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Silent Split, Sudden Rupture: A Case Report of Spontaneous Uterine Rupture in Uterus Didelphys during Second Trimester

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Abstract

Background: *Uterine rupture is a rare but catastrophic obstetric emergency, most commonly associated with previous uterine surgery. Spontaneous rupture in an unscarred uterus is exceptionally uncommon, particularly in association with Müllerian anomalies such as uterus didelphys. These anomalies significantly increase maternal and fetal morbidity due to delayed diagnosis and atypical clinical presentation.*

Case Presentation: *We report a case of a 27-year-old primigravida with six months of amenorrhea who presented with sudden onset abdominal pain of two days' duration, associated with vomiting. During clinical examination, the patient collapsed and required immediate cardiopulmonary resuscitation. Emergency bedside ultrasonography revealed moderate hemoperitoneum with uterine rupture. The patient underwent emergency exploratory laparotomy, which revealed uterus didelphys with rupture of the right uterine horn extending from the cornual end to the upper cervix. Approximately 1500 mL hemoperitoneum was evacuated. A dead male fetus weighing 378 g was delivered, and excision of the ruptured horn was performed. The postoperative course was uneventful following intensive care management.*

Conclusion: *Spontaneous rupture of a gravid horn in uterus didelphys during the second trimester is exceedingly rare and often presents as a diagnostic challenge. Early recognition, rapid resuscitation, and prompt surgical intervention are critical to maternal survival.*

Keywords: *Hemoperitoneum; Müllerian anomaly; Second trimester; Uterus didelphys; Uterine rupture.*

Introduction

Uterine rupture is a life-threatening obstetric emergency characterized by complete disruption of the uterine wall, resulting in extrusion of fetal parts into the peritoneal cavity. Although commonly associated with previous cesarean section or uterine surgery, rupture of an unscarred uterus remains extremely rare, with an estimated incidence of 1 in 10,000 to 25,000 pregnancies[1]. When rupture occurs in the presence of congenital uterine anomalies, the risk of adverse maternal and fetal outcomes increases significantly due to delayed diagnosis and atypical symptomatology.

Müllerian duct anomalies result from abnormal development, fusion, or resorption of the paramesonephric ducts during embryogenesis. Uterus didelphys arises due to complete failure of fusion of the Müllerian ducts, leading to the presence of two separate uterine cavities, two cervices, and occasionally a longitudinal vaginal septum[2]. The incidence of uterus didelphys in the general population ranges from 0.1% to 0.5% and accounts for approximately 5–11% of all Müllerian anomalies [3].

Women with uterus didelphys often experience poor reproductive outcomes, including infertility, recurrent pregnancy loss, malpresentation, preterm labor, and uterine rupture[4]. The risk of rupture is particularly elevated when pregnancy occurs in a structurally compromised uterine horn that lacks adequate distensibility. Most reported cases of rupture in Müllerian anomalies occur during the second trimester, when rapid uterine expansion exceeds the mechanical capacity of the anomalous uterus[5].

Clinical presentation of uterine rupture in such cases is often nonspecific, including abdominal pain, vomiting, and signs of hypovolemic shock. Fetal heart sounds may be absent or difficult to localize, and diagnosis is frequently delayed until hemodynamic instability ensues[6]. Ultrasonography remains the first-line imaging modality; however, findings may be subtle or misinterpreted, especially in emergency settings.

Early diagnosis of uterine anomalies before conception or in early pregnancy is crucial for appropriate counseling and close antenatal surveillance. Unfortunately, many cases remain undiagnosed until catastrophic complications occur [7]. Emergency surgical intervention remains the cornerstone of management, with procedures ranging from uterine repair to hysterectomy or excision of the ruptured horn, depending on intraoperative findings and patient stability.

This case highlights a rare presentation of spontaneous rupture of the gravid horn in uterus didelphys during the second trimester in a primigravida, emphasizing the importance of early recognition, prompt intervention, and heightened clinical suspicion in women with congenital uterine anomalies[8].

Case Presentation

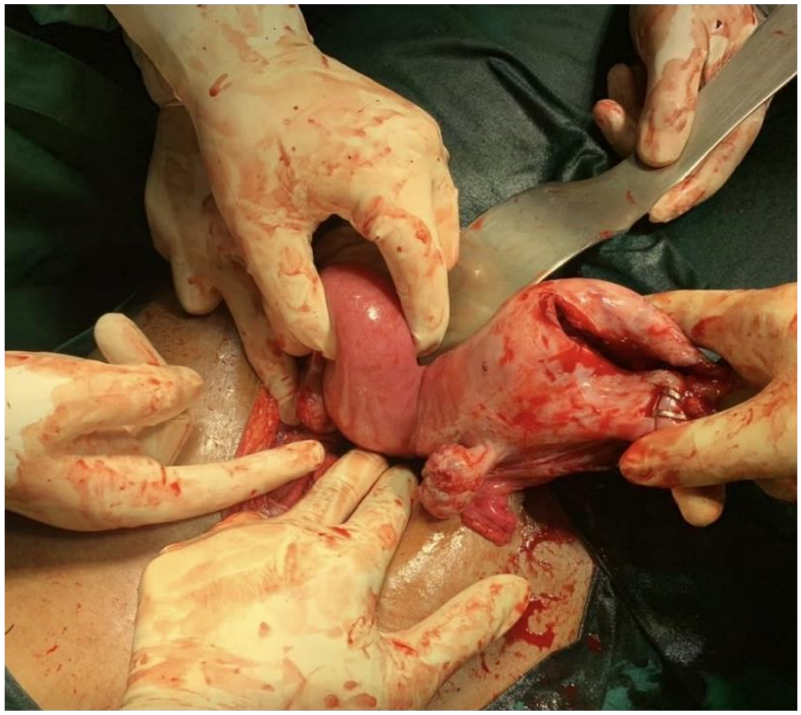
A 27-year-old primigravida with six months of amenorrhea presented to the emergency department with complaints of sudden onset abdominal pain for two days. The pain was progressive in nature, radiating to the back and thighs, and was associated with multiple episodes of non-bilious, non-blood-tinged vomiting for one day. There was no history of trauma, fever, vaginal bleeding, or previous uterine surgery.

On examination, the patient appeared pale and distressed. Abdominal examination revealed a distended abdomen with diffuse tenderness. Fetal heart sounds were not audible. During evaluation, the patient suddenly collapsed and became hemodynamically unstable. Immediate cardiopulmonary resuscitation was initiated, and the patient was intubated.

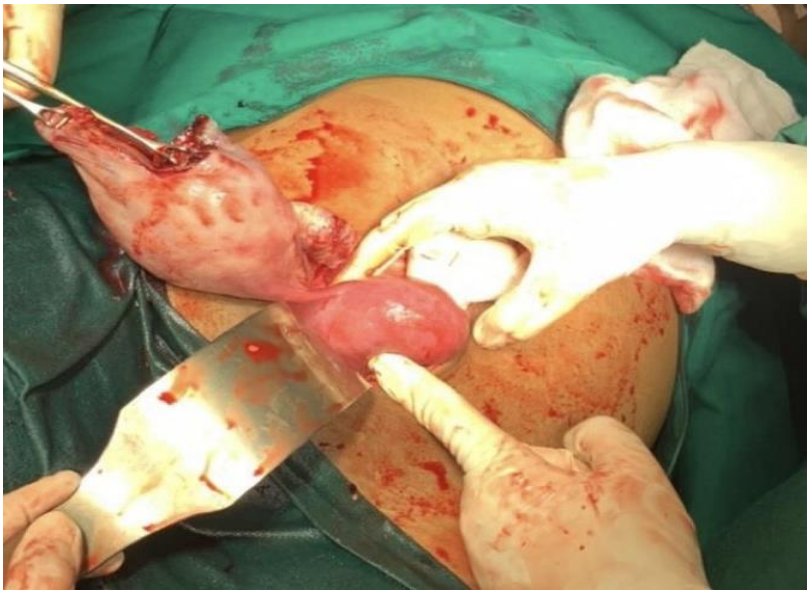
A bedside emergency ultrasonography revealed moderate hemoperitoneum with features suggestive of uterine rupture. The patient was taken up immediately for emergency exploratory laparotomy.

Intraoperatively, approximately 1500 mL of hemoperitoneum with clots weighing about 480 g was evacuated. Uterus didelphys was identified, with the pregnancy located in the right uterine horn. A rupture measuring approximately 10–12 cm was noted along the left lateral aspect of the right horn, extending from the cornual end to the upper cervix. Active bleeding was present from the rupture site.

A single dead male fetus weighing 378 g was delivered by breech along with the placenta. A small communication was noted near the fundus between the two uterine horns. Excision of the ruptured right uterine horn was performed. Hemostasis was secured, and the abdomen was closed in layers. The patient was managed postoperatively in the intensive care unit for one week. She recovered gradually and was discharged in stable condition with advice for strict follow-up and future reproductive counseling.



Uterus Didelphys



Rupture of Right Horn Uterine Didelphys

Discussion

Spontaneous uterine rupture in an unscarred uterus is a rare obstetric event, and its occurrence in association with uterus didelphys is even more uncommon. Most reported cases of uterine rupture in Müllerian anomalies involve rudimentary horn pregnancies; rupture of a gravid horn in uterus didelphys is sparsely documented. Pegu et al. reported rupture of a non-communicating rudimentary horn at 24 weeks, emphasizing the diagnostic challenge and catastrophic presentation similar to our case[9]. In contrast, our patient had uterus didelphys with a communicating horn, yet rupture occurred as early as the second trimester, underscoring the inherent weakness of the anomalous uterine musculature. Nahum described that pregnancies in anomalous uteri have a term delivery rate of only 20–30%, with uterine rupture

being a significant cause of maternal morbidity[10]. This aligns with our case, where rapid uterine expansion likely exceeded the tensile capacity of the gravid horn.

Jayasinghe et al. reviewed Müllerian anomalies and reported that uterine rupture commonly occurs between 14 and 28 weeks of gestation, often presenting with abdominal pain and shock, consistent with our patient's clinical course[11].

Tsafrir et al. highlighted the importance of early antenatal diagnosis of uterine anomalies, noting that delayed recognition significantly increases the risk of rupture and maternal mortality[12]. In our case, lack of antenatal diagnosis likely contributed to delayed intervention until hemodynamic collapse occurred. A study by Leung et al. emphasized that excision of the ruptured horn is the preferred surgical management in unstable patients, which was also performed in our patient with favorable outcome[13]. Preservation of the contralateral horn offers potential for future fertility. Grimbizis et al. reported that women with uterus didelphys are at increased risk for obstetric complications but may achieve successful pregnancy outcomes with close surveillance[14]. This highlights the importance of preconception counseling and early imaging. Reichman et al. concluded that MRI and early ultrasonography play a crucial role in diagnosing Müllerian anomalies and preventing life-threatening complications[15]. Unfortunately, such imaging was not performed antenatally in our patient Overall, our case reinforces existing literature that uterine rupture in uterus didelphys is rare but catastrophic, requiring a high index of suspicion and prompt surgical management.

Conclusion

Spontaneous rupture of a gravid horn in uterus didelphys during the second trimester is an extremely rare and potentially fatal obstetric emergency. Early antenatal diagnosis of Müllerian anomalies, patient counseling regarding risks, and close monitoring are essential to prevent such catastrophic outcomes. Prompt resuscitation and immediate surgical intervention remain the key determinants of maternal survival.

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