

# Caesarean Scar Ectopic Pregnancy Management: A case presentation and literature review.

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## Introduction

Caesarean Scar Ectopic Pregnancy (CSEP) is a rare ectopic pregnancy, occurring in 1 in 2000 pregnancies, where the embryo implants in a previous caesarean scar.<sup>1</sup> Risk factors include multiple caesareans, prior uterine surgery, and assisted reproduction. CSEP carries high risk of haemorrhage and uterine rupture. Beta-hCG levels, ultrasound determined COS classification and Residual Myometrial Thickness (RMT) help guide management. Treatment includes expectant, medical or surgical management. Early detection and management are essential to prevent complications.<sup>2</sup>

## Case

A 45-year-old G4P3 presented at 6+1 weeks with vaginal bleeding and pain, three months post-caesarean. Ultrasound confirmed a viable COS-1 CSEP with reduced RMT and increased vascularity (Figure 1).

Initially, she desired pregnancy continuation but, after counselling, opted for local intra-sac and systemic IM methotrexate (MTX) with dose adjusted to body surface area. Despite an initial beta-hCG rise and pain, she remained stable, with no acute intra-abdominal pathology on CT. A second MTX dose was given 6 days later, and surgery was considered. Beta-hCG declined 20% over the next 3 days, and improving pain rendered surgery unnecessary. Beta-hCG declined until negative, which confirmed successful MTX treatment of the CSEP.



Figure 1. Transvaginal ultrasound imaging at 6+4 of low implantation of pregnancy with extension into the lower segment scar (arrow) and 1.2mm RMT (\*). FHR present but not demonstrated in this figure.

## Discussion

There is no consensus on optimal CSEP management, with treatment depending on clinical presentation, gestational age, ultrasound findings, and reproductive goals.

### Expectant Management

Expectant management, or close monitoring, is rarely recommended due to high rupture and maternal complication risks. While live birth rates may reach 73%, there are significant morbidity and mortality risks associated, with a hysterectomy rate of 70%.<sup>2</sup>

### Medical therapy

Beta-hCG levels assess medical therapy efficacy; if levels plateau or rise, surgical intervention may be necessary

**MTX:** Inhibits trophoblastic proliferation

**Local intra-sac MTX:** First line medical therapy administered under ultrasound guidance. It directly targets the ectopic site, reducing systemic effects and preserving fertility.<sup>2,3</sup>

**Systemic MTX:** Alone is not recommended but can be used as an adjunct to intra-sac MTX or surgical management, particularly in cases with high beta-hCG levels or residual trophoblastic tissue, enhancing efficacy and reducing recurrence<sup>2,3</sup>

**Potassium chloride (KCl):** Alternative injection therapy, inducing fetal asystole and reducing trophoblastic activity, often combined with MTX. KCl is useful for CSEP with fetal cardiac activity, improving success and reducing surgery need.<sup>2,4</sup>

### Surgical Management

Indicated for failed medical treatment, advanced pregnancies, unstable patients, uncertain follow-up, or patient preference.

**Hysteroscopic resection:** Reserved for smaller pregnancies due to its minimally invasive nature.<sup>1,5</sup>

**Laparoscopic resection:** The procedure benefits larger or complex cases. 97.1% success rate, allowing scar resection and repair, preserving fertility, and reducing recurrence.<sup>1,5</sup>

**Hysterectomy:** Generally reserved for emergency situations, cases where fertility sparing is not desired, extensive myometrial invasion, cases not responsive to medical management, late diagnosis or not suitable for conservative surgery.<sup>1,5,6</sup>

**Curettage:** The procedure alone is contraindicated due to risk of haemorrhage and uterine rupture. However, in select cases, when combined with methotrexate (MXT) and performed under ultrasound guidance, it has demonstrated successful resolution in up to 96.2% of cases.<sup>6</sup>

**Uterine artery embolization:** Impairs uterine artery blood flow, decreasing vascularisation and inducing trophoblastic degeneration. Used in combination with other therapies, such as MTX or curettage, it may improve the success and decrease bleeding.<sup>6</sup>

## Conclusion

CSEP is a rare but increasingly recognised complication of caesarean deliveries, with severe risks. Treatment should be individualised and includes medical and surgical management, while expectant management is rarely advised. Further research is needed to optimise treatment, refine management, and preserve fertility.

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