

## Foreign body ingestion induced ileal perforation: A case report

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### ABSTRACT

Foreign body consumption leading to gastrointestinal perforation is uncommon and sometimes ignored; hence, misdiagnosis is likely. Here in, we present a 26-year-old male who contributed to the department of emergency medicine with chronic lower abdominal pain for three months. He provided no information on his past sea food consumption. The findings of laboratory testing and the first imaging examination were normal. Abdominal CT revealed a high-density lesion, presumed to be a foreign body. During surgical exploration, a fish bone was discovered in the terminal portion of the ileum, resulting in many ileal perforations and the creation of an ileo-ileal fistula. Diagnostic laparoscopy followed by exploratory laparotomy, resection of the perforated bowel segment and side-to-side anastomosis was performed. The patient recovered from surgery nicely and was discharged in good health. A precise diagnosis of complications caused by ingestion of fish bones is fairly difficult. Detailed information on the patient's diet and eating habits must thus be obtained. Patients' clinical manifestations are mainly determined by the location of the perforation, typically at the terminal of the ileum and rectal sigmoid colon. CT and diagnostic exploration are the modalities for accurate diagnosis and management.

**Keywords:** Foreign body, perforation, ileum.

### 1. INTRODUCTION

Fishbone is among the most prevalent unintended foreign body ingestions encountered in our clinical practice (Elbakouri et al., 2021; Mutluet al., 2012; Kumar et al., 2021). Frequently, it passes through the digestive system asymptotically (Elbakouri et al., 2021). Less than 1% of cases of gastrointestinal perforation result from foreign body ingestion (Elbakouri et al., 2021; Mutlu et al., 2012; Song et al., 2020; Chandrasinghe & Pathirana, 2015). Fish bones cause the majority of gastrointestinal perforations (Mutlu et al., 2012; Song et al., 2020). However, few patients may recall having ingested foreign objects (Song et al., 2020; Sibanda et al., 2020; Chandrasinghe & Pathirana, 2015).

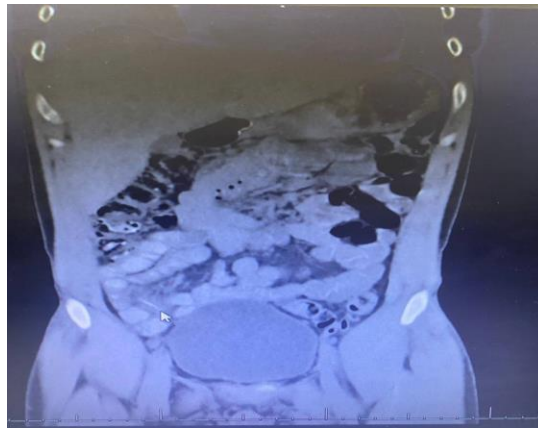
Diverse clinical manifestations frequently make diagnosis difficult practice (Elbakouri et al., 2021; Mutlu et al., 2012; Song et al., 2020; Beecher et al., 2015; Sibanda et al., 2020). Here, we present a case of ileal perforation resulting from consumption of fish bones diagnosed by a CT scan and managed surgically.

## 2. CASE REPORT

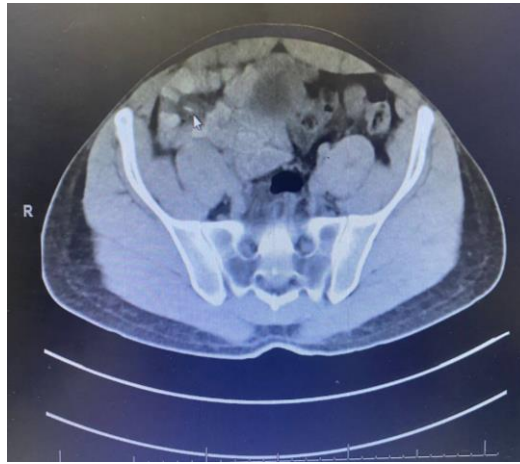
A 26-year-old male patient without significant medical or surgical history was hospitalized to the department of general surgery with complaints of chronic lower abdominal pain for three months, on and off, relieved by analgesia. He denied having any aggravating symptoms, such as stress and certain foods, over the last few months. The intensity of the pain has been increasing over the previous two weeks. The pain was associated with altered bowel habits, vomiting and anorexia. Not related to defecation. No significant Weight loss, fever and Melena. He also denied any ingestion of fish bone. The patient demonstrated no signs of peritonitis. On examination, he was conscious, alert and oriented. His vitals sign on admission: Blood pressure: 127/75, Pulse rate: 73, Respiratory rate: 18, Temperature: 36.8, O<sub>2</sub> saturation: 99% on room air. His Abdomen: Soft and lax, not distended. There was lower abdominal tenderness, mainly in the right quadrant. Negative rebound tenderness, normal bowel sound. PR: Unremarkable. His white blood count, hemoglobin level, amylase, lipase and lactate were within normal range. His Chest and abdominal x-ray were normal.

Our preliminary diagnosis considering our patient's age, symptoms and duration, includes inflammatory bowel disease and irritable bowel syndrome. Based on the history, physical examination, laboratory and initial images made the inflammatory bowel illness (Crohn's disease) is more likely to be diagnosed. The patient was admitted as a case of abdominal pain for CT with IV, Oral and Rectal contras. A CT Report revealed (Figure 1 and 2) the Right iliac fossa mesenteric foreign body surrounded by an inflammatory reaction. No evidence of Pneumoperitoneum or abscess formation. We chose to conduct a diagnostic laparoscopy and proceed. During exploration, there were multiple adhesions at the lower part of the Abdomen. Adhesiolysis laparoscopically was performed, but could not localize foreign bodies; then, the decision was taken and converted to open surgery. During surgery, we found multiple adhesions at the right lower part of the Abdomen.

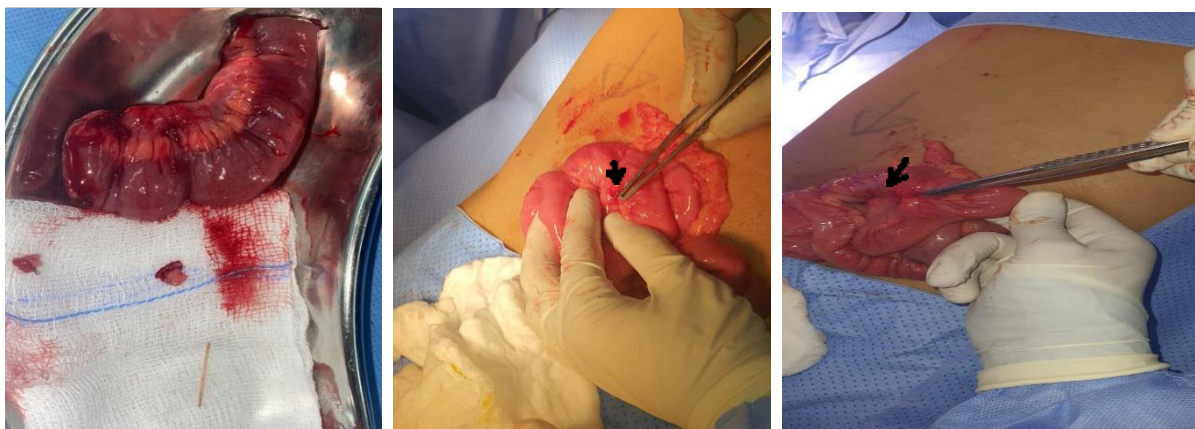
Further Adhesiolysis was done. There was an Entero-entric fistula at the terminal ileum 15 cm apart from the ileocecal junction with multiple perforations caused by a foreign object. The foreign body was found in the fistula tract and removed (Figure 3). Resection with side-to-side primary anastomoses involving perforated part of ileum about 8 cm (Figure 3) with GIA size 60. The mesenteric window was closed by Vicryl simple interrupted suture. A drain was inserted in the pelvis, hemostasis secured and the abdominal wall closed in layers. Post-operatively patient was seen doing fine with mild abdominal pain. We kept him NPO over three days with no complaints; on the 4th day, the patient developed Melena, with no drops in hemoglobin level. An abdominal CT- angiography was unremarkable. Melena improved over the next day, Moreover, the patient was discharged in good condition with no complaints.



**Figure 1** coronal view of foreign body in the distal ileum



**Figure 2** Axial view of the foreign body in the distal ileum



**Figure 3** Foreign body popping out from terminal ileum (ileo-ileal fistula) and resected part of the perforated terminal ileum.

### 3. DISCUSSION

Foreign bodies cause intestinal perforation in fewer than 1 percent of cases. Most patients cannot recall eating foreign objects and are commonly misdiagnosed with appendicitis or burst ulcers of the digestive tract (Elbakouri et al., 2021; Mutlu et al., 2021; Song et al., 2020). The patient might have had constipation, abdominal discomfort, anal pain, abscesses, or an anal fistula. Pain in the Abdomen is the most prevalent symptom reported by 95% of patients. 81% of patients experience fever, whereas 39% experience local peritonitis (Song et al., 2020).

After accidental eating of fish bones, perforation is commonly experienced. Therefore, doctors seldom get a history of fish bone consumption and only a surgical exploration or imaging scan can often detect it (Song et al., 2020). According to radiographic data, only 20% of patients had free intestinal gas. However, the role of plain film radiography in detecting fish bones is limited. One study reported that the sensitivity of X-rays was only 32% and the false-negative rate was as high as 47% (Klein et al., 2019; Kim, 2016; Sibanda et al., 2020). The kind of fish bone influences sensitivity, as bones with high calcium content are easier to identify. Less calcium-rich fish bones may be hidden through fluid and soft tissue, lowering their sensitivity (Sibanda et al., 2020).

Computerized tomography (CT) is thus currently the preferred imaging modality in cases of suspected foreign bodies (Klein et al., 2019). Previous studies have shown a sensitivity of 100% (Kim, 2016). Concerning nearby anatomical structures and with low false-negative rates, CT scans have good foreign body detection sensitivity and specificity rates (Klein et al., 2019; Sibanda et al., 2020; Čuchráč et al., 2021). CT may detect calcified foreign bodies as thin as 0.5 mm in diameter (Kumar et al., 2021). Fishbone seems to be a linear hyperdense lesion on CT scan (Kumar et al., 2021). Mucosal wall thickening, local effusion, bowel obstruction, pericolic fat stranding and occasionally abscess development are associated CT abnormalities at the site of perforation (Beecher et al., 2015; Sibanda et al., 2020; Chandrasinghe & Pathirana, 2015).

In our case, X-rays were insufficient to identify any apparent foreign bodies; therefore, we performed a CT scan for diagnosis. The preoperative CT scan gave adequate information for a precise diagnosis, such as a high-density lesion surrounded by an

inflammatory response without evidence of pneumoperitoneum or abscess creation. This patient had no medical or surgical background and his x-rays and laboratory results were normal. He primarily complained of persistent abdominal pain followed by constipation and eventually, diarrhea. Consequently, the symptoms were strikingly comparable to those of inflammatory bowel disease. Three months before his presentation, he had been experiencing diarrhea and constipation and denied ingesting seafood. These symptoms likely resulted in a misleading diagnosis of inflammatory bowel illness in patients with chronic abdominal pain associated with altered bowel habits.

The vast majority of foreign entities found in the digestive tract can be extracted with the use of gastroscopy or enteroscopy; only one percent of instances require surgical excision. Treatment is generally determined by the perforation site and clinical presentations and may include suturing the perforated site, resection of the bowel, or the Hartman procedure. Surgeons frequently choose bowel resection to prevent inflammation-induced intestinal fistulas (Song et al., 2020). In such situations, laparoscopic surgery is less traumatic than traditional laparotomy; it has eventually replaced open abdominal exploration to remove foreign objects. Currently, this surgical procedure is broadly applied (Song et al., 2020). However, open surgery was indicated due to the presence of several adhesions and the difficulty in locating the foreign body in this place.

Because of the patient's unawareness of his symptoms, duration, denial of foreign body ingestion and negative abdominal x-ray result, accompanied with his CT finding, fortunately, the fishbone did not do any harm. A laparoscopic diagnostic exploration was planned. During the surgery, we identified multiple adhesions between the ileal loops and the anterior abdominal wall. We were unable to detect the foreign body utilizing laparoscopy. Following the decision to do open surgery, the fishbone was apparently lodged in the fistula near the terminal ileum. Because the entero-enteric fistula had several apparent perforations, we chose to resect part of the intestine rather than suture it. After undergoing surgery, the patient recovered well. Two and six weeks after surgery, follow-up procedures were carried out.

#### 4. CONCLUSION

Fishbone complications are challenging to identify since they frequently follow inadvertent intake. Therefore, it's crucial to have a detailed understanding of the patient's eating habits and nutrition. For example, the perforation site, typically at the terminal of the ileum and the rectal sigmoid colon, largely determines the clinical symptoms. The methods utilized for specific diagnoses are computed tomography (CT) and diagnostic laparoscopy.

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#### Authors contribution

Dr Farrukh A. Ansari, consultant general surgery, MD, – abstract, introduction, case report, discussion and conclusion

Dr Mashael K. Bogshan, MD – abstract, introduction, case report, discussion and conclusion.

Dr Mansour D. alhassani, MD – introduction and case report.

#### Informed consent

Informed consent has been taken obtained from the patient.

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#### Conflict of interest

The authors declare that there is no conflict of interests.

#### Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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