



## CASE REPORT

# Bilateral acute angle closure glaucoma after hyperopic LASIK correction

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### KEYWORDS

Acute glaucoma;  
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**Abstract** Acute angle closure glaucoma is unexpected complication following laser in situ keratomileusis (LASIK). We are reporting a 49-years-old lady that was presented to the emergency department with acute glaucoma in both eyes soon after LASIK correction. Diagnosis was made on detailed clinical history and examination, slit lamp examination, intraocular pressure measurement and gonioscopy. Laser iridotomy in both eyes succeeded in controlling the attack and normalizing the intraocular pressure (IOP) more than 6 months of follow-up. Prophylactic laser iridotomy is essential for narrow angle patients before LASIK surgery if refractive laser surgery is indicated.

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## 1. Introduction

Primary angle closure glaucoma (PACG) is a vision-threatening type of glaucoma. A high prevalence of PACG has been reported in the Asian region (Kunimatsu, 2007). Angle closure glaucoma soon after LASIK procedure is an unexpected complication.

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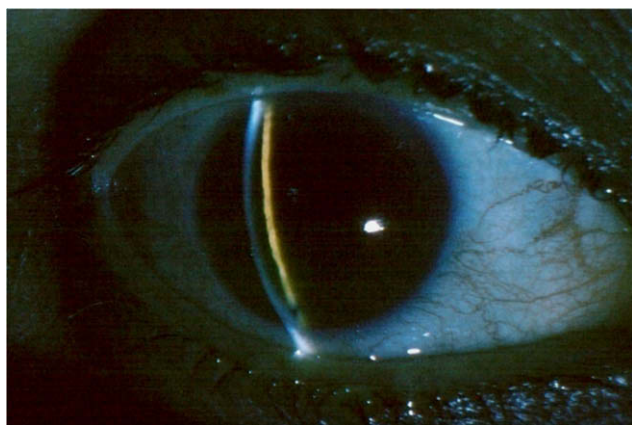
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Paciuc et al. reported a case of unilateral acute angle closure glaucoma 1 year after hyperopic LASIK correction (Paciuc et al., 2000). However, we are reporting a case of bilateral acute glaucoma soon after LASIK correction. LASIK surgery is the most popular form of laser eye surgery, in which an ophthalmic surgeon reshapes the cornea using an excimer laser (Maldonado et al., 2008).

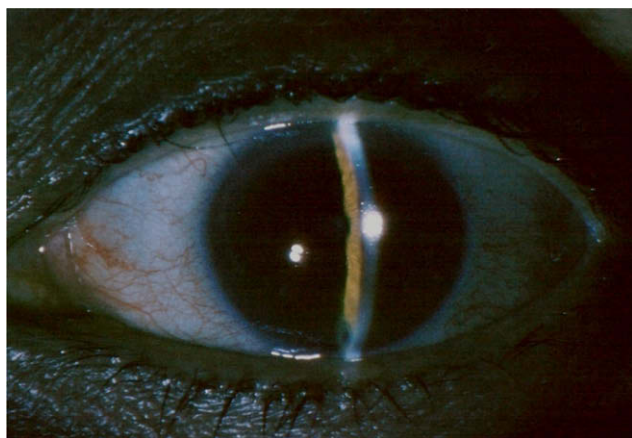
To the best of our knowledge this is the first case to be reported of bilateral acute angle closure glaucoma after LASIK surgery.

## 2. Case report

A 49-years-old female presented to the emergency department with severe pain, redness, photophobia in both eyes with blurred visual acuity after LASIK surgery few hours back, done somewhere else. She had a visual acuity of 20/40 in the right eye and 20/70 in the left eye, intraocular pressure was 40 and 45 mm Hg in the right and left eye, respectively. Slit



**Figure 1** Laser iridotomy OD.



**Figure 2** Laser iridotomy OS.

lamp biomicroscopic examination of eyes revealed, bilateral severe conjunctival injection, corneal epithelial and stromal oedema, extremely shallow anterior chamber. Pupils were semi dilated and poorly reactive to light. Gonioscopy examination showed 360° of appositional angle closure at almost all quadrants in both eyes. Hazy view to the fundus due to corneal edema precluded proper assessment of the optic nerve condition. The Patient gave comprehensive information about refractive state preoperatively, which shows hyperopia of +3.5 D in both eyes, corneal thickness 515 and 529  $\mu\text{m}$  for right and left eye, respectively, normal IOP, and normal corneal topography. The diagnosis of acute angle closure glaucoma was made, oral acetazolamide 500 mg was given, topical timolol 0.5% and prednisolone acetate 1% drops were installed to both eyes every 10 min for three times in addition oral glycerol 50% (1 gm/kg) was also given. IOP came down to levels below 20 mm Hg in both eyes approximately 2 h after stat medications. Pilocarpine 2% drops were applied to both eyes in preparation for laser iridotomy that was performed successfully in both eyes (Figs. 1 and 2). Intraocular pressure was controlled without medication for more than 6 months.

### 3. Discussion

Hyperopic patients are at great risk for angle closure. Acute angle closure glaucoma is common in Saudi Arabia and

Asian population due to the short axial length of the globe especially in hyperopic patient's (Sawada et al., 2007; Yuan et al., 2007; Abu-Amero et al., 2007). Bilateral attack of acute glaucoma after LASIK is a rare entity. We thought that the state of pupillary dilatation during and after the procedure may have caused crowding at the anterior chamber angle and therefore, precipitated the attack of acute angle closure glaucoma. Many postulations were suggested to explain the reason behind pupillary dilatation, these include, the use of local anesthetic drops, suction ring, steroid drops (Newsome et al., 1971), emotional stress and darkness of the room at which the procedure is performed, all were factors known to cause pupil dilation. Glaucoma represents real challenges to physicians performing corneal refractive surgery (Nardi et al., 2005). Patients undergo a transient but significant rise in intraocular pressure during laser-assisted in situ keratomileusis (LASIK) procedures with risk of further optic nerve damage.

Paciuc et al. reported a case of unilateral acute angle closure glaucoma 1 year after hyperopic LASIK correction. The glaucoma was resolved with laser iridotomy, and a prophylactic iridotomy was performed in the fellow eye. We think that the case of angle closure glaucoma after LASIK reported by Paciuc and his coworkers was not related by any mean to the refractive surgery performed, because it occurred 1 year after the procedure, therefore relating the attack of angle closure glaucoma to the refractive procedure was not justified. In contrast, the case we are presenting had the attack in both eyes few hours following LASIK procedure.

Bilateral acute angle closure glaucoma cases were encountered with epilepsy patients taking topiramate as anticonvulsant or for the treatment of migraine (Chalam et al., 2008), The refractive surgeon's awareness of these potential complications and challenges will better prepare them for proper management of glaucoma patients who request corneal refractive surgery.

### 4. Conclusion

Bilateral angle closure glaucoma after LASIK is a rare entity. Proper slit lamp examination including gonioscopy should precede LASIK surgery. Prophylactic laser iridotomy is essential for narrow angle patients before LASIK surgery if refractive laser surgery is indicated.

Photorefractive keratectomy (PRK) and other corneal surface ablation surgeries do not require a microkeratome and do not dramatically raise the patient's IOP and are recommended for glaucoma patients.

### Conflict of interest

No financial or proprietary interest in any aspect of this study.

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