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**Case Report**

# Challenging the surgical norm-medical management of cesarean scar ectopic pregnancy: a case report

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## ABSTRACT

Cesarean scar pregnancy (CSP) is a rare form of ectopic pregnancy in which implantation occurs within the myometrial defect of a previous cesarean section scar. Its incidence is rising in parallel with increasing cesarean delivery rates. Although surgical management is traditionally preferred to prevent complications such as uterine rupture and morbidly adherent placenta, selected cases may be effectively managed medically. We report the successful medical management of a 34-year-old $G_3P_2L_1$ woman with two prior cesarean deliveries who presented with mild abdominal discomfort and bleeding per vaginum after a 14-day delayed menstrual cycle. Her serum β-hCG was >15,000 mIU/mL. Transvaginal ultrasonography revealed a gestational sac measuring ~11.6 mm located within the anterior myometrium at the previous cesarean scar, containing a yolk sac and fetal pole with cardiac activity, consistent with a live CSP. The patient wanted uterine-preserving medical management. This case demonstrates that even a live CSP can be successfully managed using a combined local-systemic medical approach, preserving menstrual function, uterine integrity and fertility. With cesarean rates rising globally, evidence supporting safe, effective, non-surgical alternatives is increasingly important. The patient was followed up with β-hCG levels.

**Keywords:** Cesarean scar pregnancy, Ectopic pregnancy, Medical management, Methotrexate, β-hCG

## INTRODUCTION

Cesarean scar pregnancy (CSP) implies implantation within the myometrium of a prior caesarean delivery scar. Its incidence approximates 1 case in 2000 normal pregnancies and has increased along with the cesarean delivery rates. Women with symptomatic CSP usually present early, and pain and bleeding are common. Still, upto 40% nt of women are asymptomatic, and diagnosis is made during routine sonographic examination.[1]

Normally, to avoid future risks of morbidly adherent placenta or recurrence, surgical management is recommended, but here we have successfully tried medical management, providing evidence for newer approach of management in view of raised cesarean section rates, and in turn, a predicted increase in incidence of scar ectopic pregnancies.

Sonographic diagnostic criteria include: an empty uterine cavity and empty endocervical canal, placenta or gestational sac embedded in the hysterotomy scar niche, a thin myometrial mantle between the gestational sac and bladder, and a prominent vascular pattern at the scar.[2]

## CASE REPORT

A 34 year old, $G_3P_2L_1$ female, with previous 2 cesarean sections, presented to our department with bleeding per vaginum and mild abdominal discomfort, after overdue of menses by 14 days.

Initial investigations were done, β-hCG was >15,000. Transvaginal sonography revealed a well defined cystic lesion measuring ~11.6 mm (5-week 0 day) in anterior myometrium at scar site, containing yolk sac (~2.5 mm)

with a fetal pole (~2.3 mm) with cardiac activity as seen in USG Figure 1.

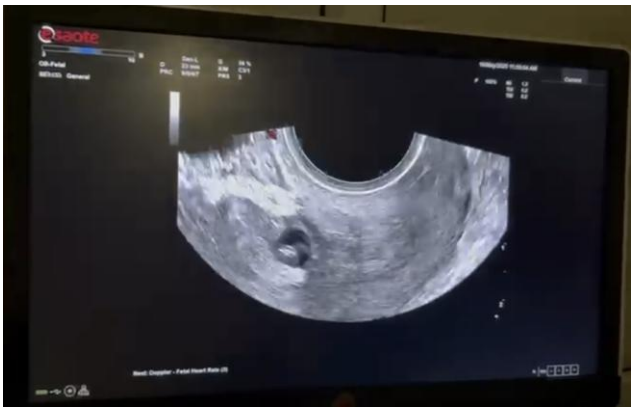

**Figure 1: Transvaginal ultrasonography of live CSP.**

***Management***

Evidence suggests that some of these pregnancies will not behave as a typical ectopic pregnancy, and rupture rates are lower. CSPs are thought by some to be a precursor of PAS.[3] As such, a significant percentage of affected pregnancies will progress to a viable-aged neonate, albeit with the complications associated with PAS.

In our case, the patient wanted to preserve her uterus and wanted medical management for her condition.

On day 1, β-hCG of the patient was sent and found to be >15000. The patient was taken for USG guided intervention, where via transabdominal probe, her gestational sac was localized. All her routine investigations, including CBC, LFT, KFT, Viral Markers were done and were found to be within normal limits. Under USG guidance, after giving local anaesthetics, a 20G Spinal needle, was directed into G-Sac and intra-sac instillation of 0.8 mL KCl was done. Post-KCl, USG guided intra-sac instillation of 25 mg methotrexate (MTX) was done needle was withdrawn. Loss of cardiac activity was confirmed and the G-sac was found to be collapsed (as seen in USG Figure 2). During the procedure, the patient was comfortable and her vitals were stable.

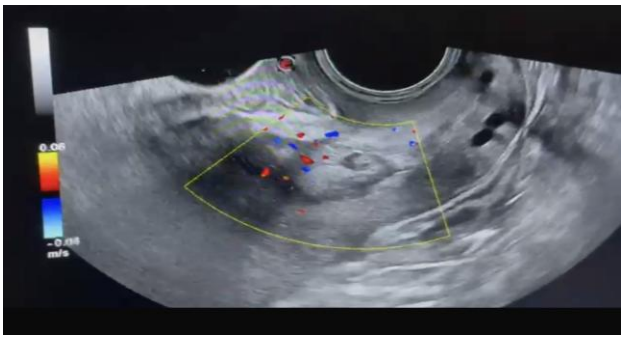

**Figure 2: Ultrasound-guided intra-sac medical management of CSP.**

On day 3, all routine investigations were repeated and found to be within normal limits. Injection MTX 50 mg was given intramuscularly, followed by folic acid.[4]

On day 5, USG was repeated, in which the collapsed sac was seen in expelling phase, separating from scar site and moving towards the cervical canal (os).

On day 7, β-hCG was repeated and found to be 9000. On per speculum examination, the os was found to be open, with products coming through OS, for which a gentle curettage was done under iv sedation, avoiding the anterior wall. The products were removed and sent for histopath examination.

***Follow up***

On day 9, the patient was discharged. The histopathology report of the products confirmed them to be retained products of conception.

On day 11, the patient was followed up with β -hCG levels and transvaginal scan, β-hCG was 1315 mIU/mL. TVS showed no retained products of conception as seen in USG Figure 3.

The women have resumed normal menstrual cycles now with β-hCG level 12.35 mIU/mL.

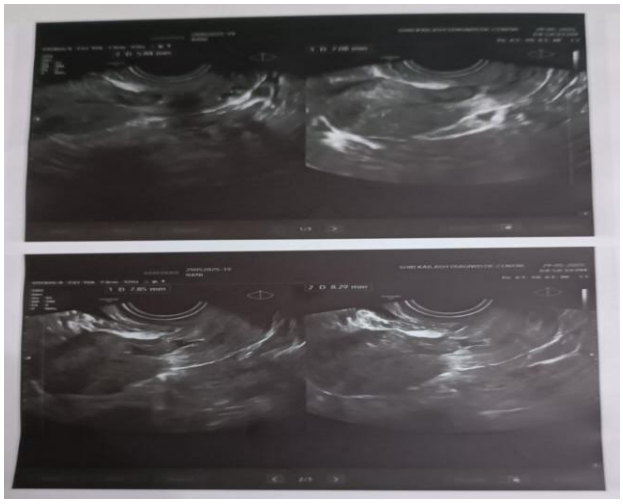

**Figure 3: Follow-up transvaginal ultrasonography after medical management.**

## DISCUSSION

CSP is a rare but potentially life-threatening form of ectopic pregnancy, the incidence of which has risen in parallel with increasing cesarean section rates worldwide.[5] It is associated with serious complications including massive hemorrhage, uterine rupture, and development of placenta accreta spectrum disorders if the pregnancy progresses.[6] Early diagnosis using transvaginal ultrasonography allows timely intervention and

individualized management, which is critical in reducing maternal morbidity and preserving fertility.[10]

In the present case, a live CSP with demonstrable fetal cardiac activity was successfully managed conservatively using ultrasound-guided intra-sac potassium chloride (KCl) injection, local intra-sac MTX, followed by systemic MTX administration.[2] This approach resulted in immediate cessation of cardiac activity, progressive collapse of the gestational sac, declining β-hCG levels, and complete resolution without the need for major surgical intervention. The uterus was preserved, and the patient subsequently resumed normal menstrual cycles, fulfilling her desire for fertility preservation.

Several studies have reported successful outcomes with combined local KCl and MTX therapy in live CSPs, particularly in women wishing to avoid surgical management.[8] Local injection allows direct trophoblastic destruction and faster resolution compared to systemic MTX alone, especially in cases with high initial β-hCG levels or fetal cardiac activity.[9] Systematic reviews have demonstrated higher success rates and reduced need for additional interventions when local MTX is combined with other modalities rather than used alone.[8]

Conversely, multiple comparative studies have shown that surgical management, including hysteroscopic or laparoscopic excision, has higher immediate success rates and shorter treatment duration, particularly in advanced CSPs.[7]

However, surgical techniques require advanced expertise and are associated with risks such as uterine perforation, excessive bleeding, and loss of fertility, especially in extensive scar implantation.[7]

According to the society for maternal-fetal medicine, management of CSP should be individualized, taking into account gestational age, myometrial thickness, hemodynamic stability, resource availability, and the patient's reproductive wishes. Medical management remains an acceptable option in carefully selected, hemodynamically stable patients who can comply with prolonged follow-up and monitoring.[9] The strengths of the management approach used in this case include targeted therapy, avoidance of major surgery, preservation of uterine anatomy, and satisfactory clinical resolution.

Limitations include the need for experienced ultrasound guidance, risk of delayed hemorrhage, prolonged β-hCG surveillance, and the possibility of requiring secondary intervention. Patients managed conservatively must be counseled regarding the risk of recurrent CSP and placenta accreta spectrum in future pregnancies and the importance of early ultrasound evaluation.[12]

Thus, this case supports existing evidence that combined ultrasound-guided intra-sac KCl and MTX therapy is an effective fertility-preserving treatment option for selected cases of live CSP. Further large-scale prospective studies are needed to establish standardized treatment protocols and evaluate long-term reproductive outcomes.

## CONCLUSION

This case report illustrates that a live CSP, even in the presence of fetal cardiac activity and elevated serum β-hCG levels, can be successfully managed using a conservative, uterus-preserving medical approach. The combined use of ultrasound-guided intra-sac KCl and MTX, followed by systemic MTX and careful clinical surveillance, resulted in complete resolution of the pregnancy without major surgical intervention or significant morbidity. This outcome underscores the importance of early and accurate sonographic diagnosis, meticulous patient selection, and individualized management planning, particularly in women desiring future fertility. With the global rise in cesarean section rates and the anticipated increase in CSPs, this case adds to the growing evidence that non-surgical treatment can be a safe and effective alternative to traditional surgical management in selected, hemodynamically stable patients. Furthermore, it highlights the evolving role of minimally invasive medical strategies in reducing surgical risks, preserving uterine integrity, and improving reproductive outcomes, thereby contributing valuable insight into the expanding spectrum of management options for CSP.

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