GENERAL GYNECOLOGY

Surgical treatment of clitoral phimosis caused by lichen sclerosus

Andrew T. Goldstein, MD; Lara J. Burrows, MD, MSc

OBJECTIVE: The purpose of this study was to examine surgical outcomes for the correction of clitoral phimosis caused by lichen sclerosus.

STUDY DESIGN: Eight women with lichen sclerosus underwent surgical repair of clitoral phimosis. They were assessed 12-36 months postoperatively by an independent research assistant. A questionnaire was used to assess the patients' perception of surgical success.

RESULTS: Patients reported that they were either very satisfied (88%) or satisfied (12%) with the results of their surgery. All 4 women who had decreased clitoral sensation before surgery regained clitoral sensation and their ability to achieve orgasm.

CONCLUSION: This study demonstrates that surgery for clitoral phimosis caused by lichen sclerosus can be performed to restore clitoral sensation and vulvar anatomy. There were few complications and a high degree of patient satisfaction with the procedure.

Key words: clitoris, lichen sclerosus, phimosis, vulva

Cite this article as: Goldstein AT, Burrows LJ. Surgical treatment of clitoral phimosis caused by lichen sclerosus. Am J Obstet Gynecol 2007;196:126.e1-126.e4.

Lichen sclerosus is a lymphocyte-mediated inflammatory dermatitis[1] that most commonly occurs in the anogenital epithelium. Although the exact prevalence of lichen sclerosus is not known, it has been reported that it affects 1 in 660 British women and approximately 1 in 70 women in a general gynecology private practice in the United States.[2–4] The chronic inflammation associated with this condition often leads to scarring and distortion of the vulvar architecture (Figure 1). Frequently, scar tissue forms between the clitoral prepuce and the glans clitoris leading to "burying" or "phimosis" of the clitoris (Figure 2).

From the Division of Gynecologic Specialties, Department of Gynecology and Obstetrics, Johns Hopkins Medicine, Baltimore, MD (Dr Goldstein); and the Division of Obstetrics and Gynecology, The University of Connecticut School of Medicine, Farmington, CT (Dr Burrows).

Received May 9, 2006; revised June 12, 2006; accepted Aug. 1, 2006.

Reprints not available from the authors.

0002-9378/$32.00

doi: 10.1016/j.ajog.2006.08.023

Phimosis of the clitoris is often problematic because smegma can accumulate in the space between the clitoris and prepuce that can cause a smegmatic pseudocyst. These pseudocysts can become inflamed or infected.[2] In addition, clitoral phimosis frequently causes loss of clitoral sensitivity, which may cause secondary anorgasmia.[5] Lastly, women with clitoral phimosis often complain of psychologic trauma caused by the distortion of their vulvar architecture and a perceived diminution of their sexuality or femininity.

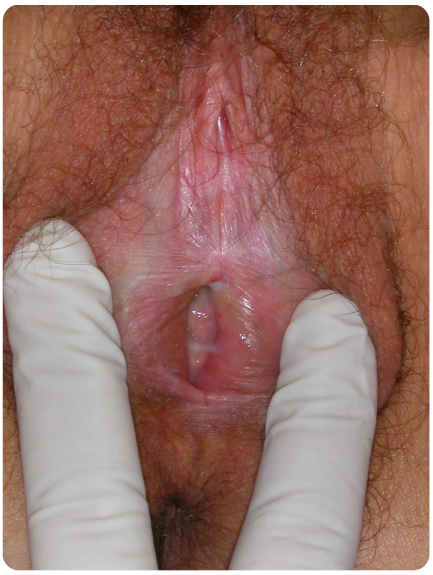
In the past, surgery for lichen sclerosus was reserved for patients in whom there was associated high-grade vulvar intraepithelial neoplasia or carcinoma.[6] Surgery to correct architectural changes such as narrowing of the introitus or clitoral phimosis was contraindicated because of a process known as the Koebner phenomenon. Koebnerization in lichen sclerosus is a pathologic process in which normal skin becomes sclerotic after it is injured or traumatized.[7] Thus, surgery can lead to even more vulvar scarring.

Treatment with topical ultrapotent topical corticosteroids such as clobetasol propionate has changed the management of lichen sclerosus.[8] In addition to effectively treating symptoms, ultrapotent topical corticosteroids reverse the underlying histopathologic changes of lichen sclerosus.[9] By reversing the underlying chronic lichenoid inflammation, further scarring of the vulva is prevented. Therefore, by applying ultrapotent topical corticosteroids after surgery, Koebnerization theoretically could be prevented and surgery to correct scarring from lichen sclerosus could now be successfully performed. The purpose of this study was to assess patient satisfaction with surgery to correct clitoral phimosis, as well as to determine potential complications associated with this procedure.

Materials and Methods

Eight women with biopsy-proven lichen sclerosus had surgery to correct clitoral phimosis between November 2002 and March 2005. Women were considered candidates for surgery if their lichen sclerosus was in complete remission as assessed by a gynecologist who specializes in the treatment of vulvar diseases. Objective and subjective criteria were to diagnose remission: there had to be complete resolution of lichenification and inflammation, and patients had to have resolution of their pruritis and burning. Women underwent surgery for the fol-

FIGURE 1
Scarring of the vulva from lichen sclerosus



lowing indications: recurrent pseudocyst (n = 2), decreased clitoral sensation (n = 4), and emotional distress caused by the distortion of their vulvar architecture and a perceived a diminution of sexuality and femininity because of the clitoral phimosis (n = 2).

The procedure performed was as follows: a lacrimal duct probe was inserted between the clitoris and the prepuce and

FIGURE 2
Phimosis of the clitoris and resorption of the labia minora

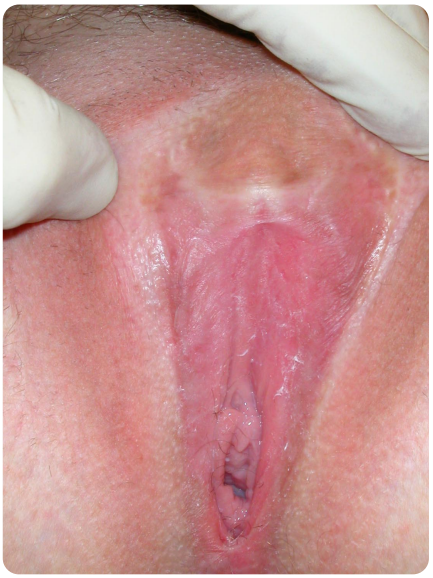
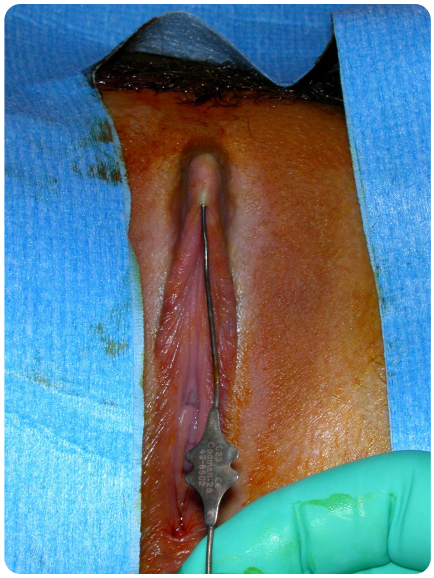


FIGURE 3
A lacrimal probe is used to lyse adhesions between the prepuce and the clitoris



was used to bluntly lyse any adhesions (Figure 3). A dorsal incision approximately 5 mm in length was then made in the prepuce with Iris scissors and any remaining adhesions were then lysed with the lacrimal duct probe (Figure 4). Hemostasis was obtained by applying direct pressure or with electrocautery. No tissue was excised during the procedure. Postoperatively, the patients applied clobetasol 0.05% ointment daily to the surgical site to prevent Koebnerization. After the surgical site healed, patients decreased the frequency of clobetasol application to twice weekly.

FIGURE 4
The glans clitoris is now completely visible

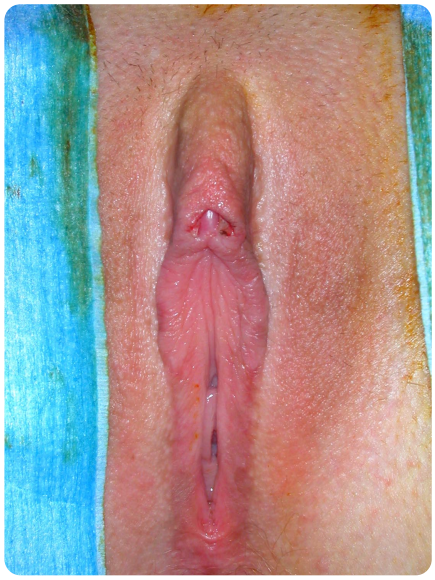


FIGURE 5
Telephone questionnaire

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, are you: very satisfied / satisfied / not satisfied with your improvement in clitoral sensation from surgery.
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. Were any symptoms made worse by the surgery? Yes / No. If yes, what were they?
6. Did you have any complications with the surgery? Yes/ No. If yes, what were they?
7. Have you had any recurrent scarring (phimosis) of your clitoris since surgery?

The primary measure of success in this study was overall patient satisfaction with surgery. Additional outcome measurements included improvement in clitoral sensation, improvement in ability to achieve orgasm, occurrence of postoperative complications, and recurrence of clitoral phimosis after surgery.

Patients were contacted between 12 and 36 months after their surgery (median 20 months). Patients were contacted by an independent research assistant via telephone. An institutional review board approved the 7-item questionnaire written by the authors for the purposes of this study (Figure 5) was administered by the research assistant after obtaining informed consent. Participants were assured that their responses would be confidential, and that their surgeon would be blinded to individual responses. In addition, each patient was examined by the gynecologic surgeon (A.T.G.) at least 1 time between 12 and 36 months after their surgery to assess if there was recurrence of phimosis. A thorough chart review was performed after contacting individual patients to determine demographic data, operative indications, and postoperative complications.

RESULTS

The age range was 21-59 years (median 35 years) with a median parity of 2. All were white and 3 were postmenopausal. Of the 8 women who underwent surgery, 1 (12%) "was satisfied," and 7 (88%) were "very satisfied" with the results of

TABLE
Results of surgery for clitoral phimosis

Overall satisfaction with the surgical outcome (n = 8)	
Very satisfied	7 (88%)
Satisfied	1 (12%)
Not satisfied	0 (0%)
Would recommend surgery to other women with similar symptoms (n = 8)	
Yes	8 (100%)
No	0 (0%)
Unsure	0 (0%)
Increased clitoral sensitivity and orgasm (n = 4)	
Very satisfied	4 (100%)
Satisfied	0 (0%)
Not satisfied	0 (0%)
Recurrence of clitoral phimosis (n = 8)	
Complete recurrence	0 (0%)
Partial recurrence	1 (12%)
None	7 (88%)

their surgery (Table). All 8 women who had surgery would recommend the same surgery to another woman with similar symptoms. All 4 women who had decreased clitoral sensation before surgery had significant improvement in sensitivity and improved ability to achieve orgasm after surgery. Only 1 woman who had surgery for decreased clitoral sensation, had partial recurrence of clitoral phimosis; she had stopped using clobetasol for 3 months because she was hospitalized for an unrelated medical problem.

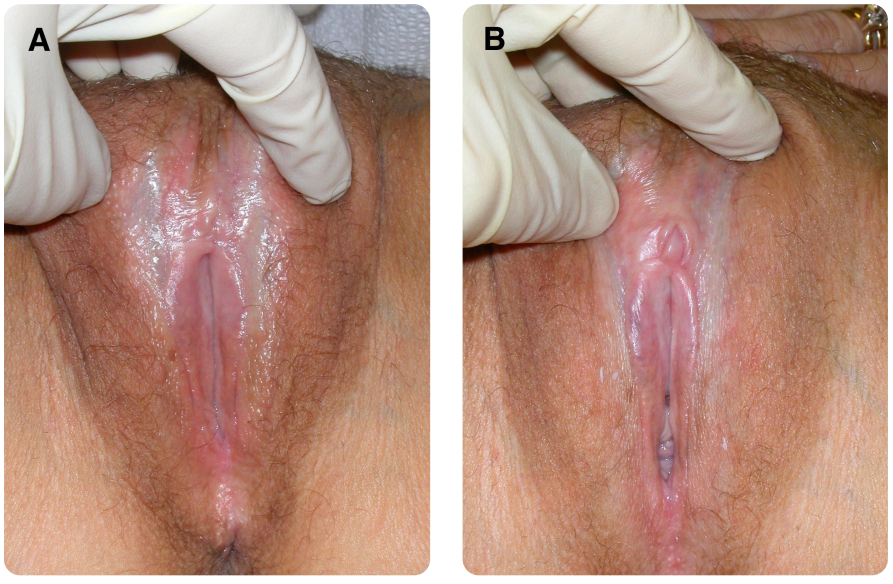
Comment

A National Library of Medicine PubMed literature search using the terms *lichen sclerosus*, *clitoris*, *phimosis*, *clitoral phimosis*, and *smegmatic pseudocyst* revealed only 1 case report discussing surgery for clitoral phimosis.[10] In that report, a 24-year-old patient with insulin-dependent diabetes presented with a smegmatic pseudocyst. Although the surgery was successful, the subject did not have lichen sclerosus.

Though this study is limited by small sample size, it indicates that there is a high degree of satisfaction with surgery for clitoral phimosis (Figure 6). An additional study by Rouzier et al[11] showed that perineoplasty in women with introital stenosis caused by lichen sclerosus had an 86% success rate. The results of these studies suggest that surgery for lichen sclerosus, in combination with postoperative ultrapotent topical corticosteroids, can be performed without an increased risk of Koebnerization and can significantly improve sexual function.[11] In addition, although there is the theoretical risk that postoperative corticosteroids can increase the risk of wound dehiscence and postoperative infection, neither complication occurred in these 8 women.

This study was limited because it did not incorporate validated measures of assessing sexual function such the Female Sexual Function Index and Female Sexual Distress Scale, preoperatively and postoperatively. This study also has the limitations inherent to a retrospective study such as a paucity of presurgical data and potential errors in data abstraction. In addition, patients were assessed via telephone, which may have altered the way in which they responded to the questionnaire. Furthermore, there are no standardized methods for assessing these patients that makes the evaluation of surgical outcomes challenging. In addition, in future studies, age-matched controls with clitoral phimosis who do not undergo surgery should be compared with women who have surgery. ■

FIGURE 6
Surgical results



Surgical resolution of clitoral phimosis. Complete clitoral phimosis (*left*) was resolved surgically (*right*).

REFERENCES

1. Val I, Almeida G. An overview of lichen sclerosus. Clin Obstet Gynecol 2005;48:808-17.
2. Smith YR, Haefner HK. Vulvar lichen sclerosus: pathophysiology and treatment. Am J Clin Dermatol 2004;5:105-25.
3. Goldstein AT, Marinoff SC, Christopher K, Srodon M. Prevalence of vulvar lichen sclerosus in a general gynecology practice. J Reprod Med 2005;50:477-80.
4. Powell J, Wojnarowska F, Hollowood K, Vessey M. What is the incidence of lichen sclerosus? Br J Dermatol 2000;143:30.

5. Dalziel KL. Effect of lichen sclerosus on sexual function and parturition. J Reprod Med 1995;40:351-4.
6. Neill SM, Tatnall FM, Cox NH. Guidelines for the management of lichen sclerosus. Br J Dermatol 2002;147:640-9.
7. Funaro D. Lichen sclerosus: a review and practical approach. Dermatol Ther 2004;17:28-37.
8. Dalziel KL, Millard PR, Wojnarowska F. The treatment of vulval lichen sclerosus with a very potent topical steroid (clobetasol propionate 0.05%) cream. Br J Dermatol 1991;124:461-4.
9. Bracco GL, Carli P, Sonni L, et al. Clinical and histologic effects of topical treatments of vulval lichen sclerosus: a critical evaluation. J Reprod Med 1993;38:37-40.
10. McLintock DG. Phimosis of the prepuce of the clitoris: indication for female circumcision. J R Soc Med 1985;78:257-8.
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 sclerosus. Am J Obstet Gynecol 2002;186:49-52.