

ASCARIS LUMBRICOIDES

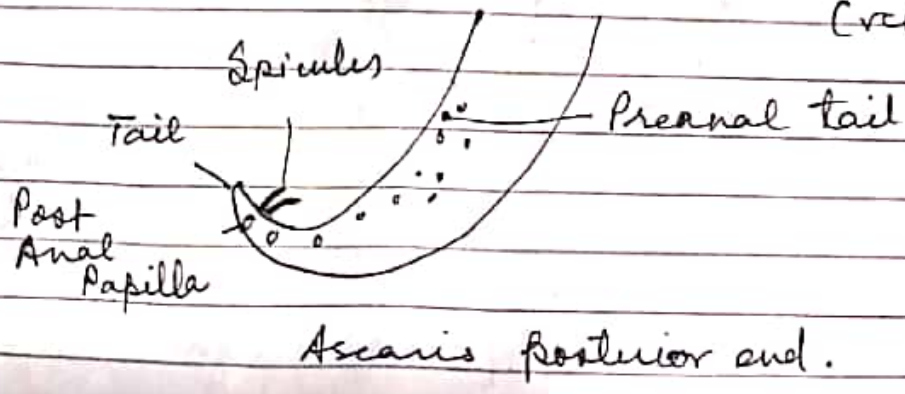
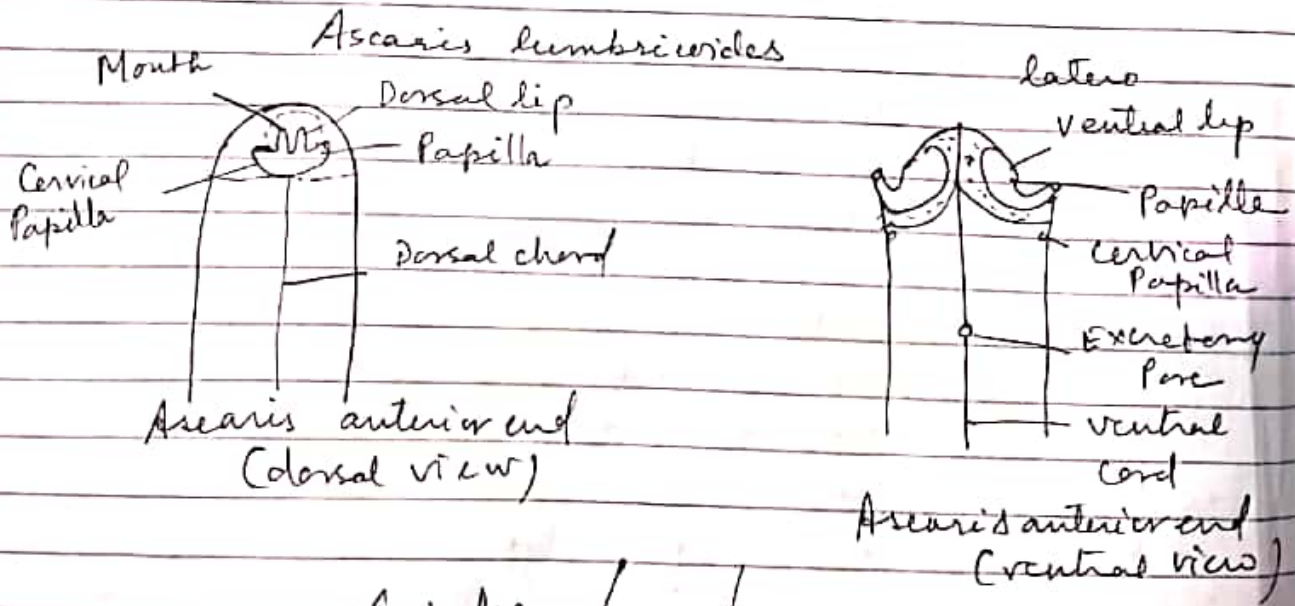
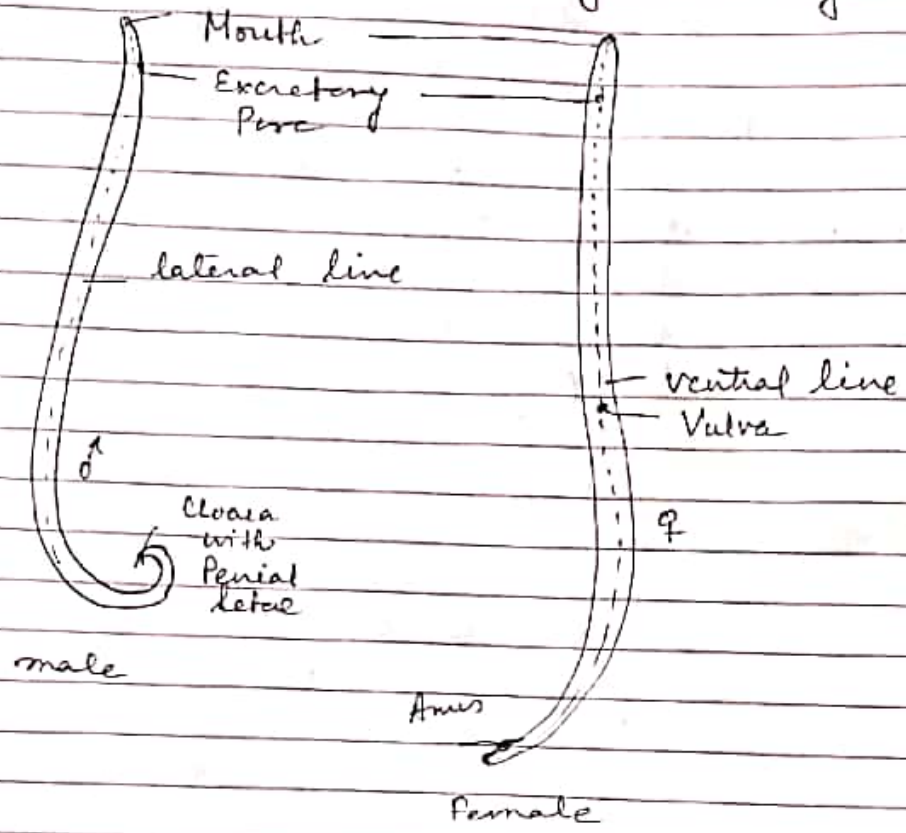
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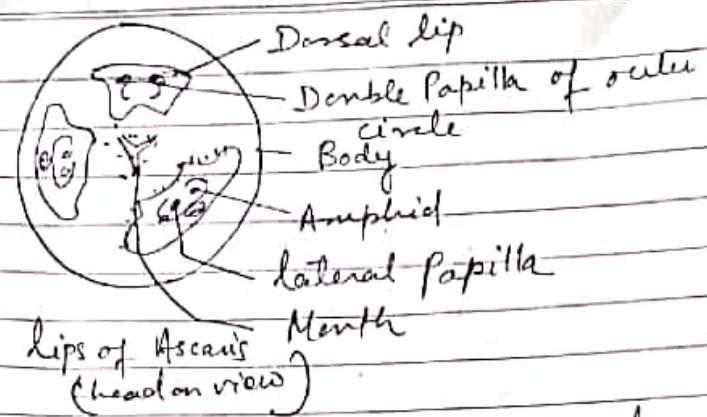
Ascaris lumbricoides is a world wide parasite chiefly in man, but also in cats, pigs and cattle lying freely in the lumen of the small intestine. *Ascaris* is a large sized nematode parasite in which male and female animals are separate, female is about 20 to 40 cm long but the male is smaller being 15 to 30 cm. Its colour is slightly reddish due to presence of haemoglobin absorbed from the host's body.

The cylindrical body has four longitudinal epidermal chords visible externally the two narrow ones are dorsal and ventral and the two thick ones are lateral. The triangular mouth is bounded by six lips, but they are reduced by fusion to three in *Ascaris*, one dorsal and two ventrolateral in position. The lips have dentate margins. The dorsal lip has two double sensory papillae, the ventro lateral lip has one double sensory papilla, these four papillae form an outer labial circle.

The ventro-lateral lips have a lateral papilla, each and a cuticular excavation called amphid which is an olfactory chemoreceptor. Behind the lips there is pair of of cuticular papillae one on each side, Near the posterior end is a transverse thick-lipped, anus but male has a cloaca from which two equal sized chitinous spicules or penial setae project. Near the cloaca there are about 50 pairs of cuticular pre anal papillae and 5 pairs of post anal papillae, these are concerned with copulation. There is a short post anal tail which is straight in the female but sharply curved in the male. The female genital aperture

called vulva is on the ventral side about one third of the length from the anterior end. Behind the lips there is an excretory ventrally.



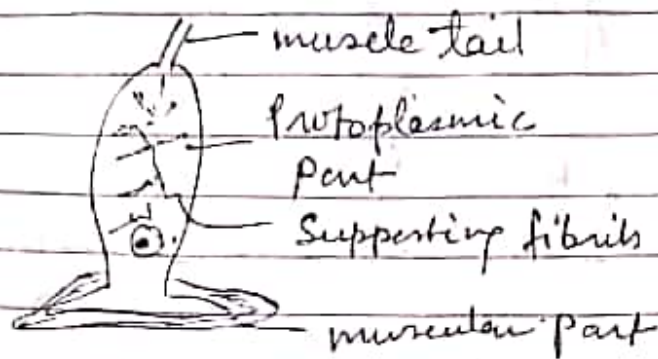


Body wall — It has an outermost wrinkled and very tough cuticle, it is a non cellular and made of nine layers of albuminous protein. It is impermeable to sugars, amino acids certain ion and digestive juices of the host.

Ascaris produces enzyme inhibitors and antibiotics anti enzymes to protect itself from the digestive juices of the host. Cuticle moults four times only during the period of growth. Below the cuticle is a syncytial epidermis with many nuclei but no cell membrane. The epidermis secretes the cuticle and forms four longitudinal thickenings, the epidermal chords, two of these are thicker lateral lines or chords, and two thinner dorsal and ventral lines. The lateral lines contain excretory canals and the dorsal and ventral lines contain nerves. Internal to the epidermis is a body wall musculature consisting exclusively of longitudinal fibres. Each muscle cell or fibre has two zones at outer contractile zone of longitudinally striated, spindle shaped muscular part which lies towards the epidermis and a second protoplasmic zone which is a bladder like mass of protoplasm with a nucleus and a network of supporting fibrils, these fibrils form a process called muscle tail.

Neuromuscular system of nematodes is unique

in the animal kingdom. Normally nerves run to the muscles in nematodes, it is the muscle that runs to contact nerves for neuromuscular conduction.

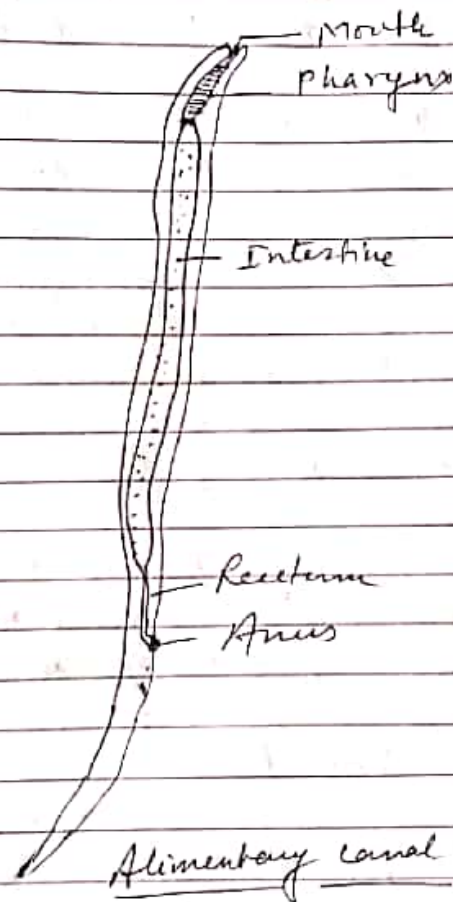


A muscle cell

Digestive organs - There is a terminal mouth surrounded by three lips, it leads into a pharynx or oesophagus which has a swelling, the end bulb. The pharynx has muscle fibres which dilate into lumen. The Pharynx has 3 large branching gland cells which open by cuticular ducts into the lumen. The cavity of the pharynx has three deep longitudinal grooves lined by cuticle, and in a T.S. the lumen appears triradiate with one ray always ventral. This constitutes the stomodaeum or fore gut. There is a thin walled dorsoventrally flattened Intestine or mid gut formed of a single layer of columnar epithelial cells. It is bounded internally by thin cuticle, and externally by a collagenous membrane but has no covering muscle layer. Intestinal cells have numerous microvilli, that increase the absorptive areas many times. There is a short narrow rectum with a few muscle fibres and some rectal glands. It is lined with cuticle and from the hind gut or proctodaeum, it opens by a transverse anus with thick lips. In male there is a cloaca.

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tissue juices which are sucked by the buccal pharynx. The gland cells of the pharynx produce enzymes and the intestine absorbs food taken in through the mouth. Diastolic, lipolytic and proteolytic enzymes are known to be present in the alimentary canal of ascaris. Intestine carries on intracellular digestion too. Excess food is stored as reserve glycogen and fats in the intestine muscles and the epidermis.



Body cavity → The space between the body wall and alimentary canal is not true coelom but a pseudocoel, because it is bounded by muscles outside and the cuticle the intestine inside. Pseudocoel has fibrous tissue and fixed number of cells called coelomocytes, they are branched and giant sized and fill the body cavity. Pseudocoel is filled with a clear, protein rich

fluid which distributes food and collects wastes

Excretory System - It is like letter H, there is a longitudinal lateral excretory canal in each lateral line. The two longitudinal canal are joined by a much branched transverse canal from which arises a short common excretory canal which opens by a minute ventral excretory pore just behind the lips.

Nervous System -

There is a circumenteric ring around the pharynx. 7 ganglions are associated with it are seven ganglia there is an unpaired dorsal ganglion, and close to it is a pair of sub dorsal ganglion. on each side of the ring is a lateral ganglion which is composed six ganglion. on the lower side of the ring is a pair of large ventral ganglia.

Sense organs are poorly developed in parasites, they consist of papillae and amphistols on the lips, and some genital papillae on the tail of the male only.

The Parasite is commonly called round worm and the body is well designed for parasitic mode of life with reduction in circulatory nervous, respiratory systems and development of Reproduction system for increasing the number of parasites

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