

CASE REPORT

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Ileo-ileal knotting: An unusual cause of acute strangulated intestinal obstruction

Onyeyirichi Otuu, Uche Emmanuel Eni, Amobi Chiedozi Oguonu

ABSTRACT

Introduction: Intestinal knotting is the obstruction of an intestinal segment with closed loop phenomenon secondary to knotting of the mesentery. Ileo-ileal knotting remains the rarest of all intestinal knotting.

Case Report: A 35-year-old female patient presented to the emergency department with colicky abdominal pain of 5 days duration with associated bilious vomiting, progressive abdominal distention, and constipation. She had four previous caesarean sections. The abdomen was grossly distended with generalized tenderness, guarding, and absent bowel sounds. Plain abdominal roentgenogram showed dilated loops of small bowel with multiple air-fluid levels and absent rectal gas shadow. A diagnosis of complicated adhesive intestinal obstruction was made and patient underwent emergency exploratory laparotomy. The proximal loop of ileum was found to be knotted on the distal ileum with the entrapped loop being gangrenous. She had resection of the gangrenous gut with end-to-end ileal anastomosis and made an uneventful recovery.

Conclusion: A high index of suspicion and immediate surgical intervention is needed in the management of this entity because it can progress rapidly to strangulation.

Keywords: Ileo-ileal knotting, Intestinal knotting, Intestinal obstruction

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INTRODUCTION

Small intestinal obstruction is a surgical emergency that could result from hernias, adhesions, bands, primary volvulus, and intussusceptions. Unusual causes like Intestinal knotting have been documented [1]. Intestinal knotting is the obstruction of an intestinal segment with closed loop phenomenon secondary to knotting of the mesentery [2]. Reports abound of different types of intestinal knotting like appendico-ileal, ileocecal, ceco-sigmoid, ileo-sigmoid, but ileo-ileal remains the rarest of them all [2–5]. We present a rare case of an acute strangulated intestinal obstruction caused by an ileo-ileal knot in a 35-year-old female patient who had four previous caesarean sections.

CASE REPORT

A 35-year-old female patient presented to the emergency department with colicky abdominal pain

of five days duration with associated bilious vomiting, progressive abdominal distention, and constipation. The patient had four previous caesarean sections and the last surgery was four months before presentation.

Upon examination, she was in intermittent painful distress. Her vital signs were pulse rate of 110 beats per minute, blood pressure of 100/70 mmHg, respiratory rate of 32/min, and temperature of 36.5°C. Her tongue and buccal mucosa were dry. The abdomen was grossly distended with generalized tenderness and guarding. The bowel sounds were absent. Digital rectal examination revealed an empty rectum. Her hematological parameters were within normal range. Plain abdominal roentgenogram showed dilated loops of small bowel with multiple air-fluid levels and absent rectal gas shadow. The patient was resuscitated and a provisional diagnosis of complicated adhesive intestinal obstruction made.

The patient was prepared and urgent exploratory laparotomy done through midline incision. About 1000 mL of dark hemorrhagic fluid was encountered in the peritoneal cavity which was suctioned out. The proximal loop of ileum was knotting on the distal ileum (Figure 1). The entrapped gangrenous loop of ileum measured 50 cm and was 60 cm from the ileocecal valve (Figure 2).

En bloc resection and ileo-ileal end-to-end anastomosis was done to re-establish the continuity of the gut. The remaining small bowel was approximately 220 cm. The patient developed superficial surgical site wound infection which was successfully treated with dressing and antibiotics. She was discharged after two weeks of hospital stay. She has continued to be in good health after six months of follow-up.



Figure 1: Picture showing the ileo-ileal knotted segment. The black arrow is pointing to the knot.



Figure 2: Picture showing the gangrenous portions of the ileum.

DISCUSSION

First description of intestinal knotting was by Riverius in the 16th century and later by Rokitsky in 1836 [2]. The commonest type of intestinal knot syndrome is the ileo-sigmoid knot while the ileo-ileal knot remains very rare entity [3, 6]. In a study by Shepherd, out of 92 cases of intestinal knot, only one case of an Ileo-ileal knot was found [3]. In the same study, sigmoid volvulus was seen in males five times as often as intestinal knotting, whereas in females intestinal knotting was seen nearly twice as often as sigmoid volvulus [3].

Ileo-ileal knotting is a type of closed loop obstruction where one part of the ileum remains static and the other part wound around the static part. Once a knot is formed, it sets off vicious cycle of intestinal occlusion, and continuous peristalsis and vascular compromise all lead toward gangrene [3, 7–9].

The etiology of intestinal knotting including ileo-ileal knotting is unknown. However, the condition is most common in areas where small intestinal and sigmoid volvulus is common and may be related to high fiber bulky diets and excessive motility of the ileum [3, 7, 10, 11]. The mortality rate is about 50% [3, 7, 9].

Ileo-ileal knotting presents like most small bowel obstruction with no particular or classical signs and symptoms to it except a rapid deterioration and progression to gangrene [4, 12]. Like in our index case, patients have been known to present with the typical features of intestinal obstruction with adhesion as a possible etiology, but on laparotomy ileo-ileal knotting was discovered to be the cause [8]. The preoperative diagnosis of these conditions is very difficult or impossible. In most cases, the diagnosis is established intraoperatively, as in the present case [2, 5]. Early intervention is needed, and the most effective diagnosis and treatment for this unusual condition is surgery after adequate resuscitation with intravenous (IV) fluid, abdominal decompression with nasogastric tube, and broad spectrum IV antibiotic [4, 5, 9]. Emergency laparotomy should be performed through midline incision, and the abdominal cavity should be carefully explored [4, 7]. The operative procedure of

choice is to carefully unravel the knot if both loops are found viable; or to perform an en bloc resection of the gangrenous segments if these are followed by primary anastomosis [2–4, 8].

Postoperatively, the patient should be monitored for hydration status, anemia, and signs of anastomotic leak. Follow-up for signs of short bowel syndrome should be instituted depending on the length of resected gut and symptoms exhibited by the patients [4].

CONCLUSION

A high index of suspicion and immediate surgical intervention is needed in the management of this unusual entity called ileo-ileal intestinal knotting because it can progress rapidly to strangulation.

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Author Contributions

Onyeyirichi Otuu – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Uche Emmanuel Eni – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Amobi Chiedozi Oguonu – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

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Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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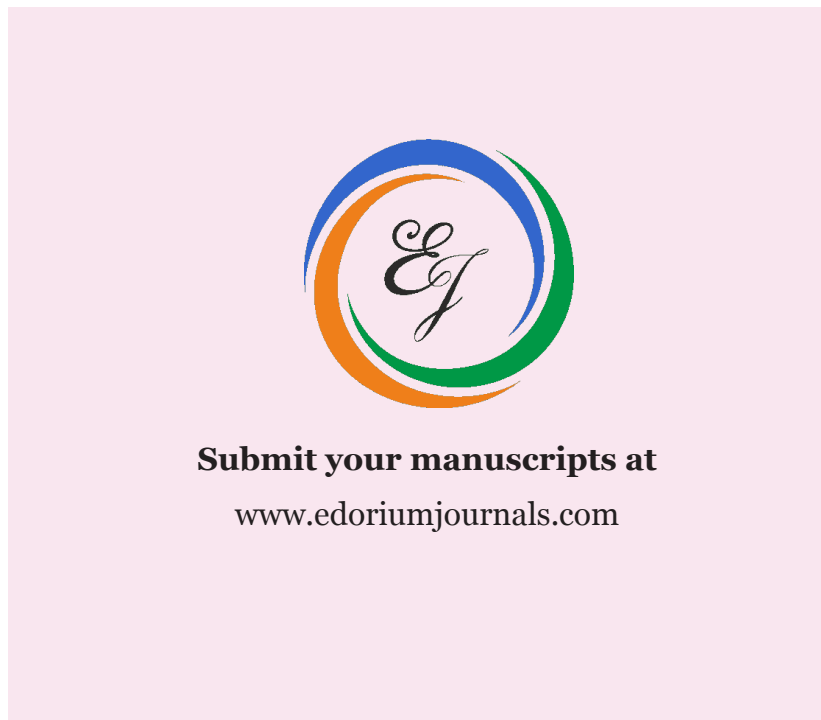
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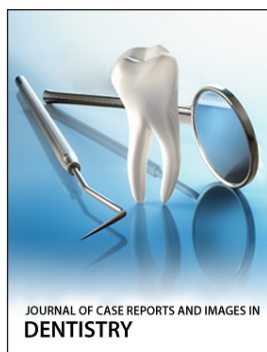
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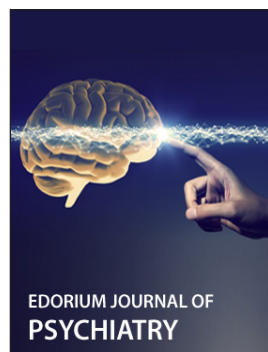
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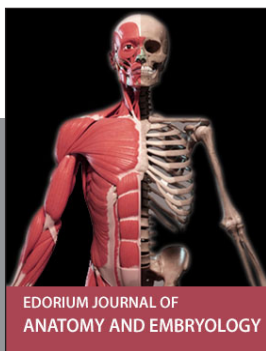
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