

**A New Digenetic Trematode, *Gonocerca japonica* n. sp.
(Hemiuridae, Gonocercinae), from the Stomach of a
Rat-tail Fish, *Coelorrhynchus* sp., from Japan**

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(Received for publication; Feb. 12, 1973)

One fully matured specimen was found in the stomach of a *Coelorrhynchus* sp., which was collected by commercial trawler on May 31st, 1972. The hosts were examined after being stored frozen. The helminth was fixed in acetic Schaudinn's fluid under the cover glass with a light pressure, stained with Heidenhain's hematoxylin, and mounted in balsam. The figure was drawn with the aid of a camera lucida. All measurements are in mm unless otherwise stated.

Gonocerca japonica n. sp.
(Fig. 1)

Host: *Coelorrhynchus* sp., rat-tail, (Macro-
uridae)

Site: Stomach

Locality: Suruga Bay, off-shore, in deep
waters (280-530 m)

Date: May 31, 1972

Frequency: One out of twenty two hosts
examined

Holotype: Deposited in Meguro Parasito-
logical Museum, No. 17548

Description: Based on one gravid specimen. Body fusiform, 7.33×2.23 , narrowing anteriorly, with smooth cuticle, greatest width at lower third of body. Oral sucker subterminal, 0.484×0.606 ; preoral lobe present; pharynx 0.131×0.313 ; esophagus 0.325 long; caeca bifurcating at the middle of the first

anterior third of body, winding, overlapping acetabulum at its left margin, covering partially vitellaria and ovary dorsad, and terminating blindly at posterior end of body. Acetabulum larger than oral sucker, equatorial, 0.98×0.96 . Sucker ratio 1:1.6

Testes irregularly lobed, $1.04-1.11 \times 0.86-1.01$, situated a little asymmetrically at caudal end of body. Vesicula seminalis tubular, small, 0.393×0.17 , postbifurcal, winding anteriorly. Pars prostatica short, 0.16 long, surrounded by well developed prostatic cells free in parenchyma, opens into fairly developed genital atrium along with metratrum.

Ovary subglobular, 0.505×0.707 , median, postacetabular, intervitellarian, pretesticular. No receptaculum seminis; Laurer's canal winding, opening medially between testes dorsad; shell gland sinistro-dorsal to ovary. Vitellaria consist of two irregularly lobed masses (7 irregular lobes on left and 4 on right), $0.80-0.92 \times 0.71-0.76$, one on both sides of ovary. Uterus ascends in intercaecal field, overlaps partially acetabulum and caeca dorsally and narrows at level of caecal bifurcation to form a short metratrum. Eggs elliptical, $47-60 \times 22-35 \mu$ in balsam. Excretory arms unite dorsal to pharynx; pore terminal.

Discussion

The described species differs from the eight known species of *Gonocerca*, all of

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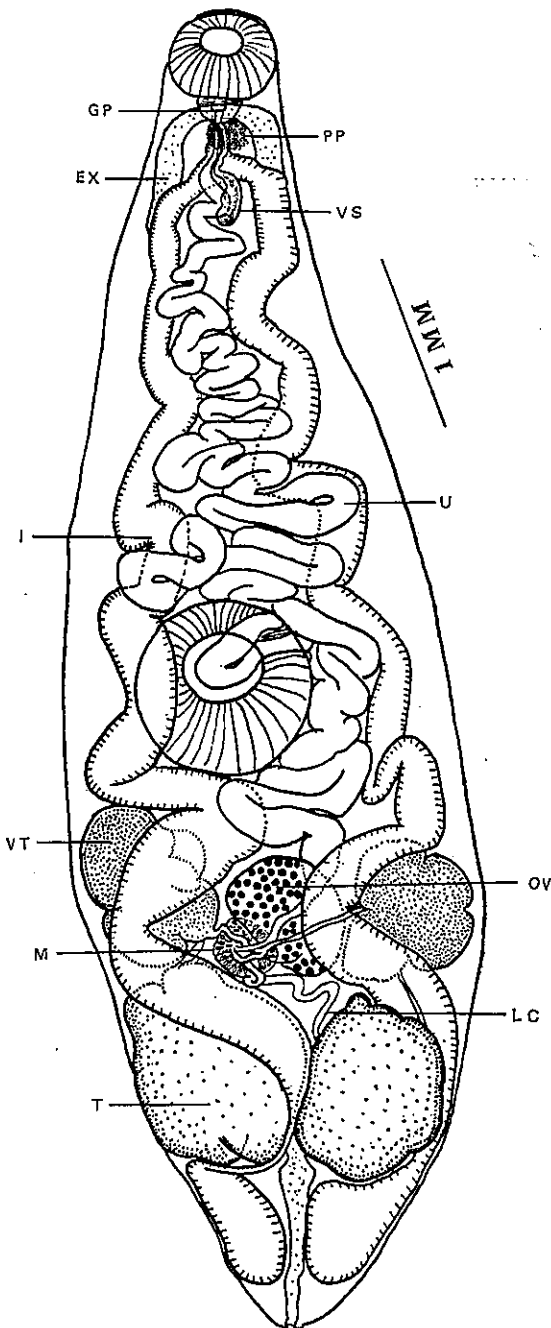


Fig. 1 *Gonocerca japonica* n. sp. from *Coelorrhynchus* sp. dorsal view; EX... Excretory arm, GP... Genital pore; I... intestinal caecum, LC... Laurer's canal, M... Mehlis' gland, OV... ovary, PP... pars prostatica, T... testis, U... uterus, VS... seminal vesicle, VT... vitellaria

which were from either cold-water or deep-sea hosts, mainly in body and egg sizes. From four of them, i.e. *G. macroformis*, *G. crassa*, *G. phycidis*, and *G. trematomi*, it is distinguished by having lobed vitellaria. The possession of lobed vitellaria occurs also in *G. kobayashii* (Layman, 1930) Manter, 1934, *G. lobata* Byrd, 1963, *G. oshoro* Shimazu, 1970, and *G. oregonensis* McCauley *et al.*, 1970. The present species can be separated from these species except *G. oshoro* mainly by having larger body size and the position of the acetabulum being equatorial. The present species is similar to *G. oshoro* in the shape of the body and position of the acetabulum, but differs from it by the smaller body size, larger acetabulum in ratio with body size, unlobed ovary and the habitat in the stomach. *G. kobayashii* has tandem testes and *G. lobata* has pre-equatorial acetabulum, symmetrically 4-lobed vitellaria and larger egg size. *G. oregonensis* is characterized by the forebody bearing paired fleshy lobes posteroventral to oral sucker, the genital pore opens near orifice of the oral sucker, the possession of bi-lobed vitellaria and the habitat of the host that lived in as great depths as 1,530–2,850 m. *G. oshoro* is characterized by a very large body, the distinctly lobed ovary and the habitat in the ovary of the host.

Skrjabin and Guschanskaya (1955) established a key to the species of *Gonocerca* Manter, 1925. The author extended and modified the previous one to include the species as known up to present date.

Key to the known species of *Gonocerca* Manter, 1925

- Parasitic in ovary1
 - Parasitic in digestive tracts or branchial cavity.....2
- 1 Body up to 29.7 mm; ovary and vitellaria deeply lobed; caeca normal; eggs 57–65 × 26–31 μ.*G. oshoro* Shimazu, 1970
- Boby up to 13 mm; ovary of various shapes, vitellaria compact, caeca divided into two portions (thick-walled anterior and broad-lumened thin-walled convoluted.

posterior portion); eggs 42-51×21-30 μ .

.....*G. macroformis* Wolfgang et
Myers, 1954

2 Vitellaria lobed,

Genital pore ventral to pharynx

Body 4 mm; widest in anterior half; acetabulum postequatorial; testes entire, tandem; vitellaria lobed into 2-3 compact masses; eggs 45-51×29 μ ; parasitic in esophagus and stomach.

.....*G. kobayashii* (Layman, 1930)
Manter, 1934

Body rounded, up to 5.7 mm; widest in anterior half; acetabulum equatorial; testes rounded, diagonal; vitellaria deeply 4-lobed; eggs 71-86×33-39 μ ; parasitic in posterior intestine.*G. lobata* Byrd, 1963

Body fusiform, 7.3 mm, widest in posterior half; acetabulum equatorial; testes irregularly lobed, diagonal; vitellaria irregularly lobed; eggs 47-60×22-35 μ ; parasitic in stomach.

.....*G. japonica* n. sp.

Genital pore ventral to oral sucker

Body up to 4.9 mm, widest at acetabular level; forebody bearing paired fleshy lobes posteroventral to oral sucker; acetabulum postequatorial; testes entire, diagonal; eggs 53-64×20-30 μ ; parasitic in stomach.

.....*G. oregonensis* McCauley,
Pequegnat et Brownell, 1970

Vitellaria entire,

Testes diagonal

Body robust, 2.24-3.57 mm; acetabulum in posterior third of body; seminal vesicle tubular, genital cone present; eggs 41-52×20-22 μ ; parasitic in stomach.

.....*G. crassa* Manter, 1934

Testes tandem

Body not robust, 1.3-2.3 mm; testes occupying posterior half of hindbody; seminal vesicle tubular; ovary some distance posterior to acetabulum; acetabulum postequatorial; eggs 45-55×20-26 μ ; parasitic in gills and stomach.*G. phycidis* Manter, 1925

Body robust, 3.8 mm; testes occupying entire hindbody; seminal vesicle club-shaped; ovary immediately post-acetabular; acetabulum postequatorial; eggs 45-52×24-26.4 μ ; parasitic in branchial chamber.

.....*G. trematomi* Byrd, 1963

Summary

Gonocerca japonica n. sp. (Hemiuridae, Gonocercinae) is described from the stomach of a deep sea fish, *Coelorhynchus* sp. from the Suruga Bay, Pacific coast of Japan. It differs from *G. kobayashii*, *G. lobata* and *G. oregonensis* mainly by having larger body size and the position of the acetabulum being equatorial. The shape of the body and position of the acetabulum of the present species are similar to those of *G. oshoro* but differ from it by the smaller body size, larger acetabulum in ratio with body size, the ovary is entire and the habitat in the stomach. A key to the species of *Gonocerca* Manter, 1925 is introduced.

Acknowledgments

The author expresses his appreciation to Dr. Satoru KAMEGAI, Director of *The Meguro Parasitological Museum* for allowing him to use the facilities and library of the Museum. His grateful thanks are also extended to Messrs. S. SONODA and S. MIKAMI, *The Yomiuriland Marine Aquarium*, for their kind assistance in obtaining the host fish.

References

- 1) Byrd, M. A. (1963): Helminth Parasites of Antarctic Vertebrates Part I. Digenetic trematodes of marine fishes. Proc. Helminth. Soc. Wash., 30 (1), 129-148.
- 2) Layman, E. M. (1930): Parasitic worms from the fishes of Peter the Great Bay. Bull. Pacif. Sci. Fish. Res., 3 (6), 1-120.
- 3) Manter, H. W. (1925): Some marine fish trematodes of Maine. J. Parasit., 12, 12-18.
- 4) Manter, H. W. (1934): Some digenetic trematodes from deep water fish of Tortugas, Florida. Carn. Inst. Wash. Publ., 435, 257-345.
- 5) McCauley, J. E., Pequegnat, J.E. and Brownell,

- C. E. (1970): A new species of *Gonocerca* Manter, 1925 (Trematoda: Hemiuridae) from the Eastern Pacific. Proc. Helminth. Soc. Wash., 37 (2), 169-171.
- 6) Shimazu, T. (1970): *Gonocerca oshoro* sp. n. (Trematoda: Hemiuridae) from the ovary of the rat tail, *Nematonurus pectoralis* from the Gulf of Alaska. Jap. J. Parasit., 19 (3), 278-281.
- 7) Skrjabin, K. I. and Guschanskaya, L. Kh. (1955): In Skrjabin, K. I., Trematodes of animal and man, XI, p. 722.
- 8) Wolfgang, R. W. and Myers, B. J. (1954): *Gonocerca macroformis* sp. nov. (Derogentinae: Hemiuridae) from the ovary of the cod. Canad. J. Zool., 32 (1), 25-29.
- 9) Yamaguti, S. (1971): Synopsis of digenetic trematodes of vertebrates. Keigaku Publ. Tokyo; pp. 1-1074.

日本産ソコダラより得た1新吸虫 *Gonocerca japonica* について

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駿河湾の深海で捕獲されたソコダラの胃から採集した吸虫を新種として *Gonocerca japonica* と命名し、記載した。

本種は体が大きく、腹吸盤の位置が体の中央にあること等で *G. kobayashii* (Layman, 1930) Manter, 1934, *G. lobata* Byrd, 1963, および *G. oregonensis* McCauley, Pequegnat et Brownell, 1970 と異なる。なお

本種の体の外形、腹吸盤の位置は *G. oshoro* Shimazu, 1970 と類似するが、同種より体の大きさが小さく、腹吸盤が体長に比して大きいこと、卵巣に分葉が見られないこと、さらに寄生部位が宿主の卵巣でなく、胃であること等から区別される。

本属内の種への検索表を提示した。