Case Report

Ileosigmoid Knot: A Case Report

Shahid Nazir, Ambreen Munir, Sahrish Sulman, Qazi Muhammad Waleed, Aisha Yar Muhammad

ABSTRACT

Ileosigmoid knot (ISK) is a very infrequent and unusual reason of intestinal obstruction and treated as a surgical emergency. In this disorder ileum usually encircled around base of sigmoid colon and make a pseudo knot. ISK is very infrequent disorder in Western countries as compared to Asian countries. Its diagnosis is very difficult because it's a rare disease with limited sensitive and specific diagnostic tests available, hence it's only found intraoperative; that results in high mortality.

In this case study, a 20-year male adult was presented with ISK. In this case study a 20-year male adult, admitted in surgical department on December 2018, with a severe abdominal pain, and constipation from last three days, three episodes of bilious vomiting, and high-grade fever from last 24 hours. Past medical and surgical history of patient was non-significant. X-ray showed a marked dilation in small bowel loops. During surgery, massive volvulus involving descending colon and sigmoid colon was observed, along with ileum was twisting around the volvulus, affected segments were resected and patients was managed appropriately and discharged.

Keywords: Ileosigmoid knot, intestinal obstruction, surgical emergency, pseudo knot.

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INTRODUCTION

Ileosigmoid knot; a very infrequent reason of intestinal obstruction, which leads to gangrene of ilium as well as sigmoid colon. ISK is well known as compound or double volvulus[1]. Ileosigmoid knot (ISK) is initiated by ileum loops that wrapped the base of redundant sigmoid loop. Figure I show the schematic outline of specific characteristics of ISK[2]. ISK is included in one of the lethal disorders because of its high mortality rate (35.5%), depending upon advanced age, duration of symptoms, associated medical complications, bowel gangrene and septic shock[3,4]. Characteristic sign and symptoms of ISK includes abdominal pain, abdominal distention, obstipation, tenderness, and vomiting. Other common findings are anorexia, nausea, diarrhea, rectal bleeding, abdominal mass, and bowel sounds[5]. Pre-operative diagnosis is very difficult due to its infrequency that cause unfamiliarity of Physicians with disease along with atypical radiological findings[1-3]. For early diagnosis, abdominal X-ray and computed tomography (CT) are used that typically shows the wrapped and distended sigmoid colon at right side and small air fluid intestinal segments at left side[6]. It is an infrequent disorder, hence 20-year patient diagnosed with ISK at surgical emergency department of LUMHS Hyderabad was presented.

CASE REPORT

A 20-year adult male, admitted at surgical department of LUMHS Hospital Hyderabad with complains of severe generalized abdominal pain for three days, along with 3 episodes of bilious vomiting, absolute constipation for three days and high-grade fever for 24 hours. Past medical and surgical history of patient is non-significant. On general examination patient have tachycardia, hypotension and shows signs of dehydration. On abdominal examination patient was suffering from generalized distention, marked tenderness, guarding, rigidity and resonant percussion. Digital rectal examination (DRE) of patient shows blood tinged finger and collapsed rectum. Laboratory results revealed raised Total Leucocyte Count (TLC) of 13000 with neutrophilic shift of 94%. Radiological findings [Figure I] of patient show marked dilation in small bowel loops, but no free fluid was observed in peritoneal cavity on sonography. Initially patient was diagnosed with acute intestinal obstruction and prepared for emergency laparotomy. During surgery, Surgeon observe the massive volvulus involving descending colon and sigmoid colon, whereas ileum was twisting around the volvulus. Both segments were gangrenous, approximately 1.5 feet of ileum 20 centimeter away from ileocecal junction and descending colon distal to splenic flexure up to half of sigmoid. All the affected segments were resected and end to end anastomosis of splenic flexure with remaining portion of sigmoid done, followed by resection of dead portion of ileum with loop ileostomy. After surgery patient was kept

nothing per oral and stoma started working on second day and discharged on sixth day. Patient was recalled after 2.5 months for elective reversal of ileostomy. His distal loopogram shows good patency of distal portion and standard reversal was done. He was discharged on 5th post-operative day with an uneventful course.

FIGURE I: X-RAY SHOWING MASSIVELY DILATED SMALL AND LARGE BOWEL

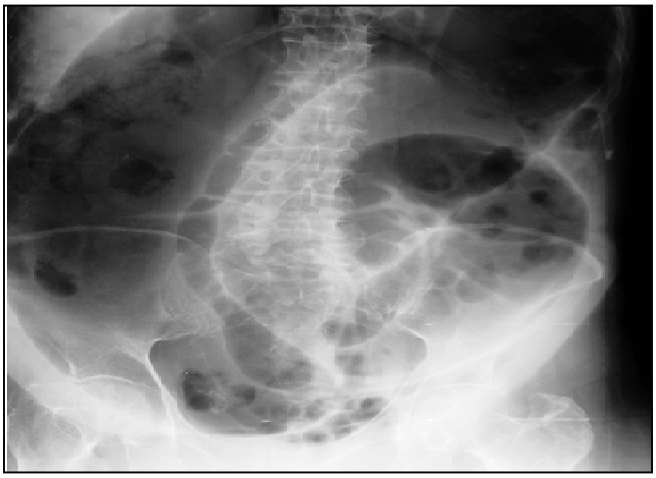
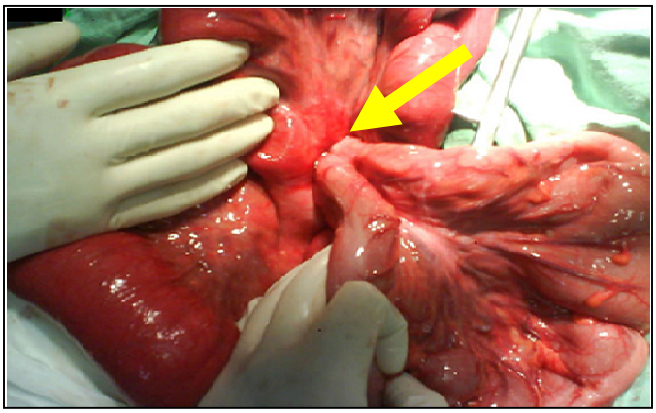


FIGURE II: ILEOSIGMOID KNOT



DISCUSSION

ISK is very rare but well-recognized disorder in Asian subcontinent, African subcontinent, Middle East countries, East and North European countries, South American countries, and Turkey but uncommon in Western countries[2,5]. High incidence of ISK occurs in areas where high frequency of sigmoid volvulus (SV) reported. Prevalence of ISK is high in Eastern countries i.e., 18-50% and low in Western countries i.e., 5-8%. ISK is more common in adult male patients having age between 21-50 years and in female patients during late pregnancy[5,6].

Different factors such as geographical area, genetic factors, dietary habit or habitual factors affect the pathogenesis of ISK. There are three main factors responsible for ISK. First factor is a long small bowel mesentery with freely mobile small bowel, second one is a long sigmoid colon on a narrow pedicle and last one ingestion of a high bulk diet in the presence of an empty small bowel[1,7]. In ISK disorder, semifluid meal in bulk quantity reached in proximal jejunum and increases the intestine mobility, that results in fall of proximal jejunum heavier segments into left lower quadrant, whereas vacant loops/segments of ileum and distal jejunum rotated in clockwise at base of narrow sigmoid colon. After that peristalsis makes ISK with 2 adjacent loop obstructions i.e., small bowel and sigmoid colon[1,7]. Certain other very rare predisposing risk factors of ISK includes; 5-hydroxy tryptamine, postoperative adhesions, malrotations, Meckel's diverticulum and internal herniations[5,7].

ISK preoperative diagnosis is very difficult, particularly in absence of any specific diagnostic tests. Clinical laboratory results show increased leucocyte counts because of gangrene, but increased leucocyte counts are not specific with ISK. For diagnosis of ISK routine X-ray and CT scan abdomen are used. X-ray of abdomen reveals distended sigmoid colon and numerous small intestinal air fluid at right and left side of abdomen respectively[5,8]. CT scan of abdomen shows wrapped and distended sigmoid colon with rotated sigmoid mesentery, along with wrapped and distended small intestinal segments[9]. Flexible endoscopy of abdomen shows the coiled sphincter in torsioned sigmoid colon but fails to give details about abnormality in small bowel[6,8].

Management of ISK includes rapid administration of appropriate fluids and electrolytes to obtain the acid-base balance, along with appropriate administration of antibiotics followed by emergency laparotomy[5,7]. In early cases of ISK during laparotomy, first loops are deflated followed by untwisting of knot. In all gangrenous ISK cases, gangrenous bowel segments are resected with knot followed by restoration of bowel continuation by enteroenterostomy. In similar way, gangrenous sigmoid colon is resected with knot followed by primary anastomosis [5,7,10].

In short, ISK is a very infrequent reason of intestinal obstruction, that increases the risk of morbidity and mortality due to its unfamiliarity in Physicians and atypical radiological findings. ISK can be better understood and early diagnosed with use of CT scanning, and appropriately managed with aggressive fluid administration, pre-and post-operative antibiotics and laparotomy.

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