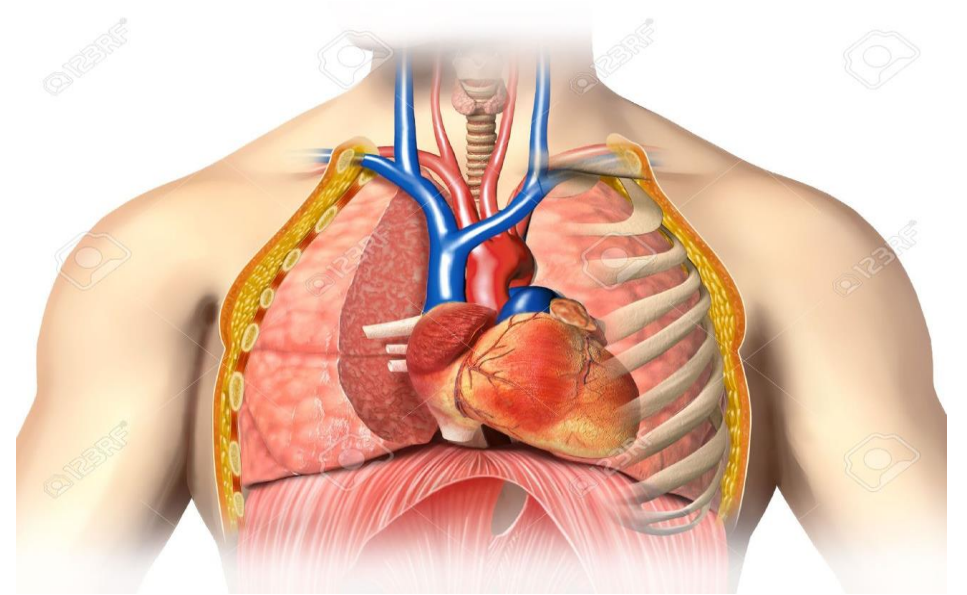


Thorax

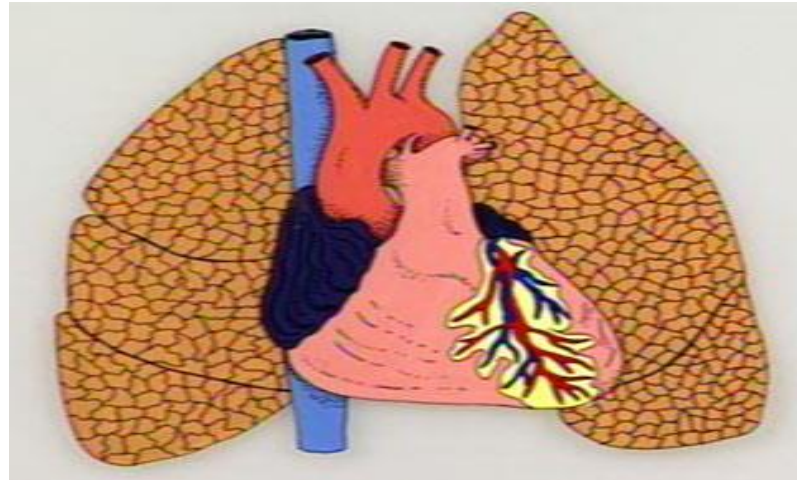


Dr. Maha ELBeltagy

Associate professor of anatomy & Histology

2023

Thorax



Thoracic Cavity

Thoracic Wall



Thoracic wall

Boundaries :

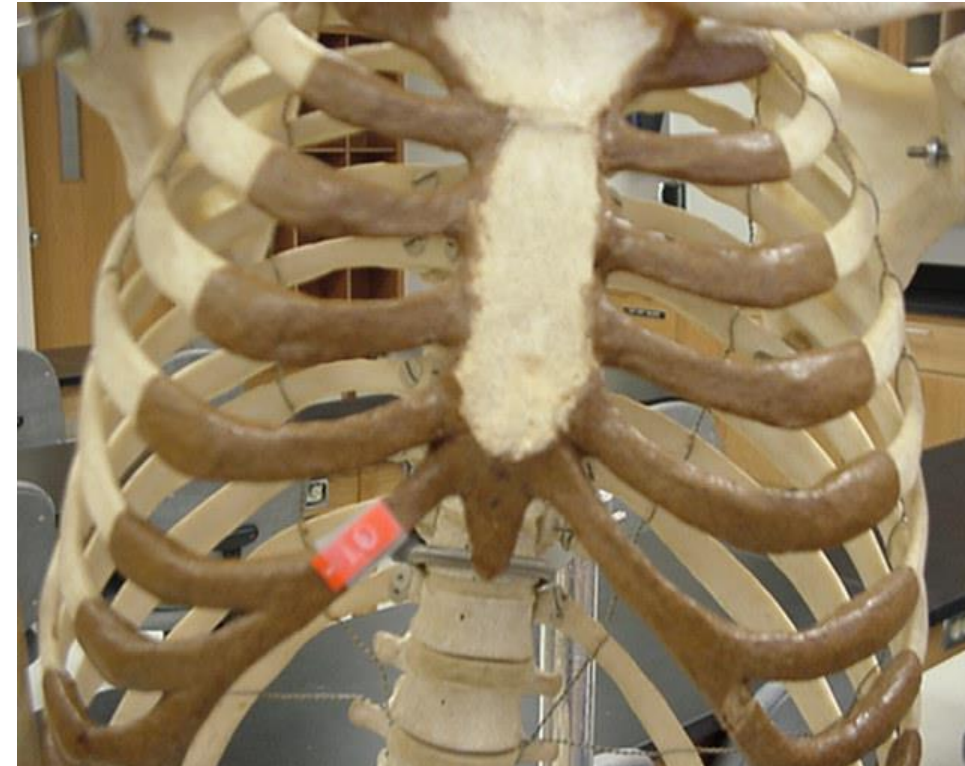
Anteriorly : sternum and costal cartilages

Posteriorly : vertebral column

On either side : ribs and intercostal spaces

The thoracic wall is composed of :

- 1- Skeleton (Thoracic cage)
- 2- Intercostal muscles
- 3- Intercostal vessels
- 4- Intercostal nerves



Ribs

12 Pairs

▶ True ribs

1st to 7th ribs

Attach to thoracic vertebrae and sternum

▶ False ribs

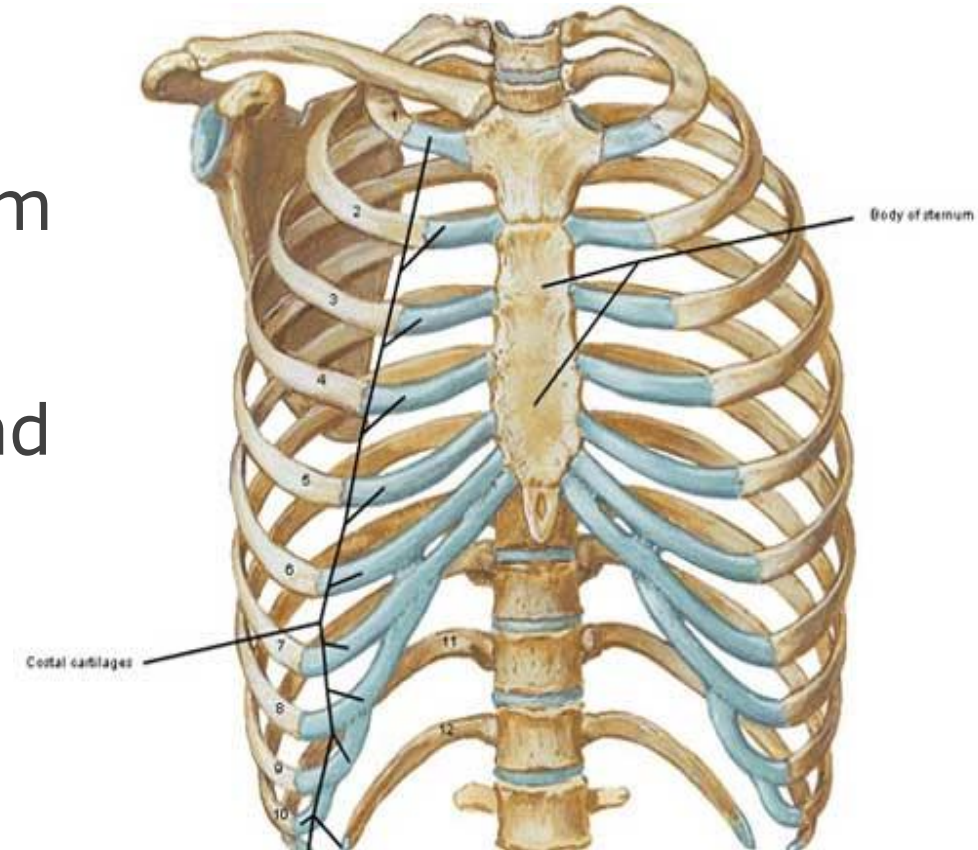
8th ,9th ,10th ribs

are attached anteriorly to each other and to the 7th rib

Floating ribs

11th ,12th ribs

Have no attachment in the front



The Vertebral column

Is composed of 33 vertebrae:

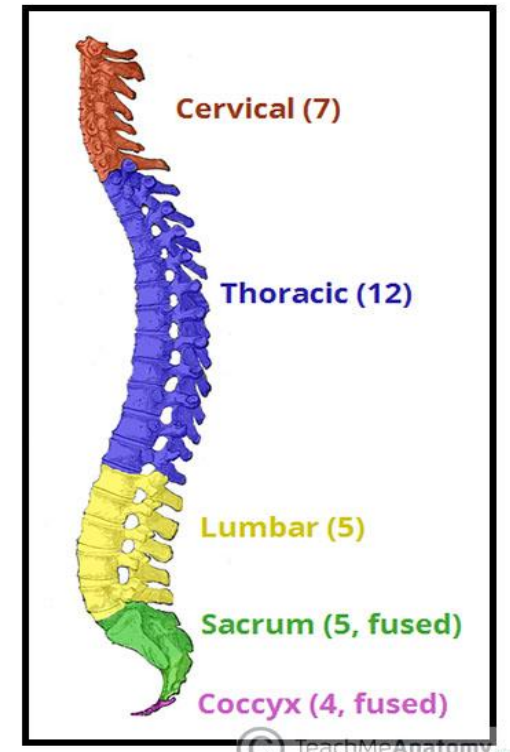
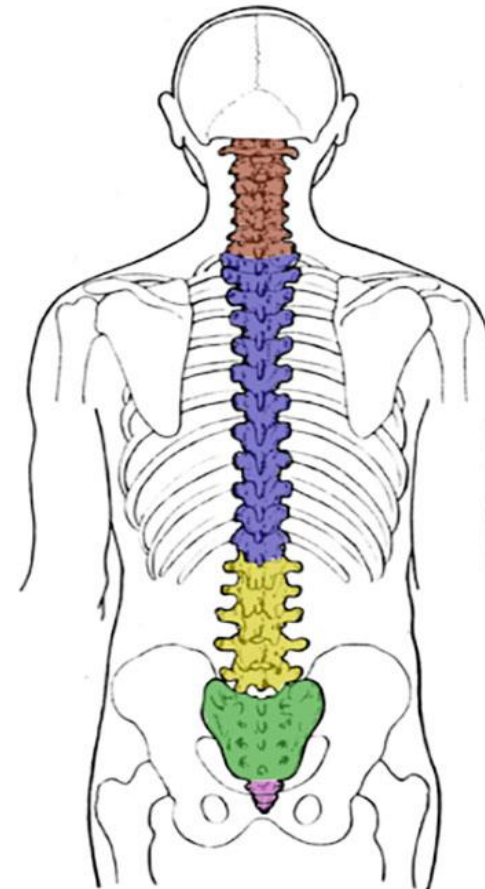
7 cervical

12 thoracic

5 lumbar

5 sacral (fused together into one piece)

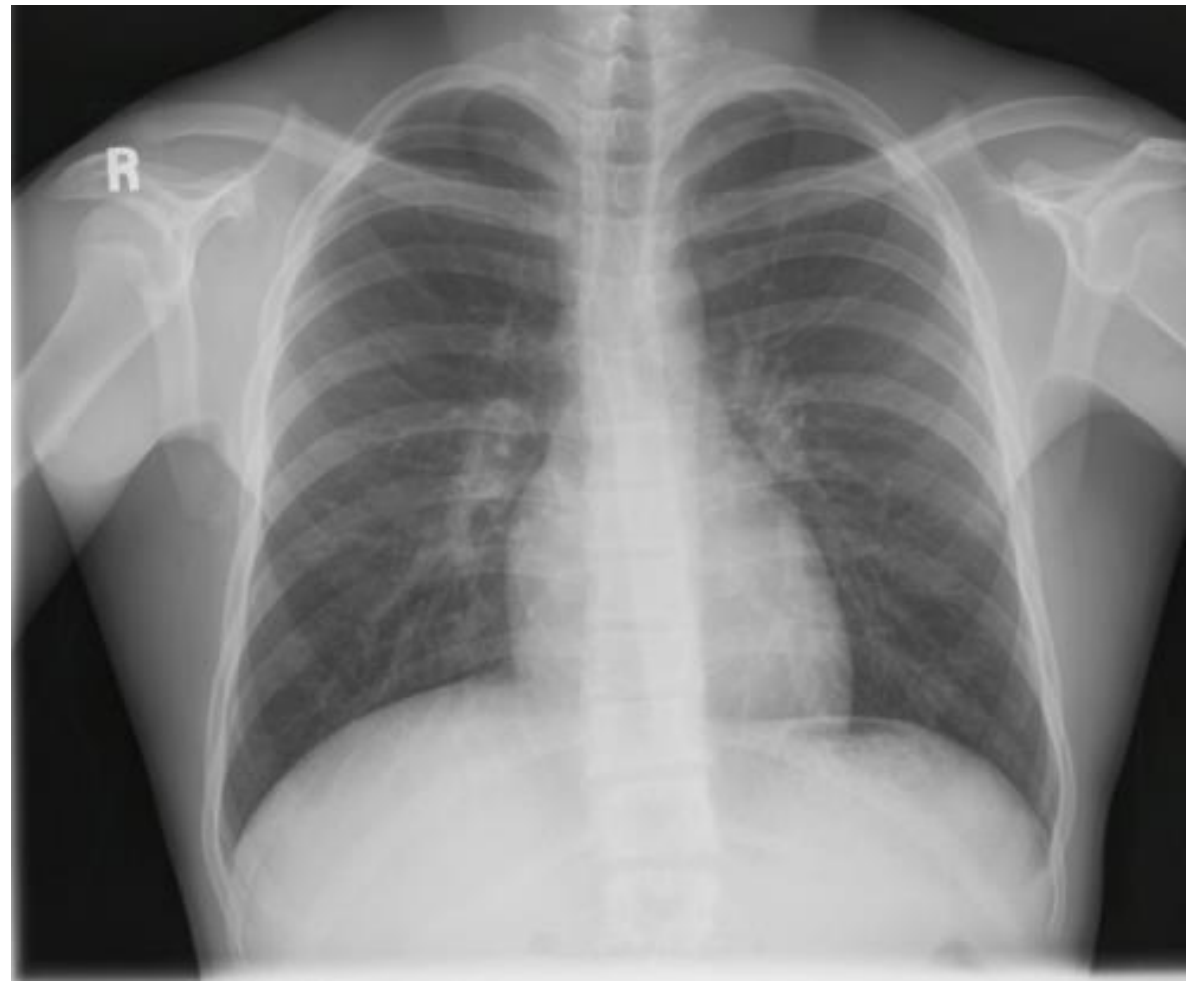
4 coccygeal (fused into one piece)







Chest X ray Posterior anterior view



Mediastinum

It is the septum between the two pleural cavities.

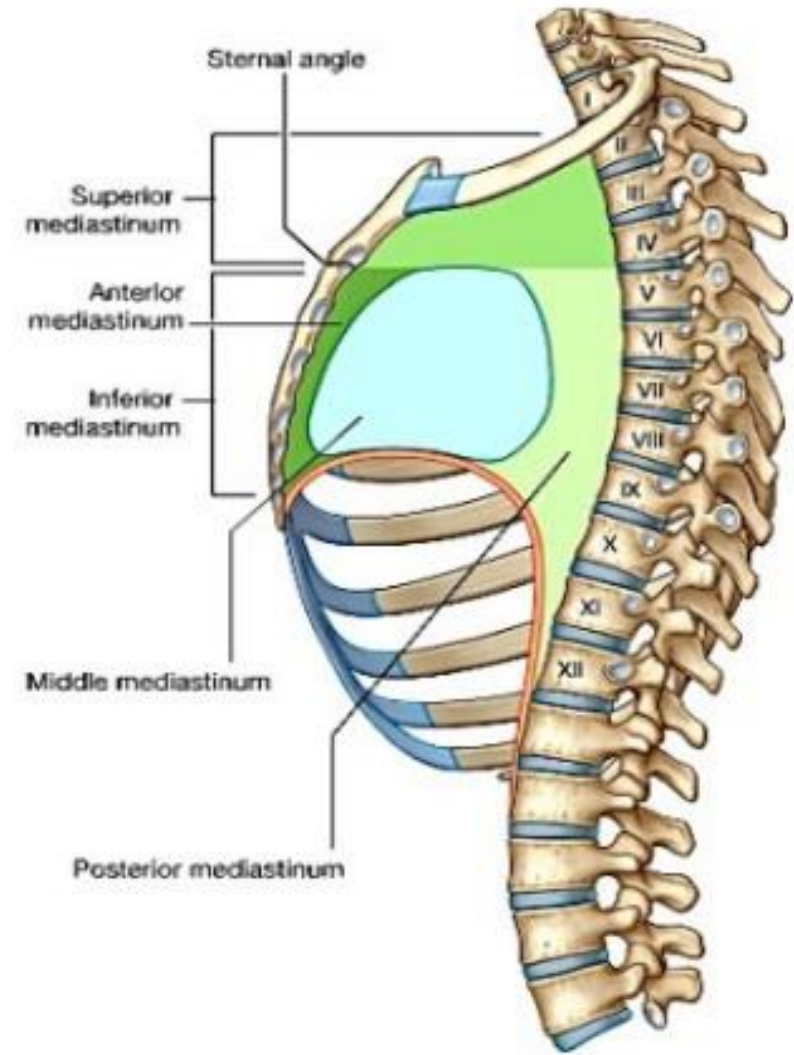
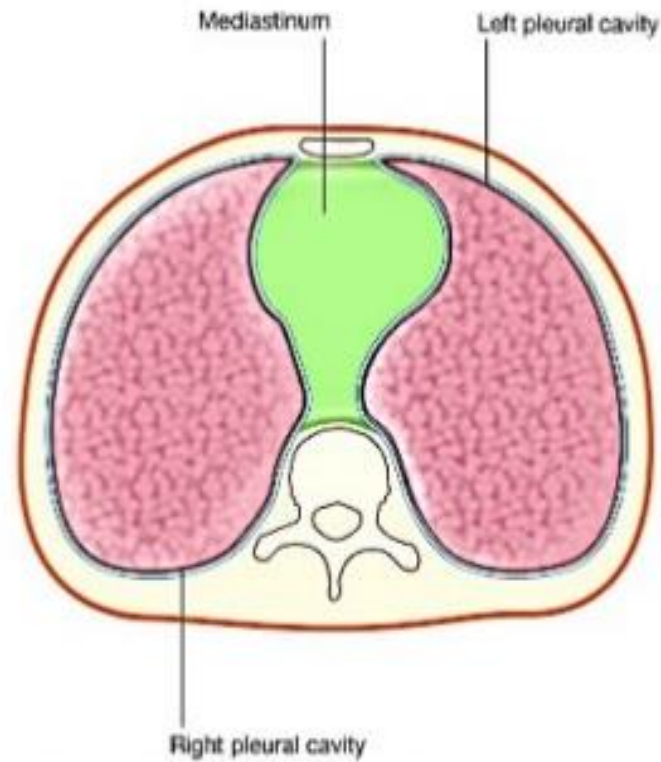
Boundaries :

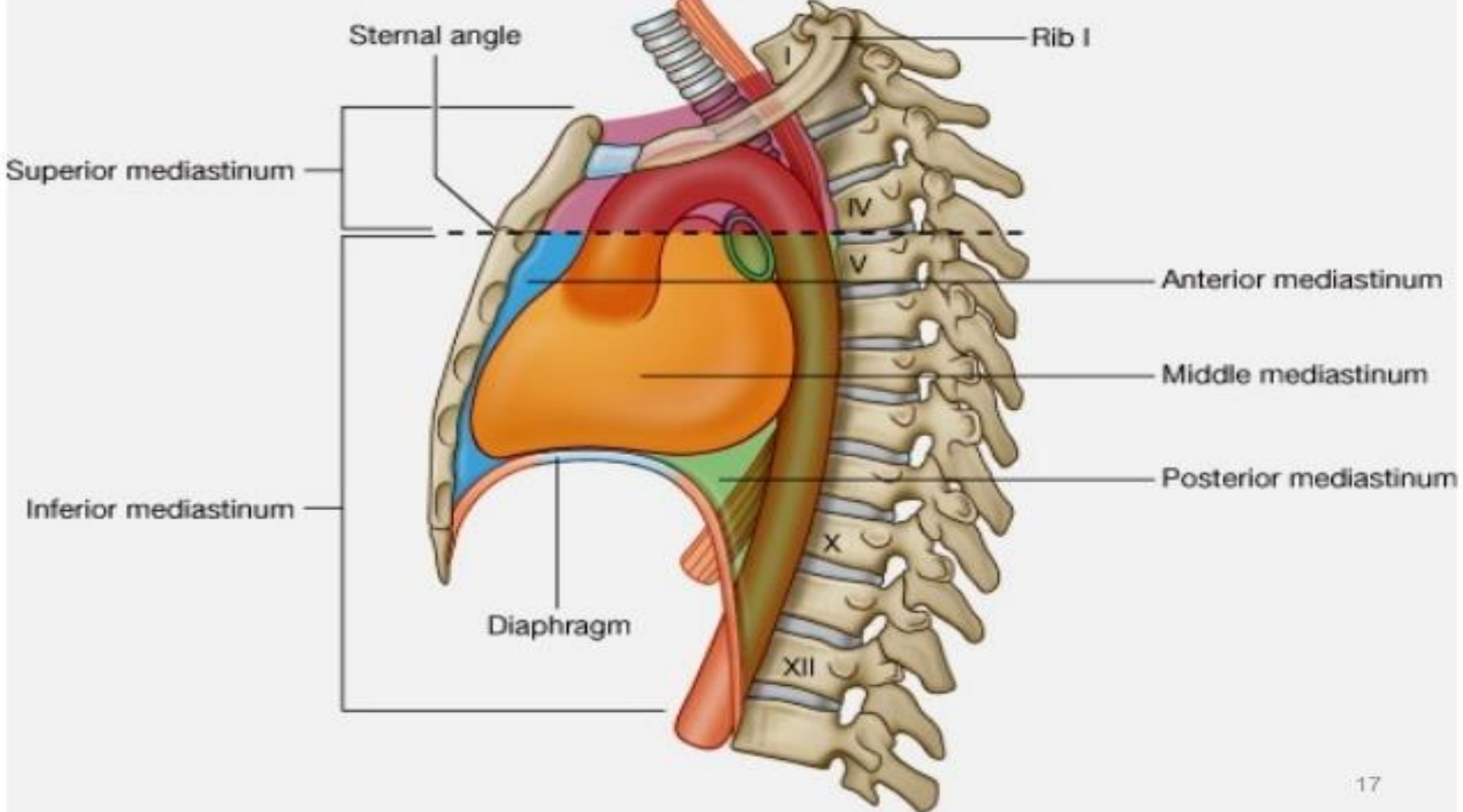
Superior: Thoracic outlet

Inferior: Diaphragm

Anterior: Sternum

Posterior: Vertebral column





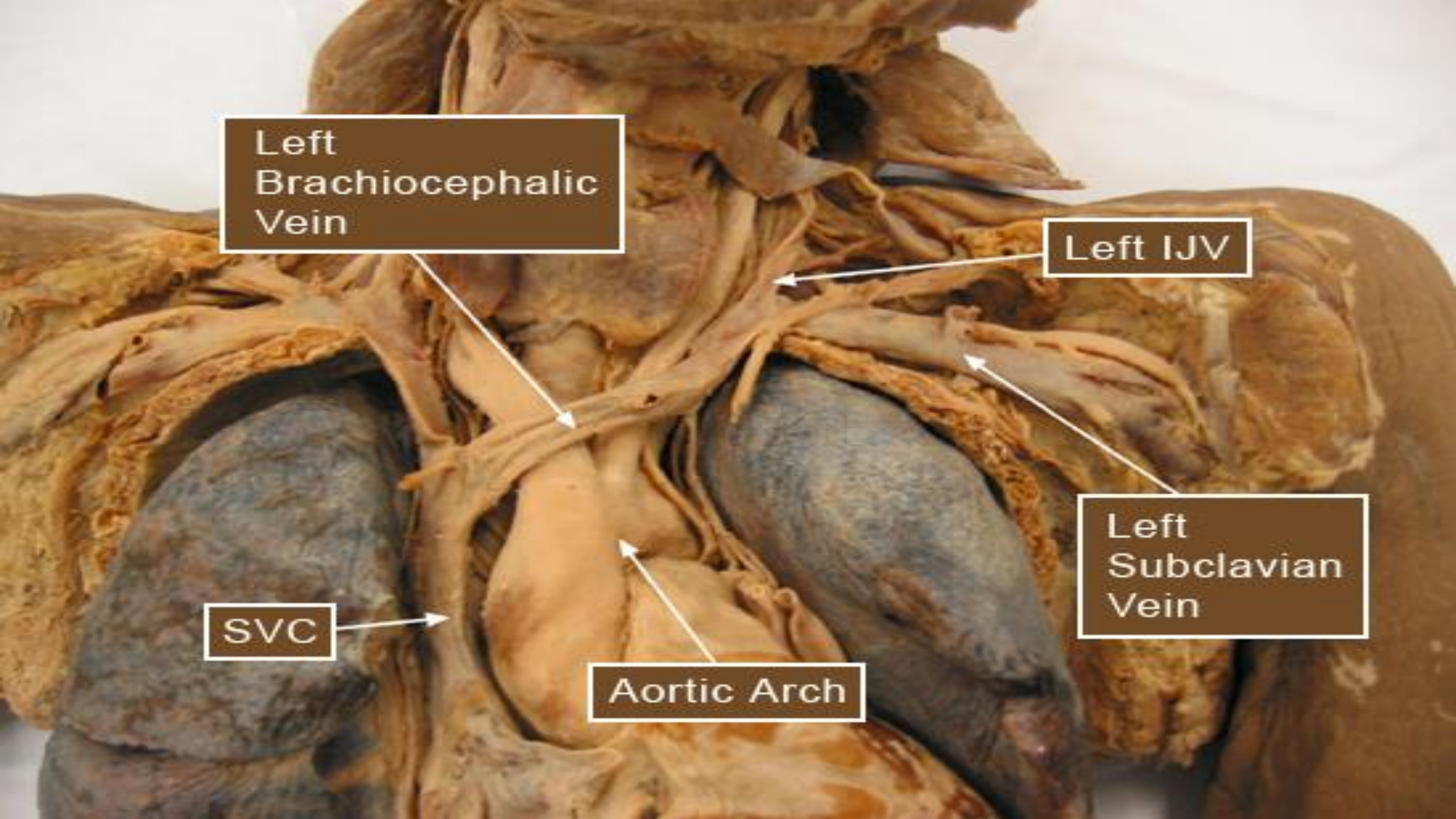
Left
Brachiocephalic
Vein

Left IJV

Left
Subclavian
Vein

SVC

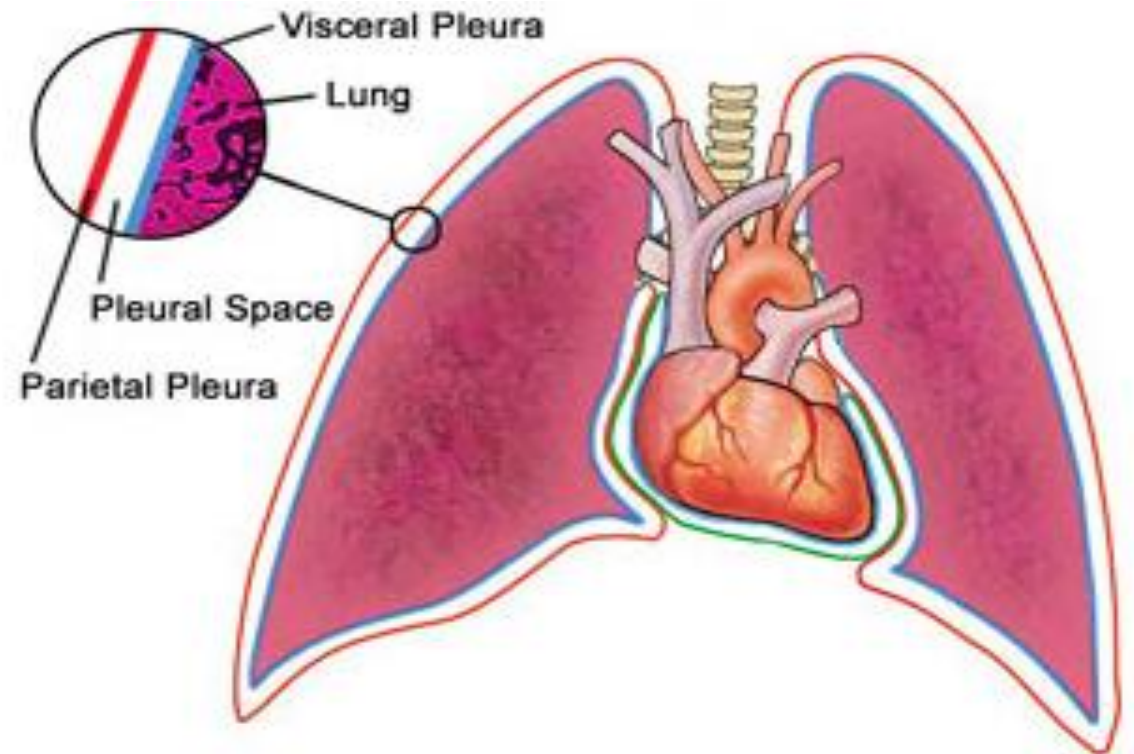
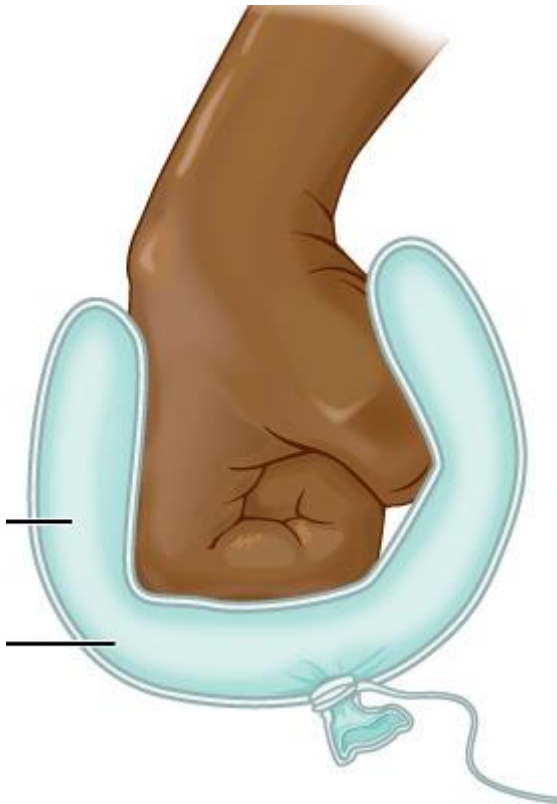
Aortic Arch



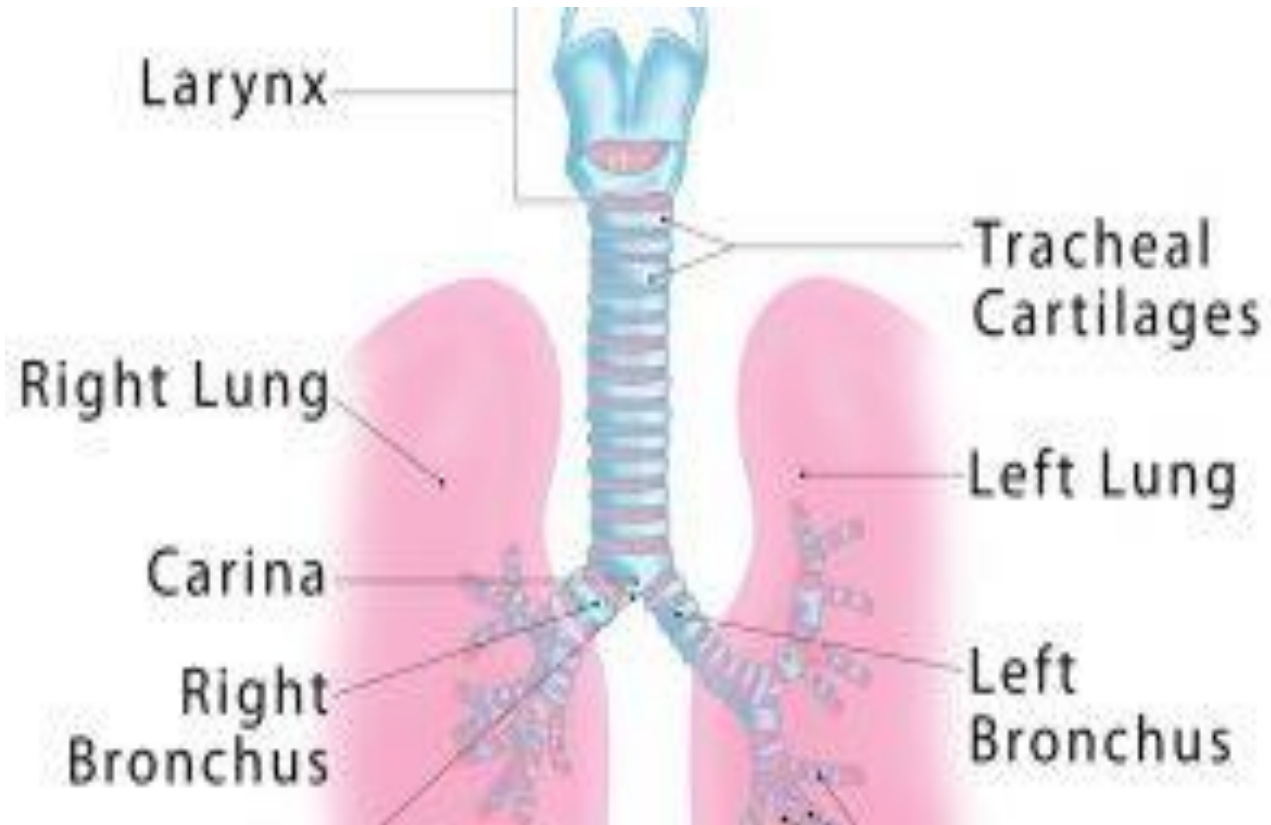
Pleura

It is a serous sac invaginated from its medial side by the lungs.

Two pleural sacs are separated from each other by the mediastinum.



Larynx, Trachea and Bronchi



Right principal bronchus

Shorter

wider

more vertical

Inhalation of foreign bodies into the lower respiratory tract is common, especially in children

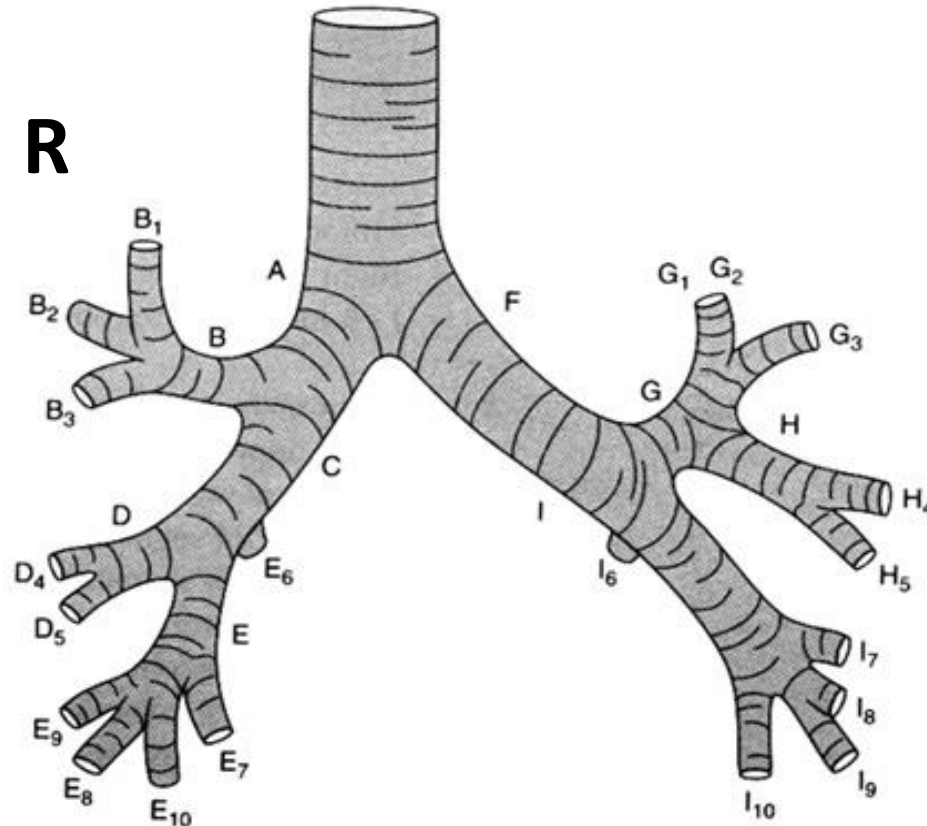
Left principal bronchus

Longer

Narrower

More horizontal

Less common

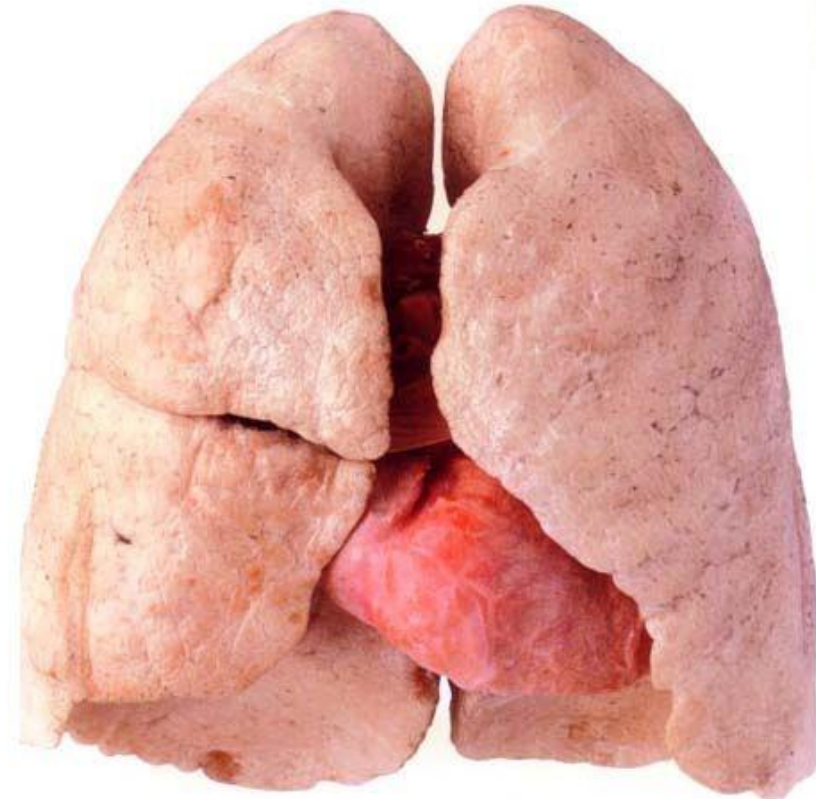


Lungs

The essential organs of respiration.

Each lung is conical, covered with visceral pleura

Each has an **apex**, **base**, **3 borders** {anterior, posterior & inferior} and **2 surfaces** (costal & medial).



Difference between right and left lung

Right lung

Larger

Has two fissures oblique and horizontal fissures

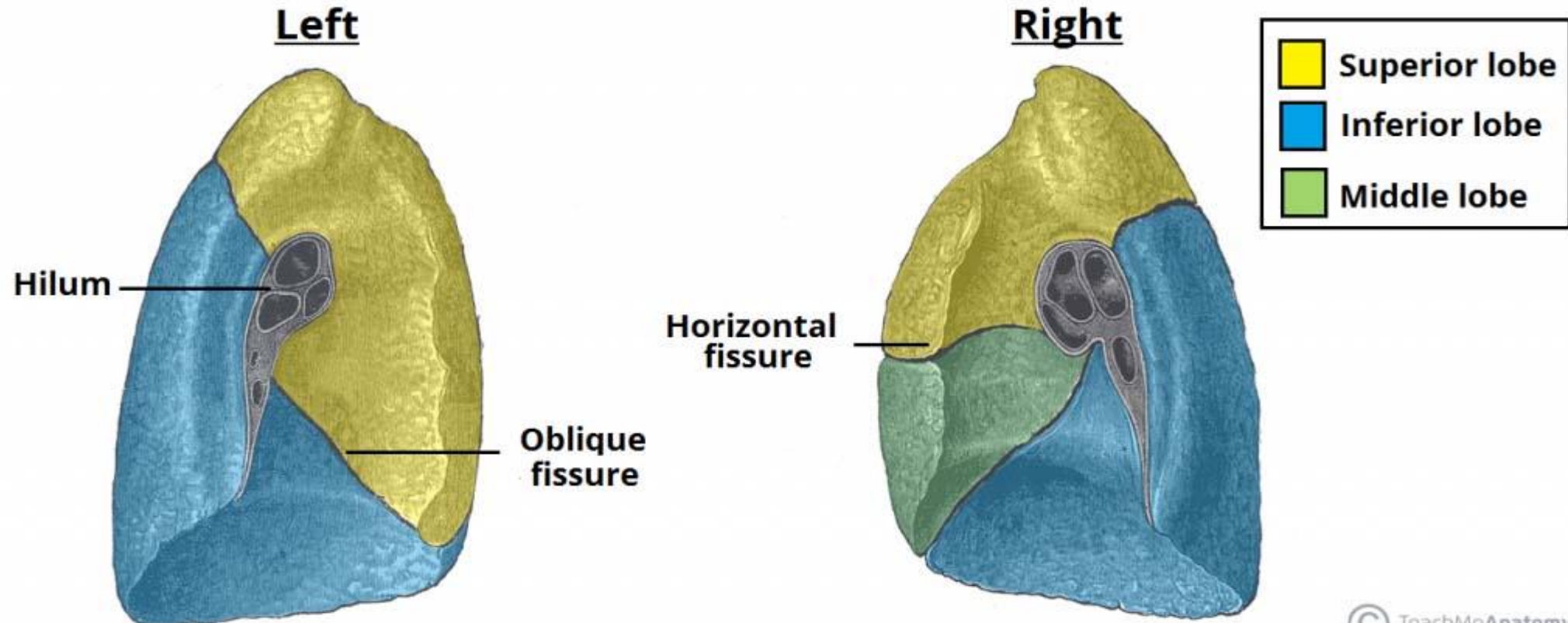
Has three lobes ,upper , middle and lower lobes

left lung

Smaller

Has oblique fissures only

Has two lobes ,upper and lower lobes



Cardiovascular system

```
graph TD; A[Cardiovascular system] --> B[Heart]; A --> C[Blood vessels];
```

Heart

Pumps blood
over the body

Blood vessels

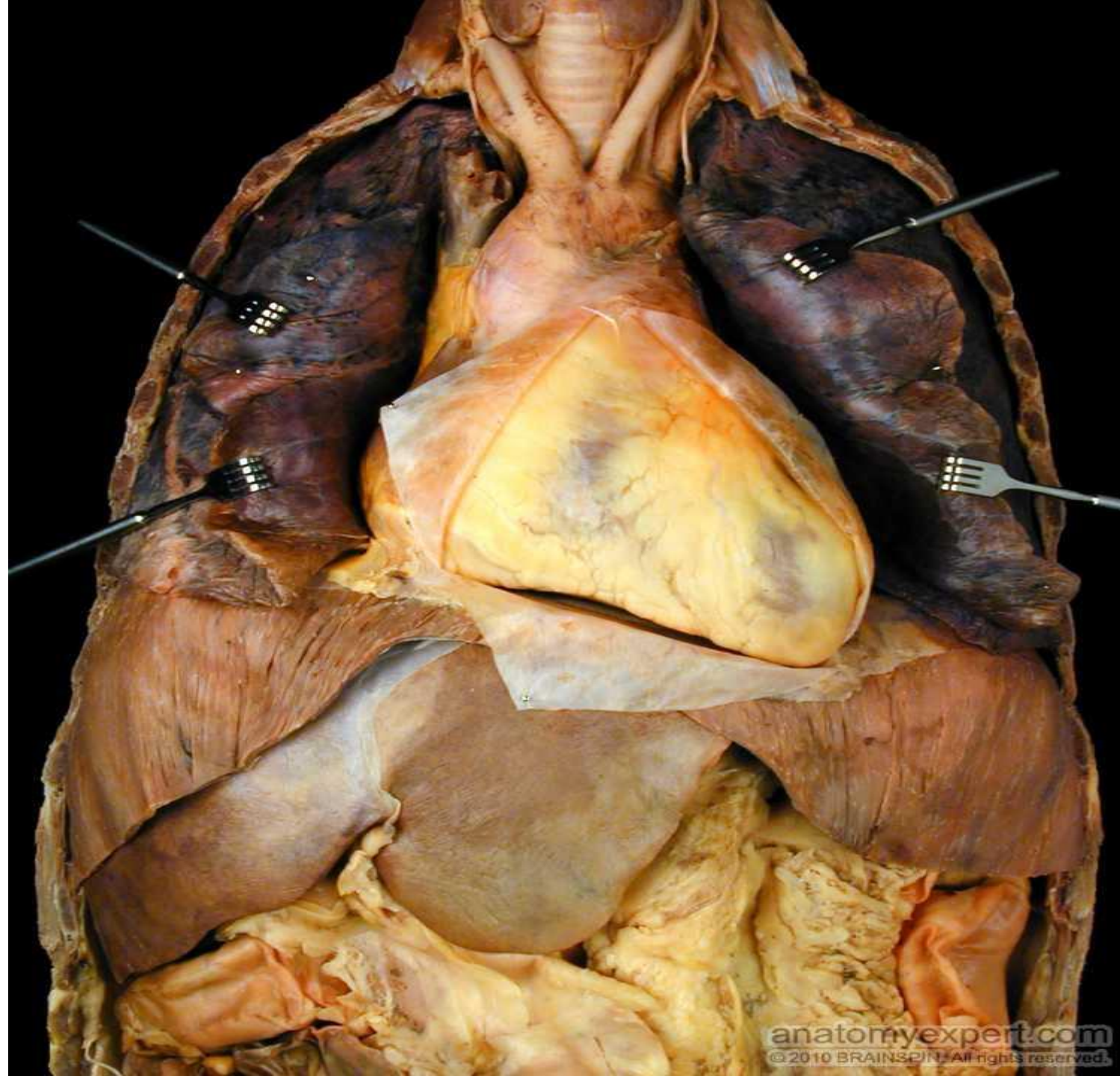
Circulate the blood
to all parts of the
body

Heart



The heart

- ❖ Muscular pump that propels blood to various parts of the body.
- ❖ Lies within the pericardium in the middle mediastinum.
- ❖ 1/3 of the heart lies to the right & 2/3 to the left of the median plane.
- ❖ The walls of the heart are composed of three layers from outside :
 - 1- Epicardium
 - 2- Myocardium which is the cardiac muscle
 - 3- Endocardium



Heart Chambers

The Heart composed of 4 chambers :-

Receiving chambers (Atria)

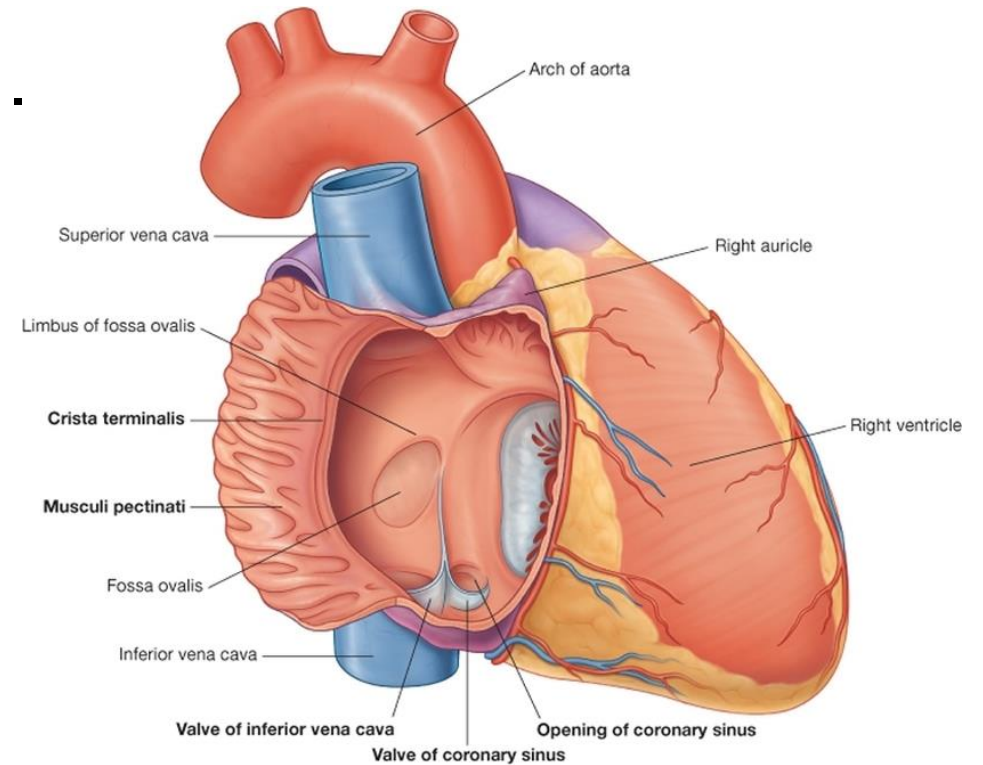
Right Atrium

Left Atrium

Discharging chambers (Ventricles)

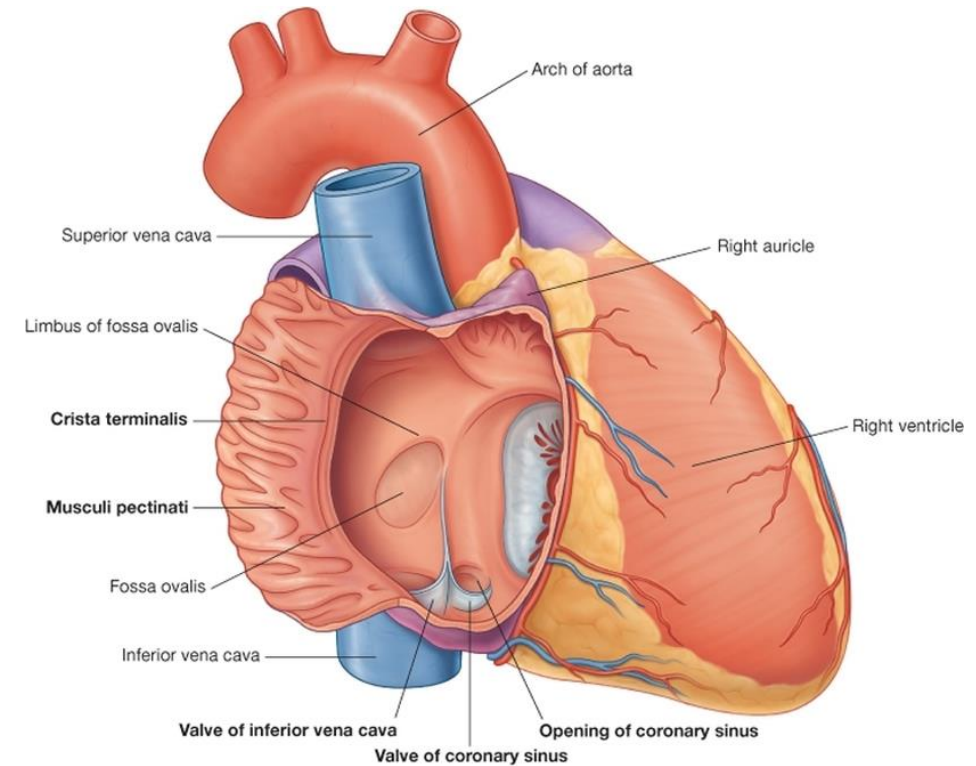
Right Ventricles

Left Ventricles



Openings into the right atrium:

- S.V.C. : It returns the blood to the heart from the upper half of the body.
- I.V.C. : It returns the blood to the heart from the lower half of the body.
- The coronary sinus : it drains most of the blood from the heart.
- Right atrioventricular orifice which is guarded by Tricuspid valve.

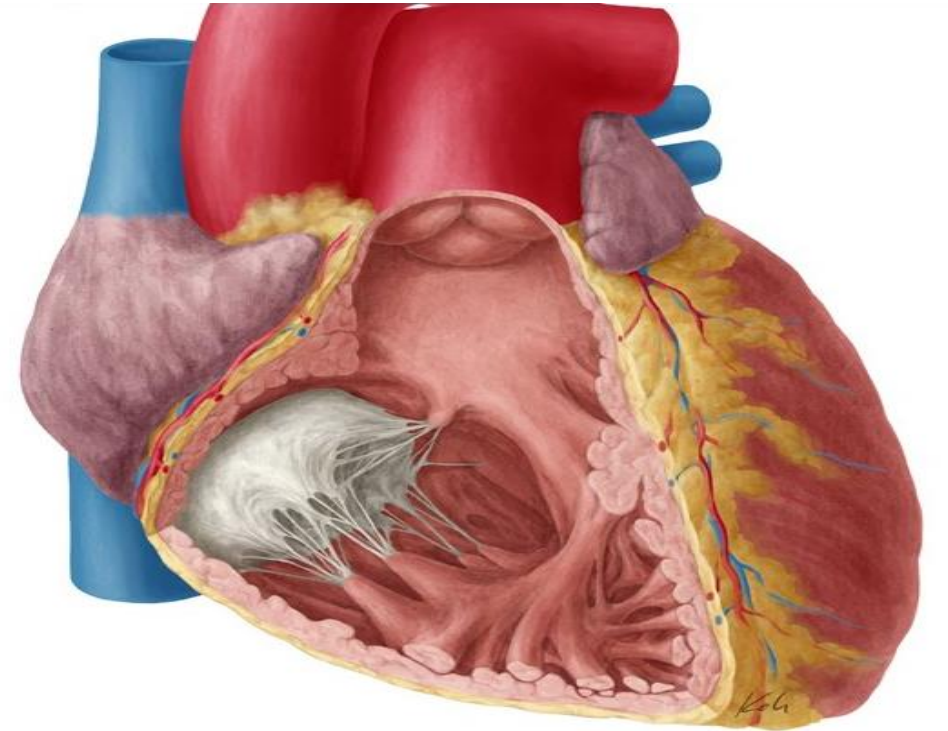


Right ventricle

Communication of Right ventricle

Right atrium (tricuspid valve)

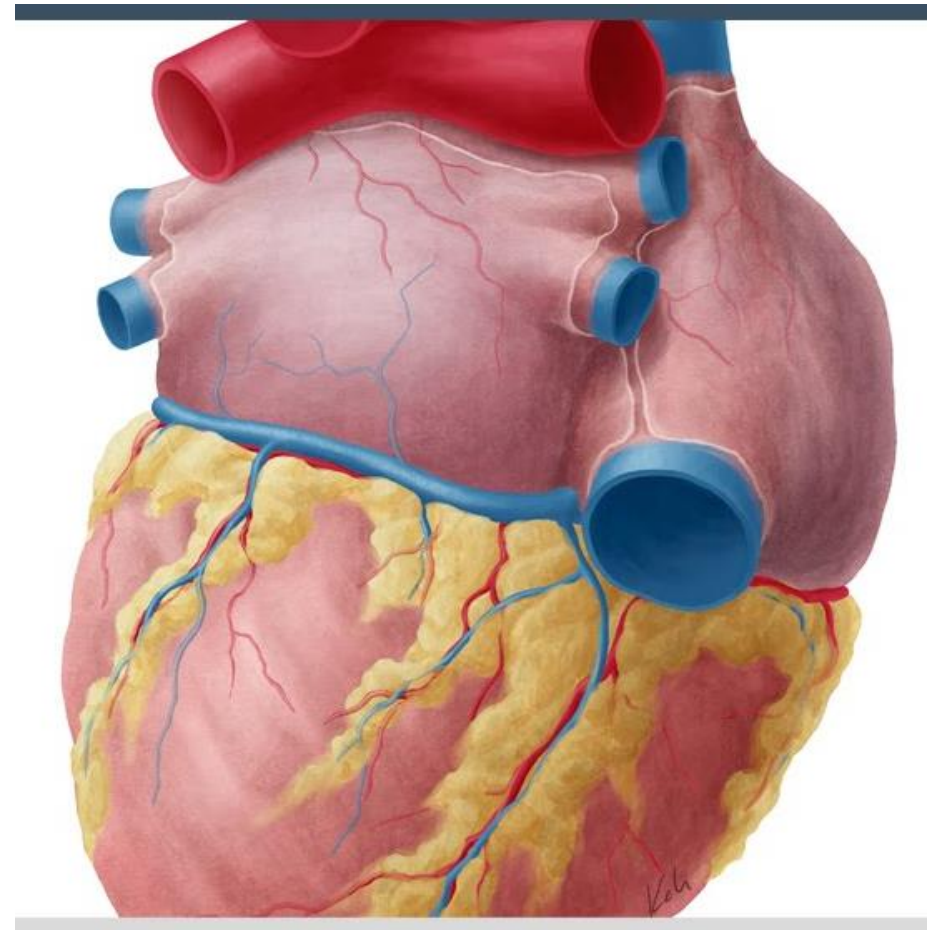
Pulmonary artery (Pulmonary valve)



Left atrium:

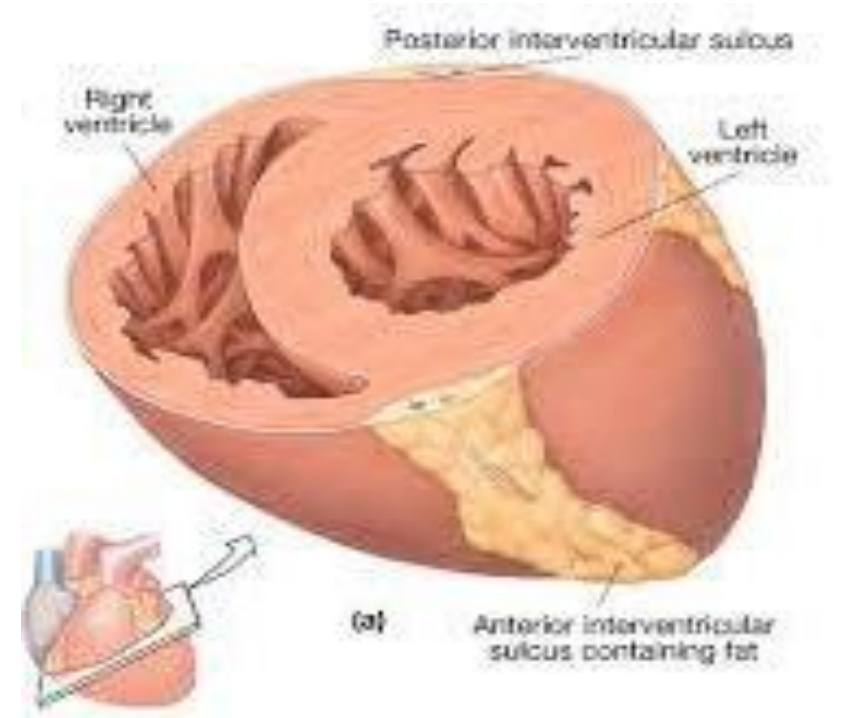
Opening of the left atrium

- 1-The four pulmonary veins
- 2-The left atrioventricular orifice is guarded by mitral valve



Left ventricle

- **Communication of left ventricle**
- Left Atrium (Mitral valve)
- Aorta (Aortic valve)



VALVES OF THE HEART



```
graph TD; A[VALVES OF THE HEART] --> B[Atrioventricular valves]; A --> C[Semilunar valves]; B --> D["Tricuspid valve:  
Between right atrium and right ventricle"]; B --> E["Mitral or Bicuspid valve:  
Between left atrium and left ventricle"]; C --> F["Pulmonary valve  
Between right ventricle and pulmonary artery"]; C --> G["Aortic valve  
Between left ventricle and Aortic artery"];
```

Atrioventricular valves

Semilunar valves

Tricuspid valve:

Between right atrium and right ventricle

Mitral or Bicuspid valve:

Between left atrium and left ventricle

Pulmonary valve

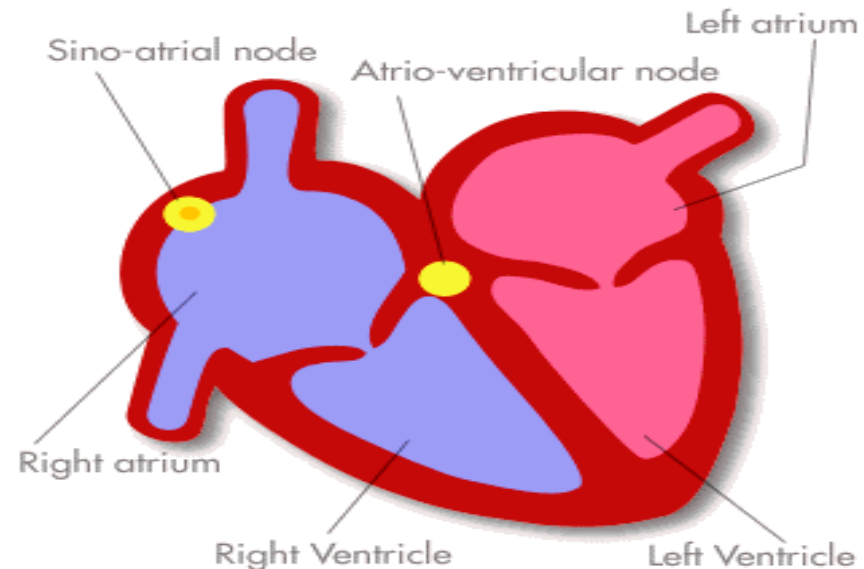
Between right ventricle and pulmonary artery

Aortic valve

Between left ventricle and Aortic artery

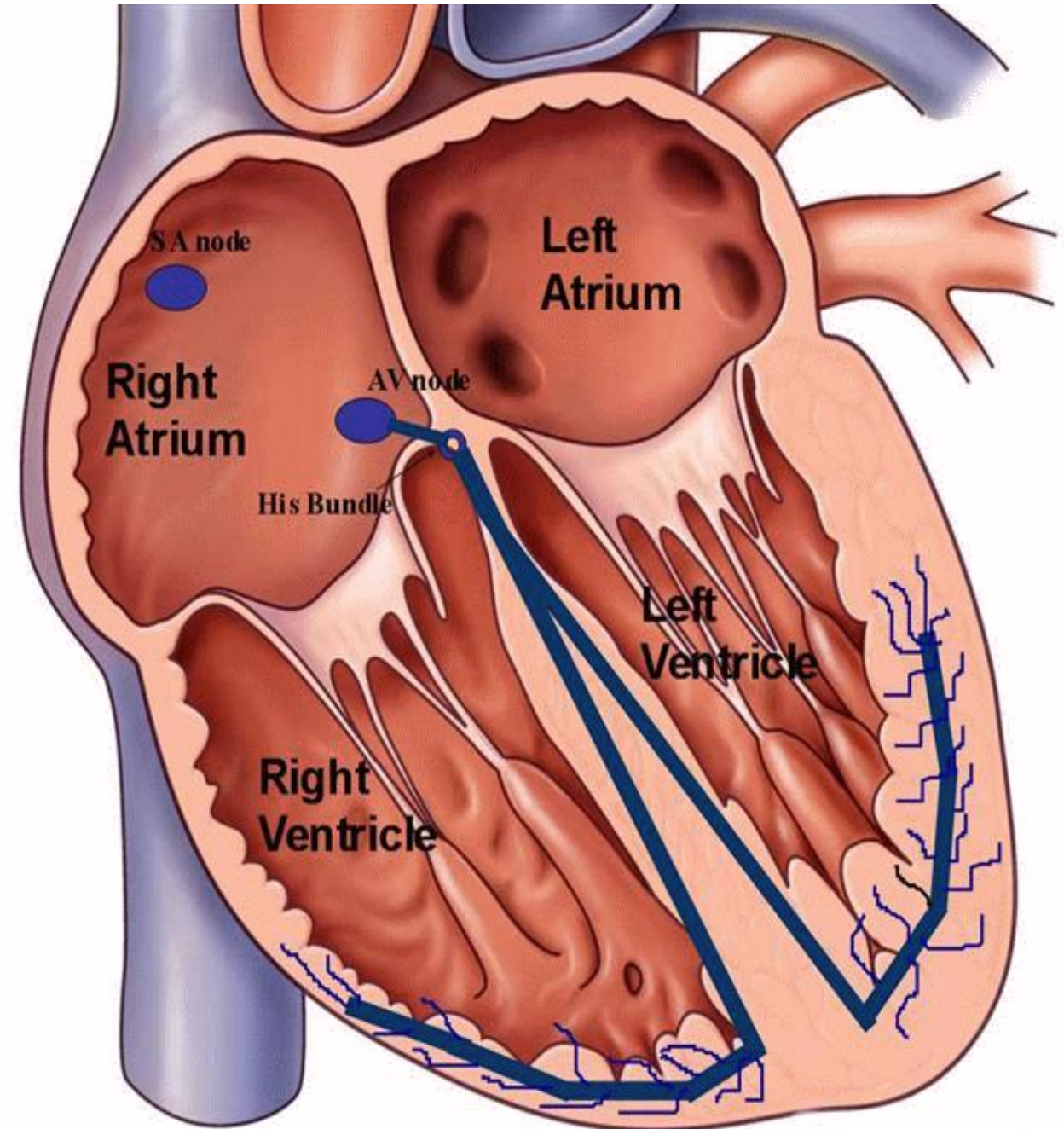
Conducting system of the heart

- ❑ Responsible for initiation and conduction of cardiac impulses.
- ❑ Atria contract first and together, to be followed later by the contractions of both ventricles together
- ❑ The slight delay in the passage of the impulse from the atria to the ventricles allows time for the atria to empty their blood into the ventricles before the ventricles contract.



Parts of Conducting system of the heart

- ❖ Sinoatrial node (SA node).
- ❖ Atrioventricular node (AV node).
- ❖ Atrioventricular bundle (bundle of His).
- ❖ The right branch of AV bundle.
- ❖ The left branch of AV bundle.
- ❖ The Purkinje fibers.



THANK

YOU!