

BHARATHIDASAN UNIVERSITY



FRESHWATER MUSSEL (UNIO)., EXCRETORY SYSTEM, NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM



Unio crassus

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CONTENT



Excretory System

Physiology of Excretion

EXCRETORY SYSTEM



- ❧ The excretory system of Unio consists of **Organs of Bojanus** and the **Keber's organ**.
- ❧ **Organs of Bojanus:** Nephridia which are often referred as organs of Bojanus are the chief excretory organs of Unio.
- These are situated below the Pericardium one on each side of the body

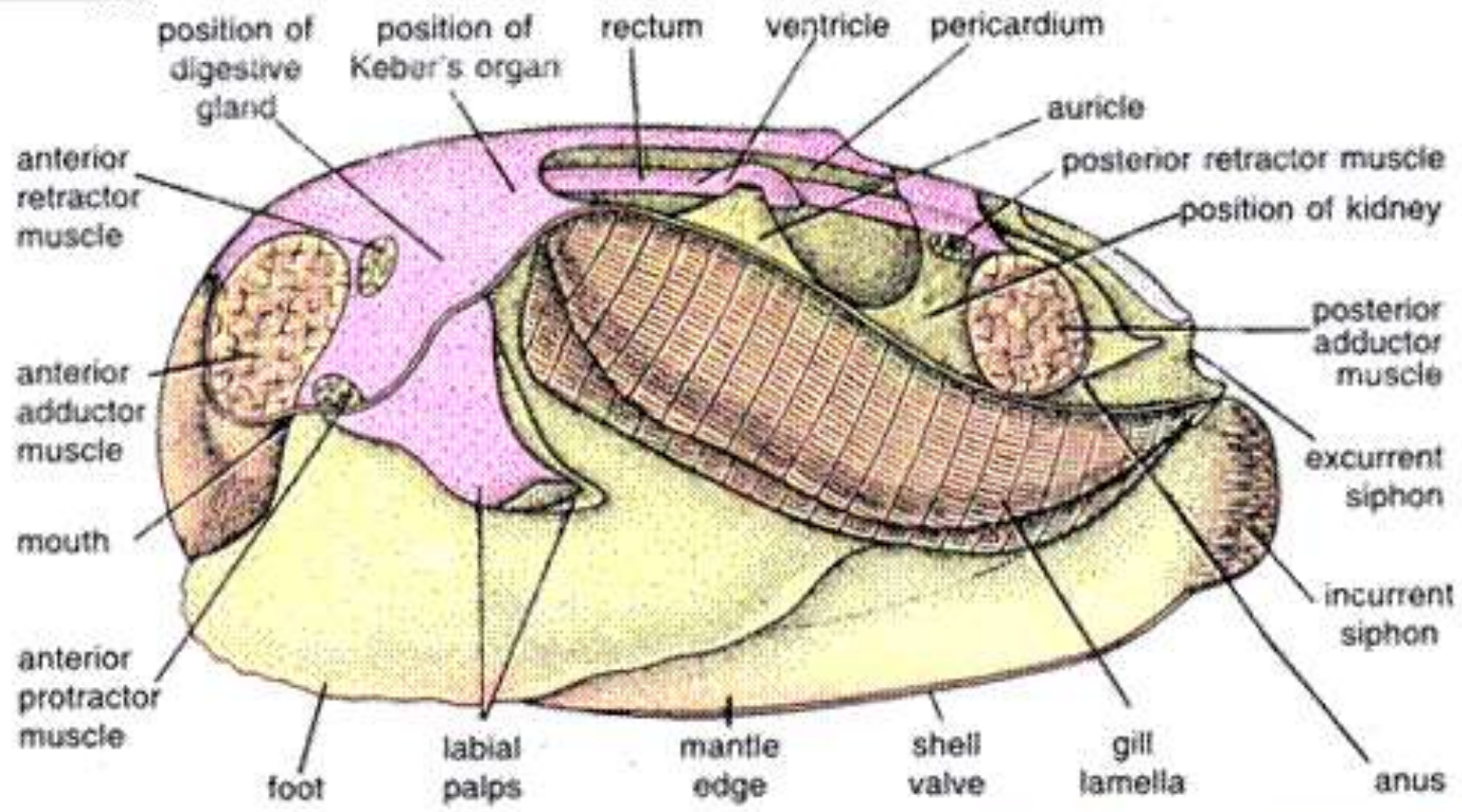


Fig. 61.4. *Unio*. Internal organs seen after the removal of the left shell valve and left mantle lobe.

❧ The kidney consists of a tube bent upon itself, where the **lower limb** is a **glandular part** and the **upper limb** is a **urinary bladder**.



❧ Each kidney opens at one end into the pericardium by a minute **reno-pericardial aperture**, at the other end into **renal pore** into the suprabranchial chamber.

PHYSIOLOGY OF EXCRETION

- The glandular part of kidney removes **nitrogenous waste** from the **pericardial fluid** and **blood** supplied to them .
- The **ciliated cells** of urinary bladder create **outward current** carrying the excretory fluid.

- ❧ Kidneys also remove large amount of water to maintain their blood concentration.
- ❧ **Keber's Organ:** Infront of pericardium is another excretory organ called pericardial gland or keber's organ.
- ❧ It is formed from epithelium of pericardium.
- ❧ It helps discharge waste into pericardium which chiefly consists mainly of ammonia and amino compounds and some traces of urea and uric acid.

NERVOUS SYSTEM



- ∞ The nervous system of unio consists of only **paired ganglia**, **commissures**(nerves connecting two similar ganglia), **connectives**(nerves connection two dissimilar ganglia) and **nerves**.

- ∞ There are two types of ganglia which are as follows:
 - 1.) **Cerebro-pleural ganglia**
 - 2.) **Pedal ganglia**
 - 3.) **Visceral ganglia**

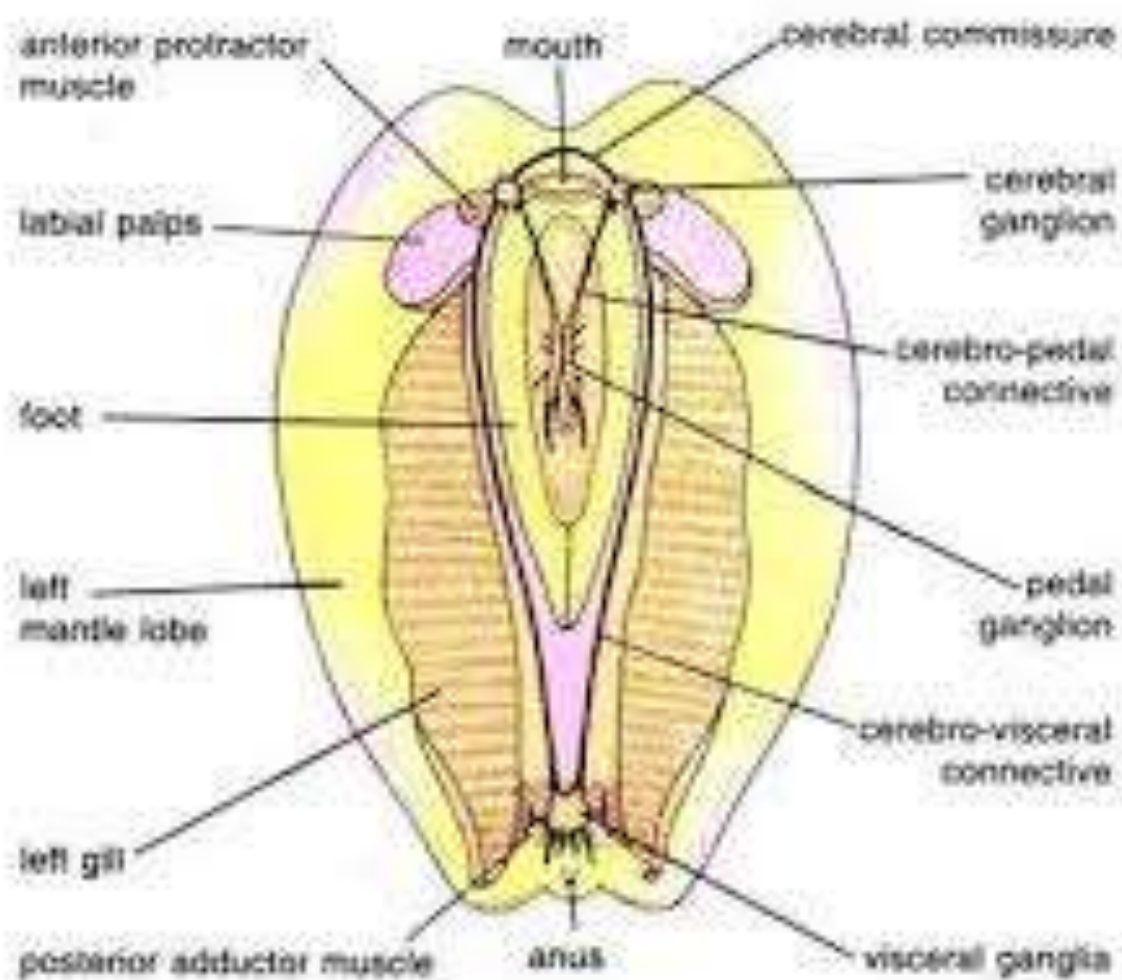


Fig. 61.16. *Unio*. Nervous system in ventral view.

❧ **Cerebro-pleural ganglia:** These are paired, triangular and are of a pin head size which are placed one on either side a little behind mouth and at the base of labial palps.



❧ Each ganglion gives out an anterior adductor nerve to the adductor muscle, a labial nerve to labial pulp and an anterior pallial nerve to the anterior part of mantle.

❧ **Pedal ganglia:** These lie at the junction of visceral mass and are paired.

❧ Both pedal ganglia re joined into a bilobed mass and these supply to the foot, its muscles and statocyst.

- ❧ **Visceral ganglia:** Paired, and are fused together to form a flattened X-shaped mass lying mid-ventrally below the posterior adductor muscle.
- ❧ Gives out the pallial nerve to the mantle, renal nerve to the kidneys, ctenidial nerve to the gills and the adductor nerve to the posterior adductor muscles.
- ❧ **Commissures:** The cerebro-pleural ganglia of both the sides are connected together by a thin transverse, loop like nerve passing over the oesophagus, this nerve is called cerebral commissure.
- ❧ **Connectives:** All the three ganglia are connected with some stout nerves representing the connectives. There is no connective between the pedal and visceral ganglia.

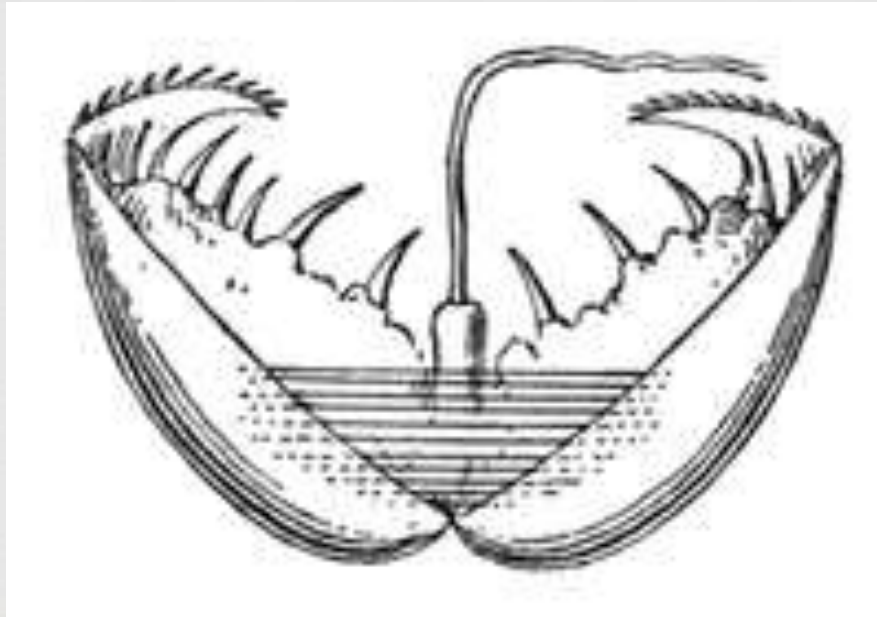
REPRODUCTIVE SYSTEM

- ❧ Unio is dioecious
- ❧ The gonads are testes and ovaries in female.
- ❧ The lining of the gonads proliferate to give rise to spermatozoa in male and eggs in female.
- ❧ There are no Accessory reproductive structures found in bivalves.
- ❧ The sperms and eggs fuse in the female inhalant siphon and reach ctenidia.
- ❧ Fertilisation and early development occur there.

❧ The zygote develops into a free swimming trochosphere larva which is succeeded by veliger larva.



❧ The veliger larva is formed in the marsupium of ctenidia and this veliger is highly modified and is known as glochidium larva.



LIFE CYCLE

