



Endoscopic Decompression of Recurrent Sigmoid Volvulus in Pregnancy

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Abstract

Sigmoid volvulus is a rare condition seen during pregnancy with high maternal and fetal morbidity and mortality. We report a case of a young 26-year-old woman, primipara, in her third trimester who presented with recurrent sigmoid volvulus at both 30 and 32 weeks of gestation. She underwent successful repetitive endoscopic decompression on both admissions with uneventful recovery. Endoscopic evaluation is safe in pregnancy and uncomplicated volvulus. It allows for diagnostic confirmation and assessment of complications; and it has successful outcomes in the presence of a multidisciplinary team.

Keywords

sigmoid volvulus, pregnancy, endoscopic decompression, abdominal pain

Introduction

Sigmoid volvulus (SV) is a rare condition seen during pregnancy with high morbidity and mortality for both the mother and fetus. It often occurs during the third trimester of pregnancy, when the large uterus displaces the sigmoid colon out of the pelvis.¹ Early diagnosis and a multidisciplinary team are critical in the management of these patients. Severe outcomes such as perforation and intestinal ischemia can be seen with delayed diagnosis.² Early endoscopic decompression has become a safe alternative to surgery in the treatment of uncomplicated volvulus.³ We report a case of recurrent SV in pregnancy.

Case Presentation

A 26-year-old female with history of chronic constipation in her first pregnancy with a gestational age of 30 weeks 5 days who presented with 12-hour history of acute-onset abdominal pain and distension. Her last bowel movement was 2 days prior to admission. On examination, there was upper abdominal distention, tenderness without rebound, and high-pitched bowel sounds on auscultation. Fetal monitoring showed no evidence for fetal distress. Routine laboratory examination revealed elevated white blood cell count of $14.83 \times 10^3/\mu\text{L}$ and hemoglobin of 10.3 g/dL. Complete metabolic panel, serum lipase, and amylase were unremarkable. Abdominal ultrasound did not reveal free intraperitoneal fluid. Magnetic resonance imaging of the abdomen revealed large bowel distention with abrupt transition point in the region of the distal descending and proximal sigmoid colon with swirling of mesentery and collapse of distal

sigmoid and rectum highly suggestive of SV without free intraperitoneal air (Figure 1).

After a multidisciplinary discussion and coordination of care between Gastroenterology, Surgery, Gynecology, Neonatology, and Anesthesiology, the patient was taken to the operative room to attempt an endoscopic decompression. Urgent flexible sigmoidoscopy confirmed SV with the distal point of torsional obstruction in the distal sigmoid colon showing the classic “whirl sign” with a spirally twisted viable appearing colonic mucosa (Figure 2). Successful complete decompression was achieved by advancing the endoscope proximal to the volvulus followed by endoscopic suctioning of gas and liquid stool, and finally a 14-French soft rectal tube placement left to gravity. Patient symptoms were relieved immediately, and flatus began to pass. Patient was discharged home on low-residue diet after she had a bowel movement 48 hours after the procedure.

She returned 2 weeks later with similar complaints. Recurrent SV was highly suspected. Patient reported not being compliant with the diet. The decision was made to proceed with urgent flexible sigmoidoscopy for decompression without need for further imaging. Decompression was successfully

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Figure 1. Coronal view of magnetic resonance imaging abdomen demonstrating an upside-down U-shape dilated sigmoid loop in the left upper quadrant giving a “coffee-bean” appearance. Fetus can also be seen in the image.

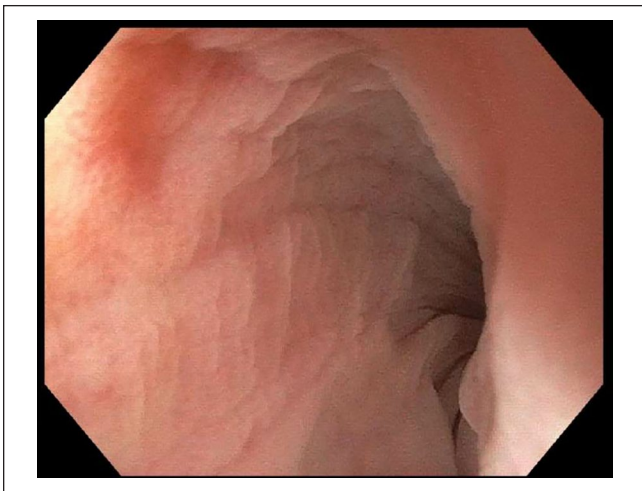


Figure 2. Endoscopic view of the classic “whirl sign” with a spirally twisted viable appearing colonic mucosa.

achieved using the same technique. Patient symptoms were immediately relieved, and she was sent home on a strict low-residue diet. Due to the risk of recurrence in the future and high risk of premature delivery, the patient was given steroids for fetal lung maturation before discharge. Fortunately, the patient did not come back to the hospital for recurrent volvulus. She was admitted at 40-week gestation for schedule labor induction, and vaginal delivery was uncomplicated with a healthy newborn. Future elective laparoscopic sigmoidectomy is planned after 6 to 8 weeks postpartum.

Discussion

A volvulus is defined as abnormal rotation of a part of the intestine around the axis of its blood supply and mesentery leading to obstruction. The most common site is the sigmoid colon.¹ It is a rare and life-threatening condition during pregnancy with maternal mortality rates of 5% to 12% and fetal mortality rates of 20% to 26%.^{4,5} The obstruction leads to progressive distention of the bowel along with ischemia and bacterial translocation leading to perforation and necrosis.⁶

In pregnancy, the etiology is multifactorial. Increased progesterone levels can lead to significant bowel hypomotility leading to constipation.⁷ Most cases occur during the third trimester of pregnancy likely secondary to the large size uterus compressing the sigmoid colon causing its displacement out of the pelvis.⁸ Other risk factors include adhesions, intussusceptions, hernias, and a high-fiber diet.⁹ In our case, the patient had prolonged history of constipation and a high-fiber diet. The clinical presentation often includes nausea, vomiting, abdominal distention, and abdominal pain.⁶ Abdominal ultrasound and magnetic resonance imaging have been the most common type of diagnostic tool due to the concern of radiation exposure in the fetus with radiography or tomography.¹⁰

A multidisciplinary team is necessary to manage these cases including a Neonatologist, Gynecologist, Anesthesiology, Surgery, and Gastroenterology.¹¹ Treatment guidelines for patients with SV recommend initial assessment with endoscopy to assess for intestinal viability followed by endoscopic decompression if feasible with a success rate of 75% to 95%.¹² Endoscopic decompression is a safe modality of treatment for both mother and fetus in the absence of nonviable bowel. In pregnant patients, endoscopic decompression can be difficult to achieve due to progressive uterine enlargement.¹³ Successful multiple endoscopic interventions during pregnancy have been reported and are becoming the preferred method to relieve obstruction but are still very uncommon since less than 10 cases of recurrent SV in the same pregnancy have been described.^{3,4,11,14,15}

In the absence of acute perforation or ischemia, definitive operative treatment with elective colon resection with primary anastomosis is recommended after resolution of the acute volvulus phase to prevent recurrence.⁵ However, surgery in a gravid uterus can be complex and the time frame until elective surgery is performed is still controversial. Timing of surgery has varied between 2 weeks and 4 months postpartum.^{11,14} Emergency laparotomy with resection and anastomosis is the gold standard for treatment in the presence of intestinal ischemia, perforation, or bowel gangrene.¹ Recurrent SV in young people has rarely occurred.¹¹ There are no specific treatment guidelines for this young population and expectant management can be considered. Individualized treatment is recommended and can vary according to the severity of disease and stage of pregnancy.²

Endoscopic treatment of recurrent sigmoid volvulus is a safe and feasible treatment that should be attempted over surgical resection in pregnant patients who are hemodynamically stable and do not have signs or symptoms of an acute perforation and/or bowel ischemia. This modality can be used multiple times for recurrent volvulus episodes until the baby is safely delivered. Although very rare, further research is needed to establish optimal practice guidelines for this condition in this specific pregnant population.

Authors' Note

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Ethics Approval

Our institution does not require ethical approval for reporting individual cases or case series.

Informed Consent

Verbal informed consent was obtained from the patient for their anonymized information to be published in this article.

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