

Excimer laser phototherapeutic keratectomy with mitomycin C application to treat haze after myopic photorefractive keratectomy

Priyanka Sudanaboina, Somasheila I Murthy, Varsha M Rathi

Key words: MMC- Mitomycin C, PRK- Photorefractive keratectomy, PRK Haze, PTK- Phototherapeutic keratectomy

A 30-year-old female patient underwent bilateral photorefractive keratectomy (PRK) with mitomycin C (MMC) application to correct compound myopic astigmatism of -8.50,-0.50@60, and -2.25, 1.00@70 in her right eye (RE) and left eye (LE), respectively. RE pachymetry was 513 μm and the anterior chamber depth was 2.57 mm and hence PRK with MMC application was considered. MMC 0.02% was applied for 90 s in RE and 30 s in LE. At 1 month, uncorrected visual acuity (UCVA) was 20/20 in both eyes. However, at 2 months, her RE UCVA dropped to 20/80. Examination showed dense reticular haze (grade 3)^[1] [Fig. 1]. The central corneal thickness was 382 μm in the RE [Fig. 2]. Anterior segment optical coherence tomography (OCT) showed intense hyperreflectivity at the level of the epithelial basement

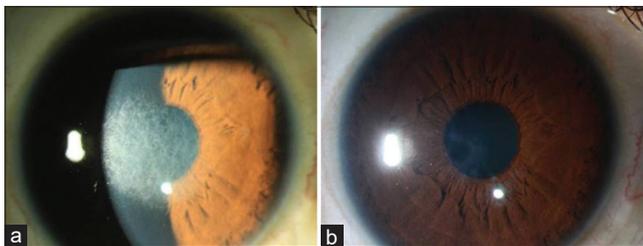


Figure 1: RE slit-lamp photograph with evident grade 4 haze 6 months after PRK (a), and 3 months after PTK + PRK + MMC (b), the corneal opacity is remarkably reduced

Access this article online	
Quick Response Code:	Website: www.ijo.in
	DOI: 10.4103/ijo.IJO_1845_20

Department of Cornea, L V Prasad Eye Institute, Hyderabad, Telangana, India

Correspondence to: Dr. Somasheila I. Murthy, Department of Cornea, Kallam Anji Reddy Campus, The Cornea Institute, L V Prasad Eye Institute, LV Prasad Marg, Banjara Hills, Hyderabad - 500034, Telangana, India. E-mail: smurthy@lvpei.org

Received: 06-Jun-2020
Accepted: 27-Sep-2020

Revision: 07-Sep-2020
Published: 23-Nov-2020

membrane corresponding to the haze and undulation of the anterior edge of this scar tissue [Fig. 3]. After an initial failed course of topical corticosteroids, she underwent phototherapeutic keratectomy (PTK) + PRK 6 months after PRK, using the trans-PTK mode for ablation of 50 μ and PRK for 40 μ ablation and MMC was applied for 30 s. At 3 months post PTK, UCVA was 20/30, (20/20 with -0.50,-0.50@60) [Table 1]. No further regression or increase in the haze was noted 18 months after retreatment.

Discussion

PRK is a safe surgical procedure for effectively reducing refractive errors but refractive regression and corneal haze are known complications that can affect the outcome.^[2] The risk factors for post-PRK haze include higher degrees of myopia and astigmatism, hyperopic corrections, and younger age.^[3] The symptoms associated with haze are disabling glare and impairment of visual acuity. Intraoperative MMC use has a protective role. Post-PRK haze can be treated with topical steroids if mild, but in a dense haze, surgical management is required.^[4] The various techniques include either manual

Table 1: Temporal changes in visual acuity, refractive correction, and slit-lamp haze grading after sequential PRK and PTK + PRK + MMC procedures

Right eye	UCVA	BCVA	Spherical equivalent	Haze
Preoperative	20/600	20/25	-9.00	0
2 months post PRK	20/80	20/25	-1.75	3
6 months post PRK	20/100	20/25	-2.50	4
Post PTK + PRK	20/30	20/20	-0.75	2

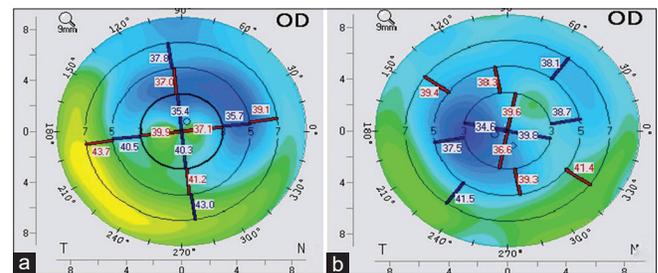


Figure 2: Right eye video keratography maps before (a) and 3 months after (b) PTK + PRK + MMC for treatment of post-PRK haze. The topographic pattern highlights the more regularized corneal profile

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Cite this article as: Sudanaboina P, Murthy SI, Rathi VM. Excimer laser phototherapeutic keratectomy with mitomycin C application to treat haze after myopic photorefractive keratectomy. Indian J Ophthalmol 2020;68:3030-1.

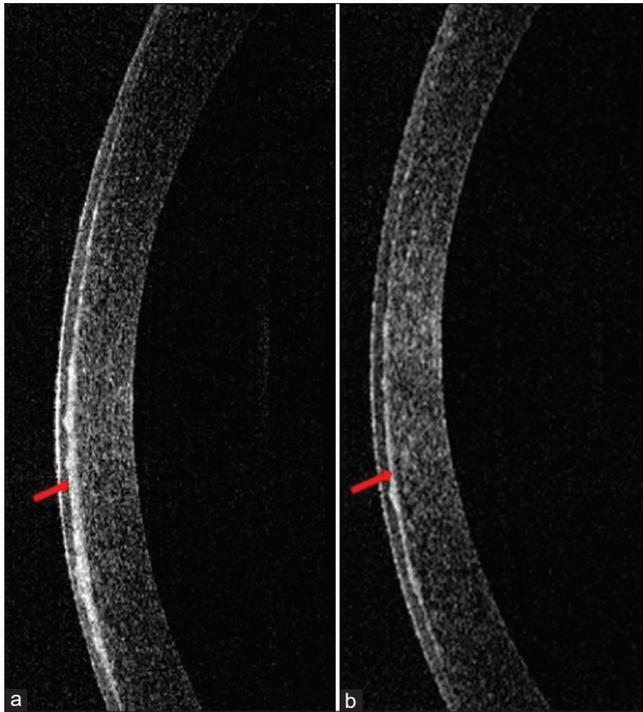


Figure 3: ASOCT pictures before (a) and 3 months after PTK + PRK + MMC (b). The hyperreflectivity at basement membrane level (arrow) is reduced in intensity (arrow) post-laser retreatment

debridement or PTK and MMC application.^[5] Our case had risk factors of high myopia and deeper ablation, which led to haze but could be successfully treated with PTK, PRK, and intraoperative MMC application.

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

Hyderabad Eye Research Foundation.

Conflicts of interest

There are no conflicts of interest.

References

1. Heitzmann J, Binder PS, Kassab BS, Nordan LT. The correction of high Myopia using the excimer laser. *Arch Ophthalmol* 1993;111:1627-34.
2. Kaiserman I, Sadi N, Mimouni M, Sela T, Munzer G, Levartovsky S. Corneal breakthrough haze after photorefractive keratectomy with Mitomycin C: Incidence and risk factors. *Cornea* 2017;36:961-6.
3. Ang BC, Foo RC, Lim EW, Tan MM, Nah GK, Thean LS, *et al*. Risk factors for early-onset corneal haze after photorefractive keratectomy in an Asian population: Outcomes from the Singapore Armed Forces Corneal Refractive Surgery Programme 2006 to 2013. *J Cataract Refract Surg* 2016;42:710-6.
4. Tengroth B, Epstein D, Fagerholm P, Hamberg-Nystrom H, Fitzsimmons TD. Excimer laser photorefractive keratectomy for myopia. Clinical results in sighted eyes. *Ophthalmology* 1993;100:739-45.
5. Seiler T, Derse M, Pham T. Repeated excimer laser treatment after photorefractive keratectomy. *Arch Ophthalmol* 1992;110:1230-3.