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CASE REPORT

Sigmoid Volvulus Complicating Pregnancy Managed by Resection and Primary Anastomosis

Case report with literature review

*Norman O Machado,[1] Lovina S M Machado[2]

مضاعفات الاِنْفِتالّ السِّينِيّ خلال الحمل ومعالجته بالاستئصال والتفاغر الأولي

تقرير حالة مع مراجعة أدبيات

نورمان ماتشادو، لوفينا ماتشادو

الملخص: الاِنْفِتال السِّينِيّ حالة نادرة جدا لانسداد الأمعاء أثناء الولادة . ندرة هذه الحالة إضافة إلى تشويش الحمل للوضع السريري يؤخر التشخيص على الأغلب مما يؤدي إلى زيادة الاختطار بالإصابة بغنغرينة الأمعاء . لهذا السبب يحتاج غالبية المرضى إلى استئصال الجزء المصاب من الأمعاء و فَغْرُ القَولون . لكن من جهة أخرى . يمكن تحسين النتيجة بالنسبة للأم والجنين فيما إذا تم التشخيص والتدخل مبكرا . وهذا يحتاج إلى درجة عالية من الحذر والشك . ندرج هنا حالة اِنْفِتالّ سِّينِيّ عولجت بالاستئصال والتفاغر الأولي . بعد مراجعة الأدبيات الطبية لم نجد حالة مشابهة لحالتنا التي تم فيها التفاغر الأولي بعد استئصال المنطقة المصابة. كذلك تمت مراجعة الأدبيات الطبية حول العوامل المؤهبة للاِنْفِتال السِّينِيّ أثناء الحمل مع طرق العلاج والنتائج .

مفتاح الكلمات: انفتال سيني . حمل . استئصال . تقرير حالة . عمان.

ABSTRACT Sigmoid volvulus is an extremely rare cause of intestinal obstruction in pregnancy. The rarity of the condition and the fact that pregnancy itself clouds the clinical picture invariably leads to a delay in diagnosis with an increased risk of gangrene of the gut. The majority of these patients would then require resection and colostomy. However, an early diagnosis and intervention as in our patient, which would require a high index of clinical suspicion, could significantly improve the outcome of the foetus and the mother. A case of sigmoid volvulus in pregnancy is reported which was managed by resection and primary anastomosis. A review of literature revealed no previous reports of sigmoid volvulus in pregnancy managed by primary anastomosis following resection of the sigmoid volvulus. The literature is also reviewed regarding predisposing factors, management options and the outcome of sigmoid volvulus complicating pregnancy.

Key words: Sigmoid volvulus; Pregancy; Resection; Case report; Oman;

Intestinal obstruction, which is rare in pregnancy, has a reported prevalence of 1 in 1,500 to 1 in 66,431 pregnancies.[1-3] Sigmoid volvulus contributes to 12% of these cases.[3] The essential problems of sigmoid volvulus in pregnancy are those of delay in presentation and diagnosis. Delay in diagnosis invariably leads to ischaemia of the colon, which warrants resection and colostomy as noted in most of the reported cases.[1-5] Prompt surgical intervention is necessary to minimise maternal and foetal morbidity and mortality. The reported maternal mortality is 6% with a foetal mortality of 26%.[3]

CASE REPORT

A 24 year old lady, gravida 2, para 1 presented at 18 weeks gestation with complaints of intermittent abdominal pain and recent onset of worsening lower abdominal distension over 12 hours. Her pregnancy had been otherwise uneventful. She had no previous medical problems or prior abdominal surgery. On ex-

Department of [1]Surgery, [2]Obstetrics and Gynaecology, Sultan Qaboos University Hospital, Muscat, Sultanate of Oman

**To whom correspondence should be addressed. Email: norman@omantel.net.om*

Table 1: Reported cases of sigmoid volvulus in pregnancy

Author Between	Year	Number of Cases Reviewed	Gestational age in Weeks	Duration initial symptoms & management (in Hours)
Present Study	2006	1	18	18
Alshawi[12]	2005	1	28 & 35 (Recurrent)	<24
De U et.al.[8]	2005	1	24	>72
Joshi et.al.[9]	1999	1	28	>48
Lurie et.al.[13]	1997	1	ectopic Pregnancy	36
Lord et.al.[6]	1996	1	36	>24
Allen.14	1990	1	28	>12
Keating et al.[5]	1985	1	34	12
Hofmeyr et al.[10]	1985	2	33	>48
			26	>48
Fraser et al.[11]	1983	1	32	>12
Lazaro et al.[2]	1958-1969	13	-	-
Harer & Harer.[4]	Before 1958	52	-	-

amination, she was afebrile and had mild generalised abdominal tenderness. Her abdomen was distended with the gravid uterus corresponding to 18 weeks size and a gas-filled gut. Routine laboratory studies were significant only for an elevated white blood cell count of 13,500 x 10^9/L, which could have been due to normal physiological response in pregnancy. In view of her pregnancy, no radiological examinations were performed.

She was admitted for close observation and given a fleet enema with no result and no effect on her abdominal pain or distension. Over the next 6 hours the abdominal pain continued to worsen, relieved partially by narcotic analgesics. The abdomen was distended, soft, hyperesonant and hyperperistalitic. A diagnosis of sigmoid volvulus was then entertained as the abdominal distension was predominantly in the lower abdomen and progressed along with colicky abdominal pain. Obstetric assessment revealed an active foetus and there were no signs of threatened abortion.

After informed consent, and 8 hours after admission, the patient was prepared for an attempt at sigmoidoscopic detorsion, with a possibility of laparotomy in the event of failure. Sigmoidoscopy confirmed the obstruction due to a twist in the sigmoid colon; however, the attempt to negotiate the obstruction failed, necessitating laparotomy through a lower midline incision. The sigmoid colon was grossly distended

Figure 1: Sigmoid volvulus showing grossly dilated, viable sigmoid colon

Table 2: Management and outcome of sigmoid volvulus in pregnancy (series since 1983)

Author	Sigmoid colon	Treatment	Outcome	
			Foetus	Patient
Present study	viable	Sigmoid colectomy & primary anastomosis	healthy	good
Alshawi[12]	viable	Sigmoidoscopic detorsion in pregnancy Elective sigmoid colectomy post delivery	healthy	good
De u[8]	gangrenous	Hartman's procedure	IUFD	good
Joshi M[9]	gangrenous	Hartman's procedure	IUFD	good
Lurie[13]	viable	Laparotomy & detorsion	ectopic	good
Lord[6]	gangrenous	Hartman's procedure	healthy	good
Allen[14]	viable	Sigmoidoscopic decompression	healthy	good
Keating[5]	viable	Sigmoid colectomy & double barrel colostomy	healthy	good
Hofmeyr[10]	gangrenous	Hartman's procedure	IUFD	good
	gangrenous	Hartman's procedure	IUFD	dead
Fraser[11]	viable	Laparotomy & detorsion	healthy	good

Legend: IUFD = intrauterine foetal death

but viable. A 180 degree anticlockwise twist was noticed [Figure 1]. In view of the proximal colon being relatively empty and the sigmoid colon viable [Figure 2], a resection of the sigmoid colon was performed [Figure 3] with primary anastamosis in 2 layers with vicryl. The patient had an uneventful postoperative recovery and was discharged on the fifth postoperative day. She has been symptom free since then and had a spontaneous vaginal delivery of a normal healthy male baby at 38 weeks of gestation.

DISCUSSION

A review of medical literature in English revealed 75 cases of sigmoid volvulus in pregnancy [Table 1] since the first case was reported in 1885.[2-14] Rare as the condition is, it is the second commonest cause of intestinal obstruction in pregnancy and a high index of clinical suspicion needs to be maintained to achieve an early diagnosis.[1, 3]

Several previously described cases of volvulus in pregnancy were found at laparotomy to have predisposing causes including adhesions, previous salp-

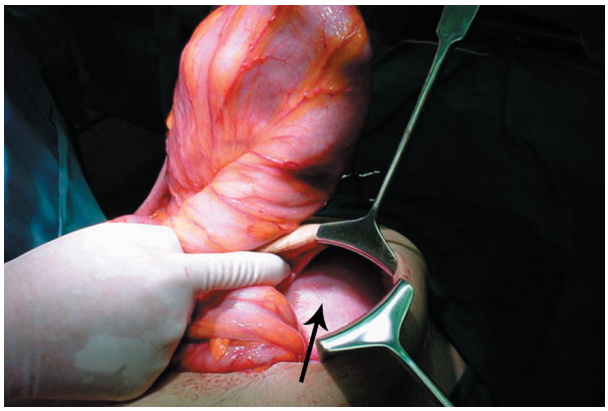

Figure 2: Sigmoid volvulus partly decompressed and the gravid uterus (arrow)

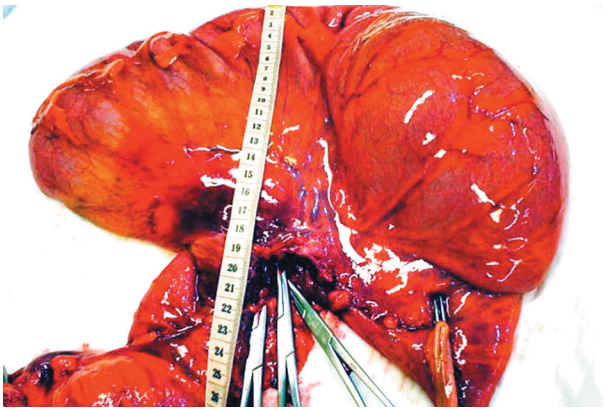

Figure 3: Resected sigmoid colon

ingitis and abnormalities in gastrointestinal tract development.[2-5] The patient described here showed none of these features other than a redundant sigmoid loop and a narrow base of the mesocolon. The mechanism of sigmoid volvulus in pregnancy has been suggested to be due to displacement, compression and partial obstruction of an abnormally mobile sigmoid colon by the enlarging uterus.[4] This could probably explain the increased incidence of sigmoid volvulus in the third trimester.[3, 7] Eight of the 11 recent cases since 1983 were in the third trimester.

Diagnosis of the condition is often delayed. The average length of time from the onset of obstructive symptoms until presentation is reported to be 48 hours.[3] This is mainly because pregnancy itself clouds the clinical picture since abdominal pain, nausea, and leukocytosis can occur in an otherwise normal pregnancy.[5] In addition, the reluctance to obtain radiological evaluation in pregnancy may contribute to diagnostic delay.

Among the 11 recent cases, the average duration between the start of symptoms and definitive treatment was 32 hours. Of these 11 patients, 4 (36%) were managed after 48 hours of obstructive symptoms.[8-11] All these four patients delivered a dead foetus and there was one maternal mortality among them. It was also noted that these four patients had a gangrenous sigmoid colon and underwent Hartman's procedure and colostomy.[8-10] In contrast, the 6 patients, including the present case, who were managed within 24 hours of initial symptoms had good foetal and maternal outcomes.[5,6,11,12,14] Moreover, they were amenable to lesser invasive procedures like sigmoidoscopic detorsion.[12, 14] or surgical interventions without colostomy like laparotomy and sigmoidopexy[11] or, as in our case, resection and primary anastomosis. A literature review revealed no previous reported case of primary anastomosis following resection [Table 2].

The management of sigmoid volvulus in the pregnant patient involves aggressive fluid resuscitation, decompression of the proximal bowel and recognition of this entity as an acute surgical emergency.[3,5,6] In the absence of peritoneal signs or mucosal ischaemia, it would seem reasonable to attempt detorsion and decompression via sigmoidoscopic placement of a soft rectal tube.[12, 14] Alshawi[12] proposed the following management options based on the stage of pregnancy: in the absence of signs of peritonitis in the first trimester of pregnancy, a nonoperative procedure with colonoscopic detorsion and rectal tube decompression is recommended. This can be repeated in recurrent cases until the second trimester when sigmoid colectomy is recommended. Since continuing with the nonoperative approach until foetal maturity is reached is associated with a high recurrence rate, and surgery in the second trimester reduces the miscarriage rate, elective sigmoid colectomy is recommended in the second trimester. It is technically difficult to operate in the pelvis in the third trimester. Hence it is acceptable to do colonoscopic detorsion and tube decompression until foetal maturity, when elective labour followed by sigmoid colectomy would provide a definitive treatment. Although colonoscopic detorsion is often successful in non-pregnant patients, successful use of this approach in late pregnancy is rarely reported.[12,14] This could probably be due to the large gravid uterus acting as a mechanical impediment to detorsion.

When surgical intervention is required in these patients, a standard midline incision allows maximal exposure with minimal uterine manipulation. The non-viable bowel is resected with a diverting colostomy performed, the stomata being sited away from an elective area of a possible caeserean section.[5] Primary anastomosis of an unprepared distended paretic and oedematous large bowel is generally avoided as it could be hazardous to both mother and foetus.[5] This is particularly so when there has been a significant delay in establishing a diagnosis. Early diagnosis, however, would make resection and primary anastomosis a safe approach, as in our patient, with the distinct advantage of reduced hospital stay and avoidance of further surgery

CONCLUSION

Sigmoid volvulus complicating pregnancy is an uncommon and potentially devastating development. Early diagnosis mandates a high index of clinical suspicion in a patient who presents with complaints of abdominal pain of increasing severity associated with lower abdominal distension. Delay in diagnosis and treatment beyond 48 hours results in increased foetal and maternal morbidity and mortality. Prompt intervention is necessary to minimise these complications and achieve a definitive cure.

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