**[Research Note]**

**Soboliphyme baturini** (Nematoda: Dioctophymatidae) infection in a domestic cat suffering severe diarrhea

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The genus *Soboliphyme* is a group of parasitic nematodes found in the families Soricidae and Musteidae in the Holarctic Region, including Japan. We isolated a member of the genus, *S. baturini*, from a domestic cat (*Felis catus*), which had suffered from severe diarrhea. This is the first local record in a cat in Japan. We nematodes found in the families Soricidae and Musteidae in the Holarctic Region, including Japan. We isolated a member of the genus, *S. baturini*, from a domestic cat (*Felis catus*), which had suffered from severe diarrhea. This is the first local record in a cat in Japan. We

Key words: diarrhea, domestic cat, *Soboliphyme*

The genus *Soboliphyme* (Nematoda: Enoplea: Dorylaimia: Dioctophymatida: Dioctophymatina: Soboliphymatida: Soboliphymatidae) Petrov, 1930 (De Ley and Blaxter, 2002) is a group of parasitic nematodes found in the families Soricidae and Musteidae in the Holarctic Region, including Japan (Asakawa et al., 1988; Bezdek, 1942; Karpenko et al., 2007; Sato et al., 1999). We isolated a *Soboliphyme* nematode from a domestic cat (*Felis catus*; Felidae) when we dewormed it. This is the first local record of the nematode parasitizing a cat in Japan.

In November 2015, an immature male cat (ca. 5 months old, body weight 1.25 kg) kept in Achi Village, Nagano Prefecture (35°26′37.7″N, 139°15′20″E) suffered severe diarrhea with blood and several tapeworm-like substances. The cat was taken to an animal hospital, and administered Droncit® (Bayer Yakuhin, Ltd, Tokyo, Japan; 5.7 mg/kg, s.c. praziquantel). About a month later, its symptoms almost disappeared, but some trichurid- or capillarid-like eggs, 97 μm in length and 30 μm in width, were detected in a fecal examination. Thus, Milbemycin® A (Novartis Animal Health K. K., Kobe, Japan; 0.5 mg/kg milbemycin oxime p.o.) was given.

However, because the eggs were still present in the feces, Broadline® (Nippon Zenyaku Kogyo Co., Ltd, Koriyama, Japan; 0.9 ml, s.c., including 83.0 mg/kg fipronil, 100 mg/kg (S)-methoprene, 83.0 mg/kg praziquantel, 4.0 mg/kg eprinomectin), was administered; soon after, six nematodes were extracted from the patient. No eggs were observed at this time.

The parasitic nematodes were fixed and preserved in 70% ethanol, and examined microscopically in lactophenol solution. Measurements and drawings of the nematodes were made with the aid of a microscope drawing attachment (Olympus Model BH2-DA). The specimens were deposited in the Wild Animal Medical Center, Rakuno Gakuen University, Hokkaido, Japan (WAMC/AS no. 15890).

All the nematodes collected were female. In the five nematodes measured, the body length was 2.5–3.9 cm (mean 3.36 ± 0.56 cm) and the width 1.2–1.6 mm (mean 1.44 ± 0.13 mm). A well-developed sucker was observed in the anterior part of the body, with a diameter of 1.1–3.3 mm (mean 2.47 ± 0.74 mm, Fig. 1). Based on its peculiar morphology and measurements, the nematode was identified as *Soboliphyme baturini* (Bezdek, 1942; Karpenko et al., 2007; Sato et al., 1999).

*Soboliphyme baturini* has mainly been recorded in musteid mammals, not only in the Japanese endemic species, *Mustela ten*, but also in the North American species *M. vison* (Asakawa et al., 1988, 2009). However, this nematode species has occasionally been found in domestic cats in Europe (Koehler et al., 2007). Therefore, although this is not the first case of detection in a cat, it is

![Fig. 1. Females of *Soboliphyme baturini* taken from a domestic cat. A: Whole bodies (bar, 10 mm), B, C: Anterior and posterior ends, respectively (bar, 1 mm), D, E: Eggs with double shells and without the outer shell, respectively (bar, 50 μm)](image_url)

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only the second case reported in the world, and is the first report of *S. baturini* in a felid in Japan. This infection probably occurred after the accidental intake of an intermediate host (*e.g.*, freshwater invertebrate) or a paratenic host (*e.g.*, small mammal) during the nematode life cycle (Anderson *et al*., 2000; Karpenko *et al*., 2007).

Remarkably, it has been reported that an ulcer was caused when a ferret was sucked by *S. baturini* (Kalpenko *et al*., 2007). Therefore, it is possible that the symptom of severe diarrhea in the present case was possibly caused by the parasitism of *S. baturini*. It appears that the deworming effect of a single dose of Ivermectin was insufficient to remove the nematodes, which were successfully treated with Broadline. The eggs of the genus *Soboliphyme* have a double-shell structure, consisting of inner and outer shells, which allows the proper diagnosis of this disease in animals parasitized by generic nematodes. However, if the outer shell is absent during a fecal examination (Fig. 1), a misdiagnosis of capillarid nematodiasis is possible.

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**LITERATURE CITED**


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