

A Case Report of Rupture of Anterior Uterine Wall due to Cesarean Scar Ectopic Pregnancy

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ABSTRACT

Background: While, the number of Caesarean sections performed has grown, so too has the prevalence of caesarean scar ectopic pregnancies, a relatively uncommon type of extrauterine pregnancy. There is an increased risk of maternal hemorrhage, and in the worst-case scenario, maternal death associated with Caesarean scar ectopic pregnancies.

Objective: We aimed to preserve the uterus and future fertility by detecting Caesarean scar ectopic pregnancies early and treating them to prevent uterine rupture and bleeding.

Subjects and methods: A 23 years female pregnant with previous 2 Caesarean sections, 8 weeks gestational age based on Ultrasound with unsure of late menstrual period assessment.

Results: Emergency U/S revealed that there was intrauterine content 5 x 4.7 cm with no vascularity with history of dilatation and curettage (D & C), lax abdomen and minimal vaginal bleeding, magnetic resonance imaging (MRI) in addition to Human chorionic gonadotrophin (HCG) level were requested.

Conclusion: MRI revealed rupture of anterior uterine wall, with identification of the bladder dome, HCG at follow up decreased more than 50 % of the initial one.

Keywords: Cesarean scar, Ectopic pregnancy, Rupture, Anterior uterine wall.

INTRODUCTION

A Caesarean scar ectopic pregnancy (CSEP) is a consequence of embryo implantation in a prior Caesarean scar (CS), which has been linked to an increase in the secondary rate of Caesarean deliveries^[1].

An ectopic pregnancy occurs when the embryo implants somewhere other than the endometrium of the uterus. Although, the fallopian tube is the most common location for an ectopic pregnancy to implant, other possible locations include the cervix, ovary, cornua of the uterus, and abdomen^[1,2]. A CSEP occurs when a growing embryo implants itself into the myometrium of a woman's uterus through a scar from a prior Caesarean section. Approximately one out of every two thousand pregnancies in women with a history of Caesarean sections experience CSEP. In recent decades, there has been a consistent rise in the rate of Caesarean sections. As a result of both this growth and advancements in sonographic imaging technologies, the number of ectopic pregnancies detected through Caesarean scars has also been on the rise^[3,4].

The frequency of prior Caesarean sections does not always correlate with this risk of CSEP^[5,6,7,8]. It is highly likely that scar implantation occurs as a result of myometrial invasion via a microtubular tract that connects the Caesarean section scar to the endometrial canal. Endometrial damage to the decidua basalis, such as small dehiscence tracts or wedge defects, can occur after uterine surgery^[6]. If CSEP goes untreated, it can lead to a uterine rupture, bleeding, infertility, and even death for the mother.

There are a number of hypothesised processes that affect how the gestational sac implants on the scar. One is the myometrium being invaded through a

microtubular dehiscence tract that lies between the endometrial canal and the Caesarean scar (CS)^[9].

Disarray of myofibers, inflammation, elastosis, swelling of tissues, cell death, and reduced density of smooth muscles are common manifestations of myometrial scar tissue enabling extravillous trophoblastic cells to penetrate the outer myometrial arteries and invade beyond the inner third of the myometrium^[10]. In addition, the myometrium scars create an oxygen deprivation environment, which in turn encourages trophoblast invasion into the deepest layers of muscle, which could lead to placenta accreta spectrum (PAS)^[11]. Reason being, their histological features are thought to be same, instead of viewing them as distinct things, it could be helpful to think of them as developing through the course of the pregnancy^[12]. A few cases that presented with PAS in the third trimester may have started with Cesarean scar pregnancy (CSP) and were handled expectantly before progressing to PAS^[13].

Vaginal haemorrhage, along with or without stomach pain, is the most prevalent symptom of a CSP, however it can manifest in a wide variety of ways. In spite of this, between twenty percent and twenty-five percent of individuals do not exhibit any symptoms when first diagnosed^[14].

In our case we aimed to delineate a therapeutic approach that is ideal for Caesarean scar ectopic pregnancies has the potential to preserve the uterus and future fertility by preventing uterine rupture and hemorrhage.

CLINICAL COURSE

A 32-year-old woman presented to our Obstetrics and Gynecology Department at Al Ahrar Teaching Hospital, Zagazig at 8th weeks of gestation. She had

painless vaginal bleeding, but had no idea when her last period was. The patient had a history of two Caesarean sections and regular menstrual periods. She had no other noteworthy medical conditions or STIs. Outside the hospital, she was influenced by misotac and then D & C. Her doctor thought she might have a CS scar ectopic, so he sent her to our hospital.

By examination her abdomen was lax with minimal vaginal bleeding. Emergency U/S was done and it revealed that there was intrauterine content 5 x 4.7 cm with no vascularity. Her vitals were within normal limits and stable. She had previous history of 2 Cesarean sections and D & C. Her laboratory data showed average low hemoglobin level 9.9 gm/dl,

nothing was abnormal in her complete blood count, with normal kidney and liver functions.

Elective ultrasound, MRI abdomen and pelvis with contrast and B. HCG were requested. The MRI with contrast showed: The uterus was bulky with disruption of the junctional zone and myometrium at its anterior aspect and the cavity was seen distended by hyperintense fluid in T1, which bulge through the anterior uterine wall defect with no rupture of the perimetrium, it contained rupture of the anterior uterine wall with indentation of the bladder dome.

Initial HCG at presentation was 1568 mIU/mL, after 1 week it dropped more than 50 % of the initial one to 340.59 mIU/mL.

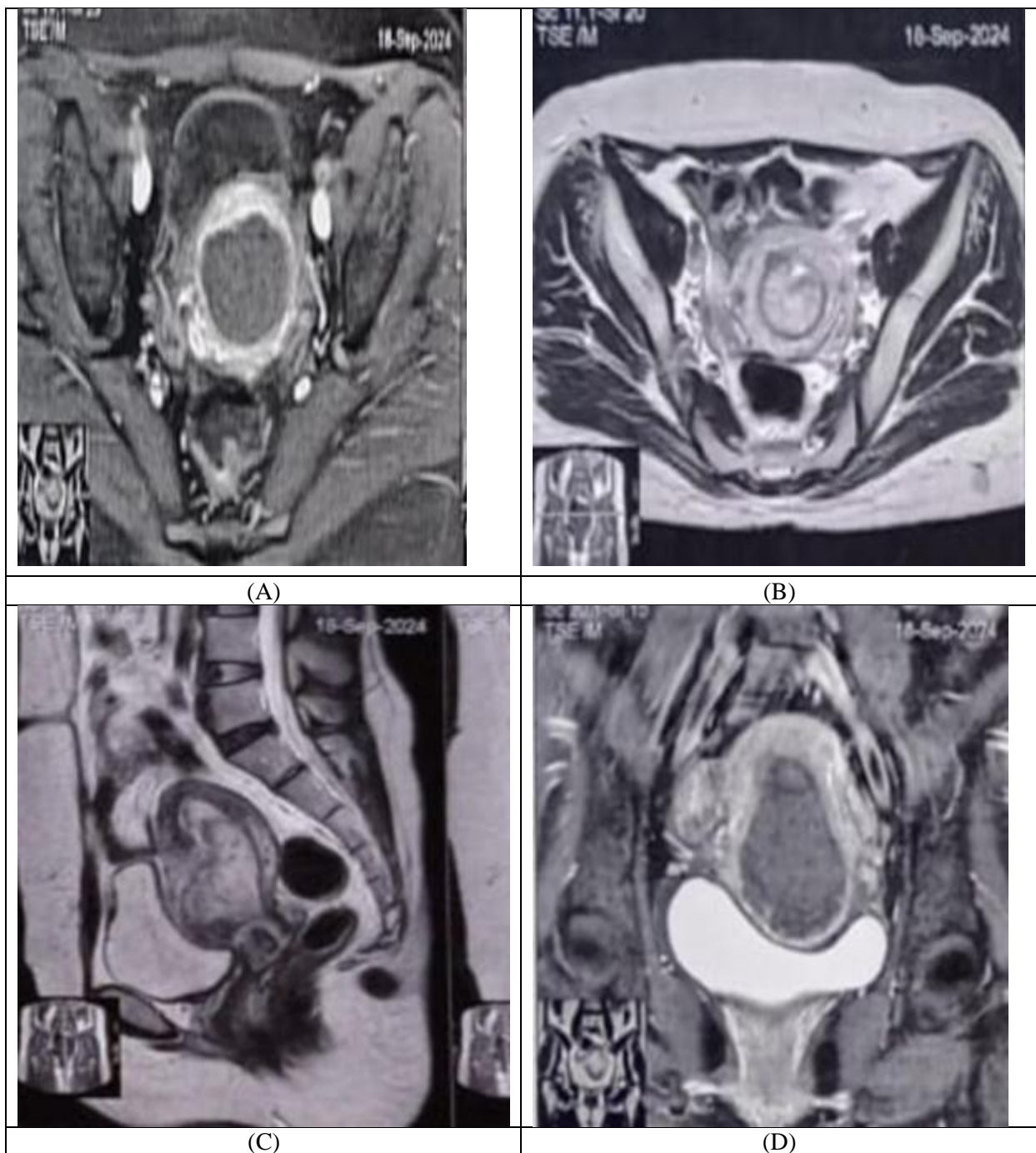


Figure (1): MRI examination of the pelvis demonstrating intrauterine single gestational sac implanted on the lower uterine segment CS scar, a) Axial T1 post-contrast image, b) Axial T2 image, c) Sagittal T2 WIs displaying the whole length of the sac, D) Coronal T1 post-contrast WIs.

No additional abnormalities were detected in the uterus. After a successful surgery, the patient was released from the hospital on day three and instructed to keep tight tabs with their obstetrician and gynaecologist for close monitoring.

DISCUSSION

Avoiding the significant risk of maternal haemorrhage and the associated morbidity and mortality that can ensue if a uterine rupture occurs requires an early diagnosis of CSEP. Most patients report with vaginal bleeding, stomach pain, and a history of Caesarean sections^[15].

With a sensitivity of 86.4%^[15], transvaginal ultrasonography is the gold standard for CSP diagnosis. Alternative diagnostic methods, such as magnetic resonance imaging, should only be reserved for situations where a definitive diagnosis cannot be made, where a high suspicion exists, and when the clinic authorizes them. The majority of CSPs have been diagnosed in the early weeks of pregnancy using transvaginal scans because of this reason. With a sagittal view of the uterus along its long axis, looking through the gestation sac, a CSP can be confidently located. What's more, when the thickness of the myometrium between the sac and the bladder is less than 5 mm, it can be measured^[15, 16]. This degree of myometrial thickness has been demonstrated in 50% of instances. A negative "sliding organ sign," as described by *Jurkovic et al.*^[16] is the failure to move the gestational sac from its location at the level of the internal os with light pressure delivered by the transabdominal probe. This is used as a diagnostic tool.

The CSP sac, the placenta's position in respect to the scar, and the proximity to the bladder can be further defined with the use of additional diagnostic information provided by colour flow Doppler, which reveals clear circular peritrophoblastic perfusion encircling the gestational sac. There is no agreement on the best course of treatment since most CSPs are either single cases or very tiny case series because the ailment is so rare. Each patient requires personalised treatment plans. When creating a treatment plan, it is important to take into account the patient's desired rate of fertility in the future, the size and gestational age of the pregnancy, and the patient's haemodynamic stability. The goals of treatment should include reducing the embryo before it ruptures, removing the gestation sac, and keeping the patient fertile in the future. Management decisions have been based on a number of factors, including gestational age and viability, myometrial insufficiency findings, and clinical symptoms at presentation^[16].

The usual course of treatment for tubal ectopic pregnancy is the systemic dose of methotrexate (MTX). Its usefulness in CSEP should be beyond dispute. Experiment results show that 50 mg/m² or 1 mg/kg is an effective dose. More than half of CSEP patients who undergo medicinal treatment ultimately

require a subsequent surgery. So, in few instances, medical treatment has been augmented by surgical sac aspiration guided by ultrasonography^[17].

This technique has been effectively used in conjunction with the injection of hyperosmolar glucose, crystalline trichosanthin, potassium chloride, and MTX. The gestation sac can be precisely injected with MTX with a transvaginal or transabdominal injection under the supervision of an ultrasound. To avoid penetrating the bladder wall, a larger needle is needed for the transabdominal approach, which does not necessitate anaesthesia. Minimal risk of bladder injury is achieved with the transvaginal technique, which shortens the distance to the gestation sac. It is appropriate to use conservative medical treatment for a patient who is not experiencing any symptoms, who is less than 8 weeks pregnant, who has β -hCG levels less than 5000, who has an embryo that is not beating, and who has a myometrial thickness less than 2 mm between the CSP and the bladder. The advantage of less aggressive and fertility-preserving medical treatment, whether taken alone or in combination, is that it takes time and patience. One of its drawbacks is that normalising β -hCG levels can take 4-16 weeks, the potential for uterine rupture and haemorrhage, as well as the possibility of recurrence or other problems such placental accretism or higher risk of uterine rupture due to an alteration that does not resolve at the level of the Caesarean section scar^[18].

In order to decrease the likelihood of further bleeding in patients undergoing conservative surgery or medical treatment, uterine artery embolisation (UAE) has been utilised^[19]. There was a marked reduction in both blood loss and hospital stay duration in patients who received UAE prior to treatment. Preterm labour, malpresentation, miscarriage, and postpartum haemorrhage are hazards of pregnancy following UAE that patients desiring future fertility should be advised about. For people hoping to conceive in the future, UAE is not the treatment of choice, because of the risks involved, the frequency of complications, and the likelihood of adverse effects on future fertility^[20].

Hysterectomy is the last resort for CSEP treatment, although other methods such as dilatation and curettage, direct excision of CSEP using an abdominal, laparoscopic, or hysteroscopic approach, and other similar procedures have been described. Since the ultrasound does not reveal the precise position of the gestational sac or the cavity, it is not advisable to do ultrasound-guided curettage or dilation. The possibility of uterine rupture and heavy bleeding is still present, which could lead to a secondary hysterectomy^[21]. The less invasive procedures, such as hysteroscopy, laparoscopy for gestational sac removal, and scar healing, result in less blood loss and shorter hospital stays. Women who want to keep having children can benefit from all of these methods.

CONCLUSION

In this article, we discussed an uncommon but increasingly common CSEP pathology that may be easily diagnosed with the help of transvaginal ultrasound flow Doppler. In order to preserve the uterus and future fertility, it is important to receive an early diagnosis so that treatment options can be explored to prevent uterine rupture and hemorrhage. Following a caesarean section, a precise and prompt transvaginal scan of all anterior and low-lying gestational sacs is necessary for the diagnosis of shortness of cervix. Successful therapy of CSEP frequently necessitates the use of many therapeutic modalities.

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