

Transverse vaginal septum: a case report

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ABSTRACT

Introduction: Transverse vaginal septum or known as partial vaginal agenesis, is a rare case. The most frequent causes are defects or fusion disorders of the Mullerian Ductus and defect formation of the urogenital ducts of the urogenital sinuses. The septum may obstruct the entire vaginal opening and cause hematocolpos. The diagnosis is based on a detailed physical and gynecological examination supported by ultrasound and magnetic resonance imaging (MRI). The management option is surgery which is performed as soon as possible.

Case Report: An 11-year-old girl came with lower abdominal pain and amenorrhea, diagnosed with a transverse vaginal septum complicated with hematocolpos based on anamnesis, physical and gynecological examination, and imaging study by ultrasound and MRI. The management includes excision and cross-incision of the septum followed by diagnostic laparoscopy. Endometriosis was found at the broad ligament during laparoscopy and continued with endometriosis resection.

Conclusion: The transverse vaginal septum is still one of the rare anomalies of the Mullerian Duct. The diagnosis was made from a history of low abdominal pain, primary amenorrhea, and a pelvic examination that revealed the vaginal septum. MRI is a gold standard examination procedure of anomalies or abnormalities involving the vagina. The management of the transverse vaginal septum is a surgical approach involving drainage of hematocolpos.

Keywords: transversal vagina septum, hematocolpos, vaginal agenesis, amenorrhea.

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INTRODUCTION

The vagina is a muscular canal connecting the vulva and uterus, allowing menstruation blood to leave the vagina. The vagina is located between the bladder and rectum. Vagina serves as an organ for reproduction, as a birth canal for delivery of the fetus, and as the excretory ducts for menstrual blood release.¹⁻⁴ Congenital abnormalities involving the vagina, such as the non-formation of the vagina or parts of the vagina (vaginal agenesis), will interfere with the primary function of the vagina. The most severe form of congenital vaginal abnormality is the absence of vaginal formation (complete vaginal agenesis).^{2,5} Vaginal agenesis, also known as vaginal atresia, occurs due to the Mullerian ducts undeveloped during the embryonic period. This disorder is rarely found, with an incidence of 1 per 4,500-5000 women per year.²

Transverse vaginal septum or partial vaginal agenesis is also a congenital disorder. Similar to vaginal agenesis, the transverse vaginal septum is also rare, with incidences ranging between 1 per

2100 and 1 per 7200 women.^{3,6} The main causes of vaginal septum formation are the defects or disorders of the Mullerian Ductus fusion and urogenital duct defect of the urogenital sinuses.^{3,7-9} Septums are mainly formed on the lower part vagina. If the septum obstructs the entire vaginal opening, it can inhibit the menstruation blood release and causes hematocolpos, which is associated with cyclic lower abdominal pain and occurs after menarche.^{9,10} Hematocolpos is a menstrual blood accumulation in the vagina due to obstruction of the vagina canal.^{9,11}

Diagnosing Transverse vaginal septum need a detailed physical and gynecological examination, especially abdominal or transvaginal ultrasound, and an MRI examination to assess septal thickness.^{8,12}

CASE PRESENTATION

An 11-year-old girl came to the emergency room (ER) with lower abdominal pain. Pain persists and aggravates one week before entering the hospital. The pain is so intense that she is unable to move. Patients also complain of difficulty urinating.

The patient has never experienced menstruation.

Her secondary sexual characteristic was normal. Abdominal examination shows a mass in the lower abdomen up to 2 fingers above the umbilicus and pain on pressure in the lower abdomen with VAS 5-6. On gynecological examination, the vulva and urethra were found to be normal, and no hymen bulging was seen (Figure 1). The rectal examination showed

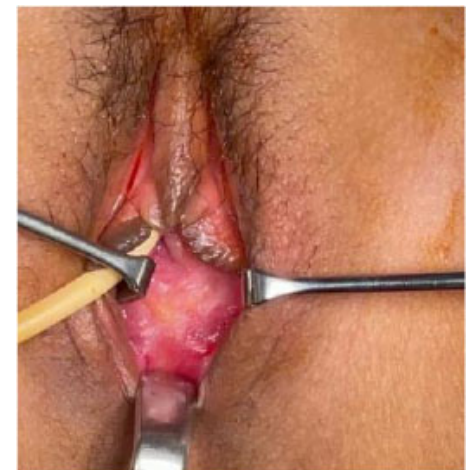


Figure 1. Transverse Vaginal Septum.

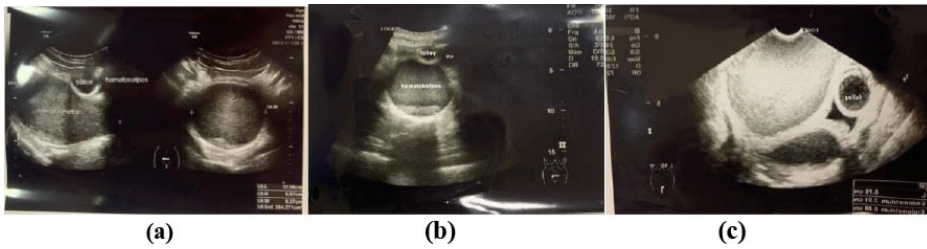


Figure 2. (a) Hematometra, (b) Hematocolpos, (c) Vaginal Septum.



Figure 3. MRI results show hematocolpos and vaginal septal thickness of 3mm.



Figure 4. Hematocolpos Blood.

distension in the anterior area with normal anal mucosa.

The ultrasound examination showed hematometra and hematocolpos (Figure 2). The results of the MRI examination found the presence of hematocolpos due to a transverse vaginal septum with a thickness of 3 cm which caused displacement from the uterus and bilateral ovaries upwards, pressing the bladder to the anterior and pushing the rectosigmoid. The uterus was in normal shape (Figure 3).

The treatment consists of a cross incision and septal excision to open the vaginal canal. Hematocolpos blood came out approximately 400 cc (Figure 4). Diagnostic laparoscopy was performed after septal excision. Blood accumulation was found in the cavum Douglas due to retrograde menstruation,

and endometriotic lesions have formed in the broad ligament (Figure 5). Then, laparoscopic resection of endometriotic lesions was made to eliminate endometriotic lesions.

The post-operative evaluation showed satisfactory results, and she was discharged two days later in pain-free condition.

DISCUSSION

The 11-year-old patient was diagnosed with a transverse vaginal septum based on anamnesis of lower abdominal pain and difficulty in urinating. The patient has never menstruated. The physical examination found a mass in the lower abdomen up to 2 fingers under the umbilicus and tender. The gynecological examination also showed no vaginal opening and no hymen bulging. On the rectal examination, there is a bulging in the anterior wall with normal anal mucosa. Diagnosis is also based on the ultrasound examination, which shows the presence of hematocolpos in the vagina due to a transverse vaginal septum with a thickness of 3 mm.

Clinical manifestations of a complete transverse vaginal septum appear after menarche with progressive lower abdominal pain. Obstruction of the urinary tract occurs due to pressure from the vaginal accumulation of menstrual blood towards the anterior vaginal wall where the urethra and bladder are located, resulting in difficulty urinating.¹²⁻¹⁴

Diagnosis of a vaginal septum is suspected when an abdominal or pelvic mass is palpable due to the formation of hematocolpos or if the vagina is shortened and the cervix cannot be identified. A rectal exam reveals a lump in the vagina.^{7,15-18} Pelvic ultrasound examination is the first imaging modality that can be performed to reveal gynecological structures, but it is of minimal use in assessing complex anatomy.¹⁹⁻²⁰ MRI examination has a high specificity and sensitivity to identify anomalies in the Mullerian tractus and provides information related to genitourinary abnormalities. Hence, the MRI examination is a gold standard for upper Mullerian tract anomaly.²²⁻²⁵ Physical examinations, ultrasounds, and MRI are all used to establish a diagnosis, and MRI is useful for determining the thickness and depth of the septum.

In this case report, the differential diagnosis of a transverse vaginal septum is hymen imperforate. This diagnosis has been ruled out based on physical examination, which was no presence of a hymen bulging in the vagina. Hymen bulging is a protrusion of the hymen membrane due to the insistence of menstrual blood accumulation. Protrusion occurs because the hymen membrane is thinner than the septum, so there will be a blackish protrusion picture on the hymen.

Management option for the low-lying septum is a cross incision and simple septum excision. Septum location can be determined based on the distance from the vaginal introitus to the distal part of the septum. It is divided into three categories classes "low-lying" (<3 cm), "mid-lying" (3-6 cm), and "high-lying" (>6 cm). The thickness of the septum is also divided into "thin-septum" (<1 cm) or "thick-septum" (>1 cm).⁷ Our patient septum distance is <3 cm away from the vaginal introitus, including in a low-lying septum. The septum thickness is 3 mm.

Managing the vaginal septum with hematodrainage colpos should be done as early as possible to avoid fertility problems and the risk of endometriosis.⁹ Management for the transverse vaginal septum involves surgical resection of the septum and anastomosis of the proximal and distal vaginas. The management depends on the thickness and location of

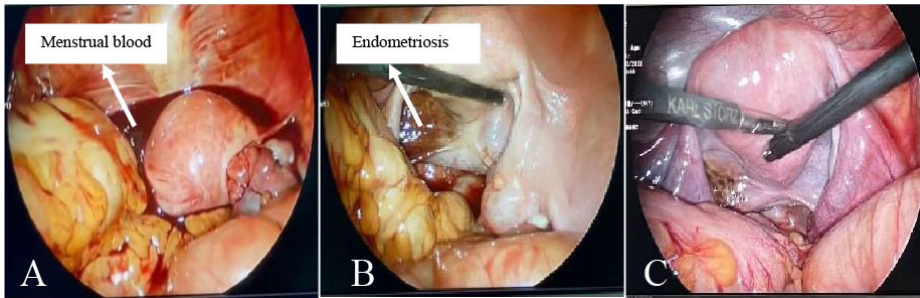


Figure 5. Diagnostic Laparoscopic Findings, (a) blood accumulation in cavum Douglas, (b) endometriotic lesions in the broad ligament, (c) blood in cavum Douglas has been cleared out.

the septum. A thin septum can be excision and anastomosis, while a thick or large one may require a skin graft.^{6,26}

Septum should be removed surgically when the patient reaches the age of menarche.¹⁰ Patients with transverse vaginal septum can be treated with three different surgical methods: abdominoperineal vaginoplasty via laparotomy, simple excision through the approach from the vagina, and resection of the vaginal septum through laparoscopy.³ Another surgical approach is the Grünberger method which includes a cross incision in the caudal part of the septum, a cross incision in the cranial part of the septum, and transverse closure.^{14,15} Wierrani et al. stated that this method gave satisfactory results in 13 patients with a transverse vaginal septum.¹⁶

There are two new surgical methods for treating the vaginal septum. Push-and-pull techniques require a combination with an abdominal-vaginal approach and are usually performed in patients at high risk of post-operative vaginal restenosis.¹⁷ Modifications of this method were also carried out by Layman et al. by performing traction through proximal vaginal distension using an Olbert catheter balloon to facilitate the differentiating process and reduce vaginal narrowing after surgery.¹⁸ Meanwhile, Sardesai et al. stated that the double-cross-plasty or Z-plasty method for managing the vaginal septum is the best method compared to other surgical methods.¹⁹

A diagnostic laparoscopy was performed. Blood was accumulated in the Douglas cavity, and an endometriosis lesion was found in the broad ligament. The incidence of endometriosis is high in this case. Because endometriosis is

caused by obstruction of blood flow during menstruation, performing a laparoscopic diagnosis after septum excision is recommended.²⁷ This follows Sampson's theory, which states that endometriosis can occur due to retrograde menstruation allows endometrial cells and viable endometrial fragments to reach the ovaries and other parts of the pelvic cavity.^{21,22} Menstrual blood obstruction due to transverse vaginal septum allows for retrograde menstruation, increasing the incidence of endometriosis in these patients.²³

The incidence of endometriosis in adolescents reaches from 47 to 70 percent. Eleven to forty percent of endometriosis cases in patients under 20 are associated with Mullerian Duct anomalies.²³ Laparoscopic exploration is recommended because it has a low risk of bleeding and infection rate, lower length of stay, and faster recovery.²⁶

Two days after surgery, she was discharged in good condition. The patient was asked to return to monitor the post-operative complication, such as vaginal stenosis of the recessed area, possible growth of post-operative endometriosis, dyspareunia and fertility problems.²⁰

CONCLUSION

The transverse vaginal septum is still one of the rare anomalies of the Mullerian duct. The diagnosis is based on anamnesis, physical, and supporting examination. MRI is a gold standard examination of anomalies or abnormalities involving the vagina. An MRI examination can provide information related to the thickness of the septum. The management of the transverse vaginal septum is surgical by involving drainage of the formed hematocolpos.

CONFLICT OF INTEREST

The authors have nothing to disclose.

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ETHICAL CONSIDERATION

This case series did not require any ethical clearance. All patients and their families understand and agree about the publication of receptive medical data in this journal article.

AUTHOR CONTRIBUTION

All authors contributed to the study, including literature research, data collection, data analysis, and manuscript preparation.

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