

When Appendicitis Imitates Volvulus: An Unusual Case of Acute Appendicitis

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ABSTRACT: This case report presents a rare and complex instance of acute appendicitis in a 49-year-old male patient, whose clinical and radiological findings mimicked a small bowel obstruction caused by volvulus on an incomplete common mesentery. The patient exhibited diffuse abdominal pain, vomiting, and obstipation, with CT imaging revealing small bowel distension, a whirlpool sign, and inversion of the superior mesenteric artery (SMA) and vein (SMV) suggesting the diagnosis of a volvulus on an incomplete common mesentery. Exploratory laparotomy uncovered a perforated appendix sealed off by the sigmoid colon and a perforated jejunal loop 20 cm from the ileocecal junction, with an unusual appendiculo-jejunal fistula suggestive of possible underlying inflammatory bowel disease (IBD), such as Crohn's disease. Surgical management included an appendectomy, resection of the perforated jejunum, and ileostomy. This case underscores the diagnostic challenges posed by atypical appendicitis.

KEYWORDS: Atypical acute appendicitis, Appendiculo-jejunal fistula, atypical small bowel obstruction.

INTRODUCTION

Acute appendicitis is one of the most common surgical emergencies(1). However, atypical presentations can complicate diagnosis and delay appropriate management. In rare cases, appendicitis can mimic other abdominal pathologies, both clinically and radiologically(2). This case report presents a unique instance of acute appendicitis presenting as a small bowel obstruction (SBO), with imaging findings suggestive of a volvulus of the small intestine on an incomplete common mesentery. Intraoperative discovery of an appendiculo-jejunal fistula raised suspicion of an underlying chronic inflammatory bowel disease (IBD), such as Crohn's disease. This case highlights the diagnostic challenges posed by atypical appendicitis and underscores the importance of considering rare conditions like gut malrotation and IBD when evaluating unusual abdominal presentations.

PRESENTATION OF THE CASE

We present a case of a 49-year-old male patient, a chronic smoker, who was admitted to the emergency room of Ibn Rochd University Hospital Center for abdominal pain. The pain had been present for 10 days, was diffuse, and had progressively increased in intensity. It was accompanied by vomiting and obstipation.

On physical examination, the patient was stable but dehydrated and emaciated, with edema of the lower limbs, body temperature was normal. Abdominal examination showed no surgical scars, abdominal distension, diffuse abdominal tenderness, and tympanic sounds. The hernial orifices were clear, and rectal examination was normal.

An abdominal CT scan revealed significant distension of the small bowel loops with fluid levels, measuring up to 68 mm in maximum diameter. A whirlpool sign was present at the level of the last four lumbar vertebrae, involving the superior mesenteric artery (SMA) and vein (SMV). An inversion of the SMA and SMV was also noted. Furthermore, the position of the cecum and appendix could not be determined due to significant distension and the absence of fat tissue. The colonic frame was collapsed. There was significant gastric distension with stasis and mesenteric fat infiltration. These findings suggested a mechanical small bowel obstruction, likely due to an incomplete volvulus of the common mesentery, with no clear signs of ischemia (Figure 1).

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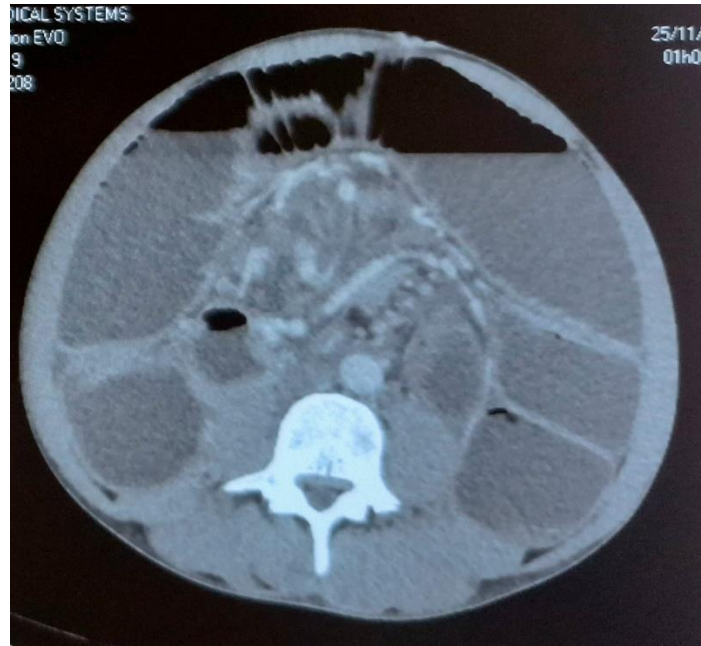


Figure 1 : abdominal CT scan findings

Biology findings showed no signs of systemic inflammatory response, white blood count was 5 110 /mm³ and CRP rate was 4,6 mg/L. However, there were signs of undernutrition with an albumin rate of 14 g/L along with anaemia (Hb: 6,9 g/dL).

Laboratory findings showed no signs of a systemic inflammatory response. The white blood cell count was 5,110/mm³, and the CRP level was 4.6 mg/L. However, there were signs of undernutrition, with an albumin level of 14 g/L and anemia (Hb: 6.9 g/dL).

An exploratory laparotomy was indicated and performed, revealing a thickened and inflamed mesocolic appendix with a healthy base, perforated at the mid-section (Figure 2A). The perforation was sealed off by the sigmoid colon and a jejunal loop located 20 cm from the ileocecal junction (ICJ) (Figure 2B). The jejunal loop had a perforation on its anti-mesenteric border (Figure 2A), with upstream small bowel distension measuring 6 cm (Figure 2C). There was a collection of 10 cc of pus near the appendix. The cecum was very mobile, but the ascending, transverse, and descending colon were in their normal positions. Furthermore, no Ladd's bands were found, the SMA was running to the left of the SMV, and the duodenojejunal junction (Treitz) was in the left upper quadrant.

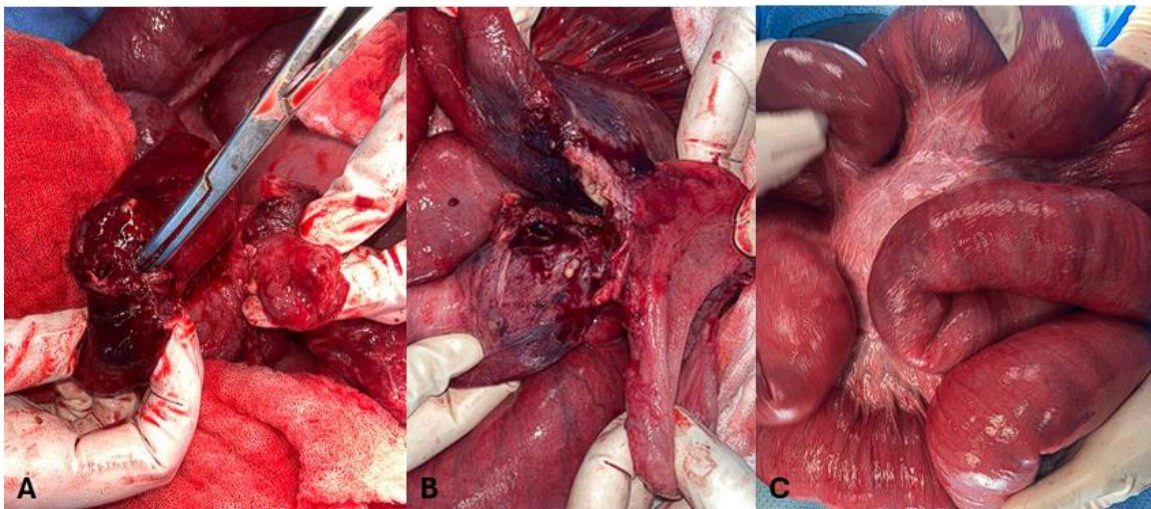


Figure 2 : Exploratory laparotomy findings. A: disconnected appendiculo-jejunal fistula; B: appendix perforation sealed off the the sigmoid colon and a jejunal loop; C: 6 cm small bowel distension

An appendectomy and resection of the perforated jejunal loop with ileostomy were performed. The postoperative course was uncomplicated, and the patient was discharged home at day 4 post-operative. Pathological examination is ongoing to this day.

DISCUSSION

Acute appendicitis is typically characterized by classic clinical symptoms, including right lower quadrant pain, fever, and leukocytosis. However, atypical presentations may sometimes mimic other conditions, such as small bowel obstruction, complicating the diagnostic process(2). In our case, the patient presented with a clinical picture suggestive of an SBO, which was further supported by radiological findings resembling a volvulus of the small intestine due to an incomplete common mesentery.

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These findings were highly suggestive of a volvulus, a condition often associated with malrotation or intestinal anomalies. Diagnosing acute appendicitis is challenging as it presents varied symptoms and signs(3).

CT-scan is a fast and reliable modality for evaluation of the patient with acute abdominal pain. It can provide an accurate diagnosis in the majority of cases and is highly useful for accessing acute gastrointestinal emergencies, including acute appendicitis and SBO(4). The whirlpool sign on imaging noted in our patient, is a key radiological feature of volvulus and occurs when the mesentery twists, causing a characteristic "whirlpool" appearance of the small bowel(5). This sign, along with significant small bowel distension and fluid levels, initially pointed towards a volvulus. However, the definitive diagnosis was made during surgery, which revealed appendicitis complicated by an appendiculo-jejunal fistula, a rare finding.

The formation of a fistula between the appendix and the jejunum in this case is noteworthy. Fistula formation in acute appendicitis is an uncommon complication, typically seen in the context of chronic appendicitis, tuberculous peritonitis, or inflammatory bowel disease (IBD). Appendiceal fistulae projecting to the small bowel have been found to communicate with the ileum, jejunum and duodenum. As expected, fistulae between the appendix and the ileum are most common due to their close proximity(6) The presence of an appendiculo-jejunal fistula in this patient raises suspicion for an underlying chronic inflammatory condition, such as Crohn's disease, a type of IBD that is known for its ability to cause transmural inflammation and lead to fistula formation between the appendix and adjacent bowel loops. This case also underscores the importance of considering chronic inflammatory diseases, like Crohn's disease, in the differential diagnosis when unusual findings such as a fistula are present. Inflammatory bowel disease (IBD), particularly Crohn's disease, can present with diverse manifestations, including intestinal fistulas and bowel perforations, even in the absence of typical chronic symptoms(7). The fact that the patient had no prior history of such symptoms and presented with a rapidly progressive acute condition complicates the diagnosis, emphasizing the importance of multidisciplinary evaluation.

Diagnostic laparoscopy is recommended in patients with an atypical presentation, equivocal imaging findings, and persistent or worsening symptoms. It can serve as a diagnostic and therapeutic tool(8). The surgical intervention, which included an appendectomy and resection of the perforated jejunal loop with ileostomy, was crucial in managing the acute obstruction and the complex bowel pathology. This highlights the need for an exploratory laparotomy in cases where radiological findings and clinical symptoms suggest an uncommon or complex etiology. Although the postoperative course was uncomplicated, ongoing pathological examination of the resected tissues will provide further insight into the potential underlying inflammatory pathology.

CONCLUSION

This case highlights an exceptional presentation of acute appendicitis mimicking small bowel obstruction due to findings suggestive of a volvulus on incomplete common mesentery. The discovery of an appendiculo-jejunal fistula during surgery further raised suspicion of underlying inflammatory bowel disease, such as Crohn's disease. This unusual scenario underscores the importance of considering atypical and rare pathologies when evaluating patients with abdominal pain and equivocal imaging findings. Early recognition of these diagnostic possibilities, combined with appropriate surgical intervention, can significantly improve patient outcomes. Multidisciplinary collaboration and thorough postoperative pathological analysis remain crucial in identifying potential underlying conditions and guiding long-term management.

Provenance and peer review

Not commissioned, externally peer reviewed.

Consent

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

Ethical approval

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Conflicts interests

Authors have declared that no competing interests exists.

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