Rare Finding of Low-grade Appendiceal Mucinous Neoplasm (LAMN) in an Appendiceal Tourniquet Causing Closed Loop Small Bowel Obstruction

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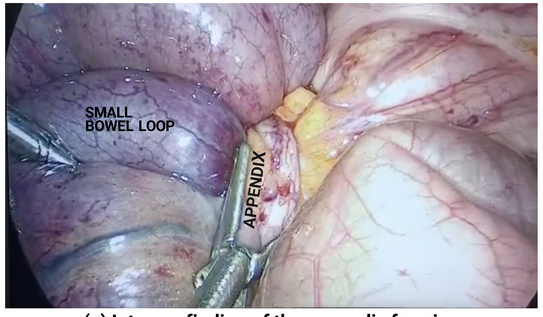
INTRODUCTION

Acute appendicitis, a frequently encountered surgical emergency, often mandates urgent appendectomy. While typically attributed to functional bowel issues, the occurrence of mechanical obstruction secondary to acute appendicitis, particularly closed-loop obstruction, is exceedingly rare. This subtype presents a notable risk of bowel strangulation and gangrene, underscoring the urgency of surgical intervention to prevent severe complications. Additionally, appendiceal mucinous neoplasms represent an exceptionally uncommon entity within the spectrum of appendiceal pathologies, posing diagnostic and therapeutic dilemmas. Our report presents a case of closed-loop obstruction following acute appendicitis, highlighting its rarity and the critical importance of prompt surgical management. Moreover, we address the infrequent incidence of appendiceal mucinous neoplasms, shedding light on the diagnostic complexities and therapeutic challenges associated with these rare conditions.

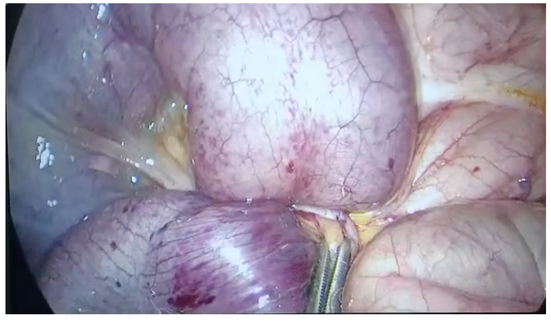
CASE PRESENTATION

A previously healthy 34-year-old male presented to the ED with acute right lower abdominal pain, vomiting, and anorexia. Examination revealed tenderness and guarding in the right iliac fossa, with mild inflammation noted on laboratory tests. A CT scan confirmed a distended blind-ended tubular structure in the right iliac fossa, suggestive of acute appendicitis or mucocele. Emergency laparoscopic appendectomy was performed, revealing a long appendix with gangrenous distal half. Intra-operatively, a complete closed-loop bowel obstruction was noted due to the appendix coiling around the terminal ileal loop near the ileocecal junction. Histopathological analysis of the appendix specimen identified a low-grade appendiceal mucinous neoplasm. The patient had an uneventful recovery and was discharged on the 3rd post-operative day.

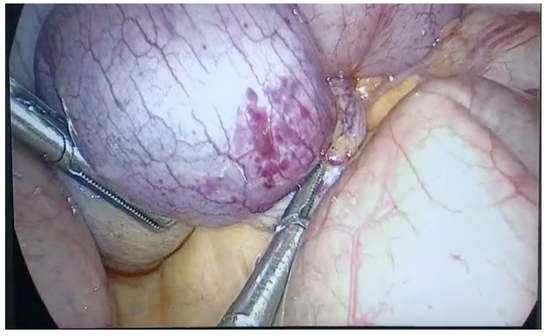
Appendiceal tourniquet: Unveiling the uncommon obstruction scenario



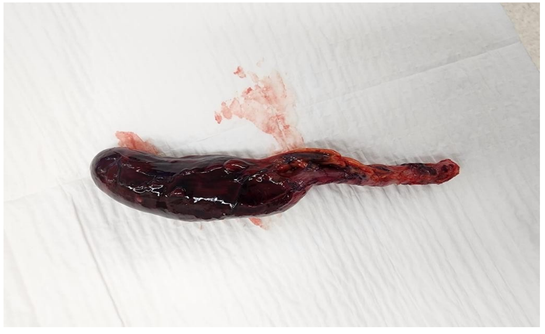
(a) Intra-op finding of the appendix forming a tourniquet around the small bowel loop



(b) Distended bowel loops *(1)*



(c) Distended bowel loops *(2)*



(d) Retrieved Appendix specimen

DISCUSSION

- Appendicitis can cause intestinal obstruction, categorized into functional and mechanical subtypes.
- Mechanical obstruction includes open loop and very rare closed loop conditions like appendiceal tourniquet (AT).
- AT occurs when the appendix wraps around a bowel loop due to adhesion or inflammation.
- Most AT cases occur in individuals over 40 years old, possibly due to diminished immune response.
- Delayed diagnosis can worsen obstruction by promoting adhesive band formation from repeated appendicitis attacks.
- AT is more common in males.
- Neoplasms of the appendix, including our case, often present with abdominal pain resembling acute appendicitis, possibly due to appendix distension or superinfection.
- Low-grade appendiceal mucinous neoplasms (LAMNs) are rare tumors primarily located in the appendix or its surrounding mucosa wall.
- These tumors typically cause cystic dilatation of the appendix due to the accumulation of gelatinous material in the lumen.
- LAMNs have the potential to spread throughout the peritoneal cavity as gelatinous deposits, a condition known as pseudomyxoma peritonei (PMP). The intervention in this case was timely, with no malignant cells detected in abdominal fluid or mesenteric lymphatic vessels.
- Carr et al. found that 32% of patients with appendiceal neoplasms were initially diagnosed with acute appendicitis, while 23% were incidentally discovered.
- These neoplasms are more frequently diagnosed in men, especially in their sixth decade of life.

CONCLUSION

Our case is remarkable due to the rarity of both appendiceal tourniquet and LAMN, particularly in younger patients. The coexistence of these conditions in the same patient is statistically improbable, underscoring the importance of considering rare presentations and pathologies during operative planning.

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- *Harris S, Rudolf LE. Mechanical small bowel obstruction due to acute appendicitis: review of 10 cases. Ann Surg. 1966;164(1):157.*
- *Awale L, Joshi BR, Rajbanshi S, Adhikary S. Appendiceal tie syndrome: A very rare complication of a common disease. World J Gastrointest Surg. 2015; 7(4):67.*

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