

Research Note

**The First Record of *Philometroides* sp. Vomited from a Man in Japan**

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Two common genera in the family Philometridae are *Philometra*, with a smooth cuticle, and *Philometroides*, with a cuticle covered with bosses (Schumit and Roberts, 1977). They are the tissue parasites of fishes and are commonly known as “fish filaria” so that they are considered as the food-borne nuisances defined in the Food Sanitation Law of Japan (Kagei, 1987). Although an accidental ingestion of these parasites by human beings would occur, actual case has never been reported. Here we report the first record of *Philometroides* sp. vomited from a man in Japan.

The patient is an 82 year-old male, born and grown in a town near Miyazaki City, and is now living in a senior citizen's home close to his place of birth. He is in good health and has no particular past history of diseases. On the early morning of March 24, 1991, he suddenly felt nausea and vomited several times. After vomiting, he felt that something like a piece of string stuck in his throat, and eventually he pulled out a string-like creature by himself. He became well and had no further symptoms thereafter. Since the creature looked like a parasite, he brought it to the nearest hospital, and the physician immersed it in buffered formalin and

sent to the Department of Parasitology, Miyazaki Medical College, for identification. Laboratory examinations for the patient was not performed. He had no solid memory as to what he had eaten the day before the onset of the symptom.

The worm was pale reddish brown in color and its size was 425 mm in length and uniformly about 1.9 mm in width (Fig. 1). The head (Fig. 2) and the tail (Fig. 3) were bluntly pointed. Numerous flat papilliform protuberances giving rise to a conspicuous bossy appearance were seen irregularly scattered all over the cuticular surface (Figs. 2, 3, 7–11). The vulva was not identified. By light-microscopic observations of cross sections of the body (Fig. 4), the cuticle was relatively thick and the parietal muscle cells were well developed, particularly on the dorsal and ventral sides. The uterus, which occupied the most part of body cavity, contained numerous larvae and eggs of various maturation stages (Fig. 5), indicating that the parasite was a mature female and was viviparous. The larvae were about 0.5 mm in length with a long, slender tail, and had a filariform esophagus (Fig. 6). From these morphological characteristics, the parasite was identified as *Philometroides* sp., most likely be *P. seriolae*.

When the parasite was sent to the Department of Parasitology, Miyazaki Medical College, it was thought as a hairworm because its gross appearances closely resembled to those of hairworms. Over 30 cases of an accidental infection with hairworms were reported from various places of the world (Ali-Khan and Ali-Khan, 1977) and 5 cases were found in Japan, all of which were identified as *Gordius* sp. (Kagei *et al.*,

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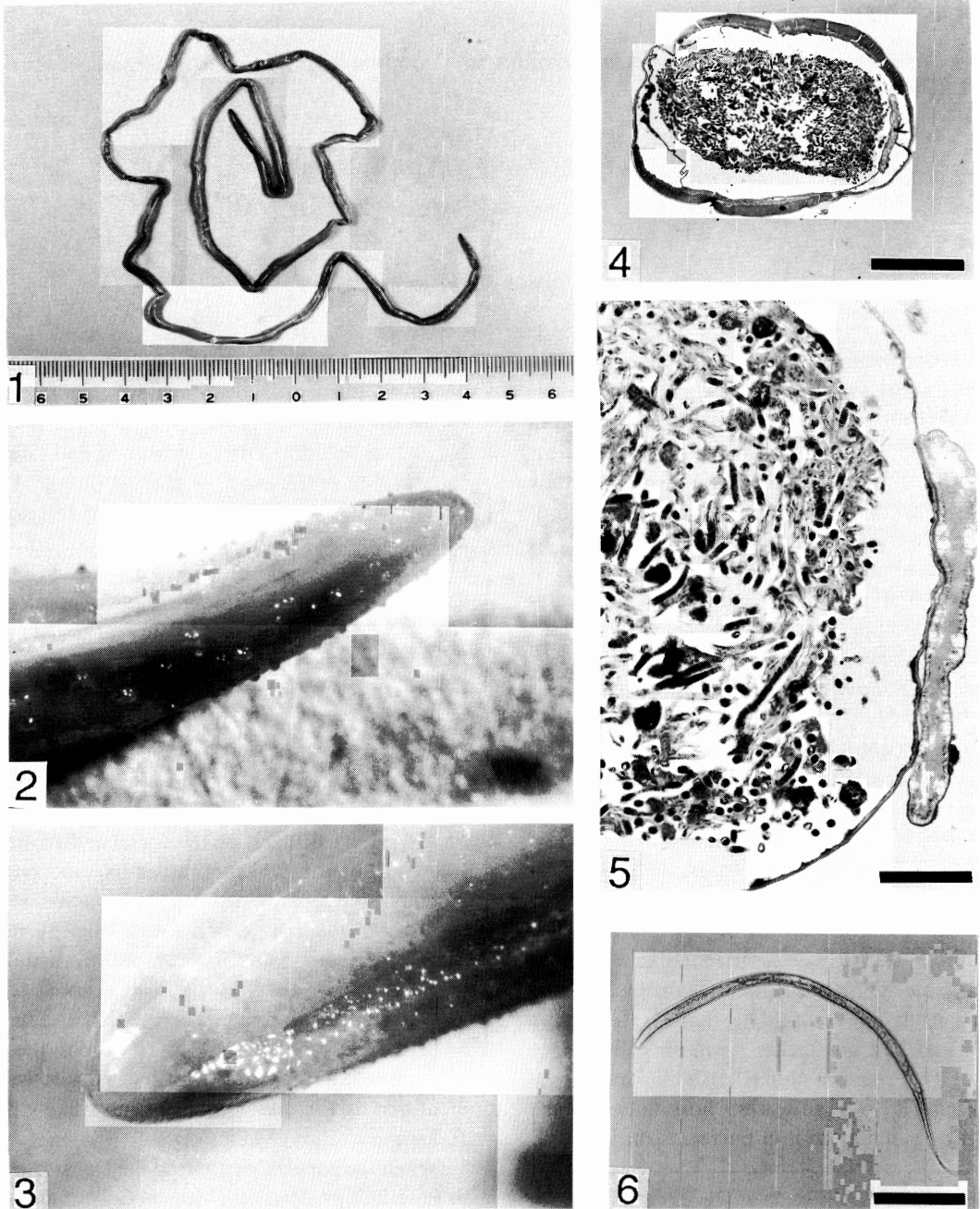


Fig. 1 Whole body of the worm.

Fig. 2 Anterior part of the worm.

Fig. 3 Posterior part of the worm.

Fig. 4 A cross section of the central part of the worm. H.E. stain, Scale bar = 500  $\mu$ m.

Fig. 5 High power view of the uterus showing numerous larvae and eggs of various maturation stages. Scale bar = 100  $\mu$ m.

Fig. 6 Embryo (the first stage larva) dissected out from the uterus. Scale bar = 100  $\mu$ m.

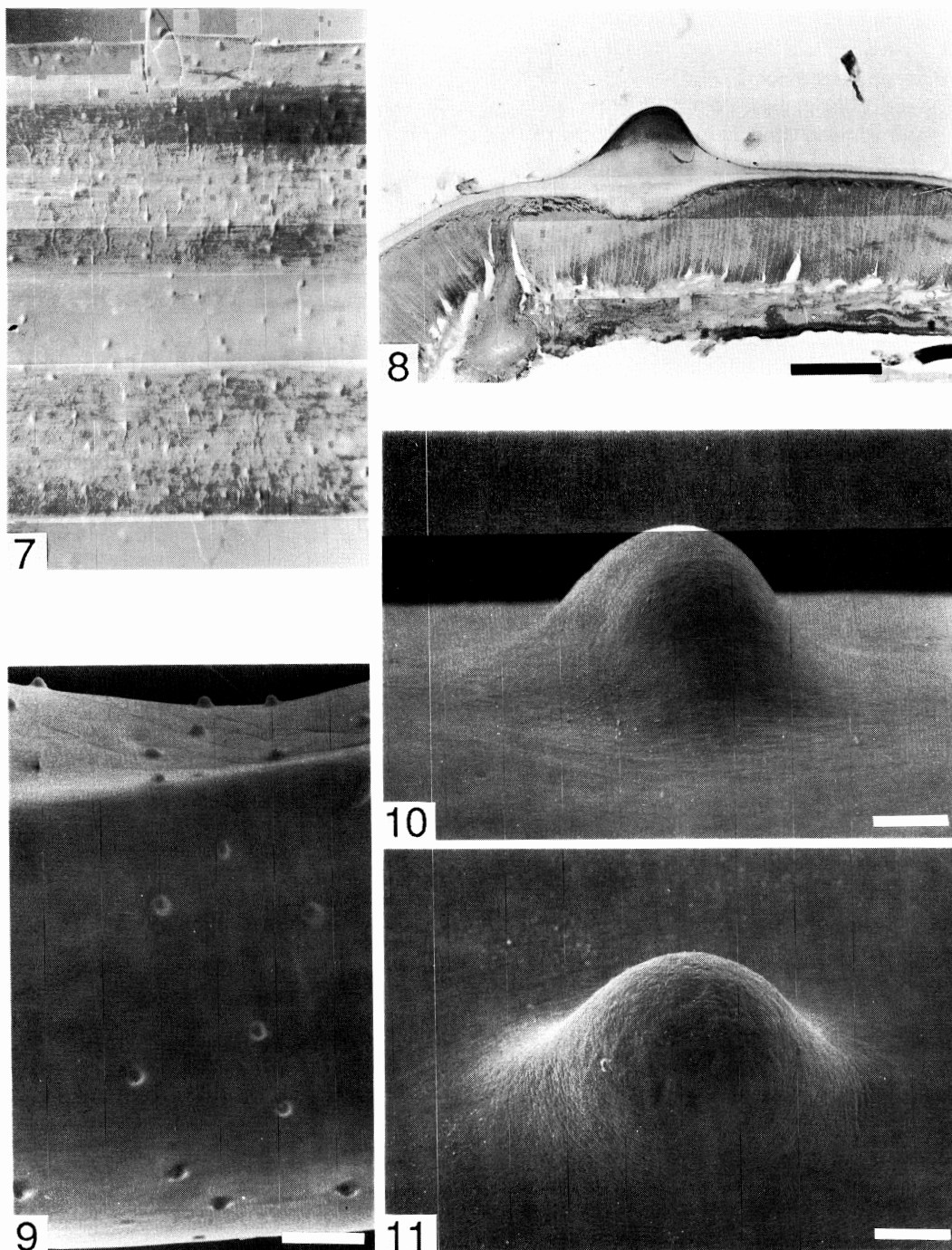


Fig. 7 Cuticular surface showing randomly distributed bossy protuberances. A small piece of the parasite body was cut open longitudinally and mounted on the slide glass. Underneath of the dark part are muscular layers.  
 Fig. 8 Cross section of the bossy protuberance. H.E. stain, Scale bar = 50  $\mu\text{m}$ .  
 Fig. 9 Scanning electron microscopic view of bosses. Scale bar = 200  $\mu\text{m}$ .  
 Fig. 10 Lateral view of the bossy protuberance by SEM. Scale bar = 1  $\mu\text{m}$ .  
 Fig. 11 Top view of the bossy protuberance by SEM. Scale bar = 1  $\mu\text{m}$ .

1966; Ichihara *et al.*, 1967; Yoshimura *et al.*, 1977; Kagei, 1977; Uchikawa *et al.*, 1987). Since *Gordius* spp. have smooth cuticular surface, they can be easily distinguished from *Philometroides* spp. reported here. Other hairworms, *Chordodes* spp., which are commonly found in mantes, *Tenodera* spp., in Japan, have papillae and/or areolae on the cuticular surface so that they are morphologically much more similar to *Philometroides* spp. However, they can be distinguished each other because *Chordodes* spp. are oviparous while *Philometroides* spp. are viviparous. Although a guinea worm, *Dracunculus medinensis*, is viviparous and is morphologically as well as taxonomically close to *Philometroides* spp, it usually parasitizes in the subcutaneous tissue of the lower extremities of human beings. Furthermore, the cuticular surface of *D. medinensis* is smooth (Schmidt and Roberts, 1977) even when it was examined by scanning electron microscopy (Kobayashi *et al.*, 1986).

*P. seriola* was first very inadequately described by Ishii (1931) under the provisional name of *Filaria seriola* and then described in detail by Yamaguti (1935) as a new genus. This parasite is commonly found in the muscles of yellowtails, *S. quinqueriata* (Egusa, 1978) and is well-known as the nuisance to cause reduction of the commercial value of the fish. The incidence of this parasite in yellowtails was extremely high even in the cultivated ones (Nakajima and Egusa, 1969), though the current status is not clear. Although several other *Philometroides* spp., such as *P. anguillae*, *P. carassi*, and *P. cyprini*, are distributed in Japan, they are the parasites of fresh water fishes and are rare these days. Related to the habit of the Japanese people of eating raw slices of fish flesh ("Sashimi"), a yellowtail is one of the most commonly consumed fish in Japan so that a chance of ingesting *P. seriola* should be high. However, such a case has never been reported before, probably because this parasite is so big that it may be easily found and picked out during cooking, or, even if it was ingested, the body would be broken down during chewing. Physicians as well as parasitologists in Japan should be alert for the presence of such a case.

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