

New Management Modality of Central Toxic Keratopathy with Use of Scleral Lenses

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BACKGROUND

Central Toxic Keratopathy (CTK) is a rare, self-limiting, non-inflammatory complication mostly associated with excimer laser ablation (LASIK OR PRK). Etiology is believed to stem from stromal toxicity and keratocyte apoptosis. CTK presents in the early post-operative period with similar clinical features to diffuse lamellar keratitis (DLK) which then rapidly progresses to dense corneal opacification, striae, stromal tissue loss, and a hyperopic shift. We present a case of a patient with CTK whose refractive error was managed successfully with the use of scleral lenses at one- month post-op.

CASE DETAILS

A 42-year-old male presented for his LASIK refractive surgery one day post-op exam with blurred vision, diffuse infiltration and stromal opacification in both eyes left> right. The management of diffuse lamellar keratitis (DLK) included flap lift and irrigation, Prednisolone Acetate 1% and Ofloxacin 3% every hour accompanied with Doxycycline 100 mg po BID, Prednisone 60 g po once a day, and Vitamin C 1000 mg once a day. The patient was followed up daily and was deemed to have CTK after persistent stromal haze and subsequent hyperopic shift noted in both eyes. He was referred for a scleral lens fitting to aid in improvement of vision. The patient failed with use of soft contact lenses due to no visual improvement and corneal RGP lenses were not advised by the surgeon due to the microtrauma associated with corneal lenses.

RESULTS

The patient was fit with a 16 diameter Zenlens Oblate Scleral Lens with 20/20 in each eye. Over the course of several months, the patient was able to comfortably and successfully wear the scleral lenses on a daily basis with corrected acuity which ranged from 20/20- and 20/30 OD, OS respectively. Small adjustments were made as needed for any fluctuations in refractive error in vision throughout the 6 months before stabilization occurred. The patient successfully wore the scleral lenses for one-year post-op.

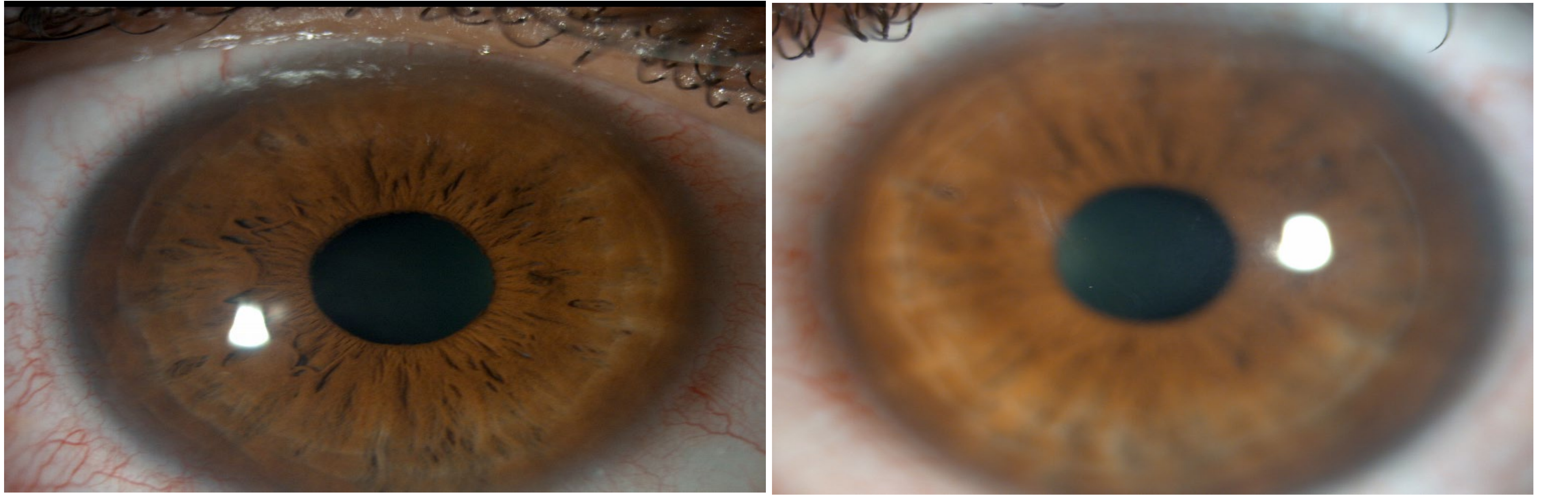


Figure 2. Right and left eye 6 months post- op with resolving corneal striae and haze

Table. Comparison of CTK vs DLK

Central toxic keratopathy	Diffuse lamellar keratitis
Non-inflammatory opacification and striae of stromal bed anterior or posterior to the flap	Inflammatory cells confined to flap interface and diffuse with progression
Days 3-4 post-op; resolves in months (ex. >6 months)	Day 1 post-op; can resolve in 1 week
Due to keratocyte apoptosis and stromal necrosis	Non-infectious infiltrates arising from intra-operative exposure to inflammatory agents
Resolves on its own; steroids not indicated	Treatment is flap irrigation and steroids
Refractive management for hyperopic shift	

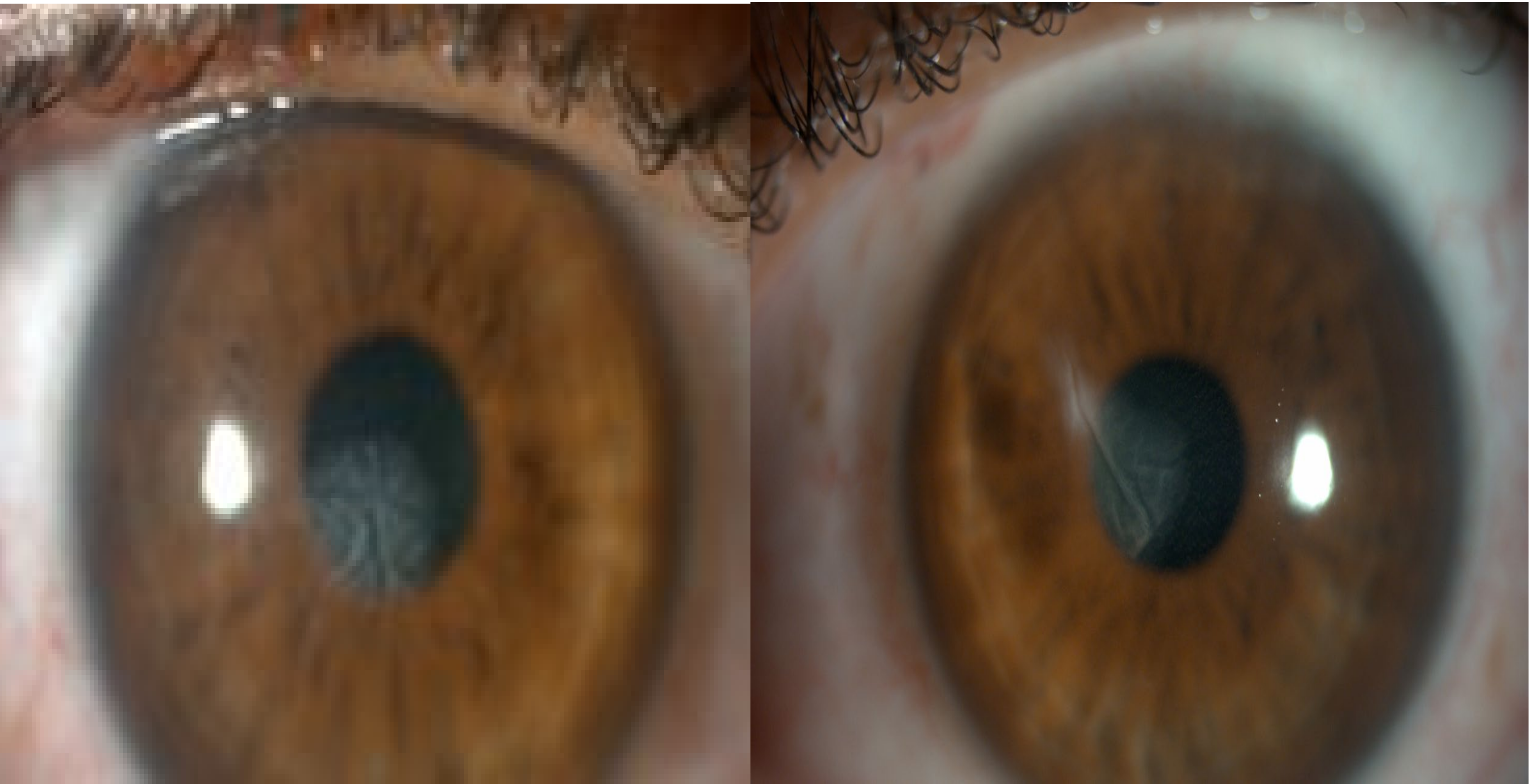


Figure1. Stromal haze and striae of right and left eye

CONCLUSIONS

CTK has a moderate to favorable prognosis with conservative treatment and observation; however, resolution can take several months and the use of scleral lenses were able to provide a safe and effective way to achieve optimal vision in the early post-operative period without the cause of microtrauma produced from other lens modalities.

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