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Silent Impending Uterine Scar Rupture in Twin Pregnancy at 34 Weeks: Diagnostic Value of Emergency Ultrasonography

Dr Satish Patki, Dr Surhud Patki, Dr Aditi Kunte, Dr Shweta Patki, Dr Shriswaroop Kulkarni

Corresponding Author: Dr Surhud Patki

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Abstract

Uterine rupture is a life-threatening obstetric emergency most frequently encountered during labor and traditionally associated with abdominal pain, uterine tenderness, vaginal bleeding, and acute fetal distress. However, rupture or impending rupture of a previous cesarean scar may rarely occur during the antenatal period in the absence of classical clinical manifestations, posing a significant diagnostic challenge.

Twin gestation represents an independent risk factor due to excessive uterine distension and increased mechanical stress on the lower uterine segment. We report a rare case of a woman with one previous lower segment cesarean section (LSCS), four years earlier, presenting at 34 weeks of twin pregnancy with preterm premature rupture of membranes. Despite stable maternal parameters and complete absence of pain or scar tenderness, emergency ultrasonography revealed marked fetal heart rate discordance—tachycardia in one fetus and bradycardia in the other.

Prompt recognition of this atypical fetal pattern led to immediate surgical intervention. Intraoperatively, extreme thinning and near-complete dehiscence of the previous cesarean scar was identified, consistent with impending uterine rupture. This case highlights the critical role of emergency ultrasonography and reinforces that uterine scar rupture may evolve silently without classical warning signs.

Keywords

Uterine rupture; Silent scar rupture; Twin pregnancy; Previous cesarean section; Emergency ultrasonography; Fetal heart rate discordance; PPROM

I. Introduction

The global increase in cesarean delivery rates has resulted in a parallel rise in complications related to uterine scarring. Uterine rupture remains one of the most feared complications due to its association with catastrophic hemorrhage, fetal hypoxia, hysterectomy, and maternal mortality. The reported incidence ranges from 0.2–0.9% in women with a previous cesarean section, with significantly higher risk in the presence of additional factors such as uterine overdistension and multiple gestation [1,2].

Classically, uterine rupture presents with acute abdominal pain, scar tenderness, vaginal bleeding, abnormal uterine contour, maternal shock, and fetal heart rate abnormalities [3]. However, increasing evidence suggests that rupture or scar dehiscence may occur antenatally and in the absence of labor or classical symptoms, described as silent or occult uterine rupture [4,5].

Twin pregnancy contributes further risk due to increased intrauterine pressure and mechanical stretching of the lower uterine segment. Early diagnosis remains challenging, making fetal surveillance and emergency ultrasonography crucial in such high-risk scenarios.

II. Case Presentation

A multigravida woman with a history of one previous lower segment cesarean section performed four years earlier presented with a twin pregnancy conceived naturally

Antenatal course

First trimester: Uneventful

Second trimester:

Aneuploidy screening negative

Detailed anomaly scan normal

Fetal echocardiography normal

Third trimester: Uneventful until admission

She was admitted for observation because of pedal edema, despite normal blood pressure recordings.

Clinical Findings on Admission

Pulse: 80–90 beats per minute

Blood pressure: 120/80 mmHg

General condition: Stable

Abdominal examination

Uterus soft and non-tender

No uterine contractions

Normal uterine contour

Deep palpation

Scar tenderness: Absent

Per vaginum

Cervical os closed

Emergency Event
During hospital stay, the patient developed spontaneous preterm premature rupture of membranes (PPROM)
At this time:
Pulse increased to 110–120 beats per minute
Blood pressure remained stable
In view of previous cesarean section with twin gestation and PPROM, emergency ultrasonography was immediately performed.
Emergency Ultrasonography Findings
Fetus A: Persistent fetal tachycardia
Fetus B: Persistent fetal bradycardia
No evidence of placental abruption, cord prolapse, or major placental separation was detected. The most striking feature was acute fetal heart rate discordance, unexplained by maternal status or uterine activity.
Clinical Decision Making
Considering the combination of:
Previous LSCS
Twin pregnancy
PPROM
Sudden maternal tachycardia
Discordant fetal heart rate abnormalities
an emergency cesarean section was planned with suspicion of occult uterine scar pathology.

III. Intraoperative Findings

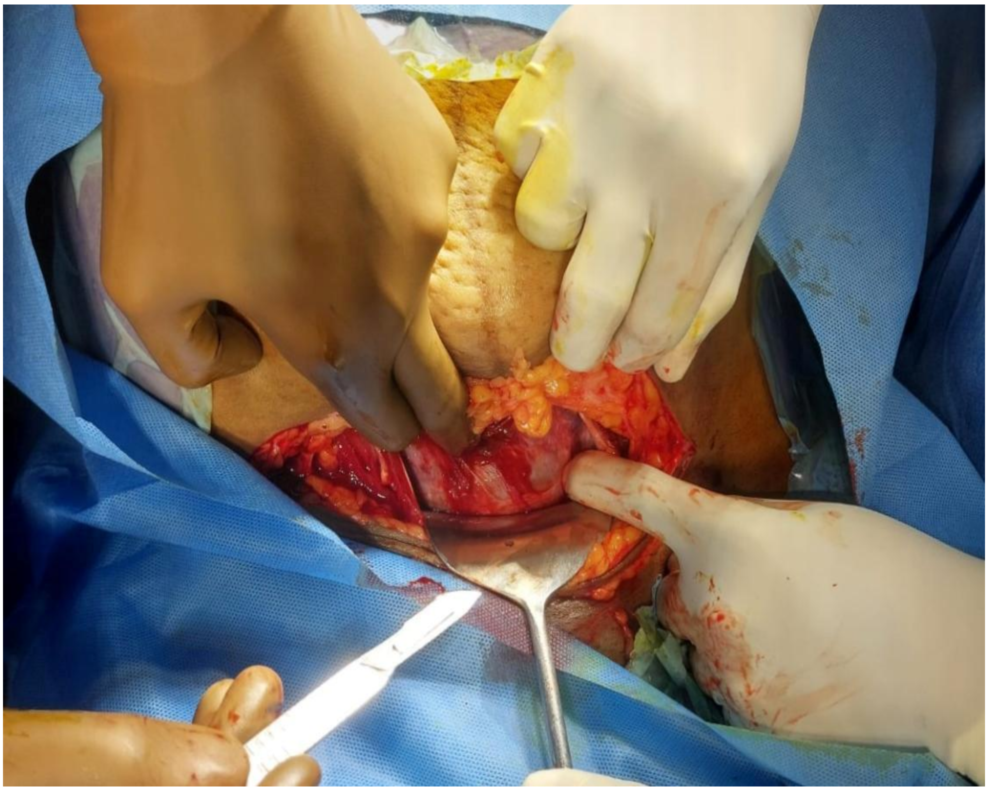

Image 1 – Showing scar dehiscence intraoperatively

On abdominal entry, the lower uterine segment was found to be extremely thinned. The previous cesarean scar appeared translucent with near-complete loss of myometrial tissue. Fetal membranes were visible beneath the serosa, consistent with impending uterine scar rupture.
The serosal layer remained intact; however, even minimal delay could have resulted in complete rupture and catastrophic hemorrhage.

IV. Discussion

Silent uterine scar rupture
Although traditionally linked to labor, uterine rupture can occur antenatally without contractions or pain. Several case series have documented painless scar dehiscence presenting solely with fetal heart rate abnormalities [4–7].

The absence of classical symptoms is explained by gradual scar stretching rather than acute tearing, allowing maternal stability while fetal compromise develops.

Twin pregnancy as a major risk factor
Twin gestation significantly increases wall tension according to Laplace's law. Excessive uterine distension reduces scar elasticity and predisposes to early failure even before onset of labor [2,8].
Fetal heart rate discordance as an early warning sign
Fetal heart rate abnormality is the most consistent sign of uterine rupture, reported in over 70% of cases [3,9].
In twin pregnancies, localized uterine ischemia may affect placental territories unequally, resulting in:
Compensatory tachycardia in one fetus
Hypoxic bradycardia in the other
Such discordance should be regarded as a critical red-flag sign, particularly in women with a previous cesarean scar.
Role of emergency ultrasonography
While ultrasound may not directly visualize rupture, it provides vital indirect information by:
Detecting fetal compromise
Assessing lower uterine segment thickness
Excluding abruption or cord prolapse
Timely ultrasonography was the decisive factor guiding early surgical intervention in this case.

V. Conclusion

This case highlights that uterine scar rupture may evolve silently during the antenatal period, particularly in twin pregnancy. Classical symptoms may be entirely absent. Acute fetal heart rate discordance may represent the earliest indicator of impending rupture.

Emergency ultrasonography combined with vigilant clinical assessment remains essential for timely diagnosis and prevention of catastrophic maternal and perinatal morbidity.

Clinical Message
In women with previous cesarean section—especially with twin gestation—unexplained fetal heart rate abnormalities should prompt immediate evaluation of uterine scar integrity, even in the absence of pain, contractions, or tenderness.

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