Malignant lymphoma incidentally diagnosed due to the perforation of the small intestine caused by a fish bone: A case report

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A B S T R A C T
INTRODUCTION: The ingestion of a foreign body is relatively common. However, it rarely results in the perforation of the gastrointestinal tract. We herein report an unusual case of malignant lymphoma incidentally diagnosed after the perforation of the small intestine by a fish bone.

PRESENTATION OF CASE: A 90-year-old woman was admitted to our hospital because of abdominal pain and vomiting. Abdominal computed tomography demonstrated free air and ascites in the abdominal cavity. In the pelvic cavity, a radiopaque linear shadow about 35 mm in diameter was shown in the small intestine, and the stricture was exposed to the abdominal cavity. Therefore, a diagnosis of perforation of the small intestine due to ingestion of a foreign body and panperitonitis was made. Emergent laparotomy was performed. The intraoperative findings revealed perforation of the small intestine with a fish bone in the jejunum. Local inflammation at the perforation site was seen, and circulated wall thickness was observed at the distal side of the jejunum. Partial resection of the jejunum and anastomosis of jejuno-jejunostomy was performed. A pathological examination and immunohistochemical study of the resected specimen resulted in a diagnosis of malignant lymphoma of follicular lymphoma Grade 1.

DISCUSSION: It is very difficult to identify the existence malignancy accompanied with gastrointestinal perforation with ingestion of a foreign body.

CONCLUSION: In cases suspected of involving malignancy, careful observation during surgery is needed in order to avoid missing the accompanying malignancy.

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1. Introduction
The ingestion of a foreign body, especially animal bone, is relatively common [1]. However, it rarely results in the perforation of the gastrointestinal tract and the need for emergent operation. Perforation due to an ingested foreign body can occur anywhere in the gastrointestinal tract, such as at angulations or at the narrowing of the lumen. We herein report an unusual case of malignant lymphoma incidentally diagnosed after perforation of the small intestine by a fish bone. This work has been reported in line with the SCARE criteria [2].

2. Case presentation
A 90-year-old woman was admitted to our hospital because of abdominal pain and vomiting. She had a medical history of hypertension and pneumonia. A physical examination showed tenderness at the lower abdomen. However, neither muscular defense nor Blumberg’s sign were clearly shown. Her body temperature, blood pressure, heart rate, respiratory rate and $\text{SpO}_2$ were, 38 °C, 104/54 mmHg, 98/min, 21/min and 99% (3 L of oxygen), respectively. Laboratory studies on admission showed elevated levels of inflammation (white blood cells: 16,100/$\mu$L, CRP: 10.13 mg/dL) and renal dysfunction (serum creatinine: 1.48 mg/dL, BUN: 27.7 mg/dL). Abdominal computed tomography (CT) demonstrated free air and ascites in the abdominal cavity (Fig. 1A, B). In the pelvic cavity, a radiopaque linear shadow about 35 mm in diameter was shown in the small intestine, and the stricture was exposed to the abdominal cavity (Fig. 1C, D). Therefore, a diagnosis of perforation of the small intestine due to ingestion of a foreign body and panperitonitis was made.

Emergent laparotomy was performed. The intraoperative findings revealed perforation of the small intestine with a fish bone in the jejunum, at a site some 70 cm distal from the Treitz ligament. Local inflammation of the small intestine at the perforation site was seen, and circulated wall thickness was observed at the distal side...
Fig. 1. Free air and ascites around the liver (A). Free air and ascites in the pelvic cavity (B). A radiopaque linear shadow about 35 mm in diameter (arrow) was observed in the small intestine, and the stricture was exposed to the abdominal cavity in the pelvic cavity (C). Ingested foreign body (arrow) on CT with 3D reconstruction (D).

Fig. 2. Perforation of the small intestine due to the fish bone (A). The foreign body (fish bone), 35 mm in diameter (B). The anal side of the perforation site, showing circulated thickness of the wall (C).
of the jejunum. Therefore, both partial resection of the jejunum and anastomosis of jejuno-jejunostomy were performed. No other abnormalities were seen in the peritoneal cavity, including the rest of the intestine and lymph nodes.

The resected specimen showed perforation of the small intestine due to a fish bone 35 mm in length (Fig. 2A, B). The anal side of the perforation site showed circulated thickness of the wall (Fig. 2C). A pathological examination revealed diffuse spreading of medium-sized lymphocytes in the mucosa and submucosa, and a follicular structure was seen (Fig. 3A, B). An immunohistochemical study showed CD20, CD79a, CD10 and bcl-2 positivity (Fig. 3C, D, E). The specimen was negative for CD3. Therefore, malignant lymphoma of follicular lymphoma Grade 1 was made. The patient was discharged from the hospital on the ninth postoperative day. No additional imaging examinations nor treatments for the malignant lymphoma were performed, considering patient’s age and background, after receiving her informed consent.

3. Discussion

Ingestion of a foreign body is a common occurrence in daily life and most commonly happens in elderly people [1]. Most foreign bodies pass through the gastrointestinal tract uneventfully if they reach the stomach. However, <1% of such ingestions result in perforation at some point from the mouth to the anus [3]. Perforation due to an ingested foreign body is likely to occur at some point of physiological narrowing or angulation of the intestinal lumen, such as the ileocecal and rectosigmoid junctions [4,5]. However, our patient developed perforation of the jejunum due to a fish bone accompanying malignant lymphoma, which had caused
narrowing of the tumorous lumen. Given the aging of society, the number of patients with neurological disorders such as dementia and cerebrovascular disorders and/or edentulous elderly patients is expected to increase. Therefore, we may also more frequently encounter patients with ingestion of a foreign body and its associated complications or accompanying malignancy.

Five previous reports of gastrointestinal tumor incidentally found due to perforation caused by an ingested bone were found in PubMed through August 2017 after searching with the key words “perforation” and “ingested bone” [4,6–9]. Table 1 shows a summary of these five previous cases and our present case. Five cases (83%) occurred in elderly patients (>75 years of age). The accompanying malignancies were sigmoid colon cancer (4 cases; 67%); gastrointestinal stromal tumor (1 case; 17%) and malignant lymphoma (1 case; 17%). A total of 67% of cases were preoperatively diagnosed with perforation with a foreign body. However, none were diagnosed with gastrointestinal tumor in advance. In our case, wall thickness in the small intestine was suspected based on a retrospective examination of the CT images. However, such thickness can be difficult to distinguish from inflammatory or edematous changes caused by perforation. Kriegshauser et al. [8]: reported a patient with an ulcerated gastrointestinal stromal tumor of the small intestine who had ingested a foreign bone. However, this tumor was considered difficult to distinguish from an abscess preoperatively. Terace et al. [4] also recently reported that their case of sigmoid colon perforation with ingestion of a bone seemed to be complicated with malignancy and ultimately diagnosed the patient with sigmoid colon cancer.

Regarding operative procedure, Sarmast et al. [5], reviewed 21 cases of gastrointestinal tract perforation due to ingestion of foreign bodies. In their study, 52.4% of patients with perforation of the small intestine underwent removal of a foreign body and primary repair of their perforations after minimal debridement. In cases with malignancy accompanying perforation, simple primary closure might miss the opportunity to diagnose and resect the malignancy. The most common sites of perforation in the gastrointestinal tract are the ileo-cecal junction and sigmoid colon [5]. Regarding perforation of the small intestine in particular, most cases are reported to occur at the ileo-cecal junction, which has a narrowing lumen [5]. These findings suggest that perforation of the jejunum due to a foreign body can happen but may be relatively infrequent.

In cases of perforation of the jejunum with an ingested foreign body, careful observation during the surgery may be needed in order to avoid missing the accompanying malignancy. In addition, if wall thickness is observed at the perforation site of the anal side of the jejunum in cases suspected of having malignancy, resection of the small intestine and an intraoperative histological examination should be considered, and lymph node dissection may be needed in confirmed cases of cancer.

4. Conclusions

In conclusion, we experienced a case of malignant lymphoma incidentally diagnosed due to perforation of the small intestine by a fish bone.

Author contribution

All the authors contributed to diagnose and treat the patient. Masatsugu Hiraki contributed in drafting the manuscript. Atsushi Miyoshi edited the manuscript. Kenji Kitahara supervised and made the final approval of the manuscript. All authors read and approved the final manuscript.

Conflicts of interest

The authors declare that they have no competing interests.

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None.

Ethical approval

This case report is not research study. That is not applicable in this case report.

Consent

The patient was informed and informed consent was obtained.

Guarantor

Dr. Kenji Kitahara.

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