

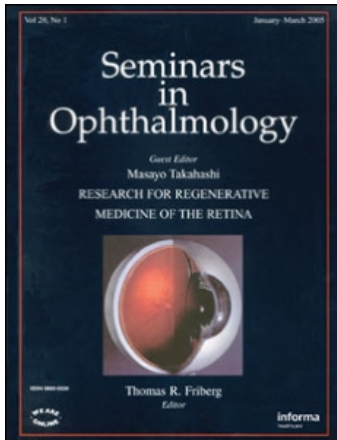
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Photorefractive Keratectomy in a Patient with Epithelial Basement Membrane Dystrophy

George D. Kymionis ^a; Vasillios F. Diakonis ^a; Dimitrios I. Bouzoukis ^a; Sonia H. Yoo ^b; Ioannis G. Pallikaris ^a

^a Institute of Vision and Optics, University of Crete, Greece ^b Bascom Palmer Eye Institute, University of Miami, FL, USA

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Photorefractive Keratectomy in a Patient with Epithelial Basement Membrane Dystrophy

George D. Kymionis, Vasillios F. Diakonis, and Dimitrios I. Bouzoukis
Institute of Vision and Optics,
University of Crete, Greece

Sonia H. Yoo
Bascom Palmer Eye Institute,
University of Miami, FL, USA

Ioannis G. Pallikaris
Institute of Vision and Optics,
University of Crete, Greece

ABSTRACT Purpose: To report a case of excimer laser photorefractive keratectomy (PRK) in a patient with epithelial basement membrane dystrophy (EBMD). **Methods:** Interventional case report. **Results:** A 36-year-old male with clinical manifestations of EBMD underwent bilateral, simultaneous PRK for low myopia correction. A delay (up to 17 days) in the epithelial healing process with unstable epithelium was observed. During the first three postoperative months a visually significant subepithelial haze was developed in both eyes. One year postoperative, an improvement in haze formation and visual acuity in both eyes was found. **Conclusions:** PRK in patients with EBMD could result in favorable refractive and clinical outcome.

KEYWORDS PRK, epithelial basement dystrophy, haze

INTRODUCTION

Epithelial basement membrane dystrophy (EBMD), also known as map-dot-fingerprint or Cogan microcystic dystrophy, is the most common corneal dystrophy, with an estimated prevalence of 5% (Waring, 1978). The basic histopathologic findings in EBMD are multiple laminations of basement membrane, underdeveloped hemidesmosomes, and an absence of anchoring fibrils. These findings result in poor adherence of corneal epithelium to Bowman layer (Guerry, 1950).

Patients with EBMD are predisposed to multiple complications after Laser in situ Keratomileusis (LASIK) (such as DLK, flap microfolds, epithelial ingrowth, flap melting) with poor final outcome (Perez-Santonja, 2005; Dastgheib, 2000) while phototherapeutic keratectomy (PTK) for EBMD treatment has encouraging results (Pogorelov, 2006). It has been proposed that photorefractive keratectomy, which could potentially have a refractive and therapeutic result at the same time in these patients, should be considered as an alternative option in these patients (Perez-Santonja, 2005).

To our knowledge, there are no publications in the literature regarding PRK in patients with EBMD. In this case report, we present the course of a patient with EBMD after PRK.

The authors have no financial or proprietary interest in any materials or methods described herein.

Address correspondence to
George D. Kymionis, M.D., Ph.D.,
Institute of Vision and Optics,
University of Crete, Medical School,
Department of Ophthalmology, 71110
Heraklion, Crete, Greece.
E-mail: kymionis@med.uoc.gr

CASE REPORT

A 37-year-old man presented for refractive surgery evaluation. The preoperative best spectacles corrected visual acuity (BSCVA) was 20/20 with -3.75 D in both eyes. Corneal biomicroscopy revealed map-like subepithelial geographic opacities (maps) and intraepithelial microcysts (dots). The patient reported few episodes of recurrent corneal erosions in both eyes. The central corneal ultrasound pachymetry (DGH 5100 Technology, Inc.) was $570\ \mu\text{m}$ and $575\ \mu\text{m}$ in the right and the left eye, respectively. Fundoscopy was normal.

After informing the patient for the possible intra- and postoperative complications and obtaining written informed consent in accordance with institutional guidelines and the Declaration of Helsinki, a photorefractive keratectomy in both eyes was performed.

The procedure was uneventful in both eyes. The epithelium was removed very easily due to poor epithelial adhesion using a rotating soft brush at 8-mm zone. Stromal ablation was performed with Allegretto Wavelight 400 Hz flying spot excimer laser. The attempted correction was -3.75 D in both eyes, targeted to emmetropia. The procedure was unremarkable.

At the end of the procedure, a combination of steroids and antibiotic drops (Tobradex, 4 times daily) was administered while bandage soft contact lenses were applied on both eyes.

During the early postoperative period, a delay (up to 17 days postoperative) in the corneal epithelium healing process with unstable epithelium was observed. Bandage contact lenses were removed at the day of reepithelization (16 and 17 days postoperative for the right and left eye, respectively).

During the first three postoperative months a visually significant reticular subepithelial haze with a reduction in visual acuity was developed in both eyes (Figure 1). During the next postoperative months, a progressive improvement in haze formation and visual acuity was observed in both eyes.

One year postoperative, uncorrected visual acuity was 20/20 in both eyes while there was not any evidence of corneal haze formation. Furthermore, no clinical (such as recurrent corneal erosions) or biomicroscopic findings of EBMD were found.

DISCUSSION

The presence of epithelial basement membrane dystrophy has been reported to increase the risk of

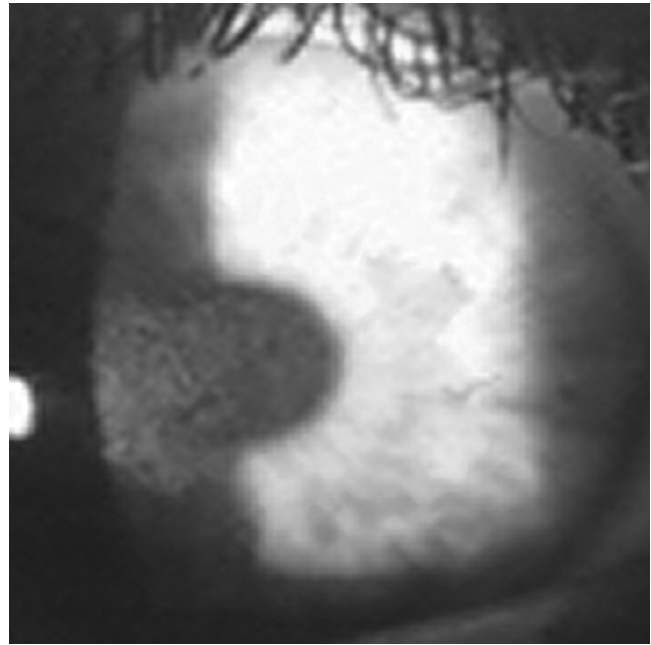


FIGURE 1 Subepithelial haze formation two months after PRK in a patient with EBMD.

microkeratome complications during LASIK (Perez-Santonja, 2005; Dastgheib, 2000). Patients with EBMD are predisposed to epithelial sloughing/defects during the microkeratome pass in LASIK, subsequent wound-healing problems, and multiple complications in the postoperative period. Due to poor final outcome of these patients after LASIK, PRK may be a good alternative option to eliminate all these possible complications. Furthermore, after PRK the abnormal basement membrane is discarded while simultaneously a refractive correction could be performed.

In this case report, we described a patient with EBMD after PRK. Despite the delayed epithelial healing time and the subsequent haze formation during the first three postoperative months, the final long-term outcome of the patient was excellent. One year postoperative, the patient was emmetropic while there was not any evidence of haze formation. Furthermore, in addition to the successful refractive outcome, there was not any biomicroscopic or clinical evidence of EBMD.

Finally, considering the results reported in the literature of such patients after other than PRK refractive procedures (such as LASIK), PRK seems to be a safe refractive treatment option for patients with EBMD. Additional cases are needed in order to obtain sufficient results.

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