

Laparoscopic Management for a Rare Case of Jejunal Perforation Due To Fish Bone Ingestion: A Case Report

Venkatesan Pugazhendhi¹, Easwaramoorthy Sundaram^{2*}, Sakthivel Chandrasekar³, Haridra Sundarajan⁴ and Naresh Kumar⁵

¹Postgraduate Resident, Lotus Hospital and Research Centre, Erode, India.

²Head of the Department of Surgery, Lotus Hospital and Research Centre, Erode, India.

³Consultant surgeon, Lotus Hospital and Research Centre, Erode, India.

⁴Postgraduate Resident, Lotus Hospital and Research Centre, Erode, India.

⁵Postgraduate Resident, Lotus Hospital and Research Centre, Erode, India.

*Corresponding author

Prof. Dr Easwaramoorthy Sundaram,

Department of Surgery, Lotus Hospital and Research Centre, Erode, Tamil Nadu, India.

ORCID: <https://orcid.org/0000-0002-1823-7204>

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Abstract

A 35-year-old woman presented with generalised peritonitis. Her initial CECT abdomen was reported as normal. Diagnostic Laparoscopy revealed a fish bone perforating the jejunum. Laparoscopic removal and primary repair resulted in uneventful recovery. Retrospective CT review identified two fish bones, underscoring the importance of clinical judgment when imaging and examination findings conflict.

Keywords: Diagnostic Laparoscopy, Perforative Peritonitis, Fish Bone Injury, Small Bowel Perforation.

Introduction

Accidental ingestion of foreign bodies is a relatively common clinical occurrence. Most ingested foreign bodies pass spontaneously through the gastrointestinal tract without producing significant morbidity. However, sharp foreign bodies such as fish bones, chicken bones and toothpicks can occasionally penetrate the gastrointestinal wall and produce perforation, peritonitis, abscess formation or other complications. Gastrointestinal perforation following foreign-body ingestion is uncommon, occurring in less than 1% of cases.

Fish bones are among the commonest foreign bodies responsible for gastrointestinal perforation. The clinical diagnosis can be challenging because patients may not remember swallowing the fish bone and symptoms may mimic more common causes of acute abdomen. The site of perforation may also vary, with the ileum being frequently reported, although jejunal perforation is a recognised but uncommon presentation.

Computed tomography (CT) is considered the imaging modality of choice when fish-bone-related gastrointestinal perforation is suspected. CT may demonstrate a linear hyperdense foreign body, focal bowel-wall thickening, surrounding inflammatory change, localized pneumoperitoneum or an abscess. However, detection can be affected by the size, composition and orientation of the fish bone, and interpretation is observer dependent.

Case Presentation

A 35-year-old female presented to the emergency department with a one-day history of diffuse abdominal pain, Dull aching, continuous, non-radiating pain. No history of trauma.

On general examination, the patient had tachycardia and no hypotension. Abdominal examination **revealed diffuse abdominal tenderness with guarding and rebound tenderness.** The clinical findings were suggestive of generalised peritonitis.

The patient underwent contrast-enhanced computed tomography of the abdomen to identify the cause of the acute abdomen. The initial CECT abdomen was reported as a normal study, with no definite evidence of bowel perforation or other acute intra-abdominal pathology. (Figure 1)

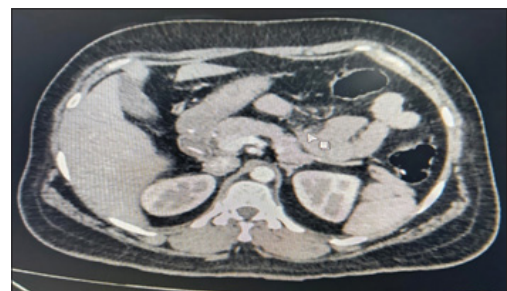


Figure 1: Preoperative CECT abdomen

Despite the non-contributory imaging report, the patient continued to demonstrate significant clinical signs of peritonitis. In view of the discrepancy between the clinical findings and imaging findings, the decision was made to proceed with diagnostic laparoscopy.

Surgical Management

The patient was taken for emergency diagnostic laparoscopy under general anaesthesia. After establishment of pneumoperitoneum, laparoscopic exploration of the abdominal cavity was performed. A systematic examination of the abdominal cavity was undertaken, including examination of the stomach, small bowel, colon and pelvis.

In the pelvis, a small amount of pus collection was present. On examination of the small bowel, a localised abnormality was identified in the middle jejunum. **A sharp foreign body.**

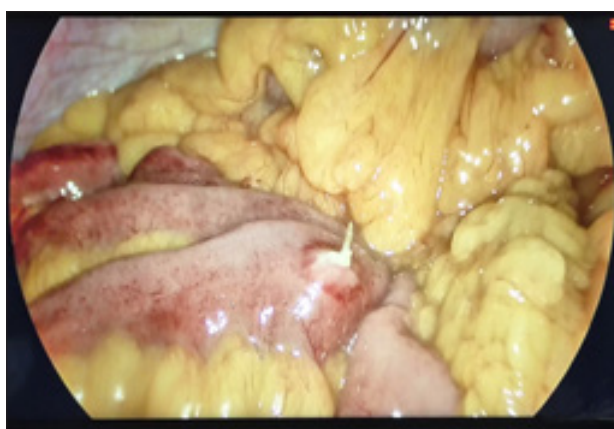


Figure 2A: Perforation of Jejunum by a fish bone.

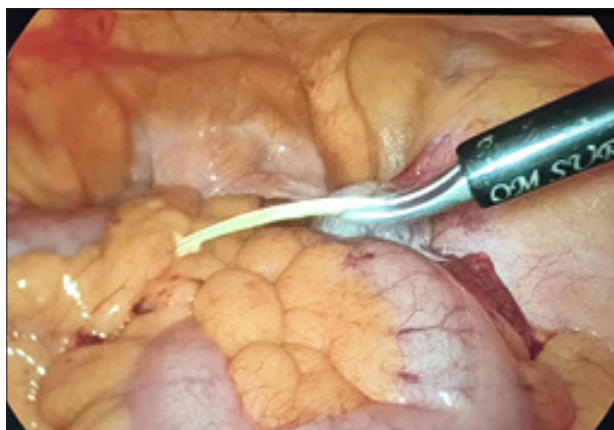


Figure 2B: Laparoscopic removal was seen penetrating through the jejunal wall.

The foreign body was identified as a fish bone. (Figure 2A & 2B) The fish bone was carefully mobilised and removed from the jejunal wall. Following removal, a small perforation was identified at the site of penetration. The surrounding bowel appeared viable, and no ischemia was seen. Jejunal perforation was closed primarily using 2-0 Vicryl. Peritoneal cavity thoroughly irrigated with warm saline. Retrieved fish bone measured approximately 2 cm. Patient tolerated the procedure well and was discharged after 72 hours. (Figure 3A & 3B).



Figure 3A: Primary closure using 2-0 vicryl



Figure 3B: Retrieved Fish bone

Retrospective Radiological Review

Following identification of the fish bone during laparoscopy, the preoperative CECT images were reviewed again in discussion with the radiologist. On retrospective review, two additional linear hyperdense structures compatible with fish bones were identified within the bowel. (Figure 4A & 4B) These additional fish bones had not been identified in the initial radiological interpretation.

The retrospective review emphasised the difficulty of identifying small, thin foreign bodies on routine CT interpretation and demonstrated the value of close surgeon-radiologist communication when operative findings do not correlate with the initial imaging interpretation.



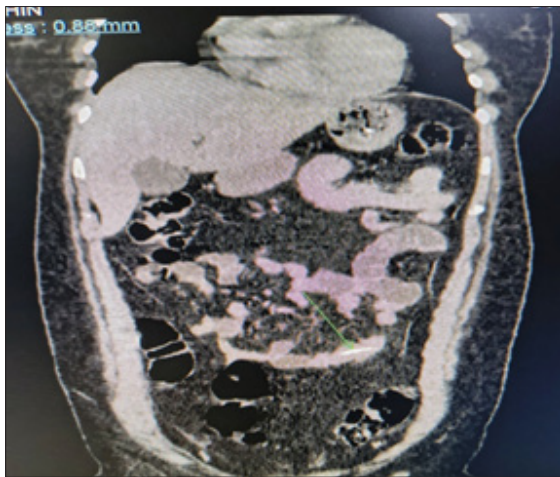


Figure 4 A & 4 B: CT abdomen showing Fish bone inside the small bowel lumen

Postoperative Course

Postoperatively, the patient was monitored clinically for evidence of ongoing intra-abdominal infection, Primary closure site complications and ileus. The postoperative course was uneventful.

Discussion

Fish-bone ingestion is common, but gastrointestinal perforation is an uncommon complication (Al-Darwish et al., 2026; Goh et al., 2006). Most swallowed foreign bodies traverse the gastrointestinal tract spontaneously. Sharp foreign bodies, however, can penetrate the bowel wall and produce localised or generalised peritonitis.

The clinical presentation of fish-bone perforation is variable. Patients may present with generalised peritonitis, localised abdominal pain, an inflammatory mass, abscess formation or symptoms mimicking other common surgical conditions. The diagnosis is particularly challenging when the patient does not recall swallowing a fish bone.

In the present case, the patient presented with an acute abdomen characterised by diffuse tenderness, guarding and rebound tenderness. These findings strongly suggested peritonitis. However, CECT abdomen was initially reported as normal. The persistence of the clinical findings prompted diagnostic laparoscopy, which demonstrated the actual pathology.

This clinical-radiological discrepancy is the most important feature of the present case.

Role and limitations of CT

CT is considered the most useful imaging modality for suspected gastrointestinal perforation caused by an ingested fish bone (Goh et al., 2006; Jallali et al., 2024; Beecher et al., 2015). Typical findings may include a linear hyperdense foreign body, focal bowel-wall thickening, surrounding mesenteric fat stranding, localised fluid, pneumoperitoneum or an inflammatory mass.

However, the sensitivity of CT is not absolute in real-world clinical practice. Detection depends on the physical characteristics of the fish bone, its orientation, surrounding bowel contents and the quality of image reconstruction. A thin fish bone oriented parallel to the axial imaging plane may be particularly difficult to recognise. Importantly, radiological interpretation is also observer-dependent. A published CT series specifically reported cases in which the offending fish bone was initially missed, emphasising the importance of maintaining a high index of suspicion.

Our case provides another example of this diagnostic limitation. Although retrospective review demonstrated two additional fish bones, the initial report did not identify them. The operative finding prompted targeted reassessment of the images and facilitated recognition of the additional foreign bodies. Therefore, when clinical findings are strongly suggestive of gastrointestinal perforation, a negative or non-diagnostic CT report should be interpreted in the context of the overall clinical picture rather than in isolation.

Why can Fish Bones Perforate the Jejunum?

The elongated and sharp configuration of fish bones allows them to orient longitudinally within the bowel lumen. Peristaltic movements can cause one end of the bone to become impacted against the bowel wall, while continued intestinal contractions may progressively drive the sharp end through the bowel wall.

Certain anatomical locations may predispose to perforation because of angulation, fixed points or areas where bowel contents exert pressure against the wall. The jejunum is less frequently reported than the ileum as a site of fish-bone perforation, but jejunal perforation is well documented. In our patient, the fish bone perforated the middle jejunum without an obvious predisposing bowel pathology.

Importance of Clinical Judgment

One of the important lessons from this case is the importance of clinical judgment.

The patient had generalised peritoneal signs despite a normal CECT report. Peritonitis is fundamentally a clinical diagnosis, and the absence of a definite radiological abnormality should not necessarily delay surgical exploration in a patient with persistent and convincing peritoneal signs.

Previous reports of fish-bone perforation have similarly emphasised the diagnostic difficulty and the importance of maintaining a low threshold for diagnostic laparoscopy when clinical findings and imaging do not correlate. In the present case, proceeding to diagnostic laparoscopy allowed definitive diagnosis and treatment during the same procedure.

Role of Diagnostic Laparoscopy

Diagnostic laparoscopy provides direct visualisation of the abdominal cavity and allows identification of subtle small-bowel pathology that may not be evident clinically or radiologically. In a hemodynamically stable patient with

suspected intra-abdominal pathology, laparoscopy can offer both diagnostic and therapeutic benefits.

In this patient, the fish bone was removed laparoscopically, and the jejunal perforation was closed primarily. No bowel resection was required. Primary repair may be appropriate for a small perforation when the bowel is viable, contamination is limited, and the surrounding tissue is healthy. Segmental bowel resection may be required when there is extensive tissue destruction, ischemia, necrosis, abscess, severe contamination or inability to safely close the perforation.

Recent reports continue to describe successful laparoscopic management of fish-bone-related small-bowel perforation in selected patients.

Significance of the Additional Two Fish Bones

An unusual feature of this case was the retrospective identification of two additional fish bones. The presence of multiple fish bones raises an important practical consideration: once one ingested sharp foreign body is identified, the entire gastrointestinal tract should be carefully inspected for additional foreign bodies where feasible. In our patient, the additional fish bones were not recognised during the initial CT interpretation but became apparent following retrospective multidisciplinary review. But the patient did not require any further surgical intervention, and the patient passed those additional foreign bodies subsequently.

This observation also reinforces the value of surgeon-radiologist communication. When an unexpected foreign body is found intraoperatively, reviewing the original imaging with the radiologist may reveal subtle findings that were not appreciated during the initial assessment (Beecher et al., 2015; Choi et al., 2014).

Conclusion

Fish-bone-induced jejunal perforation is a rare but important cause of acute abdomen. The diagnosis can be challenging because the clinical presentation is nonspecific, patients may not recall foreign-body ingestion, and small fish bones may be difficult to identify on initial CT interpretation.

This case demonstrates that persistent clinical evidence of peritonitis should take precedence over an apparently normal radiological examination when deciding whether surgical exploration is required. Diagnostic laparoscopy enabled rapid identification and treatment of the jejunal perforation in this patient.

The retrospective identification of two additional fish bones highlights the importance of careful review of imaging and communication between surgeons and radiologists. A high index of suspicion and timely surgical intervention can prevent progression to severe intra-abdominal sepsis and other complications.

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