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Uterus Didelphys with Three Successful Deliveries Diagnosed Incidentally During Laparoscopic Sterilization: A Case Report

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Abstract: ***Background**: Uterus didelphys is a rare Müllerian duct anomaly resulting from complete non-fusion of the paired Müllerian ducts, resulting in two separate uterine cavities and two cervices. Clinical presentation is highly variable, and a proportion of affected women remain asymptomatic through successful pregnancies, with the anomaly discovered incidentally during imaging or surgery. **Case Presentation**: We report a 34-year-old woman, para 3 with all live births (one prior lower-segment caesarean section followed by two successful vaginal births after caesarean section), who presented for interval laparoscopic sterilization. Intraoperative laparoscopy revealed two completely separate uterine bodies, and speculum examination confirmed two distinct cervical openings without a vaginal septum, consistent with uterus didelphys (ESHRE/ESGE class U3b/C2/V0). Postoperative renal ultrasonography demonstrated two normal kidneys. The patient's recovery was uneventful. **Conclusion**: This case highlights the wide phenotypic spectrum of uterus didelphys, demonstrates that favourable reproductive outcomes including vaginal birth after caesarean section are achievable with this anomaly, and reinforces the value of thorough pelvic inspection during laparoscopic procedures for incidental detection of congenital uterine anomalies.*

Keywords: Uterus didelphys; Müllerian duct anomaly; ESHRE/ESGE classification; laparoscopic sterilization; vaginal birth after caesarean

1. Introduction

Müllerian duct anomalies are congenital malformations that arise from the abnormal development, fusion, or resorption of the Müllerian ducts during embryogenesis, and are reported to affect approximately 0.5–5% of women in the general population [2]. Uterus didelphys is a rare anomaly characterised by complete non-fusion of the Müllerian ducts, resulting in two separate uterine cavities and two cervices, and is categorised using the European Society of Human Reproduction and Embryology/European Society for Gynaecological Endoscopy (ESHRE/ESGE) classification system [1].

Women with uterus didelphys may present with infertility, recurrent pregnancy loss, preterm labour, malpresentation, or dysmenorrhoea. However, some patients remain asymptomatic throughout their reproductive lives and are diagnosed incidentally during imaging or surgery [3,4].

We report a rare case of incidentally diagnosed uterus didelphys in a multiparous woman with one previous lower-segment caesarean section and two successful vaginal births after caesarean section (VBACs), who presented for interval sterilization.

2. Case Presentation

A 34-year-old woman, para 3, all live births, presented to the gynaecology outpatient department seeking permanent contraception. Her obstetric history was significant for one previous lower-segment caesarean section followed by two successful vaginal births after caesarean section. All three pregnancies had resulted in live births without any reported obstetric complications, detailed previous obstetric records were unavailable.

She had no history of infertility, recurrent abortions, dysmenorrhoea, dyspareunia, chronic pelvic pain, or menstrual irregularities. There was no previous diagnosis of any congenital uterine anomaly. After counselling and obtaining informed consent, the patient was scheduled for laparoscopic tubal ligation.

Intraoperative laparoscopic examination revealed two completely separate uterine bodies, consistent with a complete bicorporeal uterus (Figure 1).

Both ovaries, fallopian tubes appeared grossly normal. No adhesions present. The planned laparoscopic tubal ligation was completed successfully on both sides.

Speculum examination revealed two distinct cervical openings. No longitudinal vaginal septum was identified. Based on the combined laparoscopic and clinical findings- visualization of two completely separate uterine bodies and the presence of double cervices- the anomaly was most consistent with uterus didelphys (ESHRE/ESGE class U3b/C2/V0) [1].

Figure 1: Intraoperative laparoscopic photograph demonstrating two completely separate uterine bodies (bicorporeal uterus) with grossly normal bilateral adnexa, consistent with uterus didelphys

The postoperative recovery was uneventful, and the patient was discharged in stable condition. Given the established

association between uterus didelphys and renal tract anomalies [3,4], renal ultrasonography was performed postoperatively and demonstrated two normal kidneys, with no evidence of renal agenesis or other structural anomaly. Further radiological evaluation with three-dimensional ultrasonography or magnetic resonance imaging was advised to better delineate the uterine anatomy and assess myometrial characteristics; however, this could not be completed due to socioeconomic constraints, representing a limitation of this case report.

Timeline

Time point	Event
Prior history	One lower-segment caesarean section followed by two successful VBACs; no antenatal or postnatal complications; no prior diagnosis of a uterine anomaly
Day 0- presentation	Presented for interval laparoscopic sterilization; counselled and informed consent obtained
Day 0- intraoperative	Laparoscopy revealed two separate uterine bodies (bicorporeal uterus) with normal adnexa; bilateral tubal ligation completed; speculum examination revealed two cervices with no vaginal septum
Postoperative	Uneventful recovery; discharged in stable condition
Postoperative follow-up	Renal ultrasonography performed- bilaterally normal kidneys. 3D ultrasonography/MRI advised for further uterine characterisation but not completed (socioeconomic constraints)

3. Discussion

Congenital Müllerian anomalies arise due to abnormal development, fusion, canalisation, or resorption of the Müllerian ducts during embryogenesis [2]. Uterus didelphys, resulting from complete non-fusion of the ducts, is among the rarer subtypes within this spectrum. The ESHRE/ESGE classification system, introduced in 2013, evaluates the uterus, cervix, and vagina as independent anatomical components, improving diagnostic consistency across complex cases [1]. Based on this system, the present case is classified as U3b/C2/V0, representing a complete bicorporeal uterus with double cervix and no vaginal anomaly. This independent categorisation is particularly valuable when findings across the three anatomical compartments do not follow the expected pattern.

An important differential diagnosis in patients presenting with two cervical openings is a complete septate uterus with double cervix. Distinguishing between septate and bicorporeal anomalies is clinically significant, as their embryological origins, reproductive implications, and management strategies differ considerably. A septate uterus arises from failure of resorption of the midline septum following Müllerian duct fusion, whereas uterus didelphys results from complete failure of fusion itself. The laparoscopic visualisation of two entirely separate uterine bodies in the present case strongly favoured a complete bicorporeal anomaly. Three-dimensional ultrasonography or magnetic resonance imaging remain the preferred diagnostic modalities for distinguishing between these subtypes, as they allow detailed assessment of the external uterine contour; laparoscopy, while not a primary diagnostic tool, remains valuable when anomalies are encountered incidentally during surgery, as in this case.

Notably, no longitudinal vaginal septum was identified on speculum examination in the present patient. A vaginal septum is a commonly reported associated finding in women with uterus didelphys, and its absence, while less common, does not exclude the diagnosis [3,4]. The ESHRE/ESGE classification system accommodates this variability by allowing independent categorisation of vaginal anomalies, and the absence of a vaginal septum in this case is accordingly designated V0.

Clinical presentation of uterus didelphys is highly variable, and a proportion of affected women remain entirely asymptomatic throughout their reproductive years. Favourable reproductive outcomes, including successful vaginal birth after caesarean section, have been described in women with complete uterine duplication [3,4,5]. The present patient achieved three successful pregnancies, including two VBACs, without any prior awareness of her uterine anomaly. This underscores the fact that complete fusion defects do not preclude successful reproduction and that uterus didelphys may remain clinically silent even across multiple pregnancies and deliveries.

Uterus didelphys carries a well-documented association with renal tract anomalies, most commonly ipsilateral renal agenesis, attributed to the shared embryological origin of the Müllerian and Wolffian duct systems [3,4]. In the present case, postoperative renal ultrasonography demonstrated two normal kidneys, effectively excluding this association in this patient. Nonetheless, clinicians should maintain a low threshold for renal imaging in all patients diagnosed with uterus didelphys, regardless of the clinical context in which the diagnosis is made.

The present case is noteworthy for several reasons. First, it illustrates the wide phenotypic spectrum of uterus didelphys, with complete uterine duplication and double cervix occurring in the absence of a vaginal septum. Second, it demonstrates that favourable reproductive outcomes, including successful vaginal birth after caesarean section, are achievable in women with this anomaly. Third, it highlights the importance of thorough pelvic inspection during laparoscopic procedures, as incidental findings can have significant implications for patient counselling and long-term gynaecological management. This case serves as a reminder that congenital uterine anomalies should remain in the differential consideration even in multiparous women with apparently unremarkable obstetric histories.

4. Conclusion

Uterus didelphys is an uncommon Müllerian duct anomaly, accounting for approximately 5–11% of uterine anomalies [6], that may remain asymptomatic and undiagnosed despite successful pregnancies. Incidental detection during laparoscopic sterilization in a multiparous woman demonstrates the wide spectrum of clinical presentation associated with this condition. The absence of a longitudinal vaginal septum and the presence of two cervices without prior clinical suspicion highlight the variable phenotypic

expression of this anomaly. Recognition of such anomalies is important for patient counselling, renal tract evaluation, and long-term gynaecological management.

Declarations

Patient Consent for Publication:

Written informed consent was obtained from the patient for publication of this case report and any accompanying clinical images. A copy of the written consent is available for review by the Editor of this journal upon request.

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