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Case Report

Coconut leaf midrib skewer as a cause for small bowel obstruction and perforation: A case report

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ABSTRACT

Foreign body ingestion is an infrequent cause of small bowel obstruction and, rarely, perforation. It is a common occurrence among pediatric patients, mentally impaired and the edentulous elderly population majority of which will pass through the gastrointestinal tract uneventfully. The likelihood of complications such as perforation, bleeding or fistula formation increases markedly particularly for sharp, stiff, and elongated objects (i.e. toothpicks, meat bones, pins, and razor blades). Diagnosis can be difficult as frequently patients are incognizant of the nature and time of ingestion. Imaging is commonly non-specific as well. We present an unusual case of a 65-year-old male who had an ileal perforation secondary to a coconut leaf midrib skewer initially presenting as small bowel obstruction. Intraoperatively, adhesions were seen in the ileum with note of the foreign body perforating two bowel loops that was not identified in preoperative imaging. This case highlights the importance of considering atypical causes of small bowel obstruction even in the background of previous surgery. Finally, early recognition, accurate diagnosis, and timely intervention are essential to improve patient outcomes and decrease mortality in such cases.

Introduction

Small bowel obstruction is a common acute surgical emergency. Frequent causes include postoperative adhesions, tumors, ruptured viscus, and hernias. However, it is also important to be aware of less ordinary etiologies such as foreign body ingestion. Accidental foreign body ingestion is usual among children, the elderly, mentally impaired and alcoholics. The majority of these will pass uneventfully in the gastrointestinal tract, being safely observed, and monitored through serial imaging while 10–20 % will fail to progress and rarely cause perforation [1]. Sharp and stiff objects have a reasonably higher likelihood of perforating bowel, especially in sites of narrowing or acute angulation. In adults, dentures and orthodontic appliances, needles, toothpicks, fish or meat bones, clips and razor blades are commonly ingested sharp objects. Mortality rates of up to 30 % have been reported particularly for delayed management, thus early diagnosis and timely intervention are essential to improve patient outcomes [2]. Herein we report an unusual case of a patient with an ileal perforation secondary to a coconut leaf midrib skewer initially presenting as small bowel obstruction.

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Case presentation

A 65-year-old male experienced abdominal pain, vomiting and diarrhea of 1 week duration before gradually progressing to abdominal distention, inability to pass flatus and obstipation prompting consult at the emergency room. He has controlled hypertension and previously underwent a laparotomy for ruptured appendicitis in 2019. He was received normotensive but tachycardic at 120 beats per minute. Physical examination revealed distended abdomen with hypoactive bowel sounds, tympanitic on percussion without direct or rebound tenderness. Initial radiographs showed diffuse dilatation of the small bowels with differential air-fluid levels. There was also paucity of rectal gas with no pneumoperitoneum (Fig. 1A, B). The impression at that time was partial gut obstruction likely from postoperative adhesions, thus conservative management was instituted consisting of placing the patient on nil per os (NPO), inserting a nasogastric tube (NGT), intravenous hydration, and antibiotics. However, after 48 h, with note of feculent NGT drainage and diffuse abdominal tenderness, the patient eventually underwent exploratory laparotomy. Intraoperatively, the small bowels were distended up to the distal ileum 20 cm from the ileocecal valve with dense adhesions between loops and omentum (Fig. 2A). On further dissection, a sharp, wooden object similar to a toothpick around 3 cm in length was seen perforating two segments of ileum (Fig. 2B, C). Extraction of the foreign body and primary repair of the involved segments were subsequently performed. The postoperative course was unremarkable, and he was discharged after 5 days. Upon review of history, the patient remembered eating a local delicacy from the province of Laguna called Alaminos longganisa a few days prior. It is described as smoked sausages held together by a coconut leaf midrib skewer which was the offending agent in this case (Fig. 3A, B).

Discussion

Foreign body ingestion occasionally can be seen among adults in the emergency room, particularly those who are edentulous as having dentures makes them lack palatal and gingival sensation. Complications such as obstruction or perforation may occur depending on the nature of the foreign body and its relation to the anatomical narrowing set along the gastrointestinal tract. Although the rate of perforation has been generally reported to be at 1 %, this increases markedly between 15 and 35 % whenever sharp, elongated, pointed or stiff objects have been ingested [3]. Established sites are the ileum, ileocecal and rectosigmoid regions wherein, besides a reduction in luminal diameter, there is a significant change in the direction of intestinal transit between the mobile mesocolon and the fixed retroperitoneum. Once lodged, the subsequent arrest in movement initiates bowel wall necrosis leading to perforation.

The clinical manifestations are highly variable and frequently mimic other acute surgical conditions such as appendicitis, diverticulitis, or perforated ulcer. This is mainly because there are various potential sites and oftentimes patients are incognizant of having ingested a foreign body. Moreover, the timing of ingestion is often unknown, making it difficult to establish its temporal relationship with the onset of symptoms. Although abdominal pain, obstruction or signs of peritonitis are common presentation, others have documented fistula formation from contiguous structures (i.e. colon, portal vein, urinary bladder) or even spontaneous closure of the puncture site [4,5].

Radiological diagnosis can be difficult as well with plain abdominal radiographs being the initial imaging of choice. It is unusual to appreciate pneumoperitoneum as the perforation is usually caused by progressive piercing of the object in the intestinal wall; allowing it to be covered with fibrin and adjacent bowels, preventing the passage of fluid or gas into the peritoneal cavity [6]. Radiolucent objects, fatty infiltration or surrounding inflammation may impede identification although at times, these may show a non-metallic

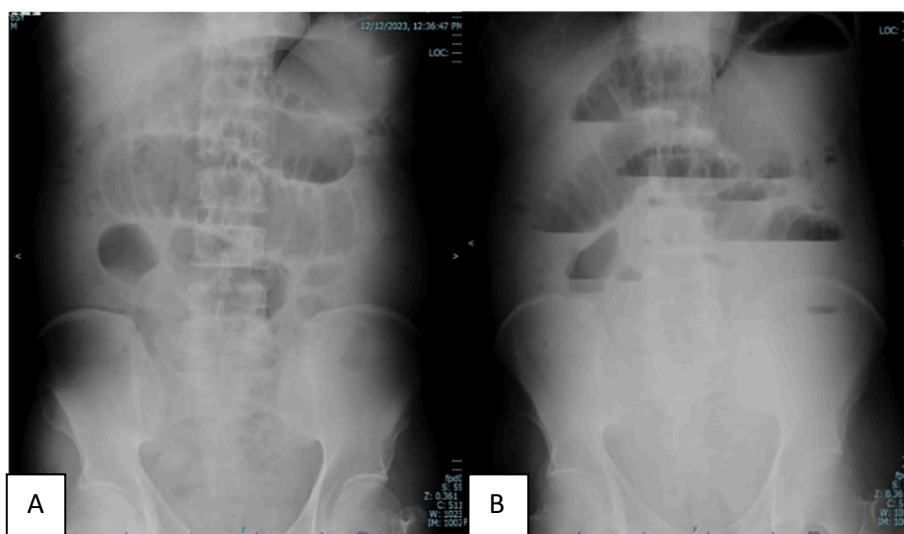


Fig. 1. Plain abdominal radiograph supine (A) and upright (B) showing distended small bowels with air-fluid levels and paucity of rectal gas.

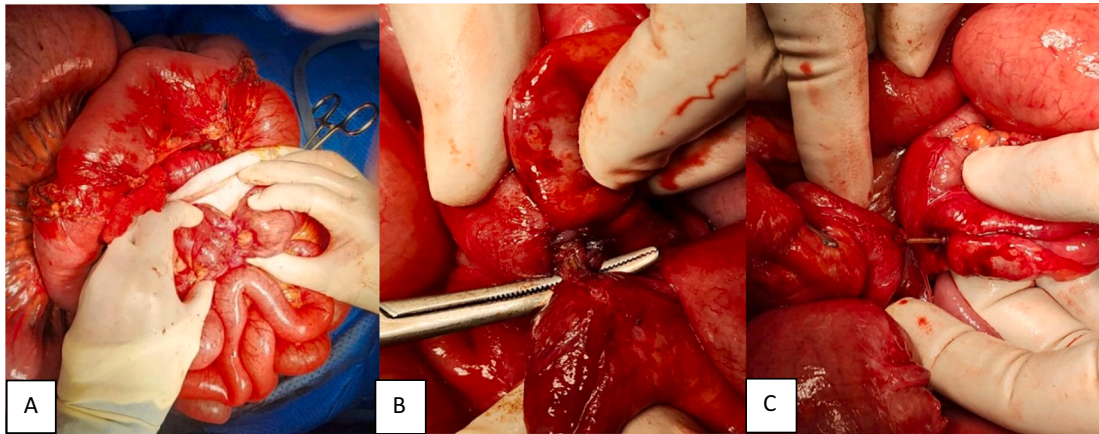


Fig. 2. Intraoperative findings of dense adhesions between ileal segments (A). Foreign body seen perforating segments of ileum (B,C).



Fig. 3. Coconut leaf midrib (A) commonly used as a skewer for a local Filipino sausage delicacy (longganisa) (B).

object (i.e. bone, toothpick), gas collection of an abscess or signs of obstruction. Ultrasonography may help in evaluating fluid collection however, computed tomography (CT) imaging is still the best modality for any suspicion of foreign body ingestion as it has the ability to define the nature and location of a possible perforation. With the advent of minimally invasive surgery, diagnostic laparoscopy has been proven to be an option in selected cases. Fallatah et al. were able to extract a toothpick similarly perforating an ileum and further explored the abdomen laparoscopically [7]. It may have the advantage of being both diagnostic and therapeutic, providing greater magnification, less pain and early recovery. In this case, the patient initially presented with small bowel obstruction and was treated conservatively. Failure of expectant management and progression of clinical condition necessitated an exploratory laparotomy as per our institution's protocol.

As for treatment, this will need to be individualized. Surgery remains to be the treatment of choice often providing a definitive diagnosis for patients who eventually present with an acute abdomen. Intestinal perforations may require primary repair, segmental resection, or diversion with stoma creation. Additionally, others have documented their successful experience with endoscopic extraction despite perforation [8,9]. Although many sharp and stiff foreign bodies have been similarly documented to cause obstruction and perforation after ingestion, this is the first report of such a penetrating object uniquely found in food from a certain Philippine locality. More recent interesting cases reported blister pill pack, seeds and oyster shell ingestion [10–12]. Failure to recognize, poor eyesight and eating hastily may explain as to how this case has occurred. A high index of suspicion may therefore decrease the associated morbidity and mortality in such cases.

Conclusion

In conclusion, intestinal perforation caused by ingested foreign bodies can be a challenging diagnosis that should always be considered in cases of an acute surgical abdomen. Such cases underscore the importance of early recognition, accurate diagnosis, and timely intervention to ensure optimal patient outcomes. Lastly, we believe that our case brings together valuable insights into the diagnosis and management options of such a difficult scenario.

CRedit authorship contribution statement

Orlando O. Ocampo: Conceptualization, Writing – original draft. **Sieffredo R. Paloyo:** Supervision, Writing – review & editing. **Ferri P. David-Paloyo:** Data curation, Writing – review & editing. **Leonard Christopher T. Sena:** Data curation, Writing – original draft. **Emmanuel T. Limpin:** Data curation, Writing – original draft. **Eduardo C. Ayuste:** Conceptualization, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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