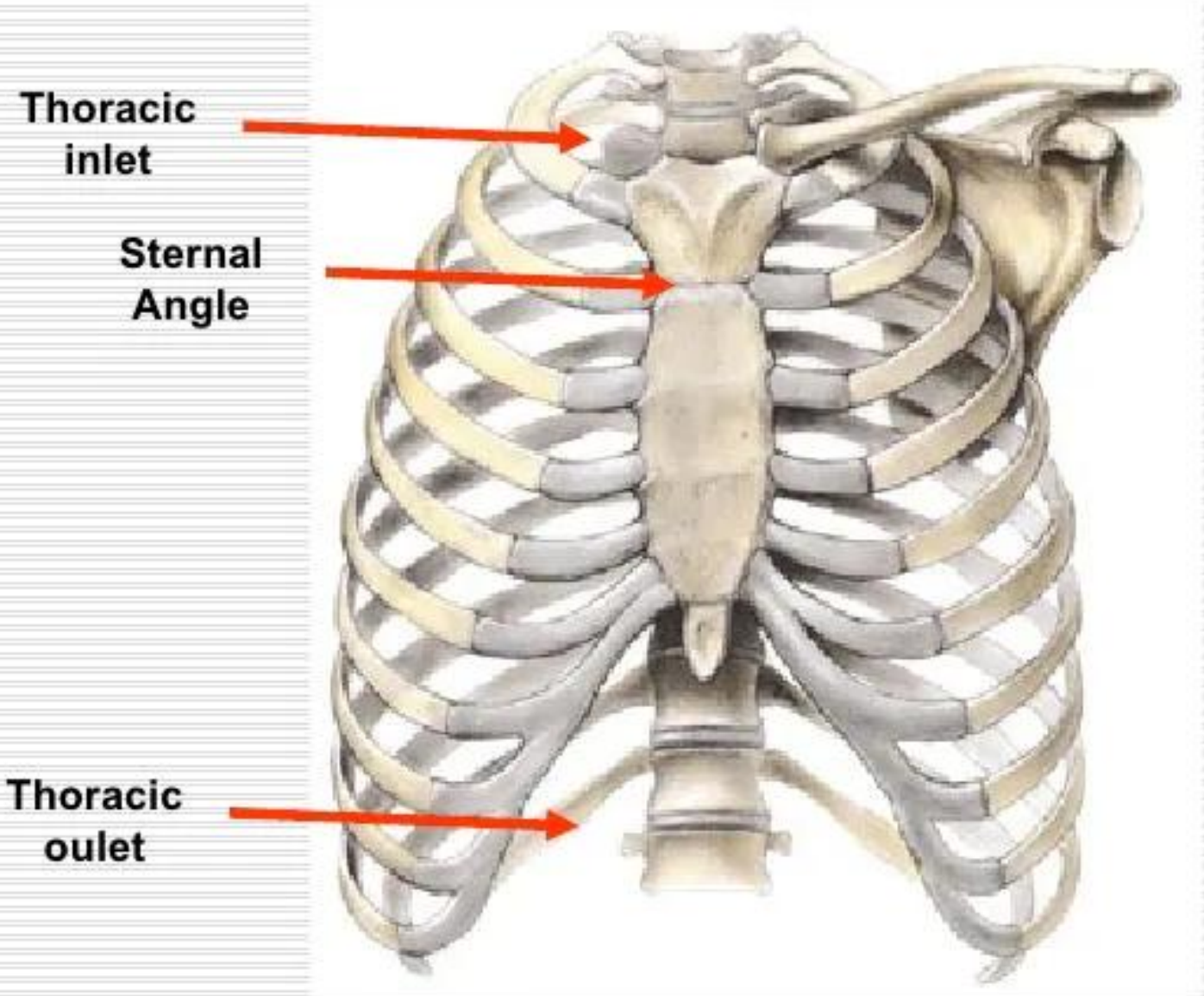
ANATOMY OF MEDIASTINUM

DR NAJMA ATTAULLAH
LECTURER ANATOMY KGMC

Mediastinum

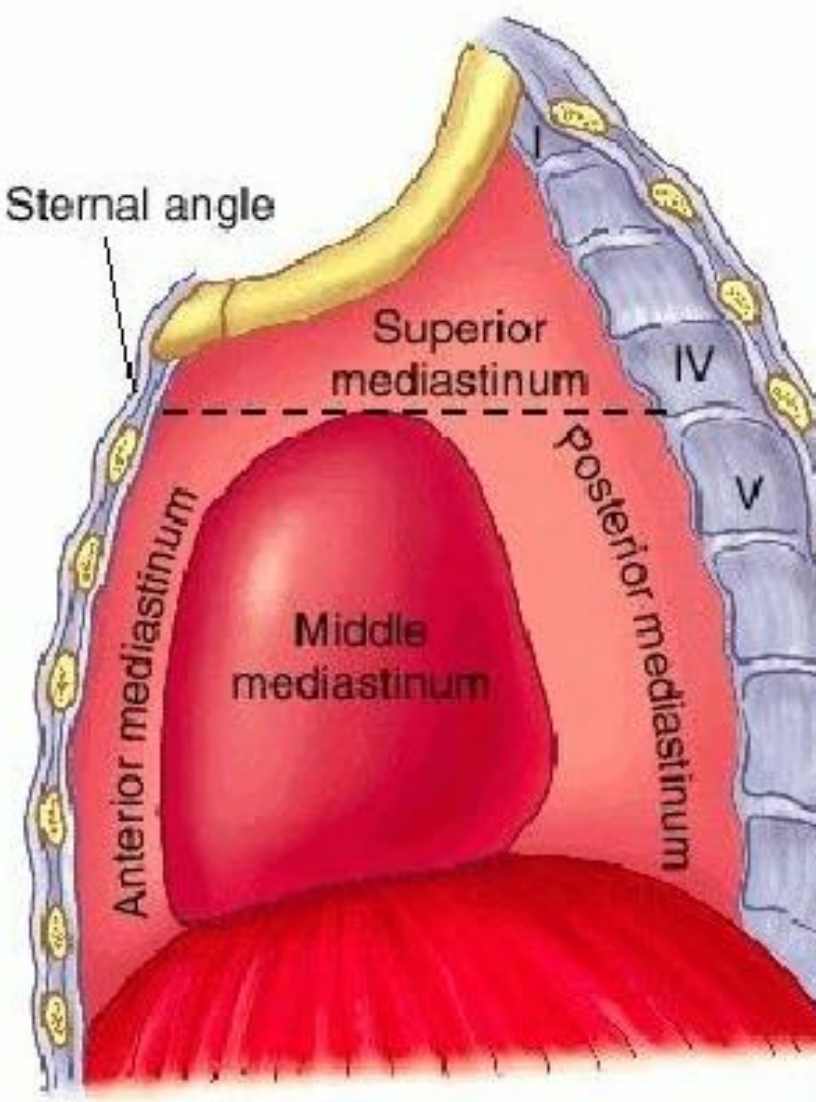
- The median portion of the thoracic cavity (interpleural)
- Limited by:
  - Thoracic inlet superiorly
  - Diaphragm inferiorly
  - Sternum anteriorly
  - 12 Thoracic vertebrae posteriorly


Thoracic inlet
Sternal Angle
Thoracic oulet

Mediastinum

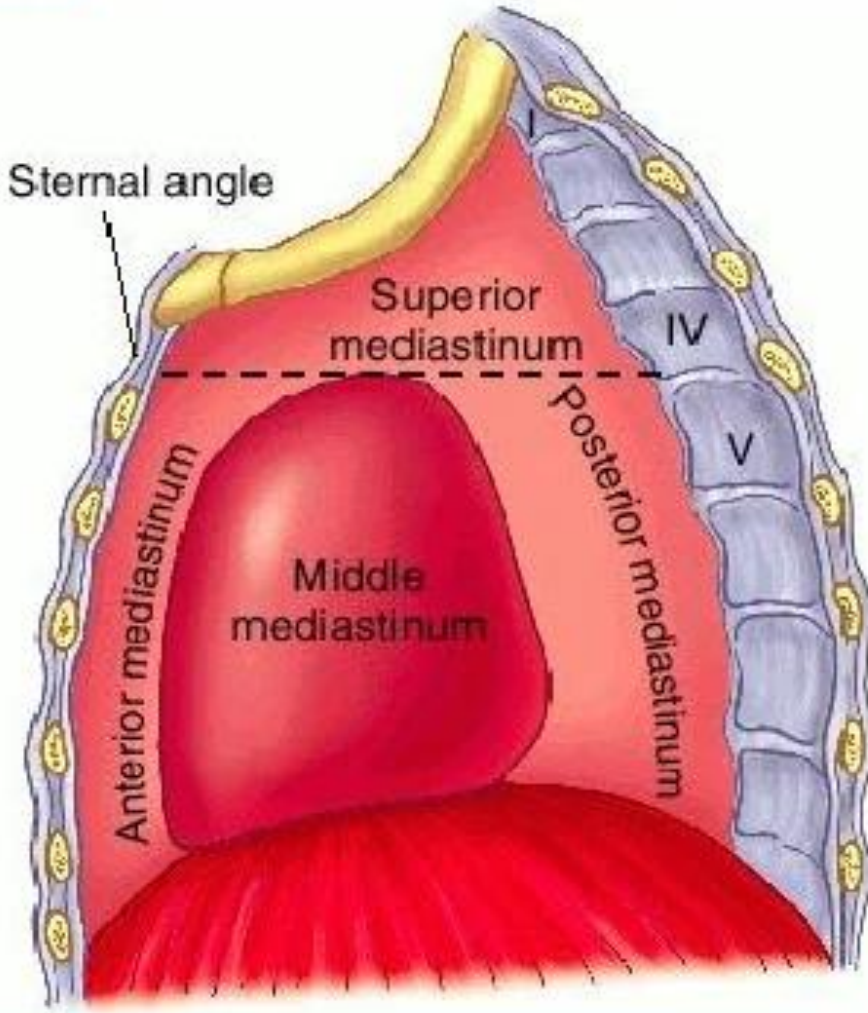
It is divided into:

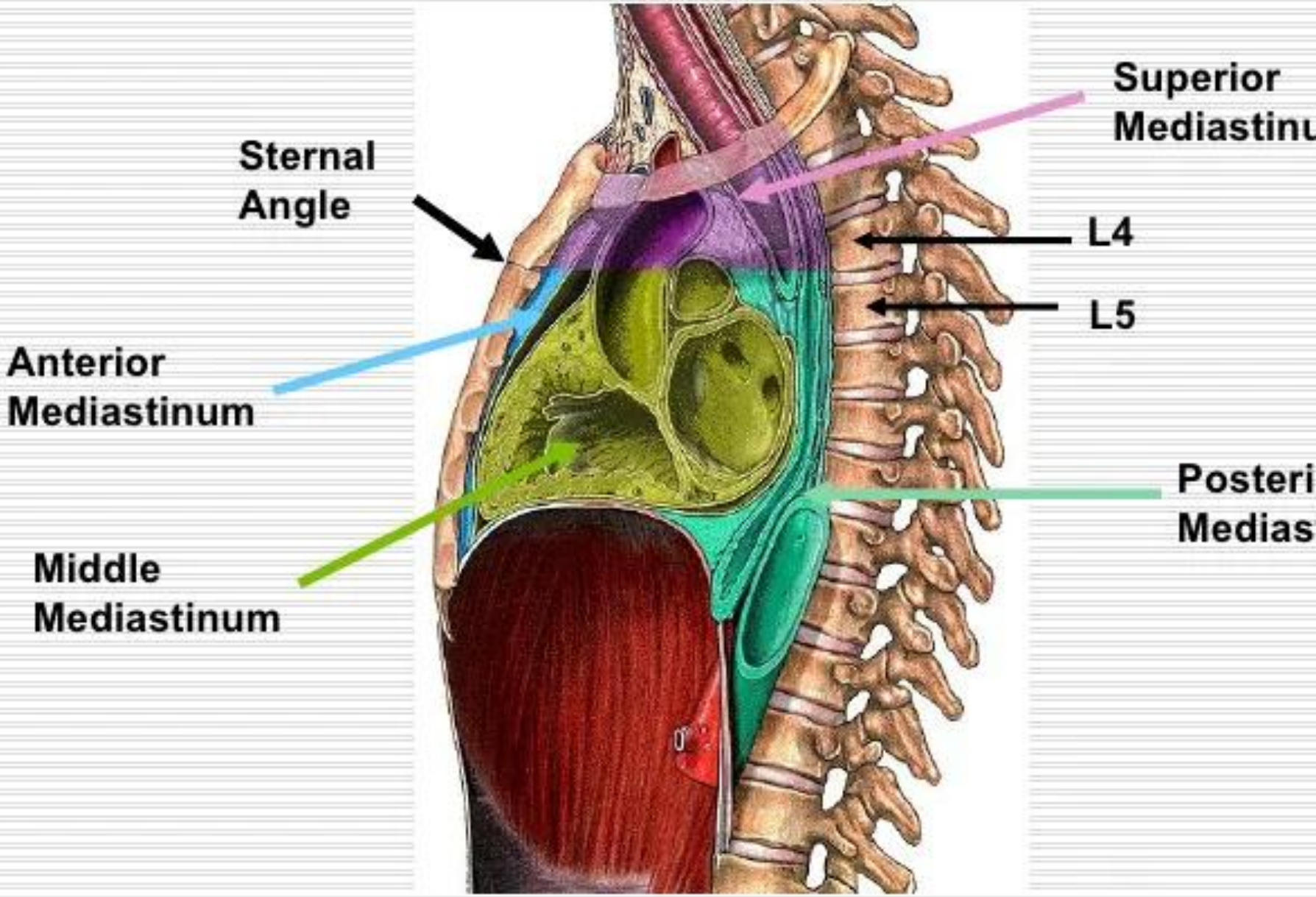
1. Superior mediastinum: lies between the first rib and the sternal angle.
2. Inferior mediastinum: lies between the sternal angle and the diaphragm.



Mediastinum

- Inferior mediastinum: is subdivided into:
  - Anterior mediastinum
  - Middle mediastinum
  - Posterior mediastinum




Superior
Mediastinu
Sternal
Angle
L4
L5
Anterior
Mediastinum
Posteri
Medias
Middle
Mediastinum

Superior Mediastinum

oundaries

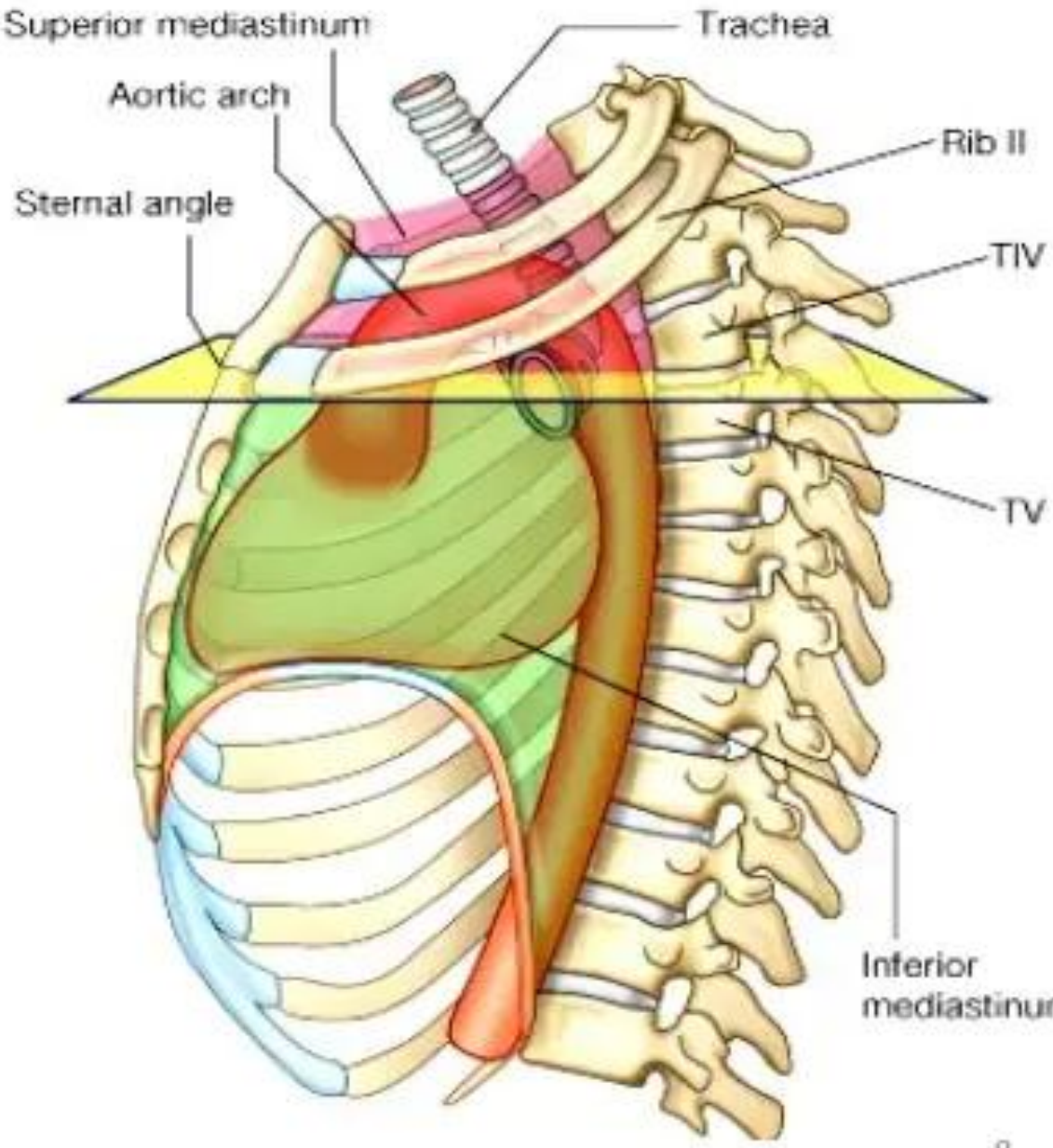
t: Manubrium sterni

st: T-1 to T-4

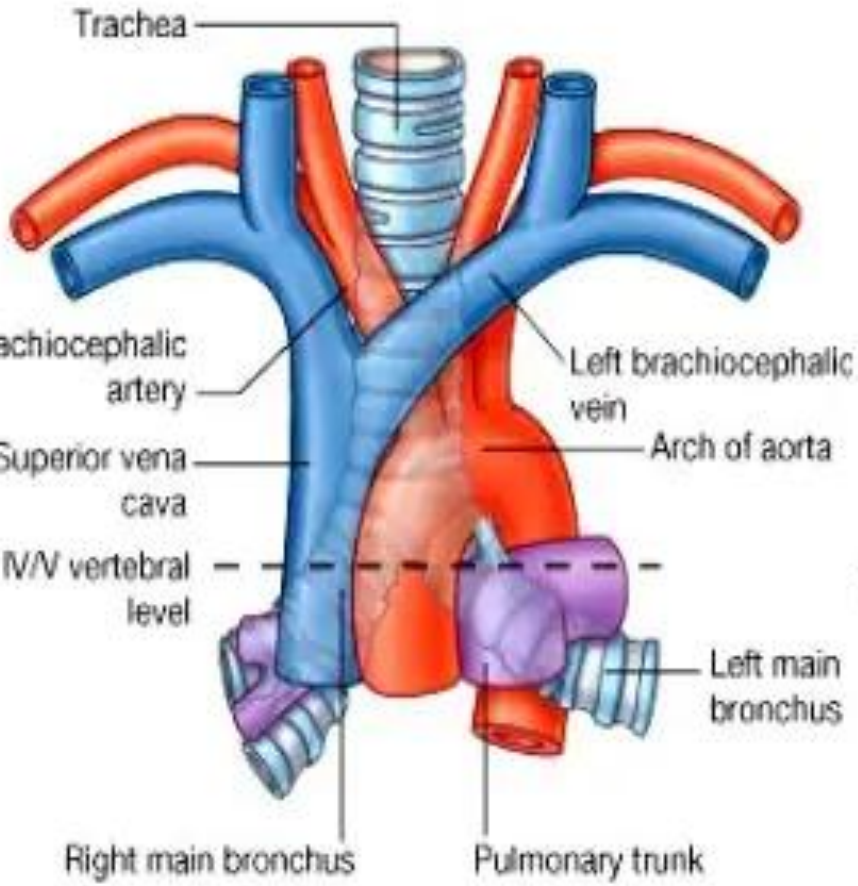
les: Mediastinal pleura

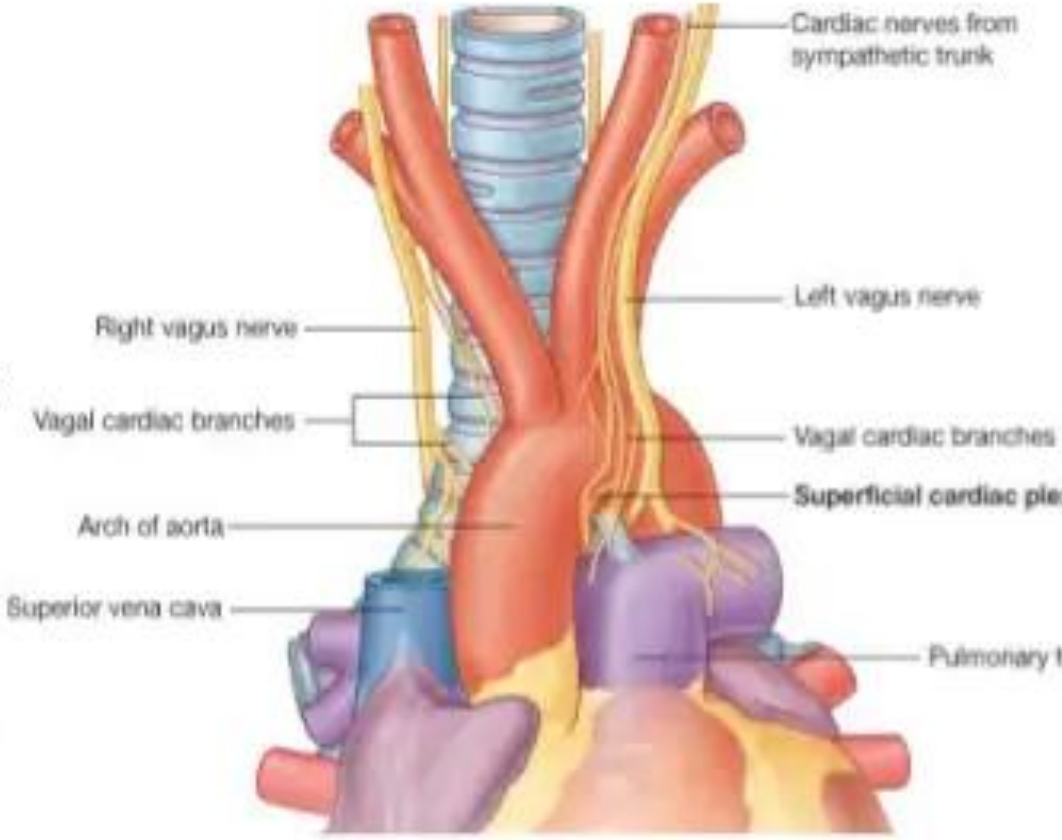
p: Plane of thoracic inlet

: Imaginary line joining sternal angle and lower border T-4

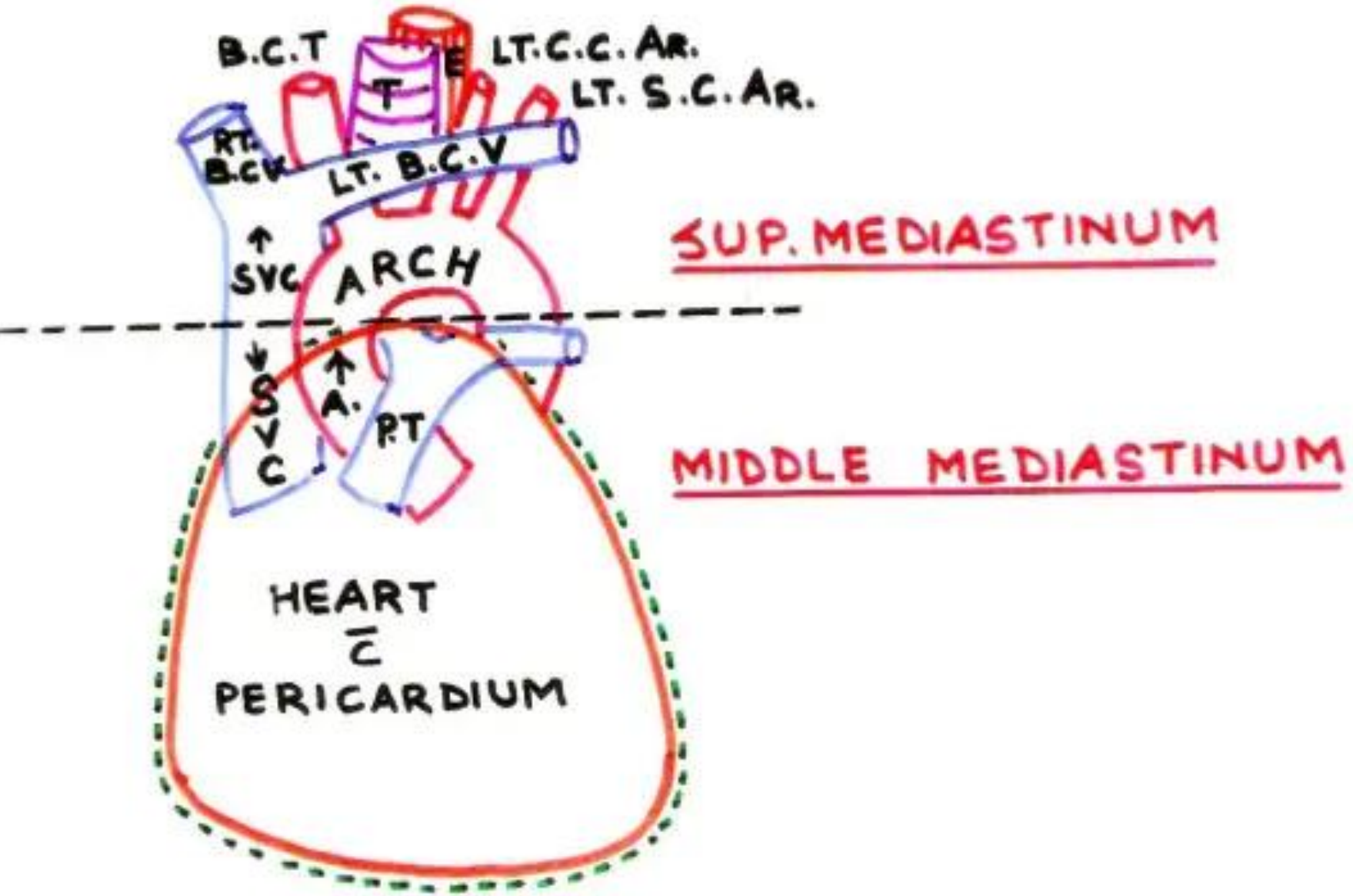


Superior Mediastinum





SUP & MIDDLE MEDIASTINUM

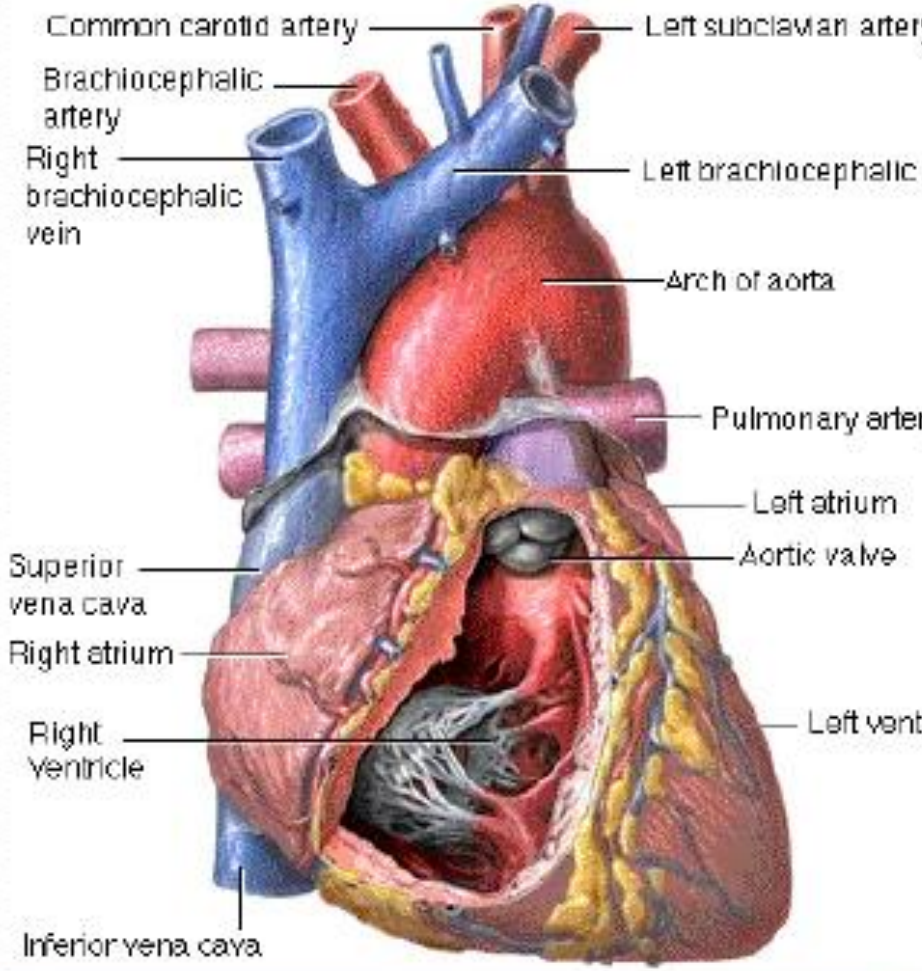


Superior Mediastinum

- It contains:
2. Blood vessels (large veins & arteries)
3. Thoracic duct
4. Trachea
5. Esophagus
6. Thymus
7. Nerves

Superior Mediastinum

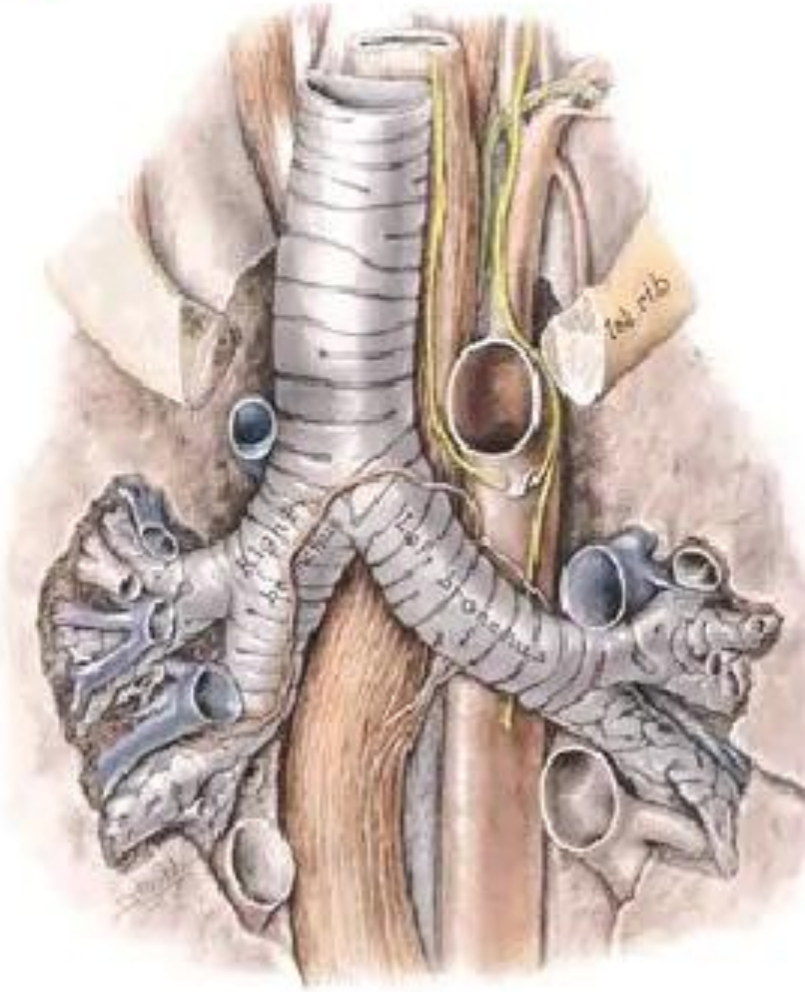
- Blood Vessels
2. Superior vena cava
3. Brachiocephalic veins
4. Pulmonary trunk
5. Arch of Aorta



Superior Mediastinum

Nerves

2. Vagus nerve
3. Left Recurrent Laryngeal nerve.
4. Phrenic nerve.



Superior Mediastinum: Contents:

Muscles:
- Sternohyoid
- Sternothyroid
- Longus colli

Thymus: (in childhood & puberty)

Veins:
- SVC
- Lt & Rt brachiocephalic veins,
- Lt Sup Intercostal vein

Arteries:
- Arch of Aorta
- Brachiocepalic artery
- Lt Common carotid
- Lt subclavian artery

Trachea & Esophagus

Nerves:
- Vagus
- Phrenic
- Cardiac &
- Lt recurrent laryngeal nerve (b/w trachea & oesophagus)

Thoracic Duct

Lymph nodes:
- Brachiocephalic,
- Tracheobronchial,

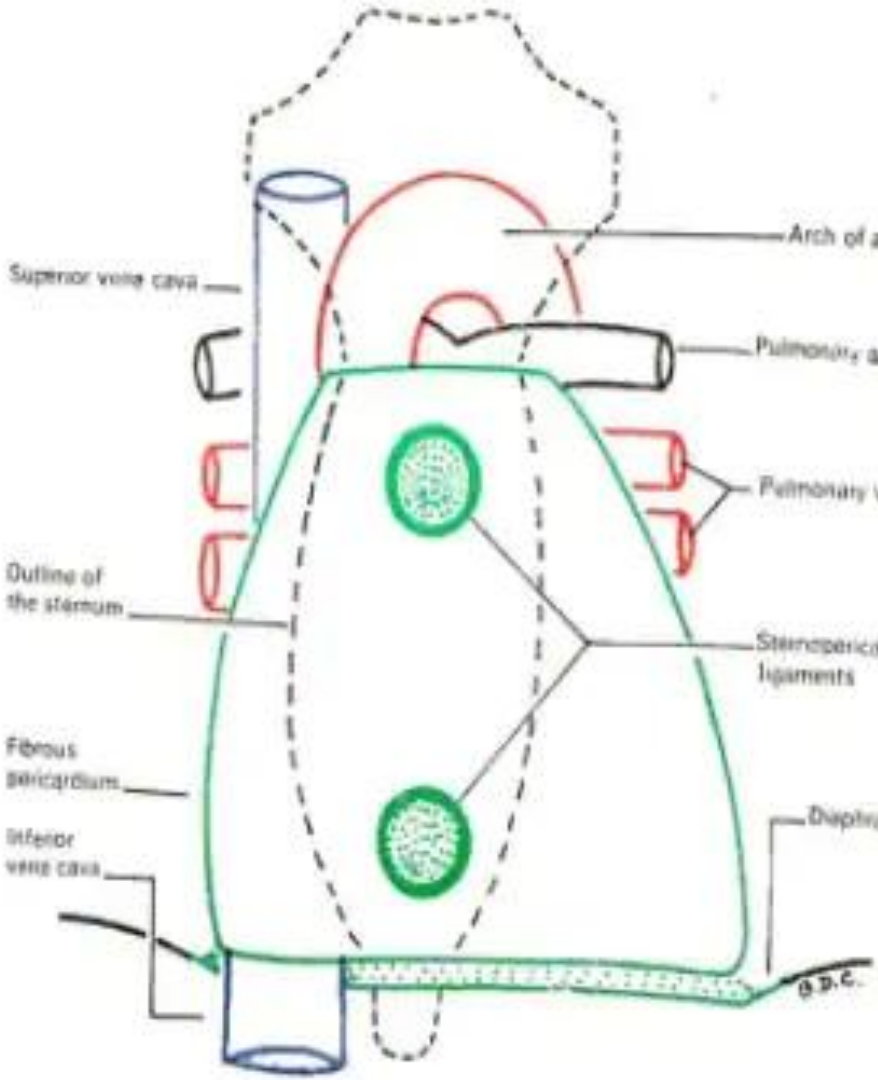
Anterior Mediastinum-(narrowest)

Boundaries

Ant: Body of sternum
Post: Pericardium
Sides: Mediastinal pleura
Sup: Imaginary plane
Inf: Diaphragm

Contents

- Thymus (in children)
- Sternopericardial lig.
- Internal thoracic artery & branches
- Lymphatics & Lymph nodes



Middle Mediastinum

Contents:

Heart enclosed in pericardium

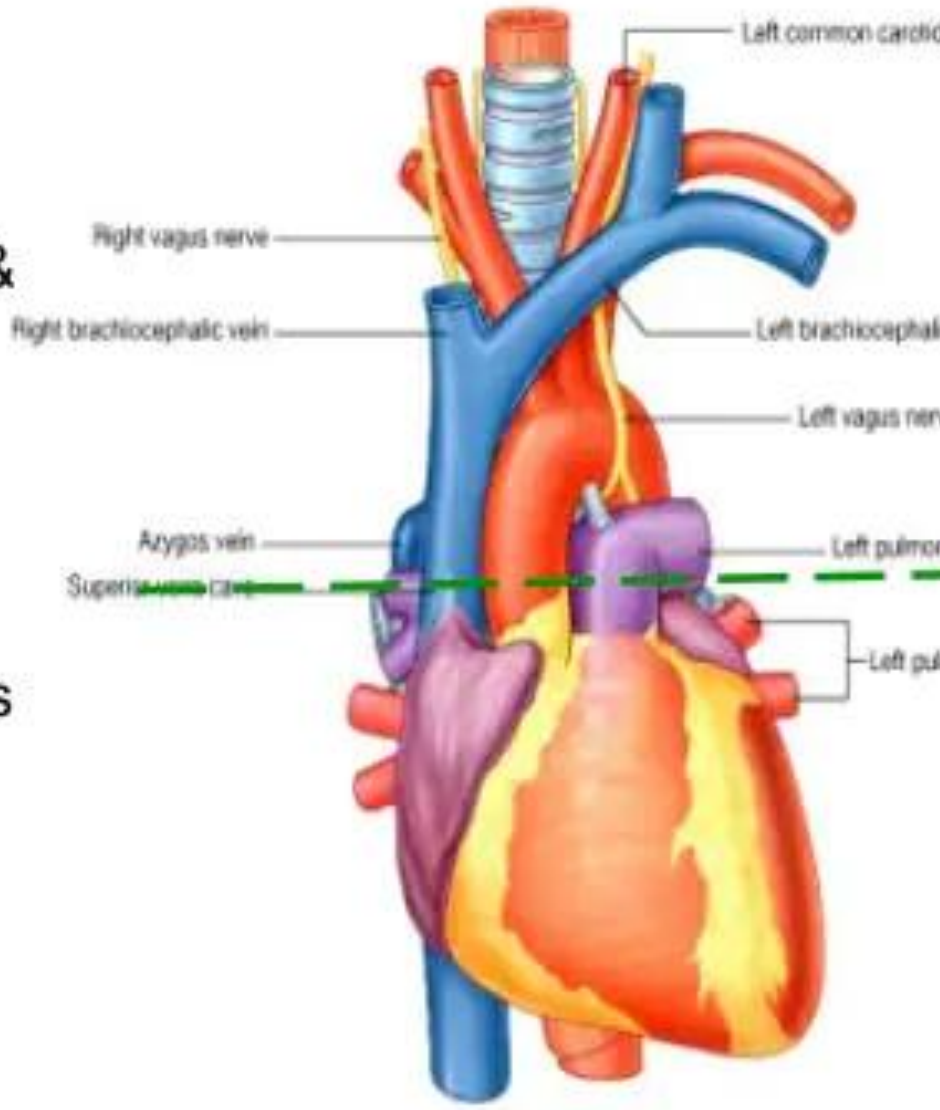
Arteries: Ascending Aorta,
Pulmonary trunk with its Lt &
Rt branches

Veins: SVC, Termination of Azygos,
Pulmonary veins

Nerves: Phrenic, Deep cardiac plexus

Bifurcation of Trachea with
two principal bronchi

Tracheobronchial lymph nodes



Posterior Mediastinum

Boundaries:

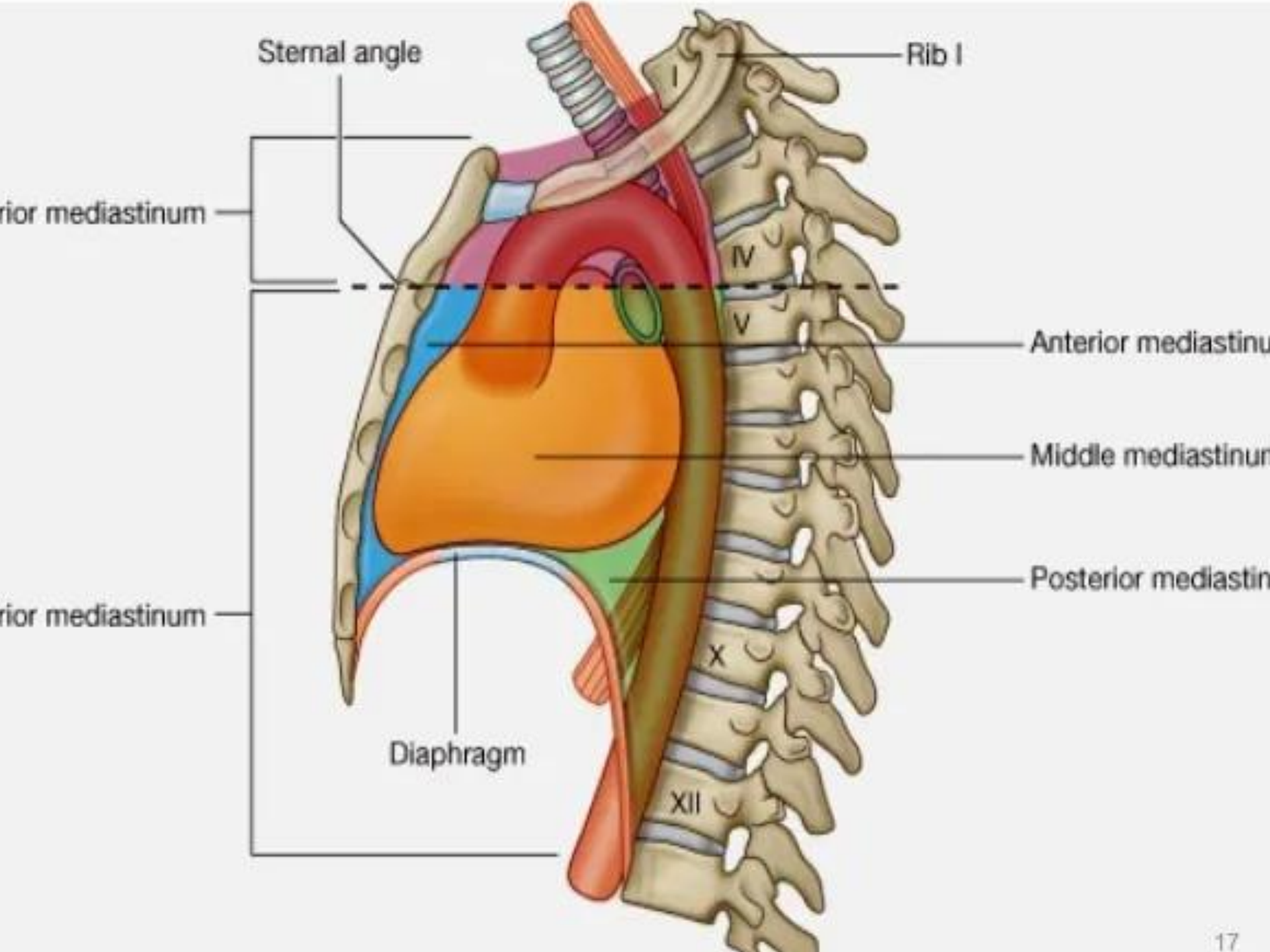
Ant. Pericardium, Bifurcation of trachea

Post. T5 to T12

sup. Transverse thor plane

Inf. diaphragm

Sides: Mediastinal pleura


Sternal angle
Rib I
rior mediastinum
Anterior mediastinu
Middle mediastinu
Posterior mediastin
rior mediastinum
Diaphragm
I
IV
V
X
XII

Posterior Mediastinum

Contents:

Oesophagus

Arteries

- Descending Aorta with its brs

Veins

- Azygos
- Hemizygos
- Accessory hemizygos

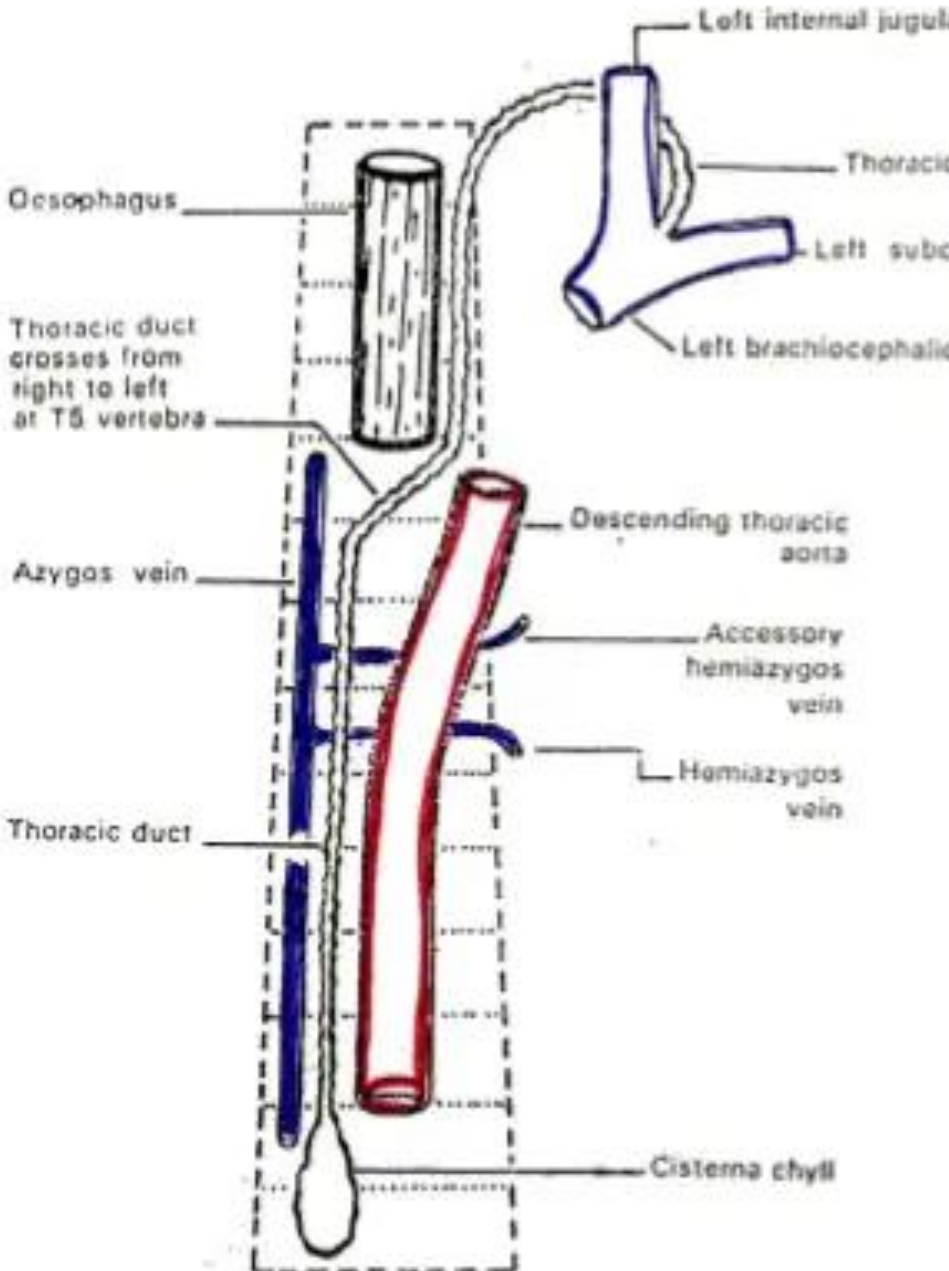
Nerves:

- Vagus
- Splanchnic nerves

Thoracic duct

lymph nodes

- Posterior mediastinal



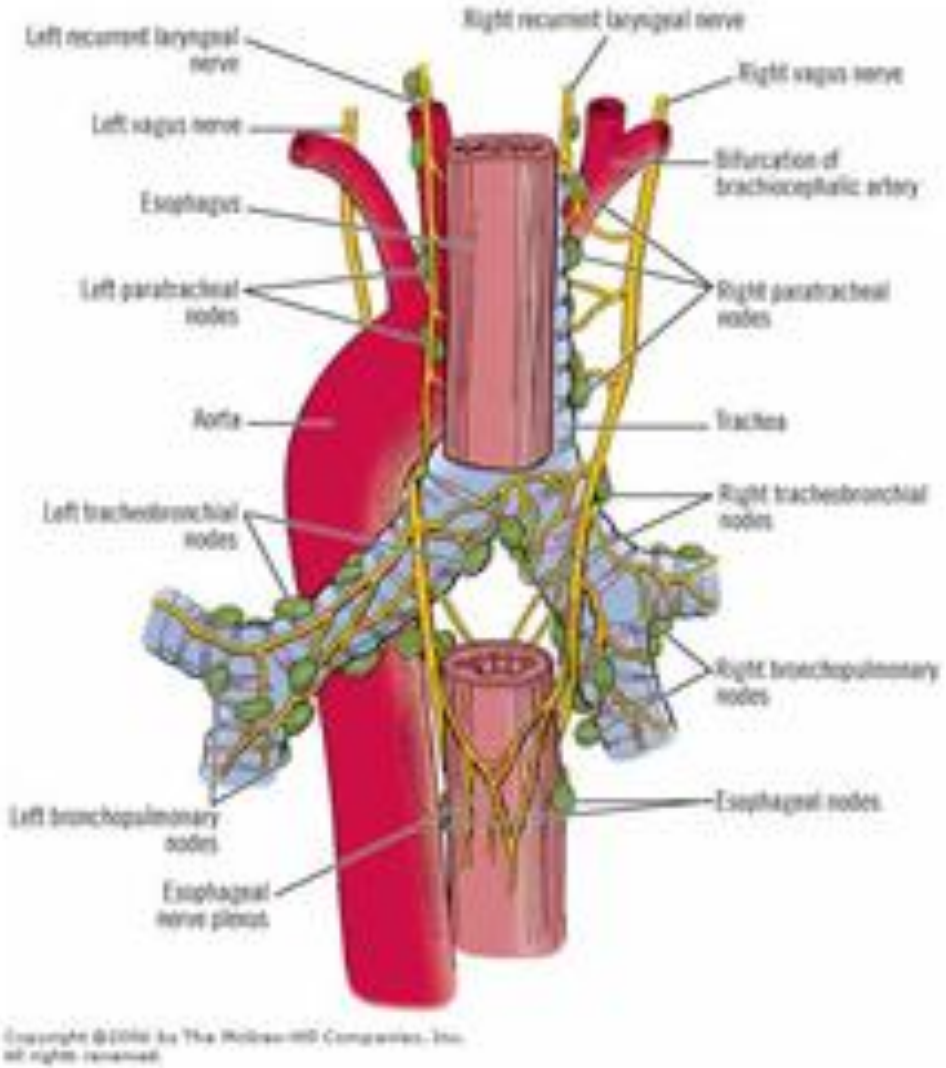
Nerves in mediastinum

The **right vagus nerve** descends in the thorax, first posterolateral to the brachiocephalic artery then lateral to the trachea

Passes **behind** the root of the right lung and assists in the formation of the **pulmonary plexus.**

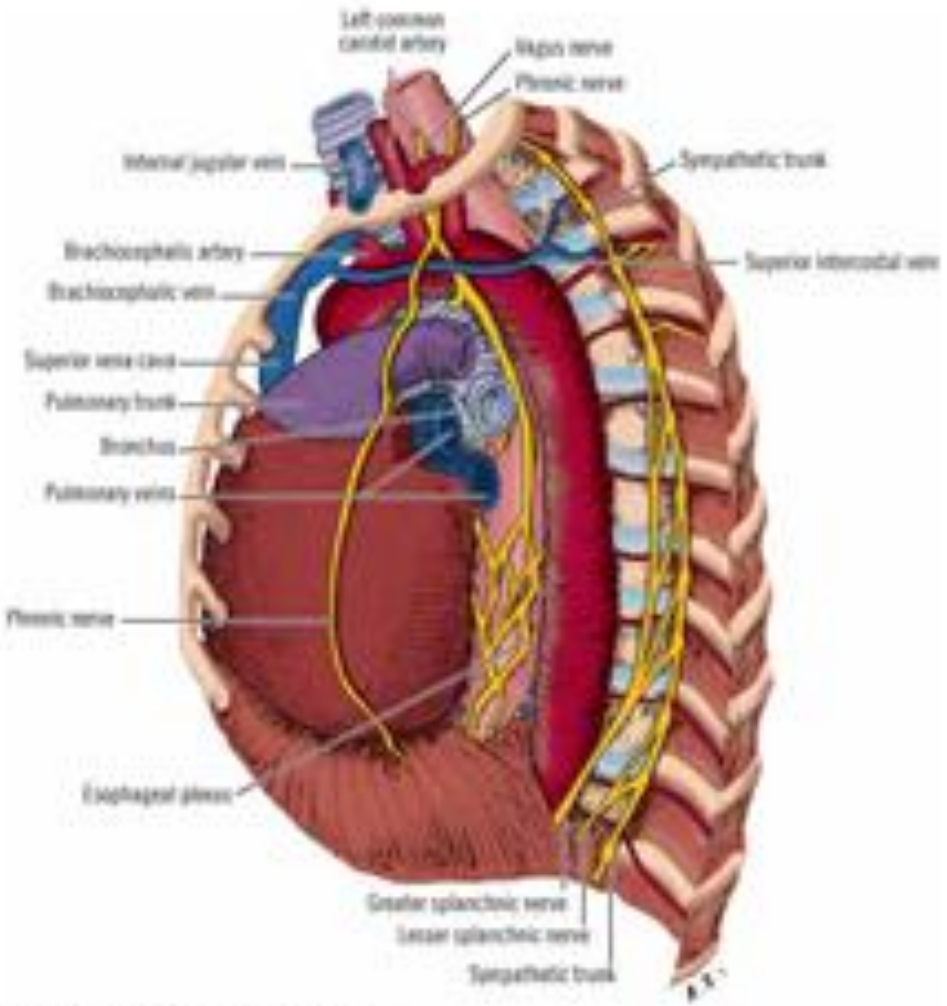
On leaving the plexus, the vagus passes onto the posterior surface of the esophagus and takes part in the formation of the **esophageal plexus.**

It then passes through the esophageal opening of the diaphragm.



Nerves in mediastinum

- The **left vagus nerve** descends in the thorax between the left common carotid and the left subclavian arteries
- It then crosses the left side of the aortic arch
- The vagus then turns backward **behind** the root of the left lung and assists in the formation of the **pulmonary plexus.**
- On leaving the plexus, the vagus passes onto the anterior surface of the esophagus and takes part in the formation of the **esophageal plexus.**



Clinical correlations

- **Deflection of Mediastinum**

✓ If air enters the pleural cavity (a condition called **pneumothorax**), the lung on that side immediately collapses and the mediastinum is displaced to the opposite side.

✓ patient's being breathless and in a state of shock; on examination, the trachea and the heart are found to be displaced to the opposite side

Applied Anatomy:

Mediastinitis

- From infections of neck

Pus under prevertebral fascia reach
ill T4 only, not beyond it, as PV fascia
s attached here

- Pus b/w pretracheal and prevertebral

ascia seeps through sup.
Mediastinum to reach post.
Mediastinum

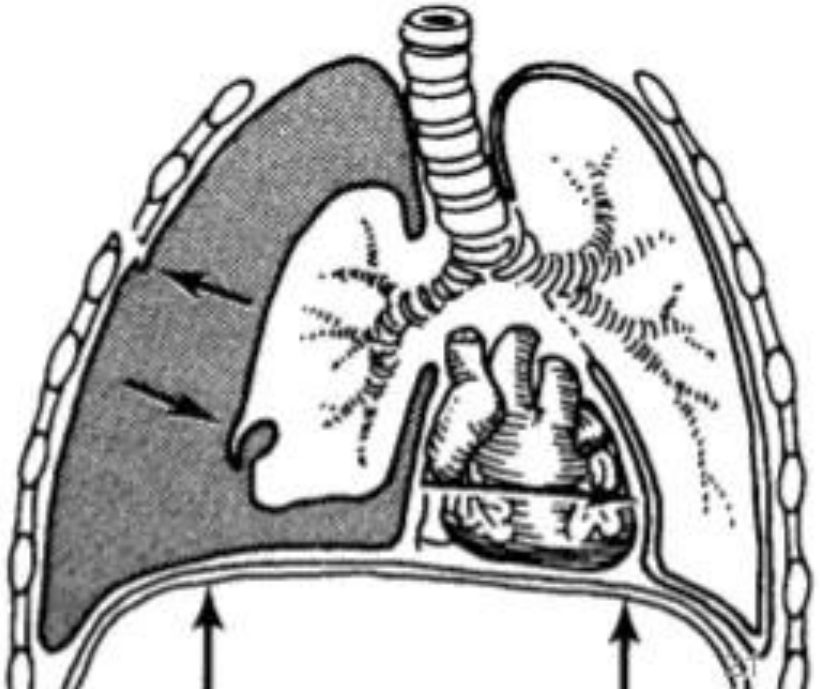
- In front of pretracheal fascia to ant

mediastinum

- Mediastinal syndrome-
  - Engorgment of veins
  - Dyspnea
  - Dysphagia
  - Hoarseness of voice

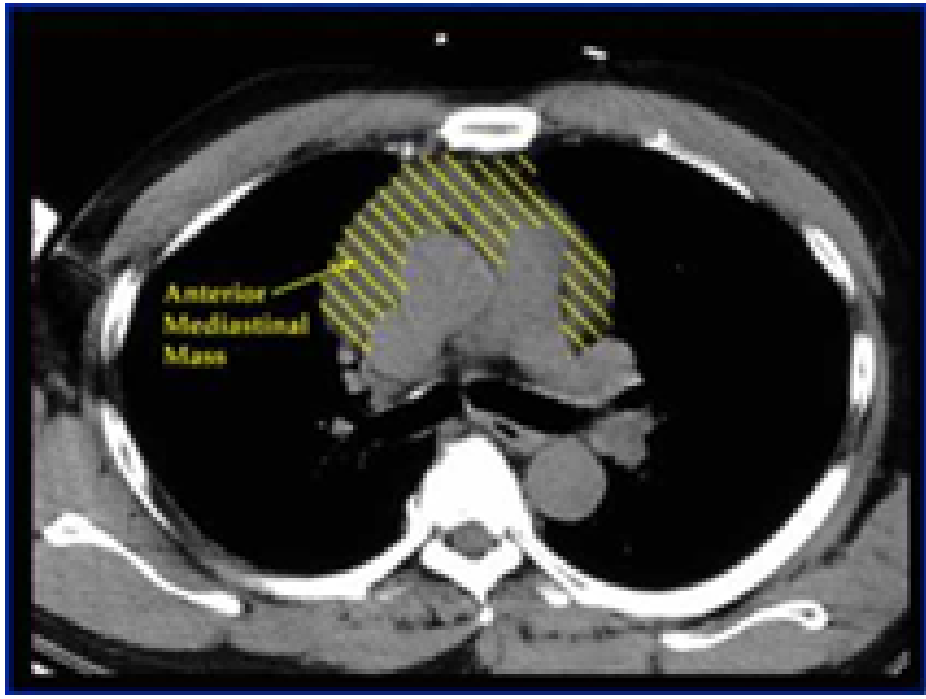
- Mediastinal widening

- Mediasinal shift



Clinical correlations

- **Mediastinal Tumors or Cysts**
- ✓ Enlargement of mediastinal tumor may compress the left recurrent laryngeal nerve, producing paralysis of the left vocal fold.
- ✓ An expanding cyst or tumor can partially occlude the superior vena cava, causing severe congestion of the veins of the upper part of the body.
- ✓ Other pressure effects can be seen on the sympathetic trunks, phrenic nerves, and sometimes the trachea, main bronchi, and esophagus.



Clinical correlations

- **Mediastinoscopy**
  - ✓ diagnostic procedure by which tracheobronchial lymph nodes are obtained without opening the pleural cavities.
- ✓ A small incision is made in the midline in the neck just above the suprasternal notch, and the superior mediastinum is explored down to the region of the bifurcation of the trachea.
- ✓ The procedure can be used to determine the diagnosis and degree of spread of carcinoma of the bronchus.