

**RISHI BANKIM CHANDRA COLLEGE FOR WOMEN**

**DEPARTMENT OF ZOOLOGY**

**CLASS NOTES BY NANDINI PAL**

**3RD SEMESTER HONOURS , PAPER CODE- ZOOACOR05T ( CHORDATES)**

**UNIT: 3 (ORIGIN OF CHORDATA)**

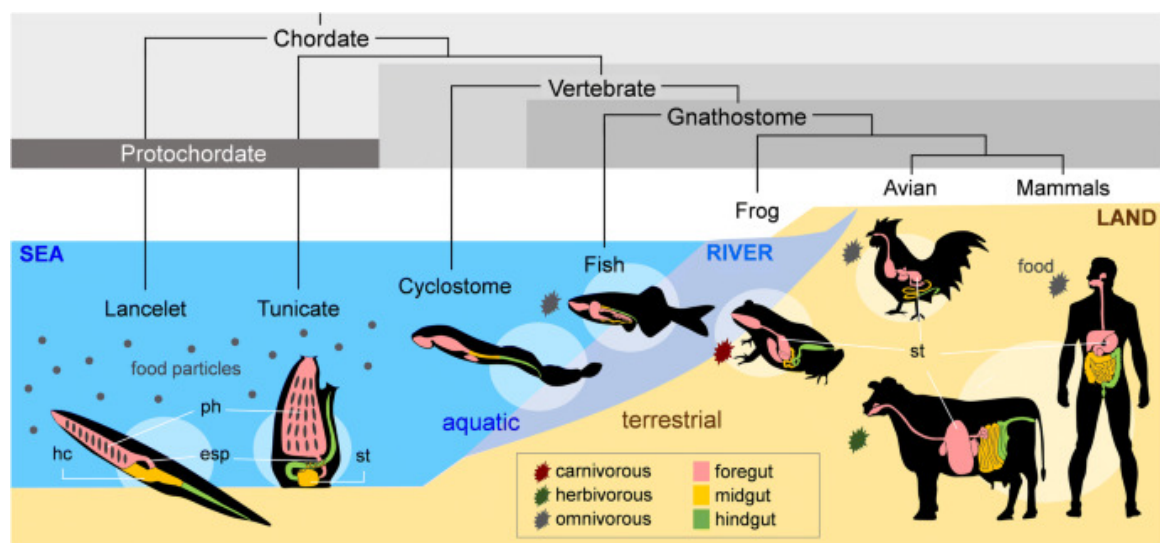
**ADVANCED FEATURES OF VERTEBRATES OVER PROTOCHORDATA**

1. Mostly notochord is replaced by vertebral column, or in some cases notochord is persistent with vertebral column.
2. Cranium and vertebral column, both are present.
3. Atrium is absent.
4. Endostyle is totally absent in the adult stages of vertebrates, (only found in the ammocoetes larval stage of Petromyzon).
5. Presence of neural crest cells in the development of nervous system.
6. Pharyngeal slits or clefts persist in some vertebrates.
7. Chambered heart. RBC is present in the blood.
8. Sexes' are separate (dioecious) except in some fishes.
9. During fertilization, the sperm unites with the ovum in the pathway of animal pole.

**Examples:**

Agnathan to mammals.

\*\*\* **Table no 1.3.** - 3rd point of higher chordata is not correct. coelom of higher chordata ( vertebrates) is enterocoelic. Both protochordates and vertebrates have enterocoelic coelom.



**TABLE 1.3.** CONTRASTING CHARACTERS OF PROTOCHORDATA AND EUCHORDATA.

Group A. Acrania (Protochordata)	Group B. Craniata (Euchordata) or Higher Chordata
1. Exclusively marine, small-sized chordates.	1. Aquatic or terrestrial, mostly large-sized vertebrates.
2. Appendages, head and exoskeleton absent.	2. Usually 2 pairs of appendages, well-developed head and exoskeleton present.
3. Coelom enterocoelic, arising from embryonic archenteron.	3. Coelom schizocoelic, arising by splitting mesoderm.
4. Notochord persistent. Skull, cranium and vertebral column absent.	4. Notochord covered or replaced by vertebral column. Skull and cranium well developed.
5. Pharynx having permanent gill-slits or gill-clefts. Endostyle present.	5. Pharyngeal gill-slits or gill-clefts persist or disappear. Endostyle absent.
6. Heart without chambers when present. Red blood corpuscles (RBCs) absent in blood.	6. Heart made of 2, 3 or 4 chambers. Blood contains RBCs.
7. Kidneys protonephridia.	7. Kidneys meso- or metanephridia.
8. Sexes separate or united. Reproduction asexual as well as sexual. Gonoducts usually absent.	8. Sexes separate. Only sexual reproduction Gonoducts always present.
9. Development indirect with a free-swimming larval stage.	9. Development indirect or direct, with or without a larval stage.

