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### Rare case of acute strangulated intestinal obstruction - ileo-ileal knotting

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#### Abstract

Intestinal knot is a rare cause of closed loop obstruction. It originates with the wrapping of the mobile ileal loop compromising the mesentery in the center of knot and is an unusual cause of intestinal strangulation. Here we report a case of acute intestinal obstruction due to ileo-ileal knotting that was surgically managed by emergency laparotomy and resection of gangrenous segment and double barrel ileostomy. The main reported problem, it is very difficult to diagnose preoperatively. High index of suspicion and early surgical intervention greatly reduces morbidity and mortality.

**Keywords:** Acute strangulated intestinal obstruction, ileo-ileal knotting

#### Introduction

Small bowel obstruction is one of most common acute surgical condition that requires urgent surgical evaluation and treatment. The differential diagnosis includes obstructed hernias, bands, adhesion, intussusception, volvulus and intestinal knot. Intestinal knot formation was first described by riverius in 16<sup>th</sup> century and by rokitansky in 1836. Several type of intestinal knotting are reported in literature which includes ileo-ileal, ileo-sigmoid and knot formed between bowel and meckel's diverticulum or appendix. Ileo-sigmoid knotting, which is the commonest form of intestinal knotting.

Here we present a case of ileo-ileal knotting which is a rare cause of intestinal obstruction.

#### Case presentation

A 22 year young male presented with abdominal pain and multiple episodes of vomiting for one day. He had abdominal distension and not passing flatus and stool for two days. He was previously operated for left inguinal hernia one year back. On examination patient was conscious, oriented. His pulse rate was 120 bpm, blood pressure was 90/60 mm of Hg, respiratory rate 24/min, and saturation was 94 % at room air. His tongue and buccal mucosa was dry. Abdomen was grossly distended and generalized tenderness and guarding. Bowel sounds were absent. Digital rectal examination reveals empty rectum, no blood on examination finger. Straight X ray abdomen reveals multiple air fluid level. USG abdomen finding dilated bowel loop (3.1 cm) with sluggish peristalsis suggestive of acute intestinal obstruction. A provisional diagnosis of acute strangulated small bowel obstruction was made. He was adequately resuscitated then taken for emergency exploratory laparotomy. Upon entering the peritoneal cavity; there was 200 ml of dark hemorrhagic fluid along with knotting of loop of ileum was found. Further examination revealed volvulus of distal part of ileum with strangulated entrapped loop (about one foot in length) extending up to one foot proximal to ileo-caecal junction. Bowel clamp was applied in proximal and distal part of strangulated segment of bowel and resection done. Double barrel ileostomy was done.

Postoperatively the patient was kept NPO, intravenous fluid, antibiotics and analgesics. Clear fluid was started after 48 hours when stoma becomes functional and solid diet on next day. On 6<sup>th</sup> postoperative day patient was discharged with stoma care advice and asked to follow up in O.P.D for stoma closure. After 2 month ileostomy closure done and patient was uneventfully discharged.

#### Discussion

The ileo-ileal knot is very rare surgical emergency that can rapidly evolve to gangrene of the affected bowel segment.

In our literature search, only few cases have been reported. It is very difficult to diagnose preoperatively, as the patient present with small bowel obstruction with broad differential diagnosis. Diagnosis is often made intraoperatively. It is a type of closed loop obstruction. In ileo-ileal knotting one part of remains static and other part usually twin around the static part. Once knot is formed it sets off vicious cycle of intestinal occlusion, and continuous peristalsis and vascular pulsation all lead towards to gangrene.

The etiology of intestinal knotting, including ileo- ileal knotting is unknown. This may be related to the diet in the area that is bulky and high in fibre. It may be associated with excessive motility of the ileum. The mortality rate is ~ 50%. Ileo-ileal knotting present like most cases of small bowel obstruction with no particular sign and symptom except rapid deterioration. Treatment should be started as early as possible with aggressive IV fluid resuscitation, insertion of nasogastric tube and broad spectrum antibiotics. When patient is adequately resuscitated, emergency laparotomy should be performed. In case of intestinal knotting the operative procedure of choice is to carefully untwisting the knot if both loop are found viable and to perform an en bloc resection of the gangrenous segment if found gangrenous.

Postoperatively patient should be monitored for hydration status, anemia and sign of anastomotic leak if anastomosis was performed. If stoma was created, stoma care should be done. Patient was counselled about stoma care and time of stoma closure. Later on stoma closure should be done.



**Fig 1:** Straight x-ray abdomen showing bowel loop with multiple air fluid level - acute intestinal obstruction



**Fig 2:** Ileo-ileal knot with stagnated boewl loop



**Fig 3:** Ileo-ileal knot with gangrenous changes and dilated proximal bowel loop

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