

FIVE CASES OF ASCARIASIS ENCOUNTERED FROM 1991 to 2000

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Received July 16, 2001

Abstract : We report five cases of ascariasis encountered from 1991 to 2000. Case 1 was a 2-year-old boy with 13 worms found in the gastrointestinal tract; Case 2 was a 49-year-old man who had one worm in the gall bladder and 12 in the gastrointestinal tract; Case 3 was a 50-year-old man from whom a worm was successfully removed using a gastrointestinal fiberscope; Case 4 was a 77-year-old man who spontaneously passed a worm; and Case 5 was a 50-year-old man who vomited a worm. Cases 3, 4, and 5 were infected with only a single worm of *Ascaris lumbricoides*. Although ascariasis is now considered to be a very rare disease in Japan, it is still occasionally encountered. In the process of ascariasis diagnosis, a means other than the detection of eggs in feces may be required, because patients bearing only a single worm are not always positive for ascaris eggs in feces.

Key words: ascariasis, *Ascaris lumbricoides*, biliary ascariasis, gastrointestinal fiberscope

INTRODUCTION

Ascariasis is a representative soil-transmitted intestinal parasitic disease found in warm climates¹⁾. In Japan, it was a major and serious public health problem only a few decades ago; however, the incidence of this disease is now considered to be very rare²⁾. We encountered five cases of ascariasis during the decade from 1991 to 2000. Herein we present those cases and discuss their clinical characteristics.

CASE PRESENTATION

Case 1

A 2-year-boy living in Kashihara city passed a worm, about 10 cm in length, in April 1992; however, *Ascaris* eggs were not found in the feces at that time. After 6 months, another worm was spontaneously passed and the patient was referred to us. The second was 20 cm in length and could be identified as a male adult of *Ascaris lumbricoides*. Many fertilized and unfertilized eggs were also found in the feces. One hundred and forty milligrams of oral pyrantel pamoate was prescribed, and an additional 12 worms of *Ascaris lumbricoides*, 7 females and 5 males, were passed. After the therapy, eggs were absent from feces samples,

but, the patient's mother was found positive for ascaris eggs. A detailed interview revealed that the family often obtained vegetables from their relatives that had been grown with human feces as fertilizer. These vegetables, in a mashed form, had been used to wean the boy from nursing.

Case 2

A 49-year-old man from Mitsue village was hospitalized because of colic pain in the right hypochondrium in September 1992. A laboratory examination revealed leukocytosis (white blood cell $18200/\mu\text{l}$, neutrophil 77%, eosinophil 3%, basophil 0%, lymphocyte 15%, monocyte 5%) and abnormal liver function (AST 113 IU/ml, ALT 58 IU/ml, ALP 12.9 KA, gamma GTP 97 IU/ml). An immediate abdominal ultrasonograph (US) revealed a moving worm-like structure in the gall bladder. Many eggs of *Ascaris lumbricoides* were found in the feces specimen. As a first treatment step, 500 mg of pyrantel pamoate was given orally to remove the worms in the gastrointestinal tract and 8 worms were obtained in the defecation. On US examination 2 days after the treatment, the worm-like structure could not be observed in the gall bladder. Further, no worm was found in the biliary tract by an endoscopic retrograde cholangiopancreatogram (ERCP) and eggs in the feces became negative. Infection with *Ascaris lumbricoides* was probably caused by vegetables raised by organic farming, though the use of human feces as fertilizer was not evident.

Case 3

A 50-year-old man from Sakurai city visited our hospital because of epigastric pain in June 1995. An upper gastrointestinal endoscopy revealed one worm of *Ascaris lumbricoides* in the duodenum, which was removed endoscopically, and found to be an adult female, 158 mm in length. No other worms were obtained in the defecation following administration of 500 mg of pyrantel pamoate, which was performed immediately after the initial endoscopic removal. Although a microscopic examination for nematode eggs in feces was not performed prior to the endoscopic examination, no eggs were found after the treatment. Later, it was discovered that the patient's family often received vegetables from neighbors, which had been raised without the use of chemical fertilizers.

Case 4

A 77-year-old man, who lives in Yamato-Takada city, had a past history of ascariasis at the age of 30. He had been diagnosed in 1994 with liver cirrhosis due to infection with hepatitis C virus. He visited us in June 2000 for evaluation of a worm which had been passed that morning. The worm was 16 cm in length, a female adult of *Ascaris lumbricoides*. No eggs were detected in the feces and no more worms were passed after oral administration of 500 mg of pyrantel pamoate. Further, no eggs were found in the feces of his family members. Examinations by gastrointestinal fiberscope and abdominal US revealed no worms in the stomach, duodenum, or biliary tract, though the presence of esophageal varices and a space-occupying lesion positively suspected as hepatocellular carcinoma in the right lobe of the liver were revealed. All vegetables consumed by the family were obtained at a neighborhood shopping center.

Table 1. Summary of five cases of ascariasis

Patient Age/Sex	Initial complaint or Event	Location of Worm (s)	Treatment	Number of Worms (sex)
2 yo, M	passed worms	GI tract	pyrantel pamoate	13 (6F, 7M)
49 yo, M	right hypochondric pain	gall bladder GI tract	pyrantel pamoate	8 (not examined)
50 yo, M	epigastric pain	duodenum	endoscopic removal	1 (F)
77 yo, M	passed a worm	GI tract	pyrantel pamoate	1 (F)
50 yo, M	vomited a worm	GI tract	pyrantel pamoate	1 (not examined)

Case 5

A 50-year-old man from Yamato-Koriyama city came to us in May 2001 with a worm, 20 cm in length, which he had vomited the day before. The worm was identified as a male adult of *Ascaris lumbricoides*. No other eggs were detected and no more worms were passed out by the oral administration of 500 mg of pyrantel pamoate. Biliary ascariasis was ruled out by abdominal US. Eggs in the feces were not detected in his family members. The patient had not traveled to a foreign country within the previous 10 years.

The five cases of ascariasis are summarized in Table 1.

The details of Case 1 and Case 2 were reported elsewhere^{3, 4}.

DISCUSSION

Ascaris lumbricoides is a helminth with wide distribution throughout the world¹. Adult worms usually live in human intestines, and sometimes migrate to the biliary tract and main pancreatic duct. As the result of poor sanitation during the one or two decades after World War II, ascariasis was at one time one of the most prevalent diseases in Japan². However, the rate of occurrence of the disease was gradually decreased by mass treatment of the infected population along with sanitary education. As a result, ascariasis is now considered to be a rare disease.

During the decade from 1991 to 2000, we encountered 5 cases of ascariasis. Among them, Cases 1 and 2 were infected with more than one worm, including both female and male adults, and eggs were found in their feces specimens. Both were considered to have been infected through vegetables contaminated with ascaris eggs. Case 2 is a patient also afflicted with biliary ascariasis, which was often observed in the 1950s², but which has decreased in parallel with ascariasis of the gastrointestinal tract. In biliary ascariasis, the worms are most frequently found in the common bile duct⁵. The frequency of gall bladder ascariasis has been estimated to be only 5–10% among biliary ascariasis patients. Pyrantel pamoate is useful for ascariasis of the gastrointestinal tract, as it depolarizes the myoneural junction in the worms, paralyzing them in a spastic condition. However, it is not effective for biliary ascariasis, because it cannot be secreted into bile. Contrary to our expectation, the worm in the gall bladder in Case 2 disappeared after the administration of this drug. We believe that, while still alive, the worm had crept out and returned to the gastrointestinal tract, where pyrantel pamoate was effective.

In contrast to Cases 1 and 2, the other three patients were infected with only a single

worm of *Ascaris lumbricoides*. In a literature search for recent case reports documenting ascariasis, cases infected with only one worm were common and the frequency of single worm infection seems to be increasing⁶⁻¹³). We found it noteworthy that ascaris eggs were not found in the feces of most cases infected with a single worm, because it was an immature male or female. A stool examination for helminth eggs is not likely to be part of a normal laboratory routine these days; therefore, most patients are suspected of having, or are diagnosed with, a worm through the results of another examination besides the screening of feces for eggs, such as one conducted with a gastrointestinal fibroscope^{9-12, 13}), US⁵⁻⁸), or ERCP^{6, 8}). However, it is still important for physicians to understand ascariasis, even though it is a disease rarely met with.

In the present Cases 1, 2, and 3, the infection was considered to have come through vegetables contaminated with ascaris eggs. In our other two cases, the route of infection could not be identified. Recently, the number of travelers to affected countries has increased, as has the amount of vegetables imported from those areas. Therefore, the possibility of ascariasis contracted in foreign countries or from imported vegetables should be taken into consideration in identifying the route of infection, although this possibility is low in the cases presented.

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