Spontaneous Bilateral Corneal Abrasions related to Improper Contact Lens Removal Technique and Dry Eye Syndrome

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INTRODUCTION

Corneal abrasions are eye injuries that damage the corneal epithelium and can present with symptoms of discomfort, redness, photophobia, and reduced visual acuity. Large abrasions increase the risk of corneal instability leading to recurrent erosions and scarring. Potential etiologies of corneal abrasions can be spontaneous, like those derived from corneal dystrophies and recurrent corneal erosions, or secondary to ocular trauma, such as injury with a foreign object.[1]

This case illustrates bilateral corneal abrasion secondary to improper soft contact lens removal technique with underlying dry eye and highlights the use of anterior segment OCT (AS-OCT) to monitor corneal re-epithelization.

CASE REPORT

A 50-year-old Caucasian female presented with complaints of severe bilateral eye pain and photophobia with reduced visual acuity. Symptoms began one day prior as bilateral ocular discomfort following contact lens removal and intensified after she rubbed her eyes on the way into clinic. She denied any recent injury or foreign object trauma.

Patient admitted to being in a chlorinated pool one day prior but denied putting her head underwater or her face coming into contact with the pool water. Prior to use, contact lenses were properly disinfected using hydrogen peroxide contact lens solution in an approved case. The patient denied inadequate hydrogen peroxide neutralization due to lack of stinging upon insertion of contact lens. Patient denied sleeping in contact lenses and reported compliance with proper care, wear, and replacement schedules. Patient did note, however, history of occasional difficulty removing contact lenses and improper contact lens removal technique.

Patient's ocular and medical history was relevant for dry eye disease and rosacea, for which she was previously treated with topical cyclosporine eyedrops but discontinued few years prior. Patient was also previously treated with oral doxycycline for rosacea.

EXAM FINDINGS

Proparacaine 0.5% 1 drop OU was instilled for pain relief so that the patient could open her eyes sufficiently for slit lamp examination.

	OD	OS
Visual Acuities:	20/60 sc	20/60 sc
Adnexa:	adnexa normal	adnexa normal
Eye Lids:	lids normal	lids normal
Sclera/Conjunctiva:	mild injection (-) discharge	mild injection (-) discharge
Cornea:	large abrasion affecting >80% of cornea (+) mucous strands	large abrasion affecting >80% of cornea (+) mucous strands
Iris:	iris normal	iris normal
Anterior Chamber:	Deep/quiet, (-)cells/flare	Deep/quiet, (-)cells/flare
Lens:	clear lens capsule, cortex and nucleus	clear lens capsule, cortex and nucleus

Figure 1 Slit Lamp Findings

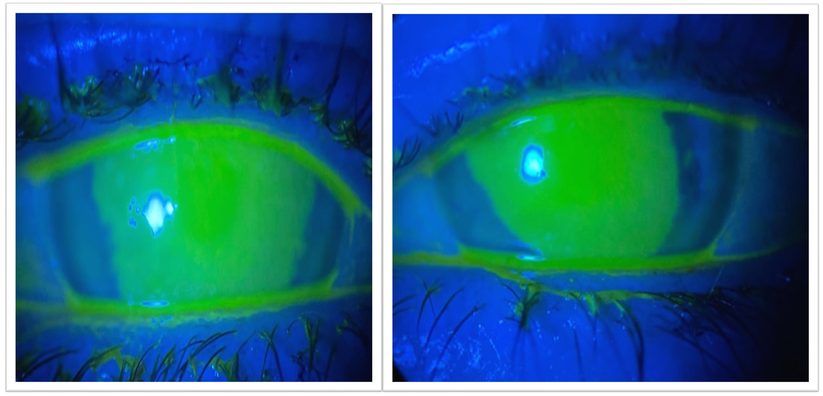

Figure 2 Corneal Abrasion OD (left) and OS (right)

MANAGEMENT

Cyclopentolate 1% 1 drop OU was instilled in office for patient comfort. Amniotic membrane was desired but not available at the time of the visit. Bandage contact lenses were pre-soaked in ciprofloxacin 0.3% ophthalmic drops and inserted OU. Patient was prescribed ciprofloxacin 0.3% ophthalmic drops QID until bandage contact lens removal.

Figure 3 AS-OCT confirmed re-epithelization one day later under bandage contact lens OD (top) and OS (bottom)

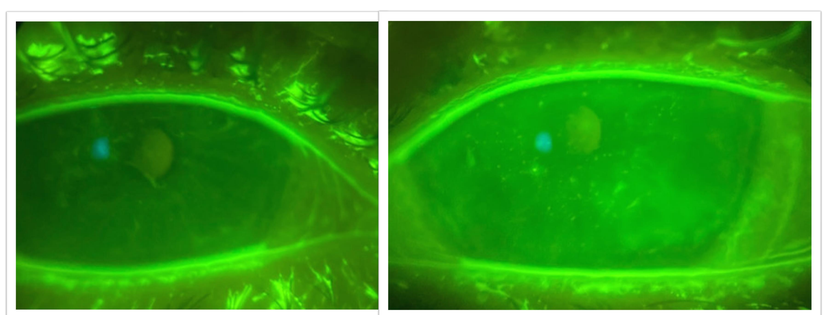

Figure 4 Anterior Segment photography immediately post bandage contact lens removal OD (left) and OS (right)

MANAGEMENT CONTINUED

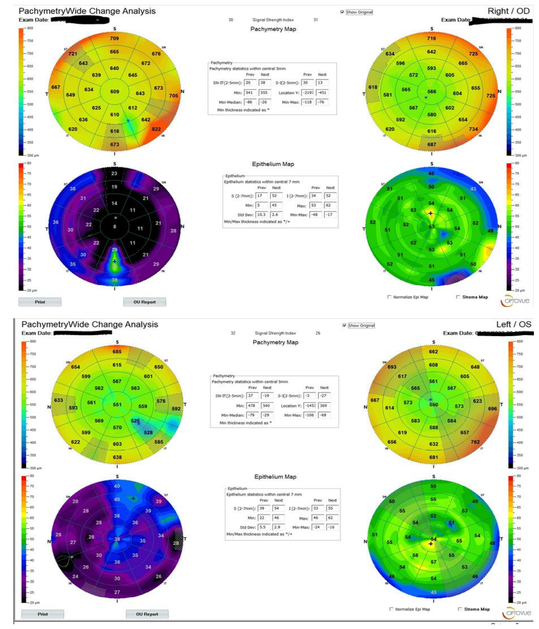

Figure 5 AS-OCT monitoring corneal re-epithelization OD (top) and OS (bottom) immediately after BCL removal and one week later

Slit lamp examination at follow-up visits was consistent with dry eye and showed no signs of recurrent erosions or underlying corneal dystrophies. After bandage lens removal, fluorometholone 0.1% eye drops TID OU x 14 days, doxycycline 50mg PO BID x 2 months, and Xiidra® BID OU were prescribed.

CONCLUSIONS

The patient's untreated dry eye disease and improper lens removal technique proved to be the antecedent trauma for the severe presentation of bilateral corneal abrasions. The patient reported no systemic conditions, nor were there any clinical findings consistent with a corneal dystrophy contributing to epithelial membrane instability. However, incidental pool water exposure may have contributed to the bilateral abrasions due to the presence of chlorine and its adverse effects on the corneal epithelium.[3]

In addition to slit lamp examination, AS-OCT was used to confirm re-epithelization prior to bandage contact lens removal. Subsequent documentation of epithelial healing with AS-OCT was useful for monitoring dry eye, epithelial stability, as well as reassurance to the patient. Patient was treated with oral and topical medications as case studies have shown that a combination of oral doxycycline and topical ophthalmic steroids help reduce recurrent corneal erosions.[4]

This case demonstrates the use of AS-OCT to monitor corneal abrasion for resolution, treatment with topical and oral medications to reduce risk of recurrent corneal erosion, and importance of proper contact lens removal techniques. Patients with underlying dry eye disease should be educated about risks of abrasions from improper contact lens removal technique and carefully monitored since dry eye patients have thinner corneal epithelium compared to normals.[5]

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