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# Sigmoid Volvulus in Pregnancy: A Critical Study of an Uncommon Case and Its Clinical Implications

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## Vólvulo sigmoideo en el embarazo: Estudio crítico de un caso infrecuente y sus implicancias clínicas

***ABSTRACT***

*Intestinal obstruction (IO) during pregnancy is a rare and serious complication, with sigmoid volvulus (SV) being the most common cause. We present the case of a 28-year-old primigravida at 33+4 weeks of gestation who presented with abdominal pain, nausea, and four days of no bowel movements. IO was diagnosed via computed tomography. A cesarean section was performed, followed by a sigmoidectomy and rectosigmoid anastomosis for ischemic SV. Both the mother and newborn had favorable outcomes. Diagnosing SV in pregnancy is challenging due to symptom overlap with normal pregnancy. Imaging is crucial for timely diagnosis, though radiation exposure must be carefully considered. Prompt management is essential to reduce maternal and fetal mortality, which can reach 50% in cases complicated by perforation.*

***Keywords:*** *Colon, Sigmoid; Intestinal Obstruction; Intestinal Volvulus; Pregnancy Complications.*

***RESUMEN***

*La obstrucción intestinal (OI) durante el embarazo es una complicación rara y grave, siendo el vólvulo sigmoideo (VS) la causa más frecuente. Presentamos el caso de una primigesta de 28 años con 33+4 semanas de gestación que se presentó con dolor abdominal, náuseas y cuatro días sin evacuaciones. La OI fue diagnosticada mediante tomografía computarizada. Se realizó una cesárea, seguida de una sigmoidectomía y anastomosis rectosigmoidea debido a un VS isquémico. Tanto la madre como el recién nacido tuvieron una*

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*evolución favorable. El diagnóstico de VS en el embarazo es difícil debido a la superposición de síntomas con los del embarazo normal. La imagenología es fundamental para un diagnóstico oportuno, aunque debe considerarse cuidadosamente la exposición a la radiación. Un manejo rápido es esencial para reducir la mortalidad materna y fetal, que puede alcanzar el 50% en casos complicados con perforación.*
***Palabras clave:*** *Colon Sigmoide; Complicaciones del Embarazo; Obstrucción Intestinal; Vólvulo Intestinal.*

Intestinal obstruction is an uncommon yet serious complication of pregnancy, with an incidence ranging from 1 in 1,500 to 1 in 66,000 deliveries[1]. The most frequent causes include adhesions, bands, tumors, and volvulus. Among these, sigmoid volvulus is one of the most common, accounting for 44% of reported cases to date[2].

Clinical diagnosis is challenging, as pregnancy complicates the recognition of signs and symptoms, making imaging crucial for diagnosis. Delays in presentation and diagnosis can lead to intestinal ischemia, which may necessitate emergency colectomy and can endanger the pregnancy[3].

Timely and appropriate treatment is of paramount importance to reduce maternal and fetal complications[4].

This case report details the experience of a 28-year-old primigravida at 33+4 weeks of gestation who presented with a sigmoid volvulus, an infrequent and potentially life

## Clinical Case

We present the case of a 28-year-old primigravida at 33+4 weeks of gestation, with a history of bariatric surgery one year prior. The patient presented with hypogastric pain associated with uterine contractions. Upon admission, she was hemodynamically stable, with a reactive non-stress test showing uterine activity of 4 contractions every 10 minutes. Physical examination revealed a tender abdomen upon palpation in the hypogastric region, without signs of peritoneal irritation. A vaginal examination showed 1 cm of cervical dilation, 80% effacement, and intact membranes. Tocolysis and pulmonary maturation with betamethasone were initiated due to suspected preterm labor (PTL). The patient successfully completed corticosteroid therapy but continued to experience abdominal pain, nausea, and vomiting. Upon directed questioning, she reported four days without bowel movements or passage of gas.

A contrast-enhanced computed tomography (CT) scan revealed severely dilated intestinal loops suggestive of intestinal obstruction (IO) (Figure 1). An emergency cesarean section followed by surgical resolution of the IO was decided. A cesarean section was performed as the first surgical step without incident. Subsequently, the surgical team explored the abdominal cavity and identified a sigmoid volvulus with a transverse diameter of approximately 20 cm and a length of 60 cm, presenting ischemic features. A sigmoid resection with a side-to-side rectosigmoid anastomosis was performed without complications (Figure 2). The surgical specimen was sent for biopsy, which later reported megacolon with hypertrophy of the muscularis propria, mild nonspecific chronic colitis, hyperplastic polyps, reactive lymphadenitis in 7 isolated lymph nodes, and preserved nerve plexuses without nonspecific alterations.

The patient had a favorable postoperative course with the passage of gas and bowel move-

ments. She progressed well with oral tolerance as her diet was advanced. Regarding the newborn, CPAP was required in the first few hours of life, but there were no further complications.

At follow-up, the patient developed severe abdominal pain on the 7th day post-surgery. She was referred to the emergency department, where a new CT scan revealed free fluid in the abdominal cavity. A dehiscence of the side-to-side anastomosis was suspected, and an exploratory laparotomy was performed. Intraoperatively, an anastomotic dehiscence was confirmed, and a Hartmann procedure with colostomy was performed without incident.

The patient had a favorable postoperative course, with colostomy care and patient education provided. No obstetric complications were observed. The patient was discharged with the plan to attempt a new anastomosis depending on clinical evolution and the surgical team's criteria.

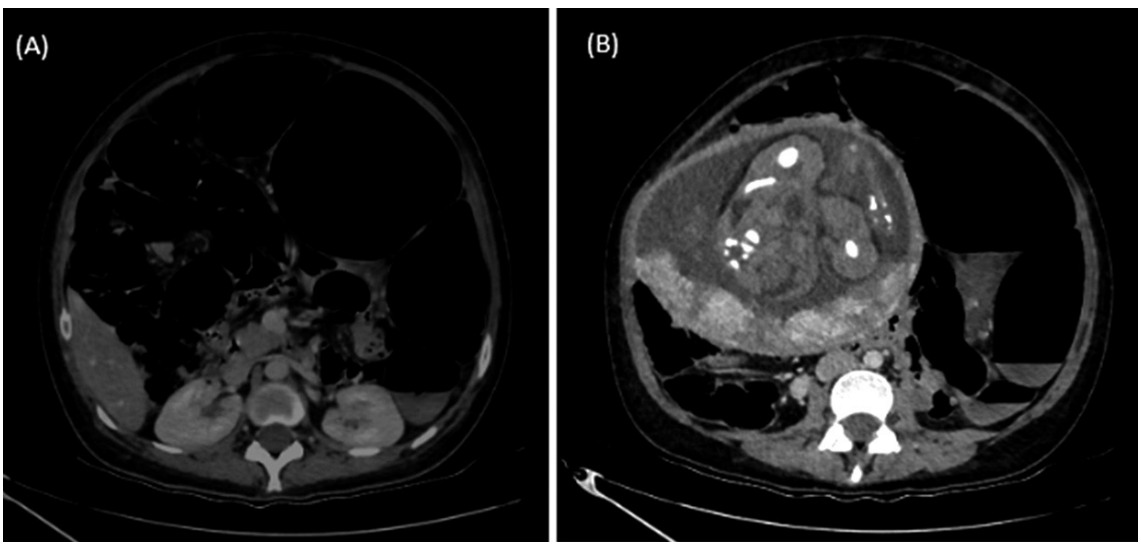


***Figure 1:*** *Contrast-enhanced computed tomography of the abdomen and pelvis. (A) Transverse section at the level of the kidneys. (B) Transverse section at the pelvic level, showing a gravid uterus with an intrauterine fetus.*

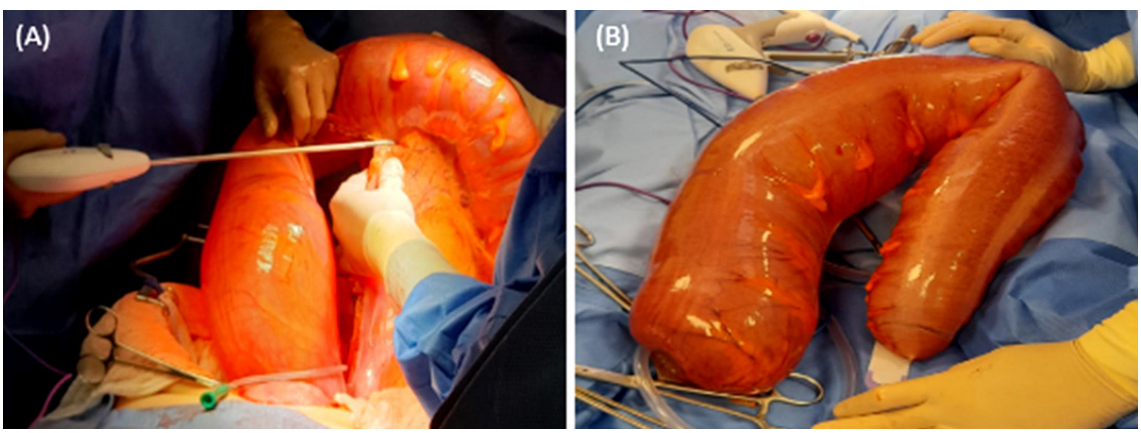


***Figure 2:*** *Intraoperative findings. (A) Sigmoid volvulus with a transverse diameter of 20 cm. (B) Resected surgical specimen.*

## Discussion

An increased rate of sigmoid volvulus (SV) has been reported during pregnancy. A long sigmoid colon (dolichocolon) associated with compression by a gravid uterus may explain the higher incidence of SV in the third trimester of pregnancy[1]. SV has been associated with megacolon, with an increased risk depending on the geographic region and the prevalence of Chagas disease in the population. In Valparaíso, Chile, 60 cases were reported in 2020. In our patient, tests for Trypanosoma cruzi during pregnancy were negative[5].

Diagnosing SV in pregnancy is challenging, as there may be a delay in diagnosis due to the characteristic symptoms of this condition—nausea, vomiting, abdominal pain, and constipation—commonly occurring during a physiological pregnancy[6,7]. For this reason, imaging is recommended to support the diagnosis when SV is suspected. However, radiation in pregnant women must be used rigorously due to the risk of chromosomal mutations during the first two trimesters and the increased risk of fetal hematological abnormalities in the third trimester. The safe radiation exposure limit is described as between 5 and 10 rad, with the dose of abdominal CT falling within this limit[8]. In this case, the risk-benefit was evaluated, and a contrast-enhanced abdominal and pelvic CT scan was chosen due to the availability and immediacy of this examination at our center.

Regarding management, in cases without peritoneal signs, intestinal necrosis, or vascular occlusion, there are reports of successful outcomes with endoscopic decompression via flexible sigmoidoscopy or colonoscopy[9]. In this case, there was over 20 cm dilation of the intestinal loops, and due to the high risk of perforation, endoscopic reduction was ruled out, and an exploratory laparotomy was performed along with a cesarean section due to the increased risk of maternal sepsis and fetal complications. Maternal mortality from SV is reported to be 5% if the intestine is viable, but it rises to over 50% if perforation has occurred[10]. Fetal mortality in SV is approximately 30%. Fetal death may result from reduced placental blood flow or reduced abdominal and pelvic blood flow due to increased intra-abdominal pressure from massive sigmoid dilation. In the case of intestinal perforation, maternal sepsis poses a high maternal-fetal risk[11].

From a surgical perspective, the management of sigmoid volvulus during pregnancy requires meticulous planning and intraoperative adaptability. In this case, a cesarean section was performed as the initial surgical step to decompress the abdominal cavity, optimize surgical exposure, and minimize the risk of uterine injury during bowel manipulation. This approach is well supported in literature, as it facilitates access and reduces maternal-fetal complications[12,13,14].

Following delivery, a midline laparotomy enabled thorough exploration of the abdominal cavity. The sigmoid colon was found to be markedly dilated, with ischemic and thinned-out segments, and was resected. A side-to-side stapled rectosigmoid anastomosis was performed, based on the patient's hemodynamic stability and absence of generalized peritonitis. This technique allows rapid reconstruction and preservation of intestinal continuity, thus avoiding a stoma[15,16]. The mesocolon was carefully mobilized to maintain vascular integrity and preserve the autonomic nerve plexuses—key factors in reducing the risk of postoperative dysfunction and anastomotic complications[17,18].

The anastomosis was reinforced with serosal sutures and an intraoperative air leak test was negative. The absence of gross contamination further supported the decision for a single-stage reconstruction.

However, on postoperative day 7, the patient developed signs of intra-abdominal sepsis, and imaging was suggestive of an anastomotic leak. An emergency laparotomy confirmed anastomotic dehiscence, and a Hartmann procedure with terminal colostomy was performed. This intervention is widely considered the safest option in the setting of fecal peritonitis, as it reduces the risk of ongoing contamination and allows for later intestinal reconstruction depending on clinical evolution[13,19].

## Conclusions

SV during pregnancy is a rare but potentially

fatal condition if not promptly treated. It is crucial to maintain a high index of suspicion for intestinal obstruction in pregnant women, especially those with a history of abdominal or pelvic surgery. Symptoms such as abdominal pain, vomiting, and distension should be taken seriously and thoroughly evaluated to ensure appropriate and timely management.

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