

CASE REPORT

Small bowel anisakiosis: A report of two cases

Shigetoshi Matsuo, Takashi Azuma, Seiya Susumu, Satoshi Yamaguchi, Shirou Obata, Tomayoshi Hayashi

Shigetoshi Matsuo, Takashi Azuma, Seiya Susumu, Satoshi Yamaguchi, Department of Surgery, Nagasaki Prefectural Shimabara Hospital, Japan

Shirou Obata, Department of Radiology, Nagasaki Prefectural Shimabara Hospital, Japan

Tomayoshi Hayashi, Department of Pathology, Nagasaki Prefectural Shimabara Hospital, Japan

Correspondence to: Dr. Shigetoshi Matsuo, Department of Surgery, Nagasaki Prefectural Shimabara Hospital, 7895 Shimokawajiri, Shimabara, Nagasaki 855-0861, Japan. shigetoshi-matsuo@pref.nagasaki.lg.jp

Telephone: +81-957-631145

Received: 2006-03-14 Accepted: 2006-03-27

Abstract

Small bowel stenosis is a serious complication of intestinal anisakiosis. The aim of this report is to investigate whether severe stenosis of the small intestine can be conservatively managed. We treated two patients with severe stenosis of the small intestine caused by anisakiosis. Surgical intervention was eventually performed on the 23rd and 35th in the hospital, respectively. Histopathological examination of the resected specimens revealed that the intestinal wall had been completely damaged by the inflammatory reaction of anisakiosis, and that the damage was irreversible, thereby suggesting that laparotomy is needed in cases of severe small bowel stenosis caused by intestinal anisakiosis, even if a long period of conservative treatment for the intestinal anisakiosis allowed the patient to pass successfully through the acute phase.

© 2006 The WJG Press. All rights reserved.

Key words: Anisakiosis; Small intestine

Matsuo S, Azuma T, Susumu S, Yamaguchi S, Obata S, Hayashi T. Small bowel anisakiosis: A report of two cases. *World J Gastroenterol* 2006; 12(25): 4106-4108

<http://www.wjgnet.com/1007-9327/12/4106.asp>

INTRODUCTION

Gastrointestinal anisakiosis, caused by an infection through the ingestion of *Anisakis sp.* larvae in raw or insufficiently cooked fish, commonly occurs in the stomach. Small bowel anisakiosis is rarely seen^[1-10]. It has been reported that anisakiosis is usually a self-limiting disease process

cured by conservative management for 1-2 wk after the onset of the symptoms^[5,8,9]. We herein present two cases of small intestinal anisakiosis which were treated surgically after long period of conservative management. We also discuss whether patients with severe small bowel stenosis, who have successfully passed through the acute phase of intestinal anisakiosis, can be conservatively managed.

CASE REPORTS

Case 1

A 59-year-old male was admitted on January 30, 2001 to our hospital, with complaints of mild urticaria, left-sided abdominal pain, and nausea. Four days before admission, the patient had eaten mackerel. Upon admission, abdominal CT showed a mild dilatation of the small intestine with ascites; small bowel edema and thickening of the intestinal wall were not detected. Beginning the day after admission, the patient received conservative medical treatment for acute pancreatitis, a diagnosis based on the serum amylase level of 1666 IU/L (normal range: 130-400). No evidence of eosinophilia was present. Abdominal pain continued after normalization of the serum amylase level. The titer of serum IgG antibodies for *Anisakis sp.* was 2.30 (normal range < 1.5). An upper gastrointestinal (UGI) series by Gastrografin^R showed a narrow segment (20 cm in length) of the small intestine and revealed a dilatation on the oral side of the intestine (Figure 1). Kerckring's folds disappeared completely in the narrow segment. Laparotomy was performed on the 35th post-admission day because the stenosis of the small intestine had not improved at all. Hence, the affected segment of the ileum was resected that measured 50 cm in length. Histopathological examination of the resected specimens revealed ulceration with infiltration of inflammatory cells in all layers of the intestinal wall. The structure of the wall was completely destroyed (Figure 2). The postoperative course was uneventful.

Case 2

A 62-old-male was admitted on November 19, 2004 to our hospital, with complaints of upper abdominal pain, nausea, and vomiting. Four days before admission, the patient had eaten sashimi and salted salmon. Abdominal CT demonstrated a remarkable thickening of the jejunal wall with ascites (Figure 3). An upper gastrointestinal series showed a narrow segment of the jejunum (20 cm in length) and revealed a dilatation on the oral side of the intestine (Figure 4). Kerckring's folds were visible. The titer of serum IgE-specific antibodies for *Anisakis sp.* was



Figure 1 UGI series showing a narrow segment of the small intestine with the disappearance of Kerckring's folds.



Figure 4 UGI series showing a narrow segment of the small intestine with the preservation of Kerckring's folds.

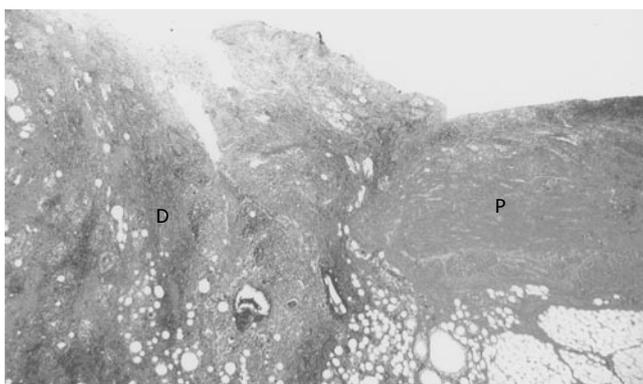


Figure 2 Resected specimens revealed histologically a complete destruction of the jejunal wall (D). P: Preserved wall of the intestine with an infiltration of inflammatory cells.

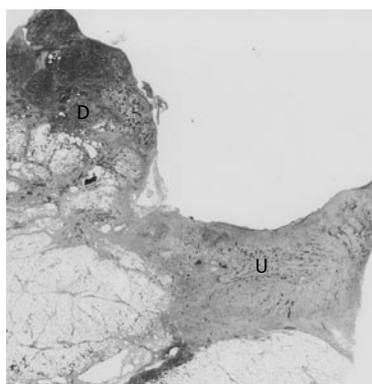


Figure 5 Resected specimens revealed histologically a perforated ulceration (U) with an infiltration of inflammatory cells. D: Destructive wall of the intestine.



Figure 3 CT showing a remarkable thickening of the intestinal wall.

14.3 (normal range < 0.34). Laparotomy was performed on the 23rd post-admission day because conservative therapy had not been effective. The affected segment of the jejunum was resected that measured 80 cm in length. Histopathological examination of the resected specimens revealed a perforated ulceration with infiltration of inflammatory cells in all layers of the intestinal wall and the formation of granulation tissue. The structure of the intestinal wall was completely destroyed, similar to Case 1 (Figure 5). The postoperative course was uneventful.

DISCUSSION

Anisakiosis, previously called anisakiasis, is the formal

terminology for the disease associated only with the genus *Anisakis*^[11]. In Japan, where raw fish is traditionally eaten in the diet, anisakiosis has been a public health problem^[12]. In Japan, most commonly reported anisakiosis is gastric anisakiosis. By contrast, in Italy and Spain, it has been reported that the disease has manifested as lesions in the small intestine in the majority of cases, but we are aware that the number of reported cases in these two countries does not reflect the frequency of anisakiosis there^[13,14].

In our diagnosis of gastrointestinal anisakiosis for the patients who manifested acute abdominal pain, raw fish ingestion prior to their admission was the most important aspect of their clinical history. Our patients had a history of ingesting raw fish. A positive result on a serological test has been shown to be helpful in diagnosis^[15]. In addition, imaging modalities, such as US and CT, have been reported to be useful^[2,8]. Typical CT findings include a relatively long segment of the symmetric wall thickening with luminal narrowing and diffuse contrast enhancement on the involved segment^[8]. A long segmental stenosis found in UGI series of our cases was similar to the CT findings.

For surgeons, small bowel stenosis would be one of the abdominal complications in patients with intestinal anisakiosis. Some reports argue that an early surgical approach should be avoided in cases where a small bowel obstruction suggests the possibility of intestinal anisakiosis^[8,13]. We would like to consider whether severe stenosis of the small intestine can be conservatively managed despite the fact that anisakiosis is reported to be a self-limiting disease. In our two patients, surgical intervention was eventually performed on the 23rd and 35th post-admission days, respectively. To our knowledge, there have been no reports of a long period of conservative

treatment of intestinal anisakiasis with severe small bowel stenosis in patients who successfully passed through the acute phase. When the intestinal wall has been completely damaged by the inflammatory reaction of anisakiasis, the change is irreversible. Our results indicate that laparotomy should be recommended for patients with severe long segmental stenosis caused by intestinal anisakiasis when the condition does not improve within 1-2 wk after conservative treatment.

In conclusion, surgeons should consider early laparotomy in the cases of patients with severe intestinal stenosis resulting from anisakiasis.

REFERENCES

- 1 **Haubrich WS**, Schaffner F, Berk JE. Bockus Gastroenterology. 5th ed. Philadelphia: WB Saunders Co, 1995: 3148-3150
- 2 **Shirahama M**, Koga T, Ishibashi H, Uchida S, Ohta Y, Shimoda Y. Intestinal anisakiasis: US in diagnosis. *Radiology* 1992; **185**: 789-793
- 3 **Takabe K**, Ohki S, Kunihiro O, Sakashita T, Endo I, Ichikawa Y, Sekido H, Amano T, Nakatani Y, Suzuki K, Shimada H. Anisakidosis: a cause of intestinal obstruction from eating sushi. *Am J Gastroenterol* 1998; **93**: 1172-1173
- 4 **Kim LS**, Lee YH, Kim S, Park HR, Cho SY. A case of anisakiasis causing intestinal obstruction. *Kisaengchunghak Chapchi* 1991; **29**: 93-96
- 5 **Matsui T**, Iida M, Murakami M, Kimura Y, Fujishima M, Yao Y, Tsuji M. Intestinal anisakiasis: clinical and radiologic features. *Radiology* 1985; **157**: 299-302
- 6 **Appleby D**, Kapoor W, Karpf M, Williams S. Anisakiasis: nematode infestation producing small-bowel obstruction. *Arch Surg* 1982; **117**: 836
- 7 **Sasaki T**, Fukumori D, Matsumoto H, Ohmori H, Yamamoto F. Small bowel obstruction caused by anisakiasis of the small intestine: report of a case. *Surg Today* 2003; **33**: 123-125
- 8 **Yoon SW**, Yu JS, Park MS, Shim JY, Kim HJ, Kim KW. CT findings of surgically verified acute invasive small bowel anisakiasis resulting in small bowel obstruction. *Yonsei Med J* 2004; **45**: 739-742
- 9 **Navarro Cantarero E**, Carro Alonso B, Castillo Lario C, Fernández Gómez JA. [Diagnosis of Anisakis infestation: experience in our environment]. *Allergol Immunopathol (Madr)* 2005; **33**: 27-30
- 10 **Couture C**, Measures L, Gagnon J, Desbiens C. Human intestinal anisakiasis due to consumption of raw salmon. *Am J Surg Pathol* 2003; **27**: 1167-1172
- 11 **Kassai T**, Cordero del Campillo M, Euzeby J, Gaafar S, Hiepe T, Himonas CA. Standardized nomenclature of animal parasitic diseases (SNOAPAD). *Vet Parasitol* 1988; **29**: 299-326
- 12 **Ishikura H**. Introduction. In: Ishikura H, Namiki M, eds. Gastric Anisakiasis in Japan. Tokyo: Springer-Verlag, 1989: 1-2
- 13 **Castán B**, Borda F, Iñarrairaegui M, Pastor G, Vila J, Zozaya JM. Digestive anisakiasis: clinical manifestations and diagnosis according to localization. *Rev Esp Enferm Dig* 2002; **94**: 463-472
- 14 **Pellegrini M**, Occhini R, Tordini G, Vindigni C, Russo S, Marzocca G. Acute abdomen due to small bowel anisakiasis. *Dig Liver Dis* 2005; **37**: 65-67
- 15 **Alonso-Gómez A**, Moreno-Ancillo A, López-Serrano MC, Suarez-de-Parga JM, Daschner A, Caballero MT, Barranco P, Cabañas R. Anisakis simplex only provokes allergic symptoms when the worm parasitises the gastrointestinal tract. *Parasitol Res* 2004; **93**: 378-384

S- Editor Wang J L- Editor Kumar M E- Editor Ma WH