Drains: To superior venacava just before SVC pierces the pericardium.
- Course: Ascends in posterior mediastinum ; present to the right posterolateral aspect of descending thoracic aorta; and anterior to T_4-T_{12} Vertebrae.
- At T_4 arches above the right pulmonary hilum and then drains into SVC.



Thoracic Duct

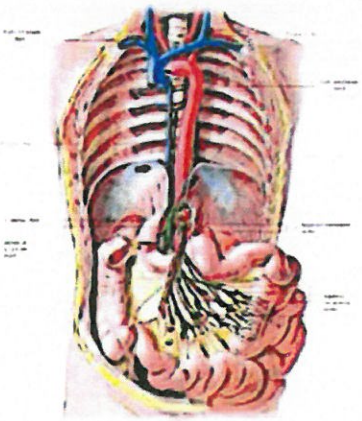
00:17:27

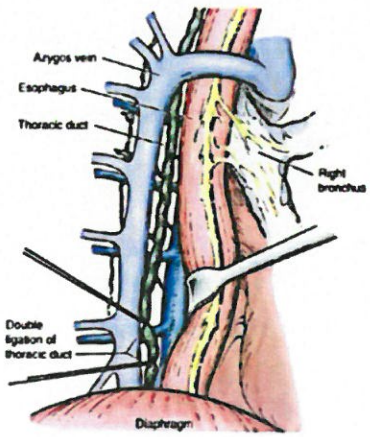
- Begins in the abdomen as the cysterna chyli at T_{12}.
- Passes through aortic hiatus along with azygous vein.
- Lies on the anterior surface of vertebra, posterior to the esophagus between the azygous on right and descending aorta on left.
- Right and posterior to the esophagus upto T_7, crosses midline to left side at T_5.
- Ascends 2 to 3 cm above the clavicle and descends to

Active space

empty into junction of left subclavian and internal jugular veins.

- For mass ligation in chylothorax, best measure is to clip the thoracic duct, if all measures fail, tissues between azygous vein and aorta is ligated just above the diaphragm.





Active space

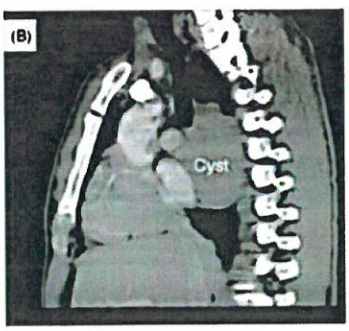
BENIGN ESOPHAGEAL LESIONS

Esophageal duplication cyst 00:00:20

- 2nd most common benign posterior mediastinal lesion in children after bronchogenic cyst. (Foregut cysts form 20 % of all GI cysts).
- Cystic form : most common (80 %) with no luminal communication.
- Tubular form (20 %) communicates with esophageal lumen.
- may contain heterotopic gastric or pancreatic mucosa.
- CT reveals a smooth, well defined hypodense lesion in posterior mediastinum close to esophagus.
- Endoscopy reveals a submucosal lesion.
- Resection recommended compared to EUS/FNA as there is a risk of hemorrhage, ulceration, malignant transformation.

Palmer's criteria for Esophageal duplication cysts :

- To differentiate it from bronchogenic cysts.
- Lesion should be within or attached to esophageal wall.
- 2 layers of smooth muscle (Inner circular and outer longitudinal).
- Cyst wall lining should contain ciliated epithelium or embryological tissue (Bronchogenic cyst is made up of cartilage, hallmark differentiating factor).



Active space

Esophageal Leiomyoma

00:04:47

- Most common benign esophageal or GEJ tumor.
- Most common location is distal 2/3rd of the esophagus.
- Ratio of men : women is 2 : 1.
- Originates in the intramural (Muscularis propria > Muscularis mucosa) layers of the esophagus.
- 50 % asymptomatic.

Indications for resection of leiomyoma :

- Symptomatic lesions.
- Inability to rule out malignancy or distinguish from GIST (High chance for malignancy).
- Atypical imaging findings (To rule out leiomyosarcoma).
- Overlying mucosal erosion or dysplastic changes.
- Regional lymphadenopathy, large tumors.
- Tumor growth during surveillance.

Esophageal GIST :

- Less common than leiomyoma, but more common than Schwannoma.
- Male preponderance (2 : 1).
- Highest malignant potential.

- Indications for surgical resection :
  1. Size > 2 cm.
  2. < 2 cm with high risk (High mitotic index etc.).
  3. Symptomatic or increasing size.

- Lymphadenectomy not required unless pathologically positive nodes are present.
- Re-resection of microscopically positive resection margins, is generally not indicated.

Active space

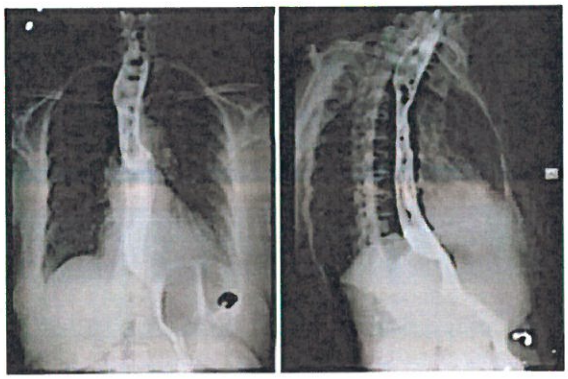
Fibrovascular Polyps

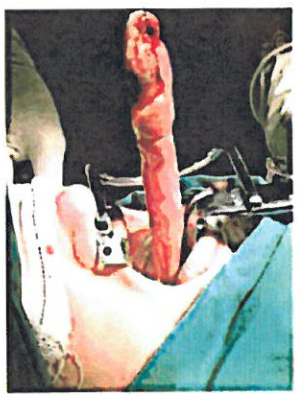
00:08:39

- Rare, but most common Intraluminal tumor of the esophagus.
- Originate as submucosal thickening near cricopharyngeus muscle and elongates into polypoid shape due to esophageal peristalsis.
- Resection in all cases due to potential airway compromise.

Approach :

- Open surgery : Transcervical approach or thoracotomy. (Esophagus is opened opposite to the origin of the polyp).
- Endoscopic : Risk of bleeding.





MCQ's :

Q. Palmer's pathologic criteria are used to define ?

A. Leiomyoma esophagus.

B. Esophageal duplication cyst.

C. GIST esophagus.

D. Herpes esophagitis.

Active space