

---

**ORIGINAL RESEARCH—WOMEN'S SEXUAL HEALTH**

---

**Patient Satisfaction of Surgical Treatment of Clitoral Phimosis and Labial Adhesions Caused by Lichen Sclerosus**

Anne N. Flynn, MD,\* Michelle King, MSc,<sup>†</sup> Mollie Rieff, NP,<sup>†</sup> Jill Krapf, MD,\* and Andrew T. Goldstein, MD<sup>†</sup>

\*The George Washington University School of Medicine and Health Sciences, Washington, DC, USA; <sup>†</sup>The Centers for Vulvovaginal Disorders, Washington, DC, USA

DOI: 10.1002/sm2.90

---

**ABSTRACT**

---

**Introduction.** Lichen sclerosus (LS) is a chronic inflammatory dermatosis, usually affecting the anogenital skin in women. This chronic inflammation can cause scarring of genitalia including narrowing of the introitus and phimosis of the clitoris. These architectural changes can lead to recurrent tearing during intercourse (vulvar granuloma fissuratum) and decreased clitoral sensation. Surgical correction of vulvar granuloma fissuratum (VGF) and clitoral phimosis can be performed, but there is little data on the patient satisfaction and complications following these surgical procedures.

**Aim.** To evaluate patient experience and outcomes in women undergoing surgical correction of scarring caused by anogenital LS.

**Methods.** A retrospective chart review of patients at a vulvar disorders clinic was performed to identify women who had undergone surgical correction of clitoral phimosis or lysis of vulvar adhesions for VGF due to LS. Twenty-eight women were contacted via telephone between 4 and 130 months postoperatively. An eight-question survey was used to determine patient experience and outcomes.

**Main Outcome Measures.** All participants completed an eight-question survey to evaluate patient satisfaction with the surgery, effects on clitoral sensation, orgasm and pain with intercourse, postoperative symptoms or complications, and the presence of recurrent vulvar scarring.

**Results.** Participants reported that they were either very satisfied (44%) or satisfied (40%) with the procedure. Of the women who experienced decreased clitoral sensation prior to surgery, 75% endorsed increased clitoral sensitivity postoperatively. Of the women who had dyspareunia prior to surgery, the majority of women reported having pain-free sex (33%) or improved but not completely pain-free sex (58%) after surgery. There were no complications or symptoms made worse by the surgical procedures.

**Conclusions.** This study shows high patient satisfaction and low complication risk associated with surgical correction of clitoral phimosis and lysis of vulvar adhesions for VGF caused by LS. Patients reported improvement in clitoral sensation and ability to achieve orgasm, as well as decreased dyspareunia. Surgical correction of vulvar scarring is a viable option to restore vulvar anatomy and sexual function in appropriate candidates with anogenital LS. **Flynn AN, King M, Rieff M, Krapf J, and Goldstein AT. Patient satisfaction of surgical treatment of clitoral phimosis and labial adhesions caused by lichen sclerosus. Sex Med 2015;3:251–255.**

**Key Words.** Lichen Sclerosus; Dyspareunia; Clitoral Phimosis; Labial Adhesions; Patient Satisfaction

---

Anne Flynn is now associated with the Hospital of the University of Pennsylvania.

© 2015 The Authors. *Sexual Medicine* published by Wiley Periodicals, Inc.  
on behalf of International Society for Sexual Medicine.

Sex Med 2015;3:251–255

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

## Introduction

Lichen sclerosus (LS) is a chronic inflammatory skin disorder that commonly affects the anogenital epithelium. LS is reported to occur in one in 660 British Women and one in 70 women in a general gynecology practice in the United States [1–3]. Women affected often present with pain, itching, irritation, voiding dysfunction, and sexual dysfunction [4]. The chronic inflammatory process can lead to significant scarring and distortion of the vulvar anatomy if the disease is left untreated. The scarring may result in labial resorption, introital stenosis, recurrent tearing of the anterior and posterior aspects of the introitus (vulvar granuloma fissuratum), and clitoral phimosis [1,5,6]. LS is usually initially treated with topical ultra high-potency corticosteroids such as clobetasol. When LS is well managed, scarring is less likely to occur; however, many women present after scarring has already taken place. Similarly, it has been shown that medication noncompliance is associated with increased progression to scarring [7]. While topical immunosuppression decreases active inflammation and reduces further scarring, topical corticosteroids do not correct scarring that has already occurred. Currently, the only way to correct scarring that has already occurred is through surgical management.

There is a role for surgical management of LS when scarring leads to urinary or sexual dysfunction due to adhesions and scarring [8]. Clitoral phimosis occurs when there is scarring of the clitoral prepuce such that the clitoris is partially or completely “buried” [5]. Phimosis of the clitoris can cause smegmatic pseudocysts and loss of clitoral sensitivity, which can result in secondary anorgasmia [1,5,9]. A smegmatic pseudocyst occurs when smegma accumulates in the space between the prepuce and the clitoris, and it can then become infected and inflamed [2,5]. Women with VGF typically present with introital dyspareunia [10]. All of these complications are an indication for surgical correction.

The surgical correction of clitoral phimosis was described in a paper by Goldstein and Burrows: A lacrimal duct probe was inserted between the clitoris and the prepuce and used to bluntly lyse adhesions. Then a 5-mm dorsal slit incision was made in the prepuce with Iris scissors, and any remaining adhesions were lysed with the lacrimal duct probe. Postoperatively, the patients applied clobetasol 0.05% ointment to the surgical site once daily to prevent koebnerization. Once the

surgical site had healed, the application of clobetasol was spaced to twice a week [5].

Despite the frequent occurrence of vulvar scarring in women with LS, and the high rates of sexual dysfunction in women with LS, there is little data on the patient satisfaction and complications following surgical correction. This study was designed to investigate patient satisfaction and complications resulting from surgical correction of clitoral phimosis and VGF.

## Methods

A database review of patients at a clinic specializing in vulvar disorders was performed to identify women who had undergone surgical correction of clitoral phimosis or lysis of vulvar adhesions for VGF secondary to anogenital LS between December 2003 and July 2014. Forty-eight patients were identified and 28 women were successfully contacted via telephone by a research assistant. The remaining 20 women were not included because they could not be reached by telephone after multiple attempts. This study was approved by the George Washington University institutional review board. An eight-question survey was used to determine patient experience and outcomes (Table 1), and was used previously in a study by Goldstein and Burrows [5]. The eight-question survey is not validated, but there are currently no validated survey instruments for LS. Question topics included patient satisfaction with the surgery, effects on clitoral sensation, orgasm,

**Table 1** Telephone Questionnaire

1.	Overall, would you say that you are: very satisfied/satisfied/not satisfied with the results of your surgery?
2.	Knowing the discomforts of surgery and the results of your surgery, would you recommend this surgery to another woman with similar symptoms? Yes/No/Unsure
3.	Did you have decreased clitoral sensation prior to surgery? Yes/No. If yes, has your clitoral sensitivity increased? Yes/No
4.	Was your ability to achieve orgasm decreased prior to surgery? Yes/No. If yes has your ability to achieve orgasm: returned to normal/improved but not normal/no improvement?
5.	Did you have pain with sexual intercourse prior to surgery? Yes/No. If yes, has sexual intercourse: become pain free/improved pain but not pain free/no improvement?
6.	Were any symptoms made worse by the surgery? Yes/No If yes what were they?
7.	Did you have any complications with the surgery Yes/No. If yes what were they?
8.	Have you had any recurrent scarring of your clitoris/labia since surgery? Yes/No

dyspareunia, postoperative complications, and recurrent vulvar scarring. Verbal informed consent was obtained over the telephone, and patients were advised that their responses would be de-identified so that it could not affect future doctor–patient interactions.

Women were initially considered surgical candidates if they had biopsy-proven LS that was in complete remission as assessed by a physician who specializes in the treatment of vulvar dermatoses. Women underwent surgery for the following indications: recurrent smegmatic pseudocyst, decreased clitoral sensation, emotional distress caused by the distortion of their vulvar architecture, or pain with vaginal penetration.

The procedure used in this study to correct clitoral phimosis was described in the Introduction. The correction of VGF (Figure 1) was achieved by sharp dissection with a scalpel of the midline scar tissue (Figure 2). Hemostasis was obtained by the application of a ferric subsulfate solution (Figure 3). During healing of the surgical site, the patients retracted their labia laterally several times a day and applied clobetasol 0.05% ointment daily to prevent koebnerization (Figure 4).

## Results

Of the 48 women identified during the database review, 28 women were successfully contacted by telephone, and 25 of the women agreed to participate in the study. Women were contacted between 4 and 130 months postoperatively (mean of 44.6 months; median of 45 months). The age range of



**Figure 2** A picture of anterior vestibule adhesion lysed by midline incision.

participants was 23–72. All women were Caucasian. Of the 25 women who completed the administered questionnaire, 11 (44%) reported that they were very satisfied, and 10 (40%) reported being satisfied with the procedure, and four reported being not satisfied (16%). Similarly, 21 (84%) reported that they would recommend the surgery to another women with similar symptoms, while three women (12%) would not recommend the surgery, and one (4%) was unsure (Table 2).

Of the 16 women who experienced decreased clitoral sensation prior to surgery, 12 (75%) of the women endorsed increased clitoral sensitivity postoperatively, while four (25%) women reported no increase in clitoral sensitivity postoperatively



**Figure 1** A patient with scarring from lichen sclerosus including narrowing of the vestibule between the urethral meatus and glans clitoris and scarring of the posterior vestibule and perineum.



**Figure 3** This picture demonstrates fissure band excision in the posterior vestibule where hemostasis was achieved with Monsel's solution.



**Figure 4** A picture showing post operative wound healing.

(Table 3). Of the 17 women who reported decreased ability to achieve orgasm prior to surgery, five (29%) reported normal and eight (47%) reported improved but not normal ability to achieve orgasm, while four (24%) of the women reported no improvement in their ability to achieve orgasm postoperatively (Table 3). Of the 13 women who had experienced pain with sexual intercourse prior to surgery, four (31%) women reported having pain-free sex, and seven (54%) reported improved but not completely pain-free sex after surgery, while two (15%) reported no improvement postoperatively (Table 3). No patients listed complications or any symptoms made worse by the surgery. Lastly, eight (32%) women reported having some recurrent scarring, while five (20%) were unsure, and 12 (48%) reported no recurrent scarring.

## Discussion

This study shows high patient satisfaction and low complication risk associated with surgical correction of clitoral phimosis and lysis of vulvar adhe-

**Table 2** Patient satisfaction regarding surgery

Overall satisfaction with the surgical outcome (n = 25)	
Very satisfied	11 (44%)
Satisfied	10 (40%)
Not satisfied	4 (16%)
Would recommend surgery to another woman with similar symptoms (n = 25)	
Yes	21 (84%)
No	3 (12%)
Unsure	1 (4%)

sions for VGF caused by LS. The majority of patients reported improvement in clitoral sensation and ability to achieve orgasm, as well as decreased pain with sexual intercourse. In addition, even though there is a theoretical risk of infection and delayed wound healing with the use of postoperative corticosteroids, these complications were not seen in any of the patients in this study [5].

In a previous study with similar findings, Kennedy and colleagues conducted a retrospective study and compared women undergoing medical treatment and women undergoing perineoplasty for VGF. This study found that perineoplasty could be beneficial in women who are unresponsive to medical treatment. Of the 11 women who underwent perineoplasty and were sexually active after surgery, 64% had their dyspareunia resolve as compared with 29% treated nonsurgically [10]. Similarly, Rouzier et al., looked at perineoplasty for the treatment of introital stenosis related to LS. They conducted a retrospective chart review of 64 patients who had undergone perineoplasty and found that 92% of women had relief of introital dyspareunia after surgery and 86% experienced improvement of quality of their sexual intercourse [11]. Bradford and Fischer looked at surgical treatment of labial adhesions in LS and lichen planus. They found that only 6 of 35 patients had recurrence of their adhesions. They also found that of the 18 patients who presented with dyspareunia who were treated with simple perineotomy, eight had no pain after surgery and nine had less pain [12]. Additionally, Gurumurthy et al. found that a median perineotomy and laser division of adhesions to treat labial scarring from LS led to an improvement in symptoms in 80% of women [13]. Lastly, a case report by Tsukigi et al.

**Table 3** Effect of surgery on sexual function in patients with preoperative symptoms

Increased clitoral sensitivity postoperatively (n = 16)	
Yes	12 (75%)
No	4 (25%)
Ability to achieve orgasm postoperatively (n = 17)	
Normal	5 (29.4%)
Improved but not normal	8 (47.1%)
No improvement	4 (23.5%)
Pain with sexual intercourse postoperatively (n = 13)	
Normal	4 (31%)
Improved but not normal	7 (54%)
No improvement	2 (15%)

examines a woman with LS who had a lysis of vulvar adhesions for urinary dysfunction and after the surgery was able to void normally [14].

This study was limited because it did not incorporate validated measures of assessing sexual function such as use of the Female Sexual Function Index and Female Sexual Distress Scale at various time intervals pre as well as postoperatively. In addition, in future studies, age-matched controls with LS who choose not to undergo surgery should be compared with women who have surgery along dimensions of sexual functioning and quality of life measures. This study is further limited by its small sample size of 25 women. Another limitation is that we were only able to contact 25 of 48 eligible women. However, there were no identifiable differences (age, symptoms, extent, or type of surgery) between women successfully contacted and those we were unable to contact. This data can be generalized to women with LS suffering from chronic scarring.

In this study, biased scanning and cognitive dissonance reduction may have been introduced in women who underwent surgery. The concepts of cognitive dissonance reduction and biased scanning assume that the influence of one's past behavior on future decisions are mediated by attempts to confirm the legitimacy of a person's behavior once one becomes aware of its occurrence [15,16]. The theory of cognitive dissonance assumes that when people become aware that they have voluntarily performed a behavior that contradicts the implications of a previously formed attitude, they experience discomfort (dissonance) [17,18]. Therefore, they attempt to rationalize their counter-attitudinal behavior by convincing themselves that they had good reasons for engaging in it. Based on these theories, patients in this study with LS may still recommend a surgical intervention for other women in order to create less dissonance, even if their surgical outcome may in fact have been either unfavorable or resulted in no change in their current health status.

In conclusion, despite the aforementioned limitation, this study is one of the largest case series of patients who have undergone surgical correction of scarring caused by LS. Patients have a high degree of satisfaction with these procedures and have improvement in sexual function. Furthermore, the importance of postoperative treatment should be emphasized to prevent recurrent adhesions postoperatively.

**Corresponding Author:** Anne N. Flynn, MD, School of Medicine and Health Sciences, The George Washington University, Ross Hall, 2300 Eye Street N.W., Washington, DC 20037, USA. Tel: 703-819-5697; E-mail: anne.n.flynn@gmail.com

*Conflict of Interest:* The author(s) report no conflicts of interest.

## References

- 1 Smith YR, Haefner HK. Vulvar lichen sclerosis: Pathophysiology and treatment. *Am J Clin Dermatol* 2004;5:105–25.
- 2 King M, Rubin R, Goldstein AT. Current uses of surgery in the treatment of genital pain. *Curr Sex Health Rep* 2014;doi: 10.1007/s11930-014-0032-8. E-pub 2014 Oct.
- 3 Goldstein AT, Marinoff SC, Christopher K, Srodon M. Prevalence of vulvar lichen sclerosis in a general gynecology practice. *J Reprod Med* 2005;50:477–80.
- 4 Burrows LJ, Creasey A, Goldstein AT. The treatment of vulvar lichen sclerosis and female sexual dysfunction. *J Sex Med* 2011;8:219–22.
- 5 Goldstein AT, Burrows LJ. Surgical treatment of clitoral phimosis caused by lichen sclerosis. *Am J Obstet Gynecol* 2007;196:126, e1–e4.
- 6 Powell JJ, Wojnarowska F. Lichen sclerosis. *Lancet* 1999;353:1777–83.
- 7 Bradford J, Fischer G. Long-term management of vulvar lichen sclerosis in adult women. *Aust N Z J Obstet Gynaecol* 2010;50:148–52.
- 8 Brodrick B, Belkin ZR, Goldstein AT. Influence of treatments on prognosis for vulvar lichen sclerosis: Facts and controversies. *Clin Dermatol* 2013;31:780–6.
- 9 Dalziel KL. Effect of lichen sclerosis on sexual function and parturition. *J Reprod Med* 1995;40:351–4.
- 10 Kennedy CM, Dewdney S, Galask RP. Vulvar granuloma fissuratum: A description of fissuring of the posterior fourchette and the repair. *Obstet Gynecol* 2005;105(5 Pt 1):1018–23.
- 11 Rouzier R, Haddad B, Deyrolle C, Pelisse M, Moyal-Barracco M, Paniel BJ. Perineoplasty for the treatment of introital stenosis related to vulvar lichen sclerosis. *Am J Obstet Gynecol* 2002;186:49–52.
- 12 Bradford J, Fischer G. Surgical division of labial adhesions in vulvar lichen sclerosis and lichen planus. *J Low Genit Tract Dis* 2013;17:48–50.
- 13 Gurumurthy M, Morah N, Gioffre G, Cruickshank ME. The surgical management of complications of vulvar lichen sclerosis. *Eur J Obstet Gynecol Reprod Biol* 2012;162:79–82.
- 14 Tsukigi M, Kubota Y, Onmura Y, Mitsuhashi Y, Tomita Y. A case of labial adhesion due to lichen sclerosis et atrophicus. *Int Urol Nephrol* 2004;36:217–8.
- 15 Albarracín D, Wyer RS. The cognitive impact of past behavior: Influences on beliefs, attitudes and future behavioral decisions. *J Pers Soc Psychol* 2000;79:5–22.
- 16 Goldstein AT, Klingman D, Christopher K, Johnson C, Marinoff SC. Outcome assessment of vulvar vestibulectomy with vaginal advancement for vulvar vestibulitis syndrome: Results of a Post-operative Questionnaire Survey. *J Sex Med* 2006;3:923–31.
- 17 Festinger L. A theory of cognitive dissonance. Stanford, CA: Stanford University Press; 1957.
- 18 Festinger L, Carlsmith JM. Cognitive consequences of forced compliance. *J Abnorm Soc Psychol* 1959;58:203–10.