

Ileal Perforation by an Ingested Fish Bone: An Unusual Cause of Abdominal Pain

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Abstract

Case Report

Background: Foreign body ingestion is a common clinical occurrence that is generally benign. However, sharp objects such as fish bones can cause gastrointestinal perforations, representing rare but potentially severe complications that are often challenging to diagnose. **Case Presentation:** We report the case of a 66-year-old female patient admitted for febrile abdominal pain evolving over 48 hours. An abdominopelvic computed tomography (CT) scan revealed a transmural, hyperdense linear structure within the ileum, associated with locoregional inflammatory signs, highly suggestive of a foreign body perforation. Laparoscopic exploration confirmed a punctate ileal perforation caused by a fish bone, which was successfully managed via extraction and primary simple suture. The postoperative course was unremarkable. **Conclusion:** Ileal perforation by a fish bone should be included in the differential diagnosis of any atypical acute abdomen. The CT scan plays a pivotal role in establishing the definitive diagnosis. Prompt surgical intervention facilitates a conservative, organ-sparing approach that yields an excellent prognosis. **Keywords:** Foreign body; Fish bone; Intestinal perforation; Computed tomography.

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INTRODUCTION

Foreign body (FB) ingestion is a frequent chief complaint in emergency departments, most often occurring accidentally. While predominantly affecting the pediatric population, it is also observed in adults, particularly in the elderly, edentulous individuals, those utilizing dental prostheses, or patients with cognitive impairment [1,2]. In the majority of cases, the clinical course is favorable, with the spontaneous passage of the foreign body occurring in 80% to 90% of instances. Endoscopic extraction is required in 10% to 20% of cases, whereas the necessity for surgical intervention remains exceptionally rare (less than 1%) and is generally reserved for the management of complications [1,2].

Among foreign bodies, fish bones represent a distinct clinical entity due to their sharp and rigid nature, rendering them particularly prone to causing gastrointestinal perforation [3]. Although this complication is classically considered rare, recent data suggest that its true incidence may be underestimated, largely due to atypical clinical presentations and frequently delayed diagnoses [4,5]. The preferential sites

for perforation correspond to areas of physiological narrowing or acute angulation within the gastrointestinal tract, most notably the ileocecal region [3].

Establishing a preoperative diagnosis remains a formidable challenge; the patient's history is frequently non-contributory, and the symptomatology often mimics other common acute abdominal emergencies. Within this context, abdominopelvic computed tomography (CT) plays a pivotal role, allowing for the direct visualization of the foreign body alongside indirect signs of digestive perforation [2,6,7].

Herein, we report a case of ileal perforation caused by an ingested fish bone, presenting as localized peritonitis, preoperatively diagnosed via CT scan, and successfully managed utilizing a laparoscopic approach.

CASE PRESENTATION

A 66-year-old female patient presented to the emergency department with abdominal pain evolving over the preceding 48 hours. Her medical history was notable for former smoking and a myocardial infarction previously treated by percutaneous coronary intervention

and stent placement. There were no other significant comorbidities. The abdominal pain, of insidious onset, was localized to the periumbilical region and the right flank, accompanied by vomiting and a fever of 38.5°C. There were no reported alterations in bowel habits, nor any history of recent abdominal trauma or strenuous physical exertion.

Upon physical examination, the patient was febrile and tachycardic. Abdominal palpation revealed localized guarding in the right flank and periumbilical area, with no overt signs of generalized peritonitis. Furthermore, an oral cavity examination demonstrated a complete, intact dentition. Laboratory investigations revealed a biological inflammatory syndrome characterized by leukocytosis (12,000 cells/mm³) and an elevated C-reactive protein (CRP) level of 67 mg/L.

An urgent unenhanced abdominopelvic CT scan was performed. The imaging demonstrated a linear, hyperdense, transversally oriented structure at the ileocecal junction. One extremity of the object was intraluminal, while the other extended extraluminally, penetrating the intestinal wall along the antimesenteric border. This radiological finding was associated with adjacent mesenteric fat stranding and a locoregional inflammatory reaction, without evidence of frank pneumoperitoneum. These features were highly

suggestive of an intestinal perforation secondary to an ingested foreign body (Figure 1). A subsequent directed anamnesis revealed a history of fish consumption approximately 24 hours prior to symptom onset.

Emergent surgical intervention was indicated. An exploratory laparoscopy was performed, revealing an inflammatory mass (plastron) with agglutinated small bowel loops located approximately 100 cm proximal to the ileocecal valve. Following meticulous dissection and adhesiolysis, a punctate ileal perforation on the antimesenteric border was identified, with a protruding fish bone measuring approximately 4 cm (Figure 2). The foreign body was carefully extracted, followed by primary closure of the perforation defect utilizing an interrupted absorbable suture (Monosyn® 3-0). Copious peritoneal lavage was subsequently performed, and a closed-suction drain was placed adjacent to the sutured repair. The postoperative course was unremarkable, characterized by the return of bowel function on postoperative day 3 and a safe discharge on postoperative day 6.

Macroscopic examination of the retrieved specimen confirmed it to be a fish bone measuring 4.7 cm in length. No contributory histopathological examination was deemed necessary.

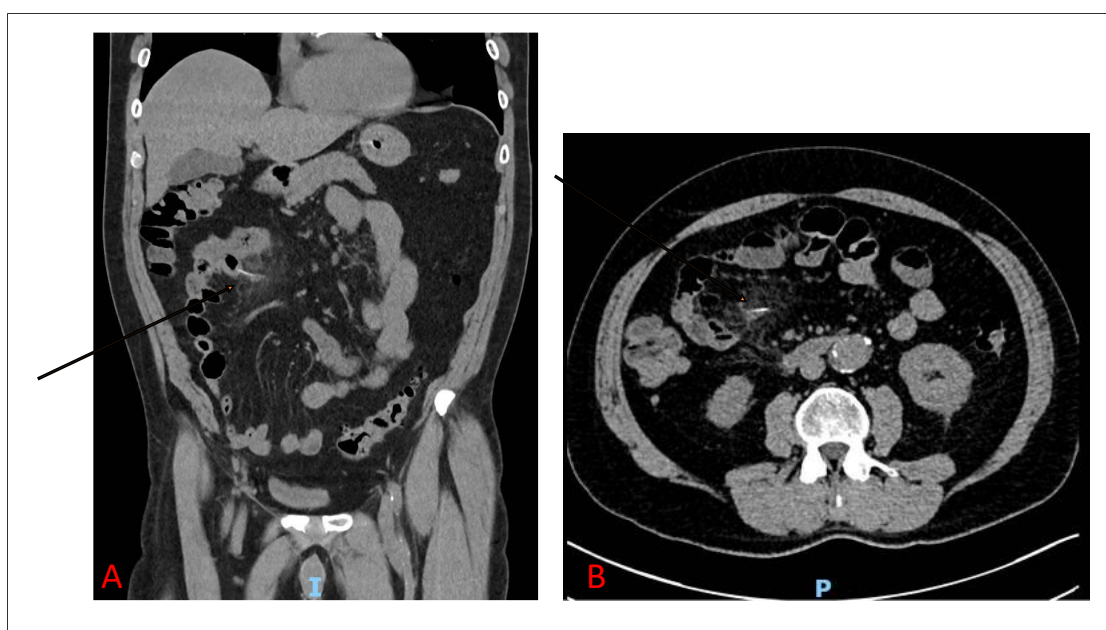


Figure 1: Computed tomography (CT) assessment of the ingested foreign body
(A) Coronal CT image demonstrating a transversally oriented, linear hyperdense structure traversing the intestinal wall, exhibiting both intraluminal and extraluminal extension.
(B) Axial CT image revealing the impacted object accompanied by significant adjacent mesenteric fat stranding, indicative of a locoregional inflammatory response.

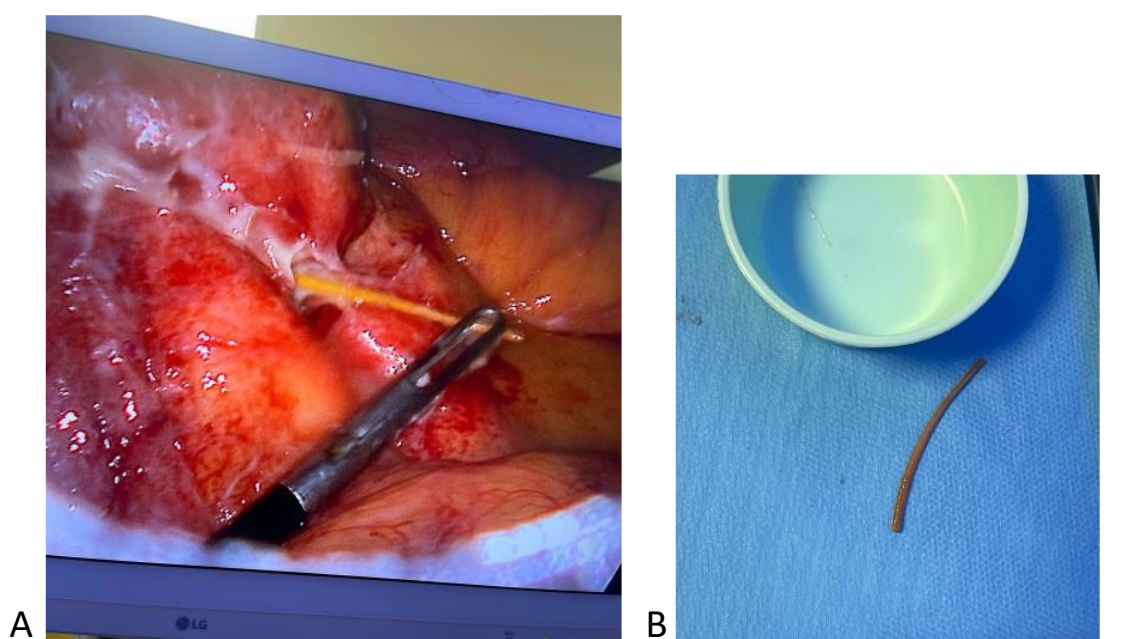


Figure 2: Intraoperative findings and macroscopic specimen of the impacted fish bone

(A) Laparoscopic view displaying a punctate ileal perforation located on the antimesenteric border, with the sharp extremity of the fish bone protruding through the serosa. The adjacent bowel is edematous and covered with pseudomembranous exudates.

(B) Macroscopic appearance of the successfully extracted fish bone, measuring approximately 4 cm in length.

DISCUSSION

Foreign body ingestion is a common clinical scenario that is predominantly benign and spontaneously resolves [1]. However, sharp foreign objects, such as fish bones, carry an inherently higher risk of complications, particularly gastrointestinal perforation. While traditionally estimated to occur in less than 1% of ingestions, recent literature suggests that this complication is likely underdiagnosed due to atypical clinical manifestations and frequent diagnostic delays [4,5].

In the adult population, several predisposing factors contribute to accidental foreign body ingestion, including advanced age, edentulism, and the use of dental prostheses [2]. The clinical history is notoriously unreliable; patients frequently fail to recall the ingestion event or do not associate it with their subsequent abdominal symptoms, as was observed in the present case. This specific diagnostic hurdle is widely acknowledged in the literature [1,2].

Pathophysiologically, fish bones tend to impact at physiological narrowings or sharp angulations of the gastrointestinal tract, particularly within the ileocecal region. The resulting perforation is typically punctate and is rapidly walled off by adjacent anatomical structures, which accounts for the frequent absence of a frank pneumoperitoneum and the tendency for the disease to present as localized peritonitis [3,6]. Our observation accurately illustrates this mechanism,

demonstrating a punctate ileal perforation effectively contained within an inflammatory plastron.

Establishing a preoperative clinical diagnosis of foreign body perforation is notoriously difficult. The patient's history is frequently misleading, as the ingestion episode often goes unnoticed or is only recalled following a directed, retrospective inquiry [1,8,9]. Clinical symptomatology is generally deceptive and typically mimics other prevalent acute surgical emergencies (e.g., acute appendicitis, acute diverticulitis, or perforated peptic ulcer), manifesting as localized abdominal pain, fever, localized guarding, and a biological inflammatory syndrome (leukocytosis and elevated CRP) [1,10].

Within this diagnostic gray area, the abdominopelvic CT scan serves as the gold standard imaging modality. It facilitates the direct visualization of the foreign body as a hyperdense linear structure and highlights indirect radiological signs, such as peridigestive fat stranding or bowel loop agglutination [2]. Multiplanar reconstructions (MPR) significantly enhance diagnostic sensitivity and should be routinely utilized when a foreign body is clinically suspected. In our patient, the CT scan was decisive in establishing the correct preoperative diagnosis.

Beyond classical presentations, recent reports have described unusual clinical courses, notably involving the extra-luminal migration of the foreign body leading to distant complications, such as hepatic

abscesses secondary to an initial digestive perforation [7]. These atypical forms highlight the occasionally severe evolutionary potential of such lesions and underscore the paramount importance of early diagnosis.

Therapeutic management is dictated by the evolutionary stage of the disease. In the setting of a complicated perforation, surgical intervention is mandatory. Laparoscopy has emerged as the approach of choice, simultaneously serving both diagnostic and therapeutic purposes. In the presence of a punctate perforation on a viable intestinal segment, careful extraction of the foreign body paired with primary simple closure constitutes a safe and highly effective option, successfully averting the morbidity of a bowel resection [1,8,11]. The favorable clinical outcome observed in our patient substantiates the validity of this conservative surgical strategy.

Our observation highlights several critical clinical points: the inherent diagnostic difficulty in the absence of a suggestive history, the decisive role of CT imaging in preoperative staging, and the efficacy of a conservative surgical approach when executed promptly.

CONCLUSION

Intestinal perforation caused by an ingested fish bone is a rare but likely underestimated etiology of an acute abdomen. Its diagnosis is frequently complicated by non-specific symptomatology and an unreliable clinical history. The abdominopelvic CT scan remains the cornerstone imaging modality for securing a definitive preoperative diagnosis. Prompt surgical intervention, ideally performed via a laparoscopic approach, ensures an effective and organ-sparing treatment that yields a generally excellent prognosis. A high index of clinical suspicion must be maintained, particularly in at-risk patient populations presenting with atypical abdominal symptoms.

HIGHLIGHTS

- Intestinal perforation by a fish bone is a rare but likely underestimated cause of acute abdomen.
- Clinical symptomatology is frequently atypical, and the patient history is often non-contributory.
- Computed tomography (CT) provides a highly reliable preoperative diagnosis.
- Laparoscopy is an effective diagnostic and therapeutic approach.

- Primary simple closure may be sufficient for the management of punctate perforations. laparoscopy.

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