

Research Note

**A Case Report of Bolus Intestinal Obstruction due to Massive Infection
with *Ascaris lumbricoides***

KATSUHISA OSHIKAWA¹), SEIICHI TOYODA²), YOICHIRO HORII³)
AND YUKIFUMI NAWA³)

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Ascariasis used to be the commonest parasitic disease in Japan and over 60% of the nation had been suffered from infection with this intestinal nematode in late 1940s (Yamaguchi, 1988). In accordance with the improvement of general public health conditions and by effective mass examination and treatment, ascariasis had become rather a rare parasitic disease. However, sporadic cases, especially biliary ascariasis with acute abdomen (Kisu *et al.*, 1989), are still reported from various places of Japan. In addition, heavily infected cases are also sporadically seen in the rural areas (Kojima *et al.*, 1978; Katada *et al.*, 1991; Nishiyama *et al.*, 1991) mainly due to delayed improvement of sanitary system. Here we report such a typical case of bolus intestinal obstruction caused by massive infection with *Ascaris lumbricoides*.

The patient is a 3.5 year-old boy, born and grown in Shiiba-Village, Miyazaki Prefecture, and is living together with his two elder sisters (5 and 7 year-old), parents, grand parents, and a grand ant. His father is a hunter and his whole family are engaged in vegetable farming and had

used human excreta as fertilizer until 5 years ago. He has a past history of asthmatic bronchitis with eosinophilia (Löffler's syndrome) in Feb. 1991.

On the evening of July 9, 1991, he suddenly complained of abdominal pain, vomiting, soft stool, and fever. Next day he was admitted to the regional hospital because acute colitis was suspected. Physical examination revealed that he was a normal proportioned boy 95 cm tall and weighed 13.0 kg, had dried skin, and appeared unhappy. The throat was moderately injected. The abdomen was slightly distended and was diffusely but mildly tender. The bowel sound slightly decreased. Laboratory data showed slight dehydration and inflammation; ketone body (\pm) in urine, WBC 12,600/mm³ (Eo <1%), ESR 30 mm/60 min, CRP (+ +). Occult blood was negative by stool examination. Other laboratory data were within normal range. By plane abdominal roentgenography (Fig. 1a) multiple linear shadows were noted on upper right abdomen. His abdominal symptoms did not improve after dripping of antibiotics, and he vomited one white worm of about 25 cm length on July 12. On July 13, plane abdominal roentgenogram (Fig. 1b) revealed multiple niveau together with multiple linear shadows. Since bolus intestinal obstruction due to ascaris lump was suspected at this stage, he was transferred to the emergency ward of the Miyazaki Prefectural Hospital.

After laparotomy by mid-line incision, small amount of ascites was detected and two

¹)Shiiba National Insurance Hospital, Shiiba, Miyazaki 880, Japan.

²)Division of Surgery, Miyazaki Prefectural Hospital, Miyazaki 880, Japan.

³)Department of Parasitology, Miyazaki Medical College, Miyazaki 889-16, Japan.

押川克久 (椎葉村国民健康保険病院内科)

豊田清一 (県立宮崎病院外科)

堀井洋一郎 名和行文 (宮崎医科大学寄生虫学講座)

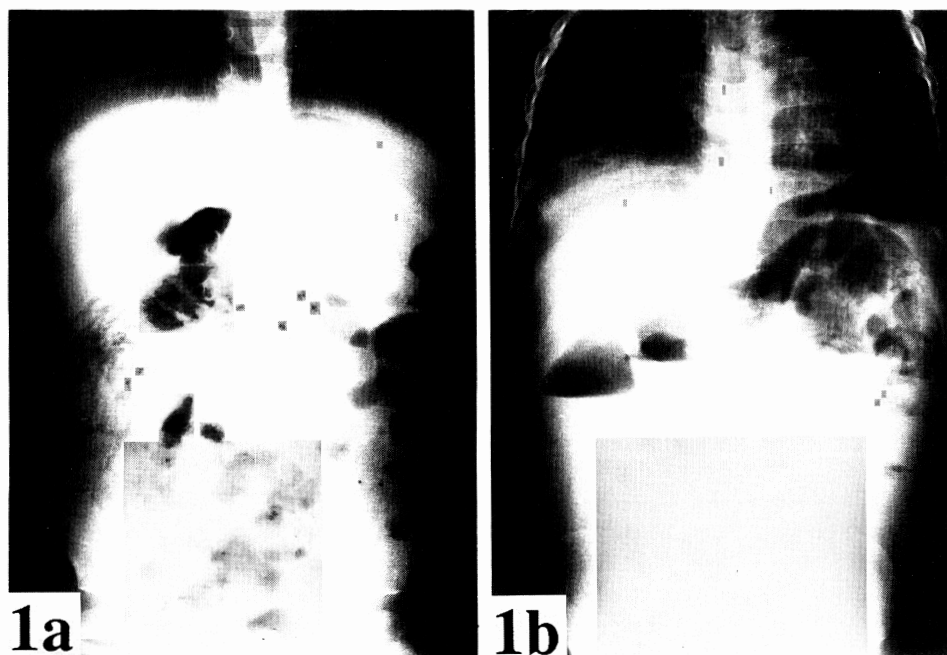


Fig. 1 Plane abdominal roentgenogram.

Note multiple linear shadows on upper right lateral abdomen in Fig. 1a taken on the day of admission and multiple niveau together with multiple linear shadows in Fig. 1b taken 3 days after admission.

obstructed sites, one 30 cm distal from Treitz's ligament and the other 50 cm proximal from ileocecal junction, were identified. The obstructed sites were strongly distended so that purgation by milking was impossible. Therefore, about 3 cm longitudinal incision was made at the each site and the mass of parasites were removed. About 60 worms were recovered from the jejunum and about 30 worms from ileum. All parasites (Fig. 2) were immersed in buffered formalin and brought to the Department of Parasitology, Miyazaki Medical College, for parasitological examination. After surgical treatment, he was treated with 360 mg of pyrantel pamoate and 3 additional worms were expelled out on July 17. Clinical course was favorable and he was discharged from the hospital on July 25. Since ascariasis sometimes concentrated within a family (Morishita, 1953), stool examination was carried out for the family members of the patient and his two sisters were positive for *Ascaris* eggs. They were effectively treated with pyrantel

pamoate.

Based on the morphological characteristics, the parasites were identified as *Ascaris lumbricoides*. Their number and the length were summarized in Table 1. In addition to 47 females and 44 males examined, one worm was vomited before surgery and three worms were purged by anthelmintic treatment, which were kept aside as the sample specimen and not measured. Thus, a total of 95 worms were recovered so far from the patient. The average size of 47 female worms was 24.3 ± 3.6 cm (mean \pm SD) with the range of 14.9–29.6 cm, while that of 44 male worms was 17.0 ± 2.8 cm (mean \pm SD) with the range of 8.8–21.1 cm. As shown in Fig. 3, the size distribution of both males and females showed biphasic pattern.

Recent epidemiological survey revealed that the incidence of ascariasis in Japan was less than 0.01% (Tei, 1990). Still, sporadic cases of ascariasis with various complications, most of which were biliary ascariasis, have been reported

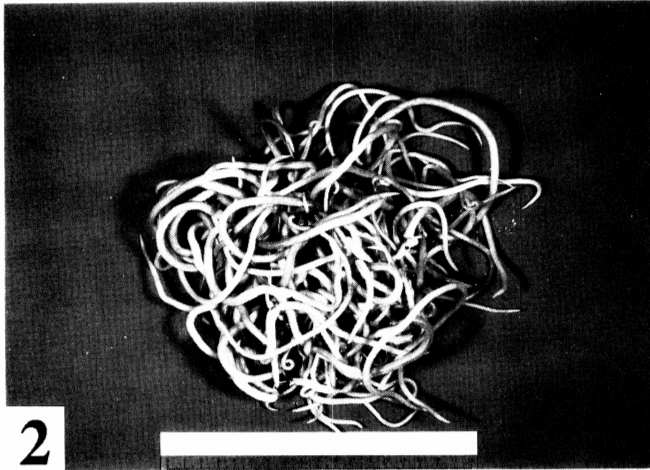


Fig. 2 A mass of *Ascaris lumbricoides* worms removed from the intestine of the patient.

Table 1 *Ascaris lumbricoides* recovered from the patient

	Number	Size	
		range	mean \pm S.D.
Female	47	14.9–29.6 cm	24.3 \pm 3.6 cm
Male	44	8.8–21.1 cm	17.0 \pm 2.8 cm
Expelled	3		
Vomited	1		
Total	95		

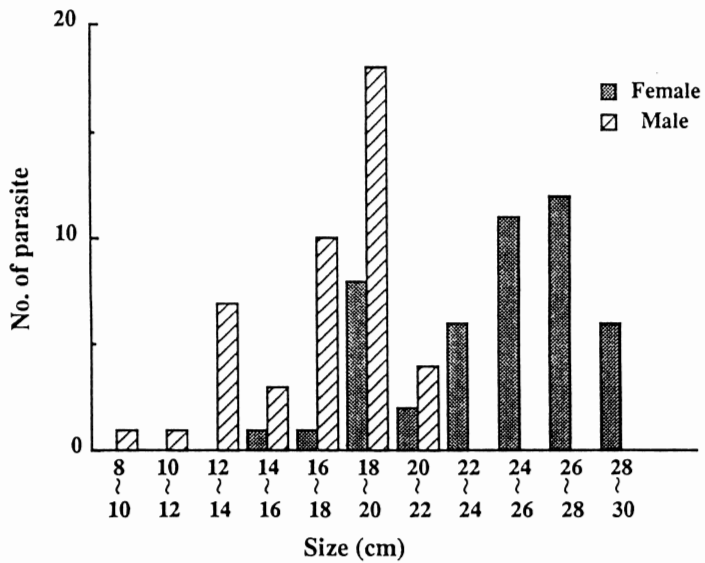


Fig. 3 Size distribution of the parasites.

(Kisu *et al.*, 1989). As the complication of ascariasis, ileus is relatively a minor one even in an endemic era (Maki, 1961). As far as we could gather so far, bolus intestinal obstruction caused by massive infection with *A. lumbricoides* has never been reported during recent 12 years except only one case of spastic ileus case caused by a single worm infection (Matsumura *et al.*, 1989).

The patient reported here suffered from asthmatic bronchitis with eosinophilia (Löffler's syndrome) about 5 months before the onset of abdominal symptoms, indicating that he has had mass infection of the parasite at that stage. Pulmonary complication is commonly observed in an early stage of heavily infected ascariasis (Yoshida, 1991).

In the present study, the size distribution of both male and female worms recovered from the intestine of the patient showed biphasic pattern. According to Morishita (1953), male worms of over 14 cm and female worms of over 20 cm are assumed as fully mature adults. In this respect, the first peak observed in the present study corresponds to immature worms while the second peak corresponds to mature worms. Such biphasic pattern indicates that the patient reported here has had at least two sets of bulk infestation.

In conclusion, the occurrence of such a case indicate that clinicians as well as parasitologists should remind ascariasis as the causative of acute abdomen.

This case was reported orally in the 3rd National Insurance Local Health Care Conference of Miyazaki Prefecture in Oct. 1991, and a part of the results was submitted for publication in the Stomach and Intestine (Tokyo).

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