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Placental Entrapment at Uterine Cornu in Septate Uterus with Double Cervix: A Rare Case Report

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ABSTRACT

Uterine malformations, or Müllerian anomalies, are anatomical abnormalities affecting the uterus, cervix, and vagina, often arising from developmental defects during fetal growth. These anomalies, prevalent in 4.3% of infertile women, significantly increase obstetric risks such as miscarriage, preterm birth, and fetal malpresentation. This case report examines a rare instance of placental entrapment at the uterine cornu in a 27-year-old woman with a septate uterus and double cervix, highlighting diagnostic and management challenges. The study aims to elucidate the clinical presentation, diagnostic methods, and surgical interventions for such anomalies, emphasizing their impact on pregnancy outcomes. The research employed a case study approach, detailing the patient's history, physical examination, ultrasound findings, and intraoperative observations. A cesarean section revealed a bicornuate uterus with placental adhesion, necessitating manual placental evacuation and Nausicaa compression sutures to address uterine hypotonia. Findings underscore the role of advanced imaging (e.g., MRI) in diagnosing complex anomalies and the efficacy of tailored surgical techniques in mitigating complications like postpartum hemorrhage. The study concludes that uterine anomalies require vigilant monitoring and timely intervention to reduce obstetric risks. It advocates for heightened clinical awareness and further research to refine diagnostic and therapeutic strategies. Implications include improved prenatal counseling and individualized delivery planning for affected patients.

Keyword: Uterine malformations; Retensio placenta; Nausica procedure

INTRODUCTION

Müllerian Inhibiting Substance (MIS), produced by the testes, suppresses the development of the Müllerian (paramesonephric) ducts (Cate et al., 2015; Mullen & Behringer, 2014). Under the influence of androgens, the Wolffian (mesonephric) duct is maintained and differentiates into the epididymis, vas deferens, and seminal vesicles (O'Shaughnessy, 2020; Wu et al., 2021). The androgens also influence the differentiation of the genital tubercles, which arise from the cloacal membrane and develop into the penis and scrotum, facilitated by 5α-reductase (Kalfa et al., 2022). In contrast, if the fetus does not possess testes—either having ovaries or undeveloped gonads—MIS is not produced, allowing the Müllerian ducts to persist and form the fallopian tubes, uterus, and upper third of the vagina (Beverdam & Koopman, 2016). Additionally, the absence of androgens leads to the regression of the Wolffian ducts and female differentiation of the genital tubercle (Hughes, 2023; Nakamura et al., 2019).

Anomalies of the female reproductive tract can result from several embryological disruptions summarized by the acronym **CAFÉ**, standing for *Canalization, Agenesis, Fusion,* and *Embryonic rests*.

These anomalies are associated with defects in the vertical and lateral fusion processes of the urogenital sinus and the *Müllerian* ducts (Passos & Britto, 2020). Lateral fusion of the right and left *Müllerian* ducts is normally completed by the 12th week of gestation, while canalization concludes by around the fifth month. Failure in vertical fusion between the *Müllerian* ducts and the urogenital sinus may result in canalization disorders, while failure of lateral fusion can lead to organ duplication. Defective resorption processes of the uterovaginal septum cause anomalies such as septate uterus and *uterus arcuatus* (Sumapraja 2011; Fedele et al. 2013).

Failure of resorption of the uterovaginal septum results in anomalies like the septate uterus, which must be carefully differentiated from the *uterus bicornis*, as each requires a distinct surgical approach. While *uterus bicornis* is treated via laparoscopic metroplasty, a septate uterus is corrected with septoplasty. MRI provides crucial visualization of the external fundal contours and is considered the most effective modality for differentiating between these two entities (Dixit, Duggireddy, and Pradhan 2025). These kinds of anomalies affect approximately 4.3% of infertile women and 3.5% of fertile women, with *unicornuate* uterus anomalies being particularly significant in contributing to infertility. Among uterine malformations, the most commonly observed include the septate uterus (35%) and *uterus bicornis* (25%) (Lubis and Fakhrizal 2024; Jannah, Rozianan, and Hilwah Nora 2024). Diagnostic modalities for detecting such anomalies include ultrasound, hysterosalpingography (HSG), and magnetic resonance imaging (MRI) (Stefanus Imanuel Setiawan 2021).

Uterine malformations, specifically *Müllerian* anomalies, represent a significant yet understudied area in obstetric care. Most literature focuses on common variants, often excluding rarer and more complex cases. Though there is an established association between uterine anomalies and adverse pregnancy outcomes, clinical management for complex cases such as *retensio plasenta* within a septate uterus with double cervices remains poorly defined. Current diagnostic pathways and treatment protocols largely cater to more prevalent structural anomalies, offering scant guidance for less common but high-risk conditions. This knowledge gap highlights the urgent need for detailed case documentation to improve clinical decision-making and patient outcomes in such rare presentations.

The urgency of this research lies in the severe obstetric complications associated with undiagnosed or mismanaged uterine anomalies—including life-threatening postpartum hemorrhage, preterm birth, and fetal malposition. For instance, *retensio plasenta* in an anomalous uterus may result in significant postpartum hemorrhage, yet clear-cut, standardized interventions are often unavailable. The case explored in this study—a septate uterus with double cervix complicated by cornuate placental entrapment—highlights the potentially fatal consequences of delayed or inadequate intervention. The publication of such cases is critical to equip healthcare professionals with actionable strategies that could markedly reduce maternal and neonatal morbidity.

This study presents a novel contribution by documenting a rare combination of uterine anomalies—septate uterus, double cervix, and cornuate placental entrapment—while also exploring the intraoperative use of the Nausicaa compression suture in managing uterine hypotonia. Although uterine anomalies have been explored in previous research, few studies have detailed the operative challenges and solutions in such anatomically distorted landscapes. By employing high-resolution imaging and step-by-step surgical documentation, this research offers a practical framework for the management of similar rare obstetric cases. It effectively bridges the gap between theoretical classification and surgical practice, enhancing the precision of clinical knowledge in managing complex reproductive tract abnormalities.

The primary objective of this research is to elucidate both the diagnostic and therapeutic pathways for placental entrapment in anomalous uteri, emphasizing the importance of interdisciplinary collaboration. By integrating perspectives from radiology, obstetrics, and surgical gynecology, the study seeks to formulate a systematic approach for identifying and managing these high-risk pregnancies. One key focus is the evaluation of the Nausicaa suture's effectiveness in controlling postpartum hemorrhage in patients with distorted uterine anatomy, comparing it to conventional

methods. Additionally, this research aims to define clear indications for cesarean delivery in similar contexts, optimizing surgical timing and technique to minimize complications.

The contributions from this study extend beyond the academic field,'offering practical value for clinicians managing rare uterine anomalies. It emphasizes the importance of preoperative imaging and customized surgical approaches. For patients, early detection of anomalies during prenatal evaluations is vital, facilitating timely therapeutic interventions and significantly reducing obstetric risks. Policymakers may also utilize the insights presented here to develop specialized training programs and formulate clinical guidelines for the management of complex uterine malformations. Ultimately, this study aims to reduce preventable obstetric complications through knowledge dissemination, thus improving maternal and neonatal health outcomes in a neglected and high-risk population.

RESEARCH METHOD

This study employed a *qualitative case report* design to explore the rare occurrence of *retensio plasenta* in a septate uterus with a double cervix. The *data population* comprised women diagnosed with *Müllerian* anomalies, while the *data sample* was focused on a single 27-year-old patient (G2P0A1) presenting with this unique condition. A *purposive sampling* technique was applied, chosen due to the clinical rarity and significance of the case. Data were collected through *medical records*, physical examinations, ultrasound imaging, and intraoperative observations, allowing for comprehensive documentation of the anomaly and its management.

The *research instruments* included standardized clinical assessment forms, imaging reports (ultrasound and MRI), and intraoperative surgical notes. *Validity* was ensured through triangulation of multiple data sources—patient history, diagnostic imaging, and intraoperative findings—thereby confirming the consistency of anomaly identification. *Reliability* was maintained through adherence to established diagnostic and surgical protocols, particularly those relevant to uterine anomalies and high-risk obstetric scenarios.

Data collection techniques included a retrospective review of the patient's medical records, real-time observation and documentation during Caesarean delivery, and structured postoperative follow-up. The clinical *procedure* followed a methodical pathway beginning with antenatal diagnosis via pelvic ultrasound and MRI, followed by an elective lower segment Caesarean section. This was succeeded by manual removal of the entrapped placenta—*retensio plasenta*—from one of the uterine *cornua*, and the application of *Nausicaa compression sutures* to address ensuing uterine hypotonia and mitigate postpartum hemorrhage.

Software tools such as SPSS were utilized to perform basic descriptive statistics, including fetal birth weight and Apgar score assessments, while DICOM-compatible imaging viewers were employed to analyze high-resolution radiological data. The *data analysis techniques* incorporated thematic analysis for qualitative elements such as patient obstetric history and intraoperative decision-making, alongside descriptive statistics for quantitative outcomes. This integrative approach—combining radiological, clinical, and surgical findings—provided a holistic understanding of the implications posed by complex uterine malformations on pregnancy management and surgical intervention, aligning with current evidence-based strategies in obstetrics and gynecology.

RESULT AND DISCUSSION

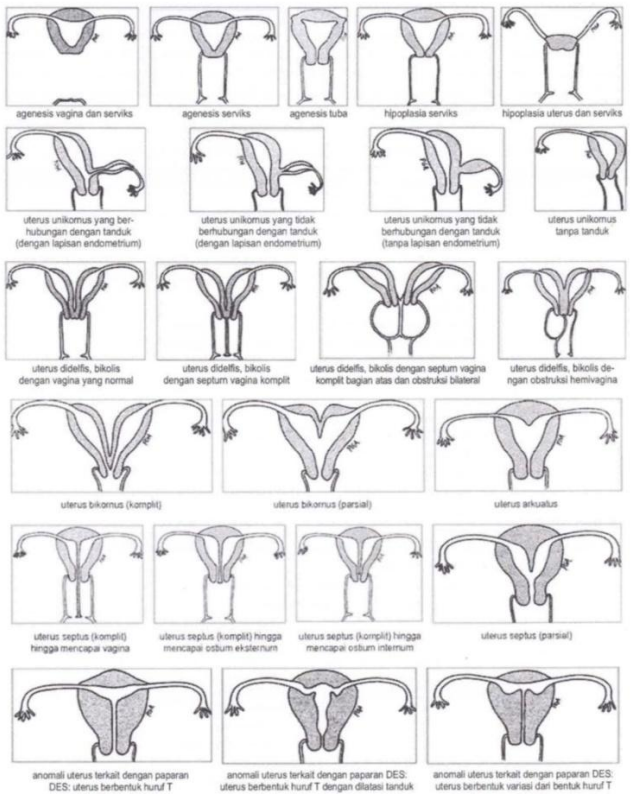

Figure 1. A schematic picture of the variations in defects that can occur in female genetic organs according to the classification that has been made by ASRM.

Mrs. 27 G2P0A1 pregnant, a term planned elective cesarean section on the indication of the location of the oblique. Regular menstrual cycle, normal BMI, no history of surgery, 4-year history of infertility with spontaneous miscarriage in the first pregnancy. A history of dyspareunia, dysmenorrhea, or chronic abdominal pain is denied by the patient. The patient did not know that she had 2 vaginal openings and there were no complaints when having sexual intercourse with her husband.

The patient was carried out a generalized examination to obtain vital signs within normal limits. Obstetric examination was obtained by TFU according to gestational age with left back, Djj 159x/I/and oblique location. When VT is performed, two vaginal openings are obtained, the Inpsekulo with a cervix in each vaginal opening. Ultrasound examination obtained that the fetus is located on the right head, TBJ 2800 gr with placenta in the direction of the fundus and amniotic tissue.

Intraoperatively, a baby girl was born with a BBL of 2600 grams apgar score of 8/9. Intraoperative placenta cannot be removed with a broken umbilical cord with placental adhesion. Uterine extortion was carried out to show a bicornual uterus with placental adhesion and bulging in the corneus sinistra. On further exploration, it appears that the uterine cavum is separated by the uterine septum. The patient was carried out a manual placental evacuation procedure and continued with Nausicaa Compression Suture for uterine hypotonia. The act of

nausica suture uses a 3/8-circular curved needle (70 mm long, with tapered tip), starting with inserting a needle from the lateral uterine serous layer into the bleeding area (or myometrium) inside the uterine cavity, the needle is then inserted along a horizontal path inside the uterine cavity until it covers the bleeding area and finally covers on the other side of the uterine serosa, the suture penetrates the entire thickness of the myometrium without stitching the anterior and posterior walls together. Postoperative patients are treated in a room with a stable general condition; complications in the form of postpartum bleeding are absent. The patient goes home after the 3rd day of treatment.

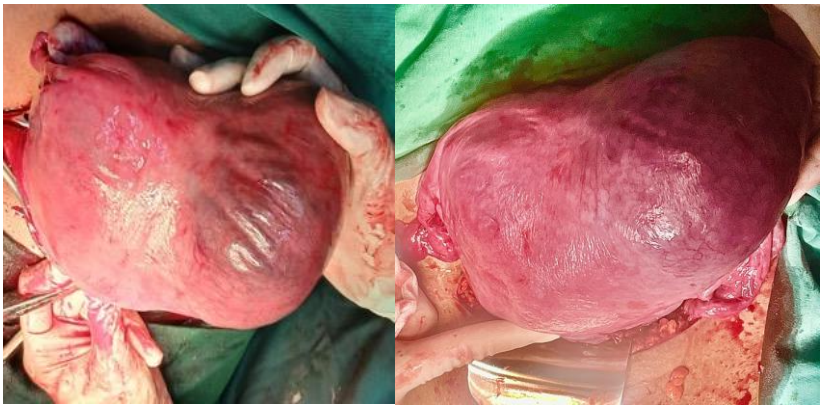

Figure 2. Bulging Appearance in Kornu Sinistra

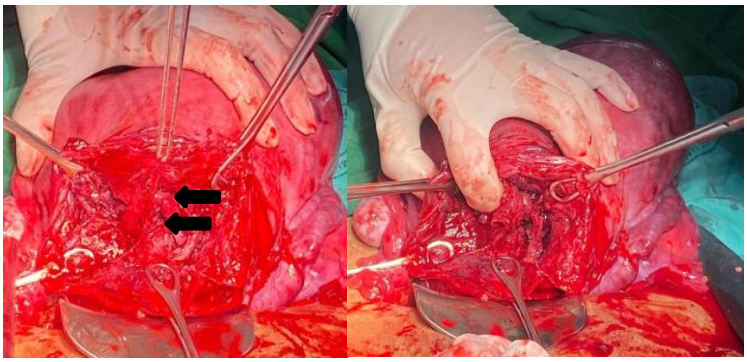

Figure 3. Deeper incisions were found in the septum/partition

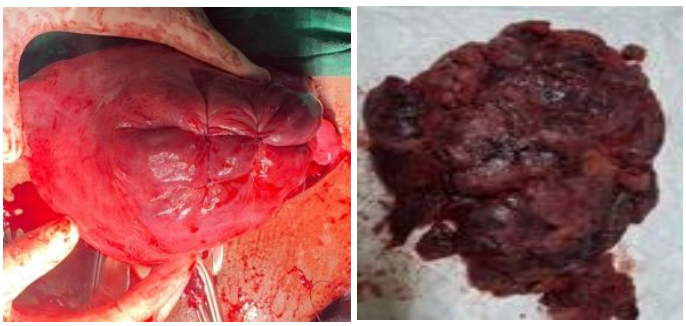

Figure 4. Nausica sutures compression and an incomplete placenta

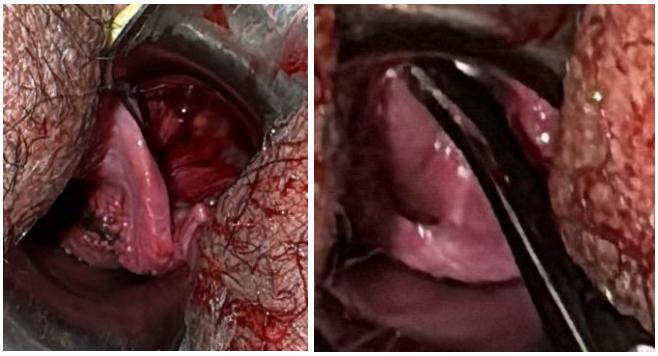

Figure 5. Inspector Inspection

Discussion

Uterine malformations, which are often asymptomatic, present diagnostic challenges even with advanced techniques such as ultrasound, and MRI. The American Society for Reproductive Medicine (ASRM) and the European Society of Human Reproduction (ESHRE) have classification systems that highlight various presentations of uterine anomalies. Typically identified during reproductive age due to fertility problems, 2.8% of infertile women and 5–30% of those who have had recurrent miscarriages may have uterine anomalies. This anomaly is associated with obstetric complications; Especially septated and subseptate uteruses, increasing the risk of miscarriage, premature birth, and abnormal fetal position. Often undiagnosed for many years, cesarean sections can provide unique diagnostic opportunities, reducing additional risks. Stress due to potential pregnancy complications is very significant (Hua et al. 2011 ; Fox et al. 2014).

The septatic uterus is the most common Mullerian anomaly, contributing to 55% of Mullerian Duct Anomalies, and has a prevalence of 2.3%. Septa can be partial or complete depending on whether or not it reaches the internal ostium. The cervix can be single, septate, or double (the latter is very rare), and the vagina can show an unobstructed septum or a blocked hemivagina (OHVIRA). Septated uterus is also rarely associated with OHVIRA syndrome. Clinical presentation depends on the type of septum; The muscular septum contains more blood vessels and is mostly accompanied by changes in uterine motility that result in premature labor or miscarriage. The fibrous septum contains less blood vessels and interferes with implantation (Dixit et al. 2025)

A case study highlighted a 27-year-old woman with a uterine septum and two cervixes who had a history of miscarriage and was now 38-39 weeks pregnant. The patient's history of miscarriage and this can be said to be one of the risks caused by uterine anomalies and a one-year history of infertility. The placenta plays an important role in pregnancy with uterine defective patients. Histological evaluation shows a link between placental abnormalities and neonatal pathology, which emphasizes the need for careful monitoring. Premature birth, which is more common with uterine defects, requires greater vigilance. In this patient also experience placental retention, handling pregnancy with placental retention requires an approach tailored

to each individual's condition. In this patient, Nausicaa Compression sutures were performed, namely sutures performed on patients who experienced postpartum hemorrhage (PPH), mainly caused by placenta accreta, and also a new method of uterine compression sutures as an alternative to hysterectomy and uterine hypotonia (Shih et al., 2018).

Vaginal delivery may be possible in some cases, concerns about complications often lead to a cesarean section, in order to avoid unwanted risks. Complications such as breech presentation often lead to a cesarean section to minimize the risk of perinatal death. Even though vaginal delivery is successful.

CONCLUSION

This case study underscores the clinical complexity and management challenges associated with *retensio plasenta* in a septate uterus with a double cervix, reinforcing the crucial role of early diagnosis, multidisciplinary coordination, and individualized surgical planning. The successful application of the *Nausicaa compression suture* highlights its potential as a life-saving method for controlling uterine hypotonia and postpartum hemorrhage in patients with complex *Müllerian* anomalies. While the outcomes of this case are promising, the257arityy of such anatomical presentations inherently limits the generalizability of the findings. This limitation reinforces the need for further investigation to establish evidence-based, standardized protocols for similar clinical scenarios. Future research should prioritize multicenter studies with larger sample sizes to validate the clinical efficacy and safety of surgical techniques such as the *Nausicaa* suture in managing pregnancy complications arising from anomalous uteri. Additionally, integration of advanced imaging modalities—such as high-resolution MRI and 3D ultrasound—and molecular or genetic investigations may elucidate the pathophysiological basis of placental adhesion disorders within structurally abnormal uteri. These insights could contribute to the development of more personalized and anticipatory obstetric care strategies. By addressing these clinical and research gaps, the medical community can improve diagnostic accuracy, refine surgical decision-making, and ultimately enhance maternal and neonatal outcomes in this high-risk and often overlooked subset of patients.

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