Paracapillaria xenentodoni n. sp. (Nematoda: Trichuroidea) from the fish Xenentodon cancila (Hamilton) from West Bengal, India

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Abstract

A new nematode, Paracapillaria xenentodoni n. sp. is described based on light microscope studies of the worms recovered from the migratory fish Xenentodon cancila (Hamilton) from the Hooghly estuary at Kalyani, West Bengal, India. The worms are characterised by relatively large body size, the structure of the male caudal extremity (the presence of two wide, lobe-like, dorso-lateral caudal projections), the large size of the spicule (0.236–0.374 mm), the transversely wrinkled but non-spiny spicular sheath, the structure of the stichosome (30–40 stichocytes present), the slightly elevated anterior vulval lip, and the size (0.040–0.049 x 0.021–0.026 mm) and structure of the eggs. This represents the first species of the genus Paracapillaria from India and also from fishes of the family Belonidae (Atheriniformes).

Introduction

Fishes, both marine and freshwater, like other vertebrates, harbour capillariid nematodes. The fish capillariids have a world-wide distribution, but the number of known species is much smaller than occurs in other vertebrate groups. But, as in many other groups of parasitic nematodes, inadequate and erroneous species descriptions complicate species identification of capillariids, which in turn, leads to the erection of spurious new species. Furthermore, a number of forms are also designated only as Capillaria sp. Moravec (1987) revised the species of capillariids parasitic in fishes and a total of 39 species belonging to nine genera were considered valid. He listed only six nominal species under the genus Paracapillaria Mendonça, 1963.

In India, the first record of capillariid from fishes was made by Moorthy (1938), who reported larval forms, considered as third stage of Capillaria sp., from three different fishes, Tor puckelli, T. ticto and Lepidocephalichthys thermalis. Subsequently Rai (1969) reported an adult female from Mystus seenghala and designated it as Capillaria sp. Arya (1985) described a new species, C. schmidtii, from Raja radiata.

In the present case 22 capillariid worms (8 males and 14 females)* were recovered from the intestine of Xenentodon cancila and studied in detail under the light microscope. They appeared to be the members of a new, hitherto undescribed species of the genus Paracapillaria. It is described here as P. xenentodoni n. sp.

Materials and methods

For the present study 181 Xenentodon cancila, caught off the Hooghly estuary at Kalyani, West Bengal were examined at autopsy between January and September, 1991. Only 13 of them were found to be infected with capillariid nematodes. The number of worms harboured by each host ranged from one to two.

* Two males and seven females were damaged during handling.
The worms recovered were washed thoroughly in 0.85% saline immediately after collection and then fixed in hot (60 °C) 10% formalin and stored overnight. The fixed specimens were transferred to fresh 10% formalin. One or two drops of 2% glycerine were added for clearing during examination under light microscope. After examination the worms were washed thoroughly in distilled water and transferred to 70% ethanol through a graded series of ethanol.

Paracapillaria xenentodoni n. sp. (Table I, Figs 1–12)

Description

General. Small, soft-bodied nematodes; anterior end narrow, rounded; mouth papillae indistinct. Body cuticle smooth. Two lateral bacillary bands present; cells in bacillary bands have pentagonal or hexagonal basal margin (Fig. 9). Stichosome consisting of single row of 30–40 stichocytes; anterior stichocytes small, narrow (Fig. 1) and indistinctly separated from each other; middle stichocytes longer than wide (Fig. 2); posterior stichocytes large and wide but not annulated (Fig. 3). Nerve-ring surrounds muscular oesophagus at its anterior third (Fig. 1). Two distinct cells present at junction of oesophagus and intestine (Fig. 3).

Male (6 specimens). Body smaller and thinner than female. Stichosome consisting of 30–38 stichocytes; 34 stichocytes in holotype. Spicule slender, well sclerotised; proximal end expanded (Fig. 10a); middle part narrow, straight (Fig. 10b); distal end rounded (Fig. 10c); spicular surface smooth. Spicular sheath transversely wrinkled but without any spine; evaginated sheath fairly long (Fig. 8). Posterior end of body broad and provided with membranous bursa supported by 2 wide, dorso-lateral projections (Fig. 7). One pair of conspicuously large, spherical subventral papillae present at base of dorso-lateral projections, situated at or slightly below level of cloacal opening (Figs 6,7).

Females (7 specimens). Stichocytes number 30–40, 37 in allotype. Vulva lies little posterior to oesophagus; its anterior lip slightly elevated (Fig. 3). Uterus containing several eggs. Eggs elongate-oval; polar plugs not protruding (Fig. 11); eggshell thick, double-layered; outer layer relatively thick and with finely sculptured surface (Figs 11,12); content of eggs uncleaved (Fig. 11). Ovary extending posteriorly to proximal end of rectum (Figs 4,5). Anus subterminal; tail extremity broad, rounded (Figs 4,5).

Specific diagnosis

With characters of Paracapillaria Mendonca 1963. Body small, slender. Cuticle smooth. Two lateral bacillary bands present. Stichosome consists of 30–40 stichocytes; posterior stichocytes large, wide but not annulated. Spicule slender, well sclerotised, 0.236–0.374 mm long; spicular sheath transversely wrinkled but without spine. Male tail extremity broad, provided with membranous bursa supported by two wide, dorso-lateral projections. One pair of conspicuously large, spherical subventral papillae present at base of dorso-lateral projections. Vulva lies little posterior to oesophagus; its anterior lip slightly elevated. Eggs oval, with fine sculptured surface and non-protruding polar plugs. Anus subterminal. Female tail extremity rounded.

Type-material