

CASE REPORT

A Tangled Diagnosis: Appendiceal Knotting in Small Bowel Obstruction

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ABSTRACT

Small bowel obstruction (SBO) and acute appendicitis individually represent common etiologies of acute abdominal presentations across diverse age demographics. However, the co-occurrence of SBO secondary to acute appendicitis, wherein an inflamed appendix forms a constrictive knot around the small bowel, remains exceptionally rare. This phenomenon, first described by Hotchkiss in 1901, has since been sparsely documented in medical literature, presenting considerable diagnostic challenges due to its subtle clinical manifestations. Discussion surrounding this rare occurrence underscores the importance of prompt diagnosis and intervention in cases of acute SBO, particularly when etiological factors such as appendiceal banding are implicated. Despite advancements in imaging modalities, definitive diagnosis often necessitates surgical exploration, emphasizing the limited utility of preoperative imaging in identifying such obscure pathologies. Herein, we present the case of a 70-year-old patient, wherein the inflamed appendix had formed a ring around the caecum, resulting in the herniation of the terminal ileum and subsequent bowel obstruction.

Key Words: Appendicular knot, Appendicitis, Small bowel obstruction, Acute Abdomen, Strangulation

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INTRODUCTION

Small bowel obstruction (SBO) and acute appendicitis are very common causes of acute abdomen in all age groups. However, SBO caused by acute appendicitis, wherein the inflamed appendix forms a knot around a small bowel, is exceedingly rare¹. It was first described by Hotchkiss in the year 1901; thereafter, only a limited number of cases have been reported in the literature. The pre-operative diagnosis of this rare entity is very difficult as a cause of SBO. Appendiceal knotting as a cause of SBO lacks any distinct significant features. It commonly occurs as a result of the appendix usually encircling as a tie around the small intestine, leading to SBO. We report a case of bowel obstruction caused by the appendiceal tie being formed around the caecum, with herniation of the terminal ileum causing closed-loop obstruction.

CASE REPORT

A 70-year-old elderly patient, with no known co-

morbidities, presented to our Surgical Emergency Unit with acute abdomen. The patient complained of severe pain, multiple episodes of bilious vomiting, and constipation for the past four days. There was no previous history of any abdominal intervention. On examination, the patient was hemodynamically stable. His vitals were BP of 110/70 mm of Hg, Pulse rate of 90 bpm, Temperature was 99oF & SPO2 of 97% on room air. The abdomen was soft with mild distension. Mild tenderness was observed in the peri-umbilical region. Bowel sounds were absent, and digital rectal examination was normal. Chest examination was unremarkable. The patient's laboratory investigation revealed elevated counts with Total leukocyte counts of 13000/mm³ with 80% Neutrophils, Platelets were 121000, and Hb. of 11g/dl. Liver and kidney function tests were normal, with mild hypokalemia. Lactate levels were

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within normal limits. Abdominal X-ray revealed multiple air-fluid levels on erect and supine views. Computed Tomography (CT) scan was suggestive of closed-loop obstruction. The patient was diagnosed as a case of Intestinal Obstruction with peritonitis.

After initial management, the patient was taken to the operating table for midline laparotomy. On exploration of the peritoneal cavity, approximately 300-400ml of reactionary fluid was present. The proximal small bowel loops were dilated. The appendix was grossly inflamed, with the tip attached to the caecum, forming a ring with herniation of the terminal ileum causing closed-loop obstruction. Appendectomy was performed with the release of herniated ileal loops. The herniated segment had a bluish hue, which became pink on warm saline mopping and high-flow oxygenation. The patient was shifted to the post-op ward in satisfactory condition.

Postoperatively, the patient developed a paralytic ileus, which was managed as per standard protocol. The drain was removed on the 5th postoperative day. Orals were started gradually, and the patient was discharged on Post-op Day 8.

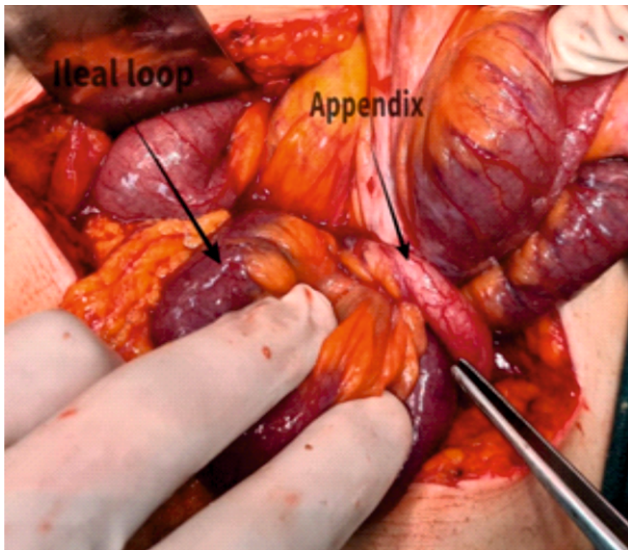


Fig. 1 : Intra-op Image showing appendiceal tie causing Closed Loop Obstruction

DISCUSSION

Appendicitis and SBO are common causes of acute abdomen. However, SBO due to acute appendicitis is rare, with the appendiceal band syndrome being even rarer. The literature review suggests that SBO is caused by

appendicitis due to its adynamic, mechanical, and ischemic effects. Mechanical obstruction can be with or without strangulation. In the latter, the strangulation agent is usually the tip of the inflamed appendix that adheres to the posterior peritoneum or directly to the abdominal wall, leading to the compression of the ileum. Alternatively, the inflamed appendix can directly encircle part or loop of the ileum as a knot². This phenomenon of ileo-appendicular knotting occurs when an appendix wraps around an intestine, or the tip of the appendix adheres to the small bowel, caecum, or peritoneum to form a ring-like structure³. This knotting leads to the herniation of the bowel segment through this opening, causing obstruction⁴. In our case, the tip of the appendix was attached to the caecum, which has not been reported so far in the literature.

Clinically, it presents predominantly with features of SBO, and in some cases, features of appendicitis prevail⁵. In our case, the patient was diagnosed with SBO, and the appendicular band syndrome was diagnosed at laparotomy, as has happened in the previous cases on reviewing literature⁶. Imaging like CT scanning is not very helpful in elucidating appendicular bands as the cause of SBO.

As with any case of SBO proper diagnosis, resuscitation, and immediate treatment are necessary to prevent significant morbidity and mortality that rises due to any delay. Once the diagnosis of acute SBO is made, urgent resuscitation and laparotomy are usually necessary to prevent ischemia and gangrene of the bowel. Once ileocolic band syndrome is diagnosed, then appendectomy must be performed along with relevant exploration of the involved bowel to prevent future complications. The gangrenous bowel is to be resected⁷.

CONCLUSION

Appendiceal banding or ileo-appendicular band syndrome, though rare, is an increasingly recognized entity which should be considered in the differential diagnosis of causes of SBO. Timely recognition and surgical management are imperative in mitigating associated morbidity and mortality, underscoring the need for heightened clinical suspicion and decisive action in cases of acute abdominal emergencies.

Conflict of interest: None

Written informed consent: taken

Competting interest : None

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