



Case Report

Ruptured Caesarean Section Scar Ectopic Pregnancy: A Rare Case Report at Alex Ekwueme Federal University Teaching Hospital, Abakaliki

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Abstract

Caesarean scar pregnancy (CSP) is a rare type of ectopic pregnancy, characterised by blastocyst implantation in a previous caesarean scar. The incidence is approximately 1:2000 pregnancies, and with increasing incidence of caesarean section worldwide, more and more cases are diagnosed and reported. Very few cases have been documented in Nigeria, and this is the first to be reported at Alex Ekwueme Federal University Teaching Hospital, Abakaliki. Misdiagnosis or a delay in diagnosis or treatment can lead to life-threatening complications such as uterine rupture, haemorrhage and significant maternal morbidity and mortality. Diagnosis of CSP remains a challenge in sub-Saharan Africa, where early ultrasound is rarely done among the majority of pregnant women who are either unbooked or registered for antenatal care in a maternity home supervised by an unskilled birth attendant. Even when a first-trimester ultrasound is performed, the availability of high-resolution ultrasound and the skill in such sonography may be lacking. We present a case of a 38-year-old G3P2⁺⁰A2 with a history of two previous caesarean section scars who had emergency exploratory laparotomy and uterine repair on account of a slowly leaking ectopic pregnancy from a ruptured CSP and highlight the complications associated with late diagnosis of such a case.

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INTRODUCTION

The first case of a Caesarean Scar Pregnancy (CSP) was reported in 1978.¹ Cesarean section scar ectopic pregnancy is a rare complication of pregnancy, occurring in approximately 1 in 2000 pregnancies.^{2,3} Its incidence is increasing over the years due to the rise in caesarean section rates worldwide, with the increase in primary and repeat cesarean sections.

There are two recognised types of caesarean scar ectopic pregnancies. Type 1 (endogenic) develops in the myometrium and grows toward the uterine cavity, whereas type 2 (exogenic) progresses exophytically toward the uterine serosa.⁴ Type 2 pregnancies have an ominous prognosis because they may result in spontaneous uterine rupture, haemorrhage, and maternal death.⁵

The actual mechanism of CSP remains uncertain. The most probable mechanism that can explain scar

implantation is that there is invasion of the myometrium through a microtubular tract between the caesarean section scar and the endometrial canal.⁶ Such a tract can also develop from the trauma of other uterine surgeries, e.g. uterine curettage, myomectomy, metroplasty, hysteroscopy, manual removal of placenta, previous abnormally adherent placentation, and in vitro fertilisation.^{4-6]} Pregnancy in the scar from a caesarean delivery is located outside the uterine cavity and is completely surrounded by myometrium and fibrous tissue of the scar in the lower uterine segment.⁷

Caesarean section scar ectopic pregnancy is a life-threatening condition with associated maternal morbidity and mortality. With rupture of the scar pregnancy, there is potential for loss of fertility should massive haemorrhage necessitate a hysterectomy, hypovolemic shock and other associated complications with possible maternal death if timely intervention is not initiated. Management of ruptured scar pregnancy is by laparotomy with repair of the accompanying uterine scar rupture.

Here we describe a rare case of ruptured uterine scar ectopic pregnancy who presented to our gynaecology emergency ward with acute abdomen and haemoperitoneum, and subsequently had exploratory laparotomy with repair of the accompanying uterine scar dehiscence.

CASE REPORT

An unbooked 38-year-old G3P2⁺0A2 civil servant with a history of two previous Caesarean sections who presented to our gynaecology emergency ward, Alex Ekwueme Federal University Teaching Hospital Abakaliki (AEFUTHA) from a peripheral centre on 12th March, 2024, at 9 weeks + 4 days gestational age on account of lower abdominal pain of 4 days duration and mild vaginal bleeding of 3 days duration. Index pregnancy was desired and spontaneously conceived. Urine pregnancy test done following two missed periods was positive; however, no ultrasound was done to confirm pregnancy location. There was no history of attempted termination of pregnancy.

At the onset of symptoms, she presented to Mile 4 Hospital, Abakaliki, where urgent pelvic ultrasound was done, which showed 'bulky anteverted uterus, an irregular-walled gestational sac located towards the internal os, harbouring a non-viable fetal pole of crown-rump length (CRL) 21mm, and significant free fluid at pouch of Douglas'. Urgent packed cell volume done was 16% (Haemoglobin 5.3g/dL). The centre could not attend to her due to unavailability of blood, prompting her referral to our facility for expert management.

On presentation, she was conscious, oriented and pale. Her pulse rate was 110 beats per minute, blood

pressure was 100/60 mmHg and shock index was 1.1. On abdominal examination, there was a Pfannenstiel scar with primary intention healing. The abdomen was full and moved with respiration. There was suprapubic fullness and mild generalized abdominal tenderness marked at the suprapubic region, and positive rebound tenderness. On vaginal examination, the vulva pad was mildly soaked with altered blood. Sterile speculum examination showed a healthy-looking cervix with scanty blood at the external cervical os. Bimanual examination showed an anterior cervix which was firm and 3cm long with a closed cervical os. Pouch of Douglas was full. There was positive cervical motion tenderness. Further examination was not done due to marked tenderness. Patient was properly counselled and resuscitated. Consent was obtained, and she subsequently had emergency exploratory laparotomy under general anaesthesia in view of the acute abdomen and hemoperitoneum.

Intraoperative findings were haemoperitoneum of approximately 400 mL, bulky uterus with the products of conception penetrating the uterine serosa from the right side of the ruptured uterine scar actively bleeding slowly (Fig. 1). Left ovarian cyst of 11cm x 9cm, grossly normal right ovary and fallopian tubes. The gestational sac with associated clots at the area of rupture was approximately two centimetres above the internal cervical os of the uterus. It was scooped out and sent for histopathological examination (Fig. 2), followed by two-layer repair of the uterine scar dehiscence. Left cystectomy was done. She received two units of fresh whole blood intraoperatively and two additional units postoperatively. Her postoperative period was uneventful, and she was discharged home on day seven post-op. Histopathological analysis confirmed the presence of embryonic tissue implanted within the lower uterine segment. She made a full recovery at review 4 weeks later and was discharged from the clinic after appropriate counselling. She also consented to having her case reported in an academic journal.

DISCUSSION

Caesarean scar pregnancy (CSP) is a form of ectopic pregnancy which is uncommon and carries potentially life-threatening risks. Few cases have been reported. Two distinct entities are identified - type 1 (endogenic) and type 2 (exogenic).^{4,5} Our patient belonged to the type 2 variety. CSP may present from as early as 5–6 weeks to as late as 16 weeks.^[8,9] In the present case, our patient presented at 9 weeks + 4 days. A study done by

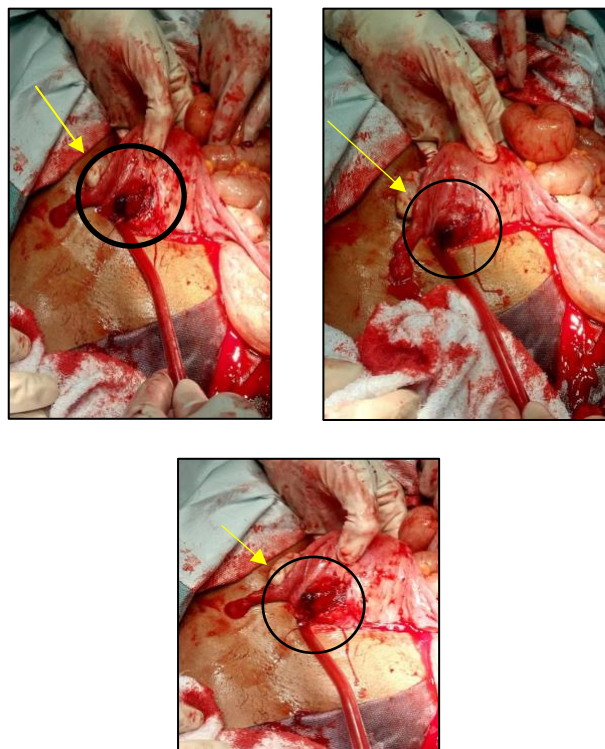


Figure 1: Scar site ectopic pregnancy with breach in the anterior uterine wall in lower uterine segment rupturing through the right side of previous caesarean scar actively bleeding.

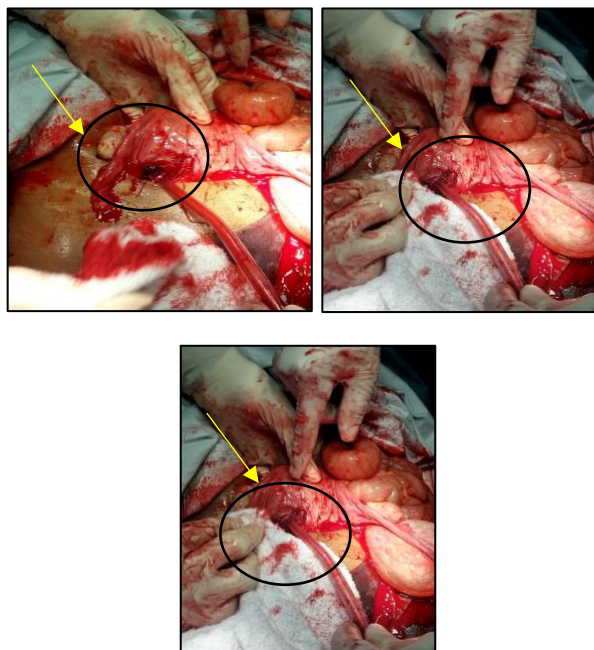


Figure 2: The contents were scooped out and sent for histology, followed by repair of the defect.

Ash A et al. found that the mean gestational age at diagnosis was 7.5 ± 2.5 weeks, and the interval between the last caesarean section and the caesarean scar pregnancy ranged from 6 months to 12 years.¹⁰ In our case study, the time interval was 6 years.

The mechanism of CSP implantation is unclear. However, various theories have been postulated, which include translocation of the developing blastocyst through either a narrow fistula tract within the scar or a wedge-like breach in the lower uterine segment; invasion of placental villi at a point of scar dehiscence into the uterine wall; or low oxygen tension in the scar tissue favouring implantation of the developing embryo.³ If the pregnancy progresses and is uninterrupted, breach of the myometrium can lead to bladder wall invasion.^[11]

It is important to have a high index of suspicion for CSP when patients present with related symptoms and potential risk factors such as a prior uterine scar, as is the case in our patient with two previous caesarean sections. However, the number of caesarean sections per woman does not appear to increase the risk of CSP, unlike the risks of abnormally invasive placentae, as an estimated 52% of cases of CSP occur after only one caesarean section.⁷ In vitro fertilisation embryo transfer and previous caesarean section for breech presentation both appear to increase the risk of CSP, the latter possibly due to the need for a higher uterine incision in a poorly formed lower segment.^{7,12} Our patient's first caesarean section was on account of a breech presentation at term, and that puts her at a higher risk.

Patients can have varied presentations ranging from early first trimester painless bleeding per vaginam to slight abdominal discomfort along with amenorrhea.¹² In the event of rupture of the uterus, patients can present with extreme abdominal pain of abrupt onset and excessive vaginal bleeding culminating in hypovolemic shock.¹³ Our patient presented with severe anaemia with a haemoglobin level of 5.3g/dL. On clinical examination, tenderness of the uterus and abdomen is generally seen in cases of rupture with features of hemoperitoneum, as in our case. However, examination is usually unremarkable in cases without rupture.^[11]

Transvaginal ultrasound (TVS) on its own has a diagnostic sensitivity of 86.4% (95% CI 0.763–0.9050).⁷ Additional diagnostic information can be obtained by colour flow Doppler. Sonographic criteria suggested in literature for early diagnosis of caesarean scar ectopic pregnancies in the first trimester include: (1) empty uterine cavity and closed and empty cervical canal; (2) gestational sac located anteriorly at the level of the internal os covering the visible or presumed site of the previous lower uterine segment Caesarean section scar; (3) evidence of functional trophoblastic/placental circulation on Doppler examination, which was defined by the presence of an area of increased peritrophoblastic or periplacental vascularity on colour Doppler

examination, and high-velocity (peak velocity >20 cm/s), low-impedance (pulsatility index <1) flow velocity waveforms on pulsed Doppler examination; (4) negative 'sliding organs sign', which was defined as the inability to displace the gestational sac from its position using gentle pressure applied by the transvaginal probe.^{3,14} MRI can provide detailed characterisation of CSP location, depth of myometrial invasion, and the presence of bladder involvement. Diagnosis was delayed in our patient as she presented late in a life-threatening condition.

The available treatment modalities comprise expectant management, medical management and surgical intervention. Treatment options depend on the case presentation and the clinical symptoms. Expectant management may be suitable for small, non-viable CSPs. However, expectant management of a viable scar pregnancy puts the mother at significant risk of an emergency hysterectomy if the pregnancy progresses beyond the first trimester.¹⁵ Medical treatment may be systemic methotrexate or intra-lesion injection of embryocides (KCl or methotrexate).¹⁶ Failure of pregnancy resorption and persistence of a relatively large gestational sac may imply surgical intervention.¹⁵ Many patients finally require surgical treatment, as a study by Stevens et al. reported that the failed combination of local and systemic methotrexate management finally required surgical intervention.¹⁷

The surgical approach includes radical and conservative procedures.¹⁵ Radical surgical procedure consists of hysterectomy when there is uterine rupture with uncontrollable bleeding. The conservative surgical procedure includes evacuation of the pregnancy and repair of the uterine defect by laparotomy or laparoscopy, dilatation and curettage (D&C) and excision of trophoblastic tissues using laparotomy or laparoscopy.^[18] In general, surgical evacuation may be by transvaginal, hysteroscopic, laparoscopic or open methods with the ancillary application of bilateral hypogastric artery ligation, tourniquet, interventional radiologic methods of uterine artery embolisation, or balloon placement in order to reduce blood loss.¹⁹

In our case, the patient presented with rupture of the uterine scar pregnancy with severe anaemia and acute abdomen. We did emergency laparotomy with evacuation of the products of conception and repair of the uterus in two layers. Surgical options are the best approach for our patient in view of the uterine rupture with intra-peritoneal haemorrhage, which necessitated immediate resuscitation and laparotomy with repair of the uterine scar dehiscence undertaken without waiting for the outcome of the resuscitative measures, as immediate surgery after resuscitation is both diagnostic and therapeutic.²⁰ This is to arrest the source of bleeding, which is life-threatening to the patient. In our centre, laparoscopy is not readily available for emergencies, and

in our patient with hemodynamic instability, open surgery (laparotomy) was preferred.

CONCLUSION

Uterine rupture during the first trimester of pregnancy is an extremely rare but life-threatening cause of intra-peritoneal haemorrhage, which can occur due to embryo implantation in the region of a previous caesarean section scar. A delay in either diagnosis or treatment can lead to rupture of CSP with significant maternal morbidity as seen in our patient. Heightened awareness amongst obstetricians regarding the possibility of scar pregnancy in those with prior uterine scar and early ultrasound in these women may lead to early diagnosis and hence a chance of conservative management.

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