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Case Report

Flap Amputation and Mitomycin C Application as a Treatment For Corneal LASIK Flap Melting

Kornea LASIK Flep Erimesi Tedavisinde Flep Amputasyonu ve Mitomisin C Uygulaması

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ABSTRACT

Presently described is a case of corneal laser in situ keratomileusis flap melting after vitrectomy for retinal detachment and treated with flap amputation and mitomycin C application. Retinal detachment was detected in a 47-year-old male patient who presented with visual impairment in the left eye. On examination, bilateral LASIK flap scar and corneal scar due to previous herpes zoster virus keratitis were observed. In the patient who underwent vitreoretinal surgery, the corneal epithelium was debrided from the hinge of the flap to the other side, as it obscured the posterior pole appearance due to corneal epithelial edema. After surgery, melting occurred in the flap and the corrected visual acuity remained at 0.1. In the patient whose vision could not be corrected with a hard contact lens, the surface irregularity was treated with flap amputation and 0.02% mitomycin C application. Visual acuity increased to 0.6 with −2.50 D correction, it was observed that there was no corneal haze.A regular ocular surface was created and visual acuity and quality were improved with flap amputation and adjuvant mitomycin C therapy. Flap amputation is a preferable option in the treatment of surface irregularities due to laser in situ keratomileusis flap melting.

Keywords: Corneal melting, flap amputation, LASIK, vitreoretinal surgery

ÖZ

Bu yazıda, daha önce sol gözünden miyopi nedeniyle refraktif cerrahi geçirmiş, daha sonrasında ise gelişen retina dekolmanı nedeniyle uygulanan vitrektomi sonrası korneal flepte melting gelişen ve flep ampütasyonu+mitomisin c uygulaması ile tedavi edilen bir olgunun sunulması amaçlanmaktadır. Sol gözde görme bozukluğu nedeniyle başvuran 47 yaşındaki erkek olguda fundusunda retina dekolmanı tespit edilmiş ve ön segmentlerde her iki gözünde LASIK flep skarı ve geçirilmiş herpes zoster virüs keratitine bağlı kornea skarı izlenmiştir. Vitreoretinal cerrahi uygulanan olguda, cerrahi esnasında korneal epitel ödem nedeniyle arka kutup görünümü engellendiği için kornea epiteli, flebin menteşesinden diğer tarafa debride edilmiştir. Ameliyat sonrası flepte melting meydana gelmiş ve olgunun sol gözünde düzeltilmiş görme keskinliği 0.1'de kalmıştır. Sert kontakt lens ile görmesi düzeltilemeyen olgunun, yüzey düzensizliği uygulanan flep amputasyonu ve %0.02 mitomisin c ile tedavi edilmiştir. -2,50 diyoptri refraksiyon düzeltmesi ile görme keskinliği 0,6'ya kadar yükselmiş, kornea bulanıklığının kalmadığı görülmüştür. Flep amputasyonu ve adjuvan mitomisin tedavisi ile düzgün bir oküler yüzey oluşturulup görme keskinliği ve kalitesi artırılmıştır. Lazer in situ keratomileusis flepte melting oluşmasına bağlı yüzey düzensizliklerinin tedavisinde flep amputasyonu tercih edilen bir seçenektir.

Anahtar Kelimeler: Korneal melting, flep amputasyonu, LASIK, vitreoretinal cerrahi

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INTRODUCTION

Laser in situ keratomileusis (LASIK) is frequently used excimer laser technique for correction of refractive errors lately. Faster visual rehabilitation, less pain, and more stable refraction are LASIK's strong points against photorefractive keratectomy. Most procedures are successful, but complications sometimes occur. The main source of these complications is associated with the corneal flap. Complications include buttonholes, thin flaps, incomplete or irregular flaps, flap dislocation, epithelial enlargement, infection, and diffuse lamellar keratitis.[1-3]

Laser in situ keratomileusis or high myopia may cause a retinal tear in patients. Because this procedure may induce vitreous traction and detachment resulting from sudden decompression of the eye and those patients may need vitreoretinal surgery.[4]

We present a case who had LASIK flap-related complication after vitreoretinal surgery.

CASE

Written informed consent was obtained from the patient. A 47-years-old male patient was first seen for evaluation of a retinal detachment. Patient had a prior LASIK surgery 5 years ago due to high myopia −10 D). There were bilateral LASIK flap scar and corneal scar due to past herpes zoster keratitis in her right eye at his psychical examination. Fundus examination revealed rhegmatogenous retinal detachment in the left eye. No tear was observed in the right fundus examination.

During vitreoretinal surgery, since corneal epithelial edema obscured the visualization of the posterior segment, the patient's corneal epithelium was debrided from the flap hinge in the opposite direction, taking care not to move the LASIK flap.

The patient's corneal epithelium healed at postoperative 15th day. Bandage contact lens, artificial tears, and otologous serum drops were used to accelerate the healing process. However, during this healing process, flap's nasal side melted and the best-corrected visual acuity (BCVA) was remained at the level of 0.1 (Figure 1). Significant irregular astigmatism was seen on corneal topography.

The patient's BCVA could not be improved with rigid gas permeable lenses. Surface irregularity treated with flap amputation and 0.02% mitomycin C (MMC) application. Residual corneal bed thickness after flap amputation was 320 µ. Patient's BCVA was 0.6 and there was a −2.50 D refractive error in the first month after the flap amputation. The patient's BCVA , refractive error, and corneal thickness were stable and there was no any corneal opacity or haze at the last visit.(fourth month after the amputation) (Figure 2).

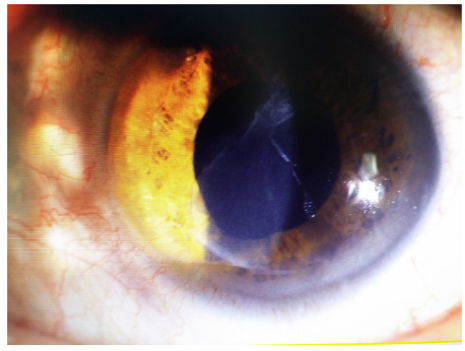


Figure 1. Biomicroscopic view at presentation. Melting of the nasal edge of the flap.

DISCUSSION

Corneal melting after surgery is a rare but serious complication. In this case, neurotrophy due to herpes zoster keratitis and LASIK are thought to be important causes in late epithelization and related flap melting.[1]

In our case, ocular surface irregularity after flap melting could not been corrected with rigid gas permeable lens. For this reason, flap amputation and adjuvant 0.02% MMC were applied in order to obtain a smooth ocular surface and to prevent corneal haze caused by superficial wound healing. For effectively reducing the magnitude of stromal haze, 0.02% of MMC seems to be a promising treatment modality .[3] In this way, a regular ocular surface had been formed, and the visual acuity and quality were increased.

Flap amputation can be applied in the treatment of corneal irregularities and epithelial growth. Planned therapeutic flap amputations have been reported in persistent epithelial ingrowth or in infectious keratitis that does not respond to conservative treatment.[3,5-8] Epstein et al[3] demonstrate that flap amputation was successful in reducing or eliminating visual function disorders in certain situations. These situations are stromal flap melting

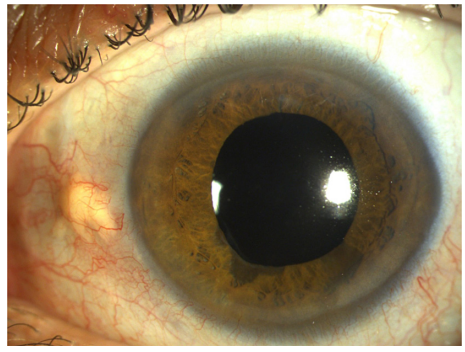


Figure 2. The 4-months after the amputation examination result. There was no corneal opacity or haze.

involving the visual axis, Intractable irregular astigmatism unresponsive to other techniques of flap repositioning, small, thin-free caps; irregular flaps; or buttonholes with epithelial ingrowth or central scarring, and small, thin flaps in eyes in which the orbital anatomy places the patient at substantial risk with a repeat microkeratome cut.[3] Kymionis et al[7,8] applied flap amputation in infectious keratitis and post-LASIK epithelial ingrowths together with phototherapeutic keratectomy and collagen crosslinking. Their procedure resulted in a considerable visual outcome.

In conclusion, flap amputation is not the first option in the treatment of LASIK flap complications, but it should be considered a relatively conservative method when compared to other interventional methods and successful in reducing or eliminating visual function disorders in certain situations. In addition, flap amputation seems to be an easier surgical option compared to other surgical treatment options, lamellar or full-thickness keratoplasty.

Hasta Onamı: Çalışmaya katılan hastadan yazılı onam alınmıştır.

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