ORIGINAL ARTICLE

Journal of International Surgery and Clinical Medicine (*JISCM)* 2026, Volume 6, Number 1: 1-4
E-ISSN: 2807-7008

Published By :
Surgical Residency Program
Universitas Syiah Kuala

Proximal Transverse Vaginal Septum In Women With Primary Infertility : A Rare Case Report

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Received: 2026-01-15
Accepted: 2026-04-07
Published: 2026-05-04

ABSTRACT

Introduction: A transverse vaginal septum (TVS) represents an uncommon congenital malformation of female genital structures resulting from incomplete canalization where the urogenital sinus meets the distal portion of Müllerian ducts. This condition occurs in approximately 1 per 2,100 to 1 per 72,000 female live births. TVS manifests as either obstructive or non-obstructive variants and frequently correlates with infertility and painful intercourse. Surgical intervention is necessary to reestablish normal vaginal structure and enhance fertility potential.

Case Description: This report details a 28-year-old female presenting with inability to conceive following 18 months of consistent unprotected marital relations. Her complaints included painful sexual activity, reduced menstrual flow, and menstrual cramping. Physical examination identified a dense transverse membrane in the proximal vaginal third, measuring roughly 2 cm in thickness, positioned 5 cm beyond the introitus, containing a tiny opening that obscured cervical observation. Sonographic evaluation demonstrated unremarkable uterine and adnexal structures. Hysterosalpingography could not be completed due to septal blockage. Surgical management included vaginal septal excision combined with diagnostic laparoscopy and chromopertubation, demonstrating normal reproductive organs with open fallopian tubes and endometrial implants on the uterine surface that underwent ablation. Patient recovery proceeded without complications.

Conclusion: A transverse vaginal septum constitutes a rare congenital malformation potentially presenting with fertility difficulties and dyspareunia during reproductive years. Surgical removal with vaginal restoration represents the preferred therapeutic approach to reestablish normal anatomy and maximize reproductive potential. Continued postoperative surveillance is crucial for detecting complications and assessing fertility outcomes.

Keywords: Vaginal septum, infertility, dyspareunia.
Cite This Article: Jannah, R., Septivera, Y., Rusnaidi, R., Nainggolan, S. 2026. Proximal Transverse Vaginal Septum In Women With Primary Infertility : A Rare Case Report. *Journal of International Surgery and Clinical Medicine* 6(1): 1-4. DOI : 10.51559/jiscm.v6i1.78

INTRODUCTION

Congenital malformations represent significant risk factors contributing to elevated morbidity and mortality rates among newborns, as well as developmental challenges during childhood.[1] Certain congenital abnormalities remain undetected until adolescence, while others persist as ongoing concerns throughout adolescent and pubertal development. Vaginal malformations comprise approximately 10% of all female reproductive system anomalies.[2] TVS represents an uncommon congenital defect of Müllerian duct development. While precise occurrence rates remain uncertain, estimates range from 1 in 2,100 to 1 in 72,000 births.[3] The underlying cause of this embryological defect remains unclear, with no identified genetic basis.[4] During normal development, sinovaginal bulbs extend from the urogenital sinus, connecting with the Müllerian tuberculum at the distal end of Müllerian ducts, forming the vaginal plate that subsequently canalizes to create the lower vaginal portion.[5] TVS is believed to arise from unsuccessful vaginal plate canalization at the junction where the urogenital sinus meets Müllerian ducts.[6] Associated abnormalities may involve genitourinary and gastrointestinal systems, including imperforate anus, intestinal malrotation, ectopic ureter accompanying kidney hypoplasia, hydronephrosis, vesicovaginal fistula, and bicornuate uterus.[7] Less common associations include musculoskeletal defects, aortic coarctation, and atrial septal abnormalities.[8] TVS may develop at any vaginal location, though the proximal vagina (junction between vaginal plate and fused Müllerian ducts) represents the most frequent site.[9] According to Rock et al.,[8] approximately 46% of septa occur in the upper vagina, 35% in the middle portion, and 19% in the lower vagina. TVS may be imperforate (completely closed), with thickness below 1 cm appearing prominent and bluish from accumulated menstrual blood (hematocolpos/hematometra), with variable vaginal positioning. A transverse vaginal septum (TVS) variants include obstructive and non-obstructive forms, with obstructive types being more prevalent, typically imperforate and manifesting as absent menstruation, abdominal discomfort, and hematocolpos during adolescence.[3] Non-obstructive (perforate) TVS typically presents with more diverse symptoms related to vaginal shortening, appearing during adolescence

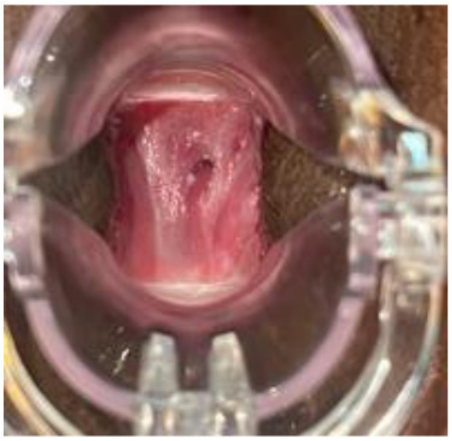

Figure 1. Speculum examination revealed a proximal transverse vaginal septum with a hole.

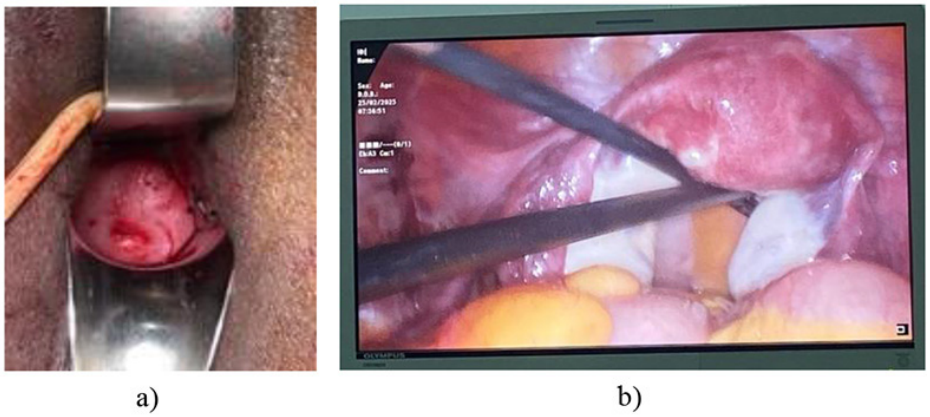

Figure 2. Post Operative Evaluation, (a) After performing a proximal transverse vaginal septum excision, (b) The uterus and both tubes appear within normal limits with the presence of endometriosis lesions

or early adulthood. Imperforate variants appear in adolescence with absent menstruation and hematocolpos. Conversely, females with non-obstructive septa frequently experience regular menstruation but encounter difficulties during sexual activity. The septum may remain asymptomatic until adolescence, potentially presenting only with fertility issues, though no definitive theory explains this infertility, likely resulting from impaired sperm passage.[10] Diagnosis is considered when an abdominal or pelvic mass is palpable, or when vaginal narrowing prevents cervical identification.[6] Physical examination reveals shortened vagina, with the cervix being non-palpable and invisible due to proximal septal closure or presence of a small opening.[11] When menstrual blood accumulates, the mass above the septum becomes palpable.[12] Diagnostic approaches include clinical examination, ultrasonography, and magnetic resonance imaging (MRI), with MRI being particularly valuable preoperatively for determining septal thickness and depth.[13] No standardized management protocols exist for TVS, though surgical approaches remain primary treatment options. Surgical septal resection with anastomosis of proximal and distal vaginal segments can be accomplished vaginally, laparoscopically, or through combined abdominoperineal approaches, depending on septal location and thickness.[14] Available medical literature provides limited guidance regarding TVS classification or surgical technique selection. Additionally, published data on short-term and long-term outcomes following TVS resection remains scarce. Postoperative complications include vaginal narrowing and reobstruction (recurrence), painful intercourse, endometriosis, infertility, obstetric challenges, and psychological disturbances. This case report aims to describe clinical presentation, evaluation, management, and outcomes in a patient with proximal transverse vaginal septum at RSUDZA, Banda Aceh.

CASE DESCRIPTION

A 28-year-old female presented with concerns regarding absence of pregnancy following 1.5 years of marriage with consistent unprotected sexual relations. The patient maintained regular consultations with an obstetrician at the outpatient department of RSUD dr. Zainoel Abidin Banda Aceh. She reported painful sexual intercourse. Her menstrual cycles remained regular though flow was diminished, accompanied by menstrual cramping. Previous hysterosalpingography attempts were unsuccessful because speculum examination revealed a thickened septum preventing cervical visualization. Her husband's semen analysis demonstrated normal parameters. Laboratory investigations were unremarkable. Speculum examination failed to visualize the cervix, revealing a septum in the upper vaginal third approximately 2 cm thick with partial closure containing a pinpoint opening, located approximately 5 cm from the vaginal opening. Ultrasound examination showed normal gynecological structures. The diagnosis was proximal transverse vaginal septum with primary infertility. Planned management included septum resection and operative laparoscopy with chromopertubation. Normal uterus and bilateral ovaries were identified with patent bilateral tubes. Postoperative ward care proceeded smoothly, with discharge in satisfactory condition. The procedure was performed in February 2025 with the patient positioned in lithotomy under epidural anesthesia, following aseptic preparation of the external genital region. Upper and lower speculums were placed, revealing the septum in the distal vaginal portion. A transverse incision was made on the septum to avoid urethral, bladder, or rectal injury, followed by combined sharp and blunt dissection cutting the septum until cervical visualization, ensuring hemostasis, then uniting vaginal mucosa with simple interrupted sutures using 2.0 absorbable thread. The procedure continued with operative laparoscopy, revealing normal uterus and bilateral tubes, with adhesions between transverse colon and peritoneal wall requiring adhesiolysis. Further exploration identified endometriotic lesions on the uterine fundus requiring ablation, followed by chromopertubation confirming bilateral tubal patency. The procedure was completed successfully.

DISCUSSION

Williams et al.[6] classified vaginal septa according to location (measured from vaginal opening to distal septal end: low location under 3cm, moderate 3-6 cm, high exceeding 6 cm), septal thickness (measured via MRI: thin under 1 cm, thick 1 cm or more), and perforation status (perforate versus imperforate). The European Society of Human Reproduction and Embryology (ESHRE) and European Society for Gynaecological Endoscopy (ESGE) developed a revised classification of Müllerian duct anomalies, categorizing TVS under subclass U3, representing a uterus with two distinct horns (cornua) but a single cervix. TVS is typically diagnosed when patients reach adulthood, are married, and remain childless (infertile) despite cohabitation and regular sexual activity. Infertility represents a couple's inability to achieve pregnancy following at least 12 months of regular unprotected intercourse, commonly termed primary infertility. TVS results from lateral and vertical fusion failures of the urogenital sinus and Müllerian ducts. Unsuccessful vertical fusion between Müllerian ducts and urogenital sinus disrupts genitalia canalization, forming transverse septa. Clinical presentations of non-obstructive (perforate) septa include asymptomatic cases, with patients reporting painful intercourse, scanty menstruation, and diagnosis during gynecological examination. In pre-pubertal patients, hydrocolpos may occur from obstructed genital secretion discharge produced by reproductive gland hypersecretion responding to maternal hormone stimulation. TVS and imperforate hymen can be differentiated through physical examination findings. In TVS, suprapubic pressure does not produce distention or mass protrusion in the perineal region.

Septal thickness and location prove difficult to assess clinically unless patients consent to internal examination (speculum, rectal examination), which can be supplemented by abdominal, transperineal, transrectal ultrasonography or MRI to evaluate septal location and thickness before management. Imperforate hymen appears as bluish mass protrusion between labia minora with visible distention changes when suprapubic pressure is applied. TVS management goals include restoring vaginal function and achieving pregnancy. Some vaginal septa can be conservatively managed with monitoring, while cases associated with pain, infertility, or hematometra require surgical reconstruction and vaginal anastomosis. Three different surgical approaches exist for TVS management: abdomino-perineal laparotomy vaginoplasty, simple vaginal resection, and laparoscopic vaginal wall resection. In this case, simple vaginal resection was performed by incising the septum and re-suturing proximal to distal vaginal septal wall portions, with patient education regarding regular coitus after recovery to prevent recurrence and reobstruction.[8] For this patient, the abdominoperineal approach is recommended. Abdomino-perineal procedures often involve complex surgical reconstruction, consequently leading to more frequent long-term complications such as reobstruction and fistula.[14] The only available data comes from retrospective studies of obstructive vaginal anomalies. This study contained only three TVS patients (low and moderate location, all imperforate, thickness not described). Results showed two of three septa developed vaginal stenosis requiring re-excision. Batu et al. explained significantly decreased pregnancy probability following TVS resection compared to imperforate hymen, with middle and high location TVS having lower fertilization chances compared to low location TVS, potentially caused by vaginal stenosis and endometriosis.[15] General endometriosis incidence approximates 10%, increasing significantly in obstructive Müllerian duct anomalies, considered secondary to retrograde menstruation.[16] Previous studies demonstrated that TVS patients have higher endometriosis incidence compared to middle and low location TVS.[17] Literature indicates higher incidence in thick septa and shorter vaginas. This condition causes obstructed menstrual blood, increasing retrograde menstruation possibility. Vaginal dilation is recommended following vaginal reconstruction surgery to prevent stenosis or reobstruction, though supporting evidence remains limited. Dilation is recommended for all patients undergoing surgery via vaginal approach using skin grafts or with significant scar tissue. Dilation should commence within several days postoperatively.[18]

CONCLUSION

Proximal transverse vaginal septum remains an uncommon congenital anomaly. This case report demonstrates that proximal transverse vaginal septum is appropriate for simple prevaginal septum resection approach considering postoperative stenosis risk and other complications. Additional long-term investigations are needed to comprehensively evaluate long-term reproductive outcomes following transverse vaginal septum resection.

DISCLOSURES

FUNDING

The authors received no financial support for this research.

CONFLICT OF INTEREST

During this research, the authors had no conflicts of interest related to the research.

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