



E-ISSN: xxxx-xxxx

P-ISSN: xxxx-xxxx

IJCRS 2019; 1(2): 07-08

Received: 12-05-2019

Accepted: 15-06-2019

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## Ileosigmoid knotting in 54-years-old male patient- A case report

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### Abstract

Ileosigmoid knotting (ISK) is a rare cause of intestinal obstruction that rapidly progresses to gangrene of the ileum as well as the sigmoid colon. CT has been helpful in making a preoperative diagnosis. We recorded a case of Ileosigmoid knotting (ISK) in a 54-years-old male patient.

**Keywords:** Ileosigmoid knotting, CT scan, Gangrene

### Introduction

Ileosigmoid knotting (ISK) is a rare cause of intestinal obstruction that rapidly progresses to gangrene of the ileum as well as the sigmoid colon. Preoperative diagnosis is difficult because of its infrequency and atypical radiographic findings<sup>[1]</sup>. It is essential to differentiate it from sigmoid volvulus because endoscopic reduction is a contraindication in ISK. In recent years, CT has been helpful in making a preoperative diagnosis. Generalized peritonitis and sepsis is the main cause of poor outcome. After hemodynamic stabilization, immediate surgical intervention is the need of the hour<sup>[2]</sup>.

The incidence of ISK is not well known, but it generally occurs in areas with a high incidence of sigmoid volvulus (SV)<sup>[3]</sup>. ISK is more common in African, Asian, Middle Eastern, Eastern and Northern European, and South American countries, and also in Turkey. The disease accounts for 18-50% of SV cases in Eastern countries and 5-8% in Western countries. ISK is common in adult males and the peak incidence is in the 3rd-5th decades<sup>[4]</sup>. ISK is also common in the late pregnancy period in females. The etiology of ISK is controversial. Certain anatomical characteristics of the ileum and sigmoid colon, including a hypermobile bowel with an elongated mesentery having a narrow base (which may be acquired or rarely is congenital) are a prerequisite for ISK. Another anatomical factor is the presence of a relaxed anterior abdominal wall, which allows for the bowel torsion<sup>[5]</sup>. We recorded a case of Ileosigmoid knotting (ISK) in a 54-years-old male patient.

### Case Report

A 54-years-old male patient was admitted with severe lower abdominal pain of 24-hour duration. History revealed chronic constipation since 4 days. There was progressive abdominal distension and vomiting. Abdominal examination revealed diffuse abdominal distension, tenderness, and guarding. Laboratory data showed a white cell count of 21 000/mm<sup>3</sup>, hemoglobin level of 9.2 gm%, C-reactive protein of 13.9 mg/dL. Plain film of the abdomen showed dilatation of the small intestine with a gas and air fluid level, with an associated moderately distended, and obstructed sigmoid loop. A CT scan was planned, but could not be carried out for technical reasons.

On laparotomy, hemorrhagic fluid was encountered and the ileum and sigmoid colon was found to be gangrenous with a 360° clockwise twist of the ileum around the sigmoid colon. In addition, a Meckel diverticulum with a small band was found at the base of the twist. Following a 100-cm resection of gangrenous ileum and sigmoid colon, a primary anastomosis of the small gut and colon was carried out. Patient made an uneventful recovery and was discharged after 10 days.

### Discussion

When the mechanical double-loop obstruction occurs, both the loops of ileum and the sigmoid colon become distended. Both strangulation and thrombosis of the vessels contribute to ischemia and gangrene in the ileum and sigmoid colon. The gangrene may extend to the proximal part of the ileum, the cecum, and rarely the distal part of the jejunum and ascending colon.

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Shock, peritonitis, and endotoxemia occur because of the volume loss into the bowel lumen, bacterial translocation to the peritoneal cavity, and absorption of toxic products [6].

The consumption of a high bulk diet in the presence of an empty small bowel can predispose patients to ISK; therefore, the incidence is high among Muslims who eat a single daily meal during the Ramadan fast. Some conditions including postoperative adhesions, internal herniations, Meckel's diverticulum, and malrotations may be rare predisposing factors for ISK [7]. We recorded a case of Ileosigmoid knotting (ISK) in a 54-years-old male patient.

Puthu *et al.* [8] stated that the condition is serious, generally progressing rapidly to gangrene. Awareness of the condition is essential for prompt diagnosis and optimal management. This report describes a case in a 60-year-old male and describes the management of this rare condition.

ISK is predominately seen in males (80.2%) with a mean age of 40 years (range, 4-90 years). Besides the above anatomic prerequisites, the literature reveals the evidence of other secondary causative factors including late pregnancy, transmesenteric herniation, Meckel diverticulitis with a band, ileocecal intussusceptions, and floating cecum. Among the 280 patients reviewed, 4.3% were children under the age of 16 years. While ISK is predominately reported in certain African, Asian, and Middle-East nations, it is a rare occurrence in the white population [9].

ISK can rapidly progress to gangrene of the ileum as well as of the sigmoid colon. Generalized peritonitis, sepsis, and dehydration are the principal complications. The predominant symptoms and signs of presentation include abdominal pain and tenderness (100%), abdominal distension (94% to 100%), nausea and vomiting (87% to 100%), rebound tenderness (69%), 4 and shock (0% to 60%), where it was specified [10].

Despite the critical condition, preoperative diagnosis is not easy. While in recent years a preoperative diagnosis has been made more often, it was a rarity in the past in most cases (0% to 28%). The diagnostic difficulty is partly caused by the unfamiliarity of this rare entity and the confusing and self-contradictory features of the disease [11]. While clinical features such as vomiting suggest small bowel obstruction, the radiographic findings are that of colonic distension, which is uncommon in small bowel obstruction. Radiographically, ISK is often mistaken for simple sigmoid volvulus. However, unlike sigmoid volvulus, attempts to deflate the distended colon using a sigmoidoscope or a flatus tube, often fails in ISK. This is because the ileum tightly envelops the base of sigmoid colon, defying any such attempt. These three features of the clinical picture of small bowel obstruction, radiographic evidence of predominately large bowel obstruction, and inability to insert a sigmoidoscope could possibly form a useful diagnostic triad [12].

## Conclusion

Authors found that Ileosigmoid knotting (ISK) is a rare but serious cause of intestinal obstruction. Early diagnosis and surgical management can be helpful.

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