Esophageal Large Fish Bone (Sea Bream Jawbone) Impaction Successfully Managed with Endoscopy and Safely Excreted Through the Intestinal Tract

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Abstract

A 68-year-old man consulted our hospital because of back pain. A chest computed tomography (CT) demonstrated a high-density foreign body in the esophageal wall. There was no evidence of pneumomediastinum. Endoscopic examination demonstrated a large fish bone that was stuck in the esophageal wall. It was dislodged and moved into the stomach. The bone was excreted through the intestinal tract on the seventh hospital day. Unintentional ingestion of large fish bones must be considered potentially dangerous. Complications such as esophageal perforation or mediastinitis should be confirmed by CT; and then, the esophageal foreign body should be removed as soon as possible.

Key words: gastrointestinal tract, foreign body, computed tomography, complication

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Introduction

Most ingested foreign bodies that reach the stomach pass safely through the intestinal tract. If the objects are long, hard and sharp, the risk of perforation of the gastrointestinal (GI) wall is higher (1, 2). In East Asia, fish bone ingestion is a common cause of emergency room visits (3). Fish bone impaction complicated with esophageal perforation and mediastinitis can sometimes lead to death (3). Herein, we describe a case of esophageal large fish bone (sea bream jaw-bone) impaction successfully managed with endoscopic technique and excreted through the intestinal tract.

Case Report

The patient was a 68-year-old man, 158 cm tall and weighing 44 kg. He consulted our hospital for back pain and fever. He did not complain of respiratory symptoms such as coughing, stridor or dyspnea. He experienced continuous back pain for one day with no specific aggravating or relieving factors. He reported having swallowed a fish bone on the previous day. The patient had been in good health and there was no contributory past medical history including previous abdominal surgery, diabetes mellitus and GI diseases, or drug history. He denied any history of excessive alcohol consumption. His body temperature was 37.6°C, blood pressure was 110/64 mmHg, and radial pulse rate was 72 beats/min and regular. He had neither anemia nor jaundice. He did not develop subcutaneous emphysema. Laboratory tests showed a red blood cell count of 418×10⁴/μL, a white blood cell count of 9,400/μL (normal range [NR]; 4,000-9,000/μL), and a platelet count of 23.1×10⁴/μL. Hemoglobin concentration was 13.1 g/dL. Liver function tests demonstrated: aspartate aminotransferase 26 IU/L, alanine aminotransferase 18 IU/L, alkaline phosphatase 194 IU/L, γ-glutamyltranspeptidase 18 IU/L, lactate dehydrogenase 244 IU/L (NR: 106-211 U/L) and total bilirubin 0.7 mg/dL. Test for C reactive protein demonstrated 3.5 mg/dL (NR; 0-0.5 mg/L). In renal function tests, blood urea nitrogen was 10.6 mg/dL, and creatinine 0.8 mg/dL. A chest computed tomography (CT) scan revealed a large high-density foreign body impacted in the esophageal wall (Fig. 1). The ends of the foreign body were far from major vessels. There was no evidence of pneumomediastinum. No major vessel injury was seen on CT findings. The patient had back pain and a
Figure 1. Chest computed tomography (CT) images. Horizontal view demonstrated the high-density foreign body lying transversely in the esophagus (arrows). The ingested foreign body was about 3 cm in size. There was no evidence of severe inflammation or major vessel injury in the chest.

slight fever; moreover, his white blood cell count and C-reactive protein value were also slightly above NR. These findings suggested that slight mediastinitis occurred. We speculated that mediastinitis was too slight to be viewed on CT images. Flexible endoscopic examination revealed an ingested large fish bone, which was 26 cm from the incisor tooth, sticking in the esophageal wall (Fig. 2A). The fish bone was fixed in the esophageal wall. The whole fish bone was dislodged without damage to the esophageal wall or perforation using a retrieval forceps (Fig. 2B). Some esophageal linear ulcers were observed after removal. The dislodged fish bone (30x27 mm) was fan-shaped. The fish bone was too large to be admitted into an attached transparent hood of the endoscope (Fig. 2C). Although we tried to rotate the fish bone to place it into the attached transparent hood, it was impossible. It seemed to be larger than the overtube. A small amount of esophageal bleeding occurred during the endoscopic procedure in the esophagus. Our institute did not have equipment of general anesthesia or rigid esophagoscopy. We abandoned the removal of this fish bone through the esophagus due to risk of damage to the esophageal wall or esophageal perforation. The fish bone was moved into the stomach (Fig. 2D). We expected that the dislodged fish bone would be excreted through the intestinal tract although it could become stuck in the intestinal tract. After endoscopic removal of the fish bone, his back pain was resolved. He was admitted to our hospital and treated with a daily dose of proton pump inhibitor (omeprazole 20 mg) and antibiotics for 3 days. He was not administered other drugs such as prokinetics. His low-grade fever continued for 2 days duration. On the third hospital day, the patient was asymptomatic. A liquid food was started on the third hospital day. On the fourth hospital day, an abdominal CT revealed the removed fish bone in the proximal colon (Fig. 3). Solid food was started on the fifth hospital day. The patient noted that the fish bone was excreted through the intestinal tract on the seventh hospital day, and he was discharged from our hospital. He has been under periodic observation without medication, and has been free of symptoms 3 months after discharge.

Discussion

Ingested foreign bodies can frequently lodge in the esophagus. However, once in the stomach, ingested foreign bodies usually pass through the intestinal tract without difficulty. If the objects are long, hard and sharp, like pins or fish bones, the risk of perforation of the GI wall is high (2). There is a tendency for fish bones to migrate and one has been found in the thyroid after perforation of the cervical esophagus (4), and others in the liver after gastric or GI perforation (5, 6). Foreign bodies most commonly perforate the cervical esophagus (7). The second most common site for perforation is at the level of the aortic arch (7, 8) where there is scope for fatal or life threatening vascular and respiratory catastrophe. An esophageal perforation or penetration due to fish bones may lead to severe clinical problems such as bleeding (9, 10), pseudoaneurysm (11), mediastinitis (12), mediastinal abscess (13) or other diseases (14-17). Aortoesophageal fistula due to fish bone is often resulting in mortality (18, 19) and it should be managed surgically (20). Thus, impacted fish bone in the esophageal wall should be removed as soon as possible (21). Fortunately, the fish bone swallowed by the present patient was smoothly dislodged because he remembered the ingestion and consulted our hospital the next day. The reasons why the present patient had a favorable result might be as follows: 1) whole ingested large fish bone could be dislodged promptly, 2) there was no evidence of severe inflammation in the mediastinum, and 3) the ends of fish bone were far from major vessels. In the present case, the fish bone was too large to remove through the esophagus, thus we moved it into the stomach and expected to be spontaneously excreted (22). The types of sharp foreign body include fish bones, chicken bone, safety pins, needles, toothpicks, dentures, and press-through packages. Jeen et al (23) described 22 cases of esophageal sharp foreign bodies (average length was 2.9 cm, range 2.3-4.1 cm) and endoscopic removal was successful in all but one of the cases, in which a fish bone had to be extracted surgically. As they described, endoscopic removal can be successful if
Figure 2. Endoscopic management of the ingested large sea bream jawbone. Endoscopic examination revealed an ingested fish bone sticking in the esophageal wall (A). The whole fish bone was dislodged using a retrieval forceps (B). The removed fish bone was too large to be admitted into an attached transparent hood of the endoscope (C). The fish bone was moved into the stomach (D) and followed its location.

Figure 3. An abdominal CT performed on the fourth hospital day revealed the dislodged fish bone in the proximal colon (arrows).

the foreign body is slender. But there are 4 regions of physical narrowing in the esophagus; all these regions are those of luminal narrowing with diameters of 23 mm or less in adults (24). Thus we could not extract the fish bone through the esophagus without full relaxation on general anesthesia because it was 27 mm wide in the present case. Türkyılmaz et al (21) reported that esophageal rupture as a complication during rigid esophagoscopy occurred in 2 of 188 (1.06%) cases with esophageal foreign bodies. Physicians should pay particular attention to bleeding from the esophageal wall, damage of the esophageal wall or esophageal rupture when esophageal foreign bodies are removed through the esophagus. In the present case, we thought that moving the fish bone into the stomach was less dangerous for the following reasons: 1) in some cases, ingested foreign bodies that reached the stomach naturally passed through the remainder
digestive tract without any clinical problems, if foreign bodies lodged transiently in the esophagus (24, 25), 2) forcible removal through the esophagus may lead to esophageal perforation due to lacerating injury, 3) perforation of the esophagus is much more serious and dangerous than perforation of any other part of the GI tract (7), 4) this large fish bone was detectable by CT and we could know the location of the foreign body even if it became stuck in the bowel.

When ingestion of a foreign body is suspected, we should attempt to determine what the patient swallowed. If the object is long and sharp, it must be removed immediately because the risk of perforation of the GI wall is higher. If the object is an alkali battery, GI damage may occur due to chemical toxicity. However, there are patients who do not remember ingestion (26, 27). Thus, foreign body ingestion should be considered during the evaluation of chest, back or abdominal pain of recent onset.

A chest CT scan was performed before endoscopic examination and a large fish jawbone, which had become lodged in the esophageal wall, appeared as a high-density foreign body in the present case. Generally speaking, the most typical part of fish skeletons that cause impaction in esophagus is fish rib. It had been reported that only 32% of ingested fish bones could be identified radiographically (28). However, CT images were useful to acquire clinical information regarding; 1) the depth of penetration, 2) location of both ends of the foreign body, 3) perforation, 4) bleeding and 5) inflammation in the chest (2, 29-31). If endoscopic removal is performed before CT in a patient with foreign body ingestion, dangerous signs such as penetration to the vessels may be overlooked. Recently, Obinata et al (32) reported a case of toothpick ingestion that led to gastro-duodenal artery rupture after endoscopic removal. Thus, in cases of unintentional ingestion of sharp foreign bodies, it is necessary to determine the location of both ends of foreign body by CT before removal. In the present case, CT was also useful to follow the removed fish bone.

In conclusion, we reported a case of esophageal large fish jawbone impaction successfully dislodged with endoscopy. The fish bone was safely excreted through the intestinal tract. Despite the favorable clinical course of our case, a large fish bone must be considered potentially dangerous, like other pointed objects.

References

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