

Lacrimal Canalicular Duct Scarring in Patients With Lichen Planus

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Background: Lichen planus (LP) is a mucocutaneous inflammatory disease that affects multiple sites, including the skin, oral cavity, vulva, and vagina and can result in scarring and stricture formation. It has also been shown to cause lacrimal canalicular blockage in a series of patients attending an ophthalmology clinic. We describe a cohort of women with vulvovaginal LP who also had signs of lacrimal canalicular scarring on examination.

Observations: We report 9 cases of LP with scarring of the conjunctiva around the lacrimal ducts. Seven of 9 women had symptoms of epiphora, and in 2 women lacrimal canalicular scarring was an incidental finding. Seven of 9 cases were diagnosed by an ophthalmologist. All

women had biopsy-proven LP at 1 mucocutaneous site each. Seven of 9 women had vulvovaginalgingival syndrome, which is a subgroup of severe erosive LP.

Conclusions: Given the strong association between erosive mucocutaneous LP and multisite scarring sequelae, it is not unexpected that ocular inflammation may lead to lacrimal duct stenosis. We believe that this complication has been underreported among patients with LP and that an ophthalmological history and examination of the punctum of the lacrimal duct should be sought, especially in patients with the erosive subtype of LP.

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LICHEN PLANUS (LP) IS A MUCOCUTANEOUS inflammatory dermatosis that can cause scarring alopecia and nail destruction. Forty percent of patients with cutaneous LP may also have mucosal lesions, most commonly involving the oral and genital mucosa, with stenosis, vaginal synechia, and loss of vulval architecture. In some cases, there may be involvement of the esophagus, resulting in strictures and dysphagia. Lacrimal duct obstruction secondary to LP was previously described among 8 patients (5 female and 3 male) by Durrani et al¹ in 2008. Lacrimal canalicular obstruction had previously been described in a 67-year-old woman with LP.² Among some women with vulvovaginalgingival (VVG) syndrome, a subtype of severe erosive LP, we have noted scarring around the punctum of the lacrimal duct, which we believe is related to their LP.

the skin, scalp, and oral and vulval mucosa. Her disease was controlled using topical treatments alone. Her medical history included sclerosing cholangitis. She had a 3-year history of epiphora associated with redness and slight photophobia. An ophthalmological assessment revealed cicatricial conjunctivitis and scarring of the lower conjunctiva around the lower lacrimal duct openings bilaterally (**Figure 1**). A normal lacrimal duct opening is shown in **Figure 2** for comparison. Her symptoms improved with daily eye drops of carmellose sodium, 0.5%, and prednisolone sodium phosphate, 0.5%, and she has not required intubation of the lacrimal duct outflow system.

CASES 2 THROUGH 9

Eight additional women with LP had scarring of the conjunctiva around the lacrimal ducts. The details of these cases are summarized in the **Table**.

REPORT OF CASES

CASE 1

A 65-year-old woman of white race/ethnicity had biopsy-proven LP affecting

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COMMENT

Lichen planus is an autoimmune disease that affects the skin and mucous membranes, including the ear canals, result-

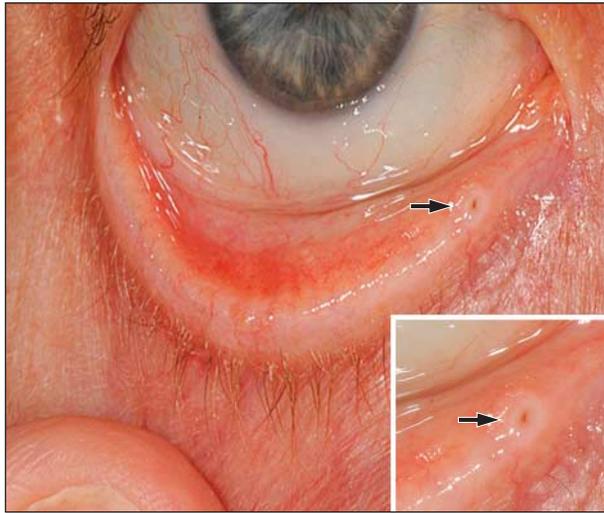


Figure 1. Right lower eyelid showing white scarring (arrow) around the punctum of the lacrimal duct. A stellate stricture is contiguous to lacrimal duct scarring in the inferior fornix.

ing in conductive deafness and esophageal involvement that leads to strictures and dysphagia.^{3,4} It has a slight female predominance (1.4:1) and affects 1% to 2% of adults.⁵ In most patients, it is self-limiting and follows a benign course. The mucosal variant of LP may involve the oral and genital mucosa and is characterized by sores and erosions. Scarring results in fibrous bands in the buccal mucosa, leading to a reduced vestibular sulcus and limitation of the oral aperture.⁶ In our series, 7 of 9 women had VVG syndrome, which is a severe subtype of LP characterized by erosions or desquamation of vulvar, vaginal, and gingival mucosa, with predilection for scarring and stricture formation.^{6,7} The pathogenesis of LP is unclear, but it is believed to be caused by specific and nonspecific immunological mechanisms. Specific mechanisms probably include antigen presentation by basal keratinocytes and antigen-specific T cells that are cytotoxic to keratinocytes, whereas nonspecific mechanisms include activation of matrix metalloproteinases and mast cells.⁸ A potential association with the *HLA-DQB1*0201* allele has been described in patients with VVG, suggesting a genetic predisposition; however, a strong association with autoimmune disorders in this variant of LP may in part explain the increased frequency of this allele.⁶ Five of 7 patients herein with VVG LP tested positive for the *HLA-DQB1*0201* allele, whereas the 2 patients without VVG LP were negative for this allele. Given the strong association between erosive mucocutaneous LP, particularly of the VVG syndrome subtype, and multisite scarring sequelae, it is not unexpected that ocular inflammation may lead to subconjunctival fibrosis and lacrimal duct stenosis.

Lichen planus may manifest as ocular involvement, most commonly with lesions affecting the eyelid, which is the location of the lacrimal duct.^{9,10} The lacrimal gland produces tears that enter the lacrimal duct and drain into the nose. This system is composed of epithelium-lined lumina. Symptoms of lacrimal canalicular obstruction include epiphora secondary to the

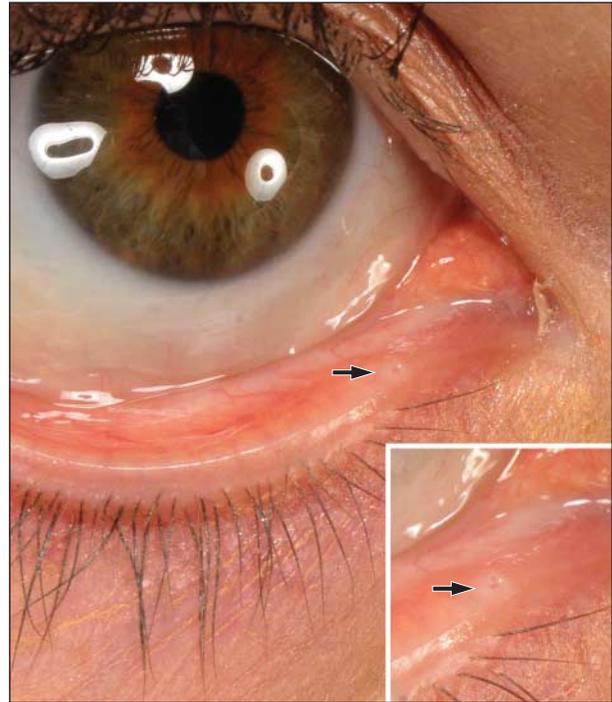


Figure 2. Right lower eyelid showing a normal lacrimal duct opening (arrow). No circumferential white scarring (as seen in Figure 1) is observed around the duct opening.

overproduction of tears or their inadequate drainage. Stagnant tears within the system can lead to infection, and spillage of tears can lead to eczematous changes on the lower eyelid.

Rarely, LP can affect the conjunctiva, resulting in conjunctival inflammation, cicatrization, and subepithelial scarring.^{11,12} One of our patients had LP that caused recurrent conjunctival injection and photophobia. Lichen planus has also been associated with keratitis and keratoconjunctivitis sicca.¹³

Lacrimal canalicular obstruction may be caused by trauma, eye surgery, Stevens-Johnson syndrome, ocular cicatricial pemphigoid, or use of systemic fluorouracil or certain topical medications.¹⁴ Unilateral obstruction may be seen following herpes simplex virus infection, usually in younger patients following primary periocular herpes simplex virus infection.¹⁵ Our patients had no history of eye trauma, eye surgery, herpes simplex virus infection, or use of systemic fluorouracil.

Lacrimal duct obstruction is treated by dacryocystorhinostomy with retrograde canaliculostomy. However, the severity of canalicular obstruction associated with LP often results in a poor outcome with this procedure, and primary or secondary placement of Jones tubes (lacrimal drainage bypass devices) is often needed.¹ Four patients underwent lacrimal reconstructive surgery by an ophthalmologist: 1 patient had improvement in her symptoms, while the other 3 patients did not. Medical intervention has seldom been described. One patient with VVG syndrome and lacrimal canalicular stenosis was treated with systemic cyclosporin A (150 mg twice daily), which resulted in total resolution of

Table. Cases of Lichen Planus With Lacrimal Canalicular Duct Scarring

Case No./Sex/ Age, y	Sites Involved	VVG Syndrome	Age at Onset, y			HLA DQB1*0201 Allele	Eye Findings	Treatment
			Oral Disease	Vulval or Vaginal Disease	Eye Symptoms			
1/F/65	Skin, scalp, mouth, oral cavity, vulva	No	50	50	62, Watery eyes	No	Cicatrizing conjunctivitis, bilateral punctum scarring ^a	Eye drops of carmellose sodium, 0.5%, and prednisolone sodium phosphate, 0.5%
2/F/51	Skin, ear canals, scalp, oral cavity, esophagus, vulva, vagina	Yes	31	31	41, Watery eyes	Yes	Bilateral punctum scarring ^a	Bilateral lacrimal duct dilatation
3/F/56	Skin, ear canals, scalp, oral cavity, esophagus, vulva, vagina	Yes	25	35	51, Watery eyes	Yes	Surgical scar (right tear duct) ^a	Bilateral stents inserted in 2004
4/F/66	Skin, oral cavity, vulva, vagina	Yes	40	49	61, Slight tearing of left eye	Yes	Punctum scarring (left eye)	No treatment
5/F/51	Oral cavity, esophagus, vulva, vagina	Yes	16	26	No symptoms	Yes	Bilateral punctum scarring	No treatment
6/F/78	Oral cavity, vulva, vagina	Yes	63	65	76, Irritation of eyes; 77, watering of left eye	No	Bilateral punctum scarring ^a	No treatment
7/F/83	Oral cavity, esophagus, vulva	No	79	79	75, Watery eyes	No	Bilateral punctum scarring ^a	No treatment
8/F/66	Oral cavity, vulva, vagina	Yes	57	57	Watery eyes	Yes	Bilateral punctum scarring ^a	Bilateral stents inserted in 1984 and 1985
9/F/70	Skin, scalp, oral cavity, vulva, vagina, pharynx, esophagus, urethra	Yes	50	55	No history	Yes	Bilateral punctum scarring ^a	Lacrimal duct dilatation in 1975 (right eye)

Abbreviation: VVG, vulvovaginalgingival.

^aSeen by an ophthalmologist, who diagnosed lacrimal duct scarring.

her epiphora after 6 weeks of therapy.¹⁶ Four of 9 patients herein had been prescribed an immunosuppressant for their oral or vulval disease, none of whom reported improvement in their eye symptoms with immunosuppressant treatments.

In conclusion, lacrimal drainage obstruction secondary to LP has been previously reported in 8 patients by Durrani et al¹ in 2008. Histologic findings in tissue from 2 blocked lacrimal ducts herein showed chronic predominantly lymphocytic subepithelial infiltrate, with a few macrophages and occasional mast cells. There was also scattered lymphocytic infiltration of the basal epithelium and thickening and fragmentation of the basement membrane; immunohistochemistry showed no immune complex deposition, and these changes were consistent with LP. Although the patients herein had no histologic diagnosis demonstrating LP in the lacrimal duct, we can assume that the lacrimal canalicular mucosa was affected by LP, causing punctal and canalicular stenosis and subsequent functional lacrimal duct obstruction. We believe that this complication has been underreported among patients with LP and that an ophthalmological history and examination of the punctal of the lacrimal duct should be sought in patients with the erosive subtype of LP.

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The Best of the Best

Top Accessed Article: Motivation for Contemporary Tattoo Removal

Armstrong ML, Roberts AE, Koch JR, Saunders JC, Owen DC, Anderson RR. Motivation for contemporary tattoo removal. *Arch Dermatol.* 2008;144(7):879-884.

This excellent article by Armstrong and colleagues seeks to determine the reasons for tattoo removal in a detailed questionnaire of 196 patients who presented for laser removal. The authors have produced valuable insight into the patients' motivations. The results were compared with those in a similar survey that was conducted in 1996.

In contrast to the findings in the earlier survey, women were more likely to seek tattoo removal than men, a common reason being the need to dissociate from the past in some way. Women also experienced more negative comments regarding their tattoos, even in today's "contemporary" society. The comments originated from fathers, physicians, and the public. As physicians, we should be aware of the impact that our comments and biases have on patients regarding tattoos.

From August 2009 through August 2010, this article was viewed 2681 times on the *Archives of Dermatology* Web site.

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