

Beak and Whirl Sign: A Hallmark of Sigmoid Volvulus

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Abstract

The volvulus of the sigmoid is a diagnostic and therapeutic emergency, potentially serious, occurring in frail patients. It corresponds to the torsion of the sigmoid around its meso, responsible for a mechanical colonic occlusion. The prognosis is related to the presence or absence of colonic ischemic lesions. The abdomino-pelvic CT scan is the effective imaging modality to retain the diagnosis of volvulus through two characteristic semiological signs: bird's beak sign and whirlpool sign. These scannographic aspects, the diagnosis, risk factors and treatment of sigmoid volvulus are discussed.

Keywords: Sigmoid Volvulus; Intestinal Obstruction; Occlusive Syndrome; Abdominal CT; Emergency

Introduction

Sigmoid volvulus, the most common colonic volvulus, accounts for 1 - 7% of intestinal obstructions. It corresponds to the torsion of the sigmoid around its meso, responsible for a mechanical colonic occlusion [1,4]. Abdomino-pelvic CT is the reference examination for colonic occlusive syndrome, it allows to confirm the diagnosis of colonicocclusion on sigmoid volvulus by the demonstration of two pathognomonic signs: the bird's beak sign and the swirl sign. The present case underlines the importance of abdominal CT in the etiological diagnosis of colonic occlusions, more particularly in sigmoid volvulus, highlighting characteristic semiological signs.

Case Presentation

A 75-year-old patient, with a history of chronic constipation relieved by laxatives, presented to the emergency room with an occlusive syndrome consisting of a 3-day cessation of bowel movements and gas with vomiting, nausea, abdominal pain and meteorism. The clinical examination revealed a distended abdomen, meteoric and painful to palpation. The hernial orifices were free. The rest of the examination was unremarkable, there were no clinical signs of severity, notably no dehydration or shock. The biological workup was normal. The abdomino-pelvic CT scan with injection of contrast medium showed a sigmoid volvulus with upstream colonic distension (colonic diameter at 11 cm) (Figure 1 and 2). There was no sign of ischemic distress. The patient benefited from an emergency colonic endoscopy allowing the crossing of the volvulus and its untorsion with a colo exsufflation and a colonic lavage-aspiration. The evolution was marked by a clinical improvement.



Figure 1: Radiograph showing an inverted U sign.

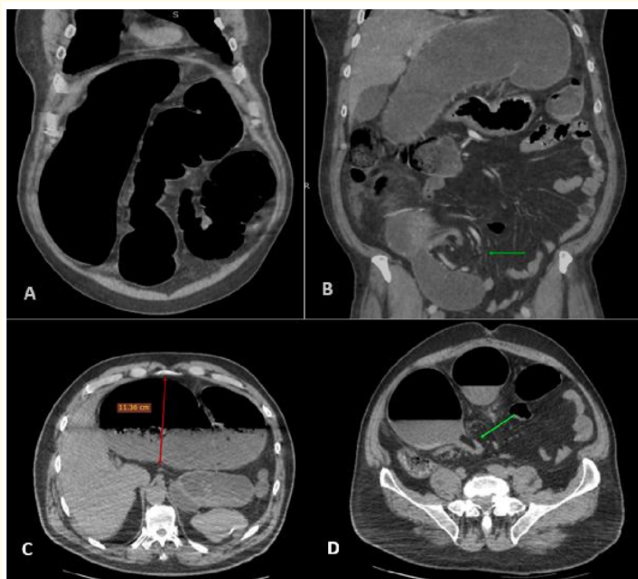


Figure 2: Abdominal-pelvic CT scan with contrast injection in portal time, coronal (A and B) and axial (C and D) slices showing: a sigmoid colon extending cephalad to the transverse colon and overlapping the liver (A), whirlpool sign (arrow) with twisting of the sigmoid vessels (B), colonic distension with hydroaerobic levels (C), transition zone with abrupt reduction in bowel caliber realizing the beak sign (arrow) (D).

Discussion

The volvulus of the sigmoid is a rare but serious pathology, generally occurring in frail patients. It is the first cause of colonic volvulus and corresponds to the torsion of the sigmoid around its meso, with a degree of rotation varying from 180° to 360°, or according to an organo-axis, leading to mechanical colonic occlusion [2]. The prognosis is related to the presence or absence of colonic ischemic lesions. This pathology typically affects elderly subjects [3], who are not very mobile, chronically constipated or with comorbidities that slow down intestinal transit (Alzheimer's disease, Parkinson's disease, diabetes...). The volvulus of the sigmoid may also be favored by the presence of a long and wide sigmoid loop (dolichosigmoid) associated with a narrow base of implantation of its meso as well as by the use of psychotropic drugs. Our patient suffered from chronic constipation which favored the occurrence of the sigmoidal volvulus.

The diagnosis is suspected in front of a clinical picture of distal colonic occlusion made of brutal abdominal pain predominantly in the left iliac fossa, early cessation of matter and gas and abdominal meteorism. Vomiting and nausea are delayed [5]. The clinical signs of severity are dehydration, shock and cardiorespiratory decompensation.

The unprepared abdomen visualizing the classic "inverted U" appearance is no longer indicated. An abdominopelvic CT scan is recommended as a first-line procedure as soon as possible by the French National Authority for Health [6]. It has a high sensitivity (close to 100%) and specificity (greater than 90%) for the positive, topographical and etiological diagnosis in case of occlusion [7]. Abdominopelvic CT scan with contrast injection at portal time (60 - 70s) confirms the diagnosis of colonic occlusion on sigmoid volvulus by demonstrating a U-shaped sigmoid loop, the two legs of which converge towards the point of torsion producing a "bird's beak" appearance with a whirl sign corresponding to the mesocolon wrapping around the point of torsion with torsion of the sigmoid vessels [8].

These two signs are very characteristic of the diagnosis of volvulus. The CT scan can also identify other indirect signs: colonic distension upstream of a transition zone (flat loop- dilated loop), absence of rectal or distal colonic aeration, and to eliminate differential diagnoses, in particular cancer of the recto-sigmoid hinge. Finally, it allows the viability of the loop to be studied and to look for signs of severity of ischemia and perforation (spontaneous hyperdensity of the digestive walls or defect in parietal enhancement, parietal pneumatosis, aeroportosis/aeromesenteria, peritoneal effusion, pneumoperitoneum) [9].

In the absence of any sign of severity, treatment is based on emergency endoscopic detorsion of the volvular segment, with colo exsufflation and placement of a Faucher tube to limit the risk of short-term recurrence [10]. In case of failure of endoscopic detorsion, in front of signs of ischemia or perforation, or in recurrent forms, an emergency surgical treatment is indicated based on a colectomy without restoration of the digestive continuity in most cases [11].

Conclusion

Sigmoidal volvulus is a potentially serious diagnostic and therapeutic emergency occurring in frail patients. CT scan is the reference examination in case of clinical suspicion of a sigmoid volvulus. It allows the diagnosis to be made by precisely analyzing the swirl sign and the bird's beak sign, and also allows signs of ischemic distress to be sought in order to guide therapeutic management.

Bibliography

1. Madiba TE., *et al.* "Radiological anatomy of the sigmoid colon". *Surgical and Radiologic Anatomy* 30 (2008): 409-415.
2. Grossmann EM., *et al.* "Sigmoid volvulus in Department of Veterans Affairs Medical Centers". *Diseases of the Colon and Rectum* 43 (2000): 414-418.
3. Ballantyne GH. "Review of sigmoid volvulus: history and results of treatment". *Diseases of the Colon and Rectum* 25 (1982): 494-501.

4. Ballantyne GH., *et al.* "Volvulus of the colon. Incidence and mortality". *Annals of Surgery* 202 (1985): 83-92.
5. Bak MP and Boley SJ. "Sigmoid volvulus in elderly patients". *The American Journal of Surgery* 151 (1986): 71-75.
6. Principales indications et «non-indications» de la radiographie de l'abdomen sans, préparation (2009): 1-28.
7. Atamanalp SS. "Treatment of sigmoid volvulus: a single-center experience of 952 patients over 46.5 years". *Techniques in Coloproctology* 17 (2013): 561-569.
8. Wai CT, *et al.* "Clinics in diagnostic imaging: sigmoid volvulus causing intestinal obstruction, with successful endoscopic decompression". *Singapore Medical Journal* 46 (2005): 483-487.
9. Bernard C., *et al.* "Apport du scanner multidétecteurs dans la prise en charge des volvulus du sigmoïde". *European Journal of Radiology* 91 (2010): 213-220.
10. Perrot L., *et al.* "Management of the colonic volvulus in 2016". *Journal of Visceral Surgery* 153 (2016): 183-192.
11. Hirata T, *et al.* "Endoscopic management for sigmoid volvulus: in endoscopic exsufflation enough?" *Gastrointestinal Endoscopy* 83.5S (2016): AB287.

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