

Sigmoid Volvulus Caused by a Congenital Fibrous Band in a Patient with a Virgin Abdomen: A Case Report

Rania Benkaddour*, El Mehdi Dhamnia, Pr Ittimade Nasser and Pr Kawtar Imrani

Department of Radiology, Ibn Sina University Hospital, Rabat, Morocco

***Corresponding Author:** Rania Benkaddour, Department of Radiology, Ibn Sina University Hospital, Rabat, Morocco.

Received: August 05, 2026; **Published:** October 07, 2026

Abstract

Sigmoid volvulus is a well-recognized cause of large bowel obstruction, most commonly occurring in elderly or institutionalized patients with predisposing anatomical factors. Congenital fibrous bands are an exceptionally rare cause of sigmoid volvulus in adults, particularly in individuals with a surgically virgin abdomen. We report the case of a 55-year-old man presenting with acute intestinal obstruction. Contrast-enhanced computed tomography (CT) demonstrated a markedly distended sigmoid colon with the characteristic coffee bean sign and a transition point suggestive of volvulus, without evidence of bowel ischemia. Emergency laparotomy revealed a sigmoid volvulus caused by a congenital fibrous band associated with dolichocolon. Division of the band followed by segmental sigmoidectomy with primary colorectal anastomosis resulted in an uneventful postoperative recovery. This case highlights the diagnostic value of CT in identifying uncommon mechanical causes of sigmoid volvulus and emphasizes that congenital fibrous bands should be considered in adults presenting with bowel obstruction despite the absence of previous abdominal surgery.

Keywords: Sigmoid Volvulus; Congenital Fibrous Band; Dolichocolon; Virgin Abdomen; Computed Tomography; Large Bowel Obstruction

Introduction

Sigmoid volvulus is a well-recognized cause of large bowel obstruction and accounts for a substantial proportion of colonic volvulus cases worldwide. Its incidence varies considerably across geographic regions, with higher prevalence reported in the so-called “volvulus belt,” including parts of Africa, the Middle East, South America, and Asia [1].

The condition predominantly affects elderly patients with chronic constipation, neuropsychiatric disorders, or institutionalization, in whom colonic redundancy and impaired bowel motility constitute major predisposing factors [1,2].

In contrast, sigmoid volvulus occurring in adults with a surgically virgin abdomen is uncommon and should prompt consideration of less frequent etiologies. Congenital anatomical abnormalities, including dolichocolon and congenital fibrous bands, represent rare but important mechanical factors that may predispose to colonic torsion. Unlike postoperative adhesions, congenital fibrous bands originate from embryological remnants and are rarely encountered in adults, making preoperative diagnosis particularly challenging [2,3].

Multidetector computed tomography (MDCT) plays a pivotal role in the diagnosis of sigmoid volvulus by accurately demonstrating characteristic imaging findings, identifying the level and cause of obstruction, and detecting signs of bowel ischemia that influence therapeutic management [1,4].

Citation: Rania Benkaddour, *et al.* “Sigmoid Volvulus Caused by a Congenital Fibrous Band in a Patient with a Virgin Abdomen: A Case Report”. *EC Clinical and Medical Case Reports* 9.6 (2026): 01-05.

We report an unusual case of acute sigmoid volvulus caused by a congenital fibrous band in a patient with a surgically virgin abdomen. This case highlights the diagnostic contribution of CT imaging and emphasizes the importance of considering rare congenital mechanical causes of bowel obstruction even in adults without previous abdominal surgery [3,4].

Case Presentation

A 55-year-old man with no history of previous abdominal surgery presented to the emergency department with a 4-day history of progressive abdominal distension, diffuse abdominal pain, and complete obstipation. Physical examination revealed generalized abdominal tenderness with guarding and an empty rectal ampulla on digital rectal examination.

Contrast-enhanced multidetector computed tomography (MDCT) of the abdomen and pelvis, performed during the portal venous phase, demonstrated marked dilatation of the sigmoid colon measuring up to 80 mm in maximal diameter (Figure 1B). Additional findings included multiple air-fluid levels and stercoral fecal loading, predominantly within the cecum (Figure 1A and 1C). The sigmoid colon was markedly elongated and redundant, consistent with dolichocolon. An abrupt transition point was identified at the sigmoid colon, with proximal colonic dilatation and distal rectosigmoid collapse. Coronal reformatted images demonstrated the characteristic coffee bean sign, strongly suggestive of sigmoid volvulus (Figure 1C). No radiological signs of bowel ischemia were identified, with preserved bowel wall enhancement and no evidence of pneumatosis intestinalis or pneumoperitoneum. A small amount of free pelvic fluid was also observed.

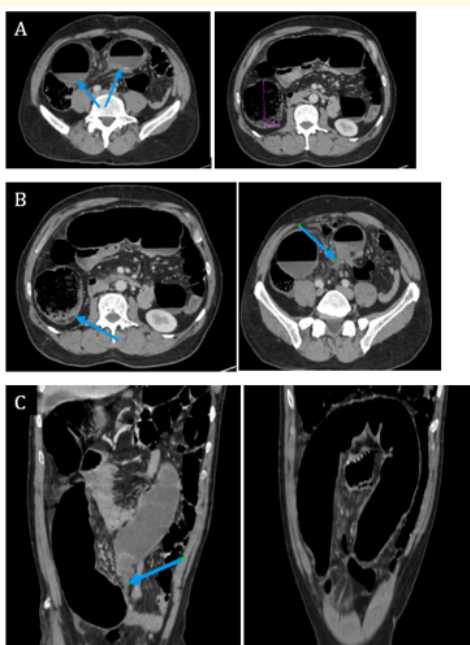


Figure 1: Contrast-enhanced multidetector computed tomography (MDCT) performed during the portal venous phase. (A) Axial image demonstrating proximal colonic dilatation with stercoral fecal loading. (B) Axial reformatted image showing marked sigmoid dilatation measuring up to 80 mm. (C) Coronal reformatted image demonstrating the characteristic coffee bean sign and the transition point consistent with sigmoid volvulus.

Based on the clinical and radiological findings, the diagnosis of acute sigmoid volvulus causing large bowel obstruction was established, with dolichocolon considered the principal predisposing factor.

The patient underwent emergency exploratory laparotomy. Intraoperative findings confirmed an organo-axial sigmoid volvulus caused by a congenital fibrous band acting as the fixed point of torsion (Figure 2). The fibrous band was carefully divided, allowing complete detorsion of the sigmoid colon. Although bowel viability was preserved following detorsion, a segmental sigmoidectomy with primary colorectal anastomosis was performed because of the associated dolichocolon and the substantial risk of recurrence. The postoperative course was uneventful, and the patient was discharged in good clinical condition without complications.



Figure 2: 2A: Torsed and dilated sigmoid colon with twisted appearance, distended sigmoid loop with dolichocolon.

2B: Intraoperative image showing the adhesive b.

Discussion

Sigmoid volvulus is one of the leading causes of large bowel obstruction worldwide and represents the most common type of colonic volvulus. Although its incidence varies considerably according to geographic region, it is particularly prevalent in the so-called “volvulus belt,” which includes parts of Africa, the Middle East, South America, and Asia. The condition predominantly affects elderly men with chronic constipation, neuropsychiatric disorders, institutionalization, or other conditions associated with prolonged colonic transit. Nevertheless, the occurrence of sigmoid volvulus in patients with a surgically virgin abdomen should prompt clinicians to investigate uncommon anatomical predisposing factors rather than attributing the obstruction solely to functional causes [1,5,6].

The pathophysiology of sigmoid volvulus is based on torsion of a redundant sigmoid colon around its mesenteric axis, producing a closed-loop obstruction with progressive impairment of venous and subsequently arterial blood flow. If left untreated, this process may rapidly progress to bowel ischemia, gangrene, perforation, and generalized peritonitis. Dolichocolon is recognized as one of the principal anatomical risk factors because excessive elongation and redundancy of the sigmoid colon increase its mobility and facilitate axial rotation. However, anatomical redundancy alone is not always sufficient to induce volvulus, suggesting that additional mechanical factors may contribute to the onset of torsion in selected patients [1].

The present case is particularly remarkable because the volvulus resulted from the combination of two uncommon anatomical conditions: a markedly redundant sigmoid colon and a congenital fibrous band acting as a fixed point of rotation. Congenital fibrous bands are well-recognized causes of intestinal obstruction during infancy and childhood but are exceedingly rare in adults, especially in individuals with no previous abdominal surgery. Unlike postoperative adhesions, these bands originate from persistent embryological structures and may remain clinically silent for decades before becoming symptomatic. Their rarity and nonspecific clinical presentation

make preoperative diagnosis particularly challenging, and in most reported cases the definitive diagnosis is established only during surgical exploration [7].

Most congenital fibrous bands described in the literature involve the small intestine and present as acute small bowel obstruction. Colonic involvement is exceptionally uncommon, and only isolated case reports have documented sigmoid volvulus secondary to a congenital fibrous band in adults. Consequently, the coexistence of dolichocolon and a congenital fibrous band, as observed in our patient, represents an unusual pathogenic mechanism that expands the spectrum of anatomical abnormalities responsible for sigmoid volvulus. This case therefore highlights the importance of maintaining a high index of suspicion for rare congenital mechanical causes of bowel obstruction, even in adults presenting with a surgically virgin abdomen [7,8].

Multidetector computed tomography (MDCT) has become the imaging modality of choice for the evaluation of suspected sigmoid volvulus because it allows rapid confirmation of the diagnosis while simultaneously assessing bowel viability and identifying the underlying cause of obstruction. In addition to the characteristic coffee bean sign, CT accurately demonstrates the transition point, the degree of colonic distension, mesenteric twisting (whirl sign), and signs of vascular compromise, including reduced bowel wall enhancement, pneumatosis intestinalis, portal venous gas, or pneumoperitoneum. These findings are crucial for distinguishing uncomplicated volvulus from life-threatening ischemic disease requiring immediate surgical intervention [1,8].

In the present case, MDCT accurately demonstrated the classical radiological features of sigmoid volvulus while excluding imaging signs of bowel ischemia. Furthermore, CT revealed marked dolichocolon and precisely localized the transition point, providing essential information for preoperative planning. However, congenital fibrous bands are rarely visualized directly on CT because of their thin morphology and fibrous composition. Imaging usually demonstrates only their secondary effects, whereas definitive identification is achieved during surgical exploration. This close radiological-surgical correlation emphasizes both the strengths and limitations of CT in uncommon mechanical causes of intestinal obstruction [7,8].

Current WSES guidelines recommend definitive surgical management whenever feasible because simple detorsion alone is associated with a substantial risk of recurrence. In our patient, segmental sigmoidectomy with primary colorectal anastomosis was justified by the presence of dolichocolon and the need to eliminate both the immediate cause of obstruction and the underlying anatomical predisposition. Beyond its surgical implications, this case highlights the importance of considering rare congenital mechanical causes of large bowel obstruction in adults with a surgically virgin abdomen.

Conclusion

This case illustrates an exceptionally uncommon cause of sigmoid volvulus resulting from the coexistence of dolichocolon and a congenital fibrous band in a patient with a surgically virgin abdomen. MDCT played a pivotal role in diagnosis and surgical planning, while definitive sigmoid resection provided treatment of both the acute event and the underlying anatomical predisposition. Awareness of this rare mechanism may facilitate earlier diagnosis and appropriate management in similar patients.

Bibliography

1. Tian BWCA., et al. "WSES consensus guidelines on sigmoid volvulus management". *World Journal of Emergency Surgery* 18.1 (2023): 34.
2. Ballantyne GH. "Review of sigmoid volvulus: history and results of treatment". *Diseases of the Colon and Rectum* 25.5 (1982): 494-501.
3. Habre J., et al. "Caecal volvulus". *American Journal of Surgery* 196.5 (2008): e48-e49.

4. Rosenblat JM., *et al.* "Findings of colonic volvulus at CT". *Radiographics* 256.1 (2010): 169-175.
5. Ballantyne GH., *et al.* "Volvulus of the colon: incidence and mortality". *Annals of Surgery* 202.1 (1985): 83-92.
6. Gingold D and Murrell Z. "Management of colonic volvulus". *Clinics in Colon and Rectal Surgery* 25.4 (2012): 236-244.
7. Adult congenital fibrous band case report (To be finalized with complete citation before submission).
8. CT imaging review of sigmoid volvulus and coffee bean sign (Complete citation to be finalized before submission).

Volume 9 Issue 6 October 2026

©All rights reserved by Rania Benkaddour, *et al.*