Research Paper

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An Investigation on a New Tapeworm Staphylocystis myotisae n. sp, in Bat intestine from Aurangabad District, Maharashtra, India

Zoology

KEYWORDS : Staphylocystis myotisae n. sp,Aurangabad,Bat intestine,Cestode,Parasite.

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ABSTRACT

Seven worms were collected from intestine of a Bat, Myotis mystacinus near Aurangabad, Maharashtra , India. The worms are of small size, short, with scolex neck, immature, mature and gravid proglottid. The scolex is large globular in shape and measures 0.234 x 0.221 -0.240 in length and breadth. It is wider than neck region. It bears a rostellum; which is cap shaped broader at the anterior end and tapering at the base and measures 0.141 x 0.035 -0.069 in length and breadth. Rostellum is armed with 28 hooks in a single circle each row with 14 hooks, short in length, bifurcated; the small hooks, measure 0.024 x 0.002 in length and breadth, while handle measures 0.012 x 0.002 – 0.003 in length and breadth. The four suckers are of medium size; slightly overlap on each other, round and oval in shape and measures 0.069 – 0.073 in diameter and 0.053 x 0.050 in length and breadth. The worm is fully described in this paper.

Description

Seven worms were collected from intestine of a Bat, Myotis mystacinus in the month of April, 1984 at Aurangabad, Maharashtra , India. The worms are of small size, short, with scolex neck, immature, mature and gravid proglottid.

The scolex is large globular in shape and measures 0.234 x 0.221 -0.240 in length and breadth. It is wider than neck region. It bears a rostellum; which is cap shaped broader at the anterior end and tapering at the base and measures 0.141 x 0.035 -0.069 in length and breadth. Rostellum is armed with 28 hooks in a single circle each row with 14 hooks, short in length, bifurcated; the small hooks, measure 0.024 x 0.002 in length and breadth, while handle measures 0.012 x 0.002 – 0.003 in length and breadth. The four suckers are of medium size; slightly overlap on each other, round and oval in shape and measures 0.069 – 0.073 in diameter and 0.053 x 0.050 in length and breadth.

The neck is short and measures 0.071 in length and 0.206 in breadth.

The mature proglottids are broader than long. Almost two times broader than long, narrow at the anterior end and broader towards the posterior side and measure 0.148-0.172 in length and 0.316-0.37 in breadth. Testes are three in number, almost round and oval in shape, two aporal in position, one poral in position and measure 0.072 in length and breadth. The two aporal testes are lateral to ovary while poral one is posterior in position and measure 0.072 in diameter and 0.058x0.036 to 0.074x0.072 in length and breadth. The two aporal testes are lateral to ovary, while poral one is posterior to ovary. The cirrus pouch is cylindrical, obliquely placed and narrow anteriorly and broader posteriorly and measures 0.110x0.012-0.024 in length and breadth. It is situated at the lateral side of the proglottid and parallel to the margin of the same. It extends upto the posterior margin of the proglottid. The vas deferens is long, thin ,coiled and measures 0.185x0.003 in length and breadth .The vas deferens internally forms internal seminal vesicle, which is spindle shaped, transversely placed and measures0.041x0.013 in length and breadth. The cirrus is spiral coiled and measures 0.129x0.003 in length and breadth.

The ovary is bilobed, having lobed margin situated in anterior half and near the anterior margin of the proglottid and measures0.147x0.03-069 in length and breadth. The vagina is a thin coiled tube, anterior to cirrus pouch and posterior to ovary which measures 0.249x0.003 in length and breadth. The vagina opens in to a round, small, middle and posterior to ovary placed ootype and measures 0.032 in diameter. The vitelline gland is irregular, lobed,situated posterior to the ootype and posterior side of the proglottid and measures0.039x0.060 in length and breadth

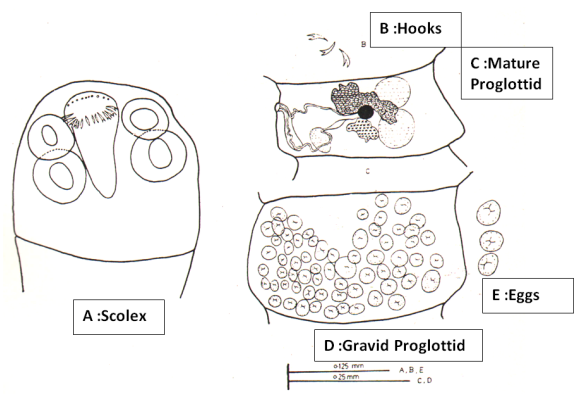

Fig.1.Staphylocystis myotisae n. sp.(A: ScolexB:Hooks,C :Mature segment D :Gravid segment, E:Eggs)

The genital pores are unilateral, at one third from anterior lateral margin of the proglottid, small in size, oval in shape and measure 0.018 x 0.006 in length and breadth.

The gravid segment are broader than long, almost two times and measure 0.266 x 0.0369 -0.0443 in length and breadth. The uterus breaks up in to 70-75 egg capsules. The egg capsules are small and measures 0.026 x 0.025to 0.034x 0.026 in length and breadth respectively.

DISCUSSION

The genus Staphylocystis is established by Villot in 1877, with its type species S. pistillum. Later on 20 species are added to this genus. Out of them Staphylocystis acuta (Rud, 1819) and S. bacillaris (Goeze, 1782) are transferred to the genus Vampirolepis Spassky, 1950, because of the large number of characteristically shaped, numerous (upto 50) Y-shaped rostellar hooks, with the handle comparatively long and the guard broad and equal to or slightly more or less as long as the blade and in the large size of strobula. Prokopic (1967) in his studies on Staphylocystis muris –sylvatici (Rud,1819) from apodemus considered it a synonyms of Crenata (Goeae,1982) Hymenolepis asketus Brooks and Mayes, 1977 is transferred to S. (staphylocystoides).

The genus staphylocystis was proposed by Villot (1877) for grape like clusters of Cysticercoides found in the millipede, Glomeris limbata latreille. The cysticercoids are formed by successive branching and external proliferation of secondary ones. There is no external membrane enclosing the cluster (Ramsom, 1904, wardle and McLeod, 1952) as distinct from Coenurus and Echinococcus with internal budding and external enclosing membrane. From these clusters of cysticercoids, Villot (1877 a) described S. bilarius from the malphigian tubules and later (1877 b) S. micracanthus from the fat bodies. In a subsequent paper (1877 c), he recognized S. bacillaris as the cysticercoids of

Taenia scutigera Dujardin, 1845 and S.micracanthus as Taenia pastille Desjardin, 1845.

Joyeux and Baer (1835) demonstrated experimentally that S.micracanthus Violet, 1877, develops in to Hymenolepis contained 320 recognised species. He (1941) prepared a key, acknowledged as not entirely reliable together with figures from the structure of the rostellar hooks of the species. Skrijabin and Mathevosyan (1940 reported from the original literature specific descriptions and figures of the species of Hymenolepididae, reported from Mammals.

Spassky (1950) pointed out that in as much as Staphylocystis micracathus Villot 1877 is a synonyms of Taenia pistillum Dujardin, 1945, it shall be regarded as the genotype of Staphylocystis i.e. S.pistillum (Dujardin, 1845).

In this classification of the hymenolepidid cestodes of mammals, Spassky (1945) provided a description of the genus Staphylocystis. In it, he pointed out that the species are small tapeworms, but gave no indication of the number of proglottids, that might be considered in the category of small, as he used it.

Yamaguti (1959) divided the genus Staphylocystis villot, 1877 in the two sub-genera. The Hymenolepis pistillum (Dujardin, 1845) as type, contains 16 species, 19 of the same ones included by spassky (1945). The members of this subgenus include those species of the genus, with one testis poral to the vitelline gland and two aporal. The species listed by Yamaguti range from 0.6 long with as a few as 10-12 long and probably with proglottids S.(S.) pistillum (Dujardin, 1845) to 150 long and probably with hundreds of proglottids S. (S.) bacillaris (Goeze, 1782).

The subgenus Staphylocystoides Yamaguti, 1959 with Hymenolepis sphenomorphus Locker and Rausch 1952 as a type contain six species. The subgenus is characterized by two testes being poral to the vitelline gland and one aporal. They range in size from 0.475 long with 7-10 proglottids S.(S.) parvissima (Voge, 1953) to 20 long with 158 recognisable proglotties S. (S.) sengeri (Nailand, 1953). Yamaguti's (1958) description of the genus varies from that of the Spassky (1959) description of the genus varies from that of the Spassky (1954) in such a manner as to be in consistent with the species that Yamaguti included and stated that the species are the "small worms", as did Spassky, but added "proglottids not numerous" which statement Spassky"s description does not included. These two statements by Yamaguti are contradictory, when S.(S.) pastillum and S.(S.) bacillaris are examined, with intermediaries of short and long length, are included in Yamaguti's description of the gravid uterus is "horse shoe shaped on a simple sac". Since both authors included some species with a horse shoe shaped uterus and others with sac shaped uterus, this change by Yamaguti appears long, Later on the following species are added to this genus which are valid and are as such-

1. S.(S.) chrysochloridis (Janicki, 1904) Spassky, 1950.
2. S.(S.) dodecocanth (Baer, 1925) Spassky, 1950.
3. S.(S.) furcata (Stied, 1862) Spassky, 1950.
4. S.(S.) fullebani (Hilmy, 1936) Spassky, 1950.
5. S.(S.) loossi (Hilmy,1936) Hubscher, 1937.
6. S.(S.) minutissima (Meggitt, 1927) Hubscher, 1937.
7. S.(S.) Scalarias (Dujardin, 1845) Blanchard, 1893.
8. S.(S.) Solitaria Meggitt, 1927.
9. S.(S.) Syrdariensis (Skarbilovitsch, 1945) Spassky, 1950.
10. S.(S.) tiara (Dujardin, 1845) Spassky, 1950.
11. S.(S.) toxometra (Baer,1932) Skrjabin and Mathev, 1948.
12. S.(S.) evansi (Skrj et Mathev, 1942) Evans, 1940.
13. S.(S.) longi Oswald, 1951.
14. S.(S.) parvissima Voge, 1951.
15. S.(S.) sengeri Neiland, 1953.
16. S.(S.) serrula Oswald, 1951.
17. S.(S.) sphenomorphus Locker et Rausch, 1952.
18. S.(S.) sanchorensis Nama and khichi, 1975.
19. S.(S.) shindensis, Nama, 1976.
20. S.(S.) suncusensis Olsen and Kuntz, 1978.

In having testes in triangular arrangement and 28 hooks in a single circle, each row with 14 hooks, the worm under discussion comes closer to S.(S.) sanchorensis Nama and Khichi, 1975; S. (S.) pistillum Dujardin (1945); S.(S.) syrdariensis, Skrbilovitsch, 1946 and S.(S.) suncusensis Olsen and Kuntz, 1978.

1. The present cestode in having all the characters described earlier, differs from S.(S.)sanchorensis which is having 30 rostellar hooks, 15-17 long, strobula upto 10.77 long and in Suncus.
2. The present worm differs form S.(S.) pistillum which is having rostellar hooks 10 long, 14-22 in number, wrench shaped, strobula 0.02-2 and 0.65-2 long, scolex 120-125, uterus horse shoe shaped, eggs 51 x 46 and 57-46 and scolex.
3. The present worm differs from S.(S.) syrdariensis which is having rostellar hooks 20-30 in number, 20 long, strobula 15 long and eggs 43 x 32 and in pidisprellus.
4. The present worm differs from S.(S.) suncusensis which is having rostellar hooks 11-14 in number, 16-18 long, strobula 6.4-18.2 long, scolex 197-239 in diameter and in Suncus.

The above noted characters necessitate the erection of a new species to accommodate the present form and the name S.(S.) myotisae n.sp. is proposed after the generic name of the host.

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