

الكلية : كلية الطب

القسم او الفرع : التشريح البشري

المرحلة: الاولى

أستاذ المادة : مهند سهيل نجم

اسم المادة باللغة العربية : التشريح

اسم المادة باللغة الإنكليزية : **anatomy**

اسم المحاضرة الأولى باللغة العربية: تشريح منطقة الصدر

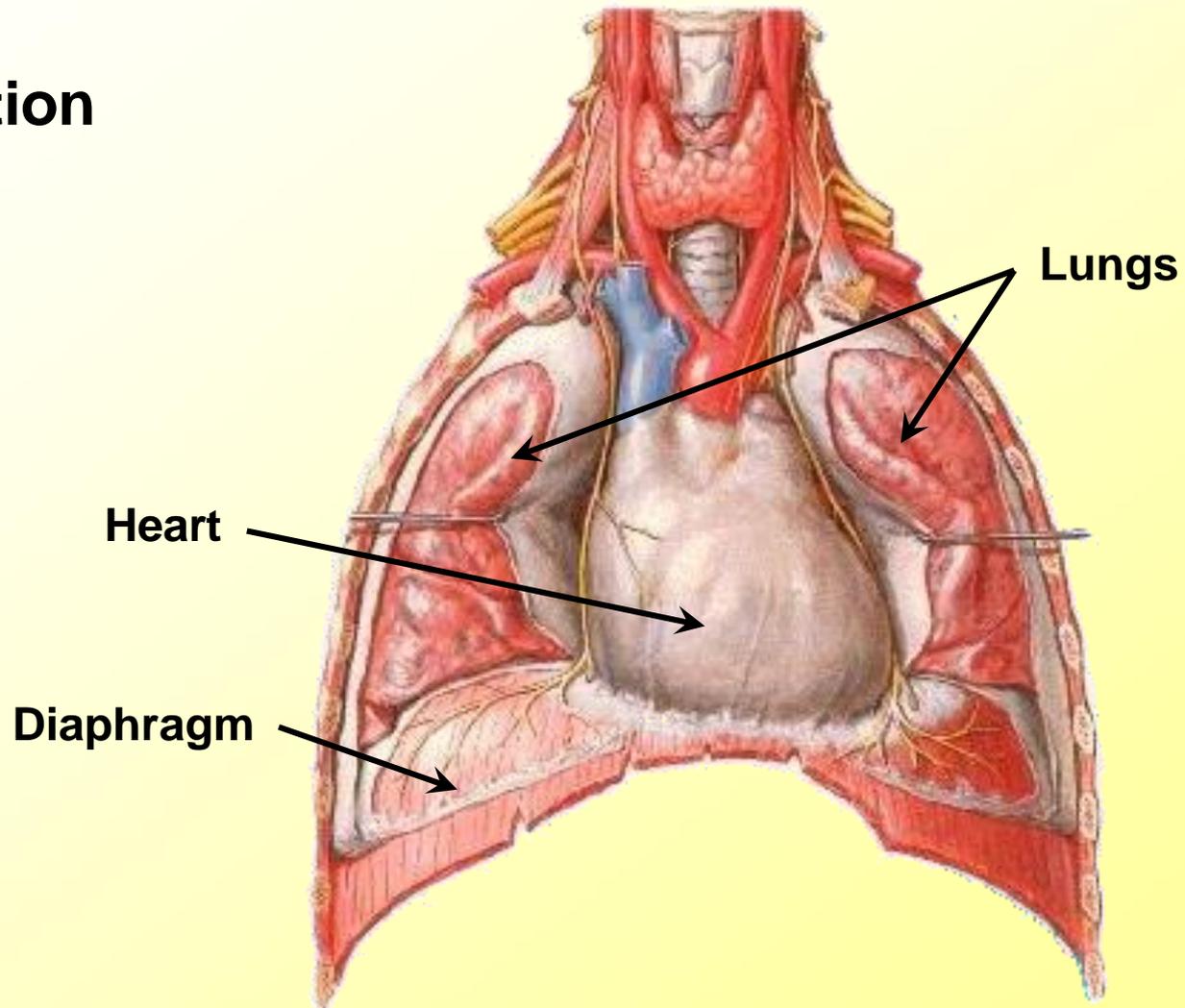
اسم المحاضرة الأولى باللغة الإنكليزية : **Thorax Anatomy**

Mediastinum

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The Mediastinum

- **Definition**



MEDIASTINUM

- ❖ The mediastinum is the area between the sternum, the two pleural cavities, and the vertebral column .
- ❖ that extends superiorly to the thoracic outlet and the root of the neck and inferiorly to the diaphragm. It extends anteriorly to the sternum and posteriorly to the vertebral column.
- ❖ It contains the remains of the thymus, the heart and large blood vessels, the trachea and esophagus, the thoracic duct and lymph nodes, the vagus and phrenic nerves, and the sympathetic trunks.
- ❖ The mediastinum is divided into
 1. **superior**
 2. **inferior mediastina**
- ❖ **by an imaginary plane passing from the sternal angle anteriorly to the lower border of the body of the fourth thoracic vertebra posteriorly.**

This plane is a noteworthy landmark in that it marks several key structures.

From anterior to posterior, these are the:

- Joint between the manubrium and body of the sternum
- Second costosternal joint
- Demarcation between the ascending aorta and the arch of the aorta
- Demarcation between the arch of the aorta and the descending thoracic aorta
- Bifurcation of the trachea
- Level of the left primary bronchus
- T4 intervertebral disc

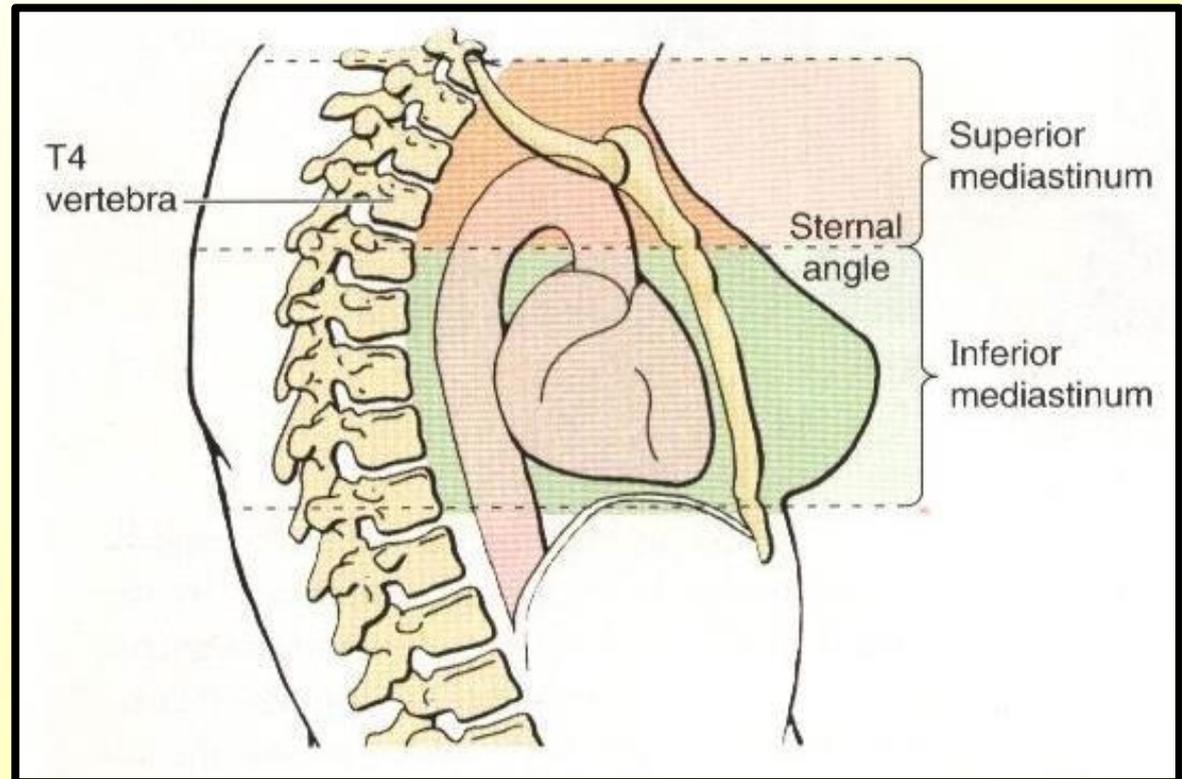
The inferior mediastinum is further subdivided into the

- ❖ Middle mediastinum, which consists of the pericardium and heart;
- ❖ anterior mediastinum, which is a space between the pericardium and the sternum;
- ❖ posterior mediastinum, which lies between the pericardium and the vertebral column.

For purposes of orientation, it is convenient to remember that the major mediastinal structures are arranged in the following order from anterior to posterior.

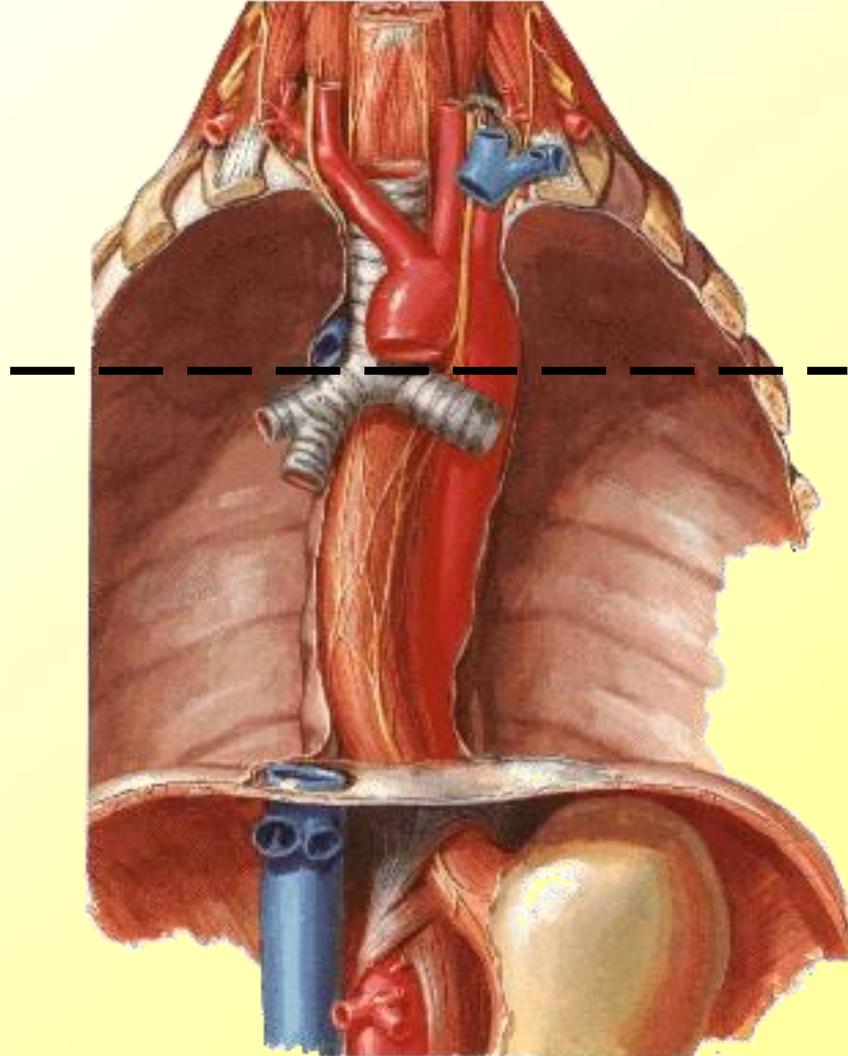
Divisions of Mediastinum

- **Superior**
- **Inferior**
 - **Anterior**
 - **Middle**
 - **Posterior**



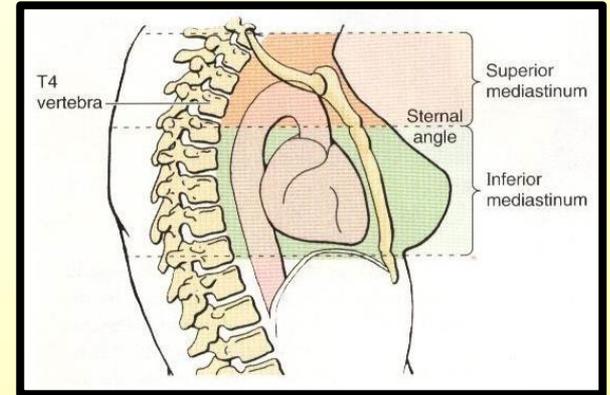
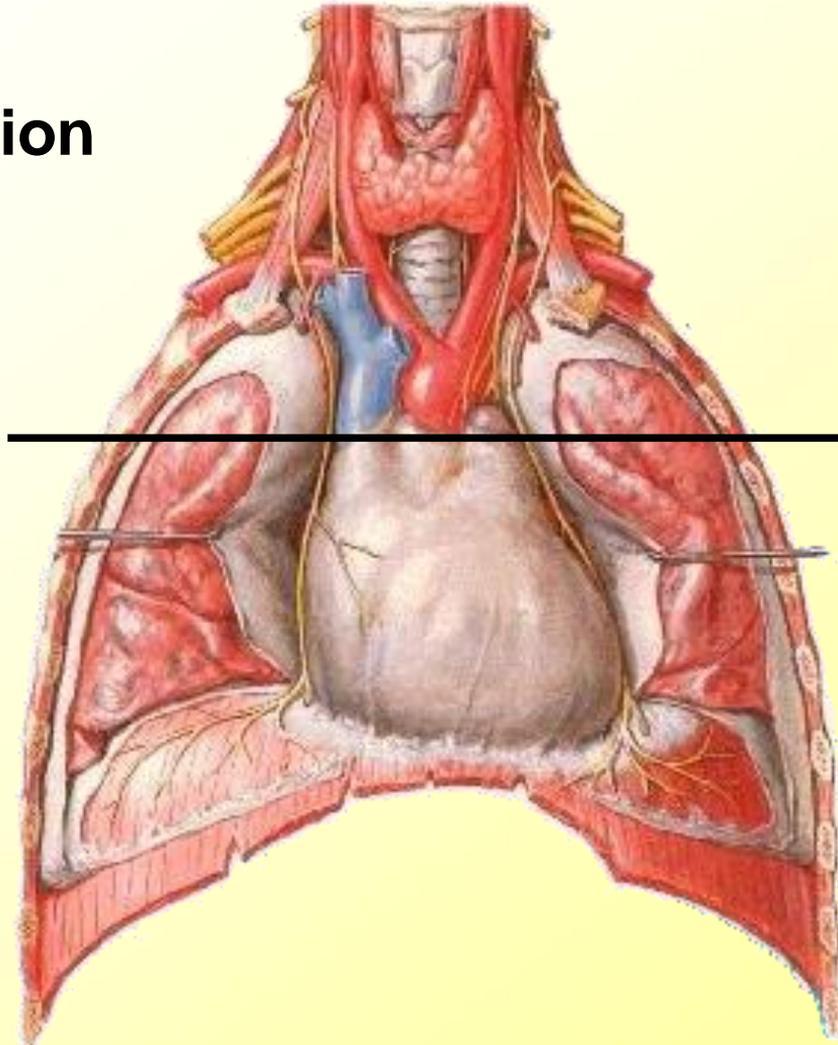
Transverse Thoracic Plane

- **Structures at T4 – T5 level**



The Superior Mediastinum

- **Location**



Ref.2

**Transverse
thoracic plane**

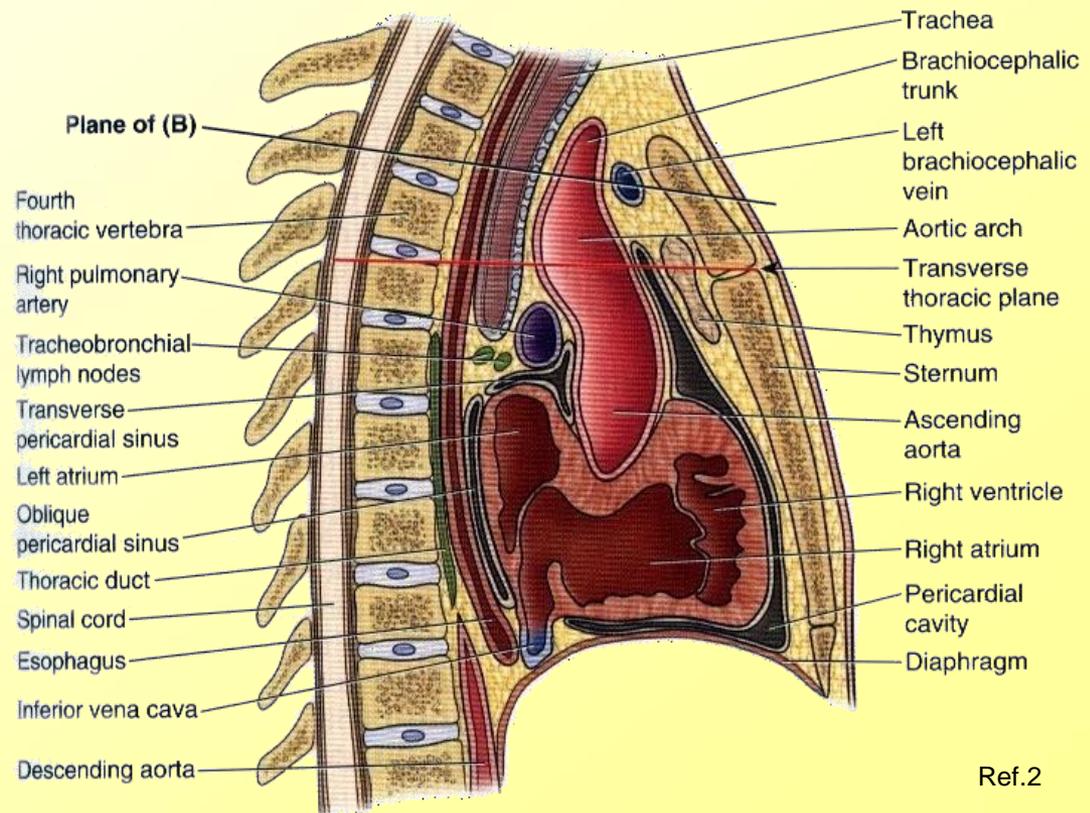
Ref.1

Layers of superior Mediastinum

Superior Mediastinum

(1) Thymus, (2) large veins, (3) large arteries, (4) trachea, (5) esophagus and thoracic duct, and (6) sympathetic trunks.

The superior mediastinum is bounded in front by the manubrium sterni and behind by the first four thoracic vertebrae .



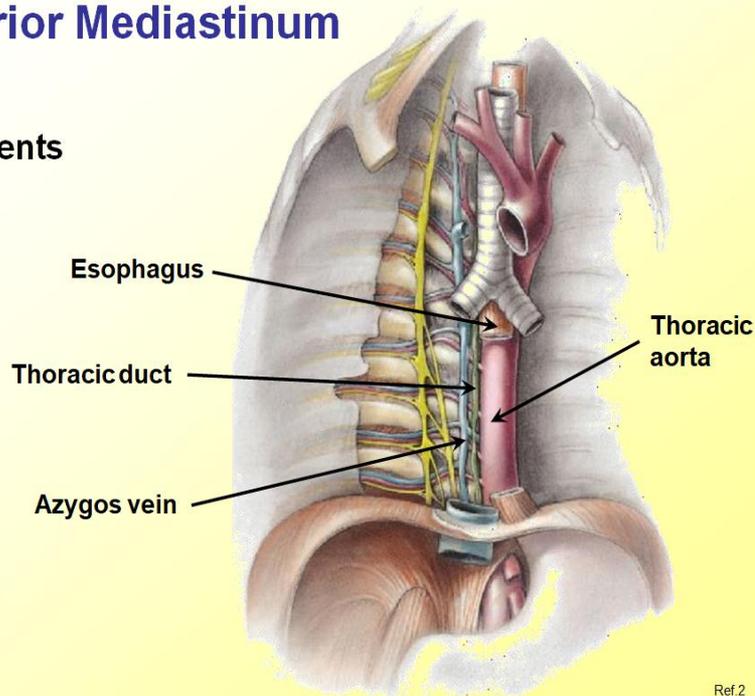
inferior Mediastinum

(1) Thymus, (2) heart within the pericardium with the phrenic nerves on each side, (3) esophagus and thoracic duct, (4) descending aorta, and (5) sympathetic trunks.

The inferior mediastinum is bounded in front by the body of the sternum and behind by the lower eight thoracic vertebrae

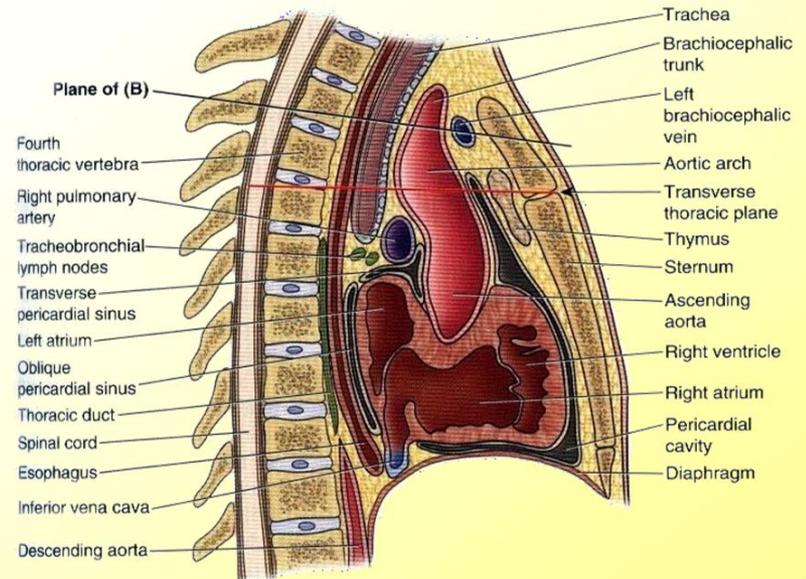
Posterior Mediastinum

○ Contents



Ref.2

Anterior Mediastinum



Ref

Aorta

The aorta is the main arterial trunk that delivers oxygenated blood from the left ventricle of the heart to the tissues of the body. It consists of four main parts:

1. ascending aorta

The coronary arteries

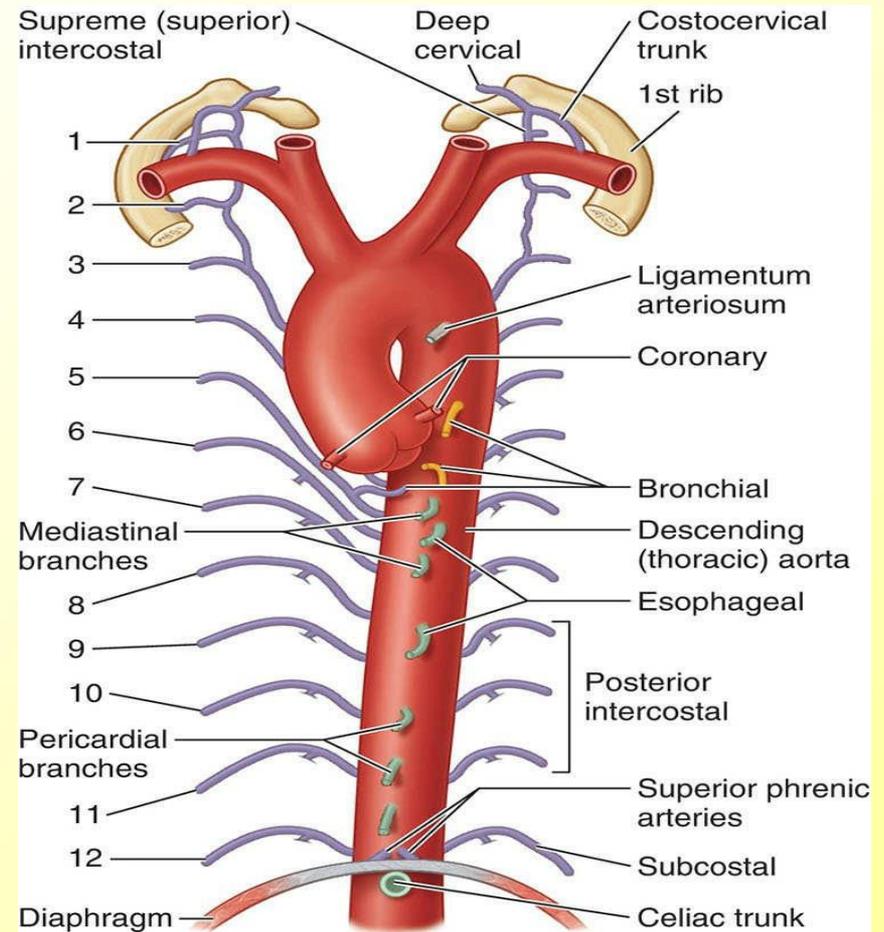
1. arch of the aorta

- A. brachiocephalic artery
- B. left common carotid artery
- C. left subclavian artery

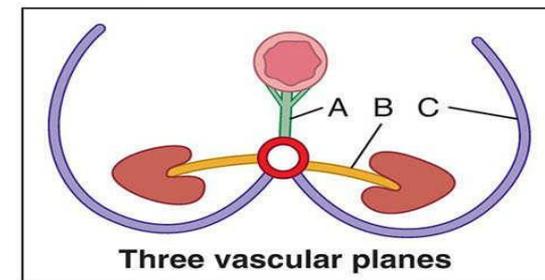
3. descending thoracic aorta

- A. Posterior intercostal arteries
- B. Subcostal arteries
- C. Pericardial, esophageal, and bronchial arteries

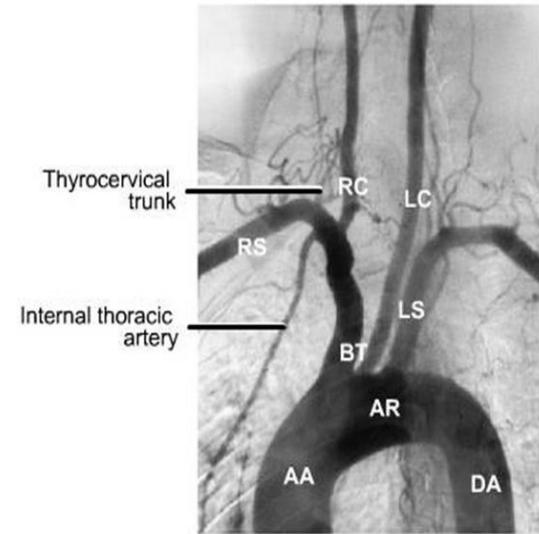
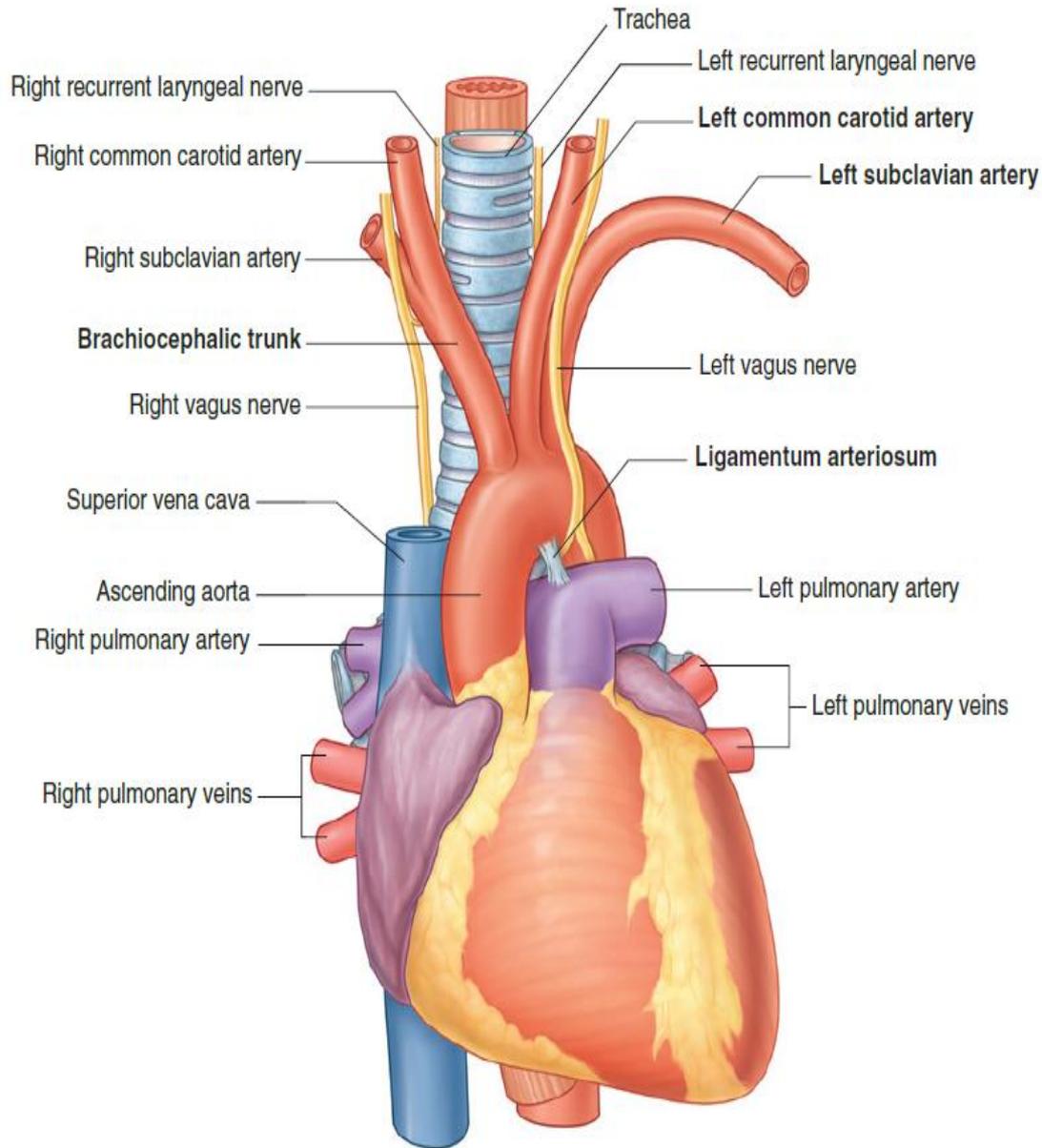
4. abdominal aorta



Anterior view



Superior view



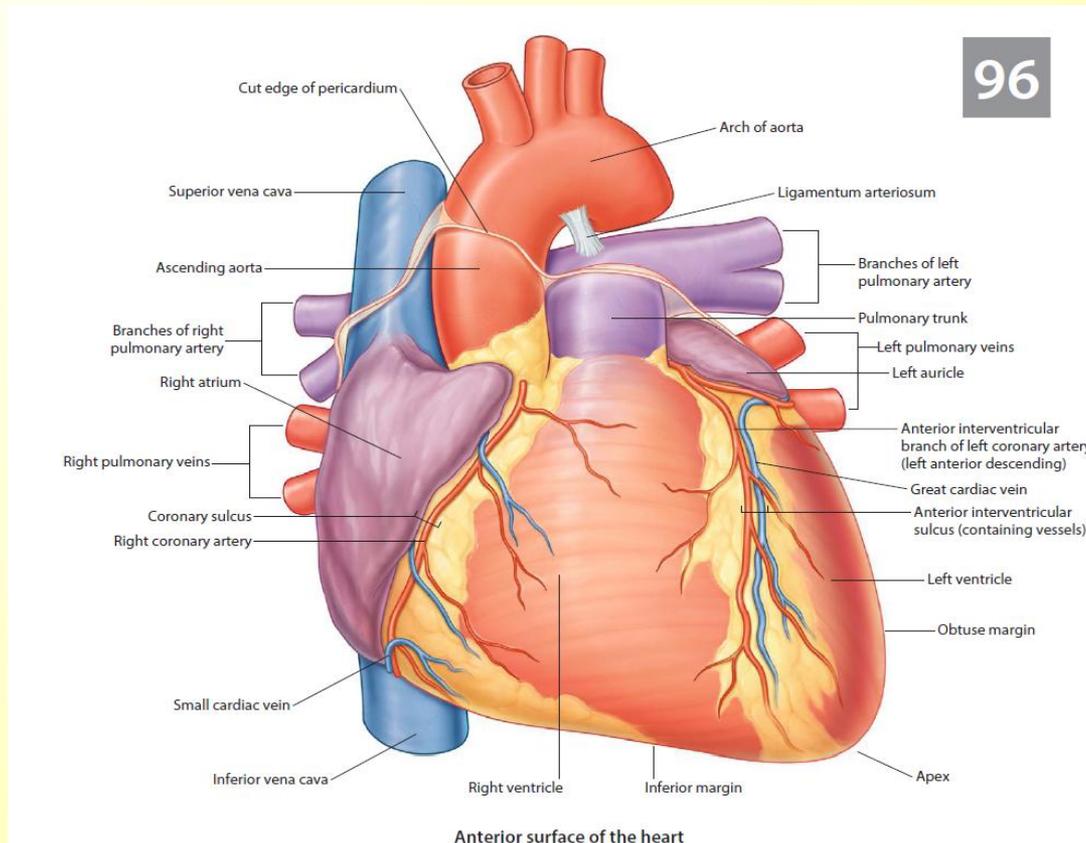
Left Anterior Oblique View

Pulmonary Trunk

The **right pulmonary artery** runs to the right behind the ascending aorta and superior vena cava to enter the root of the right lung.

The **left pulmonary artery** runs to the left in front of the descending aorta to enter the root of the left lung.

The **ligamentum arteriosum** is a fibrous band that connects the bifurcation of the pulmonary trunk to the lower concave surface of the aortic arch

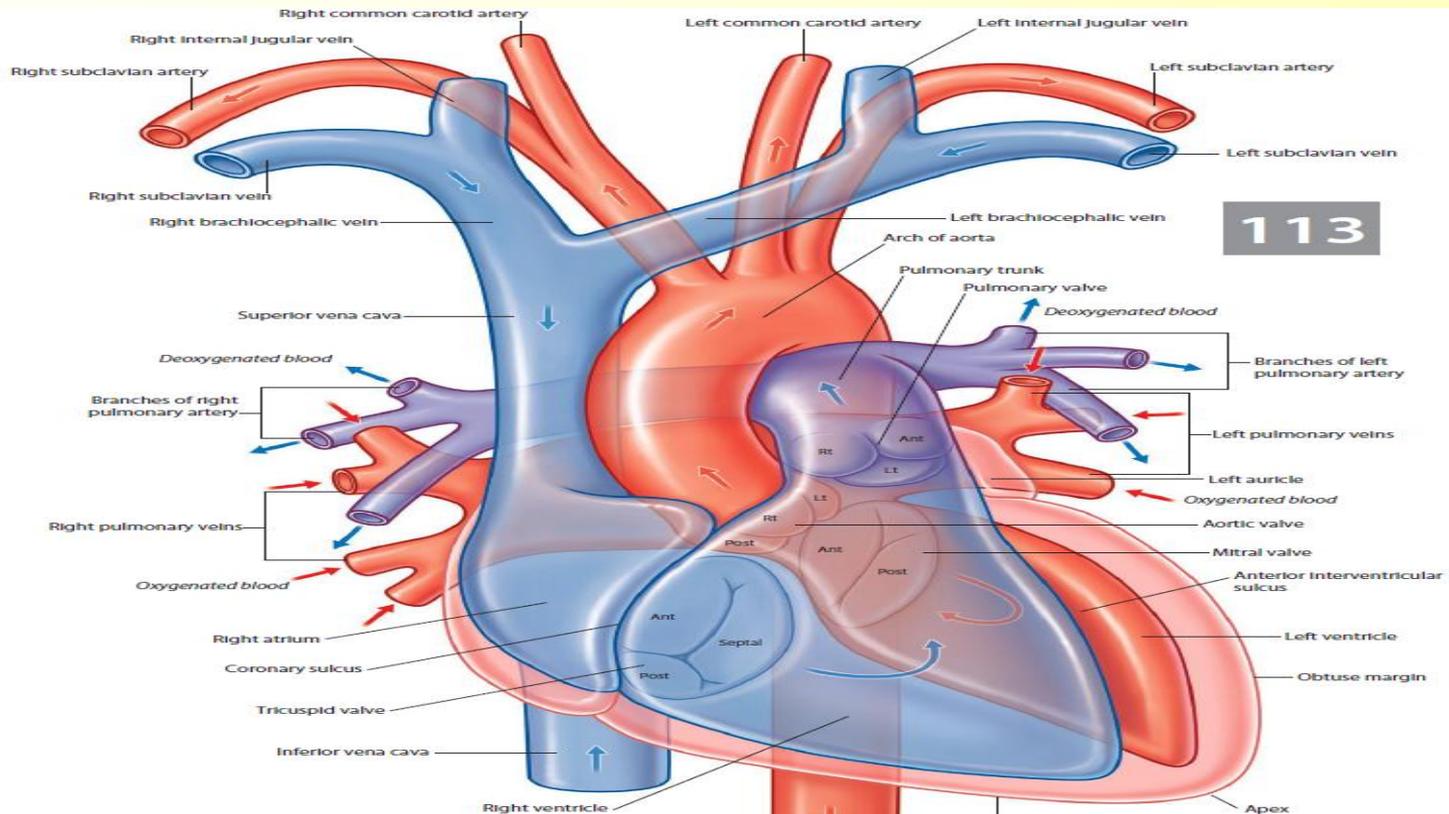


LARGE THORACIC VEINS

The **brachiocephalic** and **azygos veins** and the **superior vena cava** are the large veins in the thorax.

Brachiocephalic Veins

The **right** and **left** brachiocephalic veins form at the root of the neck on each side by the union of the respective subclavian and internal jugular veins
The two brachiocephalic veins join to form the **superior vena cava**



Azygos Veins

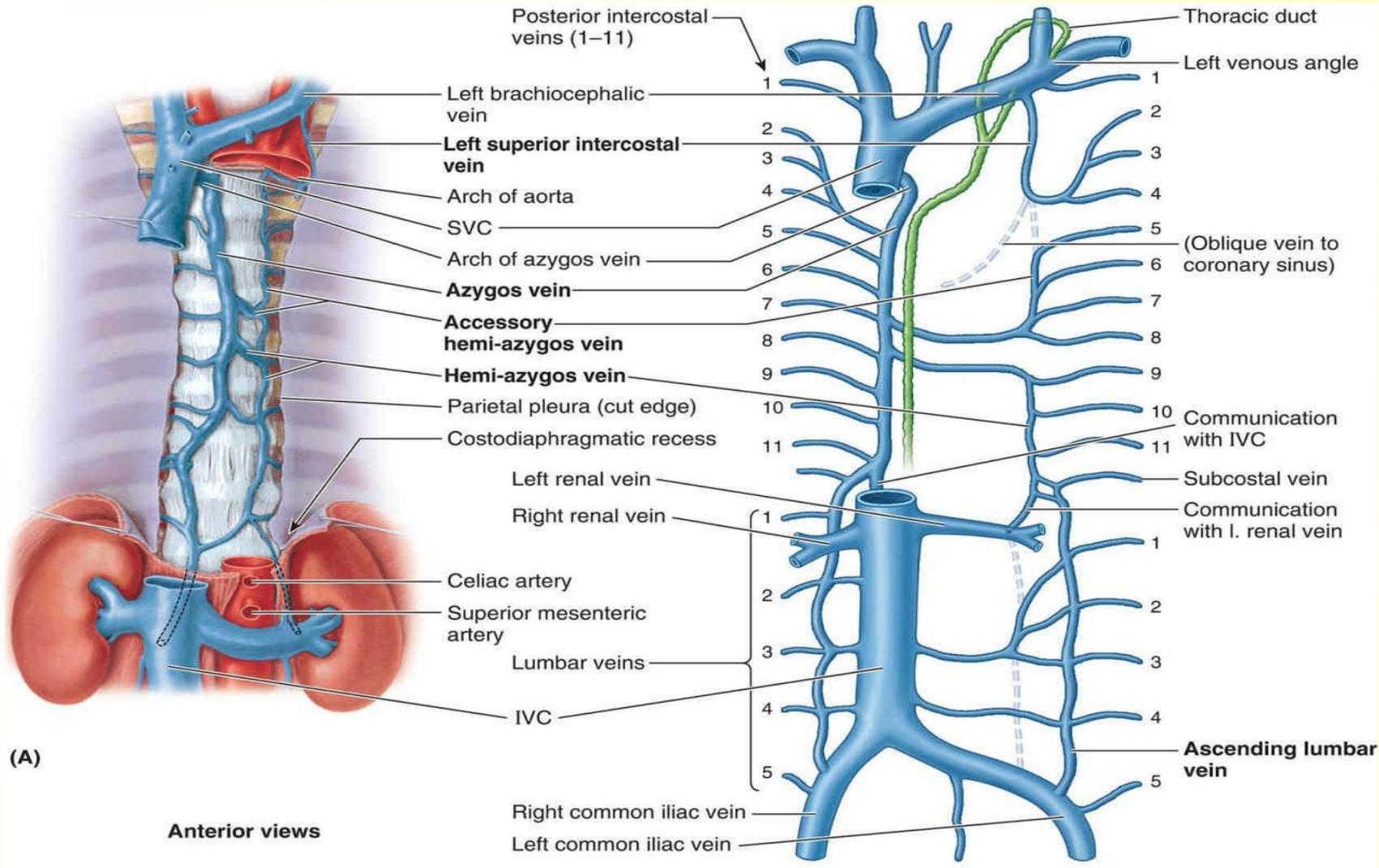
The azygos venous tract consists of the

- **1) Azygos Vein**
- The union of the **right ascending lumbar vein** and the **right subcostal vein**
- right side
- empty into the posterior surface of the **superior vena cava**
- The azygos vein has numerous tributaries
- , including the **eight lower right intercostal veins**, the **right superior intercostal vein**, the **superior and inferior hemiazygos veins**, and the numerous **mediastinal veins**.

2) Superior Hemiazygos Vein (Accessory hemiazygos vein)

3) Inferior Hemiazygos Vein

- The union of the **left ascending lumbar vein** and the **left subcostal vein** in the abdomen often forms the inferior hemiazygos vein.
- It ascends through the left crus of diaphragm and, at about the level of the **eighth thoracic** vertebra, turns to the right and joins the azygos vein.
- It receives as tributaries some **lower left intercostal veins** and **mediastinal veins**



(A)

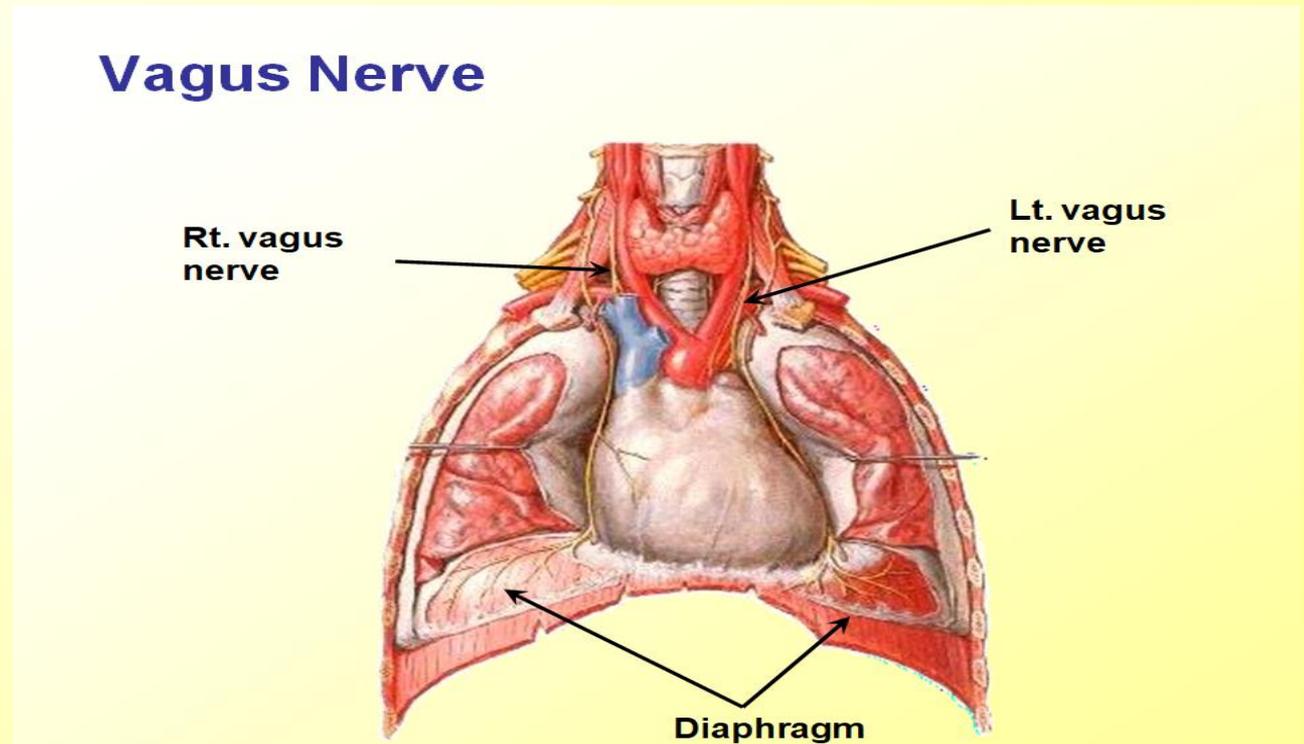
Anterior views

(B)

Vagus Nerves

The vagus nerves carry **preganglionic parasympathetic fibers** (and other components) into the thoracic and abdominal cavities. Both give off **cardiac branches** in the neck that descend into the chest. These branches contribute to the pulmonary, esophageal, and cardiac plexuses and supply the lungs, esophagus, and heart, respectively.

- right vagus nerve
- left vagus nerve



Phrenic Nerves

The phrenic nerves arise in the cervical region **mainly from the fourth, but also from the third and fifth**, cervical spinal cord segments.

The phrenic nerves descend through the thorax to supply motor and sensory innervation to the **diaphragm and its associated membranes**.

As they pass through the thorax, they provide innervation through somatic afferent fibers to the **mediastinal pleura**, **Central part of diaphragmatic pleura**, **fibrous pericardium**, and **parietal layer of serous pericardium**.

