

Perforated Transverse Vaginal Septum: Combined Sono-vaginoscopic Diagnosis and Treatment: A Case Report

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Background: Perforated transverse vaginal septum is a rare condition which has no currently standard management guidelines. This case report outlines the new technique for diagnosis and treatment at Thammasat University Hospital.

Case Report: A 23 years old, nulliparous, Thai female was admitted to the hospital due to acute pelvic pain with normal female sexual characteristics, hematocolpos and hematometra. A transabdominal ultrasound guided vaginoscope with loop electrocauterization was the investigation and treatment of choice in this case according to the location, type, visualization and pain limitation. Six weeks after the operation, the width and the thickness of septum remained the same width and thickness, as an excellent result of surgery. This was considered adequate to maintain menstrual blood flow and penetrative function in the future. Self-digital dilation was advised for preventing recurrence.

Conclusion: Combine ultrasound guided- digital examination and vaginoscopy for diagnosis and resection of vaginal septum and continuous self-digital dilatation of vagina is a safe and simple technique for management of transverse vaginal septum with splendid results.

Keywords: Transverse vaginal septum, Vaginoscopy, Amenorrhea, Hematocolpos

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The female genital tract development process includes differentiation, migration, fusion and canalization. The uterus, cervix and upper vagina are formed by medial migration and horizontal fusion of mullerian duct, whereas the lower vagina and introitus are formed by vertical fusion of mullerian duct with the urogenital tract⁽¹⁾. However, failure of the canalization of the vaginal plate during embryogenesis result in transverse vaginal septum with the incidence approximately 1 per 30,000 to 84,000⁽²⁾. Over half of the patients with transverse vaginal septum have associated anomalies, especially those of the urinary tract and skeletal system, requiring meticulous evaluation⁽³⁾. Common presentations are cyclic lower pelvic pain, urinary retention and primary amenorrhea with normal timeline of thelarche and/or adrenarche^(3,4). Other differential diagnosis includes imperforate hymen and cervical atresia. Key physical findings include the presence of secondary sexual characteristics, bluish bulging membrane in imperforate hymen, proximal obstruction in low transverse vaginal septum and pink vaginal

dimple in distal vaginal atresia⁽⁴⁾. In the absence of a clear diagnosis, transabdominal or transvaginal ultrasonography are the preferred modalities of imaging. If ultrasonography is non-diagnostic, magnetic resonance imaging (MRI) can be performed with higher specificity^(3,4). The treatment is supportive management until specific surgery can be performed. Untreated transverse vaginal septum could potentially result in vaginal stenosis and re-obstruction, dyspareunia, endometriosis, infertility and psychological complications. The protocol for treatment contains complete evaluation, patient understanding and perception of their own anomaly and giving appropriate surgical treatment⁽⁴⁾.

Case Report

A 23 years old, nulliparous, Thai female with no known underlying disease presented at Thammasat University Hospital 5 years ago with acute abdominal pain and urinary retention. After intermittent catheter was inserted, the pain was relieved. The patient complained of cyclic pelvic pain since the age of 14. Her first menstruation was at the age of 18 (same as her mother), with duration of 3 days and using around 3 pads per day. After the urinary catheterization, her menstrual period came regularly every 28 days, with menstrual blood flow for 1 day and 2 pads were daily used which are slightly stained. She had no further problems with inability to urinate since then.

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Two weeks prior to this admission, she had acute abdominal pain. She denied any abnormal vaginal bleeding or pelvic mass. She also denied having sexual intercourse. Her thelarche and pubarche were at 14 years old. Height velocity and axillary hair occurred at 16 years old. On physical examination, her normal secondary sexual characteristics were presented with breasts at Tanner stage 3, her abdomen was soft and there were absence of tenderness, guarding, rebound tenderness or palpable mass. External genital examination showed normal labia majora and minora. Transrectal ultrasound revealed hematocolpos sized 6.02 cm x 3.87 cm and hematometra as in Figure 1. Other structures remain normal. Vaginal physical examination under general anesthesia was planned.

In the operation room, pelvic examination under general anesthesia was done. There were transverse vaginal septum distal to hymenal ring by 4 cm, a dimple orifice at the left of the septum 1 mm in diameter with mucous content and normal size uterus. Transrectal ultrasound was used to identify the location of the defect as shown in Figure 2. The vaginoscope was simultaneously used for clear visualization and focusing the lesion. After the dimple orifice was identified as in Figure 3, loop electrocauterization under ultrasound guidance was used to dilate a hole and resect the septum as in Figure 4. The amount of blood from the hematocolpos and hematometra, approximately 100 ml, was suctioned as in Figure 5. Transrectal ultrasound monitoring was achieved for adequate drainage as showed in Figure 6. Hegar's dilator was then applied to dilate the canal from No. 5 to No. 15 as in Figure 7.

The post-operative diagnosis was middle transverse vaginal septum (perforated type) with hematocolpos and hematometra. Vaginal examination after the operation found a septal defect, 1.5 cm in width and 0.5 cm in thickness and 4 cm distal from the cervix. The total vaginal length was 8 cm.

On post-operative day 1, the patient had no complication such as bleeding, pain or fever. On pelvic



Figure 1. Transrectal ultrasound revealed hematocolpos (A) sized 6.02x3.87 cm and hematometra (B).

examination, the septal canal was 1.5 cm in width and 0.5 cm in thickness. She was discharged and an appointment was made for 1 week later. At the day of follow-up, the canal was still 1.5 cm in width and 0.5 cm in thickness. Self dilation via digital insertion was advised. Six weeks after the operation, examination still showed a septal defect 2 cm in width and 0.5 cm in thickness. She had no pelvic pain, abnormal vaginal discharge or dysmenorrheal and well complied in the method of self vaginal dilatation.



Figure 2. Transabdominal ultrasound showed the site and thickness of septum at the tip of operator's finger (arrow) and hematocolpos (A).

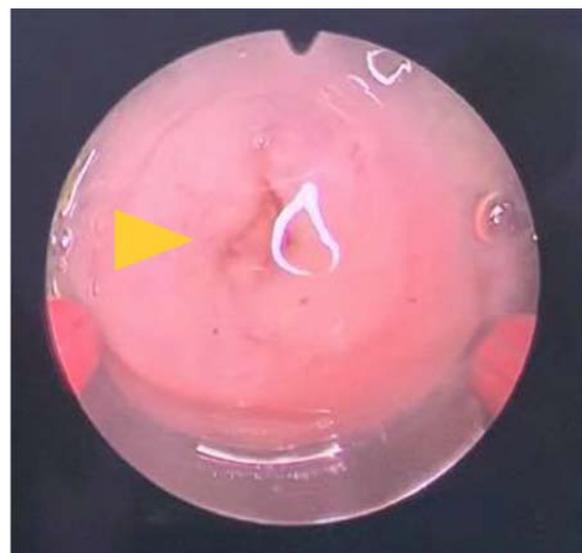


Figure 3. Dimple orifice (arrow), 1 mm in diameter.

Discussion

Transverse vaginal septum results from failure of canalization during embryogenesis. The most common presentations are primary amenorrhea and cyclic pelvic pain which usually presents at or soon after the age of expected menarche. Physical examination is essential in making the



Figure 4. Loop electrocauterization under ultrasound guidance was used to dilate a hole and resect the septum.



Figure 5. Blood from the hematocolpos and hemometra.

diagnosis of transverse vaginal septum, however the accuracy relies on the clinician's experience. Thus, further investigations such as ultrasonography and MRI can be used to aid physicians in making the diagnosis. Ultrasound is used as an initial investigation of choice for making the diagnosis and planning for proper management due to its limited cost. However, the interpretation of ultrasound findings is depended on operator. Therefore, when the diagnosis is uncertain MRI can be utilized for making the diagnosis, identifying congenital anomalies and surgical plan⁽³⁻⁵⁾.

Although the pre-existing classification of genitourinary anomalies by the European Society of Human Reproduction and Embryology (ESHRE) and the European Society for Gynecological Endoscopy (ESGE) includes transverse vaginal septum (U0C0V3)⁽⁶⁾, no further details or plan of management are given in this classification.

CE Williams et al proposed a "classification of septum" to classify the location of septum as low (72%), mid (22%) or high (6%). It was categorized as perforated (39%) and imperforated (61%) and was managed in 3 different techniques: abdomino-perineal approach (33%), vaginal approach (59%) and laparoscopic resection (6%). Vaginal approach was indicated in perforated type. Ninety three percent underwent a simple excision of septum. Short term complications were not found in all cases. After long term follow-up, 1% of patients presented with reobstruction, all following abdominoperineal vaginoplasty; 7% presented with vaginal stenosis, two following vaginal resection and one following the abdominoperineal approach⁽⁷⁾.

The management of transverse vaginal septum comprises of surgical and non-surgical methods such as vaginal elongation by dilation, which is the first-line approach and



Figure 6. Transabdominal ultrasound showed adequate drainage and finger in the canal (arrow).

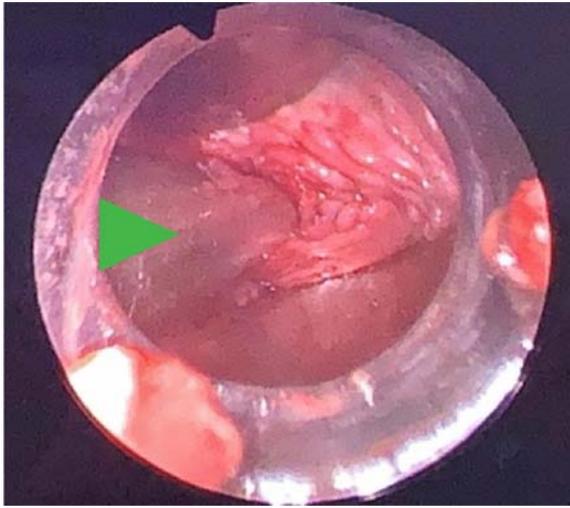


Figure 7. Hegar's dilator No. 5 to No. 15 (arrow) was applied to dilate the canal.

usually successful⁽⁴⁾. In the presented case, primary vaginal elongation by dilation could not be performed due to the tiny dimple orifice. Vaginoscopy was performed to identify the position of the orifice. Fenestration in the septum was cut and extended via loop electrocauterization under ultrasound guidance to create a canal in the direction of the hematocolpos site for prevention of injury to bladder or rectum. The reconstructed canal was then dilated by Hegar's dilator. In another report of G. Scutiero et al, vaginoscopy with bipolar electro-resection of septum was used, followed by insertion of Foley catheter. The patient in their report was discharged at the third day after the operation. After discharge for 2 months, re-vaginoscopy was planned to remove Foley catheter. Examination showed narrowing of the vaginal canal and resection with bipolar electrode was done and the patient was discharged in the same day. Twelve months after the operation, no septal closure or abnormal symptoms were observed⁽⁸⁾. In another paper by R. Sasikala et al, vaginal septum resection was performed and a rigid plastic 20 ml syringe was used for vaginal mould. On the third day after the operation, the syringe was removed, and the patient was discharged 7 days post-operatively. Physical examination at 2 weeks later showed a healed wound without stricture formation. Re-stenosis was prevented by the mould, which was made from dental material, and was kept in place for 8 weeks⁽⁹⁾. In our patient, re-stenosis did not occur and further re-obstruction of the septum was prevented by digital dilation.

Conclusion

Perforated type mid-transverse vaginal septum is a rare condition and there is no standard management guideline or sufficient data about surgical management established. Our patient was managed by vaginoscopic diagnosis with transverse vaginal septal canalization and dilation under transrectal ultrasound guidance to provide adequate

visualization for prevention of trauma to adjacent structures. Re-obstruction was prevented by self-digital dilation. After following-up for 6 weeks, the patient had no re-stenosis and digital dilation was regularly performed by herself. Even though she has no plan for sexual intercourse or pregnancy but continuous self digital dilatation was advised for prevention of symptoms of reobstruction until the patient gets ready for the use of vaginal dilator at the time of having sexual intercourse in the future.

What is already known on this topic?

Transverse vaginal septum is a rare congenital anomaly in young adult with primary amenorrhea and cyclic pelvic pain. Almost 40% of this condition is a perforated type which the regular menstrual blood could pass out, making the diagnosis of this type difficult. Management for transverse septum consists of resection of defect site, dilatation and prevention of re-obstruction. Most of gynecologists are unfamiliar with this kind of surgery due to the site of septum usually lies deeply in vaginal canal, so resection of septum is difficult and having high risk for injury to urinary bladder and colon.

What this study adds?

This report presents the techniques for diagnosis and treatment of transverse septum using combined transrectal ultrasound and vaginoscope. Under ultrasound guidance, the direction of resection of vaginal septum could be monitored for prevention of trauma to adjacent organs. Vaginoscope with loop resection can be simply used for resection of the septum comparing to the sophisticated techniques of abdominoperineal or laparoscopic approach.

Potential conflicts of interest

The authors declare no conflicts of interest.

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ภาวะผนังกันช่องคลอดแนวขวางแบบมีรอยร้าว: การผสมผสานระหว่างคลื่นเสียงความถี่สูงร่วมกับการผ่าตัดส่องกล้องทางช่องคลอด
เพื่อการวินิจฉัยและการรักษา: รายงานผู้ป่วย 1 ราย

สกล มนุษุข, ศิริษฐ์ จายะสกุล, สวรรรยา เบ็ญจหงษ์, ณัฐภัทร กาญจนวิไล, อติวุธ กุมพมาศ, อธิตา จันทเสนานันท์

ภูมิหลัง: ภาวะผนังกันช่องคลอดแนวขวางแบบมีรอยร้าวเป็นภาวะที่มีอุบัติการณ์น้อยมากและยังคงไม่มีแนวทางการรักษาที่เป็นมาตรฐาน รายงานนี้เป็นกรรายงานเกี่ยวกับการวินิจฉัยและการรักษาผู้ป่วยที่มาด้วยภาวะนี้ในโรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติ

รายงานผู้ป่วย: ผู้ป่วยเป็นหญิงไทย โสด อายุ 23 ปี มาโรงพยาบาลด้วยอาการปวดท้องประจำเดือนเป็นรอบๆ ร่วมกับภาวะประจำเดือนมาน้อย โดยตรวจร่างกายพบว่ามีลักษณะทุติยภูมิทางเพศที่ปกติ การตรวจด้วยคลื่นเสียงความถี่สูงพบเลือดในโพรงมดลูกและในช่องคลอดส่วนบนเหนือต่อผนังกัน ทึมแพทย์ผู้ดูแลรักษาผู้ป่วยได้เลือกวิธีการใช้คลื่นเสียงความถี่สูงทางหน้าท้องร่วมกับการส่องกล้องในช่องคลอดและใช้ลวดไฟฟ้าจี้ขยายรอยร้าวที่ผนังกัน ซึ่งเป็นวิธีการตรวจเพื่อยืนยันการวินิจฉัยและการรักษา หลังการผ่าตัดหกลีบตาห้ พบว่าขนาดและความหนาของรอยร้าวที่ผนังกันยังคงมีขนาดเท่ากับหลังผ่าตัดใหม่ๆ ไม่มีการติบแคบ ซึ่งเป็นการบ่งบอกถึงผลการรักษาที่ดี อีกทั้งสามารถทำให้มีระดูได้ ผู้ป่วยได้รับคำแนะนำให้ใช้นิ้วมือสอดช่องคลอดผ่านรอยผ่าตัดดังกล่าวเพื่อถ่างขยายและป้องกันการติบแคบที่อาจเกิดขึ้นในอนาคต และผู้ป่วยสามารถทำเองได้เป็นอย่างดี

สรุป: การใช้คลื่นเสียงความถี่สูงร่วมกับการสอดนิ้วในช่องคลอดและส่องกล้องในช่องคลอด สามารถนำมาใช้เพื่อการวินิจฉัยและรักษาภาวะผนังกันช่องคลอดแนวขวางแบบมีรอยร้าวได้อย่างปลอดภัย มีประสิทธิภาพและได้ผลดี
