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Case Series

Labial adhesions due to vulvar lichen sclerosus in young females: a rare case series

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ABSTRACT

Lichen sclerosis (LS) is a chronic inflammatory dermatosis primarily affecting the anogenital area. It commonly presents in postmenopausal women but may occur at any age. LS can cause extreme pruritic, pain and loss of vulvar architecture with resorption of the labia majora, minora and stenosis of the vaginal introitus and urethral meatus. In rare cases, it can lead to vulvar leukoplakia, labial adhesions, and urinary outflow obstruction. Here, we report 3 cases of young females presenting with urinary symptoms, labial fusion, and leukoplakia. Examination revealed labial fusion, and a white lesions involving labia majora. They underwent reconstruction. Biopsy confirmed LS with features of squamous leukoplakia and mild dysplasia. Early recognition and intervention in lichen sclerosus is crucial to prevent anatomical and functional complications. Multidisciplinary management is key for optimal outcomes in young patients.

Keywords: Lichen sclerosus, Vulvar leukoplakia, Labial adhesions, Urethral stenosis, Young female, Reconstruction

INTRODUCTION

Lichen sclerosus (LS) is a chronic, relapsing, inflammatory skin condition most frequently involving the vulvar and perianal regions in women.[1] Involvement of the perianal region is more frequently seen in females than males.[2] Vulvar LS primary lesions are flat, ivory or porcelain white spots, which may coalesce into pale, crinkly, thin patches and plaques. Erythema, ecchymosis and itching-related excoriations may occur and, occasionally, hyperkeratosis is prominent.[3] A diagnosis of LS can be made clinically; however, a biopsy can aid in the diagnosis or rule out other conditions in the differential diagnosis.[4] Complications of untreated or advanced LS include leukoplakia, squamous cell carcinoma, dyspareunia, urinary symptoms, and labial adhesions.[5] Here we three rare and complex cases of LS in young females causing labial fusion and urinary obstruction requiring surgical intervention.

CASE SERIES

Case 1

A 20-year-old unmarried female presented to the urology outpatient department with complaints of poor urinary stream and increased duration of micturition for the past one week. Her symptoms were insidious in onset and gradually progressive, without any diurnal variation. She reported a persistent sensation of incomplete emptying of the bladder but denied any straining, urgency, or incontinence. She denied any history of fever, vomiting, nausea, burning micturition, dysuria, hematuria, urgency or frequency. There was no history of passing blood clots, stones or foul-smelling urine. She had no prior history of urinary tract infections, trauma or genitourinary surgery. Her medical history included hypothyroidism and bronchial asthma both of which are well managed with medication. There was no personal or family history of autoimmune conditions or dermatological conditions, or

congenital urogenital anomalies. She confirmed that she was not sexually active, further reducing the likelihood of sexually transmitted infections or mechanical trauma as a contributing factor.

On general examination, the patient was afebrile, pulse rate: 64/min, blood pressure: 110/70 mmHg, respiratory rate: 12/min. Abdomen examination was unremarkable apart from suprapubic tenderness.

Local genital examination revealed a striking finding of near total complete labial fusion was observed, especially involving the labia majora. Leukoplakic lesion was observed over labial portion. A pinpoint opening was seen in the fused labia, through which the patient was voiding. There were areas of excoriation and white hypertrophic skin surrounding the vulva particularly on the labia majora extending to the perineal region. There was no evidence of active discharge, ulceration, or bleeding. No palpable inguinal lymphadenopathy was appreciated. To further investigate the underlying pathology, a biopsy of the affected labial region was performed. Histopathological findings include: Focal thinning of epithelium, basal cell vacuolization, pigment incontinence, fibrosis of the superficial dermis likely secondary to subepithelial edema. Given the chronicity of the lesion and the extent of anatomical distortion, a differential diagnosis of lichen sclerosus et atropicus, vulvar leukoplakia and labial adhesions secondary to chronic inflammation was considered.

A pelvic ultrasound was performed to rule out upper tract involvement and other potential causes of urinary tract obstruction. Ultrasounds revealed tiny non obstructing left renal calculi and no other significant findings in the bladder or upper urinary tract. Routine blood investigations including renal function tests and urine analysis were within normal limits. Considering the obstructive symptoms and diagnostic findings, the decision was made to proceed with surgical intervention. A decision was made to proceed with further evaluation including surgical exploration, cystoscopy.

Under general anesthesia with a laryngeal mask airway, the patient was placed in lithotomy position and prepared for cystopanendoscopy followed by corrective surgery. Intraoperatively, complete labial fusion was seen. There were two pin hole openings in the fused labia. A 0.0032-inch guidewire was carefully passed through the cephalad opening into the bladder, confirming urethral patency. A 4 Fr ureteric catheter was inserted into the vaginal opening. Once the labial adhesion was separated, both the urethral and vaginal orifices became clearly delineated. A 14 French foley catheter was introduced into the bladder to ensure adequate drainage. Mucosal approximation of the urethral and vaginal edges was performed using absorbable sutures, restoring normal anatomical contours. Cut edges of labia were sutured with polyglactin 3-0. Hemostasis was completely successfully without any intraoperative complications.

Postoperatively, the patient had an uneventful recovery. She was managed conservatively with analgesic and closely monitored for urinary output and wound healing. The Foley catheter was retained and removed after seven days. She was started on topical tacrolimus 0.03% cream, applied at bedtime to the vulvar region, to reduce inflammation and prevent recurrence of sclerosis and scarring.

At two week follow up the patient reported significant improvement in her urinary stream and voiding comfort. Clinical examination revealed a well healed vulva with clearly defined urethral and vaginal openings. She was referred to dermatology for long term follow up. The patient and her family were educated about the chronic nature of lichen sclerosus, the potential for recurrence, and the rare risk of malignant transformation. Regular monitoring and early detection of any new symptoms were emphasized as part of her ongoing care.

This case highlights the importance of early recognition and intervention in cases of vulvar lichen sclerosus, particularly in young women presenting with urinary obstruction due to anatomical distortion. Timely surgical management, combined with histopathological confirmation and appropriate immunosuppressive therapy, can lead to excellent functional outcomes and improved quality of life.

Case 2

A 17-year-old unmarried female presented to the urology outpatient department with complaints of worsening urinary stream over the past 3 months. Her symptoms were insidious in onset and gradually progressive, without any diurnal variation. She reported a scanty menstrual bleeding with severe discomfort during the menstrual period. She denied any history of fever, vomiting, nausea, burning micturition, dysuria, hematuria, urgency or frequency. She had no prior history of urinary tract infections, trauma or genitourinary surgery. She had no comorbidities. There was no personal or Family history of autoimmune conditions or dermatological conditions, or congenital urogenital anomalies. She confirmed that she was not sexually active.

On general examination, the patient was afebrile, pulse rate: 68/min, blood pressure: 100/80 mm Hg, and respiratory rate: 14/min. Abdomen examination was unremarkable. Local genital examination revealed near complete labial fusion, especially involving the labia majora. Leukoplakic lesion was observed. There were areas of excoriation and white hypertrophic skin. There was no evidence of active discharge, ulceration, or bleeding. No palpable inguinal lymphadenopathy was appreciated. To further investigate the underlying pathology, a biopsy of the affected labial region was performed. Histopathological findings include: focal thinning of epithelium, basal cell vacuolization, pigment

incontinence, fibrosis of the superficial dermis likely secondary to subepithelial edema.

A pelvic ultrasound was performed to rule out upper tract involvement and other potential causes of urinary tract obstruction. Ultrasounds revealed no significant findings in the bladder or upper urinary tract. Routine blood investigations including renal function tests and urine analysis were within normal limits. Considering the obstructive symptoms and diagnostic findings, the decision was made to proceed with surgical intervention. A decision was made to proceed with further evaluation including surgical exploration, and cystoscopy.

Under general anesthesia with a laryngeal mask airway, the patient was placed in lithotomy position and prepared for corrective surgery. Intraoperatively, complete labial fusion was seen. There were two pin hole openings in the fused labia. Labial adhesions were separated, both the urethral and vaginal orifices became clearly delineated. A 14 French Foley catheter was introduced into the bladder to ensure adequate drainage. Cut edges of labia were sutured with polyglactin 3-0. Hemostasis was completely successfully without any intraoperative complications.

Postoperatively, the patient had an uneventful recovery. She was managed conservatively with analgesic and closely monitored for urinary output and wound healing. The Foley catheter was retained and removed after seven days. She was started on topical tacrolimus 0.03% cream, applied at bedtime to the vulvar region, to reduce inflammation and prevent recurrence of sclerosis and scarring.

At two week follow up the patient reported significant improvement in her urinary stream and voiding comfort. Clinical examination revealed a well healed vulva with clearly defined urethral and vaginal openings. She has been put on long-term follow-up.

Case 3

A 23-year-old married female presented to the urology outpatient department with complaints of worsening urinary stream and dyspareunia over the past 6 months. Her symptoms were insidious in onset and gradually progressive, without any diurnal variation. She had severe dyspareunia. She had no prior history of urinary tract infections, trauma or genitourinary surgery. She had no comorbidities. There was no personal or Family history of autoimmune conditions or dermatological conditions, or congenital urogenital anomalies.

On general examination, the patient was afebrile, pulse rate: 72/min, blood pressure: 110/80 mm Hg, and respiratory rate: 14/min. Abdomen examination was unremarkable. Local genital examination revealed near complete labial fusion, especially involving the labia majora. Leukoplakic lesion was observed. There were areas of excoriation resulting from recent attempted intercourse. There was no evidence of active discharge, ulceration, or bleeding. No palpable inguinal lymphadenopathy was appreciated. To further investigate the underlying pathology, a biopsy of the affected labial region was performed. Histopathological findings include: focal thinning of epithelium, basal cell vacuolization, pigment incontinence, fibrosis of the superficial dermis likely secondary to subepithelial edema.

A pelvic ultrasound was performed to rule out upper tract involvement and other potential causes of urinary tract obstruction. Ultrasounds revealed no significant findings in the bladder or upper urinary tract. Routine blood investigations including renal function tests and urine analysis were within normal limits. Considering the obstructive symptoms and diagnostic findings, the decision was made to proceed with surgical intervention. A decision was made to proceed with further evaluation including surgical exploration, cystoscopy and hysteroscopy.

Under general anesthesia with a laryngeal mask airway, the patient was placed in lithotomy position and prepared for corrective surgery. Intraoperatively, complete labial fusion was seen. There was near total fusion of the labia. Labial adhesions were separated, both the urethral and vaginal orifices became clearly delineated. A 14 French Foley catheter was introduced into the bladder to ensure adequate drainage. Cut edges of labia were sutured with polyglactin 3-0. Hemostasis was completely successfully without any intraoperative complications.

Postoperatively, the patient had an uneventful recovery. She was managed conservatively with analgesic and closely monitored for urinary output and wound healing. The Foley catheter was retained and removed after seven days. She was started on topical tacrolimus 0.03% cream, applied at bedtime to the vulvar region, to reduce inflammation and prevent recurrence of sclerosis and scarring.

At two week follow up the patient reported significant improvement in her urinary stream and voiding comfort. Clinical examination revealed a well healed vulva with clearly defined urethral and vaginal openings. She has been put on long-term follow-up.

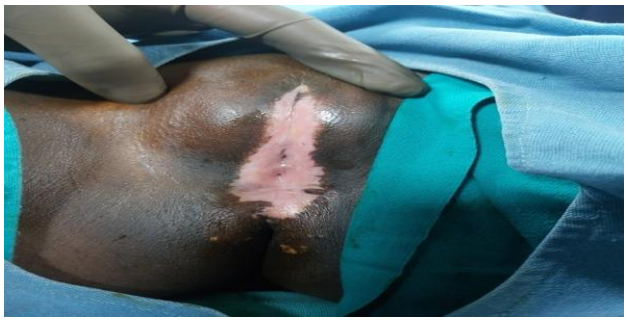

Figure 1: Showing near total labial fusion with two pin point openings.

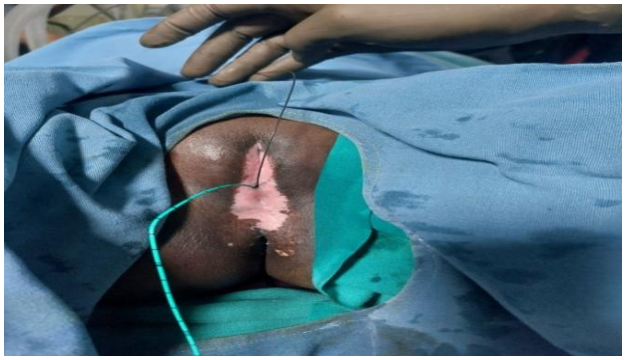

Figure 2: Guidewire and ureteric catheter placement through the pinhole opening.

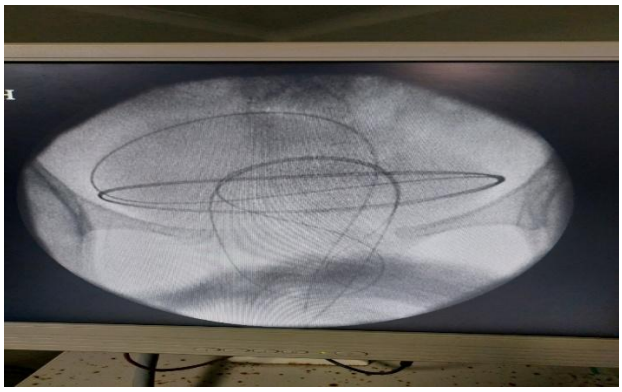

Figure 3: Confirmation of urethral patency on fluoroscopy.

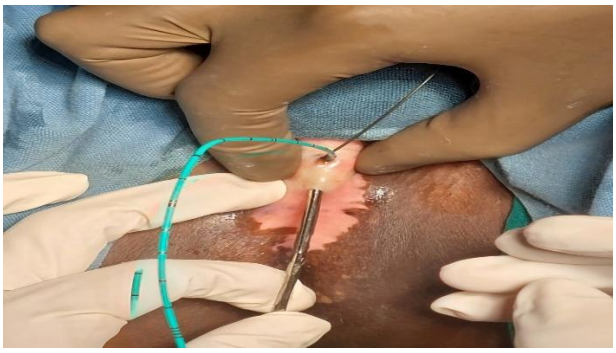

Figure 4: Separation of adhesions.

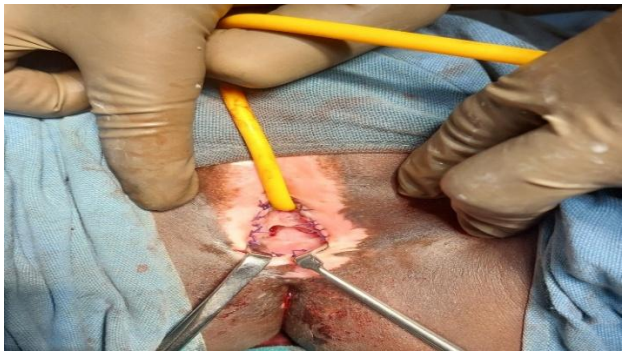

Figure 5: After reconstruction.

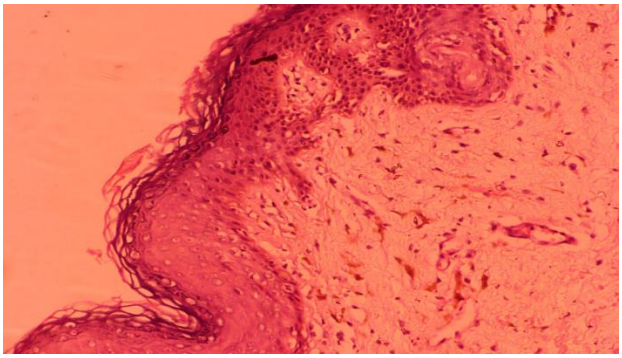

Figure 6: Photomicrograph showing focal thinning of epithelium, basal cell vacuolization, pigment incontinence, fibrosis of the superficial dermis likely secondary to subepithelial edema.

Figure 7: Six-month follow-up image.

DISCUSSION

LS is a chronic, progressive inflammatory dermatosis most frequently involving the vulvar and perianal regions. Although classically seen in postmenopausal women, LS is increasingly recognized in prepubertal girls and, less commonly, in women of reproductive age. This case series presented here involves three young women—a demographic in which LS is often underdiagnosed or misattributed to other dermatologic or urogenital conditions, delaying appropriate management and increasing the risk of complications.

The pathogenesis of LS is not completely understood, but multiple contributing factors have been proposed. Autoimmunity is strongly implicated, supported by the frequent association of LS with other autoimmune conditions, particularly Hashimoto's thyroiditis, type 1 diabetes mellitus, and vitiligo. In this case series, one of the patients had hypothyroidism and bronchial asthma—both potentially autoimmune in nature—raising the possibility of an underlying immunologic susceptibility.

An important factor in LS progression is the Koebner phenomenon, where trauma or friction leads to lesion development. Chronic scratching, tight clothing, poor hygiene, or repeated infections may aggravate the condition and explain the development of scarring and adhesions in untreated cases.

Two of the three patients denied any known history of trauma or infection, but the possibility of repeated subclinical irritation or delayed recognition could have contributed to the severe anatomical distortion observed. Typically, LS presents with ivory-white plaques, skin thinning, and intense pruritus, which may lead to excoriation, fissuring, or even ulceration.[6] However, our patients presented atypically, with urinary symptoms as their chief complaint-specifically, poor stream and prolonged micturition, caused by extensive labial fusion. This is a rare but documented manifestation of LS, occurring when labial adhesions extend to involve the urethral orifice and the introitus, causing partial obstruction.[7]

The presence of vulvar leukoplakia and mild dysplasia on biopsy raised an additional concern for malignant transformation. While LS itself is benign, chronic inflammation and scarring may increase the risk of developing vulvar squamous cell carcinoma (SCC), particularly in patients with longstanding disease.[8] This risk, although relatively low (~4–6%), necessitates histopathologic confirmation in all suspected or atypical cases, especially when leukoplakia, pigmentation, or nodularity is noted.[9]

Another uncommon but noteworthy aspect of this case is the urethral and vaginal involvement. LS typically spares the vagina; however, in advanced or untreated cases, the scarring may extend to the perineal tissues and distort both the vaginal and urethral anatomy.[10] These findings underscore the importance of early surgical intervention in preventing irreversible anatomical sequelae.

The management of LS includes both medical and surgical strategies. First-line therapy involves the application of high-potency topical corticosteroids, which reduce inflammation, suppress immune-mediated tissue damage, and prevent disease progression.[11] Topical calcineurin inhibitors such as tacrolimus are alternative or adjunct agents, particularly in patients with chronic or steroid-refractory disease.[12] Our patients were initiated on topical tacrolimus postoperatively to suppress inflammation, prevent recurrence, and minimize long-term scarring.

Surgically, the goal was to restore normal genital and urinary anatomy. Reconstructive dissection was performed to release fibrotic adhesions and redefine the urethral and vaginal openings. In these cases, meticulous tissue handling and mucosal approximation allowed successful restoration of function, as reflected in the patient's symptomatic relief and improved urinary flow at follow-up. This emphasizes the role of a multidisciplinary team, involving urologists, gynecologists, and dermatologists, in managing complex cases of LS.[13]

Long-term follow-up is essential, especially in young patients, given the chronic and recurrent nature of LS. Patients should be educated about the importance of regular vulvar examinations, adherence to topical therapy, and early reporting of new symptoms. The psychosocial impact of genital disfigurement and chronic illness in young women must also be acknowledged and addressed as part of comprehensive care.

CONCLUSION

This case series illustrates severe presentation of LS in young females, leading to recurrent labial adhesions, urinary obstruction, and vulvar leukoplakia with early dysplastic changes. These patients presented with urinary obstruction as the primary symptom, which is an atypical initial manifestation of LS and indicative of significant anatomical compromise.

Through timely histopathological diagnosis, surgical reconstruction, and initiation of topical immunosuppressive therapy, favorable functional and anatomical outcomes were achieved. This case underscores the importance of maintaining a high index of suspicion for LS even in younger women presenting with urological or dermatological symptoms.

Early recognition and biopsy confirmation are critical not only to prevent irreversible anatomical damage but also to detect precancerous lesions. A multidisciplinary, patient-centered approach, including long-term dermatological follow-up and patient education, is key to reducing morbidity and improving quality of life in patients with chronic, relapsing dermatoses such as LS.

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