Asian Journal of Case Reports in Surgery

10(3): 12-16, 2021; Article no.AJCRS.70177

Ileo-Sigmoid Knot: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

Editor(s):
(1) Dr. Ramesh Gurunathan, Sunway Medical Center, Malaysia.
Reviewers:
(1) María Riaza Montes, Galdakao-Usansolo Hospital, Spain.
(2) Vinod Kumar Nigam, Max Hospital Gurgaon, India.
(3) Divya Dahiya, India.
Complete Peer review History: https://www.sdiarticle4.com/review-history/70177

Case study

Received 20 April 2021
Accepted 26 June 2021
Published 13 July 2021

ABSTRACT

Introduction and Importance: The ileo-sigmoid knot is a rare entity of intestinal occlusion by strangulation. It is a surgical emergency whose delay in management exposes to digestive necrosis and high mortality.
Materials and Methods: Our work is a retrospective case report with a descriptive aim concerning a patient operated for retrocecal hernia within the department of general surgery of CHU Ibn Rochd Casablanca
Case presentation: We report the case of a 53-year-old male, who has an occlusive syndrome with abdominal pain. On physical examination, we noted a slightly distended abdomen with generalized abdominal tenderness. Abdominal CT scan detected a moderate amount of intraperitoneal fluid effusion. The first jejunal loops were flat and well raised by contrast injection, while the downstream small intestine was distended and poorly raised. The straight, transverse and descending segments of the colon, as well as the rectum, were normally positioned and aerated, but the sigmoid colon was not clearly visualized. The patient was operated, surgical exploration had found a liquid of intestinal suffering of medium abundance which was evacuated and removed; with a volvulus of the last hail and the cecum around the sigmoid in the form of a knot. Since the hail and the sigmoid colon were viable the patient benefited from a simple detorsion with sigmoidopexy.
Clinical discussion: The ileo-sigmoid volvulus, or ileo-sigmoid knot (NIS) is a "knot" created by a volvulus of the sigmoid colon and small intestine, specifically the ileum. It was first described by Parker in 1845 to explain the development of the ISK. Treatment is based on the resection of

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necrotic intestinal segments with anastomosis or stoma, detorsion and sigmoidopexy are recommended in the rare cases where there is no necrosis.

Conclusion: The ileo-sigmoid knot is a rare but potentially fatal cause of acute intestinal obstruction. Lack of knowledge of the condition and diagnostic difficulties have contributed to high morbidity and mortality. Only early diagnosis and prompt management can optimize the survival of these patients.

Keywords: Ileo-sigmoid knot; intestinal occlusion; necrosis.

1. INTRODUCTION

The ileo-sigmoid knot is a rare and serious cause of intestinal occlusion by strangulation [1]. It is a surgical emergency, the delay in management exposes to lesions of extensive digestive necrosis and high mortality. Knowledge of the mechanism of this pathology is therefore essential in order to make an early diagnosis and allow rapid surgical management [2]. We report the clinical case of a rare form of acute intestinal occlusion over ileo-sigmoid knot in a 53-year-old patient.

2. OBSERVATION

The patient was 53 years old, with past medical history of tobacco at 30 box per year, who presented abdominal pain evolving for 5 hours before his admission, with food vomiting and occlusive syndrome, all of which evolved in a context of apyrexia and alteration of general condition. On physical examination, the patient was conscious and stable on the respiratory and hemodynamic level, abdominal examination found a slightly distended abdomen with percussion and generalized abdominal tenderness. Abdominal CT scan detected staged abnormalities of the small intestine with a moderate amount of intraperitoneal fluid effusion. The first jejunal loops were flat and well raised by contrast injection, while the downstream small intestine was distended and poorly raised. The straight, transverse and descending segments of the colon, as well as the rectum, were normally positioned and aerated, but the sigmoid colon was not clearly visualized (Fig. 1). The patient was operated, surgical exploration had found a liquid of intestinal suffering of medium abundance which was evacuated and removed; with a volvulus of the last hail and the coecum around the sigmoid in the form of a knot (Fig. 2). Since the hail and the sigmoid colon were viable (Fig. 3), the patient benefited from a simple detorsion with sigmoidopexy. The postoperative follow-up was simple; the patient was discharged on the second postoperative day.

3. DISCUSSION

The ileo-sigmoid volvulus, or ileo-sigmoid knot (NIS) is a "knot" created by a volvulus of the sigmoid colon and small intestine, specifically the ileum. It was first described by Parker in 1845 [3,4] To explain the development of the ISK. Atamanalp et al. suggested predisposing factors, including a sigmoid colon with a long mesocolon having a narrow base. A highly mobile hail with a long mesentery and a short root can wind up at the foot of the sigmoid colon. A second factor, which is the rapid reproduction of the jejunum in patients who eat only one meal a day, is thought to promote wrapping around the empty ileum, carrying away the sigmoid colon [5,6]. Alver et al describe four types of NIS formation mechanisms, depending on the active digestive segment responsible for the twisting, in type I, the ileum is the active segment wrapping around the passive sigmoid, while type II results from active sigmoid twisting that attracts the passive slender loop, in the exceptional type III, it is the ileo-caecal junction that wraps around the sigmoid loop, while in the indeterminate type IV it is not possible to differentiate the two segments [7]. According to this classification of Alver et al, our case is classified as Type III. Preoperative diagnosis is difficult due to the rarity and clinical-radiological atypia. This condition is diagnosed preoperatively in less than 20% of patients [8]. Clinical manifestations are represented mainly by acute abdominal pain, initially localized then permanent and generalized, nausea and vomiting, hypovolemia is suggestive in 56% of cases. Clinical examination reveals abdominal distension, sensitivity or abdominal defense on palpation, with auscultatory silence when intestinal necrosis is already present [2]. The abdominal radiograph may show disproportionate distension with wide water levels in the sigmoid colon occupying the right side of the abdomen, with multiple water levels of the small intestine on the left side of the abdomen showing a closed-loop double occlusion [9]. CT scan results suggesting ISK

are indicative of the vortex created by the twisted bowel and sigmoid mesocolon in the ileo-sigmoid node, medial deviation of the cecum, and descending colon. In addition, others have noted a radial distribution of the intestine and mesenteric vascular system and consider it a useful diagnostic information [10]. Treatment is based on the resection of necrotic intestinal segments with anastomosis or stoma, detorsion and sigmoidopexy are recommended in the rare cases where there is no necrosis [11].

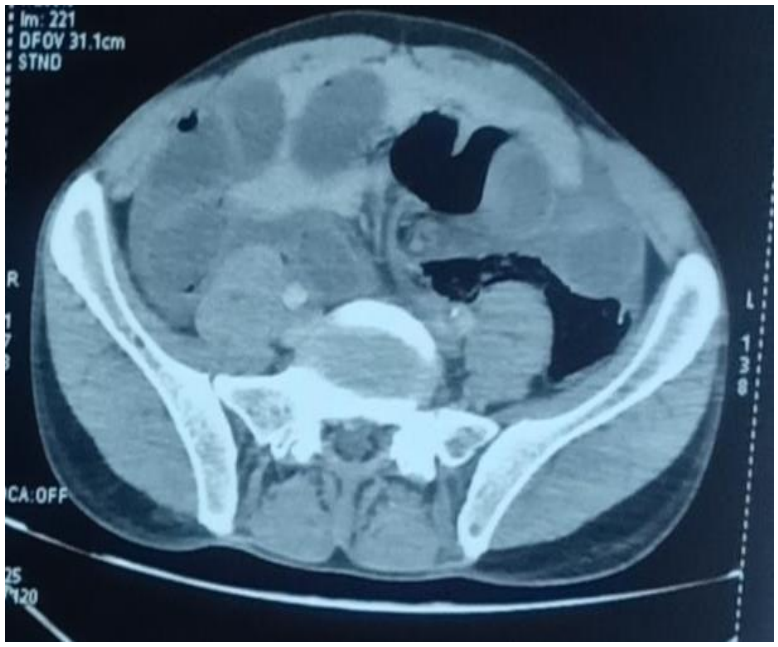

Fig. 1. Abdominal CT scan in cross section showing peritoneal effusion of medium abundance. The early jejunal coves were flat and well raised by contrast injection, while the downstream small intestine was distended and poorly raised, the sigmoid colon was not clearly visualized

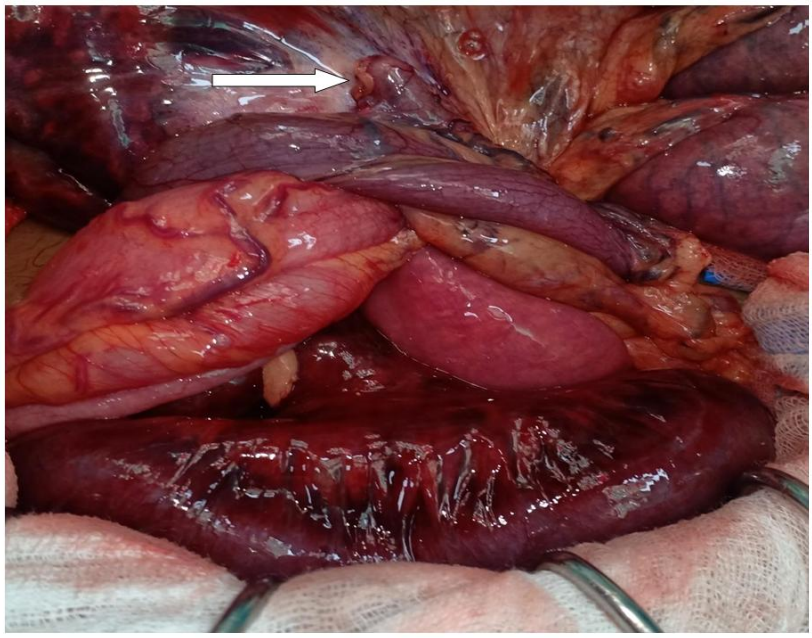

Fig. 2. Intraoperative image of the ileo-caecal diaphragm junction (arrow) wrapped around the Sigmoidian loop realizing an ileosigmoidian knot

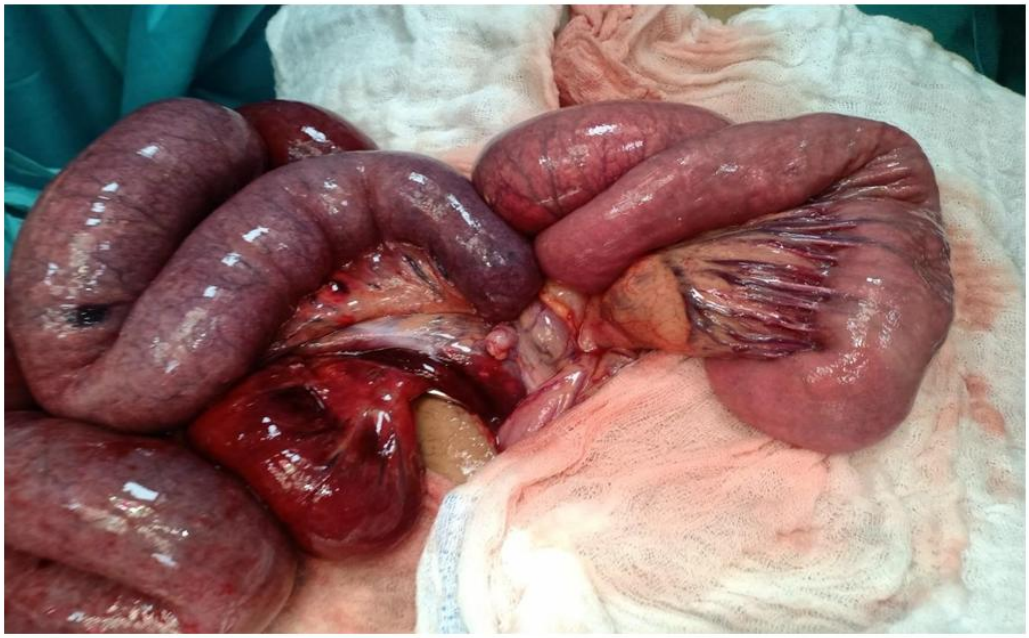

Fig. 3. Intraoperative image showing the ileo-sigmoid knot with hail handle suffering but viable

4. CONCLUSION

The ileo-sigmoid knot is a rare but potentially fatal cause of acute intestinal obstruction. Lack of knowledge of the condition and diagnostic difficulties have contributed to high morbidity and mortality. Only early diagnosis and prompt management can optimize the survival of these patients [12].

CONSENT

Informed consent was obtained from the patient for publication of this case report and accompanying image.

ETHICAL APPROVAL

This case report is exempt from ethical approval at our institution

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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DOI: 10.1007/s12262-011-0346-

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle4.com/review-history/70177