E Detorsion

Torsion in Moluscа

(1)

Torsion is defined as the rotation of the visceral organs to an angle of 180° in in anticlock wise direction. It converts the straight alimentary canal into a loop. It occurs in the majority of gastropods. the gastropod exibiting torsion are included in the group streptura. eg:- Pila.

Process of torsion

1) The alimentary canal straight with the mouth at the anterior end and anus at the posterior end.

2) The mantle cavity is located posteriorly

3) ctenidia are located posteriorly.

4) The nerves system is bilaterally symetrical.

5) The auricle lie posterior to the ventrical.

-The larva exibiting torsion in order to become the adults.

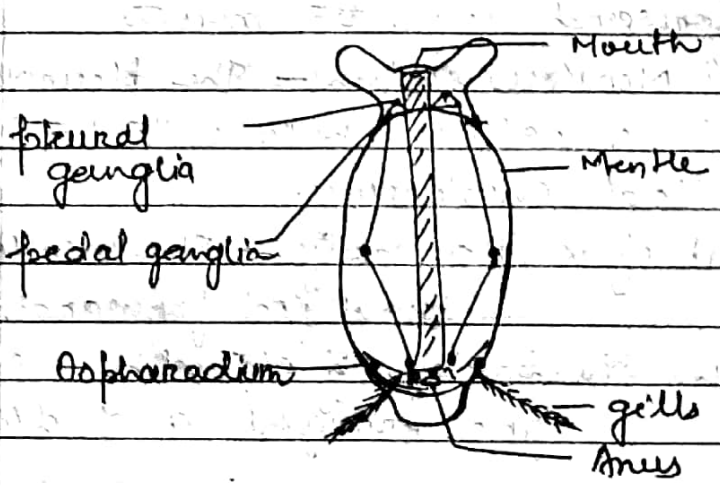


Fig:- Torsion in gastropods

The Torsion has the following feature:

1) Ventral flexture — First of all ventral flexture is appear in the larva. It converts the staight alimentary canal into a loop. the mentle cavity and visceral mass become cone shaped and finally become spirally coiled.

2) Differential growth — On the right side of the larva the growth is retarded but on the left side it is accelerated.

3) Anticlock wise rotation — The mentle and foallial complex rotated to an angle of 180° in the anticlock wise direction this process shifts the organ from the left side to the right side.

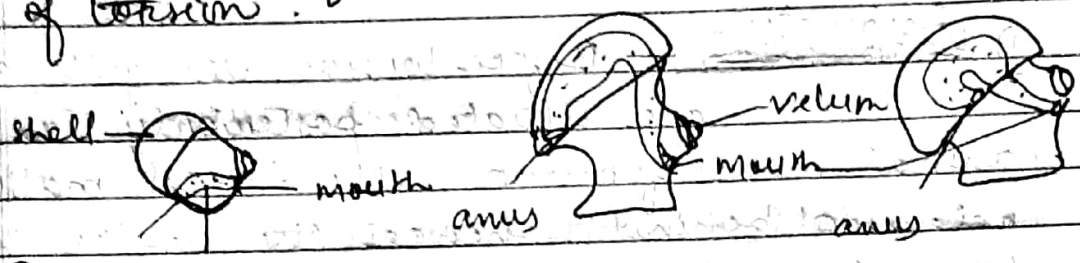
Events in Torsion :

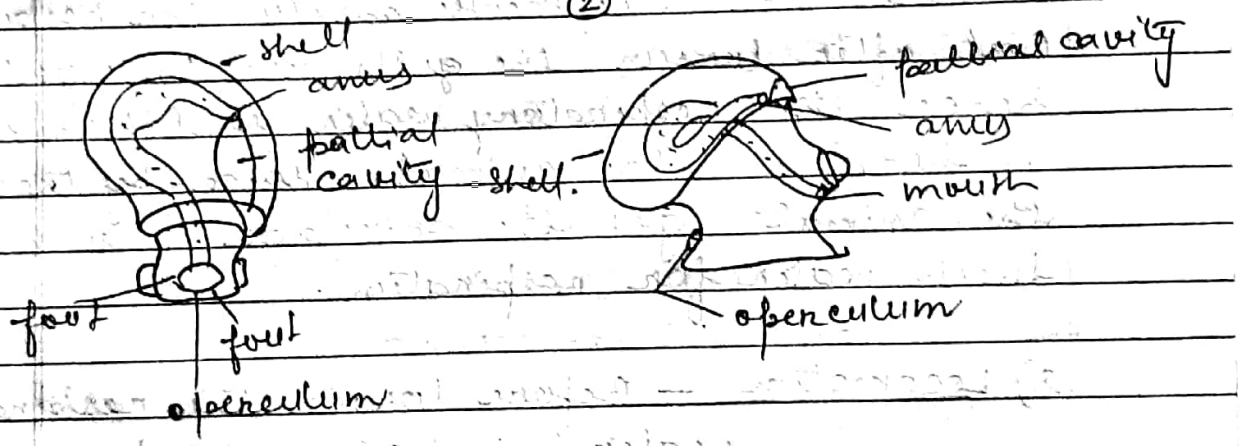
1) Looping of alimentary canal — The alimentary is loop like the anus is brought forword near the mouth
2) Twisting of Nervous system — The pleuroviscoral connectives become twisted. this process is called chistoneury.
3) Displacement of Menter cavity — The mentle cavity is shifted forward.
4) Change in the position of ctenidia — The ctenidia are brought and directed forwad.
5) Displacement of auricle — the auricles are shifted to the front of ventricle.

6) Coiling of shell and visceral mass - The shell and visceral mass are coiled.

7) Degeneration of structure located on the left side — The structure located on the left side are degenerate.

8) Loss of ~~symmetry~~ symmetry - The bilateral symmetry of the larva is lost as a result of torsion.





Process of torsion.

Detorsion

In some gastropods after torsion there is a reversion of torsion. the reverse of torsion is called Detorsion. during detorsion the visceral mass shifts to an angle of 180°

in the clock wise direction. the mantle cavity is brought forward, the alimentary canal is untwisted. the anus is brought backward. Detorsion occurs in Euthyneura.

Advantage of Torsion

Torsion provides the following advantages:-

1) ~~Locomotion~~ Respiration — Before torsion the gills and anus are situated posteriorly, as the animal moves forward, the faecal matters is released behind, hence the water become turbid and impure. this impure water is inhaled into the mantle cavity for respiration But after torsion the gills are brought forward hence the respiratory water is taken in from a head of the animal. Hence by torsion the animal get the privilage of using fresh water for respiration.

2) Locomotion — Before torsion the respiratory water is taken in from behind the animal. Hence this water current moves forward inside the animal, when the animal moves forward it has to push the water backwardly. so before torsion the respiratory current and locomotory current oppose each other. this creates difficulty to locomotion. After torsion the gills are placed forwards and hence the respiratory current. this does not produce any hindrance to locomotion.

3) Sensation — Before torsion the osphradium is situated backward. But after torsion the Osphradium is brought forward the anteriorly placed osphradium helps the animal to test the suitability of the water lying ahead.

4) Protection — Before torsion the foot is withdrawn into the body first only after the foot is drawn in the more sensitive parts like the head and ctenidia are taken in. But after torsion the head and ctenidia are withdrawn first and then the foot.

Disadvantages of torsion

1) Sanitation — During torsion the anus is brought forward near the mouth. the faeces released from the anus gives sanitation problem.

2) Respiration — the faecal matter is released forward it makes the water ~~impure~~ lying a head impure. this impure water is inhaled for respiration.

detorsion is partial and complex detorsion is observed in Aplysia.

Conclusion :—

Thus we have seen how the torsion is responsible for asymmetry in prosobranchita group of Molluscas and detorsion on the other hand had brought back of the symmetry.

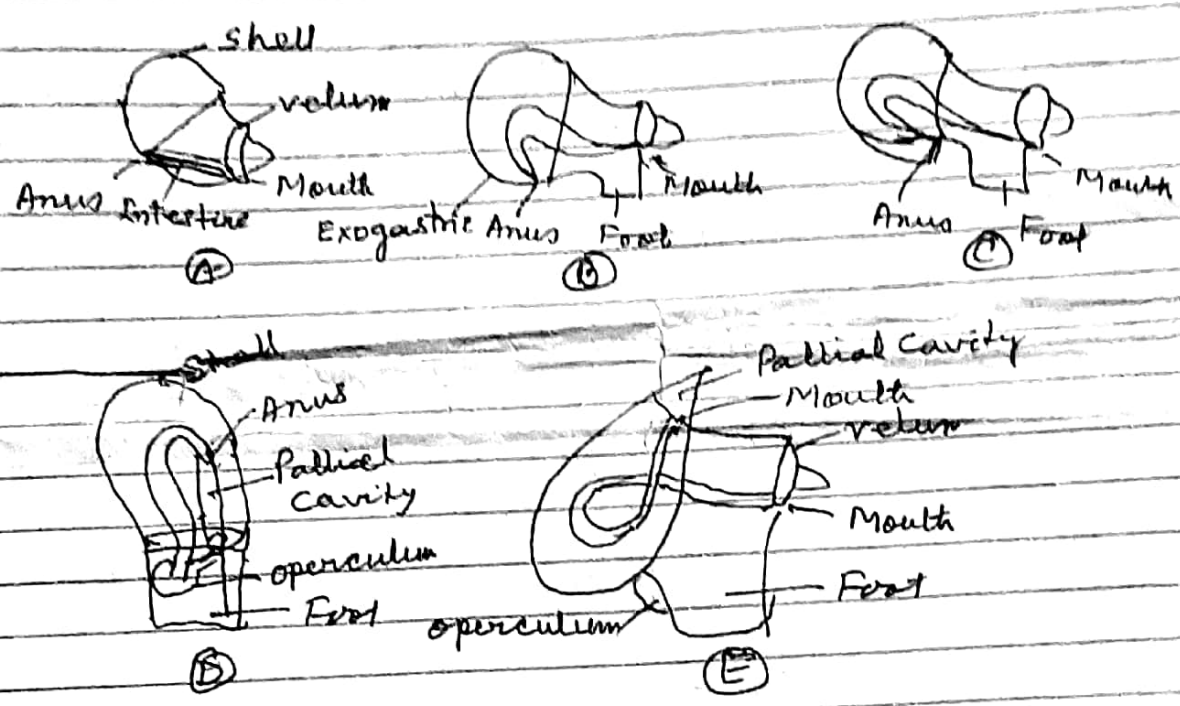


Fig- Process of torsion in gastropod
(A) Early stage of veligar larva in lateral view
(B) Larva with ventral flexure.
(C) Stage showing 90° of lateral Anticlockwise Torsion
(D) 90° Torsion stage in Posterior view.
(E) Adult stage with complete and 180° torsion in lateral view.

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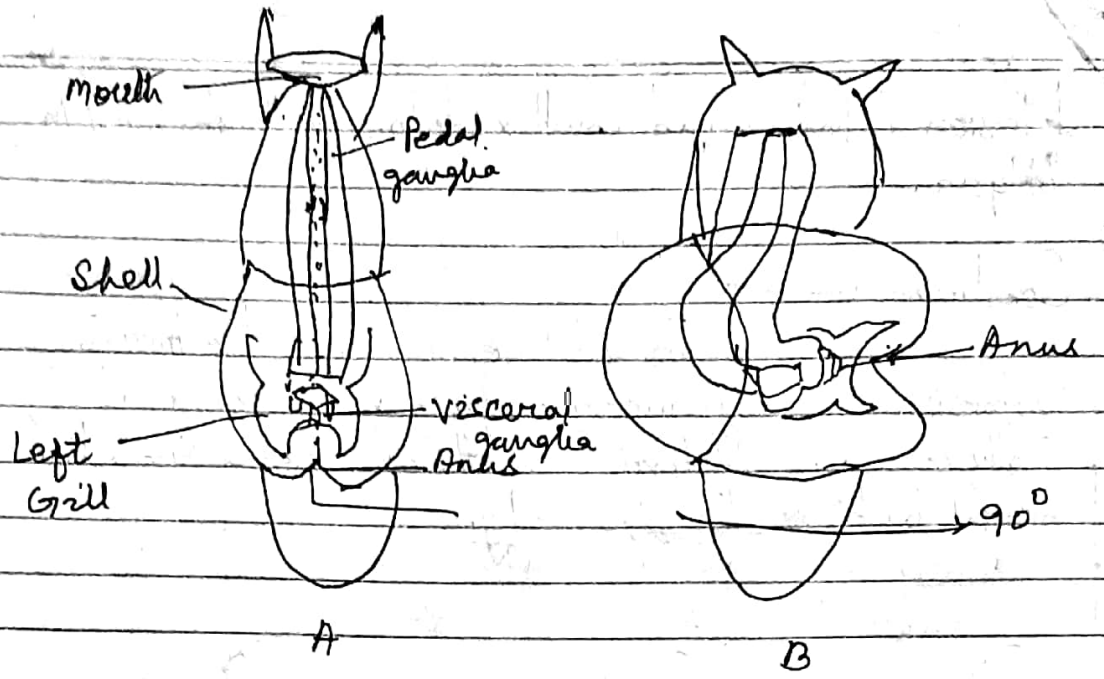

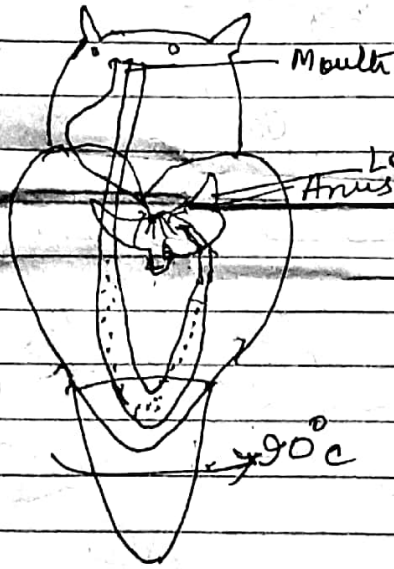

Fig- Process of Torsion.