

Recurrent Sigmoid Volvulus in Pregnancy: Case Report

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ABSTRACT

Sigmoid volvulus in pregnancy is a rare condition occurring during the third trimester with a high recurrence rate and having fatal complications to both fetus and mother. It requires a prompt diagnosis and multidisciplinary approach. We present a case of a 33 year old, pregnant woman, Gravida 4, Para 3, at 32 weeks of gestation, who presented with abdominal pain, distension, and tenderness. A Plain abdominal X-ray showed a dilated loop of the sigmoid colon. This was her second admission with similar symptoms. Having previously diagnosed with sigmoid volvulus one month earlier, she was treated conservatively, recovered, and discharged. On this admission she was diagnosed with recurrent sigmoid volvulus, after stabilization she underwent laparotomy which revealed sigmoid colon volvulus at 180 degrees twist. A resection of redundant sigmoid was done, resulting in uneventful postoperative care, discharge, and follow-up. A timely diagnosis and surgical interventions, especially through a multidisciplinary approach during late gestation can lead to favorable outcome for the baby and mother.

BACKGROUND

Sigmoid volvulus during pregnancy is a rare but serious condition that can lead to significant maternal and fetal complications if not diagnosed and treated promptly. In pregnancy, the enlarging uterus displaces abdominal organs, which may increase the risk of volvulus. Reported incidence of sigmoid volvulus ranges from 1:66,431 to 1:1500 pregnancies.¹ Most cases occur in the second or third trimester due to increased intra-abdominal pressure and anatomical shifts.^{1,2} Pregnancy can mask classic signs of bowel obstruction, and poses diagnostic and management challenges especially in low-resource settings.

Commonly reported symptoms include abdominal pain, distention, constipation, and vomiting when complicated by peritonitis abdominal tenderness may be present.³ The condition being rare requires various modes of treatment according to gestational age.²

Timely diagnosis is critical in management of sigmoid volvulus. When diagnosis is delayed beyond 48 hours there is high risk of mortality and morbidity to both the mother and the fetus.⁴ The diagnosis requires high index of suspicion and multidisciplinary team including a general surgeon, obstetrician, pediatrician, and radiologist. Radiological investigation plays a key role as a plain abdominal X-ray may reveal a typical sign such as an inverted U-shaped colonic gas pattern, a coffee bean-shaped appearance and whirl sign. However, fear of radiation exposure to fetus

may delay radiologic imaging.³

MRI is the preferred radiological investigation due to its safety profile, but CT scan may be considered when there is no MRI.⁵

The treatment depends on gestation age and the presence of peritonitis. At any gestation age, suspected peritonitis and gangrene, warrants emergency explorative laparotomy. In term pregnancy cesarean section may be performed with resection in the same sitting. In early gestation conservative management may be tried with administration of dexamethasone to enhance the fetus lung maturity.⁶

During both the first and second trimester and if there is no sign of peritonitis, enema and rectal tube decompression can be considered. In the third trimester, sigmoid colectomy is indicated especially if there is peritonitis and gangrene. The non-recurrent sigmoid volvulus with no peritonitis or gangrene may be managed conservatively to promote fetal maturity.² If surgery is indicated in the absence of gangrene, a resection with an end-to-end anastomosis is safe, alternatively in presence of gangrene stoma can be raised and closed in intervals of 2 to 3 months.⁶ There is a need to increase awareness among the healthcare practitioners to enhance their capability on timely diagnosis and intervention of this life-threatening condition.

CASE PRESENTATION

A 33-year-old pregnant woman, gravida 4, para 3, at 32 weeks gestation age from Iramba district in Singida region, presented with generalized abdominal pain, distension, and constipation for three days with two episodes of vomiting. She was admitted at Haydom Lutheran Hospital in September 2023. During the admission there was no vaginal bleeding or amniotic fluid leakage. She had the same presentation two months prior, and she was managed conservatively, with Nasogastric tube decompression and IV fluids. She improved and discharged a few days later after passing stool and flatus with no abdominal pain.

On the second admission, she had a recurrent painful markedly distended abdomen, and tenderness, making it difficult to assess fundal height. On examination she had stable vitals, with blood pressure of 124/82mmHg, Heart rate of 71 beats per minute, respiratory rate of 23 cycles per minute, temperature of 37°C, and on abdominal examination, she had a tender grossly distended abdomen, with palpable gravid uterus. Fundal height was estimated to correspond to gestational age of 32 weeks. The Abdomen was hyper tympanic with exaggerated bowel sounds. Rectal examination revealed an empty rectum and no mass. Her laboratory findings revealed stable electrolytes serum potassium 4mmol/L, blood glucose of 85mg/dL. Full blood picture with white blood cell count of 6000, Hemoglobin of 14gm/dL. The provisional diagnosis of acute intestinal obstruction was made by the team. Following the decision of diagnosis, the dexamethasone 4mg was initiated, however only received two doses as the patient was operated before she finished the four doses due to worsening clinical condition.

Initial management included Nil per oral (NPO), Nasogastric tube decompression, IV fluid, and urethral catheterization. Initial investigations included abdominal Ultrasound complete blood picture and electrolytes panel.

Ultrasound revealed a live single intra uterine fetus in a cephalic position with adequate amniotic fluid. Multidisciplinary team including a general surgeon, an obstetrician, and a pediatrician approved a plain abdominal X ray which revealed a bean shaped colonic distention (Figure 1).

The diagnosis of acute intestinal obstruction was reached, due to recurrent sigmoid volvulus. Saline enema was initiated which was unsuccessful, as abdominal distension and pain persisted and worsened. Emergency exploration laparotomy was planned after counselling and obtaining the consent form for emergency surgery. The patient was prepared for emergency explorative laparotomy which was performed under general anesthesia. A midline incision was performed by a general surgeon assisted by an obstetrician who performed hysterotomy for baby extraction. There was a pediatrician in the operating room to assist in case of fetus prematurity (Figure 2). The intra operation revealed a sigmoid volvulus which was rotated at its axis at 180 degrees with a long and distended viable loop (Figure 3). A hysterotomy was done and a female baby was extracted weighing 1750Kg. The baby scored 5, 8, and 9 at 1st, 2nd and 3rd minutes respectively.

FIGURE 1: Abdominal Radiograph



This figure demonstrates abdominal radiograph an erect view showing distended colon with coffee bean shaped appearance.

FIGURE 2: Demonstrates Gravid Uterus just after Midline Incision



FIGURE 3: Dilated Loop of Sigmoid Colon

This figure demonstrates dilated loop of sigmoid colon during explorative laparotomy and uterus after hysterotomy matching the clinical and radiological findings of sigmoid volvulus.

The baby was admitted to the neonatal intensive care unit (NICU). The sigmoidectomy was done and end-to-end anastomosis was performed. The patient was admitted to an intensive care unit (ICU) and administered with intravenous fluids, antibiotics and analgesia parenterally for 24 hours then started on ambulation while the baby was admitted in neonatal unit (NICU) for close monitoring and later the mother was discharged to the maternity ward, where she awaited her baby, who was under pediatricians and neonatal nurses care. Three weeks later, the mother and the child who had achieved 1930Kg were discharged home following uneventful post-operative recovery. Follow-up was extended for one year, and during this period, both mother and her child were progressing well.

DISCUSSION

Recurrent sigmoid volvulus is a very rare cause of intestinal obstruction in pregnancy,⁷ with increased incidence during the third trimester⁸ and it is associated with life-threatening fetal and maternal complications. Pregnancy is a precipitating factor for sigmoid volvulus, as the enlarged gravid uterus in late gestation displaces a redundant or abnormally long sigmoid colon out of the pelvis and twists around its point of fixation where gravid uterus hinders spontaneous untwisting.⁸⁻¹⁰ There are varied clinical presentations of sigmoid volvulus in pregnancy where most of these cases present with abdominal distension, pain, and constipation.¹⁰⁻¹¹ This patient presented with the above symptoms and had, in addition, vomiting and abdominal tenderness on deep palpation but without fever.

The diagnosis of sigmoid volvulus in pregnancy at an advanced gestation age is challenging as its presentation

can be confused with pregnancy associated complaints.⁸ A high index of suspicion for sigmoid volvulus is required whenever a pregnant woman in her third trimester presents with a triad of abdominal pain, distension, and absolute constipation.¹² The controversy over imaging options for pregnant mothers pose a diagnostic dilemma, as different literatures recommend that exposure of pregnant mothers to radiation, like X-rays and CT scans of the abdomen, should be avoided.⁴ Meanwhile, other literature reports that MRI is the recommended option, because of its better diagnostic accuracy and safety for the fetus.⁶⁻¹³⁻¹⁴ The MRI was the best option for radiological diagnosis for this patient due to absence of radiation risk to fetus however it was not available in our facility. For this case, we had to proceed with a plain abdominal X-ray, which effectively revealed dilatation of the large bowel.

The management approach of sigmoid volvulus in the pregnant patient does not deviate from that of the non-pregnant patient. It involves aggressive resuscitation with intravenous fluid, placement of the nasogastric tube for decompression, and endoscopic reduction of the volvulus. And when this fails, surgery is the definitive option.⁸⁻¹⁵ Several case reports have shown good results in using endoscopic distention and rectal tube decompression of sigmoid volvulus during pregnancy where bowel necrosis or vascular occlusion has been ruled out.¹⁶ In the absence of signs and symptoms of peritonitis, it is reasonable to attempt untwisting and decompression by placement of a soft rectal tube or colonoscopy or sigmoidoscopy.^{3,17,18} The presence of abdominal tenderness and grossly dilated sigmoid colon, in our case, it was a contraindication for the use of endoscopic reduction. The other management option includes a saline enema, which in this case was attempted, but it was unsuccessful, and therefore, the patient proceeded to laparotomy as one of the surgical treatments for cases in which conservative management has failed.¹⁹

This patient had an extremely dilated sigmoid colon twisted at 180 degrees without gangrene, while in other cases a gangrenous and perforated sigmoid loop were intraoperatively found.¹⁰ In other cases with peritonitis and perforations, the stoma may be raised and later can be closed after a period of 2 to 3 months.^{6,13,14,20} The anticipated complications include maternal and fetal mortality meanwhile maternal mortality occurs at 5% when the bowel is viable and increases to 50% when there is bowel perforation.^{21,22} The other post-operative complications reported are sepsis and anastomotic leak which are also associated with a high risk of fatal complication to the fetus and the mother.²² In our case, caesarean section was performed during laparotomy.

CONCLUSION

Recurrent sigmoid volvulus in pregnancy is a rare condition that has a high risk of recurrence, and its prompt diagnosis requires a high index of suspicion with the involvement of a multidisciplinary team. The timely diagnosis, management, and surgical intervention are critical following its recurrence at a late gestational age due to favorable outcomes for the baby and mother.

CONSENT

A written informed consent was voluntarily obtained from the patient for publication of this case report and any accompanying images while maintaining anonymity. A copy of the written and signed consent is available for review.

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Peer Reviewed

Acknowledgments:

Competing Interests: None declared.

Funding: The study did not receive any funding.

Received: 25 March 2025; **Accepted:** 11 August 2025

Cite this article as Samo MH, Gemuwang M, Canuty F, Gidabayda GJ, Nuwass QE. Recurrent Sigmoid Volvulus in Pregnancy: Case Report. *East Afr Health Res J*. 2025;9(1):20-23. doi:<https://doi.org/10.24248/eahrj.v9i1.818>

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