

Nervous system in *Pila*

The nervous system of *Pila* is well developed, distinctly ganglionated and shows two characteristic features—

- (1) Most of the ganglia, except the visceral form a contracted ring round the buccal mass.
- (2) The visceral loop becomes twisted due to torsion, thus forming a figure of 8.

The nervous system consists of:

i) A large number of paired and unpaired ganglia, ii) Commissures connecting similar paired ganglia, iii) Connectives joining dissimilar ganglia and iv) nerves.

(a) Cerebral ganglia:

i) A pair of large flattened more or less triangular cerebral ganglia is situated anteriorly, one on either dorso-lateral side of the buccal mass.

ii) They are connected together by a thick band-shaped transverse **cerebral Commissure** running dorsally over the buccal mass and also by a thin labial Commissure, running ventral to it.

iii) Besides each cerebral ganglion is connected with the buccal ganglion, of its own side by a thin cerebro-buccal connectives and with the pleural and pedal ganglia by thick band-shaped cerebro-pleural and cerebro-pedal connectives, respectively, running together ventro-laterally on the side of the buccal mass.

iv) Each cerebral ganglion gives off several nerves, applying anteriorly the skin of the snout, tentacle and buccal mass and posteriorly the tentacle, eye and statocyst.

(b) Buccal ganglia:

i) A pair of small triangular buccal ganglia lies dorso-laterally, one on either side at the junction of the buccal mass and the oesophagus, partly embedded in the muscles.

ii) They are connected together by a buccal Commissure, running transversely on the ventral side of the oesophagus.

iii) Each buccal ganglion is connected by a cerebro-buccal connective to the cerebral ganglion of its own side.

iv) Nerves from each buccal ganglion supply the buccal mass, the radular sac, salivary glands, oesophagus and oesophageal pouches.

(c) Pleuro-pedal ganglionic mass:

i) A pair of large, somewhat rectangular pleuro-pedal masses is present one on either ventro-lateral side of the buccal mass.

ii) Each of these is formed by the fusion of an outer pleural and inner pedal ganglion, separated only by a slight notch.

iii) The right pleuro-pedal mass has a sub-intestinal ganglion also fused with it.

iv) The 2 pedal ganglia are connected together by two thick pedal commissures, lying one above the other, underneath the buccal mass.

v) The pedal ganglia give off a large number of nerves anteriorly as well as posteriorly to innervate the foot.

vi) A statocyst is connected, by a band of connective tissue, to each pedal ganglion.

vii) A slender, loop-like, infra intestinal nerve, behind the pedal Commissure, connects the pleural ganglia of both the sides.

viii) The left pleural ganglion innervates the parietal wall, the mantle, the osphradium, the left nuchal lobe, the columellar muscle and the anterior part of gill; while the right pleural ganglion gives off nerves to the parietal wall, the epitaenia, the right nuchal lobe, the Copulatory organ, the columellar muscle and the rectum.

ix) As already noted, each cerebral ganglion is connected to the corresponding pleural and pedal ganglia by cerebro-pleural and cerebro-pedal connectives.

(d) Supra-intestinal ganglion: