

Ileo-Sigmoid Knot, A Rare Etiology of Occlusion: About 3 Cases

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Received: 16 October 2020; Accepted: 03 November 2020

Citation: TOURE AO, TOURE A, SECK M, et al. Ileo-Sigmoid Knot, A Rare Etiology of Occlusion: About 3 Cases. Surg Res. 2020; 2(1): 1-3.

Keywords

Ileosigmoid knot, Surgery, Emergency care.

Introduction

The ileosigmoid knot is a rare cause of double intestinal strangulation. The small bowel usually rotates around the base of the sigmoid colon and forms a knot thus causing an obstruction of the sigmoid. This clinical entity is rarely reported in Western countries, but it is well known in Africa and the Middle East [1,2].

It is a real surgical emergency that quickly evolves into intestinal necrosis, the diagnosis of which is difficult preoperatively. We report 3 observations of ileo-sigmoid knot managed in the General Surgery department of Le Dantec teaching Hospital in Dakar (SENEGAL).

Cases Presentation

Case 1

A 37-year-old man, with no particular history, was admitted to the emergency department of Aristide Le Dantec Hospital for an occlusive syndrome evolving for 48 hours with paroxysmal abdominal pain. The clinical examination found shock, normal temperature, and painless, asymmetric abdominal without tenderness. Upon rectal examination, the rectal bulb was empty. The hemogram showed neutrophilic leukocytosis ($13000 / \text{mm}^3$).

Abdominal X-ray showed a typical image of sigmoid volvulus mixed with (Figure 1).

After resuscitation, surgical exploration, by a midline laparotomy, revealed an ileal knot around the sigmoid. They both presented necrosis (Figure 2).



Figure 1: Aerice distension of both small bowel and colon

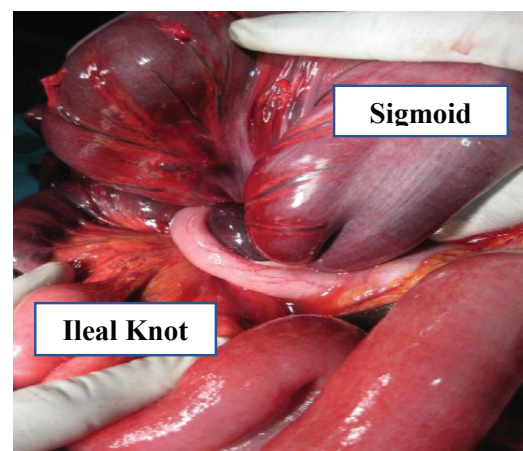


Figure 2: Ileo-sigmoid knot with necrosis.

Small bowel and sigmoid resection were performed, followed by a jejunio-ileal anastomosis and a terminal colostomy. The post-operative courses were uneventful. The patient underwent a colo-rectal anastomosis on 22nd post-operative day (D22) and was discharged 15 days after.

Case 2

A 48-year-old man was received for an acute abdominal pain evolving for 72 hours with a stop of materials and gases. The clinical examination found a good general state, no anemia with normal hemodynamic parameters. The abdomen was distended and tympanic. The digital rectal exam was normal. In addition, the hernial orifices were free and there was no sign of peritoneal irritation.

Biological tests showed an anemia at 6.2g/dl requiring 2 blood units' transfusion. The abdominal X-ray showed an image evoking a sigmoid volvulus. There was no pneumoperitoneum (Figure 3).



Figure 3: X-ray showing a volvulus of the sigmoid.

Midline laparotomy revealed an ileosigmoid knot with sigmoid necrosis and ischemic but viable small bowel (Figure 4).



Figure 4: Volvulus on ileosigmoid knot.

A sigmoidectomy and colorectal anastomosis was performed. The post-operative courses were uneventful and the patient was discharged 15 days after surgery.

Case 3

He was an 18-year-old patient, with no medical or surgical history, admitted for an acute abdominal pain evolving for 6 hours in the right lower quadrant. It was accompanied by an episode of food vomiting. On admission, he presented a good general condition and normal hemodynamic parameters. Physical examination showed a flat abdomen with tenderness of the right lower quadrants evoking acute appendicitis. The blood cell count objectified a neutrophilic leukocytosis at 14,100/mm³. An abdominal ultrasound did not visualize the appendix.

On Mc Burney's incisional exploration, there was an issue of 1L of hemo-peritoneal fluid. It was then decided to make a midline laparotomy. This showed an ileosigmoid knot with ileal necrosis over 1m and a necrotic sigmoid (Figure 5). We performed an ileal resection with an ileo-caecal anastomosis, and a Hartmann procedure. The patient, secondarily underwent colo-rectal anastomosis 25 day later and was discharged 7 days after 2nd surgery.

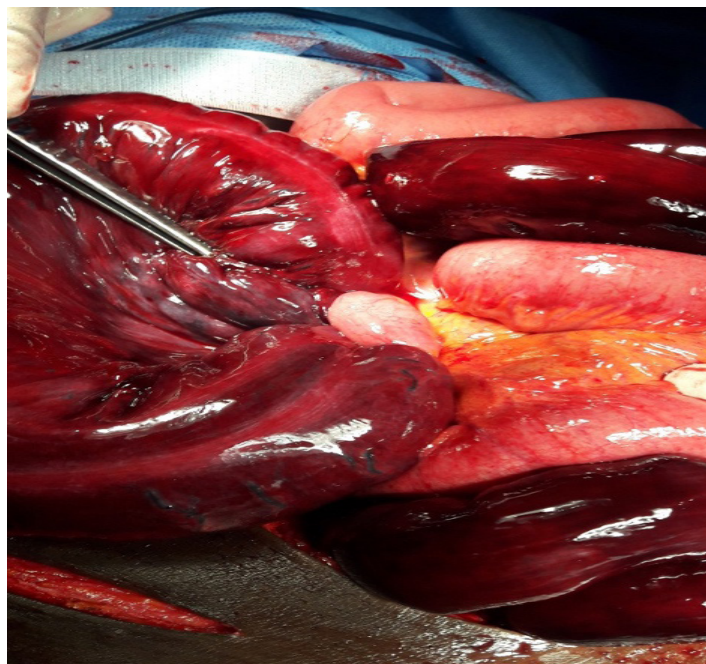


Figure 5: Ileosigmoid volvulus with ileal and sigmoid necrosis.

Discussion

Ileo-sigmoid knot would represent 15% of the volvulus of the sigmoid [1,3,4]. Rare in Western countries, it is more frequent in Asia and Africa [1-3]. It generally occurs around 40 years and predominates in the male subject as in our cases [5]. Several factors have been incriminated to explain this pathology, among which a very mobile intestine because of its large meso whereas the root of this meso is short and facilitates its twisting [2,5]. The second factor is food; it's the diet rich in fiber, mainly from vegetables. In our country, the diet is mainly based on rice. [5]. The rapid repletion of the jejunum would favor its descent into the pelvis and its twist around the empty ileum thus carrying away the sigmoid loop; peristalsis would worsen the node [3,5].

The symptomatology is compatible with a low intestinal obstruction. In more than half of the cases, the patient presents with a hypovolemic shock like one of our patients [5]. Preoperative diagnosis is difficult, possible in less than 20% of cases due to its rarity and clinical and radiological atypia [3,6].

Abdominal X-ray, still often used in our countries, can show signs of small bowel and colon obstruction. It does not allow the location of the occlusion to be determined [7]. In 2 of our cases, an x-ray had evoked a sigmoid volvulus. The abdominal scanner can help with the diagnosis by showing a whirl sign with a right colon deviation, and intestinal distension. Above all, it helps to look for signs of intestinal necrosis [3,6]. The delay in diagnosis often leads to late surgical management, with the corollary being a high incidence of digestive necrosis, varying between 74% and 100% as in our patients [4,5].

Ileosigmoid knotting is classified into four types. In type I, the ileum revolves around a passive sigmoid colon, type II the colon revolves around the ileum, type III the ileocaecal segment is part of the knot and when it is impossible to identify the active segment it is undetermined. When the direction of rotation is known a suffix of a or b is added depending on whether it is clockwise or anticlockwise respectively. This classification is mainly anatomical and does not influence outcome [8].

The ideal surgical procedure for an ileosigmoid knot is controversial. When the intestine is viable, some authors opt for the temptation to simply unknot, others prefer resection of the sigmoid colon to prevent recurrences. In case of intestinal necrosis, resection of the small intestine and colon is recommended [8]. An end-to-end ileal or ileo-coecal anastomosis is the rule, associated with an end-to-end colo-rectal anastomosis if local and general conditions allow, otherwise a left iliac colostomy is required [9-11].

Mortality is high (27 to 50%) mainly due to toxic shock [2,3]. Complications are often related to colostomy [1,2,8].

Conclusion

The ileosigmoid knot is a rare and serious cause of double intestinal obstruction. Pre-operative diagnosis is difficult. The delay in diagnosis is most often associated with intestinal necrosis. In all cases, the treatment is essentially surgical, by double ileal and sigmoid resection and, if possible, immediate anastomosis.

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