# Introduction to Anatomy

## Practical Lab

### 1st year Medical Students

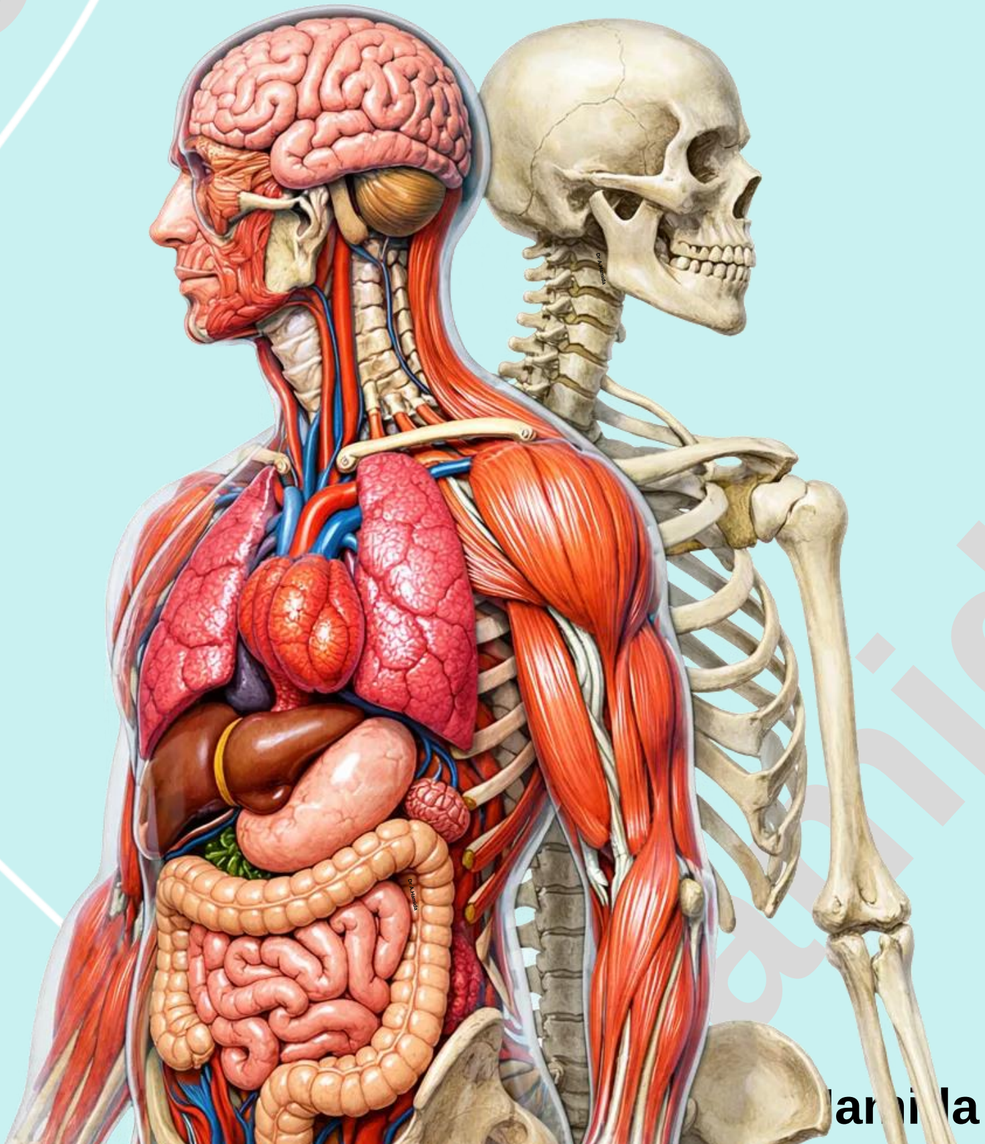
**2025-2026**
**Second Semester**

**Dr. Abedallah Hamida, MBBS, PhD**

**Department of Anatomy and Histology**

**School of Medicine-The University of Jordan**

a_hamida@ju.edu.jo



# Practical Lab-8

## Cardiovascular System

1. Heart
2. Blood Vessels

# Check List: Cardiovascular System



## 1. Heart

- ✓ Identify the location of the heart.
- ✓ Identify the pericardium and its two main parts.
- ✓ Describe the shape of the heart (pyramid-shaped).
- ✓ Identify the surfaces of the heart.
- ✓ Identify the borders of the heart.
- ✓ Identify the location of the atrioventricular and semilunar valves.

# Check List: Cardiovascular System



## 2. Blood Vessels

- ✓ Identify and differentiate between arteries and veins in a cadaver.
- ✓ Identify major arteries leaving the heart.
- ✓ Identify major veins entering the heart.
- ✓ Identify the course and branches of Aorta.
- ✓ Identify the course and branches of Pulmonary Trunk.
- ✓ Identify the course and formation of Superior Vena Cava.
- ✓ Identify the course and formation of Inferior Vena Cava.
- ✓ Identify the course of Pulmonary Venis.

# Check List:

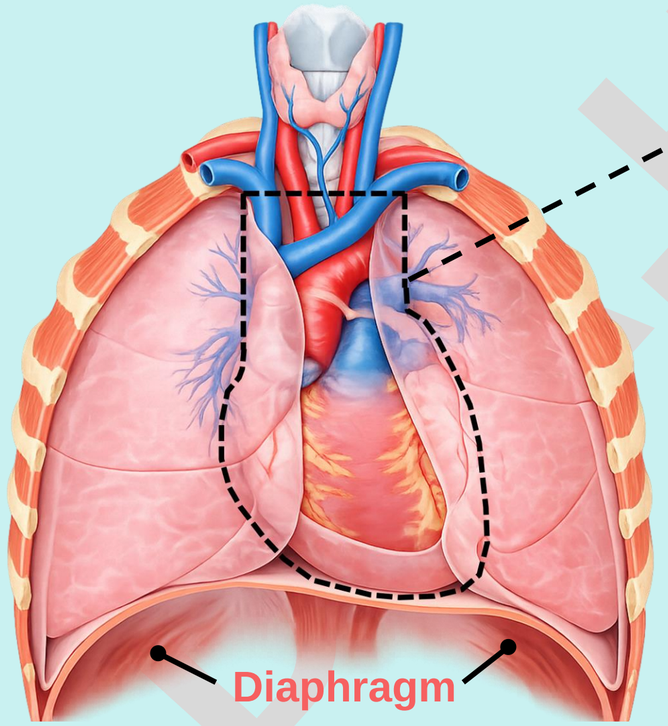


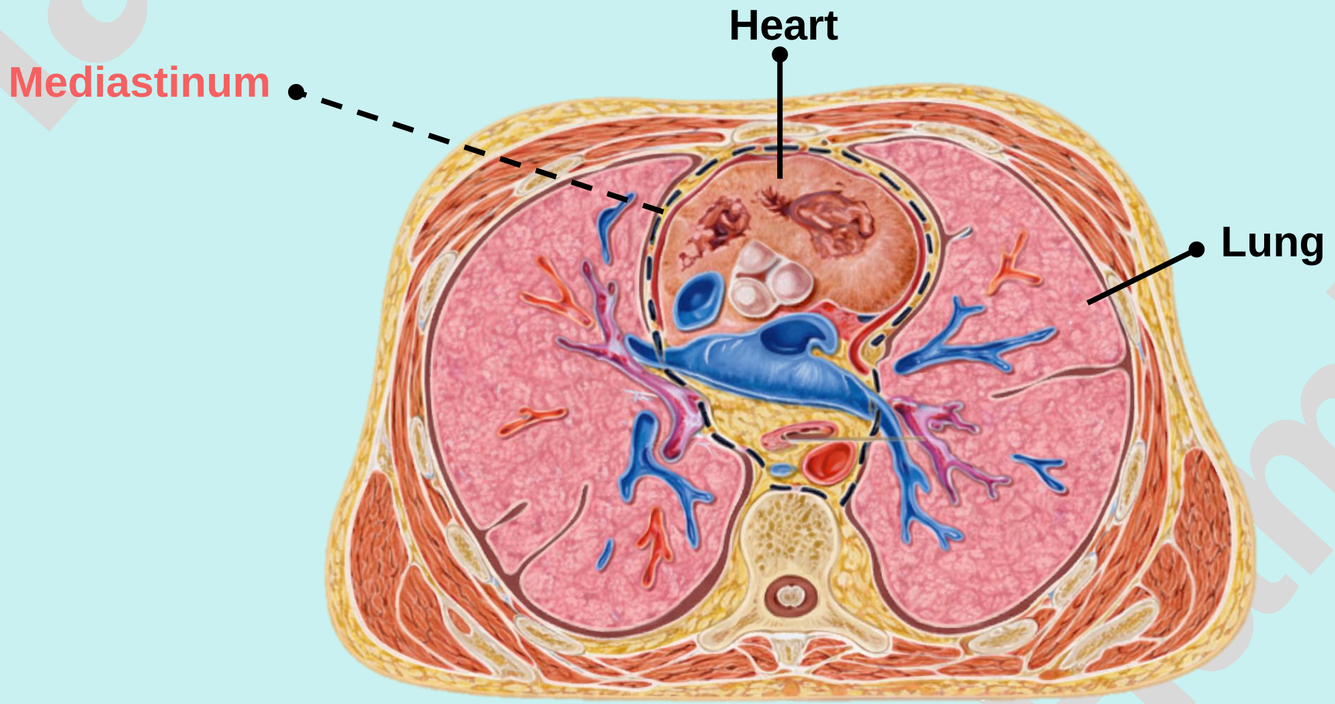
## 1. Heart

### 1.1 Location of the Heart

✓ Identify the location of the heart within the thoracic cavity relative to the lung, mediastinum, diaphragm and the midline.

- It is situated in the thoracic cavity between the lungs in a cavity known as mediastinum (is the central compartment of the thoracic cavity, located between the two lungs)
- It rests on the diaphragm near the midline (about two-thirds of the heart lies to the left of the midline and one-third to the right)



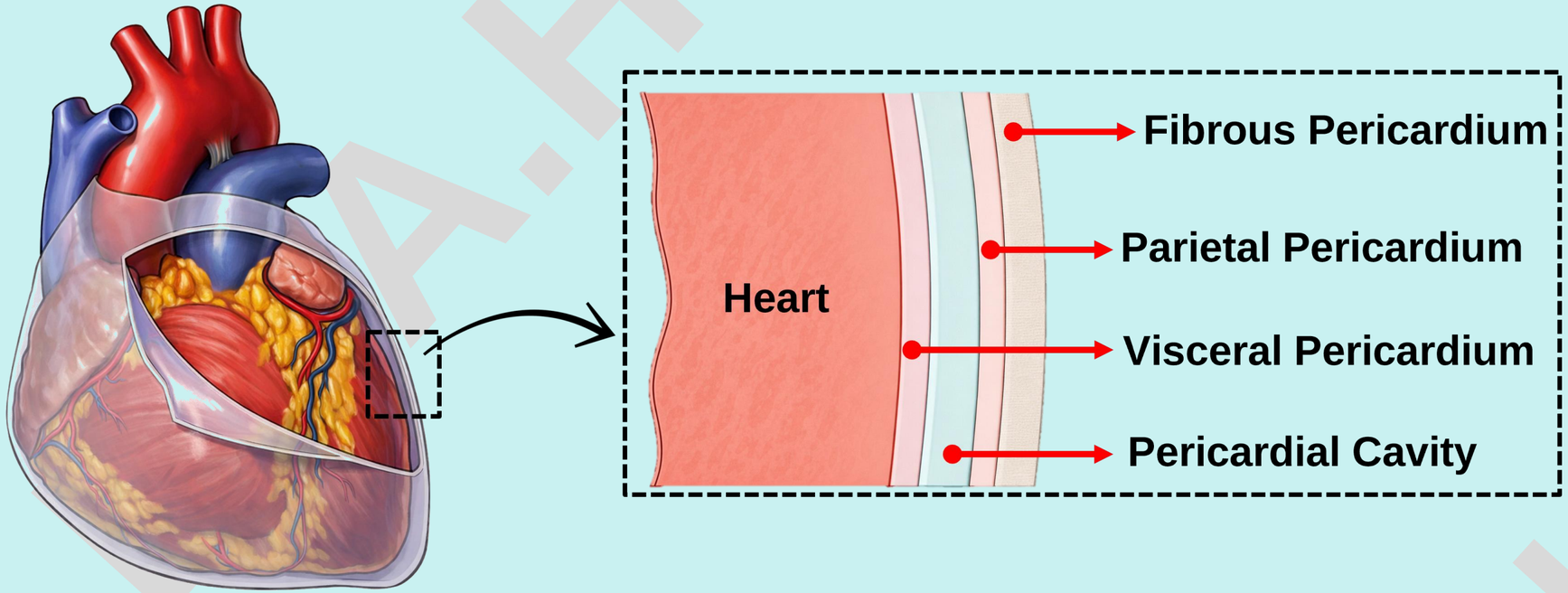
# Check List:



## 1. Heart

### 1.2 Pericardium

- ✓ Identify the pericardium and its two main parts.
- ✓ Differentiate and locate Fibrous pericardium and Serous pericardium (parietal and visceral layers).
  - Fibrous pericardium (superficial layer): tough outer layer that protects and anchors the heart.
  - Parietal layer: lines the inner surface of the fibrous pericardium.
  - Visceral layer (epicardium): closely adheres to the surface of the heart.



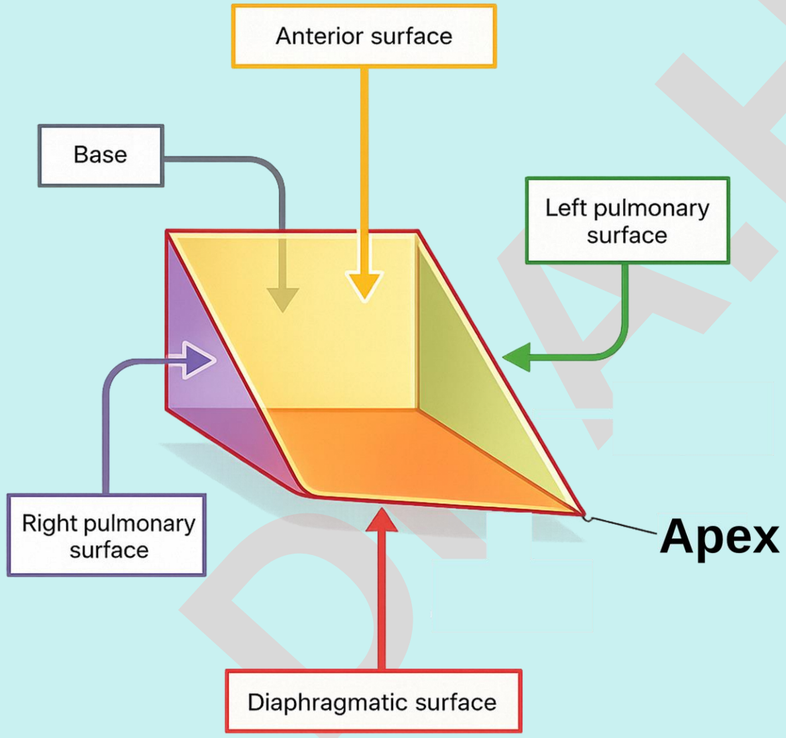
# Check List:

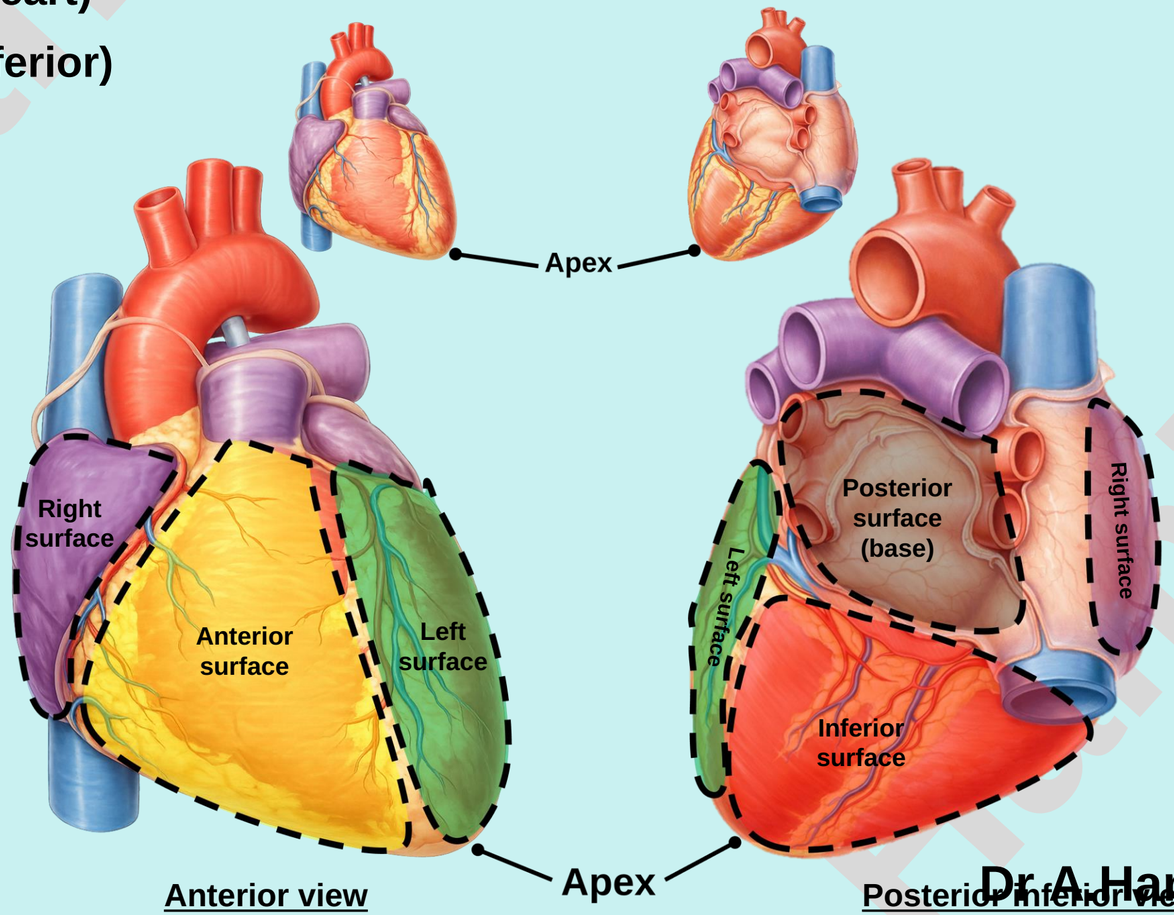


## 1. Heart

### 1.3 Shape and Surfaces of the Heart

- ✓ Describe the shape of the heart (Pyramid-shaped).
- ✓ Identify the apex and indicate its direction (directed anteriorly, inferiorly, and to the left)
- ✓ Identify the base of the heart (posterior surface of the heart)
- ✓ Identify the surfaces of the heart (anterior, right, left, inferior)



# Check List:

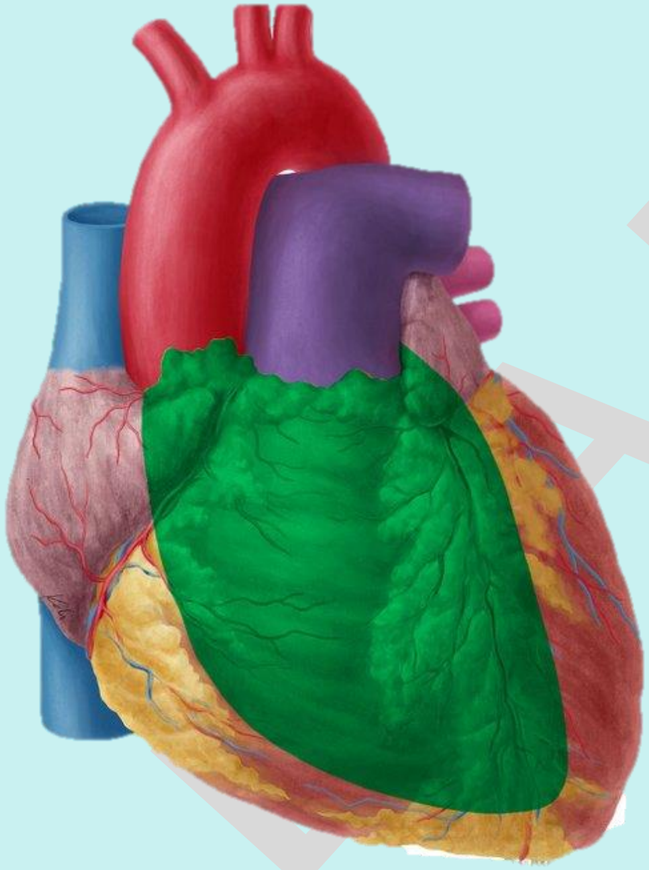


## 1. Heart

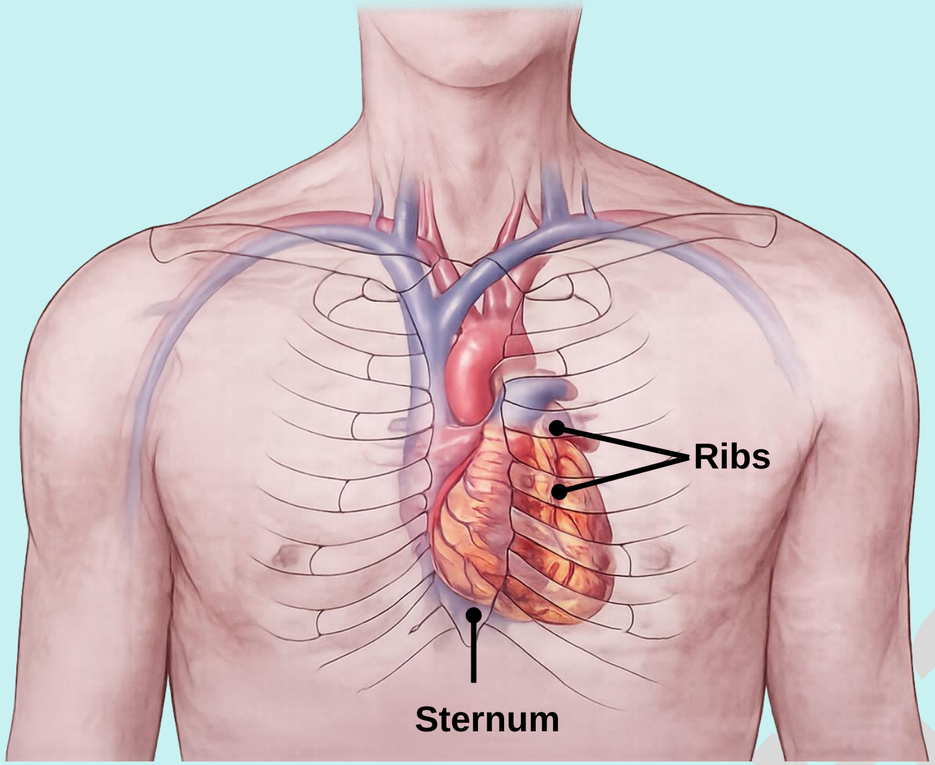
### 1.3 Shape and Surfaces of the Heart

✓ **Locate and demonstrate the following surfaces and relate each surface to the surrounding structures:**

- **Anterior (sternocostal) surface: lies deep to the sternum and ribs.**



Anterior view



# Check List:

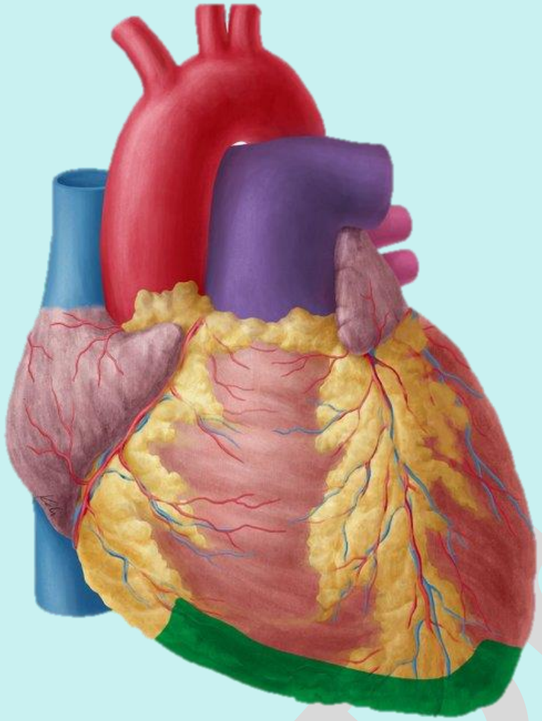


## 1. Heart

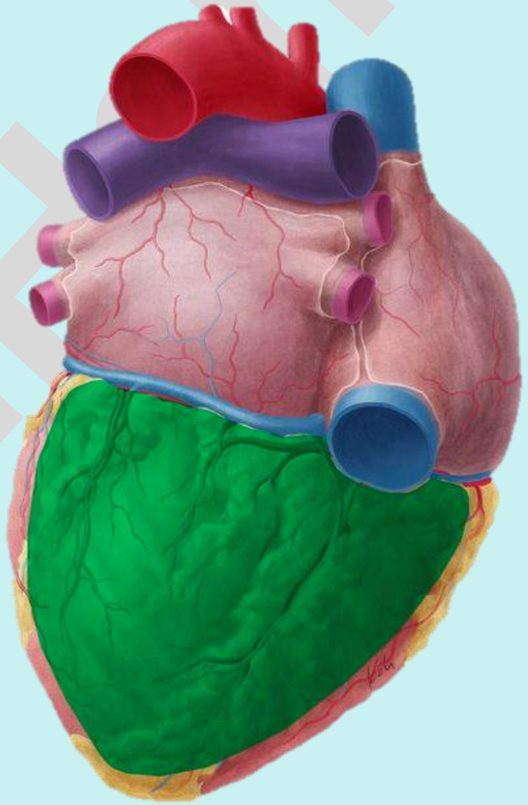
### 1.3 Shape and Surfaces of the Heart

✓ **Locate and demonstrate the following surfaces and relate each surface to surrounding structures:**

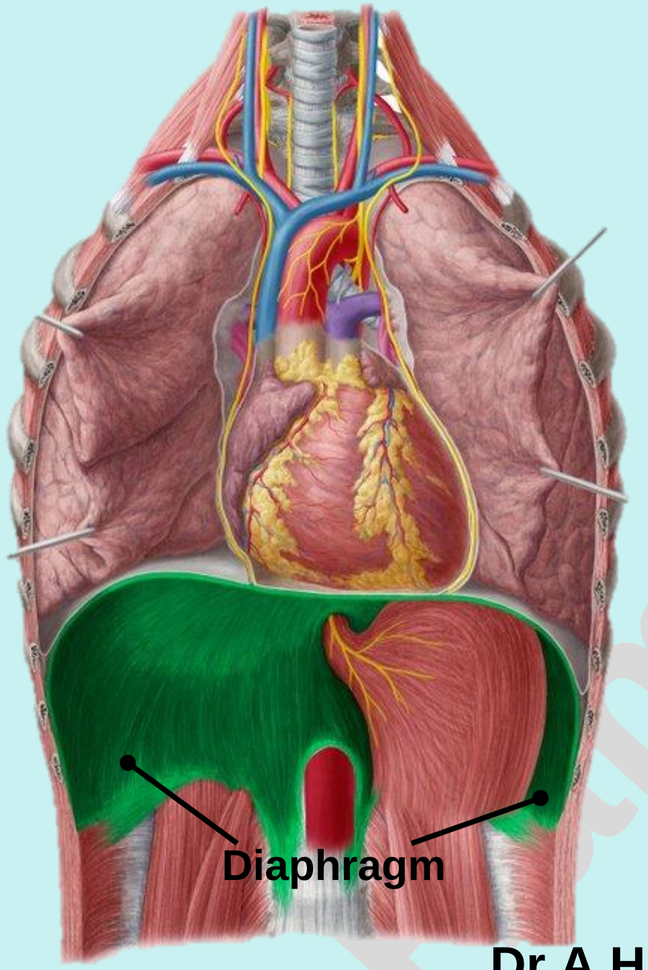
- **Inferior (diaphragmatic) surface: rest on the diaphragm**



Anterior view



Posterior inferior view



# Check List:

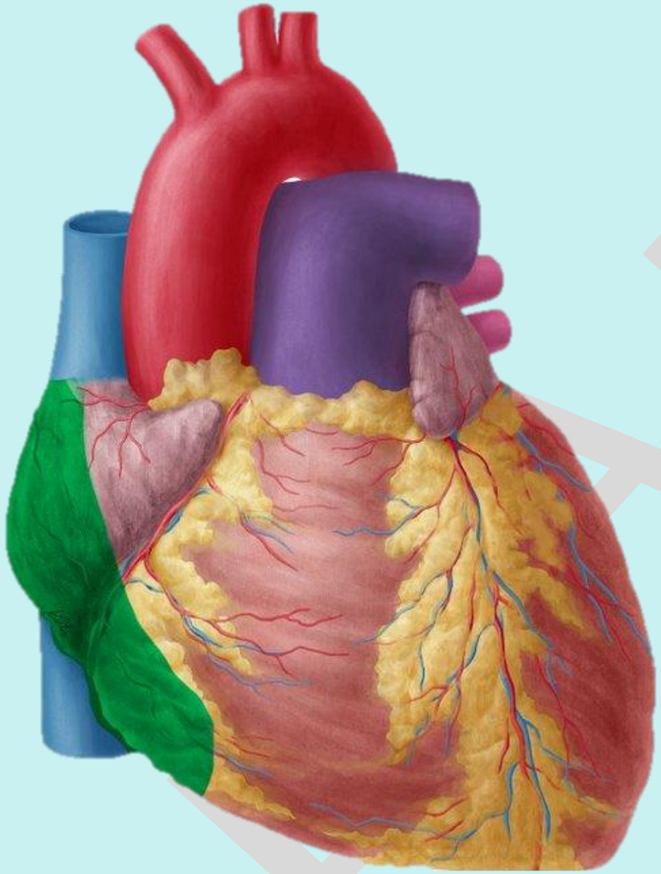


## 1. Heart

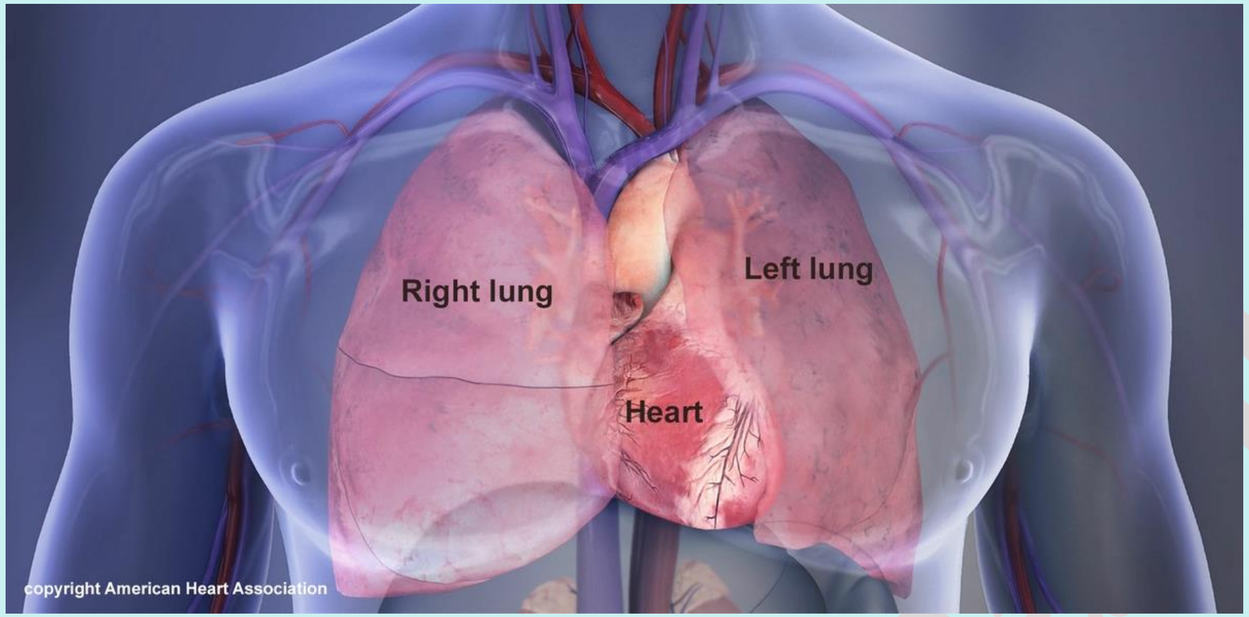
### 1.3 Shape and Surfaces of the Heart

✓ **Locate and demonstrate the following surfaces and relate each surface to surrounding structures:**

- **Right surface: faces the right lung.**



Anterior view



# Check List:

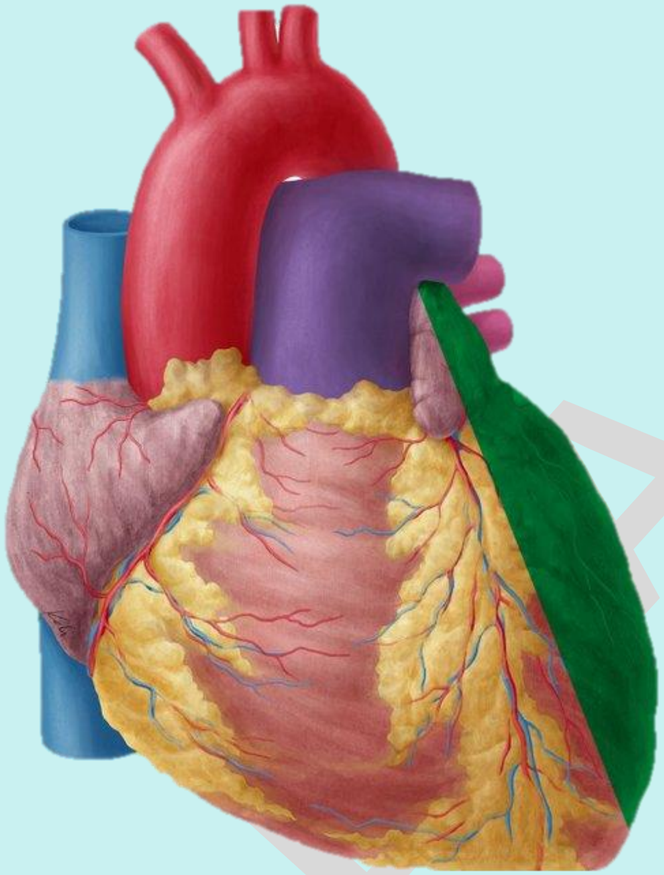


## 1. Heart

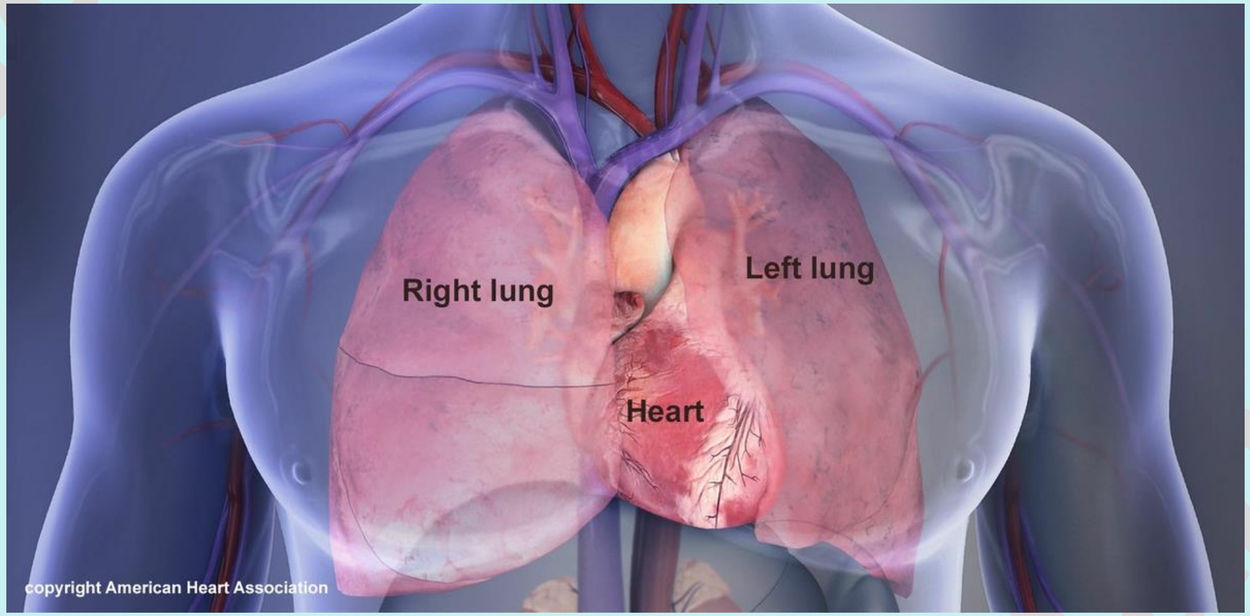
### 1.3 Shape and Surfaces of the Heart

✓ **Locate and demonstrate the following surfaces and relate each surface to surrounding structures:**

- **Left surface: faces the left lung.**



Anterior view



# Check List:

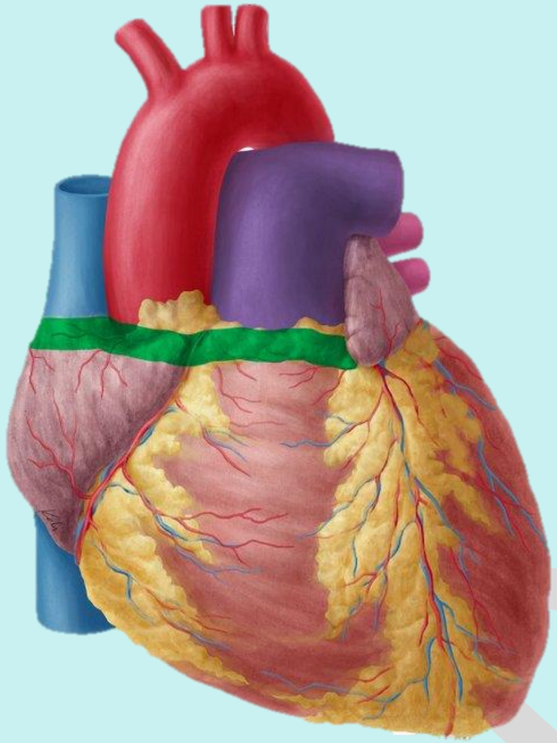


## 1. Heart

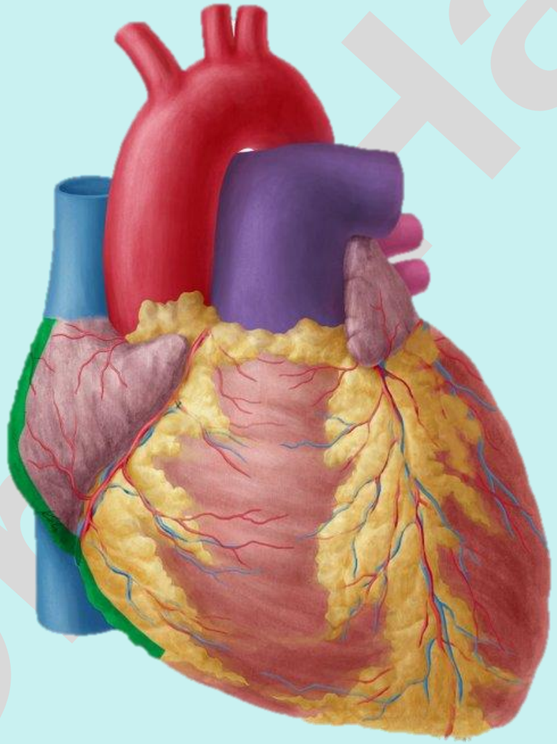
### 1.4 Borders of the Heart

✓ Identify the borders of the heart:

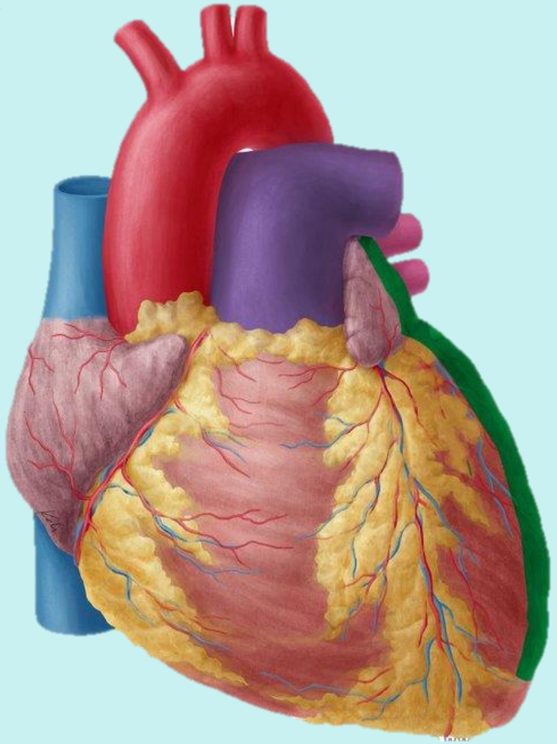
Superior border



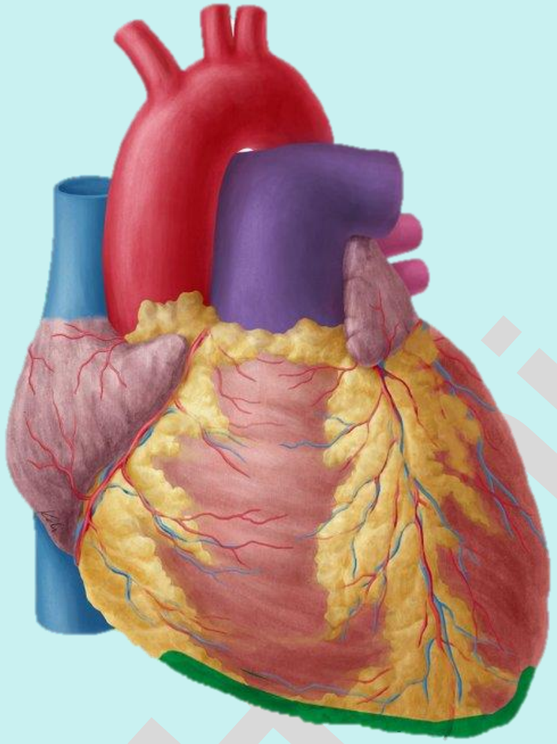
Right Border



Left border



Inferior border



# Check List:



## 1. Heart

### 1.5 Chambers of the Heart

- ✓ Identify the four chambers of the heart (right atrium, left atrium, right ventricle, left ventricle).
- ✓ Differentiate between: Atria (upper chambers) and Ventricles (lower chambers)
- ✓ Locate the interatrial septum.
- ✓ Locate the interventricular septum.

# Check List:

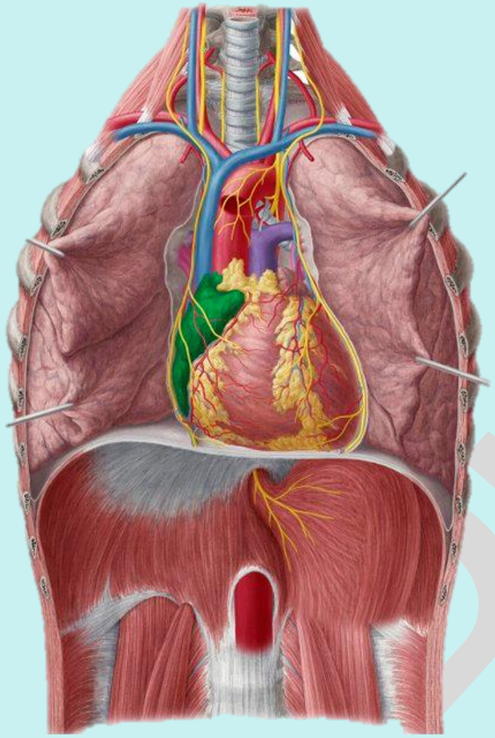


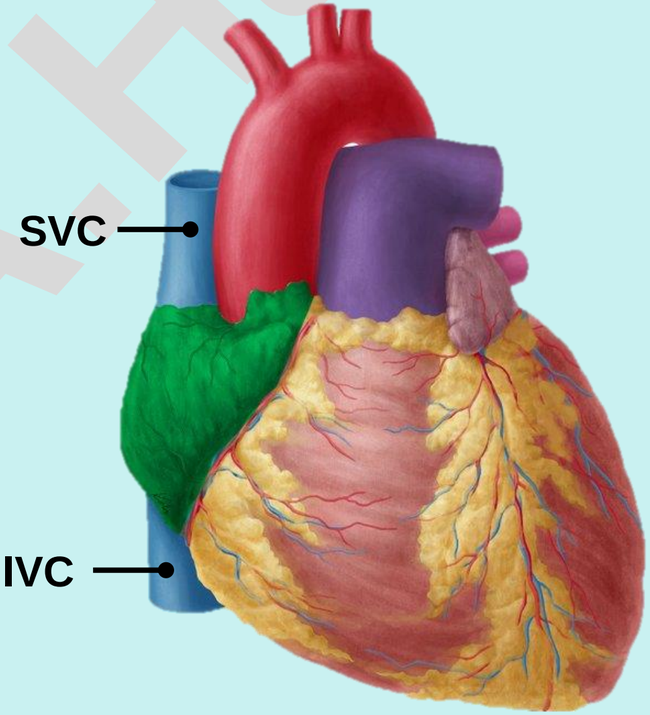
## 1. Heart

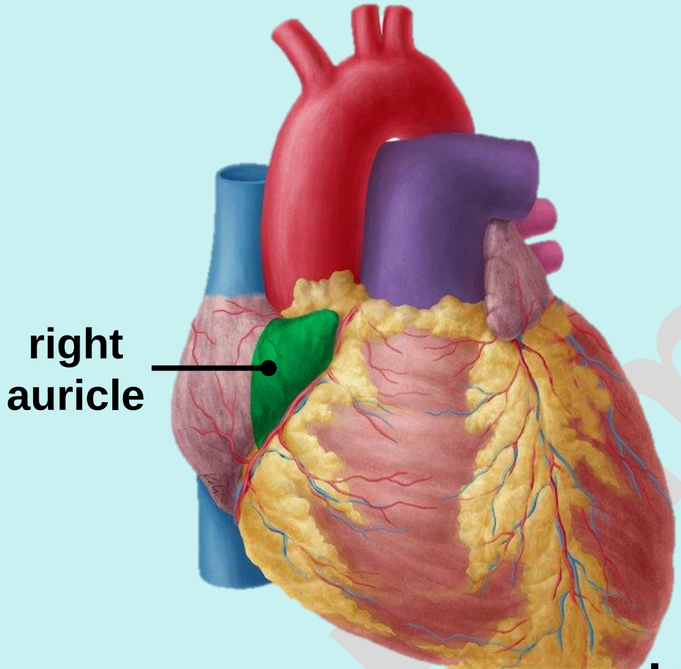
### 1.5 Chambers of the Heart

**Right Atrium**

- ✓ Identify the right atrium.
- ✓ Demonstrate its contribution to the right surface of the heart.
- ✓ Locate the right auricle.
- ✓ Trace venous inflow from: superior vena cava and inferior vena cava.





# Check List:

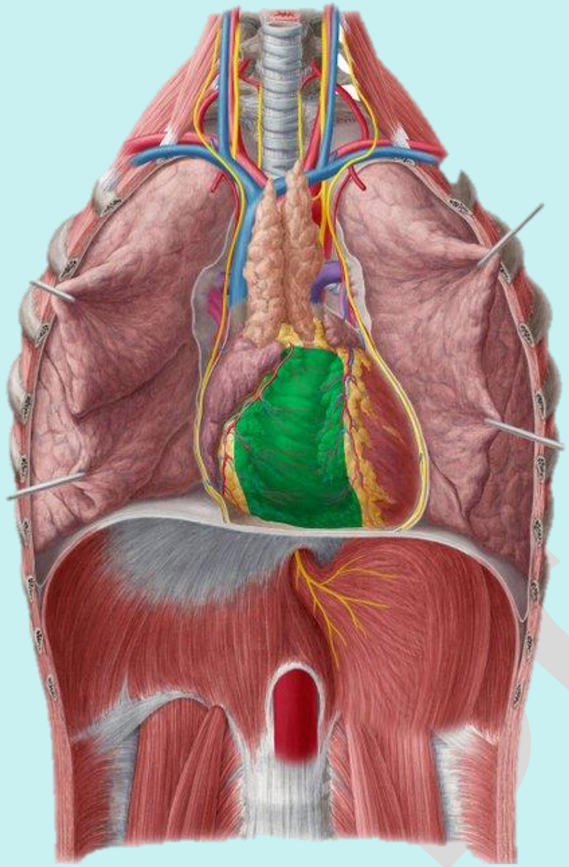


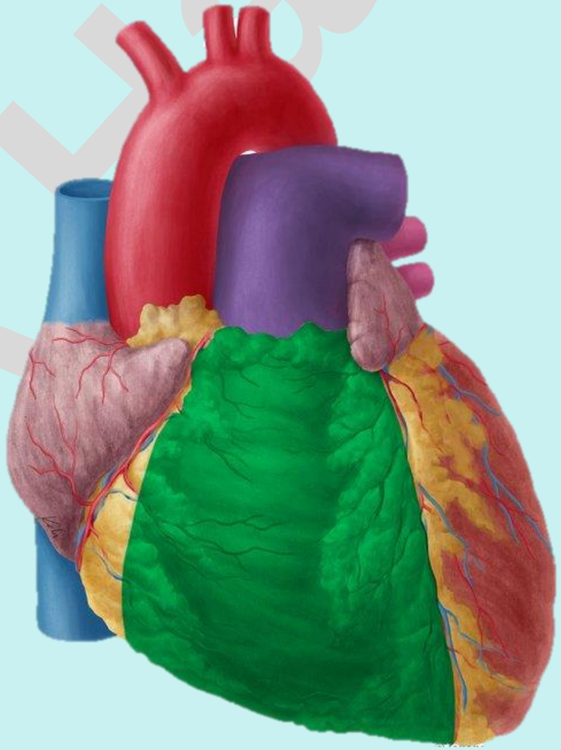
## 1. Heart

### 1.5 Chambers of the Heart

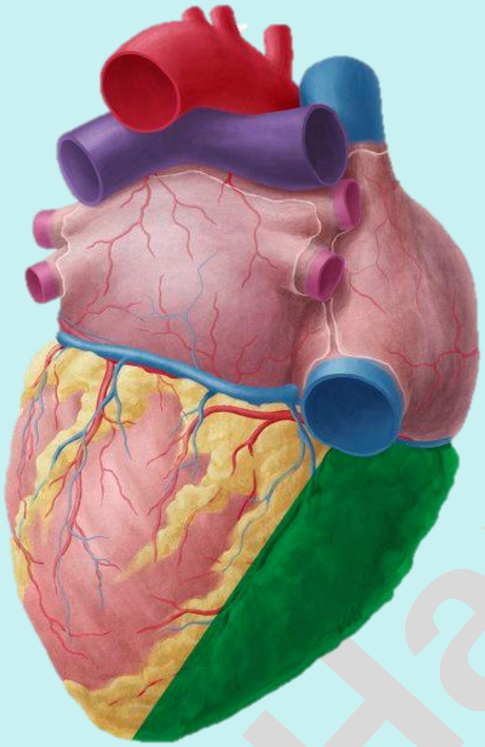
**Right Ventricle**

- ✓ Identify the right ventricle.
- ✓ Demonstrate its contribution to the anterior surface and diaphragmatic surface.





Anterior view



Posterior inferior view

# Check List:

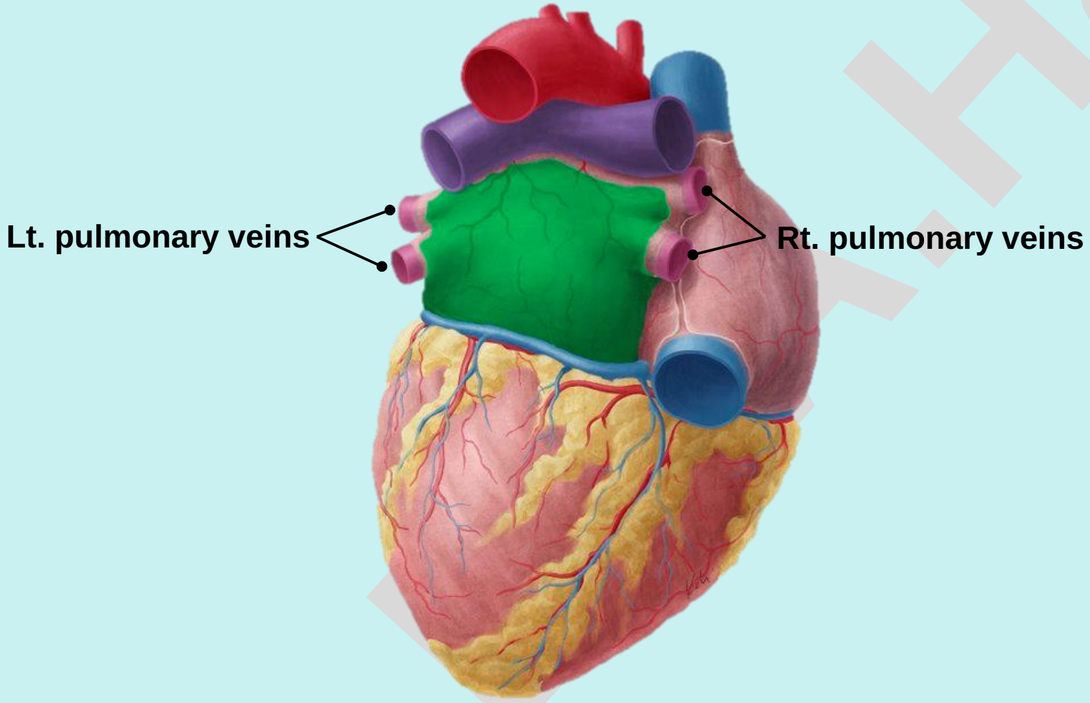


## 1. Heart

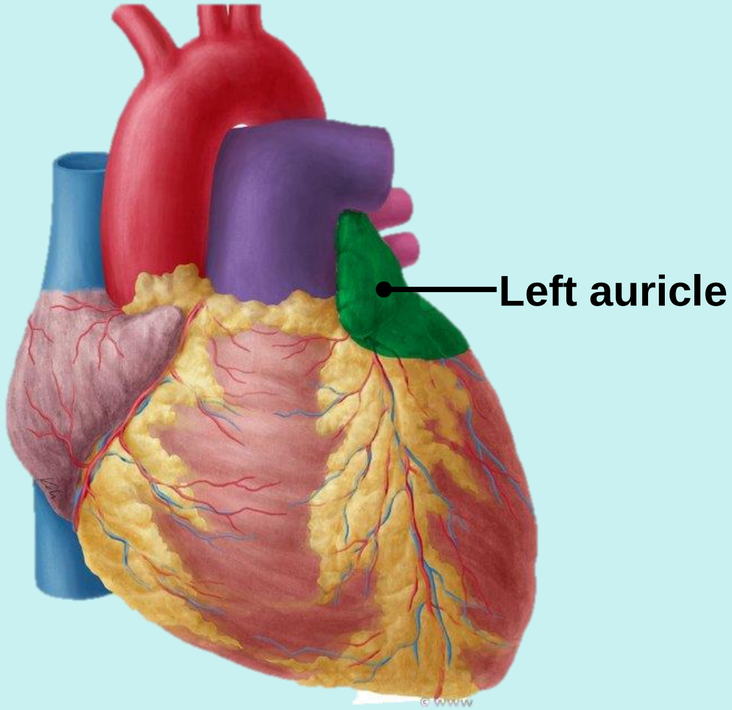
### 1.5 Chambers of the Heart

**left Atrium**

- ✓ Identify the left atrium.
- ✓ Demonstrate its contribution to the base (posterior surface).
- ✓ Locate the left auricle.
- ✓ Trace venous inflow from: the four pulmonary veins.




Posterior inferior view




Anterior view

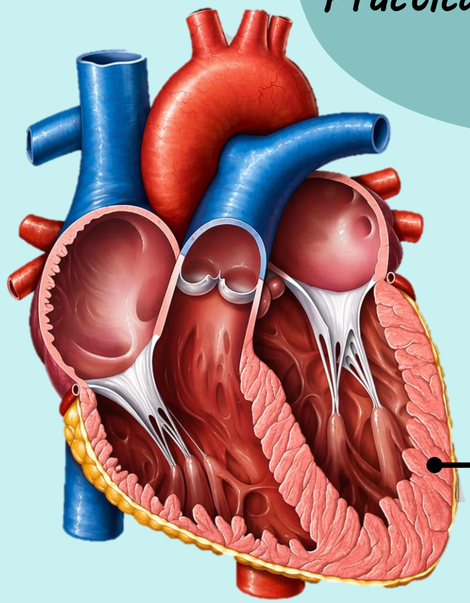
# Check List:

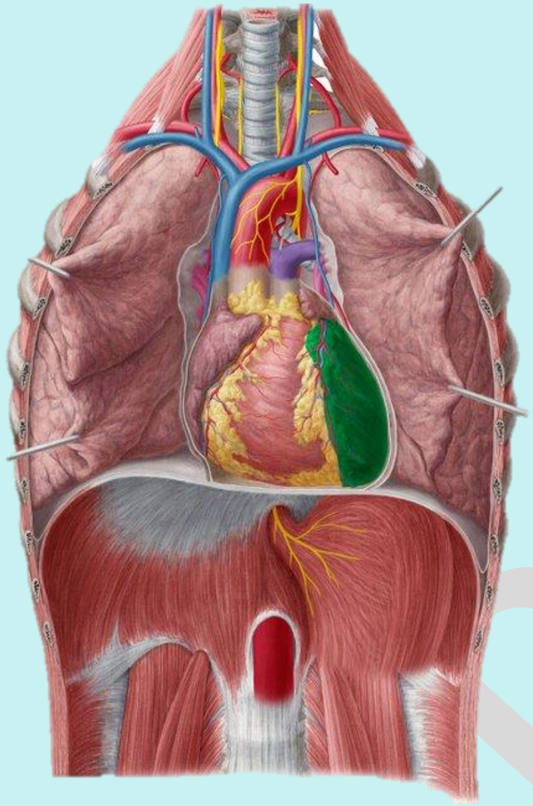
## 1. Heart

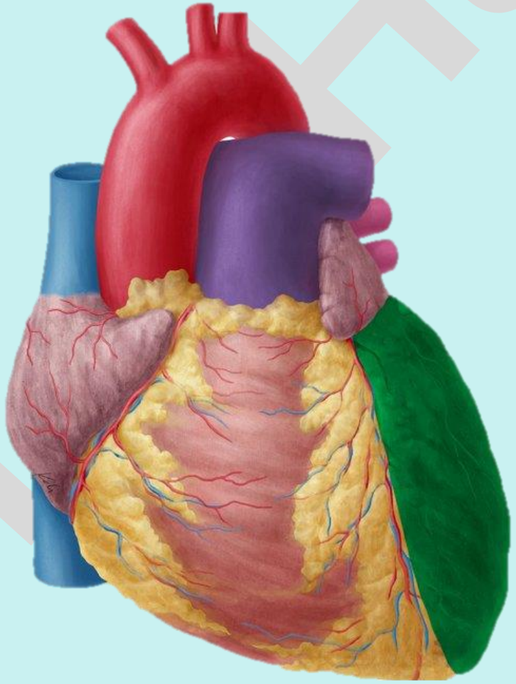
### 1.5 Chambers of the Heart

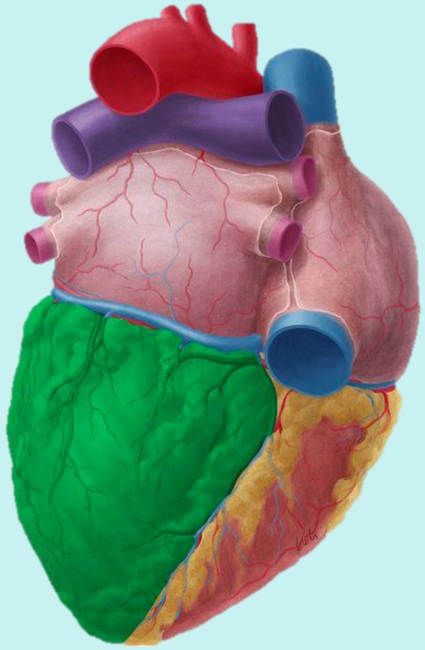
**Left Ventricle**

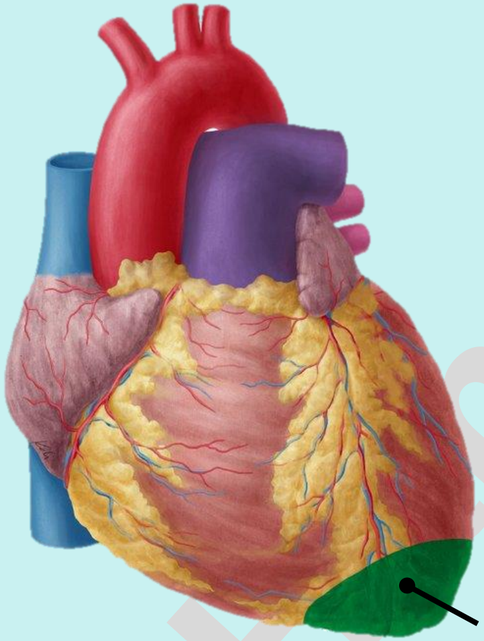
- ✓ Identify the left ventricle.
- ✓ Demonstrate that it is the thickest chamber.
- ✓ Demonstrate its contribution to the **Apex, Left surface, and Diaphragmatic surface.**









# Check List:



## 1. Heart

### Surfaces and Borders (Applied Identification)

- ✓ **Identify chamber forming the sternocostal (anterior) surface:** formed mainly by right ventricle.
- ✓ **Identify chambers forming the diaphragmatic surface:** formed mainly by right and left ventricles.
- ✓ **Identify chamber forming the base (posterior surface):** formed mainly by the left atrium.
- ✓ **Identify chamber forming the right surface:** formed mainly by the right atrium.
- ✓ **Identify chamber forming the left surface:** formed mainly by the left ventricle.
- ✓ **Identify chamber forming the superior border:** formed mainly by the right atrium, with a minor contribution from the right ventricle.
- ✓ **Identify chamber forming the right border:** formed by the right atrium.
- ✓ **Identify chamber forming the left border** formed mainly by the left ventricle, with a small contribution from the left auricle.
- ✓ **Identify chamber forming the Inferior border:** formed mainly by the right ventricle, with a slight contribution from the left ventricle.

# Check List:



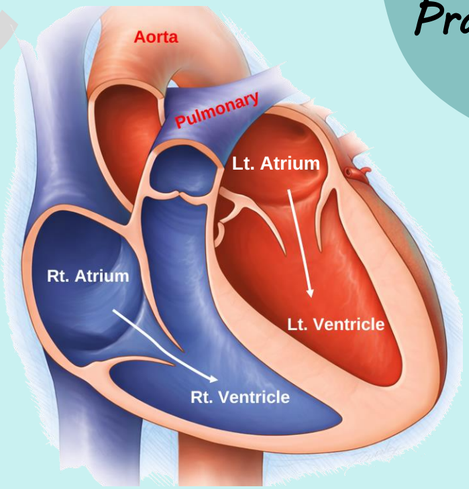
## 1. Heart

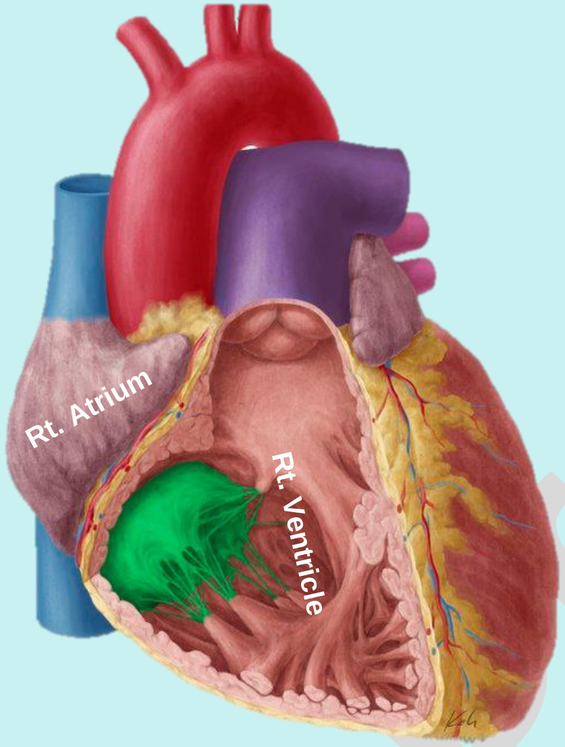
### 1.6 Valves of the Heart

#### Atrioventricular Valves

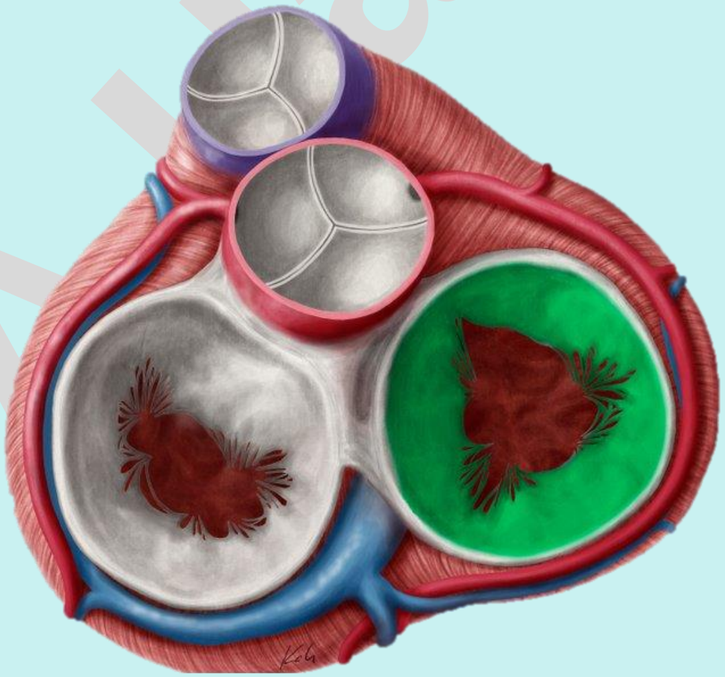
✓ Identify location of the tricuspid valve and trace the direction of blood flow:

- Tricuspid valve: **located between the right atrium and right ventricle.**

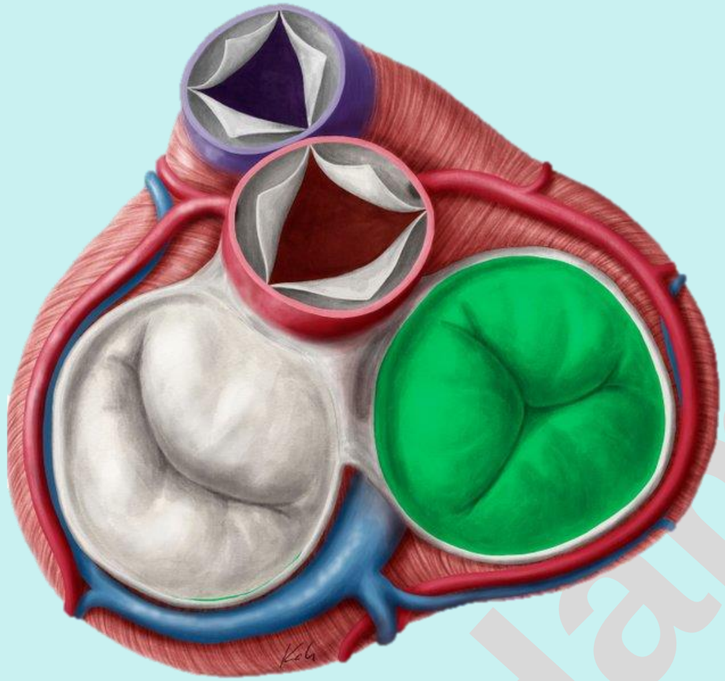



Anterior view



Superior view



Superior view

# Check List:

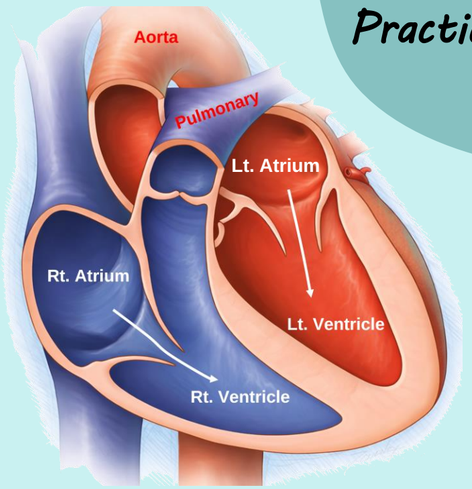
## 1. Heart

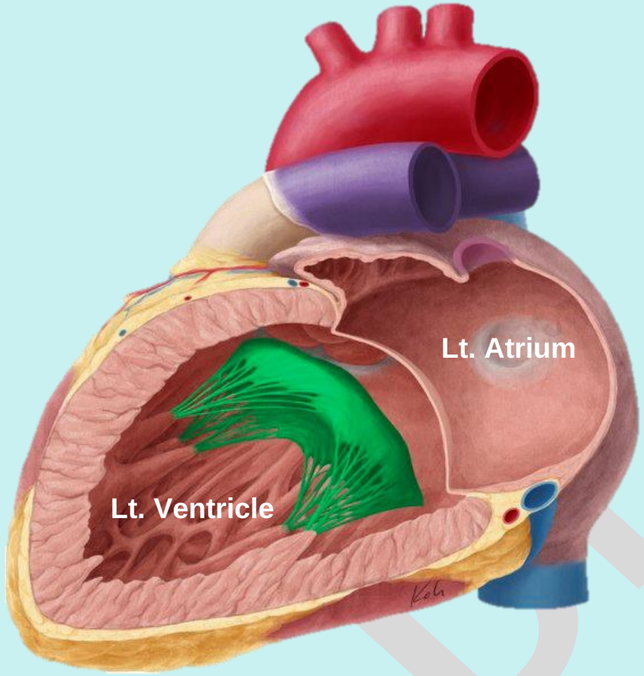
### 1.6 Valves of the Heart

#### Atrioventricular Valves

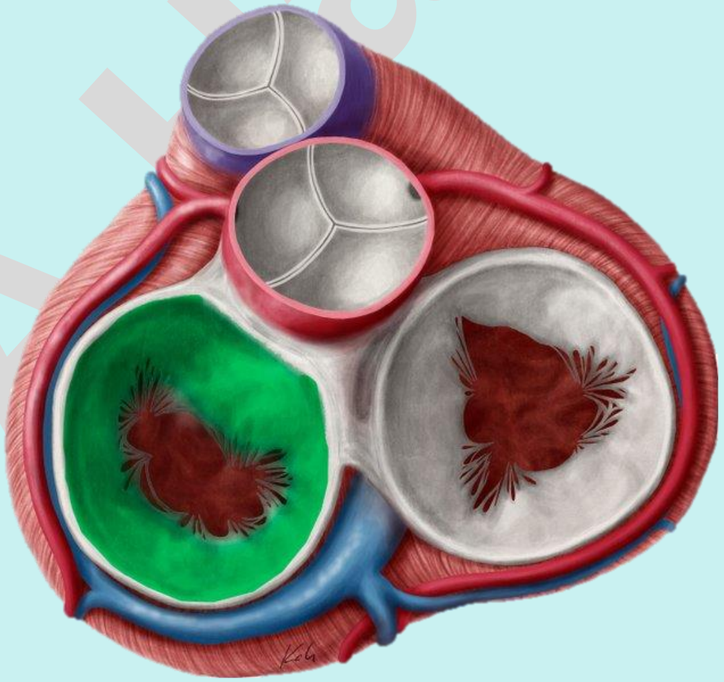
✓ Identify location of the bicuspid valve and trace the direction of blood flow:

- Bicuspid valve (mitral valve): **located between the left atrium and left ventricle.**

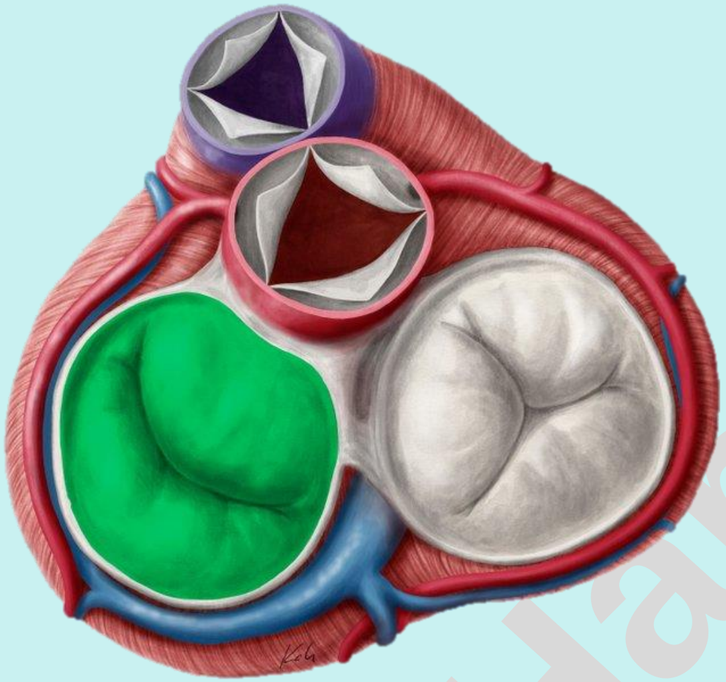



Left lateral view



Superior view



Superior view

# Check List:



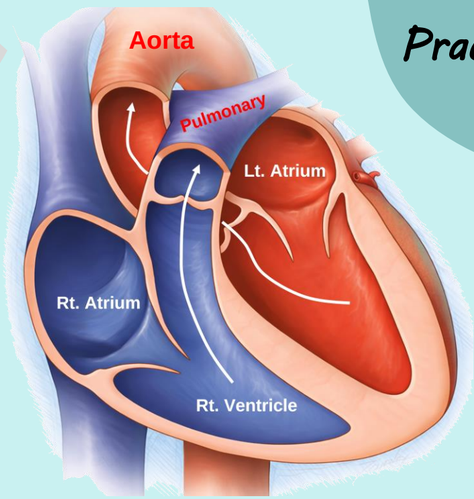
## 1. Heart

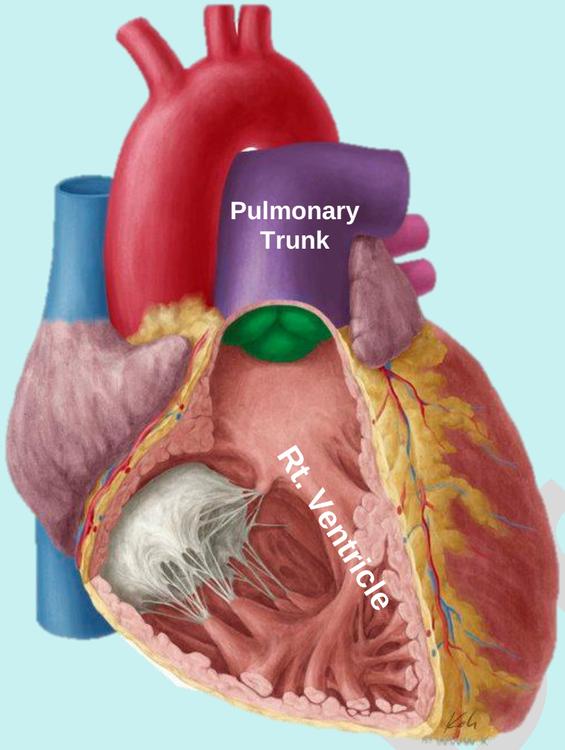
### 1.6 Valves of the Heart

#### Semilunar Valves

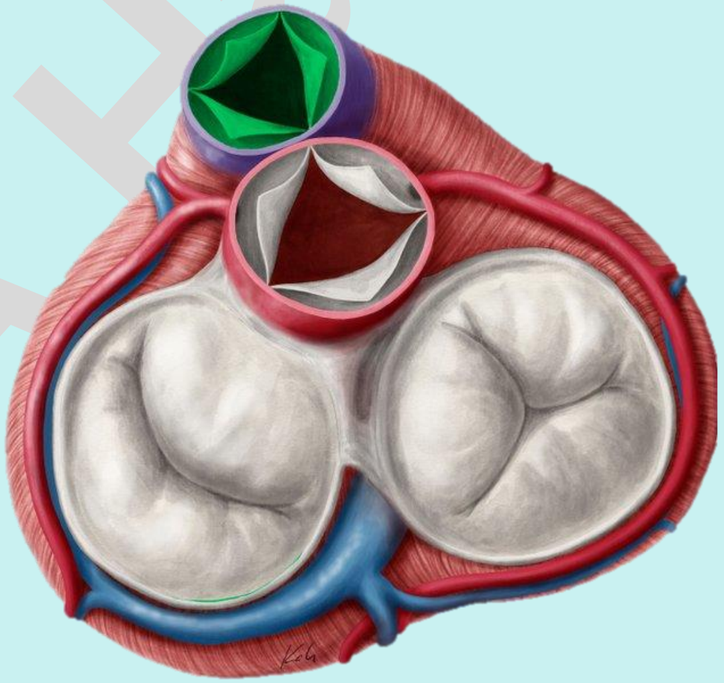
✓ Identify location of the pulmonary valve and trace the direction of blood flow:

- Pulmonary valve: located between the right ventricle and pulmonary trunk

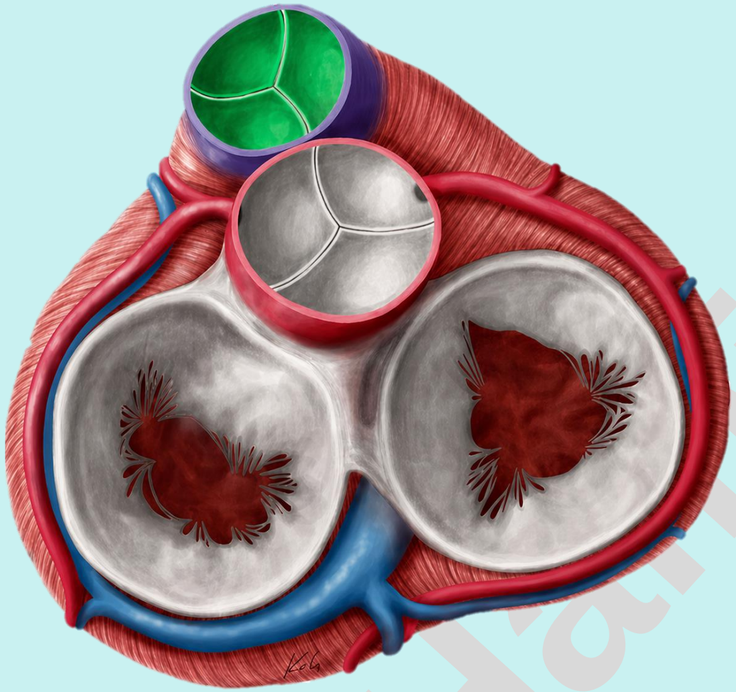



Anterior view



Superior view



Superior view

# Check List:

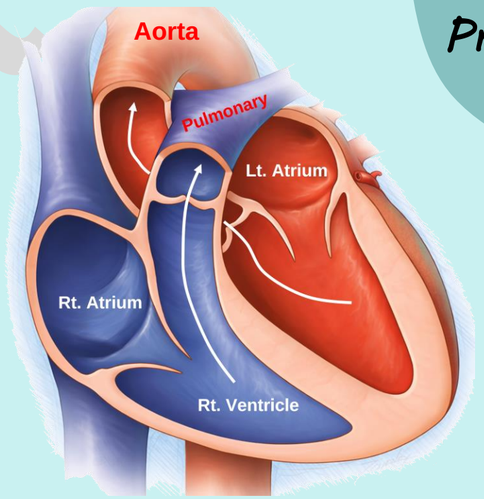
## 1. Heart

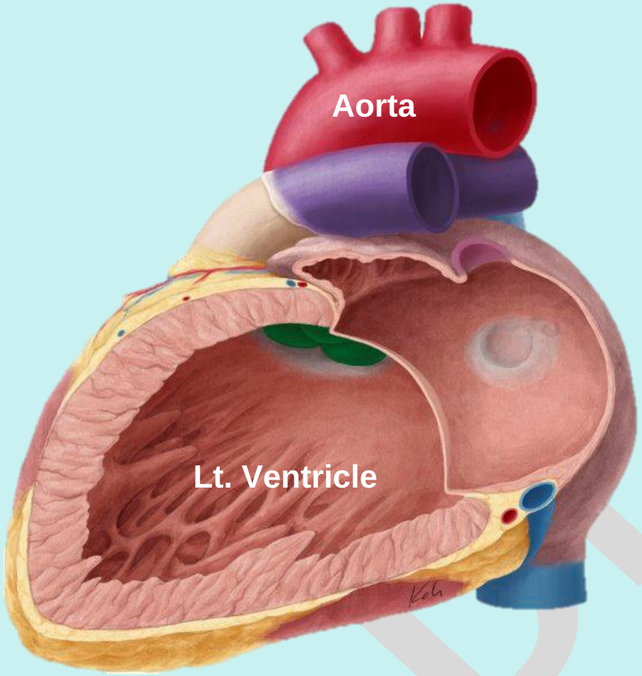
### 1.6 Valves of the Heart

#### Semilunar Valves

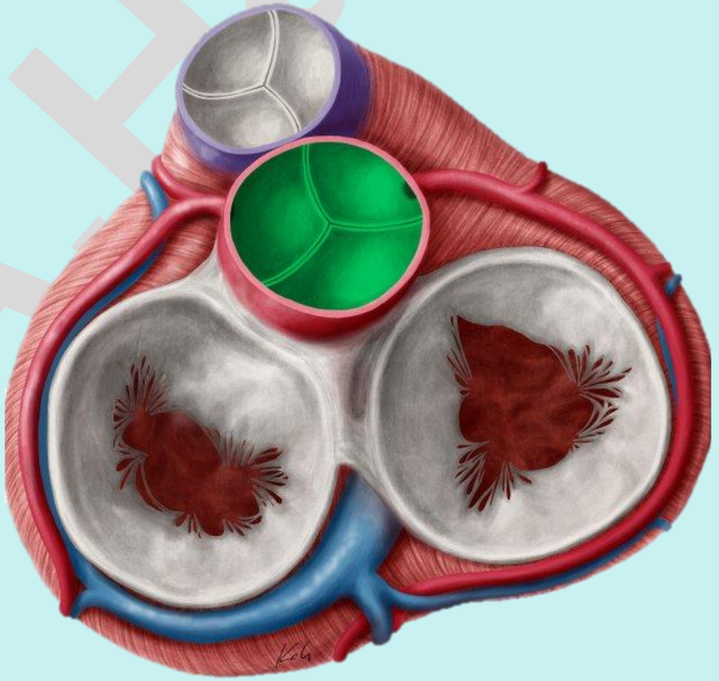
✓ Identify location of the aortic valve and trace the direction of blood flow:

- Aortic valve: located between left ventricle and aorta.

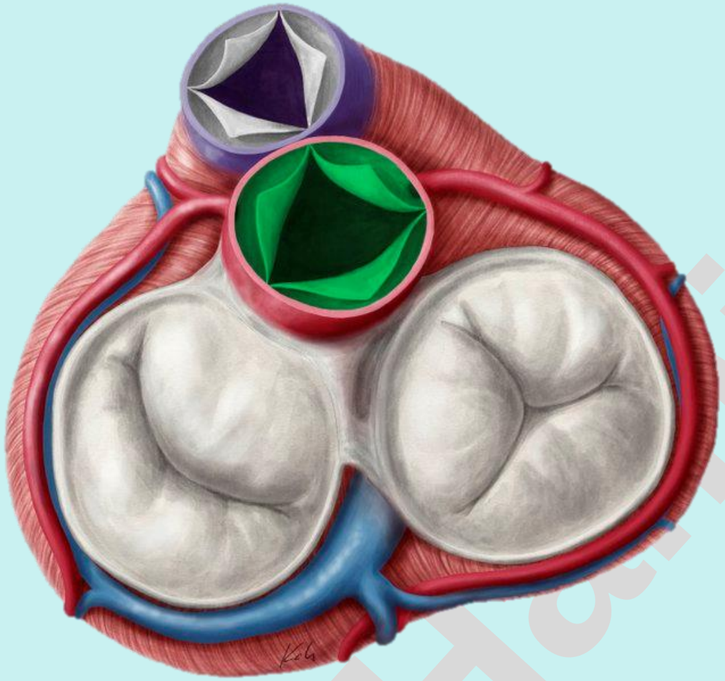



Left lateral view



Superior view



Superior view

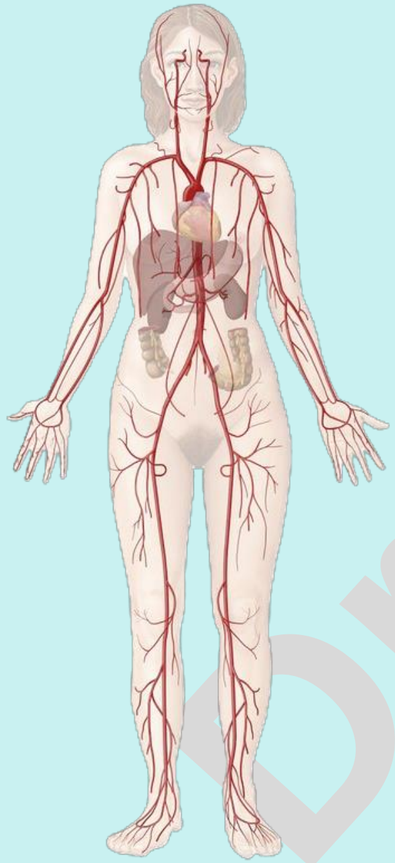
# Check List:



## 2. Blood Vessels

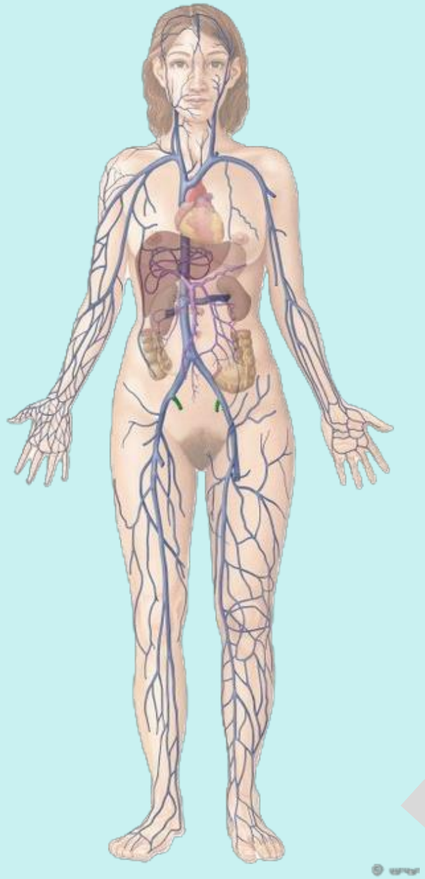
### Arteries

- ✓ Identify arteries as thick-walled vessels.
- ✓ Demonstrate that arteries carry blood away from the heart.
- ✓ Observe branching pattern (tree-like division).



### Veins

- ✓ Identify veins as thin-walled vessels.
- ✓ Demonstrate that veins carry blood toward the heart.
- ✓ Observe formation from smaller tributaries.



# Check List:



## 2. Blood Vessels

### How to Differentiate Between Arteries and Veins in a Cadaver

**Arteries**

- ✓ Thick-walled with a strong muscular layer.
- ✓ When compressed between two fingers, they recoil or bounce back and feel firm.
- ✓ Maintain a patent lumen and tend to keep a round shape.

**Veines**

- ✓ Thin-walled and soft (flimsy).
- ✓ When compressed between two fingers, they easily collapse, feel flat, and do not recoil or bounce back.
- ✓ Do not maintain a patent lumen (lose their shape easily).

### Why the Difference?

- Arteries have thick, elastic, and muscular walls; their elasticity allows them to stretch and recoil.
- Veins have thinner walls with less muscle and elastic tissue.

# Check List:

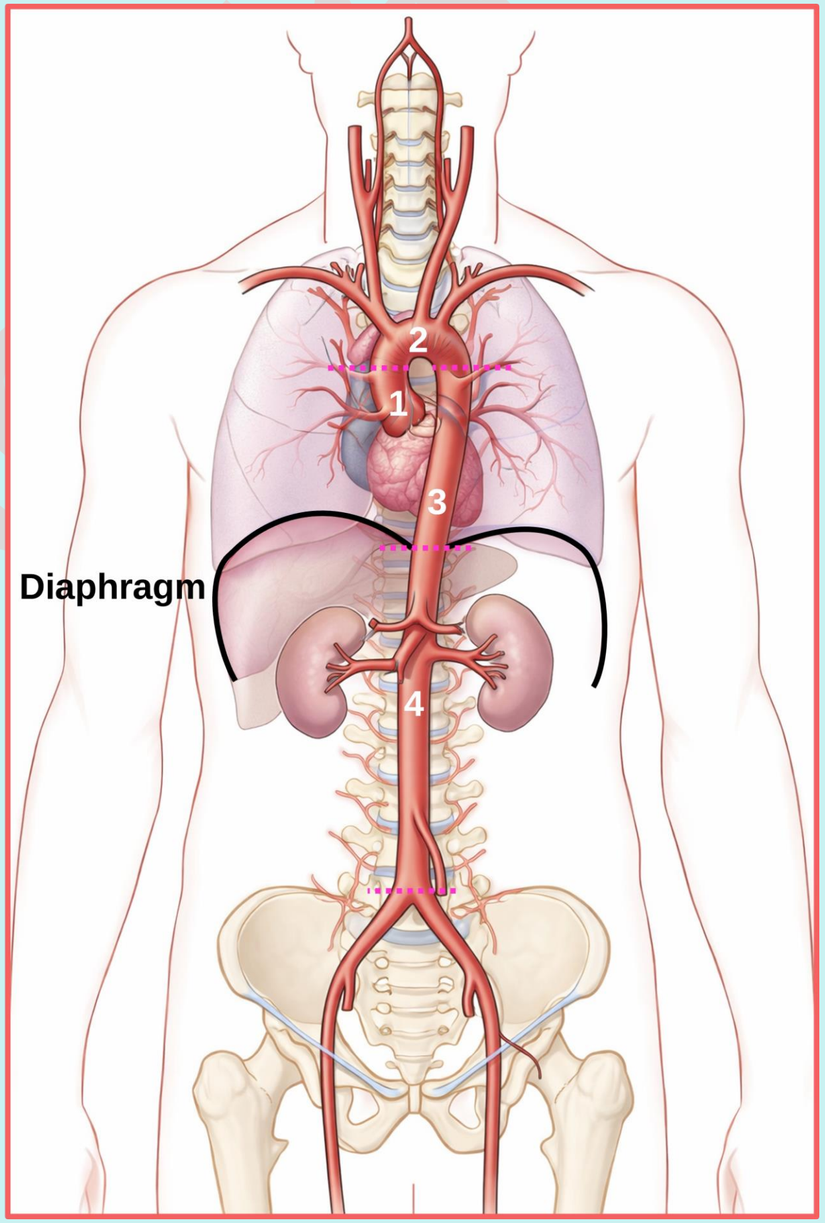
## 2. Blood Vessels

### 2.1 Major Arteries

#### 1. Aorta

- ✓ Identify the aorta as the largest artery.
- ✓ Trace blood flow from the left ventricle.
- ✓ Identify the parts of the Aorta:

1. Ascending aorta
2. Arch of the aorta
3. Descending thoracic aorta
4. Abdominal aorta



# Check List:

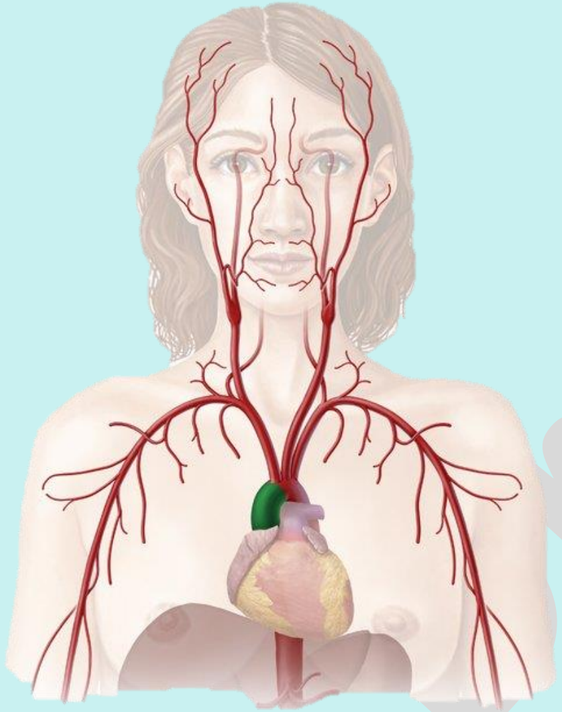


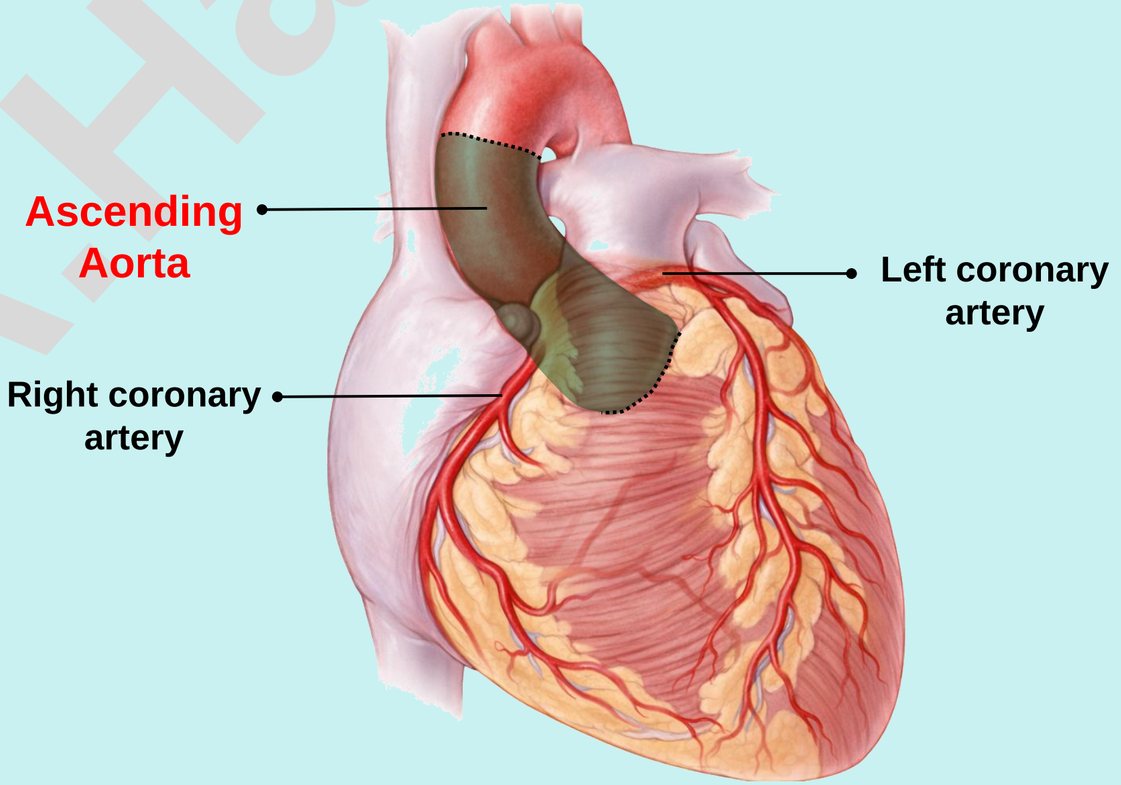
## 2. Blood Vessels

### 2.1 Major Arteries

**1. Aorta: Ascending Aorta**

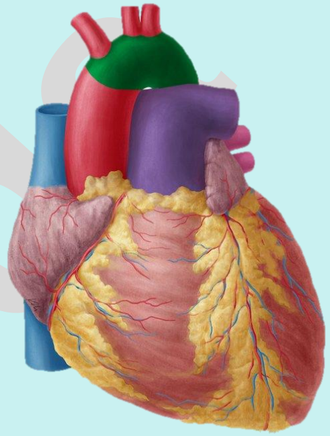
- ✓ Trace its origin from the left ventricle.
- ✓ Identify its termination at the sternal angle.
- ✓ Identify its branches: Right coronary artery and Left coronary artery.





# Check List:



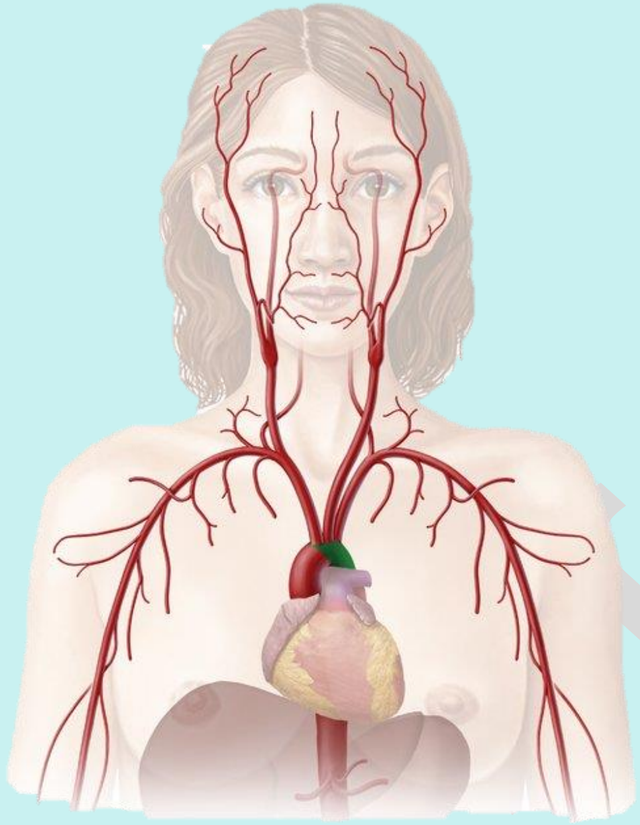


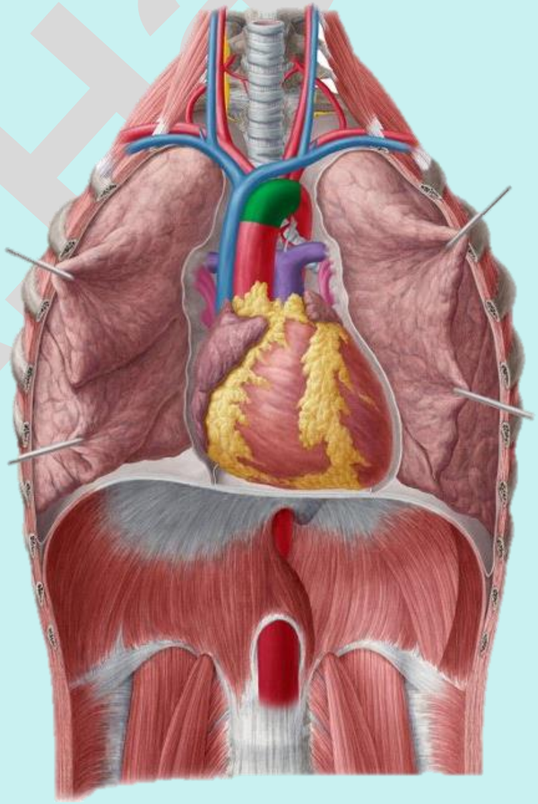
## 2. Blood Vessels

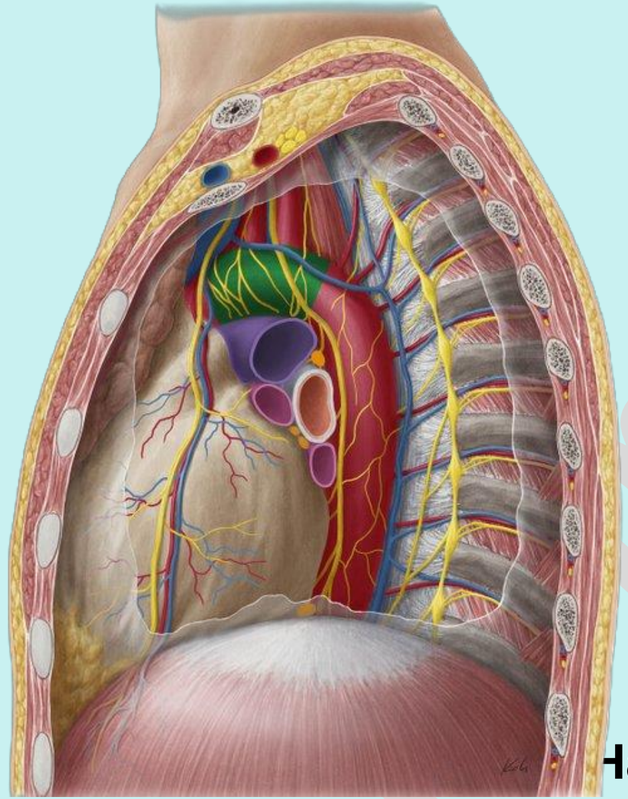
### 2.1 Major Arteries

**1. Aorta: Arch of the Aorta**

- ✓ Trace its course (upward, backward, and to the left).
- ✓ Identify its origin and termination (begins and ends at the level of the sternal angle).







# Check List:



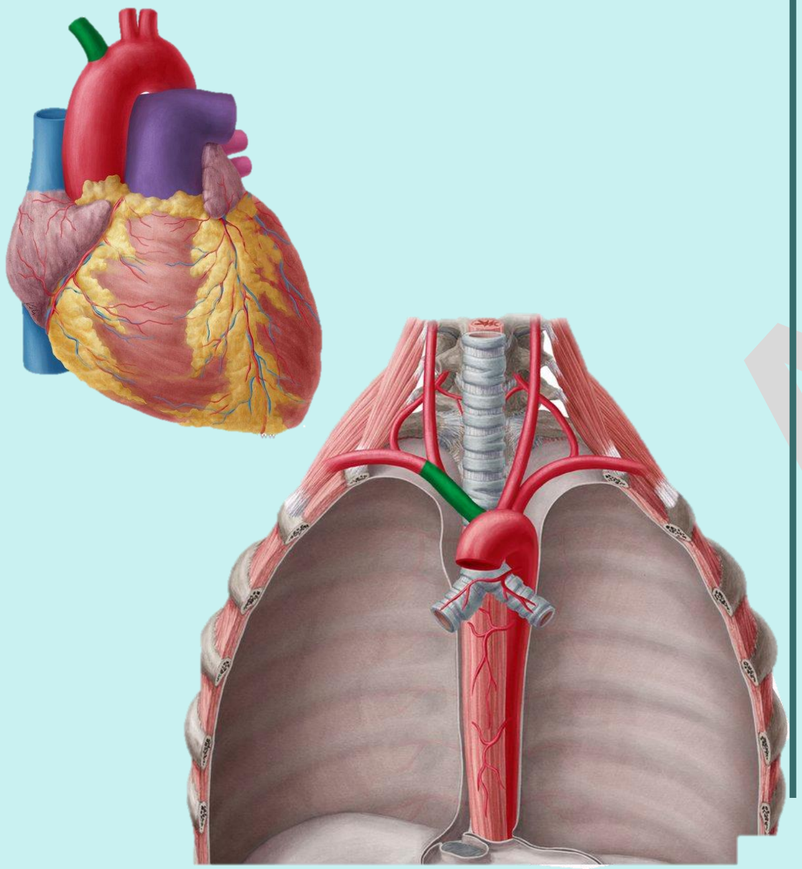
## 2. Blood Vessels

### 2.1 Major Arteries

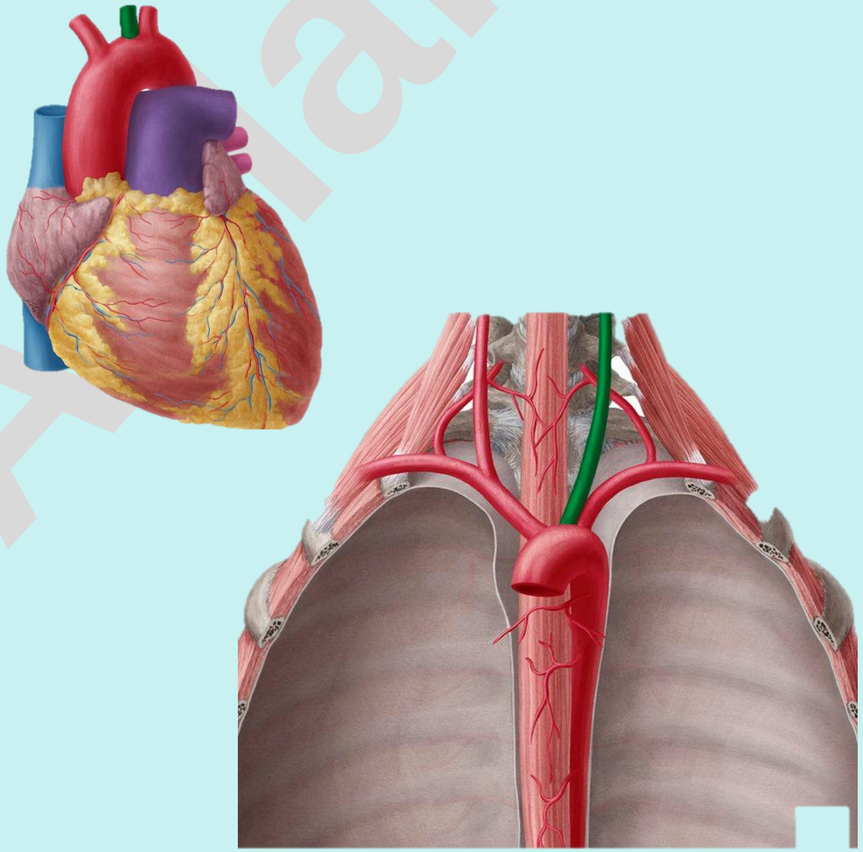
**1. Aorta: Arch of the Aorta**

✓ Identify branches of the arch of aorta:

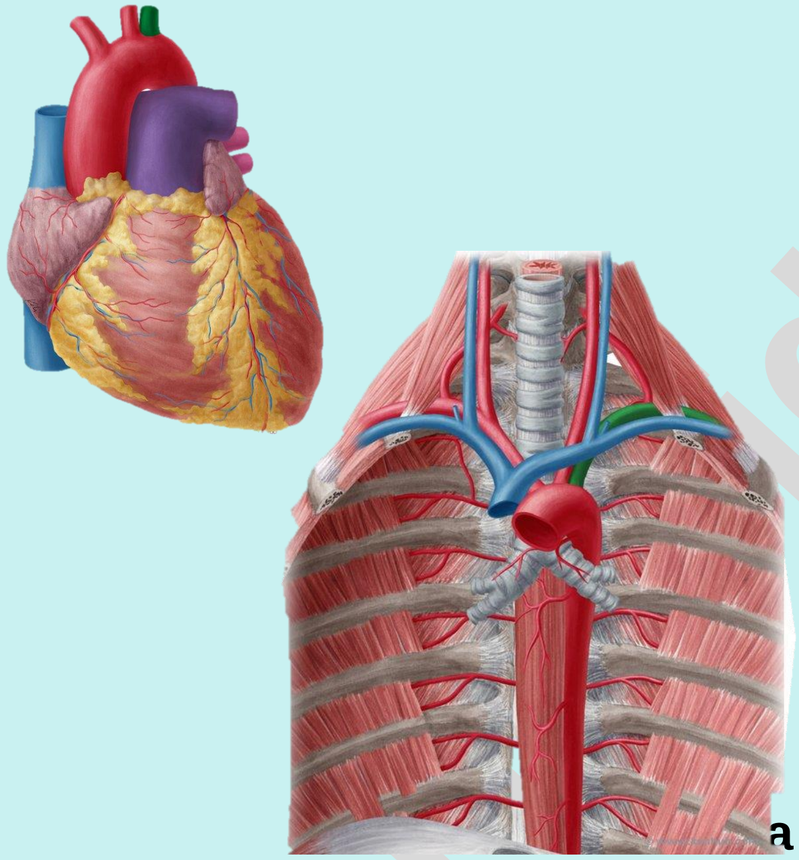
**1. Brachiocephalic trunk**



**2. Left common carotid artery**



**3. Left subclavian artery**



# Check List:



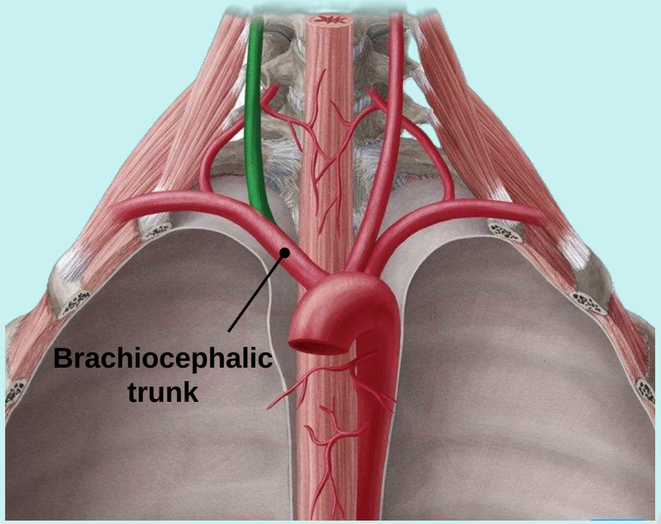
## 2. Blood Vessels

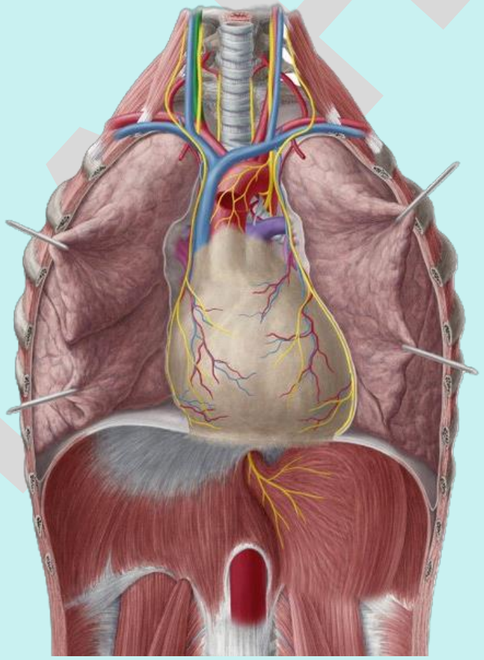
### 2.1 Major Arteries

**1. Aorta: Arch of the Aorta**

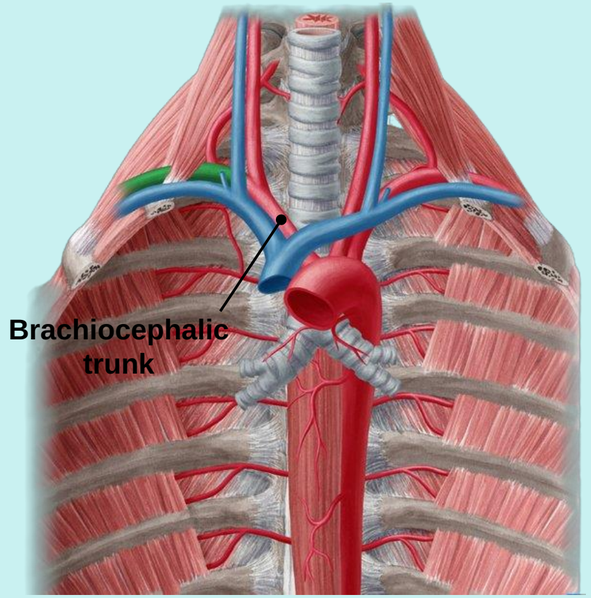
✓ Identify branches of Brachiocephalic trunk :

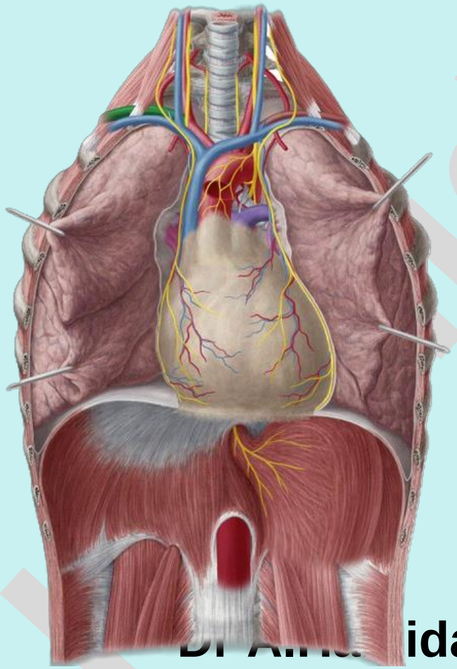
**1. Right common carotid**



**2. Right subclavian artery**



# Check List:

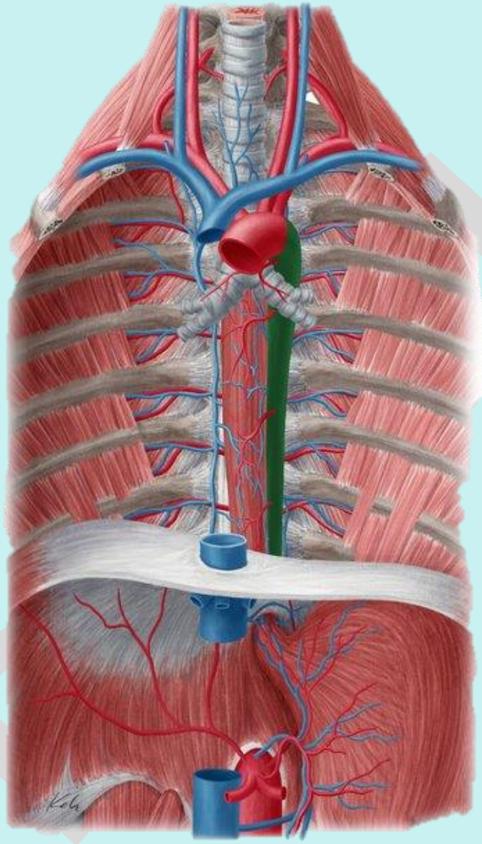


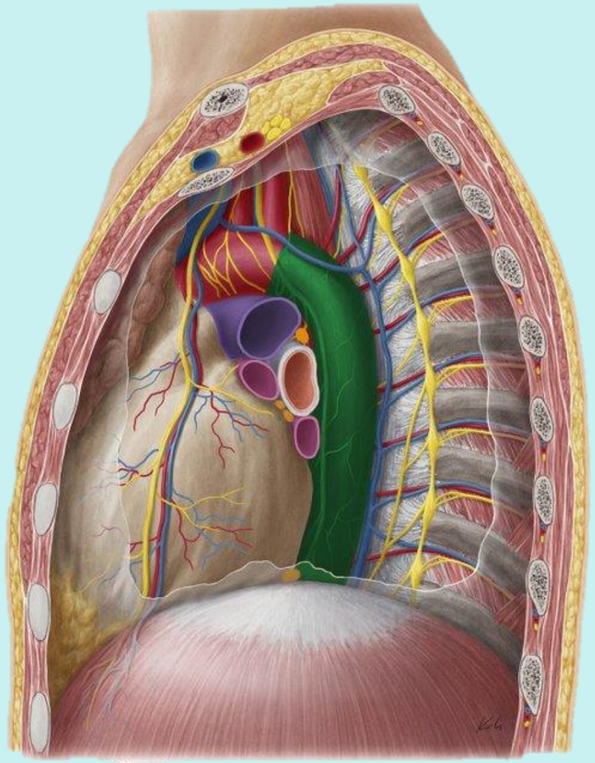
## 2. Blood Vessels

### 2.1 Major Arteries

**1. Aorta: Descending Thoracic Aorta**

- ✓ Trace its course in the thoracic cavity along the vertebral column.
- ✓ Identify its origin at the sternal angle and its termination at T12 (passes through the diaphragm).





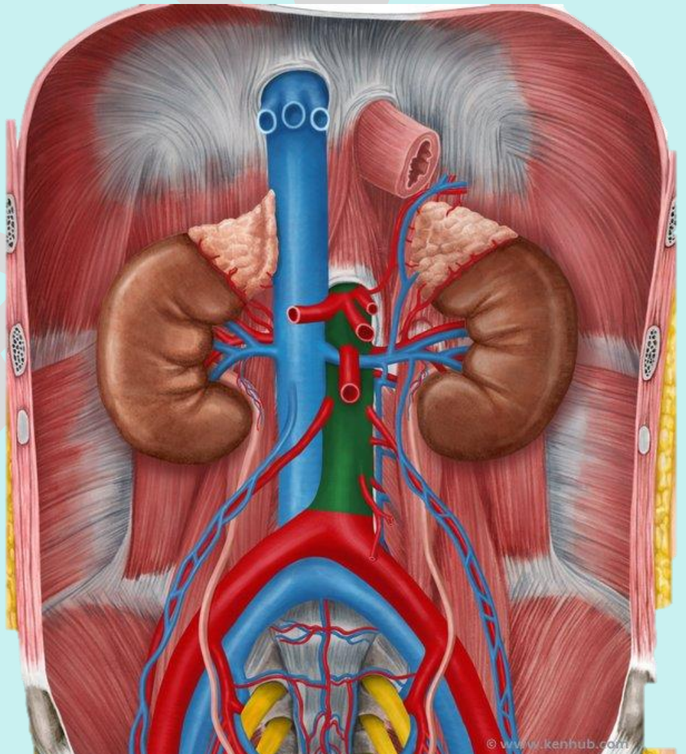
# Check List:

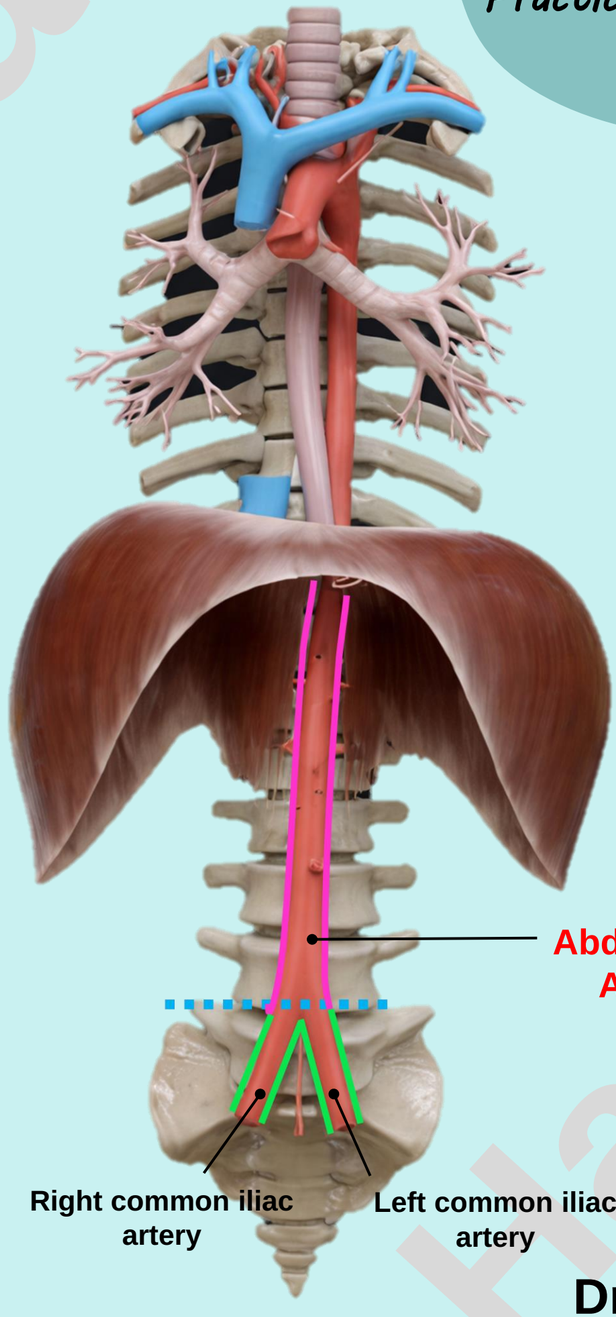
## 2. Blood Vessels

### 2.1 Major Arteries

**1. Aorta: Abdominal Aorta**

- ✓ Trace its course in the abdominal cavity along the vertebral column.
- ✓ Identify its origin at T12 (after passing through the diaphragm).
- ✓ Identify its termination at L4.
- ✓ Identify its terminal branches into
  1. Right common iliac artery
  2. Left common iliac artery.






Dr A.Hamida

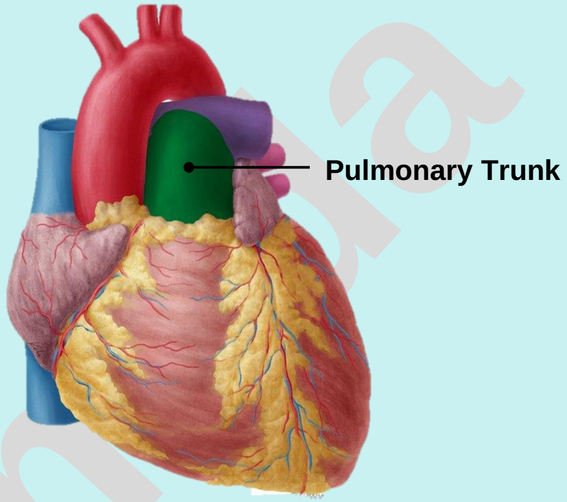
# Check List:

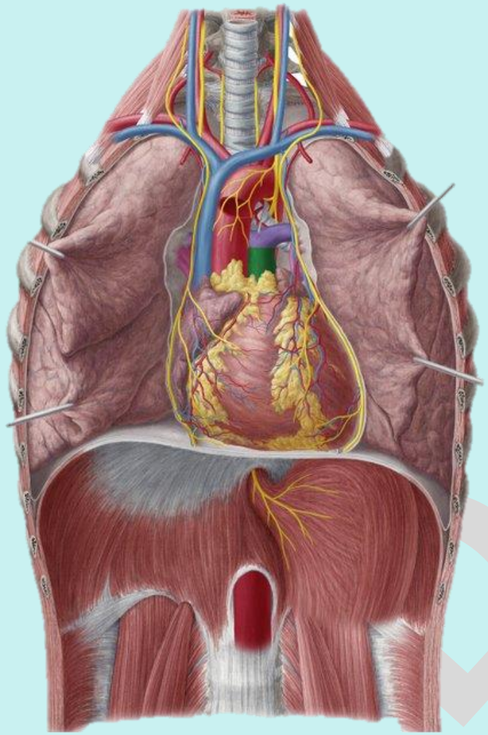
## 2. Blood Vessels

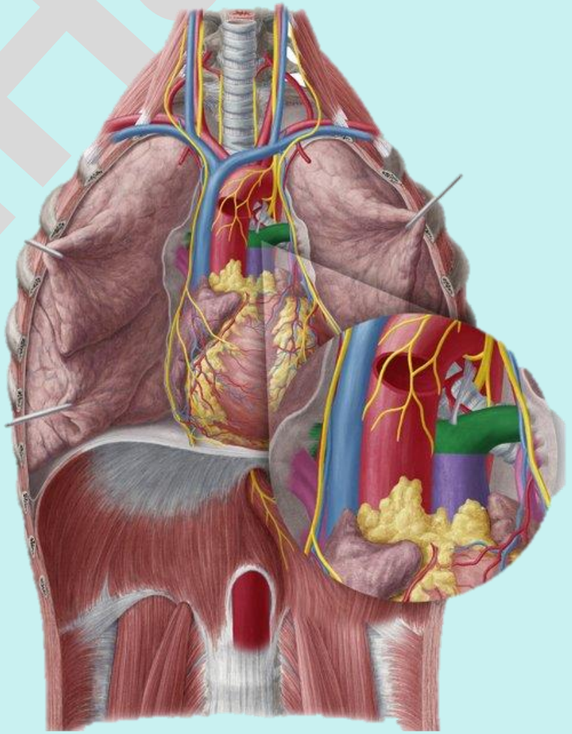
### 2.1 Major Arteries

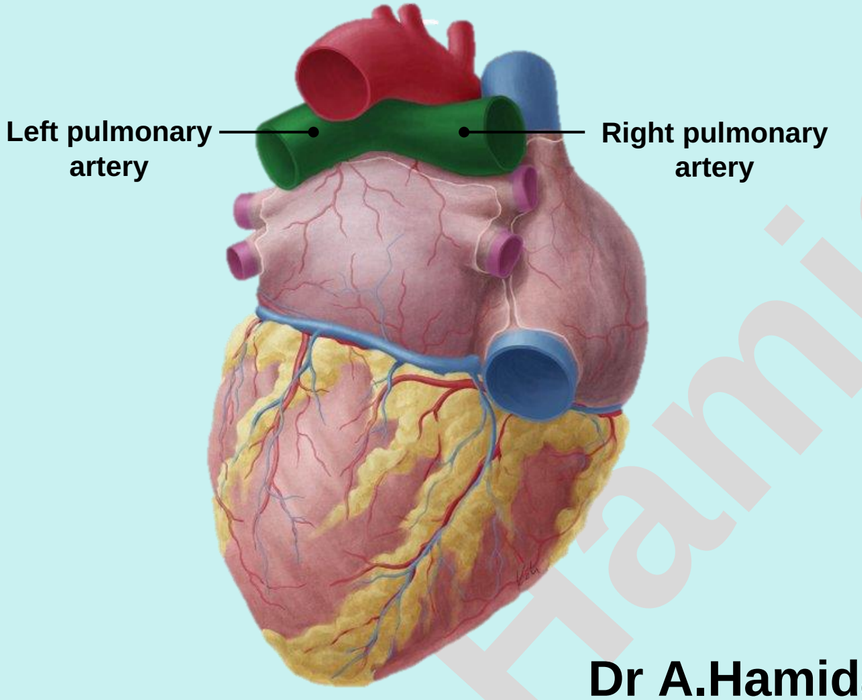
#### 2. Pulmonary Trunk

- ✓ Identify the pulmonary trunk.
- ✓ Trace its origin from the right ventricle.
- ✓ Identify its division into: Right pulmonary artery and Left pulmonary artery.
- ✓ Relate it to the pulmonary valve.



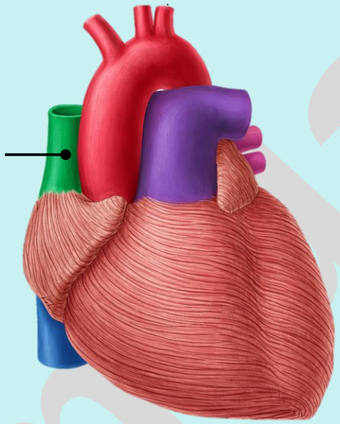







# Check List:



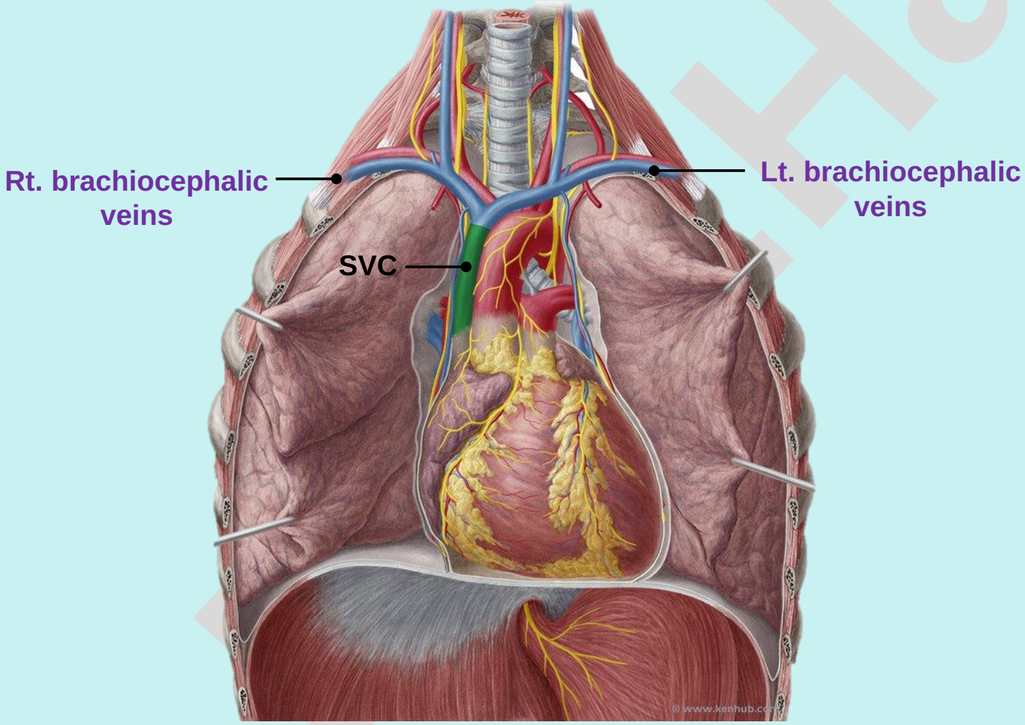


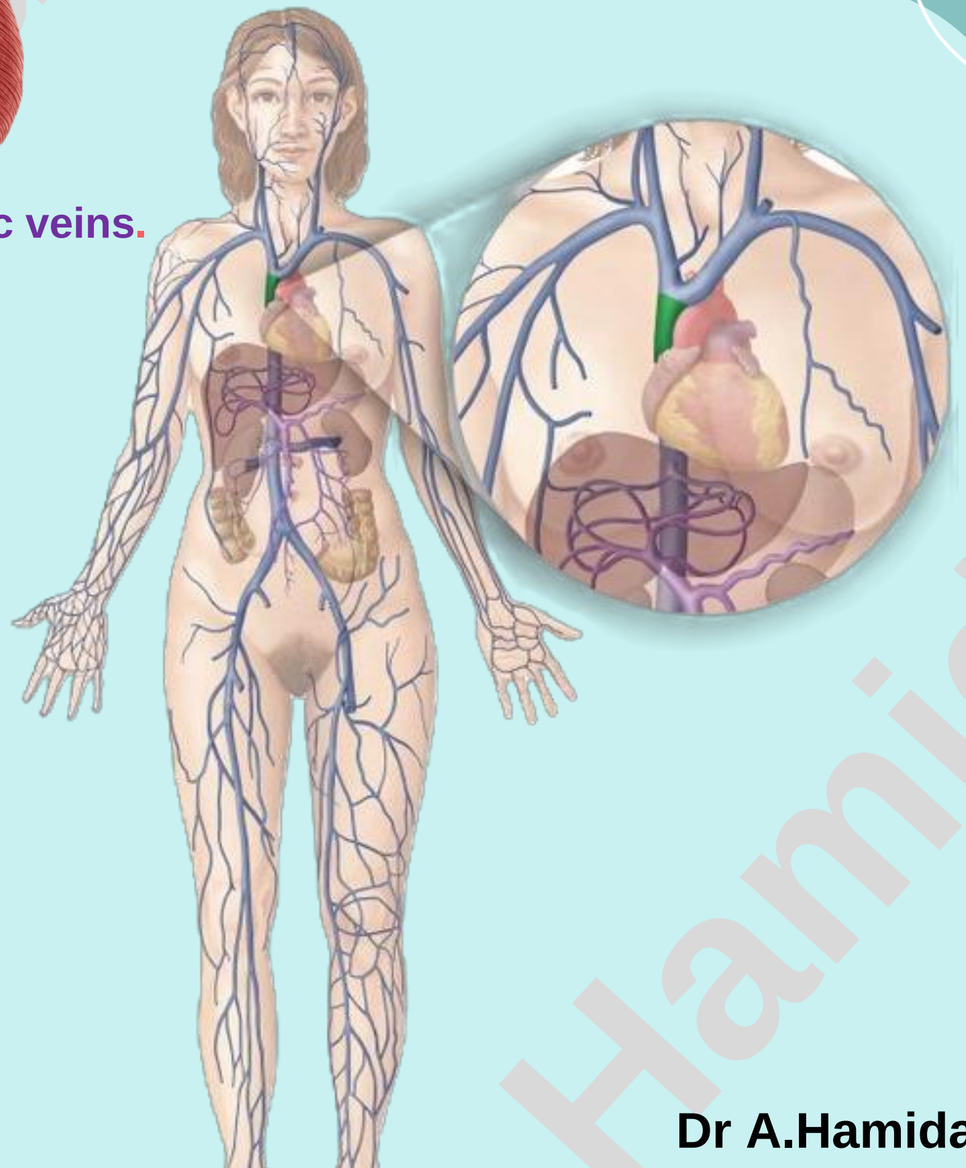

## 2. Blood Vessels

### 2.2 Major Veins

#### 1. Superior Vena Vava (SVC)

- ✓ Identify the SVC.
- ✓ Identify and trace its formation by the union of the two brachiocephalic veins.
- ✓ Identify its opening into the right atrium.



Dr A.Hamida

# Check List:



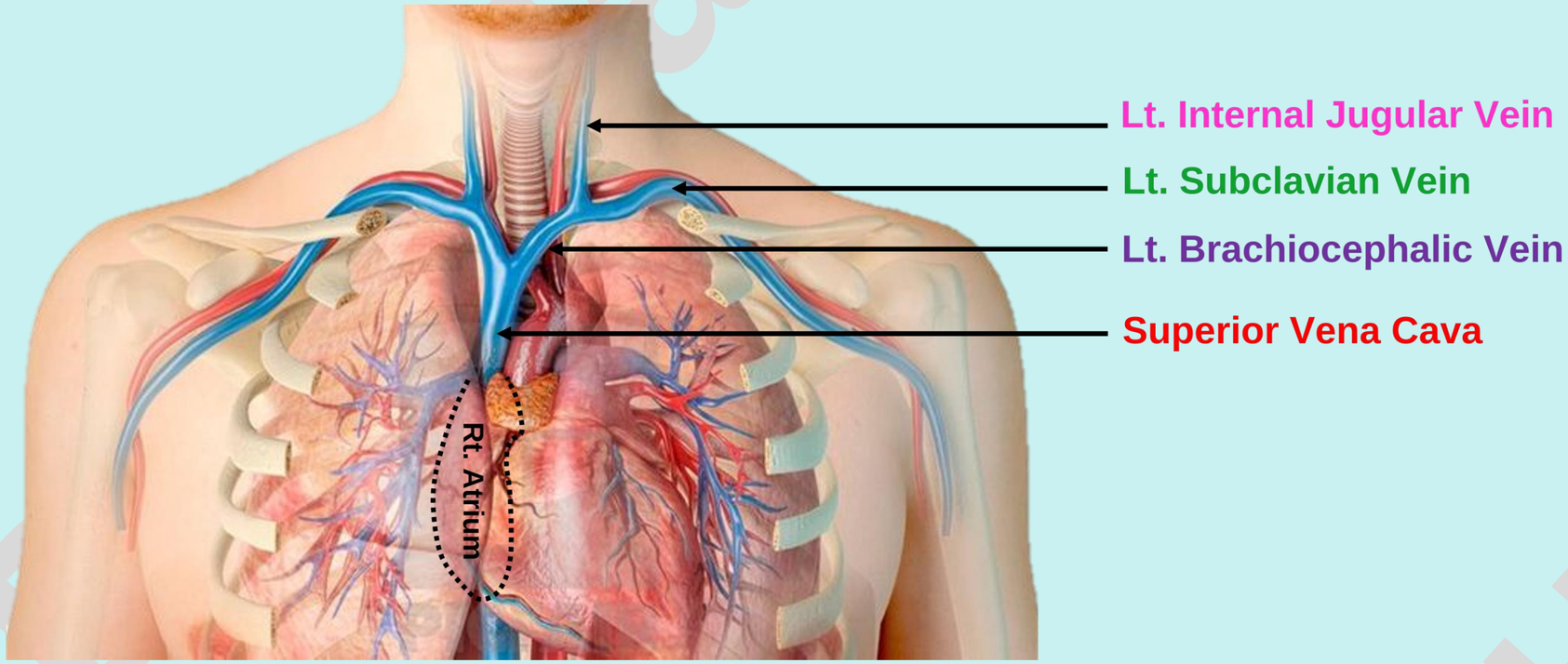
## 2. Blood Vessels

### 2.2 Major Veins

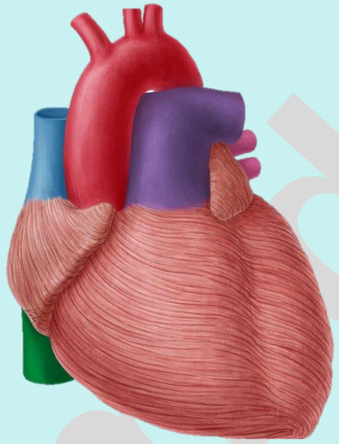
#### 1. Superior Vena Vava (SVC)

✓ Identify and trace how the two brachiocephalic veins are formed through the union of:

- The internal jugular veins convey venous blood from the head and neck.
- The subclavian veins convey venous blood from the upper limbs.



# Check List:

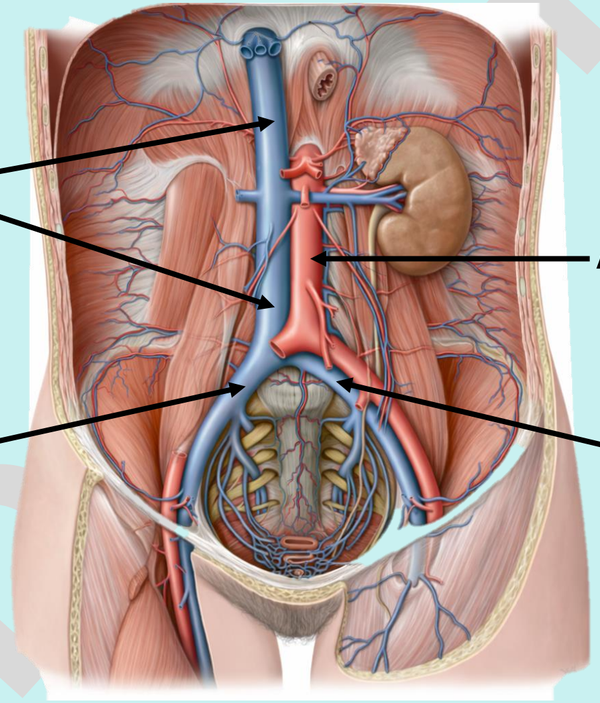


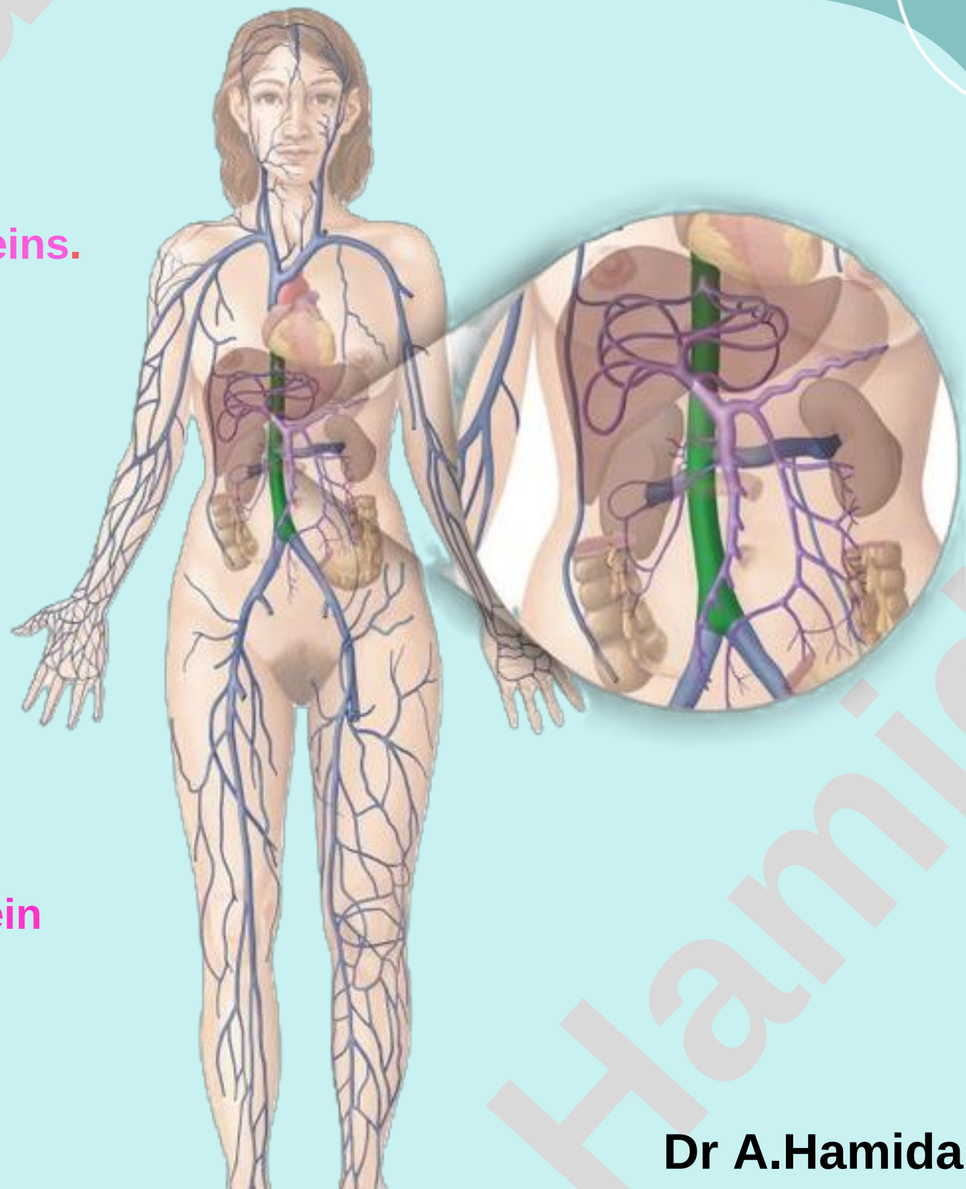
## 2. Blood Vessels

### 2.2 Major Veins

#### 2. Inferior Vena Vava (IVC)

- ✓ Identify the IVC.
- ✓ Identify and trace its formation by the union of the two common iliac veins.
- ✓ Identify passage through diaphragm at T8.
- ✓ Identify its opening into the right atrium.



Dr A.Hamida

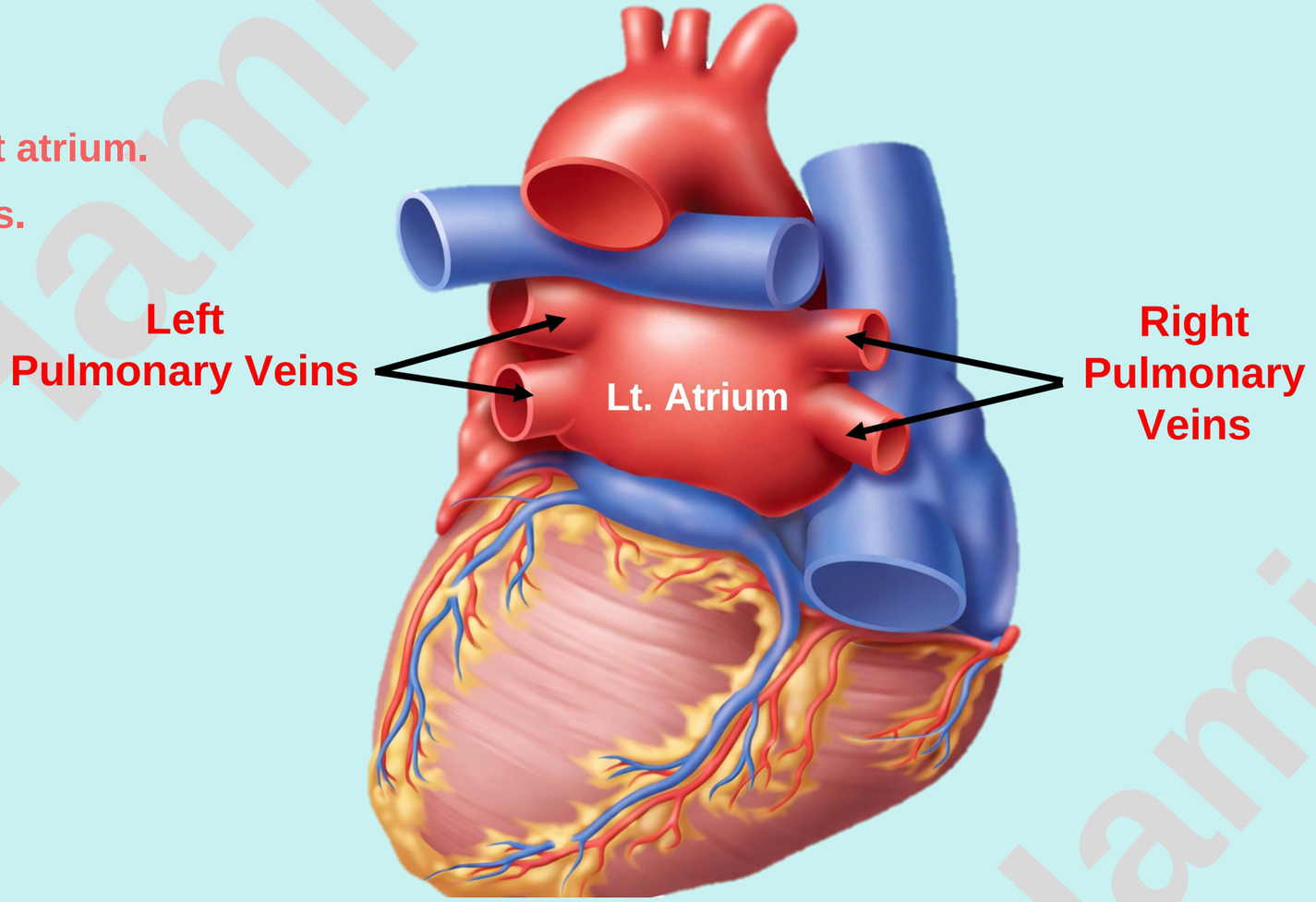
# Check List:

## 2. Blood Vessels

### 2.2 Major Veins

#### 3. Pulmonary Veins

- ✓ Identify the pulmonary veins.
- ✓ Trace oxygenated blood from the lungs to left atrium.
- ✓ Confirm the presence of four pulmonary veins.




Posterior view