Case Report

Septate Uterus: A Case Report on Malpresentation and Infertility History

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Abstract
Introduction: A septate uterus is a congenital uterine anomaly linked to increased risks of infertility, recurrent miscarriage, and fetal malpresentation. Although often asymptomatic, it may significantly affect pregnancy outcomes. Early diagnosis and management are vital to reduce complications.
Case Report: This case was conducted at Siak Hospital involving a 38-year-old G4P0A3 woman presenting with preterm labor. A partial uterine septum was identified during an emergency cesarean section. The patient had a history of multiple miscarriages. Ultrasound revealed a transverse fetal position with oligohydramnios, prompting cesarean delivery of a 1700-gram neonate. Both maternal recovery and neonatal progress were favorable.
Conclusion: This case highlights the importance of individualized care in pregnancies complicated by uterine anomalies. While pre-conception surgical correction may improve outcomes, antenatal diagnosis requires close monitoring. Decisions regarding preterm termination depend on fetal presentation, amniotic fluid, and placental function. Imaging modalities support delivery planning. Although routine screening is not universal, it should be considered in women with recurrent loss or infertility. Multidisciplinary management is essential to optimize maternal and neonatal outcomes. Continued research is needed to establish standardized guidelines for managing pregnancies with septate uterus.

Keywords: Hysteroscopic metroplasty; infertility; preterm delivery; septate uterus; uterine anomalies.

Septum Uteri: Laporan Kasus pada Malpresentasi dan Riwayat Infertilitas

Abstrak
Pendahuluan: Septum uteri adalah kelainan bawaan pada uterus yang berhubungan dengan peningkatan risiko infertilitas, keguguran berulang, dan malpresentasi janin. Meskipun sering tanpa gejala, kondisi ini dapat berdampak signifikan terhadap luaran kehamilan. Deteksi dan penanganan dini penting untuk mencegah komplikasi.
Laporan Kasus: Laporan kasus ini dilakukan di RSUD Siak, pada seorang wanita G4P0A3 usia 38 tahun yang datang dengan persalinan prematur. Saat operasi sesar emergensi ditemukan adanya septum uterus parsial. Riwayat kehamilan menunjukkan keguguran berulang. Ultrasonografi menunjukkan posisi janin melintang dan oligohidramnion sehingga dilakukan tindakan sesar dengan bayi perempuan lahir seberat 1700gram. Pemulihan ibu dan bayi berjalan stabil.
Kesimpulan: Kasus ini menekankan pentingnya tata laksana individual pada kehamilan dengan kelainan rahim. Koreksi bedah sebelum kehamilan dapat memperbaiki prognosis, namun jika terdiagnosis saat hamil, diperlukan pemantauan ketat. Keputusan terminasi prematur bergantung pada posisi janin, jumlah cairan ketuban, dan fungsi plasenta. Modalitas pencitraan canggih membantu perencanaan persalinan. Skrining rahim tidak wajib untuk semua wanita, namun perlu dipertimbangkan pada kasus infertilitas atau keguguran berulang. Pendekatan multidisiplin diperlukan untuk meningkatkan hasil ibu dan bayi. Penelitian lebih lanjut dibutuhkan untuk menetapkan panduan tata laksana yang baku.

Kata kunci: Anomali uterus; infertilitas; malpresentasi janin; metroplasti histeroskopi; septum uteri.

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Introduction

The septate uterus, a notable type of Müllerian duct anomaly, is characterized by the presence of an endometrial septum that extends more than 1 cm from the bicornual line, with the leading edge forming an angle of less than 90°. This condition arises due to the incomplete resorption of the paramesonephric ducts during embryonic development, leading to a failure in the normal fusion of these ducts, which is essential for the formation of a single, functional uterus.[1] The prevalence of uterine anomalies, including the septate uterus, is estimated to be between 5.5% and 9.8% in the general female population, with a significant cohort study indicating that 2.3% of women have a partial or complete septate uterus.[2] This highlights the importance of understanding the implications of such congenital anomalies on reproductive health.

Genetic factors play a crucial role in the development of a septate uterus, with several genes implicated in the morphogenesis of the uterus. Mutations or dysregulations in genes such as HNF-1β, HOX, EMX2, LHX1, PAX2, RBM8A, TBX6, and components of the Wnt signaling pathway have been identified as significant contributors to the pathogenesis of this anomaly.[1] These genetic influences underscore the complexity of uterine development and the potential for hereditary factors to affect reproductive outcomes.

The presence of a septate uterus is associated with a range of reproductive challenges, including infertility, recurrent miscarriage, and complications during pregnancy. Studies have shown that women with a septate uterus experience significantly lower pregnancy rates (12.4% compared to 29.2%) and live birth rates (2.7% versus 21.7%) when compared to those with a normal uterine structure.[2] This disparity in reproductive outcomes is attributed to the anatomical and functional abnormalities associated with the septum, which can interfere with implantation and fetal development.

Diagnosis of a septate uterus is often incidental, as many women remain asymptomatic until they encounter reproductive difficulties. Imaging modalities such as transvaginal ultrasound (TVUS) and saline infusion sonohysterography (SIS) are commonly employed to differentiate a septate uterus from other congenital anomalies.[3] Magnetic resonance imaging (MRI) has been shown to provide higher diagnostic accuracy, particularly in complex cases where the morphology of the uterus may be ambiguous.[4] The ability to accurately diagnose a septate uterus is crucial for guiding appropriate management and treatment options.

While some women with a septate uterus can conceive naturally and carry pregnancies to term, the condition is associated with an increased risk of obstetric complications. These complications include miscarriage, intrauterine growth restriction, preterm birth, and abnormal fetal positions.[5] The case of a patient who reached her fourth pregnancy before being diagnosed with a septate uterus illustrates the clinical variability of this condition and the importance of thorough obstetric evaluation in women with unexplained pregnancy complications.[2]

The management of a septate uterus often involves surgical intervention, specifically hysteroscopic metroplasty, which aims to resect the septum and improve reproductive outcomes. Studies have indicated that hysteroscopic resection can significantly enhance fertility rates in women with a septate uterus, although there remains some debate regarding the optimal timing and technique for such interventions.[3,6] The decision to proceed with surgery should be individualized, taking into account the patient's reproductive history and the severity of the anomaly.

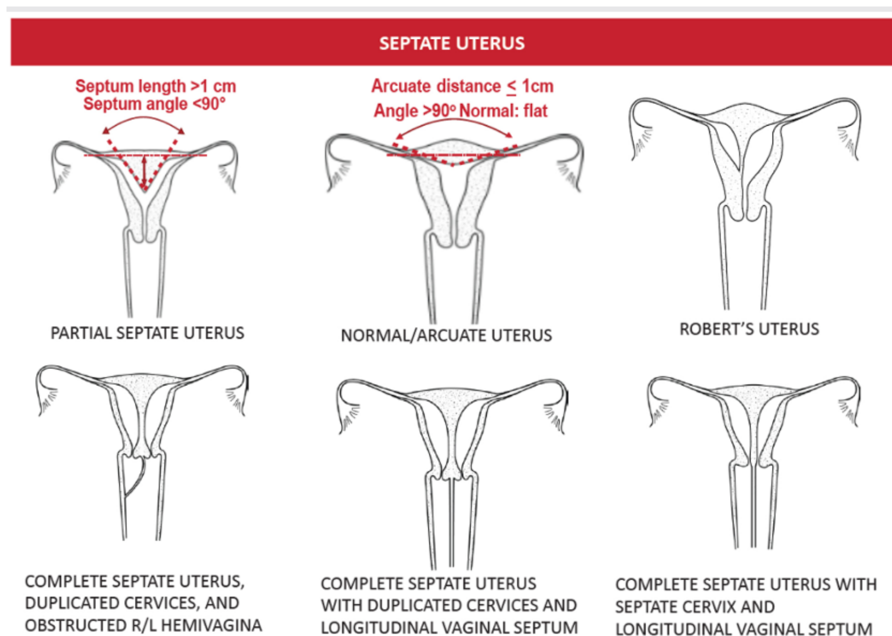

Figure 1 ASRM Mullerian Anomalies Classification 2021 (MAC2021)[1]
This schematic shows uterine cavity shapes used to classify septate uterus. A partial septate uterus is illustrated by a midline septum extending into the uterine cavity (septum length >1 cm) with a narrow fundal angle (<90°). A normal/arcuate uterus is shown with only a shallow fundal indentation (depth ≤1 cm) and a wider angle (>90°). The figure also depicts Robert's uterus and several complete septate uterus variants, including forms associated with duplicated cervices and/or a longitudinal vaginal septum.

A septate uterus is a significant congenital anomaly with profound implications for female reproductive health; therefore, understanding its etiology, prevalence, and associated reproductive challenges is essential for healthcare providers. Accurate diagnosis through advanced imaging techniques and appropriate management strategies, including surgical intervention when necessary, can help mitigate the adverse reproductive outcomes associated with this condition. Further research into the genetic underpinnings and optimal treatment protocols for septate uterus will further enhance our understanding and management of this complex anomaly.

Case Report

A 38-year-old gravida 4, para 0, abortus 3 (G4P0A3) woman presented to the Emergency Unit of Siak Hospital with complaints of severe leakage of amniotic fluid for four hours. She also reported a month-long history of greyish-white vaginal discharge accompanied by itching. On admission, clinical examination revealed signs of preterm labor. A visual timeline was constructed to present the chronological progression of the case for clearer understanding as shown in Figure 2.

Ultrasonographic evaluation showed a live intrauterine fetus in a transverse position with severe oligohydramnios. The amniotic fluid index (AFI) was critically low, raising concerns of prolonged rupture of membranes or placental insufficiency. Given the presence of fetal distress and ongoing labor symptoms, an emergency cesarean section was performed, resulting in the delivery of a female neonate weighing 1700 grams.

During the cesarean procedure,

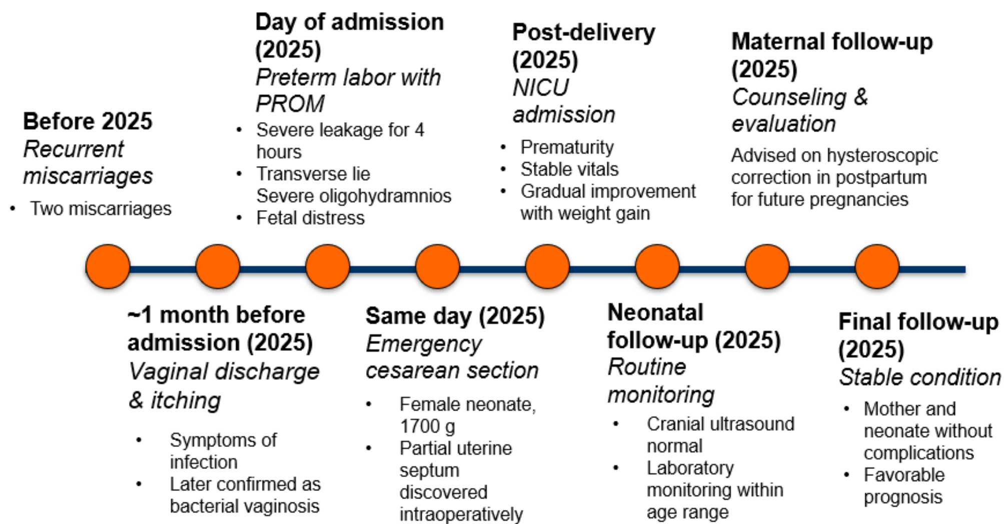

Figure 2 Chronological Summary of Clinical Events in the Present Case.

intraoperative findings revealed a partial uterine septum, which did not extend to the cervix or internal os, confirming a congenital uterine anomaly. This finding was significant given the patient's obstetric history of two previous miscarriages due to a uterine septum, suggesting its role in fetal malpresentation and recurrent pregnancy losses.

Further analysis of potential preterm labor inducers suggested that abnormal placentation due the septate uterus contributed to the fetal malposition. However, the presence of prolonged vaginal discharge with itching suggested a concurrent infectious etiology. Laboratory investigations confirmed a bacterial vaginosis infection, which may have triggered premature rupture of membranes and the subsequent onset of labor.

The neonate was admitted to the neonatal intensive care unit (NICU) for prematurity-related complications. Initial follow-up revealed stable vital signs, though continued monitoring was required due to low birth weight and preterm status. At the most recent follow-up, the neonate demonstrated significant improvement with adequate weight gain and no major postnatal complications, suggesting a favorable prognosis despite the challenging maternal history.

The patient expressed relief after finally receiving a diagnosis that explained her history of miscarriages and shared that the experience of delivering a live baby, despite complications, was deeply emotional. She was grateful for the medical team's swift response and expressed interest in pursuing further evaluation and treatment to increase her chances of future healthy pregnancies.

On follow-up postoperatively, no additional uterine imaging was conducted immediately due to the patient's stable condition. However, the neonate underwent routine laboratory monitoring and cranial ultrasound, which showed normal results for gestational age. Continued clinical evaluation was advised for future fertility planning, including the consideration of hysteroscopic correction in the postpartum period.

No adverse or unanticipated events were noted during the perioperative period or postpartum follow-up; both maternal and neonatal courses were unremarkable post-

delivery, with no complications requiring additional intervention.

Written informed consent was obtained from the patient for publication of this case report and any accompanying images or data.

Discussion

Septate uterus is defined as an endometrial septum length of >1 cm from the bicornual line with the leading edge of the septum having an angle of <90°.[1] Chen et al. reported an incidence of septate uterus of 2.3% out of 5,163 women. In general, septate uterus causes no symptoms in normal women. However, the incidence of recurrent miscarriages and fetal malposition is often associated with uterine anomalies especially septate uterus.[7]uterine malformations as a group are relatively frequent in the general population. Specific causes remain largely unknown. Although most occurrences ostensibly seem sporadic, familial recurrences have been observed, which strongly implicate genetic factors. Through the study of animal models, human syndromes, and structural chromosomal variation, several candidate genes have been proposed and subsequently tested with targeted methods in series of individuals with isolated, non-isolated, or syndromic uterine malformations. To date, a few genes have garnered strong evidence of causality, mainly in syndromic presentations (HNF1B, WNT4, WNT7A, HOXA13 The uterine septum is composed of tissue similar to the normal uterine wall making it possible for the embryo to attach. However, the risk of miscarriage is higher if implantation is at the septum. In some studies, the uterine septum of subfertile women was found to have more fibrous tissue but less vascularity.[8] In this case report, the patient had two miscarriages due to uterine septate.

A diagnosis of septate uterus can be made using ultrasound to assess the degree of distortion of the fundus uteri. The ESHRE-ESGE recommendations use a ratio of indentation to wall thickness (I:WT) >50% and ASRM recommends considering depth >15 mm and indentation angle <90°. Wall thickness is derived from the distance between the internal intercornual line and the external contour of the uterus. The cut-off values for defining a septate uterus are indentation

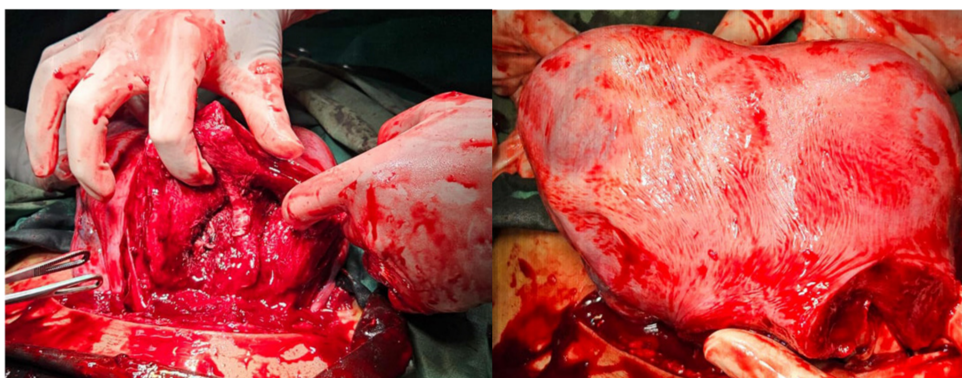

Figure 3 Intraoperation Finding. Intraoperative photographs demonstrate the exposed gravid uterus. The uterine corpus appears markedly enlarged with a smooth serosal surface. On inspection, a prominent longitudinal fundal indentation is visible externally, consistent with a duplicated uterine cavity configuration; the uterus is shown both with manual elevation/retraction (left panel) and in situ for overall contour assessment (right panel). No active serosal bleeding or frank uterine wall disruption is apparent in these views.

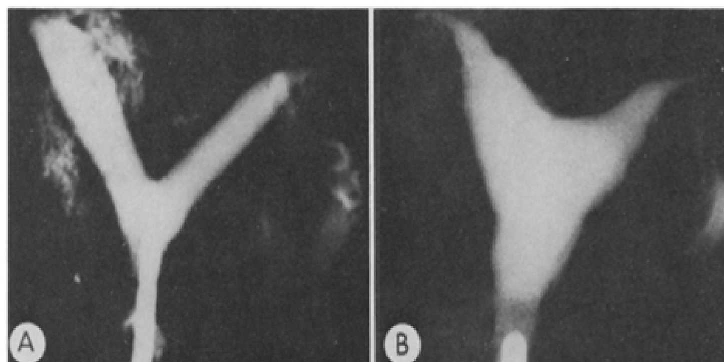

Figure 4 Uterus Septate A, Preoperative Hysterosalpingogram. B, Postoperative Hysterosalpingogram[12] cervix, and vagina, many times affecting a woman's ability to conceive and carry a pregnancy to term. The spectrum of possible abnormalities are related to the development of two separate Müllerian systems, which then fuse and subsequently undergo degeneration of the fused segments. This multiphasic development explains the multiple variations within the scheme of MDA classification. The purpose of this article is to review the embryologic development of the Müllerian ducts, relate the development to the most commonly used classification system, and review the magnetic resonance imaging (MRI)

depth ≥ 10 mm, indentation angle ≤136°, and I:WT ratio > 111%.[9] SHG is performed by inserting a catheter into the uterus under ultrasound guidance and squirting 10-30 mL of 0.9% NaCl through the catheter and this is then evaluated by ultrasound. Hysterolaparasocopy can be performed in all patients regardless of previous history.

Septate uterus has a close relationship with infertility, with uterine anomalies being one of the influencing factors. A study conducted on 33 women with septate uterus found a 21.9% incidence of infertility compared to normal uterine women. In a prospective study of 33 women 24 months after hysteroscopy of arcuate and septate/ bicornuate uterus, there was no difference in cumulative monthly pregnancy rates and pregnancy and live birth rates were assessed to be lower in women with septate uterus compared to normal women (12.4% vs 29.2% and 2.7% vs 21.7%). A study of 689 women with a septate uterus found 41.1% of miscarriages compared to 12.1% miscarriages in the control population. The miscarriage rate was higher in septate uterus in the first trimester 42% vs 12%, but there was no difference in the miscarriage rate in the second trimester in women with septate uterus and normal uterus 3.6% vs 3.5%.[10] In this patient, the baby was born alive weighing 1,700 grams by cesarean section.

Management of septate uterus is done by making a septal incision hysteroscopy is often performed in cases of septate uterus but no retrospective randomised trials have been found to evaluate the results. Studies have found that, following septal incision the miscarriage rate decreased from 91.8% to 10.4% resulting in an increase in live births after surgery from 4.3% to 81.3%.6 Treatment of septate uterus can be done by hysteroscopy. Performed under general anesthesia, the procedure involves making two holes in the abdomen for the insertion of two laparoscopes to enter to identify the entire uterus. A 7 mm rigid hysteroscope is inserted into the uterus with a 32% dextran solution of 200 mL used for uterine distension. Once the septum and tubal ostium are identified, the septum is incised inferiorly using hysteroscope scissors. Some bleeding will occur but not to a great extent as the septum consists of fibrous tissue. A

hysteroscopist should identify that the apex of the septum can be reached and not obstruct the endometrial wall. Procedures before and after hysteroscopy are shown in Figure 4.

Preterm Termination Versus Aterm Delivery in Septate Uterus Cases

The decision to proceed with early delivery versus allowing the pregnancy to reach term is influenced by several factors, including fetal presentation, amniotic fluid levels, and the presence of any complications such as intrauterine infection or oligohydramnios. For instance, a combination of transverse fetal position and oligohydramnios may necessitate an emergency preterm cesarean section.[11] However, in cases where the anatomical deformities are less severe and amniotic fluid levels are adequate, women may be able to carry the pregnancy to term with appropriate monitoring.[12]

The implications of a septate uterus extend beyond pregnancy outcomes; they also encompass broader reproductive health considerations.[13] The presence of coexisting conditions, such as endometriosis, may further complicate reproductive outcomes in this population.[14] Therefore, a multidisciplinary approach involving obstetricians, perinatologists, and neonatologists is essential to optimize maternal and fetal outcomes.

Conclusion

In summary, the presence of a septate uterus significantly impacts reproductive health, contributing to infertility, recurrent pregnancy loss, and malpresentation. While routine screening for all women is not recommended, targeted imaging for those experiencing recurrent miscarriages or infertility is essential for early diagnosis. Surgical correction through hysteroscopic metroplasty has been shown to improve pregnancy outcomes. However, for women already pregnant, individualized management strategies, including close monitoring and timely intervention, are crucial to optimizing maternal and fetal health. The severity of the anomaly, fetal presentation, and amniotic fluid levels play a significant role in determining the appropriate course of action.

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