Correspondence

Ocular lichen planus treated with lifitegrast

Dear Editor,

Lichen planus (LP) classically presents as pruritic, violaceous papules with a lichenoid scale on the skin, but it can also arise in the genitals, scalp, ears, nails, esophagus, and eyes.[1] There are several clinical variants of LP including hypertrophic LP, bullous LP, LP pemphigoides, oral LP, and ocular LP. Ocular LP is a rare but potentially debilitating manifestation of LP, as it can lead to irreversible corneal scarring and permanent vision loss. At present, the etiology and pathogenesis of ocular LP is poorly understood. Typically, treatment involves topical immunosuppressant eyedrops, such as cyclosporine or prednisolone, with or without oral therapies.[2] However, in patients with elevated intraocular pressures (IOPs) or those that develop increased IOP during treatment, alternative topical regimens may be required. Here, we report a case of ocular LP treated with lifitegrast eyedrops, an integrin inhibitor that downregulates T-cell-mediated inflammation. Infiltrating CD8 T-cells are known to be involved in the pathogenesis of LP,[3] suggesting that ocular LP represents a potential off-label indication for lifitegrast.

An otherwise healthy 48-year-old man presented to the dermatology clinic with a 3-year history of oral and ocular lesions. His symptoms first began with friable gingival patches. A gingival biopsy from an outside clinic showed lichenoid gingivitis with mild hyperparakeratosis, inflammatory exocytosis, scattered apoptotic keratinocytes, focal vacuolization of the basal layer, and basilar hyperplasia compatible with oral LP or mucous membrane pemphigoid (MMP). His oral symptoms were managed with topical fluocinonide gel for 2 years. He suddenly developed right ocular pruritus with increasingly blurred vision a month before presentation. The initial exam showed prominent right ocular adhesions (Fig. 1a) and erythematous gums with focal erosions but no skin lesions. The patient was started on oral prednisone 20 mg daily and prednisolone eyedrops twice daily. However, the patient developed glaucoma on prednisolone. Symptoms continued to worsen, and lesions began appearing in the left eye (Fig. 1b). Repeat exam showed prominent uveal erythema bilaterally and cicatricial conjunctivitis, with extensive bilateral symblepharons. No mucosal erosions or skin lesions were seen. A conjunctival biopsy was performed. Direct immunofluorescence (DIF) was negative for IgG, IgM, IgA, C3, and fibrinogen, including the salt split. Serum serologies for basement membrane zone (BMZ) IgG, IgG4, and IgA antibodies were negative. Given the negative DIF and negative serum studies, ocular LP was the most likely unifying diagnosis for his ocular and oral lesions. The patient was trialed on lifitegrast twice a day in both eyes. Lifitegrast is an integrin inhibitor recently approved by the FDA in 2016 for keratoconjunctivitis sicca. Its mechanism of action involves preventing lymphocyte function-associated antigen 1 (LFA-1) from binding to intercellular adhesion molecule 1 (ICAM-1), which downregulates T-cell-mediated inflammation.[4] The patient's ocular symptoms of dryness and decreased visual acuity as well as physical exam findings dramatically improved and stabilized

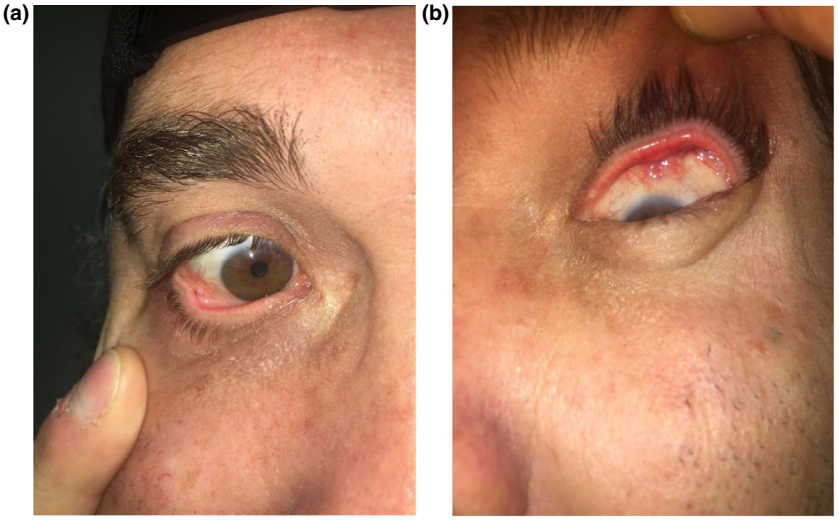

Figure 1 A 48-year-old man with ocular lichen planus. The image shows cicatricial conjunctivitis and symblepharons of the (a) right lateral eye and (b) left upper eyelid

following treatment for 1 month on twice daily lifitegrast eyedrops.

The differential diagnosis of cicatricial conjunctivitis is broad, including LP, MMP, linear IgA disease, and other mimickers. Distinguishing among these entities is challenging, and biopsy and DIF should be sent to aid diagnosis. MMP will typically show sub-basilar epithelial separation without basal cell liquefaction on histology and linear IgG and C3 at the BMZ, whereas LP shows hyperkeratosis or sub-basal separation with basal cell degeneration with a pan-negative DIF. Few cases of ocular LP have been reported. Ocular involvement is dangerous because it can result in permanent vision loss.[5] It is important to note that the clinical course can be unpredictable in some patients such as ours, and progressive disease may require systemic immunosuppression in addition to topical therapy, such as with oral mycophenolate.

Acknowledgments

We thank the patient for granting permission to publish this information. We also thank Anthony Aldave, MD, (UCLA Opthalmology) for providing the conjunctival biopsy results. E.Y.L. acknowledges support from the Medical Scientist Training Program (T32GM008042) and the Dermatology Scientist Training Program (T32AR071307) at UCLA. E.Y.L. also acknowledges an Early Career Research Grant from the National Psoriasis Foundation.

Author contributions

All authors had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Ernest Y. Lee[1,2,3]*, MD, PhD
Julia Arzeno[2]*, MD
Catherine Ni[2]*, MD
Vanessa Holland[2]*, MD

[1]Department of Bioengineering, UCLA, Los Angeles, CA, USA
[2]Division of Dermatology, Department of Medicine, UCLA, Los Angeles, CA, USA
[3]UCLA-Caltech Medical Scientist Training Program, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA
*E-mail: ernest.lee@ucla.edu

Conflict of interest: None.

Funding source: None.

doi: 10.1111/ijd.15230

References

1 Le Cleach L, Chosidow O. Clinical practice. Lichen planus. *N Engl J Med* 2012; **366**: 723–732.
2 Brewer JD, Ekdawi NS, Torgerson RR, *et al*. Lichen planus and cicatricial conjunctivitis: disease course and response to therapy of 11 patients. *J Eur Acad Dermatol Venereol* 2011; **25**: 100–104.
3 Iijima W, Ohtani H, Nakayama T, *et al*. Infiltrating CD8(+) T cells in oral lichen planus predominantly express CCR5 and CXCR3 and carry respective chemokine ligands RANTES/CCL5 and IP-10/CXCL10 in their cytolytic granules - a potential self-recruiting mechanism. *Am J Pathol* 2003; **163**: 261–268.
4 Charles P, Semba TRG. Development of lifitegrast: a novel T-cell inhibitor for the treatment of dry eye disease. *Clin Ophthalmol* 2016; **10**: 1083–1094.
5 Pakravan M, Klesert TR, Akpek EK. Isolated lichen planus of the conjunctiva. *Br J Ophthalmol* 2006; **90**: 1325–1326.