

TAENIA SOLIUM

INTRODUCTION — In this vast arena of the living universe ranging from the simplest protozoa to the complex mammalia. Class - Cestoda is the largest assemblage of the parasitic worms. These parasites are neither beneficial nor detrimental, but they play a dominant role in the economy of nature by fixing isolation in human as well as cattle society.

Taenia solium first of all reported by Linnaeus (1758) is one of the such parasitic inhabiting the human small intestine.

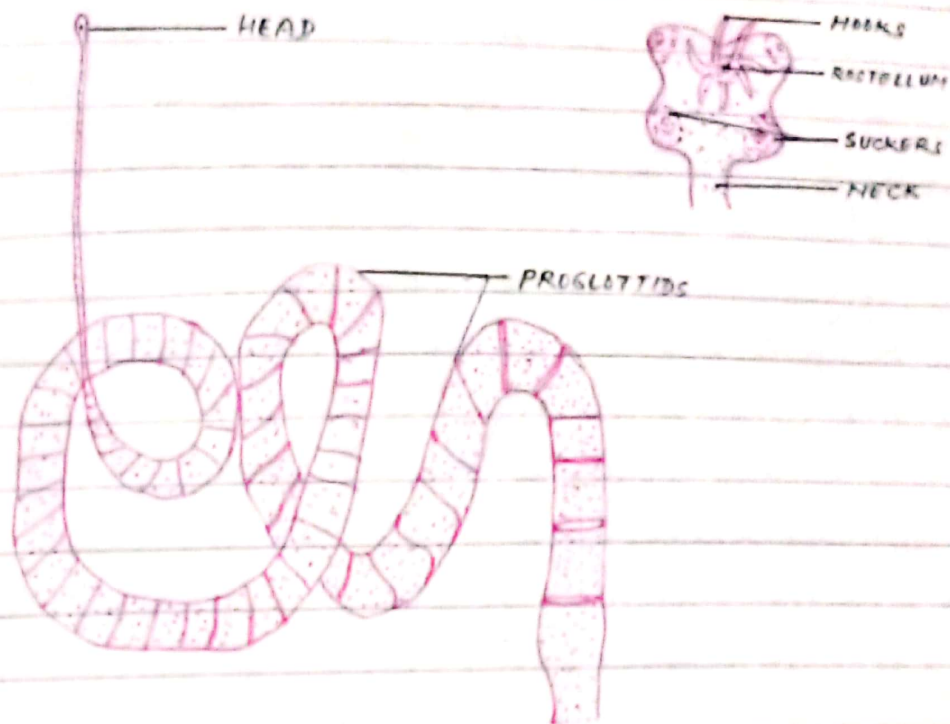
MORPHOLOGY — The parasite is dorso-ventrally flattened long and ribbon like measuring 2-3 m. in length.

With purpose to have detailed description, it is better to describe the whole structure under two headlines — External structure & Internal structure.

EXTERNAL STRUCTURE —

- (i) The body of this parasite can be divided into three regions — head, neck and strobilus.
- (ii) Scolex head measures 1 mm. in diameter and can be further differentiated into scolex and rostellum.
- (iii) Rostellum is the anterior most tip of the body bearing hooks in double rows alternating large and small hooklets. The rostellar hooklets are dagger shaped and

composed of blade, base and handle.
 The larger hooks measure $160-180 \mu$ and
 smaller hooks measure 130μ .



(vi) The scolex lying behind the rostellum bears two cup shaped muscular suckers or acetabulum.

Both the suckers and hooks are organs of adhesion.

(vii) The smallest portion lying behind the scolex is the neck also known as the area of segmentation.

(viii) The flattened ribbon like main body after the neck is known as the strobila. The strobila consists of a linear series of similar parts called proglottids. An adult *Taenia solium* may contain 800-900 proglottids.

On the basis of the shape:

position and degree of development, the proglottids are of three types —

(a) **IMMATURE PROGLOTTIDS** — These are found behind the neck. Their length is lesser than the breadth. The reproductive organs are either absent or rudimentary in condition.

(b) **MATURE PROGLOTTIDS** — Mature proglottids of these lie behind immature proglottids. Their length and breadth are approximately equal. They contain fully developed reproductive organs. In early mature segments only one mature reproductive organ is present. But in late lie mature proglottids both male and female reproductive organs are present.

(c) **GRAVID SEGMENTS** — These lie behind the mature proglottids. Their length is more than the breadth and contain only pregnant uterus, which is branched and full of fertilized eggs.

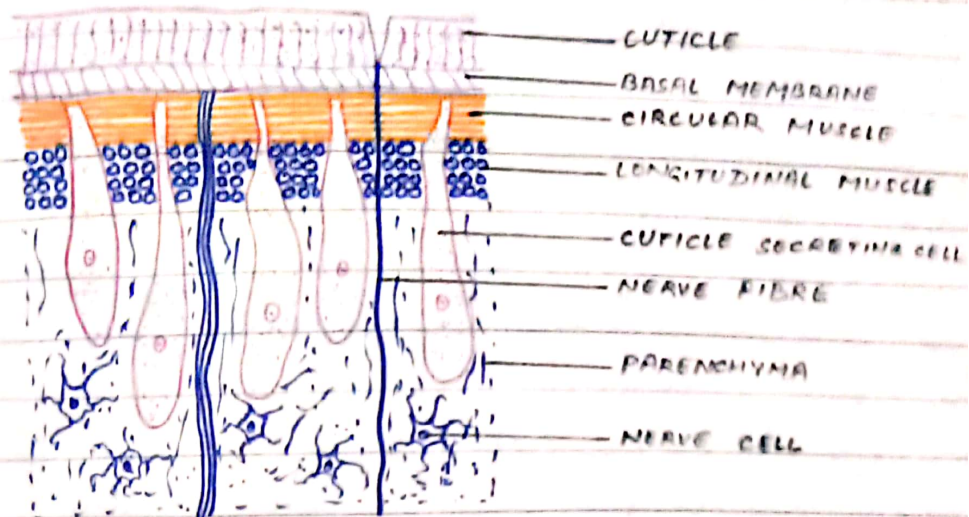
(viii) In mature proglottids the lateral margins alternately bear small protuberance called genital papilla, through common gonopore opens to the exterior.

INTERNAL STRUCTURE —

Body wall — The body wall consists of cuticle, basement membrane, subcuticular muscles, parenchyma and gland cells.

(i) Cuticle is the outer most layer made up of protein impregnated with $CaCO_3$. Cuticle is supposed to be secreted by

long necked tegument secreting cells.
Cuticle consists of outer most conical layer, middle homogeneous layer and inner basement membrane.



(ii) Subcuticular muscles are outer circular and the inner longitudinal muscle layer.

(iii) The space enclosed by the body wall except for that occupied by the reproductive organs, a sensory structure, muscle fibres and nervous tissues are filled with a spongy tissue known as paracystoma.

In living condition the spaces present between the cells are filled with the fluid. The paracystomal cells and their spaces serve as the site for the storage of glycogen.

In the sucker area there are sites of cross crossing of muscle fibres attached to the inner surface of sucker.

These are specialized subcuticular muscles.

RESPIRATORY SYSTEM — Due to anaerobic environment, the respiratory organs are absent.

Because in the intestine of the host negligible amount of oxygen are available. The glycogen is broken down into CO_2 fatty acid thus releasing energy.

EXCRETORY SYSTEM —

(i) There are four longitudinal excretory canals, the two are ventrolateral and other two are dorso-lateral in position.

All these canals are present in the peripheral zone of the medullary parenchyma.

(ii) In the anterior region, all the excretory vessels are joined with the ring vessels.

(iii) The ventral excretory vessels are joined by transverse excretory canal in the posterior margin of each proglottid.

(iv) The excretory canals receive small capillaries which are connected with the flame cells. The individual flame cell is a stellate body with granular cytoplasm and a nucleus. The flame is actually a group of cilia that arise from a concave basal plate located near the cell nucleus. The cilia are enveloped ~~are~~ in the "funnel" shaped enlargement of the free end of the tubule.