

# HEART

DESCRIBE RIGHT ATRIUM UNDER THE FOLLOWING HEADINGS: BORDERS AND SURFACES, RELATIONS, EXTERNAL AND INTERNAL FEATURES INCLUDING OPENINGS, BLOOD SUPPLY AND NERVE SUPPLY, DEVELOPMENT INCLUDING THAT OF INTERATRIAL SEPTUM ANOMALIES (LE)

**Borders and surfaces:** entire right border,  $\frac{1}{3}^{\text{rd}}$  of base, part of sterno-costal surface

**Relations:**

Anterior-

pericardium,

mediastinal surface of right lung, pleura

posterior and right-

right pair of pulmonary veins

posterior and left-

left atrium separated by interatrial septum

lateral-

pericardium, right phrenic nerve, pericardiophrenic vessels,

mediastinal pleura, right lung

medial-

roots of ascending aorta, pulmonary trunk

**External features**

Right auricle- conical muscular projection arises from antero-superior part of atrium

Sulcus terminalis- shallow vertical groove runs along right border of heart extending between superior venacava and inferior venacava

**Internal features**

Posterior smooth part called sinus venarum -occupies posterior and right wall of atrium

Openings- superior venacava, inferior venacava guarded by Eustachian valve, coronary sinus guarded by Thebesian valve, foramina venarum minimarum  
Anterior rough part called atrium proper- lies in front of crista terminalis

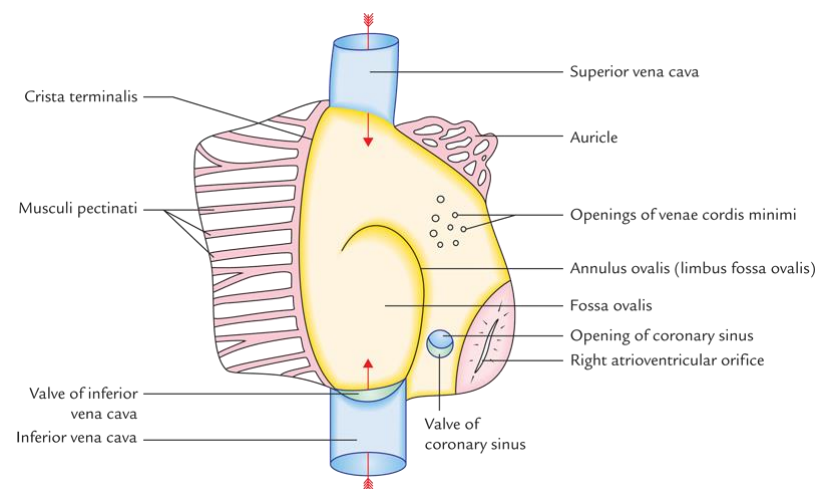
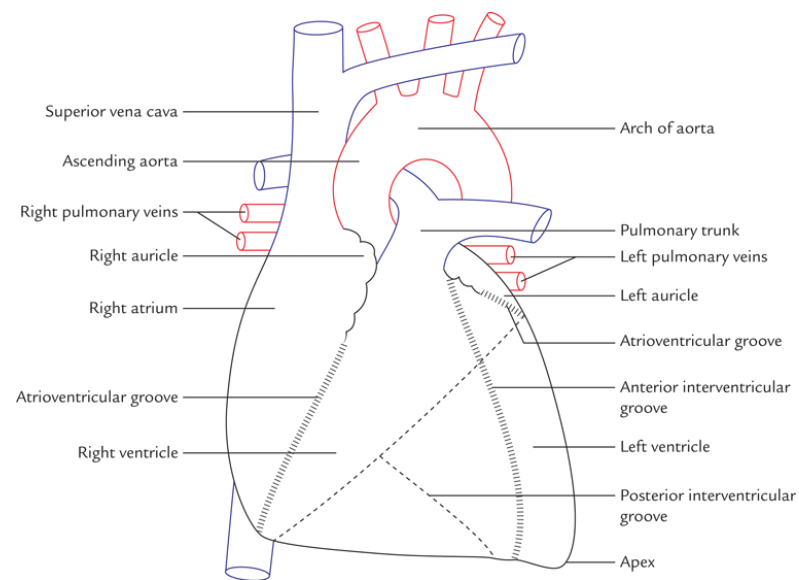
crista terminalis- smooth muscle ridge coinciding externally with sulcus terminalis

musculi pectinati- parallel muscular ridges passing forwards from crista terminalis towards right atrioventricular orifice

fossa ovalis- oval depression above and to left of inferior venacava

limbus fossa ovalis- sickle shaped sharp margin which surrounds upper, anterior and posterior margins of fossa ovalis

triangle of Koch- lodges A-V node. It is bounded by septal leaflet anteriorly, antero-medial margin of coronary sinus and tendon of Todaro superiorly



**Blood supply and nerve supply:**

Arterial supply: right coronary artery

Venous drainage: anterior cardiac veins

Nerve supply: cardiac plexus formed by vagus (parasympathetic) and branches of 1<sup>st</sup> cervical to 4<sup>th</sup> or 5<sup>th</sup> thoracic sympathetic ganglia

**Development including interatrial septum:****Right atrium:**

Sinus venarum (smooth part) is developed from absorbed right horn of sinus venosus

Atrium proper (rough part) is developed from right part of primitive atrium

Crista terminalis is a remnant of upper part of right venous valve

Valves of inferior venacava and coronary sinus are derived from lower part of right venous valve

Floor of fossa ovalis is formed by septum primum and limbus fossa ovalis by lower margin of septum secundum

**Interatrial septum:**

Septum primum grows from roof and dorsal wall of primitive atrium and runs downwards. A foramen primum is formed between the septum primum and septum intermedium which is later on closed. Before the foramen primum is closed septum primum disintegrates in the upper part to form foramen secundum. Septum secundum arises on the right side of septum primum, grows downwards and overlaps septum primum. The blood flows through the gap called foramen ovale between septum primum and septum secundum from right atrium to left atrium. After birth inter-atrial pressure is equalized and foramen ovale is closed functionally. Later anatomically the margins of septum primum and septum secundum fuse.

**Anomalies:**

Probe patency of foramen ovale- functionally foramen ovale is closed but anatomically open

Persistent ostium secundum- due to incomplete development of septum secundum or extensive resorption of septum primum

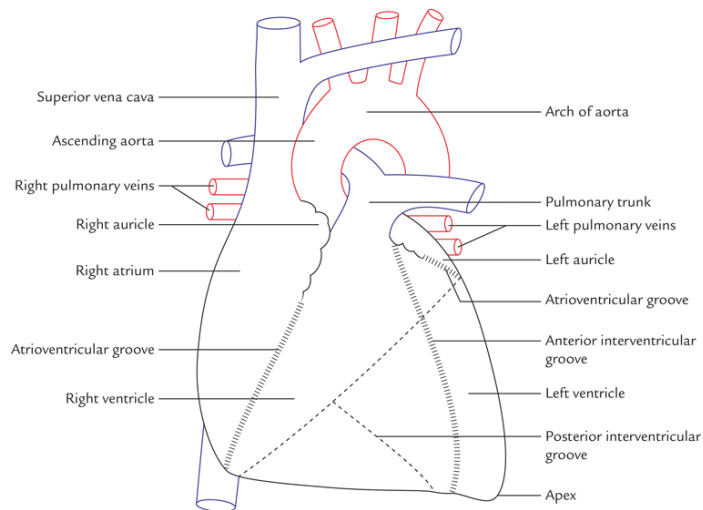
Interatrial septum may be absent.

**STERNOCOSTAL SURFACE OF HEART (SE)**

Sternocostal surface of heart is formed by all 4 chambers- right atrium and auricle, left auricle, right ventricle and left ventricle.

Relations: three layers of pericardium, lungs and pleura, sternum and costal cartilages.  
Below 4<sup>th</sup> costal cartilage on left side directly related to sternum and costal cartilages.  
This area is called as cardiac dullness.

Features: inbetween the atria and ventricles is the atrio-ventricular groove or coronary sulcus. On the right side it lodges right coronary artery along with small cardiac vein. On the left side it lodges left coronary artery. Between the right and left ventricles is the anterior interventricular groove lodging the anterior interventricular artery along with great cardiac vein.



## RIGHT ATRIUM (SE)

### Interior of right atrium

Posterior smooth part called sinus venarum - occupies posterior and right wall of atrium

openings- superior venacava, inferior venacava guarded by Eustachian valve, coronary sinus guarded by Thebesian valve, foramina venarum minimarum

Anterior rough part called atrium proper- lies in front of crista terminalis

crista terminalis- smooth muscle ridge coinciding externally with sulcus terminalis

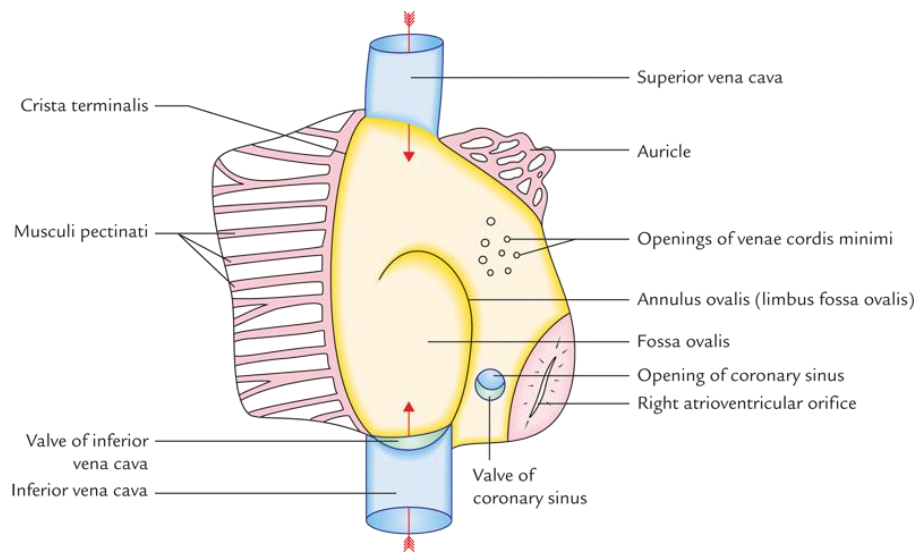
musculi pectinati- parallel muscular ridges passing forwards from crista terminalis towards right atrioventricular orifice

Septal wall formed by interatrial septum

fossa ovalis- oval depression above and to left of inferior venacava

limbus fossa ovalis- sickle shaped sharp margin which surrounds upper, anterior and posterior margins of fossa ovalis

Triangle of Koch- lodges A-V node. It is bounded by septal leaflet anteriorly, antero-medial margin of coronary sinus and tendon of Todaro superiorly



## INTERATRIAL SEPTUM AND ITS DEVELOPMENT (SE)

### Interatrial septum

fossa ovalis- oval depression above and to left of inferior vena cava

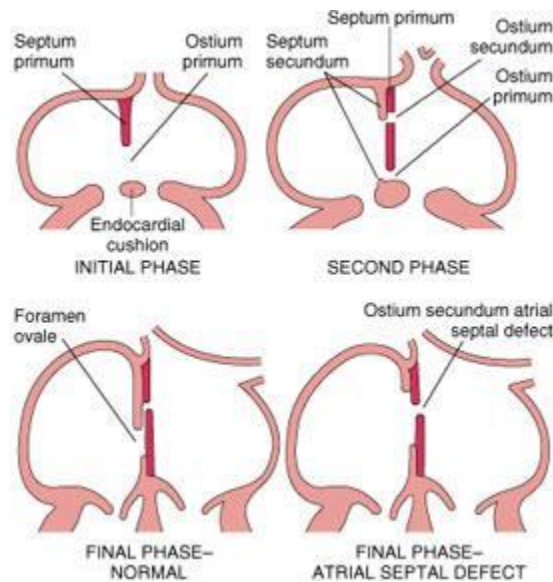
limbus fossa ovalis- sickle shaped sharp margin which surrounds upper, anterior and posterior margins of fossa ovalis

triangle of Koch- lodges A-V node. It is bounded by septal leaflet anteriorly, antero-medial margin of coronary sinus and tendon of Todaro superiorly

### Development

Septum primum grows from roof and dorsal wall of primitive atrium and runs downwards. A foramen primum is formed between the septum primum and septum intermedium which is later on closed.

Before the foramen primum is closed septum primum disintegrates in the upper part to form foramen secundum. Septum secundum arises on the right side of septum primum, grows downwards and overlaps septum primum. The blood flows through the gap called foramen ovale between septum primum and septum secundum from right atrium to left atrium. After birth inter-atrial pressure is equalized and foramen ovale is closed functionally. Later anatomically the margins of septum primum and septum secundum fuse.



## INTERVENTRICULAR SEPTUM (SE)

It is present between right and left ventricles and composed of muscular and membranous parts. It bulges into the cavity of right ventricle because of higher blood pressure in the left ventricle. Septomarginal trabecula, muscular bundle extends from inferior part of interventricular septum to base of anterior papillary muscle and carries right branch of A-V bundle.

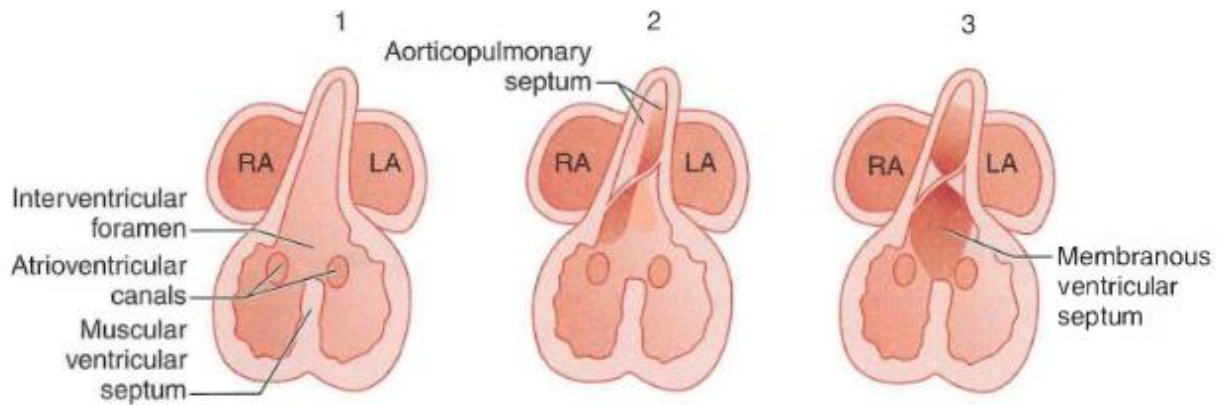
### Development-

Ventricular septum is formed from three sources-

ventricular septum proper which grows from floor and ventral wall of primitive ventricle,

proximal bulbar septum which grows downwards and fuses with upper margin of ventricular septum proper

Septum intermedium formed by fusion of ventral and dorsal cushions fills the gap between ventricular septum proper and proximal bulbar septum



### LEFT ATRIUM (SE)

It forms most of the base; part of left surface and left border of heart.

The tubular muscular projection from the atrium forms the left auricle overlapping the pulmonary trunk.

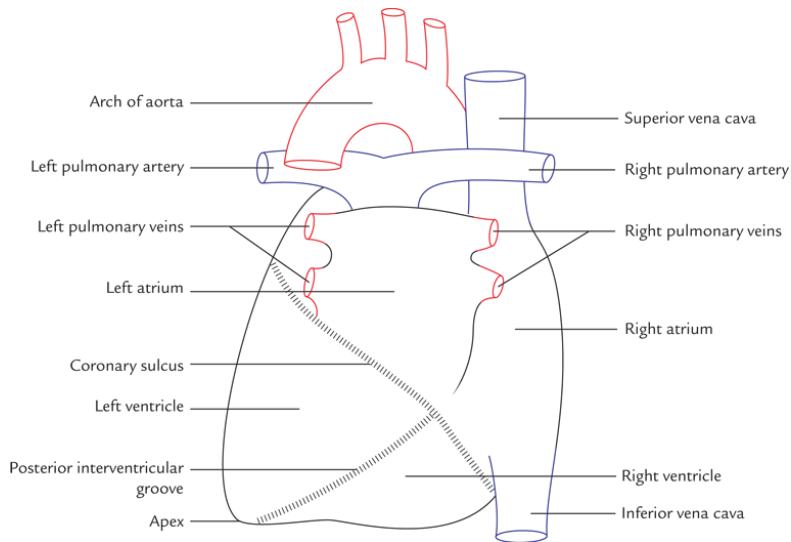
#### Interior:

larger smooth walled part and smaller muscular auricle containing the muscoli pectinati

Four pulmonary vein open into the smooth posterior wall

The wall is slightly thicker than the right atrium

It communicates to left ventricle through the left atrio-ventricular orifice which has two cusps



## LEFT VENTRICLE (SE)

It forms the apex, most of the left surface and border and most of the diaphragmatic surface of heart.

Interior:

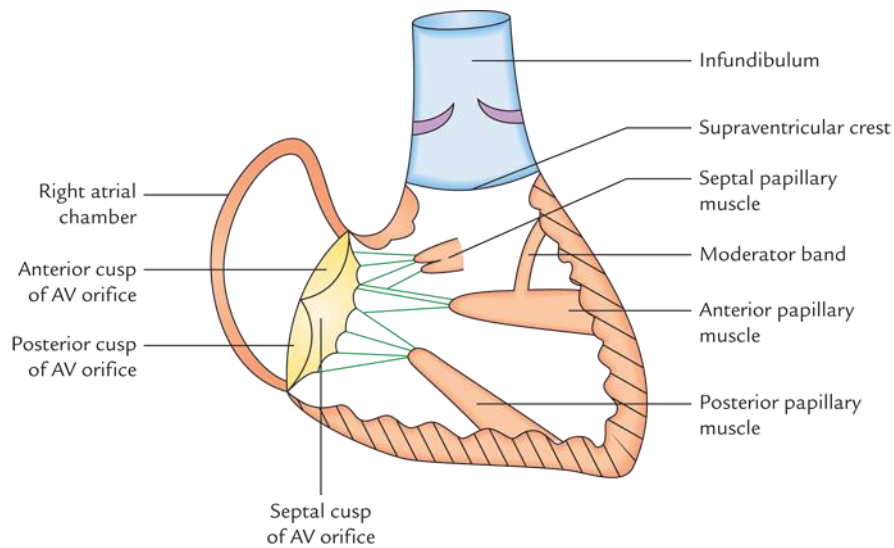
Wall is three times thicker than that of the right ventricle.

Smooth outflowing part- non muscular part called aortic vestibule leading to aortic orifice and valves

Rough inflowing part- presents with trabeculae carneae - ridges (muscular elevation attached throughout to the ventricular wall), bridges (both ends of muscular elevation attached to ventricular wall with a gap inbetween) and papillary muscles (conical muscular projections with bases attached to ventricular wall and apex giving attachment to chordae tendinae)

Atrio-ventricular orifice or mitral orifice- it has two cusps anterior and posterior. Each cusp gives attachment to chordae tendinae. The chords become taut just before the systole preventing the cusps from being forced into left atrium. The cusps prevent the backflow of blood into left atrium.





### TRICUSPID VALVULAR COMPLEX (SE)

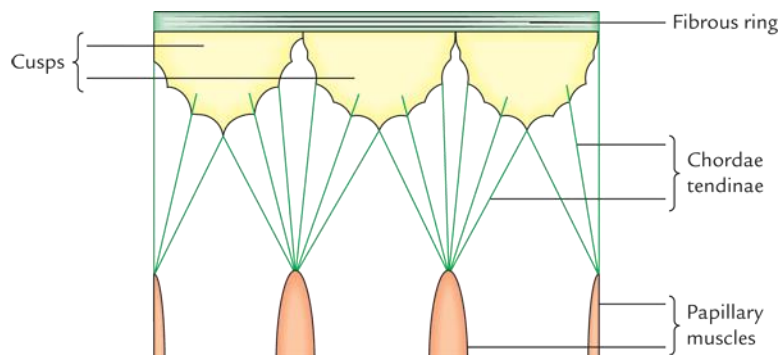
It consists of right atrio-ventricular orifice, fibrous ring or annulus, cusps or leaflets, chordae tendinae, papillary muscles.

Fibrous ring is attached to the margins of the atrioventricular orifice

Cusps- they are the reduplication of the endocardium. Three cusps- anterior, posterior and septal attached to the fibrous ring. The free margin of the cusp gives attachment to the chordae tendinae

Chordae tendinae- they are formed by the collagen fibers covered by the endothelium. They extend from the apex of papillary muscles to the free margin of cusp

Papillary muscles- they are conical projections having base and apex. Base attached to ventricular wall and apex is free giving attachment to chordae tendinae. There are three papillary muscles- anterior posterior and septal.



### **TRIANGLE OF KOCH (SA)**

It lodges A-V node.

It is bounded by septal leaflet anteriorly, antero-medial margin of coronary sinus inferiorly and tendon of Todaro superiorly

### **CHAMBERS OF HEART FORMING BASE OF HEART (SA)**

$\frac{2}{3}^{\text{rd}}$  of the base is formed by left atrium and  $\frac{1}{3}^{\text{rd}}$  is formed by right atrium. It is bounded on right side by sulcus terminalis extending from superior venacava to inferior venacava, left side by left superior and inferior pulmonary veins, above by the bifurcation of pulmonary trunk and below by atrio-ventricular groove

### **CRISTA TERMINALIS (SA)**

It is a muscular ridge extending from superior venacava to inferior venacava inside the right atrium opposite to sulcus terminalis. Muscular ridges arise from crista terminalis extending towards the right auricle forming muscoli pectinati. It separates the smooth part from the rough part of right atrium.

### **OPENINGS OF RIGHT ATRIUM (SA)**

Superior venacava- opens from above into posterior part of right atrium

inferior venacava- opens from below into posterior part of right atrium. It is guarded by the Eustachian valve which in fetal life directs the blood flow towards the left atrium.

coronary sinus- opens into right atrium in between the opening of inferior venacava and the right atrio-ventricular orifice. The opening is guarded by the Thebesian valve

foramina venarum minimarum- these are small openings which drain blood from the heart seen in the septal wall

### **FOSSA OVALIS (SA)**

It is the oval depression present on the septal wall of right atrium above and to left of opening of inferior venacava.

The floor of fossa is thin and is formed by septum primum.

The superior, anterior and posterior margins of the fossa ovalis is bounded by sharp margin called limbus fossa ovalis.

### **PAPILLARY MUSCLES (SA)**

They are the conical muscular projections present in the right and left ventricles. Each papillary muscle has an apex which is free and the base attached to the ventricular wall. Apex gives rise to the chordae tendinae. There are three papillary muscles in the right ventricle (anterior, posterior, septal) and two in the left ventricle (anterior, posterior). When the papillary muscles contract, the chordae tendinae becomes taut and pulls the cusps closer to each other and prevents the backflow of blood into atria.

### **BLOOD SUPPLY, NERVE SUPPLY AND CONDUCTING SYSTEM OF THE HEART (LE)**

**DISCUSS THE BLOOD SUPPLY OF THE HEART AND ADD A NOTE ON THE PERICARDIAL SINUSES.(LE)**

**DESCRIBE BLOOD SUPPLY OF HEART.GIVE ITS APPLIED ANATOMY.(LE)**

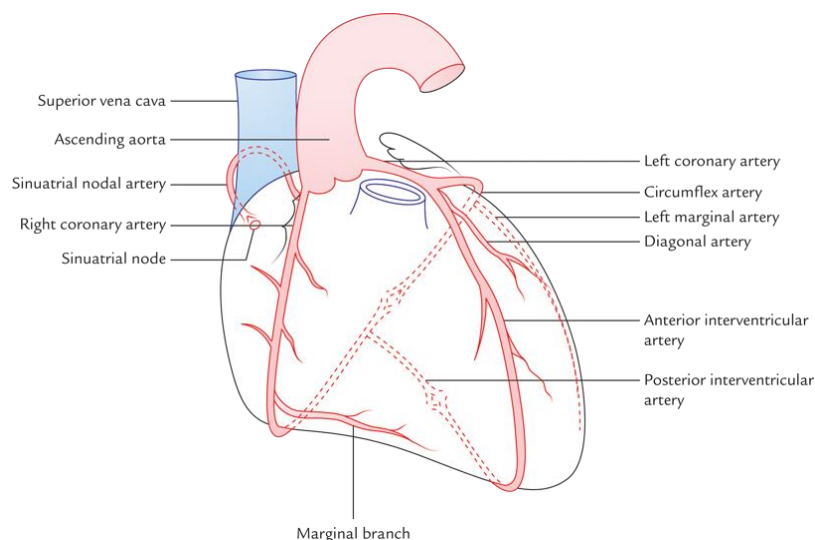
### **LEFT CORONARY ARTERY (SE)**

### **RIGHT CORONARY ARTERY (SE)**

The heart is supplied by the right and left coronary arteries.

#### **Right coronary artery:**

Arises from the anterior aortic sinus of the ascending aorta.



**Course:**

It first passes forwards and to the right to emerge on the surface of the heart between the root of the pulmonary trunk and the right auricle.

It descends in the right AV groove upto the junction of right and inferior border.

It winds round the inferior border to reach the diaphragmatic surface of the heart.

At the inferior border of the heart it turns posteriorly, runs in the posterior interventricular groove.

It terminates by anastomosing with the circumflex branch of left coronary artery.

**Branches:**

Right conus artery.

Atrial branches.

Anterior ventricular branches.

Posterior ventricular branches.

posterior interventricular artery.

**Area of distribution:**

Right atrium.

Ventricles

greater part of ventricle except the area adjoining the anterior interventricular groove.

A small part of the left ventricle adjoining the posterior interventricular groove.

Posterior part of the interventricular groove.

Whole of the conducting system of the heart except the part of the left AV bundle.

**Left coronary artery:**

Left coronary artery is larger than the right coronary artery.

It arises from the left posterior aortic sinus.

**Course:**

The artery first runs forwards and to the left and emerges between the pulmonary trunk and the left auricle.

After giving off the anterior interventricular branch the artery runs to the left in the left anterior coronary sulcus.

It winds round the left border of the heart and continues in the left posterior coronary sulcus.

Near the posterior interventricular groove it terminates by anastomosing with the right coronary artery.

**Branches:**

Anterior interventricular artery.

Circumflex artery.

Diagonal artery.

Conus artery.

Atrial branches.

**Area of distribution:**

Left atrium.

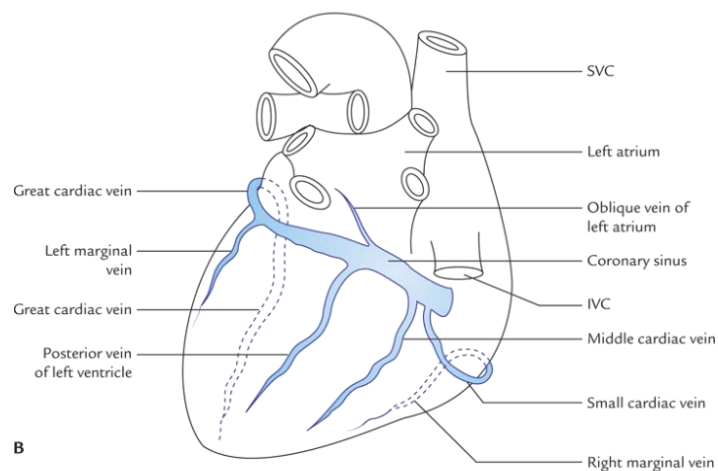
Ventricles

Greater part of the left ventricle.

A small part of the right ventricle .

Anterior part of the interventricular septum.

A part of the left branch of the AV bundle.

**Venous drainage:**

About 60% of the venous blood of the heart drains into the right atrium via the coronary sinus.

The remaining 40% drains into the different chambers of the heart via venae cordis minimi and anterior cardiac veins.

The tributaries of the coronary sinus are

The great cardiac vein.

The middle cardiac vein.

The right marginal vein .

The posterior vein of the left ventricle.

The oblique vein of the left atrium.

The right marginal vein

**Applied Anatomy:****Ischaemic heart disease**

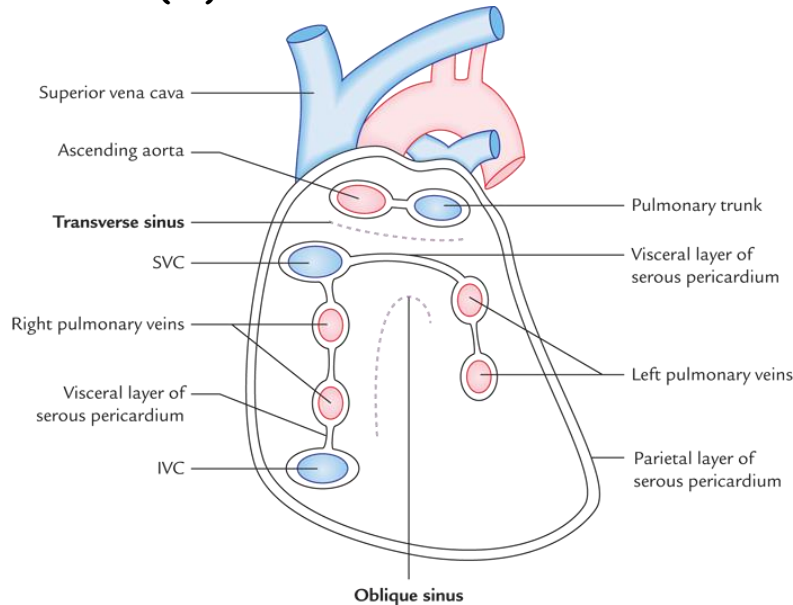
Results from occlusion of coronary artery or its major branches.

**Myocardial infarction:**

Due to sudden and complete obstruction of a major branch of coronary artery, the heart failure occurs. It is also known as heart attack.

**Angina pectoris:**

Due to incomplete and spasmodic obstruction of coronary arteries, there will be pain in the left side of the chest which aggravates on exertion.

**PERICARDIAL SINUSES: (LE)****Transverse sinus:**

It is transverse passage between two tubular reflections of the serous pericardium.

It is lined by visceral layer only.

**Boundaries:**

**In front**-Ascending aorta and pulmonary trunk enclosed in a single tube of serous pericardium.

**Behind**-Intra pericardial part of superior venacava and upper margin of the left atrium.

**Above**-bifurcation of pulmonary trunk.

**Below**- Upper surface of left atrium.

**Oblique sinus:**

It is a cul de sac behind the left atrium.

It is closed on all sides except below.

It is placed between parietal and visceral layers.

**Boundaries:**

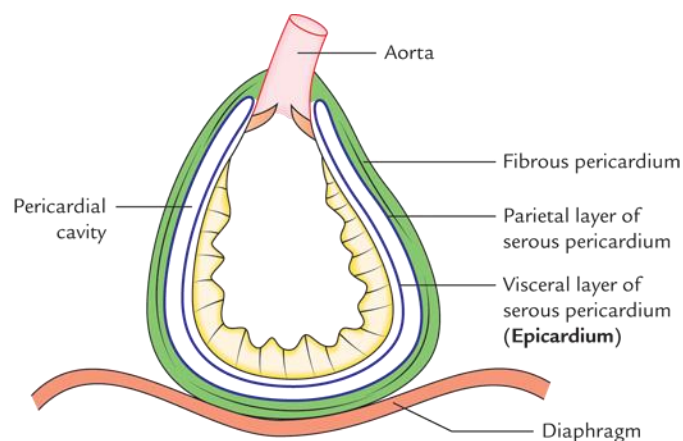
**In front**-left atrium

**Behind**-parietal layer,covering the posterior part of fibrous pericardium.

**Right side**-right pair of pulmonary veins and inferior vena cava.

**Left side**-left pair of pulmonary veins.

**Above**-upper margin of left atrium.

**PERICARDIUM -LAYERS AND SINUSES (SE)****SEROUS PERICARDIUM (SE)****FIBROUS PERICARDIUM (SE)**

The pericardium is fibroserous sac which encloses the heart and the roots of great vessels.

Situated in the middle mediastinum,behind the body of sternum and 2<sup>nd</sup> to 6<sup>th</sup> costal cartilages.infront of the bodies of 5<sup>th</sup> to 8<sup>th</sup> thoracic vertebrae.

It consists of (i)fibrous pericardium &  
(ii)serous pericardium.

**Fibrous pericardium:**

It is a cone shaped sac made up of fibrous tissue.

**Attachments:****Above**

its apex blends external coat of ascending aorta and pulmonary trunk.it is continues with pre tracheal layer of deep cervical fascia.

**Below**

The upper surface of central tendon and a part of musculature of the left part of the diaphragm.

**Infront:**

Upper & lower end of body of sternum by superior and inferior sternopericardial ligament respectively.

**Structure piercing:**

Ascending aorta  
Superior & inferior vena cava.  
Right and left pulmonary arteries.  
Four pulmonary veins.

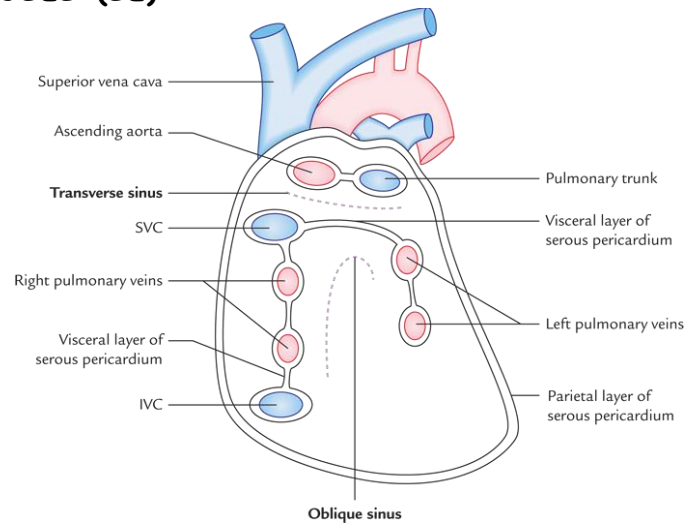
**Serous pericardium**

It is thin double layered serous membrane lined by mesothelium.

It is having two layers-outer parietal pericardium  
-inner visceral pericardium.

The parietal pericardium lines the inner surface of fibrous pericardium & intimately blended with it.

Visceral pericardium covers the heart and roots of great vessels attached to the heart.

**PERICARDIAL SINUSES: (SE)****Transverse sinus:**

It is transverse passage between two tubular reflections of the serous pericardium .

It is lined by visceral layer only.

**Boundaries:**

**Infront-**Ascending aorta and pulmonary trunk enclosed in a single tube of serous pericardium.



**Behind**-Intra pericardial part of superior venacava and upper margin of the left atrium.

**Above**- bifurcation of pulmonary trunk.

**Below**- Upper surface of left atrium.

**Oblique sinus:**

It is a cul de sac behind the left atrium.

It is closed on all sides except below.

It is placed between parietal and visceral layers .

**Boundaries:**

**In front**-left atrium

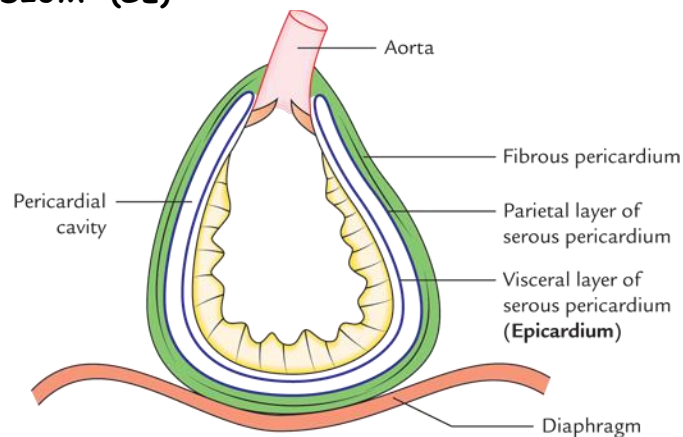
**Behind**-parietal layer,covering the posterior part of fibrous pericardium.

**Right side**-right pair of pulmonary veins and inferior vena cava.

**Left side**-left pair of pulmonary veins.

**Above**-upper margin of left atrium.

**FIBROUS PERICARDIUM (SE)**



It is a cone shaped sac made up of fibrous tissue.

**Attachments:**

**Above**

its apex blends external coat of ascending aorta and pulmonary trunk.it is continues with pre tracheal layer of deep cervical fascia.

**Below**

The upper surface of central tendon and a part of musculature of the left part of the diaphragm.

**Infront**

Upper & lower end of body of sternum by superior and inferior sternopericardial ligament respectively.

**Structure piercing**

Ascending aorta  
Superior & inferior vena cava.  
Right and left pulmonary arteries.  
Four pulmonary veins.

**Relations****Infront**

Anterior thoracic wall.  
Below the left 4<sup>th</sup> costal cartilage, the pericardium comes in direct contact with left half of lower 2 pieces of body of sternum.

**Behind**

It forms the anterior boundary of posterior mediastinum  
Related to  
right and left bronchi,  
oesophagus,  
descending thoracic aorta,  
thoracic duct,  
azygous and hemiazygous vein.

**On each side**

mediastinal pleura  
Phrenic nerves  
Pericardiophrenic vessels.

**Below**

Left lobe of the liver and fundus of stomach separated by the diaphragm.

**SEROUS PERICARDIUM (SE)**

- It is thin double layered serous membrane lined by mesothelium.
- It is having two layers
  - outer parietal pericardium
  - inner visceral pericardium.

**Parietal layer:**

It lines the inner surface of fibrous pericardium & it is intimately blended with it.

**Visceral layer:**

It covers the heart and the roots of great vessels attached to the heart.

It is separated from the myocardium by serous areolar and fatty tissue.

The continuity between parietal and visceral layers is established in the form of two tubes:

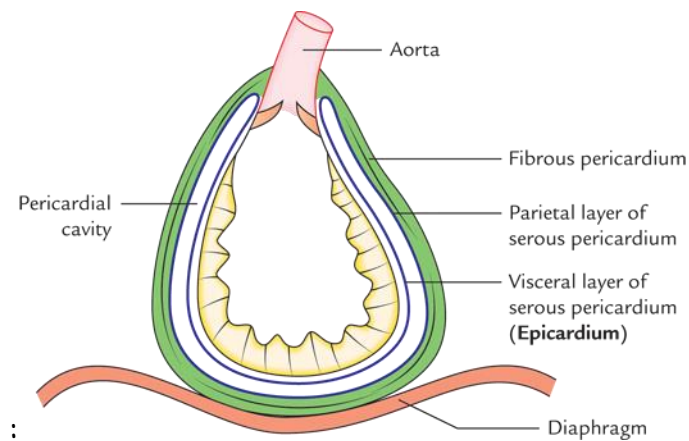
one tube surrounds the ascending aorta and pulmonary trunk.

the second tube surrounds the four pulmonary veins plus superior and inferior vena cavae.

### Features within the serous pericardium are

Transverse sinus.

oblique sinus.



### Arterial supply:

Parietal layer is supplied by branches of internal thoracic artery. And descending thoracic aorta.

Visceral layer by coronary arteries.

### Venous drainage:

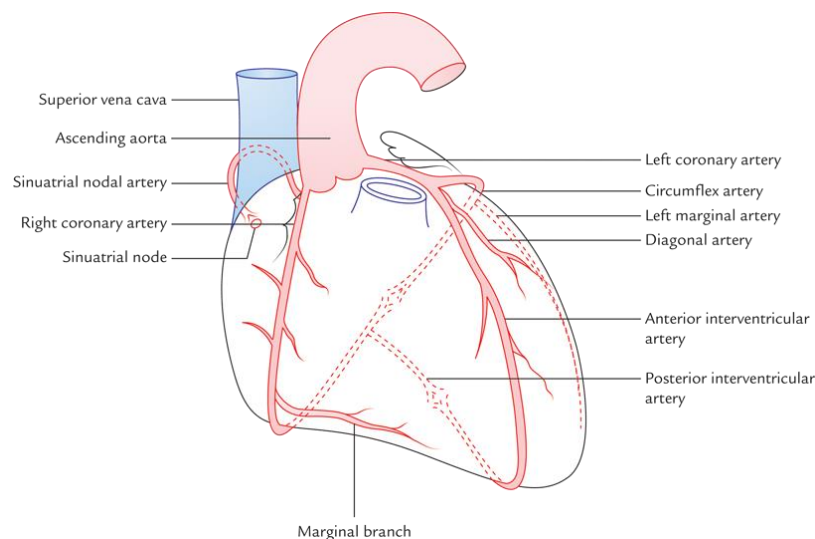
Parietal layer drain into azygous and internal thoracic vein.

Visceral layer drains into coronary sinus.

### Nerve supply:

Parietal layer by phrenic nerve.

Visceral layer by vagus and sympathetic nerve.



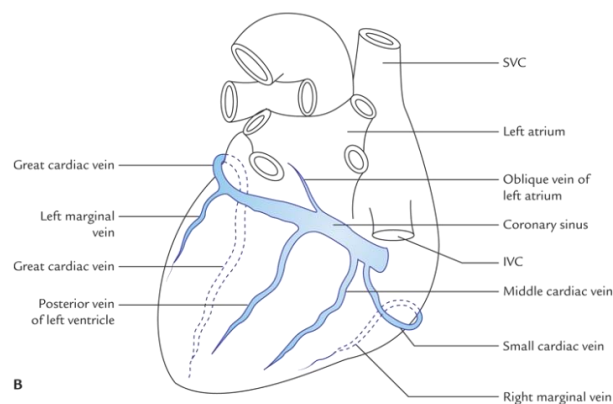
**Area of distribution:**

Left atrium.  
Ventricles  
Greater part of the left ventricle.  
A small part of the right ventricle .  
Anterior part of the interventricular septum.  
A part of the left branch of the AV bundle.

**VENOUS DRAINAGE OF HEART. (SE )****CORONARY SINUS-FORMATION ,COURSE AND TRIBUTARIES.(SE)****Venous drainage:**

About 60% of the venous blood of the heart drains into the right atrium via the coronary sinus

The remaining 40% drains into right atrium by anterior cardiac veins and other chambers via venae cordis minimi.



The tributaries of the coronary sinus are

The great cardiac vein.  
The middle cardiac vein.  
The right marginal vein .  
The posterior vein of the left ventricle.  
The oblique vein of the left atrium.  
The right marginal vein.

**Anterior cardiac veins**

These are 3 or 4 in number, drain the infundibulum of the right ventricle, and end directly into the right atrium through the foramina minimarum.

**Venae cordis minimi:**

These veins open into different chambers of the heart through the foramina minimarum.

## NERVE SUPPLY OF THE HEART (SE)

The heart is supplied by sympathetic and parasympathetic fibres via the superficial and deep cardiac plexus.

### Superficial cardiac plexus

Situated below the arch of aorta in front of the right pulmonary artery.

#### Formation

superior cervical cardiac branch of the left sympathetic chain.

The inferior cardiac branch of the left vagus nerve.

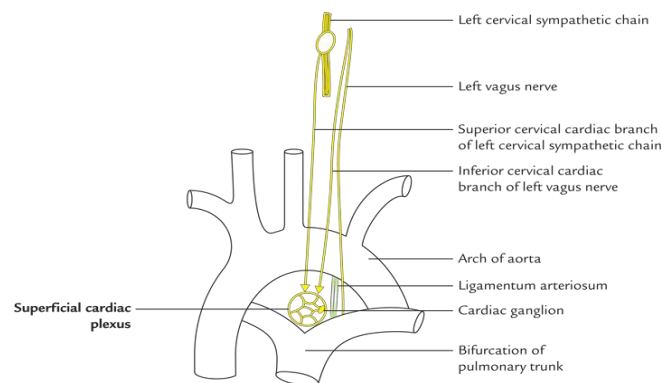
#### Distribution.

Gives branches to

Deep cardiac plexus.

Right coronary artery.

Left anterior pulmonary plexus.



### Deep cardiac plexus

#### Situation

In front of the trachea and behind the arch of the aorta.

#### Distribution.

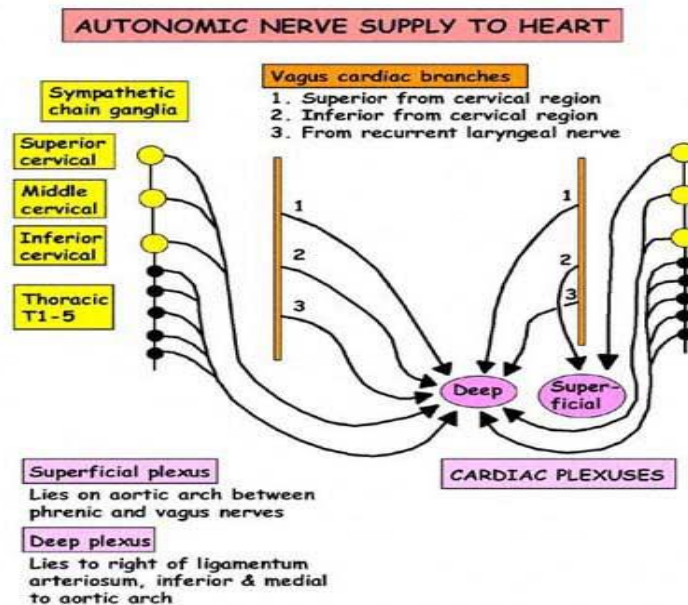
corresponding coronary arteries

Separate branches to atria.

#### Formation

All the cardiac branches derived from three cervical and upper 4 or 5 thoracic ganglia of the sympathetic chains except superior cervical cardiac branch of left cervical sympathetic chain.

All the cardiac branches of vagus and recurrent laryngeal nerves except the inferior cervical cardiac branches of the left vagus nerve.



## TRANSVERSE SINUS OF PERICARDIUM (SA)

### Transverse sinus:

It is transverse passage between two tubular reflections of the serous pericardium .

It is lined by visceral layer only.

### Boundaries:

**Infront**-Ascending aorta and pulmonary trunk enclosed in a single tube of serous pericardium.

**Behind**-Intra pericardial part of superior venacava and upper margin of the left atrium.

**Above**- bifurcation of pulmonary trunk.

**Below**- Upper surface of left atrium.

## OBLIQUE SINUS OF PERICARDIUM (BOUNDRIES) (SA)

### Oblique sinus:

It is a cul de sac behind the left atrium.

It is closed on all sides except below.

It is placed between parietal and visceral layers .

### Boundaries:

In front-left atrium

Behind-parietal layer,covering the posterior part of fibrous pericardium.

Right side-right pair of pulmonary veins and inferior vena cava.

Left side-left pair of pulmonary veins.  
Above-upper margin of left atrium.

### **SA NODE (SA)**

SA node is the part of conducting system of the heart.

The pace maker of the heart.

Horse shoe shaped mass ,haveing specialised myocardial fibres.

Situated in the wall of right atrium,in the upper part of sulcus terminalis just below the opening of superior vena cava.

Generates the impulse at the rate of 70/min.

Initiates the heart beat.

In 80% SA node is supplied by right coronary artery,in 10% it is supplied by left coronary artery

### **WHERE THE SA AND AV NODES LOCATED? GIVE THEIR BLOOD SUPPLY (SA)**

SA node is the Horse shoe shaped mass ,haveing specialised myocardial fibres.

Situated in the wall of right atrium,in the upper part of sulcus terminalis just below the opening of superior vena cava.

Supplied by right coronary artery.

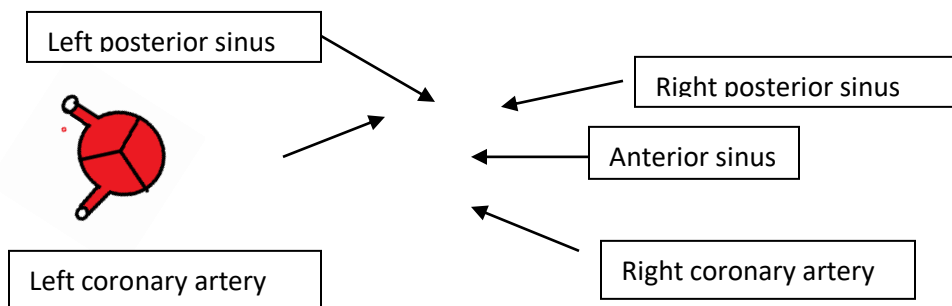
AV node is smaller than the SA node.

Situated at the lower part of atrial septum just above the opening of the coronary sinus.

Supplied by right coronary artery,the left bundle branch is supplied by left coronary artery.

### **MENTION THE ORIGINS OF CORONARY ARTERY. (SA)**

There are three sinuses present in the ascending aorta-anterior, left posterior and Right posterior sinus. These are related to the cusps of the semilunar valves of the aorta.



Right coronary artery arises from the anterior aortic sinus below the supra valvular ridge

Left coronary artery arises from the left posterior aortic sinus.

### **AREAS SUPPLIED BY RIGHT CORONARY ARTERY(SA)**

**Areas supplied by right coronary artery are**

Right atrium

Right ventricle except a part on the sternocostal surface near the anterior inter-ventricular groove

Part of the left ventricle on the inferior surface near the posterior inter-ventricular groove

Posterior part of inter-ventricular septum

Most of the conducting system of heart (SA node, AV node, right AV bundle) except left AV bundle

### **BRANCHES OF LEFT CORONARY ARTERY AND PARTS OF HEART SUPPLIED. (SA)**

**Branches of left coronary artery.**

1. Anterior interventricular artery.
2. Circumflex artery
3. Diagonal artery.
4. Conus artery.
5. Atrial branches.

**Parts of heart supplied.**

1. left atrium.

2. ventricles

(i) greater part of the ventricle, except the area adjoining the posterior interventricular groove.

(ii) A small part of the right ventricle adjoining the anterior interventricular groove.

3. Anterior part of the interventricular septum.

4. A part of the left branch of the AV bundle.



## **NERVE SUPPLY OF THE HEART (CARDIAC PLEXUS) (SA)**

### **Superficial cardiac plexus**

#### **Situation:**

Below the arch of aorta in front of the right pulmonary artery.

#### **Formation:**

Superior cervical cardiac branch of the left sympathetic chain.

The inferior cardiac branch of the left vagus nerve.

#### **Distribution:**

Gives branches to

Deep cardiac plexus.

Right coronary artery.

Left anterior pulmonary plexus.

### **Deep cardiac plexus.**

#### **Situation:**

In front of the trachea and behind the arch of the aorta.

#### **Formation:**

All the cardiac branches derived from three cervical and upper 4 or 5 thoracic ganglia of the sympathetic chains except superior cervical cardiac branch of left cervical sympathetic chain.

All the cardiac branches of vagus and recurrent laryngeal nerves except the inferior cervical cardiac branches of the left vagus nerve.

#### **Distribution.**

corresponding coronary arteries

Separate branches to atria.

## **DEEP CARDIAC PLEXUS (SA)**

#### **Situation:**

In front of the trachea and behind the arch of the aorta.

#### **Formation:**

All the cardiac branches derived from three cervical and upper 4 or 5 thoracic ganglia of the sympathetic chains except superior cervical cardiac branch of left cervical sympathetic chain.

All the cardiac branches of vagus and recurrent laryngeal nerves except the inferior cervical cardiac branches of the left vagus nerve.

#### **Distribution.**

corresponding coronary arteries

Separate branches to atria.

## **CORONARY SINUS- TERMINATION ,TRIBUTARIES AND DEVELOPMENT (SA)**

### **Termination of coronary sinus:**

Coronary sinus terminates in the sinus venarum of the right atrium between the opening of the inferior vena cava and right atrio ventricular orifice.

### **Tributaries.**

Great cardiac vein.

Middle cardiac vein.

Small cardiac vein.

Posterior vein of the left ventricle.

Oblique vein of the left atrium.

Right marginal vein.

Left marginal vein.

### **Development:**

Coronary sinus develops from the left horn and body of the sinus venosus.

The valve of the sinus is derived from the lower part of the right venous valve.