

CASE REPORT

Cecum perforation due to a fish bone

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Abstract

Foreign body (FB) ingestion is a common condition encountered in clinical practice, especially among the pediatric age group; however, this occurrence is rare among adults. Some FBs can induce the perforation of the gastrointestinal tract, including fish bones, chicken bones and toothpicks. The ingestion of FBs is rarely associated with bowel perforation, and most FBs are passed spontaneously. The ingestion of sharp and pointed objects typically produces adverse events related to the upper gastrointestinal system, and FBs are rarely retained in the colon. Bowel perforation caused by the ingestion of FBs should be diagnosed and treated in a timely manner. Here, we present the unusual case of a 51-year-old male who presented to the emergency room with complaints of acute abdominal pain secondary to fish bone ingestion, which triggered cecum perforation.

INTRODUCTION

The ingestion of foreign bodies (FBs) is a common occurrence in emergency practice among both children and adults. Most FBs pass through the digestive tract, with < 1% of FBs associated with complications, particularly gastrointestinal perforations [1]. FB perforations often occur at points of acute angulation and narrowing bowel loops, such as the duodenal loop, duodenojejunal junction, ileocecal valve, appendix and sigma colon [2]. Fish bones are very commonly ingested FBs in areas where fish is a common diet component. The clinical symptoms of intestinal perforation are nonspecific. Intestinal perforation can be also misdiagnosed as acute appendicitis or acute diverticulitis [3]. FB ingestion may lead to severe complications such as bleeding, perforation, and these complications are well-correlated with the size, shape and location of the FB within the gastrointestinal tract. Patients with complications due to FBs can typically be managed through observation, surgical intervention

or endoscopy [1]. In this article, we describe a case of fish bone ingestion that resulted in cecum perforation.

CASE REPORT

A 51-year-old male presented with sudden-onset, right lower quadrant pain, with gradual exacerbation over 1 day. The patient complained of mild nausea, loose stools without hematochezia and a slightly elevated body temperature (38.5°C). No abnormalities were noted in the patient's medical history. On abdominal examination, the clinician noticed right lower abdominal tenderness and muscle tension, with normal bowel sounds. The laboratory results were as follows: increased white blood cell count ($15 \times 10^9/l$) and increased neutrophils ($12 \times 10^9/l$). Because the symptoms and physical examination were suspicious for appendicitis, an abdominal computed tomography (CT) scan was performed. The CT findings revealed a high-density FB inside the

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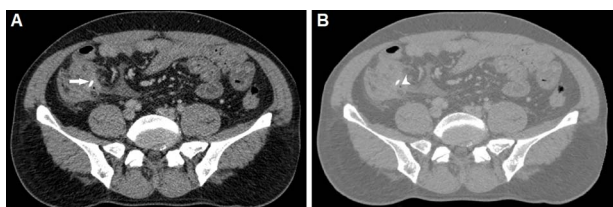


Figure 1: Abdominal CT scanner showed a high-density FB intra-cecum (A, arrow), with fat stranding around the cecum. Foci of gas extra-cecum and near the FB were also observed (B, arrowhead).

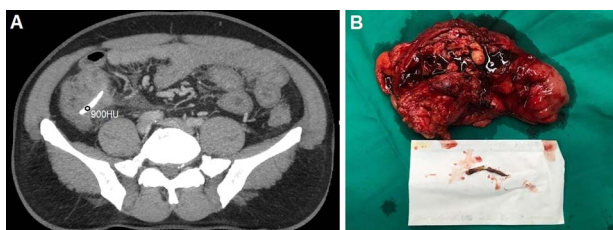


Figure 2: The length of the high-density FB was ~30 mm (A). Laparoscopic cecectomy confirmed a fish bone, measuring ~30 mm, resulting in cecum perforation (B).

cecum (Fig. 1A). The mural of the cecum was thickened, with fat stranding. Foci of gas in the peritoneal cavity adjacent to the object was also observed (Fig. 1B), suggested that the FB had caused cecum perforation. The FB was sharp-pointed, with a density of 900 HU (Fig. 2A). The patient received an emergency operation, and a punctate perforation area was detected on the cecum. The patient was managed successfully with a cecectomy and the removal of the FB, which was confirmed to be a fish bone (30 mm in length) (Fig. 2B). The patient received antibiotic therapy and had no complications during the postoperative period. Upon further investigation, the patient reported eating fish 2 days before symptom onset, which supported the operative findings. The patient was discharged 3 days after surgery.

DISCUSSION

Gastrointestinal FBs are often introduced by ingestion, especially among children and older individuals. Patients with dentures, alcoholics and psychiatric patients are at high risk of FB ingestion [4]. The terminal ileum, ileocecal, the rectosigmoidal region and the cecum are common sites of FB retention in gastrointestinal tract due to the anatomical features at these locations [1]. Complications are often caused by sharp objects such as fish bones or toothpicks, resulting in a high risk of local injuries, including mucosal laceration and perforation. The clinical presentations can vary, and patients present with abdominal pain, nausea, vomiting, fever, peritonitis, abscess, fistula, intestinal obstruction and gastrointestinal bleeding, associated with acute abdominal pain. Thus, FB-associated perforations can mimic other emergency conditions, including diverticulitis, appendicitis and gastric ulcer perforations [5]. Moreover, patients generally do not remember swallowing the FBs, which can result in delayed diagnosis or misdiagnosis [3]. Some FBs can become trapped, causing dangerous complications, such as the development of an abscess, an enteric fistula, intestinal obstruction, peritonitis and blood vessel complications [6, 8]. Some case reports have reported the migration of ingested FBs to the liver, urinary bladder or iliac artery, resulting in the formation of an

arterio-enteric fistula [6–8]. Plain radiographic studies can be used to investigate metallic objects and pneumo-peritoneum or bowel obstructions [4]. Although fish bones are radiopaque and generally visible on plain radiography; however, some of them that are low radiopaque and small dimensions, are invisible on plain film. The ultrasound has typically been used to diagnose non-radiopaque FBs, revealing intra-abdominal fluids, which can be useful for excluding other differential diagnoses. CT scans are also helpful for recognizing intestinal FBs and represents the best imaging modality for identifying radiopaque FBs. CT scans can also define the exact location of ingested objects and identify the development of complications [3]. Important signs of perforation on CT scans include fat stranding and thickening of affected bowel segment walls. Air bubbles can often be observed surrounding the perforation site [2]. FB management depends on the location within the digestive tract and the occurrence of other complications, such as perforation, hemorrhage, bleeding, and the involvement of other affected organs. When objects are small and do not injure the gastrointestinal tract, they can be observed and followed-up [5]. Endoscopy is also an effective method, especially for FBs in the upper gastrointestinal tract or during early stages [9]. Surgical interventions are necessary in complicated cases, even when the FB is located in the upper gastrointestinal tract [10].

In this case report, the patient suffered from acute, right lower quadrant abdominal pain and low-grade fever, which could be misdiagnosed as appendicitis, and his medical history was easily dismissed. Fortunately, the fish bone and bowel perforation were easy to detect on CT images. Surgery, in this case, was necessary due to the bowel perforation complication and the site of the fish bone, which was difficult to treat with endoscopy.

FBs typically present with non-specific symptoms that may mimic other acute abdominal pain-inducing complications. Intestinal perforations by fish bones are unusual, especially in the lower segments of the gastrointestinal tract. The clinical and radiological diagnosis of gastrointestinal perforations remains non-specific and challenging. This case indicated the important role played by CT scans for the determination of diagnosis and the identification of potential complications. The primary treatment is surgical intervention for the removal of foreign objects, although endoscopy can be useful when foreign objects are located in the upper gastrointestinal tract.

CONFLICT OF INTEREST STATEMENT

None to declare.

FUNDING

None.

ETHICS APPROVAL

Our institution does not require ethical approval for reporting individual cases or case series.

CONSENT

A written consent for publication has been obtained from the patient.

GUARANTOR

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ABBREVIATIONS

CT: computed tomography

FB: foreign body

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