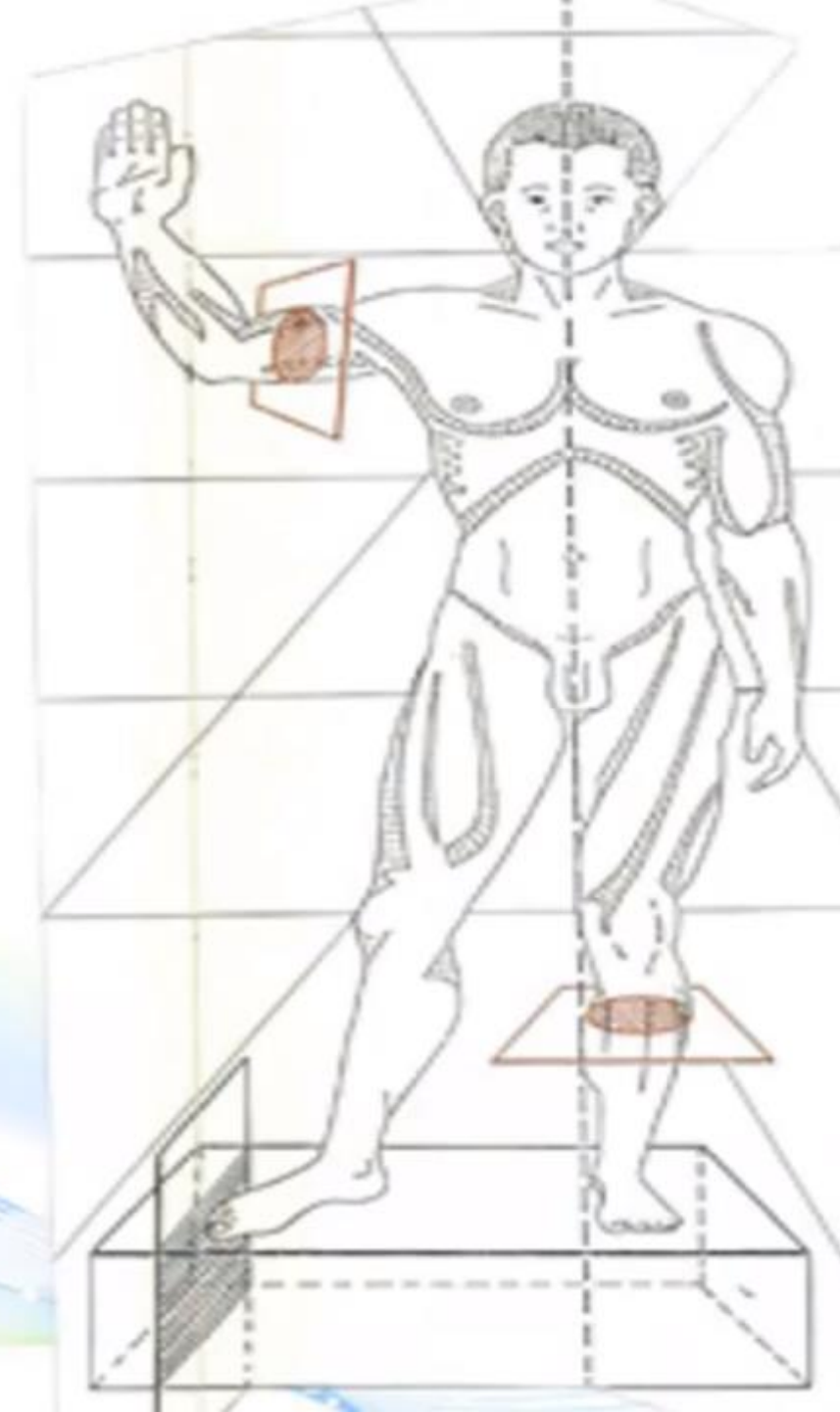


# THE AZYGOS SYSTEM

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# PLAN

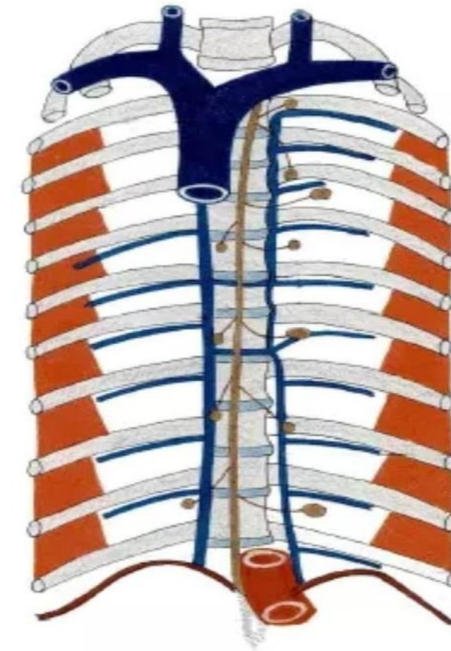
## I. INTRODUCTION

## II. GREAT AZYGOS VEIN

## III. HEMIAZYGOS VEIN

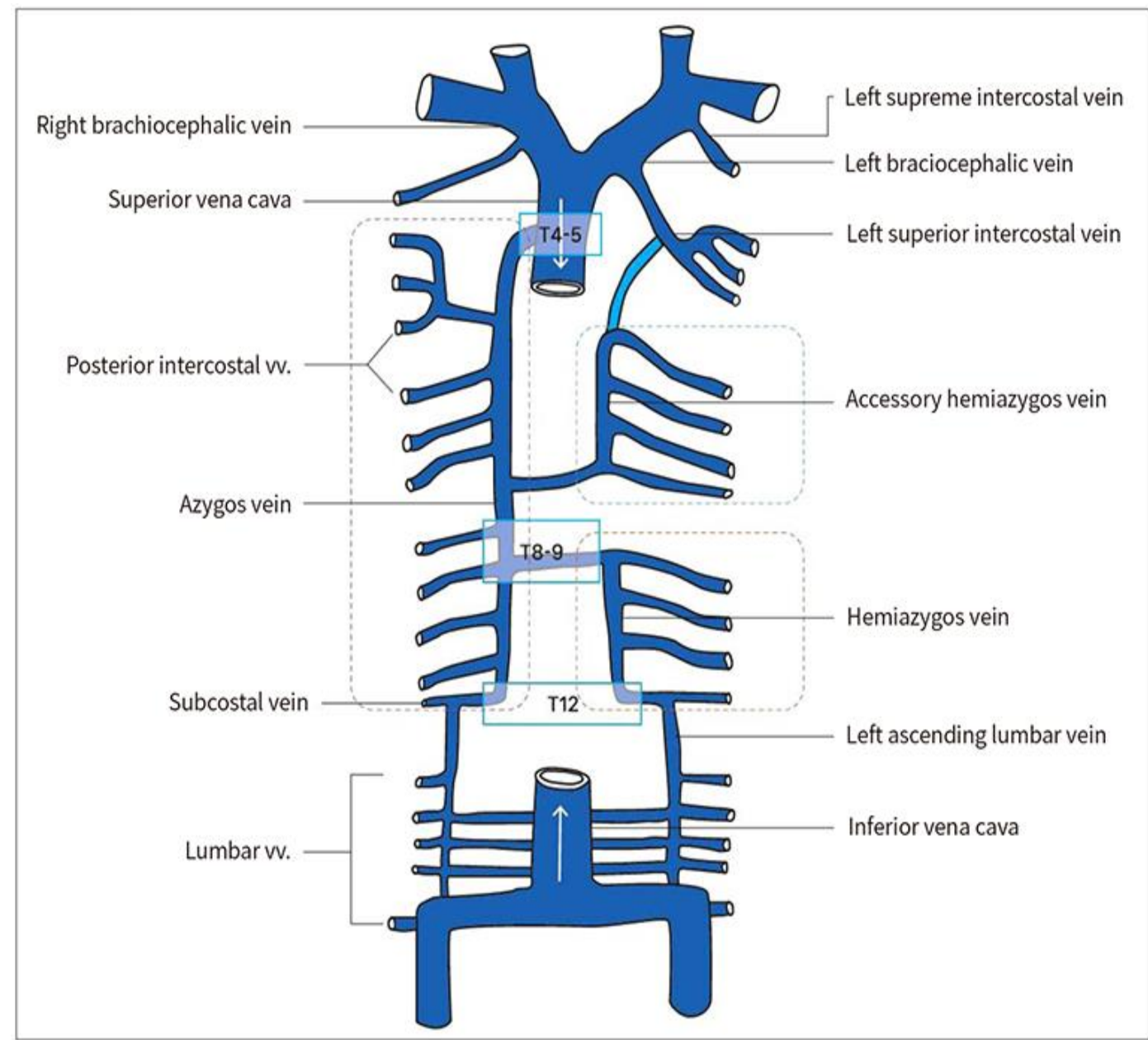
## IV. ACCESSORY HEMIAZYGOS VEIN

## V. CONCLUSION



# I. INTRODUCTION:

- The azygos venous system is a major venous network that ensures drainage of the thoracic wall and serves as an important collateral pathway between the superior and inferior vena cava.
- It is composed of:
  - On the right: the azygos vein,
  - On the left: the hemiazygos system, which includes:
    - The inferior hemiazygos vein (hemiazygos vein).
    - The accessory hemiazygos vein (superior hemiazygos vein).
- This system establishes multiple anastomoses with the caval and portal systems, playing a crucial role in venous return, especially in cases of inferior vena cava obstruction.

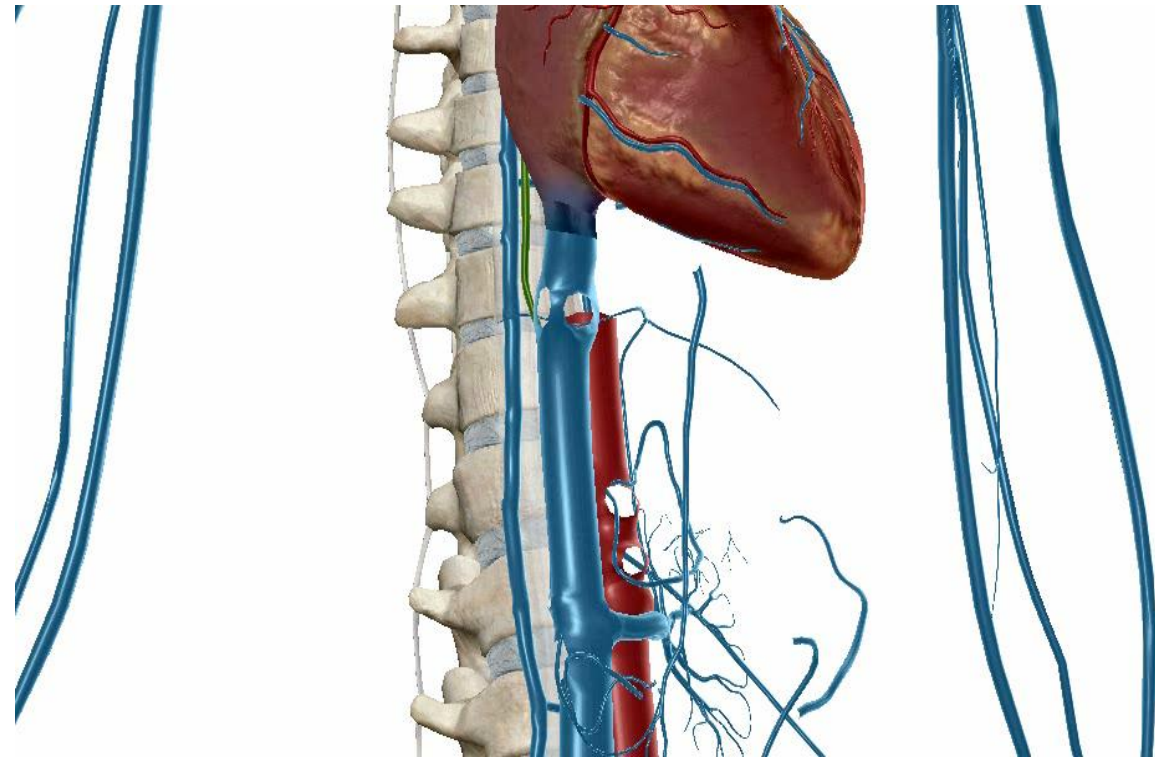


**Normal azygos venous system**

## II. GREAT AZYGOS VEIN:

### 1. Origin

- The azygos vein arises in the infra-mediastinal posterior space, at the level of T11, from the union of two roots:
- **External root (constant):**  
Formed by the fusion of the right ascending lumbar vein and the 12th intercostal vein.
- **Internal root (inconstant):**  
Its presence varies between individuals and is not always observed.



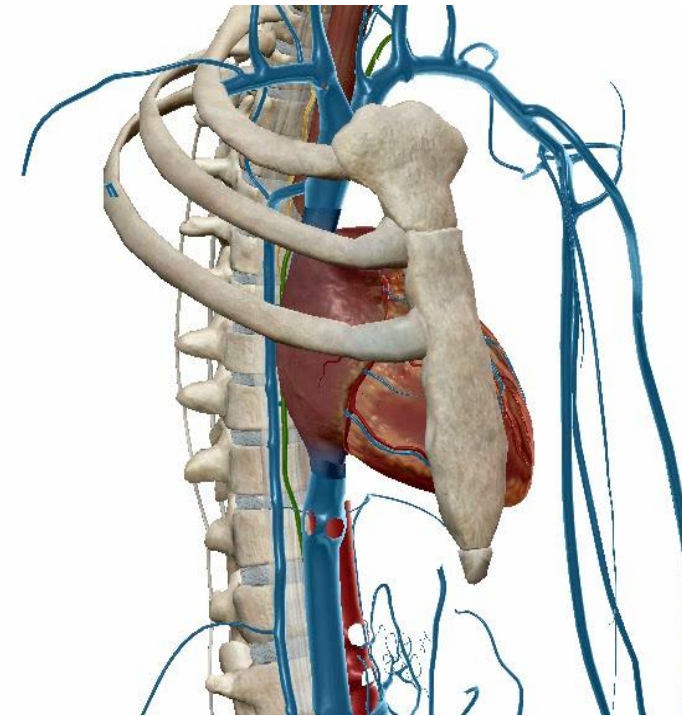


## 2.Course

- The azygos vein follows a vertical trajectory in the posterior mediastinum, positioned to the right of the midline.
- At the level of the 2nd intercostal space, it curves forward, forming the characteristic azygos arch.
- It enters the thorax and runs along the right lateral surfaces of the vertebral bodies.

## 3.Termination

It drains into the posterior inferior aspect of the superior vena cava, at the level of the 4th thoracic vertebra (T4).



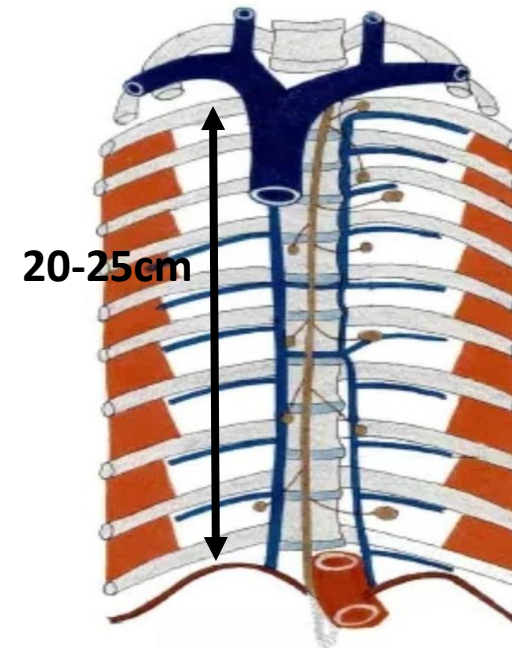
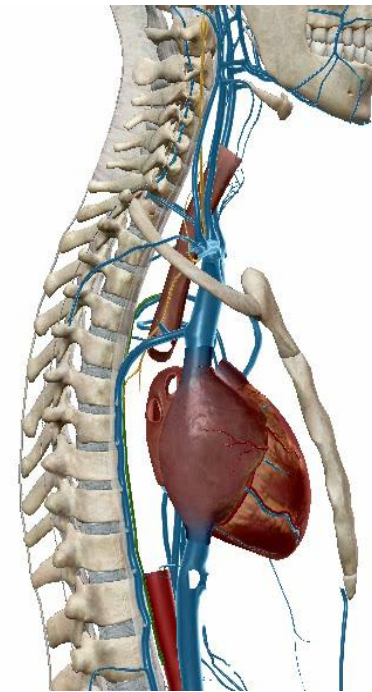
#### 4. Dimensions

- Length: 20 to 25 cm.
- Diameter:
  - At origin: 4 mm.
  - At termination: 10 mm.

#### 5. Anatomical relations

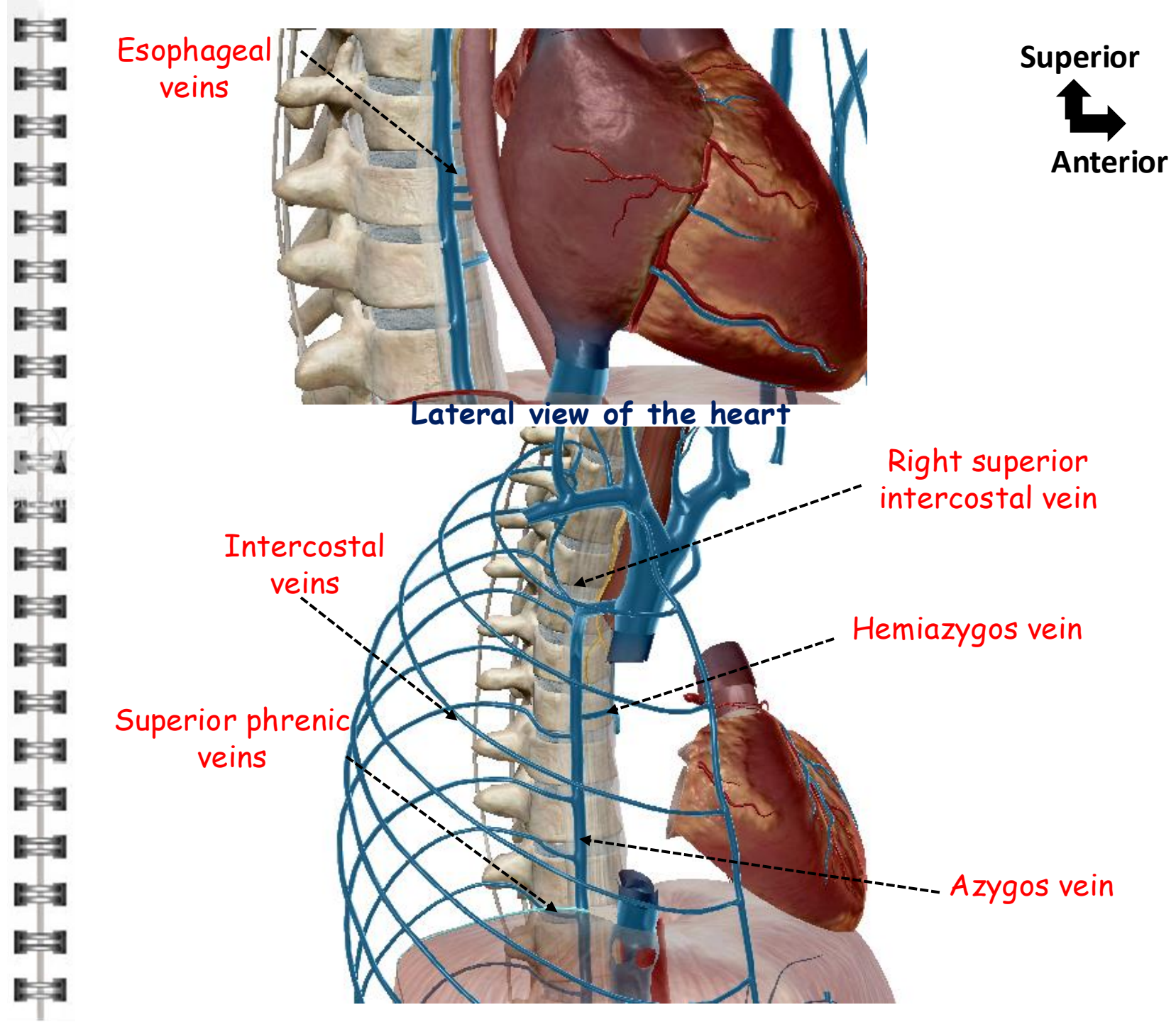
From its origin to its arch, the azygos vein is related to:

- **On the left:**
  - Thoracic duct.
  - Aorta.
- **On the right:**
  - Right mediastinal pleura.
- **Posteriorly:**
  - Thoracic spine.
  - Right intercostal vessels.
- **Anteriorly:**
  - Right lung root.
- **On the right:**
  - Right pulmonary pleura.
- **On the left:**
  - Esophagus.
  - Right vagus nerve.



## 6. Tributaries of the azygos vein:

- The azygos vein receives several tributaries, including:
  - Esophageal veins.
  - Right bronchial veins.
  - Superior phrenic veins.
  - Intercostal veins.
  - Right superior intercostal vein.
  - Hemiazygos vein.





### III. HEMIAZYGOS VEIN

#### 1. Origin

- Arises in the abdomen, as a continuation of the left ascending lumbar vein.

#### 2. Trajectory

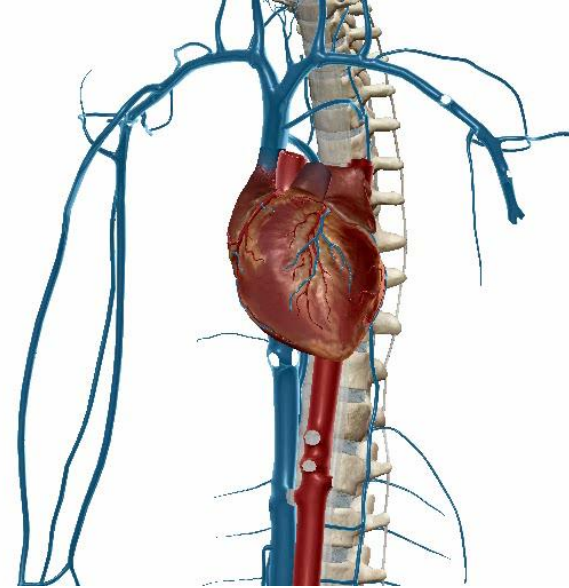
- Enters the thorax through the left diaphragmatic crus.
- Ascends along the left side of the thoracic vertebrae.

#### 3. Termination

- Curves to the right at the level of T7, passing behind the aorta and thoracic duct, to join the azygos vein.

#### 4. Tributaries

- Receives tributaries, including:
  - The four lowest left posterior intercostal veins.
  - Esophageal and mediastinal veins.





## IV. ACCESSORY HEMIAZYGOS VEIN:

### 1. Origin:

The accessory hemiazygos vein arises from the left ascending lumbar vein and the left posterior intercostal veins.

### 2. Course:

It descends along the left side of the upper thoracic vertebrae. Then it curves to the right at the level of T7.

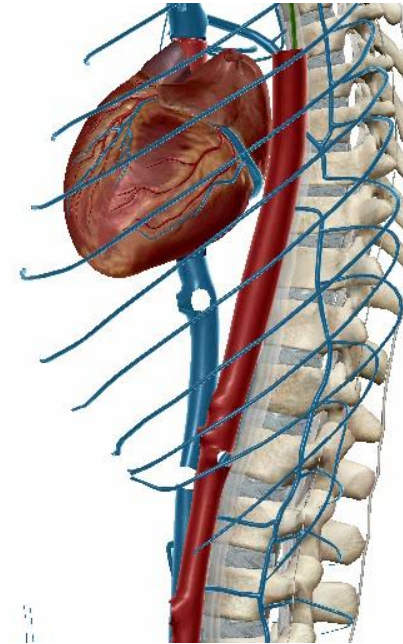
### 3. Termination:

Finally it passes behind the aorta and the thoracic duct to drain into the azygos vein.

### 4. Tributaries:

It receives several tributaries, including:

- The first six or seven left posterior intercostal veins.
- The left bronchial veins.



## V.CONCLUSION :

- The azygos system is a vital network of veins that ensures venous drainage from the posterior thoracic wall and serves as a key collateral pathway between the superior and inferior venae cavae.
- Its main components—the azygos, hemiazygos, and accessory hemiazygos veins—follow a distinctive anatomical course and have important clinical implications, particularly in cases of vena cava obstruction or thoracic pathology.

