Case Report *Open Access*

Journal of Ophthalmology Research & Therapeutics

ISSN: 3071-0731

DOI: *doi.org/10.63721/26JORT110*

Use of an Irrigating Eyelid Retractor as a Novel Adjunct in the Treatment of Superior Limbic Keratoconjunctivitis: A Case Report

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Citation: *Srinivas Sai Kondapalli (2026) Use of an Irrigating Eyelid Retractor as a Novel Adjunct in the Treatment of Superior Limbic Keratoconjunctivitis: A Case Report. J of Opt Res Therapy 2(1), 1-3. WMJ-JORT -110*

Abstract

A 40-year-old female presented with a 5-month history of persistent ocular dryness, pain, and superior lid tenderness, predominantly in the left eye. She was previously treated with topical corticosteroids, immunomodulators, and artificial tears, with minimal relief. Examination revealed 4+ superior conjunctival injection, papillary reaction, and superior corneal punctate keratopathy, leading to a diagnosis of superior limbic keratoconjunctivitis (SLK). Following partial improvement on topical therapy, an in-office ocular surface lavage was performed using an irrigating eyelid retractor. Subsequent treatment with topical cyclosporine 0.09% and supportive measures led to complete resolution of signs and symptoms within two months. This report highlights the potential utility of an irrigating eyelid retractor as an adjunctive treatment in refractory SLK. Targeted lavage may reduce frictional inflammation between the superior bulbar and palpebral conjunctiva, facilitating ocular surface recovery.

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Submitted: 17.02.2026 **Accepted**: 10.03.2026 **Published**: 23.03.2026

Keywords: Superior Limbic Keratoconjunctivitis, Ocular Surface Inflammation, Irrigating Eyelid Retractor, Ocular Lavage, Dry Eye Disease

Introduction

Superior limbic keratoconjunctivitis (SLK) is a chronic, recurrent inflammatory disorder of the superior bulbar conjunctiva and cornea, often associated with contact lens wear, thyroid disease, or dry eye. First described in 1963 by Fredrick Theodore, SLK is a clinical diagnosis with examination findings including staining of the superior cornea and limbus as well as superior bulbar conjunctiva coupled with foreign body sensation, photophobia and pain in the corresponding area. The underlying pathophysiology is unclear and there are multiple hypothesis to explain the disease progression. One leading theory is mechanical; friction between the superior bulbar

and palpebral conjunctiva results in SLK (Wright P. Superior limbic keratoconjunctivitis. Trans Ophthalmol Soc UK 1972;92(1):555-560.). Management typically involves lubrication, anti-inflammatory agents, and surgical or mechanical interventions in refractory cases. We report a case where the use of an irrigating eyelid retractor facilitated clinical resolution of SLK resistant to conventional therapy.

Case Report

A 40-year-old female presented with a 5-month history of ocular dryness, burning, photophobia, and superior lid tenderness, more pronounced in the left eye (OS). Her history included contact lens overuse. She had previously received multiple topical agents, including corticosteroids, cyclosporine, lifitegrast, and preservative-free artificial tears, with limited relief.

Examination: Best-corrected visual acuity (BCVA) was 20/30 OS. External examination revealed age-appropriate lid laxity with complete lid closure. There was noted to be a prompt, symmetric blink. Slit-lamp examination revealed 4+ superior conjunctival injection, papillary hypertrophy, conjunctival staining, and superior corneal punctate keratopathy (Figure 1A). The right eye was within normal limits. Based on these findings, a diagnosis of superior limbic keratoconjunctivitis was made.

She was advised to discontinue her daily contact lens use and was started on a topical prednisolone acetate taper, preservative-free artificial tears, and nighttime ointment. Blood work revealed a positive ANA, and she was referred for rheumatologic evaluation.

Follow-up and Intervention: At three weeks, the patient reported partial symptom improvement but continued to experience superior ocular discomfort. On repeat slit-lamp evaluation, residual conjunctival injection persisted (Figure 1B). An in-office ocular surface lavage was performed using an irrigating eyelid retractor to cleanse the superior palpebral and bulbar conjunctival surfaces. Sterile, preservative-free 0.9% saline was used of which 7cc was used on the upper lid and fornix and 3cc of the lower lid and fornix in each eye respectively. The procedure took 2 total minutes and the patient was not anesthetized for the procedure. This was followed by initiation of topical cyclosporine 0.09% (Cequa) twice daily and continuation of supportive therapy.

Outcome: At the two-month follow-up, the patient reported marked symptomatic relief. Clinical examination revealed resolution of superior conjunctival injection and corneal staining (Figure 1C). Visual acuity returned to 20/20 OU, and she resumed contact lens wear using daily disposables. No recurrence was noted at subsequent visits.

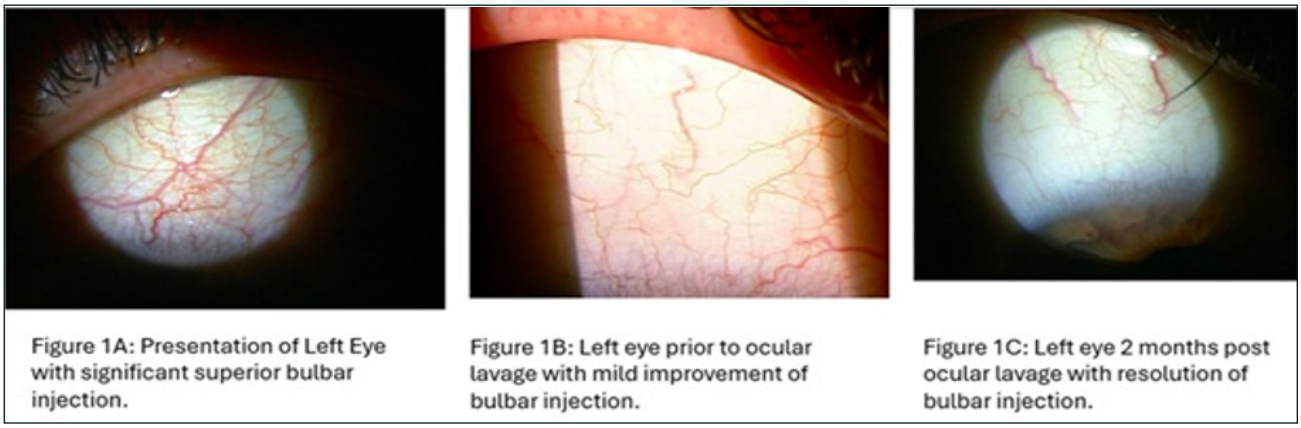

Figure 1A: Presentation of Left Eye with significant superior bulbar injection.

Figure 1B: Left eye prior to ocular lavage with mild improvement of bulbar injection.

Figure 1C: Left eye 2 months post ocular lavage with resolution of bulbar injection.

Figure 1A: Baseline Slit-Lamp Image Showing 4+ Superior Conjunctival Injection and Punctate Keratopathy OS.

Figure 1B: Three Weeks after Initiation of Corticosteroid Taper Showing Partial Improvement.

Figure 1C: Two Months Post-Lavage and Topical Cyclosporine Showing Complete Resolution of Injection and Staining

Discussion

SLK represents a chronic inflammatory process of the superior bulbar conjunctiva, limbus and cornea. Symptoms classically include foreign body sensation, redness, tearing and discomfort with blinking. The patholphysiology of the disease is unclear and there are a variety of different theories based on its presentation. One theory is that the disease is driven by mechanical microtrauma and frictional stress between the superior bulbar and palpebral conjunctiva. Treatment traditionally includes lubrication, topical anti-inflammatories, and occasionally silver nitrate or surgical approaches for recalcitrant cases. The use of an irrigating eyelid retractor in this case provided direct lavage of the superior conjunctival surfaces, facilitating removal of debris, inflammatory mediators, and epithelial debris from the palpebral conjunctiva. The device's dual function-mechanical exposure and targeted irrigation-allowed for effective surface decontamination without trauma.

The rapid improvement following this adjunctive procedure suggests that ocular surface lavage may play a therapeutic role in disrupting the inflammatory cycle in SLK. Similar benefits have been observed with lavage therapies in severe dry eye and blepharitis management, though specific reports in SLK are lacking. This case underscores the potential role of fluid-mediated debridement in refractory ocular surface disease, meriting further investigation through larger studies.

Conclusion

An irrigating eyelid retractor can serve as a valuable adjunct in the management of refractory SLK. In-office ocular surface lavage targeting the superior palpebral conjunctiva may reduce inflammation, improve patient comfort, and accelerate recovery when conventional medical therapy is insufficient.

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