



## A Case Report of Microperforate hymen presented with primary infertility

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### ABSTRACT

Micro perforate hymen is an uncommon congenital defect in which the hymen has a microscopic pinpoint aperture. It is a different entity from imperforate hymen, but it might present with more or less similar complaints. Here we are discussing about a unique case of pinpoint hymenal opening or microperforate hymen where the patient presented to us with primary infertility. Most cases of micro perforate hymen present in the paediatric age group with recurrent urinary tract infections and recurrent vulvovaginitis. Rare cases in a review of literature noted that a patient was seen to present with urethral dilatation during coital activity. In this case report, we present a patient who came with primary infertility who has never been examined in the past. She had regular menstrual cycles but scanty flow with the main complaint of dyspareunia. After examination, she was found to have microperforate hymen and suspected transverse vaginal septum defect. Hence, routine investigations were done, and we proceeded with hymenectomy. This example demonstrates the importance of a thorough genital examination and the inclusion of hymenal abnormalities in the differential diagnosis of women with recurrent dysuria, vaginitis, primary infertility, and oligomenorrhoea, so that early intervention can be done to improve the woman's quality of life and reduce pregnancy difficulties.



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### INTRODUCTION

A congenital obstructive vaginal membrane with a small aperture is known as a micro perforate hymen. Because of recurrent vulvovaginitis and urinary tract infection, it is frequently discovered

long before menarche (Capraro *et al.*, 1974; Tardieu and Appelbaum, 2017). After puberty, only a few cases have been discovered. The imperforate hymen (IH) is frequently confused with the micro perforate hymen (MH). One of the most significant differences between micro-perforate hymen and imperforate hymen in adults is that the former presents with menstruation, whilst the latter is associated with primary amenorrhea (Capraro *et al.*, 1974; Elshani *et al.*, 2018). It is challenging to identify the minute opening on the obstructive vaginal membrane. The size of the aperture can be visualized and analyzed using an infant nasogastric tube.

Imperforate hymen is expected to occur in 1 in 1000 female births. In investigations of birth registries from various nations in Europe and Asia, the prevalence of urinary tract abnormalities ranges from 4.2 per 10,000 births to 4.0 per 1000 births (Tardieu and Appelbaum, 2017; Elshani *et al.*, 2018). A trans-

verse vaginal septum, vaginal atresia, and vaginal agenesis are the most common defects.

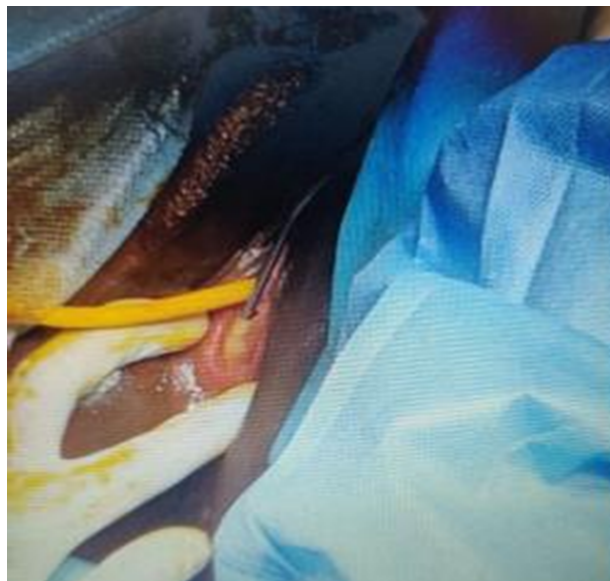
The hymen is a thin membrane that is positioned at the distal end of the vaginal canal. Embryologically, the Wolffian ducts (mesonephric ducts) and Mullerian ducts (paramesonephric ducts) are the two main ductal systems in the male and female genital and urinary tracts that give rise to specific structures. The hymen is most likely generated from invaginations in the posterior wall of the urogenital sinus. The hymen is canalised before birth, and the shape and diameter of the orifice vary. The hymenal opening, when canalised, establishes a link between the vagina and the external environment, allowing cervical gland secretions and eventually menstrual blood products to exit.

Recurrent urinary tract infections (UTIs), vulvovaginitis, and ascending pelvic infections are common in MH. Because MH is only partially obstructive, it may not be diagnosed until after adolescence, when young women may complain of light and irregular menstrual cycles or difficulties to insert a tampon. The imperforate hymen's embryological origin is a point of contention. The hymen is hypothesised to perforate during the perinatal period, at the 22-week mark. When the sinovaginal bulbs canalise at the location where the uterovaginal canal joins the urogenital sinus, the hymen may fail to canalise with the remainder of the vagina throughout development. The imperforate hymen is the result of failed canalization of the vaginal plate and hymenal epithelial cell degeneration.

Microperforate hymen is hypothesized to be caused by epithelial cells that do not typically degenerate in the growing hymen's core. If the patient has an imperforate hymen, they may have renal abnormalities, a duplex kidney, or hydronephrosis from a variety of causes, such as physiologic hydronephrosis or obstruction, urine retention, or vesicoureteral reflux. A case report on a patient who had bilateral hydrosalpinx and a severe pelvic infection after having a tiny perforated hymen is intended to raise awareness of hymen-related anomalies, particularly micro-perforate hymen, among clinicians working with this age range and to include MH in their differential diagnosis ([Sanfilippo and Mansuria, 2006](#); [Stewart, 1970](#); [Underwood et al., 2019](#)). The patient may also have a history of recurrent urinary tract infections.

Dyspareunia and sterility, or the inability to complete a sexual intercourse, are the most common symptoms of MH. Some of these symptoms may appear early in life. The existence of a regular menstrual flow typically delays diagnosis until adult-

hood, allowing aberrant sexual behaviours to flourish. As a result, it is critical to diagnose the microperforate hymen at an early stage in order to avoid issues that may negatively affect women's quality of life.



**Figure 1: Demonstrating Pinpoint Vaginal Opening**



**Figure 2: Demonstrating Pinpoint Vaginal Opening**

## CASE REPORT

A 35-year-old woman came to our outpatient clinic with complaints of not being able to have a sexual intercourse for the previous two years, and she was desperate to have a family. The patient had a history of Dyspareunia. She had regular menstrual cycles but with oligomenorrhoea (1-2 / 35-day cycle soaking 1 pad / day). She had hypothyroidism for the past three years and was on regular medications. Visual examination of her external genitalia revealed an obstructive membrane covering the vagina and a 2-4



**Figure 3: MRI picture showing normal cervix and ovaries**



**Figure 4: Hymenectomy procedure**

mm hole right below the urethra at 11'0 clock position Figures 1 and 2. A normal-sized uterus with an endometrial thickness of 8mm, normal ovaries and adnexa, and no additional abnormalities were discovered during the pelvic examination, on transabdominal ultrasound and on MRI. All of her haematological and biochemical tests came back normal. MRI showed complete lower vaginal stenosis, but with no evidence of hydrometra or pyrometra, both ovaries -normal, vagina appears hyper plastic with a thickness of 9mm Figure 3. The patient was taken up for surgery, and hymenectomy was done with a cruciate incision. The hymen was excised, and margins were everted Figure 4. Normal paraurethral glands and bartholins glands were visualized. Hemostasis was secured with 2-0 vicryl, and no transverse vaginal septum was noted intraoperatively. The operative and postoperative period was uneventful.

## DISCUSSION

Since Capraro coined the term "microperforate hymen" in 1968, there have been a few reports of microperforate hymen. Microperforate hymen (MH) is a non-obstructive anomaly. This is usually a congenital anomaly and is present since birth. Very rare cases of spontaneous closure of hymen have been reported after child abuse or previously operated for imperforate hymen where there may be spontaneous re-closure.

Other non-obstructive anomalies include septate and cribriform anomalies. Non-obstructive anomalies may be found incidentally on routine examination. Micro-perforated hymen (pinpoint opening in hymen) may present as vaginismus, difficulty in intercourse, infertility (Segal *et al.*, 2015) and in the pubertal age group as recurrent urinary tract infections and vulvovaginitis. In rarer case reports, patients ended up in pelvic abscess. As literature was reviewed, a case report of the micro perforate hymen has presented with incomplete abortion (Padhi *et al.*, 2017), another report showed a sub-occlusive hymen that presented with abortion but without any fertility issues. The other case report showed that a 3-year-old presented with pyocolpos with major complaints of fever, abdominal pain and recurrent UTI and another case report showed a delayed diagnosis with urethral dilatation during coitus (Segal *et al.*, 2015). In an extremely uncommon presentation, MH presented in a primigravida with 38 weeks of gestation who was in active labor, and that case report suggested that a cesarean section was done.

Diagnosis of a micro perforate hymen is by history, local examination, ultrasound - transabdominal and trans rectal, and MRI and hystero fiberoscopy. Treatment options for an imperforate hymen/microperforate hymen can be determined through hystero fiberoscopy: After locating the minute opening on the hymenal membrane, it is simple to perform even without anaesthesia for a definitive diagnosis. Hymenectomy using electrocautery or by cruciate incision, followed by placement of 16 Fr Foley's catheter with 10 ml balloon insufflation to preserve the hymenal tissue or by carbon dioxide laser treatment, can be done (Miller and Breech, 2008). The use of Hegar's dilators to gradually dilate the vaginal introitus in the operating room under general anaesthesia is an alternative, unique therapy option in individuals who do not have infectious symptoms or acute blockage.

Inadequate hymenectomy with stenosis or closure is suspected to contribute to the development of dys-

pareunia and infertility. Therefore, foley's catheter with 10 ml insufflation can be used to prevent the closure of the hymenal tissue. The two patients who underwent this procedure had satisfactory results without scarring and were able to use tampons easily afterwards. However, no follow up information on dyspareunia was obtained. The ideal time for surgical intervention on hymenal tissue is before the onset of pain and after the onset of pubertal development when the vaginal tissue is estrogenized. Surgical management of clinically significant hymenal variations involves excision of the hymenal tissue and rarely is associated with long-term sequelae.

## CONCLUSIONS

In case of microperforate hymen, the patient can present with normal menstruation but can have urogenital complaints, which are more worrisome to the patient after she becomes sexually active. The micro-perforated hymen is a rare anomaly which can present with various complaints ranging from recurrent UTI to infertility to pyocolpos. In our case, she presented with infertility issues. Hence, the appropriate intervention at the right time is required for the better psychological and reproductive health of the woman. If we fail to manage these patients appropriately, they may have long term sequelae which will affect the quality of life in reproductive women. The definitive treatment for micorperforate hymen or imperforate hymen is surgical intervention, and it is effective and yields satisfactory results for the patient.

## Ethical Approval

The study was approved by the Institutional Ethics Committee of Saveetha Medical College and Hospital.

## Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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