Case Report

Caesarean Scar Ectopic Pregnancy: A Rare Form of Ectopic Pregnancy; Case Report

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Abstract

Cesarean scar ectopic pregnancy (CSEP) is a rare but potentially life-threatening condition in which the embryo implants in scar tissues of a previous cesarean section rather than in endometrial cavity. Cesarean scar ectopic pregnancy is often considered as asymptomatic and is primarily diagnosed by ultrasound. Management of Cesarean scar ectopic pregnancy remains a challenge clinically due to lack of standardized treatment protocol globally. Society for Maternal Fetal Medicine strongly advises against continuing pregnancy in this condition due to high risk of different complications, such as maternal morbidity and mortality. Thus, early diagnosis, mainly in women with a history of cesarean section is essential to prevent severe complications such as uterine rupture and massive hemorrhage. The current case report describes the case of 38 years old women diagnosed with Cesarean scar ectopic pregnancy. The patient was initially treated for three weeks conservatively before undergoing surgical procedure successfully.

Keywords: Caesarean Scar Ectopic Pregnancy, Ultrasonography, Diagnosis, Surgical Management

Cite this article as: Saeed S, Shakir A, Pirzada H, Adnan Z, Zubair M, Ain NU. Caesarean Scar Ectopic Pregnancy: A Rare Form of Ectopic Pregnancy; Case Report. J Soc Obstet Gynaecol Pak. 2025; 15(4):342-345. DOI. 10.71104/jsogp.v15i4.970

Introduction

Cesarean Scar Ectopic Pregnancy (CSEP) is rare but life-threatening condition, which is also known as High order cesarean section (HOCS). CSEP is defined as embryo implantation in fibrous scar of a previous cesarean section rather than in endometrial cavity.[1] Every one case per 1800 to 200 pregnancies is of CSEP but the prevalence is increasing, representing up to 6% of ectopic pregnancies with women having history of cesarean section.[2] However, the risk of Cesarean scar ectopic pregnancy is higher in patients with four or more cesarean section significantly then women with less cesareans.[3] Poor healing of uterine scar results in local thinning, allowing for aberrant implantation of gestational sac, is the underlying pathophysiology of CSEP.[4] Ultrasonography (USG) is primarily used to diagnosis CSEP. It is characterized by an empty uterine cavity and cervical canal and gestational sac presence embedded in lower uterine segment, with no intervening myometrium between bladder wall and the sac. CSEP is mainly classified into two types.[5] Type 1 (Endogenous) defined as the gestational sac implants on the scar and grows towards the cervico-isthmic or uterine cavity whereas, Type 2 (Exogenous) characterized as sac deeply infiltrates the scar and surrounding myometrium, expanding towards the bladder.

This classification aids in counseling patients regarding management options. CSEP carries a high risk of severe maternal complications, including uterine rupture and massive hemorrhage.[3] Currently, there is no standardized treatment protocol, but surgical intervention is generally preferred over medical management due to higher success rates. The SMFM advises against continuing a CSEP pregnancy due to the significant maternal risks.[6]

Case Report

A 38-year-old female, gravida 4 para 3, with all previous deliveries via lower-segment caesarean section (LSCS), presented for an antenatal checkup at CMH Muzaffarabad. She had no active complaints, and a routine booking ultrasound at CMH Gilgit raised suspicion of an ectopic pregnancy implanted at the caesarean scar as showed in Figure 1.

Ultrasound report findings focus primarily on anatomical details – empty uterine cavity and cervical canal, gestational sac located in the anterior lower

uterine segment, fetal pole with positive cardiac activity, and a myometrial thickness of 10 mm at the scar site. However, a thorough evaluation of a cesarean section ectopic pregnancy (CSEP) should also include an evaluation of the vascularity at the scar site.

Vascularity at the scar site: In suspected CSEP, color Doppler ultrasound is essential. Increased peritrophoblastic blood flow at the scar site is a characteristic finding. This hypervascularity helps to:

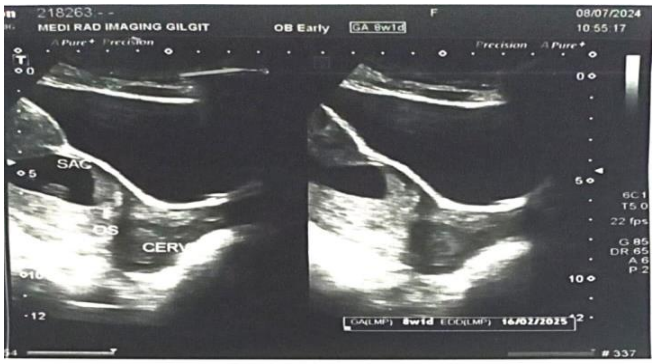
- Confirm the viability of the ectopic pregnancy.
- Distinguish CSEP from other differential diagnoses, as the blood flow in CSEP is localized to the scar region and not diffusely distributed.

Differentiation from abnormal invasive placenta (AIP) in early pregnancy

Differentiation between CSEP and AIP in early pregnancy is based on several imaging findings: Localization and structure:

In CSEP, the gestational sac is embedded in the cesarean scar and is separate from the endometrial cavity. In AIP, abnormal adherent placental tissue without a clearly demarcated sac is often seen. Vascular patterns: CSEP usually shows local hypervascularity with peritrophoblastic flow confined to the scar site. In AIP, blood flow may be more diffuse and extend beyond the scar region, often with loss of the normal uterine-serosal boundary.

Myometrial thickness: A preserved myometrial thickness (10 mm in this case) supports the diagnosis of CSEP. In AIP, however, thinning or discontinuity of the myometrium may be seen.



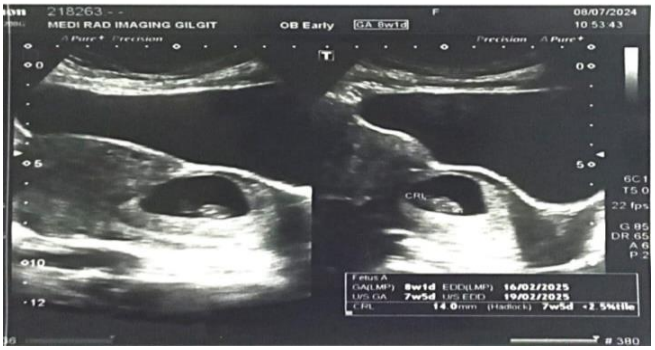


Figure 1. Ultrasound results of Caesarean Scar Ectopic Pregnancy Case.

The patient was informed about the diagnosis and its potential complications. Despite medical advice for admission, she opted for a second opinion at a tertiary care hospital in Rawalpindi. A follow-up scan one week later confirmed an 8-week pregnancy with persistent FCA and a reduced myometrial thickness of 6 mm. She was again advised admission, but due to personal and social constraints, she returned to CMH Muzaffarabad three weeks later.

Upon her return, now at 10 weeks of amenorrhea, she reported mild lower abdominal pain localized to the caesarean scar area. There were no associated urinary or bowel complaints, nor any abnormal vaginal discharge. The patient was vitally stable.

Repeat Ultrasound Findings: 10-week pregnancy with positive FCA, ectopic gestational sac in the lower uterine segment near the internal os and myometrial thickness at the scar site further reduced to 3 mm

Given the progressive thinning of the myometrium and the onset of pain, an emergency surgical intervention was planned as showed in Figure 2. Following detailed counseling, informed consent was obtained, and two units of blood were arranged.

Intraoperative Findings & Surgical Management: A prominent bulge at the previous scar site, suggesting imminent rupture, peritoneum was separated, and the urinary bladder retracted downward, gestational sac was protruding through the scar; it was removed intact and chorionic tissue was adherent to the scar and required excision with scar trimming. The uterine defect was repaired in two layers. Hemostasis secured, and bilateral tubal ligation (BTL) performed and estimated blood loss was 600 cc (no transfusion required)

The postoperative course was uneventful. The patient was discharged on the third postoperative day with oral antibiotics and analgesics.

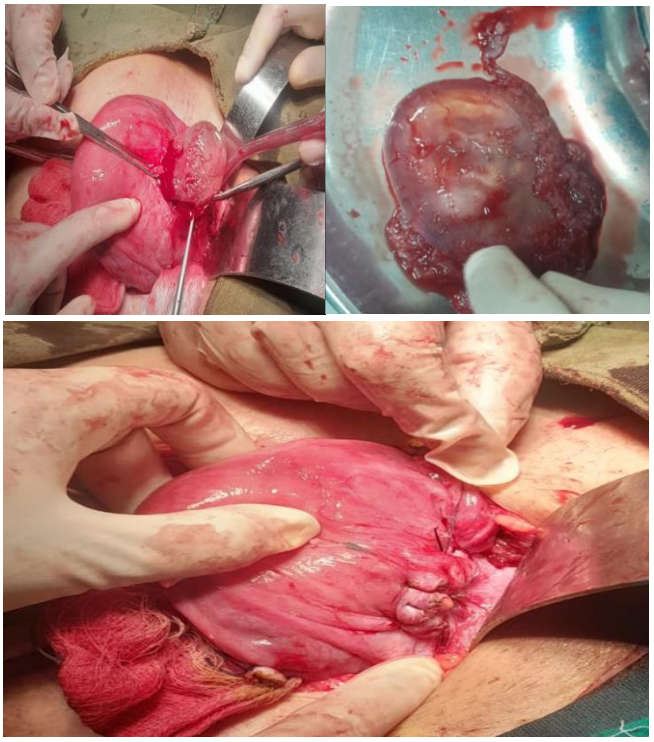


Figure 2. Surgical intervention

Discussion

Cesarean scar ectopic pregnancy (CSEP) is an increasingly recognized complication, particularly in relation to the worldwide increase in the rate of cesarean deliveries.[7] This growing trend suggests a continued rise in the incidence of CSEP, highlighting the importance of increased vigilance on the part of clinicians.[8] This rare form of ectopic pregnancy is often associated with other severe obstetric complications, such as placenta previa or placenta accreta spectrum (formerly called abnormally adherent placenta).[9-11]

Patho physiologically, most widely accepted mechanism is based on implantation of the blastocyst into the myometrium through a microscopic breach in the uterine scar, resulting from previous surgical interventions, such as cesarean sections, elective terminations of pregnancy, or assisted reproductive techniques.[12] Diagnosis is primarily based on transvaginal ultrasound, which offers a sensitivity of 85%. MRI can be used as a complement to clarify the anatomical relationships with neighboring structures, particularly in cases of suspected deep involvement or uncertain diagnosis.[13] Moreover, management of EGCC depends on several factors, including the size of the pregnancy, the beta-HCG level, the presence or absence of fetal cardiac activity, as well as the clinical status of the patient.[14] In early and stable cases, medical treatment with intramuscular methotrexate can be considered, particularly when the gestational age is less than eight weeks, cardiac activity is absent, and the beta-HCG level is less than 12,000 mIU/ml.[15] Local injection of methotrexate guided by transvaginal ultrasound is a targeted alternative, often used when systemic treatment is contraindicated or deemed insufficient. Interventional radiological approaches, such as uterine artery embolization (UAE), alone or combined with aspiration, are still under investigation but appear promising, especially when combined with methotrexate.[16-18] However, in our case, the patient presented with progressive symptoms and progressive myometrial thinning, which prompted the choice of surgical treatment by laparotomy. This approach allowed complete excision of the ectopic pregnancy, direct assessment of uterine integrity, and careful scar repair, thus reducing the risk of recurrence and future complications. The choice of this intervention is also based on the recommendation that a myometrial thickness of less than 2 mm is a major criterion for considering open surgery to ensure optimal results and preserve the patient's fertility as much as possible.

Conclusion

CSEP presents both diagnostic and therapeutic challenges. In patients with a history of caesarean sections, it should be considered in the differential diagnosis during routine first-trimester ultrasound scans to prevent life-threatening maternal complications. Early diagnosis and timely intervention remain key to reducing morbidity and mortality. Given the increasing caesarean section rates, clinicians must remain vigilant for this rare but serious condition.

Acknowledgement: The authors would like to acknowledge the Medical Affairs department of Getz Pharma for their technical support and assistance in the publication process.

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