

LIFE CYCLE OF AURELIA

In Aurelia sexes are separate. But there is no sexual dimorphism. The gonads are horse-shoe shaped, endodermal in origin and located on the floor of the gastric pouches.

The eggs are fertilized in the gastric pouches. Hence fertilization is internal. Development takes place in the oral arms or stolon or stomach or gastric pouches. Development is indirect.

Blastula: The fertilized egg is called zygote. It divides repeatedly. The divide is called cleavage. The cleavage leads to the formation of a hollow ball of cells. This hollow ball is called blastula. The cavity of blastula is called blastocoel.

Gastrula: The blastula soon invaginates to produce a double walled cup-like structure called gastrula. The two layers of the gastrula are the ectoderm and endoderm. The cavity of gastrula is called archenteron. It opens to the outside by an opening called blastopore. The gastrula elongates and develops into planula larva.

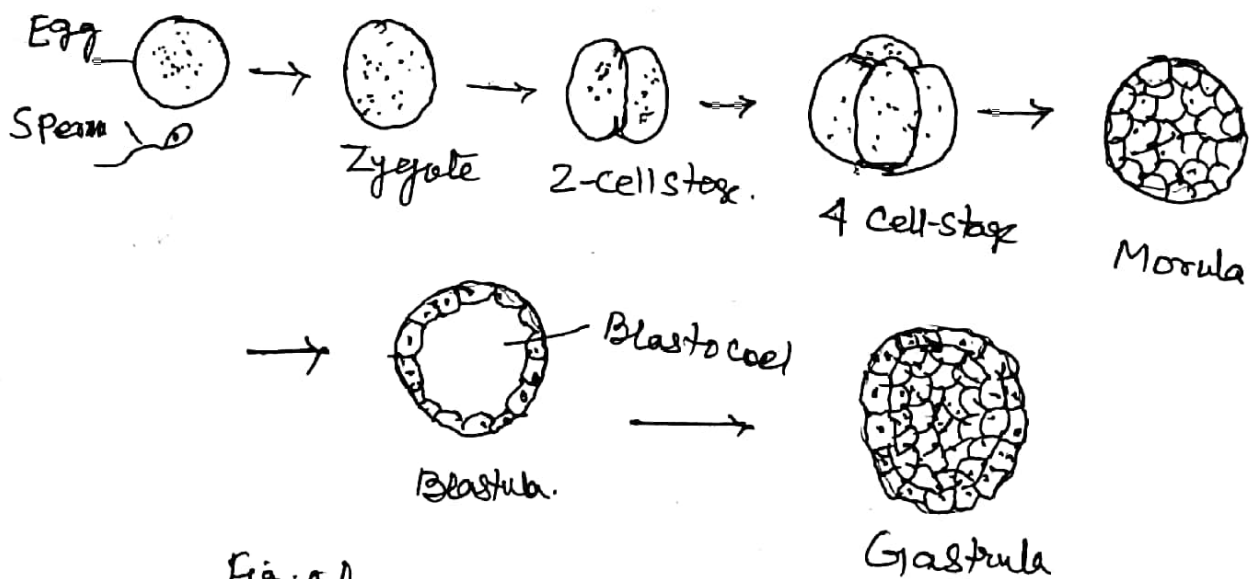


Fig. Cleavage in Aurelia, Blastula and Gastrula.

Planula: It is a free swimming larva. It is cylindrical ^{in shape}. It is covered by cilia. It has a coelenteron and two layers of cells, ectoderm and endoderm. After a short free swimming life, the planula loses its cilia and becomes attached to the substratum to develop into the next larva called Scyphistoma.

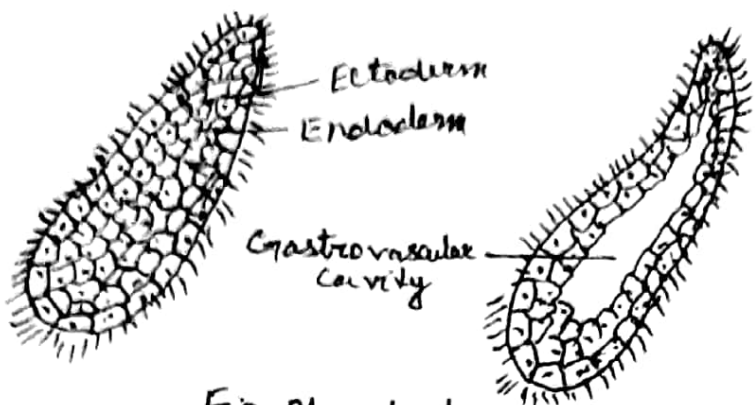


Fig. Planula larva

Scyphistoma : It develops from the planula larva. It is trumpet-shaped and it looks like a Hydra, hence it is also called hydratuba. It is a sedentary larva found attached to rocks with the help of basal disc. The free end bears a short manubrium. The manubrium bears a square-shaped mouth. The mouth is surrounded by tentacles.

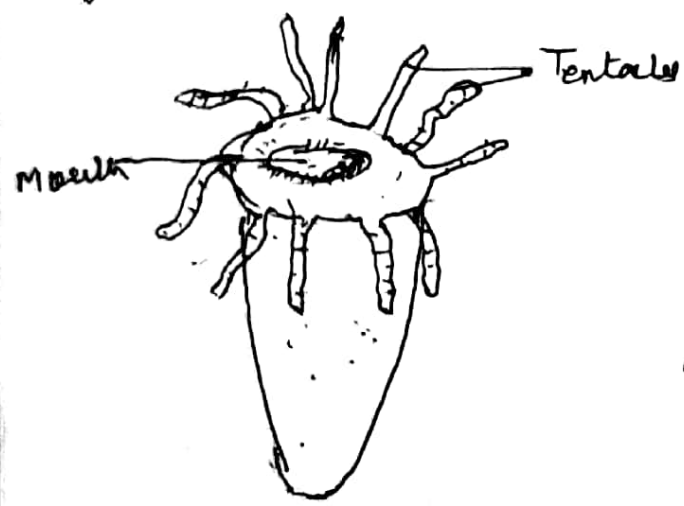
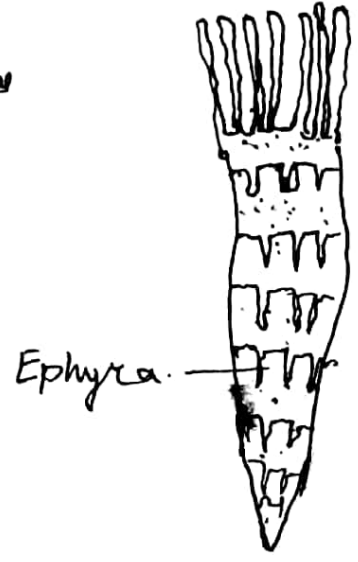


Fig. Young Scyphistoma

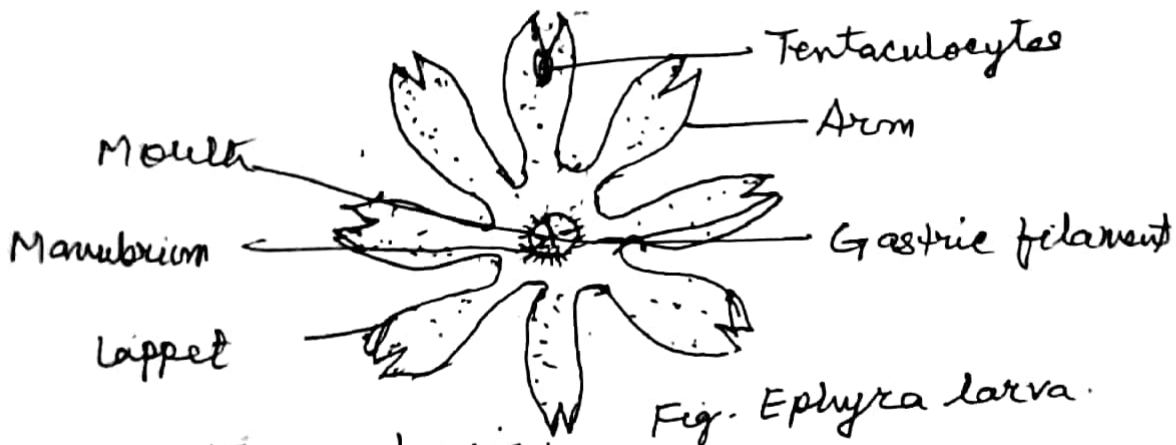


Scyphistoma

Strobilation : The Scyphistoma undergoes a process of transverse fission called Strobilation. The resulting individual is called ephyra larva. They are arranged one above the other. The Scyphistoma with many ephyra larvae is ~~known~~ ^{called} strobila. When fully matured, the ephyra larva gets separated and becomes a free swimming larva.

Ephyra larva : It develops from Scyphistoma by strobilation. It is a free swimming larva.

It is a medusoid form. It has a tetramerous symmetry. It is umbrella-shaped. It has eight bilobed arms. The tip of each arm has a notch with two marginal lappets. The notch contains a tentaculocyst. The centre of sub-umbrellar side has a short manubrium and a mouth. The gastrovascular system with gastric filament is present. The larva swims actively and feeds on minute organisms.



Metamorphosis:

The ephyra larva grows in size. The space between the arms is filled up. Mesogloea increases in thickness. Four oral arms appear. The margin develops tentacles. Now the ephyra becomes an Aurelia.

Alternation of generations:

In the life history of Aurelia, sexual reproduction alternates with asexual reproduction. This is called alternation of generation. Aurelia reproduces by sexual reproduction. The fertilized egg develops into ephyra larva by asexual reproduction by Scyphistoma. Scyphistoma represents asexual generation. Hence there is alternation of sexual and asexual generation in the life history of Aurelia.

►► Multiple choice questions

1. R.B.C. is present in the food vacuole of :
(a) *Entamoeba histolytica*
(b) *Amoeba proteus*
(c) *Trypanosoma gambiense*
(d) *Leishmania donovani*
2. What disease is caused by *Entamoeba histolytica* :
(a) Amoebic dysentery (b) Gambian fever
(c) Typhoid (d) Malaria
3. Pathological nature of *Entamoeba histolytica* was discovered by :
(a) Lamble (b) Losch
(c) Grassi (d) Lavern
4. The infective stage of *Entamoeba histolytica* is :
(a) uninucleate cyst (b) binucleate cyst
(c) tetranucleate cyst (d) minuta form
5. Besides the bead-like chromatin granules what is present inside the nucleus of *Entamoeba histolytica* :
(a) parabasal body (b) contractile vacuole
(c) micronucleus (d) karyosomes
6. *Entamoeba histolytica* is found in :
(a) the rectum of man
(b) the intestine of man
(c) the oral cavity of man
(d) the stomach of man
7. Amoebic dysentery is caused by :
(a) *Amoeba proteus*
(b) *Entamoeba histolytica*
(c) *Plasmodium vivax*
(d) *Taenia solium*
8. *Entamoeba histolytica* causes :
(a) kala-azar (b) filariasis
(c) dysentery (d) sleeping sickness
9. *E. histolytica* is found in :
(a) colon (b) intestine
(c) both (d) none
10. *Entamoeba histolytica* is without :
(a) pseudopodium (b) contractile vacuole
(c) food vacuole (d) nucleus
11. Cysts of amoebic dysentery spread by :
(a) housefly (b) mosquito
(c) men (d) none of these
12. Amoebic dysentery in man is caused by :
(a) *Amoeba proteus* (b) *Entamoeba histolytica*
(c) *Entamoeba coli* (d) *Entamoeba gingivalis*
13. In *Entamoeba histolytica* the normal trophozoites are called :
(a) sporulets (b) minuta forms
(c) monogenetic forms (d) magna forms
14. *Entamoeba histolytica* has no need for :
(a) feeding (b) growth
(c) osmoregulation (d) reproduction
15. Precystic stage of *Entamoeba* is called :
(a) magna form (b) minuta form
(c) feeding trophozoite (d) growing trophozoite
16. *Entamoeba histolytica* is a human parasite usually found in :
(a) intestine (b) liver
(c) blood (d) none of the above

17. The minuta form of *Entamoeba histolytica* differs from *Amoeba proteus* in having :
(a) one pseudopodium formed of ectoplasm
(b) one pseudopodium formed of endoplasm
(c) no food vacuoles
(d) small contractile vacuole
18. *Entamoeba histolytica* differs from *Amoeba proteus* in having :
(a) no pseudopodium (b) no food vacuoles
(c) reproduction only by encystment
(d) no contractile vacuole
19. Encysted stage is not known to occur in life of :
(a) *Entamoeba gingivalis*
(b) *Entamoeba coli*
(c) *Entamoeba histolytica*
(d) *Amoeba*
20. Monopodial locomotion does not occur in :
(a) *Entamoeba histolytica*
(b) *Entamoeba coli*
(c) *Entamoeba gingivalis*
(d) *Entamoeba*
21. Most active form of *Entamoeba histolytica* :
(a) trophozoite (b) pericyclic
(c) cystic (d) all
22. *Entamoeba histolytica* has :
(a) one contractile vacuole
(b) two contractile vacuoles
(c) three contractile vacuoles
(d) no contractile vacuole
23. Which of the following has only one host :
(a) *E. histolytica* (b) *T. gambiense*
(c) *T. solium* (d) *P. vivax*
24. The excretion in *Entamoeba histolytica* take place :
(a) food vacuole (b) contractile vacuole
(c) general body surface
(d) endosome
25. How many young amoebae hatch out from a cyst of *E. histolytica* :
(a) one (b) two
(c) four (d) six
26. Cyst of *E. histolytica* spread by :
(a) mosquito (b) bed bug
(c) mouse (d) house fly
27. Chromatoid body in *Entamoeba histolytica* are found in :
(a) cyst (b) trophozoite
(c) meta cyst (d) minuta
28. For prevention against amoebiosis we should :
(a) eat spicy food (b) use mosquito net
(c) drink boiled water
(d) eat plenty of food
29. The meta cyclic form has nucleus :
(a) one (b) two
(c) four (d) eight

►► Multiple choice questions

1. The sense organ in *Aurelia* is called as :
(a) nematocyst (b) tentaculocyst
(c) taster (d) tentilla
2. Process of gastrulation in the life history of *Aurelia* is by :
(a) delamination (b) epiboly
(c) emboly (d) invagination
3. Larva of *Aurelia* is :
(a) planula (b) stereogastrula
(c) scyphistoma (d) parenchymula
4. *Aurelia* belongs to order :
(a) coronatae (b) semaestomae
(c) rhizostomae (d) none
5. *Aurelia* generally known as :
(a) jelly fish (b) jolly fish
(c) marine fish (d) true fish
6. Which zooid is dominant in *Aurelia* :
(a) polyp (b) medusa
(c) both (d) none
7. *Aurelia* maintain the equilibrium with the help of :
(a) elastic fibre (b) nematocyst
(c) tentaculocysts (d) radial muscles
8. *Aurelia* is :
(a) herbivorous (b) carnivorous
(c) omnivorous (d) all the above
9. Nerve net present in :
(a) *Sycon* (b) *Hydra*
(c) *Aurelia* (d) all
10. Ephyra is :
(a) a Porifera (b) a Cnidaria
(c) young *Hydra* (d) young *Aurelia*
11. Collencyhna is found in :
(a) *Paramecium* (b) *Aurelia*
(c) *Obelia* (d) *Euglena*
12. In origin colenchyma is :
(a) mesodermal (b) endodermal
(c) ectomesodermal
(d) endo-mesodermal