

## Case Series

# VARIED CLINICAL PRESENTATIONS OF CESAREAN SCAR PREGNANCY- A CASE SERIES

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## ABSTRACT

**Background:** Cesarean scar pregnancy (CSP) is a rare and potentially life-threatening form of ectopic pregnancy, characterized by the implantation of the gestational sac at the site of a previous cesarean section scar. Its incidence is increasing due to the rising global cesarean delivery rates. The aim is to study the varied clinical presentations, diagnostic challenges, and management outcomes of cesarean scar pregnancies in a tertiary care hospital.

**Materials and Methods:** A retrospective case series was conducted over a one-year period at a tertiary care center. Four patients diagnosed with CSP were included. Clinical data were extracted from hospital records, including history, presentation, imaging findings, management approach, and outcomes. Diagnosis was confirmed through transvaginal ultrasound with or without MRI, and patients were managed with individualized surgical interventions.

**Results:** The patients presented with a range of symptoms from vaginal bleeding to hemodynamic instability. All had a history of previous cesarean sections and were in early pregnancy. Imaging confirmed CSP in all cases. Three patients underwent laparotomy with scar excision, and one required emergency surgical repair due to uterine rupture. All patients had favorable postoperative outcomes without mortality.

**Conclusion:** CSP poses a serious diagnostic and therapeutic challenge. Early recognition through imaging and timely individualized intervention are key to reducing maternal morbidity. This case series highlights the need for routine ultrasound evaluation in early pregnancy, especially in women with prior cesarean delivery.

**Keywords:** Cesarean scar pregnancy, ectopic pregnancy, uterine rupture, laparotomy, ultrasound diagnosis.

## INTRODUCTION

Cesarean scar pregnancy (CSP) is a rare yet potentially life-threatening form of ectopic pregnancy, where the gestational sac implants within the myometrial tissue of a previous cesarean section scar. Though uncommon, its incidence has been rising in parallel with the increasing global rate of cesarean deliveries.<sup>[1]</sup> CSP poses a significant diagnostic and therapeutic challenge, owing to its highly variable clinical presentation and the potential for catastrophic hemorrhage or uterine rupture if left undiagnosed.<sup>[2]</sup>

CSP can present asymptotically or mimic spontaneous miscarriage, cervical ectopic pregnancy, or even molar pregnancy, leading to frequent

misdiagnosis. Common symptoms include painless vaginal bleeding, abdominal discomfort, or, in advanced cases, signs of uterine rupture and hemodynamic instability.<sup>[3]</sup> The time of presentation also varies, with some cases being detected as early as five weeks gestation on routine ultrasound, while others are identified later when complications arise.<sup>[4]</sup> The diagnosis of CSP is primarily reliant on high-resolution transvaginal ultrasonography, supported by color Doppler to assess trophoblastic invasion and vascularity.<sup>[5]</sup> MRI may be used in equivocal cases or when assessing for morbidly adherent placenta. Early detection is crucial, as delays in diagnosis significantly increase the risk of severe maternal morbidity, including hemorrhage, need for hysterectomy, or even maternal death.<sup>[6]</sup>

There is currently no universal consensus on the management of CSP due to its rarity and the absence of randomized clinical trials. Treatment strategies include medical management with systemic or local methotrexate, surgical approaches such as dilatation and curettage, hysteroscopic resection, or laparoscopic excision, and interventional radiology procedures like uterine artery embolization.<sup>[7]</sup> The choice of treatment depends on gestational age, myometrial thickness, presence of fetal cardiac activity, and the patient's reproductive wishes.<sup>[8]</sup>

Recent literature highlights the need for individualized, case-based management protocols and emphasizes the importance of multidisciplinary involvement in decision-making.<sup>[9]</sup> Additionally, increasing awareness among clinicians and standardizing sonographic criteria are imperative to reduce misdiagnosis and prevent morbidity.<sup>[10]</sup>

This case series aims to present the varied clinical presentations of cesarean scar pregnancies encountered in a tertiary care center, highlighting the diagnostic dilemmas, management approaches, and patient outcomes to contribute to the limited but evolving literature on this condition.

## MATERIALS AND METHODS

This retrospective case series was conducted at a tertiary care hospital in India. The study aimed to explore the varied clinical presentations, diagnostic modalities, management strategies, and outcomes of cesarean scar pregnancies (CSP). The data were collected over a period of one year from the records maintained in the Department of Obstetrics and Gynecology.

A total of four patients diagnosed with cesarean scar pregnancy during the study period were included. These cases were identified either during routine antenatal scans or when patients presented with symptoms such as painless vaginal bleeding or abdominal pain in early pregnancy.

Inclusion criteria involved all women diagnosed with CSP confirmed by transvaginal ultrasonography and managed within the hospital during the specified period. Cases with incomplete clinical records or uncertain sonographic findings were excluded.

Detailed information was extracted from hospital records, including patient demographics, obstetric history, presenting complaints, gestational age at diagnosis, ultrasound findings, laboratory investigations, chosen treatment modality, intraoperative findings (if applicable), estimated blood loss, need for transfusion, and maternal outcomes.

Diagnosis was established based on standardized transvaginal sonographic criteria: an empty uterine cavity and cervical canal, presence of a gestational sac located in the anterior lower uterine segment at the site of a previous cesarean scar, and thinning or absence of myometrium between the bladder and the sac. Color Doppler was employed when required to assess peritrophoblastic vascularity.

Each patient was managed with an individualized treatment plan considering her clinical stability, gestational age, sac dimensions, fetal cardiac activity, and future fertility desires. The approaches included systemic methotrexate, suction evacuation under sonographic guidance, and surgical intervention in select cases.

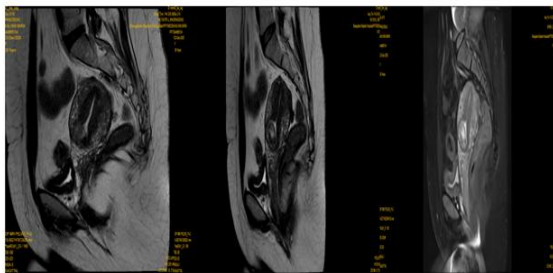
As this was a descriptive case series, data were presented in a qualitative manner to highlight the heterogeneity in clinical presentations and the tailored management decisions made in each case.

## CASES

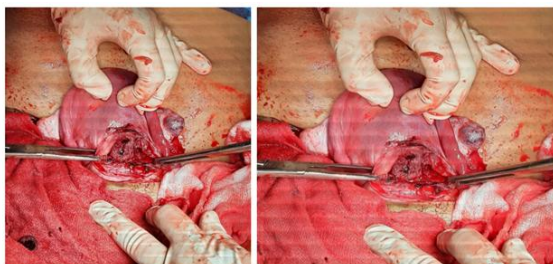
Cesarean scar pregnancy (CSP) represents a rare but increasingly reported complication of pregnancy, attributed to the rising global rates of cesarean deliveries. It involves implantation of the gestational sac within the myometrial tissue at the site of a previous cesarean section scar. Early diagnosis is essential due to the high risk of uterine rupture and severe maternal morbidity. In this case series, we report four clinically distinct presentations of cesarean scar pregnancies managed at a tertiary care hospital over a one-year period. Each case highlights the diagnostic dilemmas, variable symptomatology, and the tailored therapeutic strategies employed, thereby emphasizing the need for vigilance and prompt intervention in suspected CSP cases.

**Case 1** involved Mrs. Y, a 27-year-old G2P1L1 with a history of lower segment cesarean section (LSCS) 2.5 years ago, who presented with heavy vaginal bleeding following a dilatation and curettage for a missed abortion at 9 weeks. Ultrasound revealed echogenic endometrial content near the cesarean scar, and MRI confirmed a heterogeneous lesion with tortuous vascular loops. She underwent laparotomy with scar excision. Postoperatively, she required one unit of blood transfusion and was discharged on the fifth day. She later conceived again and underwent an elective LSCS with bilateral tubal ligation.

**Case 2** described Mrs. A, a 39-year-old G2P1L1 with a previous cesarean section 9 years ago, who presented at approximately 5 weeks of gestation with vaginal bleeding after intake of medical termination pills. Ultrasound suggested retained products at the scar site, and MRI confirmed a lesion adherent to the uterine scar. She underwent laparotomy and hysterotomy for removal of the products of conception along with bilateral tubal ligation. Intraoperatively, the retained tissue was adherent to the anterior and left lateral uterine wall with an estimated blood loss of 500–600 ml. The patient was stable postoperatively and discharged on day 5.



**Case 3** featured Mrs. X, a 31-year-old G2P1L1 at 8–9 weeks gestation with a prior cesarean delivery 3 years earlier. She presented in hemodynamic shock following the intake of medical abortion pills. She was immediately intubated, resuscitated with inotropes and blood products, and taken for emergency laparotomy. Imaging had revealed hemoperitoneum and suspicion of uterine rupture. Intraoperative findings confirmed a ruptured scar with expulsion of products of conception and around 1–1.5 liters of hemoperitoneum. The rupture involved the left lateral two-thirds of the lower anterior uterine wall. She underwent surgical repair and received 5 units PRBC, 4 units FFP, and 2 RDP. She had a stable recovery and was discharged on the 11th postoperative day with contraceptive counseling.



**Case 4** involved Mrs. B, a 31-year-old G3P2L2 with two previous LSCS deliveries, who presented at 6 weeks and 6 days gestation with complaints of spotting per vaginum, giddiness, and vomiting following MTP pill intake. Ultrasound revealed a gestational sac embedded in the anterior myometrium with no intervening myometrial layer between the sac and the bladder. She underwent laparotomy with scar excision and bilateral tubectomy. Intraoperatively, the sac was seen embedded in the myometrium and the bladder was adhered to the scar. Estimated blood loss was around 500 ml. The patient was stable and discharged on the fifth postoperative day.



## DISCUSSION

Cesarean scar pregnancy (CSP) is a potentially life-threatening condition due to the risk of uterine rupture and massive hemorrhage. This case series reflects the broad clinical spectrum and complexity involved in its diagnosis and management. While CSP remains rare, the growing number of cesarean sections globally has led to a notable increase in its incidence, warranting greater clinical awareness.

In this series, all patients presented with first-trimester pregnancies and had a history of prior cesarean deliveries. Clinical presentations varied from painless vaginal bleeding and hemodynamic instability to retained products following attempted medical terminations. These findings are consistent with those of Maymon et al., who emphasized the unpredictability of CSP presentations and the frequent initial misdiagnosis as incomplete abortions or cervical ectopics.<sup>[11]</sup>

Transvaginal ultrasonography with color Doppler played a pivotal role in diagnosis, with MRI proving valuable in confirming scar implantation and assessing uterine wall integrity. Cali et al. reported that combining these imaging modalities significantly improves diagnostic accuracy and helps in surgical planning.<sup>[12]</sup> In our study, all cases were confirmed using ultrasonography, with MRI utilized in two cases.

Management in CSP must be individualized. Our cases demonstrate the varied therapeutic approaches—ranging from laparotomy with scar excision to emergency surgical repair in ruptured cases. Intravenous methotrexate was not employed in these patients due to advanced presentations and hemodynamic instability in some. Timor-Tritsch et al. suggest that conservative medical treatment is effective mainly in early, asymptomatic cases with no fetal cardiac activity.<sup>[13]</sup>

Hemodynamic instability and uterine rupture, as seen in one of our cases, represent the most severe complications. Birch Petersen et al. noted that uterine rupture in CSP typically occurs between 8–12 weeks and often follows mismanaged terminations or missed diagnoses.<sup>[14]</sup> In our case, rupture occurred

after the administration of medical abortion pills without prior imaging, highlighting the critical need for pre-abortion scans in patients with a cesarean history.

Long-term reproductive outcomes also remain a concern. Although one patient in our series successfully conceived post-treatment, most opted for sterilization, reflecting anxiety over recurrence and complications. Evidence from Jurkovic et al. supports that subsequent pregnancies may carry elevated risks, including placenta accreta and recurrent CSP.<sup>[15]</sup>

## CONCLUSION

Cesarean scar pregnancy remains a diagnostic and therapeutic challenge with potentially serious maternal consequences. Early imaging, particularly in patients with prior cesarean deliveries, is essential to avoid complications. Our case series emphasizes the need for heightened clinical suspicion, accurate imaging-based diagnosis, and timely, individualized management. Developing clear guidelines and raising awareness among clinicians are critical to improve maternal outcomes and prevent misdiagnoses.

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