

**CASE REPORT**

Ileosigmoid Knotting: Case Report of a Rare Knot

Varun Mahajan, Diksha Sharma, Subash Chander, Sanjay Kumar Bhasin

Abstract

Ileosigmoid knotting (ISK) is a rare, life-threatening condition often difficult to diagnose radiologically. We report a 55-year-old male presenting with acute abdominal pain. While CECT suggested a closed-loop obstruction, exploratory laparotomy revealed ISK with gangrenous ileum, requiring resection and loop ileostomy. Because ISK carries high mortality, this case emphasizes the importance of maintaining a high index of suspicion when imaging indicates closed-loop obstruction. Early resuscitation and immediate surgical intervention are critical for successful management.

Key Words

Ileosigmoid Knotting, Closed Loop Obstruction, Compound Volvulus, Intestinal Obstruction

Introduction

Ileosigmoid knotting (ISK) is a condition where the ileum and the sigmoid colon, along with their mesentery, wrap around each other, leading to a double-loop obstruction. In 1967, Shephard popularised the term Ileosigmoid knotting^[1]. It remains an unusual but severe form of intestinal obstruction, diagnosed invariably on exploration.

The incidence is reported to be 1.6 cases per year^[2]. The mortality rate of cases of ileosigmoid knotting, in general, may reach 48%^[3]. It may rapidly progress to a gangrenous state in both the sigmoid and the ileum. It was first described in the literature by Parker in 1845^[4].

The case has been reported in line with the SCARE criteria^[5].

Case Report

A previously healthy 55-year-old male presented with a 24-hour history of worsening generalized abdominal pain, distention, and vomiting. The patient was severely dehydrated, hypotensive, and tachycardic, with marked abdominal distension, rebound tenderness, and altered blood on DRE.

Investigations revealed leukocytosis and mild

anemia. Abdominal X-ray showed dilated gas-filled small as well as large bowel loops with no air under the diaphragm^[Fig 1]. CECT Abdomen confirmed a small bowel closed-loop obstruction with signs of strangulation and significant free fluid^[Fig 2].

Following aggressive resuscitation and broad-spectrum antibiotics, exploratory laparotomy revealed an ileosigmoid knotting—the interlocking of the sigmoid colon with the ileum—and 100 cm of gangrenous ileum with 1 L of hemorrhagic peritoneal fluid^[Fig 3,4,5].

Resection of the involved segments was performed, followed by colorectal anastomosis and a loop ileostomy. Histopathology confirmed extensive transmural ischemic necrosis. The patient recovered uneventfully and was discharged on post-operative day 5.

Discussion

Synonyms – Compound volvulus, Double volvulus. Etiological factors include: (A) a long mobile small bowel mesentery, (B) a long sigmoid colon with a narrow pedicle, and (C) a bulky diet with an empty small bowel^[6,7]. Progression of a bulky diet to the proximal jejunum

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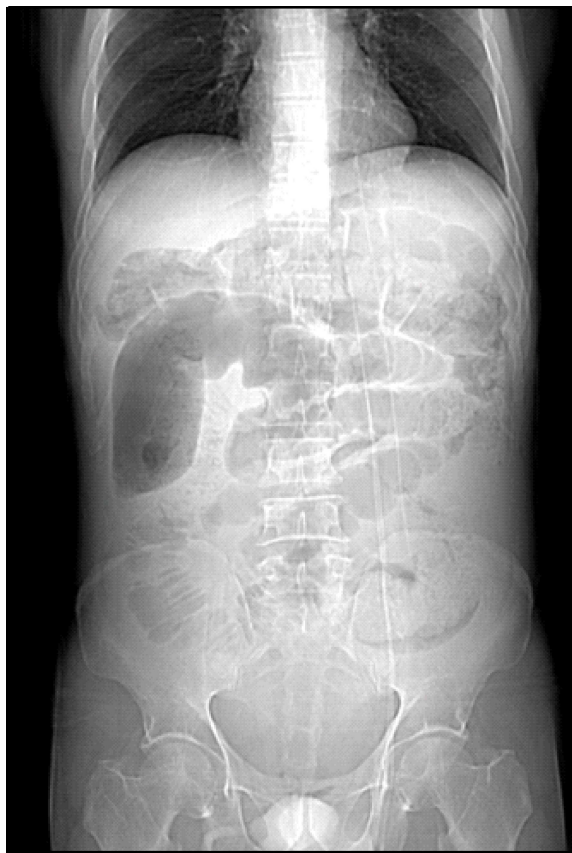


Figure 1 : X-Ray abdomen showing dilated gut loops

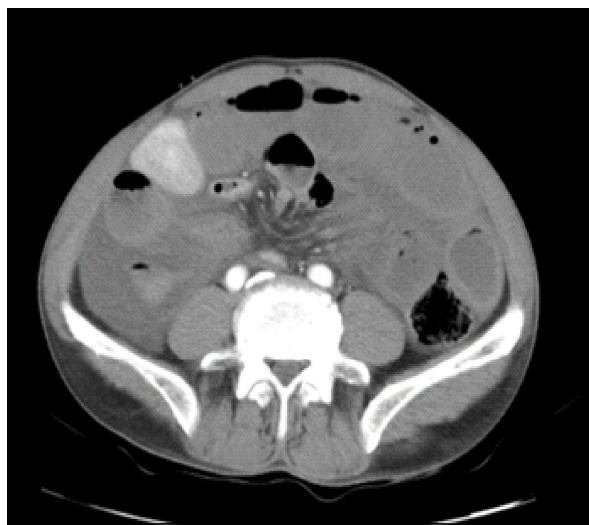


Figure 2: CECT Abdomen axial section: hypodense band (black arrow) with closed loop obstruction involving distal ileum and sigmoid. Small bowel loops – dilated with air fluid level (white arrow) and mild ascites.

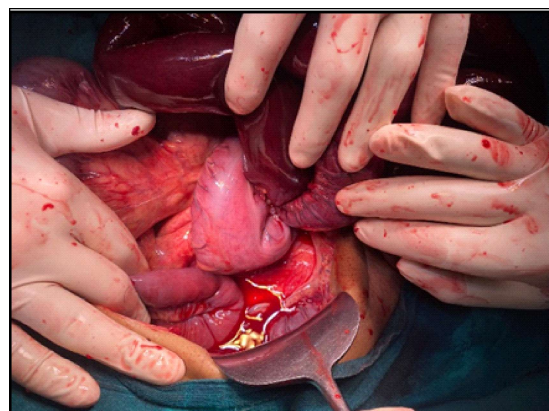
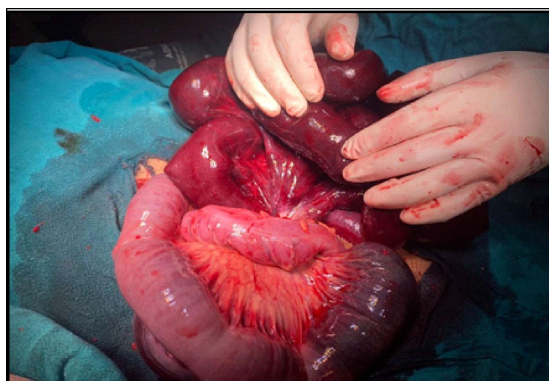
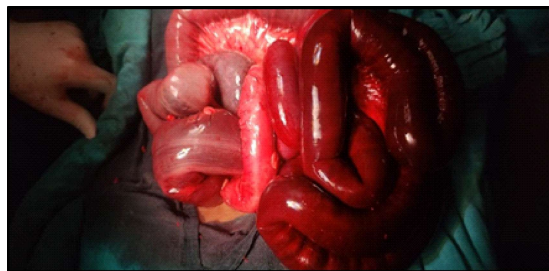


Figure 3, 4 and 5 : Intraoperative pictures showing interlocking of sigmoid colon with ileum.

increases the mobility of the small bowel, which may cause it to fall in the left lower quadrant of the abdomen. This allows the small bowel to rotate around the sigmoid pedicle, forming a closed loop^[7]. Secondary factors include late pregnancy, transmesenteric herniation, Meckel diverticulitis with a band, and ileocecal intussusception^[3]. ISK is predominantly reported in certain African, Asian, and Middle-Eastern countries^[8].

ISK is divided into two primary classifications. The four-type anatomical system. Type I: ileum around the sigmoid, which is the most common (53.9% to 57.5%). Type II: sigmoid colon revolves around the ileum (18.9% to 20.6%). Type III, the ileocecal segment revolves around the sigmoid colon (1.5%). Undetermined Type, it

is impossible to determine the revolved segment^[1,3,7]. The second, six-class clinical system. Class I: no other risk factors for mortality (such as associated disease, advanced age, etc.); Class II, risk factors of mortality are present; but the patient is not in shock and bowel gangrene is absent; Class III, the patient is in shock; Class IV, ileum or sigmoid colon is gangrenous; Class V, patient has shock as well as gangrene; Class VI, both ileum and sigmoid colon are gangrenous^[9]. Based on operative findings, our patient was categorized as Class V.

Establishing the diagnosis of rare ileosigmoid knotting is difficult. Endoscopic decompression is discouraged as it often fails and risks perforation. Clinicians should utilize the diagnostic triad of an inability to insert a sigmoidoscope, clinical small bowel obstruction, and radiographic large bowel obstruction^[9].

Initial management requires aggressive intravenous fluid resuscitation and rapid correction of acid-base imbalance, followed immediately by surgery upon achieving hemodynamic stability. Broad-spectrum antibiotics are essential. Intraoperatively, we performed resection of the sigmoid colon and gangrenous ileum, colorectal anastomosis, and divided loop ileostomy. Although reported ISK mortality ranges from 0% to 48%, recent literature shows constant improvement in patient outcomes^[3].

Conclusion

Ileosigmoidal knotting (ISK) is a rare, severe intestinal obstruction that rapidly causes gangrene. Preoperative diagnosis is difficult, necessitating high suspicion when CECT reveals a closed-loop obstruction. Management

relies on early resuscitation, prompt surgery tailored to operative findings, and effective postoperative care.

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Conflict of Interest: Nil

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