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Topic: Organs of Excretion: Coelomoducts & Nephredia

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Introduction - Coelomoducts and Nephredia are characteristic of phylum Annelida of Invertebrates. Annelids are the first Encelomate animals in the evolutionary order. The coelom is Schizocoelom and it is divided into compartments by intersegmental septa. Some structures are arranged segmentally and are described as segmental structures. Among them are coelomoducts and Nephredia. These structures will be useful for the passage of reproductive and excretory products from coelom to the exterior. Coelomoducts - These are generally wide tubes of mesodermic origin and develop as evaginations of coelomic epithelium. Each coelomoduct opens into coelom by a ciliated funnel structure called coelomostome.



which opens out by a genital aperture. <sup>(Pg 2)</sup>  
primarily function as gonoducts. So, these  
are primarily limited to the reproductive  
functions, although in some forms they  
function as excretory ducts.

Similarly, Nephrocoelae are generally  
called tubes which are formed by  
the invagination of Ectoderm. Each  
nephrocoelium communicates with the outside  
through a Nephrocoelopore. If the nephro-  
coelium opens outside into the coelom  
through nephrostome, it is described as  
Open. If it is closed, then it is  
closed type. Nephrocoelium without  
Nephrostome is called Protonephrocoelium  
and if present it is called meta-  
nephrocoelium. Nephrostome may communi-  
cate with protonephrocoelium of the same  
segment or anterior to it. Nephrocoelium  
are primarily excretory and Osmoregulatory  
in function but secondarily they may  
serve reproductive functions.

Nephrocoelium without a nephrostome are  
considered as Primitive. In some cases,  
the closed end of the tube may have  
soleroocytes which occur singly or in  
groups.

Nephrocoelium with a nephrostome are  
considered as advanced. In majority  
of cases, it opens into coelom through



Ciliated Nephrostome. Based on size, nephrosomes are classified into Micronephrosomes and Meganephrosomes. Generally, micronephrosomes will be more in segments and meganephrosomes will be one pair per segment. If of nephrosomes communicate outside through nephrosome directly, it is termed as Exonephric; whose primary function is excretory and if the terminal ducts ultimately open into alimentary canal, it is called as Endonephric nephrosomes, which are basically osmoregulatory in function. In case of Oligochaetes and Hirudineans the nephrosomes and coelomoblasts are separate structurally and functionally, whereas the nephrosomes of Polychaetes and archannelids, they function as excretory and reproductive ducts and so they are described as Nephrosomes or Micronephrosomes.

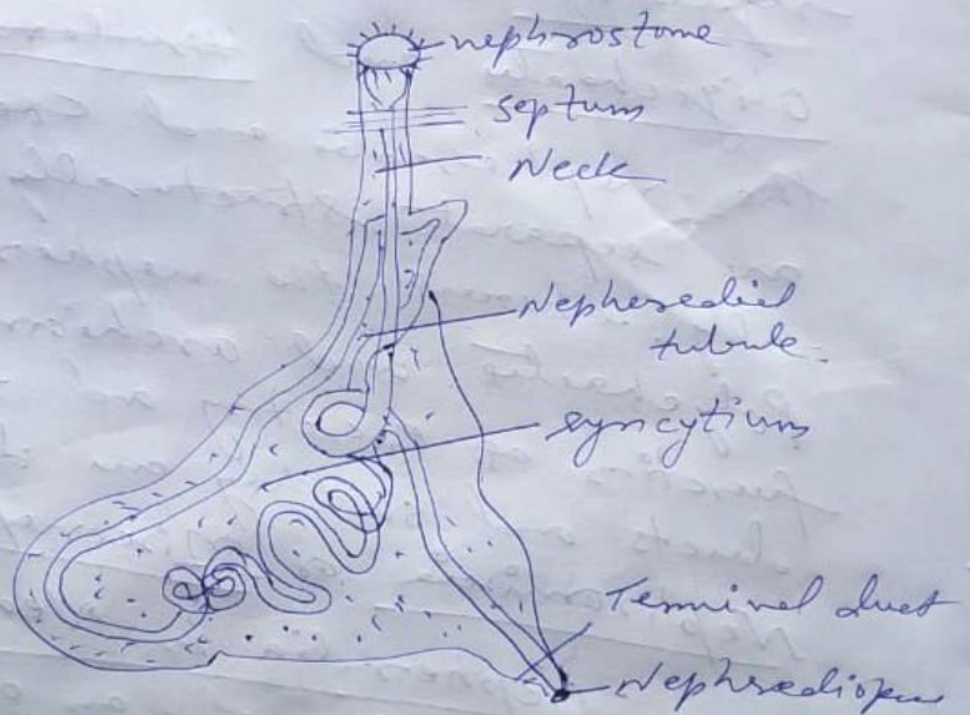
Nephrosome is Nephrosome.

Each nephrosome has an oval syncytial mass of protoplasm containing a long, convoluted, ciliated canal, the nephrosomal tubule. The syncytial protoplasm is differentiated into a body and a neck. The main body is an irregular, oval and compact gland like mass; directed in a segment. It contains convoluted and mostly ciliated tubules. The



nephredial tubule passes through the septum into the anterior segment where it opens by a ciliated funnel or Nephrostome.

Posteriorly, the tubule opens by a contractile nephrediotroche located ventrally at the base of parapodium near the origin of ventral cirrus. The nephredial tubule is an excavation in the mass of protoplasm. Such an open type of nephredium with a ciliated nephrostome is called a metanephredium.



Meaning: A nephredium

Nephredia in Pheretima

In Pheretima, there is a large no. of small sized nephredia in each segment, which are called Micronephredia or Mesonephredia. The nephredia are found in all segments except the first three. They are of three types based on location. ... - central ->