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Colon Volvulus: Disease or Consequence?

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ABSTRACT

Introduction: Sigmoid colon volvulus is produced by torsion on itself, which causes an obstruction and endangers the blood supply to the organ and represents a condition because of another underlying pathology, the highest prevalence is in men over 70 years of age. Objective: Presentation of a case. Method: A 73-year-old man with paranoid schizophrenia under treatment presented to the emergency department for acute constipation of 72 hours, with no evacuation and flatus. She refers to abdominal distension of 48 hours prior in a sudden and evolutionary way, continuous abdominal pain of a colic type and generalized oppressiveness. An emergency exploratory laparotomy was performed initially, with the finding of volvulus of the giant sigmoid colon not perforated, but with intestinal ischemia. Intestinal resection of the sigmoid colon and stoma is performed. Discussion: Strangulated colon volvulus makes it a surgical emergency due to intestinal necrosis, septic shock and death; the computed tomography study is the gold standard for confirming the diagnosis of colon volvulus, surgical treatment is definitive. Conclusion: Sigmoid colon volvulus is a consequence of another pathology (such as benign prostatic hypertrophy) and not a disease. Its initial treatment (endoscopically) will depend on the time of evolution, infrastructure, expertise and/or each case. But at the end of the day, management is urgent, priority to scheduled, with partial resection of the colon, stoma, and/or bowel reconnection.

Keywords: Colon volvulus, Sigmoid, Intestinal ischemia, Stoma, Benign prostatic hypertrophy.

INTRODUCTION

The term volvulus has a latin origin where the word means I will return, which has the meaning of coiling; so it is conceptualized in the medical scenario as an "abnormal twisting of the intestinal loops." Sigmoid colon volvulus is caused by twisting on itself, which causes an obstruction and endangers the blood supply to the organ. [1] The colon or large intestine is on average 10 centimeters wide, with a total length of 120 x 160 cm total, coupled with its normal anatomy in terms of its laxity or having a larger mesocolon in the sigmoid portion ("redundant colon"). [2] Intestinal length can vary from one subject to another due to the same constitution, weight, height, or being male or female, or the same age, or genetic, hereditary or acquired pathologies. [3] In addition, it should be known that the inferior mesenteric artery and the inferior mesenteric vein supply and drain blood from the distal colon and rectum, and that collateral circulation is considered in pathologies such as colon volvulus in cross-sectional imaging tomography studies, which highlight these neglected but important vessels. [4] Regarding the historical background, Dr. Carl Joseph Wenzl Prokop Rokitansky in his three-volume book entitled Handbuch der Pathologischen Anatomie, published in 1842, shows the anatomical findings of various diseases, including intestinal occlusion and probably colonic volvulus. [5, 6] Volvulus of the sigmoid colon represents a condition because of another underlying pathology, the highest prevalence occurs in elderly men over 70 years of age. [7] Among all causes of bowel obstruction by colon, colonic volvulus is the third leading cause worldwide, accounting for 10% to 15% of all large bowel obstructions in the United States and

occurring most frequently in the sigmoid colon and a second site, the cecum. [8] The sigmoid colon is most affected in 60% to 75% of cases, the cecum colon in 25% to 40% of patients, the transverse colon in 1% to 4%, and the splenic angle in 1% of cases. [9] In addition, it should be noted that sigmoid volvulus during pregnancy is an extremely rare condition that presents as intestinal obstruction and can cause serious complications for both mother and fetus if not diagnosed in a timely manner, so its presentation and/or incidence should be considered. [10] This condition is associated with a variety of factors, including chronic constipation, older age, and the use of certain medications such as antipsychotics, and occurs in 90% of all colonic axis torsions that occur in the sigmoid colon, and the degree of colonic torsion varies. Since a torsion greater than 180 degrees obstructs the intestinal lumen and a torsion greater than 360 degrees leads to the colonic lumen. to the obstruction of vascular return with the risk of intestinal ischemia and necrosis. [11] Synchronous double colonic volvulus is exceptionally rare, occurring in the cecum and sigmoid at the same time, with 10 cases reported in the medical literature. [12] It should be mentioned that there is torsion or volvulus of other organs such as the stomach, which is a rare form of acute surgical abdomen and difficult to diagnose, this pathology of the colon not being exclusive. [13] At the other end of life, intestinal malrotation has been documented, which is a congenital anomaly in which this rotation does not occur properly, putting the intestine at risk for midgut volvulus, where most cases of malrotation are diagnosed within the first year of life and usually present with symptoms of volvulus or bowel obstruction, although some cases may remain asymptomatic. [14] Finally, transverse colon volvulus should be documented in an equally exceptional way where the mortality rate is 33%, surgeons should be aware of this and even in a young patient. [15]

OBJECTIVE

Report of a clinical case and review of the medical literature.

METHOD

A 73-year-old male with a history of psychiatric diagnosis of paranoid schizophrenia under treatment (however, his dosage is unknown), occasional smoking and social alcoholism. He denies surgical history; He went to the emergency department for acute constipation of 72 hours, with no evacuation and flatus. She referred to abdominal distension of 48 hours prior in a sudden and evolutionary manner, significant continuous abdominal pain of a colic and generalized oppressive type with a gradual increase in intensity until it was intolerable; reports nausea, vomiting of food, gastric and biliary contents, difficulty breathing. On physical examination with vital signs with heart rate of 116x´, respiratory rate 31x´, blood pressure of 119/70 mmHg., temperature 37°C. Saturation: 88%. Conscious, restless, cooperative, with tachypnea, dry mucous membranes, pallor of integuments ++ of +++, head and neck without alterations, cardiopulmonary without apparent involvement. Globose abdomen with significant abdominal distension, with absent peristalsis ("abdominal silence"), generalized tympanums, with significant pain on superficial and deep palpation, being impossible to palpate any visceromegaly, with Von-Blumberg present, with frank evidence of acute abdomen. Digital rectal examination in the Sims position, with a closed anus, symmetrical folds, no evidence of skin flaps, with sphincters of regular tone and low intensity, puborectalis bundle with low mass and regular contractility; A significant increase in the prostate of more than approximately 180 grams was identified without detecting tumors or apparent lesions, absence of fecal matter, and no anoscope/rectosigmoidoscope was lacking. It is not possible to measure intra-abdominal pressure.

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Laboratories: blood count. - Hemoglobin: 13.7 g/dl. Hematocrit: 40.8. MCV 90.8 fl. Hb CM: 32.5 p. Leukocytes 13.03 x 10^3 mm. Platelets 293 x 10^3 mm. Blood chemistry. – Glucose: 76 mg/dl. Creatinine: 2.7 mg/dl. Urea: 29 mg/dl. BUN: 15 mg/dl. Na: 140 meq/l. K: 4.1 meq/l. Cl: 109 meq/l. Liver function tests. -Total bilirubin: 1.25 mg/dl. Direct bilirubin 0.15 mg/dl. Indirect bilirubin: 1.10 mg/dl. Aspartate aminotransferase 31 u/l. Alanine aminotransferase 29 u/l. Gamma-glutamyl transferase: 10 u/l, Alkaline phosphatase: 106 u/l. Total proteins: 5.8 g/dl. Albumin: 3.9 g/dl. Globulin: 2.6 g/dl. Prothrombin time: 14.4". Thromboplastin time: 29.5". Arterial blood gases. -pH 7.35, pCO2 11 mmHg., pO2 67 mmHg. Lac 2.5 mmol/L. HCO3 6.1 mmol/L. BEecf -19.5 mmol/L. SO2 92%. The cabinet studies only have radiological projections of the abdomen of the foot and decubitus (figures 1 and 2), as well as chest telegraph (figure 3): so it is possible to appreciate the absence of air in the rectal ampule and the absence of air under both diaphragms, abdomen with hydro-aerial levels, significant distension of the loops, intestinal edema, fixed handle, sentinel handle and a composite image that has the classic "coffee bean" image.

Figure 1

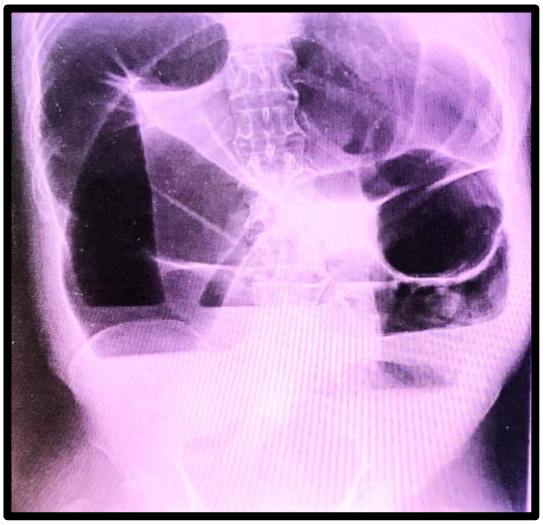

Figure 2

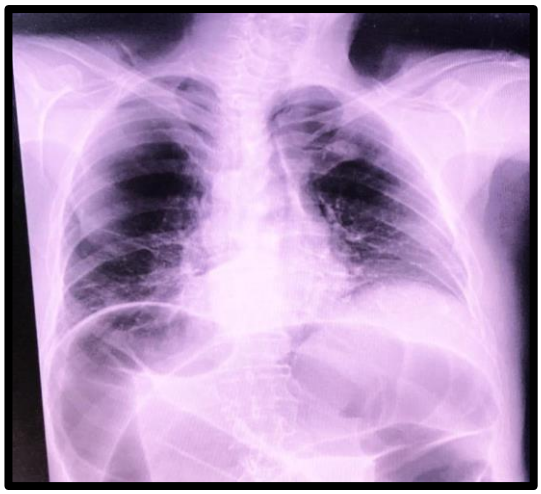

Figure 3

There is a lack of computed tomography, as well as nuclear magnetic resonance imaging. It is concluded that there are frank data of acute abdomen due to intestinal occlusion, with compartment syndrome and intestinal ischemia, secondary to colon volvulus.

From the beginning, an emergency exploratory laparotomy was performed, with the finding of a giant non-perforated sigmoid colon volvulus (Figure 4) but with severe non-reversible intestinal ischemia (necrosis of the entire colon wall), there is no black and green light lamp of indocyanine.

Figure 4

Therefore, intestinal resection of the sigmoid colon segment and terminal stoma of the descending colon was performed (Figure 5) with closure of the rectum upper third and surgical lavage of the abdominal cavity. With adequate evolution and hospital discharge at home 5 days later.

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Figure 5

DISCUSSION

Colon volvulus with intestinal strangulation makes it an important surgical emergency with a high risk of intestinal necrosis, septic shock, and death; therefore, its specific diagnosis is clinically difficult, but the generic diagnosis of acute abdomen is not, as is that of intestinal obstruction. [16] The "total absence of peristalsis" is common due to the large volume of air in the colon, abdominal distension that causes even compartment syndrome, and the absence of flatus and/or evacuation. With severe generalized pain and frank evidence of acute abdomen. In addition, it is logical or even obvious to present signs and symptoms of systemic inflammatory response, with basic laboratories and arterial blood gases where metabolic acidosis and increased lactate level occur. [17, 18] With regard to cabinet studies, simple abdominal plates in foot and recumbent projections are essential, as is the projection of a chest telegraph 30 minutes prior to standing, where it will be possible to appreciate massive intestinal dilation greater than 10 cm in diameter, absence of air in rectal ampule, [19] Reflex ileus, airborne levels, fixed loop and the classic "coffee bean" image [20] and the thorax projection, to evaluate subdiaphragmatic free air or the pathognomonic "gullwing" radiological sign of pneumoperitoneum by perforation of the hollow viscera (in this case the colon). [12, 21]

Some authors determine that the computed tomography study is the gold standard for confirming the diagnosis of colon volvulus, which will lead to a diagnostic/therapeutic colonoscopy and/or a subsequent magnetic resonance imaging depending on the tomographic findings of the colon. [4, 14, 22] CT scan has been studied to associate with clinical outcomes, including recurrence, choice of treatment, and mortality. It has been published that 117 cases have been diagnosed in 80 patients (54 men), with a mean age of 70 years, where it is concluded that a sigmoid colon dilated greater than 9 cm is a factor of ischemia and recurrence. [23]

However, ultrasound can potentially identify the cause of bowel obstruction from colon volvulus in these age groups (in infants and children), without the need for additional cross-sectional imaging, and may aid in patient management, including interventional and/or surgical planning. [24] Contrast computed tomography reveals the sign of the "mesentery whirlpool," evidence dilation of the colon, organ ischemia, and volvulus itself. [25]

About the treatment of colon volvulus, the use of decompression in a transanal or endoscopic tube has been documented, in a study of 69 patients with this uncomplicated pathology were initially treated non-surgically. [26] The primary goal of treatment of colonic obstruction is to relieve torsion and prevent recurrence. Standard treatment includes colonic decompression through a rectal tube or colonoscopy, followed by definitive surgery. Flexible endoscopy is usually the first line of intervention to decompress the colon in patients with colonic volvulus; however, surgery is necessary in more than 80% of cases and is the definitive treatment that requires an urgent laparotomy in patients with peritonitis or failed endoscopic distortion. [27, 28, 29] Other options have suggested a percutaneous endoscopic colostomy instead of an elective sigmoid colectomy, especially if the patient is at high surgical risk or refuses a surgical procedure. [30] Surgery is the definitive treatment for colonic volvulus despite initial decompression therapy, 8,478 African Americans and Caucasians who underwent colectomy for volvulus, pulmonary complications 16.85%, and a mortality rate of 7.89% is reported. [31] Endoscopic distortion is the first-line treatment option in uncomplicated patients; however, the risk of recurrence is as high as 90%, with a mortality risk of up to 35%. Although procedures such as laparoscopic colopexy or sigmoidopexy, [32] sigmoidomesopexy, sigmoidomesoplasty, extraperitonealization, or percutaneous endoscopic sigmoidopexy may prevent or reduce recurrence, it should be noted that laparoscopic sigmoid colectomy with natural orifice specimen extraction appears to be the optimal option in selected cases. [14, 25, 32] In a study of 2,053 patients, the mean age was 78 years, 7% had elective surgery, and 93% had semi-elective surgery, with 12.5% of same-day emergency patients having decompression, reflecting lower ostomy formation rates of 2.9% versus 36%. [33] Preoperatively, a decompression tube was placed transanally endoscopically, then laparoscopic resection of the sigmoid colon and anastomosis were performed. The postoperative course was uneventful. [34] Endoscopic decompression usually has recurrence of colonic volvulus, and postoperative complications are pulmonary or septic shock, which may be due to delayed treatment, intestinal perforation, and fecal peritonitis with secondary septic shock. [11, 27, 35]

REMARKS

1. In developing countries such as Mexico, where the public health sector is characterized by the meagre nature of human resources, infrastructure and supplies, and with a lack of planning by decision-makers; determine that under these circumstances they lead or converge that the surgeon decides an aggressive surgical approach, unique and without option in the management of colon volvulus, which is the emergency exploratory laparotomy.
2. In Mexico, the incidence of colon volvulus is low, however, there are no real and reliable statistics to support this motion, with morbidity and mortality unknown, another condition that can be stacked in the administrative health system.
3. In the absence of contrasted computed tomography, the diagnosis is based on the very symptomatic or advanced clinical picture of an acute abdomen and/or on plain abdominal X-rays with the classic "coffee bean" image. In addition, there is a lack of

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colonoscope and laparoscope for optimal, coherent, efficient and high-quality treatment that benefits the patient, which has been proven to reduce morbidity and mortality.

4. It should be considered that most patients with this pathology are over 70 years of age and are men, where physical activity is very limited, but the observation that prostatic hypertrophy is the cause in most individuals had not been documented in any publication, since the prostate is "gigantic". greater than 140 grams (due to lack of medical care or oversaturated public health services) and where it is the main factor that the authors directly correlate to colon volvulus, it is the false or real sensation of obstruction at the outlet that causes continuous pushing and tenesmus, excessive, modifying the mechanics of pressures in a closed system or with a bottle #cuello" (due to the disproportionately large prostate that obstructs more than 60% of the lumen of the rectum, as well as its capacitance or the so-called "phantom" constipation due to this disease.
5. Colon volvulus is a consequence of another disease (benign prostatic hypertrophy), due to physical, structural and hemodynamic forces, mostly undiagnosed, much less treatment/follow-up. So, it is not a disease as such, but a consequence of another disease. Deducing that it is even preventable.
6. The management in Mexico is resective surgical and with stoma, (something perhaps reprehensible) but it is the safe and infallible surgical behavior that most surgeons opt for, which conditions yes, to a new intestinal reconnection surgery, but it is what there is and/or allows the infrastructure and organizational culture of the public health system, presumably because the surgical area has been forgotten for decades by the decision-makers in power who they are clinical and unaware of the real impact of a surgical disease.

CONCLUSIONS

Volvulus of the sigmoid colon is a consequence of another pathology (the most common is benign prostatic hypertrophy) and is not a disease, its initial treatment (endoscopically) will depend on the time of evolution, the infrastructure available at that time, the expertise and/or each case. But at the end of the day, management is urgent, priority to scheduled, with partial resection of the colon, stoma and intestinal reconnection, regardless of the different optional approaches available, conventional, laparoscopic or robotic. Its prognosis is good when the diagnosis and treatment is assertive by the surgeon, preserving the life and function with a good quality of life of the patient.

Conflict of Interest

The authors stated that they had no potential conflicts of interest regarding the research, authorship, and/or publication of this article.

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