

CVS

EMBRYOLOGY

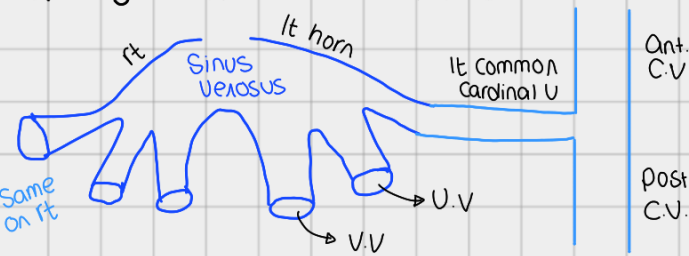
Written by Inssaf Alammouri

Corrected by Dr.Ahmad Alsalman

#الفريق_العلمي

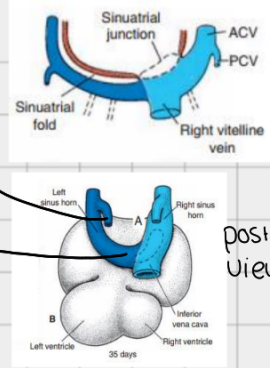
EMBRYOLOGY (lec 3)

Changes in Sinus Venosus:

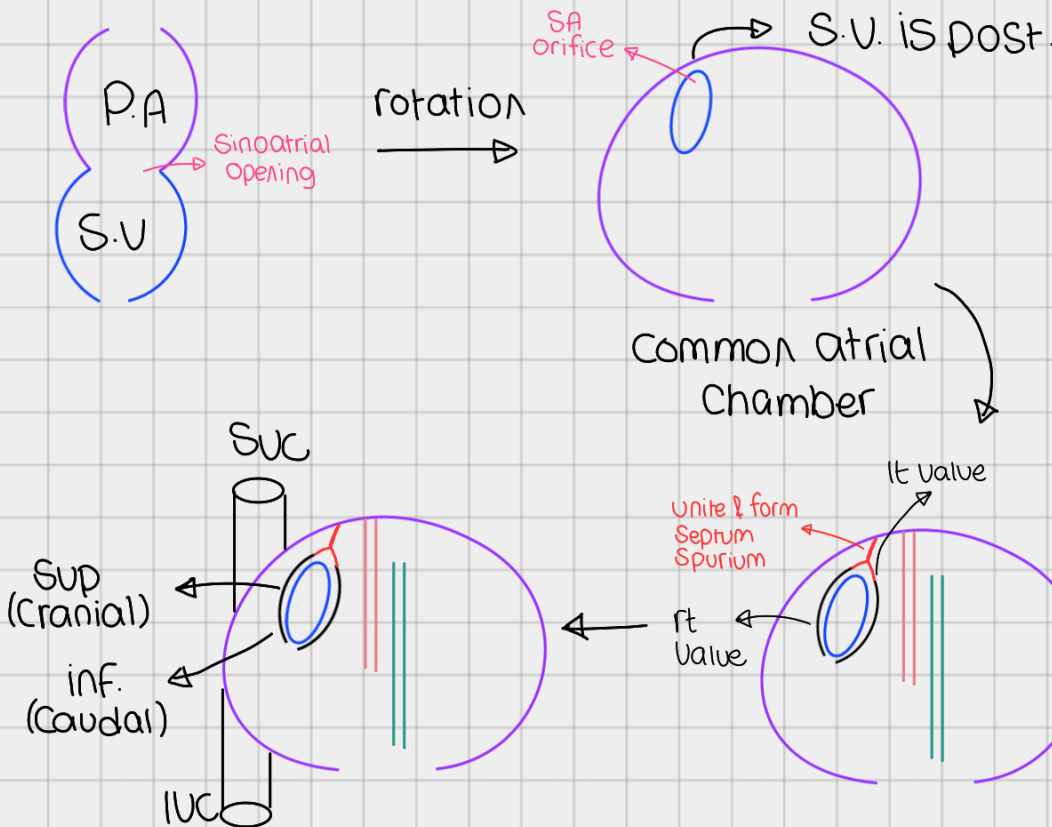


* It Common Cardinal V forms lt oblique U of lt Atrium

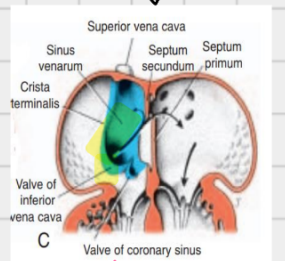
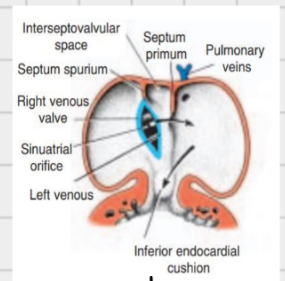
* lt horn forms coronary Sinus



* the rt horn of Sinus Venosus is incorporated into rt Atrium to form the Smooth walled part of rt Atrium.



* later on... blood shift from lt to rt horn of S.V. → reduction of lt horn & rt remains (that's why the SA orifice is shifted to rt)

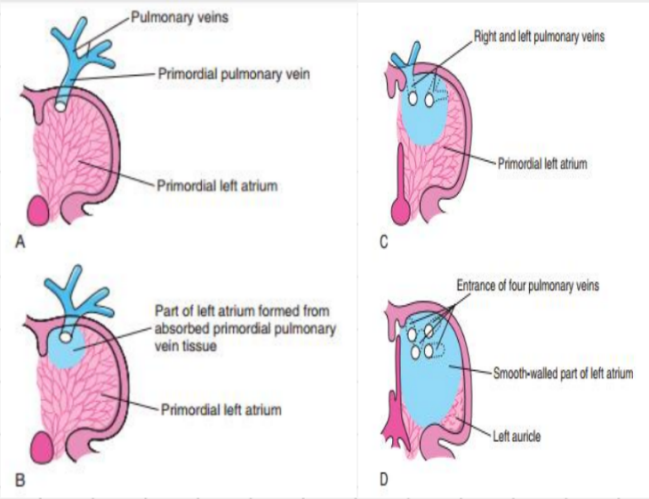


* the Sinuatrial Orifice is flanked on each side by a valvular fold (rt & lt venous valves) → dorsocranially the 2 folds (valves) fuse forming a ridge called the Septum spurium

* lt valve & Septum spurium fuse with the developing atrial Septum

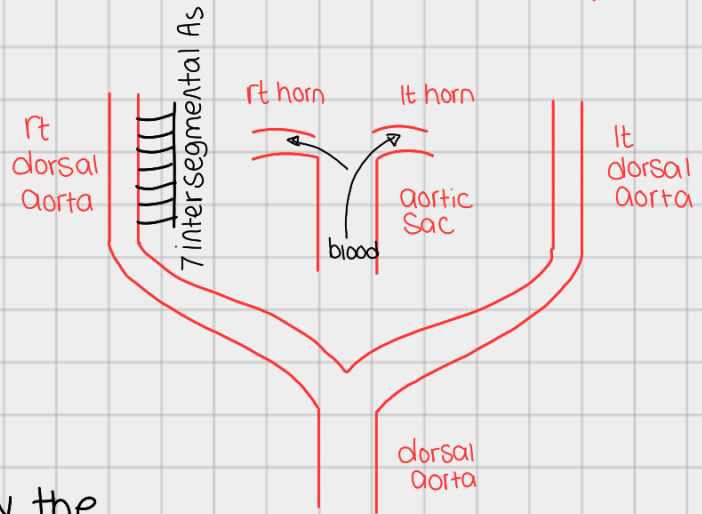
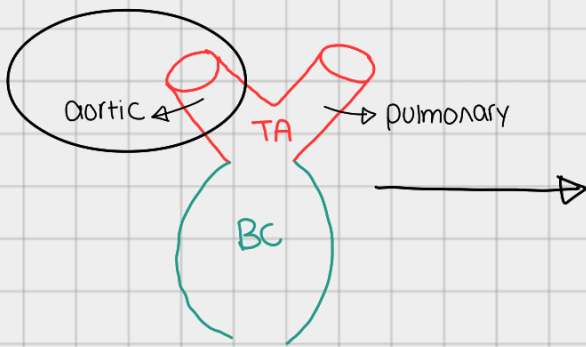
* rt side of valve forms:

- ① cranially → Cristae terminalis (between SVC & IUC)
- ② caudally → value of IUC (eustachian)
- value of coronary Sinus (thebesian)



* Pulmonary Vs begin as a bud in Lt Atrium → branches into 2 → each one goes to a lung / the lower part of pulmonary Vs get absorbed by Lt Atrium to form its smooth part
 * While the Rt Atrium's smooth part is formed by sinus venosus

development of arteries

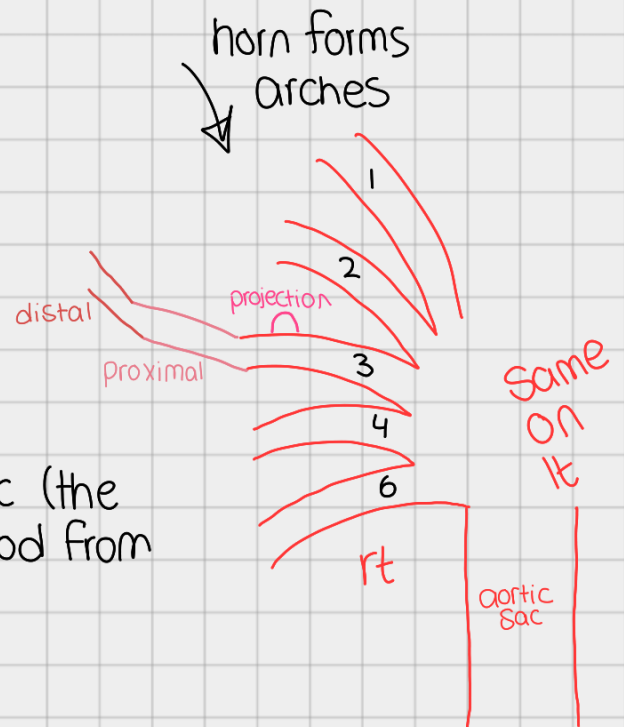


• division of truncus arteriosus by the aorticopulmonary septum divides the outflow channel of the heart into the ventral aorta & the pulmonary trunk

• the aortic sac then forms Rt & Lt horns:
 - Rt horn gives brachiocephalic A
 - Lt horn gives proximal segment of aortic arch

• aortic arches arise from the aortic sac (the most distal part of TA) to transfer blood from the horn to dorsal aorta

• aortic arches run within branchial (pharyngeal) arches




* Cervical intersegmental arteries are different from aortic arches:

• intersegmental As form cervical intervertebral As (pass foramen transversum)

• the 7th segment involves in forming part of Rt & Lt subclavian As

Arches:

① maxillary A (from terminal branch of ext. Carotid A)

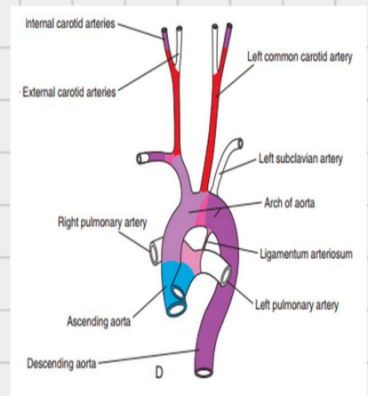
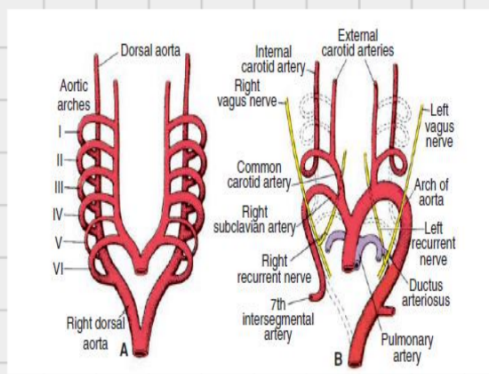
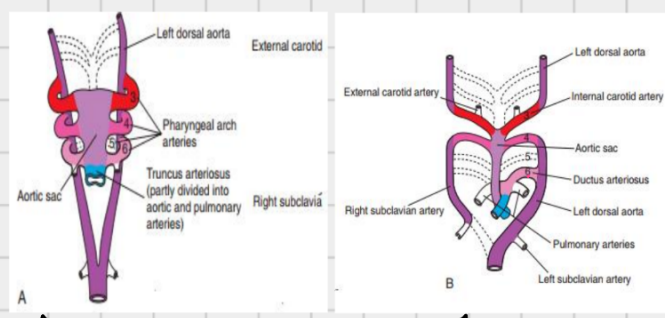
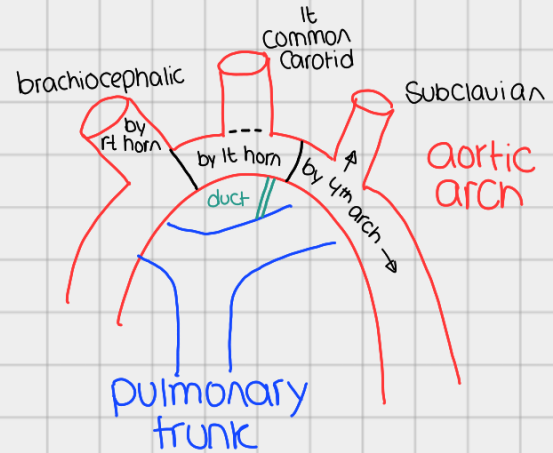
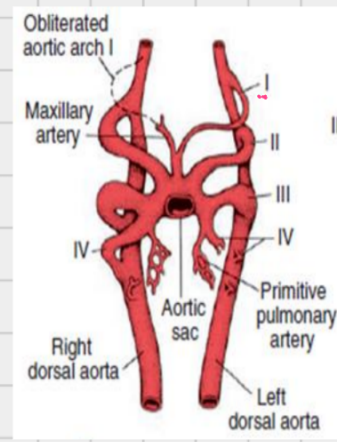
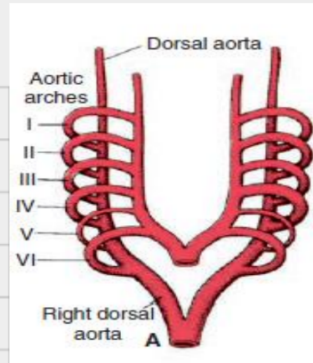
② stapidial A (small A for middle ear) 

③ proximal part gives Common Carotid
 • distal part gives int. Carotid
 • a projection gives ext. Carotid

④ rt branch gives subclavian A
 • lt branch gives distal part of aortic arch

⑤ degenerated

⑥ rt → proximal gives pulmonary A
 ↳ distal degenerates
 • lt → proximal gives pulmonary A
 ↳ distal gives ductus arteriosus (duct
 Shunts blood from pulmonary to aorta)



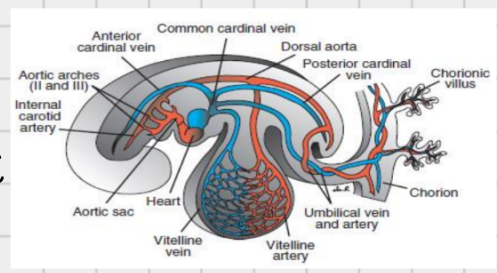
↖ about arch ③ ↗

* laryngeal nerves:

• rt recurrent laryngeal N comes to rt distal part (degenerated) & 5th arch (degenerated) → So it hooks around 4th arch which forms subclavian)
 • lt recurrent laryngeal N comes to lt distal part (ductus arteriosus becomes ligamentum arteriosus) & hooks around it then around aorta)

* vitelline A → related to GI projections on dorsal aorta (vitelline outlets) → form 2 main arteries (celiac, sup. mesenteric)

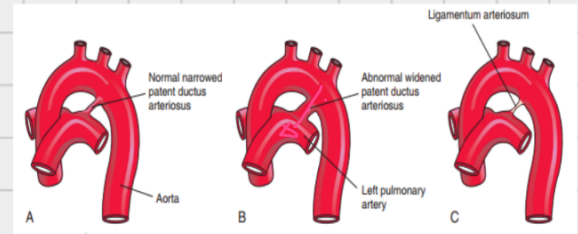
* umbilical A → related to GI, forms inf. mesenteric goes to placenta from dorsal aorta via common iliac A



* Congenital anomalies:

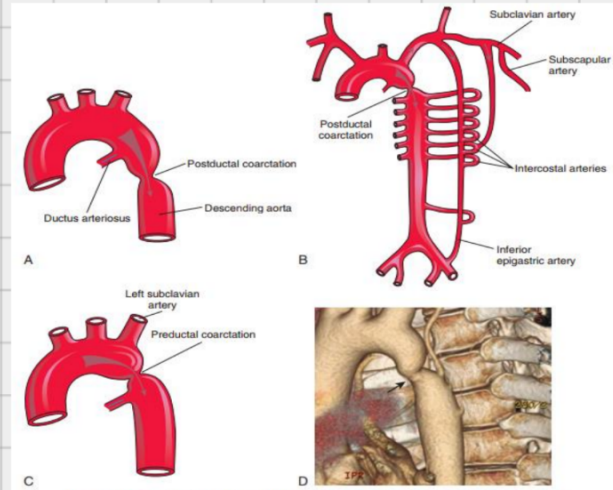
① Patent ductus arteriosus (PDA) ♀ > ♂

- Causes: maternal rubella infection in early pregnancy / preterm neonates (lead to hypoxia)
- effect: deoxygenated blood goes to aorta



② Coarctation of aorta ♂ > ♀

- narrowing of aorta (pre ductal or postductal) → ↓ blood to lower limb (very weak pulse in femoral A)
- Cause: unusual quantity of ductus arteriosus muscles in aortic wall → continuous contraction leads to narrow permanent fibrosis & appears as (no. 3 sign)
- to compensate for the diminished volume of blood reaching the lower part of the body, an enormous collateral circulation develops with dilation of int. thoracic, subclavian & post. intercostal A's. (enlarged intercostal A's lead to notching of ribs)



By: INSAF IYAD

Reviewed by Dr. Ahmed Salman