

A New Tapeworm *Circumonchobothrium Elichpurii* n.sp. from *Mastacembellus Armatus* in Achalpur of Amravati District, Maharashtra, India

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Abstract- The present communication deals with the description of a new species of genus *Circumonchobothrium* (Shinde, 1968), viz., *Circumonchobothrium elichpurii* n.sp. from *Mastacembellus armatus* (Lecepede, 1800) in Sapan river at Achalpur in Amravati district of Maharashtra. The present worm differ from the known species of the genus in the shape and size of the scolex, number of hooks and arrangement of rostellum, shape of segment, number of testes, position of cirrus pouch and arrangement of vitellaria.

Index Terms- Fish diseases, Cestode parasite, *Circumonchobothrium elichpurii* n.sp. *Mastacembellus armatus*, Achalpur.

I. INTRODUCTION

The genus *Circumonchobothrium* is erected by Shinde G.B., (1968) described species *C. Ophiocephali* from the intestine of freshwater fish, *Ophiocephalus leucopunctatus*. Jadhav and Shinde, (1976) described three new species i.e., *C. aurangabadensis* and *C. raoii* from the host, *Mastacembellus armatus* and *C. gauchai* from *Ophiocephalus gauchua*. Chincholkar and Shinde, (1976) was reported two new species i.e., *C. shindei* from *Mastacembellus armatus* and *C. bagariusi* from the freshwater fish, *Channa striatus*. Later, Shinde added the new species *C. khami* in 1976 from the host, *Ophiocephalus striatus*. Jadhav *et al.*, (1990) was reported new species *C. yamaguti* from *Mastacembellus armatus*. Later Shinde *et al.*, (1994) described new species *C. alii* from the freshwater fish, *Mastacembellus armatus*. Later Patil *et al.*, (1998) described new species *C. vadgaonensis* from host, *Mastacembellus armatus* Wongsawad and Jadhav, 1998 was added new species *C. baimaii* from freshwater fish, *Mastacembellus armatus*. Kalse and Shinde, (1999) described two new species *C. punctatusi* from host, *Channa punctatus* and *C. armatusae* from *Mastacembellus armatus*. Shinde *et al.*, (2002) added a new species *C. Mastacembellusae* from the host, *Mastacembellus armatus*. Later Pawar *et al.*, (2002) added new species *C. armatusae* (Minor) from *Mastacembellus armatus*. Tat and Jadhav, (2004) described the new species *C. manjari* from the fish, *Mastacembellus armatus*. Supugade *et al.*, (2005) described new species *C. vitellariensis* from host, *Mastacembellus armatus*. Later, described the new species *C. purnae* by Borde S.N. and Sushil J. in 2008 from the host, *Mastacembellus armatus*. The present communication deals with the description of new species

Circumonchobothrium elichpurii n.sp. from *Mastacembellus armatus*.

II. DESCRIPTION

Four specimens were collected from the intestine of *Mastacembellus armatus* at Achalpur, district Amravati, Maharashtra State, India in the month of December, 1983. The worms are of fairly large size, the scolex is distinctly marked off from the body, narrow anteriorly and broad posteriorly and measure 2.35 in length and 0.455 -1.606 in breadth, Two bothria are saccular. Large in size, broader posteriorly and narrow anteriorly, occupying almost complete portion of the scolex and measure 2.07 in length and 0.121-0.736 in breadth. The rostellum is disc like oval and measures 0.23 x 0.44 in length and breadth. It is armed with 56 hooks, which are straight, solid, stout and pointed at both the ends. The hooks are arranged in four quadrants, two quadrants are having 15 hooks each and other two are having 13 hooks each, arranged opposite to one another, the central hooks of each quadrant are large, wide, longer and they decrease in their size, length and breadth, on both the lateral sides of the quadrant. All four quadrants are close to each other, without any gap between them, as such are arranged in a single circle and measure 0.038 x 0.003 to 0.06 x 0.006 in length and breadth.

The neck is short and the breadth is triple than length and measure 0.275 x 0.91 in lengths and breadth. The mature segments are three times broader than long, cylindrical, crowded, overlapping on each other, on each segment two anterior and two posterior segments overlap, segments broader in the middle and tapering at both the ends, with lateral convex borders and measure 2.23 x 0.32 in length and breath.

Testes are small and large, rounded, evenly distributed, in two lateral fields, each field with 40 to 90 testes, leaving a large gap for the uterus, these are 130-150 in number and measure 0.03 to 0.04 in diameter. The cirrus pouch is large, oval, median antero-posteriorly directed and measures 0.15 x 0.07 in length and breadth. Cirrus is coiled, thin and measures 0.169 x 0.009 in length and breadth. Vas deferens is thin, short, runs transversely and measures 0.10 x 0.009 in length and breadth.

Ovary is bilobed, lobes compact, transverse bands, with almost uniform width, almost centrally placed, near the posterior margin of the segments and measures 0.669 x 0.029 – 0.048 in length and breadth. Vagina is a thin tube, runs obliquely, and opens in to the ootype and measures 0.0270 x 0.009 in length and breadth. Vagina and cirrus pouch open through a common

genital pore, which is small, rounded and measures 0.048 in diameter. Ootype is rounded, small, placed dorsal to isthmus and measures 0.053 in diameter.

The uterus is large, saccular, transversely placed, at one side of the segment, near anterior margin and measures 1.043 x 0.16 - 0.24 in length and breadth. Uterus opens through a rounded, double walled uterine pore, which measures 0.048 in diameter. Eggs are oval, small and large, operculated and measure 0.024 x 0.014 to 0.067 x 0.03 in length and breadth respectively.

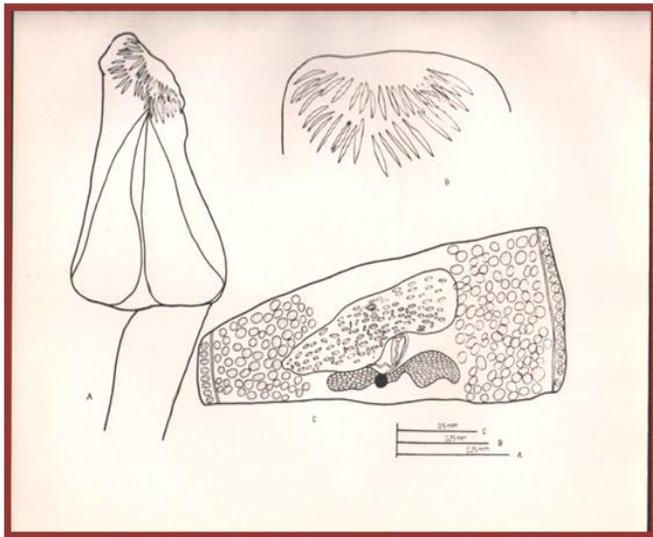


Fig.1 Fig: Camera lucida drawing of *Circumonchobothrium elichpurii* n.sp. Scolex, Rostellum with hooks and mature proglottid.

The vitellaria are granular, arranged along the lateral margin of the segment, cortical and from anterior to the posterior margin of the segments.

III. DISCUSSION

The genus *Circumonchobothrium* was erected by Shinde in 1968 as a type species *C. ophiocephali*. The worms are of fairly large size, scolex distinctly marked off from the body, narrow anteriorly and broad posteriorly; with two saccular of large size bothria, occupying almost complete portion of the scolex, neck short, breadth triple than length, rostellum disc like, oval, armed with 56 hooks, arranged in four quadrants, mature segments three times broader than long, cylindrical, crowded, over lapping on each other; testes small and large, rounded, evenly distributed, in two lateral fields, each field with 40 to 90 testes, leaving a large gap for uterus and 130 - 150 in number, ovary bilobed, lobes compact, transverse bands, with almost uniform width, almost centrally placed, near the posterior margin of the segment; genital pores small, rounded, the uterus large, saccular, transversely placed, at one side of the segment, which opens by a double walled uterine pore vitellaria granular, arranged along the lateral margin of the segment.

The present form resembles *C. ophiocephali* in having mature segments broader than long, neck present, short in

length; testes arranged in lateral fields but differs from the same in the shape and size of the scolex (distinctly marked off from the body, narrow anteriorly and broad posteriorly as against broad posteriorly as against broad in the middle and tapering at both ends), in the total number of rostellar hooks (56 as against 80), 40 in the total number of testes (130 - 150 as against 70 - 78), in the structure of ovary bilobed, lobes compact, transverse bands, with almost uniform width, almost centrally placed, near posterior margin of segment as against distinctly bilobed, each lobe with 2 - 3 acini.

The worm under discussion resemble *C. shindei* in having mature segments broader than long and in the shape of scolex narrow anteriorly and broad posteriorly, but differs from the same in the width of neck (breadth, triple than length), in the number of rostellar hooks (56 as against 49), testes 130 - 150 in number (small and large and large, rounded evenly distributed as against 260 - 275 in number), in the structure of ovary (ovary bilobed, lobes compact, transverse band, with almost uniform width centrally placed, near posterior margin of the segment as against distinctly bilobed and with 5 - 6 acini in each lobe).

The present cestode resembles with *C. bangarusi* in having scolex narrow anteriorly and broad posteriorly, mature segments broader than long but differs from the same in having neck which is broader than long and short, distinctly marked off from scolex; in the number of rostellar hooks (56 as against 55) in the number and distributions of testes (130 - 150 in number, small and large, rounded, evenly distributed as against 275-285 in number and only in lateral fields). In the structure of ovary, bilobed, lobes compact-band with almost uniform width centrally placed, near posterior margin of segment as against distinctly bilobed, lobes with 4-6 acini.

The worm under discussion resembles *C. khami* in having mature segments broader than long but differs from the same in the structure of scolex (narrow anteriorly and broad posteriorly as against cylindrical), in the number of rostellar hooks (56 as against 48), in the number of testes (130-150 in number small and large rounded as against 190-200 in number), in the structure of ovary (ovary bilobed lobes compact, transverse band with almost uniform width, centrally placed, near posterior margin of segment as against distinctly bilobed,

The present worm resemble *C. aurangabadensis* in having mature segments long, vitellaria granular and neck present but differs from the same in the structure of scolex (56 as against 42), rostellar disc like in the number of testes (130-150 in number small and large rounded as against 135-145), in the structure of ovary (ovary bilobed, lobes compact transverse band, with almost uniform width centrally placed, near posterior margin of segment as against distinctly bilobed, each lobe with 3-4 acini.

The present worm resemble *C. raoii* in having neck short. Mature segments broader than long but differs from the same in the structure as scolex (narrow anteriorly and broad posteriorly as against broad in the middle and narrow at both the ends), in the number of rostellar hooks (56 as against 46) in the number of testes (130-150 in number, small and large, rounded as against 210-215 in the structure of ovary (ovary bilobed, lobes compact transverse band with almost uniform width centrally placed, near posterior margin of segment as against bilobed).

The cestode under discussion resembles *C. gachuaii* in the presence of neck and mature segments broader than long but differs from the same in the structure of scolex (narrow anteriorly and broad posteriorly as against pear shaped), in the number of testes (130-150 in number, small and large, rounded as against 375-400), in the structure of ovary (ovary bilobed, lobes compact, transverse band, with almost uniform width, centrally placed, near posterior margin of the segment as against bilobed, post equatorial with short, blunt 5-6 acini).

The cestode under discussion resembles *C. nagabhusanami* Sp. described earlier in the saccular bothria, neck present, mature segments broader than long but differs from the same in the structure of scolex (narrow anteriorly and broad posteriorly, as against fairly large, long, triangular), in the number of testes (130-150 in number, as against 245-250 in number), in the structure of ovary bilobed, lobes compact, transverse band, with almost uniform width as against roughly bilobed, transversely placed, in the size of genital pores (small, rounded as against medium), in the structure of vitellaria (granular as against follicular).

The differences justify the recognition of this cestode as distinct and hence the name *Circumonchobothrium elichpurii* n. sp. is proposed after location of the worm which is newly erected.

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