

THE IMPACT OF UTERUS DIDELPHYS ON FERTILITY AND PREGNANCY: A CASE REPORT AND LITERATURE REVIEW

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ABSTRACT

Background: Uterus didelphys is a rare Müllerian duct anomaly that causes complete duplication of the uterus and presents distinct challenges in reproductive medicine. While it does not directly cause infertility, it is associated with increased risks of preterm birth, miscarriage, and abnormal fetal presentations.

Case Presentation: A 23-year-old woman with uterus didelphys and a longitudinal vaginal septum conceived spontaneously after 18 months. Infertility evaluation revealed male factor infertility and hyperprolactinemia in both partners. She experienced a first-trimester hemorrhage, managed conservatively, and developed gallstones in the second trimester, treated medically. Despite these complications and childbirth anxiety, the pregnancy progressed to term. After discussing her anatomic and psychological considerations, the team and patient opted for elective cesarean section, resulting in the delivery of a healthy 3550g boy.

Literature Analysis: To contextualize this case, a review of 22 recent cases showed that 68% of uterus didelphys pregnancies were delivered by cesarean and 32% vaginally. Indications for surgery included breech presentation, twin gestation, labor complications, and maternal anxiety. The presence of a vaginal septum does not preclude successful vaginal birth, underscoring the need to individualize delivery plans.

Conclusion: Achieving favorable pregnancy outcomes in uterus didelphys requires comprehensive infertility assessment for both partners, vigilant prenatal monitoring, and tailored delivery planning that respects medical priorities and patient preferences. This case highlights the importance of addressing psychological factors and making decisions collaboratively, demonstrating that successful results are achievable through a coordinated, team-based approach.

Keywords: Uterus didelphys, Müllerian anomalies, infertility, preterm birth, cesarean section, tocophobia, reproductive outcomes

INTRODUCTION

Uterine malformations occur when the Müllerian ducts do not form, fuse, or resorb as they should during fetal development.

These conditions are seen in about 4.3% of fertile women and 3.5% of infertile women. The unicornuate uterus is most often linked to infertility. The most common defects are a septate uterus (about 35%) and a bicornuate uterus (about 25%) [1]. Uterus didelphys is less common, making up 10% of all Müllerian duct anomalies [2]. It happens when the Müllerian ducts do not fully fuse between weeks 12 and 16 of fetal life, which can lead to dilation of the uterine horns, cervix, and sometimes the vagina [3]. Most patients do not have symptoms, so the condition is usually found during the reproductive years. Occasionally, it causes pain during intercourse or menstruation [4]. Uterine defects increase the risk of pregnancy complications, so regular monitoring during pregnancy is important. There is a higher risk of miscarriage, preterm birth, breech delivery, and fewer live births compared to women with a normal uterus [5]. Preterm births occur in about 17.44% to 33.3% of women with uterus didelphys [6]. Diagnosis depends on imaging studies such as ultrasound, HSG, and MRI. This report describes a patient with uterus didelphys who became pregnant, carried to term, and delivered a healthy baby by caesarean section.

METHODOLOGY

This case study outlines the clinical management and outcomes for a single patient diagnosed with uterus didelphys. The protocol encompasses the entire continuum of care, from initial diagnostic evaluation and fertility assessment through pregnancy, delivery, and postpartum follow-up. Comprehensive data were collected via a thorough review of the patient's medical records, including imaging studies, laboratory assessments, operative reports, and antenatal documentation. Comparative analysis with contemporary literature on analogous cases informed the clinical decision-making process, with particular attention to the preferred delivery method. This approach highlights the multidisciplinary and patient-centered management strategies required for optimizing pregnancy outcomes in

individuals with complex Müllerian malformations.

Case

A 23-year-old female presented with a palpable vaginal membrane. Initial assessment included a comprehensive clinical history and **transvaginal ultrasonography, which indicated the presence of uterus didelphys.** Definitive diagnosis was established through hysteroscopy, revealing two distinct uterine cavities, dual cervical canals, and a longitudinal vaginal septum. Consistent with guidelines advocating for a couple-based approach to infertility, both partners underwent evaluation following 18 months of unsuccessful attempts at conception. Endocrine profiling of the female partner demonstrated a mildly elevated serum prolactin concentration.

A comprehensive assessment was performed, including hormonal tests that revealed high prolactin levels and a **semen analysis** showing oligoasthenoteratozoospermia. Treatment for this condition included **laparoscopic varicocele embolization.** Following conception, the patient's pregnancy was closely monitored.

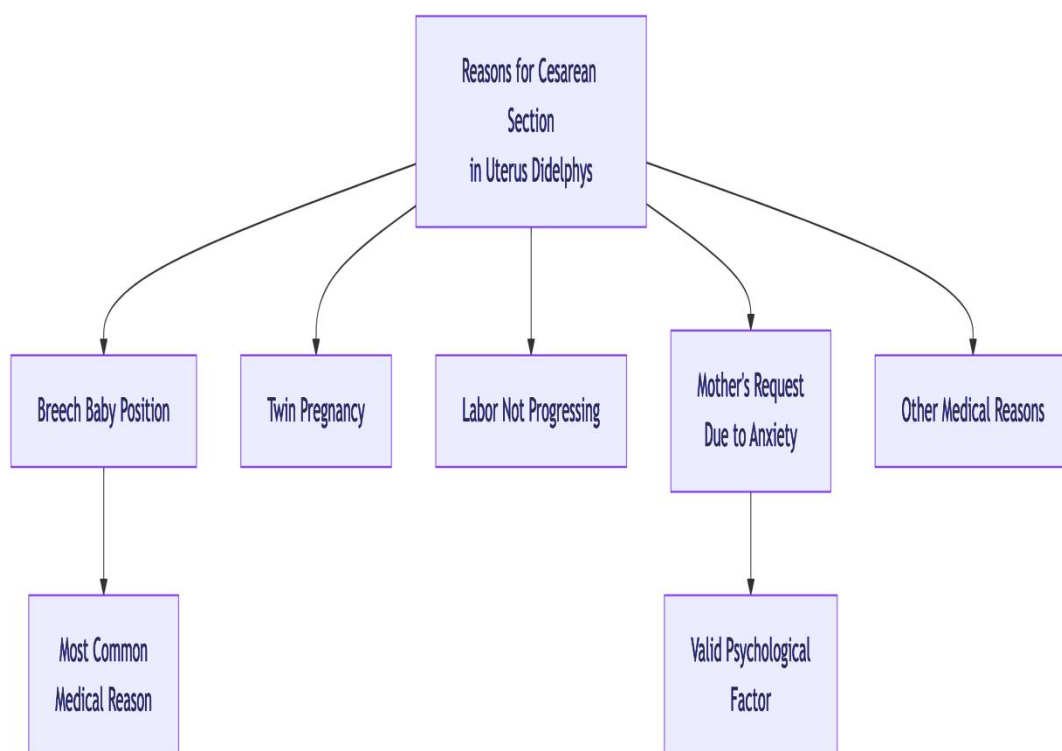
Serial transabdominal ultrasonography was performed throughout the first and second trimesters to monitor fetal viability, anatomical development, growth parameters, and placental function. Doppler ultrasonography was utilized to assess uterine artery pulsatility and fetal circulation. First-trimester biochemical screening, measuring free β -hCG and PAPP-A, was conducted to evaluate aneuploidy risk. A first-trimester haemorrhagic episode was treated with **dydrogesterone** and **ethamsylate**.

Second-Trimester Cholelithiasis In the second trimester, the patient was diagnosed with cholelithiasis using serum amylase tests and ultrasound. Treatment included intravenous fluids, **paracetamol**, **drotaverine**, **lignocaine**, and **vaginal progesterone**. At 40 weeks and 1 day, she was admitted for delivery. After discussing her options with the surgical team, she chose an elective caesarean section due to the vaginal septum and her anxiety about

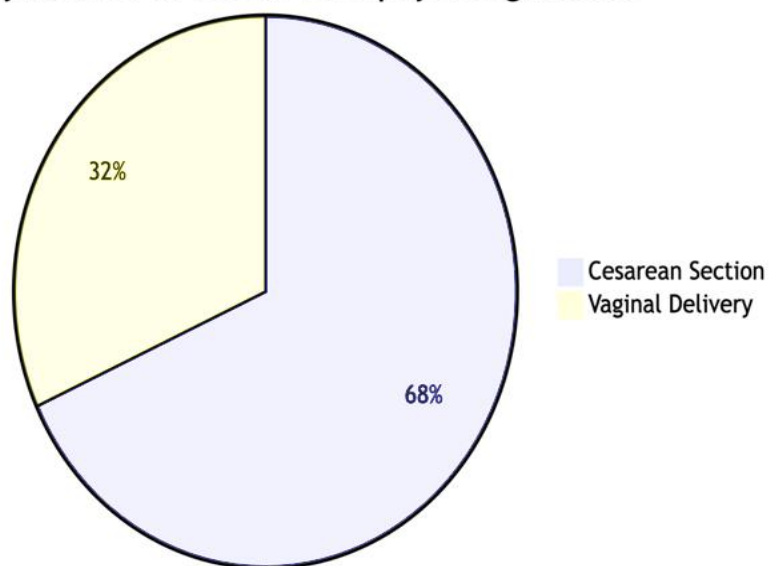
childbirth. The surgery was successful. The mother's recovery and wound healing were monitored, and the baby received standard new-born checks, including Apgar scoring and blood gas analysis. Diagnosis of uterine malformations is often delayed because they usually do not cause symptoms, but detection has improved with advanced imaging techniques like ultrasound, HSG, and MRI [1]. The American Society for Reproductive Medicine (ASRM) classifies uterus didelphys as a Class III anomaly and further divides it based on the presence of vaginal septa [7, 8]. The European Society of Human Reproduction and Embryology (ESHRE) uses another system, classifying uterus didelphys as a U3b/C2 anomaly, often with a non-obstructing vaginal septum (V1) [9]. Although malformations like uterus didelphys do not directly cause infertility, they are strongly linked to negative pregnancy outcomes, such as miscarriage, preterm birth, and fetal malpresentation [10]. Managing the psychological impact is also important, as the diagnosis can be very stressful for patients and may increase the risk of preterm birth [12]. In this case, the patient experienced significant anxiety and insomnia. Concern

for serious complications. Abdominal pain in pregnancy, for instance, requires careful differential diagnosis to rule out life-threatening events like uterine rupture, which can be misdiagnosed as gastrointestinal issues [13-15]. Furthermore, placental function requires vigilant monitoring, as placental anomalies are strongly correlated with neonatal pathologies like respiratory disorders and sepsis, and contribute to the high rate of preterm births seen in these patients [16, 17]. The risk of preterm birth varies by anomaly, with bicornuate uteri carrying the highest risk (59.3%), while the risk for a double uterus (didelphys) is reported at 17.44% [6, 18]. The mode of delivery in a uterus didelphys is not standardized. A key consideration is the vaginal anatomy. While some experts suggest caesarean section (CS) is safer when a vaginal septum is present [2], others argue that vaginal delivery is feasible unless the septum is thick and inelastic [4]. Ultimately, the decision must be individualized, incorporating the anatomical findings, obstetric history, and the patient's own anxieties and preferences.

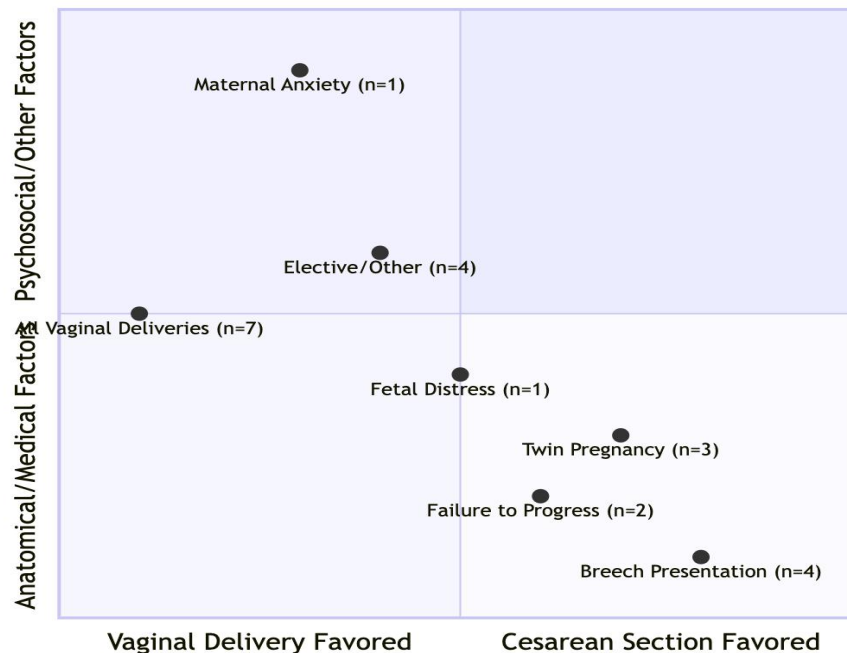
Factor	Cases	Key Finding
Total Cases Reviewed	22	A collection of diverse pregnancy outcomes in uterus didelphys.
Mode of Delivery		
• Cesarean Section (CS)	15	Cesarean section was the more frequent mode of delivery.
• Natural Childbirth (VD)	7	Vaginal delivery was successful in a significant number of cases.
Common Indications for CS		
• Breech Presentation	4	Fetal malpresentation was a leading medical reason for CS.
• Twin Pregnancy / Chorioamnionitis	3	Complex pregnancies often required surgical delivery.
• Failure to Progress / Dystocia	2	Concerns over labor progression led to CS.
• Maternal Request / Anxiety	1	Psychological factors were a primary indication in one case (our study).
Vaginal Septum Status		
• Present during pregnancy	9	The presence of a septum did not universally prevent vaginal delivery.
• Absent or removed	6	Several women with a clear vagina still delivered via CS for other reasons.



Delivery Method in Uterus Didelphys Pregnancies



Management in Uterus Didelphys: Delivery Mode & Influencing Factors



DISCUSSION

Another important point is that the patient was afraid for her child's well-being, knowing that her uterine defect could affect the baby's development. She had been trying to conceive for 18 months. At 13 weeks, she experienced sudden vaginal bleeding, and at age 26, she developed a ductal stone. These events, together with her uterine defect, caused her significant stress while also increasing her anxiety during the week of delivery, as she worried about the outcome of a natural birth. According to the Polish Society of Gynaecologists and Obstetricians (2018), strong anxiety before childbirth, anxiety disorders, or anxiety linked to depression are all considered when deciding on a cesarean section [38]. In instances where there is no clear evidence favoring vaginal or cesarean delivery in cephalic presentations, Goulios et al. noted that the medical team's recommendations and the mother's preferences should guide the decision [23]. Furthermore, uterus didelphys can lead to complications such as breech presentation, which is a main reason for cesarean section [23]. While breech presentation occurs in 3–4% of term births [39], it is seen in 43% of patients with uterus didelphys, so cesarean section is more common than vaginal delivery in these cases [40]. This approach lowers the risk of perinatal mortality [41]. Both cesarean and vaginal deliveries can be successful in such situations. For example, Mirzai et al. described a successful vaginal delivery after external cephalic version in a patient with uterus didelphys [42], while Slavchev et al. reported three cases of pregnancy with uterus didelphys, all with cephalic presentation: two were delivered by cesarean section and one by vaginal delivery without complications, as the septum moved during birth [2]. Similarly, King et al. described a twin pregnancy with both fetuses in cephalic presentation, where the first was delivered vaginally and the second by cesarean section [21]. In our patient's case, the fetus was also in cephalic position. Initially, vaginal delivery was planned, since there were no clear indications for cesarean section. However, due to the patient's strong fear of her baby and the presence of a vaginal

septum, the medical team and the patient agreed on a cesarean section. The factors considered in this decision are shown in the chart below.

CONCLUSIONS

Because uterine didelphys often shows few or no clinical signs, it can be hard to diagnose early. This condition does not directly cause infertility, so the diagnosis should go beyond just identifying the defect. It is important to assess both partners to get a complete picture. Focusing only on the uterine abnormality may lead to missing the real cause of infertility. If uterine didelphys occurs with other issues, like a vaginal septum or patient concerns, a caesarean section may be needed. Good communication between the medical team and the patient is essential, especially when making important decisions about pregnancy and delivery.

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