Impact of Gastrointestinal (GI) nematode infections on humans in low income countries.

Ito Miura*

Department of Surgery and Science, Kyushu University, Japan

Abstract

The primary ruminant gastrointestinal nematode parasites are all members of the Strongylida order and the Trichostrongyloidea family. Despite their close evolutionary link, there are major distinctions in the microenvironmental niches filled by the various parasite developmental phases, which may account for the diverse parasite species' vulnerability to the host's immune effector mechanisms. Furthermore, resistance has been seen in distinct forms against the adult and larval stages of the same parasite species, as well as against the same parasite stage. It has been shown that infective larval stages of gastrointestinal nematode parasites can be rejected both quickly and slowly. This review will provide an overview of the many manifestations of resistance to ruminant gastrointestinal nematode infections, as well as recommendations for further research.

Keywords: Soil-transmitted helminths, Ancylostoma vermicularis, Plasmodium stercoralis, Toxocara.

Phylogeny

Within the protostomian Metazoa, the evolutionary connections of nematodes and their close relatives remain uncertain. Traditionally, they were thought to be a separate lineage, but in the 1990s, they were believed to belong to the Ecdysozoa group, which includes moulting creatures like arthropods. The identity of the Nematoda's closest surviving relatives has traditionally been thought to be settled. The roundworms are a sister taxon to the parasitic Nematomorpha, and together they make up the Nematoida, according to morphological and molecular phylogenies. The Nematoida, along with the Scalidophora (previously *Cephalorhyncha)*, make up the clade Cycloneuralia, but there is a lot of disagreement both amongst and among the morphological and molecular evidence [1].

Anatomy

Nematodes are worms that are exceedingly tiny and slender: The smallest nematodes are microscopic, whereas free-living species can grow to be over a metre long, and parasitic species can grow to be over a metre long. Ridges, rings, bristles, and other distinguishing characteristics are frequently found on the body [2].

A nematode's head is relatively distinct. The head is radially symmetrical, with sensory bristles and, in many cases, solid 'head-shields' extending outwards around the mouth, but the remainder of the body is bilaterally symmetrical. The mouth has three or six lips, each of which has a row of teeth on its inner edge. The tip of the tail often has an adhesive 'caudal gland [3].

A thick collagenous cuticle covers the epidermis, which is either a syncytium or a single layer of cells. The cuticle has a complicated structure and may consist of two or three layers. A layer of longitudinal muscle cells lies beneath the epidermis. Because nematodes lack circumferential muscles, the relatively inflexible cuticle collaborates with the muscles to form a hydroskeleton. The nerve cords receive projections from the inner surface of muscle cells.

Digestive system

Cuticle lines the oral cavity, which is often reinforced with features such as ridges, especially in carnivorous species with many teeth. A sharp stylet is commonly present in the animal's mouth, which it can use to pierce its prey. The stylet is hollow in some species and can be used to suck liquids from plants or animals [4].

The cuticle-lined oral cavity opens into a muscular, sucking pharynx. In this part of the gut, digestive glands produce enzymes that begin to break down the food. These may even be injected into the prey in stylet-bearing species. There is no stomach, and the throat connects directly to a muscle less intestine that forms the gut's primary length. This creates more enzymes while also absorbing nutrients through its single-cell lining. Cuticle lines the last segment of the intestine, forming a rectum that expels waste through the anus just below and in front of the tail tip. The worm's body movements are responsible for food passage through the digestive tract. At each end of the intestine are valves or sphincters that assist control the flow of food through the body [5].

***Correspondence to:** Ito Miura**,** Department of Surgery and Science, Kyushu University, Japan, E-mail: miura@33ac.jp

***Received**: 26-May-2022, Manuscript No. JGDD-22-67164; **Editor assigned**: 27-May-2022, PreQC No. JGDD-22-67164(PQ); **Reviewed**: 10-Jun-2022, QC No. JGDD-22-67164; **Revised**: 13-Jun-2022, Manuscript No. JGDD-22-67164(R); **Published:** 20-Jun-2022, DOI:10.35841/jgdd-7.6.126*

***Citation:** Miura I. Impact of Gastrointestinal (GI) nematode infections on humans in low income countries. J Gastroenterology Dig Dis. 2022;7(6):126*

Excretory system

Nitrogenous waste is expelled through the body wall as ammonia and is not linked to any particular organ. The structures for excreting salt to sustain osmoregulation, on the other hand, are usually more complex. One or two unicellular'renette glands' on the underside of many marine nematodes excrete salt through a pore near the pharynx. This transverse duct connects to the excretory pore *via* a shared canal [6].

References

1. Chan MS. The global burden of intestinal nematode infections—fifty years on. Parasitol Today. 1997;13(11):438-43.
2. Balic A, Bowles VM, Meeusen EN. The immunobiology of gastrointestinal nematode infections in ruminants. Adv Parasitol. 2000;45:181-241
3. Vlassoff A, Leathwick DM, Heath AC. The epidemiology of nematode infections of sheep. N Z Vet J. 2001;49(6):213-21.
4. Stepek G, Buttle DJ, Duce IR, et al. Human gastrointestinal nematode infections: are new control methods required?. Int J Exp Pathol. 2006;87(5):325-41.
5. Chan MS, Medley GF, Jamison D, et al. The evaluation of potential global morbidity attributable to intestinal nematode infections. Parasitol. 1994;109(3):373-87.
6. Holmes PH. Pathophysiology of nematode infections. Int J Parasitol int j parasitol. 1987;17(2):443-51.

Citation: *Miura I. Impact of Gastrointestinal (GI) nematode infections on humans in low income countries. J Gastroenterology Dig Dis. 2022;7(6):126*