

Unidentified Filarioid Worm Discharged into Human Urine in Japan

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Abstract

A male filarioid worm was found in the urine of a 48-year-old woman in Kagoshima, Japan. The worm was 103.52 mm long and milky white in color. The spicules were equal in length and similar in morphology. Caudal alae and papillae were absent. These morphological features are different from those of any filarioid species reported previously.

Key words: filarioid worm, discharged into urine, human case

Introduction

In general, eight species of filariae are recognized to be parasitic in man. Recently, however, several animal filariae have become known as zoonoses in many parts of the world. These zoonotic filariae have been reported from human eye (Botero *et al.*, 1984), subcutaneous tissue and pleural cavity (Beaver and Orihel, 1965), lymph node (Rosenblatt *et al.*, 1962) and abdominal cavity (Rim, 1976; Tada *et al.*, 1979; Yoshimura *et al.*, 1980; Akao, 1982). Most of the worms were found in the histological sections of inflammatory nodules suspecting malignant tumors. Complete worms were rarely obtained.

In the present study, we describe a case of human infection with filarioid worm in which a complete male worm was discharged into the urine. This worm seems to belong to a previously unreported species.

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The patient

The patient was a 48-year-old woman living in Shimo-Koshikijima, which is an offshore island to the west of Kagoshima Prefecture, southern Japan and *Wuchereria bancrofti* had been prevalent there until 30 years ago. Our patient had been administered with several courses of diethylcarbamazine (DEC) for two years from 1957 for the treatment of chyluria, though microfilariae were not detected in her blood. The chyluria was not cured completely and it has recurred since 1972. The patient noticed fibrin-clots in her urine and used to examine it herself. On September 1986, she found a long white slender worm moving in the mass and brought it to a clinic. She felt severe general fatigue just before and after discharge of the worm. No microfilaria was found in the urine nor peripheral blood, but elevated serum antibody against *Dirofilaria immitis* antigen was detected by immunoelectrophoresis. Other laboratory blood tests gave normal results and eosinophilia was not observed. She had not been abroad. The chyluria remained after the discharge of the worm.

The parasite

The worm preserved in 10% formalin solution was milky white in color and 103.52 mm long by 0.51 mm wide (Fig. 1). The buccal

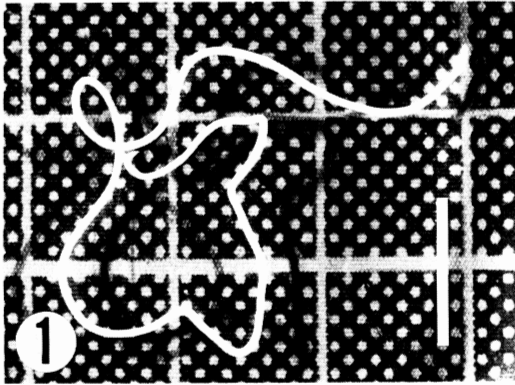


Fig. 1. Whole body of a male filarioid worm discharged into human urine (Bar shows 1 cm)

cavity was much reduced. The mouth opening was oval but the arrangement of the cephalic papillae was not clearly defined. The esophagus was cylindrical, not divided and 5.38 mm long by 0.29 mm wide. The nerve ring and excretory pore were at 0.28 mm and 0.52 mm from the anterior extremity, respectively (Fig. 2). The cuticular surface was smooth without bosses, ridges or striations. The tail was coiled and 0.73 mm long. It tapered gradually from the anus and the tip was rounded. The caudal alae and the caudal papillae were absent. The spicules were brown in color and were equal in size, 0.61 mm by 0.08 mm. They were similar to one another and short, thick and stout (Figs. 3–5). There was no gubernaculum.

Discussion

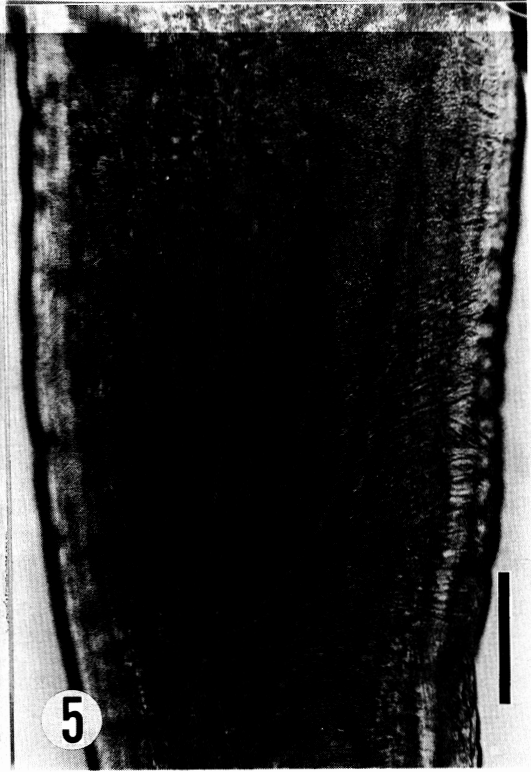
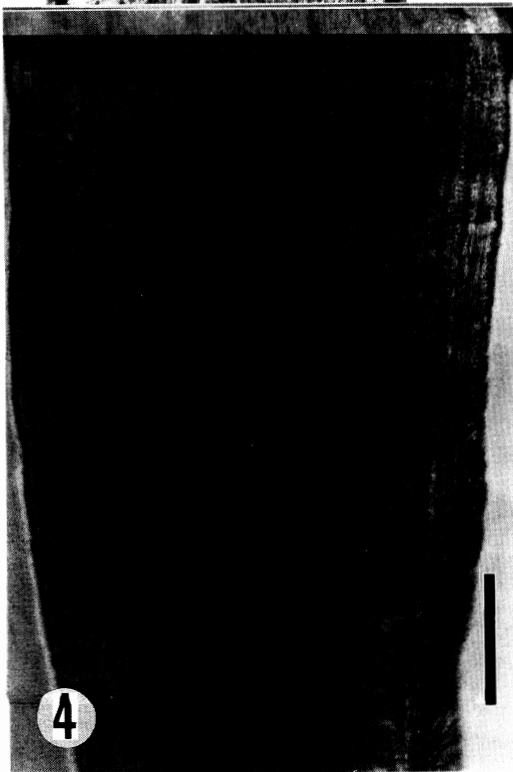
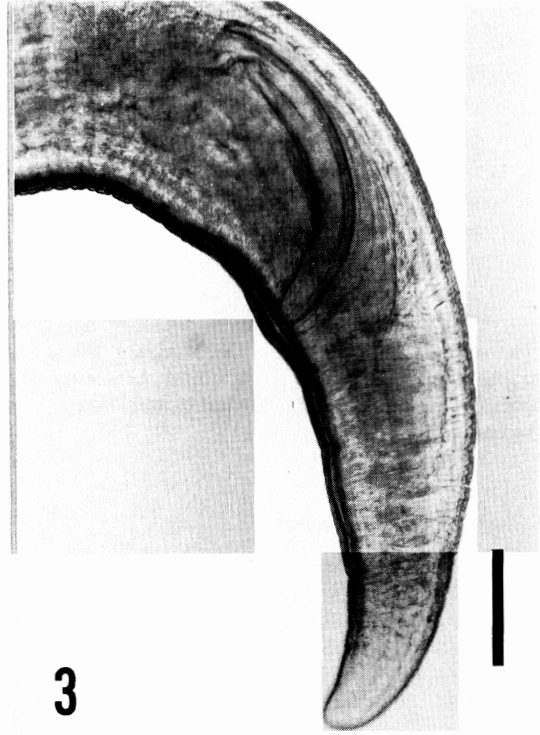
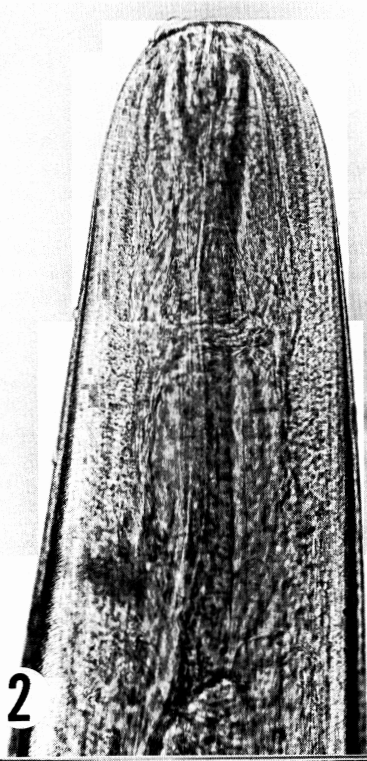
Many cases of human and zoonotic filarial infections have been reported in many parts of the world and the worms have been recognized as belonging to the subfamily *Dirofilarinae* or *Onchocercinae*. Well developed caudal alae and large caudal papillae are characteristics of *Dirofilarinae* and the spicules in *Onchocercinae* are unequal and dissimilar. The morphological

features of the present worm, in which the caudal alae and papillae are absent and the spicules are equal in size and morphology, indicate that it is different from subfamilies *Dirofilarinae* and *Onchocercinae*. Further, the worm is also different from any filarioids which have been reported in Japan from mammals, birds and reptiles. The present worm seems to belong to a new filarioid species.

According to the keys proposed by Anderson and Bain (1976), the present worm should be classified in the Order Spirurida, suborder Spirurina and it can be placed in the superfamily Aprocotoidea or Filarioidea. However it is impossible to determine the superfamily in which this male worm should be placed, because the two superfamilies in the keys are separated according to whether they are oviparous or viviparous; Aprocotoidea lay eggs and Filarioidea produce microfilariae. The features of this worm are most similar to the subfamily Aprocotinae in Aprocotoidea and the subfamily Splendidofilarinae in Filarioidea which have not been reported in Japan. More detailed identification must be left to further investigation, because only one male specimen from man has been observed and female worms are still unknown.

This is the first reported human case in which a filarioid worm has been discharged into the urine of man. There have been only four reported human cases in which filarioid worms were found in the abdominal cavity. In the first case, reported in Korea, a living immature female *Dirofilaria* was found in the abdominal cavity (Rim, 1976). In this case, the patient had also been diagnosed as having filariasis and had been treated with DEC two years before. Three other worms had been found in nodules on the mesentery (Tada *et al.*, 1979), on the uterine wall (Yoshimura *et al.*, 1980) and in an unknown site (Akao, 1982) in Japan and all

Figs. 2–5. A male filarioid worm discharged into human urine. 2. Anterior end showing reduced buccal cavity, esophagus and nerve ring (Bar shows 0.1 mm). 3. Posterior end showing the shape of caudal extremity and spicules, lateral view (Bar shows 0.2 mm). 4. Preanal region showing the base of spicules, ventral view (Bar shows 0.1 mm). 5. Preanal region showing the tip of spicules and the absence of caudal alae and papillae, ventral view (Bar shows 0.1 mm).



these worms were identified as *Dirofilaria*. The present patient showed no clinical symptoms but severe general fatigue just before and after discharge of the worm. The chyluria may not be due to the worm because it has continued after the discharge. It is possible, however, that the renal failure of the patient allowed migration of the worm into the urinary tract.

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