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Case Report

A case of appendiculo-ileal knotting as a cause of gangrenous small bowel obstruction in a 64-year-old man in a Government Hospital, West Bengal, India

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ABSTRACT

Appendiculo-ileal knotting is an extremely rare cause of mechanical small bowel obstruction (SBO), characterized by the appendix wrapping around the ileum, leading to obstruction, ischemia, and potential bowel gangrene. Preoperative diagnosis is challenging due to its rarity and nonspecific clinical presentation. A 64-year-old male presented with acute abdominal pain, progressive distension, and inability to pass stool and flatus. Imaging showed features of SBO, and exploratory laparotomy revealed a mucocele of the appendix forming a tight knot around the ileocecal junction. This caused gangrene of the cecum and a segment of the ileum. Surgical intervention included a limited right hemicolectomy, excision of the appendix, and the creation of a double-barrel stoma. Postoperative recovery was uneventful, and the patient was discharged in stable condition. Appendiculo-ileal knotting represents a rare yet serious etiology of SBO. Its pathophysiology involves an inflamed and mobile appendix encircling the ileum. Diagnosis often requires surgical exploration, and timely intervention is critical to prevent complications such as gangrene and perforation. This case highlights the importance of considering appendiculo-ileal knotting in atypical presentations of SBO. Prompt surgical management is essential to improve outcomes and prevent life-threatening complications.

Keywords: Appendiculo-ileal knotting, Small bowel obstruction, Mucocele appendix, Bowel gangrene, Exploratory laparotomy, Right hemicolectomy, Double-barrel stoma

INTRODUCTION

Small bowel obstruction (SBO) is a frequent surgical emergency, accounting for a significant proportion of acute abdomen cases. The common etiologies include postoperative adhesions, hernias, and malignancies. However, mechanical obstruction due to appendicular pathology, such as appendiculo-ileal knotting, remains exceedingly rare, with only a handful of cases reported in the literature.[1-3] Appendiculo-ileal knotting is a condition where the appendix wraps around the ileum, creating a closed-loop obstruction. The initial inflammation of the appendix contributes to hypermobility, enabling it to encircle and constrict adjacent bowel loops. If untreated, this obstruction leads to vascular compromise, ischemia, and eventual bowel gangrene.[3,4] Despite being documented for over a century, starting with the first case described in 1901 by Hotchkiss, the condition remains challenging to diagnose preoperatively due to its nonspecific symptoms. Clinical presentations often mimic other causes of intestinal obstruction, making definitive diagnosis reliant on intraoperative findings. Preoperative imaging, including computed tomography (CT), has shown potential utility, but its accuracy is limited in identifying this rare condition.[1,4]

This case report discusses a unique presentation of appendiculo-ileal knotting in a 64-year-old male, managed at a government hospital in India. The findings underscore the importance of timely surgical intervention and contribute to the growing understanding of this rare surgical entity.

CASE REPORT

A 64-year-old male from Murshidabad, West Bengal, India, presented to the emergency department with complaints of severe abdominal pain, progressive abdominal distension, and inability to pass stool and flatus for 24 hours. He reported associated nausea and vomiting. His past medical and surgical history was unremarkable. On physical examination, the patient appeared acutely ill. Vital signs showed tachycardia (pulse rate of 110 beats per minute) and mild hypotension (blood pressure of 100/60 mmHg). The abdomen was distended with generalized tenderness, most pronounced in the right lower quadrant, and diminished bowel sounds. Laboratory investigations revealed mild leukocytosis and electrolyte imbalances, suggestive of dehydration and systemic inflammatory response.

Abdominal X-ray

he initial imaging with an abdominal X-ray (Figure 1) showed dilated bowel loops and multiple air-fluid levels consistent with small bowel obstruction (SBO). Due to resource limitations, a computed tomography (CT) scan could not be performed. The patient was stabilized with intravenous fluids, electrolyte correction, and antibiotics (ceftriaxone and metronidazole). He was then taken for emergency exploratory laparotomy via a midline incision. Intraoperative findings included a mucocele of the appendix wrapping tightly around the ileocecal junction, creating a strangulated closed-loop obstruction. Abdominal X-ray showing dilated bowel loops with multiple air-fluid levels, indicative of small bowel obstruction.

Intraoperative findings

The intraoperative view (Figure 2) revealed a gangrenous and distended ileal segment caused by strangulation at the ileocecal junction. The cecum and a 30 cm segment of the ileum were ischemic due to vascular compromise. Approximately 500 ml of serosanguineous peritoneal fluid was noted.

Appendiculo-ileal knotting

During surgery, the appendix was found to form a tight knot around the distal ileum (Figure 3). This rare phenomenon caused obstruction and led to ischemia. Surgical intervention involved resecting the gangrenous bowel segment, performing a limited right hemicolectomy, and creating a double-barrel stoma. The appendix was excised, and the mucocele was sent for histopathological analysis.

The patient had an uneventful postoperative recovery. He was managed with parenteral nutrition and stoma care. Oral intake was gradually resumed by the 4th postoperative day. He was discharged in stable condition on the 7th postoperative day with follow-up planned for stoma management and eventual closure.

Figure 1: Abdominal X-ray showing dilated bowel loops with multiple air-fluid levels, indicative of small bowel obstruction.

Figure 2: Intraoperative findings of a gangrenous and distended ileal segment due to strangulation at the ileocecal junction.

Figure 3: The appendix forming a tight knot around the distal ileum, causing a closed-loop obstruction and ischemia.

DISCUSSION

Inflammatory fibrosis can exacerbate the obstruction. In some cases, an appendicular mucocele, as observed in this patient, adds to the complexity by increasing the rigidity and mobility of the appendix. The resulting strangulation compromises vascular supply, leading to bowel necrosis, as seen in our patient.[7,8]

Preoperative diagnosis of appendiculo-ileal knotting is challenging due to its nonspecific clinical presentation and the limitations of imaging modalities. While computed tomography (CT) can sometimes identify the condition, it often requires intraoperative findings for confirmation. The clinical presentation typically includes features of SBO such as abdominal pain, distension, and vomiting, accompanied by signs of systemic inflammatory response due to ischemia.[9,10]

Surgical intervention remains the cornerstone of management. Depending on the extent of bowel involvement, treatment can range from simple detorsion and appendectomy to extensive bowel resection, as performed in this case. Early recognition and timely surgical intervention are critical to preventing complications such as peritonitis and sepsis, which significantly increase morbidity and mortality.[11] In this patient, a limited right hemicolectomy with double-barrel stoma creation successfully addressed the ischemic bowel segment, and the postoperative course was uneventful. This case adds to the limited body of literature on appendiculo-ileal knotting, underscoring the importance of considering this rare etiology in cases of SBO with atypical presentations. Increased awareness and prompt surgical management can significantly improve patient outcomes.[12]

CONCLUSION

Appendiculo-ileal knotting is an exceedingly rare cause of small bowel obstruction, often presenting as an acute surgical emergency. Its nonspecific clinical presentation and challenges in preoperative diagnosis make timely surgical intervention critical. This case underscores the importance of maintaining a high index of suspicion for rare causes of bowel obstruction, particularly in patients with no prior surgical history. Early recognition and prompt management, as demonstrated in this case, can significantly reduce morbidity, and prevent life-threatening complications such as bowel gangrene and perforation.

In resource-limited settings, clinical judgment and immediate exploratory laparotomy remain essential when advanced imaging modalities are unavailable. Surgeons should consider appendiculo-ileal knotting in the differential diagnosis of SBO to ensure timely diagnosis and treatment. Further reporting and study of such cases are necessary to enhance understanding, improve diagnostic accuracy, and refine management strategies for this

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