Small Bowel Perforation Due to a Fishbone: A Case Report

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SUMMARY

The accidental ingestion of foreign bodies is commonly seen in clinical practice. However, small bowel perforation due to the ingestion of foreign bodies is rarely seen. In this article, we report a case of small bowel perforation due to the ingestion of a foreign body. An 80-year-old female patient presenting with complaints of acute abdomen was admitted to the Emergency Department. She had tenderness in the right lower quadrant. Contrast enhanced abdominal computed tomography revealed small bowel perforation due to the ingestion of a foreign body, and the patient underwent emergency surgery. A microperforation due to the ingestion of a fishbone was detected on the terminal ileum. The patient underwent debridement and primary repair, and was discharged on the seventh postoperative day without any problems. Bowel perforation due to the ingestion of foreign bodies should be considered in the differential diagnosis of acute abdomen.

Key words: Foreign bodies; intestinal perforation; small intestine.

Introduction

Presentation at the Emergency Department with findings of acute abdomen is a frequently encountered event. However, the development of acute abdomen associated with the ingestion of a foreign body is rarely seen. Most ingested foreign bodies are expelled in stool without creating any problems,1 and only 1% cause perforation in the digestive system, primarily at the level of the ileum.2 Foreign bodies may be fatal due to complications such as perforation, obstruction and fistulas. Computerized tomography (CT) is the preferred method in preoperative diagnosis of ingested foreign bodies and their consequent complications.3-6 For all these reasons, when there are presentations of acute abdomen it is necessary to consider bowel perforation associated with foreign bodies, and examination must be made and early intervention applied. In this paper, a case is presented of small bowel perforation due to an ingested foreign body in an elderly patient, and the approach to this rare event is discussed.

Case Report

An 80-year-old female presented at the Emergency Department with complaints of nausea and vomiting and abdominal right-side lower quadrant pain which had been ongoing for two days and increasing in severity. Her general status was good and she was cooperative. In the physical examination, sensitivity and guarding was determined in the right lower quadrant of the abdomen and intestinal sounds were hypoactive. No pathology was determined in the rectal...
examination. In the laboratory examinations, values were higher than normal for leukocyte count 89% (41-73), neutrophil weight 17x10^3/μL (5.2-12.4), and C-reactive protein level 64.6 mg/L (0-10). The full urine examination was normal and no abnormal finding was found in the other blood parameters. On the direct abdominal radiograph taken in a standing position, several levels of air-fluid were observed in the ileal segments but no free air was determined in the abdomen. On the abdominal ultrasonography (USG), minimal free fluid was seen in the pelvis. On all the abdominal computerized tomography (CT) images, widespread edema, and inflammation were observed in the distal part of the terminal ileum; inflammation was observed in the surrounding fatty tissue and an appearance consistent with a linear foreign body transecting the wall of the terminal ileum and extending into the surrounding fatty tissue was found. This appearance was initially interpreted as a foreign body causing perforation (Figure 1a). Minimal free fluid was seen in the pelvis and physiological calibration of the appendix.

Taking these findings into consideration, the patient was thought to have a perforation of the small intestine due to a foreign body and was admitted for emergency surgery. A midline incision was made and laparotomy was applied. In the examination, a sharp linear foreign body (a fishbone) 5cm in length was found transecting the wall 15 cm proximal of the ileocecal valve from the lumen in the terminal ileum (Figure 1b).

The fishbone was removed from the terminal ileum. A perforation point was determined in the terminal ileum. At the same time, edema and inflammation were seen in the terminal ileum and a small amount of reactive serous fluid in the pelvis. The perforation area was debrided and primary repair was made. Antibiotic treatment was administered to the patient in the postoperative period. On the seventh postoperative day, the patient was discharged without any problems. When the patient was questioned, it was learned that she had eaten fish three days previously.

**Discussion**

The accidental swallowing of a foreign body is a frequently encountered event in clinical practice. However, intestinal perforation associated with an ingested foreign body is rarely seen. The foreign bodies which most often cause gastrointestinal system (GIS) perforation are sharp objects such as fish bones, chicken bones, and toothpicks. However, although rare, pens, nails, nail clippers, batteries, and laundry pegs may also cause GIS perforation. In literature there are also cases of GIS perforation developing from biliary stent migration. In an examination made by Pinero Madrona et al, the most common cause of intestinal perforation associated with ingested foreign objects was determined to be chicken bones. Chu et al reported the most common cause of intestinal perforation associated with ingested foreign objects to be fish bones. Goh et al also reported ingested fish bones to be the most common cause of GIS perforations.

Though there is a tendency for perforations associated with ingested foreign bodies to be in angulated areas of the gastrointestinal tract such as the ileocecal and rectosigmoid junction, they may be seen in all segments of the intestine. In a study by Goh et al, the area of greatest perforation (38.6%) associated with fish bones was found to be the terminal ileum. Coulier et al reported the most common locations of perforations to be those narrowed by the lumen or angulated such as the distal ileum. In the current case, the perforation was determined 15cm proximal to the ileocecal valve. Occasionally, perforations may be seen in locations such as the hernia.

**Figure 1.** On contrast CT (a) arrow showing a linear foreign body transecting the wall in the terminal ileum and extending into the surrounding fatty tissue, (b) arrow showing perioperative view of the fishbone in the terminal ileum wall.
sac, the Meckel diverticulum, or the appendix.\[13\]

Cases of perforation associated with foreign bodies generally present with acute abdomen, as in the current case. However, different indications have been reported, such as localized abdominal abscess, colorectal, colovesical or enterovesical fistula, inflammatory mass or omental pseudotumor, chronic or acute intestinal obstruction, bleeding, endocarditis, and renal or ureteral colic.\[3,5,15\] Some cases may remain symptom-free.\[14\]

Risk factors for perforation associated with the accidental swallowing of bones include increased fragility of the intestine due to inflammatory disease, advanced age as in the current case, not spending enough time on preparation and eating, and loss of contact sensation due to prosthetic teeth.\[3\]

Together with this wide-ranging presentation, if it is unclear in the history that a foreign body such as a fishbone has been swallowed, there may be difficulties and delays in the diagnosis.

Direct abdominal radiographs are beneficial in the visualization of ingested metallic foreign bodies, free air associated with perforation or an obstruction; USG can discount fluid within the abdomen or differential diagnoses; and CT aids in the visualization of perforation associated with non-metallic foreign bodies such as fish bones.

Non-radio-opaque objects such as bones or toothpicks can be determined on USG because of a high rate of reflection and variable background shadowing.\[15\] Changes in the tissue surrounding perforations on ultrasonography can be evaluated as lumen content of the superficial intestinal segments. However, problems may be experienced in deep tissues. There are known limitations related to the morphological characteristics of the patient, the location of the perforation, and the experience of the practitioner. Multi-detector CT, which offers the possibility of reapplication in many planes with high resolution and fine collimation, enables detailed examination of the GIS in all directions and is currently accepted as the first choice in the evaluation of patients with acute abdomen and determination of foreign bodies.\[3\]

In the current case, minimal free fluid was observed in the pelvis on the USG which was taken because of acute abdomen. Then on the whole abdomen contrast CT, a typical image was obtained of perforation associated with an ingested fishbone. The typical CT appearance of perforation due to a fishbone is a linear hyperdense lesion with surrounding inflammation, as was seen in the current case.

As perforation due to a foreign body generally leads to acute abdomen, the treatment is surgery. However, when there are complications such as abscess, fistula and ileus develop, observation, medical treatment, or radiological interventions can be considered. In the surgical treatment of small intestine perforations, surgical repair or segmental resection is necessary.\[12\] As the current case was a microperforation, debridement and primary repair was applied.

### Conclusion

This case emphasizes the importance of considering intestinal perforation due to an ingested foreign body in the differential diagnosis of cases of acute abdomen. A good anamnesis together with appropriate imaging will provide a high possibility of accurate diagnosis.

### Conflict of Interest

The authors declare that there is no potential conflicts of interest.

### References


