

Ammocoetes Larva

SEM-III ,Paper:CC5T

Dr.Ranajit Kr. Khalua

Assistant Professor

Dept. Zoology



Narajole Raj College

Paschim Medinipur

Structural Organisation of Ammocoetes Larva

Ammocoetes larva is the larval form of Petromyzon (Lamprey). It is an ectoparasite found attached to the undersurface of fishes and sucks its blood. It is a connecting link between Amphioxus and fish. This larva is very significant and phylogenetically important which undergoes complete metamorphosis to represent the adult Petromyzon.

Emergence of the Larva

After about 21 days a young larval form hatches out as the Ammocoetes larva. It is found in fresh as well as sea water.

General appearance of the Larva

At first the larva is 7 mm in length and stay in the nest when about 15 mm long, they quit the nest and burrow in mud and sand in quiet water. This tiny creature is transparent and almost like as Amphioxus. But it grows up into opaque, eel-like structure about 170 mm. long. The larval life is relatively long from 3 to 7 years.

Systematic Position

(According to J. Z. Young, 1981)

- Phylum - Chordata
- Subphylum - Vertebrata
- Superclass - Agnatha
- Class - Cephalaspidomorphi
- Order - Cyclostomata
- Suborder - Petromyzontida

Larval characters

A) External

- i) The larva has a median dorsal fin continuous with the caudal fin and is not divided into two parts by a median notch.
- ii) Mouth is bounded by an oral hood resembling closely to that of Branchiostoma.
- iii) Mouth opening is guarded by velum.

B) Internal

- i) Mouth leads into ciliated pharynx
- ii) The branchial pouches open into the pharynx directly.
- iii) An endostyle is present. It is composed of two tubes.
- iv) The endostyle opens to the pharynx by a slit-like aperture.
- v) Larva bears 7 pairs of branchial sacs, which open to the exterior by gill-slits.
- vi) Gall bladder is present.
- vii) The pronephric kidney persists as the excretory organ.
- viii) There is a liver which secretes bile into intestine.
- ix) A well developed brain with cerebral hemisphere and cerebellum.
- x) Spinal cord rounded.

Metamorphosis

In favourable condition preferably in winter, the larva metamorphoses into an adult. The important changes that occur during metamorphosis are →

- i) The continuous median dorsal fin divided into two parts by a median notch.
- ii) The oral hood becomes rounded.
- iii) The endostyle transform into a thyroid gland below the pharynx.
- iv) Mouth becomes surrounded by suctorial buccal funnel with teeth, tongue and complex musculature.
- v) Velum disappear.
- vi) The paired eyes become prominent and functional.

Affinity

A) Affinity with Amphioxus Similarity in Both

- i) Continuous notochord.
- ii) Segmental musculature.
- iii) Large number of gill slits.
- iv) Presence of endostyle and oral hood
- v) Similar feeding mechanism.

Dissimilarities

- i) Small cranium in Amphioxus.
- ii) Advanced brain structure in Petromyzon.
- iii) Well developed eyes in Petromyzon.
- iv) Suctorial mouth in petromyzon.

B) Affinity with Fishes

Similarity in Both

- i) Similar body structure.
- ii) Similar habitat.
- iii) Similar respiration.
- iv) Similar heart and circulatory system.

Dissimilarity

- i) Unpaired fin in Petromyzon.
- ii) Single median nostril in Petromyzon.
- iii) Presence of well developed lateral line in fishes.
- iv) Presence of Dermal scale in fishes.
- v) Jawless animal petromyzon.

Phylogenetic Consideration 4

The affinity of petromyzon with amphioxus and fishes suggest that they are highly specialised in many ways. Grassman (1947) considered that Amphioxus is very much similar to that of ammocoete larva exhibiting a case of paedogenesis. But Romer pointed out certain special feature of amphioxus which are not only primitive but quite different from those of Ammocoetes larva. But J. Z. Young (1981) viewed that the salient features of Amphioxus create a strong barrier^{and} they considered Ammocoetes as a paedomorphic and Neotenic form which corresponds to that of Ammocoetes as stated by Grassman.

