

CASE REPORT

Two cases of gastric penetration by fish bones with differing courses

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Abstract

Most foreign bodies swallowed accidentally are naturally excreted. Gastric penetration by a fish bone is rare due to anatomical and physiological features such as the thick stomach wall, wide lumen and gastric acid. The most common penetration site is the antral region. The clinical course of fish bone penetration of the gastric antrum may differ depending on the direction of penetration. In this report, two cases of gastric perforation by fish bones that followed different courses are presented. One case was treated conservatively with antibiotics alone, and another case was considered for surgery, due to increased hematoma and penetration of the fish bone into the pancreas. However, the patient's comorbidities were so severe that surgery was not possible, resulting in meticulous follow-up. Diagnostic imaging was important in these cases.

INTRODUCTION

Most foreign bodies swallowed accidentally are naturally excreted from the body [1]. However, in rare cases, some of them cause gastrointestinal penetration and require treatment [2, 3]. Gastrointestinal penetration by a fish bone is common in the lower gastrointestinal tract, but cases of gastric penetration are rare, likely due to anatomical and physiological features such as the thick stomach wall and wide lumen, as well as the digestive action of gastric acid. Gastric penetration by fish bones often requires surgical treatment [4]. In a few cases, endoscopic treatment is also performed [5]. To the best of our knowledge, there have been no cases of gastric penetration of fish bones that were treated conservatively with antibiotics alone. Patients with gastric penetration or perforation caused by fish bones can follow various clinical courses. Two cases of gastric perforation by fish bones that followed different courses are presented.

CASE REPORTS

Case 1

A 78-year-old woman developed abdominal pain after eating a fish pot dish. Her abdominal pain gradually increased, and she was brought to our hospital by ambulance 2 days later. Laboratory investigation showed an increased white blood cell count of 14 000 mm³ and a C-reactive protein level of 10.13 mg/dl on arrival. Abdominal computed tomography (CT) showed a linear high-intensity structure that penetrated the anterior wall of the antrum of the stomach outside the stomach wall, along with inflammatory findings outside the stomach wall and thickening of the stomach wall. No evidence of penetration into other organs was observed (Fig. 1). Esophagogastroduodenoscopy showed scars on the anterior wall of the antrum, but no fish bones could be detected. No linear high-intensity echo could be confirmed even with endoscopic ultrasonography. She was treated conservatively with antibiotics alone. Follow-up

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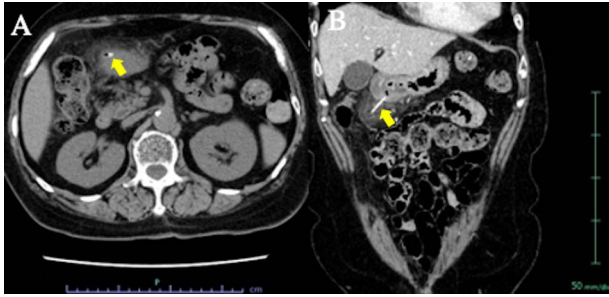


Figure 1: Abdominal CT shows a linear high-intensity structure (arrow) that penetrates the anterior wall of the antrum of the stomach outside the stomach wall (A: cross section, B: coronal section).

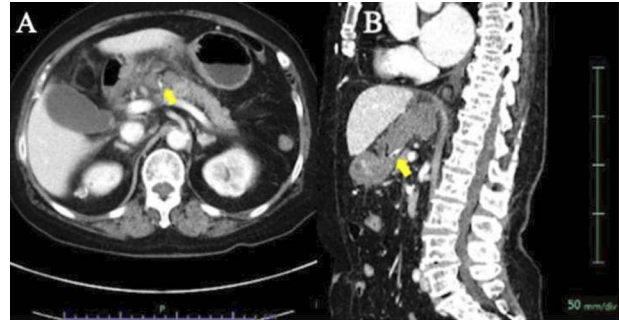


Figure 3: Abdominal CT shows a linear high-intensity structure (arrow) that penetrates the posterior wall of the antrum of the stomach outside the stomach wall (A: cross section, B: sagittal section).



Figure 2: Follow-up CT after 2 months showed that inflammatory findings disappeared (arrow).

CT after 2 months showed that the inflammatory findings had disappeared (Fig. 2), as well as the symptoms. She is currently being followed carefully.

Case 2

A 69-year-old woman ate grilled fish 4 days earlier. She developed epigastric pain that increased gradually, so she consulted her family doctor. Laboratory investigation showed an increased white blood cell count of $16\,100\text{ mm}^3$ and a C-reactive protein level of 29.89 mg/dl . Because of the high inflammatory findings, she was referred to our hospital. She was taking warfarin and aspirin after undergoing aortic and mitral valve replacement and tricuspid valve plasty. Abdominal CT showed a linear, high-intensity structure that penetrated the posterior wall of the antrum of the stomach outside the stomach wall, and inflammatory findings outside the stomach wall and thickening of the stomach wall (Fig. 3). The findings suggested that the tip of the fish bone may have been stuck in the pancreas. A hematoma was seen in the retroperitoneum (Fig. 4). The patient's general condition was poor, and endoscopy could not be performed. Although a surgeon was consulted, the patient was treated with antibiotics because of heart disease and oral antithrombotic drugs. The oral antithrombotic drugs obviously had an effect on her condition, particularly the hematoma, but the penetration of fish bones into the pancreas was a serious problem. A few days later, surgery was

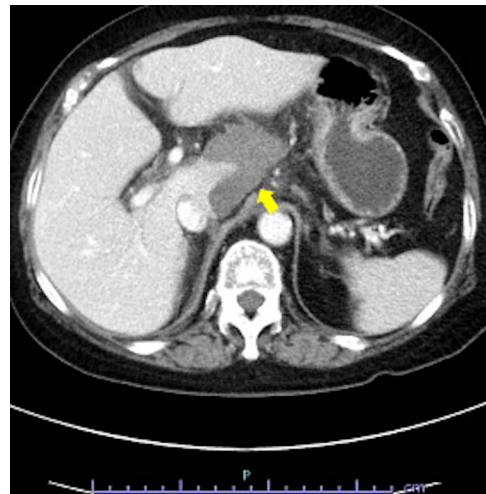


Figure 4: A hematoma is found in the retroperitoneum (arrow).

considered because of the growing hematoma and penetration into the pancreas, but it was postponed due to a severe heart attack for which she required intensive care to prepare for surgery. However, surgery was not performed because of serious cardiac complications, no pancreatic organ damage and control of the hematoma. She is under close follow-up after discharge.

DISCUSSION

Since about 80–90% of accidentally swallowed foreign bodies pass through the digestive tract as they are, they result in few clinical problems. It has been reported that the frequency of gastrointestinal penetration by foreign bodies is $<1\%$ [6]. Gastric penetration by a fish bone is rare, accounting for only a few percent of cases of gastrointestinal penetration by a fish bone. The penetration site is in the antral region in 46% of cases, followed by the gastric angle in 15% of cases, with most cases in the lower part of the stomach [7]. It is considered that the fish bone is stagnant due to the pyloric ring, and movement due to peristalsis is large. The treatment is surgery or endoscopic removal. If a fish bone is stuck in the stomach wall, it can only be removed by surgery. If the fishbone is visible through the gastric cavity, endoscopic removal is often performed [8]. Based on the experience of these two cases, it is possible that

the subsequent course may change depending on whether the penetration is from the antrum to the anterior wall or to the posterior wall. In the case of anterior wall penetration, it often does not penetrate other organs, so that if the fish bone is covered with granulation, it may be possible to follow-up conservatively. There was one interesting case report. Although surgery was performed on chronic cases, the penetrated foreign body was granulated and was completely isolated from the abdominal cavity, and no inflammation spread to the surroundings [7]. It should be noted that there have been reports of cases in which an abscess was formed by penetration of the liver from the antral lesser curvature of the stomach [9]. When penetrating the posterior wall, many cases penetrating to the pancreas have been reported. In general, surgery is often the choice for patients with penetration of the pancreas because of mass formation or infection [10]. Although the present report is based only on a clinical case series, it appears that the subsequent course may differ depending on which direction the fish bone penetrates the stomach. Diagnostic imaging is very important for cases of gastric antral penetration of fish bone, since the course and treatment may differ depending on the direction of penetration.

CONCLUSION

These two cases show that the course and treatment of fish bones that penetrate the gastric antrum may differ depending on the direction of penetration.

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CONFLICTS OF INTEREST

None.

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ETHICAL APPROVAL

No ethical approval was needed for this case report.

CONSENT

The patients provided written, informed consent for the publication of this report.

GUARANTOR

Yasumi Katayama, M.D., Ph.D.

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