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CYCLOSTOMES

The cyclostomes form a peculiar group of animals and the most primitive craniates that are living today. cyclostomes are Jawless Vertebrates. They are marine or fresh-water vertebrates.

it includes the lampreys and hag fishes. The cyclostomata (Gr- cyklos — Circular + Stoma — mouth) are living agnathans, they are primitive in many respects. They have round bodies with laterally compressed or diphycercal tail. They resemble eels superficially.

The suctorial mouth is ventral and round (hence, cyclostomata). Buccal cavity has a muscular tongue bearing epidermal teeth by which they rasp the flesh of fishes. They are the only living vertebrates without jaws. They have 6–14 pairs of internal gills in different species. Gill chambers are round pouches (hence, Marsipobranchii). The skin is soft and devoid of scales paired appendages are absent, though median fins are present and supported by Cartilaginous fin rays.

Endoskeleton is lacking. Endoskeleton is Cartilaginous with no bones and the vertebral column is primitive. There is a single median nostril, and only one or two Semicircular Canals are present in each auditory organ. Heart is enclosed in Cartilage derived from the hinder visceral Arch. They have no spleen.

General characters of cyclostomes:—

(1) Body long, rounded and eel-like.
(2) Median fins with Cartilaginous fin rays, but no paired appendages. Tail diphycercal.
(3) Skin soft, smooth containing unicellular mucous glands but without scales.

(4) Jaws absent (Group Agnatha)

(5) Mouth ventral, Suctorial and Circular, Due to Circular mouth, The class name cyclostomata (Gr-cyclos-Circular, stoma-mouth).

(6) Nostril is single and median.

(7) Digestive system without stomach. Intestine with a fold, typhlosole.

(8) Gills 5 to 16 pairs in lateral Sac-like pouches of pharynx, hence another name of class Marsipobranchii. Gillslits 1 to 16 pairs.

(9) Heart 2 chambered with one auricle & one Ventricle. with a Conus arteriosus anteriorly. Many aortic arches in gill region. Hepatic portal System present. Blood with leucocytes and nucleated Circular erythrocytes body.
Temperature Variable (poikilothermal).

(10) Their kidney is mesonephraus which has Segmentally arranged tubules.

(11) Brain has large olfactory lobes and very Small Cerebellum. Dorsal nerve Cord with differentiated brain 8 to 10 pairs of Cranial nerves.

(12) Membranaus labyrinth has one or two Semicircular Canals only.

(13) These lack Conus arteriaus, Sympathetic nervous System, pancrease, Spleen, cloaca and genera-tive ducts.

(14) Fertilization external, development direct or indirect with a long larval stage.

(15) These are fresh water marine or brackish. Adults are free living, ectoparasites or Scavengers but the larvae are microphagous

The class cyclostomata which are grouped under two orders ——

(1) order - PETROMYZONITA

(i) Lampreys or lamper eels belong to this order

(ii) They are found in both marine as well as fresh water.

Fresh water forms are free living but others are ectoparasite on fishes and turtules.

(iii) They have a Ventral mauth with many horn teeth.

(iv) The nostril is present dorsally.

(v) They passess a well developed dorsal fins.

(vi) Ranges in size from a few inches to four feet in length.

(vii) Sucteral mauth is pravided with rasping tongue.

(viii) A typhlosole and rudimentary Spiral valve are present in intestine.

(ix) Eggs are small and there is a long larval stage which undergoes metamorphosis.

Eg:— petromyzon, Lampetra

it found in both fresh & marine water. of N. America, Europe, West Africa, Japan, Chile, Australia, Newzealand and Tasmania

(2) order- MYXINOIDEA.

Hagfishes represents this order.

(i) They are found exclusively in the marine environment

(ii) They have a terminal mauth with few teeth.

(iii) They have no buccal cavity.

(iv) The nostril is terminal.

(v) They possess 6-14 pairs of gillslits.

(vi) The dersal and Ventral roots of the Spinal nerves are not seprate.

(vii) Eggs are large and few in numbers.

(viii) The dersal fin is usually absent, a weak.

(ix) Drsal fin either absent or poorly developed.

(x) External ear has single semicircular canals.

(xi) Eyes are Vestigial and lie within skin.

(xii) The branchial basket is poorly developed.

E.g— myxine, paramyxine,

it is found has wide dishibution sea coasts of bolt Atlantic and pacific Ocean, N. Europe, N. Atlantic America, Chile and Japan etc. Eptatretus— pacific coasts of both North & South