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Case Of Sigmoid Volvulus In Pregnancy

Sh Ha [1,2] , Af Rosli[2] , Ehb Ng [2]
1 Department Of General Surgery, University Kebangsaan Malaysia, Kuala Lumpur, Malaysia.
2 Colorectal Surgery Unit, Department Of Surgery, Hospital Raja Permaisuri Bainun, Ipoh, Malaysia

Abstract:
Background*: Sigmoid volvulus (SV) in pregnancy is rare with only 109 cases reported in literature. It is associated with high mortality and morbidity rate. Early diagnosis and intervention are challenging because of the gravid state.*
Materials and Methods*:A 34-year-old lady, Gravida 3 Para 1 at 36 weeks 6 days period of gestation, presented to the obstetric ward with labour-like symptoms & constipation for 4 days prior. Her abdomen was distended with palpable bowel loops. A bedside ultrasound demonstrated distended bowels compressing on the gravid uterus hence had a Computed Tomography (CT) done to find a sigmoid volvulus. As she was in acute obstruction with term pregnancy, an emergency laparotomy with distortion of sigmoid volvulus, Caesarean section and bilateral tubal ligation was done. Unfortunately, she had a negative relaparotomy on post operative day 6 when she remained in intestinal failure type I with post operative CT suggesting possible sigmoid ischemia. She however recovered well and discharged on post-operative day 10 with no further clinical recurrence since.*
Discussion: *The incidence of SV in pregnancy is rare at 1 in 1500 to 1 in 66431 deliveries. Risk factors include chronic constipation, high fiber diet, redundant sigmoid colon and pregnancy. Diagnosis is often delayed because symptoms mimic pregnancy-related symptoms and radiological imaging (CT and XRays) are relatively contraindicated in pregnancy. Management includes aggressive resuscitation, decompression & correction of electrolytes. Surgical exploration would be required if bowel necrosis or perforation is suspected but surgical risk to fetus must be explained to patient. Resection with primary anastomosis carries a fair risk of anastomotic leak. Maternal mortality for SV has been reported ranging from 5 to 50% and foetal mortality at about 30%.*
Conclusion: *SV in pregnancy carries a high mortality rate for both mother and foetus. Diagnostic challenge often leads to delayed treatment.*
Key Word*: Sigmoid Volvulus; Pregnancy*

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I. Introduction

Intestinal obstruction in pregnancy is uncommon and very rare. There are few causes of intestinal obstruction in pregnancy identified which are volvulus, hernia, adhesion, intussusceptions, carcinoma and appendicitis. Sigmoid Volvulus (SV) in pregnancy is a rare occurrence with only 109 cases reported in literature.[1] It is the most common cause of intestinal obstruction in pregnancy which accounts up to 44% of the reported case.[2] The clinical presentation for SV in pregnancy might be similar to the pregnancy related symptoms and diagnosis are often delayed which results in complications like bowel ischaemia, necrosis, gangrene, bowel perforation, peritonitis, preterm delivery and even foetal or maternal death. It is associated with high mortality and morbidity rate. Early diagnosis and intervention are challenging because of the gravid state.

II. Case Presentation

A 34-year-old lady, Gravida 5 Para 3+1 at 36 weeks 6 days period of gestation, presented to the obstetric ward with labour-like symptoms & constipation for 4 days prior admission. Her abdomen was distended with palpable bowel loops. A bedside ultrasound demonstrated distended bowels compressing on the gravid uterus. Hence, she had a Computed Tomography (CT) done which shows redundant sigmoid colon with whirpool sign (Figure 1) suggestive of SV. As she was in acute obstruction with term pregnancy, an emergency laparotomy was performed. Caesarean section was also done in the same setting to provide proper bowel exposure for manipulation. Intraoperative findings revealed huge redundant and dilated SV (Figure 2). Detorsion of SV (Figure 3) was done followed by colonic decompression and bowel resuscitation. No colectomy was performed as bowel appeared to be viable (Figure 4) post resuscitation. Unfortunately, she remained intestinal failure type 1 until day 6 post-op. CT was repeated which suggestive of possible sigmoid Ischaemia. Surgical team proceeded with relaparotomy which shows a healthy sigmoid colon with no evidence

of SV recurrence(Figure 5). There was no adhesion bands seen even though the generalized dilatation of the small and large bowel are present. Hence, no sigmoid colectomy or stoma creation(Hartman's procedure) was performed. Post-operatively, she recovered well and discharged on post-operative day 10 with no further clinical recurrence since.

Figure 1:shows whirlpool sign on CT suggestive of SV.

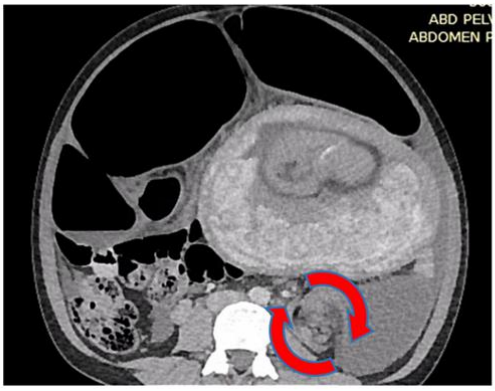


Figure 2: shows huge redundant and dilated SV**.**

Figure 3: shows post detorsion of SV.

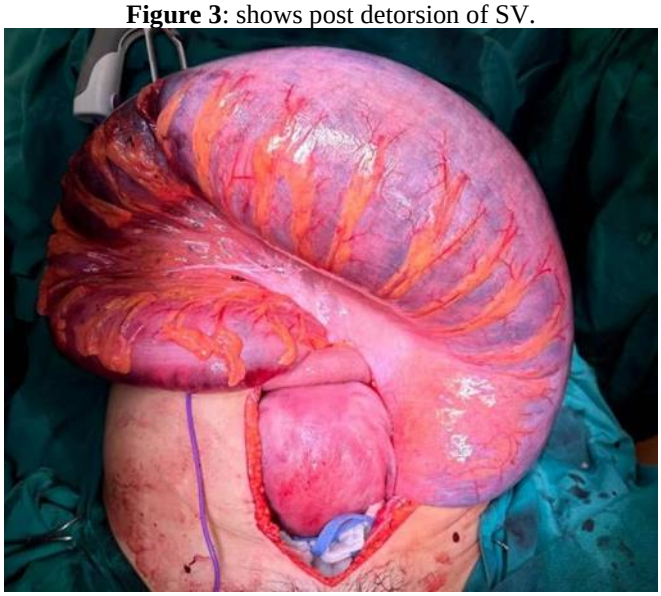


Figure 4: shows viable bowel post colonic decompression and bowel resuscitation.

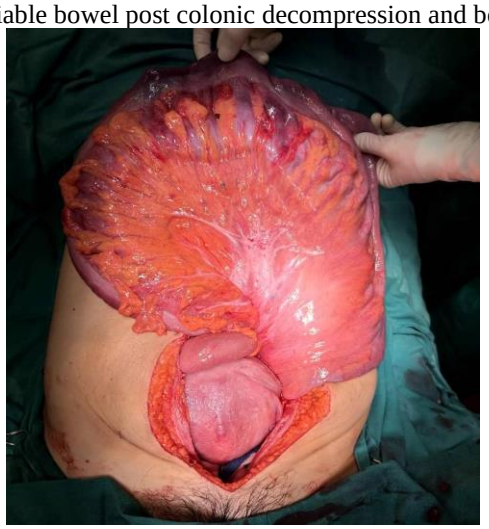
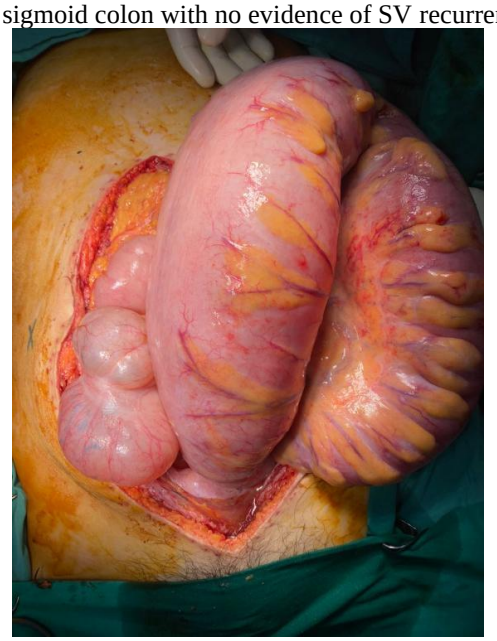


Figure 5: shows healthy sigmoid colon with no evidence of SV recurrence during relaparotomy.



III. Discussion

The first SV in pregnancy was reported by Braun in 1885.[3] The incidence of SV in pregnancy is rare, about 1 in 1500 to 1 in 66431 deliveries with high maternal and foetal mortality rate.[4] Despite its rarity, SV is considered to be the most common cause for intestinal obstruction in pregnancy.[5] Generally, these women are 15–35 years of age with almost 75% are multiparous and 66% are in their third trimester,[1] all of which were true for our case.

The mechanism of sigmoid volvulus in pregnancy has been explained as being caused by displacement and compression of an abnormally mobile, redundant sigmoid colon by the enlarging uterus.[6] This causes the colon to rise out of the pelvis and twist around the fixation point on the sigmoid colon and its mesocolon. This mechanism may lead to mechanical obstruction and vascular compromise of the bowel.

Symptoms of SV usually mimic pregnancy-related symptoms which are abdominal pain, abdominal distension, constipation and vomiting. Clinical examination pose a challenge due to the gravid uterus which limit the proper abdominal examinations as the stretch of anterior abdominal wall is less sensitive to parietal irritation and may mask signs of acute abdomen.[7]

Imaging options for the diagnosis of SV in pregnancy are controversial given the rarity of this condition in pregnancy. Ultrasound can show dilated bowels and might identify transition point.[8] Radiological images (Abdominal Xrays or CT) are relatively contraindicated in pregnancy due to the increased risk of chromosomal mutations during the first two trimesters and haematological malignancy such as leukemia in third trimester.[9] The safe radiation exposure limit is between 5 and 10 rads.[9] In general, no single diagnostic study

exceeds 5 rads.[9] The radiation dose to the foetus for a plain abdominal X-ray averages 0.1–0.3 rads.[9] Although the radiation dose of an abdominal CT scan is thought to be within this limit, many authors still believe that CT should be avoided. Nonetheless, the foetal age at exposure is also an important factor. Exposure during the first week and between 10 and 17 weeks of gestation carries the highest risk of teratogenesis.[9] MRI, a non-ionizing radiation modality remains the other safe alternative for imaging, however, it is not cost-effective.[9]

The management of SV in pregnancy requires a multidisciplinary approach with general surgeons, obstetricians, and neonatologists. Choice of treatment depends on the duration of pregnancy and the state of the sigmoid colon. Initial resuscitation is the same with non-pregnant state whereby aggressive fluid resuscitation, bowel decompression and correction of electrolytes are mandatory. Tocolytics should be used if uterine irritability is observed and steroids initiated to promote foetal lung maturity.[1] The pursuance of the delivery or caesarean procedure in mature cases or abortion in patients with a dead foetus are dependent on maternal and foetal conditions.[1]

Following initial stabilization of the patient's condition, further surgical intervention depends on the integrity of the distended bowel. In the absence of bowel ischemia,sigmoidoscopic detorsion and rectal tube insertion is possible.[10] In recurrent cases, elective sigmoidectomy can be safely performed in the second trimester.[10] Otherwise, surgery can be postponed until after delivery.[10]

In case of bowel necrosis, ischaemia or perforation or recurrence SV is suspected, sigmoid colectomy or Hartman's procedure will be the method of choice. However, resection with primary anastomosis carries a fair risk of anastomotic leak due to the edematous and paralytic bowel status.[2] On the other hand, stoma creation during postpartum period remains debatable due to the risk of complications from stoma and difficulty in stoma care during postpartum period.[2]

In case of third trimester pregnancy, if inadequate bowel exposure due to the gravid uterus, caesarean section must be done at the same setting so that the bowel exposure is adequate for the manipulation during operation,[10] like what happened in our case. Extra care need to be taken to avoid uterine contamination intraoperatively as this can cause high mortality due to puerperal sepsis. It is important that the surgeon should decide the best option for the mother according to the situation at that time. Maternal mortality for SV had been reported ranging from 5% (viable bowel) to 50% (bowel perforation) and foetal mortality is about 30%.[5] Major causes of maternal mortality could be toxic and/or hypovolaemic shock whereas foetal mortality is caused by placenta blood flow impairment due to increase intraabdominal pressure.

IV. Conclusion

SV in pregnancy is a rare non-obstetric complication which carries a high mortality rate for both mother and foetus. Diagnostic challenge often leads to delayed treatment and this will result in devastated outcomes for the mother and foetus. A clinician should have a high index of suspicion in this case so that the diagnosis can be made earlier and early treatment can be initiated. As a result, mortality and morbidity rate will be reduced.

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