

2. Protochordata

The phylum chordata is divided into four subphyla, namely *Hemichordata*, *Cephalochordata*, *Urochordata* and *Vertebrata* (Young, 1981). The first three subphyla are collectively referred to as *protochordates* or *lower chordates*, in contrast to the *vertebrates* or *higher chordates* (Burton, 1967). This is because they have no backbone or vertebrae.

They have no brain and *cranium* (brain case). Hence they are grouped together as *Acrania*, in contrast to vertebrata or *Craniata*.

The protochordates are primitive marine forms with a mixture of invertebrate and vertebrate characteristics. Hence, they are also termed as '*Invertebrate chordates*' (Villegier et al., 1978).

General Characters

Prochordata are *first* chordates. They are also called *Protochordata*.

They are *primitive* chordates.

They contain a *notochord* formed of *vacuolated notochordal cells*.

They are *marine*.

They do not contain a cranium and head. So they are called *Acrania*.

They have no jaws and vertebral column.

Many gill slits are present.

Alimentary canal has *endostyle*. They exhibit *filter feeding* and *ciliary feeding*.

Circulatory system is *open* or *closed type*.

Many forms exhibit *asexual reproduction*.

Eg. *Balanoglossus*, *Oikopleura*, *Ascidian*, *Amphioxus*, etc.

Classification of Protochordata

Prochordata are *first* primitive chordates containing a *notochord*. It is also called *Protochordata*.

They have no cranium and head. So they are called *Acrania*.

Prochordata is divided into three subphyla, namely

Subphylum 1. *Hemichordata*

Subphylum 2. *Urochordata*

Subphylum 3. *Cephalochordata*.

Subphylum 1. Hemichordata

Hemichordata contains a notochord in the *anterior half* of the body (*Hemi-Half*). It is represented by a *stomochord*. Eg. *Balanoglossus*.

They are *marine*.

Body is divisible into *proboscis*, *collar* and *trunk*.

Numerous gill slits are present.

A *tornaria* larva occurs.

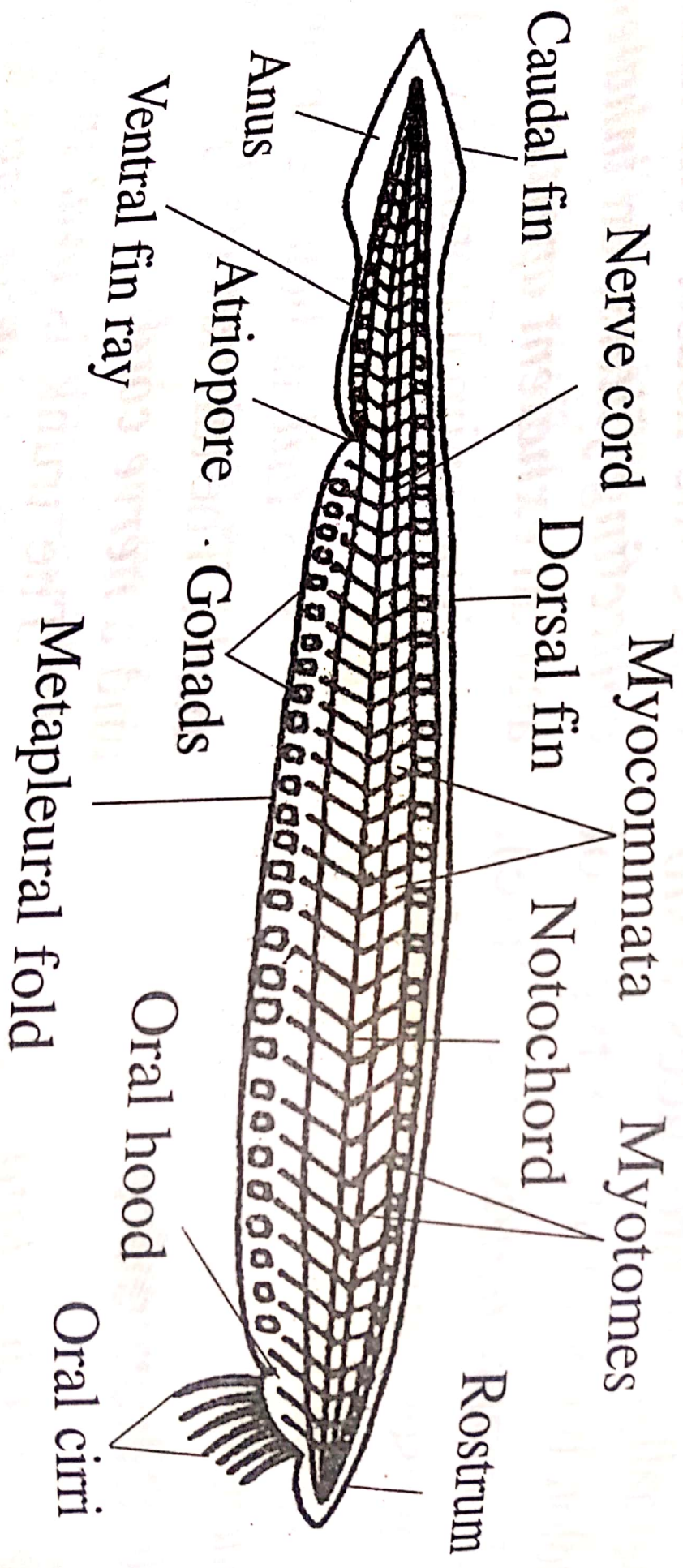


Fig.2.15: *Amphioxus*.

4. The body is laterally compressed.

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5. The anterior end has a snout called *rostrum*.

6. The body contains a *dorsal fin*, a *ventral fin* and a *caudal fin*.

7. On the ventral side there are two folds of the skin called *metapleural folds*.

8. The myotomes are arranged on both sides and are separated by *myocommata*.

9. The mouth is situated ventral to the rostrum and is guarded by *oral hood* bearing numerous *oral cirri*.

10. A single atriopore lies ventrally at the junction of the metapleural folds and ventral fin.

11. The anus lies on the left side just in front of the posterior end.

12. The sexes are separate.

13. The notochord extends from the anterior end to the posterior end.

14. The development is direct.

✓ 11. Amphioxus

Phylum : *Chordata*

Subphylum : *Cephalochordata*

1. It is a *Protochordate*.

2. It is commonly called *lancet*.

3. It is a marine fish-like *burrow-*
ing animal.