

Elective Treatment of Large-Bowel Obstruction in Asymptomatic Sigmoid Volvulus

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Abstract

Background. Sigmoid volvulus is an uncommon cause of intestinal obstruction representing the 5% of all Western cases, associated with old age and a history of neurological and psychiatric condition. Generally, its diagnosis is established by clinical and radiologic findings.

It often represents an emergency and it is commonly associated with pain, vomit and abdominal tenderness.

Case presentation. We present a case of a 59 years old man, admitted to our emergency department, showing an abdominal X-Ray reporting a distention of large bowel, which was required due to presence of multiple diarrhea episodes during the previous 7 days. He had no significant past medical history and did not report constipation or subocclusive episode.

Conclusions. Volvulus should be considered in the differential diagnosis in adult and healthy patients with bowel obstructions. Surgery is, in all cases, the radical and definitive treatment since there is a higher mortality in case of recurrent volvulus. Despite the massive bowel distention, our choice was the elective open surgery. Primary anastomosis is feasible and safe and did not lead to any complications. In case of unsuccessful colonic decompression, evidence to support or refute the safety and effectiveness of laparoscopic surgical resection for treatment of patients with sigmoid volvulus disease is not yet proven. *Clin Ter 2020; 171 (6):e466-470. doi: 10.7417/CT.2020.2258*

Key words: Sigmoid volvulus, asymptomatic volvulus, uncomplicated volvulus, large-bowel obstruction

Introduction

Sigmoid volvulus is an uncommon cause of intestinal obstruction due to a long and wide mesosigma that rotates on a constant mesosigmoid root width. (1,2) In “Western” countries the incidence is low (North America, Western Europe, Australia), colonic volvulus represents less than 5% of all intestinal obstruction.(3) In 2014, W.J. Halabi et al.(4) series confirm that patient with the highest incidence of sigmoid volvulus has neuropsychiatric diseases and diabetes in comorbidities.

Volvulus often is an emergency, and its diagnosis is established by clinical and radiologic findings. Common

presenting symptoms include nausea, vomiting, abdominal pain, distention, and obstipation. (5) Depending on the duration of the condition, there may be signs of peritonitis (guarding and rebound tenderness) and bleeding per rectum. Classically, asymmetric gaseous abdominal distention associated with emptiness of the left iliac fossa is pathognomonic for sigmoid volvulus. (6)

The first line diagnostic exam in suspected bowel obstruction is the abdominal radiography: in patient with bowel obstruction it shows a large dilated loop of the colon often with air-fluid levels; typical signs of sigmoid volvulus is the “coffee bean sign” due to the overlapping of two overdilated loops and the “Frimman-Dahl sign” represented by three dense lines converging towards the site of obstruction; generally gas in the lower abdominal quadrants is absent.

Abdominal radiograph with signs of obstruction needs further investigation with abdominal CT scan with vein contrast medium as second line diagnostic exam to individuate the point of obstruction, to evaluate the vascularization of the bowel walls and eventually concomitant complications (free abdominal effusion and bowel walls pneumatosis).

To our knowledge, the present report describes the second documented case in literature of a young, healthy man presenting asymptomatic volvulus. (7)

Case presentation

A 59 year old male, sent by his General Medicine Doctor, was admitted to the Emergency Department of our hospital. He showed abdominal radiography revealing an intestinal obstruction state with large bowel gaseous overdistension with typical “coffee bean sign” and without gas in the lower abdominal quadrants. On admission, the vital signs were normal and stable (blood pressure = 110/70 mmHg, heart rate = 108, Glasgow Coma Scale = 15, O₂ Saturation = 99%, temperature = 36.7°C).

On the initial examination, the patient referred a painless sense of abdominal distention and reported liquid feces emission during the previous 7 days, without other symptoms, such as nausea, constipation, vomit, anorexy, asteny and

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Tab. 1 . Lab. and A.B.G.

Crea.	0,8		
Hb	14		
GB	10,95	↑	x10
Neut.	7,68	↑	x10
PLT	313		x10
INR	1,4		
LDH	230	↑	UI/L
PCR	0,32		mg/dl
K ⁺	3,33	↓	mEq/L
Na ⁺	139		mEq/L
PO2	98		mmHg
PCO2	35		mmHg
Lac.	1,1	↑	mmol/L

fever. He reported unsuccessful use of Loperamide and no significant past medical history for chronic constipation, abdominal surgery or psychiatric and neurologic disease. The patient denied previous radiological or endoscopic examinations of the bowel. The physical exam revealed a distended abdomen, without tenderness area or abdominal guarding. Blumberg maneuver was negative and the abdominal tympanism was increased with a slowed peristalsis. The digital rectal examination found an empty and expanded rectal ampoule. Laboratory findings, including Arterial Blood Gas Analysis (A.B.G.), were in the range of normality (Tab.1). He received fluid and an enema producing a little amount of liquid feces.

The patient performed a second radiography which confirmed the overdistension of the sigma with any variation respect to the first exam (fig. 1 a, b); for this reason a CT scan of the abdomen with vein contrast medium was performed: our protocol for a 64 MDCT scan includes an initial unenhanced low dose scan of the abdomen and the pelvis to exclude pneumoperitoneum (collimation 2.5 mm)

then a second scan with intravenous injection of 120 mL of contrast material (Iomeron 350 Bracco Imaging Spa, Milan, Italy) delivered at rate of 3,5 mL/s using a power injector was performed at arterial and portal phase. Enhanced images were obtained with 0,6 mm collimation and were reconstructed with a soft tissue algorithm. The mean duration of a complete MDCT exam was fewer than 10 min.

The CT scan showed a gaseous overdistension of a dolicho-sigma which however didn't have focal thickening of the wall or signs of ischemia: there was a twisting of the mesentery and of mesenteric vessels ("whirl sign") (Fig 2 a,b,c) (8) and the crossing of the bowel loops at the site of the obstruction, at the transition site (9). The whirl sign is an important sign for the diagnosis visible with axial and sagittal post processing reconstruction. MDCT is important to assess the severity of the condition by analyzing the twisted loop wall and the mesentery: in this case there was not increased attenuation of the large bowel wall, neither alteration of the normal density of the fat or other signs of ischemia (10): for these reasons the patient didn't need of an urgent surgery operation.

A flexible rectal probe (45 FR) was positioned performing a partial colonic decompression with emission of gases and a little amount of liquid stool.

General and abdominal exams has remained unchanged, and the bowel function was impaired. A sigmoid resection was planned in delayed emergency setting. In the 10 pre-operative days, the patient was still in a bowel subocclusion state with sporadic emission of liquid feces. The abdomen was distended without any sign of pain or tenderness. Fluids were administered and an enema was done twice without success. Vital signs, as well as laboratory exams, were stable and normal during all the pre-operative days, showing no sign of inflammation or ischemia. A colonoscopy revealed no signs of malignancy or mucosal ischemic area, but confirmed the suspect of volvulus in dolichocolon. Probably, due to the chronic clinical condition, we have not succeed

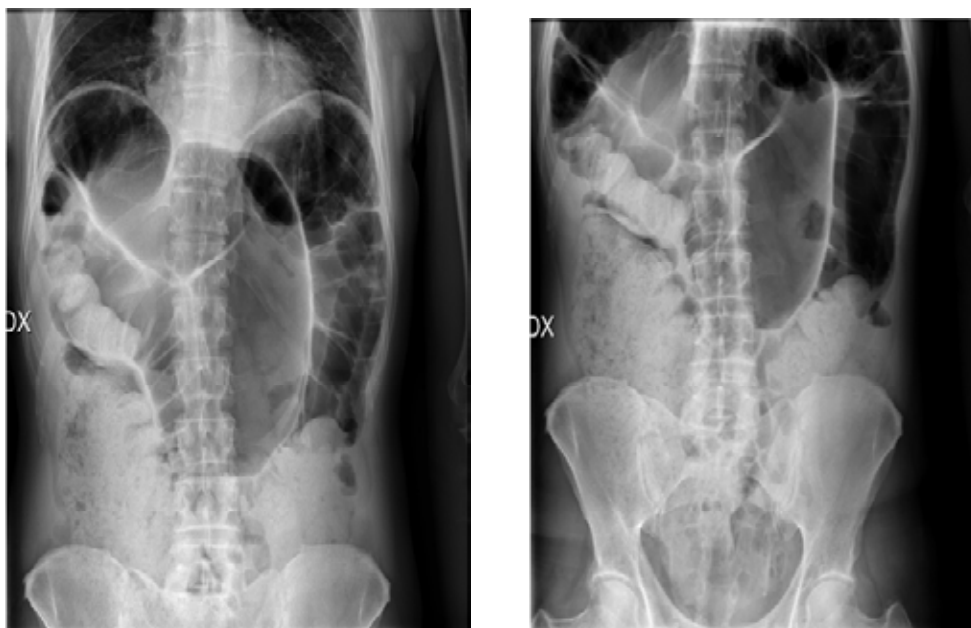


Fig. 1 a-b. Abdomen radiography: gaseous overdistension of the sigma without gas in in the right and lower quadrants

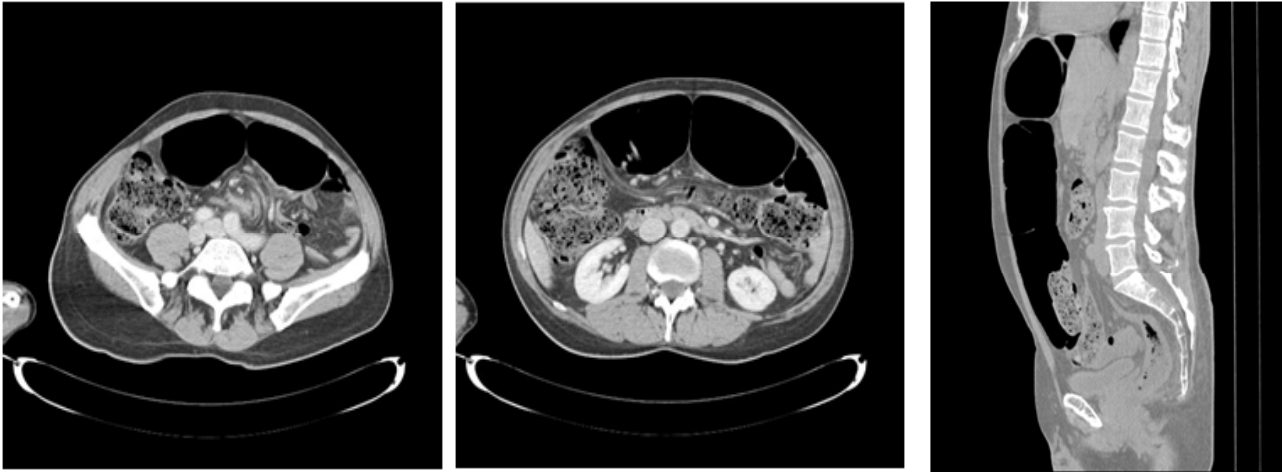


Fig 2 a-b-c. Axial and sagittal CT of the abdomen showing a gaseous overdistension of the sigma without free air or fluid in abdomen: «whirl sign» (arrow) with ectasia of mesenteric vessels. Sagittal reconstruction confirmed the overdistension of the sigma dislocated anteriorly

in a complete deflation. Two abdominal radiography were performed before and after somministration of Gastrografin: the exam showed the opacification of the cecum and of the ascending tract of the colon without any sign of further progression in the lumen of the colon (Fig. 3).

In the operating room, the patient underwent explorative laparotomy confirming the sigmoid volvulus in dolichocolon. Mesosigma semicomplete axial torsion was found, resulting in a partial bowel occlusion and causing an overdistention of 10cm (Fig. 4). Abdominal exploration has been negative for signs of ischemia, adhesions or malignancy. Splenic flexure

mobilization was an essential step during the left colectomy in avoiding traction. A segmental sigmoid resection was performed. After bowel transection and complete colonic detachment, a side-to-side isoperistaltic stapled colo-colic anastomosis was fashioned to restore intestinal continuity.

A post operative Abdominal Radiography was performed showing the normal distribution of the gas in abdomen without level or over distention of the bowel loops The postoperative period was uneventful and the patient was



Fig. 3. Radiography of abdomen after administration of Gastrografin per os: gaseous overdistensione of sigma associated to the opacification of the cecum and ascending colon

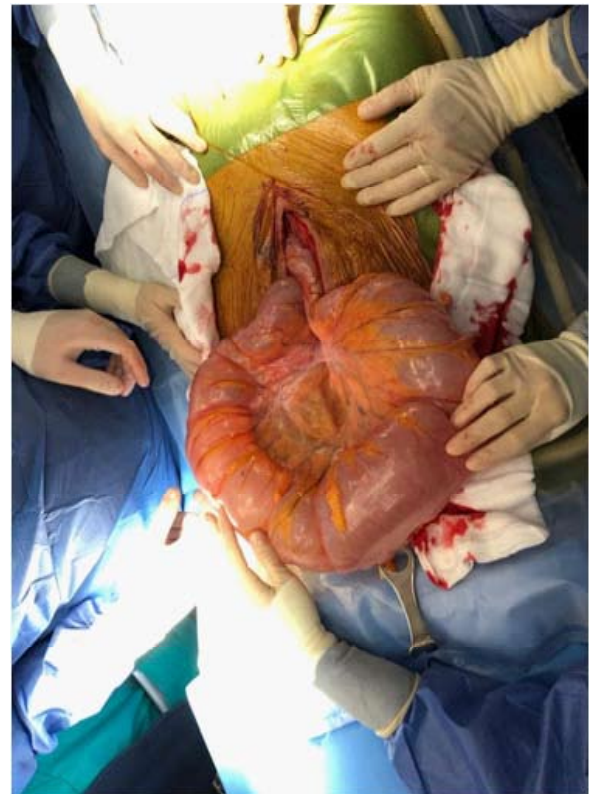


Fig. 4. Massive large-bowel distention in sigmoid volvulus.



Fig. 5. Dolichosigma

discharged in the 8th day. Histological examination did not show any sign of malignancy or ischemic lesion and the specimen contained normal ganglion cells. (Fig. 5)

Discussion

In the literature, sporadic volvulus is commonly associated to older aged patients with an relevant history of neurological and psychiatric conditions. (2,3,4) Despite this, in our experience, colonic volvulus can be as well experienced by healthy people as claimed by Dolejs et al.(1) in their series. This correlation could be investigated in the Italian population in future.

The current management of uncomplicated colonic volvulus is based on endoscopic decompression, followed by a surgical treatment, to prevent problem recurrence. Endoscopy allows one to not only assess to the viability of the sigmoid, but also to achieve detorsion of the volvulus. In the absence of colonic necrosis, endoscopy can convert an urgent situation into an elective situation (3). In the absence of a randomized study, the current consensus is to perform colonic resection within 2 to 5 days of endoscopic detorsion after the first episode of sigmoid volvulus, because of the high risk of recurrence (11). Surgery is, in all cases, the radical and definitive treatment and should be considered following effective detorsion because there is a higher mortality in cases of recurrent volvulus (12). In surgical treatment,

resection and primary anastomosis is the first choice, and it can be performed with acceptable mortality and morbidity rates if the patient is stable and a tension-free anastomosis is possible (13). This can be performed through conventional open or laparoscopic surgery techniques. The standard treatment for sigmoid volvulus is open surgery. Minimally invasive laparoscopic surgery offers an alternative approach to open surgery in case of successful decompression. In our case, due to the massive bowel distention, we evaluated the open technique to avoid the risk of iatrogenic complications. The laparoscopic approach for the treatment of sigmoid volvulus has been a rare surgical indication (14).

Conclusions

Although sigmoid volvulus is an uncommon cause of intestinal obstruction, it should be considered in the differential diagnosis of adult and healthy patients with bowel obstructions. The current management of uncomplicated colonic volvulus is based on endoscopic decompression followed by a surgical treatment. Surgery is, in all cases, the radical and definitive treatment. Primary anastomosis is feasible and safe.

Despite the massive bowel distention, our choice was the elective open surgery. This did not lead to any complications. In case of unsuccessful colonic decompression, evidence to support or refute the safety and effectiveness of laparoscopic surgical resection for treatment of patients with sigmoid volvulus disease is not yet proven.

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