

## Small Bowel Obstruction Due to Ileo-Ileal Knotting: Case Report

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### Background

Acute small bowel obstruction is an ever-increasing clinical problem. Small bowel obstruction is one of the most common causes of emergency admission with abdominal pain often requiring surgical intervention. Successful management depends on comprehensive knowledge of etiology and pathophysiology of small bowel obstruction, familiarity with imaging, good clinical judgement and sound technical skills. Intra-abdominal adhesions related to prior abdominal surgery accounts for up to 75% of small intestinal obstruction followed by hernias. Ileo ileal knotting is an extremely rare surgical entity with only few cases reported so far. Ileo-ileal knotting occurs when dynamic coil of ileum loops around another coil of ileum, which is relatively static, giving rise to a knot. Understanding of this uncommon phenomenon is very vital for early decision and intervention. In this instance, we describe a 70 years old man who presented with symptoms and signs of small bowel obstruction. Up on emergency exploratory laparotomy we discovered that the proximal loop of the ileum had knotted on the distal ileum resulting in frank gangrene of ileum up to 3cm from ileo-cecal valve. The patient underwent end-to-side ileo transverse anastomosis after the enbloc resection of gangrenous segment of the ileum.

**Keywords:** Ileal knotting • Small Bowel Obstruction • Surgery

### Case Presentation

A 70-year-old male patient arrived to Wachamo University Nigist Eleni Memorial Comprehensive Specialized Hospital's emergency department with a complaint of frequent bilious vomiting, colicky abdominal pain, failure to pass both faces and flatus and abdominal distention of three days duration. Three years previous to the current presentation, the patient had undergone an unexplained abdominal surgery for urinary problems. Other than that, he has no documented history of chronic disease. Up on physical examination, the patients pulse rate was 124 beat per minute, blood pressure was 110/70 mmHg, respiratory rate was 20 per minute and oxygen saturation was 92% with atmospheric oxygen. The abdomen was grossly distended, hypoactive bowel sound,

tenderness on the lower quadrants and hyper resonant to percussion. On digital rectal examination shows normal anal tone and rectum is empty [1-5].

## Methods

### Diagnosis

With the pre operative diagnosis of small bowel obstruction caused by small bowel adhesion due to previous surgery patient is investigated with complete blood count, and plain abdominal radiograph.

### Investigation

Complete blood count result is white blood cell count of  $16200/\mu\text{L}$  with neutrophils (81.1%). Plain abdominal radiograph image shows dilated small bowel loops greater than 3cm in diameter and rectal gas shadow (Figure 1).



Figure 1a & 1b. Plain abdominal x-ray of the patient shows dilated small bowel loops.

## Treatment

Intravenous line secured and three bags of crystalloids was given, trans urethral foley catheter was inserted patient produced adequate urine, nasogastric tube was inserted and taken to the operation theater for exploratory laparotomy after detailed informed consent. Under general anesthesia and endotracheal intubation abdomen was entered through midline incision.

The intraoperative finding was~ 250ml of hemorrhagic fluid within the general peritoneal cavity. There was a knotting of the proximal loop of the ileum on the distal ileum, with the entrapped loop frank gangrenous extending up to the level of 3 cm from the ileocecal valve. An en-bloc resection of the gangrenous small bowel segment was performed followed by an end-to-side ileo transverse anastomosis (Figure 2). During the early postoperative period, the patient's recovery progressed smoothly. On the second postoperative day, he initiated sips, indicating a positive transition to oral intake. On 6th post operative day he developed superficial surgical site infection which was managed by wound care daily [6-7].



Figure 2. The intraoperative finding shows ileoileal knotting with the entrapped gangrenous segment.

## Conclusion

The patient's overall condition improved, allowing for discharge on the 11th postoperative day. A follow-up appointment was scheduled to ensuring comprehensive postoperative care and support. In conclusion, the recognition of ileoileal knotting is crucial in the differential diagnosis of patients presenting with signs and symptoms of small bowel obstructions (SBOs). With its challenging preoperative diagnosis, a high index of suspicion has a paramount importance for timely intervention. Early recognition and prompt surgical management are essential to optimize outcomes and prevent complications associated with this condition. Healthcare providers should maintain a vigilant approach, considering ileoileal knotting as a potential underlying cause in patients with suggestive clinical features of SBOs, thus emphasizing the significance of early intervention in improving patient outcomes.

## Discussion

There is still no clear explanation for the aetiology of ileoileal knotting. There are assumptions that imply a possible link with bulky and high fiber local food, while others propose an association with increased ileal motility. Clinically, the condition manifests as an acute abdomen with noticeable abdominal distension. A diagnostic challenge arises as preoperative identification of intestinal knotting proves to be extremely difficult, often necessitating intra operative confirmation. Early intervention becomes imperative in such cases. The preferred operative approach involves careful unravelling of the knot if both loops are viable. Conversely, in instances of gangrenous segments, the recommended procedure entails an en-bloc resection of the affected areas. Notably, decompression of gangrenous segments or untying a gangrenous knot is discouraged, emphasizing the importance of a decisive and tailored surgical intervention in cases of ileo ileal knotting.

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