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Case Report

A tale of two uteri: silent uterine rupture in a case of uterus didelphys

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ABSTRACT

Uterine rupture is a rare but life-threatening obstetric emergency, often associated with previous uterine surgery or trauma. However, in the absence of such history, congenital uterine anomalies such as a didelphys uterus can pose unique challenges in pregnancy and labor. A didelphys uterus results from incomplete fusion of the Müllerian ducts during embryogenesis, leading to two separate uterine cavities, each with its own endometrium and often a duplicated cervix and vagina. Although pregnancies can occur in one horn, the structural weakness and altered uterine architecture can predispose affected women to poor obstetric outcomes, including miscarriage, malpresentation, preterm labor, and in rare cases, uterine rupture. This report presents a rare and clinically significant case of silent uterine rupture in a didelphys uterus, emphasizing the importance of early diagnosis, careful monitoring, and tailored obstetric management in such anomalies.

Keywords: Mullerian anomalies, Uterus didelphys, Complete dehiscence, Uterine rupture, Silent rupture, Amniotic fluid window, Isthmocele

INTRODUCTION

Uterine rupture is a rare but life-threatening obstetric emergency, often associated with previous uterine surgery or trauma. However, in the absence of such history, congenital uterine anomalies such as a didelphys uterus can pose unique challenges in pregnancy and labor. A didelphys uterus results from incomplete fusion of the Müllerian ducts during embryogenesis, leading to two separate uterine cavities, each with its own endometrium and often a duplicated cervix and vagina. Although pregnancies can occur in one horn, the structural weakness and altered uterine architecture can predispose affected women to poor obstetric outcomes, including miscarriage, malpresentation, preterm labor, and in rare cases, uterine rupture.[1] This report presents a rare and clinically significant case of silent uterine rupture in a didelphys uterus, emphasizing the importance of early diagnosis, careful monitoring and tailored obstetric management in such anomalies.

CASE REPORT

A 26 years old G2P1IUFD1 36 weeks gestation (13.1) by scan with previous 1 LSCS came to ante-natal OPD at a peripheral hospital for routine antenatal visit with complaints of on and off mild abdominal pain since last 2 hours. On examination patient was vitally stable, per-abdomen uterus 32 weeks, cephalic presentation, foetal health sounds were localized at right spino-umbilical line, no activity was present. Vertical scar was present. No scar tenderness demonstrable. On per vaginal examination OS was closed with, cervix uneffaced, no demonstrable show or leak was present. Patient was registered at 11 weeks gestation, ante-natal profile was normal. She gave history of previous LSCS done at a remote village in view of breech presentation with intra-uterine foetal demise at term. No previous obstetrics paper was available. Patient's second visit in this pregnancy was at 23 weeks. Thereafter patient visited at 36 weeks gestation where clinically IUGR was suspected hence patient was sent for an

emergency obstetric doppler. On doppler scan stage 3 IUGR was present for which emergency lower-segment caesarean section was advised. Crossmatching was done. One blood was transfused since haemoglobin was 8 gm/dl. Injection betamethasone was given. Thereafter patient was taken up for emergency LSCS.

Pfannential incision was taken. On opening abdomen amniotic fluid window was seen as shown in figure 1. Amniotomy was done. Female child of 1900 grams was delivered and handed over to paediatrician. After delivering placenta uterine rent was seen extending up to right lower segment as shown in figure 2.

Uterine rent was sutured with vicryl no.1 in continuous interlocking layer. Double layer closure was done. A second small rudimentary uterus was seen on left side with fallopian tubes, ovaries and round ligaments as shown in figure 3. A rectovesical band between two uteri was seen as shown in figure 4.

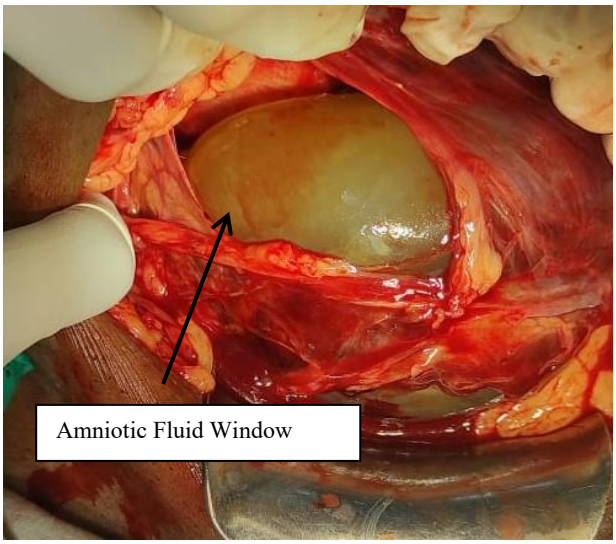

Figure 1: Amniotic fluid window.

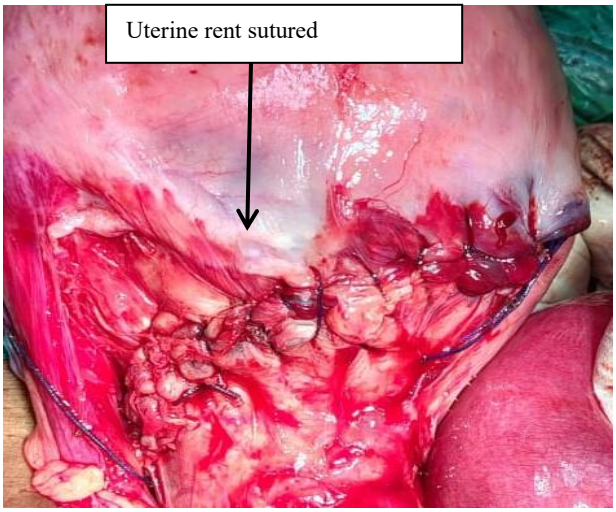

Figure 2: Uterine rent sutured.

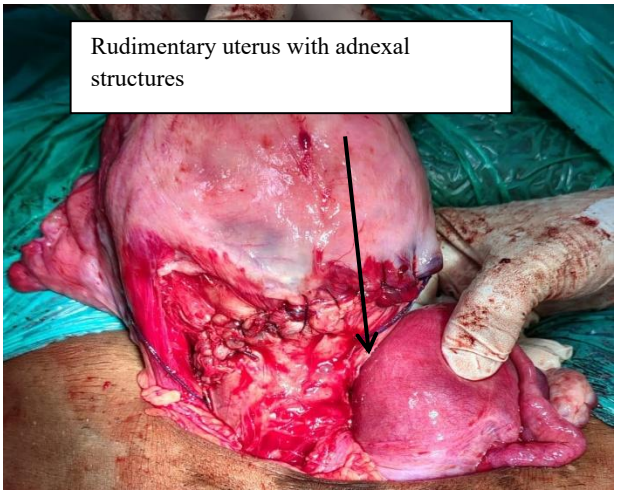

Figure 3: Rudimentary uterus with adnexal structures.

Haemostasis was achieved. Blood loss was 700 ml. Abdomen was closed. Second PRC was transfused in immediate post-operative period. Patient was stable post-delivery and both mother and baby were discharged on Day 5. Suture removal was done on day 10. Patient was advised 3 years interpregnancy gap and elective LSCS at 34-35 weeks in future pregnancy.

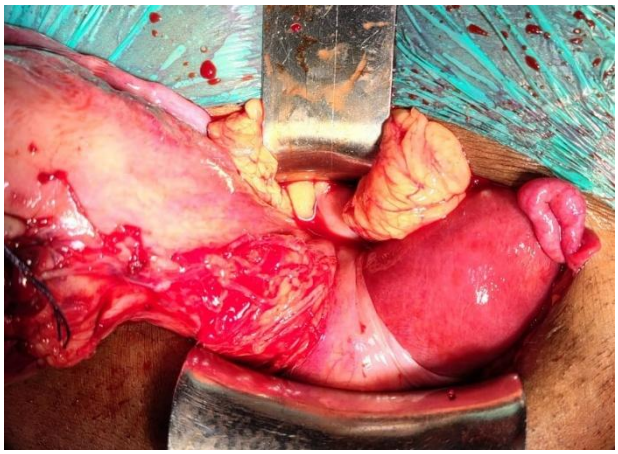

Figure 4: Rectovesical band between two uterus.

DISCUSSION

Uterine rupture is a catastrophic obstetric emergency, more frequently associated with prior uterine surgery, particularly caesarean section. However, spontaneous rupture in an unscarred uterus, particularly one with a Müllerian anomaly such as a didelphys or unicornuate uterus, though rare are reported.

Uterine scar dehiscence, rupture, and silent rupture describe a range of uterine injuries following previous uterine surgery (such as a C-section), varying from asymptomatic thinning of the tissue to life-threatening tearing of all uterine layers.

Complete scar dehiscence (incomplete rupture)

This occurs when the previous uterine scar tissue separates, but the visceral peritoneum (serosa) remains intact. Here the muscle layer (myometrium) splits, the outer layer still contains the uterine contents. Also known as a "uterine window," where the uterus is thin enough to see the foetus through, but the outer layer holds. Generally considered safer than a rupture, with low maternal and neonatal morbidity.

Rupture

A full-thickness tear through all three layers of the uterine wall (endometrium, myometrium and serosa). This is a critical medical emergency that can result in the foetus and placenta being expelled into the maternal abdomen, leading to severe bleeding, foetal distress or death. Requires emergency surgery. Risks include hysterectomy and perinatal death.

Silent rupture

A type of complete rupture or severe dehiscence that happens without typical symptoms (such as severe pain or

significant vaginal bleeding). It is often found unexpectedly during a scheduled repeat C-section.

While technically a full tear ("silent rupture"), some case studies suggest that if the amniotic sac remains intact, the foetus may remain uncompromised, leading to it being called "silent" or "occult".[2,3]

Table 1: Key comparison between complete dehiscence, rupture and silent rupture.[2,3]

Features	Complete dehiscence	Rupture	Silent rupture
Layers affected	Myometrium (muscle) separates, serosa (outer) intact	All layers (full thickness)	All layers (full thickness)
Serosa involvement	Intact	Torn	Torn
Symptoms	Asymptomatic/minor	Acute abdominal pain, bleeding, shock	Often asymptomatic
Foetal risk	Rare	High (catastrophic)	Variable (can be high)
Detection	Incidental at C-section	Urgent/emergency	Incidental at C-section

Mullerian anomalies are more prone to rupture due to following reasons.

Abnormal uterine structure

Müllerian anomalies result in malformed uteri (e.g., unicornuate, bicornuate, didelphys), which often have asymmetrical and underdeveloped uterine horns. These horns may have thinner myometrium, less muscular strength and reduced distensibility, making them more prone to rupture under the stress of pregnancy or labor.

Impaired uterine expansion

Malformed uteri may not expand evenly or adequately with a growing foetus. This leads to focal areas of high tension, particularly in the cornual or rudimentary portions, which are especially susceptible to rupture, sometimes as early as the second trimester. Abnormal development of the lower fragment of the uterus or the presence of a fibrous band between the corpora of the uterus. This band restrains the uterus, unable to expand and hence gets inclined to rupture.[4]

Laplace's law

This law explains that wall tension increases with pressure and radius and decreases with wall thickness. In Müllerian anomalies, thinner walls and distorted geometry cause higher focal tension, predisposing those areas to rupture.[5]

Abnormal vascular supply

Some anomalies are associated with poor vascularization, leading to ischemia or poor healing, particularly in cases where a rudimentary horn is involved.[6]

High-risk pregnancies

These anomalies often come with malpresentation, placental abnormalities and preterm labor, which further strain the uterus and increase the risk of rupture during labor or even antenatally.

Isthmocele in uterus didelphys

There is no well-defined incidence of isthmocele specifically in uterus didelphys, primarily due to the rarity of the condition and limited available studies. However, since isthmocele is an acquired defect following caesarean section, its occurrence in uterus didelphys is likely influenced by surgical and healing factors. The abnormal uterine anatomy, asymmetric cavities and altered myometrial structure may theoretically predispose to defective scar healing and niche formation.[9,10]

While majority of patients present with abdominal pain, vaginal bleeding or abnormal foetal heart rate patterns, others, as in the present case, may remain entirely asymptomatic or report only non-specific complaints. This variability makes preoperative diagnosis particularly

challenging and contributes to a diagnostic gap during the antenatal period.

Therefore, a high index of suspicion must be maintained, especially in high-risk patients. The present case is noteworthy as the patient had didelphys uterus, exhibited only mild symptoms, with no evidence of foetal compromise, yet was found to have uterine scar dehiscence intraoperatively.

Early diagnosis

Utilizing imaging techniques like 3D ultrasound or MRI can help identify uterine anomalies before or early in pregnancy.

Delivery planning

Careful assessment of the mode of delivery is crucial, especially in women with known uterine anomalies.

Close monitoring

Providing vigilant prenatal care can help manage and mitigate potential complications associated with uterine anomalies.

Emergency management in cases of uterine rupture follows similar principles. For future pregnancies, the patient should be counselled regarding evaluation of uterine anatomy using MRI or 3D ultrasonography.

Surgical correction of the uterine anomaly should be considered where feasible, such as removal of a non-communicating horn. A caesarean delivery should be recommended for all subsequent pregnancies. In addition, all future pregnancies should be managed under high-risk obstetric surveillance with close monitoring throughout gestation.

CONCLUSION

This case of silent complete uterine dehiscence in a woman with a didelphys uterus highlights the diagnostic challenge posed by its subtle or absent clinical manifestations. Despite an unremarkable antenatal course, a significant intraoperative finding was encountered, emphasizing the need to maintain a high index of suspicion in high-risk patients. Meticulous surgical planning, intraoperative vigilance, and timely multidisciplinary involvement are crucial for the effective management of unexpected complications and for ensuring optimal maternal and foetal outcomes.

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