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Case Report

Acute perforated appendicitis secondary to a foreign body: a case report

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ABSTRACT

Acute apendicitis is one of the most frequent causes of acute abdomen and a common surgical emergency worldwide. Although most cases are due to luminal obstruction from lymphoid hyperplasia or fecaliths, the presence of foreign bodies as a cause of perforated appendicitis is exceptional, with a reported prevalence of 0.0005%. We present a case of a 63-year-old male with typical abdominal pain of appendicitis, where the presence of a foreign body in the appendix was identified by abdominal tomography as a possible trigger of the inflammatory process. An open appendectomy was performed without complications, resulting in adequate postoperative evolution after antibiotic management. This case emphasizes the importance of considering foreign bodies as a rare etiology of perforated appendicitis, especially in adults without a history of ingesting unusual objects. Early diagnosis and timely surgical intervention are key to reducing morbidity and improving the prognosis.

Keywords: Acute apendicitis, Appendectomy, Appendicitis, Foreign body

INTRODUCTION

Acute appendicitis ranks among the primary causes of acute abdomen and represents the most prevalent surgical emergency on a global scale. It affects an estimated 7-8% of the general population over their lifetime, with more than 250,000 appendectomies performed annually in the United States alone.[1] While most cases stem from luminal obstruction caused by lymphoid hyperplasia or fecaliths, foreign bodies constitute an extraordinarily rare and diagnostically demanding etiology, documented in only 0.0005% of cases according to various studies.[2-6] This scarcity emphasizes the diagnostic hurdle, as the clinical manifestations frequently resemble those of conventional appendicitis, thereby requiring a heightened index of suspicion.[7]

Typically, ingested foreign bodies traverse the gastrointestinal tract without eliciting symptoms. Nonetheless, upon entering the lumen of the vermiform appendix, they may become entrapped and unable to re-enter the colon, thereby precipitating a severe inflammatory cascade that culminates in perforation if not identified promptly, which heightens the incidence of complications such as peritonitis, abscesses, or sepsis.[8,9]

A systematic review of 64 adult cases identified lead shot pellets as the most common appendiceal foreign body, with fishbones and toothpicks disproportionately associated with perforation, underscoring the varied etiologies even in accidental ingestions.[10]

We report a rare case of appendectomy for perforated acute appendicitis attributable to a foreign body, in the absence of any reported ingestion of unusual objects. This atypical presentation highlights the diagnostic challenges inherent in unconventional etiologies of appendicitis, particularly those involving foreign bodies without a documented history of ingestion.[5]

Foreign bodies may persist within the appendix for extended periods without triggering inflammation; however, sharp objects are more likely to provoke perforations and abscesses shortly after ingestion.[11] Although most ingested foreign bodies traverse the gastrointestinal tract asymptomatically, acute impaction within the appendiceal lumen represents an exceptional cause of appendicitis, occurring in only 0.0005% of cases.[3,4] This case report highlights the critical need for a thorough evaluation in instances of atypical or recurrent symptoms, especially when conventional diagnostic approaches fail to identify a clear cause.[12]

CASE REPORT

63-year-old male, with no significant medical history, who consulted for a clinical presentation of 24 hours of evolution consistent with diffuse abdominal pain predominantly in the epigastric region, with increased intensity according to the EVA scale 8/10, radiating to the right iliac fossa. Additionally, he reported unquantified fever spikes, nausea with an episode of vomiting, and anorexia. He denies urinary symptoms, diarrhea, self-medication, and any additional symptoms.

During the physical examination, a temperature of 37.3°C was found, a hyperdynamic precordium with a heart rate of 105 beats per minute, a respiratory rate of 21 breaths per minute, a systemic blood pressure of 126/74 mmHg, and an oxygenation >94%. On abdominal palpation, Blumberg's, McBurney's, and Rovsing's signs were positive. The rest of the physical examination, including bowel sounds, did not show any other abnormalities.

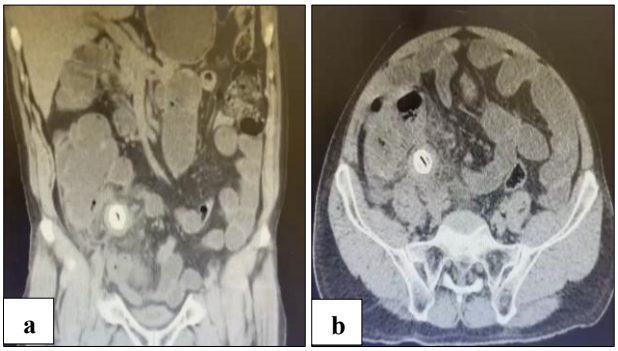

Figure 1 (a and b): Simple abdominopelvic computed axial tomography with hyperdense image in right iliac fossa with periapendicular fat stranding.

Laboratory tests revealed leukocytosis of 16,000 cells/mm^3 with a predominance of neutrophils at 93%, and the general urine examination was normal. Given the case of acute appendicitis with an Alvarado score of 9/10 and a computed tomography scan of the abdomen showing a hyperdense image in the right iliac fossa with periapendicular fat stranding (Figure 1), it was decided to perform an appendicectomy with infraumbilical incision, revealing a perforated retroperitoneal appendix at the level of the proximal third with a foreign body inside and localized peritonitis (Figures 2a and b). An appendectomy was performed without complications, with discharge home on the third postoperative day.

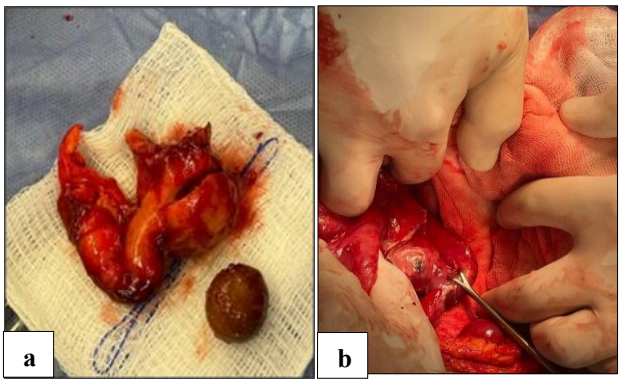

Figure 2: (a) Foreign body found in perforated cecal appendix, and (b) cecal appendix with congestion, perforation in its proximal third, and a foreign body in the appendiceal lumen.

DISCUSSION

Perforated appendicitis due to foreign body is a rare entity that represents less than 2% of acute appendicitis cases.[8,9] Acute appendicitis caused by a foreign body was described in 1735 by the surgeon Claudius Amyand at St. George's Hospital in London, finding perforation of the appendix by a pin while performing an appendectomy on an 11-year-old boy.[13] The frequency of foreign body ingestion in the United States reaches 100,000 cases annually; it is common in children up to 80%, and very rare in adults, except for psychiatric patients or those in prison.[14] Ingested foreign bodies usually lodge in the cricopharyngeal space or the esophagus, and their complications are rare. Perforation is reported in less than 1% of cases, most frequently occurring in the terminal ileum.[15]

Foreign bodies can include ingested objects, such as bullets, fishing lines, screws, coins, stones, pins, needles, teeth, bone fragments, dog hair, fruit seeds, toothpicks, brooches, tongue fasteners, clasps, keys, condoms, and fish bones.[16] Acute appendicitis can occur 3 to 16 days after the ingestion of the foreign body, using a simple abdominal X-ray with serial images to monitor it up to 48 hours after ingestion.[17] These foreign bodies, by lodging in the appendiceal lumen, generate a severe inflammatory reaction that can culminate in perforation. The latency period until the onset of symptoms can range from days to years and depends on the characteristics of the foreign body. For example, sharp objects more frequently cause perforation and peritonitis.[18,19]

The diagnosis of perforated appendicitis secondary to a foreign body can be challenging due to the non-specificity of the symptoms. However, imaging studies such as computed tomography has proven to be essential for identifying complications and guiding surgical

management.[20] The management of this condition is surgical, generally through open or laparoscopic appendectomy. Postoperative antibiotic therapy is essential to prevent infections, especially in perforated cases.[21]

In this case, a 63-year-old man with no significant medical history presented with a clinical picture of acute appendicitis with an Alvarado score of 9/10, and he underwent an appendectomy, during which a foreign body with proximal perforation and localized peritonitis was found. The patient denied having ingested the foreign body, therefore, the time it remained in the digestive tract is unknown.

CONCLUSION

Acute perforated appendicitis secondary to a foreign body is a rare but potentially serious condition that should be considered in patients with complicated appendicitis. Computed tomography is an essential tool for diagnosis, especially when the history suggests the possibility of foreign bodies. Early surgical intervention and the administration of postoperative antibiotics are crucial for improving the prognosis. This case highlights the importance of early diagnosis and appropriate treatment to reduce morbidity and associated complications.

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