

CASE REPORT

Ileosigmoid Knot- The Disastrous Closed-Loop Obstruction.

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Abstract:

The condition progresses rapidly to gangrenous bowel with generalized peritonitis and sepsis causing high mortality. It is difficult to establish a diagnosis of double closed loop obstruction in plain x-radiograph. Ileosigmoid knot (ISK) is a rare but life-threatening cause of intestinal obstruction, which needs to be differentiated from a simple sigmoid volvulus, as endoscopic reduction is a contraindication in ISK. Preoperative CT scan can aid diagnosis and prompt treatment can deliver good outcome.

Key Words: Compound volvulus, ileosigmoid knot, intestinal obstruction, gangrenous bowel, peritonitis

Introduction:

Ileosigmoid knot (also called as compound volvulus) is a rare cause of intestinal obstruction in which the ileum wraps around the base of the sigmoid colon to form a "knot". The condition progresses rapidly to gangrenous bowel with generalized peritonitis and sepsis causing high mortality [1]. It is difficult to establish a diagnosis of double closed loop obstruction in plain x-radiograph. CT scan has been helpful in making better preoperative diagnosis. After hemodynamic stabilization, immediate surgical intervention is required.

Case Report:

A 70-year-old male presented with abdominal pain and vomiting since two days. The patient was passing flatus, but was constipated for the last two days. There was no history of abdominal distension. Patient had no

other concurrent disease and no significant past medical or surgical history. Patient appeared anaemic and dehydrated, but hemodynamically stable. On examination, abdomen was soft, non-distended, with mild tenderness in the umbilical region. No rebound tenderness or guarding was elicited. Liver dullness was not obliterated and bowel sounds were hyperperistaltic type. Per rectal examination showed empty rectum. Patient was managed conservatively as a possible case of subacute intestinal obstruction. After 24 hours the patient had developed abdominal distension in the right upper quadrant of the abdomen with generalized tenderness and guarding all over the abdomen. Bowel sounds were absent and per rectal examination revealed ballooned empty rectum. The abdominal radiograph revealed distended bowel loop in the right mid and lower quadrants.

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Ultrasonography revealed dilated bowel loops, with absence of peristalsis and minimum ascites. Contrast enhanced CT scan of the abdomen revealed markedly dilated loop of sigmoid colon with loss of typical haustral pattern; the “Whirl sign” was seen, created by twisted bowel and mesentery ileal loops were wrapped round the central whirl. The caecum and descending colon were deviated medially, with superior mesenteric vessels converged towards the whirl, thus giving the diagnosis of ileosigmoid knot, with possible gangrene in involved sigmoid colon and ileal loops.

Patient underwent exploratory laparotomy surgery immediately, explored by right paramedian incision.

Intraoperative findings revealed a long segment of ileal loops wrapped anticlockwise around sigmoid colon, which too showed dusky appearance of its wall due to volvulus. Whole of ileum, except last 5” was gangrenous.[Gangrenous small intestine—ileum: 8 feet, Gangrenous large intestine—sigmoid -1 foot]

Ileal resection and jejunio-ileal end to end double layer anastomosis was done. Sigmoid colon was resected and end to end double layer anastomosis was done. The post-operative course was uneventful and the patient was discharged a week after surgery. Subsequent follow-up for a year remained uneventful.



Figure 1: X-RAY Abdomen showing dilated bowel loop with multiple air fluid levels.

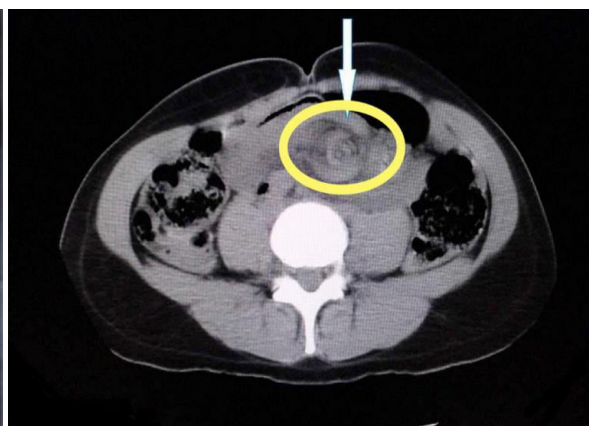


Figure 2: “Whirl sign” seen on CECT abdomen

Discussion:

ISK is a double loop closed obstruction more commonly seen in Asian, African and Middle East natives, affecting males usually in the 4th decade of life. The incidence of this condition is not known [2]. anatomical factors contributing to this condition include hypermobile small intestine with elongated mesentery, redundant sigmoid colon with long mesocolon and short attachment at the base of mesentery.

ISK has been classified into 3 types (Table 1) [3]. Atamanalp proposed a new classification based on age of the patient, associated diseases and the presence of gangrenous bowel (Table 2) [4], according to which our patient belonged to Class 4, i.e., those patients with ileum sigmoid gangrene. Due to infrequent presentation, it is difficult to establish diagnosis of ISK, as vomiting is suggestive of small bowel obstruction, but radiographic features show distended large bowel, which is uncommon in small bowel obstruction [5]. A diagnostic triad of clinical features of small bowel obstruction with radiological features of large bowel obstruction and an inability to pass sigmoidoscope may help in clinching the diagnosis. However, endoscopic decompression of ISK may cause perforation or injury.

Table 1: Classify ISK

Type I	The ileum (active Component) wraps itself around the sigmoid colon (passive Component) I a clockwise or anticlockwise direction	(Type A when clockwise & Type B when Anticlockwise)
Type II	The Sigmoid colon (Active component) wraps itself around a loop of ileum (Passive component) in a clockwise or anticlockwise direction	
Type III	The ileocecal segment (active component) wraps itself around sigmoid colon (Passive Component)	

Table 2: Atamanalp proposed a new classification based on age of the patient, associated diseases and the presence of gangrenous bowel

C1	C2		C3		C4		C5	C6
	C2a	C2b	C3a	C3b	C4a	C4b		
A0 D0	One of A, D1 Either older 60 years or present of associated diseases	Two of A, D1 older 60 years and present of associated diseases	One of A, D1 Either older 60 years or present of associated diseases	Two of A, D1 older 60 years and present of associated diseases	One of A, D1 Either older 60 years or present of associated diseases	Two of A, D1 older 60 years and present of associated diseases		
S0	S0 Shock absent	S0 Shock absent	S1 Shock present	S1 Shock present	S0 Shock absent	S0 Shock absent	S1 Shock present	
G0	G0 Bowel gangrene absent	G0 Bowel gangrene absent	G0 Bowel gangrene absent	G0 Bowel gangrene absent	G1 Bowel gangrene in ileum or sigmoid	G1 Bowel gangrene in ileum or sigmoid	G1 Bowel gangrene in ileum or sigmoid	G2 Bowel gangrene in ileum and sigmoid

Notes: Copyright ©2009 John Wiley and Sons. Adapted from S. Selçuk ATAMANALP, Gürkan ÖZTÜRK, Bülent AYDINLI, M. İlhan YILDIRGAN, Mahmut BAŞOĞLU, Durkaya ÖREN MK. A new classification for ileosigmoid knotting. *Turk J Med Sci.* 2009;39(4):541-545.⁷ C (Class). A (Age): A0: under 60 years; A1: 60 years and older. D (Associated disease): D0: absent, D1: present. S (Shock): S0: absent, S1: present. G (Bowel gangrene): G0: absent, G1: present in the ileum or sigmoid colon, G2: present in both segments.

Conclusion:

Early diagnosis with fluid resuscitation, preoperative antibiotics and immediate surgical exploration can aid to reduce the mortality associated with this condition. The extent of surgical resection depends on the clinical stability of the patient intraoperatively, with need for diversion procedures in hemodynamically unstable patients.

References:

1. O. Norman. *Ileosigmoid knot: a case report and literature review of 280 cases.* *Ann Saudi Med*, 2009; 29, 402-406.
2. I.H. Mallick, M.C. Winslet. *Ileosigmoid knotting Colorectal Dis*, 2004, 6 (July (4)), 220-225

3. B. Akshay, P. Darshana, H. Priya, B. Donald. *Ileosigmoid knot: a case report.* *Indian J Radiol Imaging*, 2011, 21 (April-June (2)), 147-149.
4. S.S. Atamanalp, G. Ozturk, B. Aydinli, M.I. Yildiran, M. Basoglu, D. Oren, et al. *A new classification for ileosigmoid knotting Turk J Med Sci*, 2009, 39, 541-545.
5. D. Puthu, N. Rajan, G.M. Shenoy, U.S. Pai. *The ileosigmoid knot Dis Colon Rectum*, 1991, 34, 161-166.
6. V. Raveenthiran. *The Ileosigmoid knot: new observation and changing trends Dis Colon Rectum*, 2001, 41, 1196-1200.

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