International Surgery Journal
Kumar M et al. Int Surg J. 2023 May;10(5):950-952
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20231399

Case Report

Ileosigmoid knotting: a rare cause of acute intestinal obstruction in an elderly patient

Manish Kumar*, Satendra Kumar, Sanjeev Kumar Gupta, Seema Khanna, Shubham Kumar Gupta, Digumarti Asha Rani, Inzamamul Hoda

Department of General Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India

Received: 11 March 2023
Revised: 12 April 2023
Accepted: 19 April 2023

***Correspondence:**
Dr. Manish Kumar,
E-mail: manishkhichar96@gmail.com

ABSTRACT

Ileosigmoid knotting (ISK) is difficult to diagnose preoperatively due to its rarity and uncommon presentation. It has a high mortality rate; hence early diagnosis and immediate surgical intervention are required. This report describes a case in an 80-year-old male patient with gangrenous ileal loops and sigmoid colon and was managed with resection of gangrenous bowel loops and double stoma, Patient was discharged with a functional stoma and good well-being and was further followed up.

Keywords: ISK, Compound volvulus, Double volvulus, Acute intestinal obstruction, Intestinal knotting

INTRODUCTION

Ileosigmoid knotting (ISK) is a rare life-threatening condition causing small bowel obstruction, with a high risk of small bowel gangrene, it is a type of sigmoid volvulus. It is also called compound volvulus or double volvulus, in which the ileum wraps around the sigmoid colon thus forming a knot. ISK is usually seen in Asian and African populations and is rare in developed Western countries. The first reported case of ISK was reported by Parker in 1845, and Paul reported the first case in the Asian subcontinent in 1940, Dunkertey reported the first case of ISK in India in 1953, The term ISK was coined by Shepherd in 1967.[1-4] In a patient with subacute intestinal construction ISK is an infrequent presentation to encounter on the operating table, Patient present with small bowel obstruction that progresses rapidly to bowel ischemia and gangrene. ISK is a rare but serious form of intestinal obstruction. Preoperative diagnosis is difficult and, in most cases, diagnosis is made intraoperatively. Early and effective resuscitation, prompt surgical intervention selected based on clinical and operative findings, and effective postoperative intensive care are the basis of treatment.[5]

CASE REPORT

An 80-year-old male patient presented with chief complaints of progressive abdominal distension and multiple episodes of vomiting and non-passage of flatus and stool for 5 days and associated pain abdomen for 3 days. The pain was insidious in onset gradually progressive and responded only to injectable painkillers. He also gives a history of chronic constipation; the patient was in a dehydrated state and distressed. After initial resuscitation patient underwent an X-ray abdomen erect which revealed multiple air-fluid levels, his provisional CECT whole abdomen report revealed multiple dilated small bowel loops showing C and U-shaped configuration, Descending colon was dilated, and mesenteric congestion is seen. The patient was then planned for emergency laparotomy around 200 ml of hemorrhagic fluid was aspirated, terminal ileum and the sigmoid colon were gangrenous with 360 degrees

clockwise twisting. Around 2 feet length of ileum at 1 foot proximal to ICR was gangrenous and the sigmoid colon was gangrenous. The gangrenous bowel loops were resected and an end functional ileostomy and descending end colostomy (for mucus drainage) was performed given the patient's vitals, age, and delayed presentation.

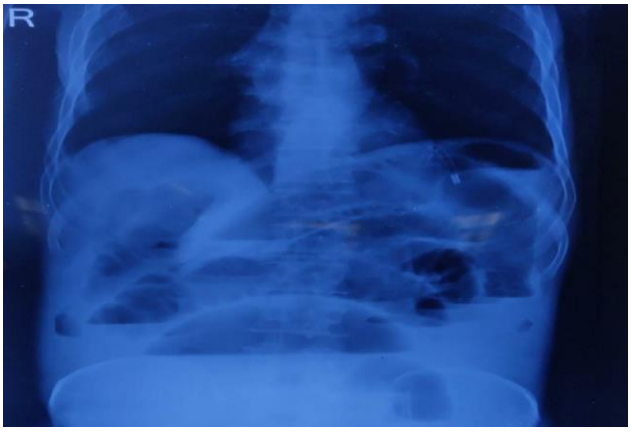

Figure 1: X-ray abdomen of dilated small and large bowel loops with multiple air-fluid levels.

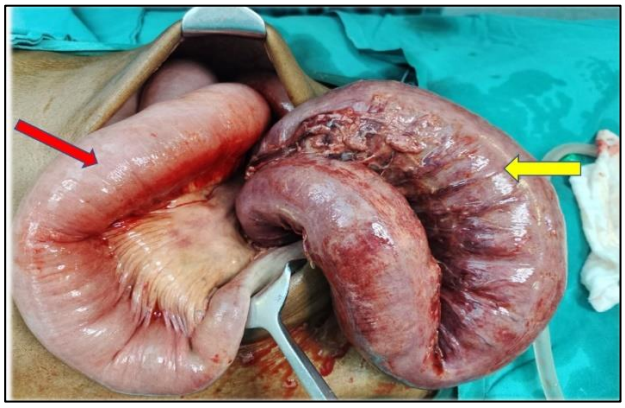

Figure 2: Intraoperative picture of gangrenous sigmoid colon (yellow arrow) and gangrenous ileal loops (Red arrow).

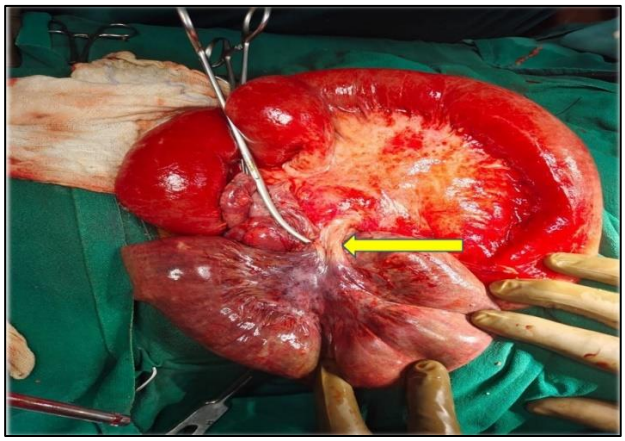

Figure 3: Intraoperative picture of ISK and 360 rotation and twisted mesentery (yellow arrow).

Figure 4: Post-operative image of proximal end ileostomy, and end colostomy (mucus fistula).

DISCUSSION

ISK is a rare cause of intestinal obstruction and preoperative diagnosis is very difficult due to the rarity of this disease, diagnosis is usually made on an operating table, and preoperative diagnosis is made only in 0-25% of cases in various case reports.[6] Thus, knowledge and management of ISK are very vital. Most cases of ISK are male patients in the fourth and fifth decade, however in this case patient is an 80-year-old male.[7,8] The suggested pathogenesis is 1) Free mobile small bowel loops with long mesentery, 2) Long sigmoid colon with small pedicle, and 3) Bulky diet after a prolonged fasting state.[4,9-15] ISK has been classified into mainly three types, in type l-The ileum (active component) wraps itself around the sigmoid colon (passive component) in a clockwise or anticlockwise direction. Type II--the sigmoid colon (active component) wraps itself around a loop of the ileum (passive component) in a clockwise or anticlockwise direction. Type III--The ileocecal segment (active component) wraps itself around the sigmoid colon (passive component).[14]

Table 1: Types of ISK.[14]

Type	Active component	Passive component	Rotation
Type 1	Ileum	Sigmoid colon	Type A if clockwise/ type B if anti-clockwise
Type 2	Sigmoid colon	Ileum	
Type 3	Ileocecal segment	Sigmoid colon	

The reported mortality rates vary from 0-40%, mainly due to delayed presentation, old age, sepsis, and bowel gangrene. For better management, early resuscitation with IV fluids and antibiotics followed by laparotomy including resection of the gangrenous segment and double stoma or anastomosis, either to be decided pertaining to the vitals, age, and general condition preoperative and during the intraoperative course.

CONCLUSION

ISK is though infrequent entity to encounter on the operating table which is associated with bowel gangrene leading to high mortality. Pre-operative resuscitation, resection of the bowel with minimal contamination, and taking measures to reduce reperfusion injury are very important for the optimal outcome for the patient. Resection of gangrenous bowel and restoration of bowel continuity is the treatment of choice, however, it may not be possible in some cases, proximal ileostomy and mucus fistula help in reducing postoperative morbidity and mortality as done in this case.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Parker E. Case of intestinal obstruction: Sigmoid flexure strangulated by the ileum. Edinb Med Surg J. 1845;64:306-08.
2. Paul M. Volvulus of the intestine with intertwining loops. The Lancet. 1940;236(6122):809-10.
3. Burkitt D. Acute abdomens-British and Baganda compared. East Afr Med J. 1952;29(5):189-94.
4. Dunkerley GE. Intestinal obstruction due to knotting of two loops of the small intestine. Br J Surg. 1953;41(165):66-70.
5. Atamanalp S, Ören D, Başoğlu M. Ileosigmoidal Knotting: Outcome in 63 Patients. Dis Colon Rectum. 2004;47:906-10.
6. Ooko PB, Saruni S, Oloo M, Topazian HM, White R. Ileo-sigmoid knotting: a review of 61 cases in Kenya. Pan Afr Med J. 2016;23:198.
7. Narasimha Reddy G, Sekhar GR, Akther MJ, Shaik SU. Atypical presentation of ileo-sigmoid knot-a rare case, Glob. Surg. 2015;1
8. Abebe K, Sherefa K, Teshome H, Abebe E. Ileosigmoid knotting: analysis of patients clinical profiles and determinants of outcomes. Surg Res Pract. 2020;23:3826138.
9. Machado NO. Ileosigmoid knot: a case report and literature review of 280 cases. Ann Saudi Med. 2009;29(5):402-6.
10. Atamanalp SS. Ileosigmoid knotting: clinical appearance of 73 cases over 45.5 years. ANZ J Surg. 2013;83(1-2):70-3.
11. Atamanalp SS. Treatment for ileosigmoid knotting: a single-center experience of 74 patients. Tech Coloproctol. 2014;18(3):233-7.
12. Shepherd JJ. Ninety-two cases of ileosigmoid knotting in Uganda. Br J Surg. 1967;54(6):561-6.
13. Vaez-Zadeh K, Dutz W. Ileosigmoid knotting. Ann Surg. 1970;172(6):1027-33.
14. Alver O, Oren D, Tireli M, Kayabasi B, Akdemir D. Ileosigmoid knotting in Turkey. Review of 68 cases. Dis Colon Rectum. 1993;36:1139-4.
15. Cakir M, Tekin A, Kucukkartallar T, Kartal A. Ileosigmoid knotting, an unusual form of acute intestinal obstruction. Acute Med Surg. 2015;2(4):234-6.

Cite this article as: Kumar M, Kumar S, Gupta SK, Khanna S, Gupta SK, Rani DA et al. Ileosigmoid knotting: a rare cause of acute intestinal obstruction in an elderly patient. Int Surg J 2023;10:950-2.