

Case Report

Cecal volvulus: a rare entity of acute bowel obstruction

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ABSTRACT

Cecal volvulus is characterized by an axial torsion of the cecum, terminal ileum and ascending colon, being the third cause of bowel obstruction with an incidence of 2%, considered a rare pathology. We presented a rare case of a patient with a bowel obstruction secondary to cecal volvulus found during exploratory laparotomy.

Keywords: Cecal volvulus, Bowel obstruction, Hemicolectomy, Cecopexy, Cecostomy

INTRODUCTION

Colonic volvulus is the third leading cause of bowel obstruction worldwide, followed by colorectal cancer and complicated diverticulitis. First described in 1836 by Von Rokitansky, mainly affects the sigmoid colon 60-75% and cecum 10-40%.

Sigmoid volvulus mainly affects elderly men and cecal volvulus, female between the third and fourth decades of life, with an incidence of 2%.¹ Cecal volvulus is characterized by a rotation enteroaxial, compromising the mesentery and main blood vessels.²

CASE REPORT

A 85-year-old male, with no significant history, began suffering 3 days before admission with generalized abdominal pain, abdominal distension, nausea and fecal vomiting on multiple occasions. He went to the emergency room for evaluation. On examination,

tachycardia, a painful abdomen on palpation, abdominal distension and absent peristaltic sounds were found. Laboratory tests reported leukocytes 13.15 cells/mcl, neutrophils 12.2 cells/mcl, lymphocytes 0.56 cells/mcl, Hb 15.7 gr/dl, Htc 48.15%, platelets 163.8 u/mcl, TP 11.6 seg, INR 1.02, glu 194 mg/dl, Urea 20 mg/dl, cre 0.7 mg/dl, AST 41 u/l, ALT 30 u/l, amylase 113 u/l, lipase 170 u/l, Bt 0.9 mg/dl, Na 139 mEq/l, Cl 95 mEq/l, K 5.2 mEq/l. Abdominal X-ray showed dilation of the cecum with displacement of the contralateral small bowel, multiple air-fluid levels and no visible rectal ampulla (Figure 1). CT scan of the abdomen showed dilation of the cecum, torsion of its mesenteric axis and dilation of loops of the small bowel (Figure 2).

As initial treatment, the placement of a nasogastric tube was performed, with fecal output of 2000 ml, fluid and electrolyte correction, analgesia and antibiotic therapy was performed. When the patient was stabilized, we performed a laparotomy, finding a volvulus of the cecum with a significant dilation compromising the serosa,

ileocolic vascular compromise due to torsion of its mesenteric axis (Figure 3).

Right hemicolectomy was performed with ileotransverse anastomosis without intraoperative complications (Figure 4).

The patient had a successful postoperative evolution, tolerating oral administration and bowel movements. Therefore, discharge on the 5th postoperative day and outpatient follow-up were decided.



Figure 1: Abdomen X-ray with dilation of the cecum and displacement of the contralateral small bowel, multiple air-fluid levels and no visible rectal ampulla.



Figure 2: CT scan of the abdomen with intravenous contrast with significant dilation of the cecum, twisting off its mesenteric axis, and dilation of the small bowel.

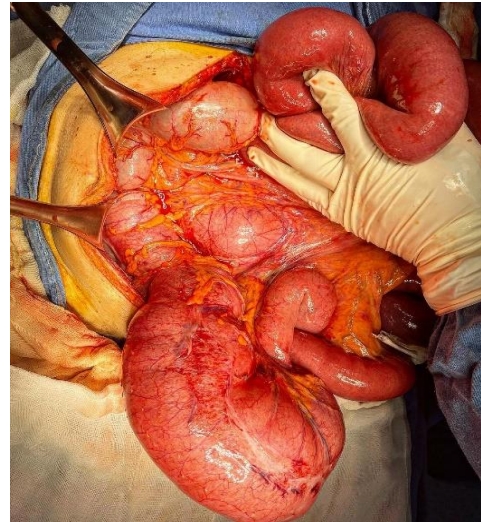


Figure 3: Exploratory laparotomy with cecal volvulus with significant dilation involving the serosa, vascular involvement by torsion of its mesenteric axis and vascular involvement.

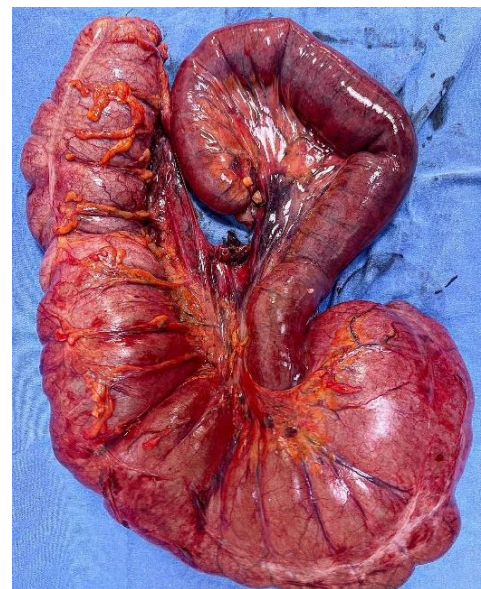


Figure 4: Right hemicolectomy of cecal volvulus.

DISCUSSION

Cecal volvulus is a rare and uncommon disease of bowel obstruction. It is responsible for 2% of all intestinal obstructions, with an incidence of 2.8 to 7.1 million cases per year.³ Cecal volvulus is associated with a mobile cecum and/or alterations in the attachment of the right colon to the parietal peritoneum. Risk factors include advanced age, chronic constipation, prolonged immobility, high-fiber diets, congenital malformations, previous abdominal surgeries (adhesions), Hirschsprung's disease or pregnancy. There are 3 pathophysiological mechanisms; type 1: clockwise axial twisting of the cecum along the long axis; type 2: loop torsion of part of the cecum and part of the terminal ileum; type 3: folding

of the volvulus upwards from the cecum and anterior to the ascending colon commonly called cecal bascule, where there is no axial torsion as with type 1 and type 2. Types 1 and 2 account for approximately 80% of all cecal volvulus and 10% type 3.⁴

There are 3 associated clinical syndromes; (1) recurrent intermittent pain (mobile cecum syndrome), (2) acute obstruction, and (3) sudden and devastating acute obstruction. In recurrent intermittent volvulus, patients present chronic abdominal pain and dilatation in the right lower quadrant, with an improvement of intermittent symptoms with the presence of flatulence or evacuations, it can occur in up to 50% of patients before the appearance of acute obstruction. In untreated patients, they can progress to intestinal strangulation, ischemia, necrosis and perforation.⁵

The initial approach is through the radiography of the abdomen finding dilation of the cecum (98-100%), air-fluid levels (72-88%), intestinal dilation (42-55%), absence of gas in the distal colon (82%) and the presence of intestinal loops lateral to the cecum. Simple abdominal radiography has a sensitivity of 75% and specificity of 52%.^{6,7} Abdominopelvic computed tomography is currently the gold standard for diagnosis, with a sensitivity of 100% and specificity of 90%, evidencing a dilation of the cecum (sign of coffee bean), progressive narrowing of the incoming intestinal end, and the protruding part that ends at the location of the turn (bird's beak sign) and an image in the form of a whirlpool consisting of the superior mesenteric vein and intestine wrapped around the superior mesenteric artery, (sign of whirlpool) being considered pathognomonic for diagnosis.⁸ The initial treatment of cecal volvulus is hemodynamic stability through fluid and electrolyte correction, coagulation disorders, and initial management for bowel obstruction. Surgical treatment through right hemicolectomy with or without primary anastomosis of the ileum and transverse colon is the most effective procedure, with the lowest recurrence rates and an acceptable risk of morbidity.⁹

Treatments that do not involve resection are colonoscopy unwrapping, cecopexy and cecostomy. Colonoscopy can unwrap the cecum, however, it has a successful reduction rate of 30%, due to this low success rate, the risk of perforation and delay in surgical treatment is not recommended as a diagnostic method or first-line treatment for cecal volvulus. Cecopexy has a recurrence rate of up to 40% and a mortality rate of 30%. Cecostomy involves a higher percentage of complications such as gangrene, leakage and fistula; reaching mortality of 40%, so it was not recommended at present.¹⁰

To this day, the treatment of choice was right hemicolectomy with or without anastomosis, recent studies have shown the possibility of conservative treatment in stable patients, followed by elective laparoscopic surgery. There was controversy to determine

the optimal timing of surgery after non-surgical unwrap of the cecal volvulus and this had been better studied for the sigmoid volvulus, Öncü et al suggested a delay of 3-4 weeks before elective surgery, while other authors such as Pahlman et al, Lau et al and Tsai et al, state that an interval of 2-3 days was sufficient for the preparation of the intestine and the optimization of the patient's conditions.¹¹⁻¹⁴ Therefore, in well-selected cases, hemicolectomy and laparoscopic cecopexy could be used as safe therapeutic options, however, further studies are required to verify these results.^{15,16}

CONCLUSION

Cecal volvulus is a rare pathology and requires urgent treatment to avoid complications. The right hemicolectomy with or without anastomosis is the treatment of choice associated with lower morbidity and mortality and without recurrences, however, the treatment should be individualized to the patient by the viability of the colon and hemodynamic state. The laparoscopic surgical approach has become important in recent decades; however, it is limited to well-selected patients who present hemodynamic stability, absence of perforation or adequate colon viability in imaging studies, absence of comorbidities that contraindicate laparoscopic surgery and patients with adequate accessibility to hospital services, otherwise urgent surgery of the first intention is recommended to avoid complications.

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