

Case Report

Endoscopic decompression as management of uncomplicated sigmoid volvulus: case report and literature review

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ABSTRACT

Sigmoid volvulus is a cause of intestinal obstruction explained by the twist of the sigmoid over its mesentery. The colon is at risk of ischaemia due to alterations in the irrigation due to rotation of the mesentery and risk of perforation. Surgical management is suggested in complicated cases, but endoscopic management with decompression and detorsion may be suggested in the case of uncomplicated sigmoid volvulus, with risk of recurrence. We present the case of a 49-year-old male with a diagnosis of uncomplicated sigmoid volvulus resolved by decompression with rigid proctosigmoidoscopy and medical management with remission of intestinal occlusion, without surgical intervention. A case and review of the current literature are presented.

Keywords: Volvulus, Sigmoid, Endoscopy, Rectosigmoidoscopy, Decompression, Surgery

INTRODUCTION

Sigmoid volvulus is defined as closed loop obstruction of this portion of the colon and torsion of its mesentery, causing clinical evidence of distal bowel occlusion.¹ Sigmoid torsion usually requires surgical management, although minimally invasive strategies with endoscopy are available in the setting of a patient with no evidence of surgical emergency.²

A non-complicated sigmoid volvulus is described if there is no evidence of perforation, ischaemia or peritoneal irritation. Management of sigmoid volvulus is usually surgical; however endoscopic management is feasible in early stages in the absence of complications such as peritonitis.^{1,3}

Successful endoscopic management is described by passage of the rectosigmoidoscope between 2 points of the loop occlusion, resolution of the volvulus, ability to evacuate colonic gas and clinical improvement.¹ It is important to consider endoscopic management with

decompression and detorsion as a diagnostic and therapeutic strategy in cases where there is no surgical emergency.³

We present the case of a 49-year-old patient with a diagnosis of sigmoid volvulus due to clinical manifestations suggestive of intestinal occlusion, corroborated by simple abdominal X-ray and computed tomography. In the absence of peritoneal irritation and haemodynamic stability, decompressive management with rigid rectosigmoidoscopy with remission of distal intestinal obstruction was decided.

CASE REPORT

We present the case of a 49-year-old male patient with a history of chronic laxative intake. He had been suffering from previous symptoms for 3 years with data suggestive of intestinal occlusion with remission without medical management. He was admitted to the unit for 12 hours of evolution with abdominal pain in the mesogastrium, intensity 6/10 on the analogous numerical scale, colic type,

associated with nausea and emesis of gastric contents on seven occasions, as well as abdominal distension, inability to evacuate and pass gas, for which he came to the unit for assessment.

The patient was admitted to the unit hemodynamically stable, on examination the patient with a 50 cc hyaline nasogastric tube, neurologically intact, cardiac with rhythmic sounds with adequate in-secreted tone and intensity, pulmonary with no evidence of pleuropulmonary syndrome. Abdomen with absent peristalsis, soft, depressible, distension predominantly in the left colic area, pain on mid and deep palpation, no evidence of peritoneal irritation, rectal examination with no evidence of fecal impaction, no palpable area of stenosis in the anal canal, no evidence of distal obstruction, anal sphincter intact tone.

Paraclinical studies were performed, identifying leukocytosis of 12,000 at the expense of neutrophilia of 80%, without water-electrolyte imbalance. An abdominal X-ray was requested with evidence of a coffee bean sign in relation to sigmoid volvulus (Figures 1 and 2). Computed tomography of the abdomen was performed, identifying sigmoid dilatation and twisting of the mesentery, slight distension of the descending colon and the rest of the colon segments with residual material, with no evidence of pneumoperitoneum or free fluid (Figure 3).



Figure 1: Plain abdominal X-ray showing lower intestinal occlusion, distension of the sigmoid colon suggestive of sigmoid volvulus, presence of an associated hydroaeric level.



Figure 2: Topogram with data of sigmoid volvulus, colonic distension.

Patient with data of uncomplicated sigmoid volvulus, for which medical management with rigid decompressive rectosigmoidoscopy was decided, achieving remission of the condition. The patient was admitted to the general surgery department for post-operative surveillance, adjustment of medical management with fasting, weight-adjusted solutions, antibiotics and follow-up with control X-rays, with clinical improvement of distal intestinal obstruction clinically and by imaging studies (Figure 4). Discharge was decided on the fifth day after the decompression event.

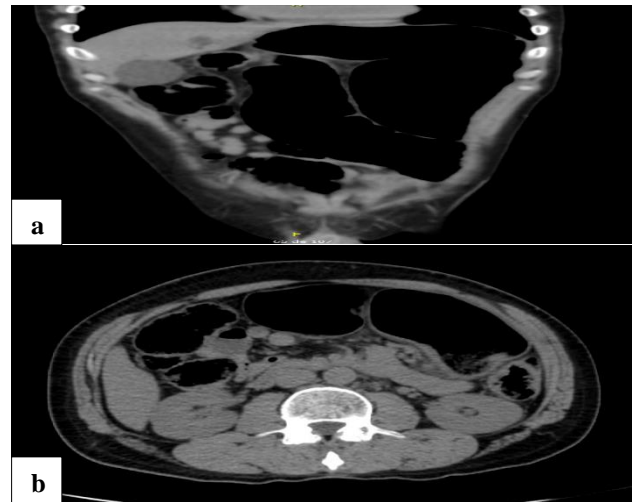


Figure 3: (a) and (b) Computed tomography of the abdomen with positive whirl sign, in addition to colonic distension, suggestive of sigmoid volvulus, with no evidence of collections, free fluid or free air in the cavity.



Figure 4: Plain abdominal X-ray 72 hours after decompression with rigid rectosigmoidoscopy, with no data suggestive of intestinal occlusion.

DISCUSSION

Volvulus comes from the Latin "volvere" meaning to twist, described by Rokitsansky as early as 1836. Endemic areas include Africa, South America, Russia, Eastern Europe, the Middle East, India and Brazil, and it accounts for 13-42% of all intestinal obstructions. In the United States and Western Europe, it accounts for 10-15% of causes. Any

segment of the colon can twist on itself, with the sigmoid being involved in 60-75% of cases.^{1,4}

A volvulus is a torsion of 180 to 360 degrees around a mesenteric point that causes obstruction. Anatomical alterations are described as long redundant colon with poor peritoneal fixation and a thinning of the mesentery that serves as the axis of rotation.⁵

Multiple factors can contribute, such as chronic constipation or laxative use, to dysmotility leading to elongation and dilatation of the colon. The sigmoid colon, with appendages in close proximity at its junction with the descending colon and rectum, makes it a prime site for torsion when elongated. An elongated mesentery may also be a predisposing factor.^{5,6}

The dolichosigmoid, described as an elongated sigmoid colon on a narrow mesenteric base, is the most commonly cited predisposing factor for sigmoid volvulus.⁷ Torsion occurs preferentially in a counterclockwise direction in 70% of cases. Fibrosis of the mesosigmoid is a result of scarring following reversible ischaemia in recurrent forms of volvulus.⁸

In the pathophysiology, colonic distension causes an increase in intraluminal pressure, which results in a decrease in capillary perfusion, this mural ischaemia is aggravated by occlusion of the mesocolic vessels by mechanical compression and axial rotation phenomena. This mucosal ischaemia favors bacterial translocation and bacterial gas production. If not reversed, a vicious circle is created leading to colonic necrosis and ischaemia and mixed septic and cardiovascular shock.⁷

The main symptoms are nausea, vomiting and abdominal pain. In 33% there is the volvulus-volvulus triad of vomiting, abdominal pain and abdominal distension. In about 2% of cases the volvulus reduces spontaneously.⁸

It is important to mention that on plain radiography, the colon is dilated without haustras, inverted U-shaped, located in the midline towards the upper quadrants. The coffee bean sign is produced by the central image created by the contact of the medial walls of the volvulus sigmoid and the lateral walls giving the edges of the bean. On computed tomography, the bird's beak and the whirlwind sign are described.⁹

Endoscopic management in the context of sigmoid volvulus was described by Bruusgaard as a diagnostic and therapeutic strategy. It allows assessment of mucosal characteristics and viability, identification of torsion and ruling out other causes of distal bowel obstruction. A success rate of up to 75-95% has been described, but a recurrence risk of 90%.¹⁰

The main treatment strategy in uncomplicated patients is emergency endoscopic detorsion followed by elective surgery, while emergency surgical treatment is necessary

in patients with intestinal gangrene, intestinal perforation, peritonitis or unsuccessful endoscopic detorsion. Flexible sigmoidoscopy is preferred.¹¹

The classic finding on sigmoidoscopy is a twisting of the lumen in the form of a spiral sphincter, usually 20-30 cm from the anal verge. It has a high diagnostic value with a success rate of 76-100%. For treatment, endoscopic detorsion involves gentle insertion of the endoscope with rotation of the instrument tip away from the direction of the torsion, while providing minimal air insufflation.¹¹

The main complications are intestinal perforation, peritonitis, shock, water and electrolyte imbalances, renal failure and cardiopulmonary problems. Since sigmoid volvulus has a tendency to recur after endoscopic detorsion, elective surgery after 2-3 days is recommended in a selected group of patients.¹¹

In the surgical treatment of uncomplicated sigmoid volvulus, sigmoid resection with primary anastomosis has become the standard procedure, with anastomotic leakage rates of approximately 5%. The extent of resection should be limited to the redundant and freely movable segment of the sigmoid colon that has caused the torsion. In case of megacolon, a complete colectomy should be performed.¹¹

CONCLUSION

Sigmoid volvulus is a common cause of distal intestinal obstruction due to torsion of this segment and its mesentery, leading to intestinal obstruction and the consequent development of ischaemia and perforation. It can present with data of surgical urgency but also without data of complications, the latter group of patients being candidates for endoscopic management. The suggested management in the case of patients with emergency data is surgical intervention, while in the case of patients without perforation data or associated complications, endoscopic management can be used as an alternative. However, it is important to note the risk of recurrence up to 90% but also the success of management up to 75% of cases. In the clinical context of the patient, conservative management with endoscopic decompression with rectosigmoidoscopy and follow-up with plain abdominal X-rays is presented, in addition to medical management, with resolution of the admission symptoms of intestinal obstruction.

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REFERENCES

1. Nakamatsu D, Nishida T, Sugimoto A, Matsumoto K, Yamamoto M. Clinical outcome of patients treated with endoscopic decompression after failure of detorsion for uncomplicated sigmoid volvulus. *DEN Open.* 2023;4(1):e299.
2. Schabl L, Holubar SD, Erozkhan K, Alipouriani A, Sancheti H, Steele SR, et al. Epidemiology and age-related trends in surgical outcomes for sigmoid volvulus: a 17-year analysis. *Langenbecks Arch Surg.* 2024;409(1):37.
3. Nie X, Sha Y. Endoscopic decompression of sigmoid volvulus in an adolescent. *Asian J Surg.* 2023;46(9):4074-6.
4. Tian BWCA, Vigutto G, Tan E, van Goor H, Bendinelli C, Abu-Zidan F, et al. WSES consensus guidelines on sigmoid volvulus management. *World J Emerg Surg.* 2023;18(1):34.
5. Underhill J, Munding E, Hayden D. Acute Colonic Pseudo-obstruction and Volvulus: Pathophysiology, Evaluation, and Treatment. *Clin Colon Rectal Surg.* 2021;34(4):242-50.
6. Gingold D, Murrell Z. Management of colonic volvulus. *Clin Colon Rectal Surg.* 2012;25(4):236-44.
7. Perrot L, Fohlen A, Alves A, Lubrano J. Management of the colonic volvulus in 2016. *J Visc Surg.* 2016;153(3):183-92.
8. García PSV, Lara SJS, Maldonado JI, Vázquez YAL, Velazco JLG, Pérez LAM. Sigmoid volvulus. Literature review. *General Surgeon.* 2021;43(3):165-75.
9. Sanz LI, Nacenta SB, Alonso RC, Martínez P, Navallas M. Volvulus of the gastrointestinal tract. Diagnosis and correlation between plain-film X-ray and multidetector computed tomography findings. *Radiology.* 2015;57(1):35-43.
10. Negm S, Farag A, Shafiq A, Moursi A, Abdelghani AA. Endoscopic management of acute sigmoid volvulus in high risk surgical elderly patients: a randomized controlled trial. *Langenbecks Arch Surg.* 2023;408(1):338.
11. Atamanalp SS, Atamanalp RS. The role of sigmoidoscopy in the diagnosis and treatment of sigmoid volvulus. *Pak J Med Sci.* 2016;32(1):244-8.

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