

A New Metacercaria of the Genus *Gymnophallus* (Digenea : Gymnophallidae) Parasitic in a Brackish-Water Clam, *Ruditapes philippinarum*

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A previously unknown metacercaria of the genus *Gymnophallus* Odhner, 1900 (Digenea : Gymnophallidae) was found in a brackish-water clam, *Ruditapes philippinarum* (Adams et Reeve), collected on the Pacific coast of central Japan. This paper describes the morphology of the metacercaria.

Materials and Methods

The metacercaria was found in 42% of 62 clams, *Ruditapes philippinarum* (Adams et Reeve) (Bivalvia : Veneridae), 18-42 mm in shell length, collected at Mihama in April 1974; from one to six worms occurred in each infected clam. The trematode was obtained also from a small sample of the clam taken at Kaminoma in April 1975, the percentage infection being not recorded. Several small samples from Gamagōri between March 1975 and May 1977 were all negative. The three localities mentioned above are in Aichi Prefecture, on the Pacific coast of central Japan. The parasite was occasionally got from the clams (locality unknown) bought from the markets at Matsumoto during 1975 to 1977. The habitat of the metacercaria in the host has not been determined yet.

Metacercariae were flattened under slight cover glass pressure, fixed in AFA, 70%

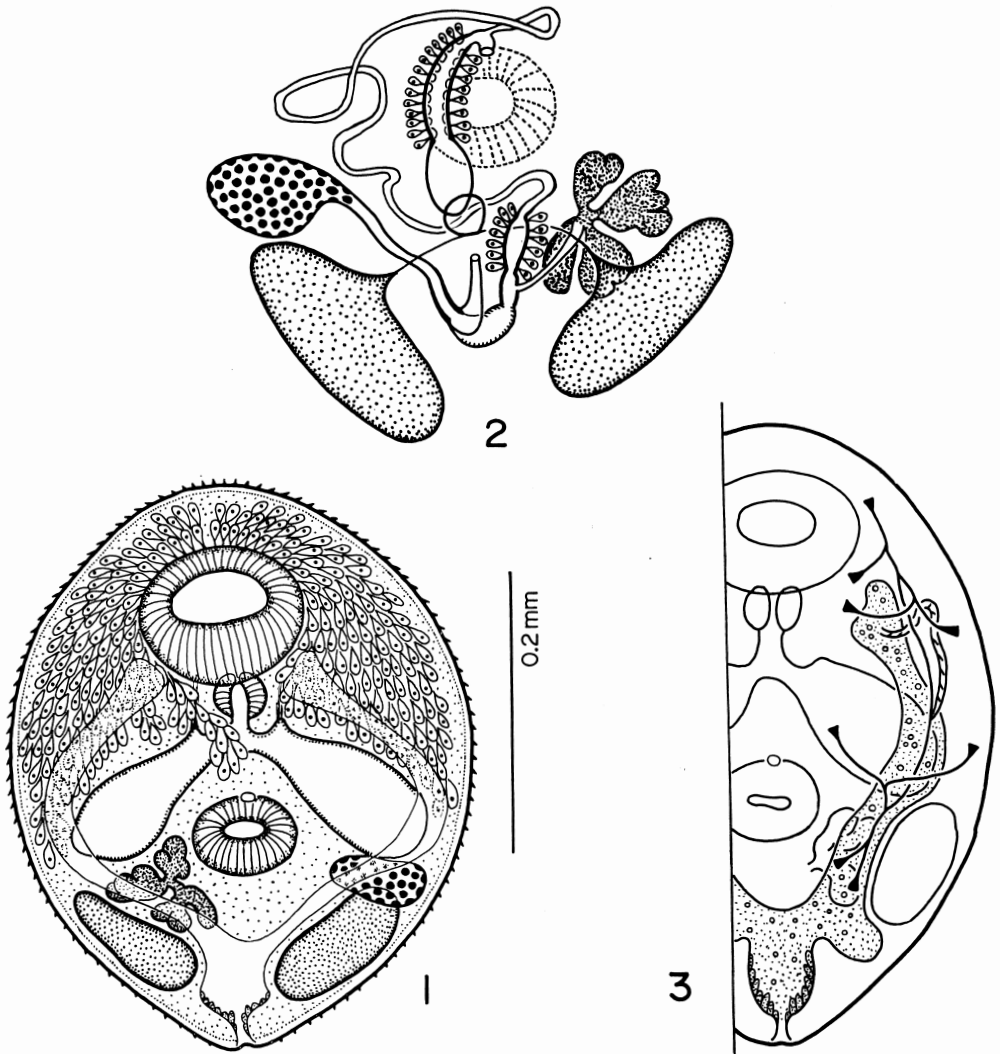
ethanol, or Schaudinn's solution, stained with Delafield's haematoxylin and eosin, alum carmine, or Heidenhain's iron haematoxylin, and mounted in Canada balsam. The morphological characteristics were studied on both the living and the balsam-mounted material. The measurements were taken on ten whole-mounts. The specimens are deposited in the collection of the National Science Museum, Tokyo (NSMT-PI-1853 to -1863).

Gymnophallus sp.

Description (Figs. 1-3)

Digenea : Gymnophallidae. Metacercaria, not encysted. Body broadly obovate, spinous, 0.43-0.54 mm long by 0.30-0.38 mm wide. Unicellular cephalic glands numerous, filling ventral layer of forebody anterior to intestinal caeca, with ducts opening separately along antero-dorsal border of oral sucker. Ventral pit of body absent in front of ventral sucker. Oral sucker 0.093-0.113 mm long by 0.110-0.126 mm wide, situated almost ventral, some distance from anterior end of body, without lateral papillae. Ventral sucker 0.057-0.069 mm long by 0.065-0.073 mm wide, slightly behind mid-level of body, somewhat embedded in body parenchyma; sucker width ratio 1:0.54-0.60. Prepharynx absent. Pharynx 0.024-0.038 mm by 0.032-0.038 mm

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Figs. 1-3 A new metacercaria of the genus *Gymnophallus* found in a brackish-water clam, *Ruditapes philippinarum* (Adams et Reeve).

1. Entire worm mounted in balsam, ventral view.
2. Reproductive system in another whole-mount, dorsal view.
3. Excretory system in one living worm, shown only on the left side of the body, ventral view.

wide. Oesophagus very short. Intestinal caeca short, inflated, divergent, 0.105–0.136 mm long by 0.052–0.084 mm wide, extending only to level of ventral sucker, containing a few globules (about 0.008 mm in diameter) of some yellowish and oily substance, with large epithelial cells. Testes ellipsoidal, symmetrical, marginal, posterior to level of ven-

tral sucker, 0.088–0.147 mm long by 0.040–0.099 mm wide. Seminal vesicle bipartite, about 0.05 mm long by 0.02 mm wide. Pars prostatica club-shaped, about 0.07 mm long, dorsal or antero-lateral to ventral sucker, surrounded by prostatic cells. Cirrus pouch and cirrus absent. Genital atrium small. Genital pore small, on anterior border of ventral

sucker. Ovary transversely ovoid, 0.028–0.042 mm long by 0.054–0.084 mm wide, near either right or left margin of body, between intestinal caecum and testis. Laurer's canal median, short, running forward, opening on dorsal surface of body. Seminal receptacle absent. Ootype-complex submedian, posterior to ventral sucker. Uterus folded in area enclosed with intestinal caeca, ovary, oviduct, and vitellarium. Vitellarium deeply 4-lobed, with each lobe indented, 0.042–0.113 mm long by 0.028–0.052 mm wide, usually opposite ovary, rarely postero-lateral to it. Excretory vesicle Y-shaped, containing a small number of globular concretions about 0.004 mm in diameter and very fine granules; arms reaching to level of oral sucker, with anterior tips weakly bifid; stem very short, giving off a pair of lateral diverticula behind testes only in life; flame cell formula $2 [(2+2)+(2+2)] = 16$.

Discussion

According to Ching's (1973) key to the genera of gymnophallid trematodes, this metacercaria belongs to the genus *Gymnophallus* Odhner, 1900. The list tabulated by Loos-Frank (1971) includes all the metacercariae so far reported for the genus. The present metacercaria differs from each of them in having a combination of the following morphological features: the larger body size, the numerous cephalic glands occupying almost the whole of the region in front of the intestinal caeca, the oral sucker being nearly twice as large as the ventral sucker, the bipartite seminal vesicle, the deeply 4-lobed vitellarium, the simple excretory vesicle, and the flame cell formula being $2 [(2+2)+(2+2)] = 16$. It is difficult to compare in morphology this metacercaria with other members of the genus of which the metacercariae are still unknown. The specific identification of this new metacercaria remains to be established until the adult stage of this parasite is obtained.

The clams examined harboured also an-

other gymnophallid metacercaria, *Parvatrema duboisi* (Dollfus, 1923) Bartoli, 1974. The metacercaria of *P. duboisi* parasitizing *R. philippinarum* in Japanese waters has already been described by Ogata (1944) who identified it as *G. bursicola* Odhner, 1900, and by Endo and Hoshina (1974) who identified it as *P. timondavidi* Bartoli, 1963. This latter species was regarded by Bartoli (1974) as a synonym of *P. duboisi*.

Summary

A new metacercaria belonging to the genus *Gymnophallus* Odhner, 1900 (Digenea: Gymnophallidae) is described from a brackish-water clam, *Ruditapes philippinarum* (Adams et Reeve) (Bivalvia: Veneridae), collected on the Pacific coast of central Japan. The metacercaria cannot be identified to species because it is immature.

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汽水産アサリ *Ruditapes philippinarum* に寄生する *Gymnophallus* 属の
新しいメタセルカリア (Digenea: Gymnophallidae)

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中部日本太平洋沿岸産アサリ *Ruditapes philippinarum* (Adams et Reeve) から, *Gymnophallus* Odhner, 1900 (Digenea: Gymnophallidae) に属する, 新しい

メタセルカリアをえたので, その形態を記載した. メタセルカリア期のものであるから, 種の同定は保留した.