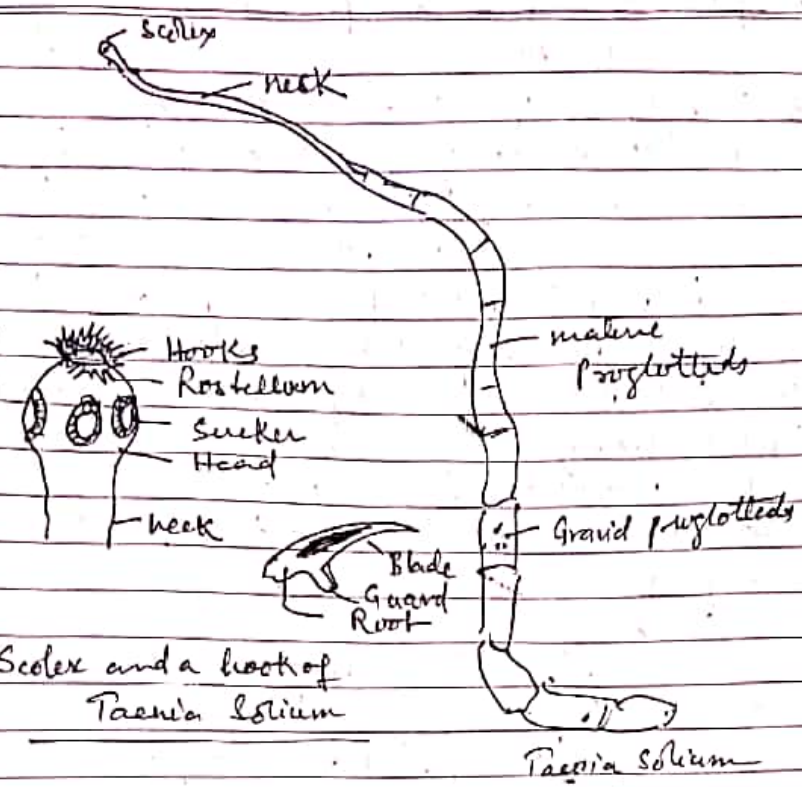


Taenia Solium (The Pork Tape Worm) ①

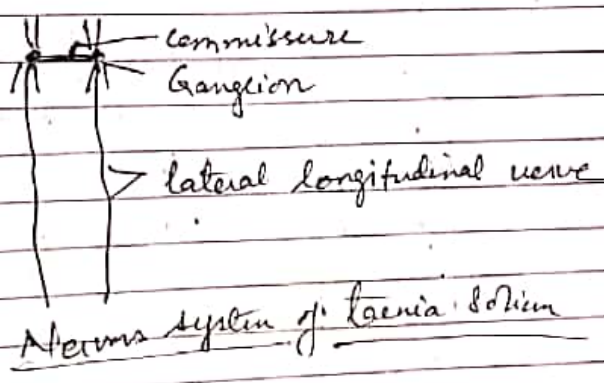
Taenia Solium is a parasite in the intestine of man in those parts of world where pork is eaten raw or without thorough cooking, especially in Europe. It is a long flat, ribbon like and opaque white in colour. It is about 1.80 to 3.00 meter in length. The anterior end has a knob like scolex, 1 mm in diameter with 4 cup like muscular suckers, and an anterior round prominence called rostellum bearing hooks in two circles. The scolex with its suckers and hooks is an organ of attachment to the intestinal wall of the host. There is a small unsegmented neck which proliferates proglottids by transverse fission or budding. The tapeworm is not an individual but a chain of many segments (Pseudometameres) the proglottids. The body or strobila of a mature tapeworm has 800 to 900 proglottids. The youngest proglottids are near to the neck, they are broader than long and devoid of sex organs, the middle region has squarish proglottids and in them, first the male organ develops and next 200 have both and female organs called mature proglottids, the oldest proglottids are towards the end, they are longer than broad and are filled with fertilized eggs and are called gravid or ripe proglottids. The strobila widens gradually along its length. The proglottids alternately bear a genital papilla and pore on right or left margin. The most striking feature is a complete lack of mouth, alimentary canal, and anus in all stages of development. They absorb digested food in the form of nitrogenous substances from the mucous membrane of the host and also absorb carbohydrates and vitamins as liquids from the alimentary canal of the host. They store reserve food as glycogen and lipoids.

Body wall → The skin of tapeworm is called tegument. This is a layer of living and syncytial cytoplasm containing endoplasmic reticulum and other cell inclusions. The outer border of tegument into microscopic processes called microvilli. They are the instruments of ultraabsorption and greatly increases the surface area for absorption. Tegument is secreted by large, deep seated and branched tegument secreting cells which rests over a basement membrane below which a layer of outer circular and inner longitudinal muscle fibres are present, next it is the parenchyma containing lime gland cells whose secretion probably neutralize the acids of digestive juices of the host. a ring of circular muscle fibre divide the parenchyma into an outer cortical and inner medullary segments - the reproductive organs are found in medullae. The tegument is pierced by microscopic tubes which receives the nerve endings connecting the lime gland opening into the parenchyma connected to surface pores through which the secretion of lime gland reaches outside.

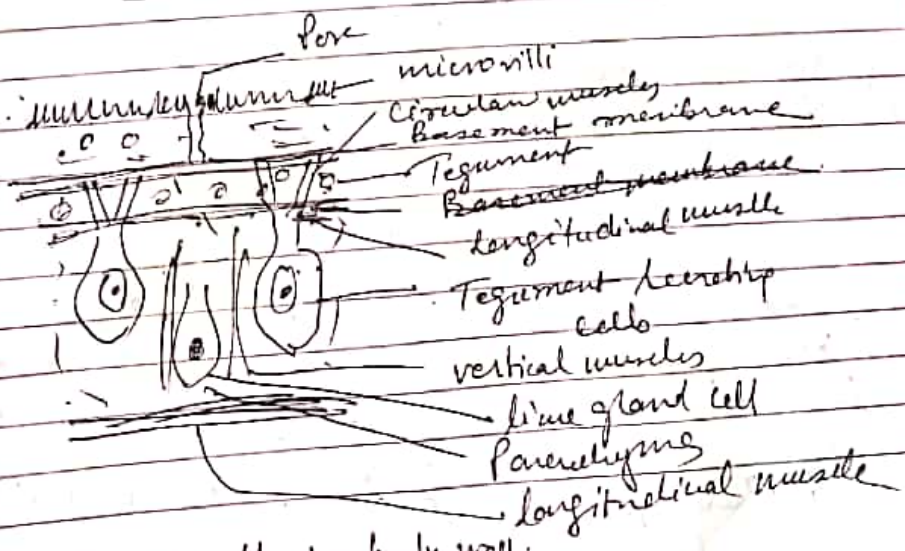
Nervous System - There are two small ganglia in the sides connected by a broad commissure of slender nerves. The ganglia send nerves anteriorly to the suckers and rostellum and posteriorly, there are three pairs of longitudinal nerves the two lateral nerves are developed. The lateral nerve runs along the entire length of strobila, movement is limited but the entire worm can contract at once. Separated gravids and proglottids are sensitive. There are no sense organs.



Scolex and a hook of Taenia solium



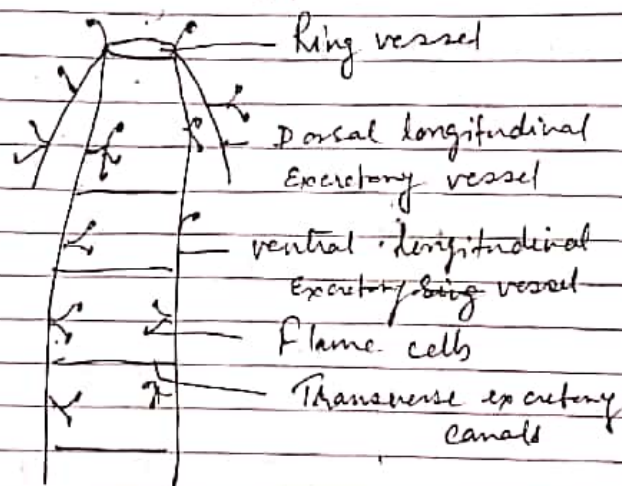
Nervous system of Taenia solium



T.S. of Taenia showing body wall.

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Excretory system - There are four longitudinal excretory vessels two on each side along the margin they are joined in sections by a ring vessel. ventral excretory vessels are joined by a transverse excretory canal in the posterior margin of each proglottid. They have characteristic flame cells with cilia found all over the parenchyma. The long cilia of flame cells flicker and maintain a hydrostatic pressure by which waste is driven into excretory canals. The last proglottid has a paracel bladder or caudal vesicle opening out through an excretory pore.



Excretory System of Taenia

Reproductive Organs - The main aim of tape worms is the production of large number of eggs to safeguard the species against extermination in the transfer from host to host.

The anterior proglottids are immature and no reproductive organs from about 20th proglottid the male organs are formed from 30th to 65th proglottids there are complete reproductive organs of both sexes called mature proglottids.

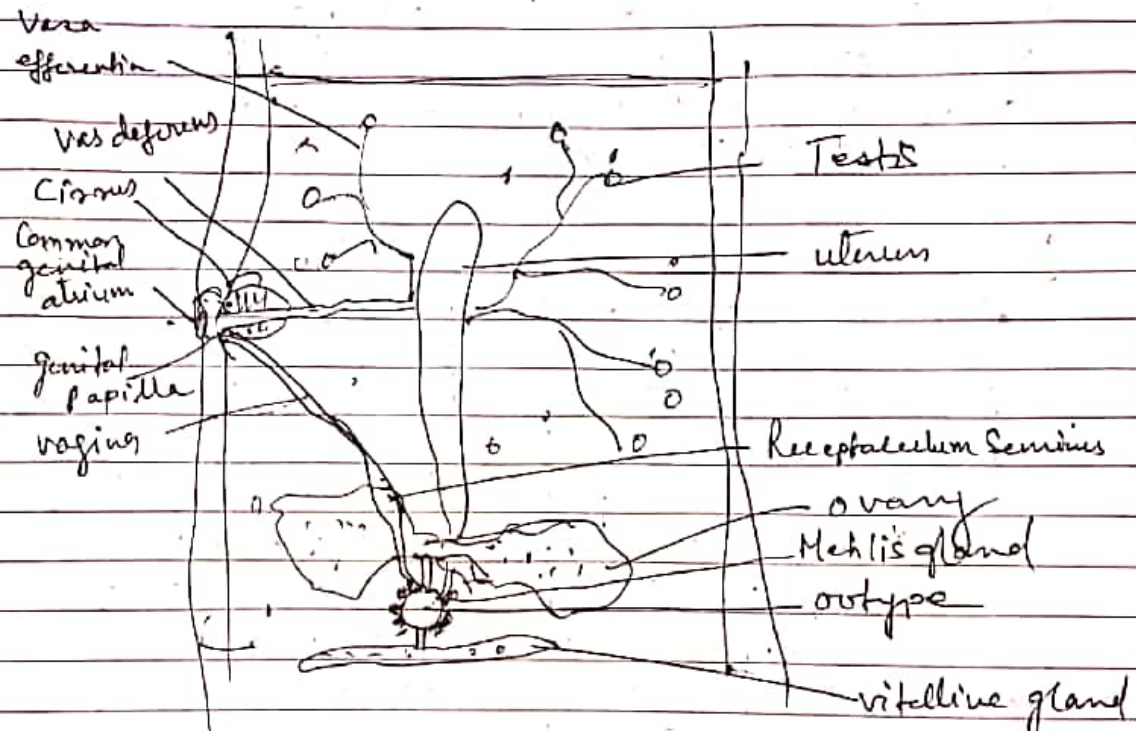
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The remaining proglottids lose the sex organs and have a distended uterus filled with eggs, these are gravid proglottids.

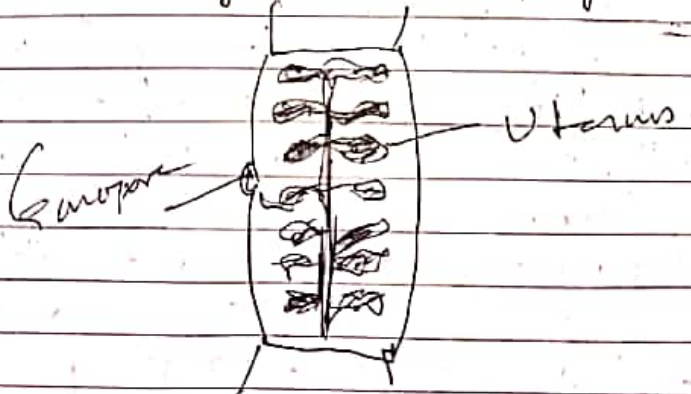
Male Reproductive organ - Male reproductive organs consist of numerous testes of many small lobes lying scattered in the greater part of the proglottids towards the dorsal side. Efferent ducts arise from the testes and unite to open into a convoluted vas deferens which passes through a cirrus surrounded by cirrus sac. The cirrus opens by the male genital pore into genital atrium lying on the margin. The genital atrium opens by a gonopore situated on the swollen genital papilla.

Female reproductive organs - Female reproductive organs have a simple single bilobed ovary with two lobes joined by a bridge. The ovary has branching tubules and lies towards the posterior border. The bridge of the ovary leads into an oviduct posterior to the ovary is lobellate vitelline gland from which arises a vitelline duct to join the oviduct. The junction of the oviduct and vitelline duct has a swollen ootype where the parts of an egg are assembled and egg is shaped. The ootype leads into a cylindrical uterus lying in the middle of the proglottid but having no external opening. Many unicellular Mehlis' gland surround the ootype and open into it. The marginal genital atrium has a female genital pore leading into a narrow tubular vagina which runs inwards and dilates into a receptaculum seminis which receives and stores sperm and from which a narrow fertilization duct arises to join the oviduct.

Fertilization - As tapeworms are hermaphrodite self fertilization occurs in the same proglottids by insertion of the Cirrus into vagina and Sperm reach the Receptaculum Seminis from where they fertilise the eggs in the oviduct. fertilized eggs are surrounded by yolk cells from vitelline glands. The completed eggs are called capsules. The first capsules are seen the uterus between 400th and 500th proglottids. The uterus enlarges in the gravid proglottids and forms 7 to 10 lateral branches on each side and it gets filled with capsules.



Reproductive organs in mature proglottid of Taenia



Gravid proglottid of Taenia.

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