LESS

Case Report

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Ileal perforation secondary to fish bone ingestion mimicking acute appendicitis

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ABSTRACT

Foreign body (FB) ingestion is commonly encountered in a clinical setting. However, the presence of perforation resulting from the ingested FB is an occurrence that is rarely seen. The most common cause of FB perforation is known to be fish bone. It is important to emphasize that the complications resulting from fish bone ingestion may lead to findings such as acute abdomen signs that can also be interpreted as other medical conditions, including acute appendicitis, acute diverticulitis, or peptic ulcer perforation. Thus, the differential diagnosis should be made, and the patient should be managed accordingly. In cases where the patient presents with acute abdomen signs but there are no clinical findings that may explain the initial diagnosis of the patient, a complete surgical exploration should be performed. We present a 50-year-old male patient who presented to the emergency room with complaints of abdominal pain. Following a thorough clinical examination and blood investigations, it was revealed that he had acute abdomen signs and a high level of C-reactive protein and because of these findings, exploratory laparoscopy was decided to be performed. Intraoperatively, the FB was removed and the site of perforation was repaired with primary closure.

Keywords: Acute appendicitis, exploratory laparoscopy, fish bone, foreign body, ileum perforation

Introduction

Fish bones are one of the most commonly mistakenly consumed foreign bodies (FBs). They may account for up to 84% of the FB ingested accidentally.[1] Injury can occur anywhere from the mouth to the anus. In most situations, they pass through the gastrointestinal tract on their own without the need for medical intervention or making any symptoms.[2,3] On the other hand, fish bones can induce gastrointestinal perforation and blockage at physiologically narrowed locations. The ileocecal region and the rectosigmoid colon are considered to be the most typical areas for FB. An intra-abdominal abscess is the most prevalent complication. Radiographs are almost often negative. A high level of clinical suspicion and expertise with computed tomography (CT) appearance can aid in the detection of fish bone, as well as any associated problems, and can guide further intervention. CT with intravenous contrast administration is the imaging modality of choice, because it can detect very small and even radiolucent fish bones. This paper reports a case of an ingested fish bone from the terminal ileum, which was mimicking appendicitis and caused ileum perforation, which was then diagnosed by laparoscopy and treated with laparoscopic surgery.

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Case Report

A 50-year-old man presented to the emergency department of another hospital with a 3-day history of abdominal pain. Laboratory tests that were performed in this hospital revealed a white blood cell (WBC) count of 11.01 K/uL (reference range: 3.98–10.2 K/uL) and a C-reactive protein (CRP) level of 46.7 mg/L (reference range: 0–5 mg/L). CT was also performed and its evaluation showed that the appendix was edematous while there were no additional pathological findings in other organs. The patient was diagnosed with acute appendicitis and was recommended surgery. After rejecting the surgery in this hospital, he presented to our hospital a day later and underwent a thorough evaluation. Physical examination revealed guarding and rebound on the right lower quadrant of the abdomen and was consistent with the diagnosis of acute appendicitis. Blood investigations showed elevated WBC with a level of 11.72 K/uL (reference range 3.98–10.2 K/uL) and elevated CRP with a level of 145.7 mg/L.

After the evaluation of patient history, clinical presentation, and laboratory results, a surgical approach was decided, and exploratory laparoscopy was performed. Under general anesthesia, pneumoperitoneum was established, and two 10 mm and one 5 mm ports were inserted in the abdominal cavity. During exploration, the appendix was found to be edematous. It was separated from the mesoappendix and was removed with a loop. After the appendectomy was performed, exploration continued, and a sharp FB was revealed. It resembled a fish bone and perforated the small intestine 60 cm proximal to the terminal ileum and formed a mass with a closed perforation (Fig. 1). The mass was opened with blunt dissection and the FB was removed (Fig. 2). This was followed by the primary closure of the perforation site with sutures. Saline fluid was used to wash the abdominal cavity, and primary closure was applied while maintaining hemostasis. After the operation, a more detailed patient history revealed that the patient consumed fish 3 weeks before the initial presentation. When the CT images were examined retrospectively, there was an image resembling a fish bone in the ileum, although it was not clearly visible (Fig. 3).

Discussion

FB ingestions are common situations that are regarded as an emergency.[4] The most of the ingested FB pass through the gastrointestinal tract uneventfully while in <1% of cases, they can result in perforation of the intestinal wall. The in-

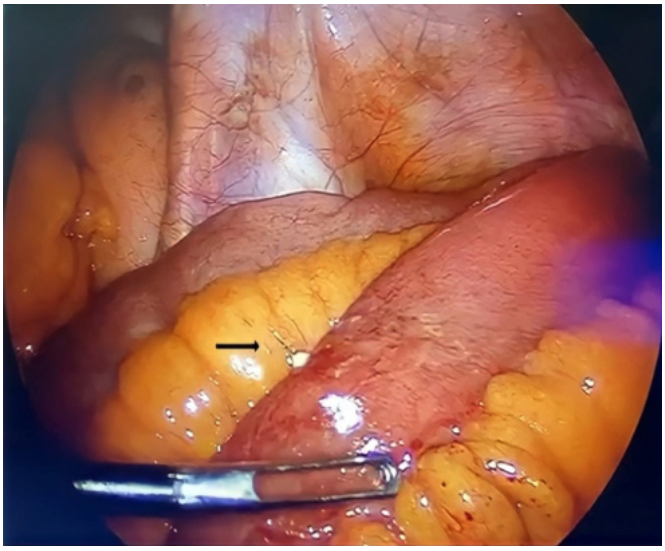

Figure 1. Intraoperative image of the FB as seen through ileal perforation during laparoscopic exploration.

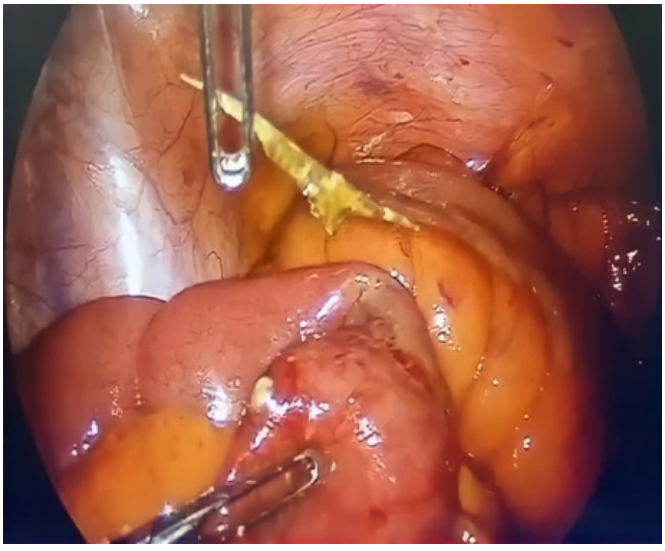

Figure 2. Intraoperative image of the fish bone before laparoscopic retrieval.

Figure 3. Retrospective evaluation of the CT scan revealed a radiopaque linear shadow proximal to the terminal ileum perforated through the intestinal wall.

cidence of perforation is most commonly seen with large objects that are sharp and pointed.[5] These objects may include fish bones and pointed broken bones in adults.[6] According to the Goh et al., fish bone ingestion is the most common cause of perforation by FB in the gastrointestinal tract.[3] Complications of FB ingestions such as perforation and obstruction may occur at various sites throughout the gastrointestinal tract, most commonly in areas that are physiologically narrow such as the pharynx, upper and lower esophageal sphincters, stomach, duodenum, and ileum. The most common locations for such instances are those with acute angulations, such as the ileocecal region and rectosigmoid colon.[7] In cases of FB-induced GI perforations, the clinical presentation relies on the localization of the site of perforation and the extent of peritonitis.[5] The most common clinical symptom in these patients is abdominal pain.[6] Radiological imaging has an essential role in establishing the correct diagnosis and CT scan is the modality of choice for the evaluation of conditions that present with acute abdomen signs.[4] It is an important tool used in the differential diagnosis of fish bone-induced perforation that mimics acute appendicitis, peptic ulcer perforation, and acute diverticulitis.[5] Plain radiographs are only 32% sensitive while according to the Goh et al., CT scan has a sensitivity of 71.4% in detecting an ingested fish bone.[3] Site of perforation can be detected on CT scan with the help of some findings such as thickening of the bowel segment, local effusion, or fat infiltration in the area. A more specific finding is considered a high-density image of the FB.[6,8] In our case, CT scan did not reveal any finding that may indicate a FB impaction preoperatively. However, the retrospective evaluation showed an image of the fish bone, although it could not be seen clearly. In general, an accurate pre-operative diagnosis is often challenging since this condition has a very rare occurrence and the pre-operative history about the ingestion of a FB may not always be accurate.[9]

Fish bones in a narrow segment of the intestine can erode the mucosa, allowing germs to spread. As the pathogenic process progresses, perforation and an extramural abscess develop, resulting in severe abdominal discomfort.[10] On the other hand, impaction and serious consequences have a few causes. Hence, intestinal perforation with an ingested foreign material in a patient with normal intestinal physiology is infrequent in clinical practice. The majority of swallowed foreign bodies pass through the gastrointestinal system without causing any problems, and only a small percentage of situations necessitate surgical intervention. The gut has an incredible capacity to protect itself from perforation. When the intestinal mucosa is pierced with sharply pointed particles, an ischemic region with a large central concavity forms. The intestinal wall expands the lumen of the colon at the site of contact, allowing for more free passage to the irritating item.[11] Furthermore, when a sharp, long object is ingested, the movement of intestinal contents and relaxation of the intestine wall cause the head to lead and the spiky end to follow.[12] With the increased use of emergency laparoscopy in the management of acute abdominal pain, appendicitis, and peritonitis, the diagnosis of this infrequent condition can be made accurately without laparotomy, using exploratory laparoscopy, which has the advantage of being able to explore the entire peritoneal cavity without making a large incision.

In this case report, the patient suffered from guarding and rebound on the right lower quadrant of the abdomen and was consistent with the diagnosis of acute appendicitis. His pre-operative history was insufficient. On CT images, the evaluation showed that the appendix was edematous while there were no additional pathological findings in other organs. Surgical exploration, in this case, was necessary due to the acute abdomen complication and the site of the fish bone, where it was successfully removed by exploratory laparoscopy.

Conclusion

It is often difficult to make an accurate diagnosis of fish bone ingestion due to the rarity of the condition and possible inaccuracy in the pre-operative history of the patient. In patients presenting with acute abdominal signs while having no specific clinical findings that may explain the condition of the patient, it is important to conduct a complete surgical exploration. According to the findings and interventions provided in our case and other available sources, exploratory laparoscopy plays an important role in the definitive diagnosis and treatment due to its many advantages over exploratory laparotomy, which makes it the choice of surgical intervention.

Disclosures

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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