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Three Successive Cases of Enteric Anisakiasis

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Key Words

Enteric anisakiasis · Intestinal obstruction · Sardine, enteric anisakiasis

Abstract

Enteric anisakiasis is relatively rare, and the preoperative diagnosis is difficult. We report 3 cases of enteric anisakiasis: 1 was confirmed by operation, and the other 2 cases were suspected by the patient history. The 1st patient was a 48-year-old female presenting with abdominal pain. An abdominal computed tomography scan showed a dilated small intestine and accumulation of ascites. We performed partial resection of the small intestine, and an *Anisakis* nematode was found on the wall of the resected bowel. After surgery, the detailed history revealed that the patient consumed a raw sardine with vinegar and miso, fermented soybean paste. Three days after her operation, 2 men presenting with abdominal pain visited the hospital, and computed tomography scans of the patients showed dilated small intestines and accumulation of ascites. By taking patient histories, we found that both of them consumed sardines with vinegar and miso, and both were given conservative treatment with fasting and transfusion. By the experience of the 1st case, we could diagnose the following 2 cases as having enteric anisakiasis. In conclusion, the possibility of anisakiasis should be considered in patients with abdominal pain after ingesting raw fish, especially when intestinal obstruction is suspected.

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Introduction

Anisakis is an ascarid of ocean mammals such as whales and dolphins. The eggs are excreted with feces, then hatch and parasitize krill by being eaten. The larvae infect the second intermediate hosts such as mackerel, squid, salmon, saury, and sardine which eat krill [1, 2]. By ingesting these fish raw, humans get anisakiasis, presenting with various symptoms. Since anisakiasis was first reported in 1960 [3], many cases were subsequently reported wherever people consume raw fish [4]. Japanese people traditionally eat raw dishes, and more than 20,000 patients with anisakiasis have been confirmed since the first report in Japan [5].

Anisakiasis is classified by the infected organ into gastric anisakiasis and enteric anisakiasis. Gastric anisakiasis is much more frequent than enteric anisakiasis [6]. Gastric anisakiasis usually develops several hours after the ingestion of raw fish, whereas the onset of enteric anisakiasis is delayed from 1 to 5 days [6]. Patients with gastric anisakiasis present sudden and intense abdominal pain and are diagnosed and treated by endoscopy, while enteric anisakiasis that shows ileus-like symptoms is difficult to diagnose [7]. Here, we report 3 cases of anisakiasis, presented within 3 days, 1 of which underwent surgery, and the other 2 patients were treated conservatively.

Case Report

Case 1. A 48-year-old woman visited the hospital, suffering from vomiting, diarrhea, and abdominal pain from 1 day before the visit. She did not mention that she had eaten raw fish when her history was taken. The abdomen was inflated, and rebound pain was observed. Laboratory examinations showed an elevated white blood cell count of 9,300/ μ l and a C-reactive protein level of 8.38 mg/dl. The proportion of eosinophils was not elevated (2.6%). An abdominal computed tomography (CT) scan showed a dilated small intestine and accumulation of ascites. The small intestine showed an invagination-like image (fig. 1a, b). Emergency laparotomy and partial resection of the small intestine were performed. An *Anisakis* nematode penetrating into the wall was found in the resected bowel. Histopathological examination revealed infiltration of eosinophils in the intestinal wall (fig. 1c, d). After the operation, we took a detailed history of the diet, and the patient remembered that she ate a raw sardine with vinegar and miso, fermented soybean paste, the day before. We concluded that the anisakiasis was from the sardine.

Case 2. Three days after the operation of the 1st case, a 73-year-old man visited the hospital, presenting with abdominal pain. A CT scan showed a dilated small intestine and ascites (fig. 2), and laboratory examination showed a slight elevation of the white blood cell count of 9,100/ μ l (eosinophils 2.1%). History revealed that he ingested a sardine with vinegar and miso the day before. We diagnosed him as having enteric anisakiasis and treated him with fasting and transfusion.

Case 3. On the same day, a 53-year-old man visited the hospital, presenting with abdominal pain. An abdominal CT scan showed dilation of the small intestine and accumulation of ascites (fig. 3), and the white blood count was 8,200/ μ l (eosinophils 7%). This patient, who also ate a sardine with vinegar and miso 2 days before he was diagnosed as having enteric anisakiasis, was treated conservatively.

The courses of all of the patients were uneventful during the hospital stay. The alterations of the eosinophil count are listed in table 1. The numbers of eosinophils were not enhanced on the 1st

Fig. 1. Case 1. Abdominal CT scans showing accumulation of ascites (a) and dilation of the small intestine, partially revealing a target sign (b). c An *Anisakis* nematode was found on the wall of the small intestine. d Histopathological examination revealed infiltration of eosinophils.

day, but increased later. The sardines were bought from different shops, but it is possible that they were all from the same fishing ship or from the same wholesale store. After the 3 cases of anisakiasis, we warned the townspeople about the food poisoning by raw fish, and no subsequent occurrence of anisakiasis was observed.

Discussion

While gastric anisakiasis develops within 1 day after intake of *Anisakis* nematodes, the onset of enteric anisakiasis is delayed from 1 to 5 days, making it difficult to ascertain ingestion of raw fish. Moreover, a definitive diagnosis of enteric anisakiasis is done only after confirmation of the presence of *Anisakis*, usually by

surgical resection, while gastric anisakiasis is immediately confirmed and treated endoscopically.

Increased eosinophil levels are observed in less than half of the patients with anisakiasis, and when the eosinophil levels are increased, they tend to be normal on the 1st hospital day and gradually become enhanced later [8]. In this report, all 3 patients showed normal eosinophil levels on the 1st hospital day and enhanced eosinophil levels on the 4th, 5th, or 8th day. The eosinophil count is not likely to be a useful tool in diagnosing enteric anisakiasis. The measurement of *Anisakis* antigen [9] is similarly uninformative, because several days are required to measure the titer, and the titer may not rise during the early phase of onset.

The most important and useful tool in diagnosing enteric anisakiasis is obtaining an accurate history of the present illness and determining whether the patient has eaten raw fish before the on-

Fig. 2. Case 2. CT scans showing accumulation of ascites (a) and partial thickening of the intestinal wall (b).

Fig. 3. Case 3. Abdominal CT scans showing accumulation of ascites (a) and partial thickening of the intestinal wall (b).

set of symptoms. Dilation and wall thickening of the small intestine and accumulation of ascites detected by CT scan are useful evidences of enteric anisakiasis, but it is difficult to make a definite diagnosis based on these findings. Cases of intestinal obstruction and intussusceptions similar to our 1st patient have been reported [10].

Anisakis larvae can survive in acetic acid for more than 3 months, but they are susceptible to high or low temperatures. Because sardines with vinegar and miso, a common food in this area, are not cooked or frozen, it is difficult to prevent anisakiasis. Although sardines with vinegar and miso were considered the

cause of the continual enteric anisakiasis in these cases, the patients bought them from different shops. It is possible that the sardines were from the same fishing ship or from the same area or were pooled at the same wholesale store. What we did for the prevention of anisakiasis was to warn the townspeople about food poisoning by raw fish, and no anisakiasis was subsequently observed.

In conclusion, enteric anisakiasis should be considered when patients present with abdominal pain and intestinal dilation by CT scan after the intake of raw fish. Taking a detailed history of the food intake is important for the diagnosis of anisakiasis.

Table 1. Eosinophil counts per microliter

	1st hospital day	Later during hospital stay
Case 1	241.8	473 (8th day)
Case 2	191.1	742.5 (5th day)
Case 3	574	1,113 (4th day)

The eosinophil counts were not enhanced on the 1st day, but increased later.

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Inflammatory Fibroid Polyp or Vanek's Tumour

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Key Words

Gastric inflammatory fibroid polyp · Vanek's tumour · Gastric outlet obstruction · Projectile vomiting

Abstract

We report a case of a 65-year-old woman who presented with recurrent episodes of severe, postprandial abdominal pain followed by projectile vomiting. Gastroscopy revealed a large polyp in the prepyloric region. During peristalsis, the polyp was repeatedly 'passing' through the pylorus into the duodenal bulb, hence obstructing the lumen. The polyp was eventually removed in a piecemeal fashion. Histopathologic examination revealed an inflammatory fibroid polyp (known also as Vanek's tumour). A brief review on inflammatory fibroid polyps follows.

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Introduction

Inflammatory fibroid polyp (also known as Vanek's tumour) is an uncommon, non-neoplastic proliferating lesion which can develop in various parts of the gastro-intestinal tract but most commonly in the gastric antrum and the ileum. The majorities of Vanek's lesions are asymptomatic and discovered as incidental findings during endoscopy performed for unrelated reasons. When symptomatic, Vanek's tumours are usually associated with abdominal pain, weight loss, bleeding, dyspeptic symptoms, iron deficiency anaemia and intussusception. Their size determines whether they are symptomatic or not. Macroscopically, inflammatory fibroid polyps appear as sessile polypoid lesions, usually less than 4 cm in diameter. Histologically, they are mainly confined in the submucosa, characterized by vascular and fibroblastic proliferation together with an inflammatory response (usually dominated by eosinophils). Endoscopic excision is the treatment of choice as the prognosis is overall benign.

Case Report

A 65-year-old woman was admitted with recurrent episodes of postprandial, projectile vomiting and severe epigastric pain over a period of a few months. Her clinical examination was unremarkable and routine blood tests were within normal limits. Gastroscopy revealed a large (3 × 5 cm), polypoid lesion in the prepyloric region. Figure 1 shows the lesion protruding through the pylorus into the duodenal bulb causing gastric outlet obstruction.