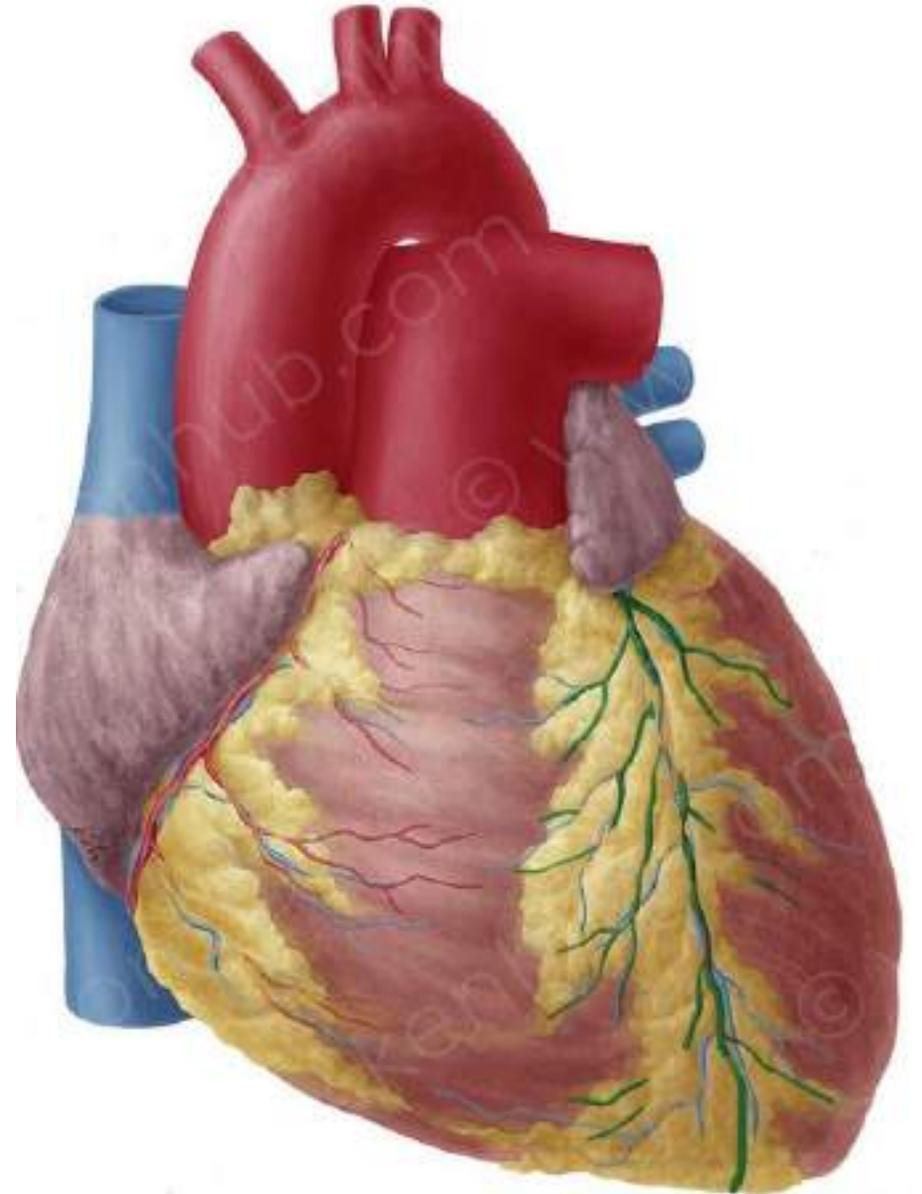


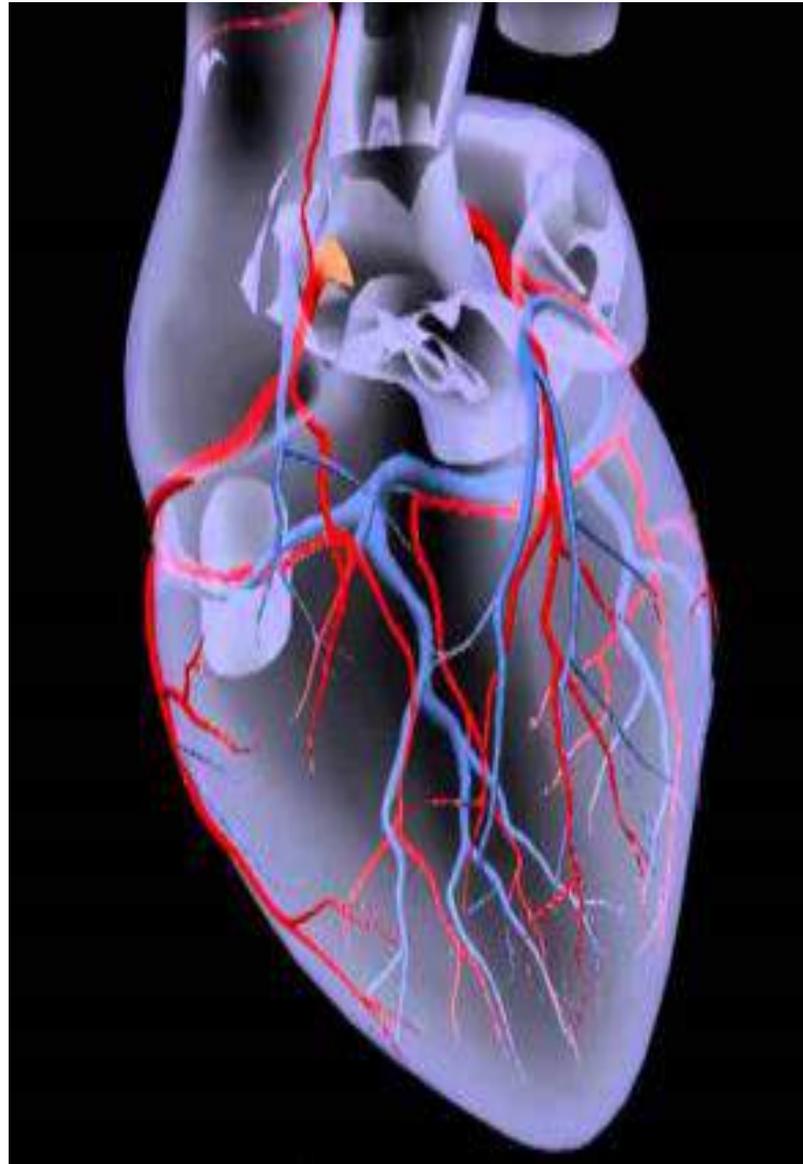
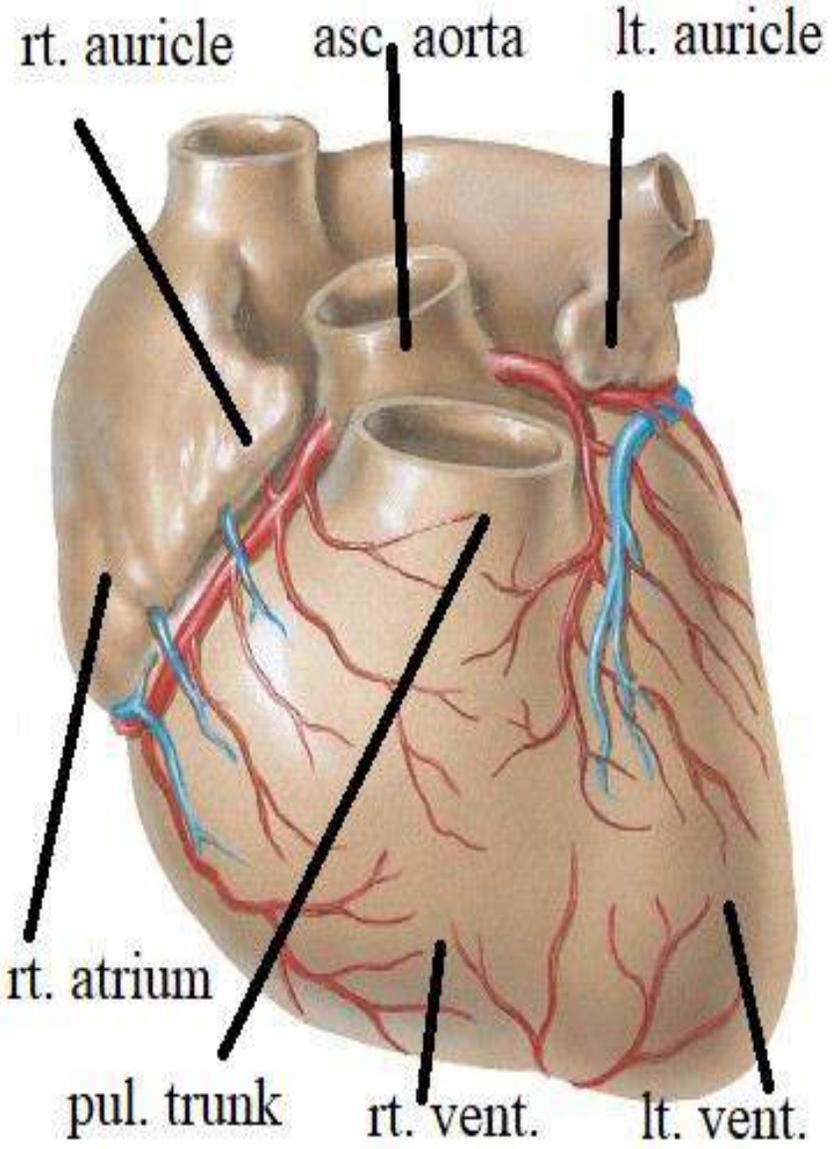
BLOOD SUPPLY OF THE HEART

BY

DR ABULMAATY MOHAMED
ASSISTANT PROFESSOR
HEAD OF
ANATOMY & EMBRYOLOGY
DEPARTMENT
MUTAH UNIVERSITY



REV.



ARTERIAL SUPPLY OF THE HEART

Rt. coronary artery

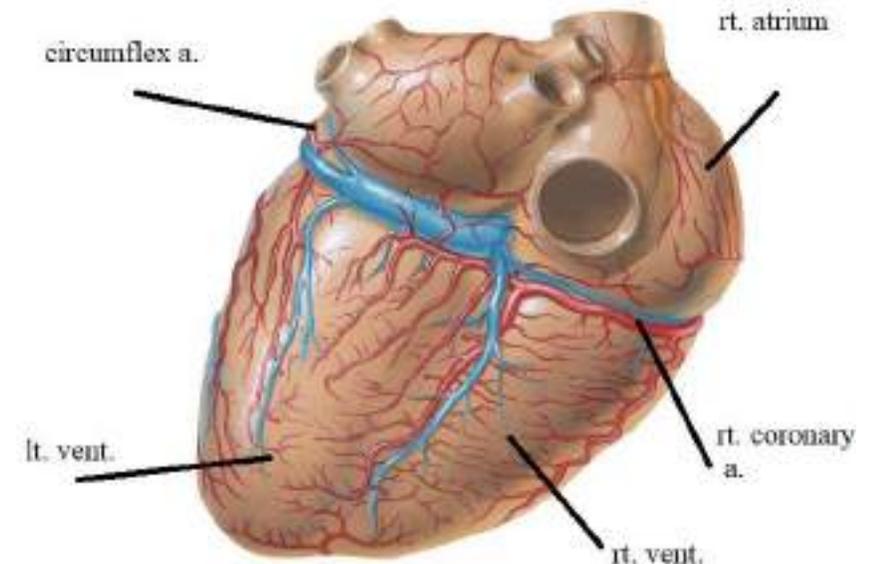
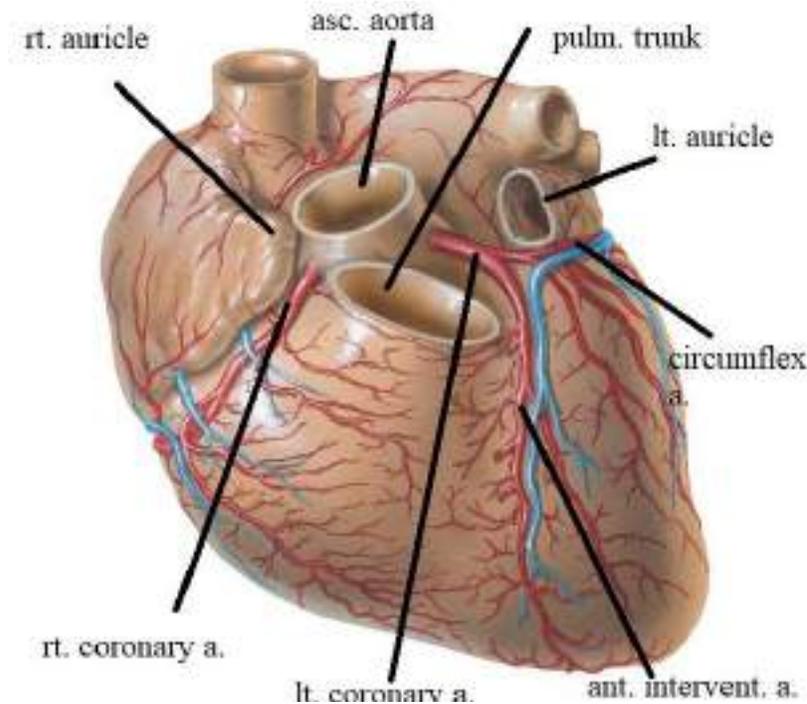
O.: Ant. sinus of ascending aorta

C.: - Passes between the pulmonary trunk & rt. Auricle to reach the coronary groove

- passes in the anterior part of the coronary groove till the lower border of the heart

- Then turns backwards to pass in the posterior part of the coronary groove

E.: - In the post. Part of the coronary groove by anastomose with circumflex branch of the Lt coronary a.



ARTERIAL SUPPLY OF THE HEART

Rt. coronary artery

B.:- 1-Post. inter ventricular:-

Runs along the post interventricular groove

end by poor anastomosis with the ant interventricular a supply 2 ventricles

post 1/3 of the interventricular septum

AV node

2-Rt conus a.:-

to the infundibulum of the rt. Ventricle

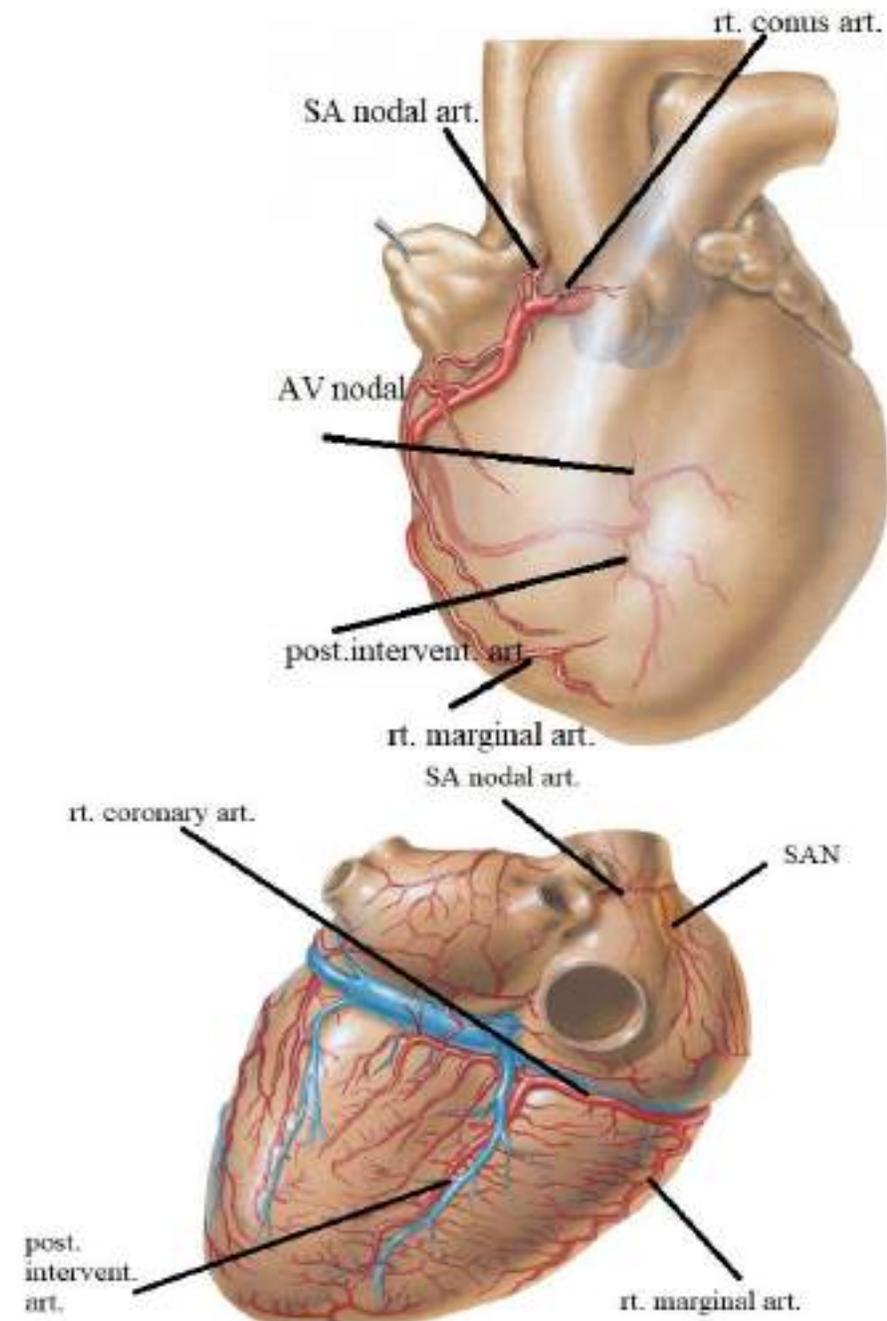
N.B.:- sometimes it arises separately from the anterior aortic sinus so called 3rd coronary artery)

3-Branches to rt atrium

4-SA nodal artery:- in 65% of people

5- Branches to the rt. ventricle

6-Rt. marginal:- along lower border Supply rt ventricle



ARTERIAL SUPPLY OF THE HEART

Lt. coronary artery

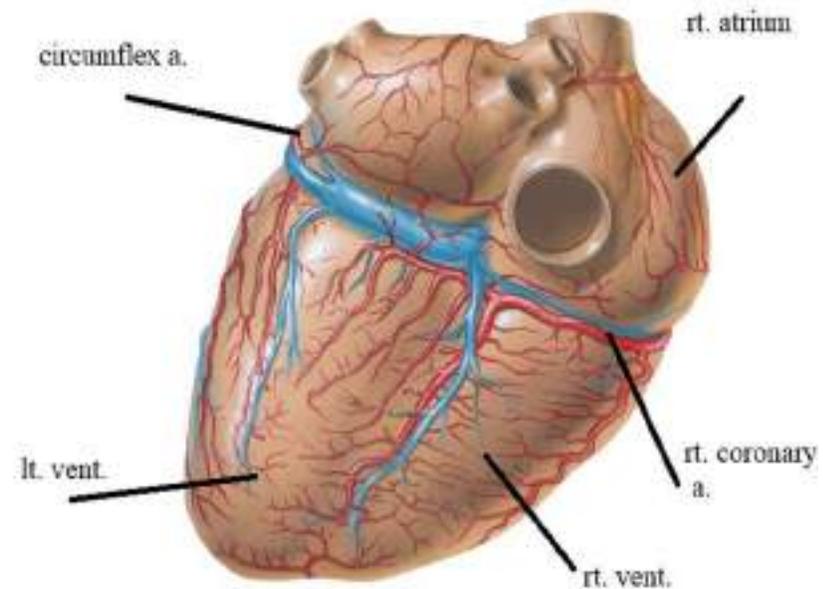
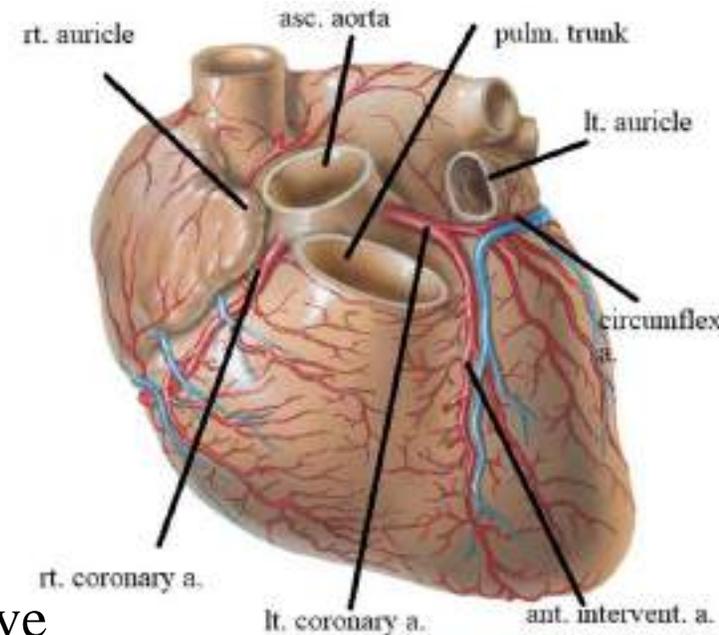
O.: Lt. post. sinus of ascending aorta

C.: - passes between the pulmonary trunk & Lt. auricle to reach the coronary groove

Then divides into ant. interventricular a. & Circumflex artery

- The circumflex passes in the ant. part of the coronary groove till the left border of the heart
- Then turns backwards to pass in the posterior part of the coronary groove

E.: - In the post. Part of the coronary groove to anastomose with the rt. coronary artery



ARTERIAL SUPPLY OF THE HEART

Lt. coronary artery

B.:- 1-ant. inter ventricular:- LAD

along ant interventricular groove

end by poor anastomosis with post interventricular a
gives diagonal branches

supply 2 ventricles

ant 2/3 of IVS

2-Lt conus a.:- to pulm. trunk

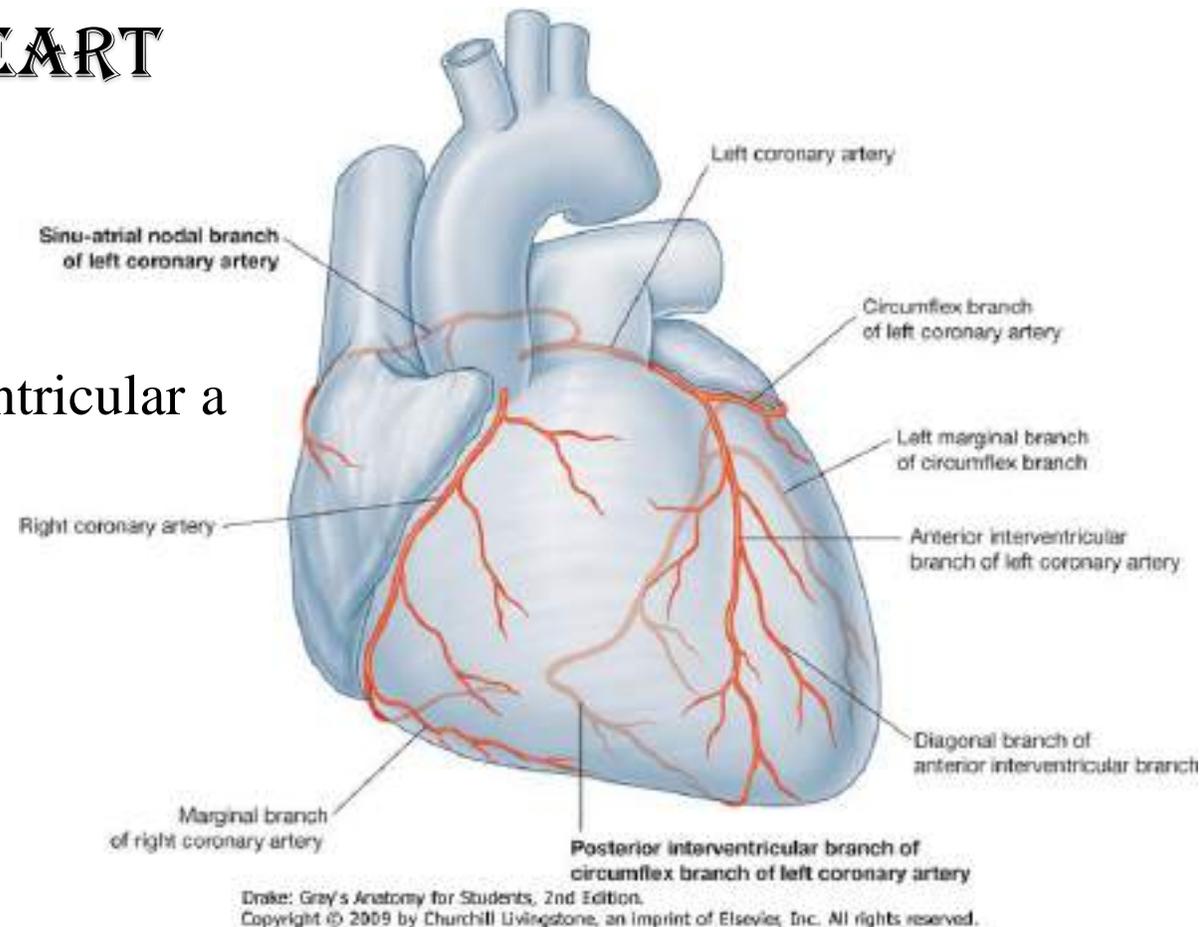
3-Branches to Lt atrium

4-SAnodal artery:- in 35% of people

5- Branches to Lt. ventricle

6-lt. marginal:- along Lt border

Supply Lt ventricle



ARTERIAL SUPPLY OF THE HEART

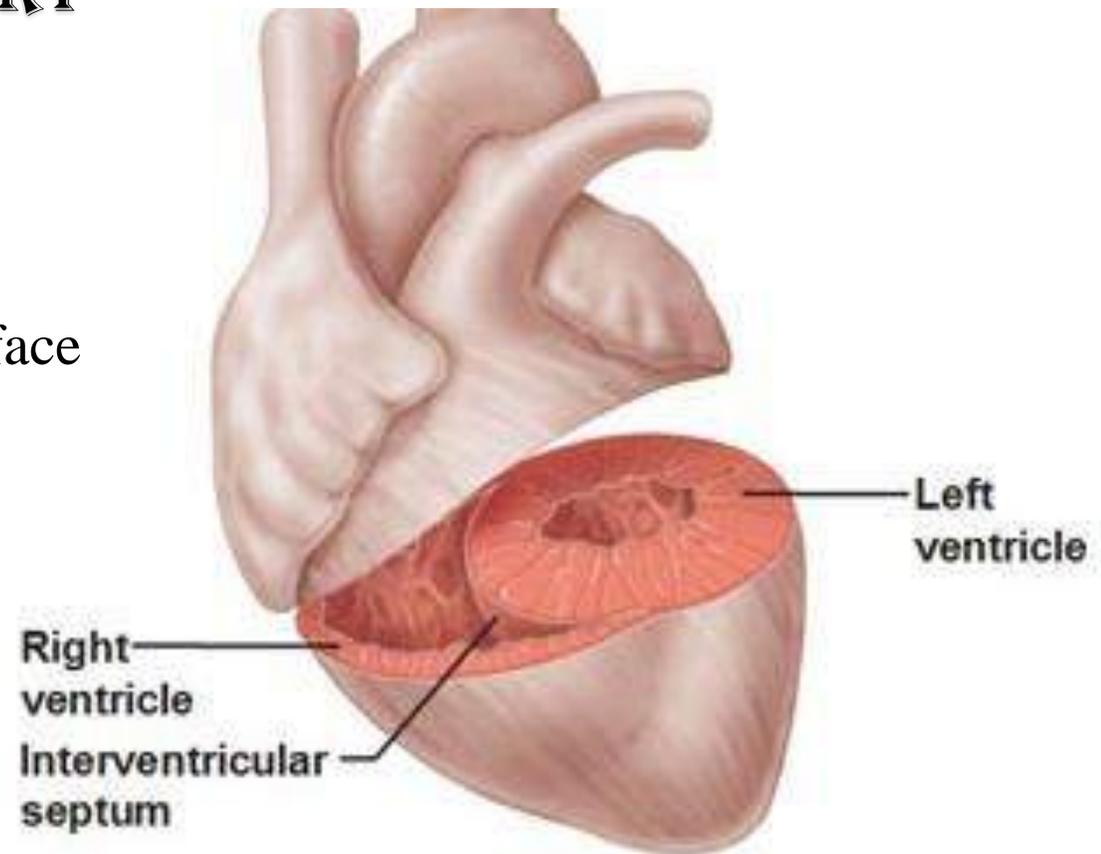
Distribution of the rt. coronary artery

- 1-Rt atrium
- 2-most rt ventricle
- 3-Small area of lt. vent. on diaphragmatic surface
- 4-Post. 1/ 3 of interventricular septum
- 5- SAN in 60% of people
- 6- AVN

Distribution of the lt. coronary artery

- 1- Lt. atrium
- 2-most of lt ventricle
- 3-Small area of rt. vent. on sternocostal surface
- 4-Ant. 2/ 3 of intervent. septum
- 5- SAN in 40% of people

N.B.: -usually PIA arise from rt coronary art. this case is called rt coronary dominance , but if it arises from lt coronary artery , this called lt coronary dominance



VENOUS DRAINAGE OF THE HEART

1- **Ant. cardiac veins:** arise from front of rt vent. to end in rt. Atrium

2- **Venae cordis minimi** drain the wall of the chamber to its cavity

3- **Coronary sinus:**

Site: - in post part of the coronary groove () Lt atrium & Lt ventricle

End: in post. wall of Rt atrium (its opening has a valve)

Tributaries:

A- great cardiac v.

Run with ant intervent. a & circumflex a.

B- Middle cardiac v.

accompany post interventricular a

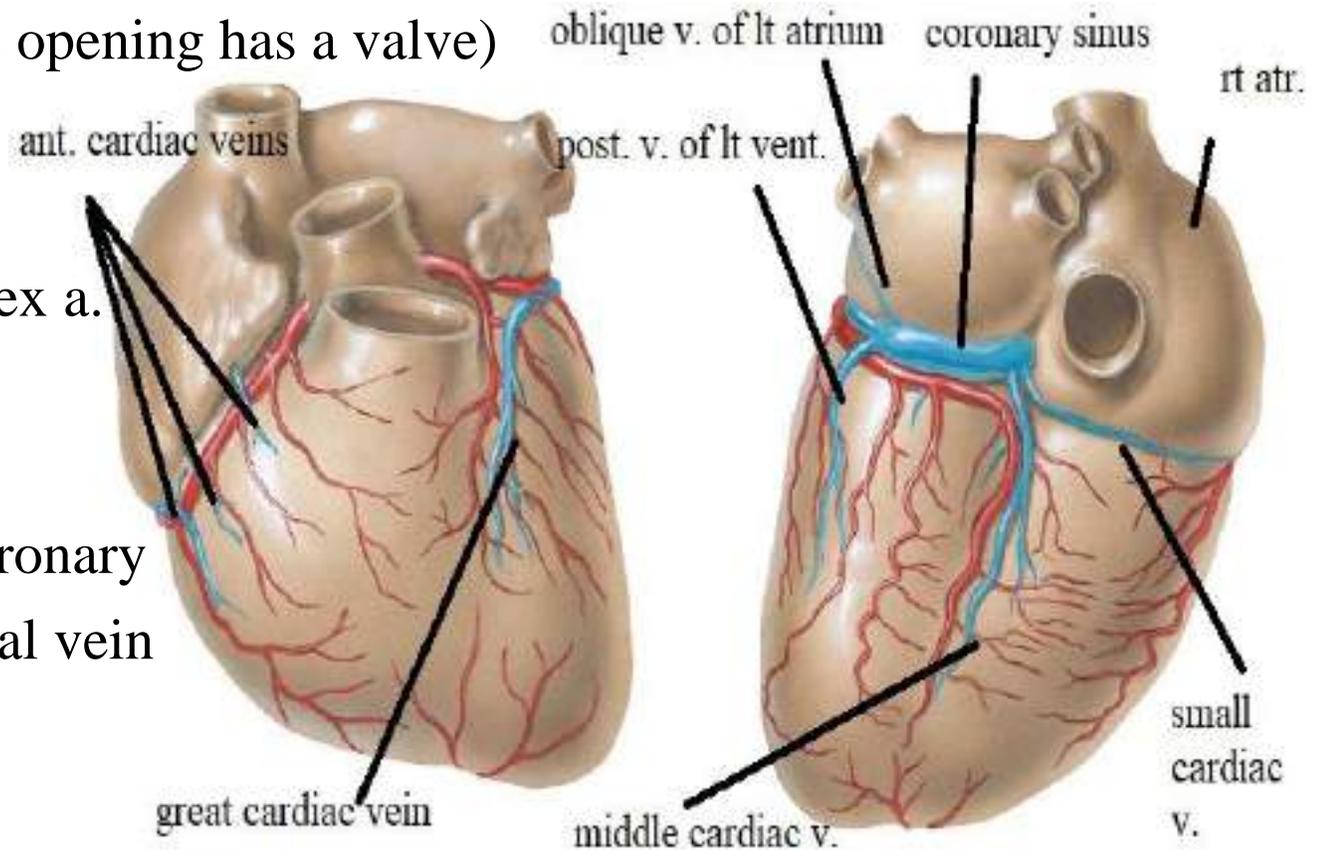
C- small cardiac v. accompany rt coronary

Receive rt marginal vein

D-oblique v. of Lt atrium

descends on back of Lt atrium

E- posterior vein of left ventricle :- runs on back of Lt ventricle



CONDUCTING SYSTEM OF THE HEART

Def.:- specialized myocardial cells mixed with nerve fibers

Components:-

Sino atrial node (SAN) pace maker

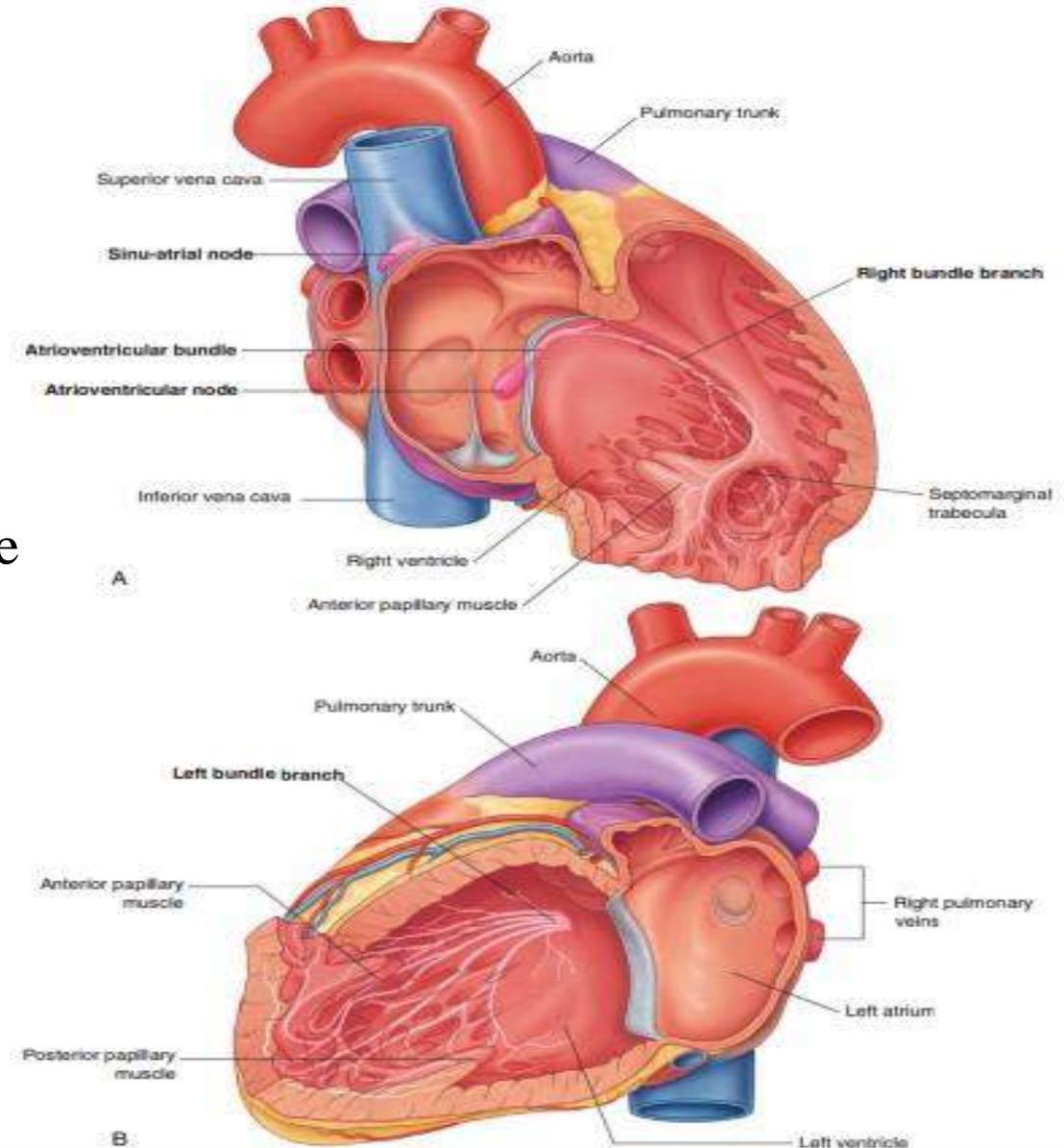
at upper end of sulcus terminalis

on the rt side of SVC opening

Atrioventricular node, AVN

in atrioventricular septum

close to septal cusp of tricuspid valve



CONDUCTING SYSTEM OF THE HEART

Components:-

AV bundle of Hiss:

arise from AVN

run below membranous part
of interventricular septum
to divides into

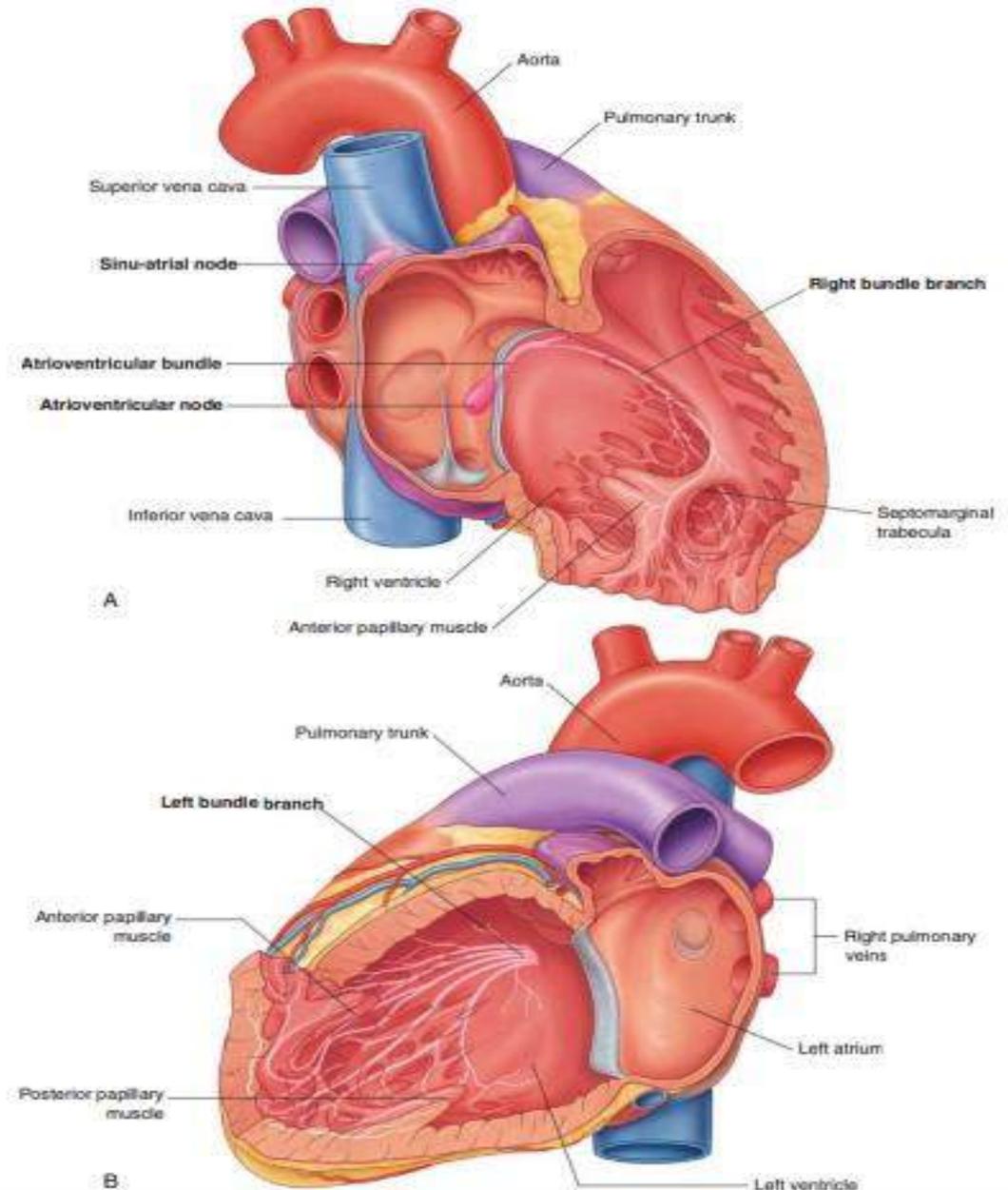
1- Rt. bundle branch:-

run on rt. sides of the IV septum

Then in moderator band
divide into the purkinje fibers

2- Lt. bundle branch:-

run on lt. side of IV septum
then divide into purkinje fibers



NERVE SUPPLY OF THE HEART

The heart is supplied by autonomic nerve fibers from 2 cardiac plexus.

1- superficial cardiac plexus

Below arch of aorta on ligamentum arteriosum

2- deep cardiac plexus

Deep to arch of aorta on bifurcation of trachea

formation of the Cardiac plexuses :

Sympathetic fibers : from the three cervical

and upper four thoracic sympathetic ganglia of both sides they increase the heart rate and transmits pain from the heart

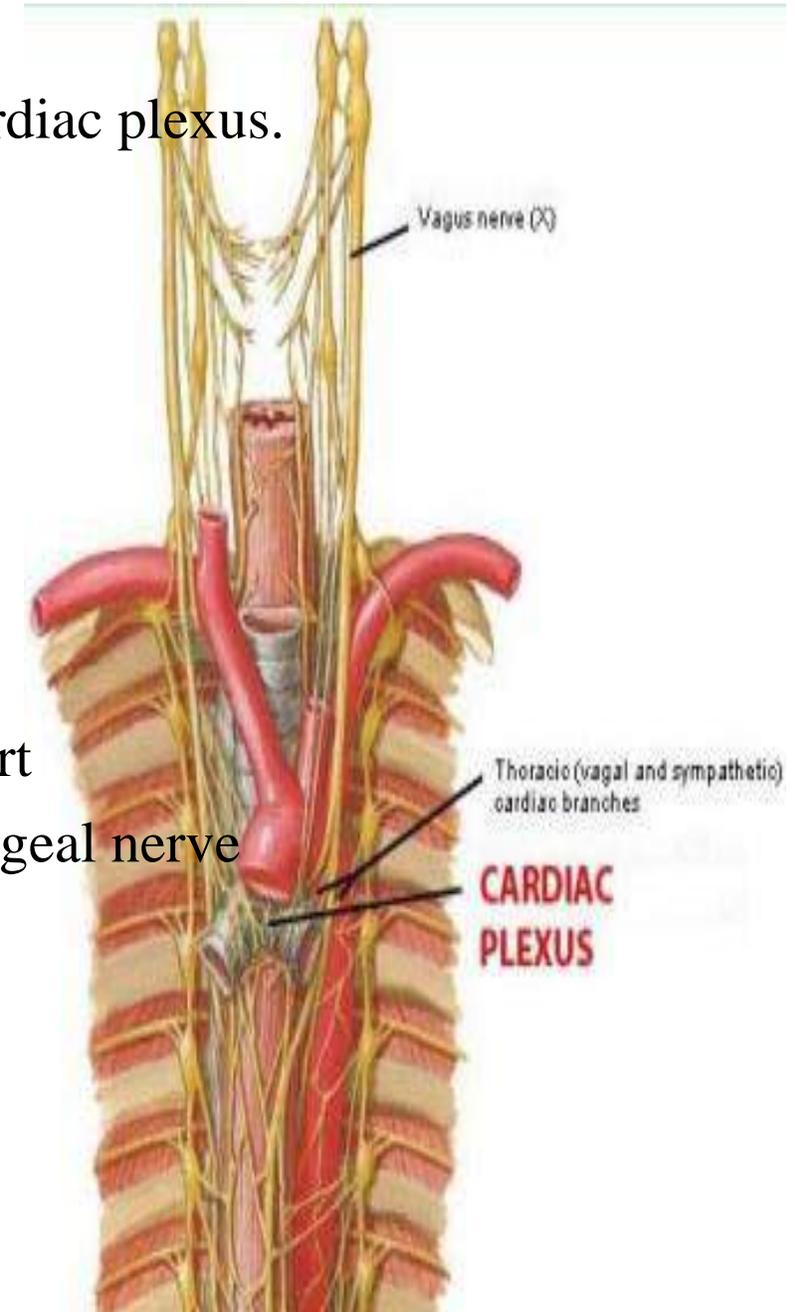
Parasympathetic fibers: from Both vagi and recurrent laryngeal nerve they slow heart rate

N.B.:- inadequate blood supply to myocardium

leads to sever pain in middle of sternum

this pain is carried by sympathetic fibers

to upper 4 thoracic segments which radiate it to medial side of arm & medial wall of axilla





THANQ