[Jap. J. Parasit., Vol. 27, No. 1, 27-30, 1978]

Metacercariae of Genus *Steganoderma* (Trematoda) in a Crab, *Chionoecetes opilio* (O. Fabricius), from Northern-Sea

NOBORU KAGEI† TOHSHI KON§

(Received for publication; October 24, 1977)

The present paper deals with the morphological descriptions and taxonomic problems of the metacercariae of the Genus *Steganoderma* (Trematoda) found in the muscle of a crab (Japanese name; Zuwaigani), *Chionoecetes opilio* from Northern-Sea.

Materials and Methods

Crab, *Chionoecetes opilio* (O. Fabricius), collected in Northern-Sea at Summer 1975, was brought by an inhabitant to Fukui Prefectural Fisheries Experimental Station, as she found many spherical worms in the muscle of this crab (arrow at Photograph 1).

In the laboratory of the Institute of Public Health, the formalin-preserved crabs were disected carefully with a fine needle under a dissecting microscope, and the metacerceriae were picked up. The metacerceriae were liberated from the cysts. After being washed and macerated in tap water for 24 hours, they were put on the slide-glass with glycerin-alcohol and were carfully flattened under the pressure of a cover slip. These pressed worms were then stained with Delafield's hematoxylin solution and mounted in Canada balsam. A part of metacercariae liberated from the cyst was used for serial section and the sections were stained with hematoxylin and eosine. Drawings were made with the aid of a microscope projecter (UP-360 of Olympus KK).

Description

Steganodermatinae; Trematoda. Cysts large, 1.80–2.04 by 1.90–2.18 mm (Photograph

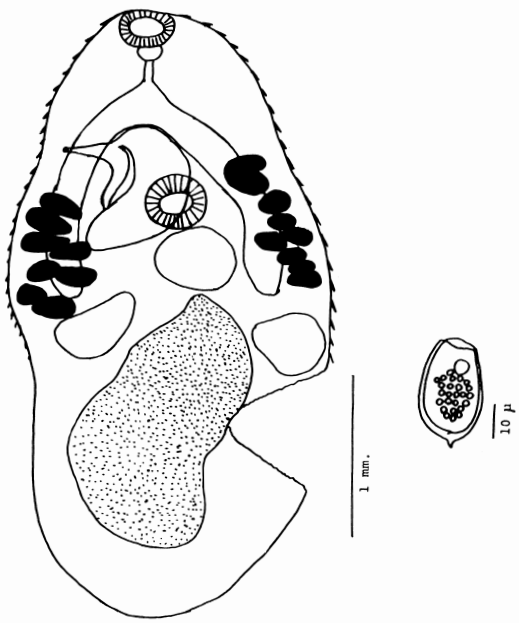


Fig. 1 Left: Metacercaria of *Steganoderma* from the muscle of *Chionoecetes opilio* (ventral view). Right: Egg.

† *Division of Parasitology, the Institute of Public Health, Tokyo, Japan*
§ *Fukui Prefectural Fisheries Experimental Station, Tsuruga, Japan*

2), with thick cyst wall (W at Photograph 3). Metacercaria (Figure 1) flattened eliptical, wide at middle, gradually tapering towards either end, under the pressure of cover-glass, spinulate, length 3.74 mm, width (maximum) 1.84 mm. Oral sucker subterminal, 220 by 278–328 μ (0 at Photograph 4). Acetabulum displaces somewhat forward from middbody, distance from center of sucker to anterior end of body 1.18 mm; 279–340 by 360 μ in size (A at Photograph 4). Prepharynx absent. Pharynx small, 80 by 140 μ in size, directly adjacent to oral sucker. Esophagus well marked short, 140 μ in length. Ceca characteristically short, reaching to posterior end of vitellaria. Reproductive organs well developed; Ovary (400 by 480 μ in size) side by side at medial behind of acetabulum but before testes; testes symmetrical on each side of body, immediately behind cecal ends (280–380 by 440–480 μ in size). Cirrus pouch (940 by 360 μ) with seminal vesicle at base, situated between acetabulum and intestinal bifurcation. Genical pore submarginal, just lateral to left cecum. Uterus with a few unsymmetrical immature eggs (arrows at Photograph 6) filling posterior end, size of eggs 26.9–37.7 μ by 18.8–26.1 μ with opacule of 11.2–14.5 μ wide; brownish color, with mucron at the posterior end (Photograph 7 and Fig. 1). Vitelline large lateral, follicles (120–172 by 225–320 μ), unequal in number on right and left side of body, 9 to 12, extending longitudinally from the level of anterior margin of the acetabulum to the testes (Photograph 6). Excretory vesicle (1.6 mm by 0.9 mm) succular, reaching to near ovary.

Discussion

The species of Genus *Steganoderma* was first described by Stafford (1904, *S. formosum*) from the intestine of halibut off Atlantic coast of Canada. Another 9 species; *S. messjatzevi*, *S. spinosum*, *S. atherinae*, *S. elongatum*, *S. hemiramphi*, *S. nitons*, *S. retroflazum*, *S. parexoceeti* and *S. spndylisomae*; were then found by many authors (Yamaguti, 1958). Yamaguti (1958) divided this genus into two subgenus by the position of testes; subgenus *Steganoderma*, ceca reaching testes or not; subgenus *Lechithostaphylus*, ceca extending further backward than testes.

From the structure described the present species should be placed in the subgenus *Steganoderma*. In the subgenus *Steganoderma* three species are included; *S. formosum* Stafford, 1904 from the intestine of *Hippoglossus hippoglossus* and *Paralichthys obongus* in North America, *S. messjatzevi* (Issaitschikow, 1928) from *Hippoglossoides platessoides* in Russian Arctic and *S. spinosum* (Poljansky, 1955) from the intestine of *Anarrhinchas lupus* in Russia.

The life history of this *Steganoderma* has been known partially with *S. messjatzevi* (Issaitzchikov, 1928) Manter, 1947, and nothing is known so far for any other member of the subfamily Steganodermatinae. The metacercariae of *S. messjatzevi* were found encysted by Uspenskaja (1952, 1960, 1963) in the muscles of botton-living crustacean (*Sclerocrangen boreas*, *Sabinea septemcarinata* and *Pagurus pubescens*) of Barents Sea. However, this species differs from *S. messjatzevi* in the size of worms, especially the oral and ventral suckers, and ovary. Although no life history of *S. spinosa* and *S. formosum* has been known, the present metacercaria is larger than the adult worms of *S. spinosa* and *S. formosum*.

The present paper appears to present the first finding of metacercaria from the crabs, *Chionoecetes opilio*.

References

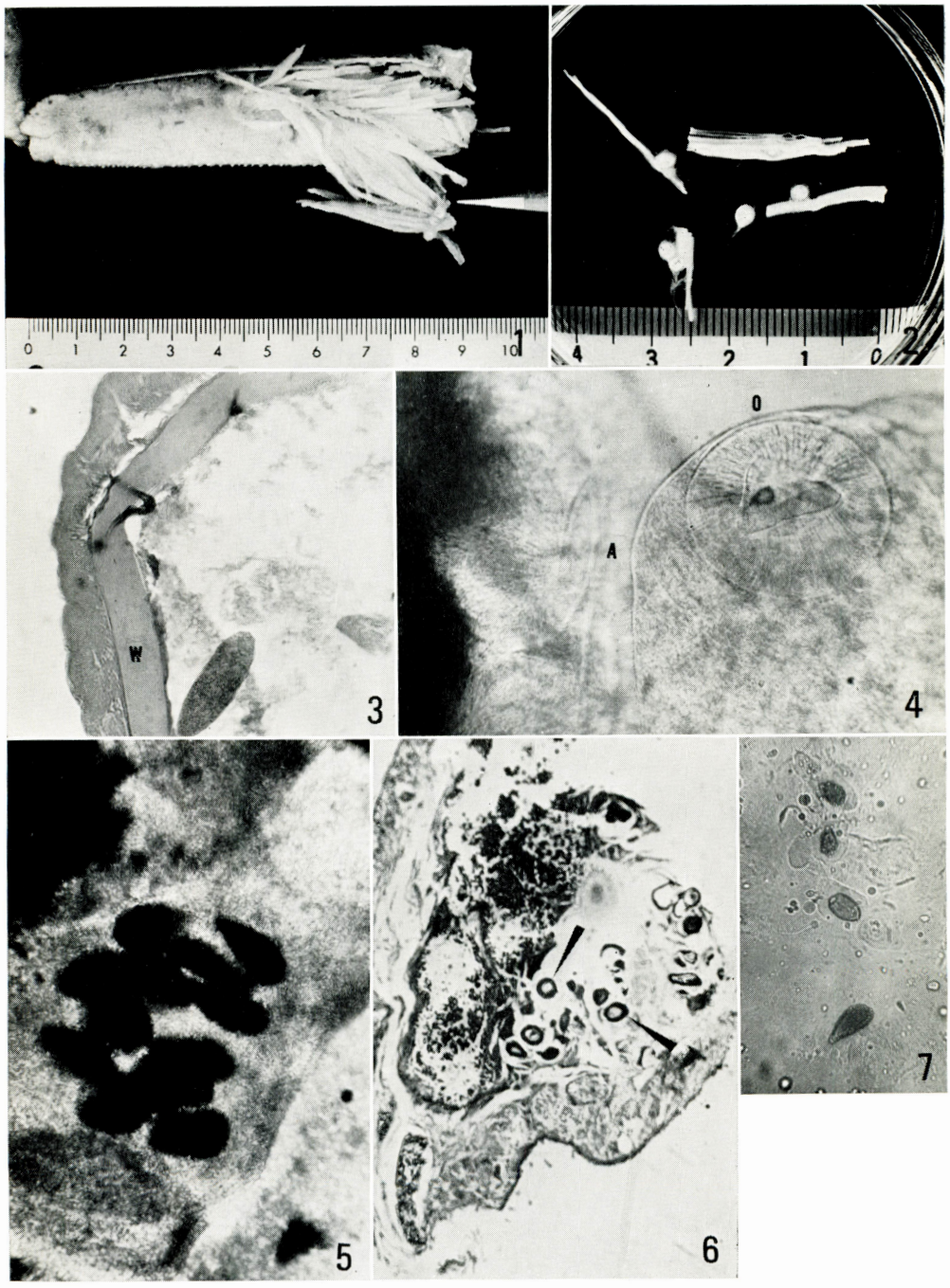
1) Polyanskii, Y. I. (1966): Parasites of the fish of the Barents Sea. Jerusalem. 158 pp.
2) Stafford, J. (1904): Trematodes from Canadian fishes. Zoologischen Anzeiger, 27, 481–495.
3) Uspenskaja, A. V. (1952): Some information about life cycle of *Nordosttrema messyatzevi* Issaitschikov. Dokl. Akad. Nauk SSSR, 85, 1419–1421.
4) Uspenskaja, A. V. (1960): Parasitofauna des Crustacea Bentiques de la mer de Barents. Ann. Parasit., 35, 331–342.

5) Uspenskaja, A. V. (1963) : Parasitofauna des crustaces bentiques de la mer Barents. Akad. Nauk SSSR. Moskova, Leningrad, 127 pp.
6) Yamaguti, S. (1934) : Studies on the helminth fauna of Japan. pt. 3. Avian trematodes II. Jap. J. Zool., 5, 545-583.
7) Yamaguti, S. (1958) : Systema Helminthum. Vol. I. The digenetic trematodes of vertebrates, New York.
8) Yamaguti, S. (1975) : Synoptical review of life histories of digenetic trematodes of vertebrates. Keigaku Publishing Co., 33 P.

北洋産ズワイガニにおける *Steganoderma* 属吸虫メタセルカリア

影　井　　昇
（国立公衆衛生院寄生虫研究室）
今　　攸
（福井県水産試験場）

北洋産ズワイガニの筋肉内に見出されたメタセルカリアをグリセリン・アルコールによる透徹，並びに染色標本に作製して検討した結果，*Steganoderma* 属吸虫であると同定された．ズワイガニからの *Steganoderma* 属吸虫メタセルカリアの報告は始めてである．



Photograph 1—7