

Early Pregnancy Adjacent to a Previous Cesarean Scar Successfully Managed with Vacuum Aspiration: A Rare Case Report from Azerbaijan

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ABSTRACT

Cesarean scar pregnancy (CSP) is a rare form of ectopic implantation associated with previous cesarean delivery and carries a significant risk of severe maternal morbidity if not diagnosed early. Timely recognition is essential to prevent complications such as uterine rupture, massive hemorrhage, and abnormal placentation. We report a rare case of an early pregnancy implanted adjacent to a previous cesarean scar in a 37-year-old woman from Azerbaijan who presented with lower abdominal pain during early gestation. Transvaginal ultrasonography demonstrated a gestational sac located near the previous cesarean scar, corresponding to approximately 6–7 weeks of gestation. Following counseling regarding management options, the patient underwent successful vacuum aspiration under intravenous anesthesia without complications. The postoperative course was uneventful, and the patient was discharged in stable condition. This case highlights the importance of early ultrasound evaluation in women with a history of cesarean delivery and demonstrates that vacuum aspiration can be a safe and effective minimally invasive treatment option in carefully selected early cases. Documentation of such cases from underrepresented regions contributes to greater clinical awareness and improved understanding of cesarean scar-related pregnancies.

Keywords: Cesarean scar pregnancy, Vacuum aspiration, Early pregnancy termination, β -HCG, ultrasound diagnosis, Azerbaijan

INTRODUCTION

Cesarean scar pregnancy (CSP) is a rare and potentially life-threatening form of ectopic pregnancy in which implantation occurs within or adjacent to the fibrous scar of a previous cesarean section [1,2]. The incidence of CSP has increased in parallel with rising global cesarean section rates and is currently estimated to occur in approximately 1 in 1800–2200 pregnancies [3,4]. Early diagnosis is essential because delayed recognition may result in catastrophic complications including uterine rupture, severe hemorrhage, placenta accreta spectrum disorders, and loss of fertility [2-4].

Transvaginal ultrasonography combined with serial serum β -human chorionic gonadotropin (β -HCG) measurement remains the cornerstone of diagnosis [5]. Identification of the gestational sac in relation to the cesarean scar is critical for appropriate management planning [2,6]. Treatment strategies vary according to gestational age, patient stability, fertility desires, and available expertise, and may include medical or surgical approaches [7,8].

Although CSP has been increasingly described worldwide, reports from the South Caucasus region remain limited. We present a rare case of early pregnancy adjacent to a previous cesarean scar successfully managed with vacuum aspiration in a patient from Baku, Azerbaijan.

CASE PRESENTATION

A 37-year-old Azerbaijani woman from Baku presented with lower abdominal pain during early pregnancy. Her obstetric history included gravida 2, para 1, abortion 1, and one living child. She had a history of previous cesarean delivery.

On admission, the patient was hemodynamically stable with a pulse rate of 60 beats per minute and blood pressure of 100/60 mmHg. Abdominal examination revealed a soft abdomen without signs of acute abdominal pathology. Gynecological examination demonstrated a midline uterus corresponding to approximately six weeks of gestation. The cervical canal and bilateral adnexa were normal, and no tenderness was elicited during examination. Vaginal mucous discharge was present.

Initial laboratory investigations showed normal hematological parameters, including hemoglobin of 15 g/dL, white blood cell count of $8.65 \times 10^3/\mu\text{L}$, and platelet count of $305 \times 10^3/\mu\text{L}$. Serological testing for hepatitis B, hepatitis C, HIV, and syphilis was negative. Serum β -HCG levels ranged between 4765 and 6418 mIU/mL, consistent with early pregnancy.

Transvaginal ultrasonography revealed a gestational sac measuring 24 mm with a crown-rump length (CRL) of 9 mm, corresponding to approximately 6–7 weeks of gestation. The gestational sac was visualized within the uterine cavity adjacent to the area of the previous cesarean scar.

After counseling regarding the diagnosis, associated risks, and available management options, the patient elected termination of pregnancy. On Day 10, vacuum aspiration was performed under intravenous propofol anesthesia (200 mg). Cervical dilation was achieved using a Hegar dilator No. 6, followed by suction evacuation with a No. 6 cannula. Gestational tissue was successfully removed, and adequate uterine contraction and hemostasis were confirmed intraoperatively. Estimated blood loss during the procedure was approximately 90 mL.

The patient remained under postoperative observation for 24 hours. Her postoperative course was uneventful, with stable hemodynamic parameters and no evidence of excessive bleeding or other complications. She was discharged in good clinical condition with recommendations for outpatient follow-up.

Date

Clinical Event

Day 1	Initial laboratory tests including CBC, infectious disease screening, and β -HCG measurement
Day 6	β -HCG measurement (6607 mIU/mL)
Day 9	β -HCG measurement (6418 mIU/mL)
Day 10	Ultrasound confirming 6–7 week pregnancy near cesarean scar
Day 10	Vacuum aspiration procedure performed
Day 11	Patient discharged after observation

DISCUSSION

Cesarean scar pregnancy is an uncommon but increasingly recognized complication of prior cesarean delivery^[5]. The global incidence is estimated to range from approximately 1 in 1,800 to 1 in 2,500 pregnancies and accounts for nearly 4–6% of ectopic pregnancies among women with prior cesarean delivery^[7]. The pathophysiology is believed to involve implantation of the gestational sac through microscopic tracts or areas of deficient healing within the cesarean scar^[2]. As cesarean section rates continue to rise globally, the incidence of CSP is also expected to increase^[7,8]. The increasing prevalence of cesarean deliveries worldwide has contributed to the rising number of reported CSP cases over recent decades^[5]. Although exact epidemiological data from Azerbaijan are unavailable, increasing cesarean section rates in the region suggest that the incidence of CSP is likely increasing similarly to other middle-income countries.

Clinical presentation may vary from asymptomatic cases detected incidentally on ultrasound to severe vaginal bleeding and abdominal pain^[5,7]. Early diagnosis is particularly important because progression

of pregnancy within or adjacent to the scar can result in uterine rupture, catastrophic hemorrhage, and abnormal placental invasion ^[2,4].

Transvaginal ultrasonography is the primary diagnostic modality and enables assessment of gestational sac location, myometrial thickness, and relationship to the cesarean scar ^[6]. Serial β -HCG measurements may support the diagnosis and assist in monitoring treatment response ^[8].

Management of CSP remains challenging and should be individualized according to gestational age, clinical stability, reproductive wishes, and local expertise ^[6]. Various treatment modalities have been described, including systemic or local methotrexate therapy, hysteroscopic resection, laparoscopic excision, uterine artery embolization, suction curettage, and vacuum aspiration ^[8]. In carefully selected early pregnancies, minimally invasive approaches such as vacuum aspiration may provide effective treatment with reduced morbidity ^[6,8].

Recent literature published over the past five years has emphasized the increasing global recognition of cesarean scar pregnancy (CSP) as a major obstetric complication associated with rising cesarean delivery rates ^[7]. Multiple systematic reviews and observational studies have demonstrated that early diagnosis substantially improves maternal outcomes and reduces the risk of catastrophic complications ^[1,4]. Timor-Tritsch et al. reported that CSP diagnosed during the early first trimester, particularly before 9 weeks of gestation, was associated with significantly lower maternal morbidity and reduced progression to severe placenta accreta spectrum disorders compared with delayed diagnosis ^[1,9]. Similarly, Noël and Thilaganathan highlighted that residual myometrial thickness, gestational age, fetal cardiac activity, and direction of gestational growth are major prognostic factors influencing the risk of uterine rupture, hemorrhage, hysterectomy, and ongoing abnormal placentation ^[2]. Recent reviews have also reinforced the concept that CSP represents the earliest form of placenta accreta spectrum disease due to defective decidualization and uncontrolled trophoblastic invasion into scar tissue ^[3].

Contemporary management strategies increasingly favor minimally invasive and fertility-preserving approaches when diagnosis is established early ^[6,8]. Recent systematic reviews evaluating treatment outcomes have demonstrated that ultrasound-guided suction evacuation or vacuum aspiration can be highly effective in carefully selected early CSP cases with minimal blood loss and low complication rates ^[6]. Silva et al. reported that expectant management is associated with substantial maternal morbidity and progression to placenta accreta spectrum disorders, further supporting recommendations for early active intervention ^[4]. Current evidence also supports individualized treatment based on hemodynamic stability, serum β -HCG levels, vascularity, myometrial thickness, and future fertility desires ^[6,8]. Advances in transvaginal ultrasound and Doppler imaging have improved diagnostic accuracy, allowing earlier differentiation of CSP from cervical pregnancy, miscarriage, and low intrauterine implantation ^[2,10]. Recent literature therefore strongly emphasizes the importance of prompt first-trimester ultrasound evaluation in women with prior cesarean delivery to facilitate timely diagnosis and reduce the risks of uterine rupture, severe hemorrhage, hysterectomy, and maternal morbidity ^[1,4].

The differential diagnosis of cesarean scar pregnancy (CSP) is essential because several gynecological and obstetric conditions may present with similar clinical symptoms and imaging findings during early pregnancy ^[5,10]. Conditions such as cervical pregnancy, spontaneous abortion in progress, low intrauterine pregnancy, and early placenta accreta spectrum disorders can mimic CSP on initial evaluation ^[3,10]. Accurate differentiation is critical because inappropriate or delayed management may result in severe hemorrhage, uterine rupture, loss of fertility, or significant maternal morbidity ^[2,4]. Transvaginal ultrasonography combined with Doppler evaluation and serial β -HCG measurements plays a central role in distinguishing these entities ^[6,10]. The following table summarizes the major differential diagnoses of CSP along with their clinical features, imaging characteristics, diagnostic distinctions, and management implications.

Differential Diagnosis	Definition	Clinical Presentation	Ultrasound Findings	Doppler Findings	β-HCG Pattern	Key Distinguishing Features from Cesarean Scar Pregnancy (CSP)	Management Implications
Cesarean Scar Pregnancy (CSP)	Implantation of gestational sac within or adjacent to a previous cesarean scar in the lower uterine segment	Vaginal bleeding, mild abdominal pain, or asymptomatic in early pregnancy	Empty uterine cavity and cervical canal; gestational sac embedded in anterior lower uterine segment at cesarean scar; thin or absent myometrium between sac and bladder	Marked peritrophoblastic vascularity with high-velocity, low-resistance flow	Usually rising or plateauing β-HCG levels	Negative sliding organ sign; sac fixed within scar niche; high rupture and hemorrhage risk	Requires early intervention with medical or surgical management
Cervical Pregnancy	Ectopic implantation within the endocervical canal	Painless vaginal bleeding is common; mild pelvic discomfort may occur	Gestational sac located within cervical canal below internal os; empty uterine cavity	Increased vascularity around cervical sac	Rising β-HCG levels	Positive sliding organ sign; sac moves with probe pressure; located entirely within cervix rather than scar	May require methotrexate, uterine artery embolization, or surgical evacuation
Spontaneous Abortion in Progress	Partial or complete expulsion of intrauterine pregnancy tissue	Vaginal bleeding, cramping abdominal pain, passage of tissue	Irregular gestational tissue within cervical canal or lower uterine cavity; collapsed or distorted sac	Usually reduced vascularity compared with CSP	Declining β-HCG levels	Positive sliding sign; no implantation into scar; absence of marked trophoblastic blood flow	Conservative management or evacuation depending on retained tissue
Low Intrauterine Pregnancy	Normally implanted intrauterine pregnancy located temporarily in lower	Usually asymptomatic or mild spotting	Gestational sac within endometrial cavity; preserved surrounding myometrium	Normal trophoblastic vascularity	Appropriate rise in β-HCG levels	Sac remains within endometrial cavity and migrates upward as pregnancy progresses	Routine obstetric follow-up and repeat ultrasound

Differential Diagnosis	Definition	Clinical Presentation	Ultrasound Findings	Doppler Findings	β-HCG Pattern	Key Distinguishing Features from Cesarean Scar Pregnancy (CSP)	Management Implications
Placenta Accreta Spectrum (Early Form)	uterine cavity						
	Abnormal placental invasion into myometrium due to defective decidua	Often asymptomatic early; may present later with bleeding	Myometrial thinning, placental lacunae, abnormal placental attachment	Hypervascular placental bed with abnormal vessels	Usually appropriate pregnancy-related rise	Typically diagnosed later in pregnancy; placenta rather than gestational sac invades myometrium	Requires multidisciplinary management due to hemorrhage risk
Cervico-isthmic Pregnancy	Implantation in the uterine isthmus near internal os	Vaginal bleeding and pelvic discomfort	Sac located at uterine isthmus with partial extension into uterine cavity	Moderate vascularity	Rising β-HCG levels	Less deeply implanted into scar tissue; preserved myometrial layer	May continue pregnancy in selected cases with close monitoring
Incomplete Miscarriage	Retained products of conception after partial pregnancy loss	Heavy bleeding, abdominal pain, passage of tissue	Heterogeneous echogenic material within uterus or cervix	Minimal or variable vascularity	Falling β-HCG levels	No gestational sac implanted within scar; retained tissue often mobile	Medical or surgical evacuation if necessary
Interstitial (Cornual) Pregnancy	Ectopic implantation in interstitial portion of fallopian tube	Pelvic pain, vaginal bleeding, possible rupture	Gestational sac eccentrically located in uterine cornua with thin surrounding myometrium	Peripheral vascularity	Rising β-HCG levels	Located in uterine cornua rather than lower uterine segment scar	Often requires methotrexate or surgical management

In the present case, early diagnosis allowed timely intervention before the development of severe complications. Vacuum aspiration was successfully performed with minimal blood loss and favorable postoperative recovery. This case also carries regional significance because published literature regarding CSP from Azerbaijan and the South Caucasus remains limited. Increased reporting of such cases is important for improving awareness among clinicians, facilitating earlier diagnosis, and contributing to broader epidemiological understanding of cesarean scar-related pregnancies in underrepresented populations.

CONCLUSION

Cesarean scar-related early pregnancy is a rare but potentially dangerous obstetric condition requiring prompt recognition and management. Early diagnosis using transvaginal ultrasonography and serum β -HCG monitoring is essential to prevent severe maternal complications. This case demonstrates that vacuum aspiration can be a safe and effective treatment option in carefully selected early cases when performed promptly and under appropriate clinical supervision.

Reporting cases from underrepresented regions such as Azerbaijan contributes to expanding the global understanding of cesarean scar pregnancies and may help improve early recognition and management strategies in clinical practice.

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