

Systematic Studies on Rediscribed Species of *Hymenolepis Pennanti* (Nama, 1974) in *Rattus Rattus* (Linnaeus 1758) at Sillod Dist Aurangabad (M. S.) India.

Manoranjana Nirmale

Associate Professor, Department of Zoology, Shri Chhatrapati Shivaji College, Omerga (M.S.) India

Abstract-- *Hymenolepis pennanti* is found worldwide, infection is most common in children. a person living in crowded environment and in people who live in areas where sanitation and personal hygiene is inadequate.

Infection is most common in children aged 4-10 years. In dry, warm region of the developing world estimated to have to 70 million carries of *H. pennanti* with 5 to 25% prevalence in children worldwide. eggs ingesting facally contaminated foods or water, by touching your mouth with contaminated fingers or by ingesting contaminated soil and accidentally ingesting an infected arthropod. *H. pennanti* Hymenolepiasis is more frequent among children, and most human infections remain a symptomatic and self limited. symptoms including abdominal pain, diarrhea, and vomiting are frequently noted in the cases of heavy infections

Hymenolepis pennanti (dwarf tapeworm), also known as *Rodentolepis pennanti*, is an intestinal cestode of humans and rodents and is an important cause of hymenolepiasis. Unlike most cestodes, *H. pennanti* can complete its life cycle without an obligatory intermediate host. Its eggs are directly infective, and larvae can develop within the intestinal villi before reaching the adult stage. The parasite is usually associated with asymptomatic infection when the worm burden is low. However, heavy infection, particularly when facilitated by autoinfection, may produce significant gastrointestinal manifestations including abdominal pain, diarrhoea, nausea, vomiting, anorexia and weakness. Children may be particularly affected by heavy infections. Immunosuppression can result in unusual and severe disease, including invasive infection. This review summarizes the pathogenic mechanisms, clinical manifestations and pathological significance of *H. pennanti*, with emphasis on features relevant to taxonomic and redescription studies.

Keywords-- Gastrointestinal Helminth, Cestode, *H. pennanti*

I. INTRODUCTION

Hymenolepis pennanti is dwarf tapeworm, also known as *Rodentolepis fraternal* and *taenia H pennanti* it is cosmopolitan zones, and is one of the most common cestode, A type of intestinal worm or helminth infecting humans especially children. like all other tapeworm, takes a digestive system and feeds by absorption on nutrients in an intestinal human, they have non specific carbohydrate requirements and they seem to absorb whatever is being

passed through the intestine at that time. when it became an adult it attaches to intestinal wall with its suckers and toothed rostellum and has its segment reaching out into the intestinal space to absorb food.

Eggs of *Hymenolepis pennanti* are immediately infective when passed with the stool and cannot survive more than 10 days in the external environment when eggs are ingested by the arthropod intermediate host (various species of beetles and fleas may serve as intermediate hosts), they develop into cysticercoids, which can infect humans or rodents upon ingestion and develop into adult in small intestine.

Human infection caused by the cestodes belonging to the genus *Hymenolepis* is called as hymenolepiasis. the cestode are broadly classified as pseudophyllidean and cyclophyllidean, *H. pennanti* species fall in to cyclophyllidean.

II. MATERIAL & METHOD

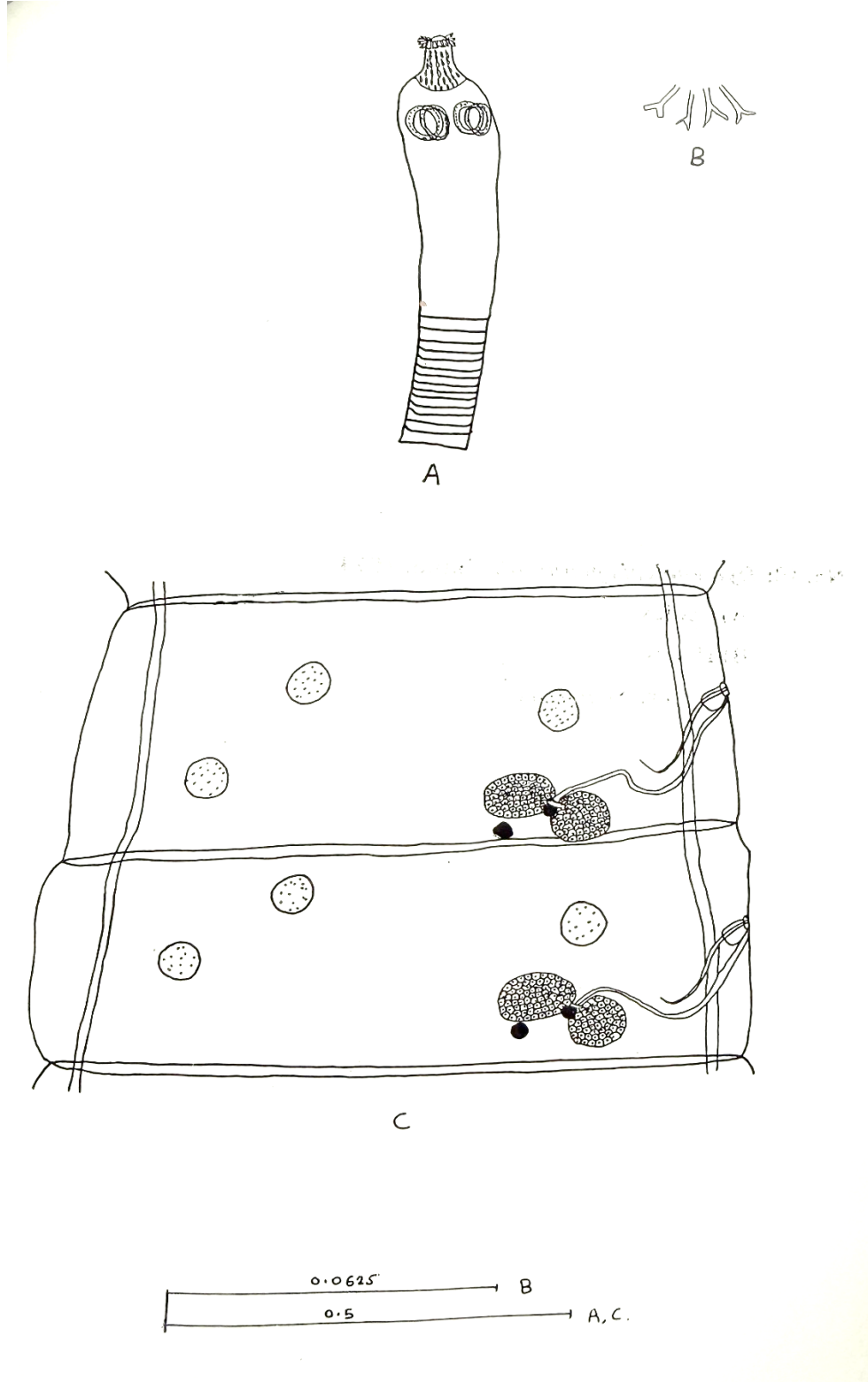
Twenty four worms were collected from the intestine of a *Rattus rattus* (Linnaeus, 1758) at sillod dist. Aurangabad, M. S. India.

These cestodes were preserved in 4% formalin and ten specimens were stained with Harris haematoxylin, passed through various alcoholic grades, cleared in xylene, mounted in D.P.X. and drawings were made with the aid of camera lucida. All measurements were given in millimetres.

III. DESCRIPTION

Nine specimens of the Cestode parasites were collected from the intestine of the house rat, *Rattus rattus* (Linnaeus, 1758) at Sillod Dist. Aurangabad, M.S. India in the month of July 2005 to January 2007

These cestodes were preserved in 4% formalin and ten specimens were stained with Harris haematoxylin, passed through various alcoholic grades, cleared in xylene, mounted in D.P.X. and drawings were made with the aid of camera lucida. All measurements were given in millimetres.



The cestodes are 150 in length and 3 in breadth in the region of the posterior proglottids. The number of proglottids is large, all broader than long.

The scolex is small and globose, with well marked rostellum with rostellar hooks and measuring 0.3145 (0.310-0.319) in length up to the base of the suckers and 0.137 (0.142-0.133) in breadth, the rostellum is oval, unarmed, retractile with rostellar sac which is medium in

size, oval in shape, situated at the tip of the scolex just between the two suckers and measures 0.08436 (0.0799-0.0888) in length and 0.0466 (0.0488-0.0444) in breadth. Hook are situated in single crown on rostellum, 14 in numbers slightly curved and measures is 0.13 (0.10-0.16) in length and 0.04 (0.03-0.05) in breadth.

The four suckers are round in shape overlapping to each other and measures 0.12 x 0.10 in diameter.

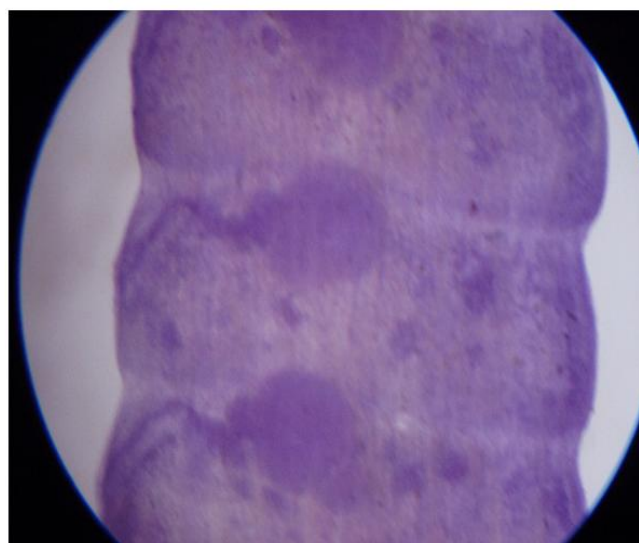


The neck is very short broader than long, no demarcation in scolex and neck, it is continuous to the immature segment and measures 0.233 (0.222-0.244) in length and 0.104 (0.097-0.111) in breadth.

The mature proglottids are medium in size, squarish in shape, almost two times broader than long with straight and convex or concave lateral margins. It measures 0.4035 (0.399-0.408) in length and 0.932 (0.888-0.976) in breadth.

The testes are medium in size, oval in shape, three in number one poral, two aporal in position, in the central modulla and measures 0.62 in diameter.

The cirrus pouch is elongated in size, oval in shape, short, situated middle of the segments, not reaching up to the longitudinal excretory canals and measures 0.45 (0.44-0.46) in length and 0.345 (0.35-0.34) in breadth, the cirrus is thin tube, slightly curved, contained within the cirrus pouch and measures 0.15096 (0.1332-0.16872) in length and 0.008658 (0.00888-0.008436) in breadth. The vas deferens is a thin tube, of medium length slightly curved and measures 0.272 (0.270-0.274) in length and 0.012 (0.015-0.009) in breadth.



The ovary is medium in size bilobed, Dumb-bell shaped in appearance, lobes slightly obliquely placed. Situated mostly in poral half of the same and measures 1.835 (1.77-1.90) in length and 0.80 (0.90-0.70) in breadth, the isthmus is short, thin, slightly curved, connects the two ovarian lobes, slightly obliquely placed and measures 0.161 (0.159-0.163) in length and 0.015 (0.011-0.020) in breadth, the vagina is a thin tube and crosses the cirrus pouch on the ventral side before opening posterior to the genital opening runs for a long distance, then widens to form the receptaculum seminis, turns posteriorly, reaches and opens to in the ootype and measures 0.1425 (0.126-0.159) in length and 0.0215 (0.013-0.030) in breadth, the ootype is small in size, oval in shape, situated postero-ventral to the isthmus and measures 0.0125 (0.013-0.012) in length and 0.0091 (0.00888-0.0093) in breadth.

Vitelline gland is medium in size, mostly lies posterior to the ovarian isthmus and measures 0.123 (0.125-0.121) in length 0.043 (0.040-0.046) in breadth.

The longitudinal excretory canals are medium in size arranged in two pairs at both side of proglottids and measures 0.40 (0.38-0.42) in length and 0.0155 (0.0133-0.0177) in breadth.



IV. RESULT & DISCUSSION

The genus *Hymenolepis* was established by Weinland, 1858 as type species *Hymenolepis diminuta*.

After going through the literature, the worm comes close to *Hymenolepis Pennanti* Nama, 1974. The present worm resembles it, in many characters, but differs from the same, in few characters known as additional characters, which are as follows.

- 1) The present Cestode differs from it, in the size and shape of the rostellum and number of Rostellar hook. (oval shape 14 hooks as against large size and 120 in numbers)
- 2) The present Cestode differs from it, in the size of the cirrus pouch (elongated as against small)

3) The present form differs from the same, in the structure of the ovary (medium dumb-bell shaped as against indistinctly bilobed.)

4) The present parasite differs from it, in the size of the neck very short no demarcation in scolex and neck against well developed, long which is more or less uniform.

As the characters are minor, it is redescribed here as *Hymenolepis pennanti* Nama, 1974 who reported his worms from a bat, *Microchiroptera* where as the present worms are being reported, from a Rat, *Rattus rattus* at Sillod Dist. Aurangabad, M.S. India.

V. TAXONOMIC SUMMARY

Genus *Hymenolepis* Weinland, 1858

Species *Hymenolepis pennanti* Nama, 1974

Type host *Rattus rattus* (Linnaeus, 1758)

Habitat Intestine

Type locality Sillod, Dist. Aurangabad, (M. S.) India.

Accession no. HRL/2005-07/1a/1-04

Holotype Deposited in Helminthology Research Lab.

Paratype Dept. of Zoology, Dr. B. A. M. U.

Aurangabad.

Period of collection July 2005 to January 2007

Etymology As the cestode species reported from Sillod, Dist. Aurangabad (M.S.) India

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