

Case Report

Caecal Volvulus and Jejunostomy: Challenging Diagnostic

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Abstract

Caecal volvulus represent the 20%-40% of all volvulus in colon, being the second localization in frequency after the sigmoid colon ones. Clinically it causes intestinal occlusion symptomatology (nausea, vomiting, abdominal distension). We present a case of 45-year-old woman with feeding jejunostomy tube due to cognitive disorders caused by congenital anoxia. She arrived at A&E after twelve hours of vomits and abdominal pain. The CT scan shows a small intestine dilation that suggested as a first diagnostic option a small intestine volvulus. A laparotomy is performed showing a caecal volvulus, so ileo-cecectomy with primary anastomosis was performed. After several complications such as a *Clostridium difficile* infection, paralytic ileus and anemia, she was discharged after 60 days of hospital stay. Caecal volvulus main risk factors include embryological alterations, previous abdominal surgeries, or chronic constipation. This acute pathology can be challenging to diagnosed by clinic, because it can be hardly differentiated from other intestinal occlusion causes. CT scan can be really useful, not only to reach de diagnostic, but to see indirect signs of tissue suffering. In contrast with sigma volvulus, endoscopic treatment has not shown any benefit to solve the caecal volvulus.

Introduction

The caecal volvulus consists of a torsion of this part of large intestine, also compromising part of the ileum, ascending colon, or both. It has an average incidence of 24-78 people per 100,000 inhabitants. It represents 20-40% of colon volvulus and is the second most common location after sigmoid colon volvulus. It causes about 1-1.5% of intestinal occlusions in adults [1]. The most common type of cecum volvulus is axial torsion and the caecal bascule the rarest [2]. Clinically it causes unspecific symptoms such as acute abdominal pain, nausea, vomiting, and bloating. Definitive treatment is essentially surgical, ranging from cecectomy to right hemicolectomy.

Case Presentation

45-year-old woman is admitted in our hospital because of a 12 hours clinic of alimentary vomits associated with hypoactivity. Relevant personal antecedents include: 80% cognitive disability due to congenital anoxia that causes severe dysphagia, for which she was placed a feeding jejunostomy, Systemic Lupus Erythematosus (SLE) without treatment needed, Antiphospholipid Syndrome (APS) probably secondary to SLE, which caused several strokes (first in 2015) and as a consequence a spastic tetraparesis predominantly in the left half of the body and dysarthria; structural epilepsy (generalized tonic seizures

from the age of 12); moderate mitral and tricuspid regurgitation. As a surgical history, an emergency laparotomy at 9 years of age due to intestinal occlusion stands out. The patient is hemodynamically stable, with a blood pressure of 132/76 mmHg; heart rate of 91 beats per minute (bpm), respiratory rate of 16 breaths per minute, O₂ saturation of 99% baseline, afebrile and eupneic. In the abdominal examination, despite being a very uncooperative patient, a globular abdomen is appreciated, diffusely painful on palpation, without signs of peritoneal irritation and with diminished peristalsis. Fluid therapy, analgesia and antiemetics are administered. A nasogastric tube and urinary catheter are placed. The emergency blood test showed a normochromic and normocytic anemia with hemoglobin of 10.1 mg/dL and a leukocytosis of 11.150 u/L with 70% neutrophils. The abdominal radiography showed a prominent dilation of a small bowel loop. The CT scan reported an 18-cm dilated loop. The main diagnostic suspicion was a small bowel volvulus without signs of ischemia or perforation (Figure 1-3). With this diagnosis and prior informed consent of the legal guardian, emergency laparotomy is performed. It showed a cecum volvulus that compromised 6 cm of distal ileum. The cecum was ischemic, with transmural necrosis affecting the mesenteric side. Ileocectomy was performed including a 15 cm segment of distal ileum. Intestinal transit was reconstructed with mechanical latero-lateral ileo-colic anastomosis with manual reinforcement. The closure of the abdominal wall was performed with a prophylactic DynaMeshR-CICAT mesh in a supra aponeurotic position. During the stay in the postoperative resuscitation unit, the patient presented hypotension and tachycardia (blood pressure 85/65 mmHg; heart rate 120 bpm) secondary to hypovolemia that was resolved with fluid therapy. At 24 hours after surgery, she presented abdominal distension and pain and anemia with hemoglobin of 4.9 g/dL. A CT scan reports little blood traces inside the colon without identifying active bleeding, as well as loop dilation suggestive of paralytic ileus. After the transfusion of 3 packed red blood cells, the patient recovered a hemoglobin of 8 mg / dL and was transferred to the conventional hospitalization unit. Intraoperative cultures of

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Figure 1: Image of the volvulus in the abdominal X-rays.

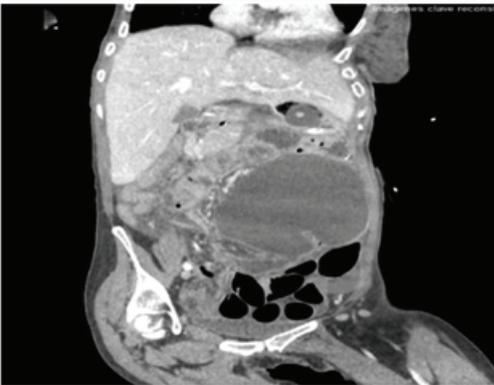


Figure 2: Sagittal plane on CT scan.

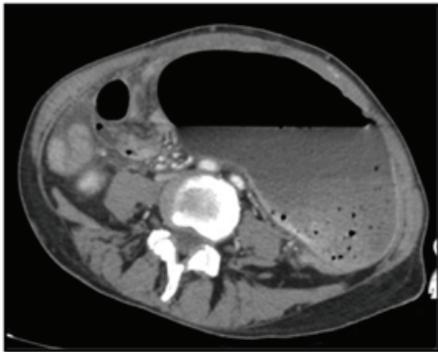


Figure 3: Axial plane on CT scan.

the peritoneal exudate are negative. Treatment with cefotaxime and metronidazole is administered for 5 days. On the ninth postoperative day, he presented a pseudomembranous colitis that responded to oral treatment with Vancomycin for 10 days. She is discharged after two months of hospital stay.

Discussion

Caecal volvulus is a rare entity, characterized by a torsion of the cecum, generating a retrograde intestinal dilation and an occlusive syndrome. Intestinal volvulation is the third leading cause of obstruction in the large intestine behind neoplastic diseases and diverticulitis. Regarding location, sigmoid volvulus are the most frequent (75%), followed by cecum (25-40%), transverse colon (1-4%) and splenic flexure (1%) [3]. Its annual incidence is 2.8-7.1 cases per million inhabitants [4-7]. There are three types of caecal volvulus: axial rotation (type 1), the "loop", which consists of axial torsion and

inversion (type 2), and the caecal bascule, in which there is no torsion, but the dilated cecum bends on the ascending colon (type 3). Type 1 and 2 represent 80% of cecum 2 volvulus. Volvulus of the cecum can be caused by an embryological alteration that consists of inadequate fixation of the ascending colon or in cases in which the ascending colon does not fuse with the lateral peritoneum. Other important predisposing factors are history of abdominal surgery; chronic constipation; distal colon obstructions, pregnancy and a dynamic ileus [1]. In 50% of cases, a mobile cecum syndrome is described before true volvulation occurs. Typically, patients with this syndrome present self-limited episodes of abdominal pain, generally in the lower right quadrant of the abdomen, associated with abdominal distention, which later resolves after flatulence occurs, finding major pain relief. In cases where true volvulation occurs, the symptoms are indistinguishable from those of a small bowel obstruction. When it comes to intestinal volvulation, the diagnostic and therapeutic speed is of great importance. A volvulus of any type entails a compromise of vascularization due to the rotation of the mesentery, which can lead to necrosis and, therefore, perforation, in this case increasing morbidity and mortality in the patient. In thin patients in whom palpation is more revealing, a mass in the right iliac fossa may lead to suspect that the occlusive condition is caused by a caecal volvulus. For the diagnosis of this entity, a certain degree of clinical suspicion must be counted, since the exploration is common to that of any occlusive process. The blood analysis of patients with cecum volvulus is also not very specific, reflecting only patterns compatible with intestinal obstruction or sepsis: hydroelectrolyte alterations, hyperkalemia, azotemia, leukocytosis, increase in acute phase reactants, or alterations in coagulation. In the abdominal X-ray, one of the three typical signs can be observed: dilation of the cecum, a single air-fluid level in the upper left quadrant of the abdomen, or the absence of gas in the colon. However, abdominal radiographs and soluble contrasts have been relegated in favor of computed tomography. This allows it to be diagnosed with a sensitivity close to 100% and a specificity of 90%. Furthermore, it allows the observation of indirect signs of complications such as necrosis or perforation [3]. In terms of treatment, it differs from that of a volvulus in other segments of the large intestine. On the one hand, cecum volvulus is always a surgical emergency, despite the absence of serious radiological or clinical signs. Second, despite the fact that colonoscopy is the first therapeutic step in other segments of the large intestine, in the case of cecum volvulus its efficacy is less than 30%, so it is not commonly used [3]. The treatment generally requires midline laparotomy with resection of the ischemic or necrotic segment plus anastomosis for reconstruction of the transit depending on the stability of the patient. Other techniques include cecopexy, or detorsion without posterior fixation, with poorer results in terms of mortality and recurrence. Factors that increase the risk of necrosis in volvulation include a history of cardiovascular disease, chronic kidney disease, hemiplegia and prolonged duration of symptoms. Our patient had several cardiovascular factors, in addition to tetraplegia.

Conclusion

Cecum volvulus is a rare pathology, so it can be difficult to diagnose and, therefore, it can be delayed. For the diagnosis, the clinic is similar to any other cause of intestinal obstruction. CT scan is key to determine the etiology of the occlusive condition, as well as other signs of severity related to ischemia and perforation. The definitive treatment of cecum volvulus is always surgical, using one technique or another depending on the findings.

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