

the chapter 'Best Seller' Paper - IV A Dr. Prithvi Kumar
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AORTIC ARCHES IN BIRDS AND MAMMALS.

Both birds and mammals have only three pairs of aortic arches namely, III, IV and VI. The third arch become the carotid artery, the fourth arch become the systemic aorta while the sixth arch become the pulmonary aorta. The majority changes in birds and mammals have occurred in the reptilian plan.

- (i) Both have a single systemic arch, the right in the bird and the left in the mammals. These are derived from the right half and left half of the fourth pair of aortic arch respectively.
- (ii) The ventral aorta splits into two parts at root. The part which comes out from the right ventricle makes connection with pulmonary aorta while the part coming out from the left ventricle connects with carotid trunk.
- (iii) The manner of the origin of the common carotid and subclavian artery is of different type in various groups.

(b) 'When people in real life marry, they generally hunt up somebody in their own station!' Do you agree with this statement made by John? Discuss about this topic with reference to the chapter, 'Best Seller'.

(iv) Due to Complete division of the vessel emerging from the heart, there is no intermixing of blood at any place in the system. The blood leaves the right ventricle through the pulmonary aorta and the left ventricle through the single aorta.

CONCLUSION: — The changes in the basic plan of vertebrate aortic arches occurred in accordance with the gradual shifting towards the lung respiration from the gill respiration. As the animal became more and more adapted to the terrestrial life, it guided more and more separation of oxygenated and deoxygenated blood. Effects of changes in basic pattern are as follows: — (i) I, II, and Vth are reduced gradually and lost completely finally.

(ii) Third aortic arch is modified variously to form Common Carotid arch.

(iii) The fourth aortic arch is present completely upto reptiles, only right half in bird and only left half in mammal; and forms the systemic arch.

(iv) The part of the sixth remains as the base of the pulmonary artery — The ductus Botalli, which closes at the time of birth in mammal and at hatching in birds.

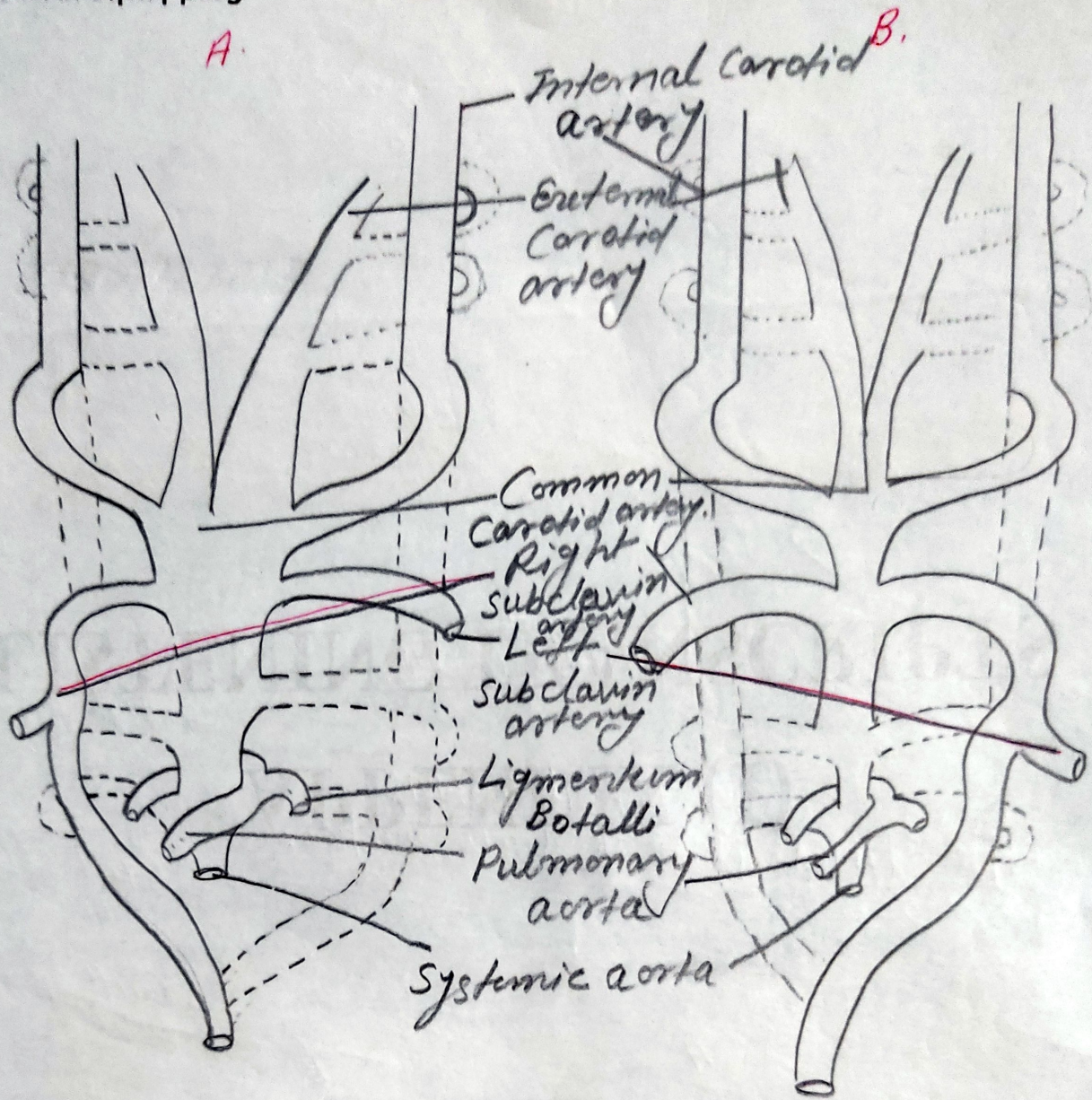


Fig: — Aortic arches birds and mammals.

- Internal Carotid artery.
- External Carotid artery
- Common Carotid artery
- Right subclavian artery
- Left subclavian artery
- Ligamentum Botalli
- Pulmonary aorta
- Systemic aorta.