

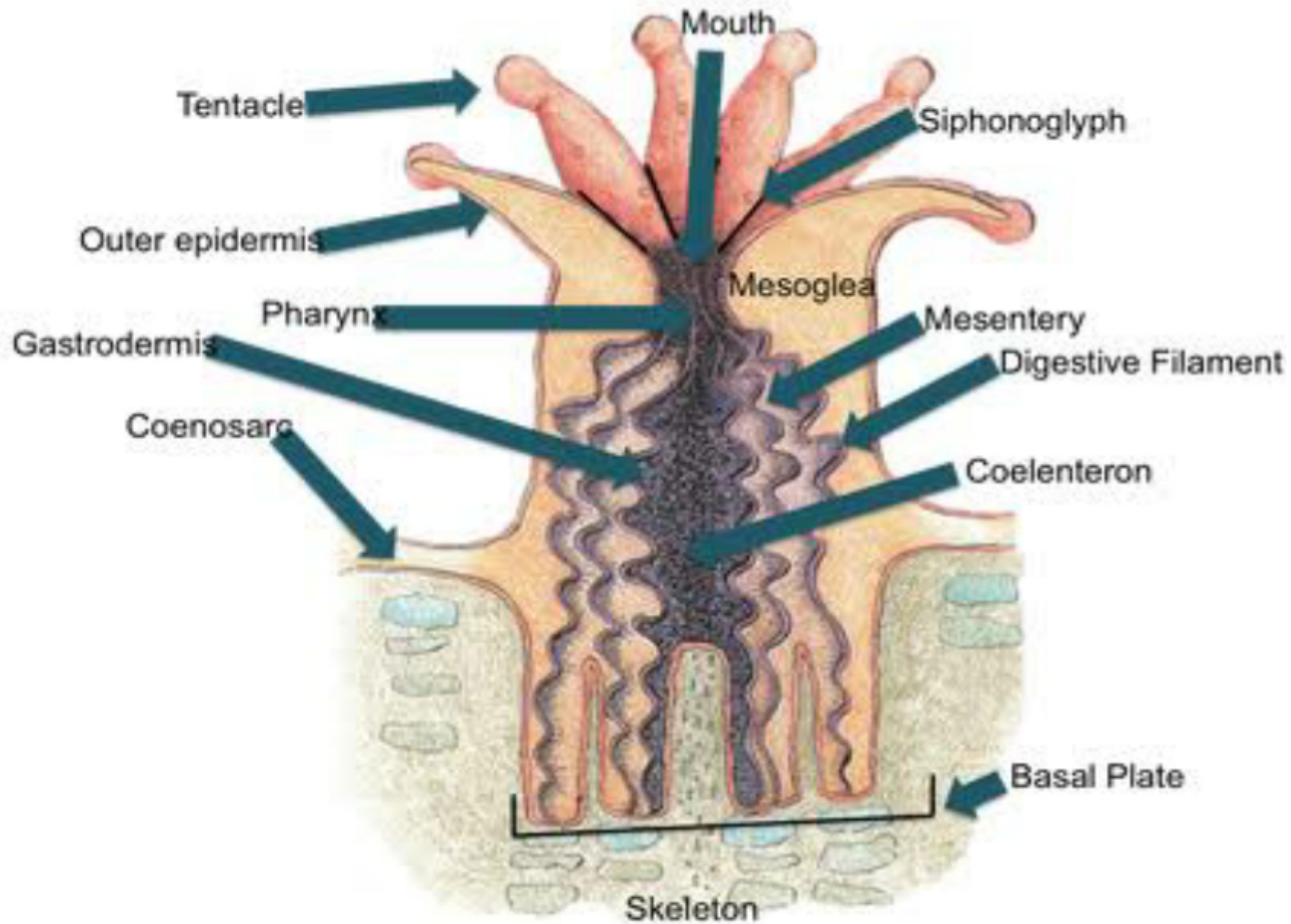
PHYLUM: CNIDARIA

Coral reefs: Coral polyp structure and formation

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CORAL REEFS:

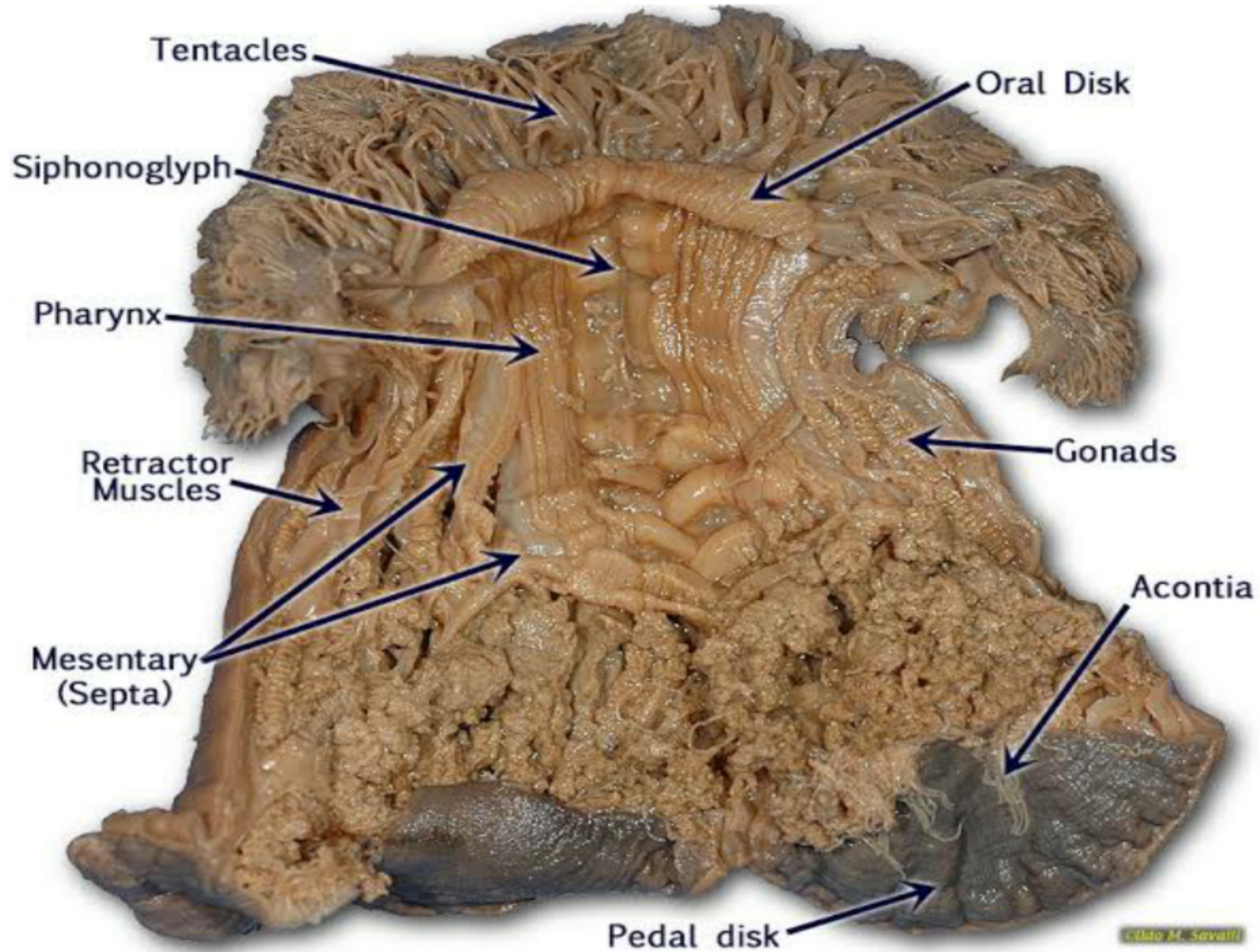
- The coral animals are marine, colonial polypoid Coelenterates.
- They look like the miniature sea anemones living in the skeleton secreted by them.
- The calcareous (Calcium carbonate) and horny skeleton secreted by the coral animals is commonly called as coral.
- Some of the corals grow into massive, solid structures and few other form large and branched colonies.
- These coral animals belong to the class Anthozoa and also few species of the class Hydrozoa are also known to form corals.



- **Structure of a coral polyp:**

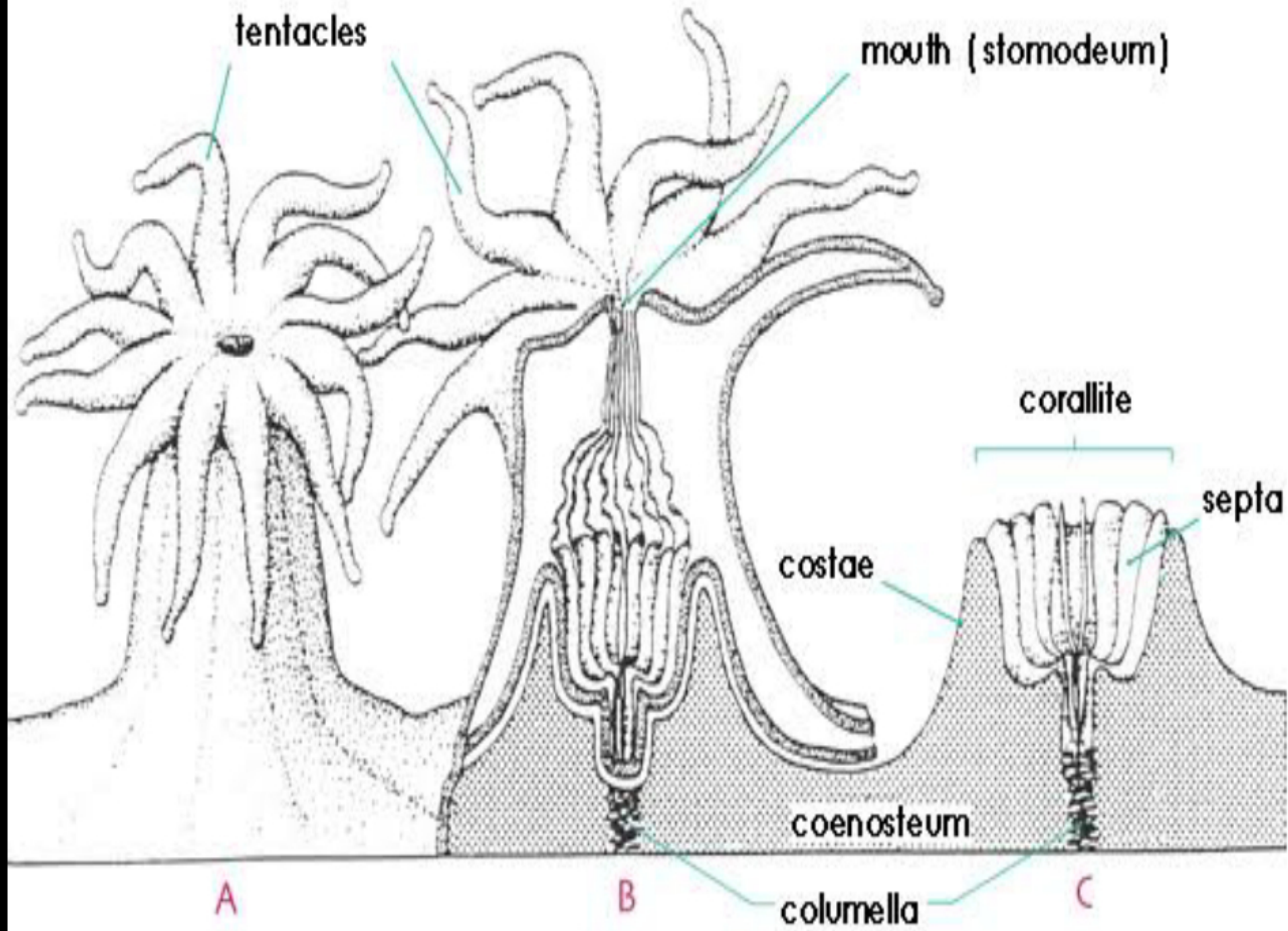
- A typical coral polyp is a small organism of about 10mm long and 1-3 mm in diameter.
- Few solitary polyps also reach to a diameter of 25 cm.
- Basal disc is absent in these coral polyps as the basal region is surrounded by calcareous exoskeleton.
- The oral disc bears numerous tentacles in several rows around the oval or circular mouth.

- Pharynx is short with no siphonoglyphs.
- Mesenteries are restricted only to the upper part of the polyp.
- The mesenterial filaments have glandular lobe bearing nematocysts.
- Muscles are not well developed.
- Living polyps are found only on the surface layers of the coral mass.
- Feeding type is both raptorial and suspension.



- **Structure of Coral skeleton:**
- The skeleton of a solitary coral is known as **corallite**.
- This skeleton is a calcareous structure secreted by the epidermis.
- In a colonial coral, corallites are the individual polyps which fuse with one another to form a skeletal mass called **corallum**.

- Each corallite is stony cup with a basal plate. The cup wall is called as theca.
- The cavity of the cup consists of a number of vertically radiating ridges called **sclerosepta**.
- The sclerosepta proceeds from theca towards the center of the cup.
- The inner ends of sclerosepta are fused to form irregular central skeletal mass or **columella**.



A

B

C

- **Formation of coral skeleton:**
- In all the coral polyps the sexual reproduction takes place by the fusion of gametes.
- Zygote develops into a free-swimming ciliated planula larva which after a short spell of swim gets attached to a substratum.
- This settled planula larva metamorphoses into a young coral polyp.
- There is no medusa stage in corals.
- By the method of asexual budding the single parent becomes the parent of all the other members of the colony.

- This coral polyp begins to secrete a skeletal rudiment called **prototheca** by the ectoderm.
- After this secretion, radial folds develop which in turn secrete **sclerosepta**.
- At the same time a rim is built at the thecal wall around the polyp.
- In the meantime, further skeletal material is added into the gaps existing between the sclerosepta of the skeleton.
- By the budding of the new polyps, the coral colony grows in size continuously along the margins and on the surface.
- The structural differences and variations in the coral colony is the result of the patterns of the budding.

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