



## CASE REPORT

# Labial Fusion in a Postmenopausal Woman Presenting with Lower Urinary Tract Symptoms: A Case Report

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## Abstract

Acute or chronic lower urinary tract symptoms (LUTS) may be secondary to labial fusion in menopause. Early detection and treatment may help prevent progression of the condition. A 61-year-old, nulligravida, postmenopausal woman without sexual experience presented with partial labial fusion accompanying urinary tract infection and urinary retention. There was no follow up and five years later, when a transurethral catheterization failed during surgery for head and neck cancer, complete labial fusion and involuntary urine loss were observed in the patient. Uniquely, she had a sequence of different micturition symptoms over time. Surgical separation of the labial fusion, followed by use of topical estrogen, successfully restored the anatomy and voiding function in the postoperative two-year follow-up period. This case reminds us to examine postmenopausal patients with LUTS early, to review associated risk factors, and to treat these patients with multimodal strategies. Surgery in conjunction with topical treatment could be effective in elderly patients with labial fusion.

## Keywords

Labial fusion, Labial separation, Lower urinary tract symptoms, Urine incontinence, Menopause, Urinary retention

## Introduction

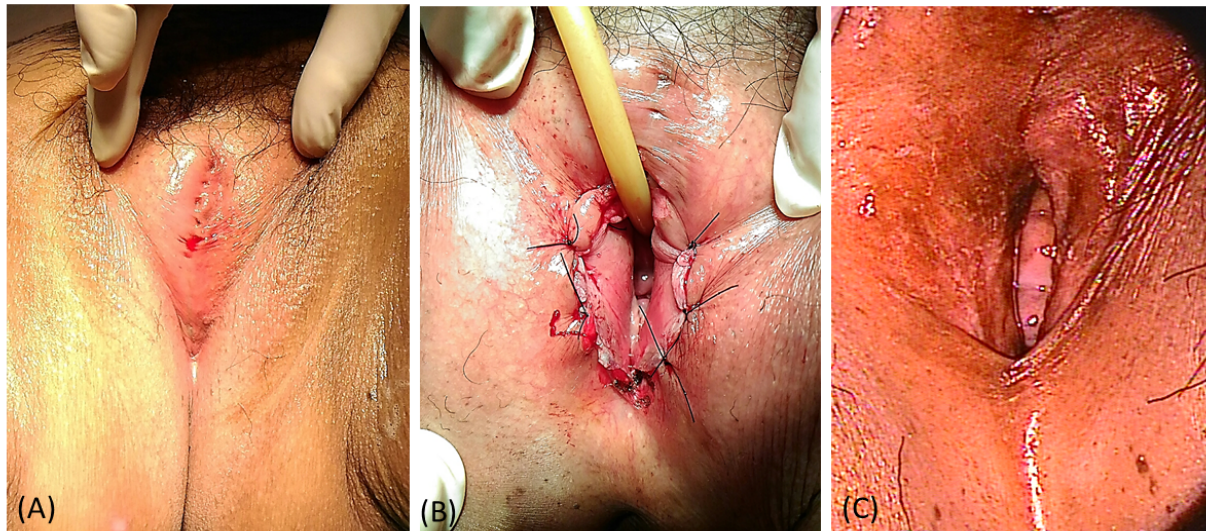
Labial fusion, or agglutination, is defined as partial or complete adhesion of the labia minora or majora at the midline of the vulva. Labial fusion in postmenopausal women is very rare [1]. This condition is most frequent-

ly seen in prepubertal girls, with the peak incidence between two and seven years of age [2]. The etiology is multifactorial, comprised of hypoestrogenism [3], vulvar inflammation secondary to local infection, irritation, trauma, genital herpes, lichen sclerosus [4-6], and lack of intercourse [6,7].

The clinical presentation in older women varies from asymptomatic to symptomatic, e.g., vulvodynia, pruritis, dysuria, urinary incontinence, urinary tract infection (UTI), voiding difficulty, urinary retention, or urine loss [1,3,4,8-11]. Most studies of patients with these urinary symptoms are cross-sectional. Here, we report a rare case of a patient who had a sequence of different micturition symptoms over time and was successfully treated, without recurrence during the two-year follow-up period.

## Case Presentation

A 61-year-old postmenopausal nulligravida woman was lying awake on the operating table. Surgical excision of a tumor and free flap reconstruction were going to be performed for gingival squamous cell carcinoma. During transurethral indwelling catheterization, the urethral meatus and vaginal opening could not be identified. Hence, a urologist and a gynecologist were consulted. Genital examination revealed that the external genitalia demonstrated complete adhesion of atrophic



**Figure 1:** Perioperative vulvar appearance (A) Complete labial fusion with urocolpos pre-operation; (B) Approximation of the skin edge of the U-shaped wound; (C) Normal vulvar structure after two-year follow-up.

labia minora and majora with several dimples at the midline surface of the fused vulvar skin (Figure 1A). The skin covering the clitoris was atrophic and less elastic. Trials to catheterize any of the dimples failed. Cystostomy was indicated in the case of failure of transurethral catheterization to drain the bladder. Therefore, surgical separation of the labial fusion was attempted.

The woman reported no sexual experience and no known medical disease or surgical history. Normal menstrual cycle and flow were reported premenopause and she underwent menopause at the age of 54. Five years previously, she had been to the emergency department because she had acute urinary retention, dysuria, and vaginal discomfort. Genital examination at that time revealed partial adhesion of the bilateral labia minora. Urinalysis showed pyuria. A uterine leiomyoma, 11.0 cm in size, was recognized by pelvic ultrasound and computed tomography scan. An abdominal ultrasound revealed normal kidneys. The serum level of follicle stimulating hormone was 35.4 mIU/mL; estradiol level was 10.4 pg/mL. Oral antibiotics and topical estrogen cream were given as medical treatment. Urinary retention then improved; however, she ceased topical estrogen treatment four months later. There was no follow-up for five years. In recent months, insensible urine loss and post-void dribbling had been noticed; she had to frequently change her pads. Urinary retention did not recur, however.

The patient was placed in the dorsal lithotomy position after general anesthesia. A midline incision was made after disinfection. The labia minora and majora were separated with a scalpel. Collection of urine in the vaginal canal was noted. Nylon sutures (3-0) were applied to the skin edge of the U-shaped wound to prevent repeated adhesion (Figure 1B). Anatomical reconstruction of both the urethral meatus and the vaginal introitus were achieved. The bladder was successfully

drained with a 14F catheter. Postoperative topical antibacterial treatment was used to improve the healing process and prevent immediate recurrence of fusion. After the wound healed and the sutures were removed, the patient was instructed to locally apply estrogen cream daily. Normal voiding function had been restored at the two-year follow-up. At the latest visit, no recurrence of labial fusion had occurred (Figure 1C).

## Discussion

Labial fusion mostly occurs in patients in a hypoestrogenic state. In a retrospective review of the literature, half of prepubertal girls with labial fusion were found to be asymptomatic; other common presentations included UTI (19.9%), post-void dripping (12.6%), vaginitis 8.6%, and urinary frequency (7.3%) [12]. Labial fusion in prepubertal girls can generally resolve without any treatment because increasing levels of endogenous estrogen are produced in adolescence. Expectant management is appropriate for the asymptomatic prepubertal population due to the fact that higher levels of serum estrogen are expected in puberty. To separate the adhesion medically, daily application of topical estrogen was shown to achieve a success rate of 50-88% within two to eight weeks [13] with a recurrence rate of 35% [12]. Topical steroid treatment with anti-inflammatory action resulted in a recurrence rate of 15.8% and a mean duration to resolution of four to five weeks [12].

Estrogen insufficiency also occurs in postmenopausal women, however, women in this age group rarely have labial fusion. Concomitant genitourinary factors in adult women may play crucial roles in the development of labial fusion. Timely treatment for those factors may prevent the formation of vulvar adhesion. Expectant management is satisfactory for prepubertal girls, but not for postmenopausal women due to the natural failure of estrogen production by the ovaries. Topical estrogen cream is considered as the treatment of choice

in these patients [6,12,14]. Medical treatments for genitourinary factors may be given adjunctively, e.g., applying topical steroid ointments for treatment of vulvar lichen sclerosus or other inflammatory diseases [6,14].

Surgical separation is indicated in any age group if the response to medical treatment is poor, or if scarred or thick adhesion exists [12]. Reconstruction with skin flaps after surgical separation is preserved for patients with severe, or recurrent labial fusion [15]. Several studies reported that surgical separation obtained successful and satisfactory outcomes without adverse effects [1,6]. With surgical labial separation alone, there is some risk of readhesion. Thus, postoperative use of topical estrogen, antibacterial, or emollient therapy are helpful to minimize recurring agglutination [6].

Labial fusion is difficult for patients to detect by themselves. Moreover, the history of a failed attempt at vaginal coital activity or at obtaining a cervical smear, or absence of sexual experience are also important clues for delayed diagnosis. We observed the stepwise development of acute urinary retention, urinary tract infection, urocolpos, post micturition dribble, and involuntary urine loss in this case over a five-year period. We anticipated the adhesion formation started from her periurethral area to the vaginal opening, and from partial to complete agglutination.

In conclusion, labial fusion in postmenopausal women is a multifactorial condition. Our report highlights the importance of detailed evaluation, including pelvic examination, when a postmenopausal woman who has never had sexual experience or a cervical smear presents with abnormal micturition. Surgical separation followed by topical estrogen may contribute to satisfactory and favorable outcomes.

### Conflict of Interest

All authors declare no conflicts of interest.

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