

CASE REPORT

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# Endoscopic detorsion of sigmoid volvulus in a young female: a case report

Adeel Ur Rehman<sup>1</sup>, Yumna Shahid<sup>2\*</sup> and Syedda Ayesha<sup>2</sup>

## Abstract

**Background** A volvulus refers to the torsion or rotational twisting of a portion of the gastrointestinal tract, with a predilection for impacting the caecum and sigmoid colon, often resulting in the development of bowel obstruction. The risk factors associated are old age, chronic fecal impaction, psychiatric disorders, colonic dysmotility, prior abdominal surgical procedures, diabetes, and Hirschsprung's disease. Elderly are most commonly affected with sigmoid volvulus but there are few cases among young adults that culminate in grave complications. Although it is rare, but young individuals presenting with acute abdomen secondary to sigmoid volvulus need urgent attention. To prevent more invasive surgical procedures, endoscopic detorsion is preferred nowadays with complete recovery of patients. We present a case of young female who was successfully managed with endoscopic detorsion.

**Case presentation** 27 years old Asian Pakistani female presented with worsening abdominal distention, constipation and vomiting since 2 days. On examination she was afebrile, vitally stable. Abdomen was distended, tympanic percussion with generalized tenderness. Abdominal radiograph was obtained which showed dilated bowel loops followed by Computed tomography of abdomen which was suggestive of Sigmoid volvulus causing intestinal obstruction. Patient was immediately moved to endoscopy unit and endoscopic detorsion of volvulus was done. For individuals who present with sigmoid volvulus and do not exhibit signs of peritonitis or colonic gangrene, the recommended course of action involves acute endoscopic detorsion, followed by scheduled surgical intervention.

**Conclusion** This case report emphasizes the significance of clinicians considering sigmoid volvulus as a rare but important cause when evaluating abdominal pain in young and otherwise healthy patients. A delay in diagnosis and treatment extending beyond 48 hours leads to colonic necrosis, amplifying the associated morbidity and mortality. Swift intervention is imperative to mitigate these complications and attain a conclusive remedy.

**Keywords** Sigmoid volvulus, Endoscopic detorsion, Acute Abdomen, Intestinal obstruction

## Background

A volvulus, in simplified terms, denotes the torsion or twisting of a segment of the gastrointestinal tract, with the caecum and sigmoid colon being the most frequently affected areas, frequently culminating in bowel

obstruction [1, 2]. Intestinal volvulus, irrespective of its anatomical location, represents an uncommon pathological condition. However, it demands a heightened sense of clinical suspicion and expeditious diagnosis due to the elevated risk of intestinal necrosis and the potential for life-threatening consequences [3]. The precise etiology of a sigmoid volvulus remains elusive, though it is associated with various risk factors. These factors encompass a familial predisposition, a diet rich in dietary fiber, prolonged institutionalization, chronic fecal impaction, psychiatric disorders, colonic dysmotility, prior abdominal

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surgical procedures, diabetes, and Hirschsprung's disease [4, 5].

Sigmoid volvulus usually occurs in older adults. As shown by Esra Dişçi, the mean age of sigmoid volvulus patients was 61.2 and most common risk factors were excessive eating after prolonged fasting and increased bowel motility [6]. Another study by Trigui Emna showed the average age of the patients was 62 years, with an age range spanning from 42 to 95 years. The highest frequency of occurrence was observed in the age bracket of 61–70 years. Additionally, 46.87% of the patients presented concomitant medical conditions, such as hypertension, diabetes mellitus, neurological disorders, and chronic obstructive pulmonary disease [7]. We present a unique case of sigmoid volvulus in young female with no prior comorbid illness successfully managed endoscopically.

### Case presentation

27 years old Asian Pakistani female presented with worsening abdominal distention, constipation and vomiting since 2 days. She had a recent history of spontaneous vaginal delivery two days back. The pregnancy was uneventful and she did not have any prior medical or surgical history. On examination she was afebrile, vitally stable. Abdomen was distended, tympanic percussion with generalized tenderness. Digital rectal examination revealed an empty rectum, with no obvious pathology. Abdominal radiograph was obtained which showed dilated bowel loops in left hemi abdomen, measuring 17 cm (Fig. 1). Blood workup was sent which revealed Hemoglobin of 12.5 g/dl, WBC of 11.2, Platelets of 439, Creatinine of 0.6 mg/dl, Na of 145, K of 3, CL of 105 and Bicarbonate of 16.1, Lactate of 1.4. Urgent CT Scan abdomen and pelvis was done which showed significant distention of large bowel involving ascending, transverse and descending colon, with abrupt point of transition in sigmoid colon without any evidence of mass lesion. There was twisting of mesentery and mesenteric vessels (whirl sign) in the region of sigmoid colon with part of sigmoid and rectum being collapsed (Figs. 2, 3). Findings were suggestive of sigmoid volvulus resulting in large bowel obstruction. Patient was immediately moved to endoscopy unit and endoscopic detorsion was attempted. Sigmoidoscopy showed volvulus obstructing lumen with no ulcerated or ischemic changes. Successful colonic decompression and endoscopic detorsion of volvulus was done (Fig. 4,5). The rectal tube was placed which was taken out the following day, and the patient was discharged when she could tolerate oral feeding without experiencing abdominal

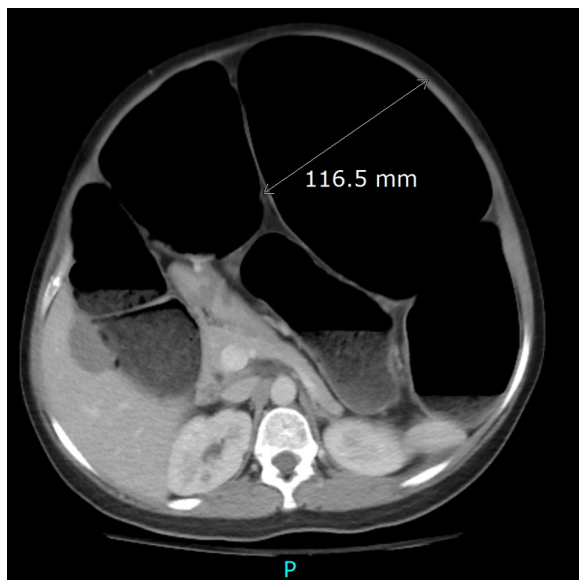


**Fig. 1** Abdominal radiograph showing dilated bowel loops in left hemi abdomen, measuring 17 cm approximately

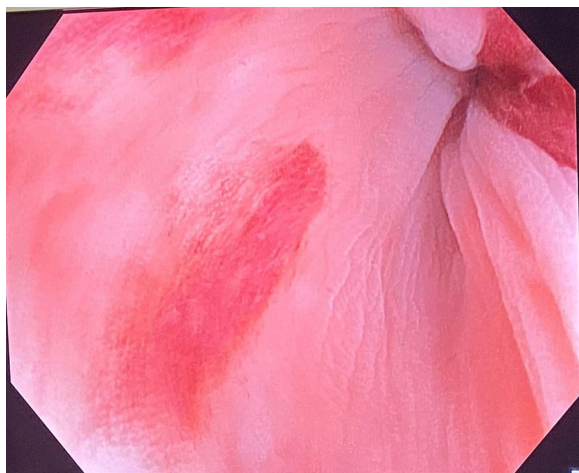


**Fig. 2** CT scan image showing Twisting of sigmoid colon giving a whirl appearance suggestive of sigmoid volvulus

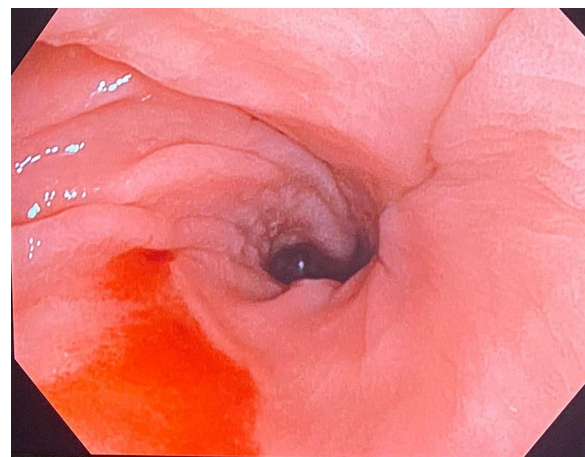
pain or distension. Surgical follow up was given. Patient remained stable for one year and did not require any



**Fig. 3** CT Scan showing dilated bowel loops



**Fig. 4** Endoscopic view of volvulus obstructing lumen with no ulcerated or ischemic changes



**Fig. 5** Post endoscopic detorsion view

surgical intervention. She is still under follow up and being managed for constipation with laxatives.

## Discussion

For individuals who present with sigmoid volvulus and do not exhibit signs of peritonitis or colonic gangrene, the recommended course of action involves acute endoscopic detorsion, followed by scheduled surgical intervention. This approach is advocated in light of the elevated recurrence rates (43–75%) and mortality rates (15–40%) associated with reliance on conservative management alone [8]. Study conducted by Atamanalp showed a success rate

of 77% with non-surgical detorsion of sigmoid volvulus, while surgical procedures were only done for patients who developed complications [9]. Although there exist certain controversies and constraints, particularly concerning the approach to cases involving ischemia or gangrene, as well as considerations related to factors influencing the procedure's success, instrument selection, technical nuances, the utilization of flatus tubes, and specialized situations such as sigmoid volvulus in pediatric or pregnant populations, endoscopic decompression remains the primary therapeutic modality for carefully selected patients with sigmoid volvulus [10]. The rate of unsuccessful colonoscopic decompression displayed a marked association with a history of prior abdominal surgery and a cecal diameter exceeding 10 cm [11].

A shift in paradigm has been noticed with younger age group being affected these days. There have been few case reports of sigmoid volvulus among young adults with no previous significant medical or surgical history [12–14]. Some case reports of pregnant females have been published with complicated sigmoid volvulus [15–17]. While the precise occurrence rate of intestinal obstruction during pregnancy remains undefined, estimates suggest it may manifest in approximately 1 in 1500 to 1 in 66,431 birth cases. The etiology of intestinal obstruction in pregnancy mirrors that observed in non-pregnant individuals and encompasses factors such as adhesions, abdominal wall hernias, left colon cancer, internal hernias, Meckel's diverticulum, volvulus of the sigmoid colon, and intussusceptions [15]. Sigmoid volvulus is the most common cause of intestinal obstruction during pregnancy [18]. Although it is yet to be established if it can predispose patients to develop sigmoid volvulus during postpartum period. Sarfaraz *et al.* has described similar cases in his case series and has concluded that although acute

sigmoid volvulus is a frequently considered diagnostic possibility in older patients who are confined to bed or have psychiatric comorbidities, however, it is equally imperative to include this condition as differential for younger patients experiencing paroxysmal abdominal pain and complete constipation [19]. Our patient did not have significant risk factors other than intermittent constipation during pregnancy. Post-delivery sudden development of intestinal obstruction raises the possibility of vaginal delivery as a potential cause of sigmoid volvulus and warrants further research in this area.

## Conclusions

This case report emphasizes the significance of clinicians considering sigmoid volvulus as a rare but important cause when evaluating abdominal pain in young and otherwise healthy patients. A delay in both diagnosing and initiating treatment surpassing the 48-h threshold precipitates colonic necrosis, thereby exacerbating the consequential morbidity and mortality. Swift intervention is imperative to mitigate these complications and attain a conclusive remedy.

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None.

## Author contributions

AR was the primary physician who diagnosed and performed sigmoidoscopy in this patient and reviewed this article. YS was the major contributor in writing the manuscript. SA collected images and relevant data.

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None.

## Availability of data and materials

All data and materials related to this case report are available and can be accessed by requesting Corresponding author.

## Declarations

### Ethics approval and consent to participate

Exempted by Ethical Review Board Aga Khan University Hospital.

### Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

### Competing interests

The authors declare that they have no competing interests.

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## References

- Ballantyne G, Brandner M, Beart R, Illstrup D. Volvulus of the colon. Incidence and mortality. *Ann Surg*. 1985;202(1):83–92.
- Hiltunen K, Syrja H, Matikainen M. Colonic volvulus. Diagnosis and results of treatment in 82 patients. *Eur J Surg*. 1992;158(11–12):607–11.
- Bauman ZM, Evans CH. Volvulus. *Surg Clin North Am*. 2018;98(5):973–93. <https://doi.org/10.1016/j.suc.2018.06.005>.
- Northeast A, Dennison A, Lee E. Sigmoid volvulus: new thoughts on the epidemiology. *Dis Colon Rectum*. 1984;27(4):260–1.
- Michael S, Rabi S. Morphology of sigmoid colon in south Indian population: a cadaveric study. *J Clin Diagn Res*. 2015;9(8):4–7.
- Dişçi E, Atamanalp SS. Factors precipitating volvulus formation in sigmoid volvulus. *Ulus Travma Acil Cerrahi Derg*. 2022;28:281–4.
- Emna T, Atef M, Sarra S. Management of acute sigmoid volvulus: a Tunisian experience. *Asian J Surg*. 2022;45(1):148–53. <https://doi.org/10.1016/j.asjsur.2021.04.004>.
- Vogel JD, Feingold DL, Stewart DB, Turner JS, Boutros M, Chun J, Steele SR. Clinical practice guidelines for colon volvulus and acute colonic pseudo-obstruction. *Dis Colon Rectum*. 2016;59(7):589–600. <https://doi.org/10.1097/DCR.0000000000000602>.
- Atamanalp SS. Treatment of sigmoid volvulus: a single-center experience of 952 patients over 46.5 years. *Tech Coloproctol*. 2013;17(5):561–9. <https://doi.org/10.1007/s10151-013-1019-6>.
- Atamanalp SS. Endoscopic decompression of sigmoid volvulus: review of 748 patients. *J Laparoendosc Adv Surg Tech A*. 2022;32(7):763–7. <https://doi.org/10.1089/lap.2021.0613>.
- Surek A, Akarsu C, Gemici E, Ferahman S, Dural AC, Bozkurt MA, Donmez T, Karabulut M, Alis H. Risk factors affecting failure of colonoscopic detorsion for sigmoid colon volvulus: a single center experience. *Int J Colorectal Dis*. 2021;36(6):1221–9. <https://doi.org/10.1007/s00384-021-03864-3>.
- Esmat HA. Sigmoid volvulus in a teenager, successfully managed with endoscopic detorsion: an unusual case report and review of the literature. *Int J Surg Case Rep*. 2020;77:875–9. <https://doi.org/10.1016/j.ijscr.2020.11.152>.
- Selais A, Salem A. Young adult with acute sigmoid volvulus. *Bahrain Med Bull*. 2019;41(3):171–3.
- Saba M, Rosenberg J, Wu G, Hinika G. A case of sigmoid volvulus in an unexpected demographic. *Surg Case Rep*. 2021;7(1):13. <https://doi.org/10.1186/s40792-020-01105-3>.
- Ribeiro Nascimento EF, Chechter M, Fonte FP, Puls N, Valenciano JS, FernandesFilho CL, Nonose R, Bonassa CE, Martinez CA. Volvulus of the sigmoid colon during pregnancy: a case report. *Case Rep Obstet Gynecol*. 2012;2012: 641093. <https://doi.org/10.1155/2012/641093>.
- Balaya V, Alix AF, Nizard J. Volvulus du sigmoïde en cours de grossesse : un piège diagnostique [Sigmoid volvulus during pregnancy: A diagnostic trap]. *Gynecol Obstet Fertil Senol*. 2017;45(2):122–4. <https://doi.org/10.1016/j.gofs.2016.12.021>. (In French).
- Dhar H, Ahuja K, Nimre EA, Khan SA, Arif MA, Hamdi I. Pregnancy with sigmoid volvulus: a case report with literature review. *Turk J Obstet Gynecol*. 2015;12(2):114–7. <https://doi.org/10.4274/tjod.32767>.
- Redlich A, Rickes S, Costa SD, Wolff S. Small bowel obstruction in pregnancy. *Arch Gynecol Obstet*. 2007;275(5):381–3.
- Sarfraz M, Hasan SR, Lateef S. Sigmoid volvulus in young patients: a new twist on an old diagnosis. *Intractable Rare Dis Res*. 2017;6(3):219–23. <https://doi.org/10.5582/irdr.2017.01033>.

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