

**A Metacercaria of a Digenetic Trematode of the Genus *Proctoeces* (Fellodistomidae) Parasitic to the Sea Urchin, *Strongylocentrotus intermedius***

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**ABSTRACT** An unidentified metacercaria of a digenetic trematode of the genus *Proctoeces* Odhner, 1911 (Fellodistomidae) from the gonad of the sea urchin, *Strongylocentrotus intermedius*, is described. It was taken off Maehama, Wakkanai, in Hokkaido, Japan. (*Zool. Mag.* 88: 318-320, 1979)

Mr. Ken-ichiro Tajima of the Hokkaido Wakkanai Fisheries Experimental Station found a parasite in a sea urchin and sent it to the author for identification. It is described below as a metacercaria of a digenetic trematode of the genus *Proctoeces* Odhner, 1911 (Fellodistomidae).

**Materials and Methods**

The metacercariae were found deeply embedded among the lobules of the gonad (ovary or testis or both) of sea urchins, *Strongylocentrotus intermedius* (Echinoidea: Strongylocentrotidae), collected off Maehama, Wakkanai, in Hokkaido, Japan, in October and November, 1978. They were flattened, fixed in 70% ethanol, stained with alum carmine, and mounted in Canada balsam. Whole mounts of unflattened worms taken out of formalin-preserved hosts were also prepared, and some were made into serial paraffin sections stained with Delafield's hematoxylin and eosin. Measurements are based on five larger flattened

flukes in balsam. The parasite specimens are deposited in the collection of the National Science Museum, Tokyo (NSMT—PI—1940~1943).

***Proctoeces* sp. Metacercaria**

*Description.* Metacercaria unencysted, not progenetic. Body subcylindrical, elongate, 3.16-3.52 mm long by 0.78-1.07 mm wide at ovarian level. Large gland cells scattered beneath aspinose cuticle throughout body. Oral sucker 0.37-0.43 mm long by 0.43-0.48 mm wide. Prepharynx very short. Pharynx pyriform, 0.33-0.38 mm long by 0.31-0.33 mm wide. Esophagus short, surrounded by small gland cells. Intestinal ceca terminating near posterior end of body. Ventral sucker slightly pre-equatorial, 0.57-0.63 mm long by 0.71-0.80 mm wide; sucker width ratio 1:1.54-1.74. Ovary usually subglobular or rarely, trilobed, lying between ventral sucker and anterior testis, median, 0.17-0.27 mm long by 0.24-0.29 mm wide. Ootype-complex immediately post-ovarian. Laurer's canal present. Seminal receptacle absent. Uterus meandering, passing backward to near end of body, then turning forward, distally forming a simple metraterm opening at base of hermaphroditic duct, which is tubular and long, about 0.5 mm long, and contains cirrus and muscular protuberance at its base. Genital pore slightly to the left of midline of body at intestinal bifurcation. Testes entire, oblique, near middle of hindbody, posterior one usually larger than anterior one, 0.22-0.37 mm long by 0.30-0.48 mm wide. Cirrus pouch club-shaped, extending posteriorly to ovarian level, 0.61-0.72 mm long by 0.18-0.22 mm wide, enclosing coiled tubular seminal vesicle, which is constricted at about proximal one-sixth of total length and provided with a sphincter there, and claviform pars prostatica accompanying prostatic cells. Vas deferens outside cirrus pouch short. Spermatozoa seen in seminal vesicle. Vitelline follicles small, dispersed in ovarioprotectacular zones, a few of them entering post-testicular space. Ex-

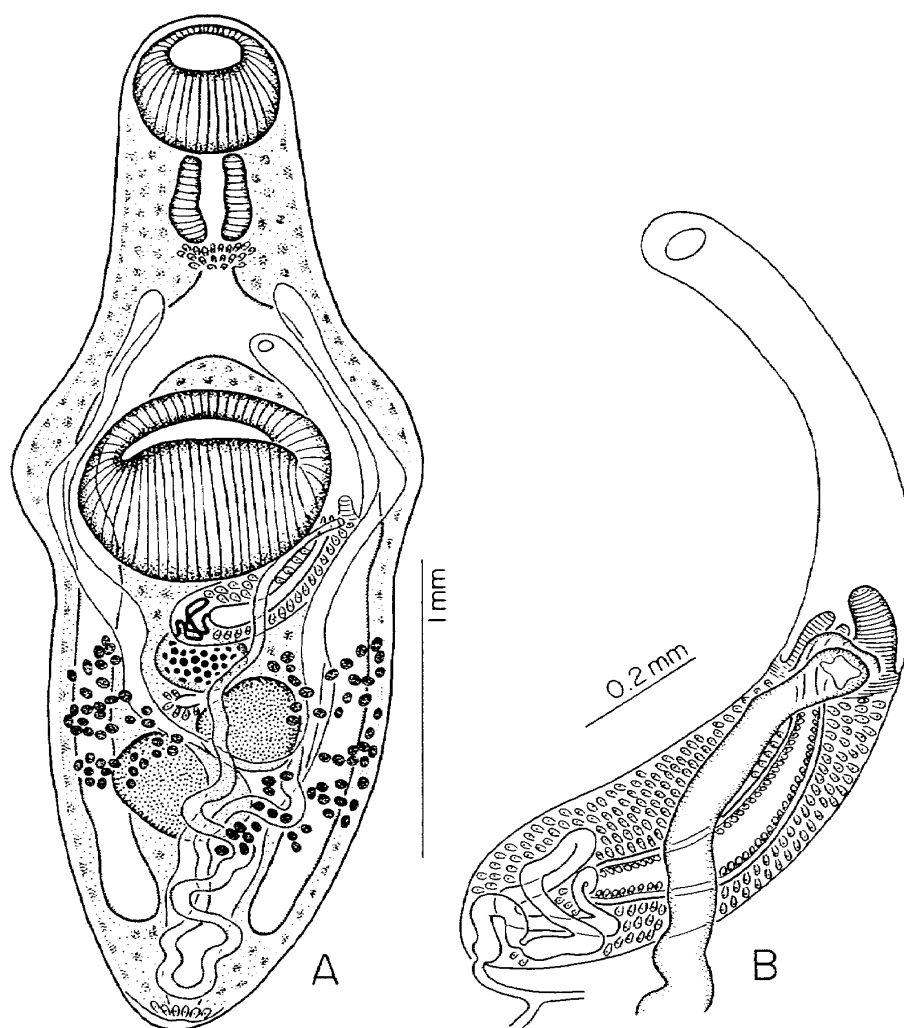


Fig. 1. *Proctoeces* sp. metacercaria found in the sea urchin, *Strongylocentrotus intermedius*. A: Entire body, flattened, ventral view. B: Terminal genitalia, ventral view.

cretory vesicle Y-shaped, filled with reddish granular material, divided in testicular region; its two arms reaching esophageal level; pore posteroterminal, encircled by small gland cells; flame cell formula not studied.

The smallest of the flattened whole mounts obtained measured: body 0.95 mm long by 0.26 mm wide; oral sucker 0.16 mm long by 0.18 mm wide; pharynx 0.13 mm long by 0.11 mm wide; ventral sucker 0.22 mm long by 0.29 mm wide, with sucker width ratio being 1:1.61; trilobed ovary 0.04 mm in diameter; and symmetrical testes 0.06 mm in diameter. Vitelline glands

were not yet observed in this fluke.

*Discussion.* This metacercaria belongs to the genus *Proctoeces* Odhner, 1911 (Fellodistomidae). It is morphologically similar to that (NSMT—PI—1944) reported by Shimazu (1972) from the abalone, *Haliotis discus hannai*, of Rebun Island, about 60 km off Wakkanai, in the Sea of Japan. It occurs also in the sea urchin there (Tajima, personal communication). They are presumably the same species. It is impossible at present to identify them to species, because they are sexually immature and lack eggs, the shape and size of which are

important diagnostic characters in the genus; and because the taxonomy of the genus has been in a state of confusion (Shimazu, 1972). The specific determination will remain unclarified until gravid adults are available. This is probably the first record of a *Proctoeces* sp. metacercaria from the sea urchin.

#### Acknowledgment

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#### Reference

- SHIMAZU, T. (1972) A metacercaria of the genus *Proctoeces* (Fellodistomatidae: Trematoda) from an abalone, *Haliotis discus hannai*, of Rebun Island, Hokkaido. *Bull. Jap. Soc. Sci. Fish.* **38**: 813-816. (In Japanese, with English summary.)