Human Anatomy -1st year 2020-2021

Anatomy Of Esophagus

Lecture (10)

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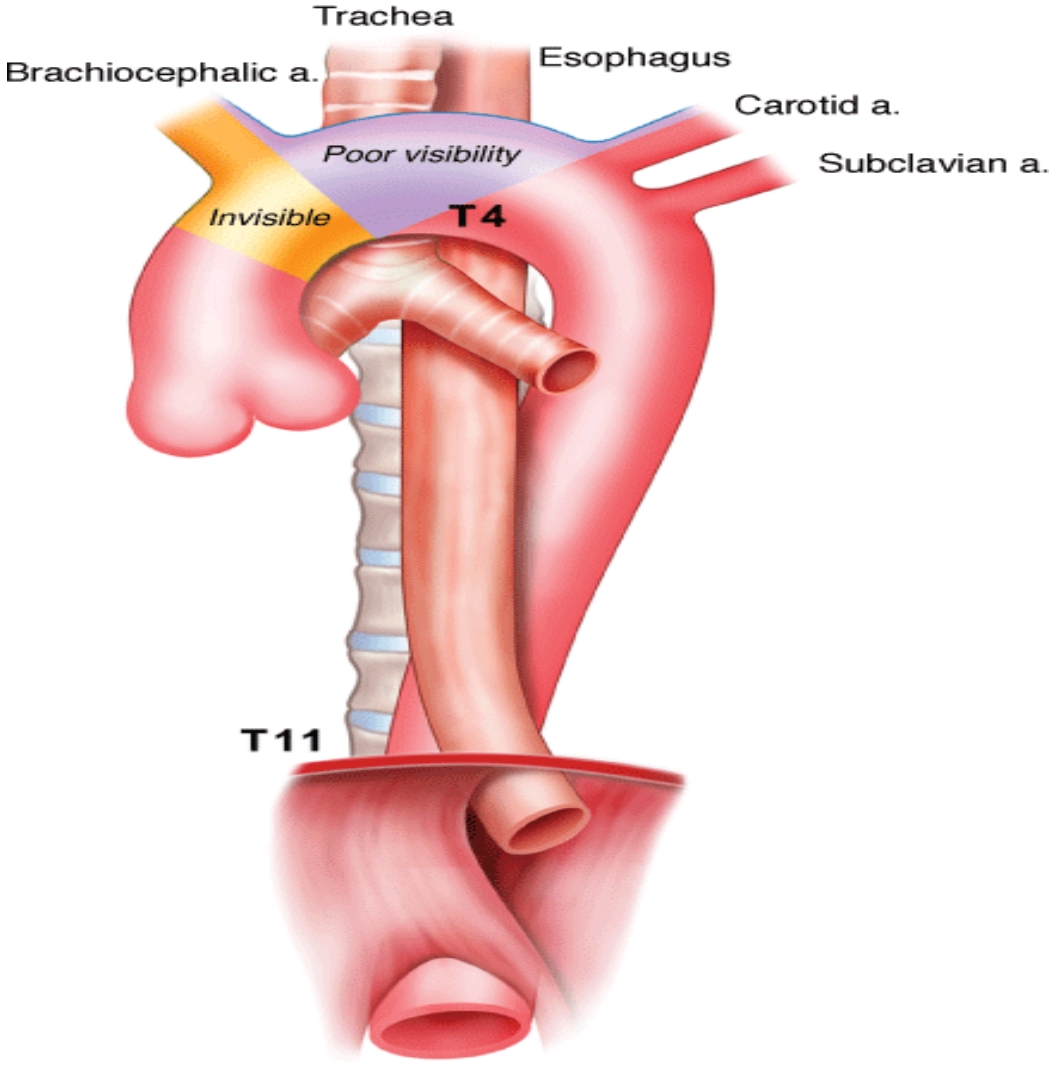
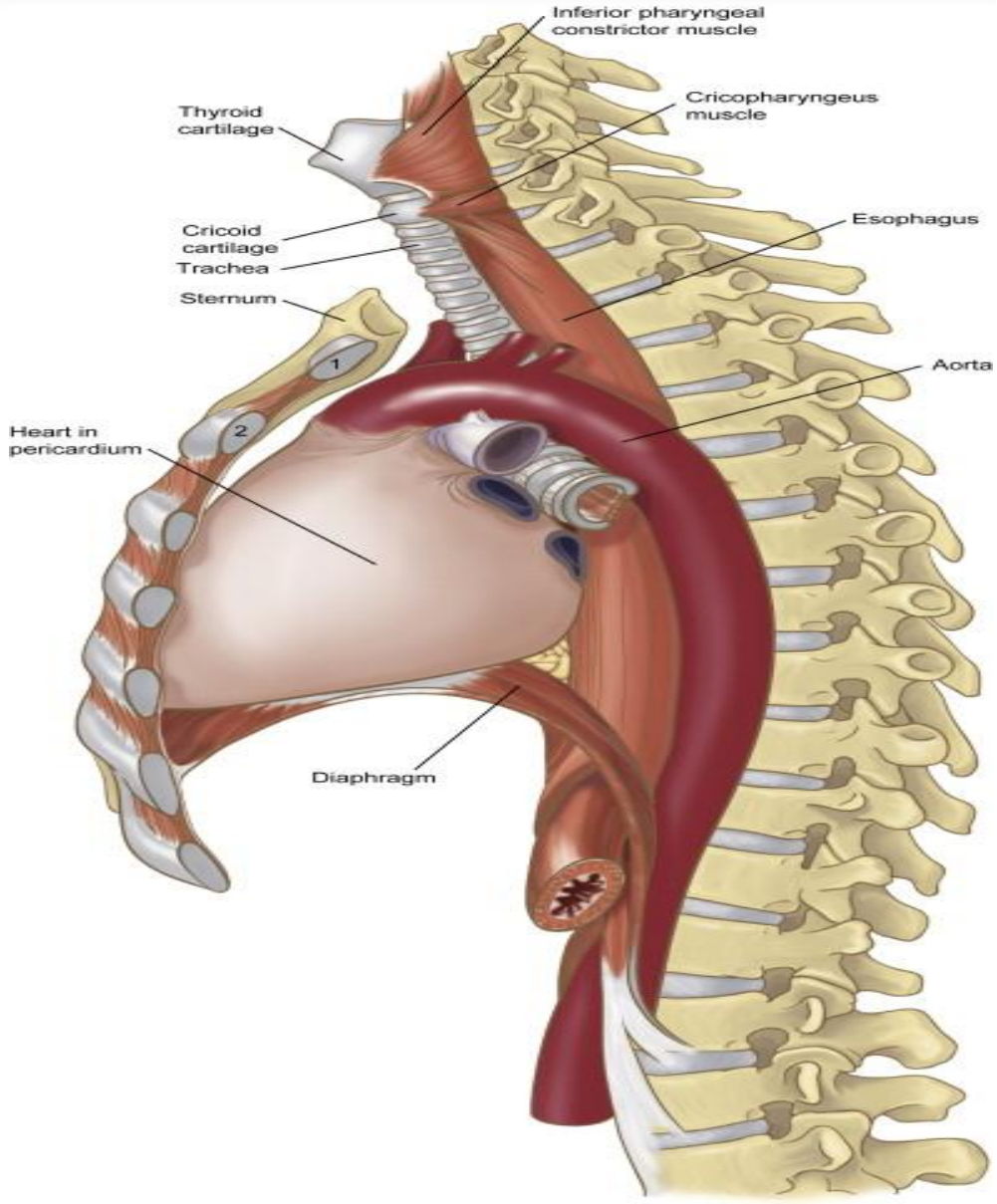


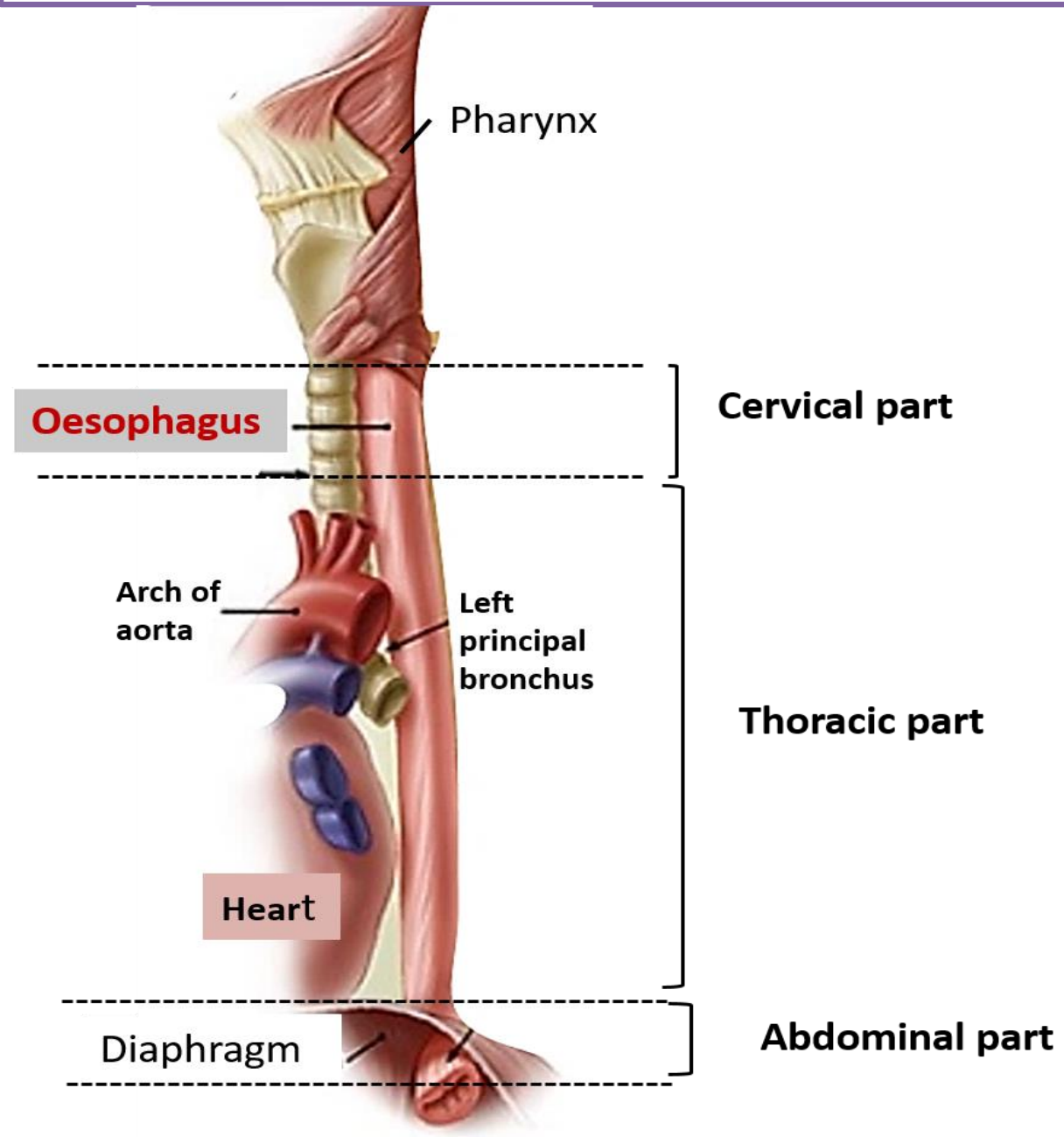
Source: Mathew JP, Swaminathan M, Ayoub CM: *Clinical Manual and Review of Transesophageal Echocardiography, 2nd Edition:* www.accessanesthesiology.com

OBJECTIVES

- Define the Esophagus
- Describe its extent, length, parts, sphincters , relations, blood supply, innervation and lymphatics.



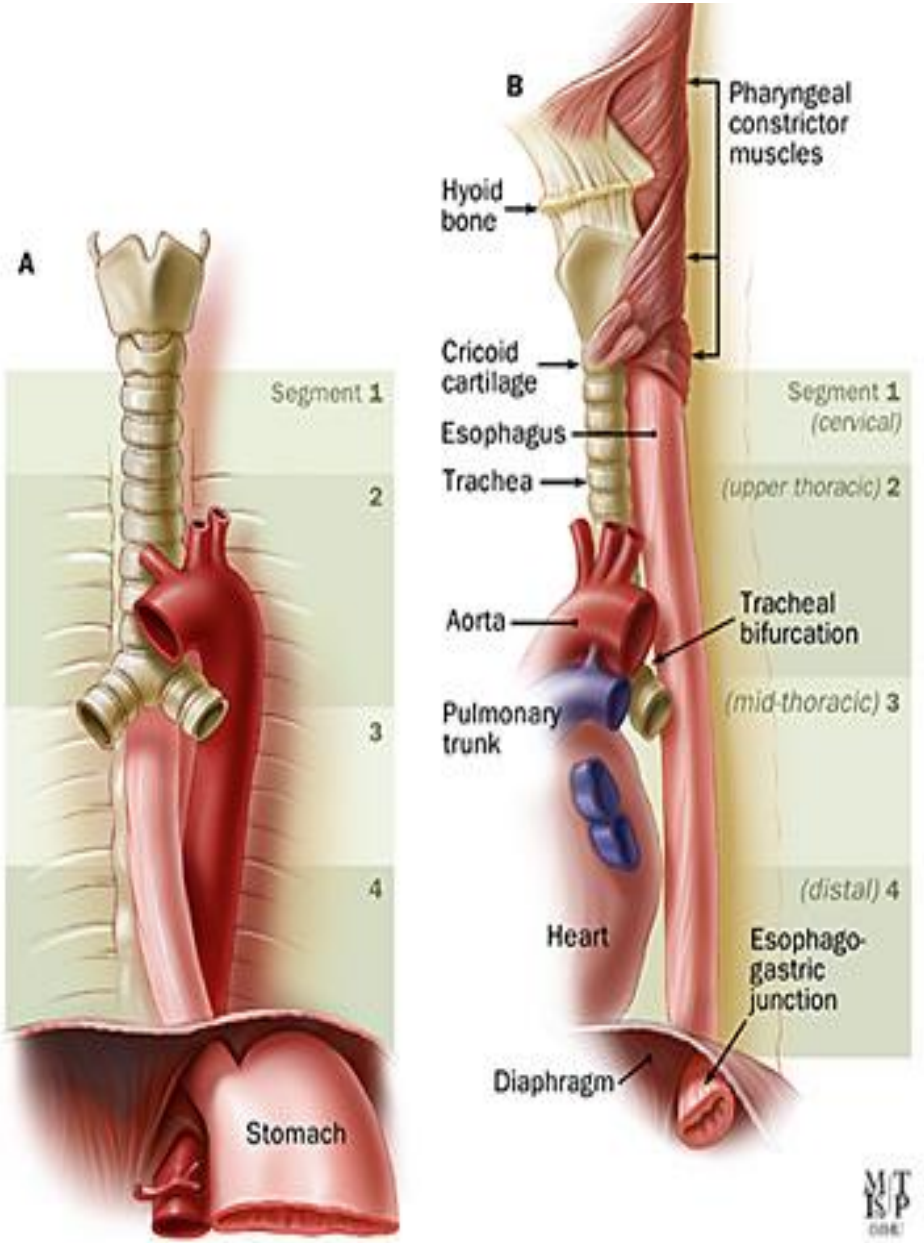
ESOPHAGUS



- It is a tubular structure about 25 cm long.
- Begins as the continuation of the pharynx at the level of the 6th cervical vertebra.
- Pierces the diaphragm at the level of the 10th thoracic vertebra to join the stomach.
- It is divided into 3 parts:
- 1- Cervical.
- 2- Thoracic.
- 3- Abdominal.

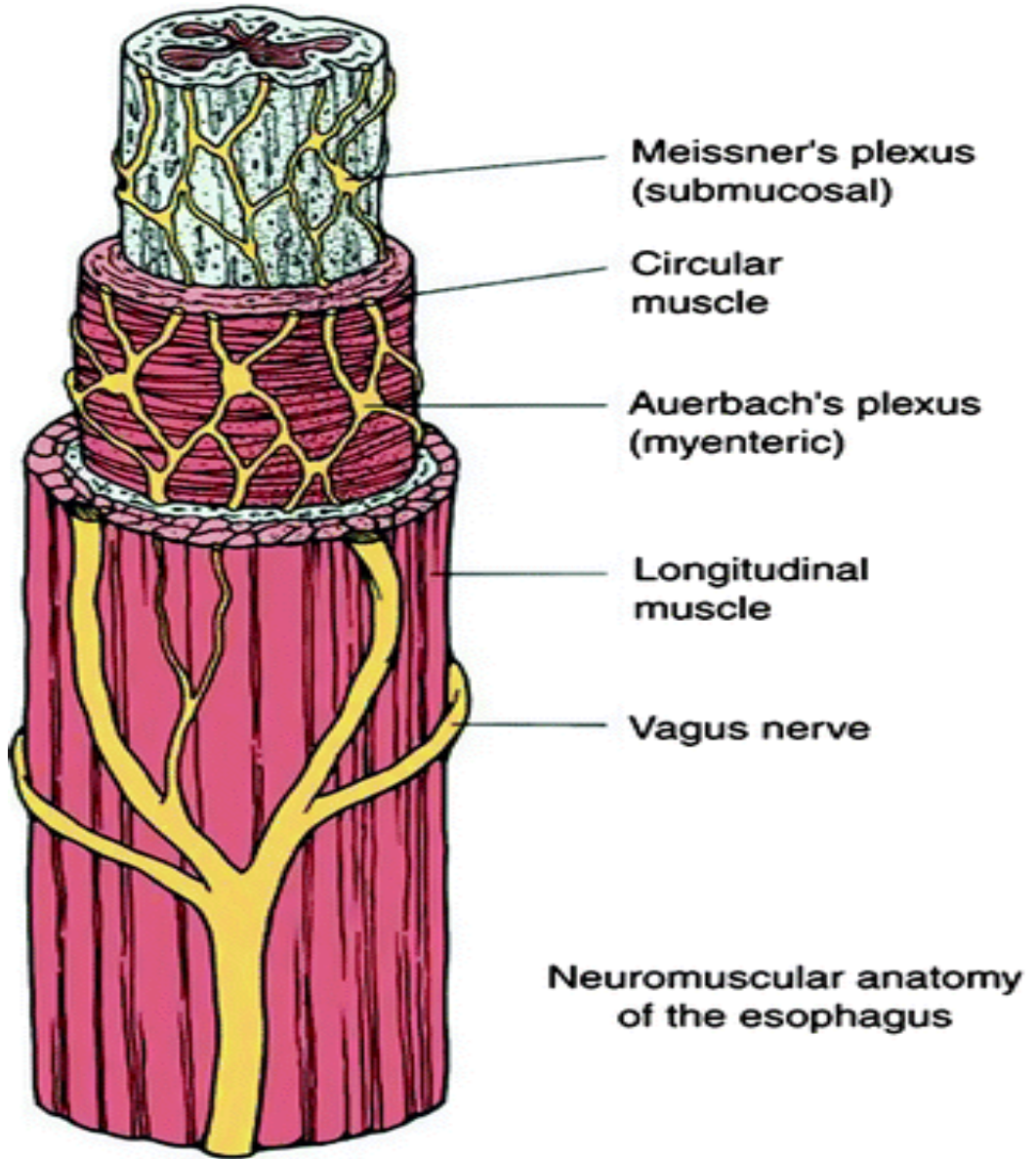
ESOPHAGUS

- 🔔 **Cervical part** of esophagus lies the behind trachea.
- 🔔 **Thoracic part** : passes downward and to the left through superior then to posterior mediastinum
- It lies behind the heart and curves in front of the thoracic aorta. At the level of the sternal angle, the aortic arch pushes the esophagus again to the midline.
- From the bifurcation of the trachea downwards, the esophagus passes behind the left main bronchus, and left atrium.
- 🔔:**Abdominal part** : the esophagus then pierces the diaphragm at T10 to form abdominal esophagus .



Muscular layers of esophagus

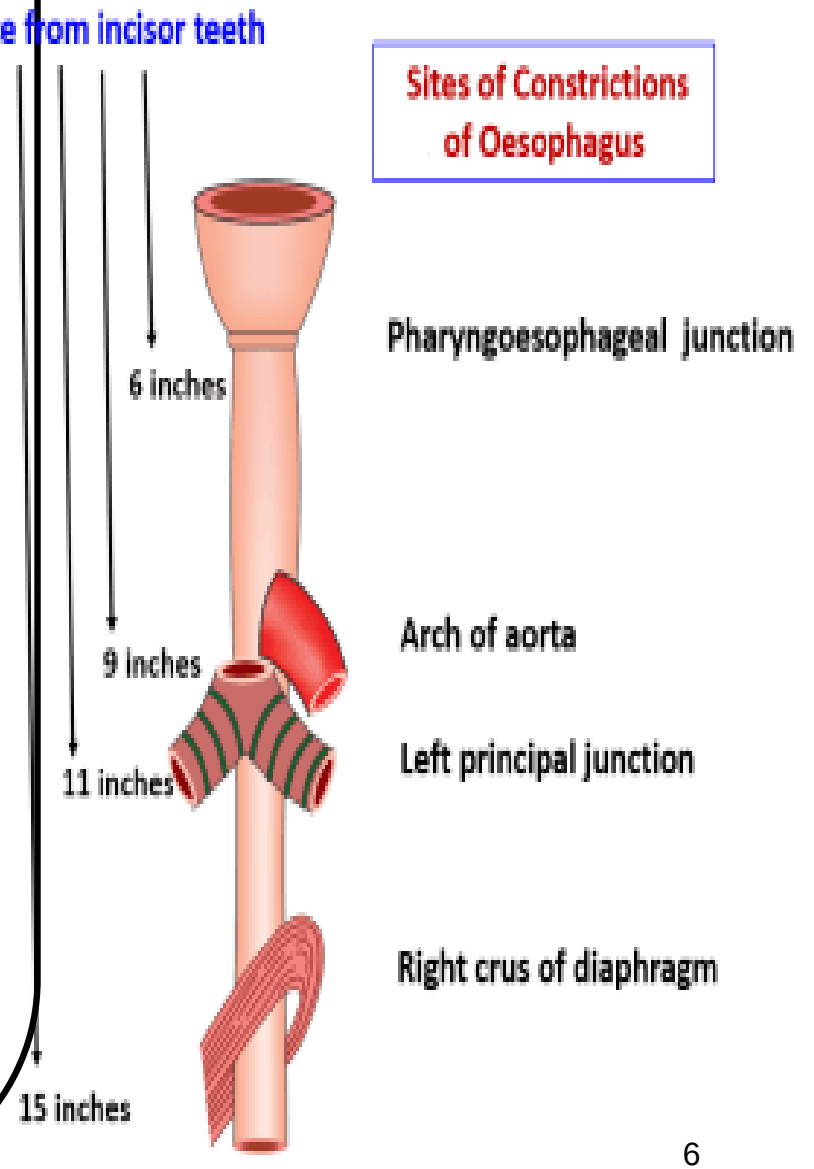
- The esophagus consists of an internal circular and external longitudinal muscles.
- The external longitudinal muscle comprised of different type of muscle in each part
- **Superior part** – voluntary striated muscle.
- Middle part – Mixed striated and smooth muscles
- **Inferior part** – involuntary smooth muscle.



Neuromuscular anatomy of the esophagus

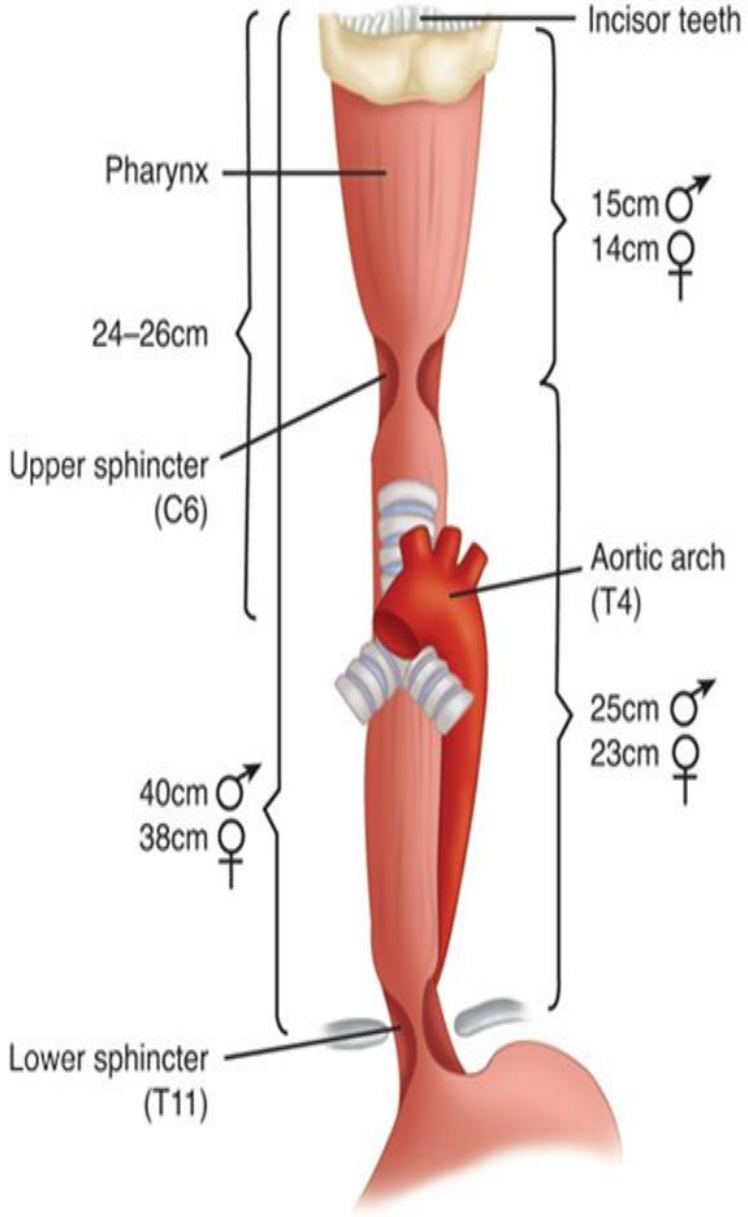
Esophageal Constrictions

- The esophagus has four points of constriction. When a corrosive substance, or a solid object is swallowed, it is most likely to lodge and damage one of these four points.
- These constrictions are:
- 1. At the beginning of the esophagus, where the pharynx joins the esophagus, behind the cricoid cartilage.
- 2. Where it is crossed on the front by the aortic arch in the superior mediastinum
- 3. Where the esophagus is compressed by the left main bronchus .
- 4. The esophageal hiatus, where it passes through the diaphragm in the posterior mediastinum



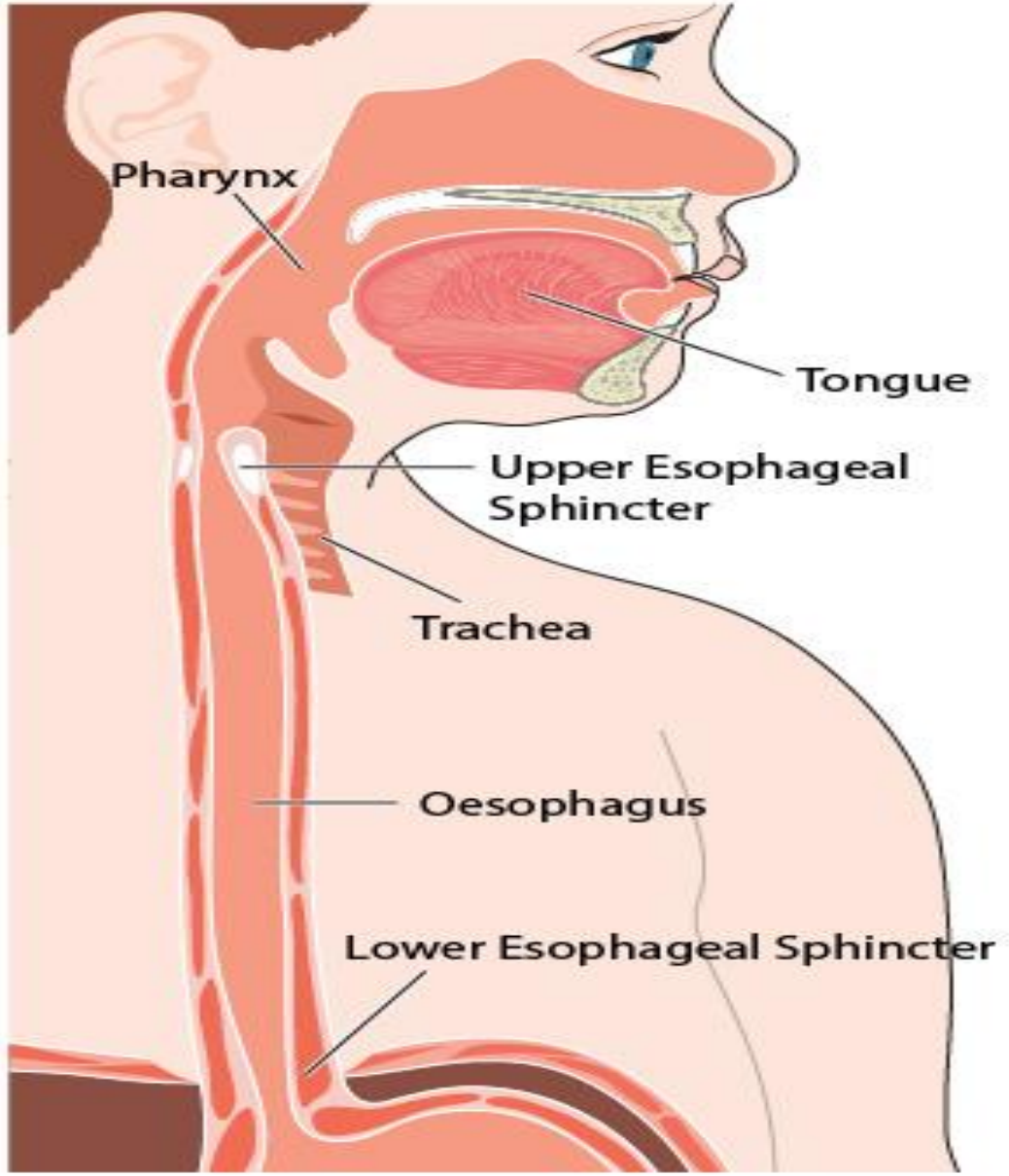
Clinical importance of these constrictions

1. They may cause difficulties in passing an esophagoscope.
2. In case of swallowing of caustic liquids this is where the burning is the worst and strictures developed.
3. The esophageal strictures are a common sites of the development of esophageal carcinoma.



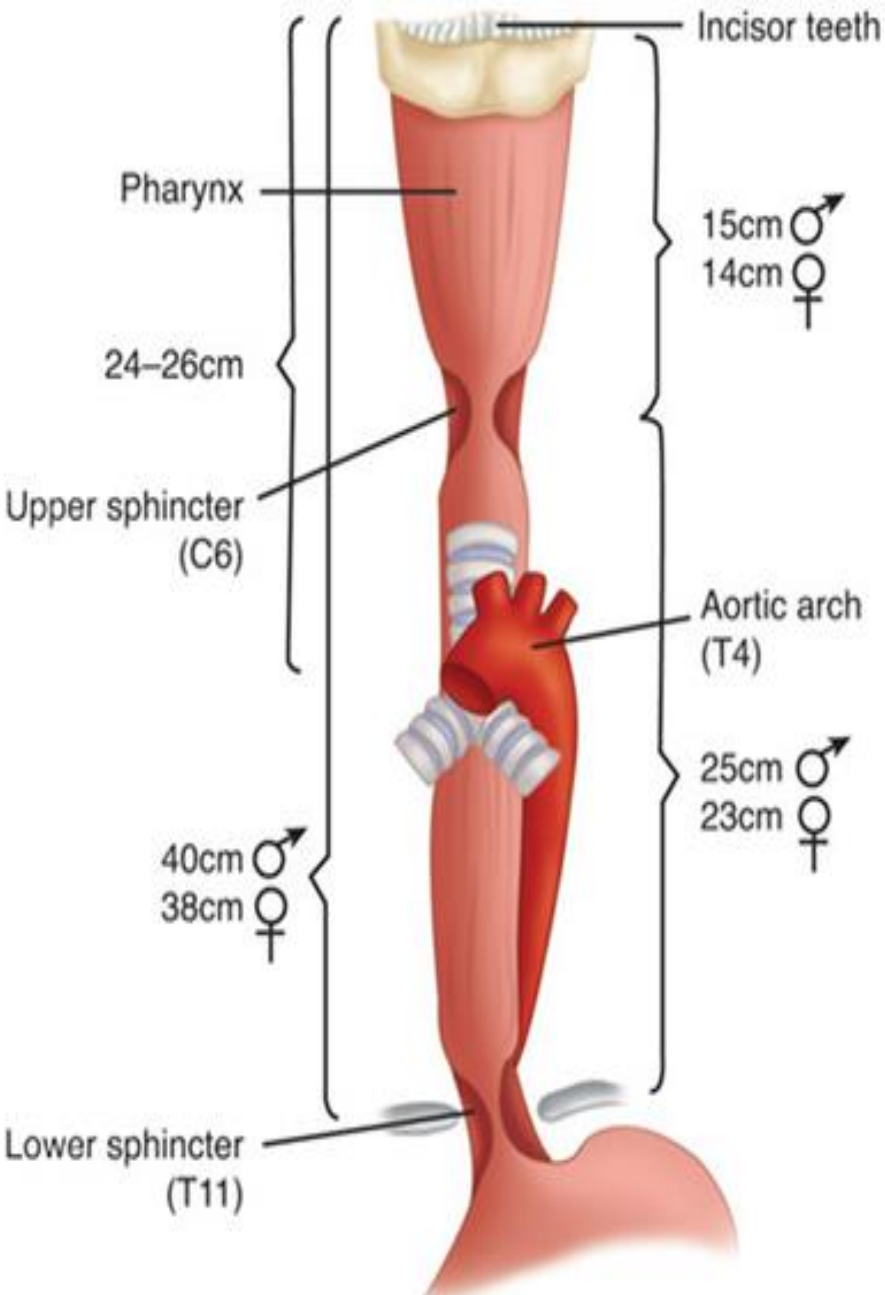
Esophageal sphincter

The esophagus is surrounded at the top and bottom by two muscular rings, known respectively as the upper esophageal sphincter and the lower esophageal sphincter.



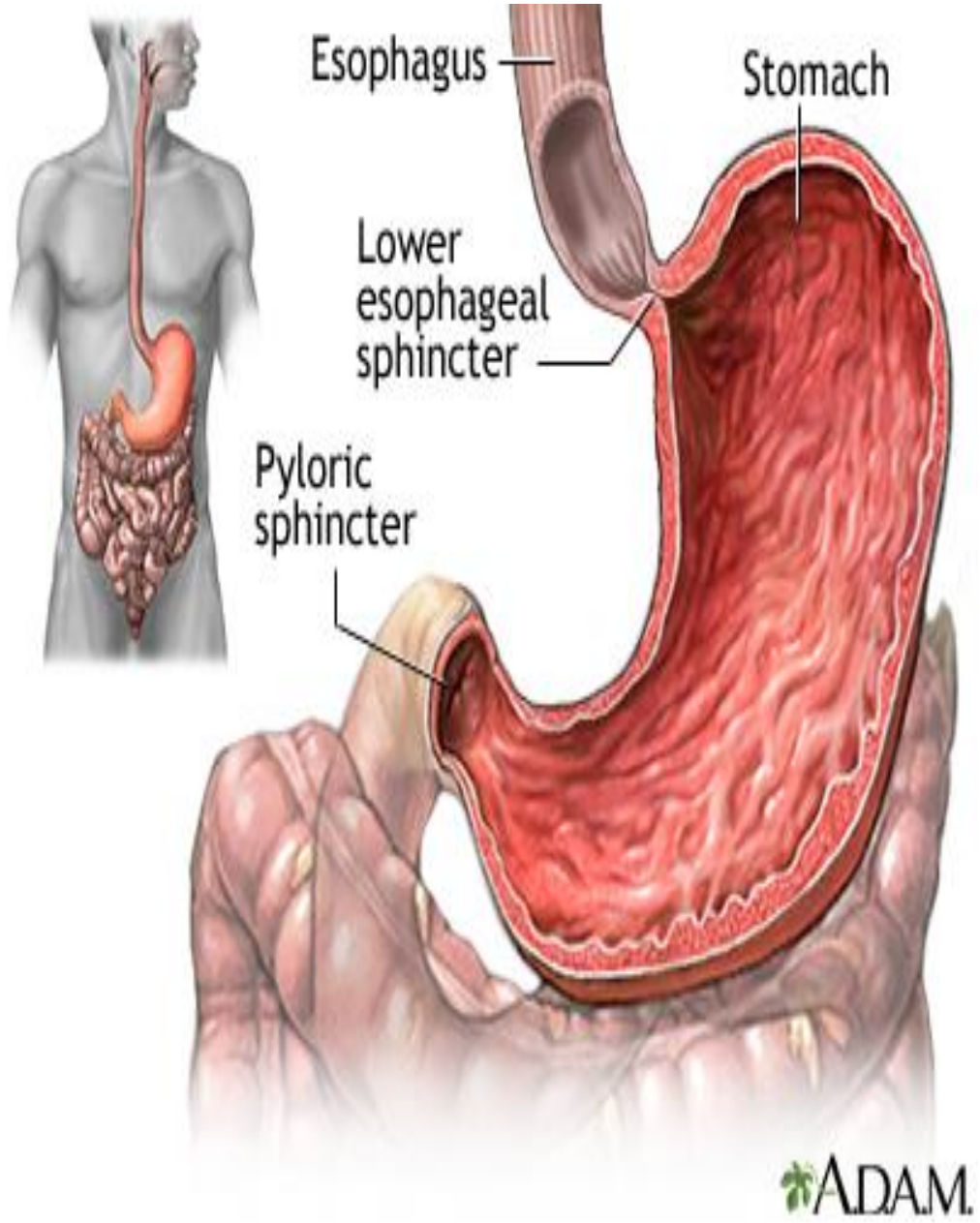
Upper esophageal Sphincter

- An anatomical, muscular sphincter at the junction between the pharynx and esophagus.
- It is produced by the striated muscle (cricopharyngeus muscle.)
- Normally, it is constricted to prevent the entrance of air into the esophagus and prevent reflux of esophageal contents in to the pharynx .

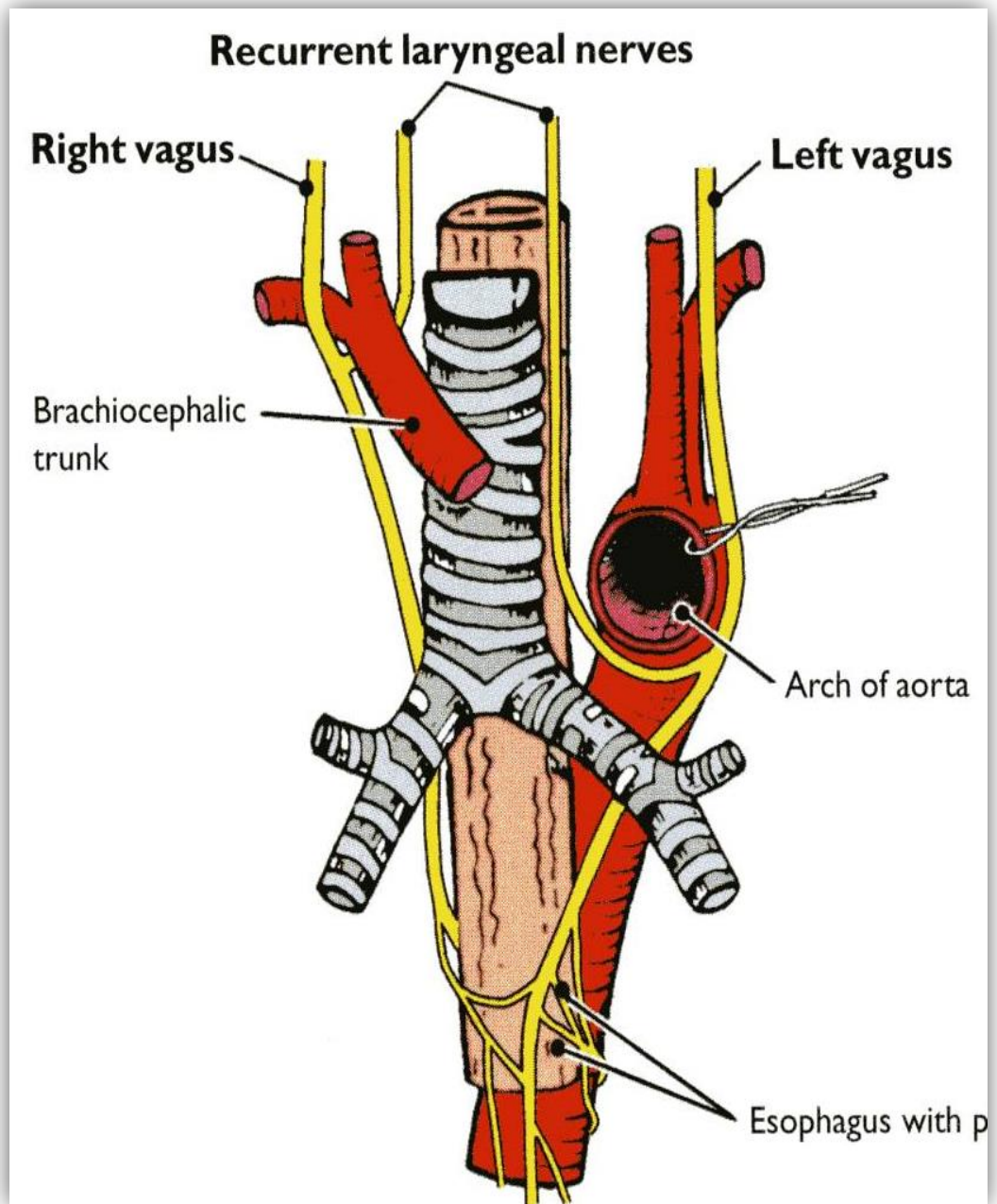


Lower esophageal Sphincter

- It is located at the gastro-esophageal junction (between the stomach and esophagus).
- The sphincter is classified as a physiological (or functional) sphincter, as it does not have any specific sphincteric muscle.
- It consisted of smooth muscle It prevents reflux of gastric contents to the esophagus .

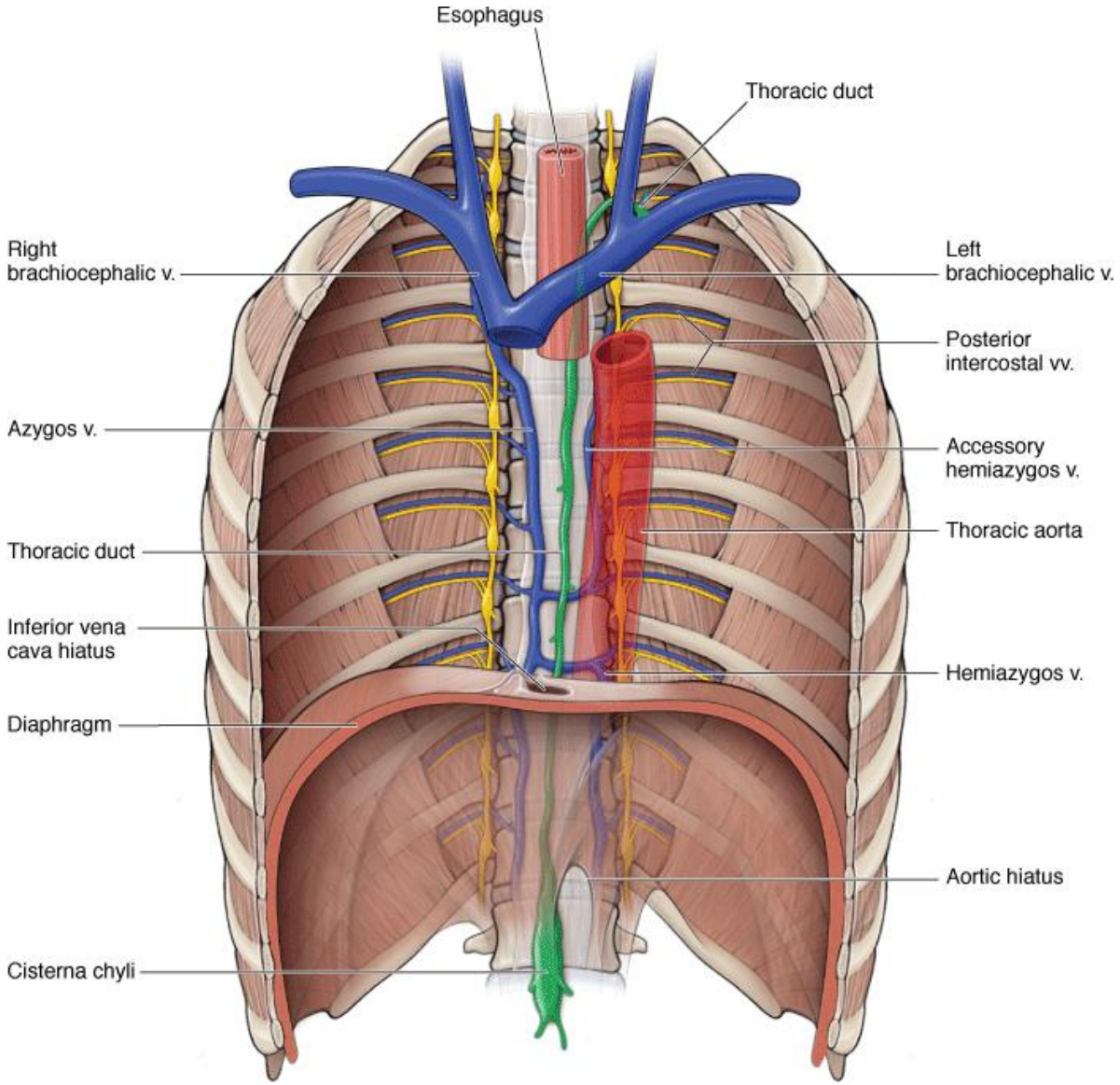


(Anterior relation)



- Trachea
- left recurrent laryngeal nerve.
- left main bronchus
- left atrium .

posterior relation

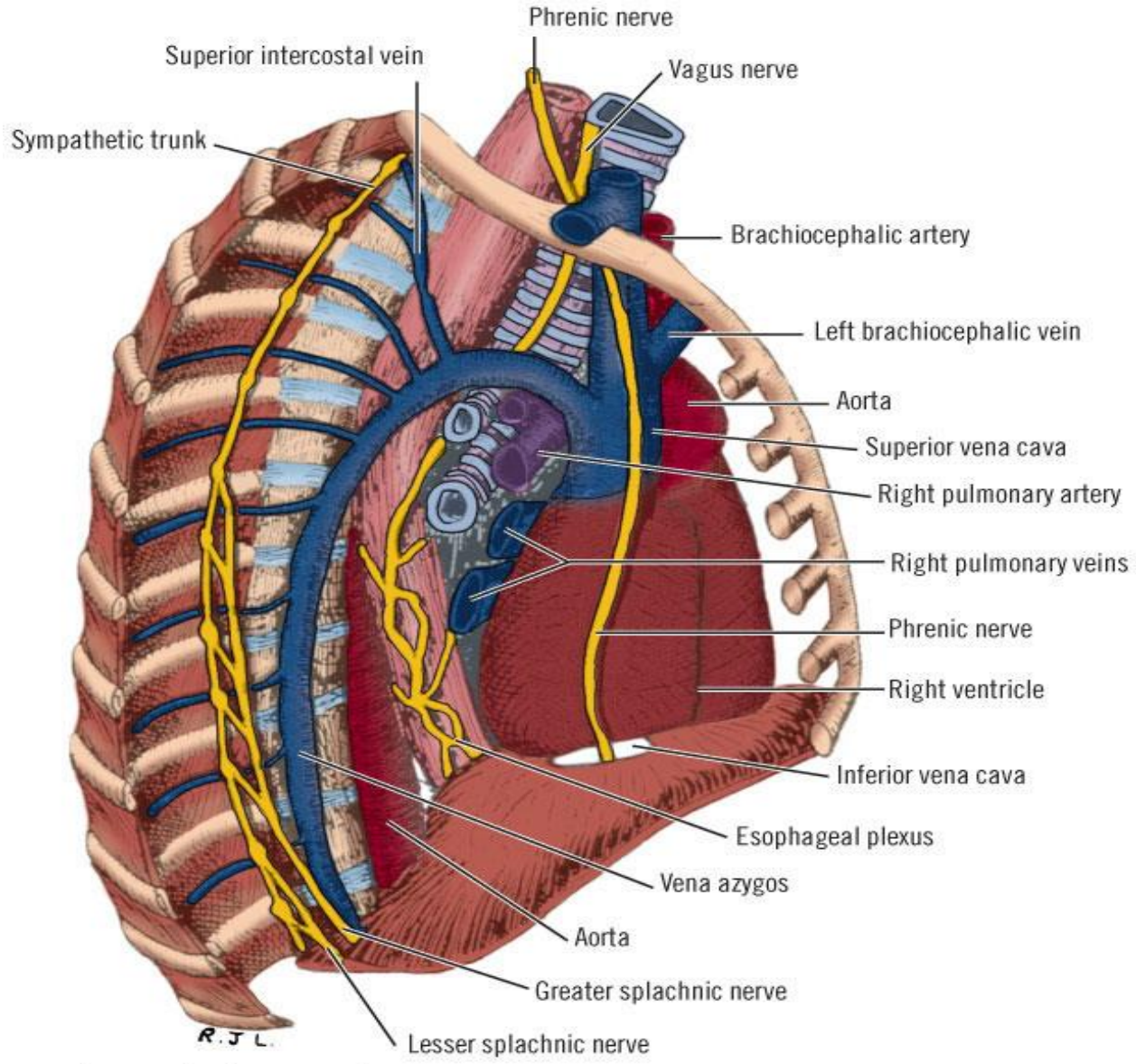


*Thoracic vertebrae
*Right posterior intercostal arteries,
*Thoracic duct
*Azygos vein
* descending aorta.

Right side relation :

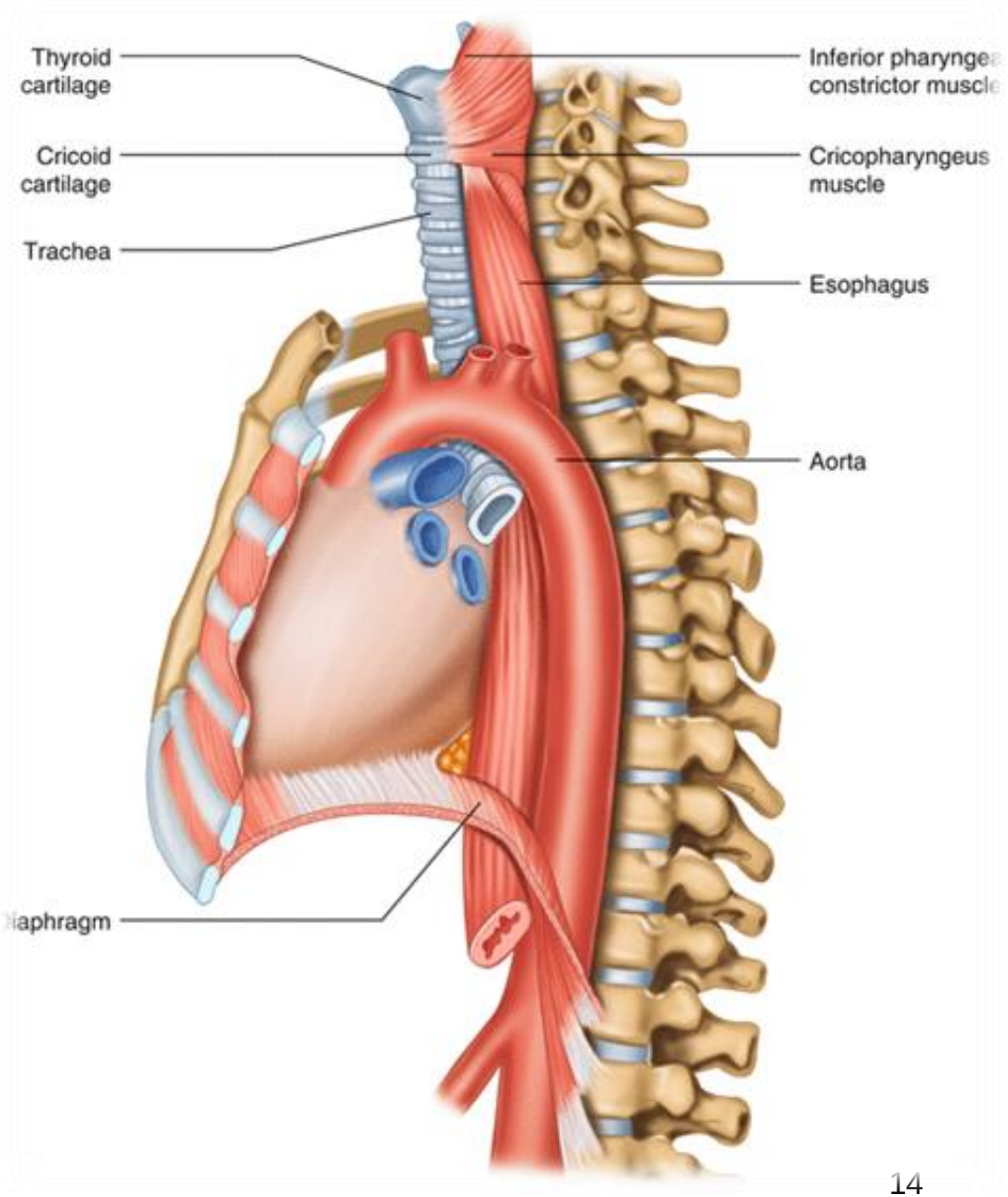
*Right mediastinal pleura and lung

*Terminal part of the azygos vein.

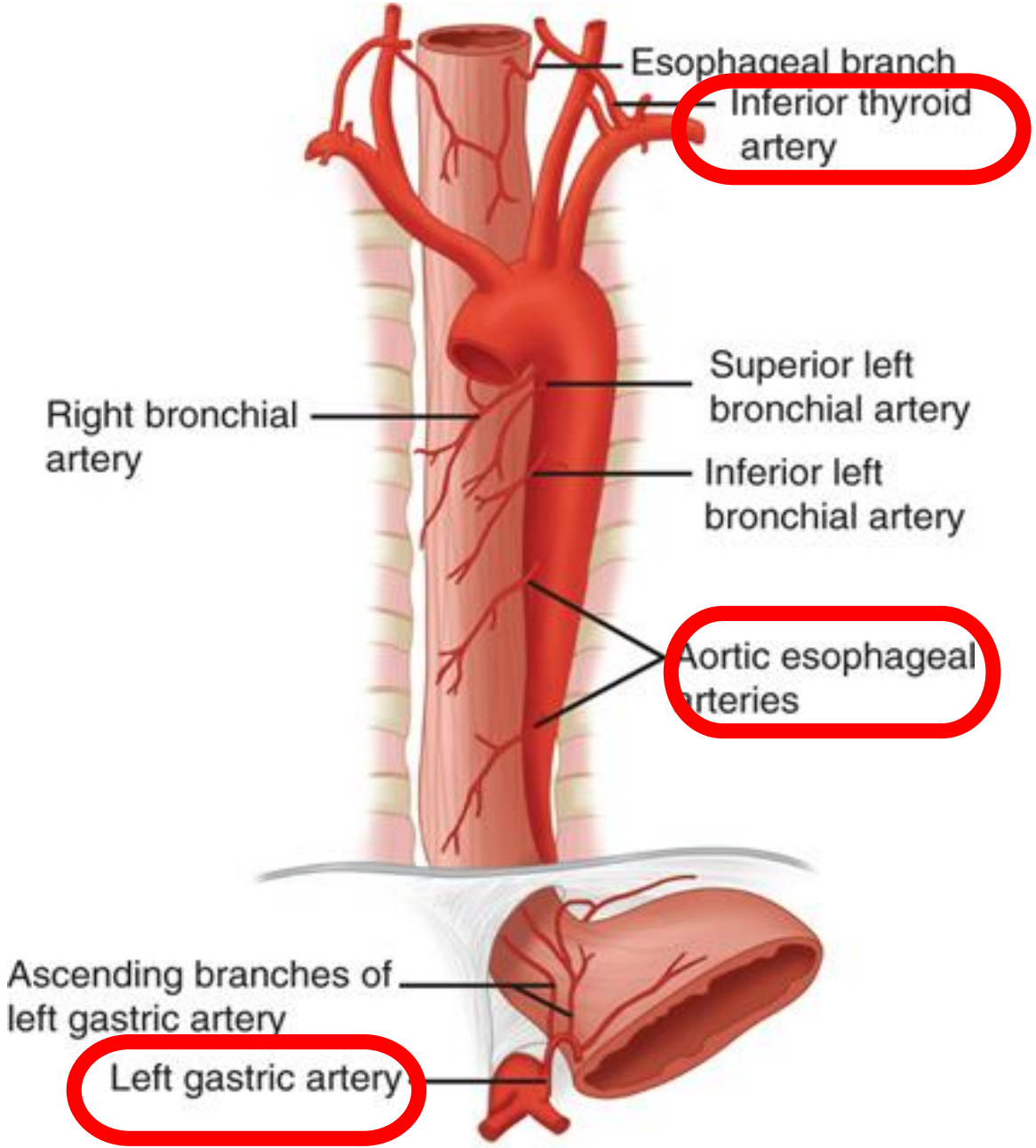


Left side relation

*Left mediastinal pleura and lung
*Left subclavian artery
*Aortic arch
*Thoracic duct

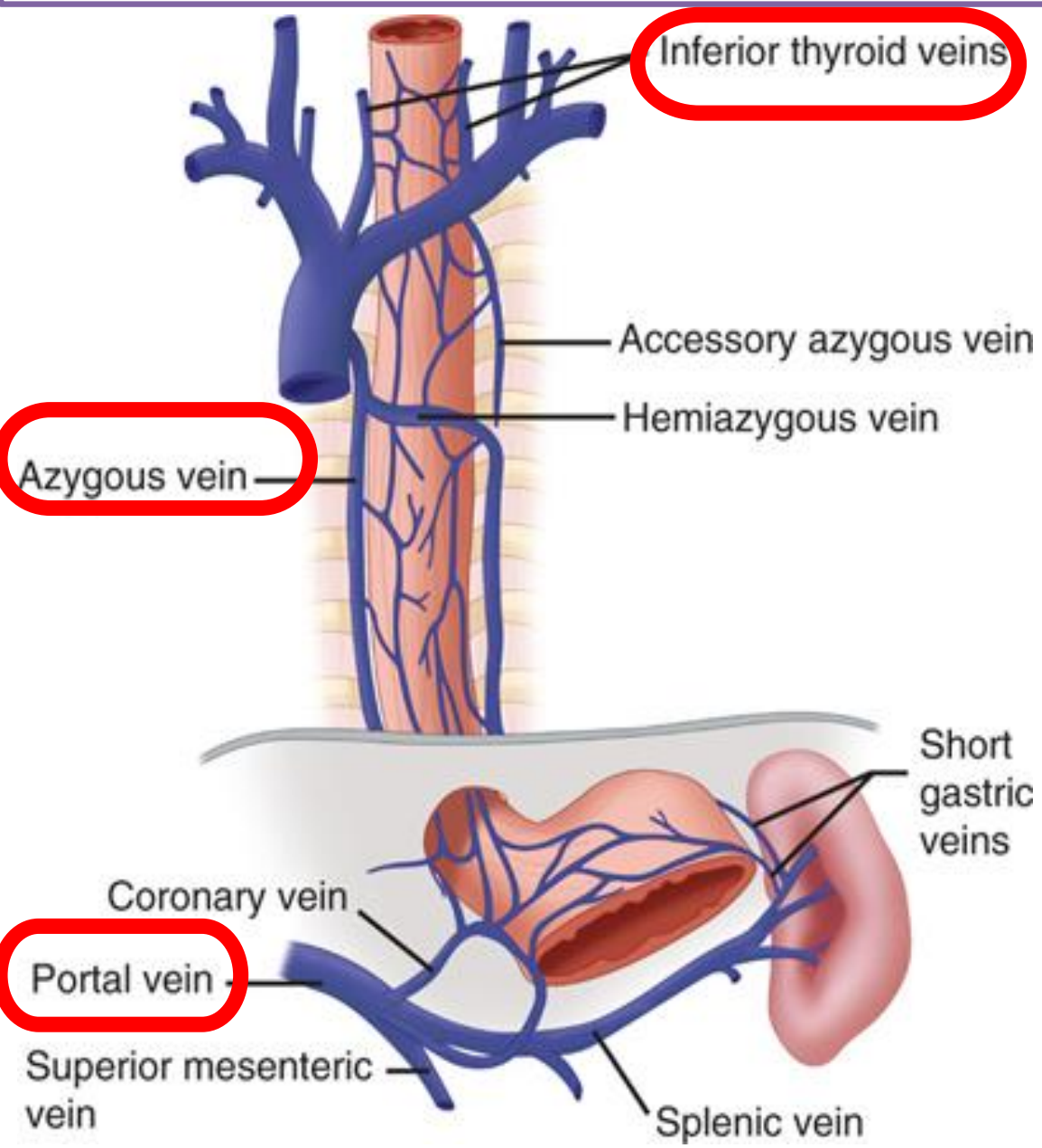


Arterial blood supply



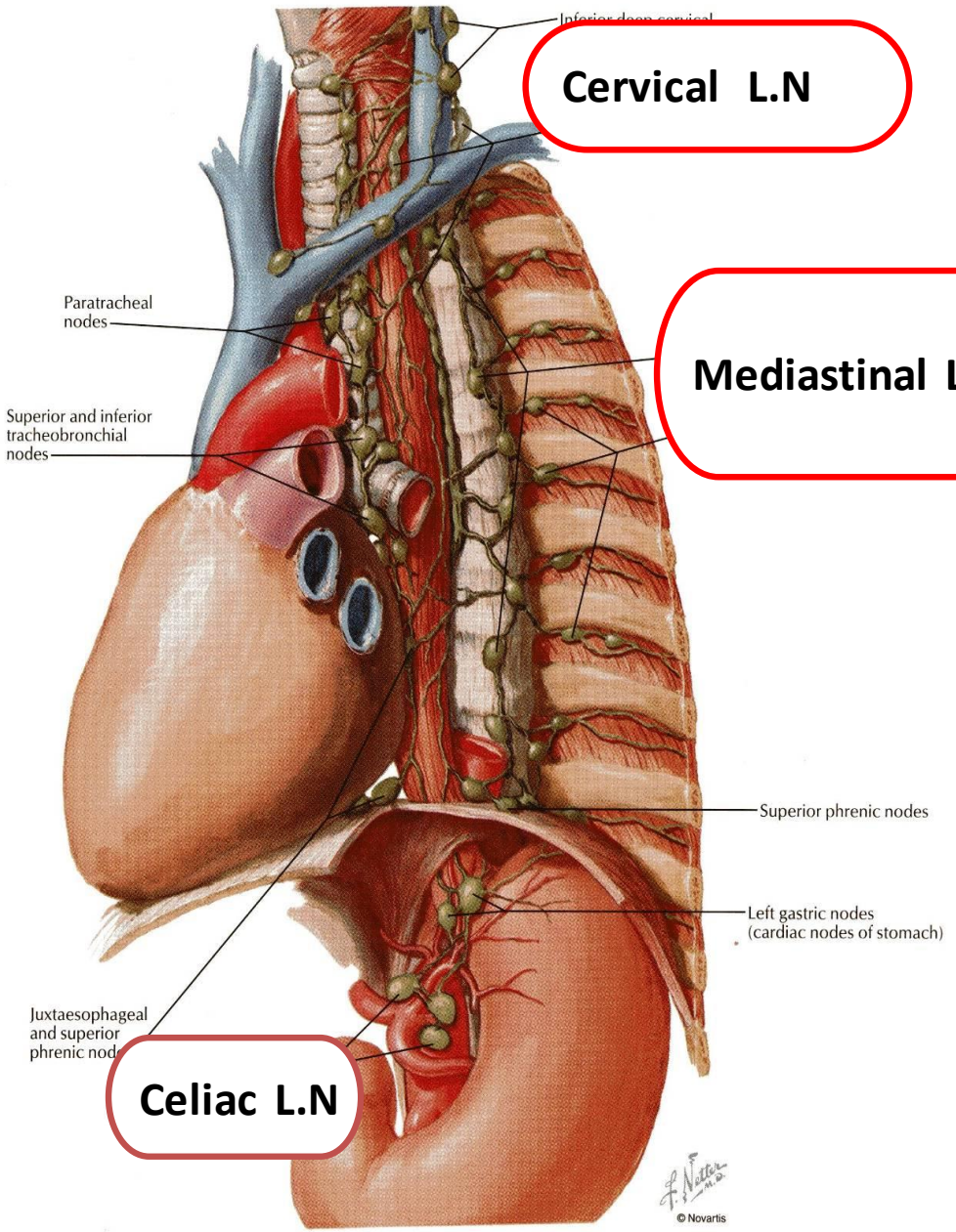
- **The upper third** by the inferior thyroid artery branch from thyrocervical trunk branch from subclavian artery .
- **The middle third** by the thoracic aorta.
- **The lower third** by the left gastric artery.

Venous drainage



- **The upper third** drains in into the inferior thyroid veins.
- **The middle third** into the azygos veins.
- **The lower third into** the left gastric vein, which is a tributary of the portal vein.

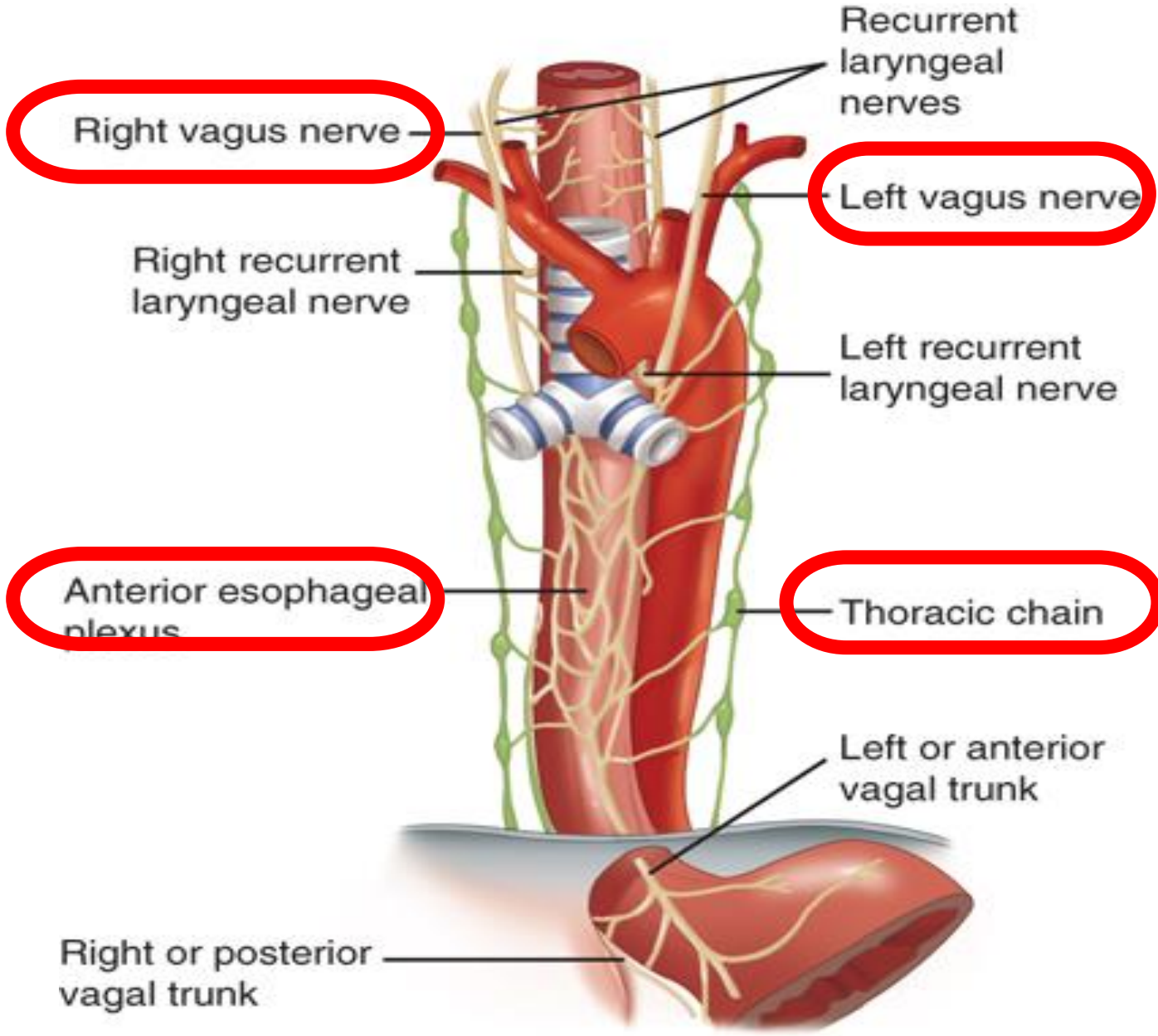
Lymph drainage



- **The upper third** is drained into the deep cervical nodes.
- **The middle third is** drained into the superior and inferior mediastinal nodes.
- **The lower third is** drained in the celiac lymph nodes in the abdomen.

Nerve supply

- **Sympathetic fibers** from sympathetic trunk .
- **Parasympathetic** supply comes form the vagus nerves.
- Inferior to the roots of the lungs, the vagus nerves join the sympathetic nerves to form the esophageal plexus.

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