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Case Report

Caesarean scar ectopic pregnancy: a case report

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ABSTRACT

Caesarean scar ectopic pregnancy (CSEP) is where the conceptus is implanted deep in the myometrium and at the exact scar site of the previous caesarean section. Symptoms include amenorrhea, pelvic pain and vaginal bleeding in the first trimester. The investigation of choice is transvaginal ultrasound. Individualized treatment options are based on gestational age, presence of embryonal cardiac activity, severity of symptoms, serum hCG levels and ultrasonography findings for CSEP. The combined use of laparoscopy and ultrasound guidance for the evacuation is helpful in deeply impacted CSEP. Because early diagnosis and treatment is important for the best outcome, every pregnant woman with a history of cesarean should be screened early in the first trimester of pregnancy.

Keywords: Caesarean scar ectopic pregnancy, Medical, Ultrasound, Caesarean, Evacuation

INTRODUCTION

A caesarean scar ectopic pregnancy (CSEP) is wherein the conceptus is implanted deep in the myometrium and at the exact scar site of the previous caesarean section and may affect the quality of life in the long term.¹ Most reported cases of CSEP appear to have been diagnosed in the first trimester and is frequently misdiagnosed as normal intrauterine pregnancy, in-avoidable abortion and cervical pregnancy. Every pregnant woman with a history of cesarean should be screened early in the first trimester of pregnancy to rule out CSEP. Here we discussed a case of CSEP diagnosed early first trimester and managed effectively.

CASE REPORT

A 33-year-old G5 P1L1A3, previous 1 caesarean presented for routine check-up with 9 weeks and 3 days of amenorrhea. She had no complaints of pain abdomen or vaginal bleeding. H/o two spontaneous pregnancy losses

at 6 and 8 weeks for which evacuation was done. She had history of type 2 DM for 5 years. She had irregular cycles. Vitals were stable. P/A soft, nontender abdomen with healthy cervix and vagina. On per vaginal examination, her uterus was just bulky.

Transvaginal ultrasonography-empty uterus, empty cervical canal, development of low lying sac with yolk-sac embryo complex in the anterior part of lower uterine segment with cardiac activity, CRL=5.6 MM (6 weeks 2 days) bulging into the scar site and an absence of myometrium between the bladder wall and the gestational sac, (GS) suggestive of CS ectopic grade I. Minimum perisac collection of maximum thickness 2.8 mm noted. A colour Doppler USG demonstrated proliferative growth of the peri-trophoblastic vessels around the gestational sac and a spectral Doppler USG showed the foetal heart activity. Her beta-hCG level was 23445 IU/l at presentation. After discussion and counselling her regarding the potential threats of continuation of pregnancy, she underwent diagnostic hysterectomy

laparoscopy. Hysteroscopy-bilateral ostia seen, cavity hyperemic, no evidence of intra uterine pregnancy scar site bulge seen. Laparoscopy findings: uterus bulky, bilateral ovaries polycystic changes, bilateral tubes normal, peri hepatic adhesions (+), uterus inspected anteriorly at the scar site. No bulge was seen (Figure 2 a and b). USG (TVS)-live pregnancy seen at the scar site (Figure 1 a and b). Decided for D and E-uterus sounded, cervix serially dilated, product removed by ovum forceps, clear fluid followed by moderate amount fluid present, moderate amount of product obtained and was sent for histopathological examination. Bleeding normal TVS-cavity was empty. She was discharged on postoperative day 5. Her serum beta-HCG level was repeated after 48 hours of the first report which was 7727 IU/l. The serum beta-HCG levels showed declining trends. The pathology assessment of the specimen confirmed the presence of products of conception (Figure 3 a and b).

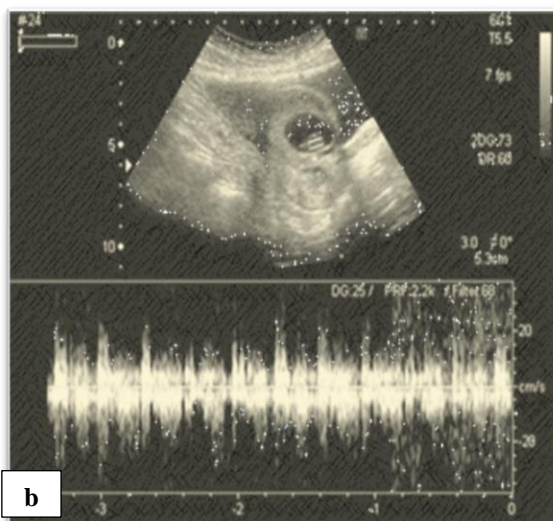


Figure 1: (a) USG examination showing the gestational sac near isthmus, close to previous caesarean section scar, and haemorrhagic fluid in endometrial cavity; (b) spectral Doppler examination of the foetal pole demonstrating the presence of foetal cardiac activity.

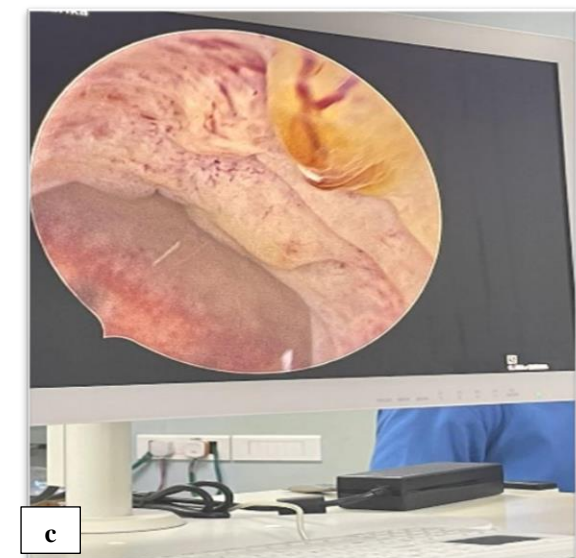
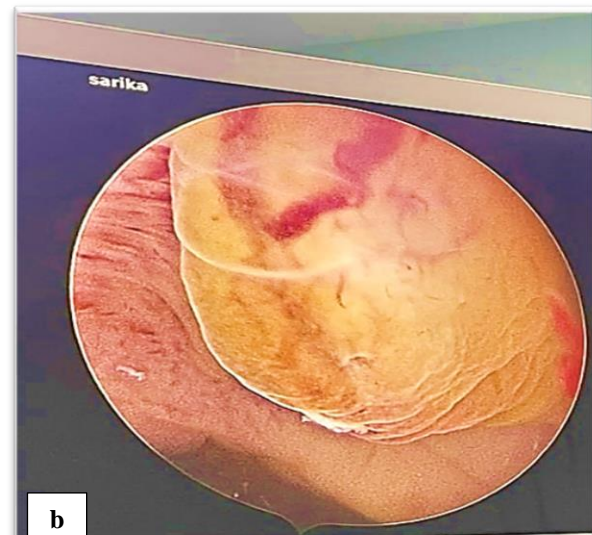
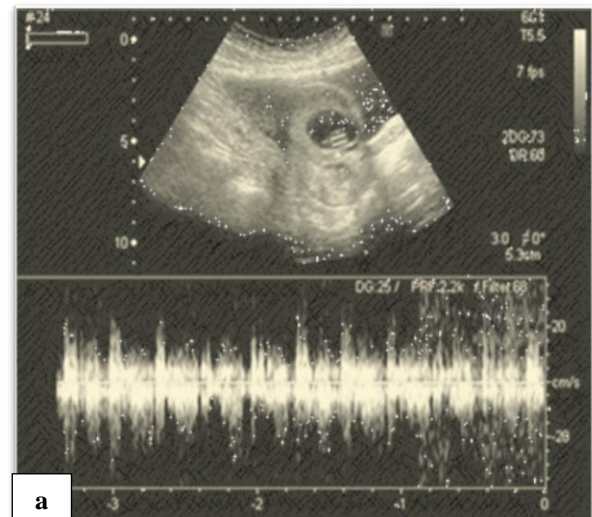


Figure 2 (a-c): Hystero-laparoscopy image of the patient with type 1 caesarean scar ectopic pregnancy with vascularity.

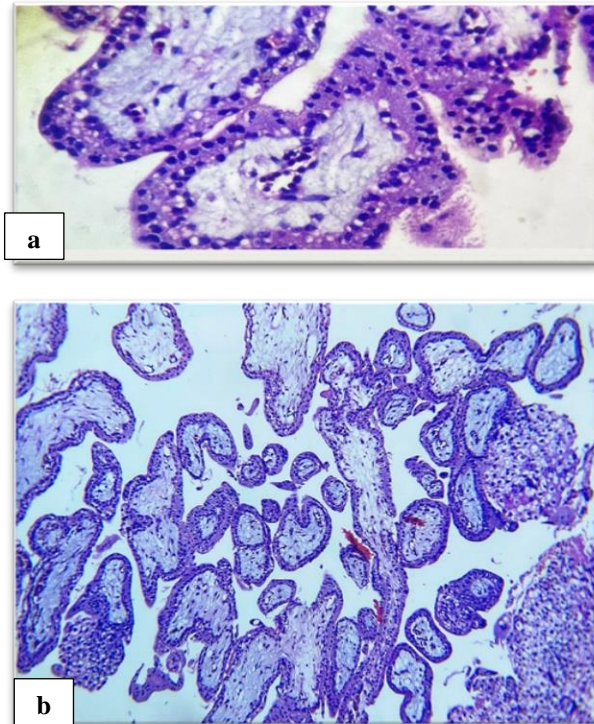


Figure 3 (a and b): Numerous chorionic villi lined by cytotrophoblast and syncytio-trophoblast with centre of villi showing foetal RBCs.

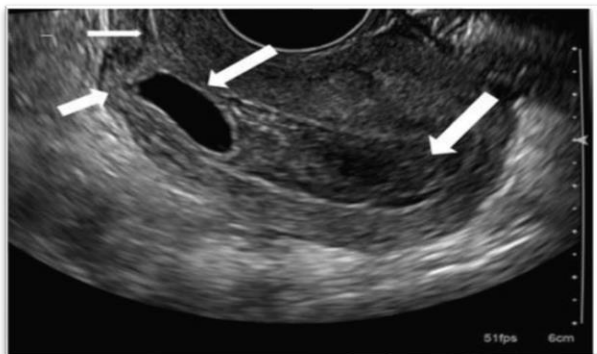


Figure 4: USG-trans vaginal view of CSEP.

DISCUSSION

A CSEP is wherein the conceptus is implanted deep in the myometrium and at the exact scar site of the previous caesarean section and may affect the quality of life in the long term.¹ Synonyms are caesarean scar pregnancy, caesarean ectopic pregnancy or simply caesarean scar ectopic or CSP.^{2,3}

Approximately 6.1% of ectopic pregnancies and 0.14% in previous caesarean cases. Due to increasing numbers of elective caesarean sections as well as improved detection with transvaginal ultrasound (TVUS), cases are on the rise.^{4,5}

Why CSP?

Trauma to the myometrium by dilatation and curettage, prior caesarean, myomectomy or an adenomyoma excision, pelvic inflammatory disease, the use of assisted reproductive techniques, prior placental pathology. This risk of CSEP is not necessarily affected by the number of previous caesarean deliveries.⁶⁻⁸ Women who have had an elective CS for breech presentation in a previous pregnancy are the ones mostly at risk due to poor formation of the lower uterine segment.^{9,10}

How and when CSP present?

Most reported cases of CSEP appear to have been diagnosed in the first trimester. Most common symptom is painless vaginal bleeding and if left untreated, the condition is frequently complicated by first-trimester uterine rupture, profuse haemorrhage and possible emergency hysterectomy.

The most accepted theory is that the blastocyst invade into the myometrium through a microscopic dehiscence tract, which may be due to previous uterine surgery (caesarean), manual removal of placenta or trauma as in ART.¹¹⁻¹⁴

Criteria-CSEP

A group of seven criteria proposed by Timor-Tritsch are as follows: (1) an empty uterine cavity and an empty endocervical canal; (2) a gestational sac located in the anterior portion of the lower uterine segment corresponding to the scar site of the previous caesarean; (3) demonstration of functional trophoblastic tissue by Doppler ultrasound at the site of implantation at the scar; (4) in early gestation, less than 8 weeks, a triangular shaped gestational sac filling the scar niche (after 8 weeks of gestation a rounded or an oval sac could be observed); (5) cervical canal that is closed and empty; (6) observation of foetal pole and/or yolk sac with or without heart activity; (7) absence or deficiency of a healthy myometrium between the bladder and the gestational sac.¹⁵

The last criterion allows differentiation of CSEP from a cervical-isthmic implantation.^{16,17}

Two types of CSEP have been defined based on the location of the gestational sac with respect to the uterine myometrial wall. In the first type (CSEP-I) endogenic, the conceptus is implanted in the previous scar and grows progressively into the cervico-isthmus space, while in the second type (CSEP-II) exogenic, the conceptus is implanted outside the myometrial scar and into the vesico-uterine space. Generally, blind curettage to evacuate a CSEP-II is not recommended and is indeed dangerous as this could cause inadvertent perforation and profuse bleeding.¹⁸

Grading system on ultrasound grade I CSEP indicates that it is lodged in less than one-half of the thickness of the

lower anterior corpus. Caesarean scar pregnancy in grade II occupied more than half the thickness of the lower anterior corpus. The GS bulged out the overlaying myometrium and uterine serosa in grade III CSEP. The GS formed an amorphous tumour with abundant vascularity at the CS in grade IV.¹⁹

Diagnosis/imaging USG

The gold standard for diagnosing CSEP is transvaginal ultrasonography-colour, spectral and power Doppler imaging. The sensitivity of the TVUS is 84.6%. Three-dimensional (3D) allows surgeons to study a confined area in better detail.²⁰ MRI can be used to determine the anatomical reports by specifying the depth of trophoblastic invasion in the myometrium, serosa or bladder involvement and the exact position of the gestational sac and optimally demonstrates findings of placenta accreta spectrum.^{21,22}

What can mimic CSEP?

According to Zhang et al it was frequently misdiagnosed as normal intrauterine pregnancy, missed/in-avoidable abortion and cervical pregnancy.

Management decisions

Determined by gestational age, severity of implantation, clinical stability and patient desire for future fertility. According to Jurkovic et al each woman should be given all the available information and the opportunity to decide on the management of her pregnancy.⁹ As for the management of CSEP, treatment options include expectant management, administration of MTX, surgery or uterine artery embolization. However, currently, no modality appears to be entirely reliable and none can guarantee uterine integrity.²³ The expectant, the conservative and the surgical management of this condition have a success rate of up to 41.5%, 75.2% and 97.1% respectively. Expectant management is an acceptable option in non-viable CSEP's. Medical treatment with MTX may be performed by local injection into the sac under ultrasound guidance or by intramuscular injection in patients with beta hCG <5000 and gestational age less than 8 weeks, however, the trophoblast may persist in situ and cause haemorrhage.²³ In a current literature review by Kanat-Pektas et al methotrexate treatment was found to be the least effective method. A recent randomized trial compared the effectiveness of local and systemic MTX in cases of CSP and found comparable success rates.²⁴ In a systematic review, systemic MTX was effective only in cases with hCG levels less than 12,000 and no foetal cardiac activity. Uterine artery embolization (UAE) was another option for nonsurgical treatment of CSEP.²⁵ Similar to intralesional methotrexate treatment, absorption of gestational sac and decline of hCG levels require relatively long time interval and significant bleeding could be observed in the follow-up period. Therefore, suction curettage could be a safe option after UAE and methotrexate treatment in which

vaginal bleeding persists. Combination of local MTX and uterine artery embolization have been reported.²⁶ Surgical management consists of evacuation of the pregnancy, hysteroscopic resection, or excision of the pregnancy via laparotomy, laparoscopy or trans-vaginally. Conventionally, a laparotomy and a resection of the ectopic sac along with the previous scar tissue have been used for hemodynamically stable patients, but in skilled hands, a laparoscopic excision alone is sufficient for complete treatment of CSEP. Further, patients presenting with an exogenously located CSEP are ideal candidates for laparoscopic intervention.²⁷ Treating CSEP may carry an increased risk of haemorrhage if the gestational sac is larger than 6 cm, the anterior wall is 70 cm/s, and the resistance index is <0.35 calculated from Doppler of peritrophoblastic blood vessels.²⁸ Hysteroscopy alone may be used effectively in cases of CSPs growing inwards as in our case.²⁹ With respect to minimal invasive surgical approach, robotic assisted laparoscopic removal of residual caesarean ectopic pregnancy was also reported by Schmitt et al.³⁰

Assess scar integrity

MRI or ultrasound-SIS may be performed to accurately assess the residual anterior myometrium and the size of any remaining caesarean niche.³¹

Recurrence

The risk of recurrence was estimated at 5%.

When next?

Some authors recommended an interval of 12 to 24 months between pregnancy with a caesarean section scar and a future pregnancy. Esposito et al concluded that the interpregnancy interval was inversely associated with the probability of uterine scarring failure in subsequent labor.³³ If the patient conceives again after CSEP treatment, delivery routes should be discussed with the patient. Generally, a caesarean delivery was recommended. CSEP affects the quality of life in the long term.³⁴

CONCLUSION

Individualized treatment options are based on gestational age, presence of embryonic cardiac activity, severity of symptoms, serum hCG levels and ultrasonography findings for the successful outcome for CSEP. The combined use of laparoscopic evaluation and ultrasound guidance helps in the evacuation of CSEP. Because prompt recognition and treatment are crucial, early transvaginal sonography is recommended in women with history of prior caesarean deliveries or CSEP to confirm an intrauterine location of a new gestation.

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