



Intestinal Perforation by a Foreign Body Mimicking Appendicular Syndrome: A Case Report

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Abstract:

Background: Swallowing a foreign body is a common occurrence in emergency digestive medicine; yet, when the object migrates into the small intestine and causes perforation, the resulting complication is both rare and diagnostically challenging. This report describes a case in which a metallic fragment — most likely of dental origin — perforated the ileum and presented with clinical features that were, at first, virtually indistinguishable from acute appendicitis. **Case Report:** A 62-year-old man with no notable medical background attended the emergency department complaining of right iliac fossa (RIF) pain persisting over three days, accompanied by a biological inflammatory response. Contrast-enhanced CT of the abdomen identified a linear metallic density within an ileal segment, along with focal mural thickening (8 mm), surrounding mesenteric fat infiltration, and extra-luminal air consistent with a contained bowel perforation. The case was discussed at a multidisciplinary surgical meeting, following which emergency laparotomy was undertaken. Intraoperatively, localized peritonitis was observed alongside a full-thickness ileal perforation situated roughly 200 cm proximal to the ileocaecal junction. The causative foreign body was removed, the defect was repaired using a double-layer primary closure, and thorough peritoneal irrigation was performed. Recovery was straightforward and without complications. **Conclusion:** When a patient presents with acute right iliac fossa pain that lacks a clear explanation, intestinal perforation from an ingested foreign body should be considered, especially when the history reveals a recent dental procedure. Contrast-enhanced CT remains the imaging tool of choice in this context, and timely operative intervention is the cornerstone of management.

Keywords: Foreign Body, Bowel Perforation, Small Intestine, Emergency Surgery, CT Imaging, Dental Foreign Body.

Case Report

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INTRODUCTION

Foreign body ingestion accounts for a significant proportion of emergency digestive consultations. In most instances, the swallowed object passes through the gastrointestinal tract without incident and is eliminated naturally [1]. However, a small subset — estimated at 1 to 2% of cases — develop complications, of which intestinal perforation is the most clinically significant [1, 2].

Objects responsible for bowel perforation are typically elongated or pointed: fish bones, sewing needles, toothpicks, and — as illustrated by the present observation — fragments from dental instruments [2, 3]. Among the various anatomical segments of the bowel, the ileum and, more specifically, the ileocaecal valve are most frequently implicated, owing to the physiological narrowing they create [3, 4].

From a clinical standpoint, this condition is notoriously difficult to recognize at initial presentation. Right-sided abdominal pain associated with elevated inflammatory markers is a constellation that commonly triggers a working diagnosis of acute appendicitis, masking the actual etiology and delaying appropriate management [4, 5]. Contrast-enhanced abdominal CT has become the pivotal diagnostic tool in such ambiguous presentations [5, 6].

We present the case of a 62-year-old man whose emergency laparotomy — initiated for a presumed appendicular syndrome — revealed a metallic foreign body perforating the ileum. This observation illustrates the diagnostic traps inherent to this condition and underlines the value of a thorough clinical history, with systematic inquiry into recent dental interventions.

Case Report

A 62-year-old male with no prior medical or surgical history was seen in the emergency department for right iliac fossa pain evolving over 72 hours. During anamnesis, the patient mentioned a tooth extraction performed several weeks earlier. He reported no nausea, no vomiting, no change in bowel habits, and no fever prior to admission.

Physical examination revealed localized tenderness and guarding in the right iliac fossa, without signs of diffuse peritoneal irritation, palpable mass, or hernial protrusion. Digital rectal examination was unremarkable. Hemodynamic parameters remained stable throughout.

Laboratory workup demonstrated a moderate inflammatory profile: leukocytosis at 13,000/mm³ and C-reactive protein at 100 mg/L. Renal and hepatic function tests as well as coagulation studies were all within normal ranges.

Contrast-enhanced abdominopelvic CT identified the following findings: focal

thickening of the wall of an ileal loop (approximately 8 mm) with peri-intestinal fat infiltration; a linear hyperdense structure within the ileal lumen consistent with a metallic foreign body; and a small collection of extra-luminal air indicative of microperforation. No free pneumoperitoneum or significant fluid collection was detected. The appendix appeared morphologically normal.

Following multidisciplinary review, the imaging findings of contained bowel perforation justified urgent surgical intervention.

The procedure was carried out through a midline laparotomy under general anesthesia. Exploration revealed localized peritonitis centered on the distal small bowel. The perforation was located on an ileal loop approximately 200 cm from the ileocaecal valve. A linear metallic fragment, morphologically consistent with a dental instrument, was extracted from the perforation site. After debriding the wound margins, the defect was closed with a two-layer primary suture. Extensive peritoneal lavage was performed. No segment of bowel required resection.



Figure 1: Ileal loop perforation secondary to a bony fragment



Figure 2: Retrieved bone fragment

The postoperative period was uneventful. The patient received a seven-day course of amoxicillin-clavulanate. Oral feeding resumed on the second postoperative day, and discharge occurred on day six. A clinical review at one month confirmed a complete and uncomplicated recovery.

DISCUSSION

Epidemiology and Pathophysiology

Intestinal perforation arising from an ingested foreign body is uncommon but carries significant potential morbidity [1]. Although most swallowed objects are expelled spontaneously within 72 hours, objects that are elongated or sharp are associated with a considerably elevated perforation risk, ranging from 15% to 35% in reported series [2, 3].

The anatomical sites most prone to foreign body impaction are regions where the digestive lumen narrows or changes angulation: the gastroesophageal junction, the angle of Treitz, and the ileocaecal valve [3, 4]. These zones present natural obstacles to the transit of non-pliable objects.

Foreign bodies originating from dental procedures form a distinct and underrecognized clinical category. They may include endodontic instrument fragments (files, broaches), metallic crown pieces, or prosthetic components inadvertently swallowed during or after a dental procedure [6, 7]. The present case fits this profile, with a recent dental extraction constituting a key anamnestic element that is too often overlooked during emergency triage.

Clinical Features and Diagnostic Pitfalls

The symptomatology of foreign body intestinal perforation lacks specificity and frequently misleads the clinician. Pain tends to develop progressively rather than abruptly, as the perforation is typically contained by a local inflammatory reaction from the peritoneum and mesentery [4, 5]. This accounts for the multi-day diagnostic delays described in much of the existing literature [1, 5].

In the current case, the combination of RIF pain, localized guarding, and raised inflammatory markers oriented initial suspicion toward appendicitis — a diagnostic confusion that is well documented and constitutes one of the main pitfalls in managing this condition [4, 7]. The key discriminating factor was CT demonstration of a normal appendix alongside a clearly visible metallic foreign body at the ileal level.

The classical triad of abdominal pain, fever, and localized guarding is present in fewer than half of cases of intestinal foreign body perforation [3]. The absence of fever — as in our patient — should not lead the clinician to dismiss this diagnosis. A systematic inquiry into recent episodes of ingestion, including dental procedures, must be incorporated into the workup of any unexplained acute abdominal syndrome [6].

The Role of CT Imaging

Contrast-enhanced abdominopelvic CT is now established as the reference imaging technique for evaluating suspected complicated gastrointestinal foreign bodies [5, 6]. Its sensitivity for radio-opaque objects exceeds 90% in recent published series [5]. Beyond localizing the foreign body, CT provides indirect evidence of perforation — mural thickening, mesenteric fat stranding, localized pneumoperitoneum, and adjacent fluid collections [5, 6].

In our observation, CT was decisive: it localized the metallic foreign body at the ileal level and documented signs of contained perforation, allowing for an informed and timely surgical decision. The absence of diffuse free air confirmed that the breach remained circumscribed, indicating that operative

intervention had been initiated before peritoneal dissemination could occur.

Surgical Management

Surgical exploration is mandatory in all cases of intestinal foreign body perforation [1, 2]. The operative objectives encompass thorough inspection of the entire small bowel, retrieval of the causative object, peritoneal lavage, and bowel wall repair — by primary closure or resection-anastomosis, depending on tissue viability [2, 7].

The laparoscopic approach is gaining increasing acceptance, particularly in localized peritonitis without marked bowel distension, as it enables comprehensive exploration with reduced postoperative morbidity and faster convalescence [7]. In our case, open laparotomy was elected in keeping with our center's practice, given the distal ileal location and the degree of local inflammatory changes.

Primary two-layer repair following debridement was successfully performed, obviating any need for intestinal resection. The viability of primary repair depends on the quality of the wound margins, the absence of extensive ischemia, and the timeliness of intervention [2]. Postoperative antibiotic therapy followed current protocols for management of secondary peritonitis [8].

CONCLUSION

Ileal perforation by an ingested foreign body, although uncommon, represents a genuine cause of acute abdomen that can closely mimic acute appendicitis, thereby generating potentially harmful diagnostic delays.

Two steps are critical to preoperative diagnosis: a meticulous history with specific attention to recent dental procedures, and contrast-enhanced abdominopelvic CT as the first-line imaging modality.

This case also emphasizes the importance of multidisciplinary surgical board review when managing atypical acute abdominal presentations, and the need to systematically extend the differential diagnosis when right iliac

fossa pain does not conform to the classic appendicitis pattern.

From a surgical perspective, early intervention allows for conservative bowel repair in the majority of cases, avoiding resection and limiting postoperative morbidity. Prospective multicenter studies are needed to better define optimal management protocols, including the specific indications for a laparoscopic approach in this setting.

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