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A rare Case Study of Uterine Rupture in a Primigravida following a previous Hysteroscopic septum resection

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Abstract

Background: Uterine rupture is a rare but life-threatening obstetric complication, particularly uncommon in gravid women without prior caesarean delivery or uterine surgery. However, hysteroscopic septum resection, although minimally invasive, has been associated with uterine wall weakness and subsequent rupture in pregnancy.

Case Presentation: We report a rare case of spontaneous uterine rupture in a 28-year-old primigravida at 30 weeks of gestation with a history of hysteroscopic septum resection. The patient presented with acute abdominal pain, hypotension, and signs of hemoperitoneum. Emergency laparotomy revealed a large 8-10 cm rent over the posterior surface of the fundus of the uterus near the site of prior resection. A stillborn female fetus weighing 1.5 kg was delivered through the rupture site. The uterus was successfully repaired, and the patient had an uneventful postoperative recovery.

Conclusion: This case underscores the need for heightened clinical vigilance in pregnancies following hysteroscopic uterine surgery, even in the absence of traditional risk factors. Early diagnosis and prompt surgical intervention are vital to optimizing maternal outcomes.

Keywords: Hysteroscopic, Septum Resection, Uterine Rupture

Introduction

Uterine rupture is a rare but potentially catastrophic event, especially in women without prior caesarean delivery or laparotomy.[1] Among these, spontaneous rupture following operative hysteroscopy for septum resection is particularly uncommon. Hysteroscopic septum resection is widely accepted to improve reproductive outcomes in septate uteri, yet the intervention may weaken the uterine wall, even without evident perforation or complications at the time of surgery.[2] A 20-year retrospective review reported four cases of uterine rupture in subsequent pregnancies after hysteroscopic septum resection, highlighting its life-threatening nature and the need for heightened vigilance.[3] Similarly, individualized case reports describe term and preterm ruptures following uncomplicated septum resection, underscoring that even 'routine' procedures can carry delayed risks.[4] This report presents a rare case of uterine rupture in a primigravida with a history of hysteroscopic septum resection, emphasizing diagnostic challenges and management considerations in this unique clinical scenario.

Case

A 28-year-old primigravida at 30 weeks of gestation presented to the emergency department of Basaweshwar Hospital, Mahadevappa Rampure Medical College, with acute onset abdominal pain, hypotension, and signs of intra-abdominal bleeding. Her obstetric history revealed a previously diagnosed uterine septum, for which she had undergone hysteroscopic septum resection approximately one year prior. The surgery had been uneventful, and postoperative follow-up indicated a normalized uterine cavity. This current pregnancy had been spontaneous and was progressing without complications until the acute episode.

Upon presentation, the patient was tachycardic and hypotensive, with a blood pressure of 90/60 mmHg and a heart rate of 122 bpm. Abdominal examination revealed generalized tenderness with guarding and rigidity. Fetal heart sounds were not audible on Doppler auscultation. Ultrasonography indicated significant free fluid in the peritoneal cavity suggestive of hemoperitoneum, and no fetal cardiac activity was detected.

The patient's laboratory and investigation findings revealed a hemoglobin level of 7.5 g/dL, suggestive of significant haemorrhage likely due to intra-abdominal bleeding. The white blood cell (WBC) count was elevated at 13,000/mm³, indicating a possible stress response or early infection. Ultrasound imaging showed free fluid in the abdominal cavity consistent with hemoperitoneum, and there was an absence of fetal cardiac activity. Platelet counts were within normal limits, while liver and renal function tests were in normal limits. Urine routine and microscopy results were reported as normal.

Given the clinical presentation, a provisional diagnosis of uterine rupture with intrauterine fetal demise was made, and an emergency exploratory laparotomy was planned. The patient was promptly resuscitated with intravenous fluids and blood products. Broad-spectrum antibiotics were administered prophylactically.

Intraoperatively a large transverse rent 8-10 cm in length present over the posterior surface of fundus of uterus, through which foetal parts were felt, consistent with the area of prior septum resection, the lower segment was intact. This confirms the rupture site was de novo and possibly related to the structural weakness following hysteroscopic intervention.

The foetus, a female weighing approximately 1.5 kilograms, was extracted stillborn from the uterine cavity. The placenta was delivered completely, and uterine repair was performed in two layers using Vicryl No. 1.0 absorbable sutures. Haemostasis was achieved meticulously. The surgical field was thoroughly irrigated, and a drain was placed before abdominal closure.

Postoperative management included intensive monitoring in the high-dependency unit. The patient required transfusion of two units of packed red blood cells and continued intravenous antibiotics. Pain control was managed effectively, and no further bleeding was observed. Her postoperative recovery was smooth, with gradual normalization of vital signs and haemoglobin levels.

The patient was counselled extensively about the nature of the uterine rupture, its association with prior hysteroscopic surgery, and the implications for future pregnancies. She was advised regarding the high risk of recurrent uterine rupture and was recommended for delivery via elective caesarean section in any subsequent pregnancies. Psychological counselling was also offered due to the emotional impact of intrauterine fetal demise.

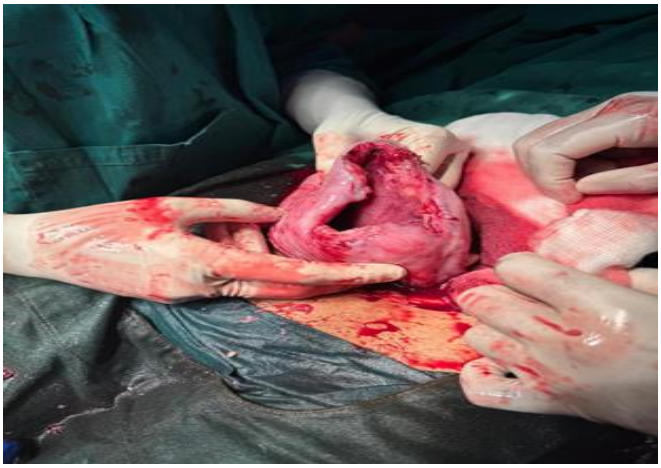

Figure 1: Intraoperative Visualization of Uterine Rupture in a Primigravida Post-Hysteroscopic Septum Resection

Figure 2: Intraoperative Repair of Anterior Uterine Wall Rupture Following Fetal Extraction

Discussion

Uterine rupture during pregnancy is a critical obstetric emergency associated with significant maternal and fetal morbidity and mortality. While classically linked with previous cesarean delivery, its occurrence in unscarred uteri, particularly after hysteroscopic septum resection, remains a rare but recognized complication.

Our case highlights a spontaneous uterine rupture in a primigravida at 30 weeks of gestation, with the only prior uterine intervention being a hysteroscopic septum resection. Notably, the rupture occurred in the anterior uterine wall near the area of prior surgical intervention. This finding aligns with multiple reports suggesting that even minimally invasive uterine surgeries may compromise myometrial integrity, predisposing patients to rupture in future pregnancies.

Yildiz and Dilbaz (2024) documented a similar case where a patient presented at term with a spontaneous rupture of the uterine fundus, attributed to a prior hysteroscopic septum resection. The authors emphasized the absence of consensus on post-resection pregnancy

monitoring and the need for individualized risk assessment.[5]

In a related case, Huttler and Kelly (2022) described a uterine rupture at 38 weeks in a woman with prior hysteroscopic septum resection, despite a successful term delivery in a previous pregnancy. They highlighted modifiable risk factors such as short interpregnancy intervals and possible residual septa.[2]

Zeteroğlu et al. provided a case series where uterine rupture occurred as early as 10 weeks gestation, underscoring that rupture can present early and unpredictably. Their findings suggested that a shorter interval between hysteroscopic surgery and conception may elevate the risk of uterine rupture.[6]

Recurrent rupture has also been reported in patients with multiple pregnancies following septum resection. Ergenoglu et al. documented progressively earlier uterine ruptures in successive pregnancies, further affirming that myometrial healing post-resection may be incomplete or deteriorate over time.[7]

Finally, Davis et al presented a unique instance of a silent uterine fundal defect discovered incidentally during cesarean section after hysteroscopic septum resection. This underscores the possibility of asymptomatic or missed ruptures that can still pose significant peripartum risk[8]

Our patient presented with acute hemoperitoneum and fetal demise, highlighting how rupture may present subtly but progress rapidly. The timely surgical response was crucial in preventing maternal morbidity. Notably, the absence of uterine scarring other than the resection site reinforces the hypothesis that hysteroscopic resection itself, while considered minimally invasive, can result in structural weakness significant enough to predispose to rupture.

Given the limited and varied literature, there is no consensus regarding optimal interpregnancy interval post-septum resection, ideal surveillance strategy, or mode and timing of delivery. However, based on accumulating case reports, clinicians should maintain a low threshold for suspecting uterine rupture in pregnant patients with any history of uterine surgery—especially in the presence of abdominal pain or fetal distress.

Conclusion

This case highlights the rare but serious complication of uterine rupture in a primigravida with no prior uterine surgery other than hysteroscopic septum resection. It underscores the importance of vigilance in monitoring such pregnancies, especially in the third trimester, even in the absence of uterine scarring from conventional surgeries like caesarean section. The diagnosis of uterine rupture can be particularly challenging in the antenatal period when classical signs are absent or attributed to other common conditions such as placental abruption or preterm labour.

Timely surgical intervention, appropriate resuscitation, and postoperative care were critical in ensuring maternal survival. While the fetal outcome was unfortunate, the case emphasizes the value of multidisciplinary preparedness and the need for individualized risk assessment in women with a history of hysteroscopic surgery.

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