

# Chordata

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# CHORDATA

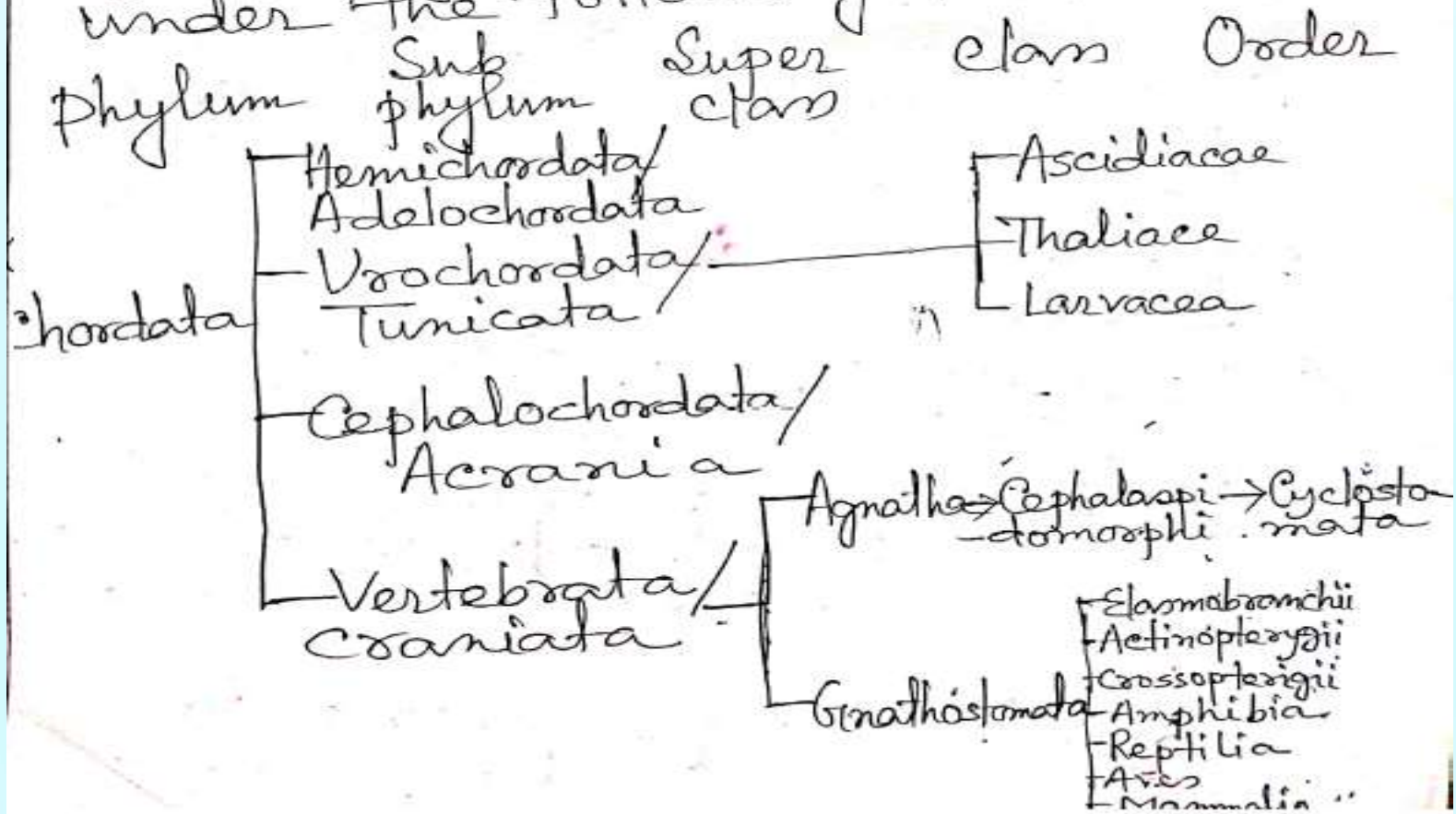
Various scientists agreed that, at least 49000 species of animals are included in the phylum chordata. There are controversies and differences of opinions among taxonomists on the classification scheme of phylum chordata. Hemichordates are included in invertebrate groups (Rupert and Barnes, 1994; Kent and Miller, 1997; Kardong, 1998)

## Special Features of Phylum Chordata

- ① Aquatic, aerial or terrestrial.  
All free-living with no fully parasitic form.
- ② Body wall triploblastic with true coelom.
- ③ Presence of notochord at some stages in life cycle.
- ④ Presence of pharyngeal gill slits at some stages of life cycle.
- ⑤ Presence of dorsal, tubular, hollow nerve cord.
- ⑥ Heart always ventral in position.

## Scheme of Classification

According to J. Z. Young (1981) phylum chordata is classified under the following table.



Subphylum - Hemichordata (Or. Hemi  
- Half ; Chorda - cord)

- i) The so-called notochord, stomo-  
Chord is very small. (Kardong, 2002).
- ii) Body is divided into proboscis,  
collar and trunk.
- iii) Gill-slits two or many.
- iv) Development through toraxial  
larva.

Eg. - Balanoglossus sp.

- Subphylum - Urochordata  
(Gr. Uro = Tail back string; Tunic = Test)
- i) Notochord and nerve chord present in larva but absent in adult.
  - ii) Adults are sessile or freewimming.
  - iii) Adult emerges from the larva by the process of retrogressive metamorphosis.
  - iv) Body is covered by a Tunic or Test.
  - v) Oral and atrial siphon present.
  - vi) Development through ascidian tadpole larva.

Subphylum - Cephalochordata  
(Gr. Kephale - Head ; Chorda - chord)

- a) Notochord and Nerve chord are present through out life along entire length of the body.
  - b) Body long cylindrical but laterally compressed.
  - c) No definite head, so acrania.
  - d) Body with 'V' like myotomes.
  - e) An oral hood is present at the entrance of the pharynx. Oral hood with oral cirri.
- Eg. - Amphioxus (Branchiostoma lanceolatus).

## Subphylum - Vertebrata

(L. - vertebratus = Backbone)

- a) Notochord replaced by a vertebral column composed of overlapping vertebrae.
  - b) Body with head, neck, trunk and tail.
  - c) Usually dioecious. / sexes are separate
  - d) Brain well developed and lies within ~~in~~ the cranium, so the name craniata.
- 2) Closed circulatory system.



Super class - Agnatha

↳ These animals are jawless.

Class - Cephalaspidomorphi

↳ These animal possess headshield

① These animal possess brain over the brain.

② Single nasal aperture is present at the anterior tip.

Order - Cyclostomata

① Body long, cylindrical.

② Rounded mouth aperture which is of sucking type.

Superclass - Gnathostomata  
(Gr. gnathos = Jaw ; stoma - mouth)

i) Mouth is bounded by jaws.  
\* Difference between Agnatha and Gnathostomata:

Agnatha

- i) Without true jaws.
- ii) Paired appendages absent.
- iii) Inner ear with 2 semi circular canals.
- iv) Notochord persistent in adults.

v) Eg. - Cyclostomes.

Gnathostomata

- i) True jaws present.
- ii) Appendages paired (pectoral and pelvic)
- iii) Inner ear with 3 semi circular canals.
- iv) Notochord persists or replaced by vertebrae.

Ex. - Fish, Amphians.  
etc.