

Microperforate Hymen Leading to Reproductive Challenges: Case Report

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Abstract: *Introduction:* This case report highlights two rare instances of hymen abnormalities in women, emphasizing their diverse clinical presentations and the critical role of timely surgical intervention. These cases contribute to the scientific literature by providing insight into diagnosis and management strategies for such conditions. *Main Symptoms and/or Clinical Findings:* The first patient, a 19-year-old woman, presented with difficulties during intercourse due to a microperforate hymen. The second patient sought medical care for primary infertility, with examination revealing a microperforate hymen and a suspected transverse vaginal septum defect. *Main Diagnoses, Therapeutic Interventions, and Outcomes:* In the first case, a diagnosis of microperforate hymen led to a successful hymenoplasty to restore both form and function. In the second case, comprehensive genital examination confirmed a microperforate hymen, and the patient underwent a hymenectomy to address the obstruction and potential septal defect. Both interventions improved patient outcomes, addressing reproductive health concerns and enhancing quality of life. *Conclusion:* These cases underscore the significance of thorough genital examinations in diagnosing hymenal abnormalities and the role of surgical interventions such as hymenoplasty and hymenectomy in alleviating reproductive challenges and improving patient well-being.

Keywords: Microperforate hymen, vaginismus, hymenoplasty, case report.

INTRODUCTION

A microperforate hymen is a congenital condition characterized by a narrow vaginal opening, often presenting before puberty with symptoms such as recurrent vulvovaginitis and urinary tract infections (1,2). While it can also be diagnosed after puberty, this is less common. It is important to differentiate microperforate hymen from imperforate hymen (IH), as the former allows for menstruation, whereas IH leads to primary amenorrhea in adults (1,3). The diagnosis can be difficult due to the small opening in the obstructive membrane, which may be assessed using tools like an infant nasogastric tube. The prevalence of imperforate hymen is approximately 1 in 1,000 female births, and urinary tract anomalies, such as transverse vaginal septum, vaginal atresia, and vaginal agenesis, occur at rates ranging from 4.2 to 4.0 per 10,000 to 1,000 births in various European and Asian populations (2,3).

Microperforate hymen may present with recurrent urinary tract infections and vulvovaginitis and is often not diagnosed until adolescence, when symptoms such as menstrual difficulties and challenges with tampon use emerge, potentially delaying the diagnosis until puberty. Timely surgical intervention is critical to prevent complications like menstrual irregularities and pelvic infections, which can significantly affect a patient's health and quality of life (4). The hymen, formed through invaginations of the urogenital sinus's posterior wall during embryonic development, typically canalizes before birth, facilitating the passage of cervical secretions and menstrual blood (5).

The embryological origin of imperforate hymen remains debatable, but a microperforate hymen arises when epithelial cells in the center of the developing hymen fail to degenerate normally. While the hymen is not a Müllerian structure, urinary tract anomalies are generally not associated with an imperforate hymen, although case reports have documented exceptions(5,6). In microperforate hymen, the persistence of epithelial cells is thought to contribute to the condition's manifestation. While IH is occasionally linked with renal abnormalities, such as duplex kidneys or hydronephrosis, which can lead to complications like urine retention or vesicoureteral reflux, these are rare in cases of microperforate hymen. Clinicians should consider hymenal anomalies, including microperforate hymen, in their differential diagnosis when patients present with symptoms such as dyspareunia, sterility, or menstrual irregularities, particularly if menstrual flow persists undetected (5,7,8). Early detection and intervention are essential to mitigate the potential complications that may adversely impact women's health and quality of life.

Case 1:

A 35-year-old woman presented to our outpatient clinic with a two-year history of inability to engage in sexual intercourse, expressing significant distress due to her desire to conceive. Her medical history included a diagnosis of dyspareunia and hypothyroidism, managed with consistent medication for three years. During physical examination, an obstructive membrane with a small 2-4 mm opening was identified at the external genitalia, positioned below the urethra at 11 o'clock. Menstrual history revealed oligomenorrhea, with the use of 1-2 pads per day during a 35-day cycle.

Further evaluation through transabdominal ultrasound and MRI demonstrated a normal-sized uterus with an 8 mm endometrial thickness alongside normal ovaries and adnexa. Pelvic examination and imaging confirmed complete lower vaginal stenosis while excluding hydrometra and pyometra. Hematological and biochemical tests were within normal ranges. No significant diagnostic challenges were encountered during the process. The primary diagnosis was microperforate hymen causing obstructive symptoms, with lower vaginal stenosis as a differential consideration. Hydrometra and pyometra were ruled out.

The prognosis was favorable, given timely surgical intervention. Hymenectomy was performed using a cruciate incision technique, excising the hymen with eversion of margins. Normal paraurethral and Bartholin's glands were preserved, with hemostasis achieved using 2-0 vicryl. No transverse vaginal septum was found intraoperatively. Postoperatively, the patient experienced an uneventful recovery without complications. Follow-up care did not indicate any adverse or unexpected events.

Case 2:

A 19-year-old woman presented to us in July 2023 with difficulty in intercourse. Since menarche, she experienced irregular menstrual cycles lasting five days, occurring once every 2-3 months. Following a year-long relationship, her partner reported difficulty with penetration, resulting in vaginismus. The patient's medical and psychosocial history was unremarkable; she noted normal secondary sexual characteristics and a self-identified thick membrane at the vaginal opening that permitted passage of only a fingertip.

Physical examination revealed a light pink membrane covering the introitus with a small opening, consistent with a microperforated hymen. Ultrasonography confirmed normal uterus and adnexa, with findings suggestive of polycystic ovarian syndrome (PCOS). Hematological and biochemical tests were within normal limits. No significant diagnostic challenges arose. The primary diagnosis was a microperforated hymen with vaginismus and PCOS. The prognosis was favorable with surgical correction and appropriate follow-up care.

The surgical intervention involved excising the redundant hymenal tissue under spinal anesthesia. A Foley catheter was inserted through the small hymenal opening, inflated, and then removed to ensure no underlying structure or pathology was overlooked. The hymenal tissue was excised to create an adequate introitus, with bleeding controlled via cauterization and suturing to prevent stenosis. A vaginal mold was placed to maintain patency postoperatively. Postoperative outcomes were assessed during follow-up visits at one and four months, showing satisfactory healing, adequate introitus, and normal vaginal and cervical anatomy. The patient reported engaging in normal intercourse after

completing the advised recovery period, experiencing no significant complications or unexpected events during or after the activity.

DISCUSSION

Strengths and Limitations of the Case Report

The hymen serves as the distal boundary of the vagina and the proximal limit of the vulvar vestibule, and anomalies in its development can occur if the genital tubercle fails to break down or rupture (9,10). Microperforate hymen is characterized by thin tissue nearly occluding the vaginal introitus, leaving a small opening. While it may not entirely obstruct menstrual flow, it can lead to slow, difficult, and painful menstruation. Rare instances of pregnancies with an intact hymen have been reported (11). Vaginismus, a psychophysiological reaction, involves intense contraction of perineal and paravaginal musculature, further closing the vaginal introitus and often exacerbated by anatomical abnormalities (12). In one presented case, the patient's vaginismus and inability to engage in intercourse were compounded by a closed vaginal orifice, with delayed reporting attributed to her infrequent sexual activity due to separation from her husband.

In rare cases, pinhole hymen may be secondary to factors like childhood sexual abuse, early hymenal surgery, or spontaneous closure during pregnancy (10). Though pooling of urine in the urogenital sinus and urethral invasion is possible, there was no history of recurrent urinary or ascending pelvic infections in the presented case, contributing to a delayed diagnosis.

RELEVANT MEDICAL LITERATURE REVIEW

Sexual dysfunction in women can significantly impact quality of life, and surgical interventions have emerged as effective treatments for various underlying conditions. A comprehensive review of the literature indicates that surgical options, particularly hymenectomy and vaginoplasty, play a crucial role in addressing sexual dysfunction related to congenital anomalies such as imperforate hymen and microperforate hymen. Studies show that surgical correction not only alleviates physical symptoms but also improves psychological well-being and sexual satisfaction. For instance, a systematic review highlighted that over 80% of patients with imperforate hymen reported significant improvement in sexual function following surgical intervention, with high satisfaction rates noted postoperatively (13). In rare instances, spontaneous reclosure has been noted post-surgery or following child abuse. Other non-obstructive hymenal anomalies, such as septate or cribriform hymens, may be discovered during routine examinations. Symptoms of microperforate hymen can include vaginismus, difficulties in intercourse, and infertility (6). In pubertal females, it may also present as recurrent urinary infections and vulvovaginitis. Case reports describe diverse presentations, including incomplete abortion (14), delayed diagnosis leading to urethral

complications during intercourse (6), and rare instances of primigravidas requiring cesarean delivery.

CONCLUSIONS

The conclusions of this case report are grounded in the comprehensive analysis of two distinct cases of microperforate hymen and their associated reproductive challenges. In both cases, the microperforate hymen caused significant physical and psychological distress, including dyspareunia, obstructed intercourse, and difficulties in conception. The anatomical anomaly, characterized by a small central opening in the hymen, impeded normal sexual function and menstrual flow, as well as the potential for successful conception. Imaging and clinical evaluations confirmed the diagnosis without significant challenges, with additional findings such as lower vaginal stenosis in Case 1 and PCOS with vaginismus in Case 2. These observations highlight the condition's multifactorial impact on reproductive and sexual health.

Timely surgical interventions, including hymenectomy and excision of redundant tissue, successfully alleviated the symptoms in both cases, restoring normal function and improving quality of life. The favorable postoperative outcomes underscore the importance of early identification and tailored management of such anomalies. These cases emphasize the need for heightened clinical awareness of hymenal abnormalities in women presenting with unexplained dyspareunia, vaginismus, or reproductive challenges. By integrating detailed diagnostic assessments with effective surgical techniques, clinicians can ensure optimal outcomes, thereby mitigating the physical and emotional burden associated with this condition.

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