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Cesarean Scar Pregnancy and Placenta Percreta: A Case Series from Armenia

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ABSTRACT

Background: *Cesarean scar pregnancy and Placenta Accreta Spectrum (PAS) are life-threatening complications increasingly seen due to rising cesarean rates.*

Case Presentation: *We present three cases: (1) early cesarean scar pregnancy managed conservatively with methotrexate and aspiration; (2) antenatal diagnosed placenta percreta requiring cesarean hysterectomy; and (3) uterine rupture with hemorrhage due to undiagnosed placenta percreta.*

Outcome: *All patients survived. Two underwent hysterectomy due to hemorrhage; one retained fertility after conservative treatment.*

Conclusion: *Early diagnosis, individualized care, and a multidisciplinary approach are essential for optimal outcomes in PAS and cesarean scar pregnancies.*

Keywords

Placenta Accreta Spectrum, Cesarean Scar Pregnancy, Hysterectomy, Maternal Hemorrhage.

Introduction

Cesarean scar pregnancies and Placenta Accreta Spectrum (PAS) disorders present significant challenges in obstetrics. With the rising rate of cesarean deliveries globally, clinicians increasingly encounter complex cases of abnormal placental implantation [1,2]. These conditions, if not promptly diagnosed and appropriately managed, can lead to life-threatening maternal and fetal outcomes [3,4]. This article presents three distinct cases of post-cesarean complications, highlighting the spectrum of severity, diagnostic approaches, and management strategies employed in our institution.

Case 1

The patient is a 27-year-old woman, currently in her fourth pregnancy. Her obstetric history includes: one live birth via cesarean section in 2022, a repeat cesarean section in 2024, one termination of pregnancy due to fetal hydrocephalus at 23 weeks of gestation, and one missed (non-developing) pregnancy.

On January 7, 2025, she presented with complaints of lower abdominal pain, general weakness, and fever. A transvaginal ultrasound examination revealed a pregnancy implanted in the previous uterine cesarean scar. Based on the diagnosis of a cesarean scar pregnancy, treatment was initiated with a single dose of methotrexate (50 mg). Serial measurements of serum human chorionic gonadotropin (β-hCG) demonstrated a gradual decrease in levels over the course of a week: from 132,500 mIU/mL to 122,700 mIU/mL and then to 115,700 mIU/mL.

On January 16, under ultrasound guidance and in an open operating room setting, a vacuum aspiration of the uterine cavity was performed. Due to the development of active uterine bleeding during the procedure, replacement therapy was carried out, including the administration of tranexamic acid (2 mg)

and transfusion of three units of fresh frozen plasma. A 60 mL intrauterine balloon tamponade was inserted for hemostasis. In the postoperative period, the balloon gradually emptied in fractions of 5 mL per hour. Twelve hours later, the balloon was removed. The patient was transferred to the intensive care unit, where she remained for 24 hours. During this period, a full panel of laboratory tests was performed, and uterotonic agents along with antibacterial therapy were administered.

Five days after initial discharge, the patient was re-hospitalized due to persistent pelvic pain. Repeat ultrasound revealed a hematoma around the uterine scar. Several repeat aspirations of the uterine cavity were performed. In addition, antibacterial and anti-inflammatory therapy was continued. One month after the initial intervention, follow-up ultrasound showed the thickness of the uterine scar had increased to 7–10 mm. A Mirena intrauterine hormonal contraceptive device was successfully inserted. Histopathological examination of the evacuated tissue confirmed the presence of early intrauterine pregnancy.

Case 2

The patient is a 26-year-old woman in her second pregnancy. She previously delivered once via cesarean section in 2022. She presented to a regional clinical hospital at 18–19 weeks of gestation, where a sonographic examination revealed placenta previa and a uterine scar with suspected placental invasion into the urinary bladder.

Considering the patient's young age and her strong desire to preserve the pregnancy, a multidisciplinary medical council was convened. The team included obstetrician-gynecologists, ultrasound and MRI specialists, an urologist, a neonatologist, an anesthesiologist-intensivist, and a transfusiologist. It was decided to continue the pregnancy under careful observation and specialized supervision. Progesterone therapy was prescribed at a dose of 1 mg.

At 30–31 weeks of gestation, the patient was hospitalized with complaints of abdominal pain and blood-tinged amniotic fluid. In her medical history, she had received treatment for threatened miscarriage during the first trimester. In the second trimester, a diagnosis of placenta previa with placental invasion into the urinary bladder (placenta percreta) was confirmed. Management included dynamic observation, tocolytic therapy (nifedipine), prophylaxis of bleeding using tranexamic acid, and fetal lung maturation prophylaxis with dexamethasone to reduce the risk of neonatal respiratory distress syndrome.

On June 2 at 16:10, an emergency cesarean section was performed. A live preterm female infant was delivered, weighing 1560 grams and measuring 38 centimeters in length. The Apgar scores were 4 at 1 minute and 6 at 5 minutes. During the surgery, total placental invasion (placenta percreta) through the uterine wall and into the urinary bladder region at the site of the previous cesarean scar was confirmed. Due to the inability to separate the placenta and the high risk of uncontrolled bleeding, a hysterectomy was performed. Postoperatively, the patient spent 36 hours in the intensive care unit under strict monitoring conditions and with an indwelling urinary catheter. She received a comprehensive treatment plan, including antibiotic therapy, anti-inflammatory medications, and intravenous albumin. After stabilization, she was transferred to the postpartum ward, where she remained for an additional five days under observation and supportive care.

Total intraoperative blood loss amounted to 2100 milliliters. Packed red blood cells were transfused to manage blood loss and support hemodynamic stability. The patient was discharged in satisfactory condition. The newborn was transferred to the neonatal intensive care unit (NICU) for further monitoring and care.

Case 3

A 42-year-old woman, gravida 4, with a history of two previous cesarean deliveries (in 2020 and 2023) and one miscarriage, was admitted to the emergency department of Erebuni Maternity Hospital on March 15, 2025, at 23:50 in critical condition. On admission, she presented with a multiple pregnancy, hypotension (BP 60/40 mmHg), thready pulse, profuse vaginal bleeding, lower abdominal pain, and altered consciousness. Vaginal examination was not feasible due to active bleeding.

On initial examination, active bleeding from the vaginal opening and mild abdominal distension were noted. The patient was immediately intubated, a subclavian venous line was placed, and she was transferred to the operating room.

An emergency laparotomy was performed via a midline incision up to the umbilicus. Upon entering the abdominal cavity, blood clots were found along with a rupture of the anterior uterine wall. A partially detached placenta and a non-viable fetus (approximately 400–500 grams) were identified within the abdominal cavity. Cesarean section was performed under spinal anesthesia.

A thorough inspection of adjacent organs revealed no pathological abnormalities. Intraoperative, the placenta was found to have invaded through the uterine scar into the bladder wall, consistent with placenta percreta. The placenta was removed using both blunt and sharp dissection techniques. A urologist was consulted intraoperative to assess bladder integrity. Cystoscopy was performed, and a 20 Fr urinary catheter was placed, with a recommendation to maintain it for 15 days postpartum.

The patient remained in the intensive care unit (ICU) for the first three postoperative days, during which she received antibiotic therapy and the drains were removed. She was then transferred to the postpartum ward, where she stayed for 7 more days. She was discharged on postoperative day 10 with follow-up instructions, including home monitoring and iron supplementation for anemia.

Discussion

This case series highlights the diverse presentations and challenges associated with the diagnosis and management of Cesarean scar

pregnancy (CSP) and Placenta Accreta Spectrum (PAS) disorders. All three cases presented here reflect a continuum of severity, ranging from an early-diagnosed scar pregnancy managed conservatively, to two life-threatening cases of placenta percreta necessitating emergency surgical intervention.

Case 1 exemplifies the importance of early detection and timely intervention in cesarean scar pregnancy. The use of methotrexate, combined with ultrasound-guided vacuum aspiration and intrauterine balloon tamponade, allowed successful resolution while preserving fertility. This aligns with recent literature suggesting that early CSP can be managed non-surgically when diagnosed before the gestational sac grows beyond the myometrial thickness or invades surrounding tissues [2,5]. However, even with conservative treatment, complications such as hematoma and infection—as observed in this case—require careful monitoring and readiness for further intervention.

Cases 2 and 3 involved advanced PAS (placenta percreta) with bladder involvement, both presenting significant hemorrhagic risks. In Case 2, antenatal imaging facilitated multidisciplinary planning and controlled surgical intervention, resulting in a favorable maternal outcome despite the necessity for hysterectomy. In contrast, Case 3 illustrates the catastrophic potential of undiagnosed placenta percreta, where uterine rupture, hypovolemic shock, and emergency laparotomy were required to save the patient's life. The intraoperative finding of placental invasion through the cesarean scar and into the bladder underscores the importance of maintaining a high index of suspicion in women with multiple prior cesarean deliveries [6,7].

Across All Cases, Several Clinical Insights Emerged

Multidisciplinary coordination—including obstetricians, anesthesiologists, urologists, radiologists, and transfusion specialists—is crucial for optimizing outcomes in PAS and CSP [1,6].

High-resolution antenatal imaging, particularly ultrasound and MRI, plays a key role in early identification of abnormal placentation and surgical planning [3,8]. Institutional preparedness for obstetric hemorrhage—including blood product availability, surgical expertise, and postoperative intensive care—is essential, especially in resource-limited settings [5,7].

Importantly, these cases reflect challenges that are increasingly relevant in Armenia and globally, given the persistent rise in cesarean section rates. According to WHO and FIGO guidelines, strategies to reduce primary cesarean deliveries, ensure proper documentation of uterine incisions, and provide fertility-preserving options when safe and feasible are critical to addressing the burden of PAS [6].

Conclusion

The rising incidence of Cesarean scar pregnancy and Placenta Accreta Spectrum disorders demands heightened clinical awareness and institutional readiness. This series from Armenia underscores the importance of timely diagnosis, individualized management strategies, and multidisciplinary collaboration in improving maternal outcomes. Conservative treatment may be effective in early CSP, while advanced PAS, particularly placenta percreta, necessitates rapid surgical response and often results in hysterectomy.

As cesarean rates continue to rise, particularly in transitional healthcare systems, integrating standardized screening protocols, antenatal imaging, and risk stratification tools is vital. Our experience emphasizes the urgent need for national guidelines, enhanced training, and resource allocation to manage PAS-related complications safely and effectively.

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