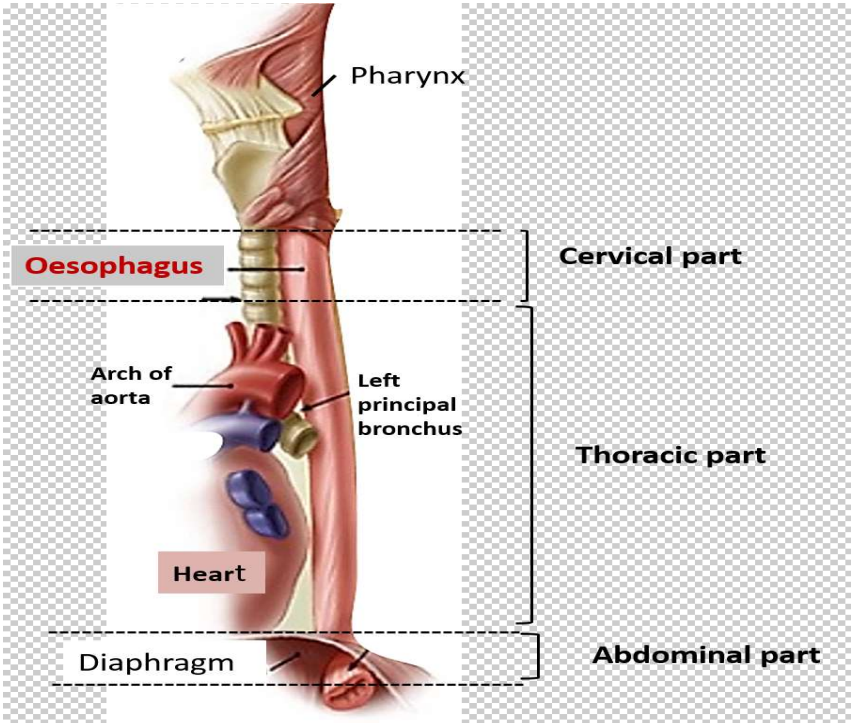
MJF AYURVEDA MAHAVIDYALAYA
Chomu, Jaipur

OESOPHAGUS



Presented by-
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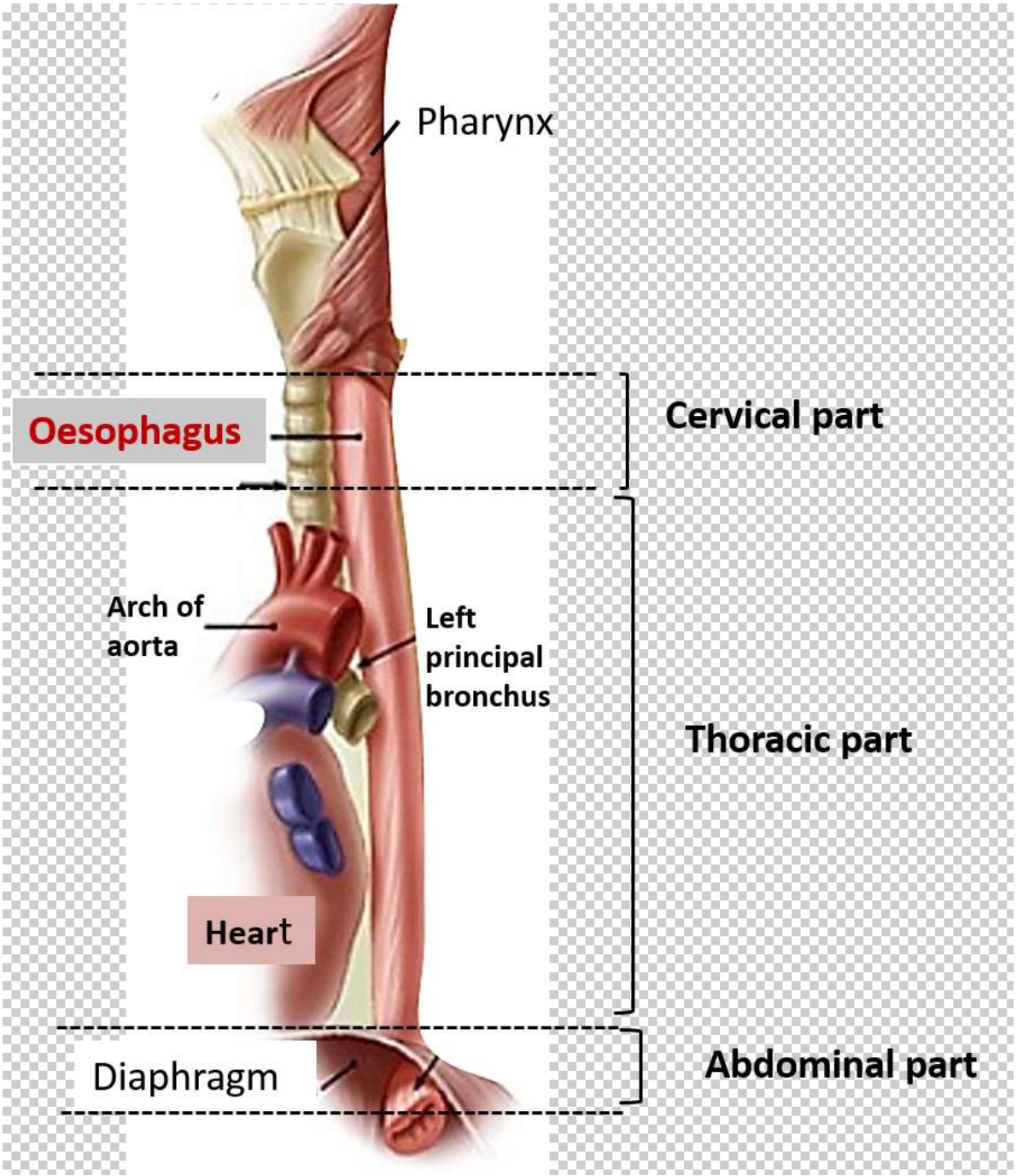
PO (Programme outcome)	CO (Course outcome)
PO 1-Demonstrate comprehensive knowledge and application of the Trisutraconcept to explore root causes, identify clinical manifestations of disease to treat alments and maintain heathy status	CO6- Explain and demonstrate the gross anatomy of the organs of various systems and their applied anatomy in perspective of Ayurveda and Modern science
PO 2-Demonstrate knowledge and skills in Ayurveda, acquired through integration of multi disciplinary perspectives and keen observation of clinical and practical experiences.	

- Teaching Learnings method-Lecture with power point presentation
- Domain-Cognitive –Psychomotor
- Must to know/desirable to know/Nice to know-Must to know
- Millers pyramid-Knows and shows how
- Bloom texonomy-Remember and Understand

INTRODUCTION

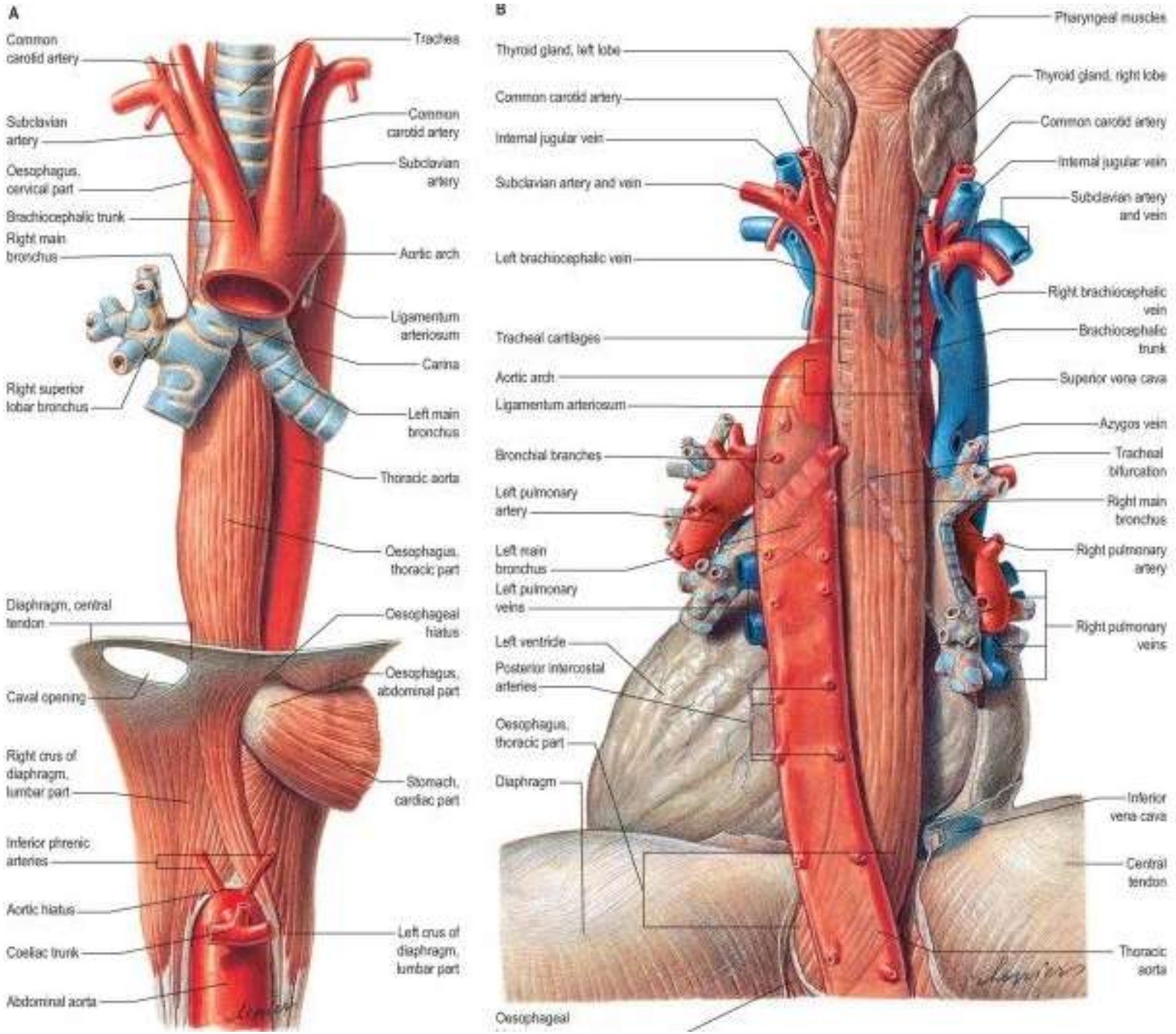
- Fibro-muscular tube
- lies posterior to the trachea
- It is usually flattened anteroposteriorly
- The oesophagus extends from the distal termination of the pharynx at the level of the C6 to the cardiac orifice of the stomach. It is 25 cm in length and can be divided, into cervical, thoracic and abdominal part.
- Narrowest part of the alimentary tract (except for the vermiform appendix)


Pharynx
Oesophagus
Cervical part
Arch of aorta
Left principal bronchus
Thoracic part
Heart
Diaphragm
Abdominal part

AREAS OF CONSTRICTION-4

1. 15 cm from the incisor teeth, (pharyngo-esophageal junction)- cricopharangeal constriction
2. where it is crossed by the aortic arch (22.5 cm from the incisor teeth),
3. where it is crossed by the left principal bronchus (27.5 cm from the incisors)
4. as it passes through the diaphragm (40 cm from the incisors).

These measurements are important clinically with regard to the passage of instruments along the oesophagus.


A
Common carotid artery
Trachea
Subclavian artery
Common carotid artery
Oesophagus, cervical part
Subclavian artery
Brachiocephalic trunk
Right main bronchus
Aortic arch
Ligamentum arteriosum
Carina
Right superior lobar bronchus
Left main bronchus
Thoracic aorta
Oesophagus, thoracic part
Diaphragm, central tendon
Oesophageal hiatus
Caval opening
Oesophagus, abdominal part
Right crus of diaphragm, lumbar part
Stomach, cardiac part
Inferior phrenic arteries
Aortic hiatus
Coeliac trunk
Left crus of diaphragm, lumbar part
Abdominal aorta
B
Pharyngeal muscles
Thyroid gland, left lobe
Thyroid gland, right lobe
Common carotid artery
Common carotid artery
Internal jugular vein
Internal jugular vein
Subclavian artery and vein
Subclavian artery and vein
Left brachiocephalic vein
Right brachiocephalic vein
Tracheal cartilages
Brachiocephalic trunk
Aortic arch
Superior vena cava
Ligamentum arteriosum
Azygos vein
Bronchial branches
Tracheal bifurcation
Left pulmonary artery
Right main bronchus
Left main bronchus
Right pulmonary artery
Left pulmonary veins
Right pulmonary veins
Left ventricle
Posterior intercostal arteries
Oesophagus, thoracic part
Diaphragm
Inferior vena cava
Central tendon
Thoracic aorta
Oesophageal

CERVICAL OESOPHAGUS

The cervical oesophagus is posterior to the trachea and attached to it by loose connective tissue. The recurrent laryngeal nerves ascend on each side in or near the tracheo-oesophageal groove.

Relations

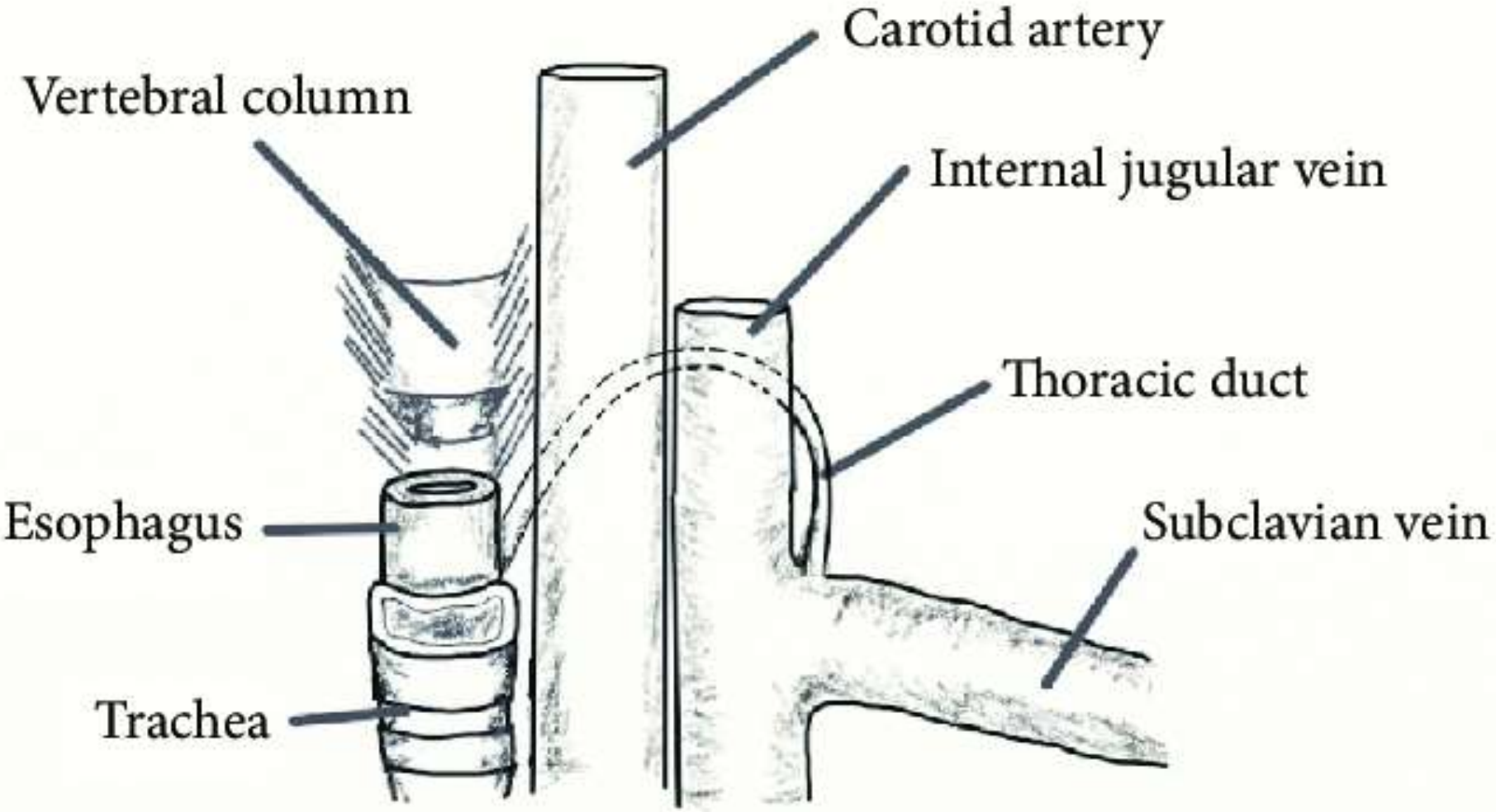
- Posterior- C6-C7
- Laterally- common carotid arteries, recurrent laryngeal nerve
- Anteriorly- trachea

Thoracic esophagus

- The bulk of the oesophagus lies in the thorax, where it traverses the superior and then the posterior mediastinum, here it passes forward and to the left to reach the oesophageal hiatus of the diaphragm at the level of T10 .
- Relations

❖Anteriorly- trachea, the left main bronchus, the pericardium

- Posteriorly- T1 to T10, the thoracic duct, the azygos vein
- On the left side- left subclavian artery, the aortic arch, the left recurrent laryngeal nerve and the thoracic duct
- On the right side- termination of the azygos vein.


Carotid artery
Vertebral column
Internal jugular vein
Thoracic duct
Esophagus
Subclavian vein
Trachea

Abdominal Oesophagus

The abdominal part of the oesophagus, about 1.25 cm in length, passes through the opening formed by the two crura of the diaphragm.

HISTOLOGY

Inner to outer – 4 layers

1. Mucosa- The mucosa of the esophagus consists of NKSSE. Near the stomach, the mucosa of the esophagus also contains mucous glands.
2. Submucosa- contains areolar connective tissue, blood vessels, and mucous glands.
3. Muscularis- of the superior third of the esophagus is skeletal muscle, the intermediate third is skeletal and smooth muscle, and the inferior third is smooth muscle.

At each end of the esophagus, the muscularis becomes slightly more prominent and forms two sphincters—the upper esophageal sphincter, which consists of skeletal muscle, and the lower esophageal sphincter, which consists of smooth muscle. The upper esophageal sphincter regulates the movement of food from the pharynx into the esophagus; the lower esophageal sphincter regulates the movement of food from the esophagus into the stomach.

4. Adventitia- The adventitia attaches the esophagus to surrounding structures.

Blood supply

The oesophagus has a rich arterial supply;

- **Cervical part-** from the inferior thyroid artery,
- **Thoracic part-** from a series of branches passing directly from the adjacent thoracic aorta
- **Abdominal part**- from the oesophageal branch of the left gastric artery.

The veins from the cervical oesophagus drain into the interior thyroid veins. The thoracic oesophagus drains into the azygos system, while the lower part of the organ empties into the

oesophageal tributaries of the left gastric vein, which itself drains directly into the portal vein.

Lymphatic drainage

into the left gastric lymph nodes and para-aortic nodes

Innervation

from the vagal trunk, the thoracic sympathetic trunks via the greater splanchnic nerves.

Clinical aspect

1. **Achalasia-** is a failure of smooth muscle fibers to relax, which can cause the lower esophageal sphincter to remain closed.

Symptoms (Dysphagia, regurgitation of food, weight loss, pain)

2. **Perforation the oesophagus-** Foreign body, intubation, endoscopy, dilatation, Accident

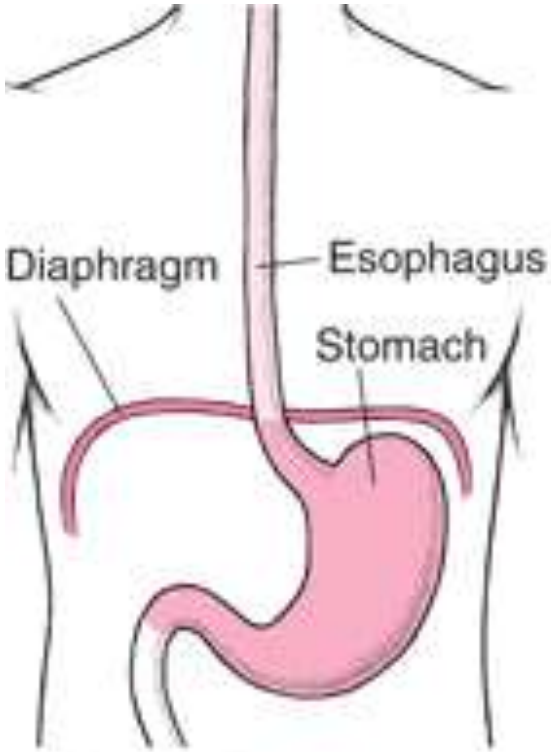
Sym- Dysphagia, Pain, Fever (mediastinitis, empyema thoracis, peritonitis)

3. Hiatal hernia-

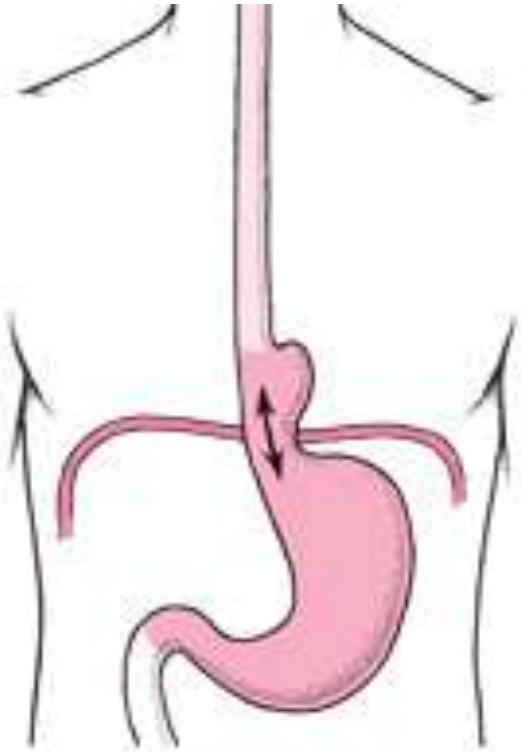
- **Symptoms of Paraoesophageal hiatal hernia- Often asymptomatic, Obstruction, Pain, Dysphagia, Ulcer diasesae.**
- **Symptoms of Sliding hiatal hernia-**

- **Chronic (80-85%)**
  - Dysphagia
  - Early Satiety
  - Pain/Heartburn
  - Anaemia

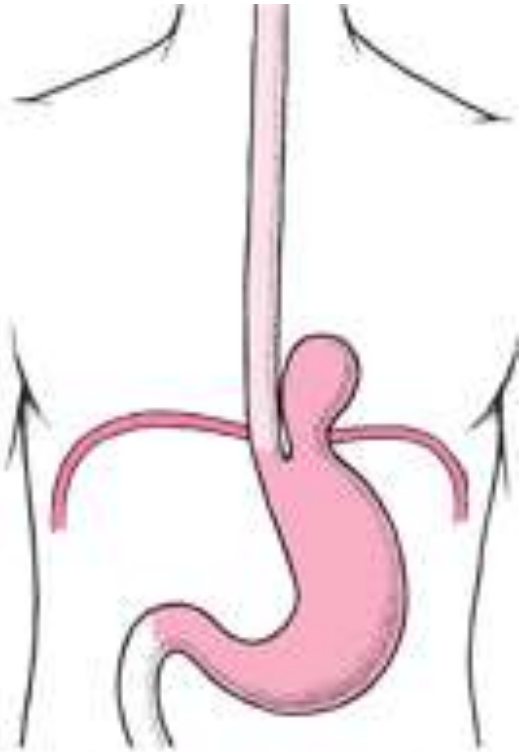
- **Acute (15-20%)**
  - Dysphagia
  - Haematemesis
  - Obstruction
  - Perforation
  - Peritonitis



Normal Esophagus and Stomach



Sliding Hiatus Hernia



Paraesophageal Hiatus Hernia

4. **Esophageal varices-** are extremely dilated sub-mucosal veins in the lower third of the esophagus. They are most often a consequence of portal hypertension, commonly due to cirrhosis; people with esophageal varices have a strong tendency to develop bleeding.

5. Esophageal tumours

FORMATIVE ASSESMENT

- **Short Answer Questions (5 Marks Each)**

1. Describe the course and extent of the oesophagus.
2. Mention the constrictions of the oesophagus and their clinical importance.
3. Write a note on the anatomical relations of the thoracic part of the oesophagus.
4. Describe the blood supply, venous drainage, lymphatic drainage, and nerve supply of the oesophagus.
5. Write about the histological layers of the oesophagus.