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Sir,
Interesting fundus lesion after LASIK mishap

While widely used in clinical practice, complications from laser *in situ* keratomileusis (LASIK) have been reported since its description by Pallikaris¹ in 1990. Here, we report a case of a young man with an unusual fundus appearance after LASIK-related corneal penetration and lens dislocation.

Case report

The patient, an 18-year-old male received LASIK in the right eye at a local hospital. The cornea was penetrated

and lens dislocated from the eye during the corneal flap creation with the microkeratome, after which the corneal wound was sutured immediately. In this case excimer laser was not applied. At 1 month after LASIK the patient presented to our hospital. The ophthalmologic examination revealed impaired visual acuity (VA) (OD FC/20, OS 6/20) and normal intraocular pressure (OD 11 mmHg, OS 14 mmHg). Ciliary injection and a 'C'-shaped corneal wound was observed in the right eye. The iris partially disappeared and synechia formation occurred with the corneal wound. The pupil was intact but dislocated posterior to the nasal iris. The lens was completely absent (Figure 1a). There was a grey ring with a clear borderline and an area of 4 × 2 PD surrounding the optic disc obliquely. The retina was attached (Figure 1b), however, fundus OCT showed fibrous proliferation under the retina around the optic disc (Figure 1c). The macula was normal. No further measurements were taken except for regular follow-up.

At 7 months post-LASIK VA of the right eye showed improvement (0.4/20) with the best corrected visual acuity (BCVA) of 6/20. The fundus grey ring was still present and reflection of the macula disappeared. Fundus OCT showed an edematous macula (Figure 2a).

At 14 months post-LASIK VA of the right eye, BCVA and the laser interferometer VA were 0.4/20, 12/20 and 16/20, respectively; and macular oedema greatly alleviated. Vitrectomy, iris synechiolysis, and intraocular lens implantation were performed at 1 month after the operation. VA of the right eye was 6/20 and the BCVA was 14/20. The grey ring around the optic disc was almost invisible (Figure 2b).

Discussion

Complications of LASIK surgery in the posterior segment have been reported previously with retinal tear and rhegmatogenous retinal detachment being the most common problems encountered.² However, a grey ring around the optic disc after LASIK-complicating corneal penetration and lens dislocation is extremely rare.

The aetiology of the grey ring is not known. One possibility is that when the cornea was penetrated the excessive negative pressure resulted in a rapid dislocation of the lens. Subsequently, vitreous was displaced anterior and induced a posterior vitreous detachment, which placed traction on the retina around the optic disc. This mechanism is similar to that described by Flaxel,³ Arevalo,⁴ and Mirshahi A.⁵ Alternatively, there may have been compression from the microkeratome on the globe during corneal flap creation. The resultant elongation of the globe and expulsion of the lens can lead to retinal oedema, as well as retinal pigment epithelium and choroidal defects. Therefore, blunt trauma may be one of

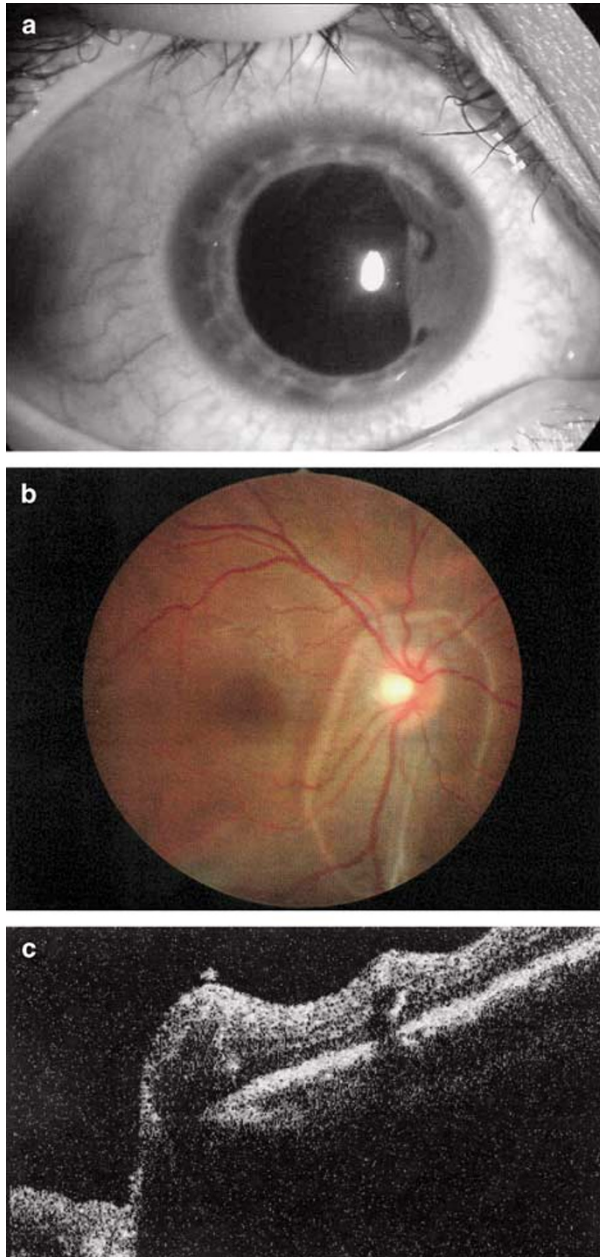


Figure 1 Ocular appearance at 1 month after LASIK, (a) appearance of anterior segment, (b) appearance of fundus showing the grey ring around the optic disc. (c) The OCT showing fibrous proliferation under retina around the optic disc.

the factors resulting in the fundus disorder. A third possibility is that with a fluctuation of intraocular pressure, vasoconstriction and vasodilation of choroidal vessels and permeability of the blood-retinal barrier may have been abnormal. Thereby exudation could be accumulated under the retina. However, we lacked evidence from fluorescein angiographic images in order to observe the blood-retina barrier at this early stage. After the corneal wound was sutured and intraocular pressure returned to normal, exudation was absorbed

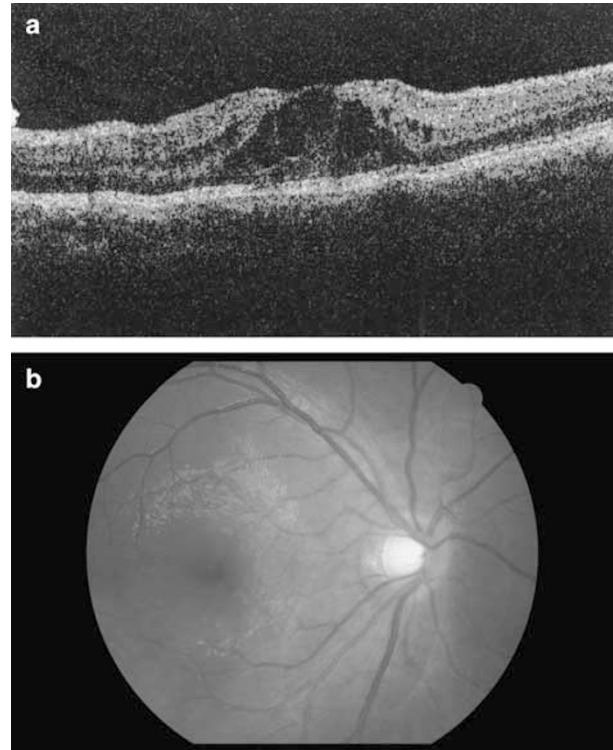


Figure 2 (a) The OCT showing macular edema at 7 months after LASIK. (b) Appearance of fundus at 14 months after LASIK.

and the retina was gradually attached. Finally only a grey ring surrounding the optic disc remained.

An explanation as to why the grey ring occurred around the optic disc is not readily apparent. It is known that the anterior vitreous adheres tightly to the posterior capsule of lens at the Egger line in young people. The Berger cavity is surrounded by the circular Egger line and at the centre of the Berger cavity the anterior vitreous becomes thicker and courses posteriorly to become the anterior part of the Cloquet canal. The Cloquet canal extends posteriorly and terminates at the rim of the optic disc. When the lens was dislocated from the eye, strong traction reached the optic disc via the Cloquet canal, while traction from the macular retina was relatively weak. Accordingly, the grey ring around the optic disc appeared soon after the LASIK surgery but macular oedema occurred later.

In conclusion, we propose that the unusual fundus appearance was related to the tractional direction and ocular anatomy. Fortunately, the severe pathologic changes of fundus alleviated gradually and satisfactory visual acuity after intraocular lens implantation was eventually achieved.

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Sir,
**Recurrent vitreous haemorrhage from sporadic retinal
astrocytic hamartoma**

We read with interest the case reported by Giles *et al.*¹ of sporadic retinal astrocytic hamartoma showing signs of retinal vasculopathy with exudation. We also report a case of an unusual manifestation of sporadic retinal astrocytic hamartoma, presenting with recurrent vitreous haemorrhage.

