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# Transverse vaginal septum across adolescence and adulthood: a three-case series from a Moroccan tertiary center

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*Abstract: Transverse vaginal septum is a rare obstructive Mullerian anomaly with a wide clinical spectrum, ranging from acute pubertal hematocolpos to adult dyspareunia, infertility, or recurrent vaginal stenosis after previous surgery. We report a three-case series managed in a tertiary gynecology department in Morocco. The first patient was a 13-year-old adolescent with primary amenorrhea and acute pelvic pain due to hematocolpos associated with an upper-third transverse vaginal septum; emergency ultrasound-guided drainage was followed by definitive vaginal septum resection, postoperative antibiotics, local care, and progressive dilation, with restoration of painless regular menstruation at six months. The second patient was a 22-year-old nulligravid woman with severe dyspareunia and difficult intercourse despite menstrual flow; magnetic resonance imaging confirmed a lower-third perforated septum with a narrow opening, and surgical enlargement with postoperative dilation led to marked functional improvement. The third patient was a 30-year-old nulligravid woman previously operated on for vaginal septum who presented with disabling dysmenorrhea and spaniomenorrhea caused by recurrent lower vaginal stenosis; reoperation allowed drainage of retained old blood and progressive Hegar dilation. This series highlights the need for careful clinical examination, pelvic imaging, individualized surgery, and structured postoperative dilation to prevent restenosis and preserve menstrual, sexual, and reproductive function.*

**Keywords**: transverse vaginal septum; vaginal diaphragm; hematocolpos; primary amenorrhea; dyspareunia; vaginal stenosis; case series

## Introduction

Transverse vaginal septum, often described in French clinical practice as a vaginal diaphragm, is an uncommon congenital anomaly of the lower female genital tract. It is classically attributed to abnormal vertical fusion or canalization between the Mullerian-derived upper vagina and the urogenital sinus-derived lower vagina [1,2]. Its estimated frequency is low, commonly reported around 1 in 70,000 females, although figures vary across publications because many incomplete septa remain undiagnosed until adolescence or adulthood [2-4].

The clinical presentation depends on the level, thickness, and permeability of the septum. A complete obstructive septum may present at menarche with primary amenorrhea, cyclic or acute pelvic pain, hematocolpos, hematometra, or infection. Incomplete or microperforated septa may allow partial menstrual drainage and therefore present later with dyspareunia, infertility, hypomenorrhea, or recurrent genital tract obstruction [5,6]. Management is surgical, but the optimal strategy must account for the exact anatomy and for the high risk of postoperative restenosis when dilation and follow-up are insufficient [7-10]. We report three complementary cases illustrating obstructive, functional, and recurrent presentations of transverse vaginal septum, and we discuss diagnostic and therapeutic considerations relevant to clinical practice in an African tertiary care setting.

## Methods

We conducted a descriptive retrospective case series of three patients managed for transverse vaginal septum or post-septum-resection vaginal stenosis in the Department of Gynecology and Obstetrics II, Hassan II University Hospital, Fez, Morocco. Clinical observations, pelvic ultrasound and magnetic resonance imaging findings, operative reports, postoperative care, and available follow-up data were reviewed. Patient identifiers were removed from the manuscript. The report was prepared according to the PAMJ case series structure and the CARE principles for transparent reporting of clinical cases.

Publication consent and ethical approval: publication of this case series was validated by the Ethics Committee of the Department of Gynecology and Obstetrics II, Hassan II University Hospital, Fez, Morocco. All patient data were anonymized before manuscript preparation.

## Results

### Case 1: obstructive upper-third septum revealed by primary amenorrhea and acute hematocolpos

A 13-year-old adolescent with no relevant personal or family history was admitted for primary amenorrhea and sudden severe hypogastric pain rated 10/10 on a visual analog scale, refractory to intravenous analgesics. Abdominal examination showed marked hypogastric tenderness. Vulvar examination found a permeable annular hymen, making imperforate hymen unlikely. Suprapubic ultrasound showed a normal-sized uterus with homogeneous myometrium and an endometrial cavity distended by blood, continuous with a large retrohymenal vaginal collection measuring approximately 12 x 8 cm (Figure 1). Because of uncontrolled pain, emergency ultrasound-guided puncture-drainage was performed and evacuated 300 mL of old chocolate-colored blood.

Immediate postoperative pelvic MRI showed persistent hematocolpos occupying the upper three quarters of the vagina and a thin transverse vaginal septum located 35 mm above the vaginal opening, with no associated urinary tract anomaly. Definitive surgery was then planned. Intraoperative exploration through the vaginal route identified a fibroconnective membrane in the upper third of the vagina with two small lateral openings. Careful dissection through the left opening allowed septal opening, evacuation of purulent material from the cervical side, confirmation of uterine cavity continuity under ultrasound guidance, and placement of a vaginal dilator (Figure 2). Postoperative management included antibiotics, local care, and progressive dilation with topical healing and estrogen-based treatment. The patient experienced her first menstrual period one month after surgery, lasting seven days without pain. Subsequent cycles were regular, and at six months clinical examination was normal, with no restenosis, no recurrent collection, and no functional complaint.

### Case 2: perforated lower-third septum revealed by severe dyspareunia

A 22-year-old married nulligravid woman presented with severe dyspareunia and major difficulty, sometimes impossibility, of sexual intercourse since the beginning of sexual life. She had no relevant medical, surgical, or family history. Menarche occurred at 13 years, with 28-day cycles lasting approximately three days and moderate oligomenorrhea by history. General examination was unremarkable, with preserved general condition, blood pressure of 120/80 mmHg, and body mass index of 22 kg/m2.

Gynecological examination showed a normal vulva. Speculum examination identified a vaginal septum with a central opening of approximately 0.5 cm and mucosal erosions probably related to traumatic intercourse attempts. Digital examination located the septum about 3 cm from the vulvar fourchette. Pelvic MRI confirmed a linear septum in the lower third of the vagina, isointense on T1-weighted imaging, hypointense on T2-weighted imaging, with enhancement similar to the vaginal wall and no complete obstruction. The opening measured approximately 6.5 mm and was located about 2 cm from the vaginal opening. The uterus, ovaries, bladder, rectum, and cervix were normal.

The patient underwent vaginal septum surgery consisting of enlargement of the pre-existing opening. Postoperative care included progressive dilation with a size 3 dilator for three weeks, local protection, and lubricants to facilitate insertion and reduce mucosal trauma. At follow-up, healing was satisfactory, although the operative surface remained slightly irregular. Intercourse was authorized with local estrogen therapy to support mucosal regeneration. The course was favorable, with disappearance of pain and satisfactory resumption of sexual intercourse.

### Case 3: recurrent postoperative lower vaginal stenosis with upstream retention

A 30-year-old unmarried nulligravid woman, previously operated on in 2009 for transverse vaginal septum with subsequent use of vaginal molds, was admitted for disabling dysmenorrhea associated with spaniomenorrhea for six months. Gynecological examination found a markedly narrowed vaginal opening with an impassable obstacle preventing cervical palpation. The vagina was stenotic over approximately 3 cm anteriorly and 2 cm posteriorly, and mild bleeding occurred after digital examination, suggesting mucosal fragility.

Pelvic MRI showed a lower-third vaginal stenosis extending over 26 mm, without mass effect or abnormal signal at the stenotic site, responsible for upstream fluid retention. No associated genital tract malformation was identified (Figure 3). Reoperation was performed through the vaginal route. After placement of lateral retractors, a small central orifice was identified. The stenotic edges were grasped, cautious central opening was performed, old black blood was evacuated, and digital examination confirmed vaginal permeability and cervical access. Progressive dilation was then performed with Hegar dilators up to number 17, followed by placement of a protected lubricated vaginal dilator. Longer-term postoperative follow-up was not available in the submitted file at the time of drafting.

## Discussion

### Principal findings

This series illustrates the clinical heterogeneity of transverse vaginal septum. The same embryological anomaly presented as acute obstructive hematocolpos in early adolescence, as adult dyspareunia with preserved menstrual flow in a perforated septum, and as recurrent postoperative stenosis with upstream retention years after an initial repair. These three scenarios underline that diagnosis should not rely only on menstrual obstruction; functional symptoms and recurrent stenosis are equally important clinical expressions.

### Diagnostic considerations

Clinical examination remains essential. In the first case, a permeable hymen redirected the diagnosis away from imperforate hymen toward a higher obstructive anomaly. In adolescents, pain may mimic gastrointestinal or urinary emergencies, particularly when genital examination is limited. In adults, a small perforation may permit menstrual drainage and delay diagnosis until sexual or reproductive symptoms occur. This pattern is consistent with published reports in which microperforated or perforated septa may present with dyspareunia or infertility rather than primary amenorrhea [5,6].

### Role of imaging

Ultrasound is an accessible first-line tool for identifying hematocolpos, hematometra, and upstream distension. MRI provides the most useful preoperative mapping because it defines the level and thickness of the septum, the relationship with the cervix and upper vagina, and associated uterine, vaginal, or urinary tract anomalies [1,3]. In our series, MRI was decisive in all three cases, especially for distinguishing a thin obstructive septum from recurrent lower vaginal stenosis.

### Surgical management

Surgery aims to restore a patent vaginal canal, relieve retention, and preserve menstrual, sexual, and reproductive function. In acute painful obstruction, staged management may be useful: emergency drainage relieves pain and infection risk, while definitive reconstruction can be planned after anatomical assessment. Depending on septal level and thickness, options include simple excision, radial incision with mucosal edge suturing, flap techniques, Y-V plasty, interdigitating flap procedures, or laparoscopic assistance for high or complex septa [3,7,11,12]. In the present cases, the vaginal route was feasible because the septa or stenoses were clinically reachable.

### Prevention of restenosis

Restenosis is the major postoperative concern. The third case demonstrates the long-term burden of recurrent narrowing after previous surgery. Literature supports structured postoperative care using molds or dilators, local healing care, lubrication, estrogen therapy when appropriate, and close supervised follow-up to improve adherence and decrease repeat operations [8-10]. In adolescents and unmarried young patients, the psychological and cultural acceptability of prolonged vaginal dilation must be addressed with sensitive counseling and family involvement when appropriate.

### Clinical implications

This case series supports an individualized management strategy: early suspicion in adolescents with pelvic pain and primary amenorrhea despite a permeable hymen; MRI-based mapping before definitive surgery; prompt treatment of obstruction or infection; and a clearly explained postoperative dilation protocol. The functional outcome in the second case also emphasizes that symptomatic perforated septa should be treated even in the absence of major hematocolpos.

### Limitations

The main limitations are the small number of patients, the retrospective nature of data collection, and incomplete long-term reproductive follow-up, particularly for the third patient. The series is nevertheless useful because it presents three clinically distinct expressions of the same rare anomaly and highlights practical issues in diagnosis, surgical planning, and prevention of recurrence.

## Conclusion

Transverse vaginal septum is rare but should be considered in adolescents with primary amenorrhea and pelvic pain when the hymen is permeable, and in adult women with severe dyspareunia, difficult intercourse, infertility, hypomenorrhea, or recurrent obstructive symptoms. Pelvic ultrasound and MRI are complementary, with MRI being particularly useful for surgical planning. Definitive management is surgical and must be followed by individualized postoperative dilation and local care to reduce the risk of restenosis and repeated interventions.

### What is already known on this topic

- Transverse vaginal septum is a rare Mullerian anomaly that may obstruct menstrual flow and cause hematocolpos at puberty.
- Incomplete or perforated septa can present later with dyspareunia, infertility, or hypomenorrhea.
- Surgical correction is the main treatment, but postoperative stenosis remains a major risk.

### What this study adds

- This series compares obstructive, functional, and recurrent presentations within the same clinical report.
- It emphasizes MRI-based anatomical mapping before definitive repair and the value of staged management in painful obstructive cases.
- It highlights the importance of structured, culturally sensitive postoperative dilation and follow-up to prevent recurrence.

### Competing interests

The authors declare no competing interest.

### Authors' contributions

All authors contributed to this work, including clinical management, acquisition and interpretation of clinical data, drafting, critical revision, and final approval of the manuscript. All authors have read and approved the final version of the manuscript.

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### Tables and figures

Table 1: Clinical, imaging, treatment, and outcome summary of the three patients with transverse vaginal septum or recurrent post-surgical vaginal stenosis.

Figure 1: Pelvic ultrasound in Case 1 showing continuity between the distended endometrial cavity and a large vaginal blood collection, consistent with obstructive hematocolpos.

Figure 2: Intraoperative views in Case 1 (13-year-old adolescent) showing the upper-third transverse vaginal septum and key surgical steps: (A) vaginal exposure of the fibroconnective septum, (B) septal dissection/opening through a lateral orifice, and (C) final postoperative patency after resection and dilation.

Figure 3: Pelvic MRI in Case 3 showing lower-third vaginal stenosis over 26 mm with upstream fluid retention and no associated genital tract malformation (panel A: sagittal T1-weighted image after contrast; panel B: sagittal T2-weighted image; panel C: coronal T2-weighted image).

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**Table 1: Clinical, imaging, treatment, and outcome summary**

| Case | Clinical presentation | Imaging findings | Treatment | Outcome |
|---|---|---|---|---|
| 1 | 13-year-old adolescent; primary amenorrhea; acute severe hypogastric pain; permeable hymen. | Ultrasound: hematometra continuous with 12 x 8 cm vaginal collection. MRI: upper vaginal hematocolpos and septum 35 mm from the vaginal opening; no urinary anomaly. | Emergency ultrasound-guided drainage of 300 mL old blood followed by vaginal septum resection, antibiotics, local care, and progressive dilation. | First painless menstruation one month after surgery; regular cycles; normal examination at six months without restenosis. |
| 2 | 22-year-old nulligravid woman; severe dyspareunia and difficult intercourse with preserved menstrual flow. | MRI: lower-third perforated septum, 6.5 mm opening about 2 cm from vaginal opening; normal uterus, ovaries, cervix, bladder, and rectum. | Surgical enlargement of pre-existing opening; three weeks of progressive dilation, local protection, lubricants, and estrogen-based local treatment. | Favorable healing; disappearance of pain; satisfactory resumption of intercourse. |
| 3 | 30-year-old nulligravid woman; prior septum surgery in 2009; disabling dysmenorrhea and spaniomenorrhea for six months. | MRI: lower-third vaginal stenosis over 26 mm causing upstream fluid retention; no associated genital malformation. | Reoperation with cautious opening, evacuation of old blood, digital confirmation of patency, Hegar dilation to no. 17, and placement of protected lubricated dilator. | Longer-term follow-up not available in submitted source file at drafting. |