



Labial Fusion Mimicking Microperforate Hymen in an Adolescent Girl

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Background: Labial fusion is a rare gynecological condition resulting from partial or complete adherence of the labia minora, leading to narrowing or obstruction of the vaginal introitus. While common in prepubertal and postmenopausal women, it is rarely seen in adolescents or reproductive-aged women, where it may mimic congenital anomalies such as microperforate hymen.

Case Presentation: We report the case of an 18-year-old girl presenting with pelvic pain during menstruation, urinary hesitancy, and incomplete bladder emptying. Examination revealed complete labial fusion with two tiny openings allowing urine and menstrual blood passage. Imaging showed normal uterus and adnexa without Mullerian anomalies. She underwent adhesiolysis under anesthesia with absorbable suturing of the raw margins to prevent recurrence. Postoperative recovery was uneventful, with normal menstruation and no urinary difficulties on follow-up.

Conclusion: This case emphasizes upon the importance of considering labial fusion in adolescents presenting with obstructive urinary or menstrual complaints. Early recognition and appropriate management restore normal anatomy, prevent complications, and minimize recurrence.

Keywords: Labial fusion, Labial adhesion, Adolescent gynecology, Microperforate hymen, Vulvar disorders

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Introduction

Labial fusion, also known as labial adhesion or agglutination, involves the adherence of the labia minora across the midline, forming a thin membrane that may obscure the vaginal introitus. Usually, a small anterior gap persists, permitting urinary and menstrual flow. (1,2)

This condition is commonly seen in pre-pubertal females due to low estrogen levels and often resolves spontaneously after puberty. It is also frequently observed in postmenopausal women for the same reason.(3,4)

Adult cases are rare, especially in women of reproductive age.(6) Etiological factors include low estrogen levels, recurrent vulvovaginitis, poor hygiene, chronic irritation, lichen sclerosus, or trauma.(10)

While often asymptomatic, symptomatic cases present with urinary complaints, recurrent vulvovaginal infections, or menstrual obstruction. Severe fusion may mimic obstructive anomalies such as a microperforate hymen or a transverse vaginal septum, making careful clinical examination essential.(8)

Management depends on severity and age. In children, topical estrogen or corticosteroid creams are highly effective, while adults and adolescents with dense or symptomatic adhesions generally require surgical adhesiolysis. Recurrence rates of 11-14% highlight the need for preventive measures such as local hygiene and emollient use.(9)

Case Report

An 18-year-old unmarried girl presented to Gynaecology OPD at Rajindra Hospital, Patiala in October 2023 with history of three months of pelvic pain during menstruation, urinary hesitancy, and incomplete bladder emptying. She also reported intermittent vulval itching for last four years. She had noticed labial fusion about a year ago but became symptomatic in last 3 months.

There was no history of trauma, sexual activity, or use of local/herbal/hormonal or steroidal medications. Menarche occurred at 14 years with regular and painless cycles. Family and medical history were unremarkable. Accompanied by her mother, the patient was examined and was found to be moderately built with normal secondary sexual characteristics appropriate for her age.

Breast & pubic hair development was Tanner stage 4 & 3 respectively. Abdominal examination revealed a soft, non-tender abdomen with no palpable masses. Local inspection showed fusion of the labia majora, leaving two small variable-sized openings within the intervening fibrous membrane.

The urethral meatus, labia minora, and vaginal introitus were not visualized (Figure 1a and b). Urine was observed to pass through the upper small opening.



Figure 1: (a) and (b) pre-operative view showing fused labia majora with small openings and obscured urethral meatus, labia minora, and vaginal introitus.

Laboratory tests were normal. Urine microscopy showed 5-7 leukocytes/hpf, however, urine culture was sterile. Ultrasound evaluation of the abdomen and pelvis demonstrated a normal uterus, ovaries, and kidneys. An MRI pelvis was performed to evaluate for any associated Mullerian anomaly.

Imaging demonstrated a grossly normal uterus with no evidence of hematometra or pyometra. The endometrial cavity appeared normal without any fluid collection, and both the cervix and vagina were grossly normal. The distal vagina was distended, and both labia minora and majora were well formed. Based on clinical and imaging findings, a diagnosis of labial fusion was established.

MANAGEMENT AND OUTCOME

After counseling and consent, she underwent examination under anesthesia (EUA). Under general anesthesia, a pediatric-sized urinary catheter was introduced into the urethra, and a uterine sound was gently passed into the vagina.

Serial dilatation led to spontaneous separation of adhesions, exposing the hymenal ring and vaginal introitus (Figure 2). The separated raw margins on the inner surface of each labia majora were sutured with absorbable stitches to prevent re-fusion.



Figure 2: Intra-operative view after spontaneous adhesiolysis, revealing urethral meatus, labia minora, and vaginal introitus with restored anatomy.

Postoperatively, the local dressing was done daily with a lubricated gauze of soframycin which was placed between the labia, and an indwelling foley's catheter was retained for five days. She received oral antibiotics and analgesics and was discharged satisfactorily on day seven.

At one-month follow-up, she reported normal menstruation and no urinary complaints. At three months, genitalia appeared normal with well-separated labia and no recurrence.

Discussion

The exact cause of labial fusion remains unknown. However, labial adhesions are believed to arise during the re-epithelialization of labial skin that has been microtraumatized, often in the setting of low estrogen levels, vulvovaginitis, or inadequate local hygiene. In prepubertal girls, contributing factors may include hypoestrogenism, genital trauma, or a history of sexual abuse.(8,9)

The diagnosis is usually clinical and established by careful inspection of the external genitalia. In adolescents and young women, it is crucial to differentiate labial adhesion from other obstructive anomalies such as microperforate hymen, as misdiagnosis may delay appropriate management. Hence, meticulous local examination must not be omitted in the evaluation of patients presenting with menstrual or urinary complaints.

Medical management is often the first-line approach in children and selected adult cases with mild adhesions. Topical estrogen creams (e.g., estradiol or conjugated estrogen), applied locally for several weeks, have shown high success rates in separating adhesions, although transient side effects such as local irritation, vulvar pigmentation, or breast tenderness may occur.(4) Topical corticosteroids such as betamethasone 0.05% have also been used either alone or in combination with estrogen, particularly in recurrent or resistant cases.(4) In addition, barrier ointments or emollients like petroleum jelly are recommended after separation whether spontaneous, medical, or surgical to reduce recurrence.(5)

Observation is another option, especially in asymptomatic patients, since some adhesions may resolve spontaneously with rising endogenous estrogen levels at puberty.(4,5)

Surgical management becomes necessary when adhesions are dense, fibrotic, or symptomatic, as in cases of urinary retention or menstrual obstruction. Surgical adhesiolysis under anesthesia, with or without suturing of labial margins, has been reported with good outcomes.(6,7) Preoperative topical estrogen may help soften adhesions and facilitate the procedure.(6)

Recurrence prevention is an important aspect of management. Good local hygiene, avoidance of irritants, and consistent use of emollients are essential to maintain separation after treatment.(5) Intermittent topical estrogen application may also be considered in select cases to reduce recurrence risk.(4)

Recurrence rates range between 11% and 14%. In refractory cases, amniotic membrane, rotational skin graft after surgical incision has been described in the literature.(10)

In reproductive-age women, labial adhesion is a rare but significant condition. Its clinical similarity to microperforate hymen or other obstructive genital anomalies can pose a diagnostic challenge. Timely recognition, individualized management, and preventive measures are crucial for restoring normal urinary and reproductive function.

LIMITATIONS

This report is limited by its single-patient design, which restricts the generalizability of findings.

The follow-up period was relatively short, preventing assessment of long-term recurrence or complications. Hormonal evaluation and histopathological assessment were not performed, which could have provided additional insights into etiology. Finally, conservative therapy with topical estrogen or corticosteroids was not attempted prior to surgery, and thus, the efficacy of non-surgical approaches in this patient could not be evaluated.

CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.

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