

وسهلا

أهلا



الأستاذ الدكتور / يوسف حسين

أستاذ التشريح وعلم الأجنة - كلية الطب - جامعة الزقازيق - مصر

رئيس قسم التشريح و الأنسجة و الأجنة - كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

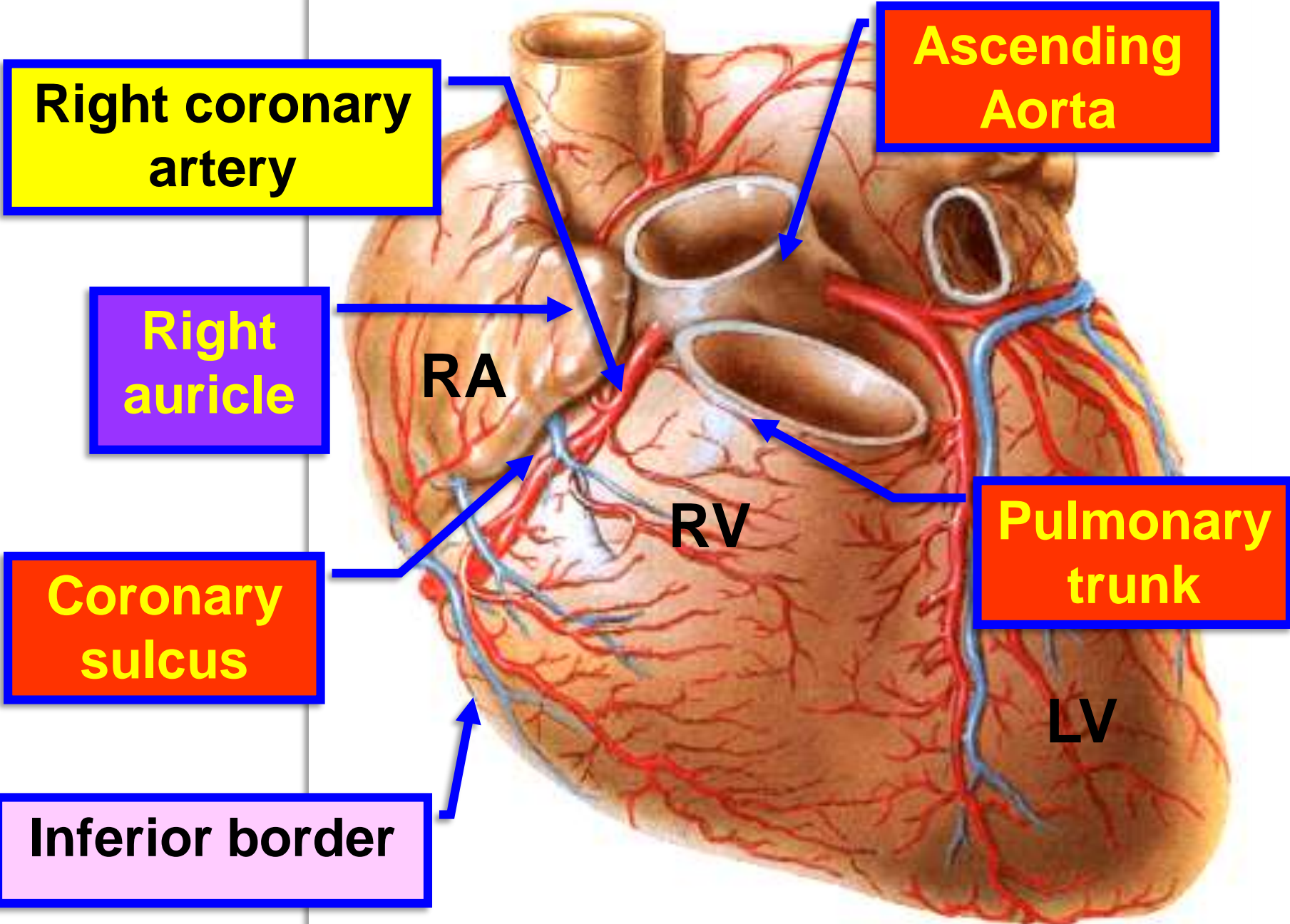
Dr. Youssef Hussein Anatomy اليوتيوب

جروب الفيس د. يوسف حسين (استاذ التشريح)



**Blood
supply
Heart**

**Right Coronary
artery**



Right coronary artery

Right auricle

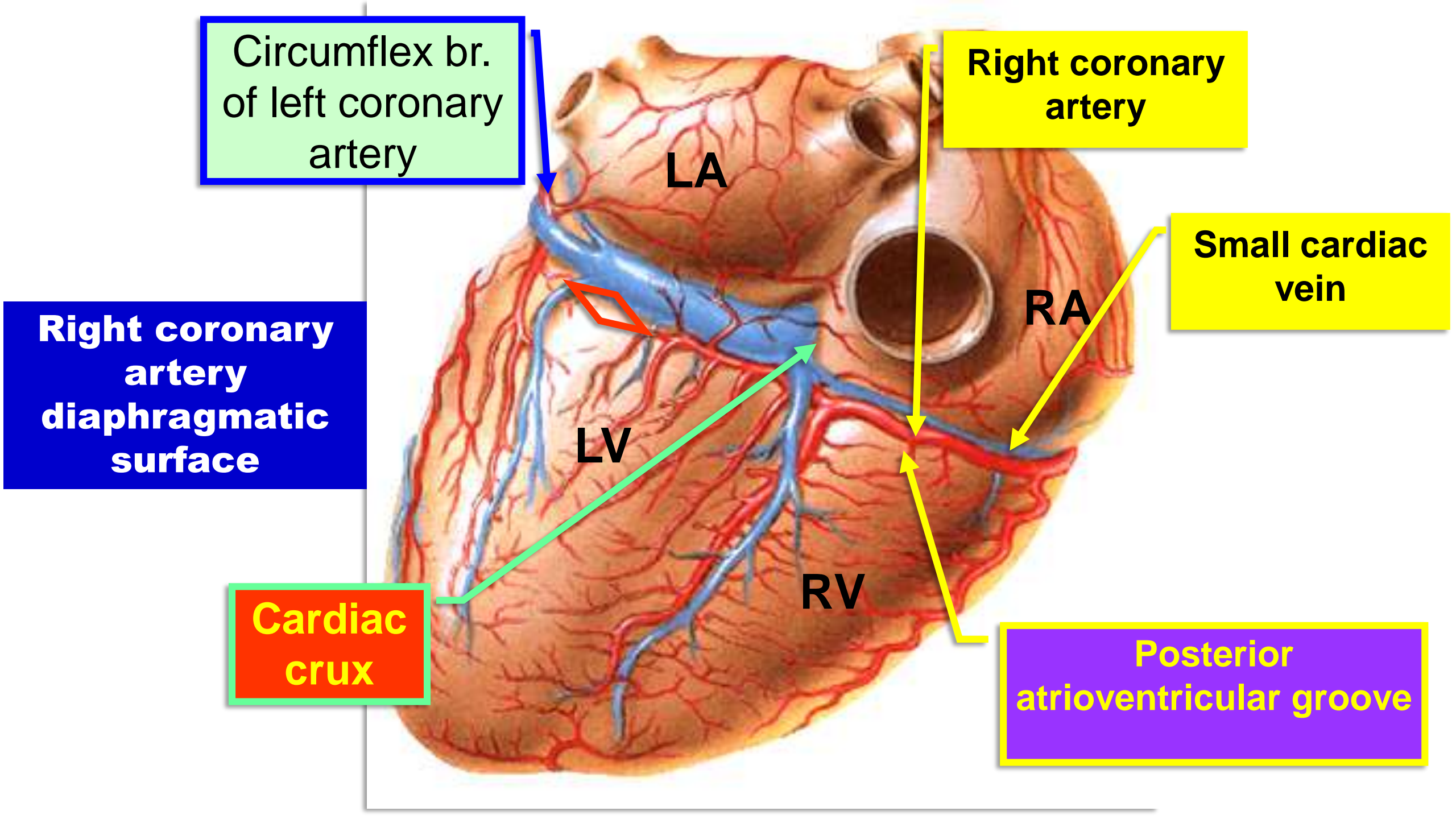
Coronary sulcus

Inferior border

Ascending Aorta

Pulmonary trunk

Right coronary artery sternocostal surface



Circumflex br. of left coronary artery

Right coronary artery

Small cardiac vein

Right coronary artery diaphragmatic surface

Cardiac crux

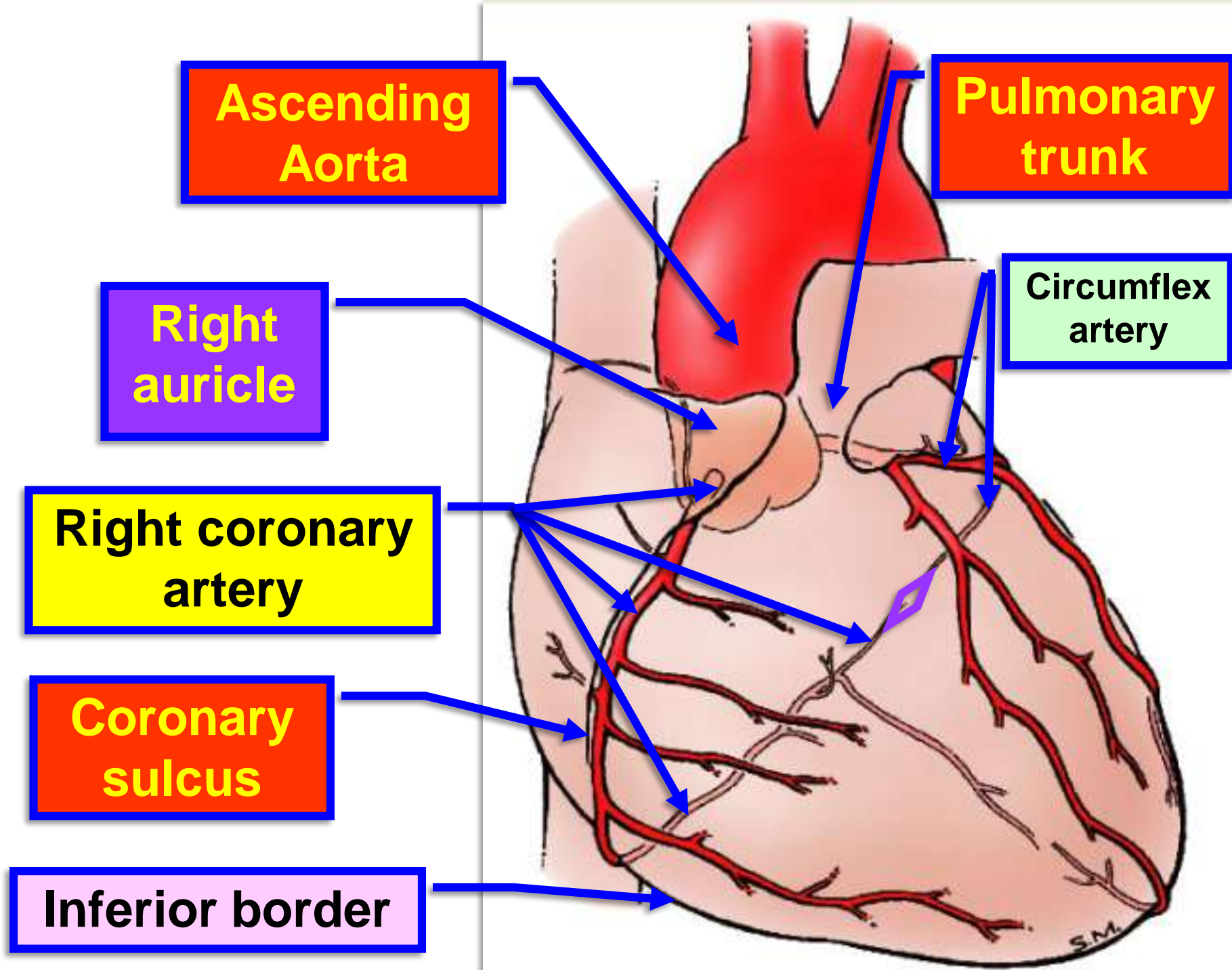
Posterior atrioventricular groove

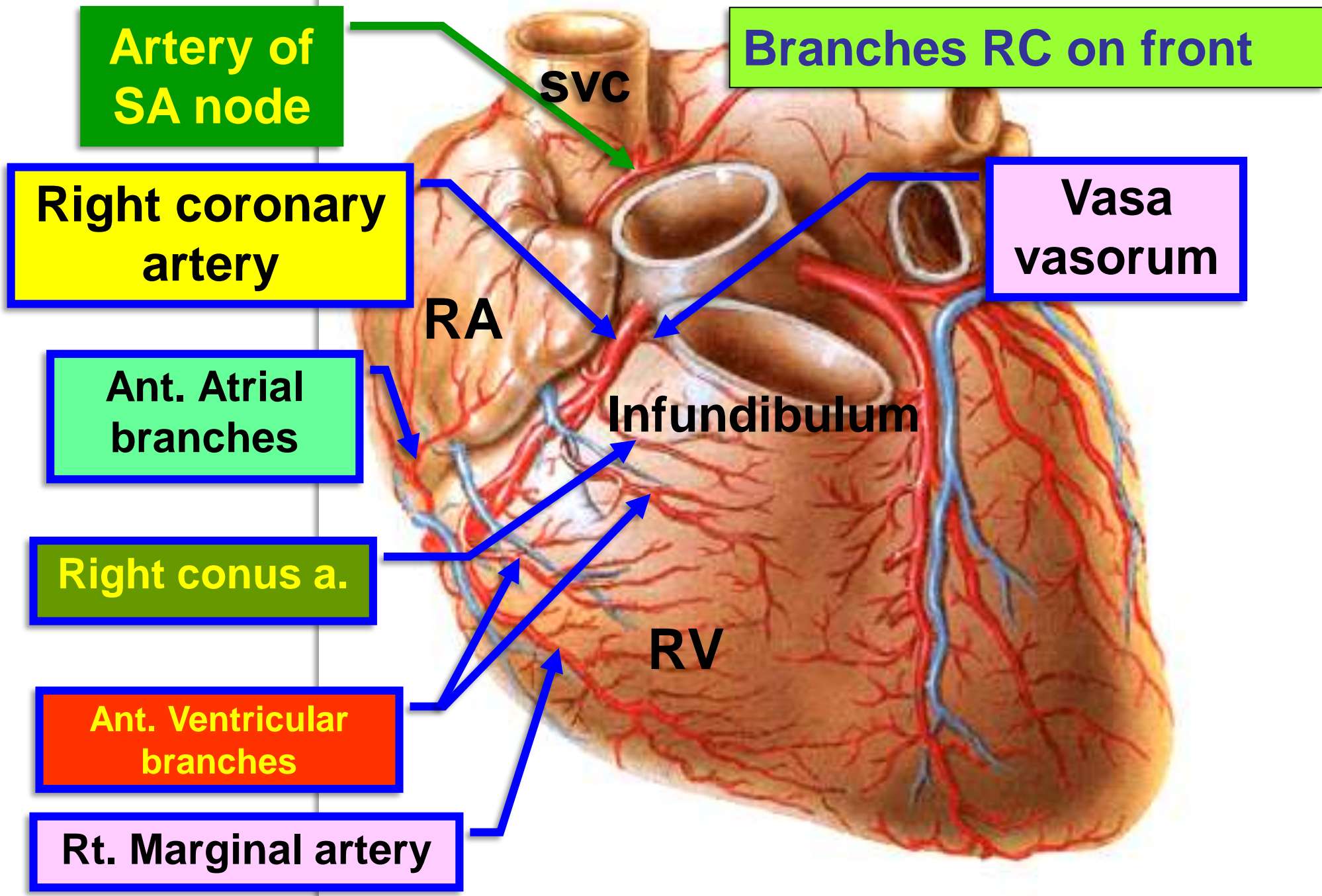
LA

RA

LV

RV





Artery of SA node

Branches RC on front

Right coronary artery

Vasa vasorum

Ant. Atrial branches

Right conus a.

Ant. Ventricular branches

Rt. Marginal artery

SVC

RA

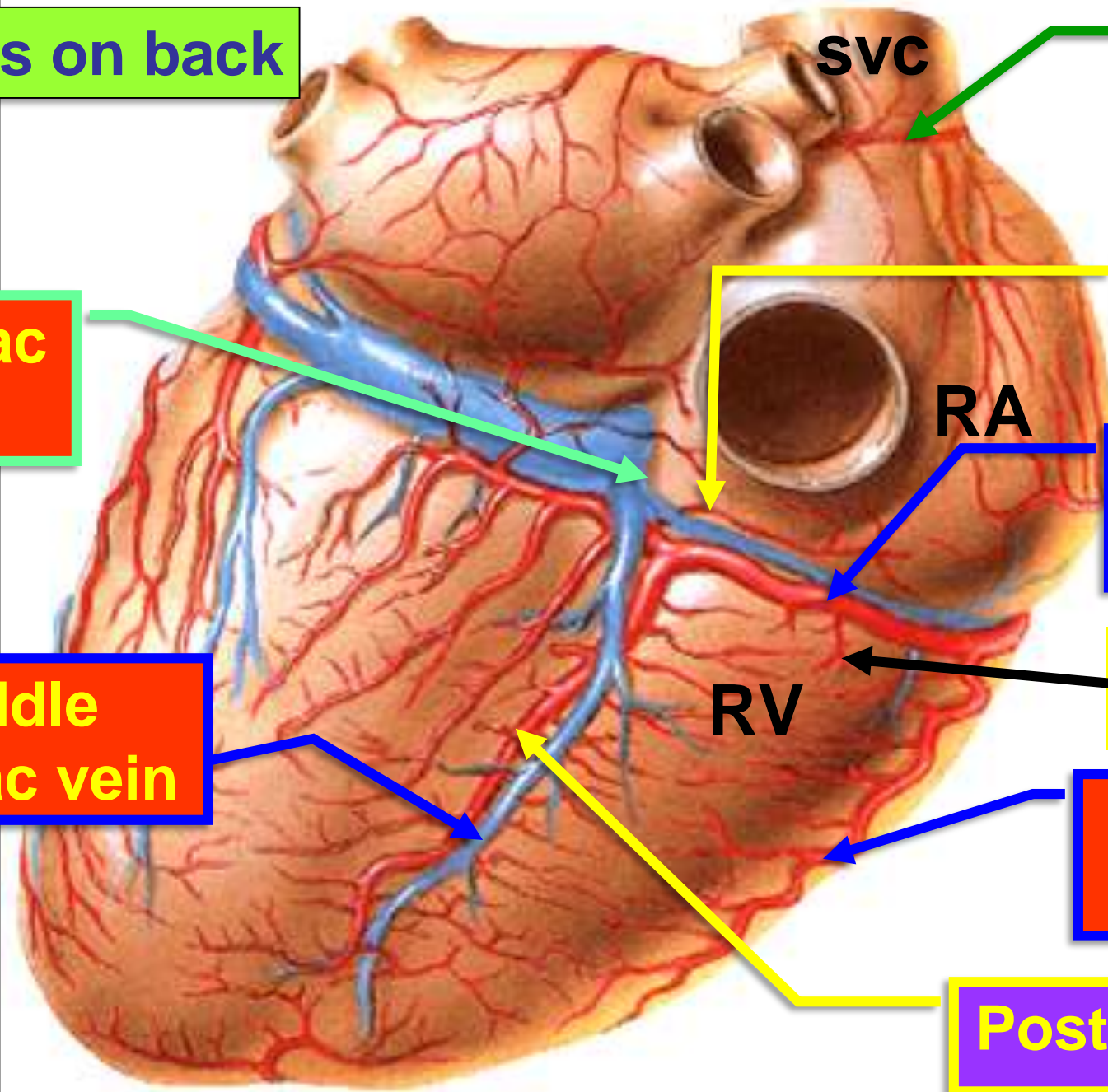
Infundibulum

RV

Branches on back

Cardiac crux

Middle cardiac vein



Artery of SA node

Post. Atrial branches

Right coronary artery

Post ventricular branches

Rt. Marginal artery

Posterior IV a.

SVC

RA

RV

- **Right Coronary Artery RCA**

** **Origin**; - It arises from the anterior aortic sinus of the ascending aorta just above the valve.

** **Course**; passes between pulmonary trunk and right auricle → anterior atrio-ventricular groove curves on lower border of the heart → passes in the posterior atrio-ventricular groove with **small** cardiac vein → **ends** by anastomosing with the circumflex branch of the left coronary artery.

** **Branches**:

1- Vasa vasorum: to the ascending aorta and pulmonary trunk.

2- Nodal branch: to the S. A. node (65% of people).

3- Atrial branches to the anterior and posterior wall of the right atrium

4- Ventricular branches to the anterior and posterior wall of the right ventricle.

5- Right Marginal branch: runs along the inferior border to the right ventricle.

6- Posterior interventricular artery At **crux** of the heart (**junction of interatrial & interventricular septa**)

: It passes in the posterior interventricular groove with **middle cardiac vein** and supplies;

a- Posterior wall of both right and left ventricles.

b- The posterior **1/3** of the interventricular septum.

7- Right conus artery supplies the right ventricular outflow (infundibulum).

Sternocostal surface

R. auricle

Left auricle

Right coronary artery

A-V groove (coronary)

AA

RA

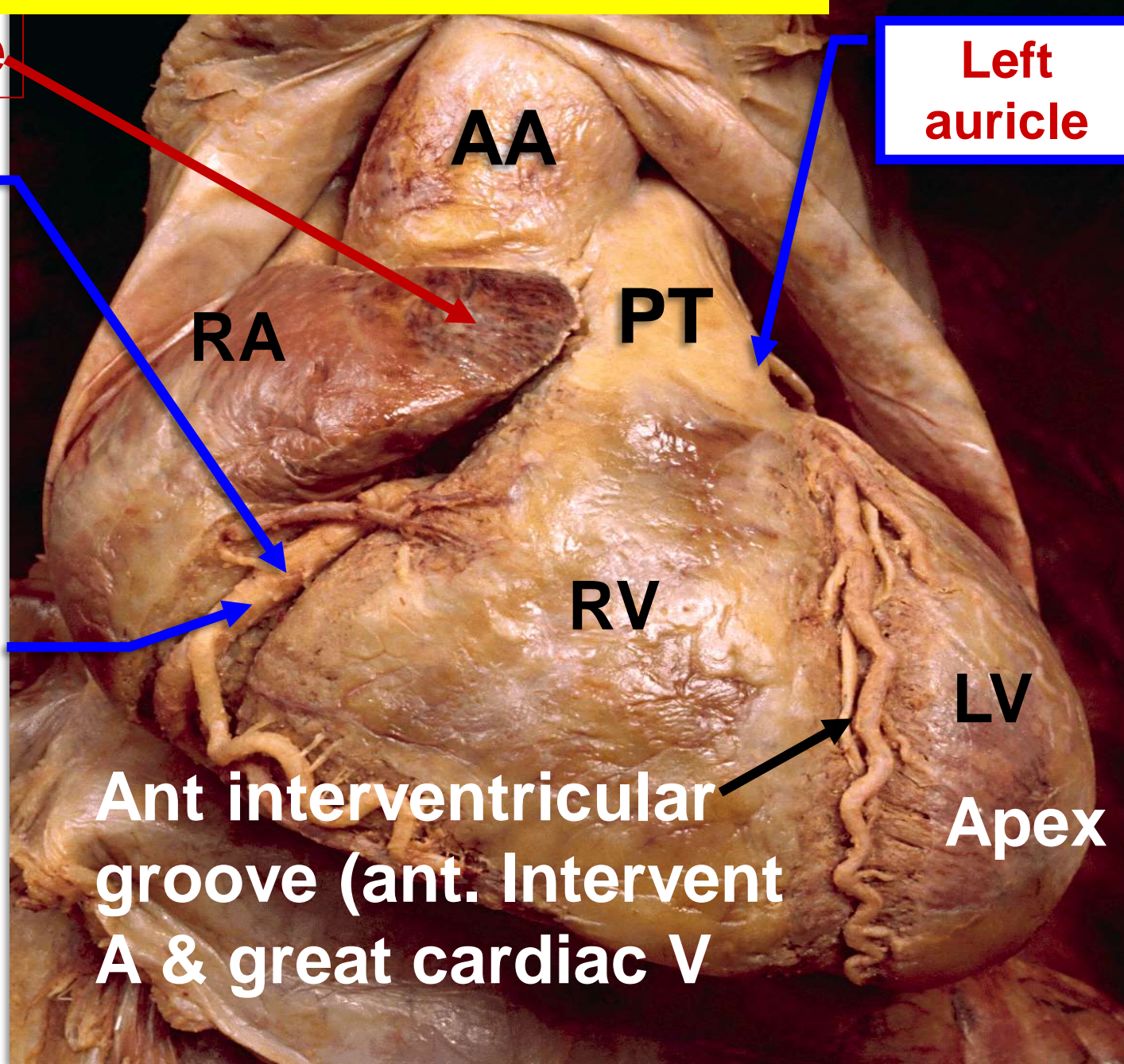
PT

RV

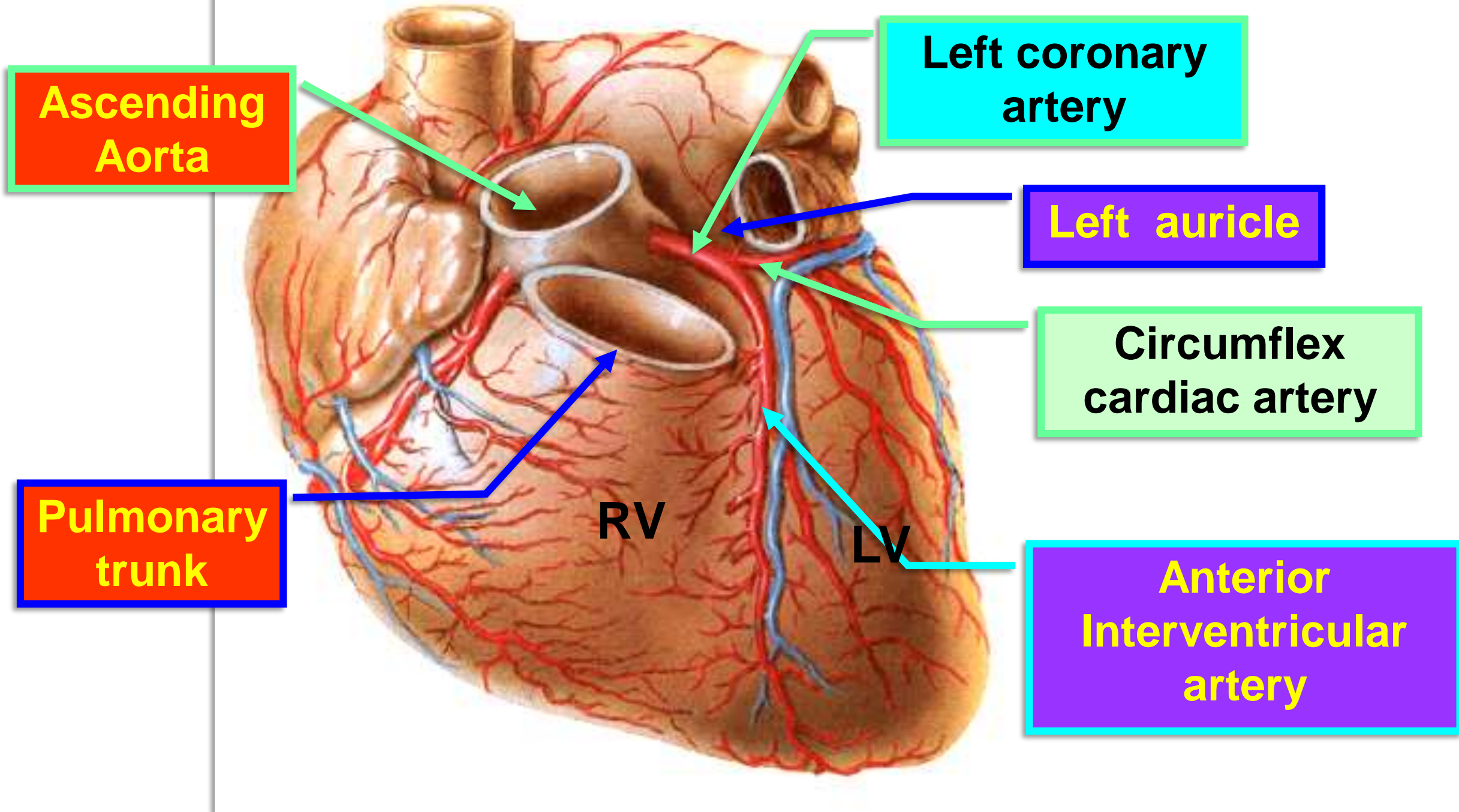
LV

Ant interventricular groove (ant. Intervent A & great cardiac V

Apex



**LEFT CORONARY
ARTERY**



**Ascending
Aorta**

**Left coronary
artery**

Left auricle

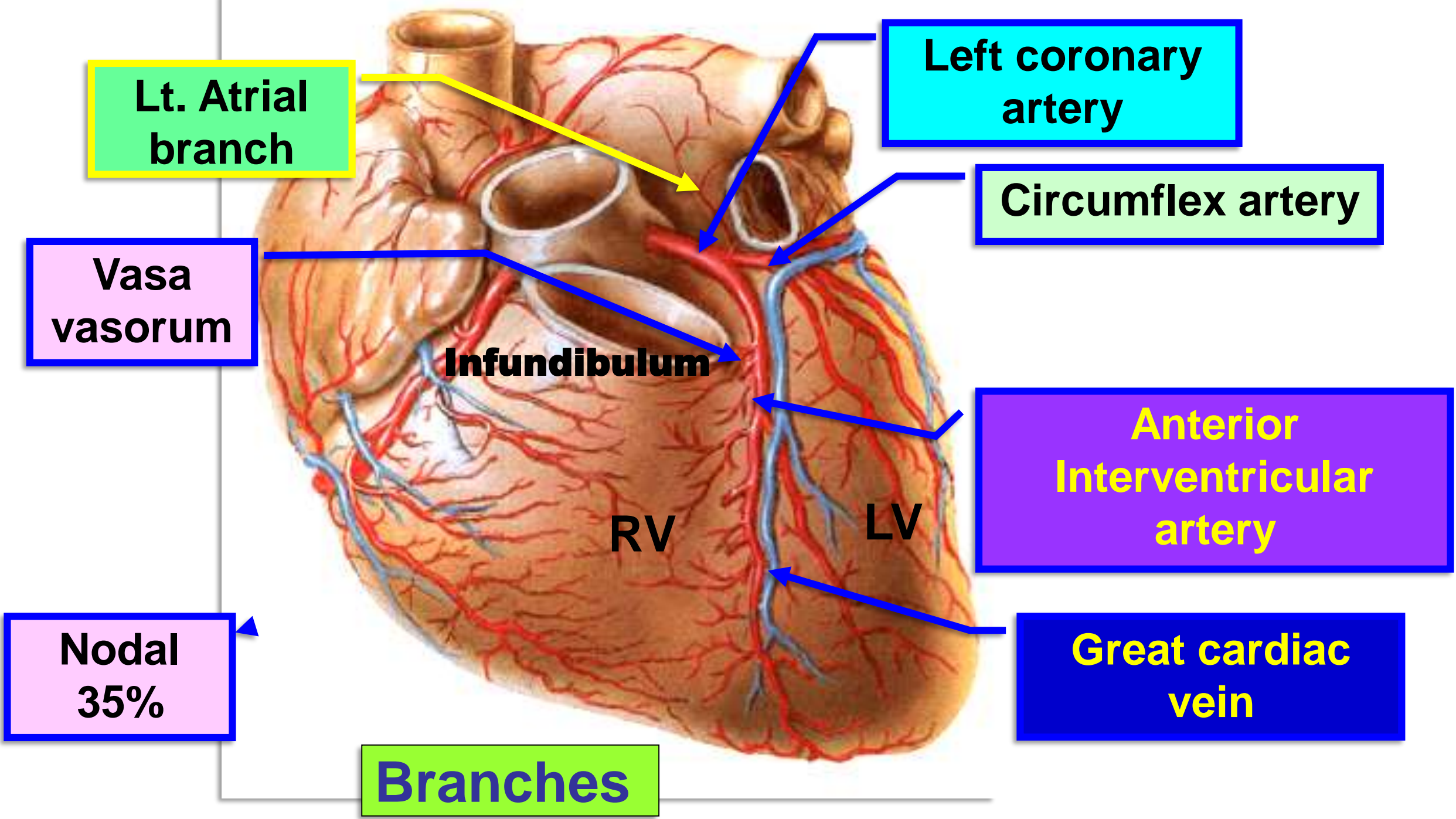
**Circumflex
cardiac artery**

**Pulmonary
trunk**

RV

LV

**Anterior
Interventricular
artery**



Lt. Atrial branch

Left coronary artery

Circumflex artery

Vasa vasorum

Infundibulum

Anterior Interventricular artery

RV

LV

Nodal 35%

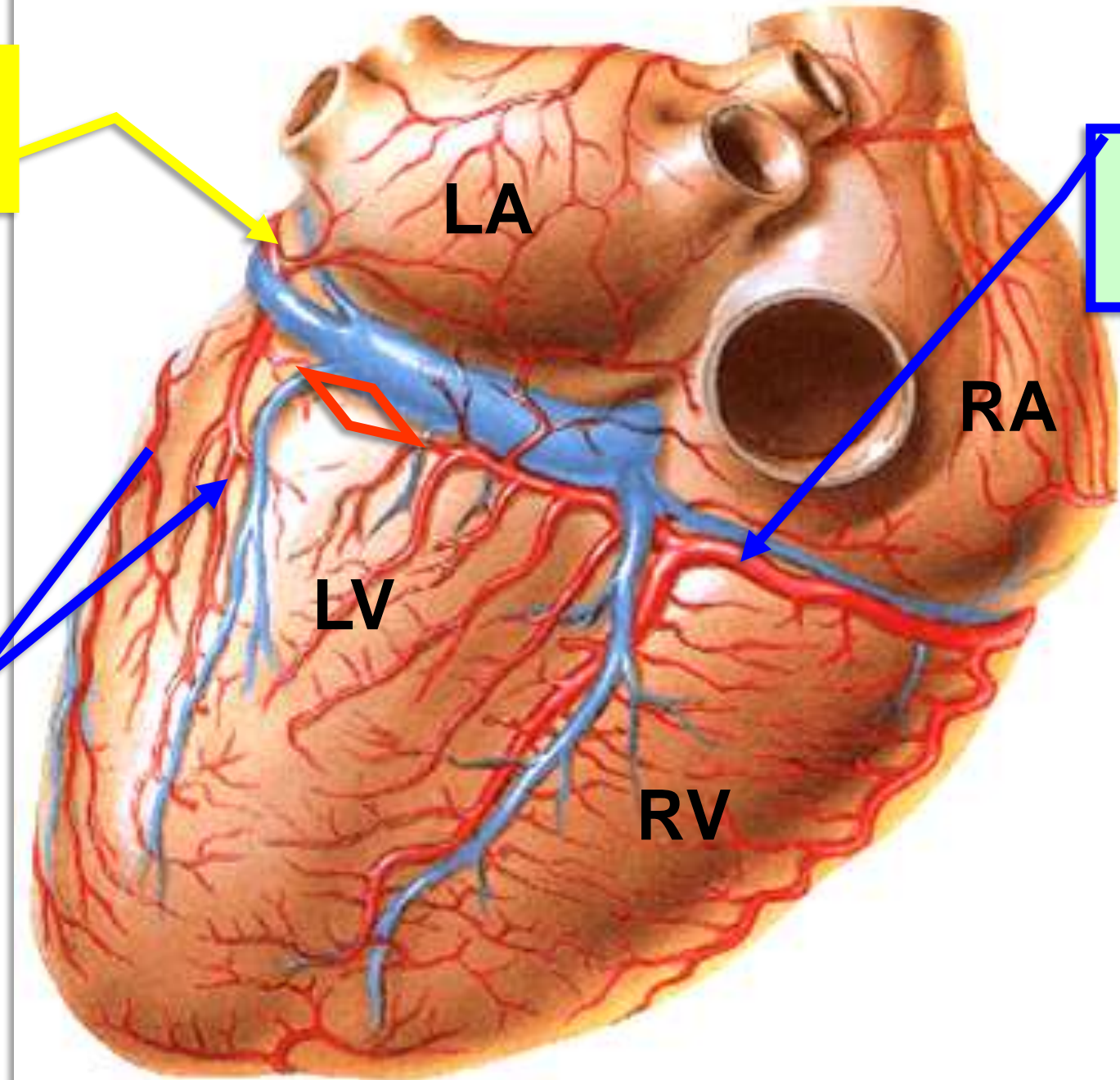
Great cardiac vein

Branches

**Circumflex
cardiac artery**

**Right coronary
artery**

**Lt. Marginal
artery**



- **Left Coronary Artery LCA**

**** Origin;** It arises from the left posterior aortic sinus of the ascending aorta.

**** Course:** passes behind the pulmonary trunk → between the pulmonary trunk and the left auricle → **ends** by dividing into 2 branches;

a- Anterior interventricular artery.

b- Circumflex artery.

**** Branches** of the left coronary artery:

1- Vasa vasorum: to the pulmonary trunk and ascending aorta

2- Nodal branch: to the S. A. node (35% of people).

3- Atrial branches to the anterior wall of the left atrium.

4- Anterior interventricular artery (LADA): It supplies,

a- Anterior wall of both right and left ventricles (**diagonal artery**).

b- Anterior **2/3** of the interventricular septum.

5- The circumflex cardiac artery: It supplies

a) Posterior wall of the left atrium and left ventricle.

b) **Left marginal artery** to the left ventricle.

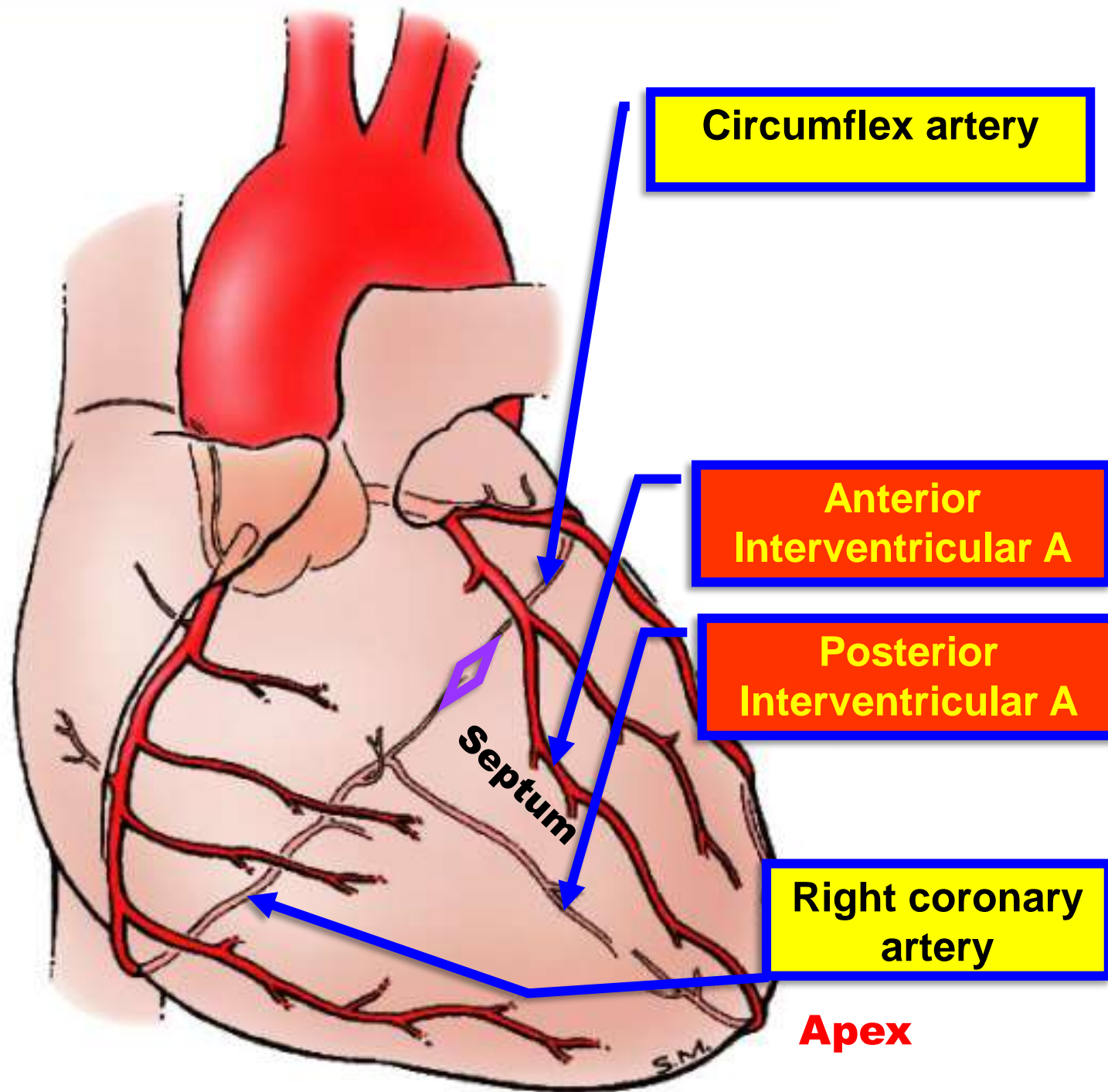
- **Anastomosis between branches of coronary arteries**

It is **poor Sites of anastomosis; and not adequate** compensate any obstruction of a large artery.

1- In the posterior atrio-ventricular groove, between right coronary and circumflex arteries.

2- In the inter-ventricular septum; between anterior and posterior inter-ventricular arteries.

3- Near the apex of the heart, between the anterior and posterior inter-ventricular arteries.



- **Why the coronary arteries filling occur during diastole:**

- a- The openings of the arteries closed during systole.

- b- The wall of the heart is relaxed and received its blood during diastole.

- **Some of Variations in the posterior inter-ventricular artery**

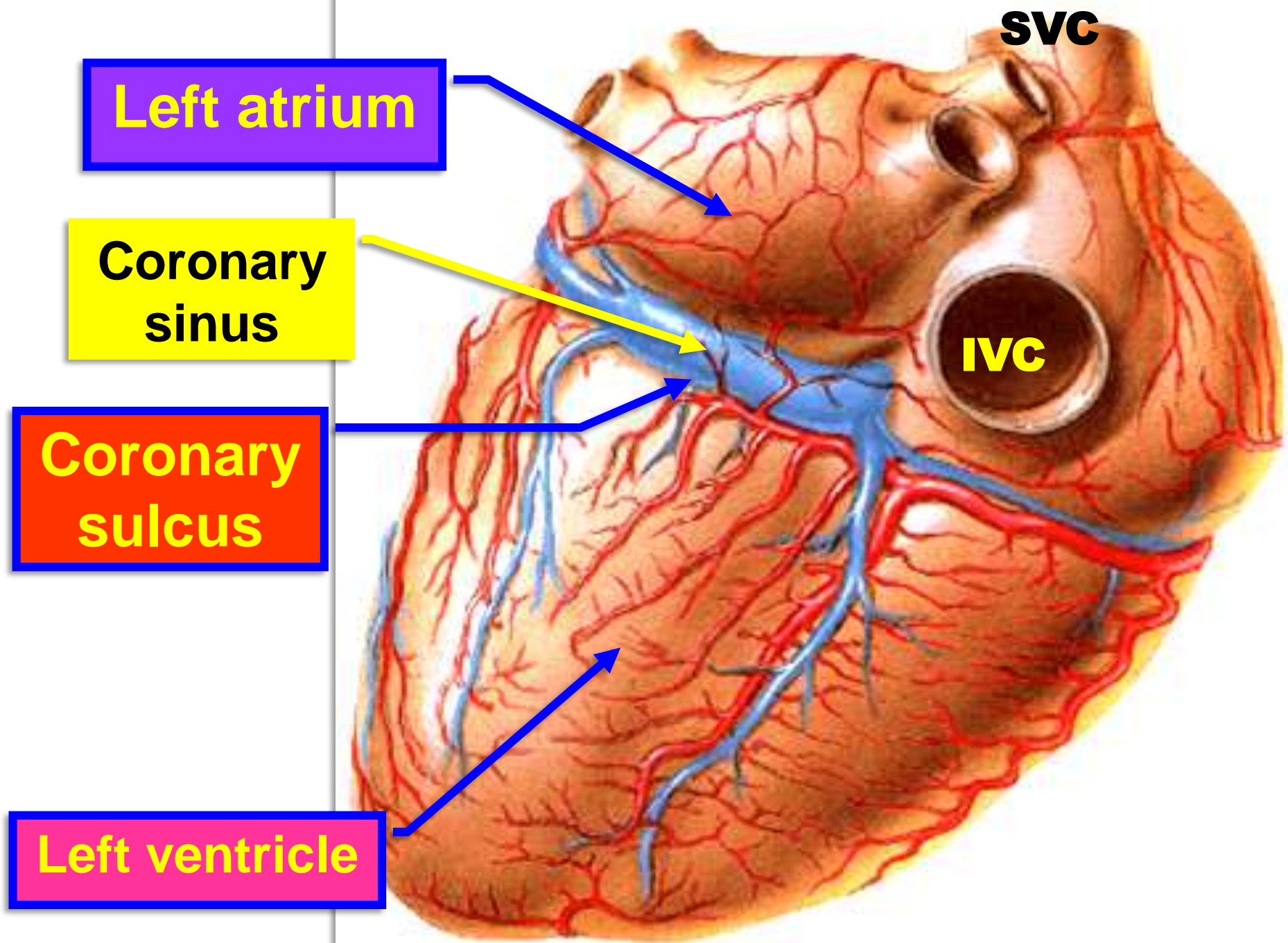
- a- It is a branch from the **right coronary artery** (the heart is called **right dependent or dominant**).

- b- It may be a continuation of the **circumflex artery** (the heart is called **left dependent or dominant**).

- In rare case the **right coronary arises** from the **left coronary** (the heart is called **preponderant heart**).

- **Third coronary artery** (When **Right conus artery** arises separately from the anterior aortic sinus with right coronary artery)

**Venous
drainage
Heart**



Left atrium

Coronary sinus

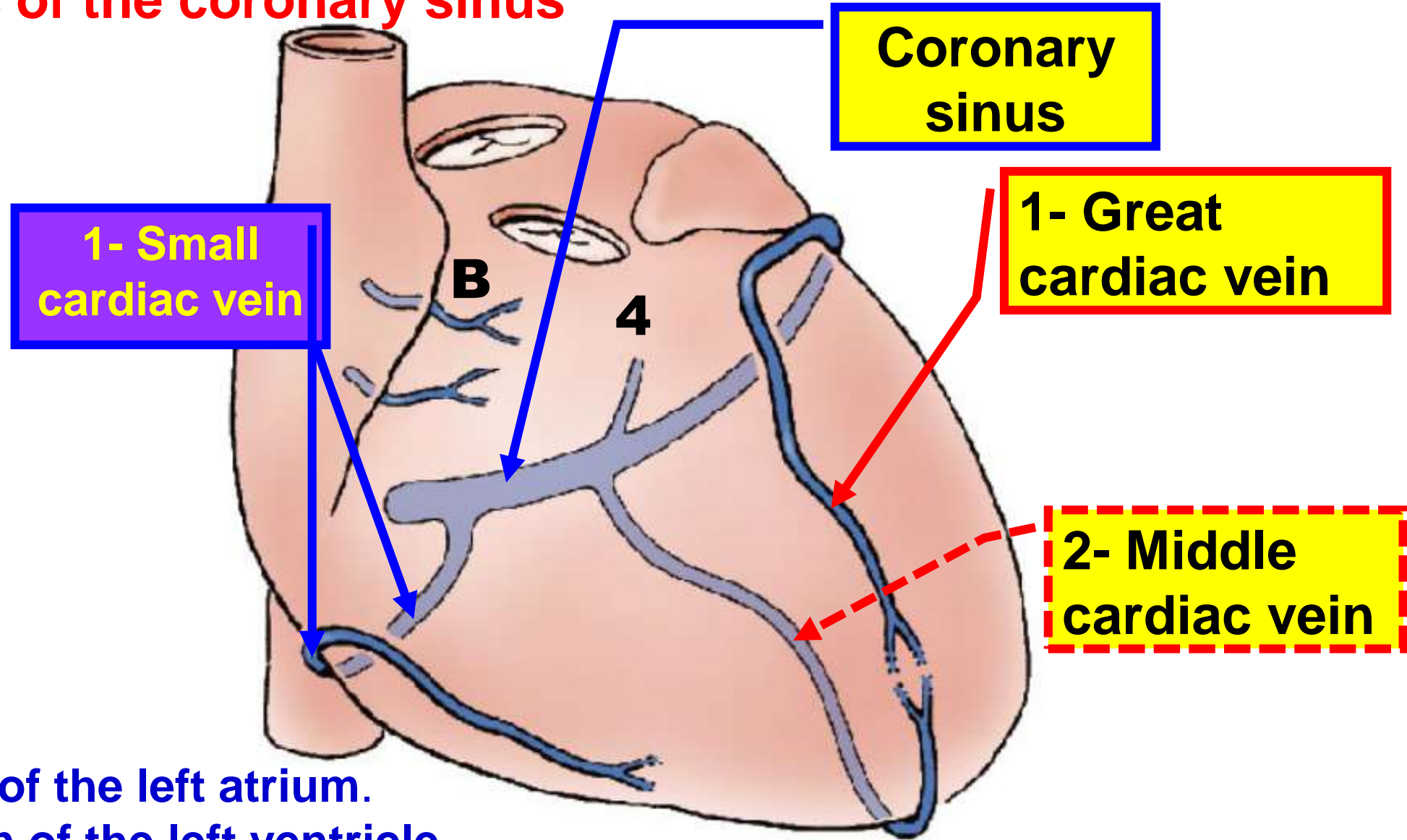
Coronary sulcus

Left ventricle

SVC

IVC

A- Tributaries of the coronary sinus



B- Anterior cardiac vein

Venous Drainage of the Heart (CORONARY SINUS)

**** Site;** It lies in the posterior atrio-ventricular groove between LA & LV.

****** It ends in the right atrium (its opening has a valve).

**** Tributaries of the coronary sinus,**

a- Great cardiac vein:- ascends in the **anterior** interventricular groove with the **anterior** interventricular artery.

b- Middle cardiac vein: runs in the **posterior** inter-ventricular groove with the **posterior** inter-ventricular artery.

c- Small cardiac vein: Along the **inferior** border of the heart. It turns backwards with the right coronary artery.

d- Oblique vein of the left atrium

e- Posterior vein of the left ventricle.

2- Anterior cardiac veins: open directly into the right atrium.

3- Vena cordis minimi (Thebesian veins): very small veins that open directly into chambers of heart. These veins are responsible for non-oxygenated blood to the oxygenated blood.

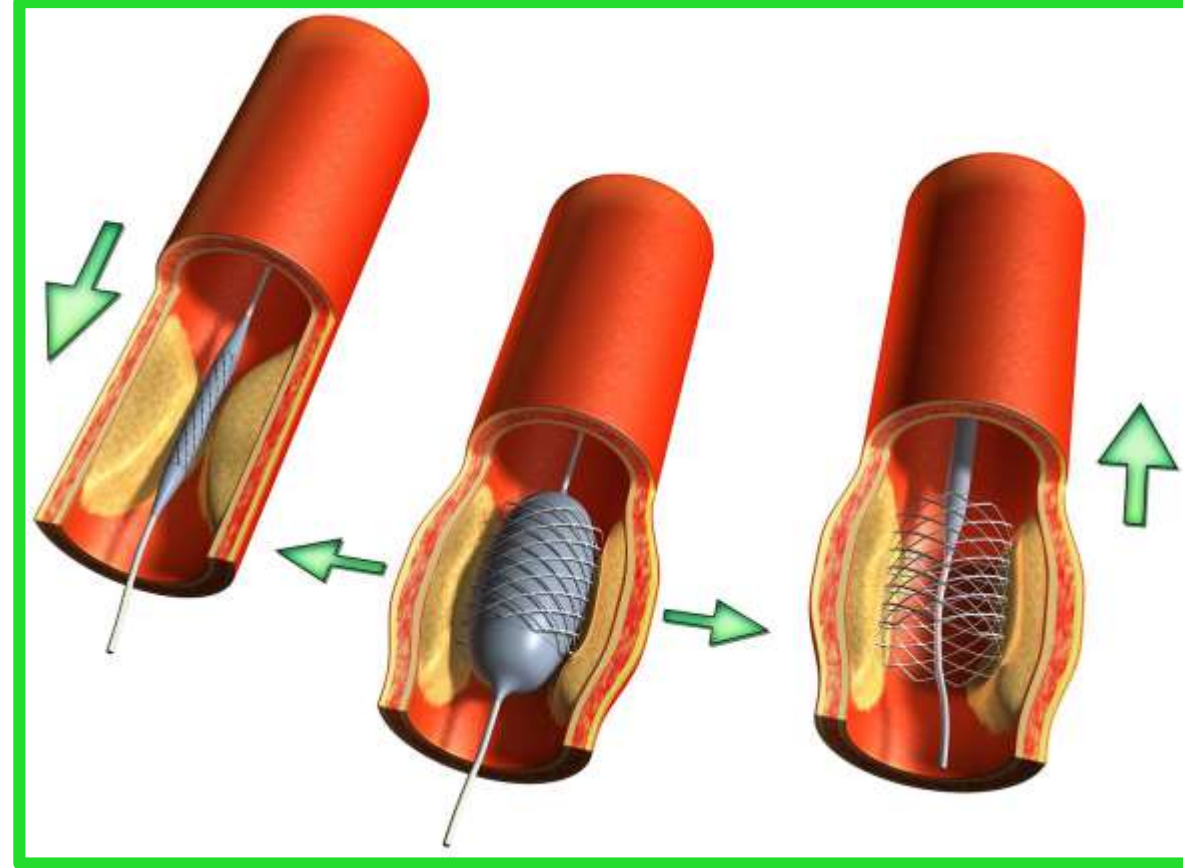
Coronary Angiography

تصوير الأوعية بالصبغة

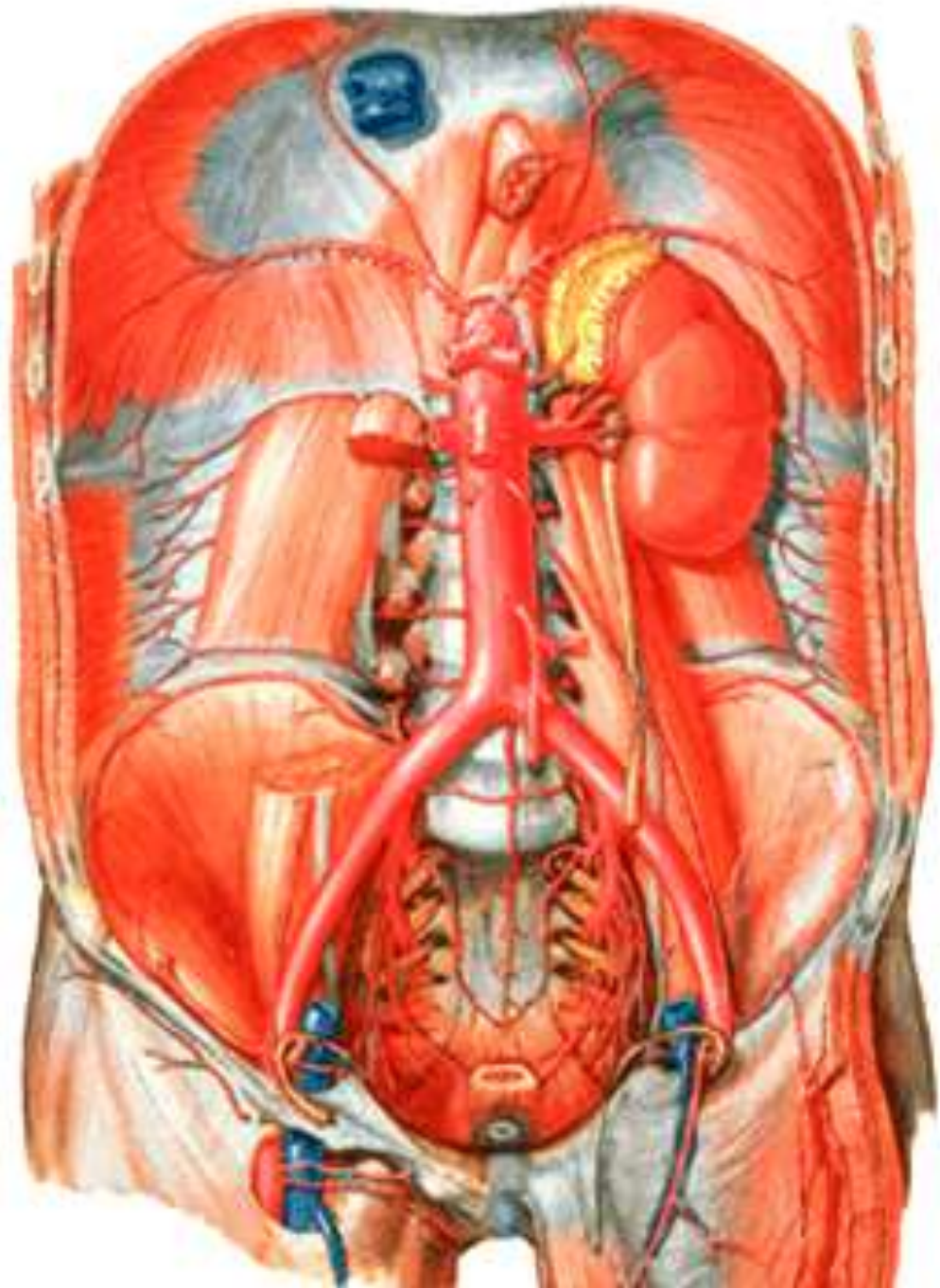
- The coronary arteries can be visualized with A catheter which is passed into **the ascending aorta** via **the femoral artery** in the inguinal region.
- Under **fluoroscopic control**, the tip of the catheter is placed just inside the opening of a **coronary artery**.
- A small injection of **radiopaque contrast material** to show the lumen of the artery and its branches, as well as any stenotic areas that may be present.
- Insufficiency of blood supply to the heart (**myocardial ischemia**) may result in **myocardial infarction**.
 - **Anterior IV (LADA) branch of the LCA (40-50%).**
 - **RCA (30-40%).**
 - **Circumflex branch of the LCA (15-20%).**

- Surgeons use **transluminal coronary angioplasty** in which they pass a **catheter** with a small **inflatable balloon** attached to its tip into the obstructed coronary artery
- When the catheter reaches the obstruction, the **balloon is inflated**, flattening the atherosclerotic plaque **against** the vessel's wall.
- The vessel is stretched to increase the size of the lumen, thus improving blood flow.

Coronary Angioplasty



دعامة (قسطرة) القلب



➤ **Cardiac Catheterization**

Femoral artery ----- External iliac artery ---
---- Common iliac artery ----- Abdominal
aorta ----- Descending thoracic aorta -----
Arch of aorta ----- Ascending aorta ----
Coronary arteries.

➤ **Beginning of femoral artery** as a
continuation of the external iliac artery at
the midinguinal point (between
symphysis pubis & ASIS)

Thigh is Slight flexion, abduction, lateral rotation

