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COMPOUND VOLVULUS: A CASE REPORT AND LITERATURE REVIEW

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ABSTRACT
Ileo-sigmoid knot, also known as compound volvulus, is an unusual and rare cause of intestinal obstruction, which involves twisting of the loops of ileum around the base of sigmoid colon or vice versa. We are reporting a case of ileo-sigmoid knot in a 55 year old male who presented in our emergency with features of intestinal obstruction. On exploration after initial resuscitation, gangrenous terminal ileum along with dilated and gangrenous sigmoid colon was found intra-operatively for which sigmoid resection with colo-colic anastomosis and resection of gangrenous ileum with double barrel ileostomy was done.

KEYWORDS: Ileo-sigmoid knot (ISK), volvulus.

INTRODUCTION
Ileo-sigmoid knot, also known as compound volvulus, is unusual and rare cause of intestinal obstruction, which involves twisting of the loops of ileum around the base of sigmoid colon or vice versa. The etiology of ileo-sigmoid knotting is controversial.

This condition rapidly progresses to gangrene of both ileum and sigmoid colon and needs prompt surgery.

CASE REPORT
A 55 year old male was brought to the emergency department with severe abdominal pain, massive abdominal distension and bilious vomiting for 1 day. On examination, he was tachypnoeic and tachycardic with normal blood pressure. Abdomen was distended without visible peristalsis. Abdominal examination revealed diffuse guarding and rebound tenderness without any audible bowel sounds. Investigation revealed leukocytosis (14000/cc) and ABG showed metabolic acidosis. Plain x-ray abdomen supine and erect film showed dilatation of both large bowel and small bowel. With a provisional diagnosis of acute large bowel obstruction, we proceeded for emergency exploratory laparotomy. On exploration, minimal hemorrhagic peritoneal fluid was noted. A gangrenous loop of ileum encircling base of loop of gangrenous sigmoid colon was found. Unknotting of ileosigmoid knot was successfully achieved. Redundant sigmoid colon and gangrenous distal segment (50cm) of ileum, 15 cm proximal to ileo-cecal junction was resected. Colo-colic anastomosis along with double barrel ileostomy was performed. Patient was allowed enteral nutrition on 4th postoperative day. Post-operative period was uneventful and the patient was discharged on 6th post-operative day.

Patient was on regular follow-up for 6 weeks. At 6 weeks ileo-cologram was performed to check distal patency following which stoma reversal was done. Entire postoperative period was uneventful, and patient was orally allowed on 3rd post-operative day and was discharged on 5th postoperative day. Patient is on regular follow-up and doing well.

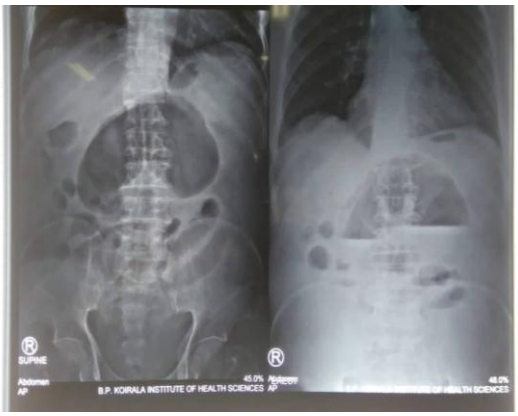

Fig 1: X-ray abdomen: Left (supine view): dilated small bowel and large bowel loops, Right (erect view): multiple air-fluid levels in centre as well as periphery of abdomen, suggestive of dilated small and large bowel loops.

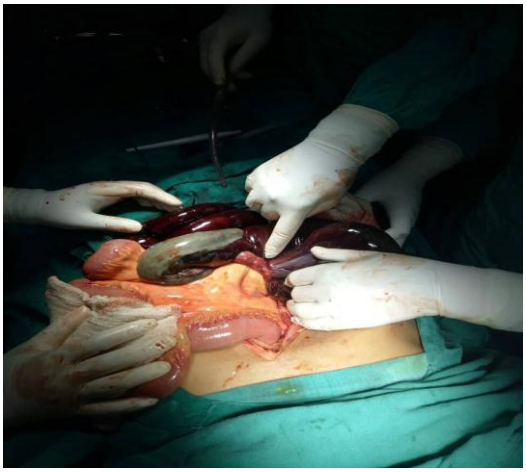

Fig 2: Ileo-sigmoid knot with gangrenous segment of ileum and sigmoid colon.

DISCUSSION

Compound volvulus is a life-threatening closed loop type of intestinal obstruction. It was first reported by Parker in 1845.[1,2] ISK accounts for 18 to 50 percent of all cases of sigmoid colon volvulus cases in eastern and 5 percent in western Countries. Compound volvulus is common between the third and fifth decades of life and more often seen in males.[1]

The etiology is not well understood. However, a long mesentery with a narrow base and ingestion of high fibre diet after prolonged period of fasting are the major predisposing factors. Other predisposing factors include lax abdominal wall, post-operative adhesion, intestinal herniation, Meckel's diverticulum, malrotation, pregnancy and mesenterico-omphalic abnormalities.[1,2,3]

Clinical presentation includes sudden onset abdominal pain, vomiting and massive abdominal distension. On examination, patient may be toxic, in painful distress, febrile and/or dehydrated. The abdomen may be distended, tense and tender with signs of peritonitis. Bowel sound may be hypoactive, hyperactive or absent and rectum may be empty.[1,3]

Radiographically, ISK is often mistaken for simple sigmoid volvulus.[4] X-rays are not specific but shows features of intestinal obstruction. CT scan or MRI gives better diagnostic result and useful in making pre-operative diagnosis.[3] CT scan reveals the classical "whirl sign" of volvulus, created by the twisted mesentery and bowel, and the afferent and efferent limbs of the sigmoid colon give the appearance of a beak.[2]

The anatomical and pathological changes dictate the operative procedure. Closed loop obstruction is caused by distension of sigmoid loop, ileal loop & the intervening bowel between these two loops. Both strangulation and thrombosis of the vessels due to increased intramural pressure because of the closed-loop obstruction contributes to ischemia and gangrene of long segment of bowel except for 10 cm of non-gangrenous ileum proximal to the ileo-caecal junction in most of the cases. Various surgical procedures have been conducted in these patients depending upon the bowel viability.[4]

Prompt resuscitation is very crucial for survival and includes fluid and electrolytes correction, passage of a nasogastric tube, urinary catheterization for urinary output monitoring and antibiotics.[3] Unlike sigmoid volvulus, attempts to deflate the distended colon using a sigmoidoscope or a flatus tube, often fails in ISK. This is because the ileum tightly envelops the base of sigmoid colon, defying any such attempt.[4]

Emergency laparotomy is done as soon as possible. If there is a gangrenous bowel, a single staged procedure of resection and anastomosis may be done or a two-staged procedure of resection and stoma, then stoma reversal at a later date depending on the state of the patient. For nongangrenous bowel, untwisting of the twisted bowel with or without preventing procedures such as sigmoidopexy, mesopexy, mesoplasty or resection and anastomosis.[3, 4, 5]

The prognosis depends on early presentation, diagnosis and prompt intervention. The mortality rate is 6.8–8% for nongangrenous and 20–100% for gangrenous. Shock is a major cause of death.[3]

CONCLUSION

Ileosigmoid knotting also known as double volvulus, compound volvulus, or intestinal knotting is an uncommon cause of intestinal obstruction. Preoperative diagnosis requires high degree of suspicion. Prognosis depends upon timely intervention and extent of gangrene of bowel.

Conflict of interest: None.

REFERENCES

1. Atamanalp SS, Ören D, Başoğlu M, et al. Ileosigmoidal knotting: Outcome in 63 patients. *Dis Colon Rectum*, 2004; 47(6): 906-910. doi:10.1007/s10350-004-0528-9.
2. Reddy G N, Sekhar G R. Atypical Presentation of Ileo-Sigmoid Knot: A Rare Case. *Jurnalul Chir*, 2016; 11(04): 52-54. doi:10.7438/1584-9341-11-4-6.
3. Mba EL, Obiano SK, Mshelia NM. Compound volvulus: a case report and literature review. *J Surg Case Reports*. 2018; 2018(11): 1-3. doi:10.1093/jscr/rjy311.
4. Machado NO. Ileosigmoid knot: a case report and literature review of 280 cases. *Ann Saudi Med*, 2009; 29(October): 402-406.
5. Koshariya M, Choudhary A, Gome N, Rai A, Songra MC. Ileosigmoid Knotting: An Unusual Cause of Intestinal Obstruction. *J Surg Pakistan*, 2017; 22(2): 179-181. doi:10.21699/jsp.22.2.10.