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Ileo-sigmoidien knot: Case report

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ABSTRACT

The ileosigmoid knot, also known as double volvulus, is a surgical emergency characterized by a double obstruction of the small intestine and sigmoid colon, Our patient have 62-year-old, chronic smoker, operated on at age 30 for ulcer perforation peritonitis and pyloric stenosis. Admitted to the emergency department with intestinal obstruction evolving for 3 days prior to admission, vomiting and generalized abdominal pain. Abdominal examination revealed generalized abdominal distension and defense. CT, distension of the colonic frame measuring 64mm at the coecum, producing the coffee-bean sign, with distension of some distal ileal loops measuring 33mm at the ileum, and a transitional level located at the pelvic level, producing the double-beak sign with visualization of the whirlpool sign, aeromesenteria and copious peritoneal effusion, the main treatment is a surgical intervention usually involves bowel resection with or without primary anastomosis.

Key words: Ileosigmoid knot, bowel strangulation, surgical emergency.

Introduction

The ileo-sigmoid knot (ISN) or double ileo-sigmoid volvulus is a wrapping of the small bowel around the base of the sigmoid colon, creating an intestinal occlusion by bifocal strangulation of the sigmoid and ileum.[1]. It rapidly progresses to intestinal necrosis. Preoperative diagnosis is difficult, due to its rarity and atypical radiological features. [2].

Observation

62-year-old patient, chronic smoker, weaned 2 years ago, operated on at age 30 for ulcer perforation peritonitis and pyloric stenosis. Admitted to the emergency department with intestinal obstruction evolving for 3 days prior to admission, vomiting and generalized abdominal pain. Abdominal examination revealed generalized abdominal distension and defense.

On CT, distension of the colonic frame measuring

64mm at the coecum, producing the coffee-bean sign, with distension of some distal ileal loops measuring 33mm at the ileum, and a transitional level located at the pelvic level, producing the double-beak sign with visualization of the whirlpool sign, aeromesenteria and copious peritoneal effusion.

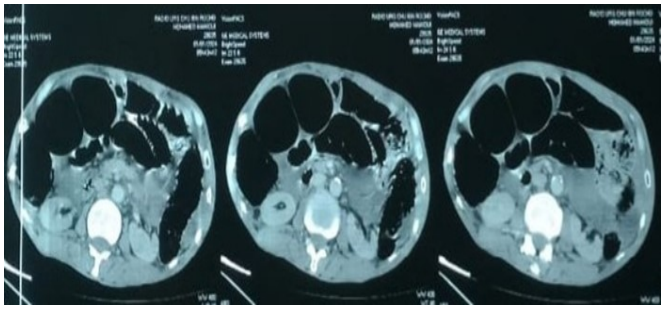

Figure 1: CT scan showing the distension of the colonic frame

The patient underwent emergency surgery, and surgical exploration revealed an abundant peritoneal effusion of distressed fluid, with the small intestine wrapped around the sigmoid, create!!ng an ileo-sigmoid knot responsible for 2 m of extensive cecal necrosis from 1.2 m from the ADJ to the JIC, with necrosis of the sigmoid loop.

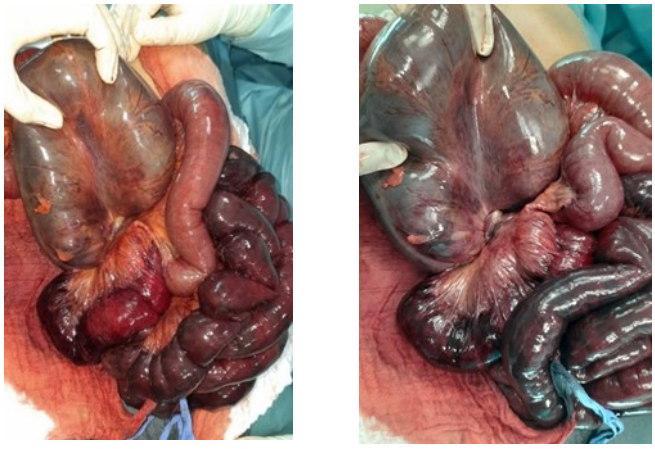

Figure 2: Intraoperative images of the ileo-sigmoid node with extensive coecal necrosis and necrosis of the volvulus sigmoidum

We performed a monobloc ileo-coecal resection carrying away the necrotic small bowel with ileo-colostomy and a sigmoidal resection with double-gun colostomy. The patient was placed on noradrenaline intraoperatively, with the dose gradually increased.

Discussion

The ileosigmoid knot, also known as double volvulus, is a surgical emergency characterized by a double obstruction of the small intestine and sigmoid colon. It is rare in Western countries, but relatively common in some African, Asian and Middle Eastern countries, where the majority of studies have been carried out.[3]. Alver *et al*. [4] describe 4 types of ISK formation mechanism, depending on the active digestive segment responsible for the torsion: in type I, the ileum is the active segment wrapping around the passive sigmoid; type II results from the active sigmoid torsion attracting the passive small intestine; in the exceptional type III, it's the ileo-caecal junction that wraps around the sigmoid loop, while in the undetermined type IV, it's not possible to differentiate between the two segments. Three factors are responsible for ISK: a long small bowel mesentery and a freely mobile small bowel; a long sigmoid colon on a narrow pedicle; and finally the ingestion of a bulky diet in the presence of an empty small bowel[5]. ISK causes complex intestinal occlusion by double strangulation of the mesenteric vessels destined for the small intestines and sigmoid, resulting in rapid ischemic necrosis of both volvulus segments[6]. Preoperative diagnosis is difficult due to its rarity and clinico-radiological atypia. It is possible in less than 20% of cases [2], [7], [8]. The clinical occlusive syndrome is marked by acute abdominal pain that is initially localized, then permanent and generalized. A picture of hypovolemia is suggestive in 56% of cases[9]. The unprepared abdominal X-ray may occasionally show the characteristics of a double closed-loop occlusion with sigmoidal hydro-

aeric levels in the right upper quadrant, and others of the greengel type that may be lateralized to the left; more often it shows a sigmoidal volvulus or an isolated greengel occlusion [9], [10]. Computed tomography can reveal the signs of a sigmoid volvulus, including the characteristic sigmoid swirl and swirl sign created by twisting of the bowel and mesocolon. It may also reveal signs of intestinal ischemia caused by strangulation, such as pneumatosis. However, signs of an ileosigmoid node are not easy to detect, as the ileal torsion is higher in the abdomen than the location of a sigmoid volvulus. The swirl is visible on a greater number of contiguous sections than that of the sigmoid volvulus. Compared with an abdominal X-ray, CT can detect a medial deviation of the distal descending colon with a pointed appearance of its medial border, a feature distinct from sigmoid volvulus[11].

Initial management of the ileosigmoid node begins with aggressive intravenous fluid resuscitation and correction of acid-base imbalance, followed by surgery once hemodynamic stability has been achieved[12]. The preferred surgical procedure for ISK is the subject of considerable controversy. As it is difficult to undo the knot and there is a risk of toxin release and perforation, it has been advised to deflate the sigmoid colon by means of needle deflation or colotomy, or to perform en bloc resection of the gangrenous colon. In cases of gangrene, all gangrenous segments of the small intestine are resected and intestinal continuity is re-established by enteroenterostomy. Similarly, the gangrenous sigmoid colon is resected and a primary anastomosis is performed if the patient is stable and a tension-free anastomosis is possible. Despite the high morbidity, an ileostomy or colostomy can be life-threatening, particularly in unstable cases, or in cases where the bowel is on the verge of ischemia [13]

It has been shown that ileo sigmoidal nooeud may be associated with 0.5 to 1.7% of cases of intestinal obstruction, but has an average mortality rate of 35.5%, and that in cases of gangrene, the mortality rate varies from 20 to 100%. This variation in results may be due to a low index of suspicion, as shown by the fact that only 0-28% of cases are diagnosed preoperatively[3].

Conclusion

The ileosigmoid node is a rare cause of intestinal obstruction and necrosis. It is important to differentiate it from a simple sigmoid volvulus. CT scans can facilitate early diagnosis. Surgical intervention usually involves bowel resection with or without primary anastomosis.

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