



ORIGINAL RESEARCH PAPER

Obstetrics and Gynaecology

MANAGEMENT OF CESAREAN SCAR ECTOPIC PREGNANCY: A CASE REPORT OF FAILED MEDICAL MANAGEMENT AND SUCCESSFUL LAPAROSCOPIC EXCISION

KEY WORDS:

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ABSTRACT

Background: Cesarean scar ectopic pregnancy (CSEP) is a rare but potentially life-threatening form of ectopic pregnancy in which implantation occurs within a previous cesarean section scar. Early diagnosis and appropriate management are essential to prevent severe complications such as uterine rupture, massive hemorrhage, and loss of fertility. **Case Presentation:** We report the case of a 33-year-old woman, gravida 2 para 1 living 1, with a history of one previous cesarean section, who presented at 7 weeks and 6 days of gestation with cesarean scar ectopic pregnancy. Initial ultrasonography demonstrated a low-lying gestational sac implanted near the previous cesarean scar. The patient initially received two doses of systemic methotrexate at an outside hospital; however, serial serum β -hCG levels increased from 7752 mIU/ml to 14,101 mIU/ml, indicating failed medical management. At our institution, an additional dose of methotrexate was administered, resulting in partial biochemical response, but persistent ectopic gestation was noted on repeat imaging. Due to inadequate radiological resolution and risk of complications, laparoscopic-guided hysteroscopic suction and evacuation with complete laparoscopic excision of the scar ectopic tissue and repair of the uterine defect was performed successfully. Histopathology confirmed ectopic pregnancy tissue, and postoperative β -hCG levels showed significant decline with uneventful recovery. **Conclusion:** This case highlights the importance of early diagnosis, close monitoring, and individualized management in cesarean scar ectopic pregnancy. Although methotrexate remains a first-line treatment in selected stable patients, failed medical therapy necessitates timely surgical intervention. Minimally invasive laparoscopic excision with scar repair is a safe and effective fertility-preserving option associated with favorable maternal outcomes and minimal morbidity.

INTRODUCTION

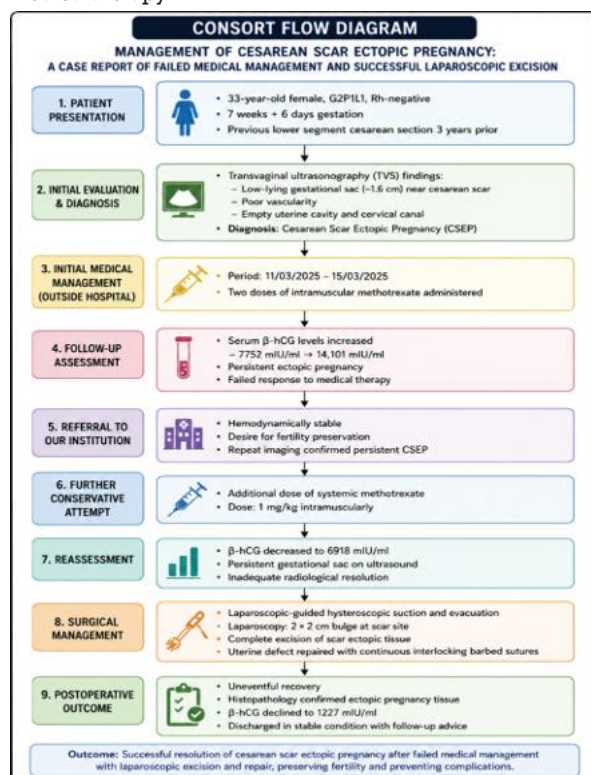
Cesarean scar ectopic pregnancy (CSEP) is a rare but potentially life-threatening form of ectopic pregnancy characterized by implantation of the gestational sac within the fibrous defect of a previous cesarean section scar (1). With the increasing global cesarean delivery rate and widespread use of early pregnancy ultrasonography, the incidence of CSEP is being reported more frequently. Depending on the direction of growth, CSEP may progress toward the uterine cavity, increasing the risk of placenta accreta spectrum disorders and severe obstetric hemorrhage, or extend outward toward the myometrium and serosa, predisposing to early uterine rupture and catastrophic bleeding in the first trimester (2).

Early and accurate diagnosis is essential to reduce maternal morbidity and preserve fertility. Transvaginal ultrasonography remains the primary diagnostic modality, with characteristic findings including an empty uterine cavity and cervical canal, localization of the gestational sac at the site of the previous cesarean scar, thinning of the myometrium between the sac and bladder, and increased peri-sac vascularity on Doppler imaging (1). MRI may be useful in selected equivocal cases.

Although multiple treatment modalities have been described, there is still no universally accepted management protocol for CSEP because of its rarity and variable clinical presentation. Medical management with systemic methotrexate is often considered the first-line option in hemodynamically stable patients with unruptured scars and minimal symptoms (3). However, treatment failure may occur despite adequate dosing and close monitoring, necessitating prompt surgical intervention to prevent serious complications such as uterine rupture and massive hemorrhage.

We report a case of a 33-year-old woman with cesarean scar ectopic pregnancy who initially underwent medical management with multiple doses of methotrexate but

demonstrated persistent ectopic gestation with inadequate biochemical and radiological resolution. She was subsequently managed successfully with laparoscopic excision of the scar ectopic pregnancy and repair of the uterine defect. This case highlights the importance of individualized management, vigilant follow-up, and timely minimally invasive surgical intervention following failed medical therapy.



Case Report

Patient Information and Clinical Presentation

A 33-year-old woman, gravida 2 para 1 living 1 (G2P1L1), Rh-negative, presented at 7 weeks and 6 days of gestation with a diagnosis of cesarean scar ectopic pregnancy (CSEP). She had a history of one previous lower segment cesarean section performed three years earlier for fetal growth restriction. The patient was otherwise hemodynamically stable and had no significant medical comorbidities. Initial transvaginal ultrasonography revealed a low-lying gestational sac measuring approximately 1.6 cm implanted near the site of the previous cesarean scar with poor vascularity. Findings were suggestive of a cesarean scar ectopic pregnancy.

Initial Medical Management

The patient was initially managed at an outside hospital from 11/03/2025 to 15/03/2025, where she received two doses of intramuscular methotrexate as conservative medical management. However, serial monitoring demonstrated a rising serum β -hCG level from 7752 mIU/ml to 14,101 mIU/ml, indicating poor response to therapy. Owing to the inadequate biochemical response, she subsequently presented to our institution for further management.

Re-evaluation and Further Conservative Therapy

At our center, detailed clinical and radiological evaluation confirmed persistence of the cesarean scar ectopic pregnancy. As the patient remained clinically stable and desired fertility preservation, another dose of systemic methotrexate (1 mg/kg intramuscularly) was administered with close monitoring. Following treatment, serum β -hCG levels showed a decline to 6918 mIU/ml. Despite the biochemical reduction, repeat ultrasonography continued to demonstrate a persistent gestational sac embedded within the cesarean scar region, raising concern for failed medical management and risk of future complications such as uterine rupture or severe hemorrhage.

Surgical Management

In view of persistent ectopic tissue despite multiple doses of methotrexate, a decision was made to proceed with minimally invasive surgical management. The patient underwent laparoscopic-guided hysteroscopic suction and evacuation under general anesthesia. Hysteroscopic evaluation revealed minimal bleeding with blood clots present at the previous scar site; however, the gestational sac could not be completely visualized hysteroscopically. On laparoscopic examination, a 2 × 2 cm bulge was identified over the previous cesarean scar site, confirming persistence of the ectopic implantation within the myometrial defect. Complete excision of the scar ectopic tissue along with the fibrotic scar tissue was performed laparoscopically. The uterine defect was subsequently repaired using continuous interlocking barbed sutures to restore uterine integrity and reduce the risk of recurrence in future pregnancies.

Postoperative Outcome and Follow-up

The postoperative period was uneventful, and the patient remained hemodynamically stable throughout recovery. Histopathological examination of the excised tissue confirmed products of conception consistent with ectopic gestation. Serial postoperative β -hCG monitoring demonstrated a significant decline to 1227 mIU/ml, indicating successful resolution of the ectopic pregnancy. The patient was discharged in stable condition with advice for regular follow-up and counseling regarding future pregnancies.

Clinical Significance

This case highlights the importance of early diagnosis, close biochemical and radiological surveillance, and individualized management in cesarean scar ectopic pregnancy. Although systemic methotrexate remains an accepted first-line treatment in selected stable patients, failure of medical therapy warrants timely surgical

intervention. Laparoscopic excision with repair of the cesarean scar defect proved to be a safe and effective fertility-preserving approach in our patient, minimizing morbidity and preventing potentially life-threatening complications.



Figure 1: Transabdominal Ultrasonography Demonstrating a Low-lying Gestational Sac Implanted at the Site of the Previous Cesarean Scar in the Lower Uterine Segment, Suggestive of Cesarean Scar Ectopic Pregnancy.



Figure 2: Intraoperative Laparoscopic Image Showing Cesarean Scar Ectopic Pregnancy Tissue within the Previous Uterine Scar Defect During Laparoscopic Excision And Repair.

DISCUSSION

Epidemiology and Clinical Presentation

Cesarean scar ectopic pregnancy (CSEP) is a rare but potentially life-threatening condition with an estimated incidence of approximately 1 in 2000 pregnancies (1). Since its first description by Larsen et al. in 1978 (3), the incidence has increased significantly due to rising cesarean delivery rates and improved early pregnancy imaging modalities (4). CSEP may present with vaginal bleeding, abdominal pain, or may remain asymptomatic, making early diagnosis challenging. Gonzalez and Tulandi (6), in their systematic review, reported vaginal bleeding as the most common presenting symptom, although nearly one-third of patients were asymptomatic. Similarly, our patient remained hemodynamically stable with minimal symptoms despite persistence of the ectopic gestation.

Role and Limitations of Medical Management

Management of CSEP remains controversial, with no universally accepted treatment protocol (1). Treatment should be individualized based on hemodynamic stability, gestational age, serum β -hCG levels, ultrasound findings, and fertility preservation desires (6). Medical management with methotrexate is commonly considered first-line therapy in stable patients because of its noninvasive nature (1,4). Systemic methotrexate demonstrates better outcomes when β -hCG levels are less than 5000 IU/L, gestational age is below 8 weeks, fetal cardiac activity is absent, and the ectopic mass

is less than 3 cm (1,4,6). However, our patient demonstrated rising β -hCG levels from 7752 mIU/ml to 14,101 mIU/ml despite receiving multiple doses of systemic methotrexate, indicating failed medical management. This finding supports previous observations that fibrosis at the cesarean scar may limit adequate penetration of systemic methotrexate into trophoblastic tissue (6).

Comparison with Previous Studies

Several studies have shown improved success rates with combined local and systemic methotrexate therapy compared with systemic therapy alone. Sadeghi et al. (9) reported successful treatment in 74% of women managed with combined therapy, while Gupta et al. (11) described successful management of a live cesarean scar ectopic pregnancy with extremely high β -hCG levels using multidose methotrexate along with intra-sac potassium chloride injection, although prolonged follow-up was required for normalization of β -hCG levels. In contrast, our patient showed persistent ectopic gestation despite repeated systemic methotrexate administration, necessitating surgical intervention.

Surgical Management and Outcome

Surgical management offers the advantages of complete removal of ectopic tissue, rapid decline in serum β -hCG levels, shorter follow-up duration, and reduced risk of catastrophic hemorrhage (6,14). Minimally invasive surgical approaches such as hysteroscopic resection, suction evacuation, laparoscopic excision, and scar repair are increasingly preferred depending on the type and extent of implantation (1,4,6). Excision techniques are particularly recommended in exophytic variants or in cases with failed medical management (1,4,6). Similar to findings reported in previous studies, our patient underwent successful laparoscopic excision of the scar ectopic pregnancy with repair of the uterine defect after failure of conservative therapy. Unlike some studies advocating preoperative uterine artery embolization for hemostasis (4), our patient did not require embolization because prior methotrexate therapy had already reduced vascularity and intraoperative bleeding remained minimal.

Clinical Implications and Follow-up

Our case reinforces the importance of individualized management and timely escalation to surgical treatment when medical therapy fails. Early diagnosis, close biochemical and radiological monitoring, and prompt minimally invasive intervention can significantly reduce morbidity while preserving fertility. Long-term follow-up with serial β -hCG monitoring and early ultrasound assessment in future pregnancies remain essential because recurrence rates of CSEP have been reported between 5% and 15% (15,16).

CONCLUSION

Cesarean scar ectopic pregnancy is a rare but potentially life-threatening condition that requires early diagnosis and prompt individualized management to prevent severe complications such as uterine rupture, massive hemorrhage, and loss of fertility. Although systemic methotrexate is considered an effective first-line treatment in hemodynamically stable patients, failure of medical management should be recognized early through close clinical, biochemical, and radiological monitoring. Our case demonstrates that persistent cesarean scar ectopic pregnancy despite multiple doses of methotrexate can be managed successfully with minimally invasive laparoscopic excision and repair of the scar defect, resulting in complete resolution with minimal morbidity and preservation of future fertility. This case further emphasizes the importance of timely transition from conservative to surgical management in achieving optimal maternal outcomes.

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