

A new corunate Echinostome cercaria from *Lymnea acuminata* Lamark, 1822



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Abstract : A new corunate Echinostome *cercaria* has been reported and named as *Cercaria rampurensis* on the basis of features and topography of organs differ in ratio of body and tail, number of collar spines, shape, body and tail, number of collar spines, shape, size and penetration and pattern of excretory system not described so far.

Keywords: Echinostomes, Taxonomy, *Cercaria*, *Lymnea acuminata*.

Introduction

Chinostomes include a number of trematodes mostly parasitic in reptiles, birds and mammals. They are chiefly characterized by a collar bearing spines near anterior end. A number of species of Echinostomes have been recorded from human being from various part of the world including Java, Sino-Tibetan frontier, Malaysia, Sumatra and India etc. The eggs of worm develop in a miracidium which infects fresh water snails, giving rise to redia within body of snail, and produces cercaria. The cercarial larva has a well develop tail and bear a collar spine similar to their adult. The cercaria encysts on snails, bivalves, insects, frogs and fishes and transform into a metacercaria which infect the final host after eating the infected intermediate host. With a view to explore Echinostome cercariae of medical and veterinary importance, we have screened a number of fresh water snail genera from Rampur district Uttar Pradesh and luckily got infection of new Echinostome cercaria, description of which form the subject matter of the paper.

Materials and Methods

Thirty snails, *Lymnea acuminata* (L.), collected from a pond of Rampur district, were examined, of which two were found infected. Cercaria emerge in large numbers in morning hours. They are phototropic and active swimmers. Swimming is interrupted by a short period of rest during which the larva remains hanging in water, settles down at bottom of container and makes catter pillar like movement with the help of suckers. Larva is short lived and survive only for 2-3 hours.

Results

Body is broad, aspinose with well marked cephalic region 0.31-0.42mm x 0.21-0.26 mm. Tail is short, aspinose with circular, longitudinal and oblique muscles and a number of elongate round nucleated caudal bodies, 0.21mm-0.26 mm. Oral sucker is terminal, circular, 0.02-0.03 mm. Ventral sucker is circular located behind middle, larger than oral sucker, 0.03-0.04 mm. A cephalic collar is well developed. Collar spines small, blunt and 24 in number,

arranged in a single row with 4 end group of spines. Pre-pharynx is well developed 0.01-0.02 mm. Pharynx is 0.006-0.008 mm. Oesophagus is long, bifurcates anterior to ventral sucker, 0.02-0.05 mm. Penetration glands about 20 small, oval, with granular cytoplasm and centrally placed nuclei around pharyngeal region. Each gland opens at oral sucker by a distinct duct. A large number of elongate, oval, cystogenous cells having granules located throughout body. Two masses of cells, one ahead and other behind ventral sucker, joined together by a streak of cells, represent rudiment of gonads. Excretory bladder is transversally oval, main collecting canal arises, from cornua of excretory bladder, one on each side, runs up to pharynx to form a loop and runs posteriorly up to ventral sucker and divides into as anterior and posterior collecting canals. It also dilates at intestinal bifurcation to accommodate about 30-40 round, elongated conglomerations which may be closely packed. Anterior collecting canal gives rise to three branches in pre-acetabular region of body, each further divides into 3 fine branches capped with 3 flame cells. Similarly, posterior collecting canal also gives rise to 3 branches, each divides

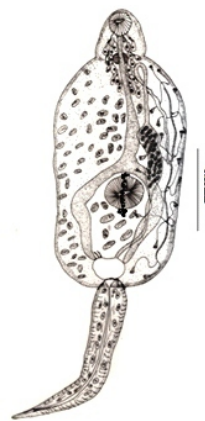


Fig. 1- *Cercaria rampurensis* n. sp.

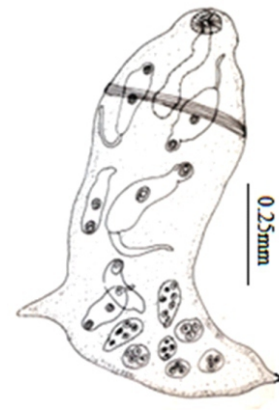


Fig. 2 - Redia (drawn from live specimen)

into three fine canals ending in flame cell. Flame cell formula is $2(3+3+3)+(3+3+3)=36$. A caudal excretory canal runs upto tip of tail and opens to outside. Redia (Fig.2) elongate, 0.80-1.10mm x 0.14-0.03 mm, infects hepatopancreas of the snail. Pharynx is terminal, muscular 0.02-0.04 mm. A muscular collar is present. Gut in young rediae is short and filled with blackish food material. A birth pore and procuscula are also well developed. Each redia contains 2-6, mature cercariae few developing cercariae and germ balls.

Discussion

In the absence of fin fold on tail of larva and main excretory canal divides into anterior and posterior branches in middle of body, the larva belongs to Coronate group of Echinostome cercariae (Sewell, 1922). The present cercaria comes closer to following coronate echinostome cercariae which includes *Cercaria indicae* Sewell, 1922, *Cercaria of Echinochasmus bagulai* Ramalingam, 1960, *Cercaria Londonensis* Khan, 1960; *Cercaria essexensis* Khan, 1960; *Cercaria tetraglandulata* Srivastava, 1968; *Cercaria alseni* Acholmu, 1968; *C. zubedakhaname* Nasir and Diaz 1968; *Cercaria alseni* Acholmu, 1968; *Cercaria andharensis* Ganapati and Hanumantha Rao, 1969, *Cercaria oviglandulata* Pandey, 1973, *Cercaria megaglandulata* Agrawal, 1974, *Cercaria of Echinopanyuphium leanceolatum* Singh, 1975, *Cercaria of Echinoparyphium hymani* Singh, 1975, *Cercaria of Echinostomum vitellocampetum* Singh, 1976, *Cercaria beaveri* Pandey and Agrawal, 1977, *Cercaria dietzi* Singh, 1977, *Cercaria etioi* Pandey and Agrawal, 1977, *Cercaria dharamtalensis* Mukherjee and Ghosh, 1977, *Cercaria komiyai* Pandey and Agrawal, 1977, *Cercaria leyteensis* no. 23 Ito, 1977; *Cercaria leyteensis* no. 24 Ito, 1977; *Cercaria chinhatensis* Srivastava, 1978, *Cercaria chillavanensis* Agrawal and Sharma, 1980, *Cercaria sp.* VII Kerala Mohandas, 1981, *Cercaria unnaoensis* IV Pandey, Singh and Lal, 1982; *Cercaria unnaoensis* V Pandey Singh and Lal, 1982; *C. spinicephala* Haseeb and Khan, 1983, *C. parspinicephala* Haseeb and Khan, 1983; *Cercaria nawabgunjensis* Pandey and Singh, 1984, *Cercaria narindapurensis* Pandey and Singh, 1984, *Cercaria pentaglandulata* Pandey and Panwar, 1997 and *Cercaria guptai*, Pandey and Panwar, 1997, In general topography of organs but chiefly differs them in ratio of body and tail, number of collar spines, shape, size and penetration glands and pattern of excretory system. Therefore, the larva is regarded as new to science and named *Cercaria rampurensis* n.sp.

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