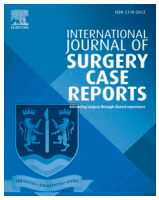
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Case report

Ileo-sigmoid knotting in a female Ethiopian patient, a case report

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ABSTRACT

Introduction: Ileo-sigmoid knotting is a very rare cause of bowel obstruction. The diagnosis can be challenging and may not be suspected pre-operatively. A high index of suspicion, especially in areas of the "sigmoid belt" region, can be helpful.

Case presentation: A 40-year-old ethnic Amhara female patient presented with symptoms and signs of bowel obstruction. She presented in shock and after resuscitation, laparotomy revealed gangrenous ileum twisted around the sigmoid colon ('ileo-sigmoid knotting'). The gangrenous ileal segment was resected, with end-to-end ileo-ileal anastomosis. The patient had a smooth postoperative course and was discharged on the 4th post-operative day.

Conclusions: Twisting of the ileum around the sigmoid colon is pathognomonic of ileo-sigmoid knotting. Prompt resuscitation and surgical intervention in the shocked patient with an acute abdomen and evidence of intestinal obstruction could be life-saving.

1. Introduction

Intestinal knotting is a rare cause of bowel obstruction worldwide. Most reported cases were from the so-called "volvulus belt" countries where there is an increased risk for sigmoid volvulus [1]. It can have different types such as ileosigmoid, ileo-ileal, and ceco-sigmoid [2]. Ileo-sigmoid knotting is the wrapping of the ileum around the sigmoid colon and its mesentery or vice versa [3]. It is one of the rare causes of intestinal obstruction, but it remains a catastrophic cause due to increased morbidity and mortality. [4].

Awareness of surgeons about rare causes of bowel obstruction might improve outcomes [5]. Preoperative diagnosis of ileosigmoid knotting is often difficult as it is infrequent, and can present in different forms with atypical radiographic findings [6]. Early and effective resuscitation with surgical intervention based on the intraoperative findings is the main base of management [7].

This article describes a unique case of a 40-year-old woman with gangrenous small bowel obstruction due to an ileosigmoid knotting operated at a public teaching hospital. This work has been reported in line with the SCARE criteria [8].

2. Case presentation

A 40-year-old female patient of Amhara ethnicity who is single, nulliparous, and a farmer presented to the surgical emergency department of Debre Tabor Comprehensive Hospital, Debre Tabor, Ethiopia after she was referred from a rural primary hospital.

Her presenting complaint was colicky abdominal pain associated with frequent bilious vomiting and abdominal distension of 17 hour duration. She was unable to pass feces since the onset of the symptom. She has no prior history of a similar complaint. She has no history of trauma to the abdomen, no previous history of surgery, no history of cough or chest pain, no history of recent weight loss, and no history of constipation or anal bleeding. She is not on any contraceptives, her last normal menstrual bleeding was 15 days back.

She is not married and lives with her parents. She has no prior medical problems. She has 4 brothers and 2 sisters. There are no medical illnesses that run in the family. There was no history of tobacco smoking or substance abuse.

At presentation, the patient was acutely sick looking in pain and her blood pressure was 90/60 mm Hg, pulse rate was 124′, respiratory rate was 26 per minute, oxygen saturation 94%, and the temperature was 37.3 °C axillary. Physical examination of the patient revealed pink conjunctiva with a dry tongue and buccal mucosa. Her chest was clear

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and resonant. She had no added sound on pericardial examination. The abdomen was slightly distended and moves with respiration. There was direct and rebound tenderness on palpation all over the abdomen. The abdomen was hyper tympanic on percussion. There was no shifting dullness or fluid thrill. The bowel sounds were hypoactive upon auscultation. A digital rectal examination revealed an empty, ballooned-out rectum. On neurological examination, the patient was lethargic and confused.

The initial impression of small bowel obstruction secondary to gangrenous small bowel volvulus to rule out band adhesion, double Intravenous (IV) line was opened, patient catheterized, resuscitation with crystalloids initiated, Ceftriaxone 1 g IV and Metronidazole 500 mg IV given, Nasogastric tube inserted and blood sample sent to determine complete blood count. The patient had an abdominal X-ray taken at the primary hospital from which she was referred (Fig. 1). Her complete blood count showed leukocytosis of 19,540 with Neutrophil predominance.

After 1 h of resuscitation, the patient produced 80 ml of urine, the blood pressure became 100/70 mm Hg, the pulse rate dropped to 112′, and the confusion cleared. The same initial impression was taken into consideration, it was explained to the patient and informed consent was gained to perform laparotomy.

The patient was taken to the operation theatre and under general anesthesia, with endotracheal intubation, the patient was in a supine position, and laparotomy was performed by a general surgeon. The intraoperative findings were 1200 ml hemorrhagic fluid with distended small bowel and large bowel loop segments, small bowel loops were twisted around the sigmoid colon in an anti-clockwise fashion, the twisted small bowel segment was gangrenous, and the sigmoid colon was viable (Fig. 2). An intra-operative diagnosis of Type IA ileo-sigmoid knotting was made, the twisted small bowel segment released, gangrenous segment resected out (it involved 60 cm segment of distal ilium with remaining viable ilium 8 cm from ilio-cecal valve), using 2/0 round polyglactin sutures end to end continuous single layer ileo-ileal anastomosis was done with the remaining distal ileum, the mesenteric window closed, hemostasis secured, the abdomen was lavage with warm saline, and closed in layers after correct count report.



Fig. 1. Plain abdominal X-ray showing distended bowel loops with air fluid level markings.

Postoperatively, the patient was transferred to a post-anesthesia recovery unit and kept Nil per oral, maintenance fluid given, antibiotic treatment continued, and NGT kept inside. On 2nd post-operative day, she passed feces, and sips were initiated after NGT was removed. She tolerated it well, hence solid diet started on her 4th postoperative day. She had a smooth postoperative course and was discharged on her 8th postoperative day with an appointment after a week.

She was evaluated at the appointment clinic on her 14th post-operative day and abdominal stitches were removed. She has no other complaints except mild discomfort around the wound site.

3. Discussion

The mainstay of treatment for ileosigmoid knotting is adequate resuscitation with immediate surgical intervention. The surgical intervention involves untying the knot, resection of gangrenous segment with restoration bowel continuity or constructing a diversion stoma [9]. In the case we reported initial resuscitation was made using intravenous crystalloids followed by resection and end to end ileo-ileal anastomosis, as the intraoperative hemodynamic status of the patient were stable. Diversion stomas could be done alternatively for patients with unstable blood pressure intraoperative to avoid risk of anastomosis leakage [10].

The development of gangrenous change of the ileum or sigmoid significantly increases mortality because of ileo-sigmoid knotting. Other factors that were found to increase mortality were age greater than 60, presence of shock and comorbidities [11]. The patient being discussed is young, with no comorbidities which has contributed for the good outcome despite initially presenting with shock.

Different types of techniques have been used to classify ileo-sigmoid knotting. The case we discussed had an ileum with gangrenous change twisted around the sigmoid colon with initial presentation of shock, making it a class 5 type of ileo-sigmoid knotting [11].

The absence of CT scan in the setup the patient was treated has made the preoperative diagnosis challenging. The decision to perform exploratory laparotomy with presumptive diagnosis has reduced delays in the management of this patient. We recommend following such approach in areas with limited imaging modalities like CT scan to possibly avoid delays in the management of such patients.

Availability of data and materials

All the images and detailed information of this case are available at Debre Tabor Comprehensive specialized hospital digital patient record and can be submitted upon request.

Consent to participate

Facial images describing the patient discussed are not used. The patient has provided written informed consent both to undergo the operation as well as to get the case published. Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Ethical approval

As this case was an emergency case performed in the hospital, there was no need to have Ethical clearance from the Ethical committee to publish this work.

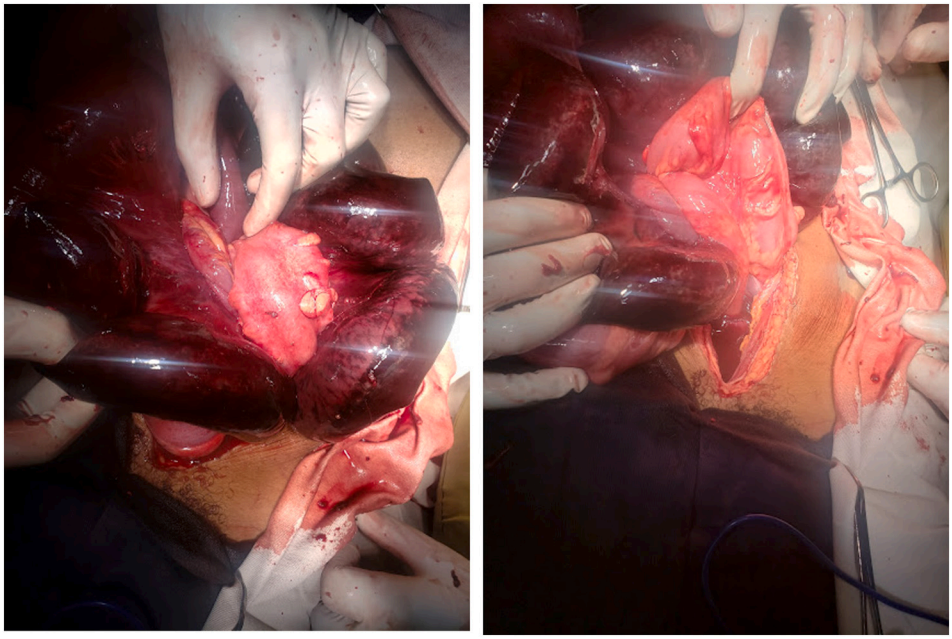


Fig. 2. Small bowel loops twisted with gangrenous change twisted around viable sigmoid colon.

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Guarantor

BE will be the guarantor of this work. He takes full responsibility for full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

Research registration number

None.

Credit authorship contribution statement

BE is the corresponding author of this work. He has generated the idea, collected data, and wrote the discussion.

EG proofreads, edits, and wrote the introduction.

Declaration of competing interest

The author declares that he/she has no competing interests.

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References

[1] L. Perrot, A. Fohlen, A. Alves, J. Lubrano, Management of the colonic volvulus in 2016, J. Visceral Surg. 153 (3) (2016) 183–192.
[2] E. Abebe, B. Asmare, A. Addise, Ileo-ileal knotting as an uncommon cause of acute intestinal obstruction, J. Surg. Case Rep. 2015 (8) (2015), rjv102.
[3] S.S. Atamanalp, Ileosigmoid knotting, Eurasian J. Med. 41 (2) (2009) 116.
[4] O. Alver, D. Ören, M. Tireli, B. Kayabaşi, D. Akdemir, Ileosigmoid knotting in Turkey, Dis. Colon Rectum 36 (12) (1993) 1139–1147.
[5] N.J. Shatnawi, K.E. Bani-Hani, Unusual causes of mechanical small bowel obstruction, Saudi Med. J. 26 (10) (2005) 1546–1550.
[6] J. Shepherd, Ninety-two cases of ileosigmoid knotting in Uganda, J. Br. Surg. 54 (6) (1967) 561–566.
[7] S.S. Atamanalp, D. Ören, M. Başoğlu, M.I. Yıldırgan, A.A. Balık, K.Y. Polat, et al., Ileosigmoidal knotting: outcome in 63 patients, Dis. Colon Rectum 47 (6) (2004) 906–910.
[8] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, A. Kerwan, A. Thoma, et al., The SCARE 2020 guideline: updating consensus surgical CAse REport (SCARE) guidelines, Int. J. Surg. 84 (2020) 226–230.
[9] Atamanalp S. Selçuk, Treatment for ileosigmoid knotting: a single-center experience of 74 patients, Tech. Coloproctol. 18 (3) (2014) 233–237.
[10] I. Post, P. Verheijen, A. Pronk, I. Siccama, P. Houweling, Intraoperative blood pressure changes as a risk factor for anastomotic leakage in colorectal surgery, Int. J. Color. Dis. 27 (6) (2012) 765–772.
[11] S.S. Atamanalp, G. Oeztuerk, B. Aydinli, M.I. Yildirgan, M. Başoğlu, D. Oeren, et al., A new classification for ileosigmoid knotting, Turk. J. Med. Sci. 39 (4) (2009) 541–545.