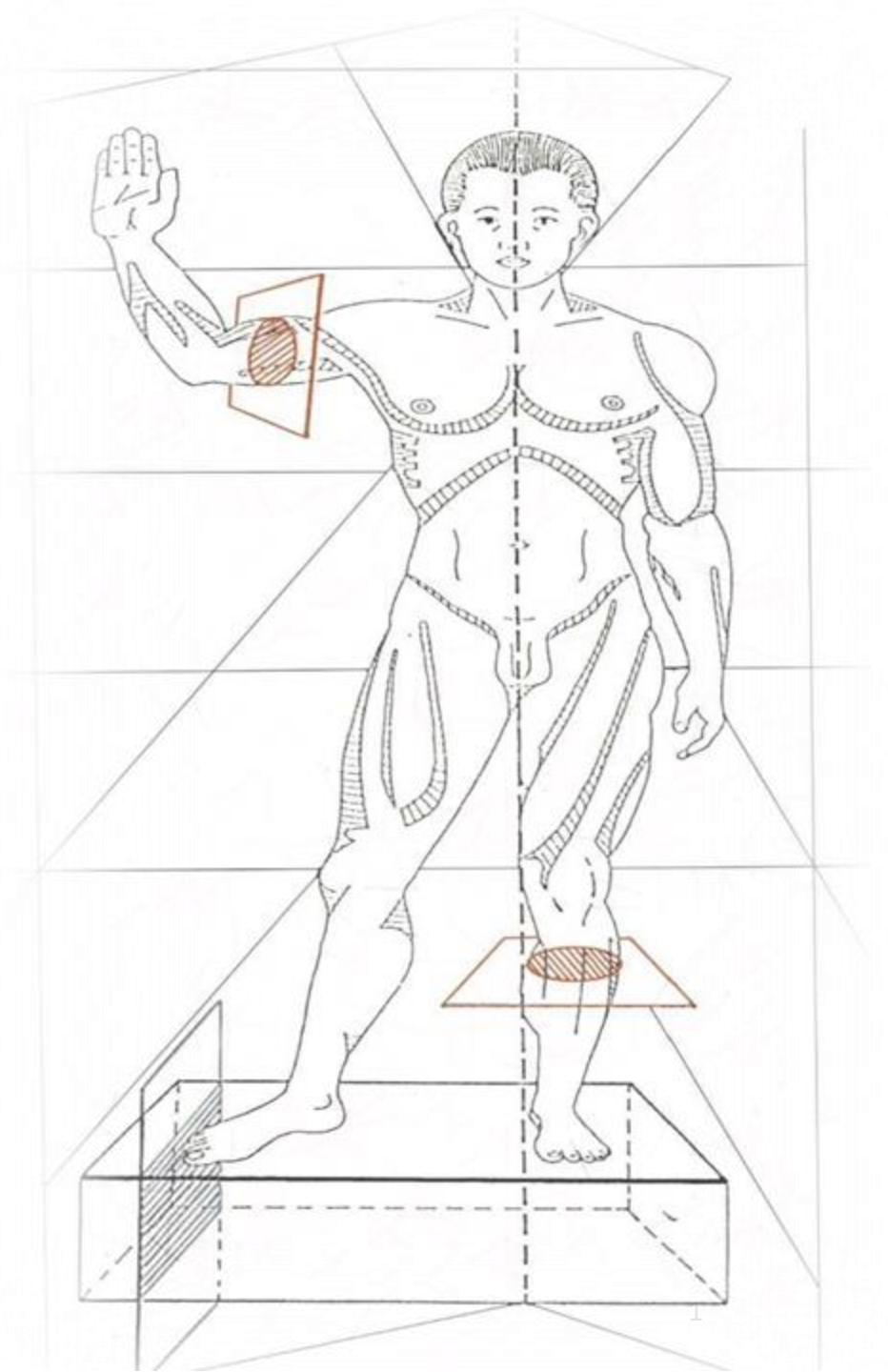
THE PERICARDIUM



Pr. M.D.EL AMRANI

Dr. Chaima KASSI

PLAN

I. GENERAL OVERVIEW

II. THE SEROUS PERICARDIUM

III. THE FIBROUS PERICARDIUM

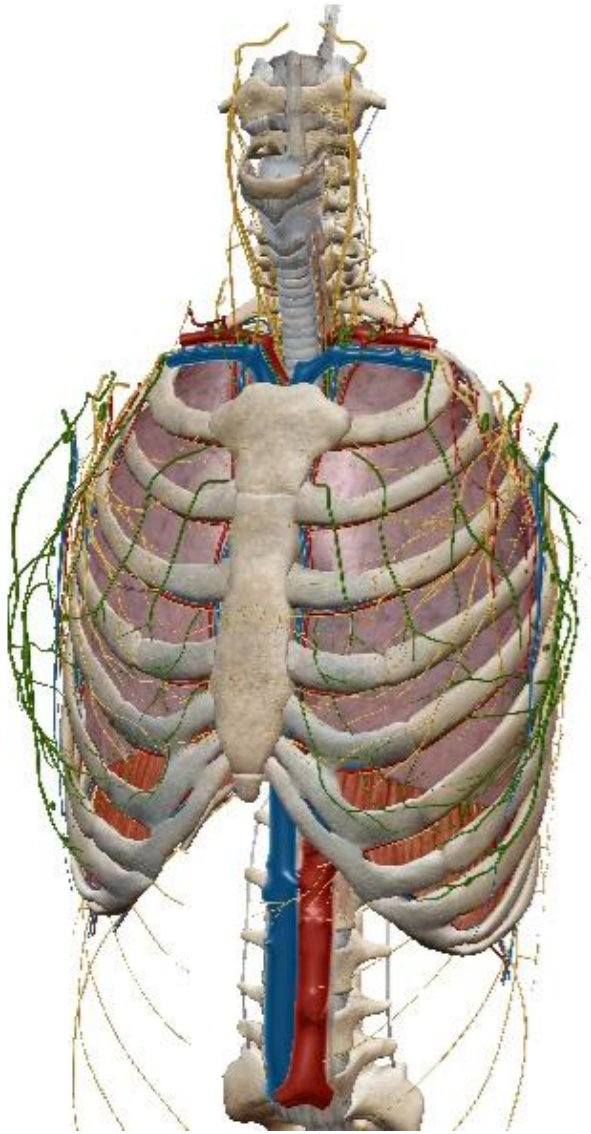
IV. MEANS OF FIXATION OF THE PERICARDIUM

V. VASCULARIZATON, INNERVATION AND LYMPHATIC DRAINAGE OF THE PERICARDIUM

VI. CONCLUSION

Right lung

Heart and great vessels



Left lung

Skeleton of the thorax

Pericardium

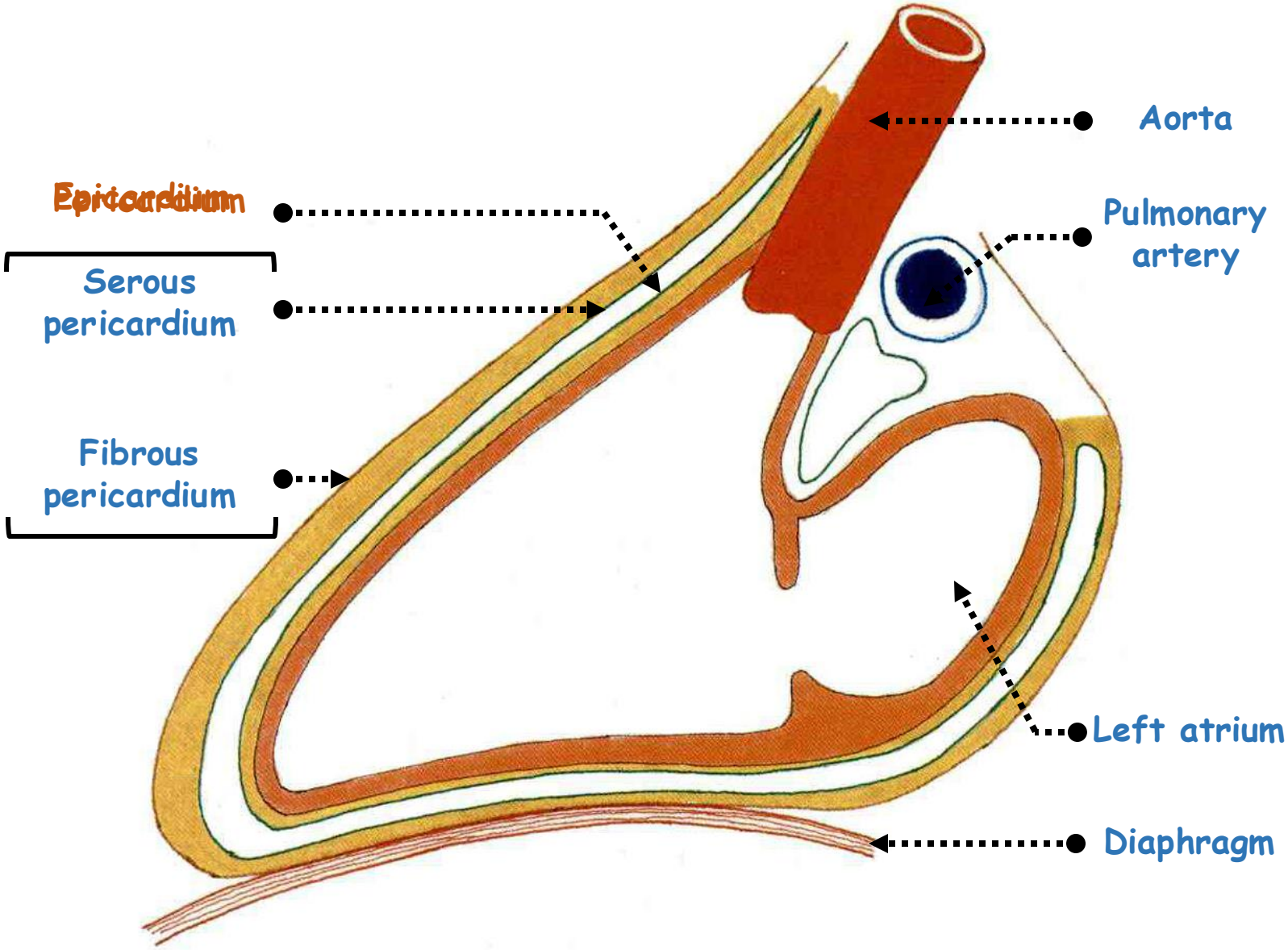
I-GENERAL OVERVIEW

- The pericardium is a fibrous-serous sac that encloses the heart and part of major blood vessels.

- It consists of two layers nested within each other :

- An inner layer, thin and of a serous in nature, is the epicardium.

- An outer layer, thick and of a sero-fibrous in nature consists of a deep serous layer and a superficial fibrous layer, is the pericardium.



Longitudinal section of the heart showing the arrangement of the pericardium.

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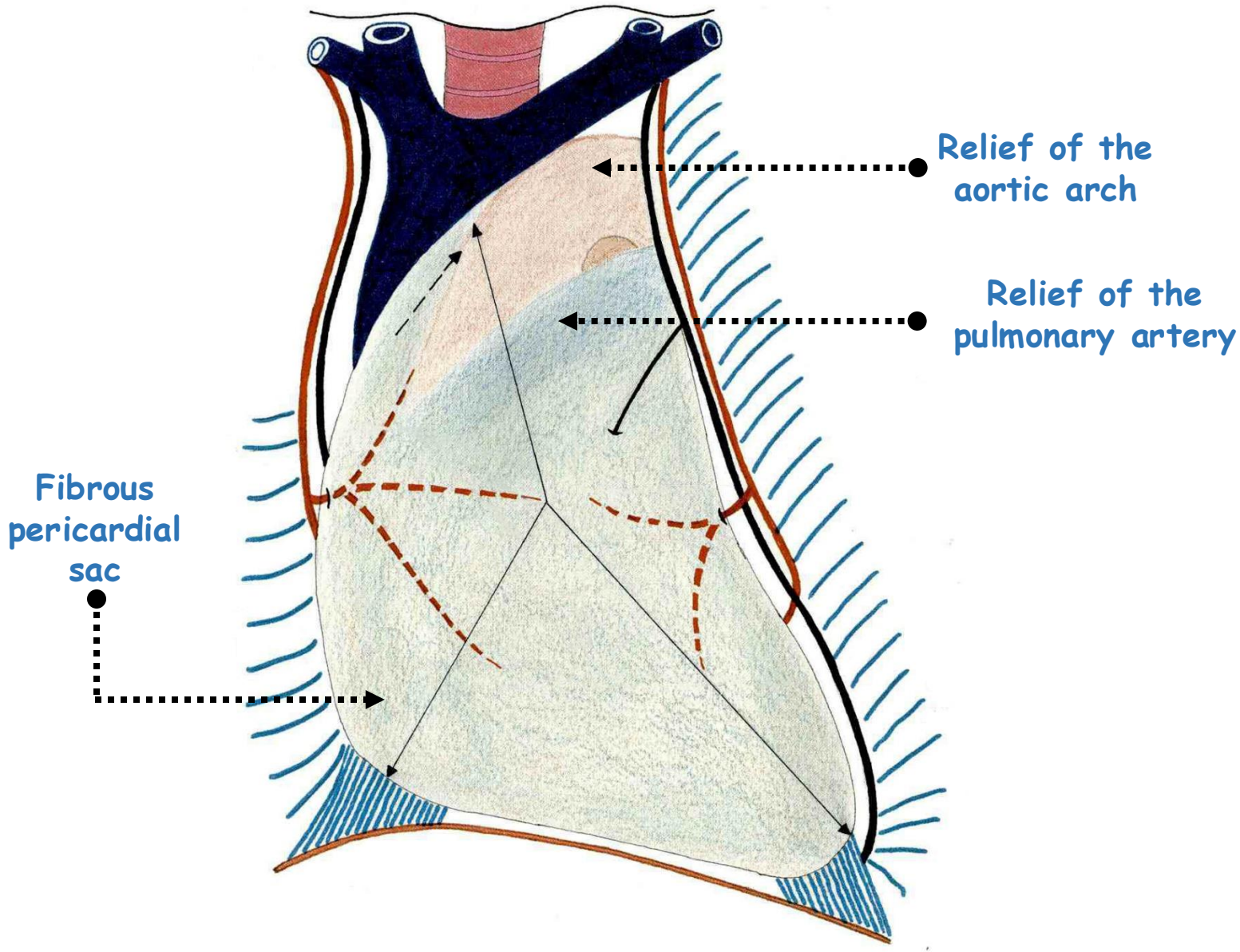
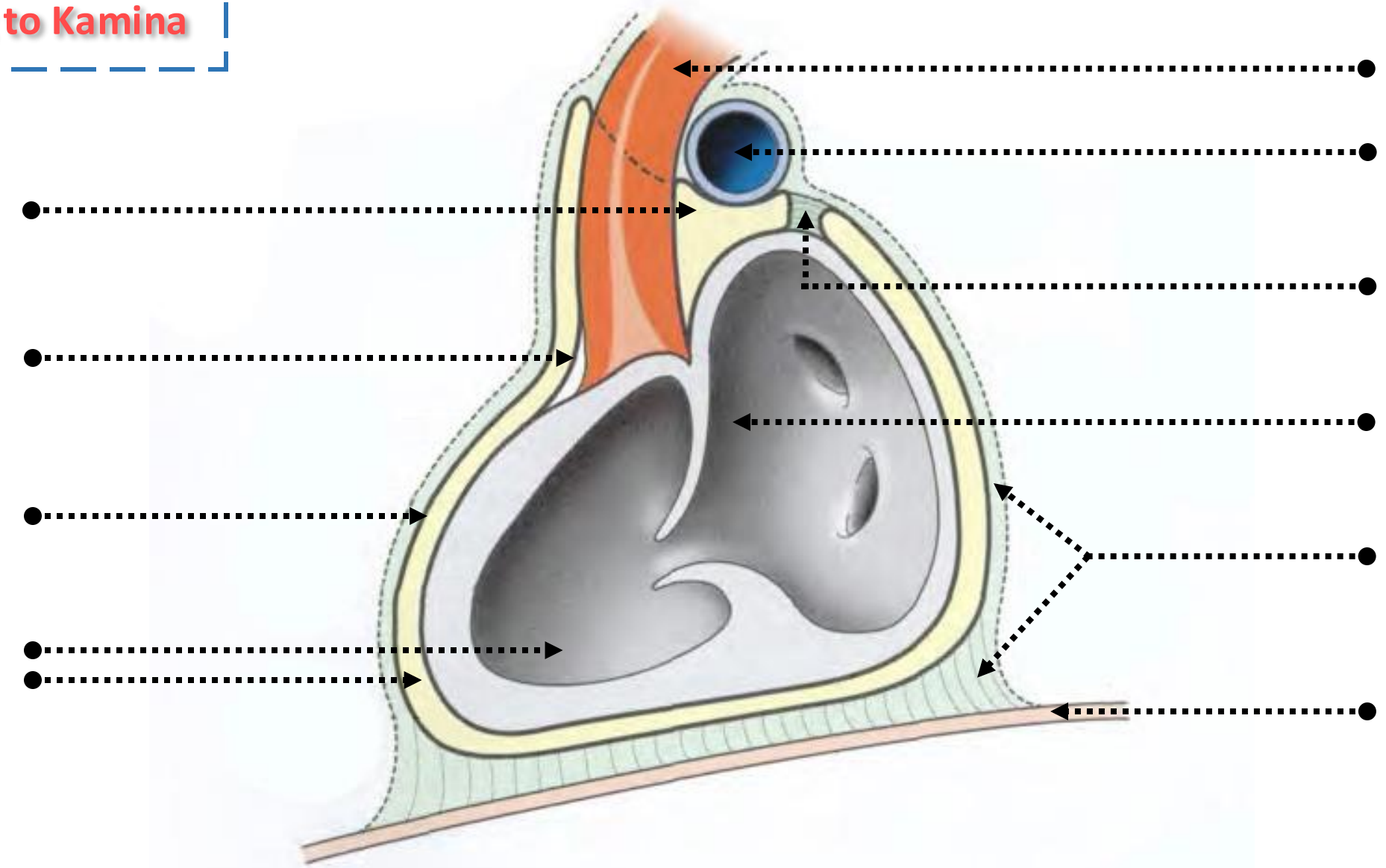


Anterior view of the fibrous pericardial sac

According to Kamina



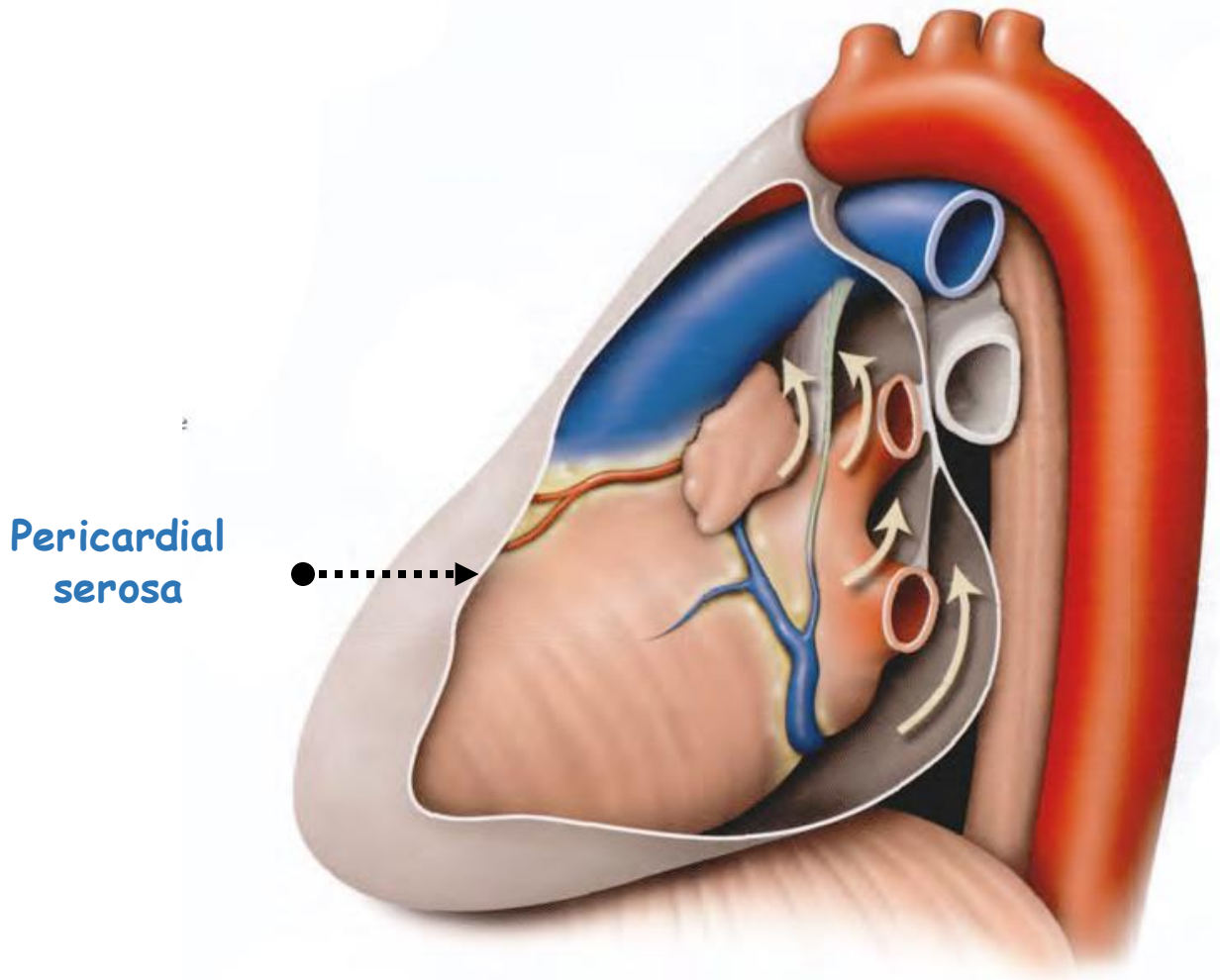
General arrangement of the pericardium (schematic section).

II-THE PERICARDIAL SEROSA

A. THE VISCERAL LAYER

B. THE PARIETAL LAYER

According to Kamina

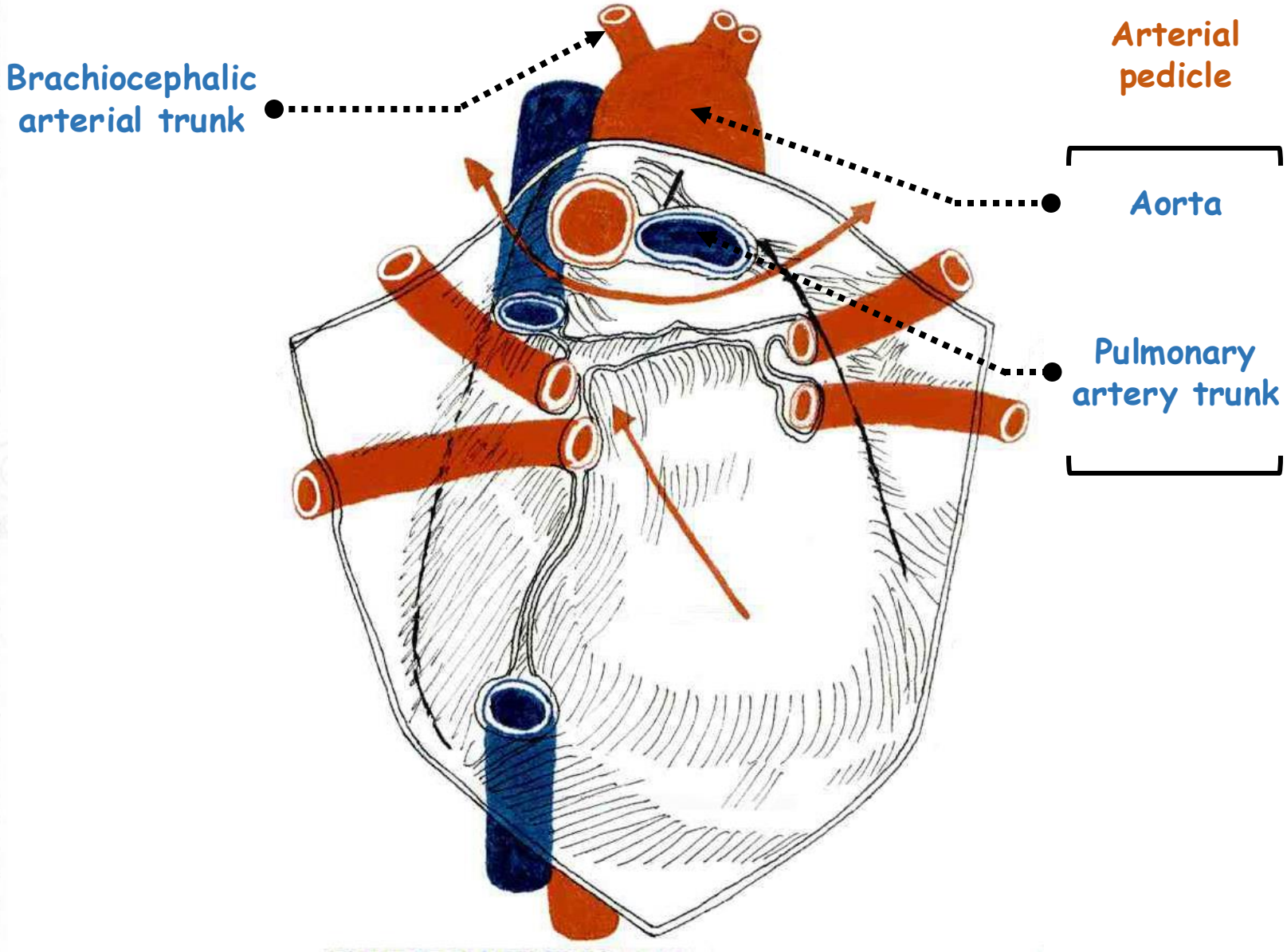


Arrangement of the serous pericardium, with the parietal layer partially resected (posterior-left view).

A-VISCERAL LAYER

It forms two sheaths around the vessels at the base of the heart :

- One surrounds the arterial pedicle and extends over its anterior surface to the origin of the brachiocephalic artery.



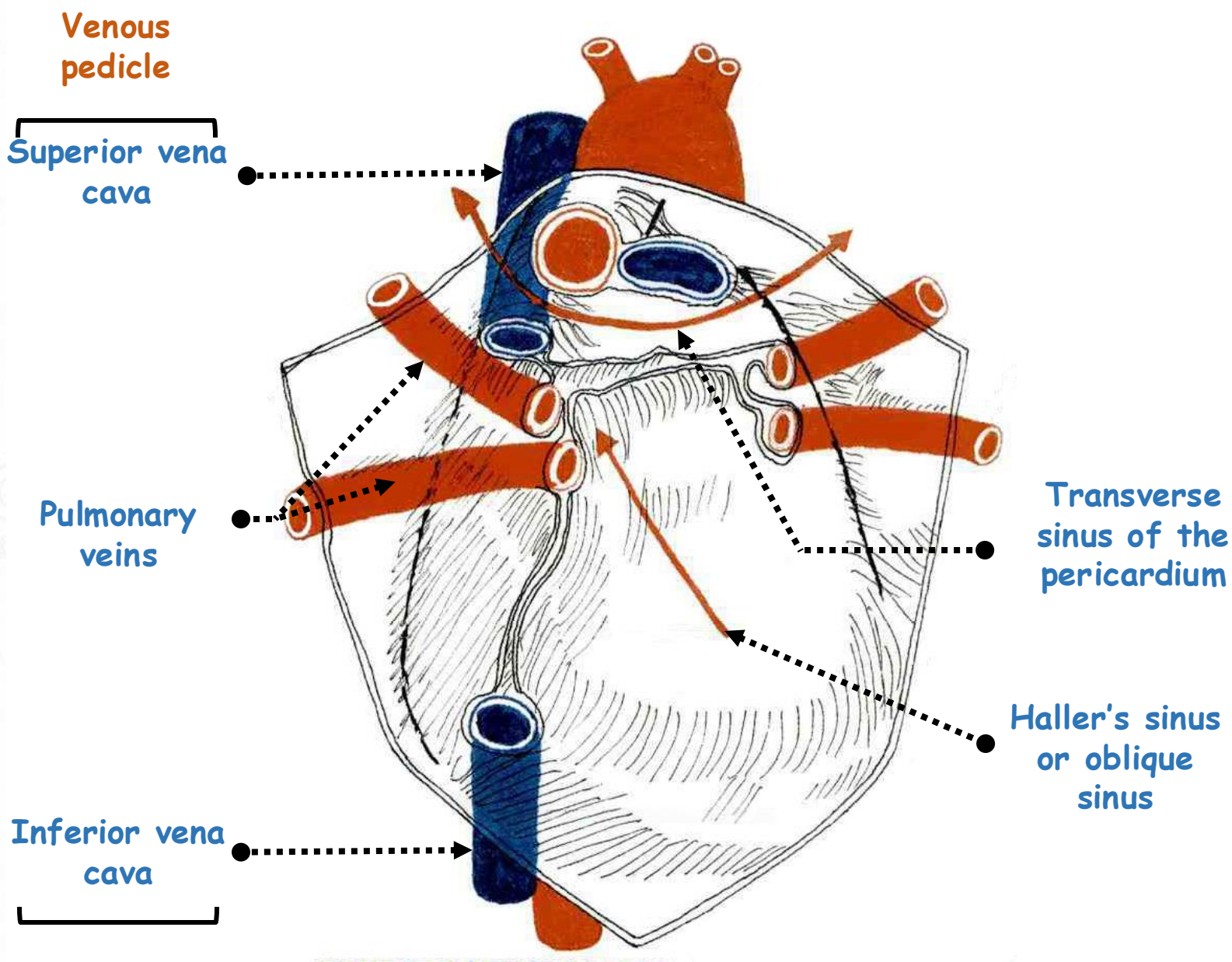
Anterior view of the pericardium, with the arteries and heart removed, showing the lines of reflection of the pericardium around the vessels.

A-VISCERAL LAYER

It forms two sheaths around the vessels at the base of the heart :

- One surrounds the arterial pedicle and extends over its anterior surface to the origin of the brachiocephalic artery.

- The other sheath, very irregular, surrounds the the venous pedicle, forming between the different vessels that make up this pedicle, cul-de-sacs or sinuses.



Anterior view of the pericardium, with the arteries and heart removed, showing the lines of reflection of the pericardium around the vessels.

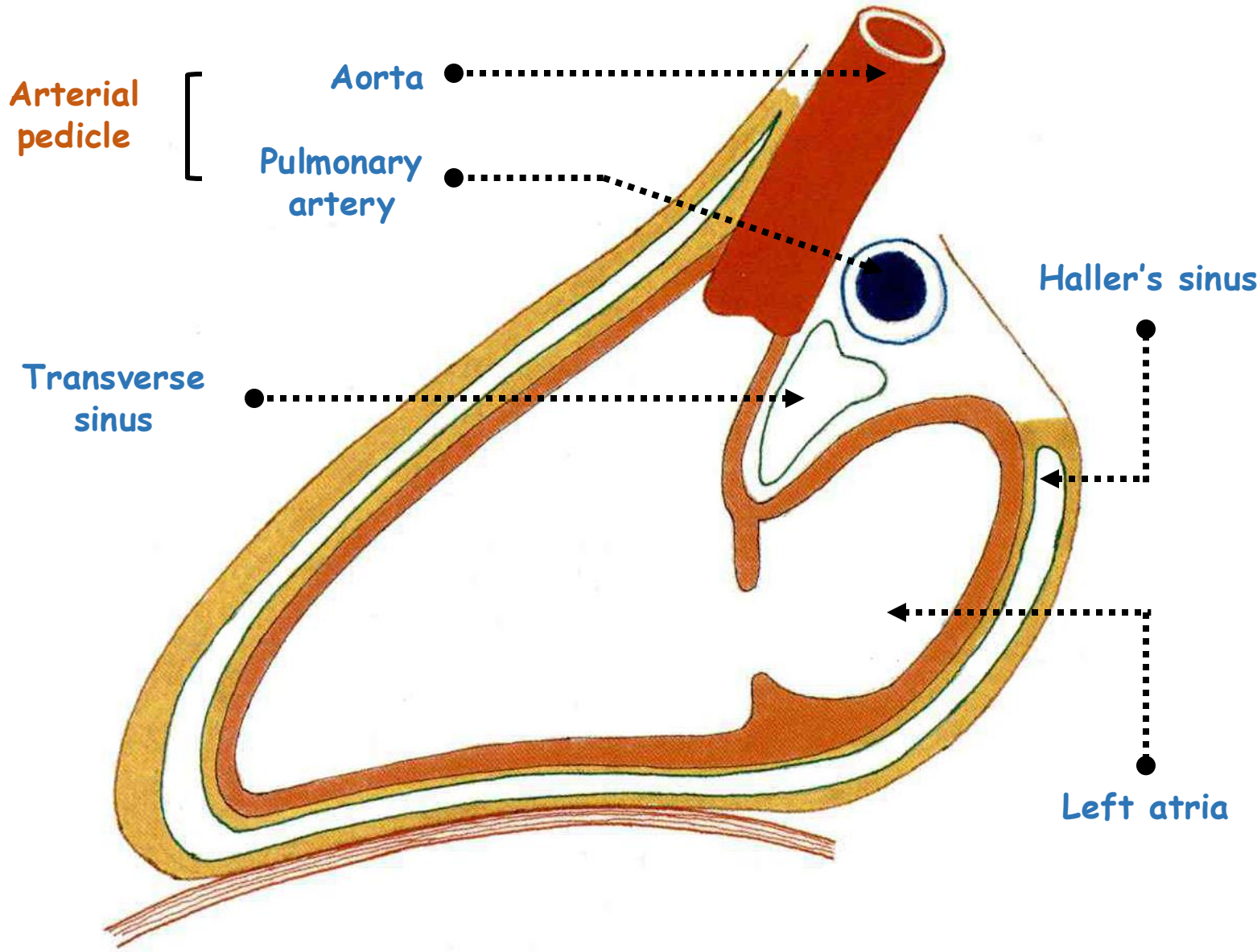
A-VISCERAL LAYER

The transverse sinus is bounded by:

- Anteriorly, the posterior surface of the arterial pedicle.

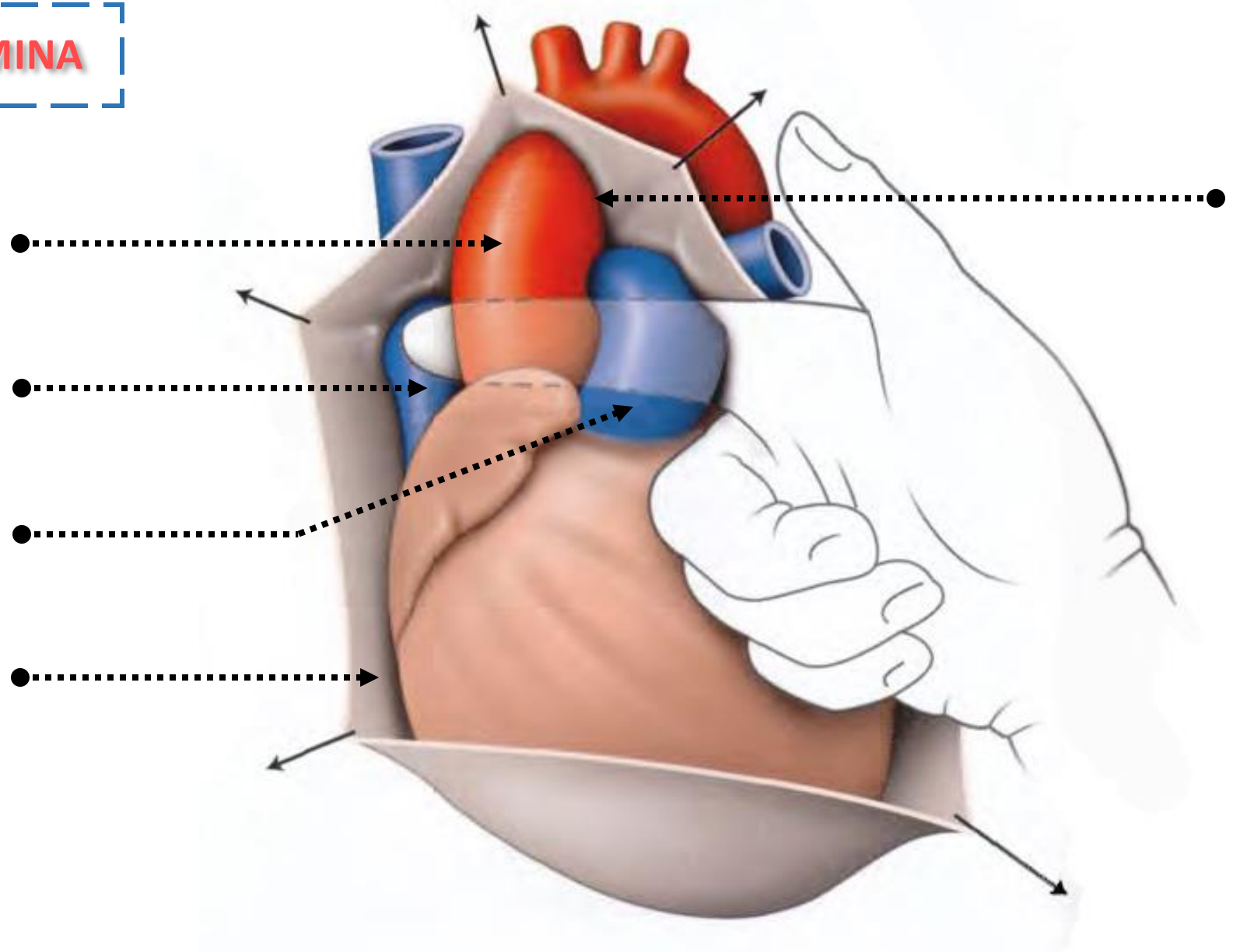
- Posteriorly, the anterior surface of the atria.

- Superiorly, the right branch of the pulmonary artery.



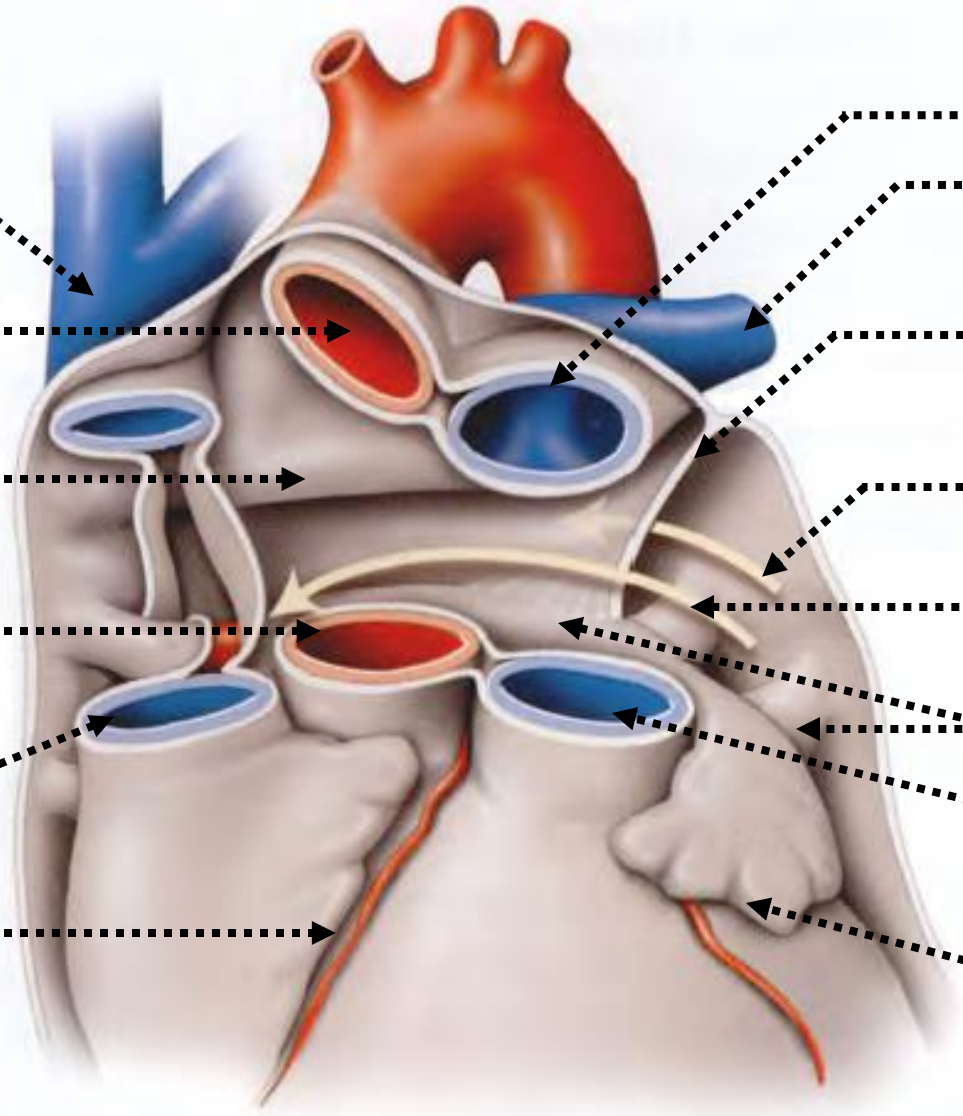
Longitudinal section of the heart showing the arrangement of the pericardium

According to KAMINA



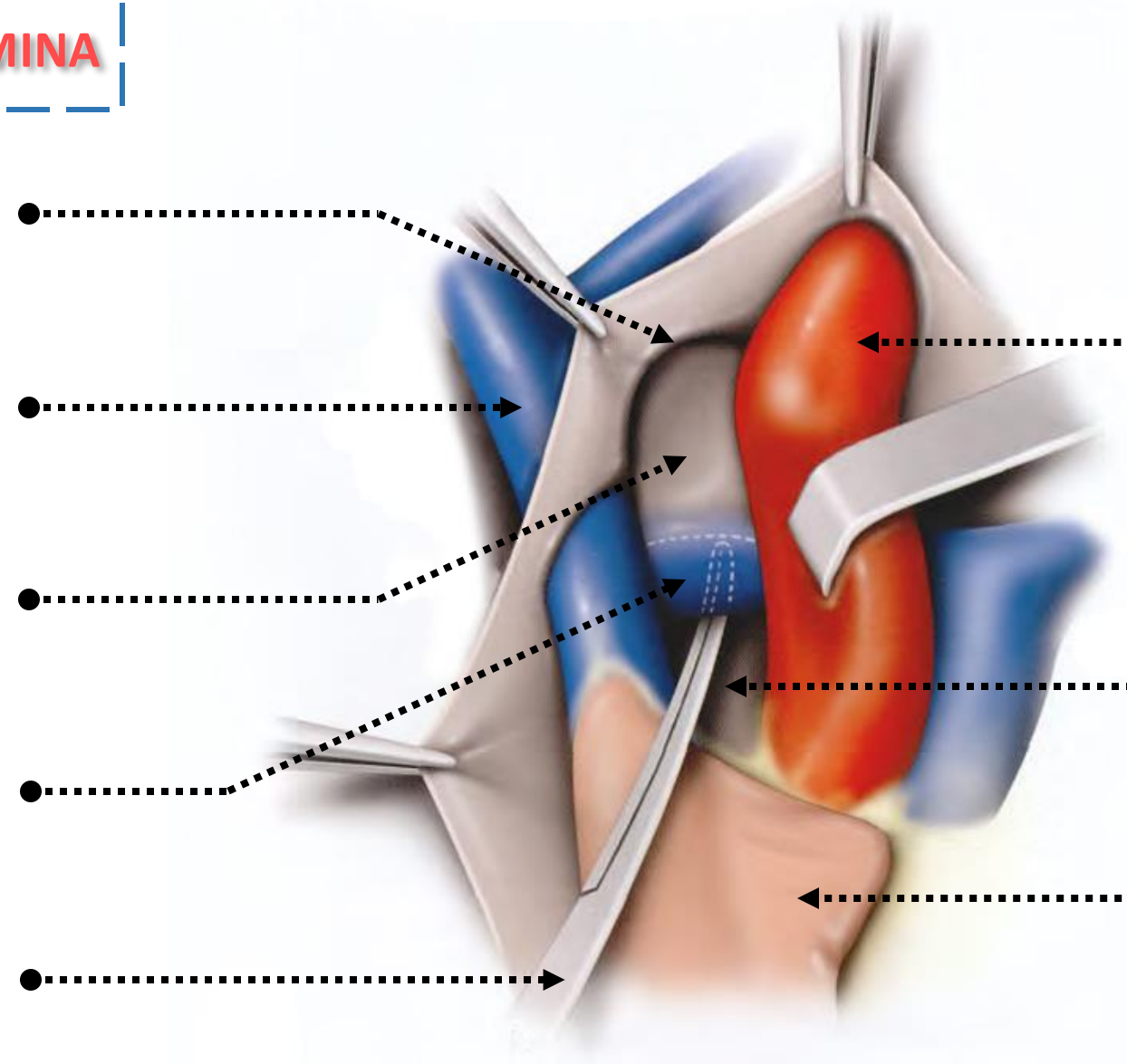
Surgeon's index finger through the transverse pericardial sinus: open pericardial cavity (anterior view).

According to KAMINA



Transverse sinus of the pericardium (anterior view).

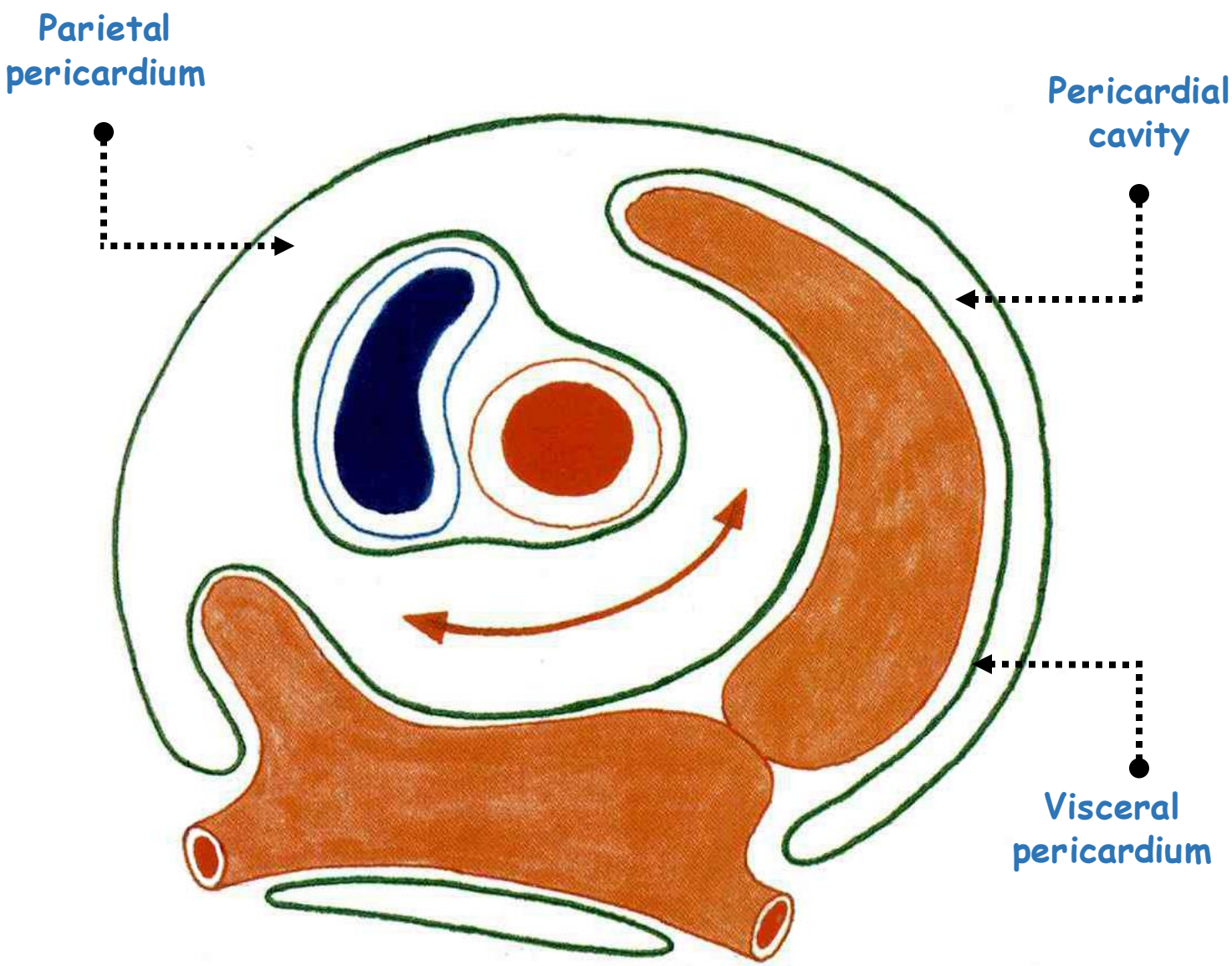
According to KAMINA



Right orifice of the transverse sinus of the heart, open pericardium (anterior view).

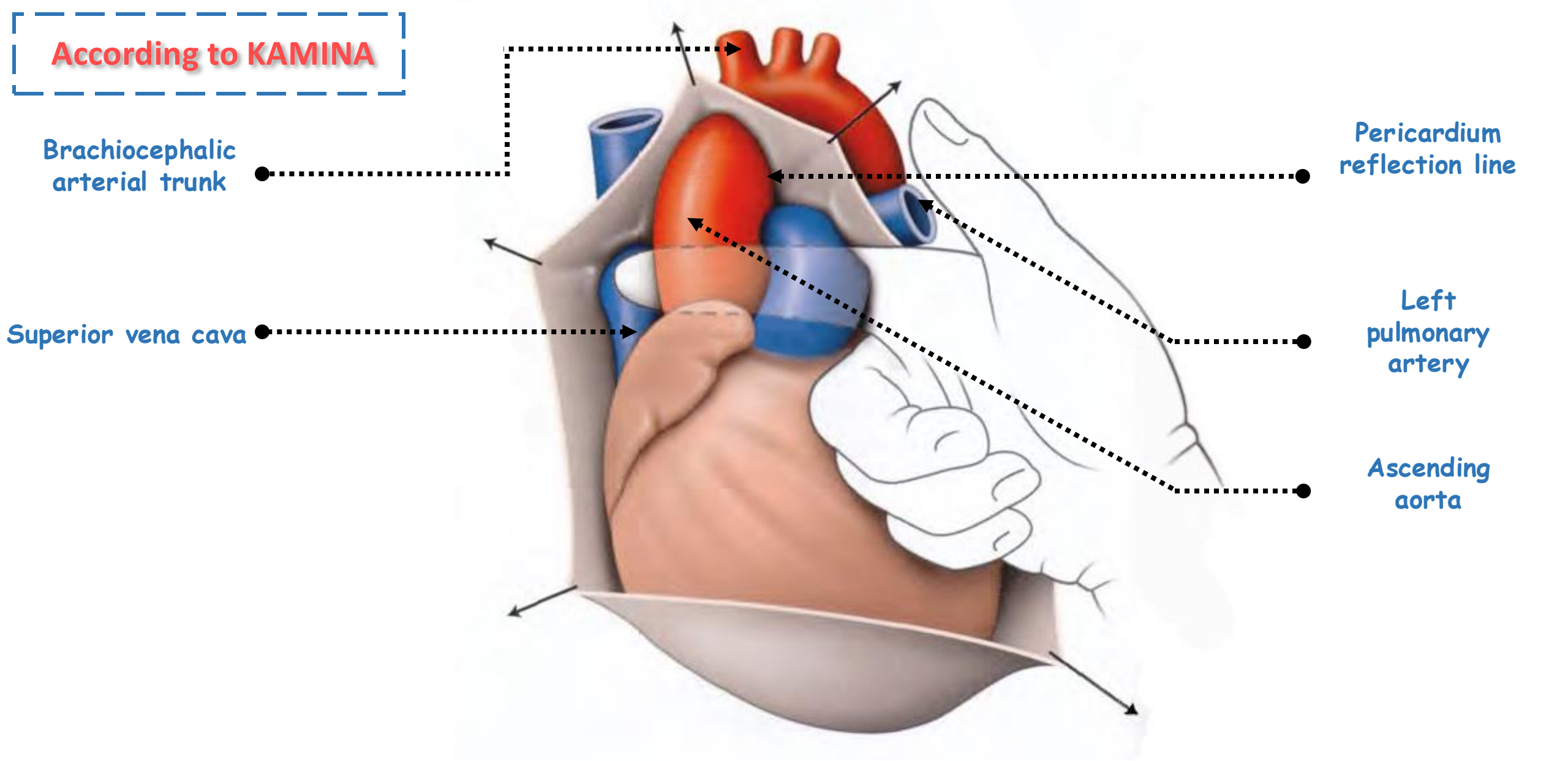
B-PARIETAL LAYER

It lines the deep surface of the fibrous pericardial sac, conforming to its shape.



Transverse section of the heart.

According to KAMINA



Surgeon's index finger through the transverse pericardial sinus: open pericardial cavity (anterior view).

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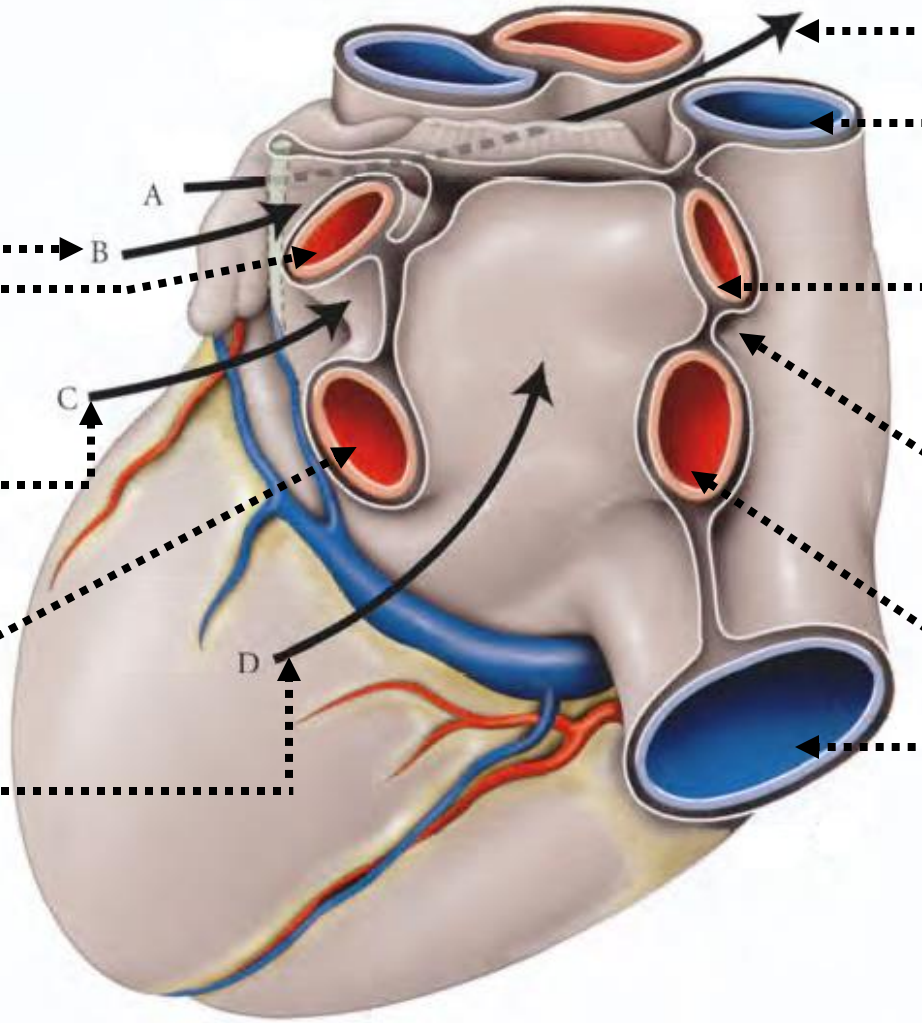


Transverse sinus

Superior vena cava

Pulmonary recess
Left superior pulmonary vein

Right superior pulmonary artery

Left interpulmonary recess

Right interpulmonary recess

Left inferior pulmonary vein

Left inferior pulmonary artery

Oblique sinus

Inferior vena cava

Serous pericardium and pericardial reflection line (posterior-inferior left view).

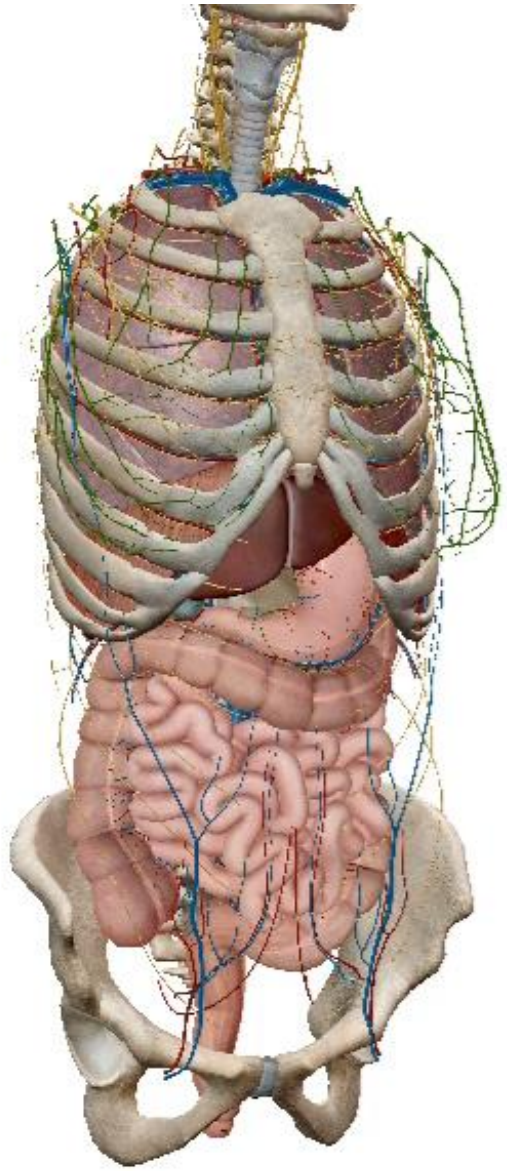
III-THE FIBROUS PERICARDIUM

It is fibrous membrane that encases the parietal layer of the serous pericardium externally.

It is in contact with the following structures:

- Anteriorly :

- The sterno-costal plate.
- The pleurae.
- The lungs.
- The thymus.

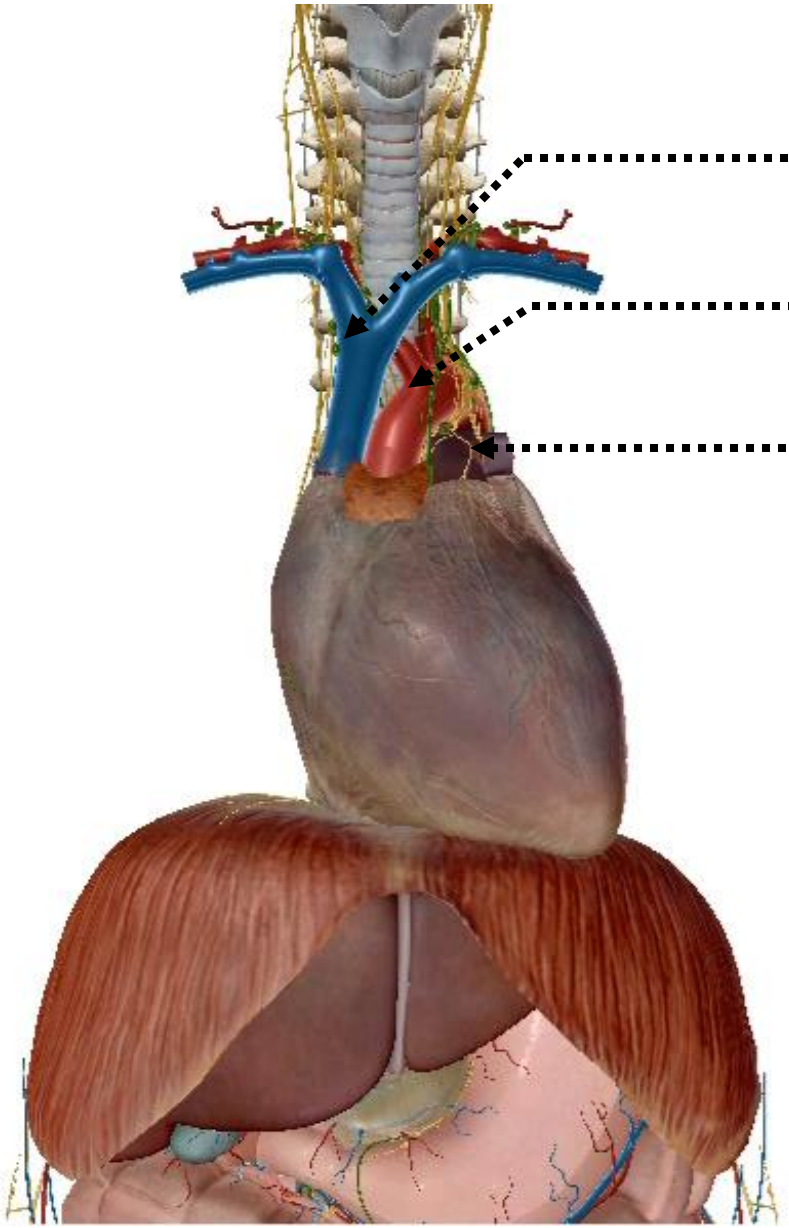


The anterior relations of the pericardium.

- Superiorly :

At the level of the reflection line of the serous pericardium, the fibrous sac separates from the parietal layer of the serous pericardium and extends over the surface of the large vessels, blending with their external tunic:

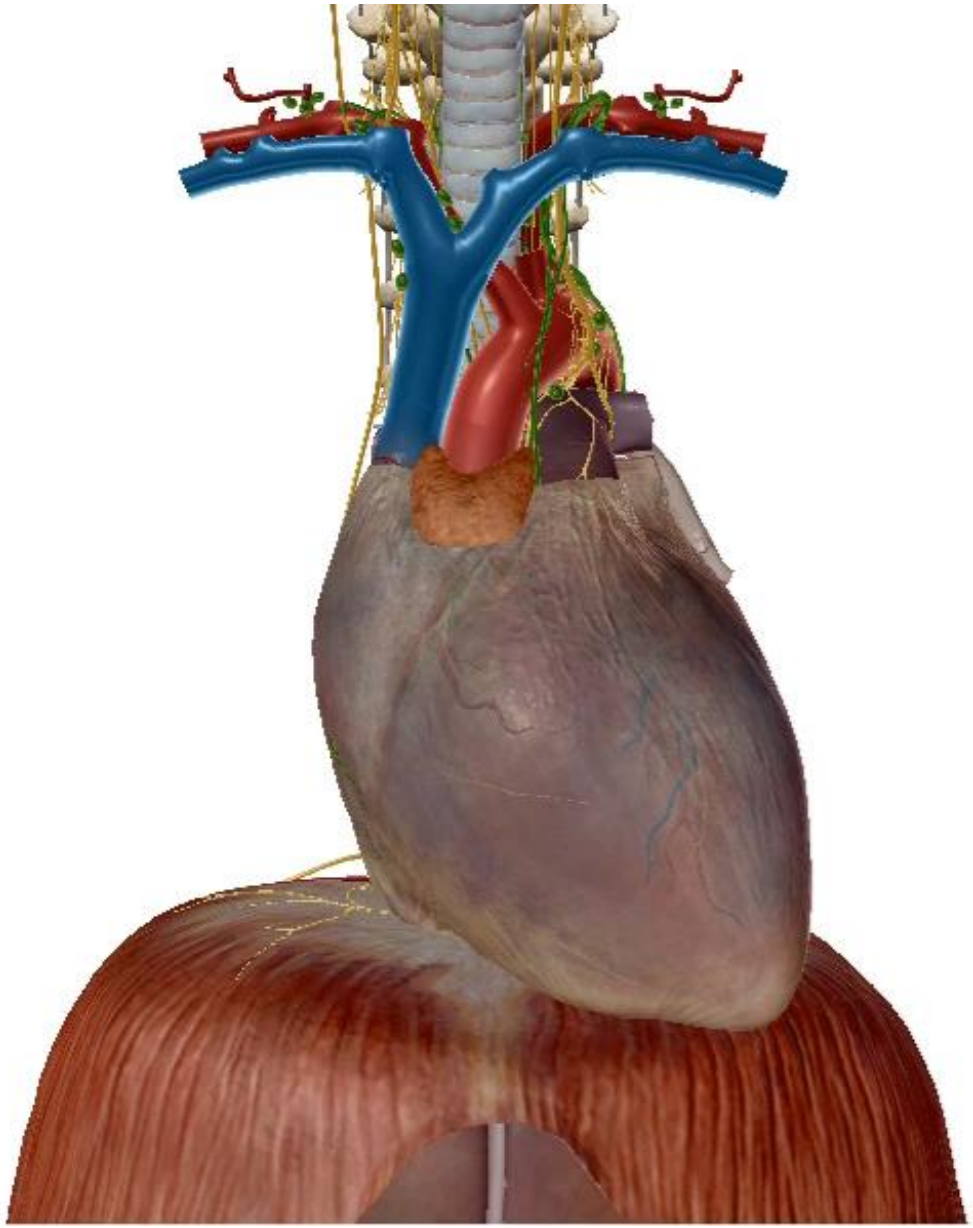
- The ascending aorta and the aortic arch.
- The superior vena cava.
- The pulmonary artery trunk.



The superior relations of the pericardium.

- Inferiorly:

It is in contact with the diaphragm.



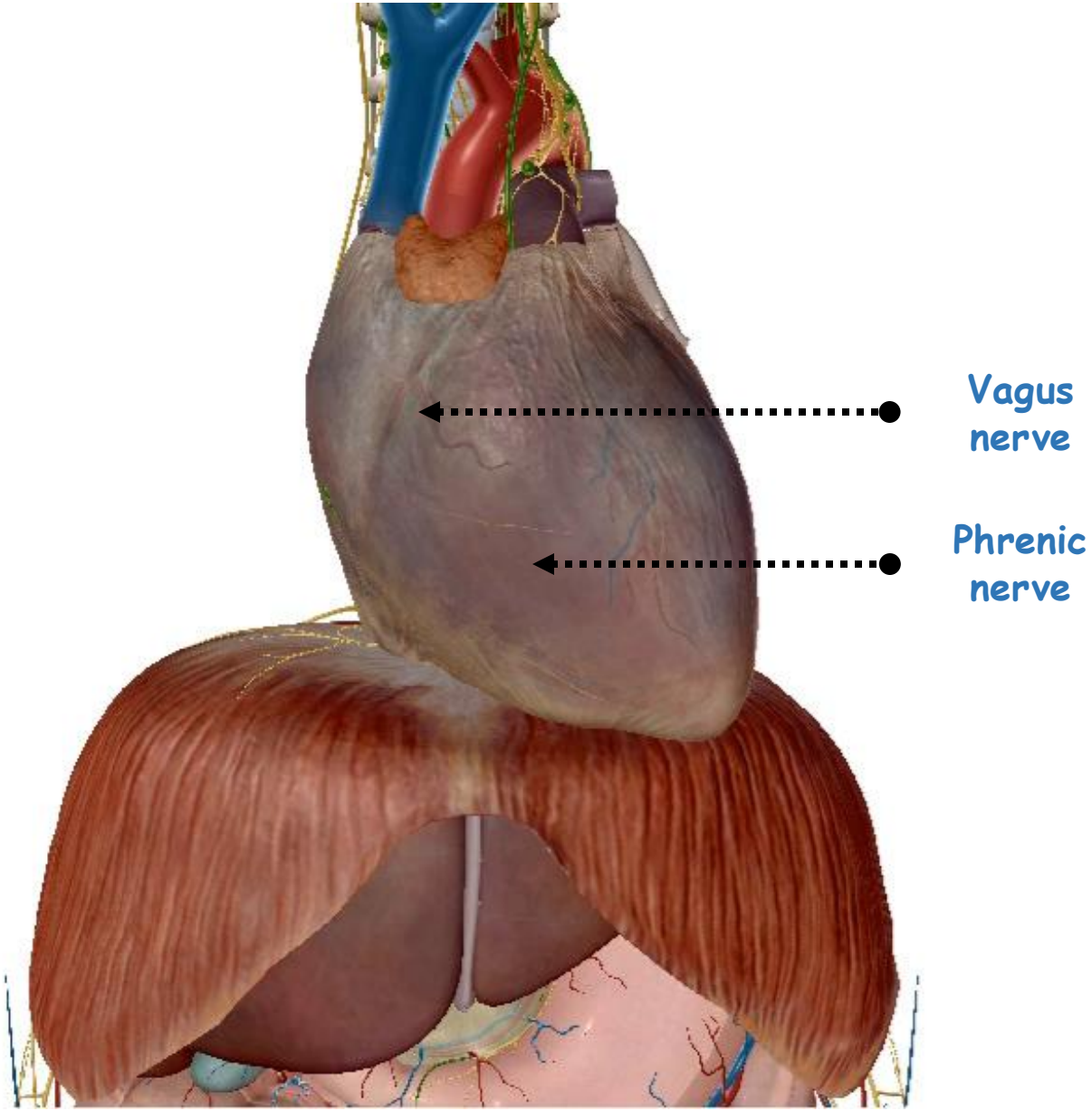
DIAPHRAGM

The inferior relations of the pericardium.

- Laterally :

It is in contact with :

- The vagus nerves.
- The phrenic nerves along with the superior diaphragmatic vessels and the mediastinal pleurae.

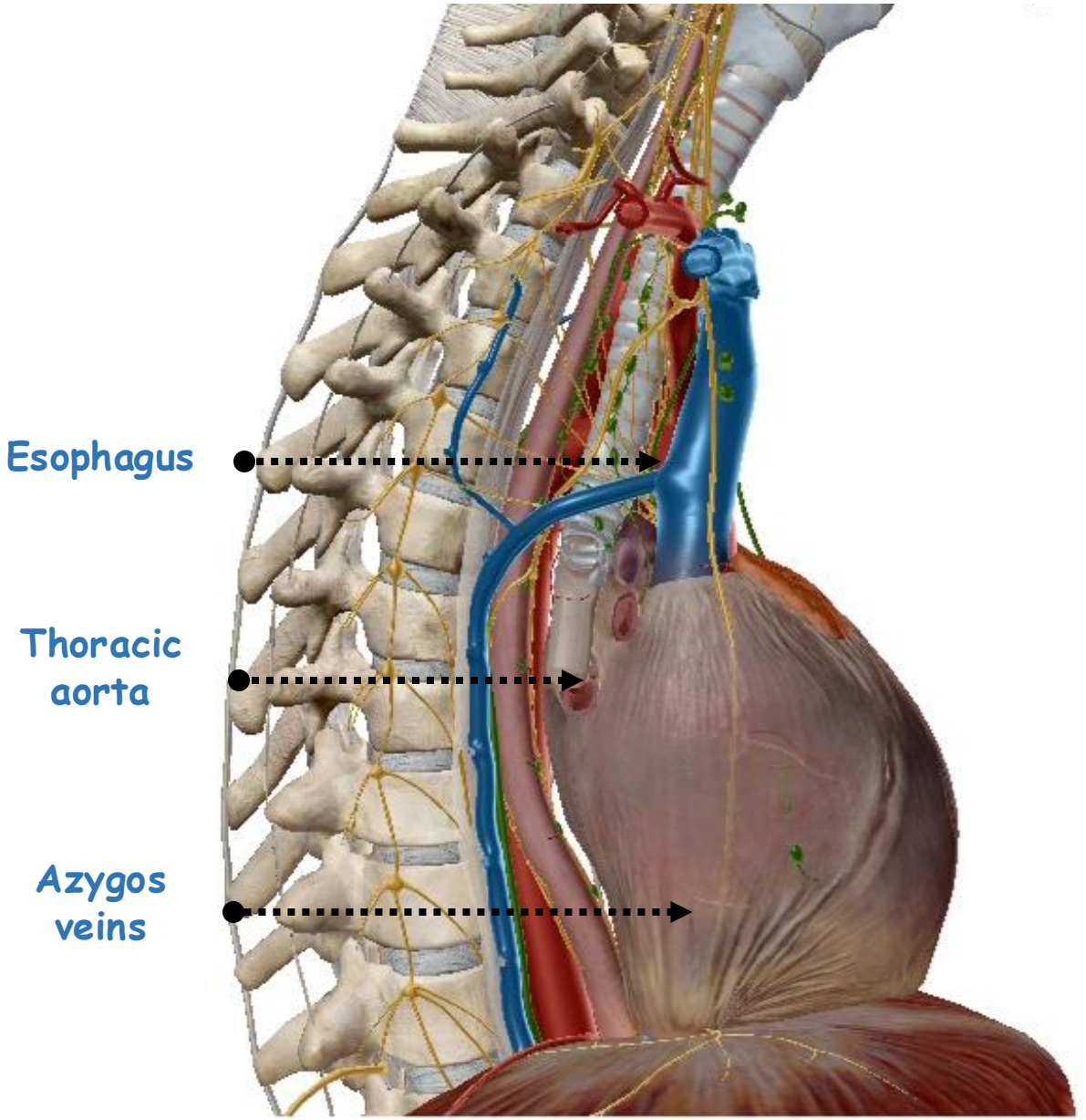


The lateral relations of the pericardium.

- Posteriorly :

It is related to the organs of the posterior mediastinum, namely :

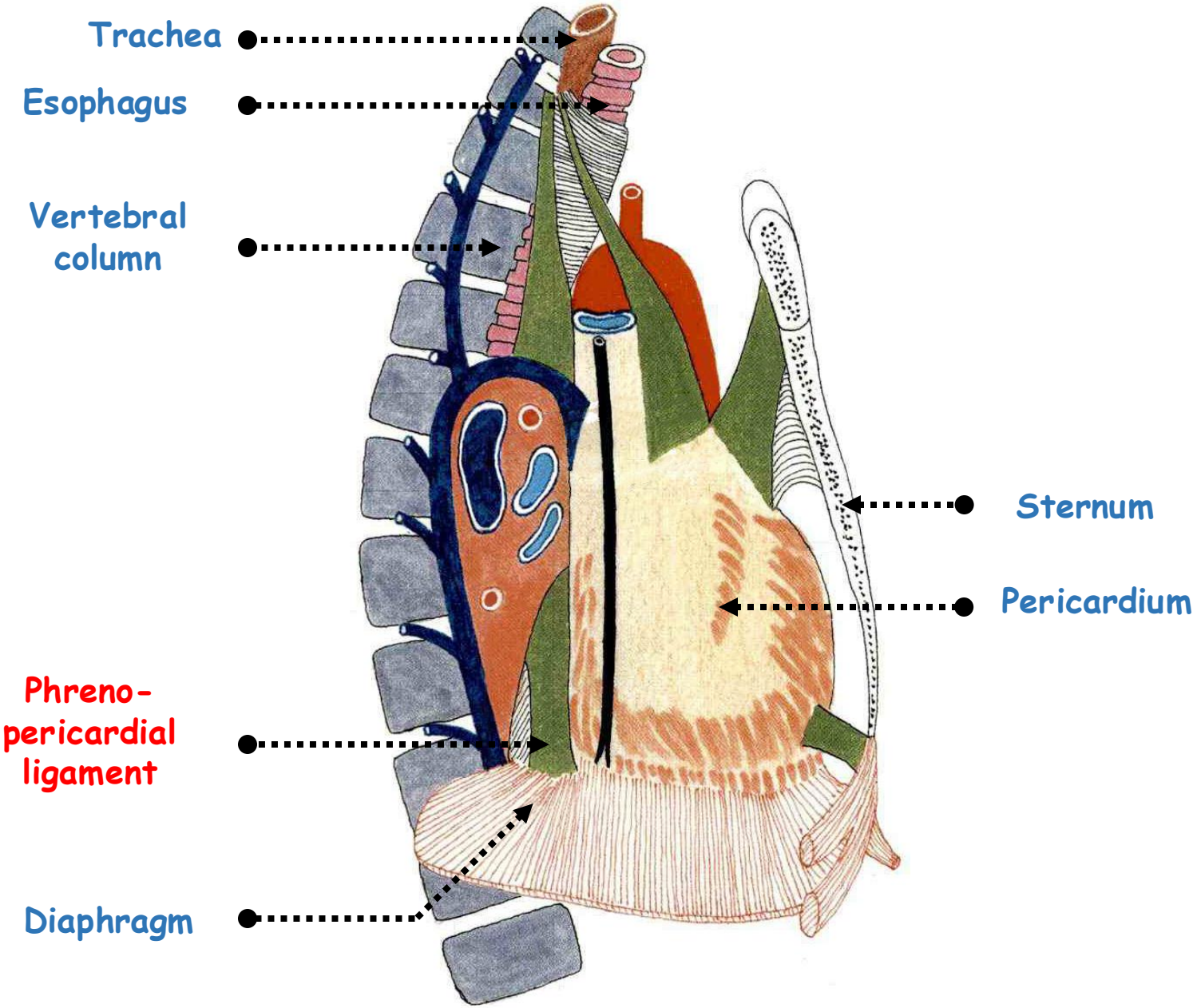
- The esophagus, which lies behind the sinus of Haller.
- The descending thoracic aorta.
- The azygos veins.



Posterior relations of the pericardium

IV-MEANS OF FIXATION OF THE PERICARDIUM

A. PHRENO-PERICARDIAL LIGAMENTS

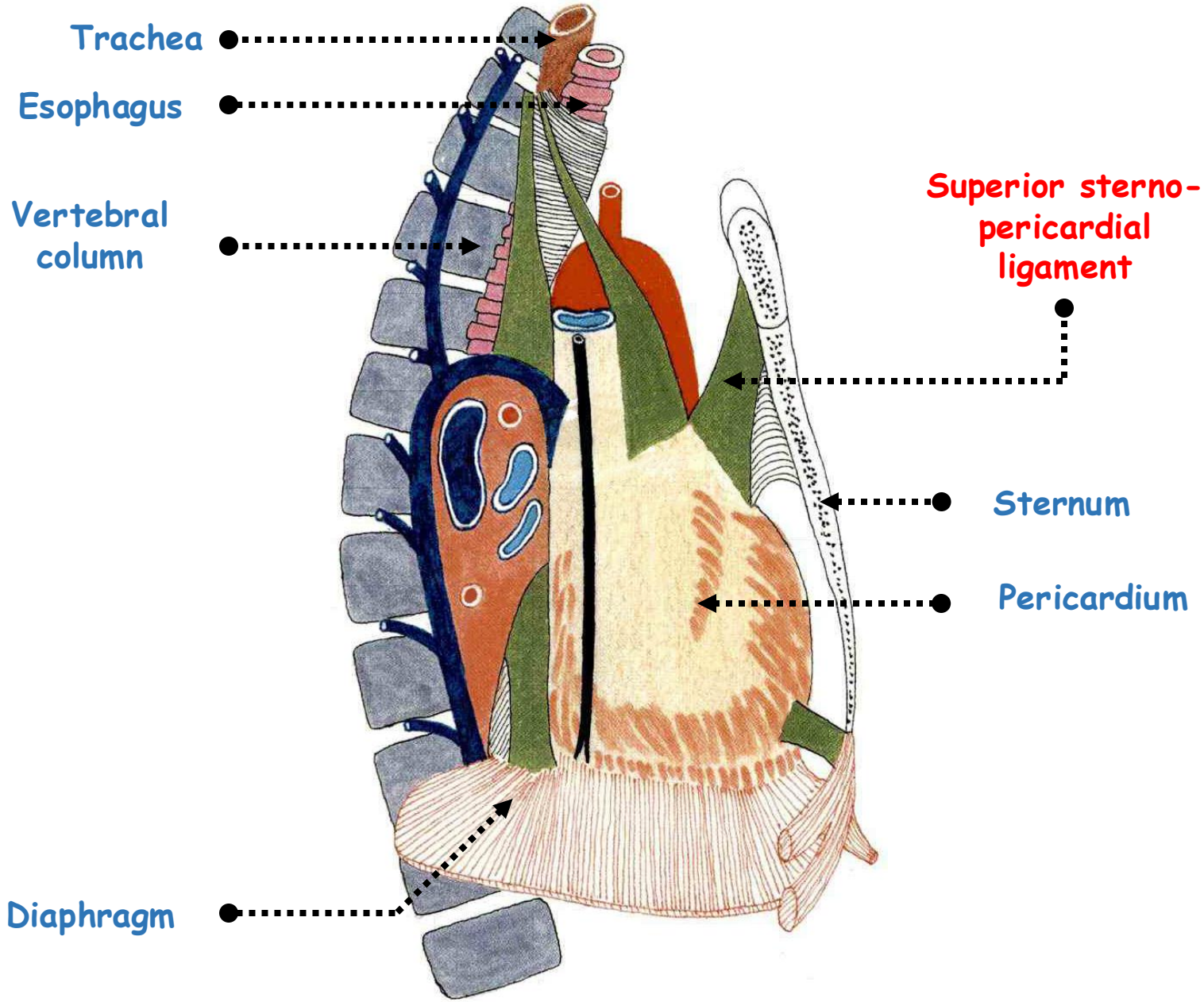


Right lateral view of the fibrous pericardial sac showing the fixation mechanisms of the pericardium.

IV-MEANS OF FIXATION OF THE PERICARDIUM

A. PHRENO-PERICARDIAL LIGAMENTS

B. SUPERIOR STERNO-PERICARDIAL LIGAMENT



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IV-MEANS OF FIXATION OF THE PERICARDIUM

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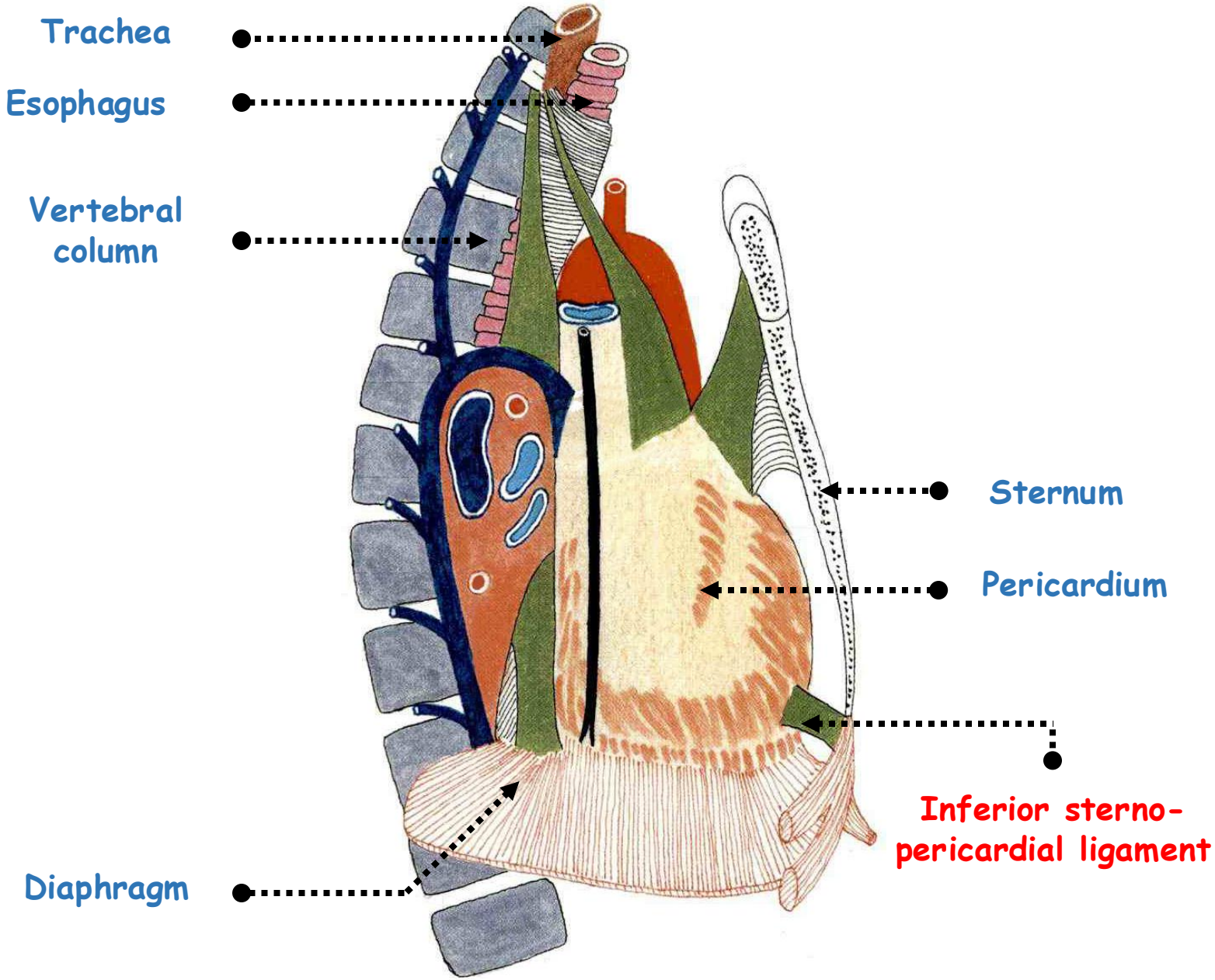
C. INFERIOR STERNO-PERICARDIAL LIGAMENT



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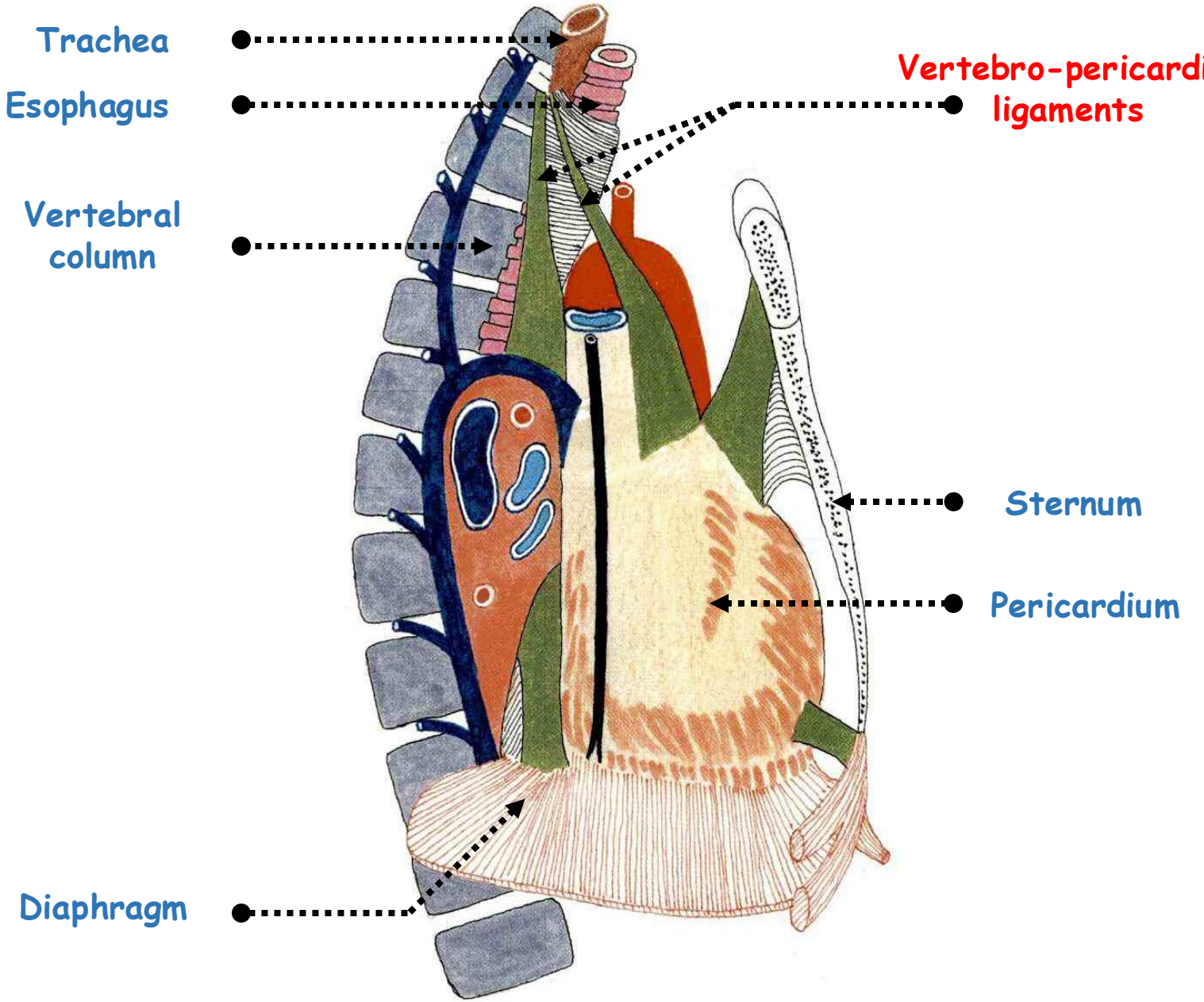
D. VERTEBRO-PERICARDIAL LIGAMENTS



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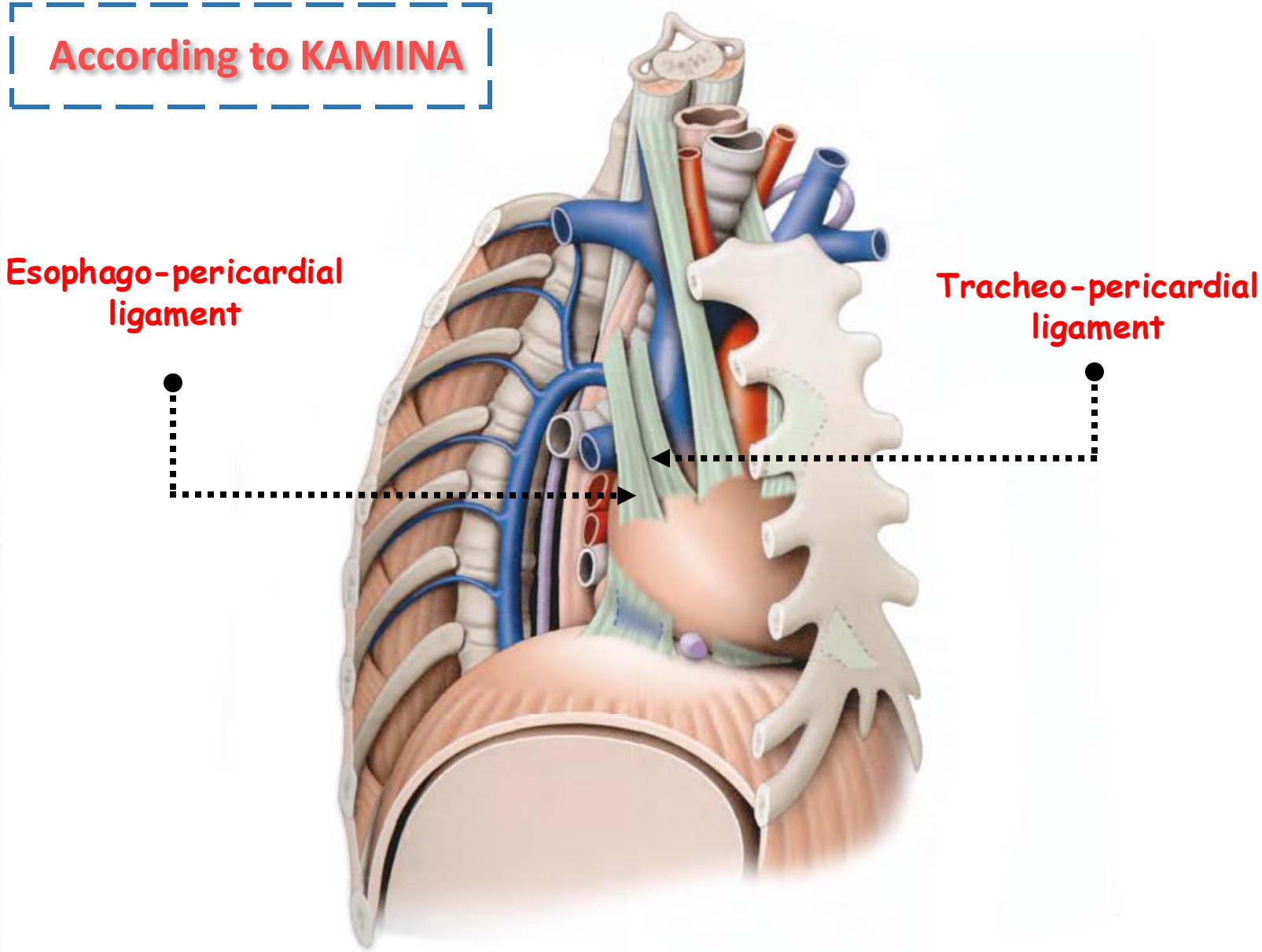
B. SUPERIOR STERNO-PERICARDIAL LIGAMENT

C. INFERIOR STERNO-PERICARDIAL LIGAMENT

D. VERTEBRO-PERICARDIAL LIGAMENTS

E. TRACHEO-ESOPHAGEAL PERICARDIAL LIGAMENTS

According to KAMINA



Fibrous pericardium (anterolateral right view with lung excision).

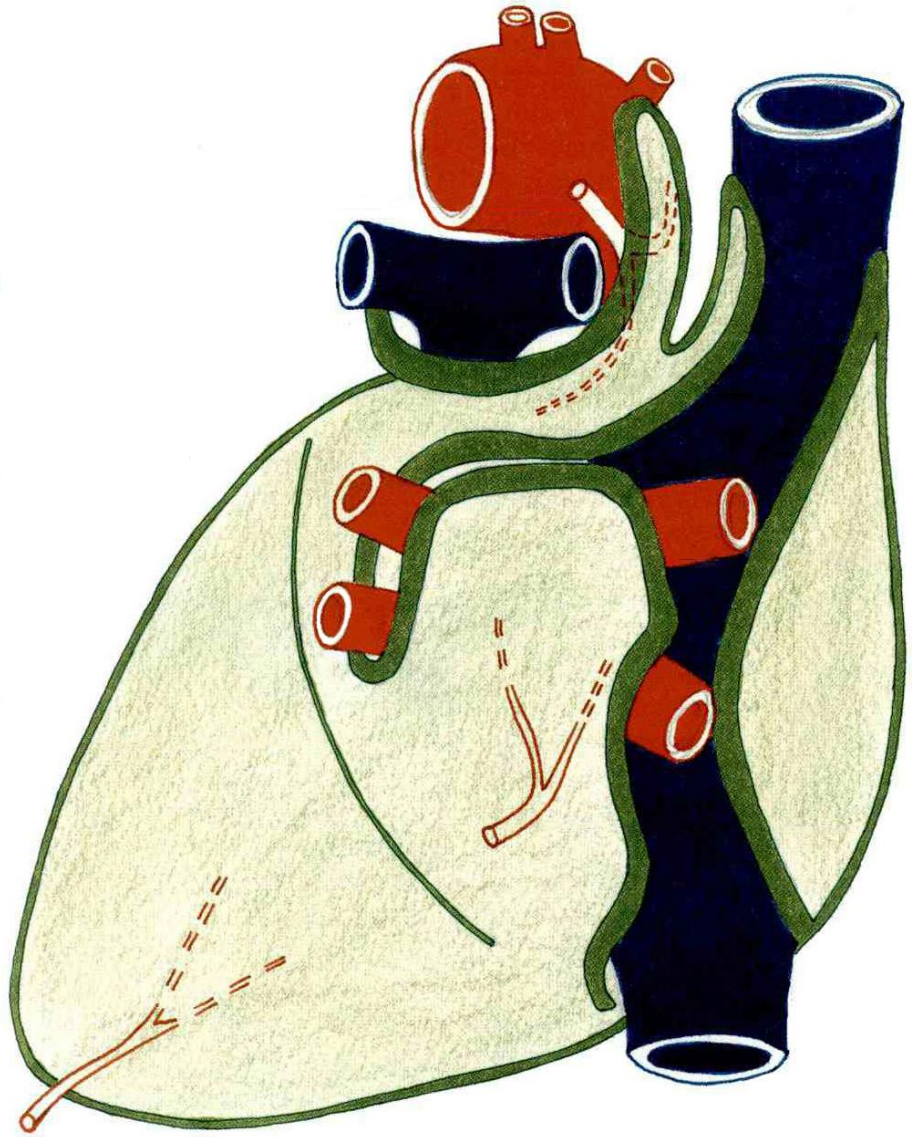
V-VASCULARIZATION, INNERVATION AND LYMPHATIC DRAINAGE OF THE PERICARDIUM

A. ARTERIES

B. VEINS

C. LYMPHATICS

D. NERVES



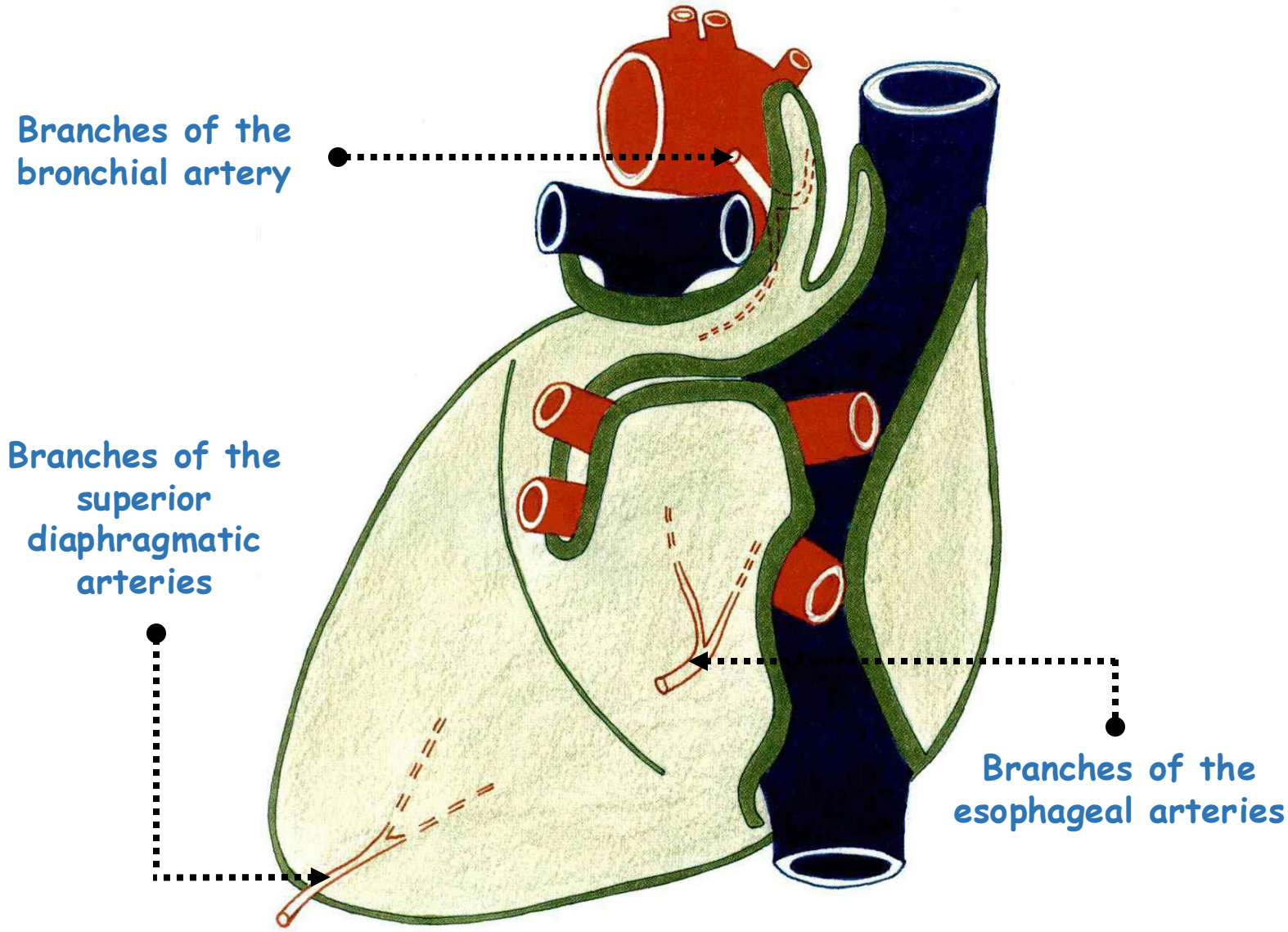
Posterior view of the fibrous pericardial sac showing the arrangement of the pericardial vessels.

A-ARTERIAL VASCULARIZATION:

- The blood supply of parietal pericardial layer comes from the following arteries:

- Superior diaphragmatic arteries.
- Bronchial arteries.
- Esophageal arteries.
- Thymic arteries (in young individuals).

- The blood supply of the visceral pericardial layer is provided by the coronary arteries.

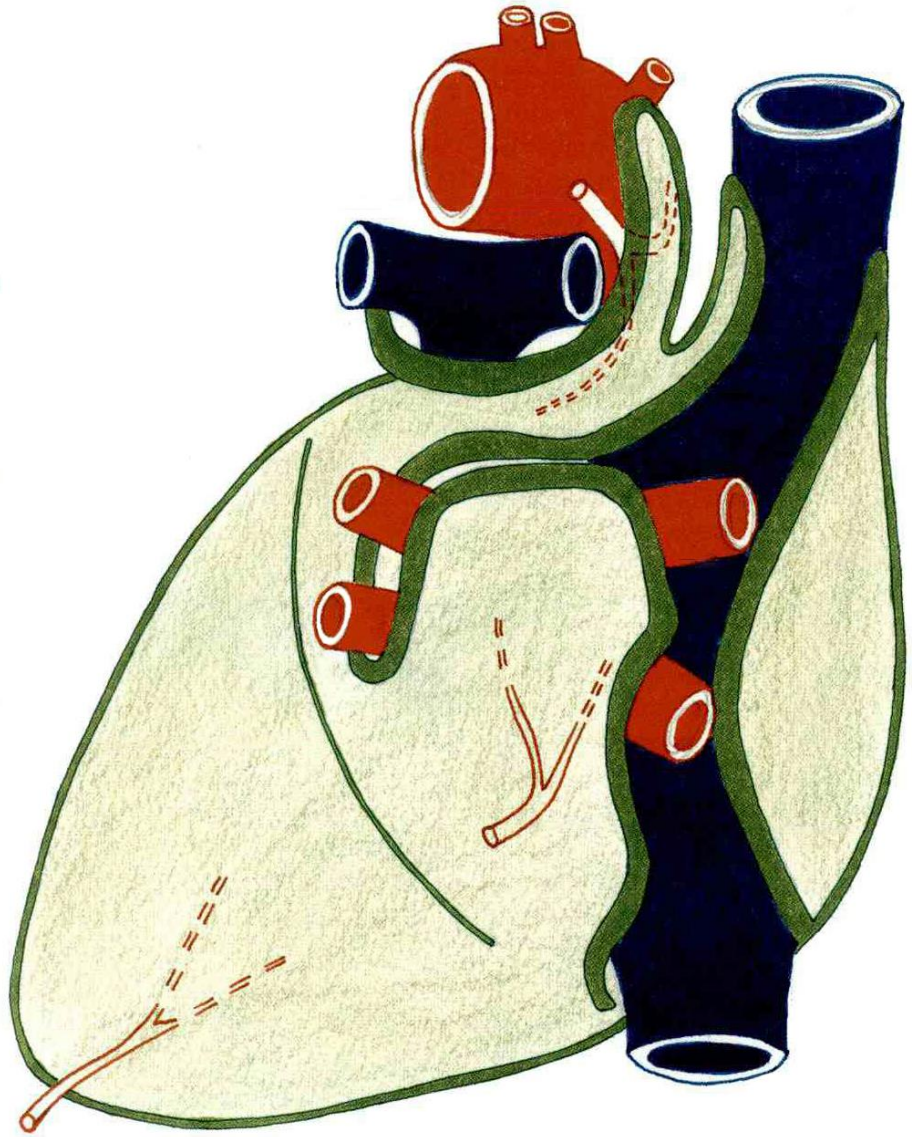


Posterior view of the fibrous pericardial sac showing the arrangement of the pericardial vessels.

B-VENOUS VASCULARIZATION:

- They are satellites of the arteries.

- The veins of the parietal layer drain into the azygos veins and the superior diaphragmatic veins.



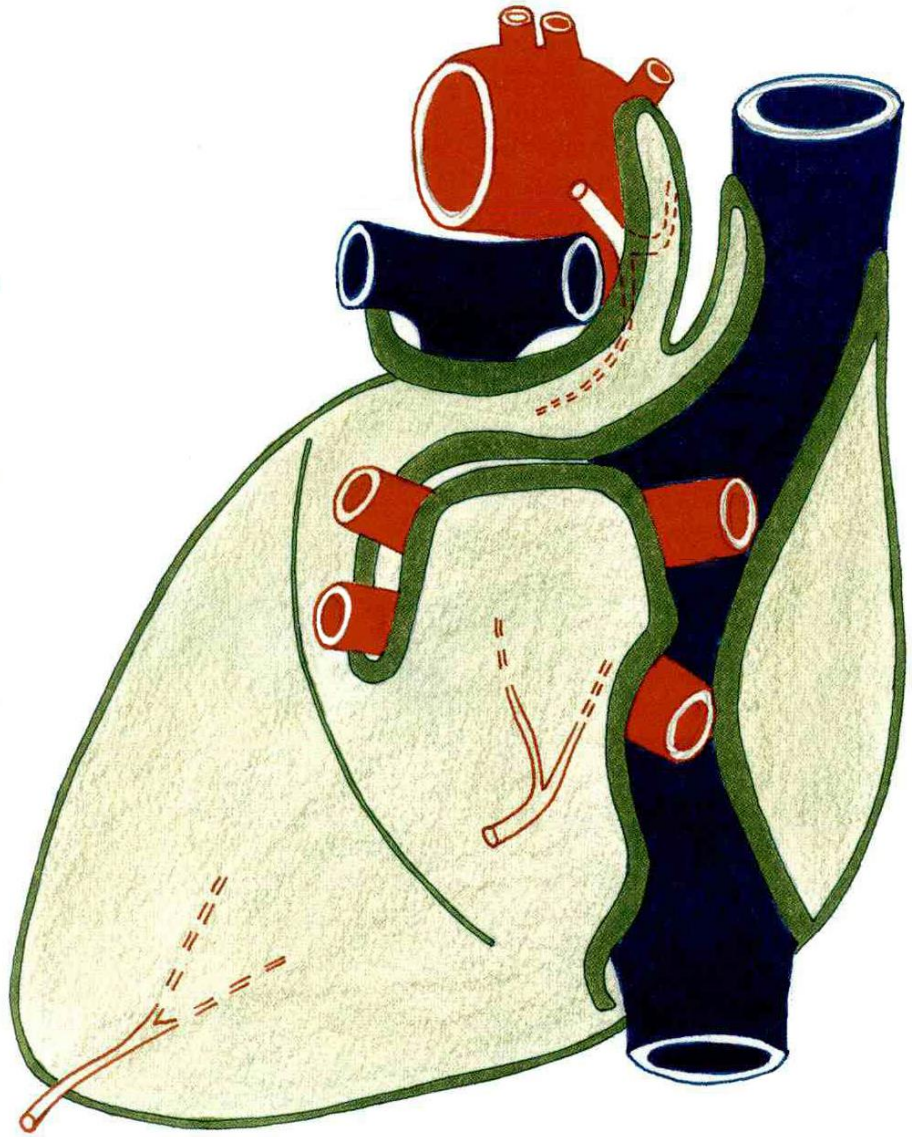
Posterior view of the fibrous pericardial sac showing the arrangement of the pericardial vessels.

C-NERVES

- The parietal pericardium is innervated by branches of the following nerves :

- Phrenic nerves.
- Vagus nerves.
- Left reccurent nerve.
- Branches from the thoracic sympathetic chain.

- The visceral layer recieves its innervation from the subpericardial nerve plexus.

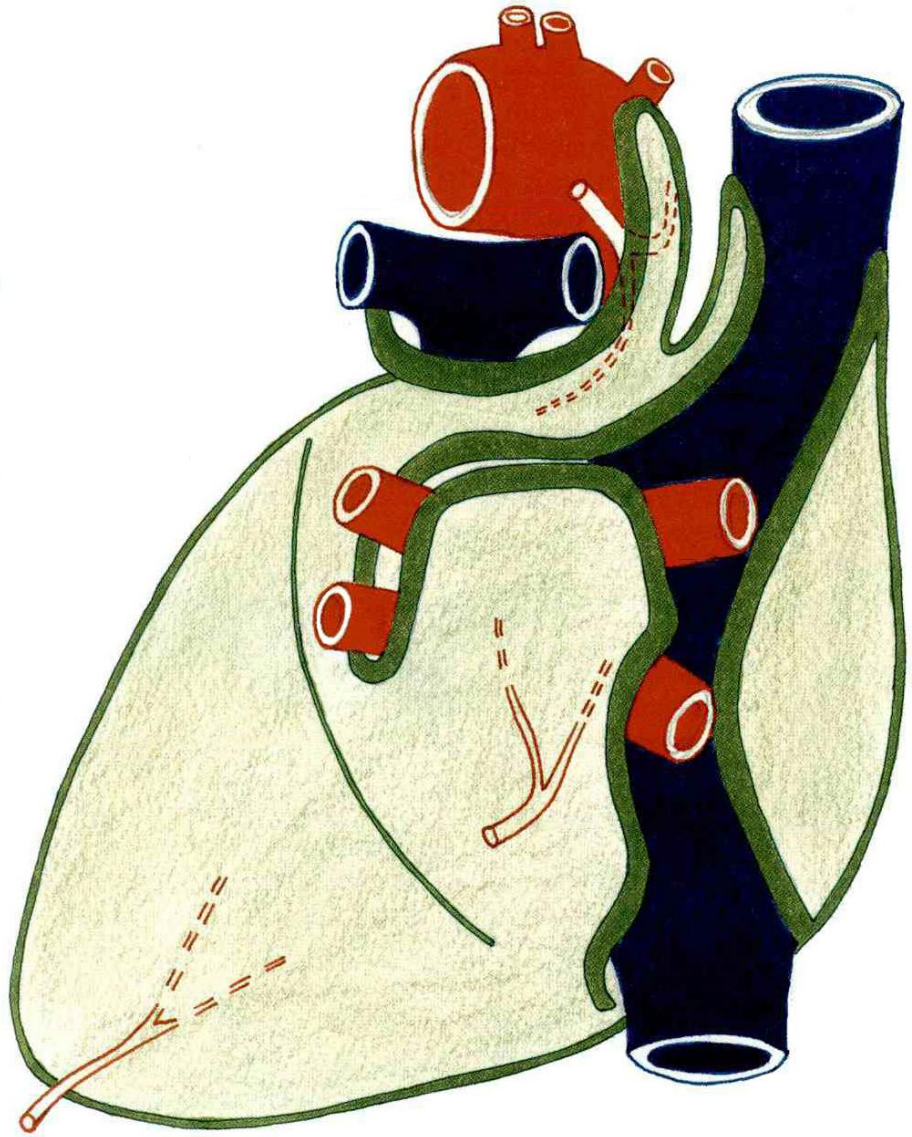


Posterior view of the fibrous pericardial sac showing the arrangement of the pericardial vessels.

D-LYMPHATICS

The lymphatic drainage of the pericardium is directed toward :

- The anterior mediastinal lymph nodes.
- The posterior mediastinal lymph nodes.
- The diaphragmatic lymph nodes.
- The intertracheobronchial lymph nodes.



Posterior view of the fibrous pericardial sac showing the arrangement of the pericardial vessels.

VI-CONCLUSION:

In conclusion, the pericardium is a vital structure that plays a crucial role in protecting and supporting the heart.

Its intricate anatomy, comprising the fibrous and serous layers, as well as its rich vascular and nerve supply, ensures that the heart functions efficiently within the thoracic cavity.