

Case Report



Management of sigmoid volvulus during labor : a challenging situation

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Abstract

Acute intestinal obstruction is rare during pregnancy. Its diagnosis is difficult because the symptoms can be minimal and mimic signs of a regular pregnancy. Sigmoid volvulus is a common cause of these obstructions. The management is challenging because it depends on many factors, and affects maternal-fetal outcomes. We report a case of a 32-year-old woman with sigmoid volvulus associated with fetal demise that came during labor and we discuss the management options.

Introduction

Sigmoid volvulus (SV) during pregnancy is a rare clinical situation. The reported incidence varies widely (from 1 in 66,431 to 1 in 1,500 deliveries)¹. To date, only 120 cases have been reported². It is challenging to diagnose it which causes a delay in treatment. The mortality rates are high and directly correlated with the degree of necrosis. It is estimated at 5% with viable colon and climbs to 50% when perforation occurs². There are multiple management options: operative and non-operative, and the choice depends on many maternal-fetal factors. In this article, we report the case of a 32-year-old woman with SV and fetal demise, describe our management, and do a quick review of the literature.

Patient and observation

After her informed consent, we report the case of a 32-year-old woman, gravida 3, para 3 with two previous uncomplicated vaginal births. She was referred to us from a rural clinic, for suspicion of bowel obstruction. The patient was complaining of intermittent abdominal pain for the past day and a half, that got worse 8 hours prior to her admission. It was associated with bloating, constipation, and lack of passing gas. She had no history of past surgery, abdominal wall hernia, malignancy, or inflammatory bowel disease. Gestational age was 27 weeks according to the first-trimester ultrasound. On examination, she was conscious and stable, with pale conjunctiva, a distended abdomen, tympany, and diffuse abdominal tenderness. The rectal bulb was empty. Additionally, she was in labor at 2 large cm of cervical dilatation, intact membranes, and mobile cephalic presentation. She had regular contractions. The obstetrical ultrasound showed fetal demise and an estimated weight of 950g. An abdominal X-ray revealed air-fluid levels with the absence of air in the rectum and a CT scan demonstrated that there was a sigmoid volvulus with signs of intestinal distress (Figure 1). The blood tests were as follows: hemoglobin at 12 g/dl with white cell count at 18.000 /mm³, platelets at 187 000 /mm³; electrolytes, renal function, and liver enzymes were within normal limits. Because there were signs of intestinal distress on the CT scan, we placed a nasogastric tube, a Foley catheter, started the patient on fluids, and decided with her consent to immediately do the delivery via C-section, and explore the volvulus at the same

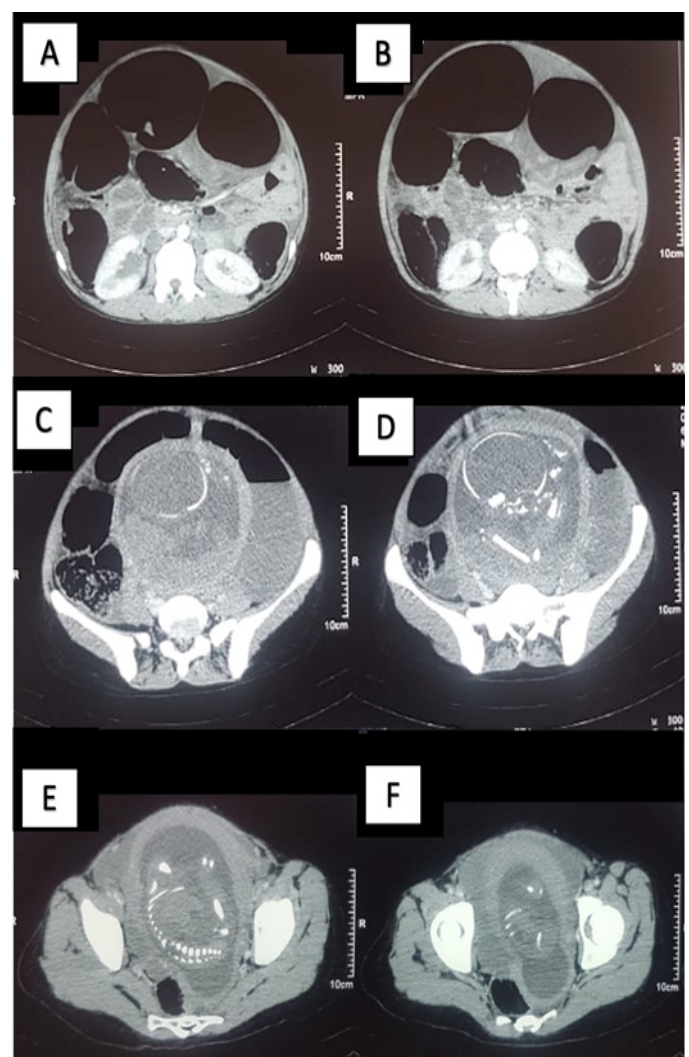


Figure 1: Abdominal CT-scan sections showing sigmoid volvulus with signs of sigmoid and transverse colon distress (a,b,c,d), and fetal demise (c,d,e,f).

time. Upon surgery, there was an important haematic and purulent peritoneal effusion. We performed a transverse uterine incision and extracted a female stillborn weighing 900 g. By the end of the C-section, there was no uterine atony. The exploration of the rest of the abdomen revealed significant distention of the colon, extensive and irreversible necrosis of the entire sigmoid loop with dolichocolon

measuring 70cm. The procedure consisted of a detorsion of the sigmoid loop with sigmoid resection down to the level of the rectosigmoid hinge and colostomy by Hartmann's procedure. The estimated blood loss was 900 ml, and the patient was transfused with one pack of red blood cells. The postoperative course was uneventful: no complications were noted, and the patient was discharged after the eighth day of hospitalization.

Discussion

It is uncommon that sigmoid volvulus (SV) occurs during pregnancy³. This rare and problematic association is correlated with a high rate of maternal and fetal mortality, especially when the diagnosis is made late⁴. The maternal complications that can arise from SV are perforation, peritonitis, and sepsis. Regarding fetal outcomes, SV can originate in prematurity, neonatal sepsis, and fetal death⁵. The fetal demise can be explained by the hypovolemia that causes a reduction in placental blood flow, or by the increase of intraabdominal pressure that results in the lack of abdominal and pelvic blood flow⁶. The majority of the reported cases develop during the third trimester of pregnancy⁷. This may be explained by the decrease in the space inside the abdominal cavity due to the gravid uterus, which facilitates dolichocolon rotation⁷. A high-fiber diet is thought to be an additional risk factor⁸. The diagnosis of bowel obstruction is often delayed as symptoms can be misleading and mimic common complaints of pregnancy, especially when the obstruction is incomplete⁵. The functional signs can be abdominal pain, constipation, lack of gas passing, and sometimes vomiting. The clinical examination may be poor in the early stages, but the diagnosis should be strongly suspected when there is constipation, abdominal distension, or severe abdominal pain⁷. Typical imaging findings of sigmoid volvulus include the absence of rectal gas, the inverted U-shaped distended sigmoid, or the coffee-bean sign⁸. These findings can easily be made by ultrasonography or abdominal X-Ray.

The management of sigmoid volvulus during pregnancy is challenging. It depends on the gestational age, the viability of the fetus, and the degree of intestinal necrosis. In the absence of peritoneal signs or mucosal ischemia, a detorsion and decompression via sigmoidoscopic placement of a soft rectal tube are a reasonable approach⁹. However, it seems that during the third trimester, colonoscopic detorsion is less successful among pregnant women compared to the rest of the patients. This could be explained by the fact that a large gravid uterus constitutes an obstacle to detorsion. Alshawi¹⁰ suggests an approach based on the gestational age (providing that there are no signs of perforation or peritonitis). During the first trimester, a colonoscopic detorsion and rectal tube compression are proposed. It should be followed by an elective colectomy in the second trimester to prevent recurrences and risks of miscarriages and preterm labor. During the second trimester, a colectomy is possible¹⁰. During the third trimester, non-operative treatment is suggested until fetal maturity is achieved, with sigmoid colectomy after delivery¹¹. If there are signs of perforation or peritonitis, or if endoscopic detorsion fails, a radical treatment with colectomy is performed with or without restoration of digestive continuity, because in this case, maternal prognosis outweighs fetal outcome. It is preferable to go through midline laparotomy to provide good exposure with minimal manipulation of the gravid uterus¹². In the third trimester, if adequate intestinal exposure

cannot be obtained, a concomitant cesarean section must be performed. Also, in case of fetal distress with a viable fetus, a C-section is indicated, and extra caution should be taken to avoid uterine contamination and puerperal sepsis. The main prognostic factor of intestinal occlusion during pregnancy is the diagnostic delay and therefore the delay in treatment, and maternal-fetal mortality is directly related to the degree of intestinal necrosis⁷.

Conclusion

The management of intestinal obstruction due to sigmoid volvulus during pregnancy is challenging and depends on the gestational age, the viability of the fetus, and the degree of intestinal necrosis. Maternal and fetal mortalities are directly correlated with the degree of intestinal necrosis.

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