Lacrifill for the management of severe refractory dry eye disease following LASIK and pterygium surgery

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Abstract

Background: Moderate-to-severe dry eye disease (DED) significantly impacts quality of life and is often exacerbated by corneal refractive and conjunctival surgeries. DED management becomes challenging when conventional therapies—such as high-molecular-weight lubricants and topical cyclosporine—fail to provide adequate symptomatic relief.

Case summary: A 65-year-old female with a history of bilateral LASIK and pterygium surgery presented with refractory DED. Despite maximally optimized medical regimen and previous blepharoplasty, the patient remained highly symptomatic (OSDI-6 score 14) with objective signs of severe aqueous deficiency (Schirmer I: 3–4 mm/5min; tear meniscus height (TMH) < 0.2 mm) and evaporative component. The patient was treated with bilateral administration of Lacrifill® Canalicular Gel, a cross-linked hyaluronic acid-based gel, into the inferior canaliculi.

Outcome: One-month post-intervention, the patient reported marked symptomatic improvement and reduced dependency on tear supplements. The OSDI-6 score improved significantly from 14 to 4. Clinical examination demonstrated increased TMH and reduced ocular fluorescein staining. No adverse events, such as epiphora or canaliculitis, were observed.

Conclusion: Lacrifill® Canalicular Gel is a tolerable and effective therapeutic option for patients with moderate-to-severe mixed-driven DED. This case highlights its utility as a restorative treatment for treatment-refractory cases, particularly those with complex post-surgical ocular surfaces.

Presentation

A 65-year-old female, with a previous history of LASIK in both eyes (OU) and pterygium surgery in her left eye (OS), presented to the corneal department with severe symptoms of DED despite multiple prior therapies. Baseline visit at our department revealed an OSDI-6 score of 14, despite frequent use of tear supplements (≥6 times/day), including high molecular-weight hyaluronic and acid, lipomimetics formulations, night-time ointment application, eyelid hygiene, warm compresses application and topical cyclosporin A 0.1% twice a day. Previous treatments included topical corticosteroids and systemic tetracycline, with minimal improvements in health-related quality of life. Blepharoplasty was previously performed to address exposure component, with no present lagophthalmos . Slit lamp examination denoted plugging of meibomian gland orifices, telangiectasis of lid margin, irregularity of lid margin and a clear cornea. Tear film evaluation demonstrated fluorescein tear breakup time 6 OU (area breaks pattern), TMH < 0.2 mm OU, inferior punctata epithelial erosions and a Schirmer test I 3 mm and 4 mm /5 min.

Therapeutic Intervention

Lacrifill® Canalicular Gel was administered bilaterally into the inferior canaliculi, under topical anesthesia without complications. Tear supplements were maintained as needed, however, topical cyclosporin A was discontinued.

Follow-up and Outcomes

At one month post Lacrifill® Canalicular Gel administration, the patient reported markedly improved quality of life with reduced DED-related symptoms and reduced dependency on tear supplements. OSDI-6 score improved from 14 to 4. Slit lamp examination demonstrated improved TMH and ocular fluorescein staining. No adverse events, including disturbing epiphora or canaliculitis, were observed.

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Discussion

This case highlights the potential role of intracanalicular hyaluronic acid-based gel (Lacrifill® Canalicular Gel) in patients with moderate-to-severe mixed-driven DED.

The patient presented with multiple risk factors for ocular surface dysfunction, including prior corneal refractive surgery and conjunctival surgery. Post-LASIK tear dysfunction is a well-recognized entity with multiple factors contributing to its pathophysiology, including corneal nerve disruption and consecutive reduced reflex tearing and altered tear film homeostasis. Despite maximal conventional therapy—including lubricants, anti-inflammatory agents, and systemic treatments—the patient remained symptomatic, suggesting a significant aqueous deficiency component not adequately addressed by topical therapies alone. Lacrifill® Canalicular Gel, a cross-linked hyaluronic acid intracanalicular gel, proved a tolerable and effective strategy for moderate-to-severe mixed-driven DED.

Conclusion

Lacrifill® Canalicular Gel may provide a tolerable and effective treatment for treatment-refractory DED, particularly in complex post-surgical cases where aqueous deficiency is the dominant driver.

Disclosures / Conflicts of Interest

J Pargana: Consultant for Nordic Pharma

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