

Veterinary Anatomy
(Unit – 8)

Topic

DEVELOPMENT OF HEART

by

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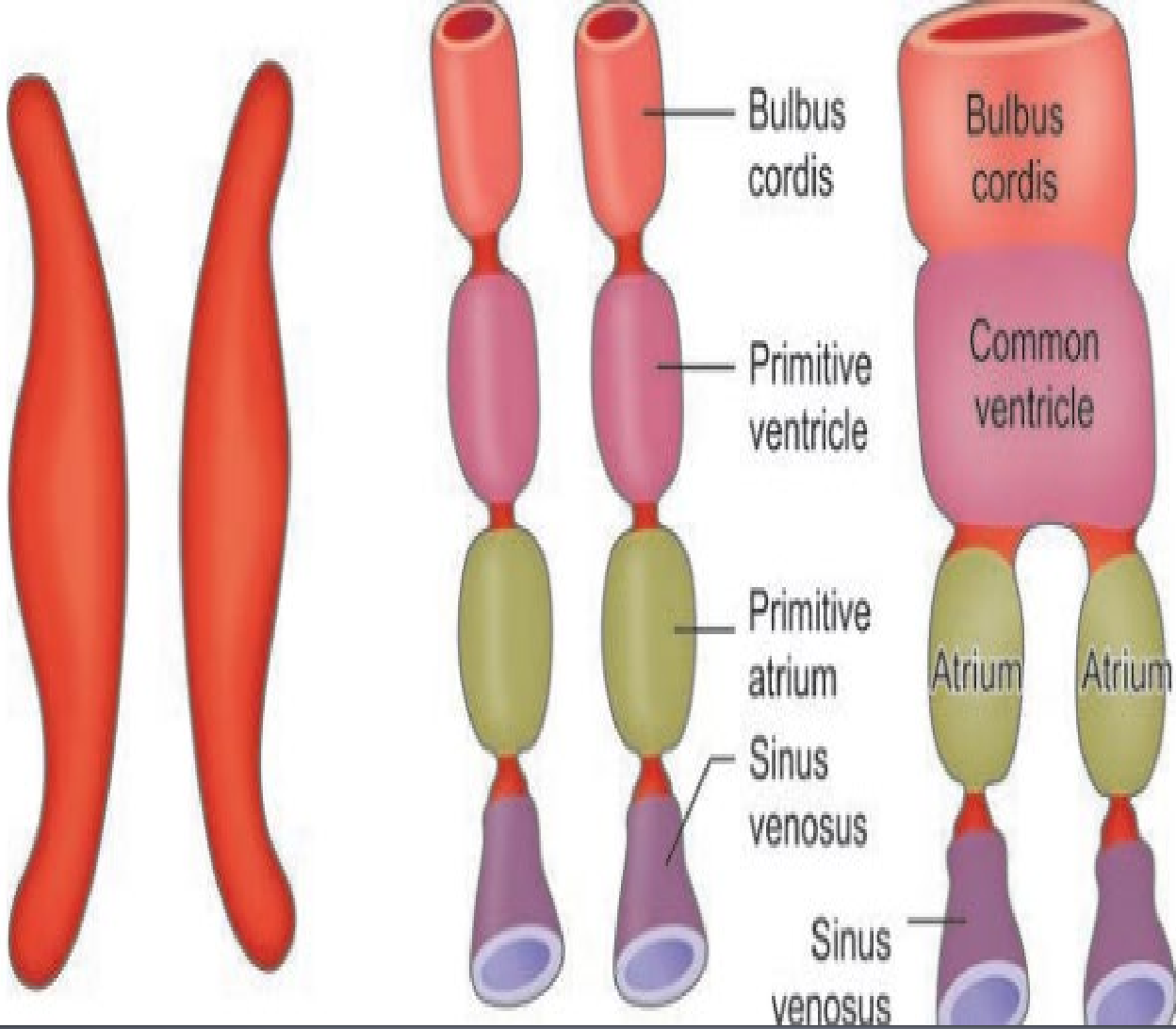
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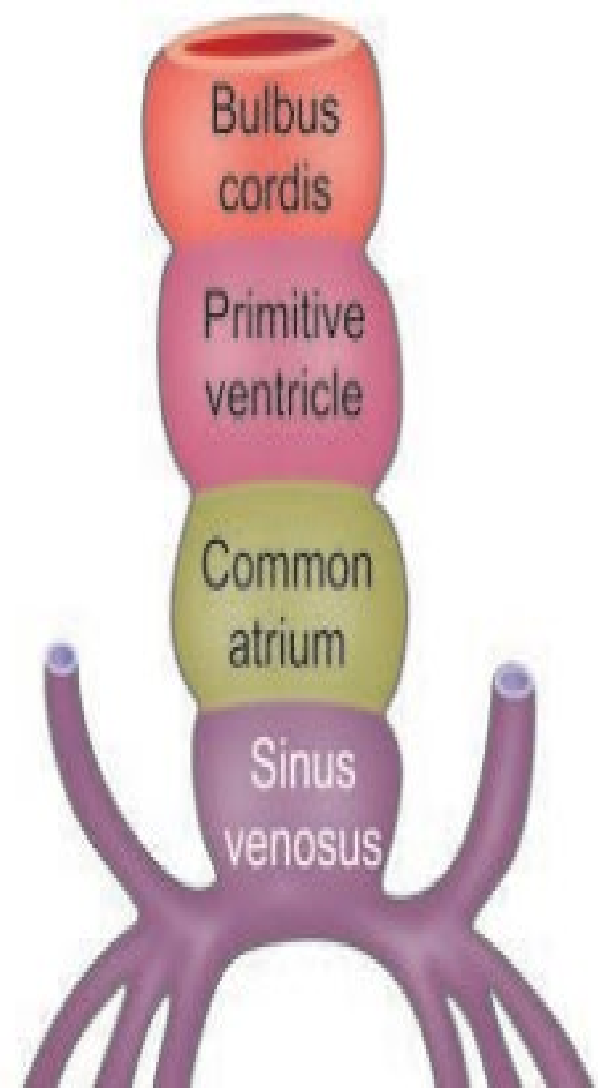
❑ The heart develops from splanchnopleuric mesoderm related to that part of the intraembryonic coelom that forms the pericardial cavity. This mesoderm is the cardiogenic area.

❑ Two endothelial heart tubes (right and left) appear and fuse to form one tube. This tube has a venous end and an arterial end.

❑ A series of dilatations appear on this tube. These are (1) bulbus cordis (2) ventricle (3) atrium and (4) sinus venosus.

❑ The bulbus cordis consists of a proximal one-third (which is dilated), a middle one-third called the conus, and a distal one-third called the truncus arteriosus. The narrow part connecting atrium and ventricle is the AV canal. The sinus venosus has right and left horns.



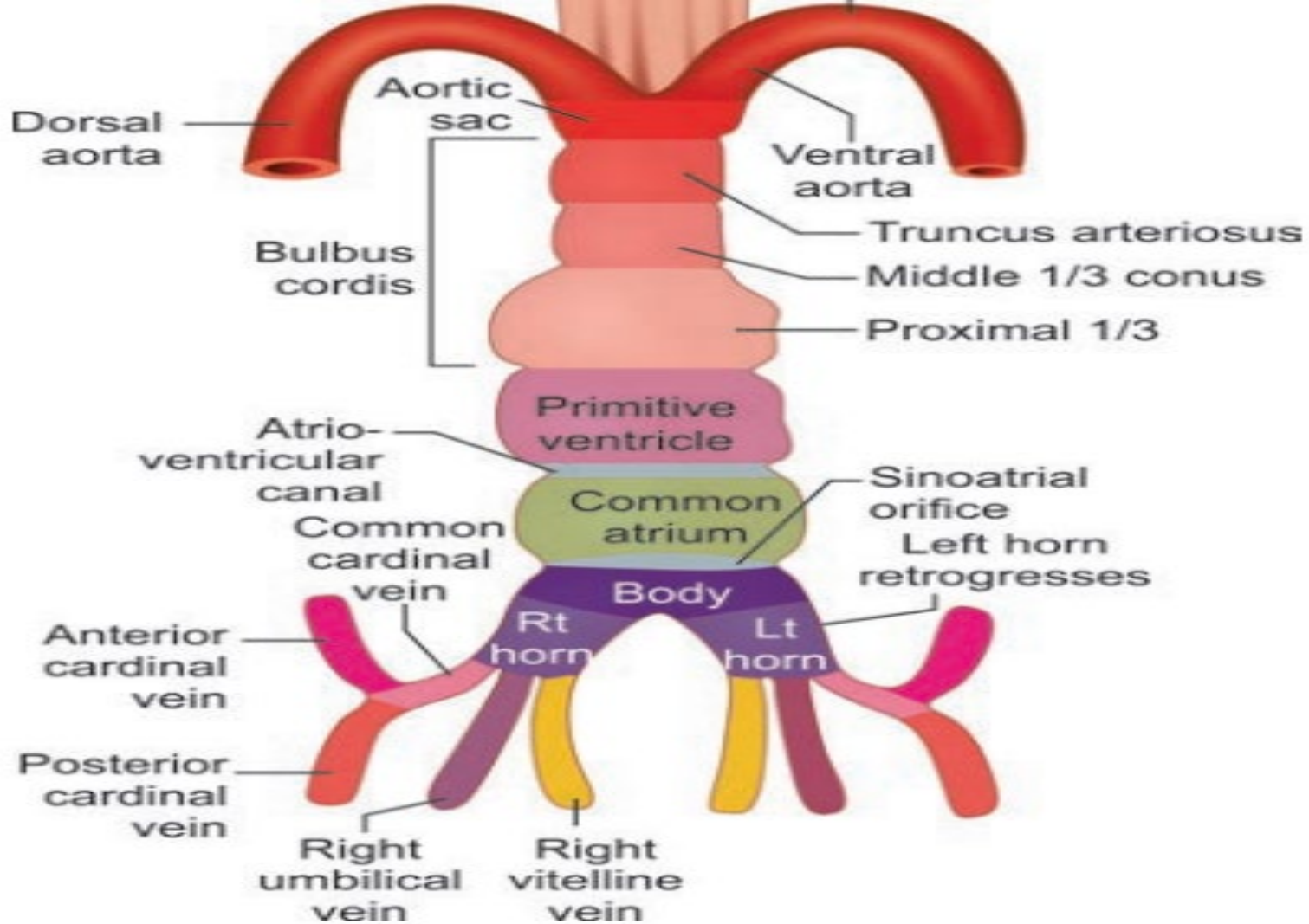


❑ The right and left atria of the heart are formed by partition of the primitive atrium. This partition is formed by the septum primum and the septum secundum.

❑ A valvular passage the foramen ovale is present between these two septa. It allows flow of blood from right atrium to left atrium.

❑ The dilated proximal one-third of the bulbus cordis, the conus, and the primitive ventricle unite to form one chamber. This is partitioned to form right and left ventricles. This partition is made of

(1) Interventricular septum that grows upward from the floor of the primitive ventricle



(2) A bulbar septum that divides the conus into two parts

(3) The gap left between these two is filled by proliferation of AV cushions that are formed in the AV canal.

□ The truncus arteriosus is continuous with the aortic sac. This sac has right and left horns. Each horn is continuous with six pharyngeal (or aortic) arch arteries.

□ These arteries join the dorsal aorta . The first, second and fifth arch arteries disappear. The caudal parts of dorsal aorta fuse to form median vessel.

□ The ascending aorta and pulmonary trunk are formed from the truncus arteriosus

- ❑ The arch of aorta is formed by the aortic sac, its left horn, and the left fourth arch artery.
- ❑ The descending aorta is formed partly from the left dorsal aorta, and partly from the fused median vessel.
- ❑ The brachiocephalic artery is formed from the right horn of the aortic sac.
- ❑ The common carotid artery is derived from part of the third arch artery.
- ❑ The pulmonary artery is derived from the sixth arch artery.
- ❑ The arteries to the gut are formed from ventral splanchnic branches of the dorsal aorta
- ❑ The renal arteries are formed from lateral splanchnic branches of the dorsal aorta.

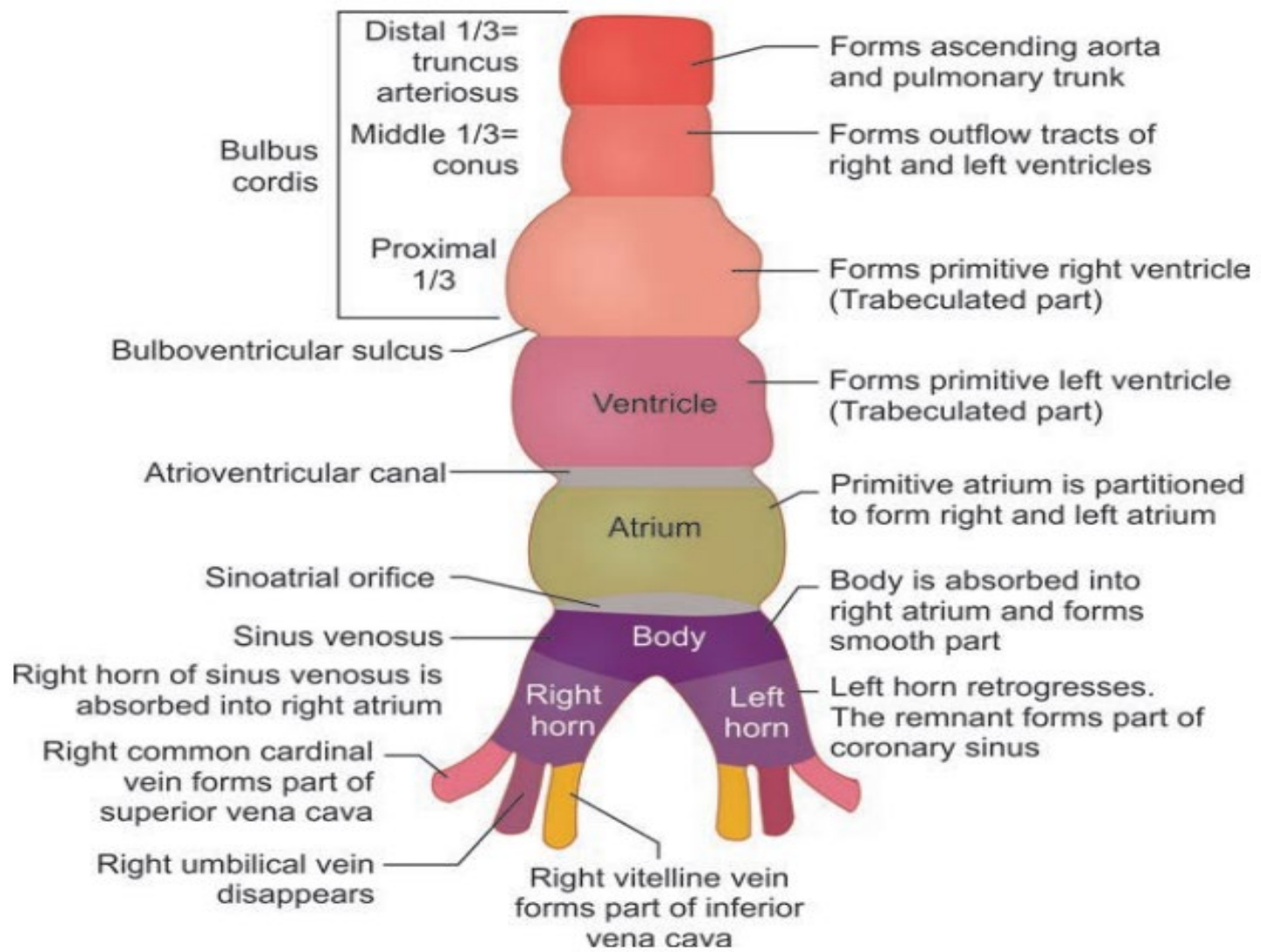
❑ The left subclavian artery is derived from part of the seventh cervical intersegmental artery.

❑ The right subclavian artery is formed from seventh cervical intersegmental artery and partly from the right fourth arch artery.

❑ The portal vein is derived from right and left vitelline veins and anastomoses between them.

❑ The superior vena cava is derived from part of the right anterior cardinal vein, and from the right common cardinal vein.

The inferior vena cava receives contributions from several veins (and anastomoses between them). These are the right posterior cardinal vein, the right subcardinal vein, the right supracardinal vein, and the right hepatocardiac channel.



THANKS