CERCARIA MIYAGIENSIS N. SP. (TREMATODA) FROM PARAFOSSARULUS MANCHOURICUS IN MIYAGI PREFECTURE

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SUMMARY: A new gymnocephalous cercaria of echinostomous type was found from Parafossarulus manchouricus in Miyagi Prefecture, Japan. Its detailed morphology including the excretory system is described. This cercaria is closely related to Cercaria nuda Komiya, 1952 but differs from it in that it has sensory hairs on the upper edge of the oral sucker and the lateral side of the tail as well as in some other points. A new name Cercaria miyagiensis is proposed for it.

INTRODUCTION

Ten species of cercariae have been hitherto described from Parafossarulus manchouricus in Japan, which however include no gymnocephalous one of the echinostomous type. In the autumn of 1962, when a survey on the vector snail of Clonorchis sinensis, Parafossarulus manchouricus was made in Miyagi Prefecture, a new type of gymnocephalous cercaria of the echinostomous type was found from the above-mentioned snail, and the following is the description and discussion thereof.

MATERIALS AND METHODS

As the material, freshly emerged cercariae from Parafossarulus manchouricus was used. All the observation was made on the living material. The technic for observation is to be referred to Komiya (1961).

Data presented

Cercaria miyagiensis n. sp.

Host: Parafossarulus manchouricus Bourguinat, 1860
Locality: Miyagi Prefecture, Japan
Partenita: Redia

The shape of the redia is similar to that of Echinostoma, having the collar in the anterior part and a pair of locomotive appendages near the posterior part of the body. The pharynx is relatively small, its intestinal gut attaining to the middle of the body. The mature redia measures about 2.6 mm in length and contains about 20 cercariae.

Cercaria: The cercaria shedding from the host is a gymnocephalous one of the echinostomous type. The body is flat and oval in shape measuring 0.29-0.31 mm in

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length and 0.18–0.21 mm in width in living specimen. The tail is longer than the body, being 0.35–0.40 mm long and 0.18–0.21 mm wide at the stem, providing neither furcra nor finfold.

The oral sucker is round (28–29 μ) in shape and situated subterminally at the anterior end of the body. Near the dorsal edge of the oral sucker one pair of long (7 μ long) and three pairs of shorter sensory hairs are found ventrally on the cuticlea. A pair of another longer (14 μ long) sensory hairs are recognized dorsally also on the cuticula. No sensory organs besides them are found on the surface of the body, but on both lateral sides of the tail three pairs of sensory hairs (12 μ long) are found at the level beneath the opening of the excretory canal. No spines are recognized on the surface of the body and the tail. Neither pigments nor fatty granules are found in the parenchym of the body.

The acetabulum, round (34–36 μ) in shape and larger than the oral sucker, is found around the center of the body. The prepharynx is very short; the pharynx is oval in shape and is larger in width than in length. The esophagus is relatively long and bifurcates near the upper edge of the acetabulum into two intestines, which terminate near the posterior end of the body. Both the esophagus and the intestine are filled with transparent ingesta.

![Fig. 1. Cercaria miyagiensis n. sp.](image)

In the left half of the body the excretory system is represented. On the other side of the body the other structures are figured.

Explanation of abbreviation:

sh: sensory hair; os: oral sucker; ph: pharynx; es: esophagus; c: concretion; et: excretory tube; ac: acetabulum; i: intestine; gp: genital primordia; fc: flame cell; ev: excretory vesicle; cet: caudal excretory tube.
No penetration glands are recognized. No cystogenous glands are observed, either. The major part of the body is, however, occupied with a large irregular space filled with minute rod-like substance. Besides them another irregular-shaped space filled with fine granular substance is found around the esophagus and acetabulum. The substance contained therein is considered to be homologous to the cystogenous one.

The genital primordia are poorly developed. They are recognized as two oval compact masses between the acetabulum and the excretory vesicle in the median part of the body.

Fig. 2

a

b

Fig. 2. The sensory hairs on the upper surface of the oral sucker.
   a: ventral side; b: dorsal side.

Fig. 3

Fig. 3. The shape of the concretion in the main excretory tube.

The excretory vesicle is of one chamber structure and is situated median at the posterior end of the body. From its posterior end a caudary excretory tube enters the stem of the tail, and after running along the axis of the tail bifurcates at the anterior one-third and opens laterally. The main collecting tube starts from the upper lateral edge of the excretory vesicle and runs anteriorly to reach near the lateral side of the pharynx, where it suddenly turns backwards, runs down along its ascending part to reach the lateral side of the acetabulum, and divides into an anterior and a posterior secondary collecting tubes.

The ascending part of the main collecting tube is swollen and contains 11-15 excretory concretions showing non-concentric circle, measuring about 16 µ in average diameter. Frequently two concretions are found to be united together. Both anterior and posterior collecting tubes divide themselves into respective three branches, each of which is further divided into two capillaries each having a flame cell. The flame cell pattern is thus shown as $2 \times [(2+2+2)+(2+2+2)]$.

**DISCUSSION**

This cercaria is closely related to *Cercaria nuda* KOMIYA, 1952, obtained from *Bithynia striatula* (synonym of *Parafossarulus manchouricus*) in China, but differs from the latter in that it shows sensory hairs on the upper edge of the oral sucker and on the lateral side of the tail, poorly developed genital primordia, and a different nature of excretory concretions, and so on. A new name *Cercaria miyagiensis* is proposed.

**REFERENCES**

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