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CTENOPHORA (Affinities of Ctenophora)

Although Ctenophore are obviously of the same general grade of organization as that of a Cnidaria but it is not possible to derive them from any of the existing group of Cnidaria. An attempt was made to show that the Ctenophora is closer to Porifera than Cnidaria on the following basis:-

Affinities with Porifera

Similarity

- (i) Simple structure with a large central cavity in which mouth and osculum leads.
- (ii) The absence of well-developed mesoderm in both the groups.
- (iii) Larval stage in both showing some superficial resemblance.

Difference

The affinities of Ctenophora with Porifera is, however, not more accepted because -

- (i) Osculum of Sponge in no way corresponds to the mouth of Ctenophora when their embryology is traced out.
- (ii) Presence of inhalant apertures in the wall of the sponge and their absence in Ctenophora.
- (iii) Presence of choanocytes in sponges and their absence in Ctenophora.
- (iv) Complete absence of spicules in Ctenophora which occur in Porifera.

Affinities with Coelenterata (Cnidaria)

- (i) Radial and tetramerous symmetry of body.
- (ii) Presence of gelatinous mesoglea.
- (iii) Absence of coelom and presence of gastrovascular cavity, gastrovascular cavity is branched.
- (iv) Presence of tentacles similar to those of medusa.
- (v) Nervous system diffuse.
- (vi) Lack of organ system.
- (vii) ExTERNAL origin of gonads.
- (viii) Presence of statocysts (sense organ).
- (ix) Pseudo tissue grade of organization.

Attempts have been made to relate Ctenophora directly with the Hydrozoa and Anthozoa.

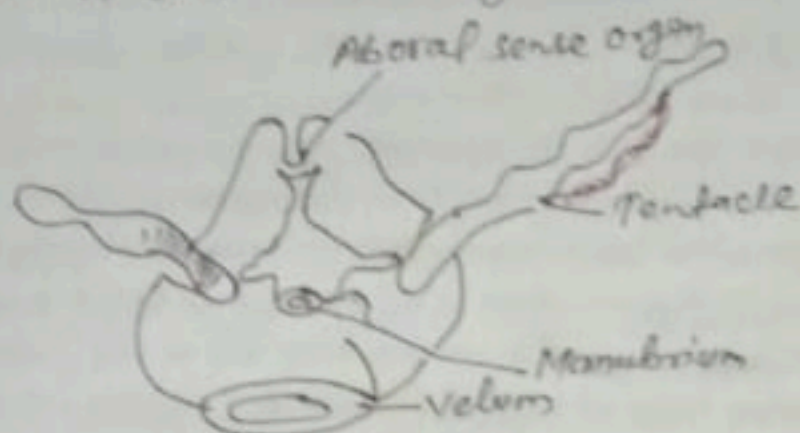
Resemblance with Hydrozoa

An Anthomedusa (Hydrozoa) Ctenaria shows remarkable resemblance to a typical Ctenophora such as Hormiphora.

- (i) Presence of two tentacles in opposite per. radii and each having at its base a deep pouch in the umbrella resembling the tentacle sheath of Hormiphora.
- (ii) The canals are also very similar. The whole of subumbrellar cavity of ctenaria can be compared with the stomach of Hormiphora, marginal bell and mouth can be compared with aperture of Stomodaeum and infundibulum respectively.
However, these similarities do not seem to indicate any true homology because.

- (i) The gullet of Ctenophora is a true Stomodaeum developed as an invagination of oral ectoderm and has therefore a totally different origin from the subumbrella of a medusa.

- (ii) The tentacles of Ctenaria have no muscular base and they spring from the margin of the umbrella.
- (iii) Gonads are developed in the manubrium.
- iv) No trace of aboral sense organ.



Hydrozoa

- (i) Presence of an aboral sense organ having 2 calcareous bodies supported on springs.
- ii) A canal is given off from the apex of gastric cavity which ends blindly near the sense organ. This canal may be compared with the infradibular canal of Hornophora.

However, a close examination of the subject reveals a number of differences b/w the two. The Hydrozoa differs from Ctenophora in