The mediastinum

- The mediastinum is defined as the ***median partition*** that lies in the thoracic cavity between the two pleural sacs.
- Position of mediastinum ***vary according to position*** of diaphragm (descends in inspiration) and to position of body (descends in erect posture),

- **Divisions of the mediastinum:**

The mediastinum is divided by ***an imaginary line*** passed between the sternal angle of Louis anteriorly and the disc between T_4 and T_5 vertebrae posteriorly into two main compartments: superior and inferior.

(1) Superior mediastinum :

- **Boundaries**
  - Anterior: manubrium sterni.
  - Posterior: upper 4 thoracic vertebrae.
  - Superior: thoracic inlet.
  - Inferior: an imaginary line between the angle of Louis and the disc between T4 and T5.
- **Contents:**

1) **Retromanubrial structures:** (immediately behind the manubrium sterni) ***from anterior to posterior*** .
(muscular , lymphatic & venous layers)

- Origin of sternohyoid, sternothyroid muscles from the posterior surface of manubrium .
- Thymus gland , fat & anterior mediastinal lymph nodes.
- Right and left braciocephalic veins (cross above the arch of aorta & in front of its 3 branches).
- Upper ½ of superior vena cava.
- Right phrenic nerve on the right side of right brachio-cephalic vein & superior vena cava .

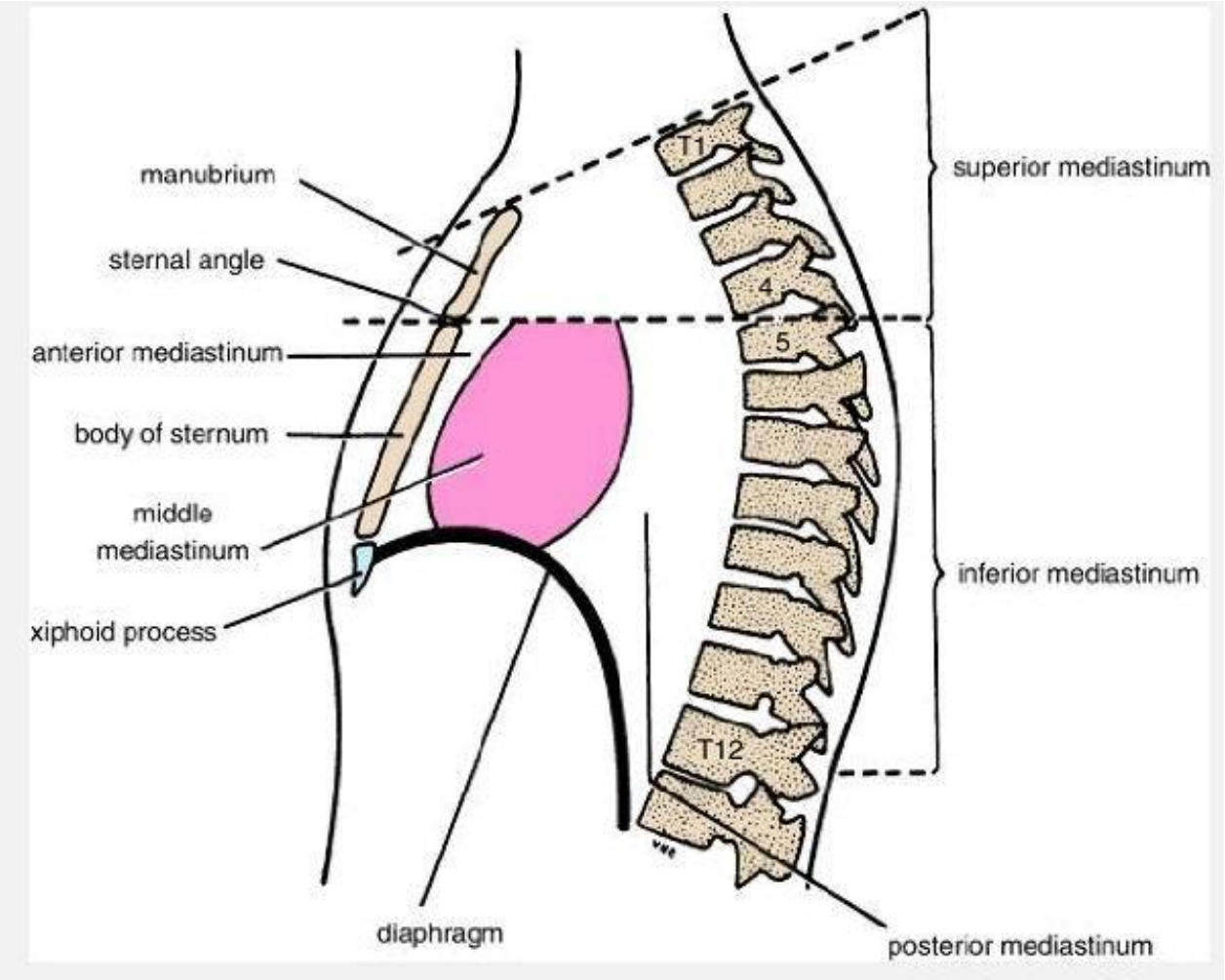
2) **Intermediate structures:** ***2 arches & 2nerves***

- Arch of azygos .
- Arterial layer : Arch of aorta and its 3 branches (brachiocephalic , left subclavian and left common carotid arteries) .

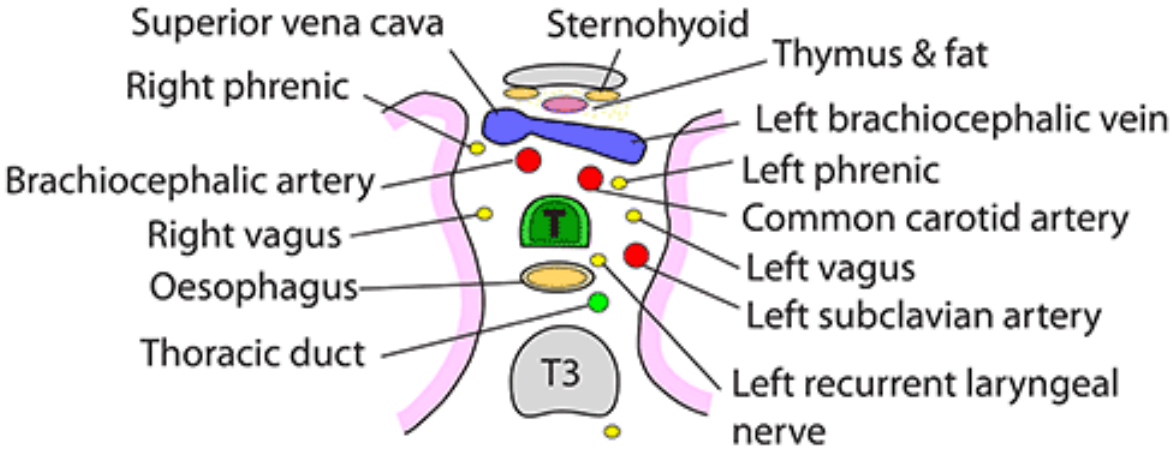
- Left phrenic & left vagus nerves (descend between left subclavian and left common carotid arteries then on the left side of aortic arch) .

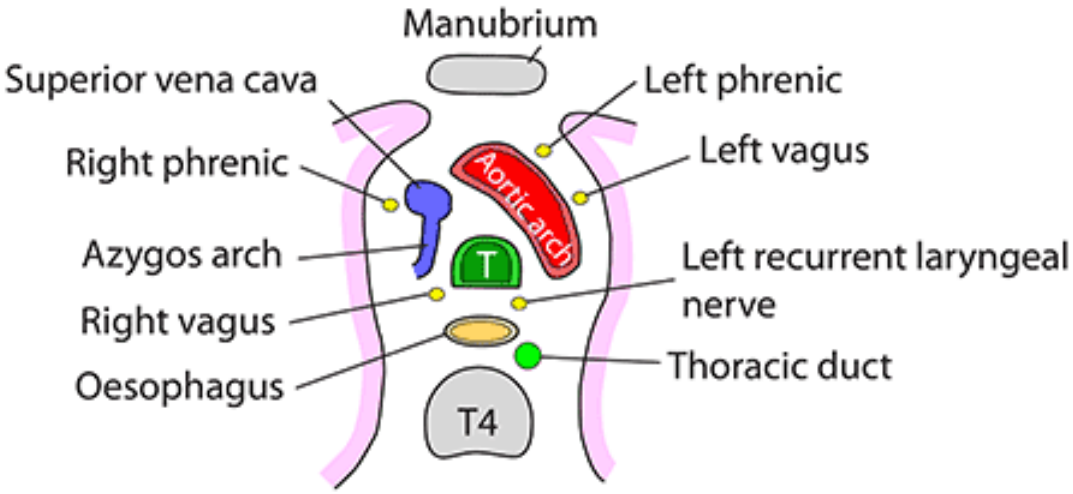
3) **Prevertebral structures**: [3 tubes , 2 nerve and 1muscle .]
   - Trachea : anterior with the right vagus on its right side .
   - Oesophagus : posterior to the trachea .
   - Thoracic duct : on the left side of oesophagus .
   - Left recurrent laryngeal nerve in between the trachea & oesophagus .
   - The longus coli muscle.

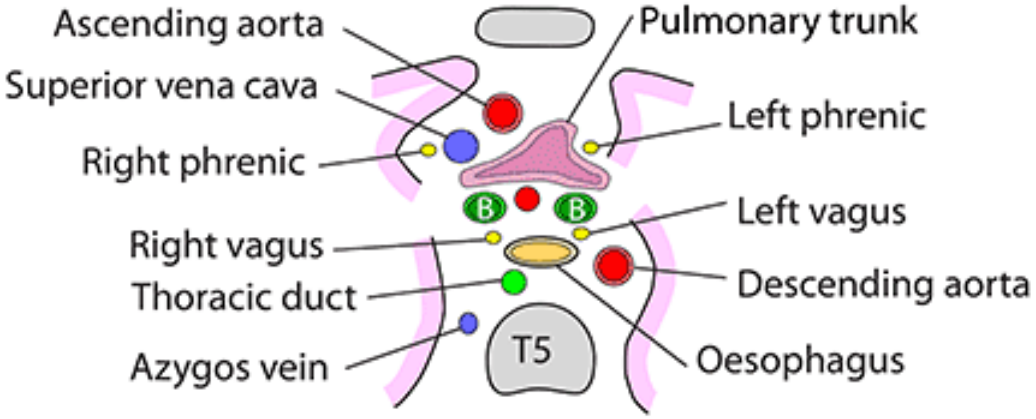
Divisions of the mediastinum

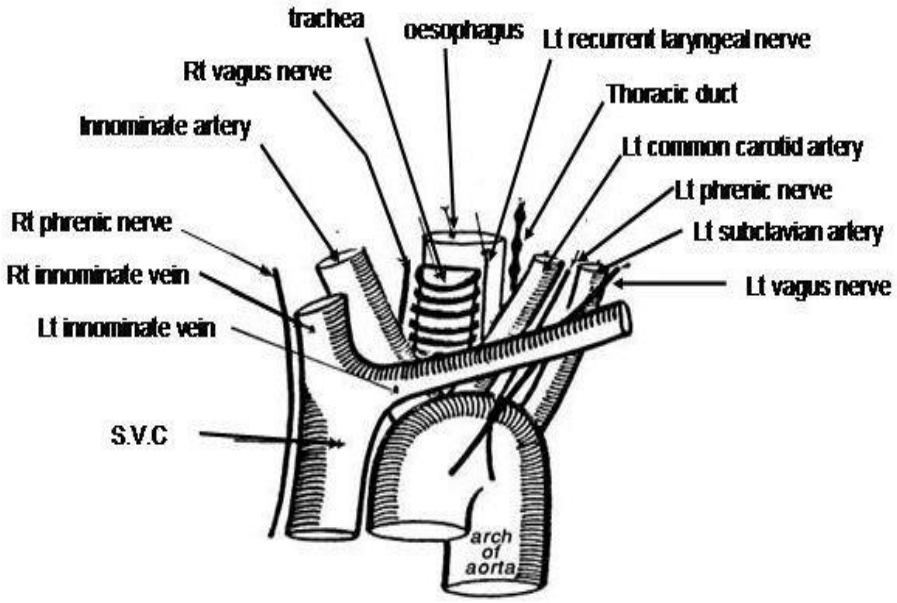


CROSS (AXIAL) SECTIONS OF MEDIASTINUM LOOKING UP









Contents of the superior mediastinum

(2) Inferior mediastinum:

Lies below a line drawn from the angle of Louis to the disc between T4 and T5, it is divided into : **anterior**, **middle** and **posterior mediastina.**

1) **Anterior mediastinum:**

Is a narrow space between body of sternum and pericardium.
It contains (2 lymphatic tissues & 2 ligaments) : fat, lymph nodes, thymus gland and superior and inferior sternopericardial ligaments.

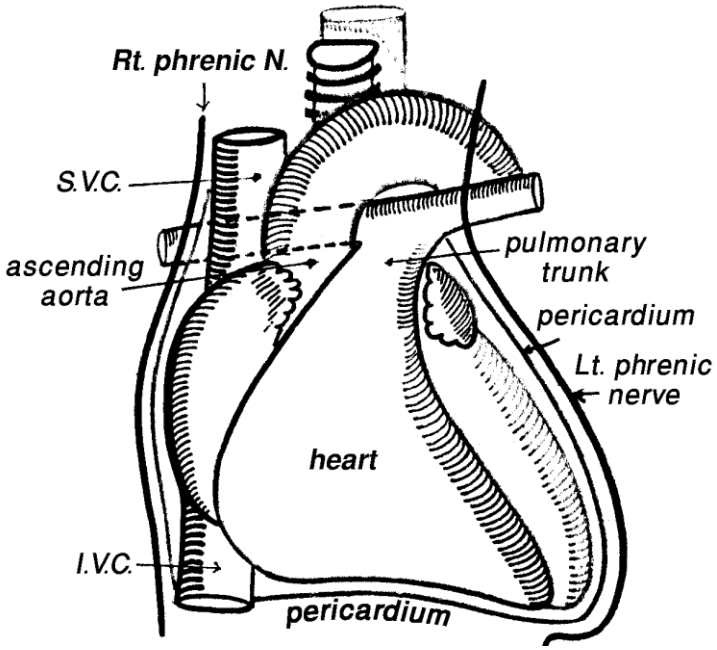
2) **Middle mediastinum:**

- Between anterior and posterior mediastinum.
- **Contents:**

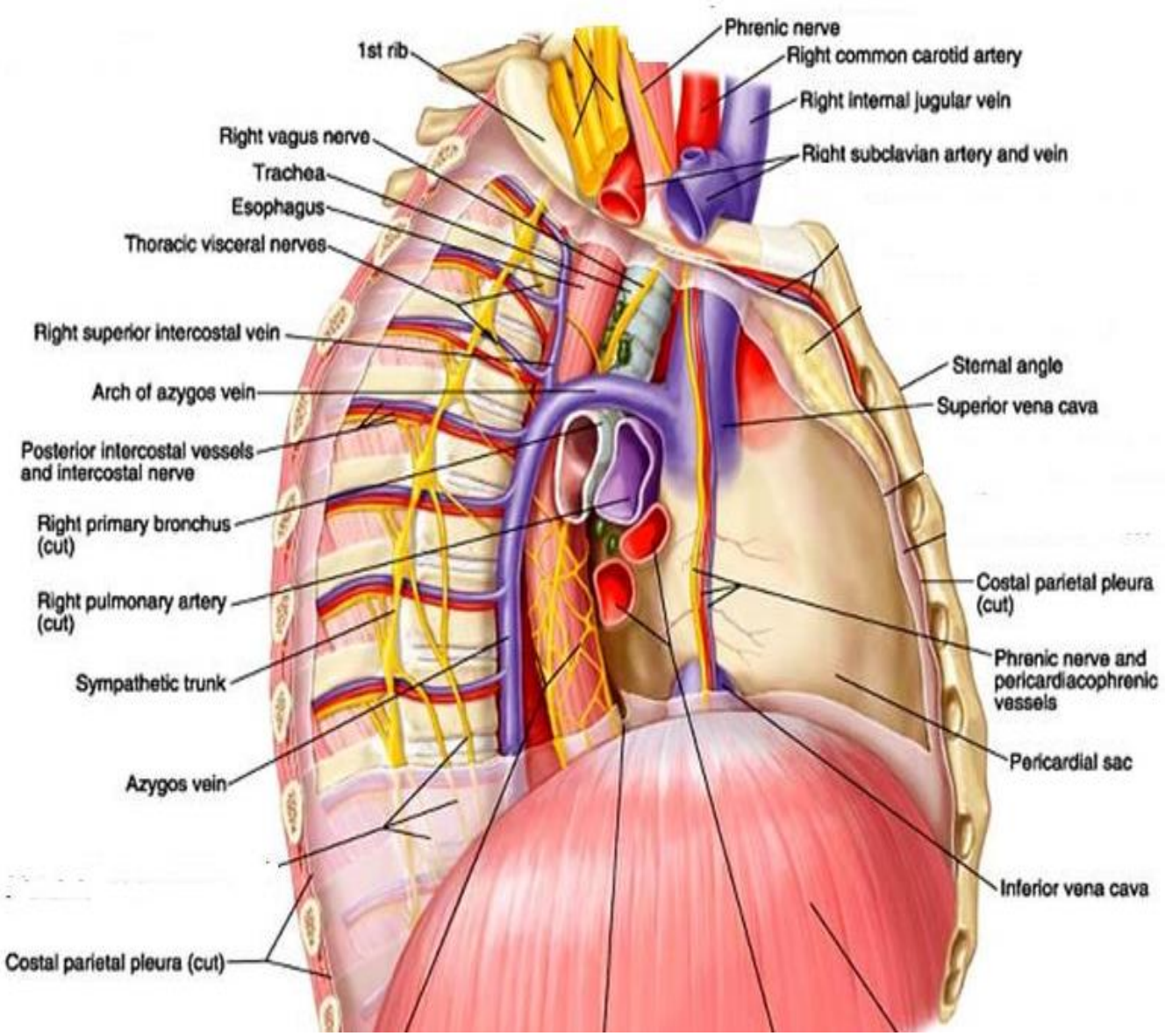
a. ***Structures inside pericardium:*** heart, ascending aorta, pulmonary trunk lower half of superior vena cava, upper part of inferior vena cava and parts of 4 pulmonary veins.
b. ***Structures outside pericardium:*** phrenic nerves and bifurcation of trachea into two bronchi.

3) **Posterior mediastinum:**

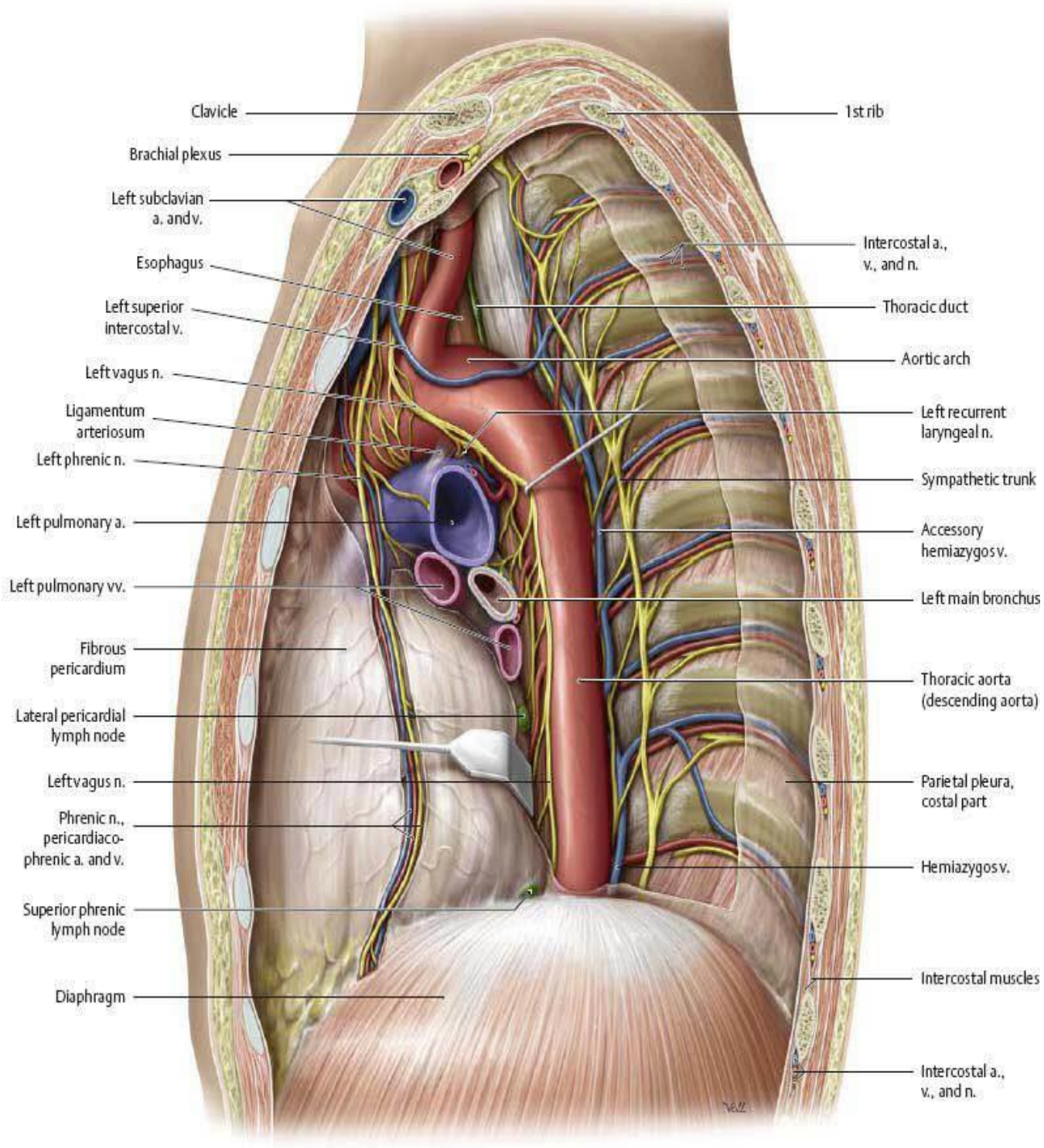
- Lies between pericardium and vertical part of diaphragm anteriorly , and lower 8 thoracic vertebrae posteriorly.
- **Contents:**
  - Esophagus (on right side of descending thoracic aorta till the level of T_7 vertebra then crosses in front of descending thoracic aorta).
  - Esophageal vessels & plexus of nerves [vagi].
  - Descending thoracic aorta (on left side of esophagus till the level of T_7 vertebra then crosses behind it).
  - Azygos and two hemiazygos veins.
  - Thoracic duct (Passes behind the right border of oesophagus till the level of T_5).
  - Posterior mediastinal lymph nodes.
  - Lower eight posterior intercostal vessels.



Middle mediastinum

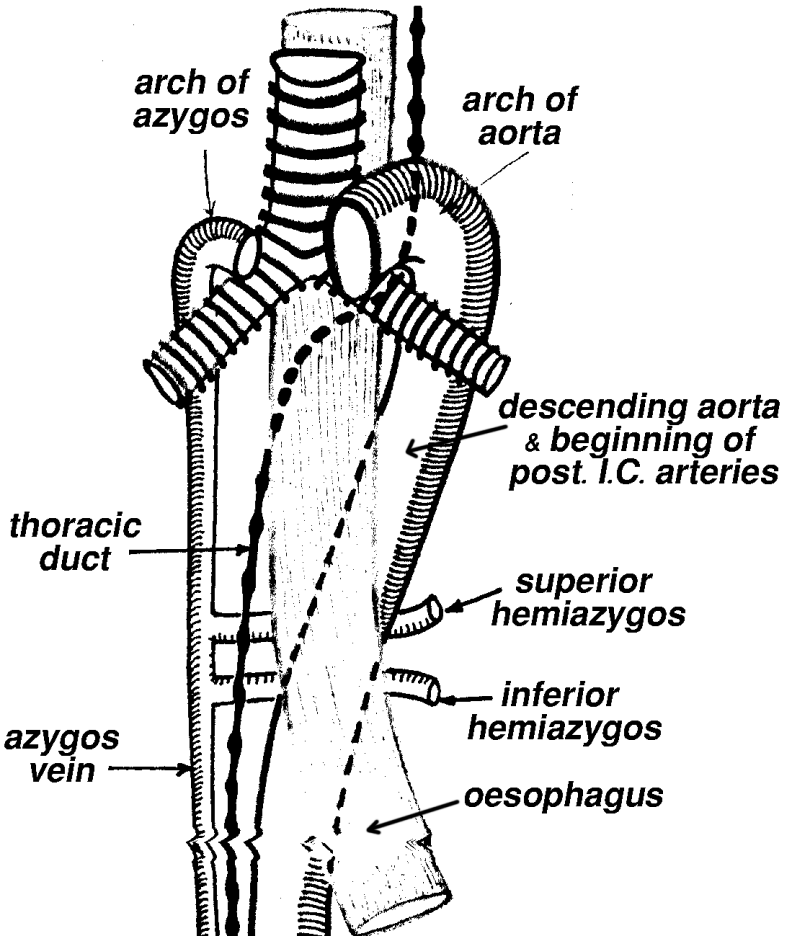


Mediastinum (right lateral view)



B Left lateral view, parasagittal section. *Removed:* Left lung and parietal pleura. *Revealed:* Posterior mediastinal structures.

Mediastinum (left lateral view)

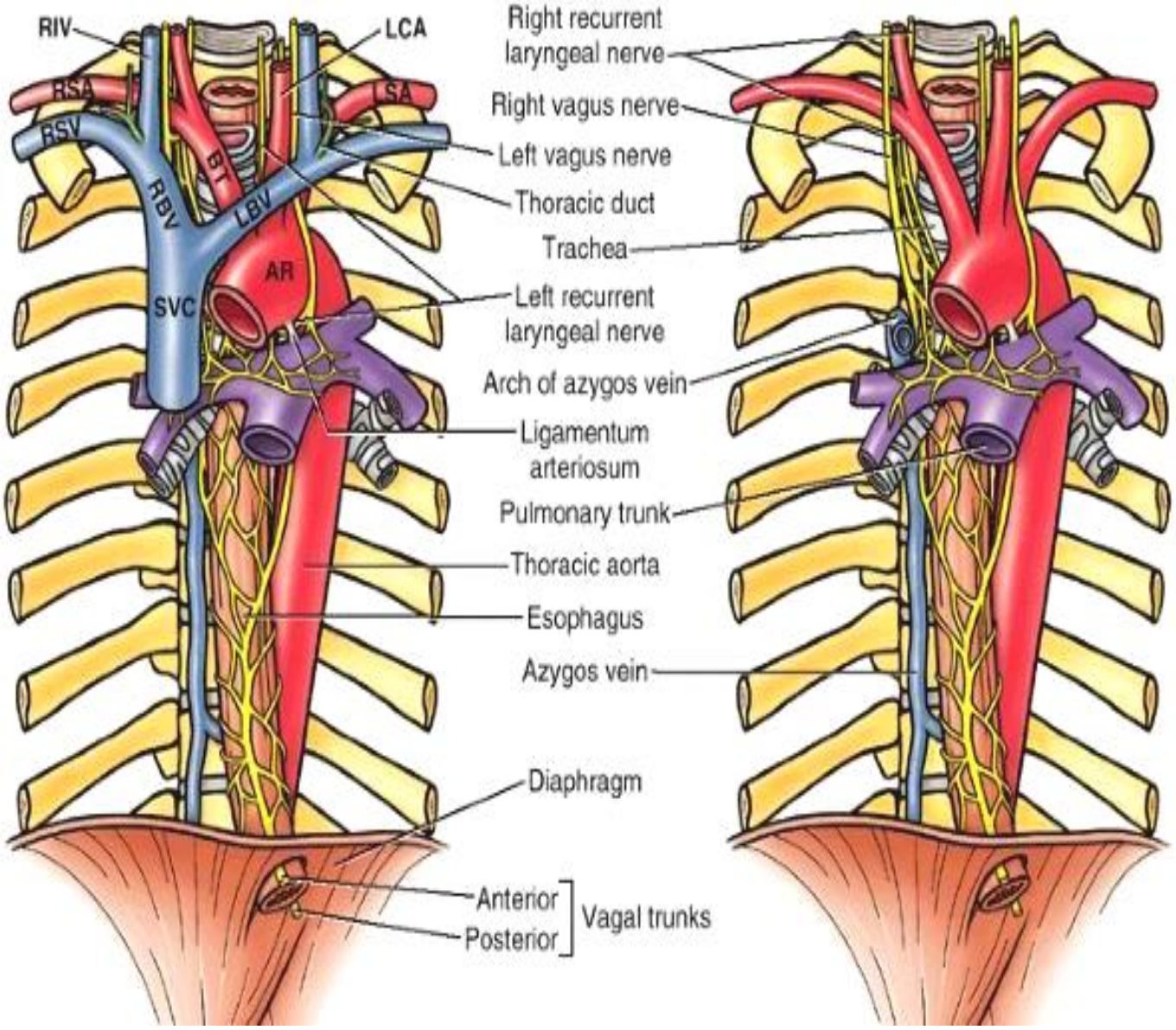


Posterior mediastinum

Applied Anatomy :

1. Mediastinal syndrome : Any space occupying lesion(tumour , lymph nodes enlargement , aneurysm …..etc) in the mediastineum cause compression of mediastinal structures leading to :

- Compression of superior vena cava and brachiocephalic veins leading to congested oedematous face with congested neck veins .
- Compression of trachea leading to dyspnea .
- Compression of esophagus leading to dysphagea .
- Compression of recurrent laryngeal nerves leading to hoarsness of voice .


RIV
LCA
RSA
LSA
RSV
BT
RBV
LBV
AR
SVC
Right recurrent laryngeal nerve
Right vagus nerve
Left vagus nerve
Thoracic duct
Trachea
Left recurrent laryngeal nerve
Arch of azygos vein
Ligamentum arteriosum
Pulmonary trunk
Thoracic aorta
Esophagus
Azygos vein
Diaphragm
Anterior
Posterior
Vagal trunks