

CVS

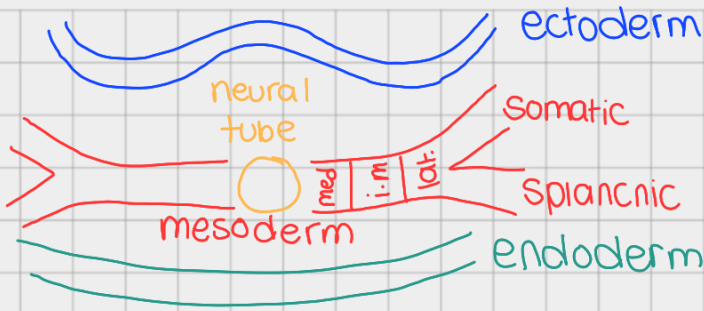
EMBRYOLOGY

Written by Inssaf Alammouri

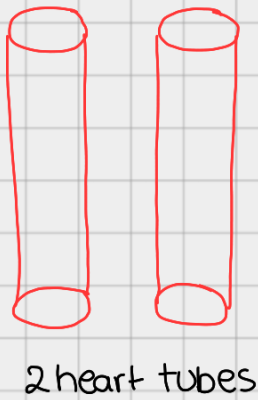
Corrected by Dr.Ahmad Alsalman

#الفريق_العلمي

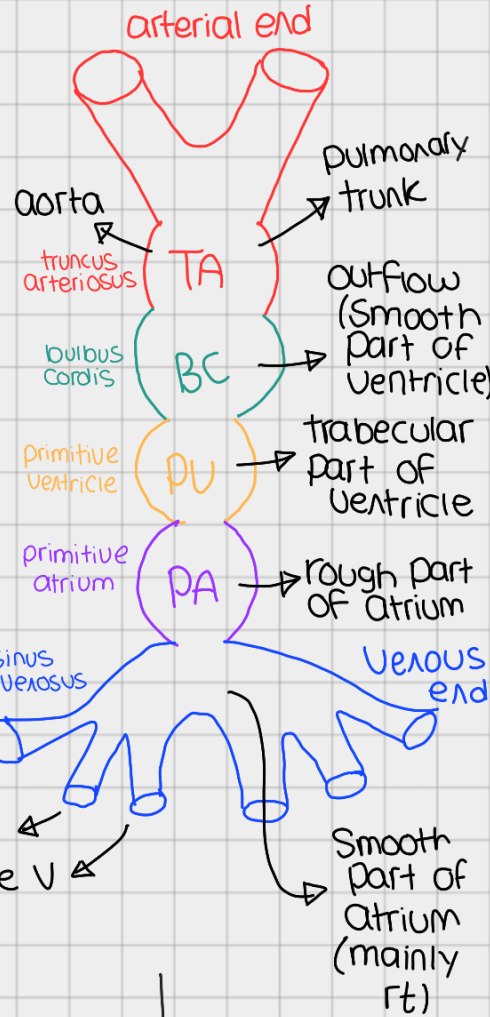
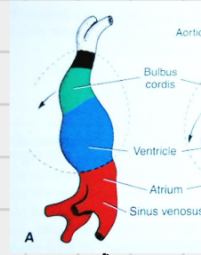
EMBRYOLOGY (lec 1)



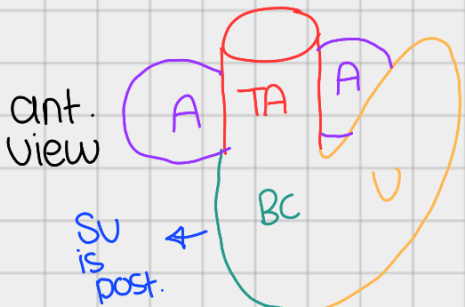
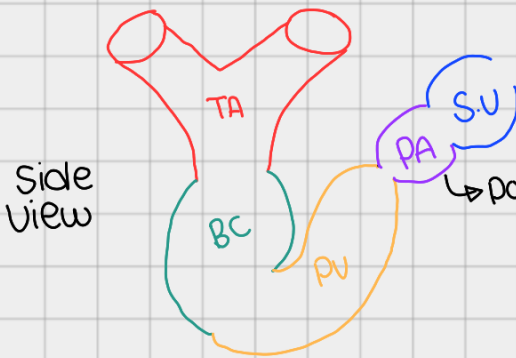
* Splanchnic plate of lateral mesoderm forms CUS (in prime heart field area (PHF))
 * angioblastic cells → heart & vessels
 * hemoblastic cells → blood cells



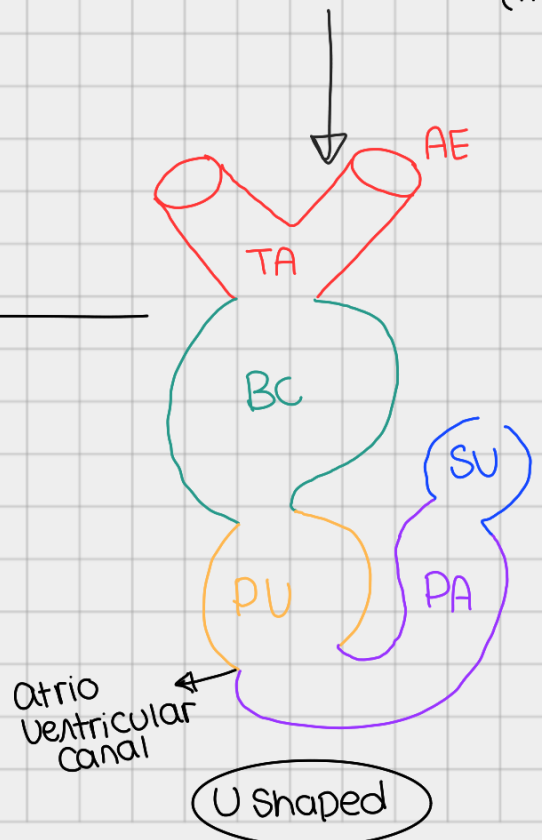
fusion →



* arterial end branches go to pharyngeal arches then gather again into dorsal (descending) aorta
 * venous end branches end as SVC, IVC, Coronary Sinus
 * Lt atrium smooth part is formed by 4 pulmonary Vs

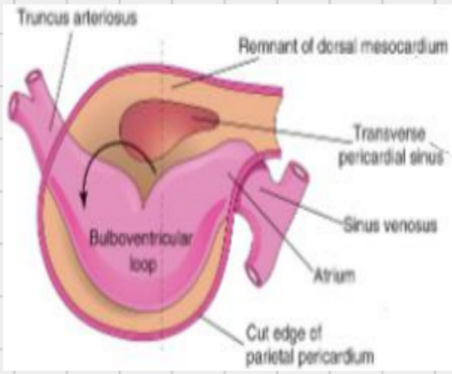


S shaped



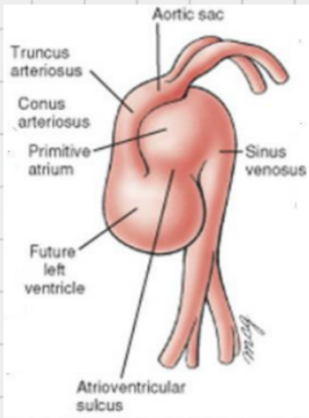
* if looping of BC & PV was to lt → dextrocardia

* more about U Shaped & S Shaped phases:



• because the bulbus cordis & ventricle grow faster than other regions → heart bends on itself (to the rt) → proximal bulbus cordis (BC) lies ant. & to the rt of the primitive ventricle forming U shaped bulboventricular loop.

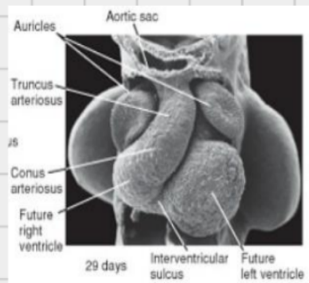
• At this Stage BC & PV are separated by a deep bulboventricular sulcus



• this sulcus gradually becomes shallower so that BC & PV form one chamber which communicates with truncus arteriosus

• the atrial chamber expands so parts of it come to project forward on either side of TA

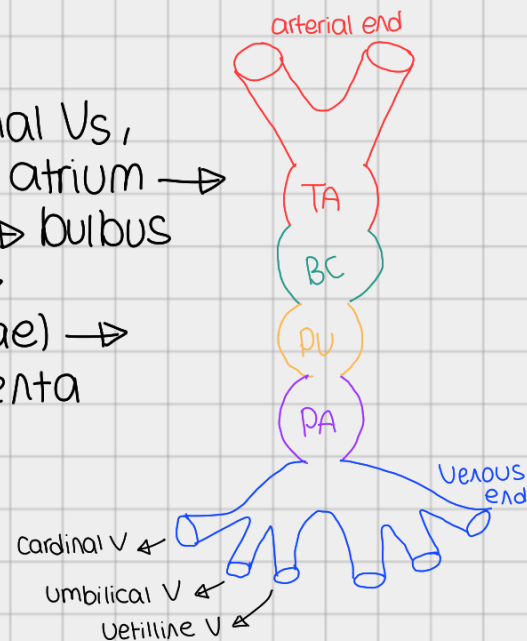
• at the end of the looping & rotation of the heart tube, the arterial & venous ends come closer together



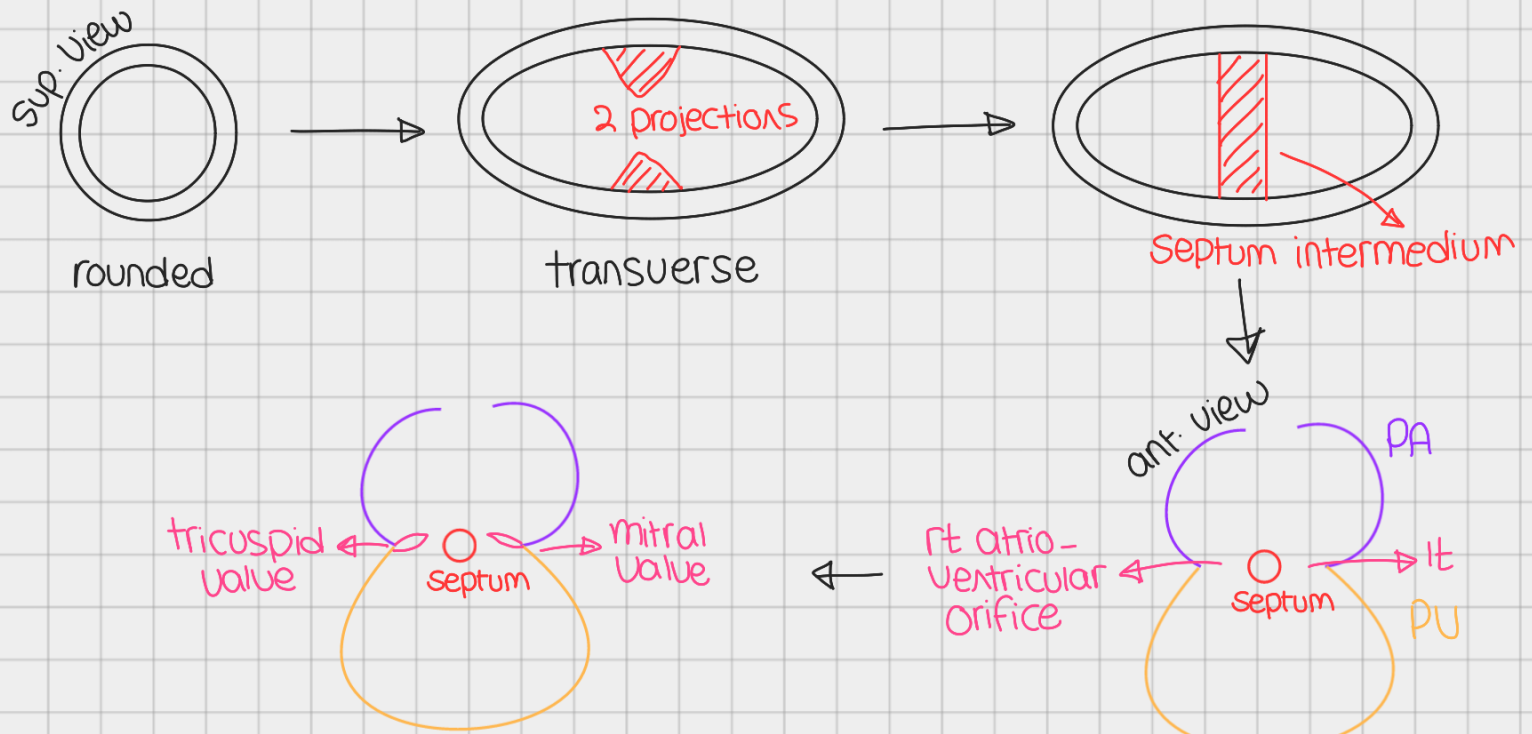
• now the atrium & the sinus lie behind & above the ventricle

* blood flow:

blood enters sinus venosus (from common cardinal Vs, umbilical Vs, vitelline Vs) → goes to primordial atrium → atrioventricular canal → primordial ventricle → bulbus cordis → truncus arteriosus → aortic sac → distributed to pharyngeal arch As (dorsa aortae) → distributed to embryo, umbilical vesicle, placenta

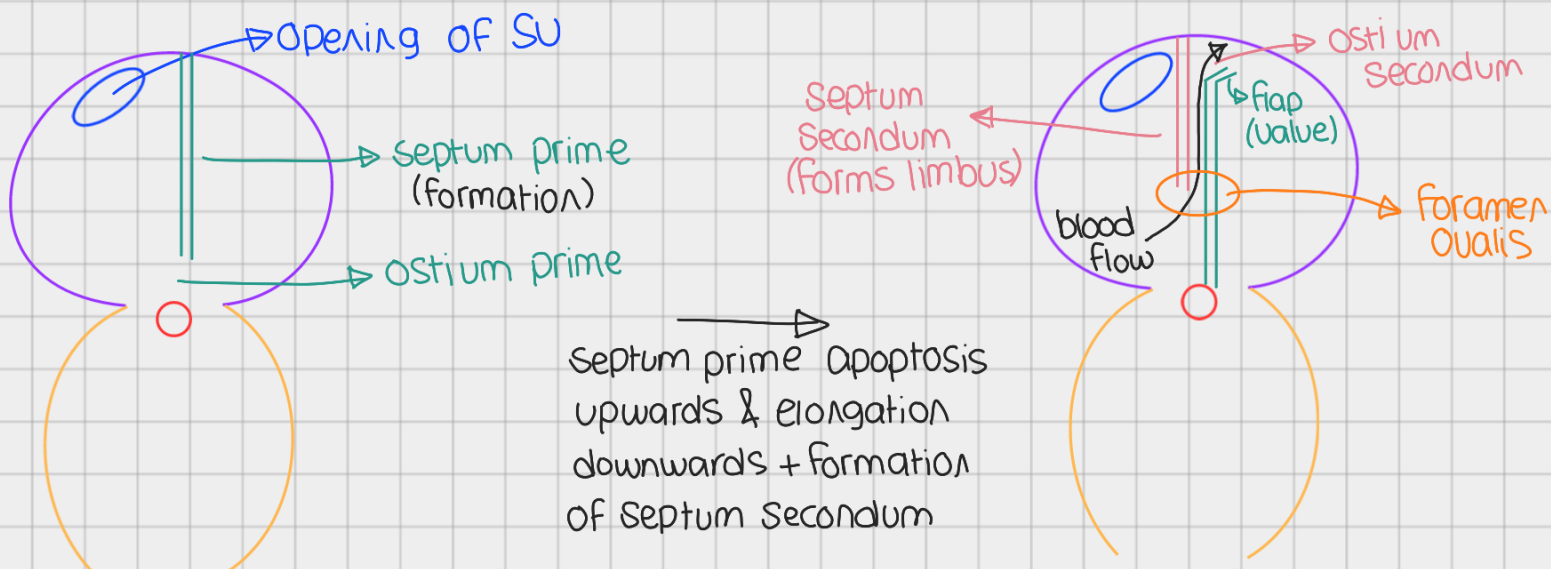


Atrioventricular Canal



- each atrioventricular orifice is surrounded by local proliferations of mesenchymal tissue derived from endocardial cushions
- when the blood stream hollows the surface of these proliferations becomes fibrous & forms the valves which remain attached to the ventricular wall by muscular cords which will degenerate & be replaced by dense connective tissue (cordae tendineae)
- neural crest cells contribute to formation of semilunar valves

formation of interatrial septum



- Septum primum (sickle shaped) & extends from the roof down & leaves an opening between its free edge & endocardial cushions called foramen primum (ostium primum) → Shunts blood from rt to lt atrium → then it fuses with endocardial cushions (Septum intermedium)
 - before the foramen primum breaks down, perforations produced by apoptosis form ostium secundum → New shunt forms before old one closes
 - Septum secundum grows from the ventrocranial wall of atrium rt to septum primum & descends down without fusing with the cushions (the lower edge of septum secundum is thick & firm)
 - after birth the pressure in the atrium increases & the 2 septa fuse (flap closes) & form fossa ovalis
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notes:

- * heart develops ventral to oropharyngeal memb. (cranially) then with folding it descends
 - * mesoderm forms cardiac jelly around the heart → form myo, epicardium
-

notes about the interatrial septum:

- * foramen ovale is an opening between septum primum & septum secundum
- * fossa ovalis is formed by septum primum when the 2 septa adhere due to pressure
- * limbus ovalis is formed by septum secundum

By: INSAF IYAD

Reviewed by Dr. Ahmed Salman