CASE REPORT

Fishbone-induced perforated appendicitis

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SUMMARY

We review the literature and describe a case of fishbone-induced appendicitis. A 63-year-old man presented with abdominal pain. Work up including a focused history and imaging revealed fishbone-induced perforated appendicitis. The patient was managed safely and successfully with laparoscopic removal of the foreign body and appendectomy.

BACKGROUND

Expectant management of ingested foreign bodies in an otherwise stable patient is often the standard management because the majority of ingested materials spontaneously pass through the gastrointestinal tract without harm to the patient.¹ Paediatric and adult patients have both been described to swallow foreign materials accidentally and also as part of a premeditated act. The actual ingestion is commonly associated with intoxication and/or mental illness.²⁻³ The current literature describes various foreign bodies that were swallowed and later found within the appendix, including pellets and seeds.⁴⁻¹⁰ Foreign bodies in the appendix have been managed with either medical or surgical approaches.^{4-6, 9} Ingestion of sharp pointed objects (especially pins) has been described only in rare cases to induce acute appendicitis.⁴ Specifically, fishbone-induced appendicitis is not commonly described in the English medical or surgical literature. We present a case, a review of the literature and a successful method to manage this rare disease entity.

CASE PRESENTATION

A 63-year-old man with a medical history significant for insulin-dependent diabetes mellitus and hypertension presented to the emergency department with a 1-week history of vague and persistent abdominal pain. His temperature was 36.9°C, heart rate was 87 bpm and blood pressure was 149/68 mm Hg. On examination, he was in mild distress, and his abdomen was distended and diffusely tender to palpation. The tenderness was noted to be most pronounced in the right lower quadrant. A focused preoperative history revealed that he ingested a large fish meal 2 weeks prior to presentation.

INVESTIGATIONS

Laboratory work up demonstrated a white blood cell count of 17 200 (th/cmm) with a neutrophil predominance. Abdominal CT demonstrated a linear calcified density in the appendiceal lumen with surrounding inflammation suggestive of perforated appendicitis secondary to a foreign body (figure 1).

Figure 1 Abdominal CT demonstrated a linear calcified density within the appendix with surrounding inflammation, suggestive of perforated appendicitis.

DIFFERENTIAL DIAGNOSIS

Foreign body appendicitis, foreign body intestinal perforation.

TREATMENT

The patient was brought to the operating room where he underwent a laparoscopic appendectomy. Intraoperatively, a fishbone was found protruding through the distal one-third of the appendiceal wall (figure 2). The entire appendix and foreign body were surrounded by a moderately sized periappendiceal abscess. The fishbone was removed laparoscopically (figure 3), the abscess was drained and a laparoscopic appendectomy was performed without any complication.

OUTCOME AND FOLLOW-UP

Pathology confirmed focal haemorrhage and periappendicitis secondary to fishbone-induced perforated

Figure 2 During laparoscopy, a fishbone was found protruding through the appendiceal wall in the middle of a periappendiceal abscess.

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Figure 3 The fishbone measured 4.5 cm.

appendicitis. The patient tolerated the procedure well and was discharged home on postoperative day 2, after complete resolution of his symptoms. He was instructed to finish a 7-day course of antibiotics. Three weeks later, he reported no fevers or chills, his incisions had healed well and he was tolerating a regular diet.

DISCUSSION

We report an unusual case of fishbone-induced appendicitis that was successfully managed with prompt surgical appendectomy and foreign body removal. While there are a few reports of fishbones in the appendix in the East Asian surgical literature, this phenomenon is not commonly documented in Western society.^{11–15} As suggested by Green *et al*,⁴ foreign body-induced appendicitis is rare in modern day USA as there is decreased dependence on hand-sewing with needles and eating of wild game. As in our case, patient history and clinical examination can be non-specific, further making the diagnosis of intestinal or appendiceal perforation secondary to foreign body ingestion challenging. A retrospective review of 12 cases of intestinal perforation secondary to a foreign body by Maleki and Evans revealed that 75% of the preoperative diagnoses were incorrect. Patient symptoms can mimic appendicitis, cholecystitis, bowel obstruction and malignancy.^{3 16} After an extensive review, Klingler *et al*^{5 6} concluded that appendicitis from foreign body ingestion is very rare and most commonly occurs due to stiff or pointed objects that find their way into the appendiceal lumen. A 1963 review of 71 000 appendix specimens from various hospitals in the USA documented 80 cases (0.113% incidence).¹⁷ Moreover, a 1971 study of 13 228 appendectomies at Duke Hospital and Durham Veterans Administration Hospital revealed only seven foreign bodies in the appendiceal lumens (0.005% incidence).⁹ Acknowledging the rarity of this disease entity, clinicians should seek detailed history of food ingestion over the past 2 weeks when a foreign body is suspected on CT imaging.

More importantly, we suggest that a fishbone (or foreign body)-induced appendicitis—even when perforated and with a periappendiceal abscess—is unlikely to respond to non-operative management with intravenous antibiotics and percutaneous drainage secondary to the presence of the foreign body. We therefore recommend a prompt appendectomy, drainage of the infection and foreign body removal. Laparoscopy as an approach is successful in identifying the fishbone and extracting it, and safe for performing the

appendectomy. The patient in this case indeed recovered without any postoperative complications.

Patient's perspective

"I was surprised to learn that the fish dinner was the cause of my abdominal pain; I did not make the connection of my symptoms with the fish meal, till specifically asked."

Learning points

- ▶ While the incidence of fishbone-induced perforated appendicitis remains unknown, the incidence of all foreign bodies lodging in appendiceal lumens has been reported to range between 0.005% and 0.113%.
- ▶ A focused history and high clinical suspicion are key to diagnosis while imaging is helpful for confirmation.
- ▶ Foreign body-induced perforated appendicitis can be successfully managed with prompt surgical appendectomy and foreign body removal.

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