



Lecture: 14

Done By: Elaf Sameer

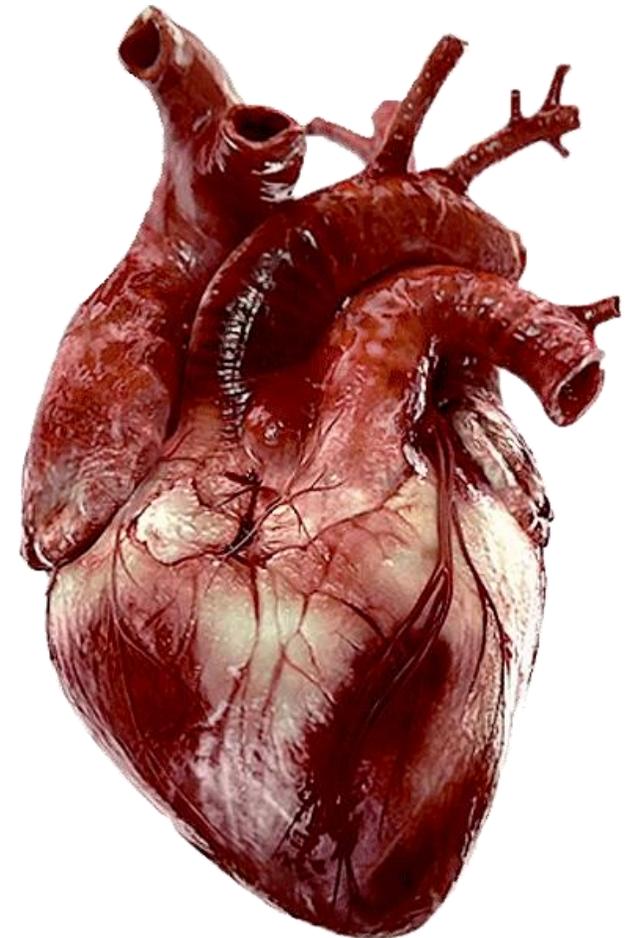


General Anatomy

Lecture 14: Cardiovascular System (1)

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THE CARDIOVASCULAR SYSTEM

heart

Blood vessels
subclavian vessels

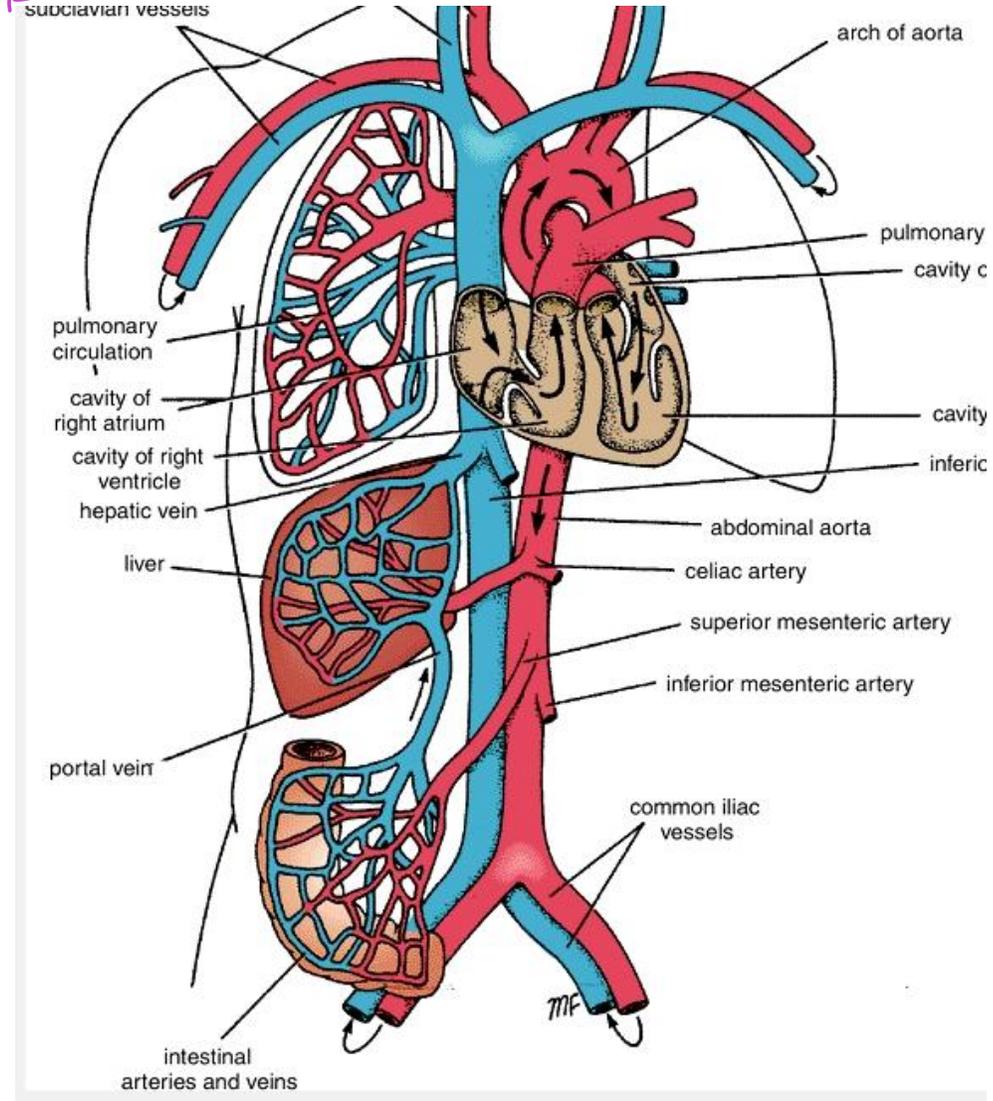
* Definition:

* It is the major part of the circulatory system.

* It consists of 2 main parts:

1. heart.

2. Blood vessels.



THE HEART

مخروطی

مخرب

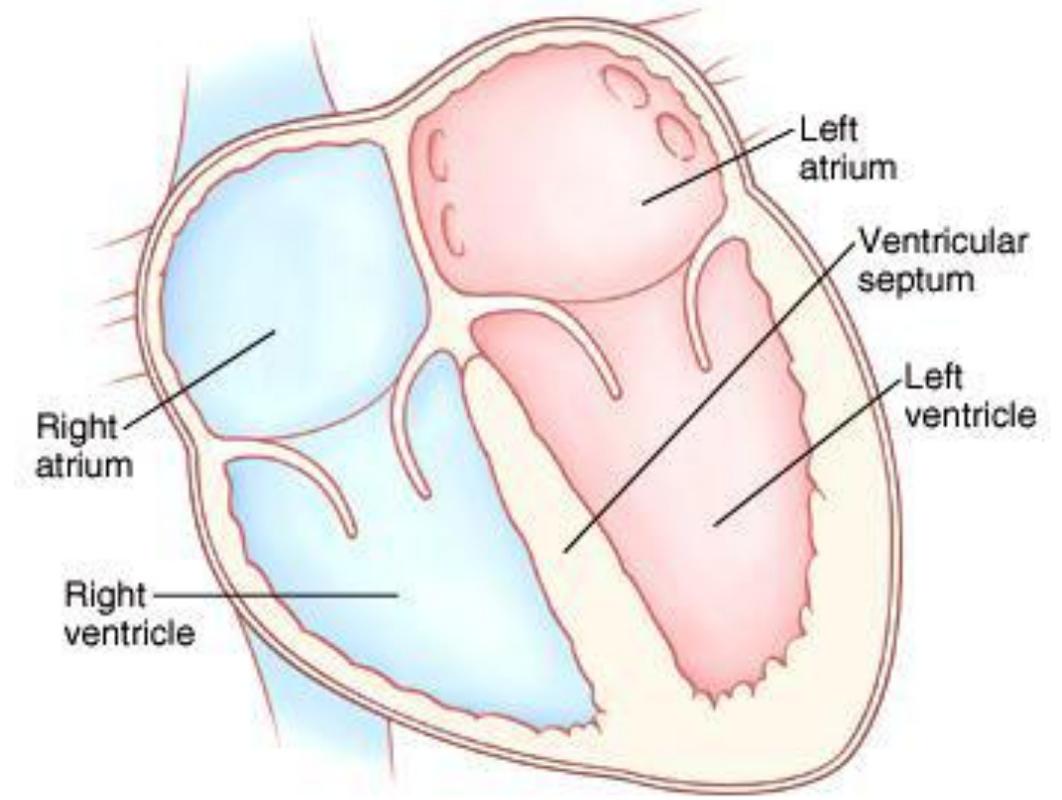
* **Definition:** A conical hollow muscular organ that pumps the blood to various parts of the body.

متوسط ← میں 2 lungs

* **Site:** In the middle mediastinum (middle space of thoracic cavity).

* **Weight:** 300 gm in males & 250 gm in females. → عالت الامل كبير

* **Dimensions:** 12X9 cm.



**** Pericardium:** The heart is surrounded by the **pericardium**, which is divided into: *serous membrane*

a. **outer fibrous pericardium**: **thick, fibrous & attached to diaphragm.**

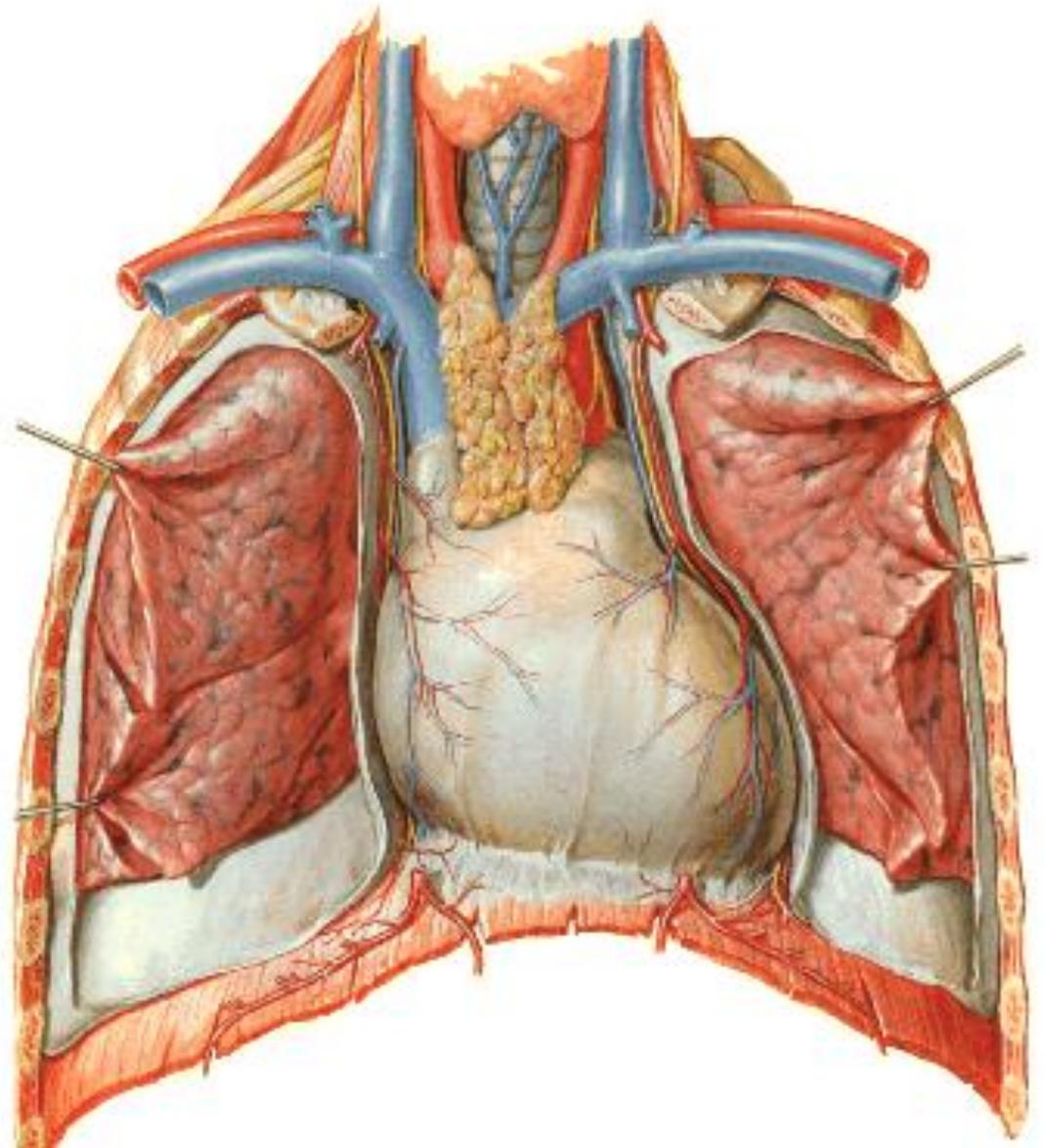
b. **inner serous pericardium**: which consists of 2 layers: *اللي يعطيو ال heart من الاملح*

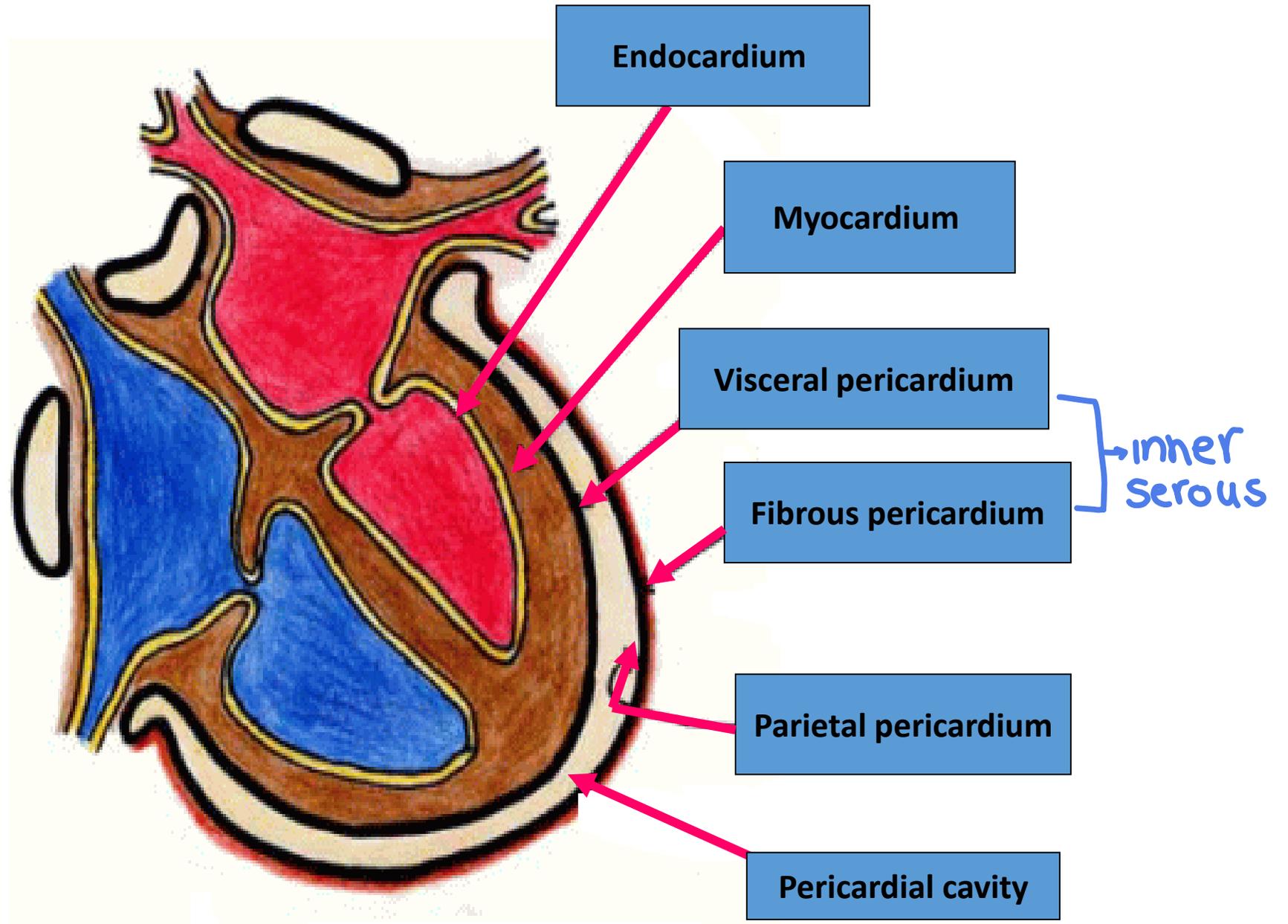
i. **outer parietal**: lines the **fibrous pericardium.**

الطبقة الاعلى ii. **inner visceral**: covers the heart. *Visceral pericardium*

**** The space between the 2 layers is called the **pericardial cavity.****

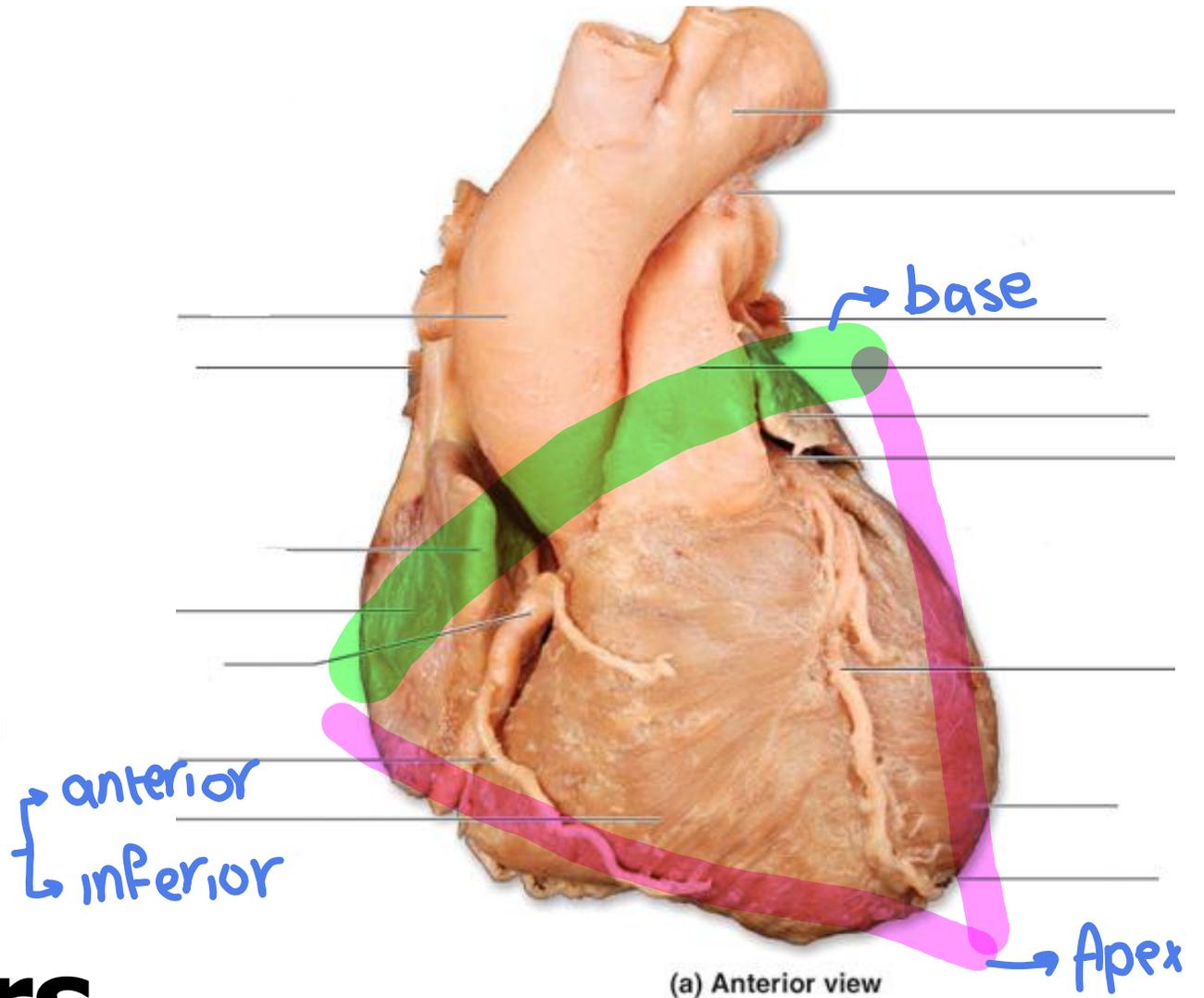
لعمريه fluid خفيف يمنع الاحتكاك بين layers للقلب





**** External
features of the
heart: it has:**

- 1. Apex.**
- 2. Base.**
- 3. Four borders.**
- 4. Two surfaces**
- 5. Four chambers.**



1. The apex of the heart:

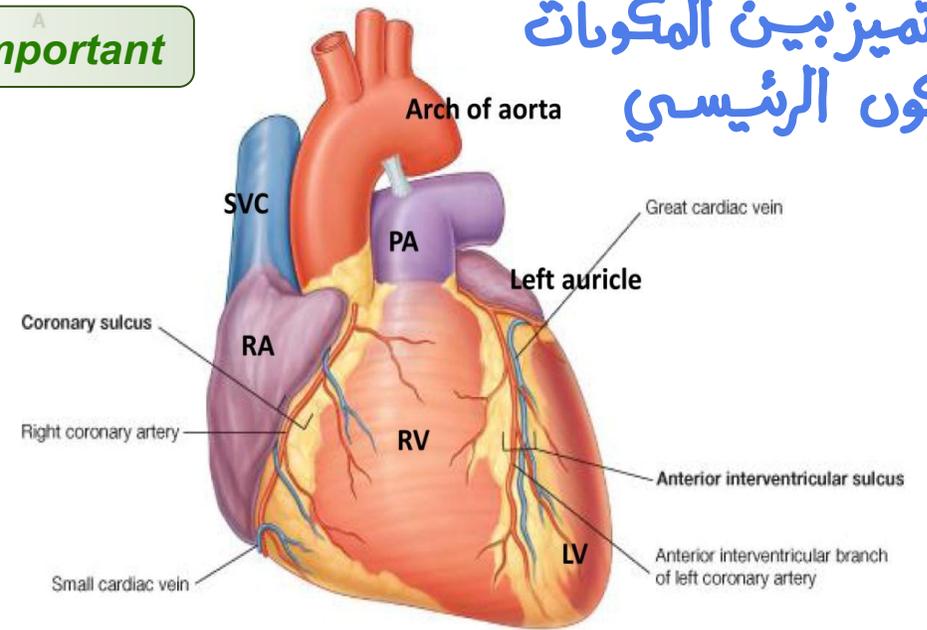
* Formed of the **Lt ventricle** & directed downward forward to the left.

* It lies in the **5th left intercostal space, 9.5 cm from the mid-sternal line.**

2. The base of the heart:

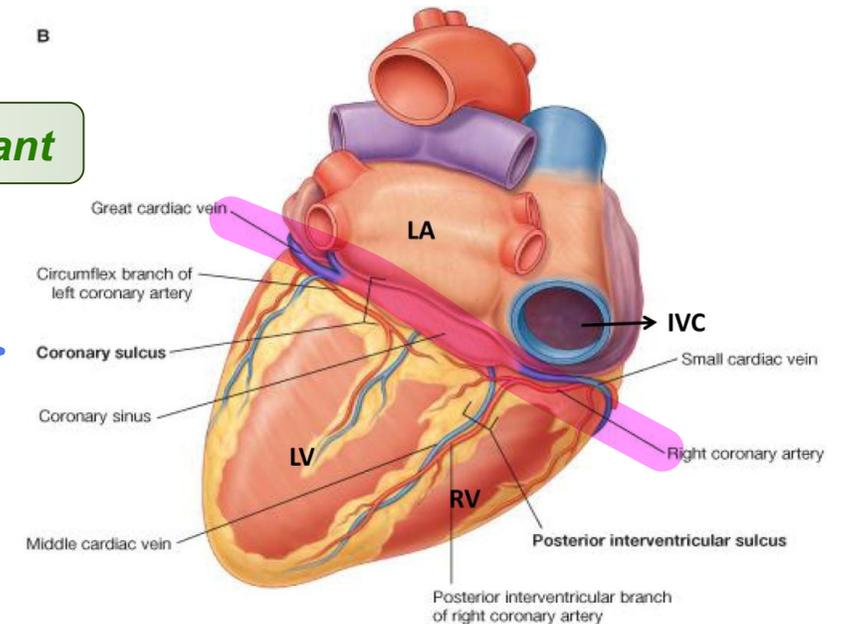
* Formed of **both atria**, **mainly the left atrium** & directed backward, upward & to the right, forming the **posterior aspect of the heart.**

Important



مهم تميز بين المكونات
والمكون الرئيسي

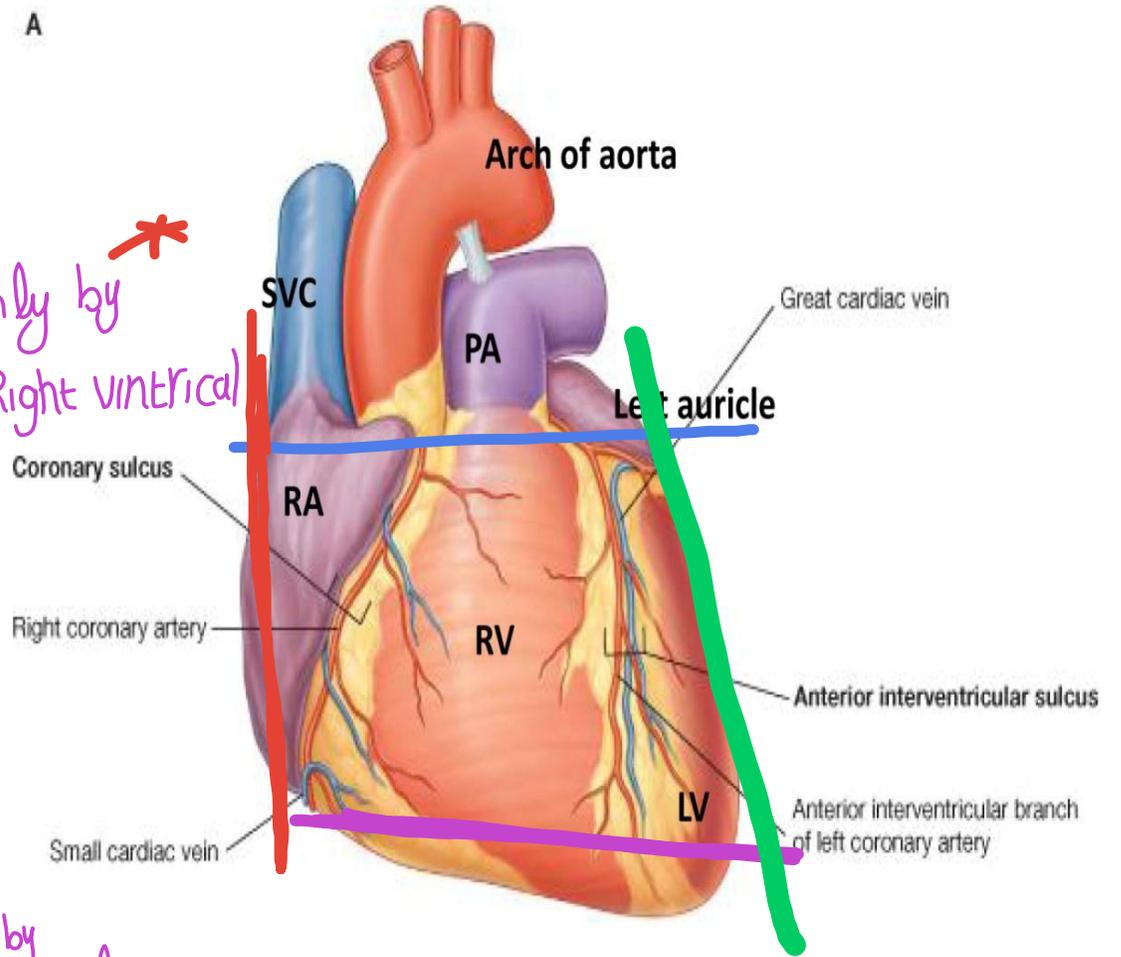
Important



apex كى

3. The borders of the heart are:

- a. **Upper border** formed by the **2 atria.**
- b. **Lower border** formed by the **2 ventricles.**
- c. **Right border** formed by the **right atrium.**
- d. **Left border** formed by the **left ventricle & left auricle.**



4. The surfaces of the heart:

* It has 2 surfaces:

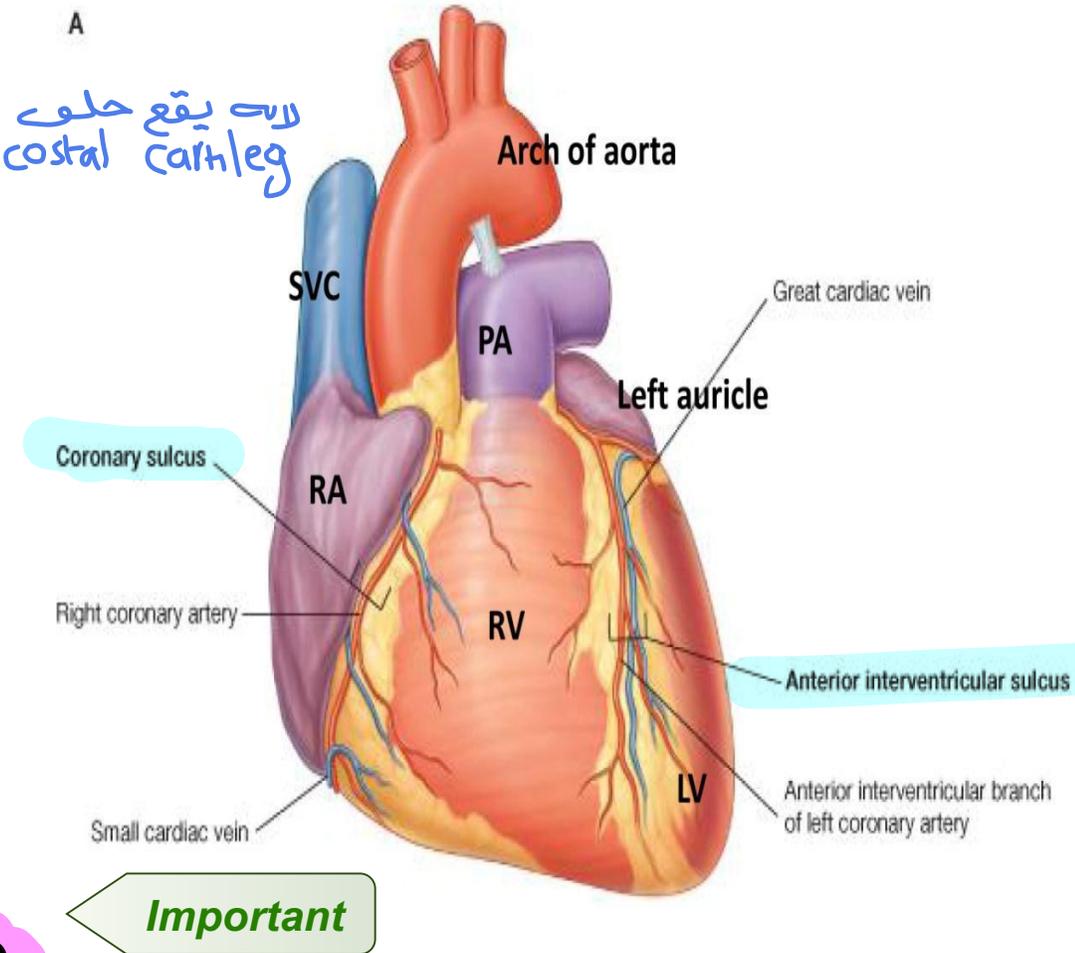
a. Anterior or sternocostal surface: is divided by **coronary sulcus** into:

1. **Atrial part** formed **mainly** by **RT atrium**.

2. **Ventricular part**: subdivided by anterior interventricular sulcus into:

* **RT 2/3** formed by **RT ventricle**.

* **LT 1/3** formed by **LT ventricle**.

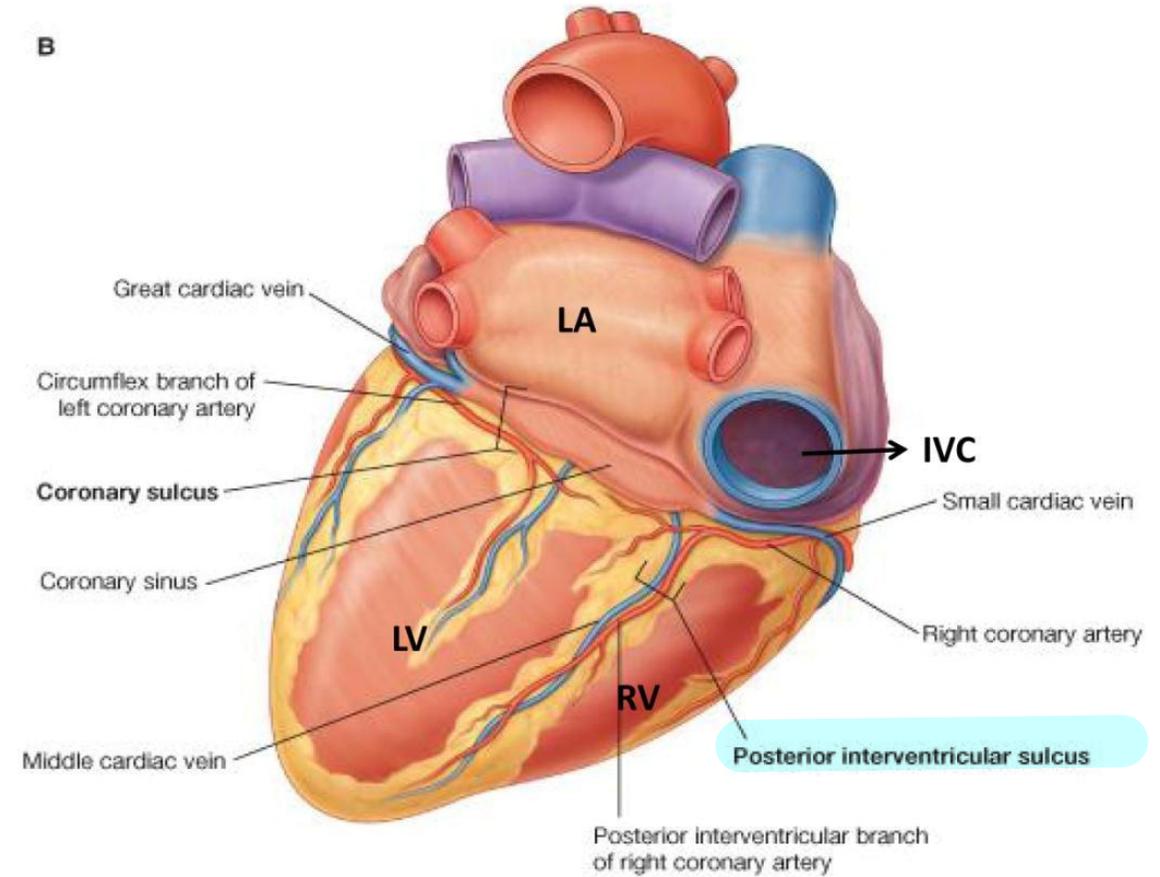


b. Inferior or *↳ mainly by LV*
diaphragmatic surface:

* Formed by the **2 ventricles** & divided by **posterior interventricular sulcus** into:

* **LT 2/3** formed by **LT ventricle.**

* **RT 1/3** formed by the **RT ventricle.**



5. The chambers of the heart:

a. The RT atrium: has 2 walls:

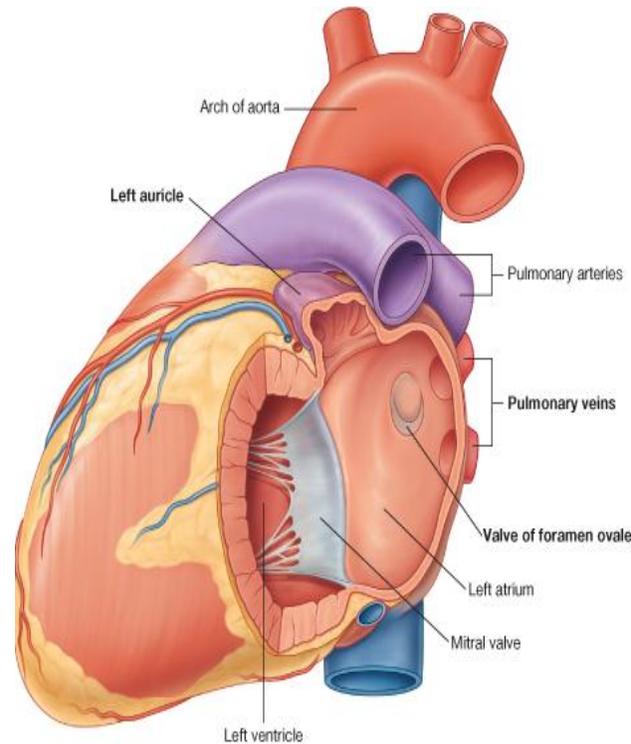
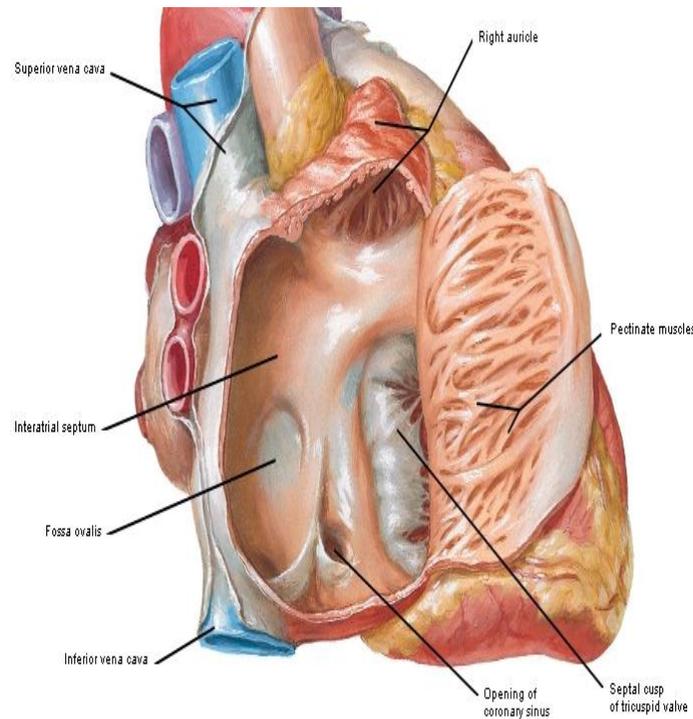
* Anterior rough or muscular.

* Posterior smooth receiving the openings of big veins SVC, IVC & Coronary sinus.

The main vein of the heart

b. The LT atrium: its wall is mostly smooth, receiving the openings of the 4 pulmonary veins.

*للمعانة من لungs التي تحمل
originated blood*



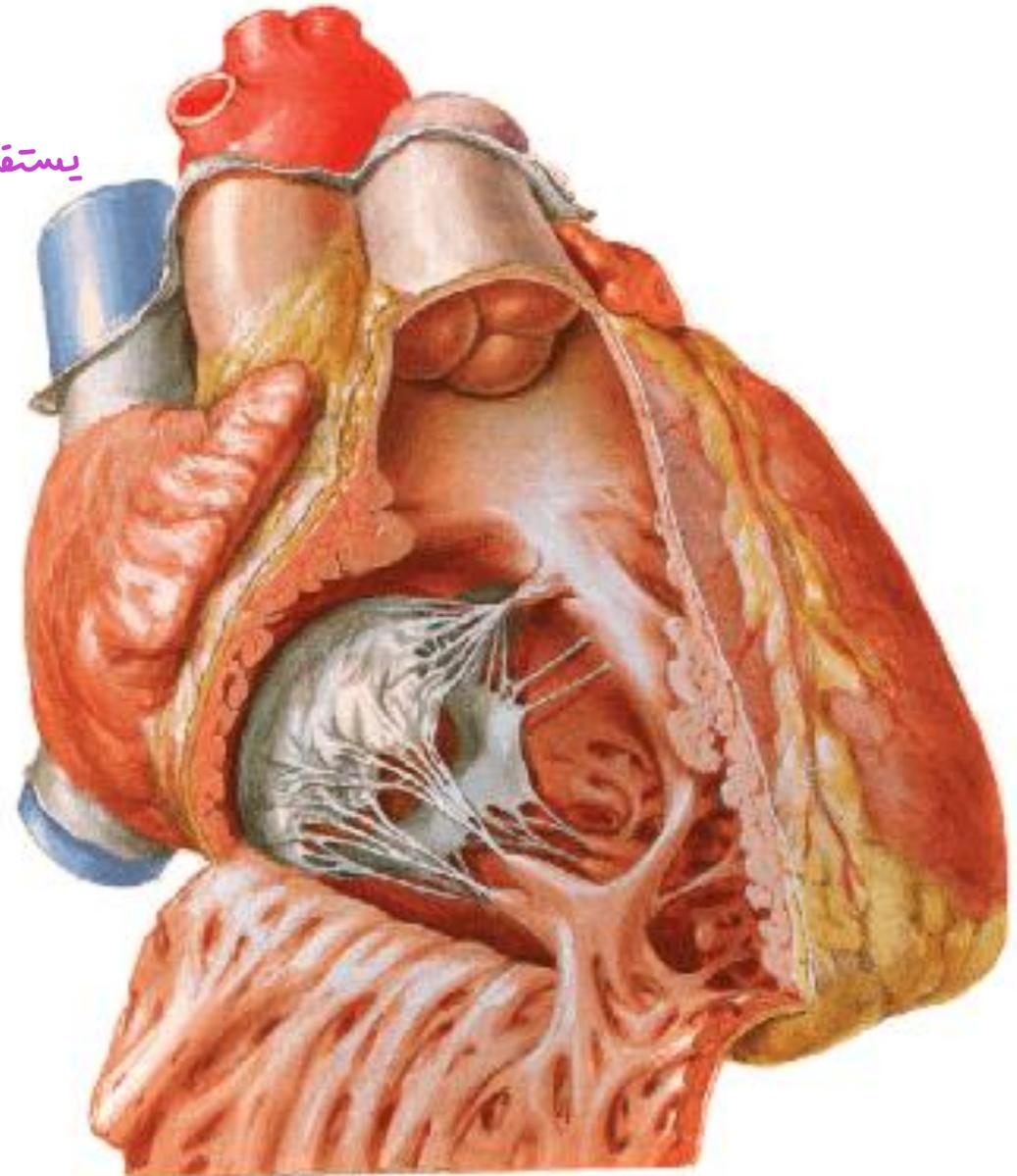
c. The RT ventricle: is divided into 2 parts:

1. Rough muscular inflowing part: receives the blood from the right atrium & contains **3 papillary muscles**.

2. Smooth outflowing part: It is called **Infundibulum**: it pushes the blood into the pulmonary trunk.

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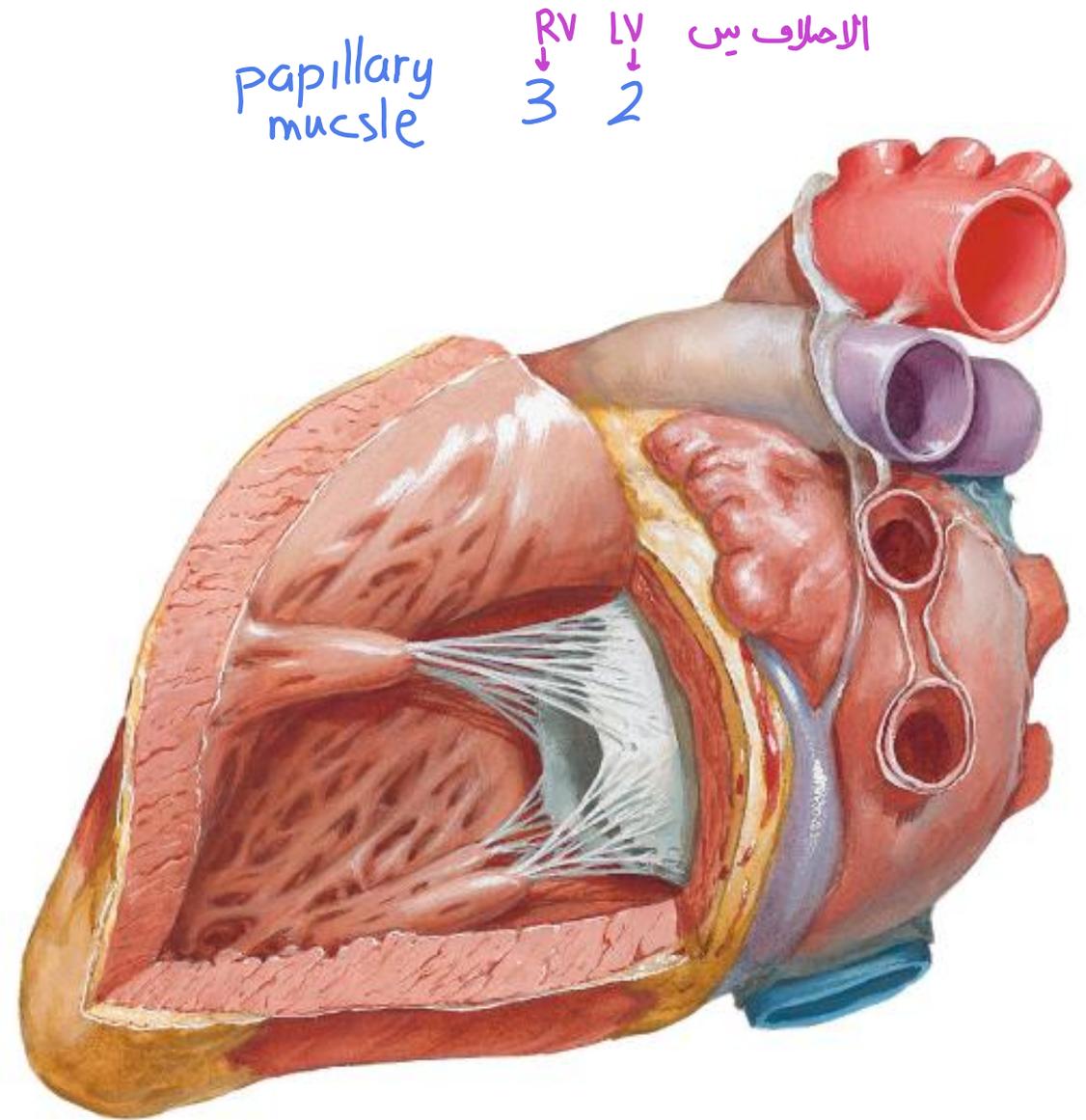
يستقبل الدم الخارج من القلب



d. LT ventricle: is divided into 2 parts:

1. Rough muscular inflowing part: receives the blood from the left atrium & contains 2 papillary muscles.

2. Smooth outflowing part: It is called vestibule: it pushes the blood into the aorta.

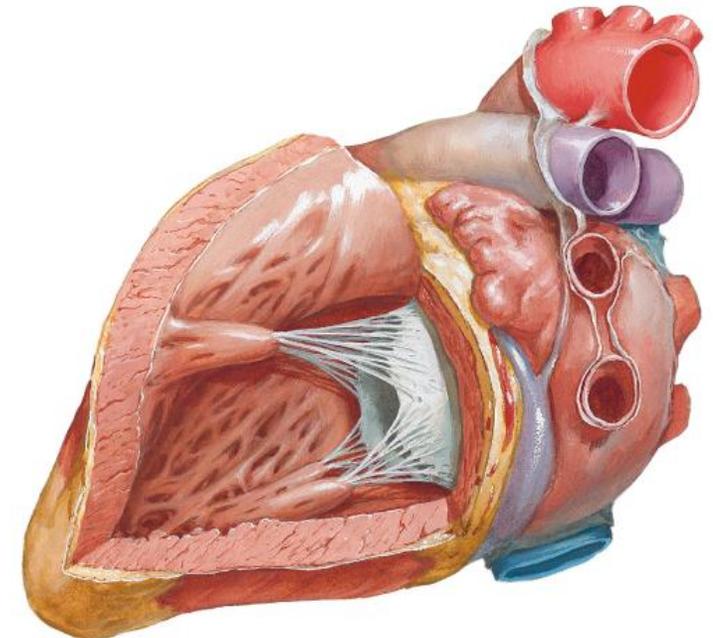
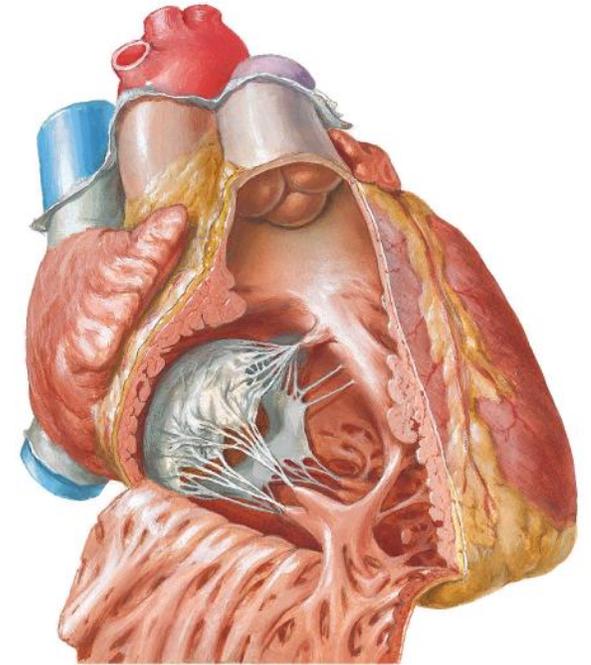


**** The valves of the heart:**

There are 2 types of heart valves:

a. Atrio-ventricular (AV) valves:

1. The **right valve** called **Tricuspid**. It has **3 cusps** separating the right atrium from right ventricle.
2. The **left valve** called **Bicusped** or Mitral. It has **2 cusps** separating the left atrium from left ventricle.



b. Semilunar valves:

They are formed of **3 cusps**,
each **cusp** has a hollow space
above called **sinus**.

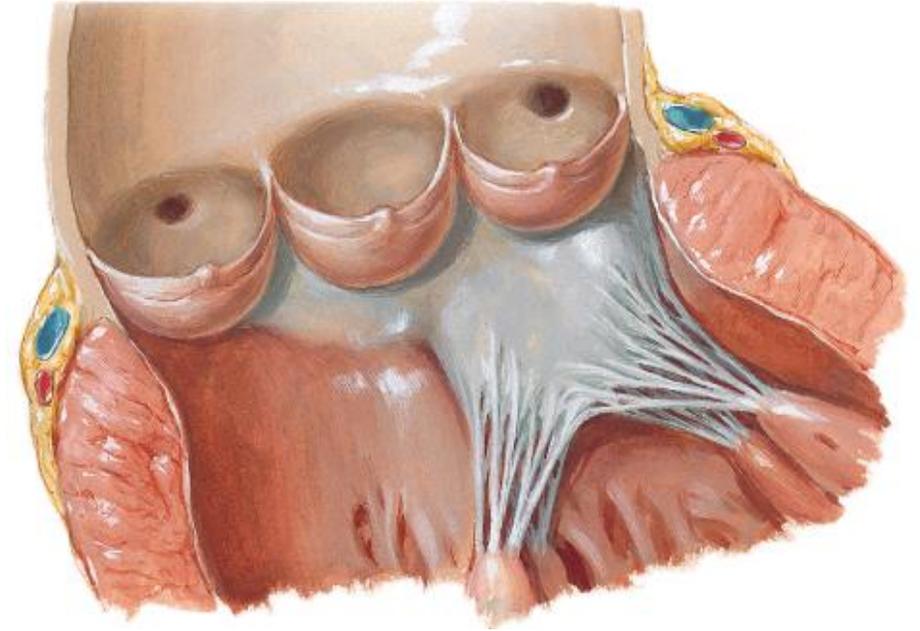
كل Cusp فيه منطقة
مخوفة اسمها

1. Aortic valve: has **one sinus**

1 **anterior** & **2 sinuses**
posterior.

يكون بمدى aorta

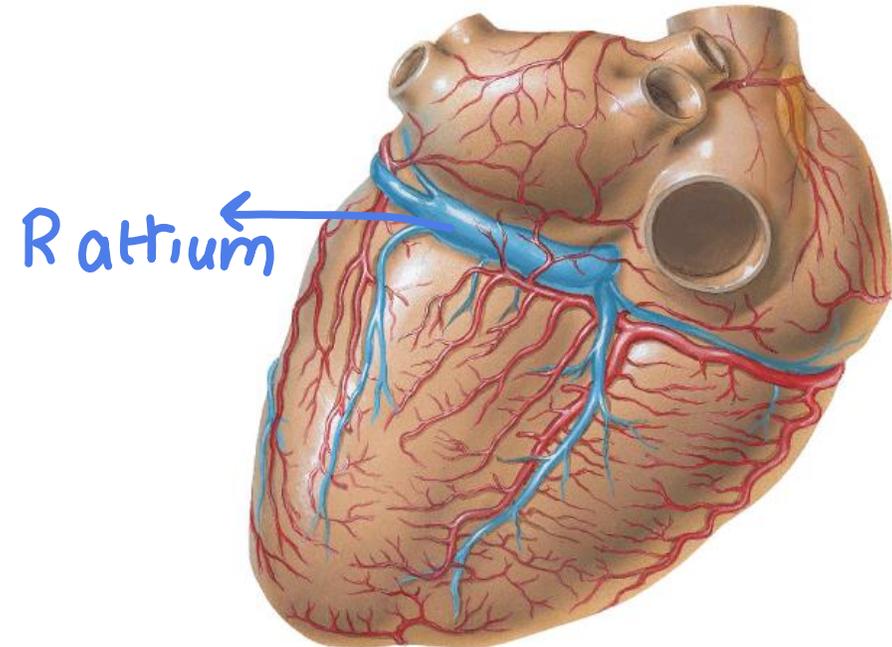
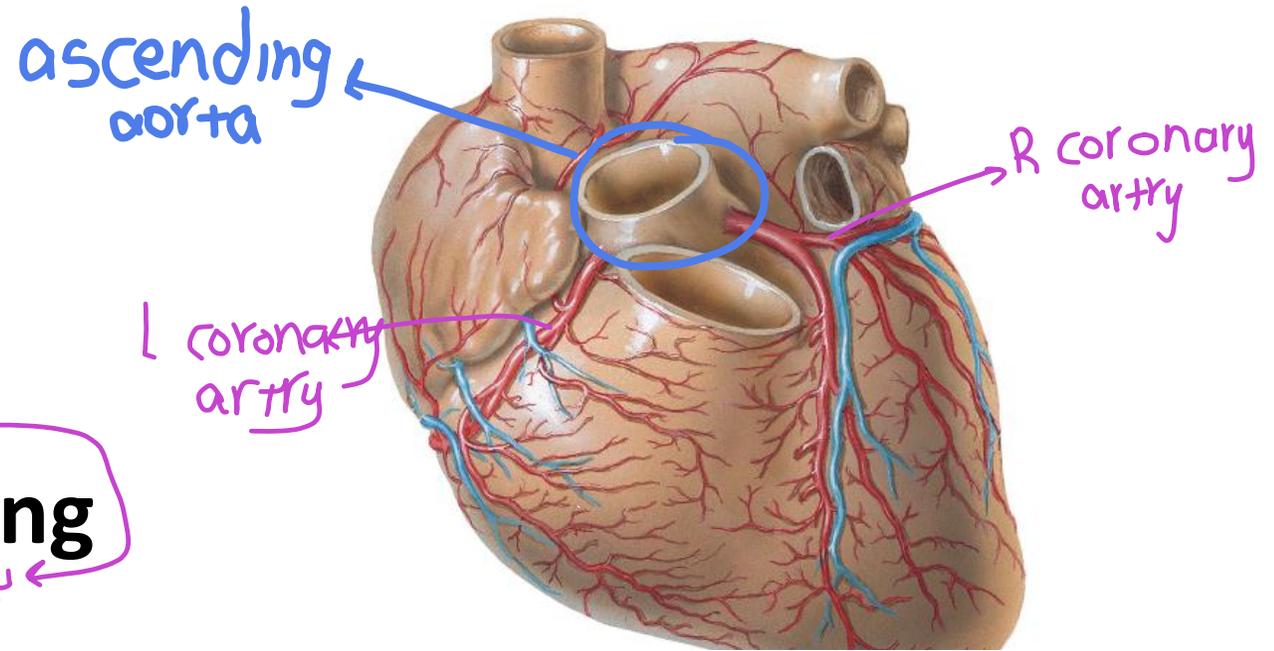
2. Pulmonary valve: has **one**
sinus ¹ **posterior** & **2 sinuses**
anterior.



التي تعبر عن حمة القلب نفسها
****Blood supply of heart:**

1. **Arterial supply:** by the **coronary arteries (RT<)** that arise from the beginning of **ascending aorta**.

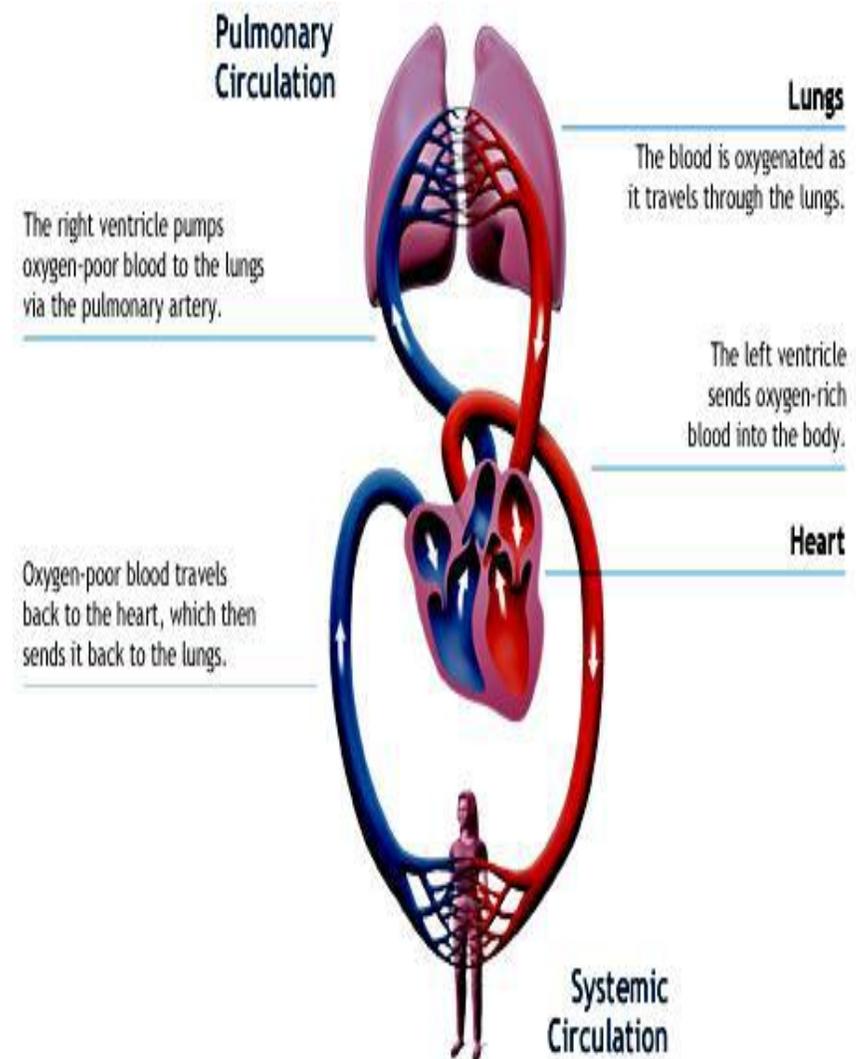
2. **Venous drainage:** through small veins that end in short venous channel called **coronary sinus** that opens in the **RT atrium**.



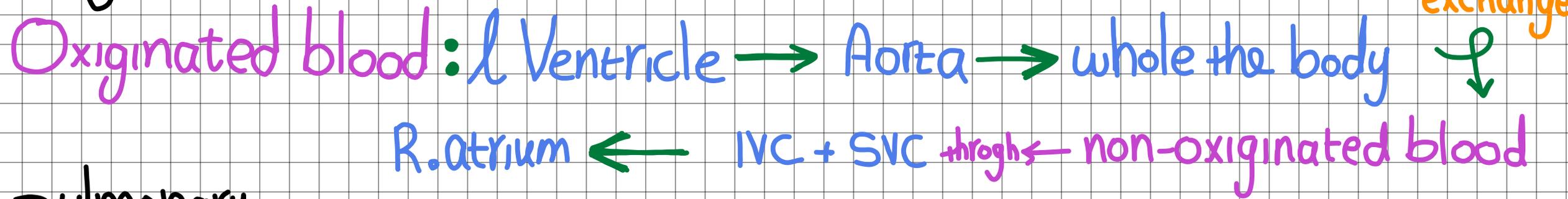
Types of Blood Circulations

1. **Systemic circulation**: It is the passage of blood from the **Lt ventricle** to the whole body via the aorta & its branches then returning the blood back to the **Rt atrium** through the SVC & IVC.

2. **Pulmonary circulation**: It is the passage of the non-oxygenated blood from the **Rt ventricle** to the lungs via the pulmonary arteries then returning the blood back to the **Lt atrium** through the pulmonary veins after oxygenation.

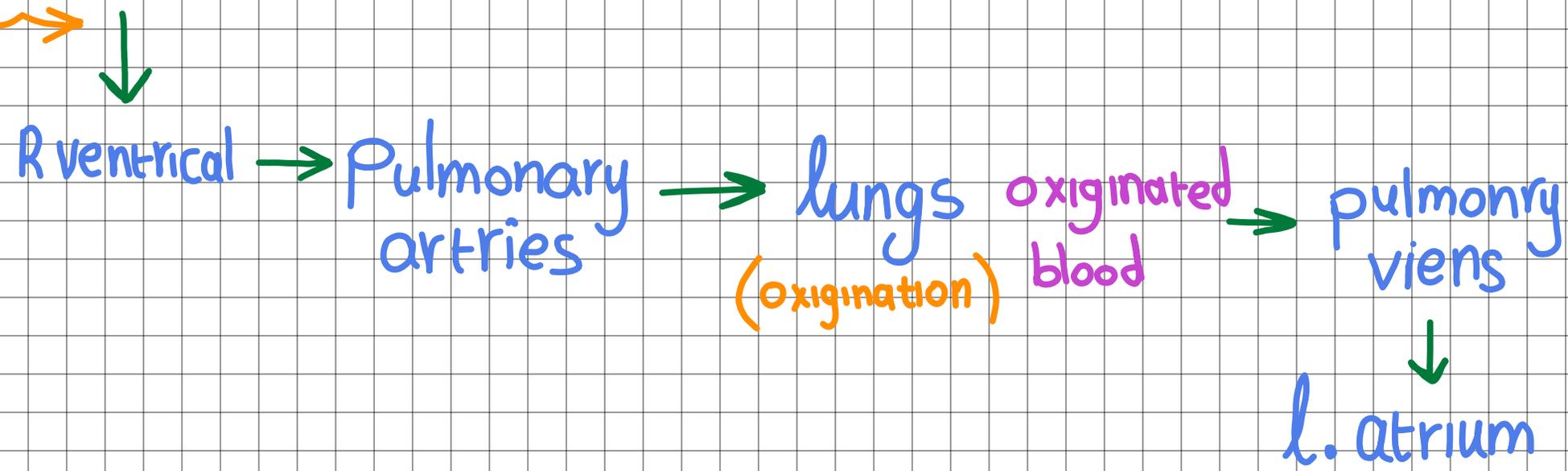


Systemic circulation From L ventricle to R. atrium



pulmonary articulation

↓ From R ventricle to L atrium



لا تَتَوَقَّفْ عِنَّمَا
تَتَّعِبُ ..

تَوَقَّفْ عِنَّمَا
تَشْتَرِي

Peace