Photo Essay

Clinical presentation following photorefractive intrastromal cross-linking for myopic correction

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Key words: Collagen cross-linking, myopia, photorefractive intrastromal cross-linking

Case Report

A 23-year old female presented to our Refractive Services seeking independence from spectacles. Her unaided distance visual acuity (UDVA) was 6/18 and 6/6 in the right and left eye, respectively. The best-corrected distance visual acuity in the right eye was 6/6 with a stable refractive correction of − 1.25 Diopter (D) sphere for the past 3 years. Anterior segment and fundus evaluation were within normal limits. Corneal topography was within normal limits with a mean keratometry (Km) of 46.2D and a thinnest pachymetry of 530 um [Fig. 1]. Photorefractive intrastromal cross-linking (PiXL) for the right eye was performed. A written informed consent was obtained before the procedure. High fluence ultraviolet-A irradiation of 15 J/cm^2 was delivered over the central 4 mm, using the Mosaic device (Avedro, Waltham, MA). Oxygen was supplemented externally to increase the efficacy of the transepithelial approach. At 1-month postoperative visit, her UDVA in the right eye was 6/6. Slit lamp evaluation revealed a central 4 mm disc of haze with a corresponding demarcation line on anterior segment optical coherence tomography [Figs. 2 and 3]. Corneal topography at 3 months demonstrates a flattening in the central 4 mm zone with a Km of 44.4D [Fig. 4]. No regression or endothelial cell loss was noted over the 6-month follow-up period. On administrating the questionnaire, the patient reported freedom from glasses for 100% of her activities with a satisfaction score of 5/5.

Discussion

Kanellopoulos described the preliminary results of PiXL and noted an average corneal flattening of 1.4 D at 1 month.[1] Lim *et al*. demonstrated the results in a cohort of 14 eyes with a mean reduction in spherical equivalent of 0.72 ± 0.43D using the epithelium on approach.[2] Elling *et al*. demonstrated superior visual outcomes in 26 eyes undergoing PiXL following epithelial debridement.[3]

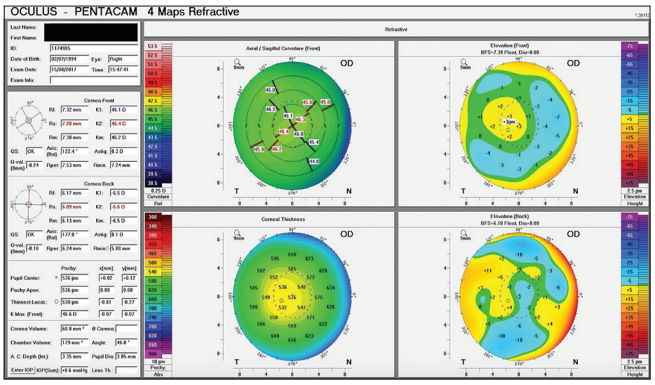

Figure 1: Preoperative corneal tomography with a mean keratometry of 46.2D

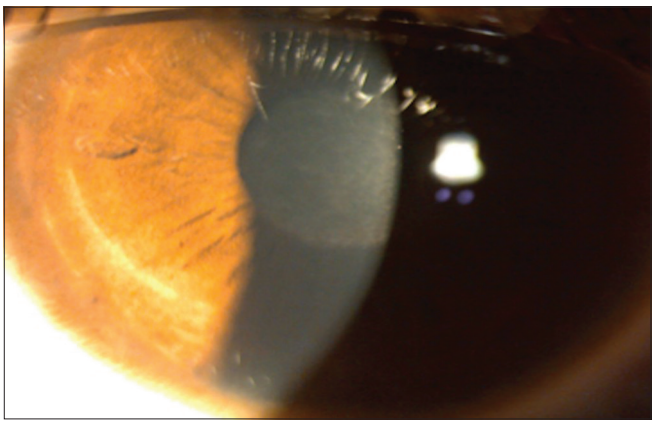

Figure 2: Slit lamp evaluation at 1-month postoperative visit reveals a central disc of haze

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DOI: 10.4103/ijo.IJO_1227_17

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Manuscript received: 07.01.18; Revision accepted: 14.03.18

Cite this article as: Sachdev GS, Ramamurthy S. Clinical presentation following photorefractive intrastromal cross-linking for myopic correction. Indian J Ophthalmol 2018;66:993-4.

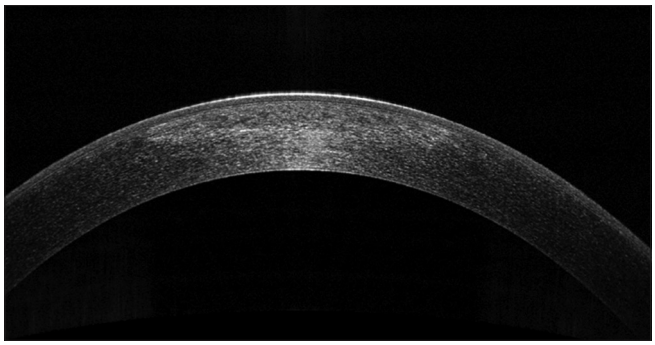

Figure 3: Anterior segment optical coherence tomography demonstrating a well-defined demarcation line in the central 4 mm zone

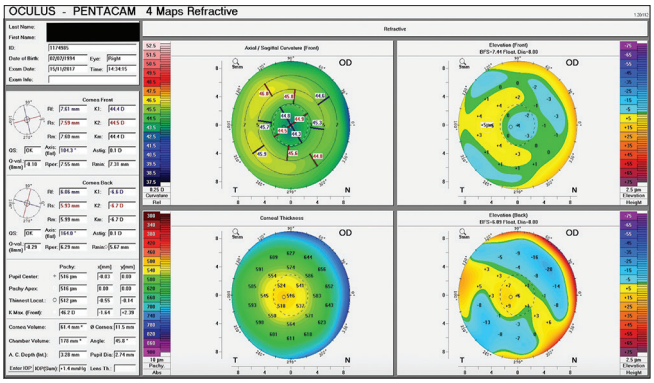

Figure 4: Corneal tomography at 3 months demonstrates a central corneal flattening of 1.8D

Conclusion

This photo essay demonstrates the clinical changes which ensue following PiXL, which were not demonstrated in the published data.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

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