Case Report

Acute small bowel obstruction as a result of an appendicular knot encircling the terminal ileum: an exceptionally rare case report

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Received November 7, 2014. Accepted November 20, 2014

Abstract

In the developed world, small bowel obstruction accounts for 20% of all acute surgical admissions. The etiology for majority of these cases includes postoperative adhesions and hernia. However, appendicular knot is exceptionally rare. We report a case of a 65-year-old patient presented to the emergency room with complaint of abdominal pain, distension of abdomen, vomiting, and absolute constipation for 4 days. All the routine hematological and radiological investigations were carried out; the patient underwent laparotomy and was diagnosed with small bowel obstruction due to appendicular knot encircling the terminal ileum.

KEY WORDS: Appendicular knot, band, intestinal obstruction

Introduction

Acute small bowel obstruction is an ever-increasing clinical problem. Successful management depends on comprehensive knowledge of the etiology and pathophysiology of the small bowel obstruction, familiarity with imaging methods, good clinical judgment, and sound technical skills. Intra-abdominal adhesions related to prior abdominal surgery account for up to 75% of cases of small bowel obstruction followed by hernia.[1] Appendicular knot, also called as appendicular band syndrome or appendicular tie syndrome, is an extremely rare surgical entity with only few cases reported so far.[2–6] It usually presents with intestinal obstruction. The ileum is entrapped by the appendicular knot causing closed-loop obstruction and may strangulate, leading to gangrene if not intervened early.[4,5] Here, we report a case of appendicular knot causing small bowel obstruction.

Case Report

A male patient aged 65 years was admitted to the emergency ward of Indira Gandhi Institute of Medical Science, Patna, Bihar, with chief complaints of abdominal pain, distension of abdomen, vomiting, and absolute constipation for 4 days. Pain was diffused, sudden, and associated with bilious vomiting, which got relieved after vomiting. The patient had similar episodes of pain, vomiting, and distension of abdomen 1 year back, which got relieved with conservative management. There was no history of abdominal surgery. On examination, abdomen was found distended with visible bowel loops and diffuse tenderness was present all over the abdomen. Bowel sounds were hyperperistaltic. A digital rectal examination yielded empty rectum. Examination revealed blood pressure of 110/70 mm Hg, pulse rate of 100/min, and temperature of 39 °C. Laboratory test showed Hb value to be 9 g/dl and white blood cell count 12,000 with 60% neutrophils; the results of the serum electrolytes and kidney function tests were normal. Plain radiograph of abdomen (erect) shows dilated loops of small bowels (Figure 1). Ultrasound of abdomen was suggestive of gaseous bowel loops. Before undergoing surgical procedure, a written informed consent was obtained from the patient. Exploratory laparotomy, which was carried out on the same day of the admission, revealed small bowel obstruction caused by knotting due to encircling of the small bowel by appendix (Figure 2). The knot was untied by detaching the tip of the appendix that had encircled the terminal ileum; tip of the appendix was found to be attached with cecum and the obstruction was relieved. The ileum was inspected and found to be healthy. Appendectomy was performed and found to be gangrenous (Figure 3). Histopathology of the appendix showed acute appendicitis with

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DOI: 10.5455/ijmsph.2015.0711201475	

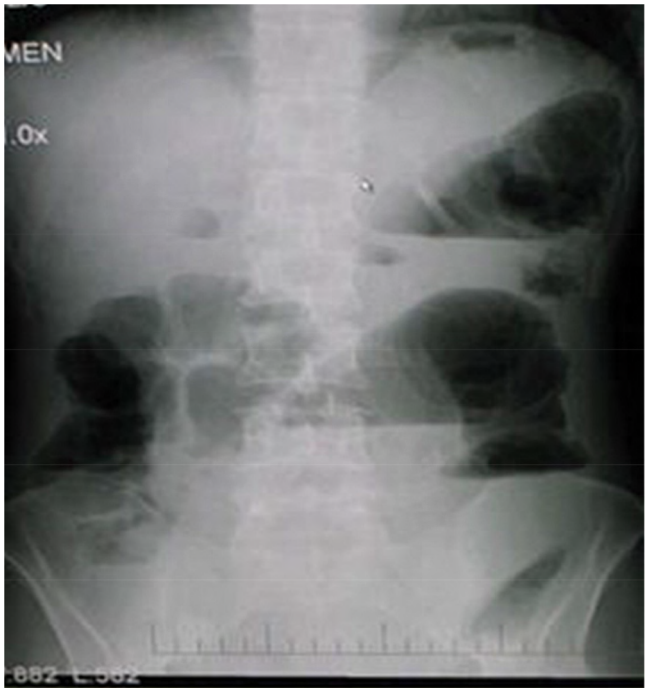

Figure 1: Erect abdomen X-ray showing dilated loop of small bowel.

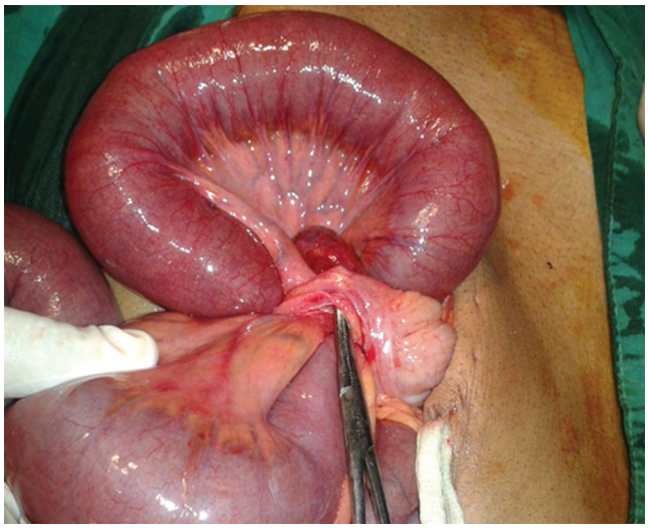

Figure 2: Appendicular knot encircling ileum forming closed-loop obstruction.

inflammation of periappendicular tissue. Postoperatively, patient did well and recovered uneventfully. Consent was been taken from patient and his family for publication of the case.

Discussion

A diagnosis of acute bowel obstruction is made initially on clinical judgment based on the history and physical examination of the patient. The cardinal symptoms and signs are colicky abdominal pain, vomiting, absolute constipation, and abdominal distension, all of which were present in this patient. Confirmation of bowel obstruction is then usually made with an erect plain abdominal X-ray, which provides the surgeon with several information including whether there is small or large bowel obstruction and the degree of obstruction. In the present case, dilated loops of small bowel indicated acute small bowel obstruction.

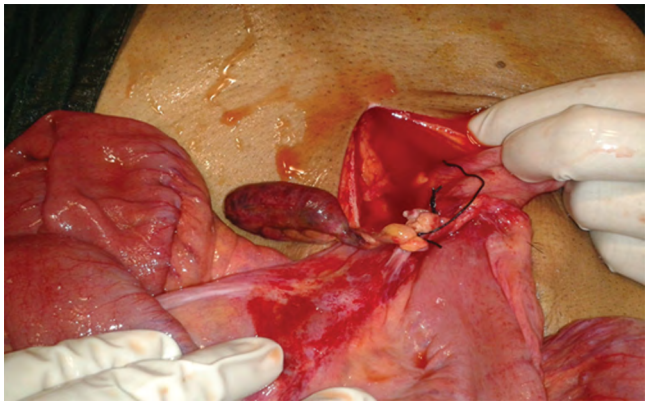

Figure 3: Gangrenous appendix following obstruction released.

Appendicular knot or band syndrome is reported in neonates, children, and adults.[2–6] It is not clear how the appendix entraps, forming a band or tie. The tip of a long appendix is usually found adherent to cecum, retroperitoneum, mesentery of ileum, or rarely, ileum, thus itself forming a potential space where a loop of bowel may entrap.[4] Acute inflammation of the appendix is probably the inciting event of this band formation. The appendix itself may be acutely inflamed, perforated especially at the tip, or it may be completely gangrenous. This entrapment results not only in intestinal obstruction and strangulation of the entrapped bowel but also in ischemia of appendix itself due to compression, which was probably the reason of ischemic appendix in this case. The reported complications are intestinal obstruction, volvulus, strangulation of the small bowel, and strangulation of appendix itself.[2–7]

Conclusion

Although Meckel's diverticulum as a cause of knotting of ileum has been reported in the literature, knotting by inflamed appendix is extremely rare and very few cases have been reported.[8]

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How to cite this article: Ranjan A, Kumari K, Jha S. Acute small bowel obstruction as a result of an appendicular knot encircling the terminal ileum: an exceptionally rare case report. Int J Med Sci Public Health 2015;4:426-428

Source of Support: Nil, **Conflict of Interest:** None declared.