Sir,

Pupillary block after silicone oil implantation in a phakic eye

Silicone oil is widely used in vitreoretinal surgery. It is a valuable tool in treating difficult retinal detachments and severe cases of proliferative vitreous retinopathy (PVR).¹ Keratopathy and silicone-oil-mediated pupillary block were common complications in aphakic eyes until Ando introduced the 6 o'clock inferior peripheral iridectomy (IPI).² IPI is standard practice in aphakic eyes receiving silicone oil insertion into the vitreous cavity. In this case we demonstrate a phakic patient with an acute pupillary block glaucoma related to migration of silicone oil into the anterior chamber.

Case report

A 69-year-old man underwent vitrectomy and silicone oil injection (Adato-Sil-Oil 1000, B&L) for tractional retinal detachment with vitreous haemorrhage. An IPI was not performed since the lens was clear and not removed. Post-operatively the anterior chamber was deep and there were no signs of pseudoexfoliation, lental dislocation, zonule defects or silicone oil migration. Six weeks later the patient came to our outpatient clinic with an acute pupillary block glaucoma. The cornea showed oedema; the anterior chamber was flat except where silicone oil was present over the pupil and inferiorly. The intraocular pressure (IOP) was 50 mmHg. The IOP was reduced by dorzolamide 1000 mg and topical timolol 0.5%. Five hours later the IOP was 26 mmHg (Fig. 1) and a YAG laser inferior peripheral iridotomy at 5 o'clock next to the margin of the silicone oil bubble was performed. Following this procedure the anterior chamber depth increased and IOP was normal (18 mmHg) without medication 3 days later. Removal of silicone oil from the anterior chamber was tried by puncture, but was not successful, since the silicone oil immediately migrated from the posterior into the anterior chamber through a defect of the ciliary zonule in

the upper nasal quadrant. The silicone oil touched the corneal endothelium and was removed for this reason together with the lens 3 weeks later.

Discussion

Silicone oil mediated pupillary block is a rare complications in aphakic eyes since Ando introduced the 6 o'clock IPI.² In phakic eyes an IPI is usually not necessary, because the zonule-lens barrier does not allow silicone oil migration from the posterior into the anterior chamber inducing a pupillary block. Zborowski-Gutmann *et al.*³ described in 1987 the only published complication of a pupillary block glaucoma in a phakic eye with silicone oil implantation. In this case silicone oil migration was due to zonulysis.

Zonulysis in the upper part is the only pathological change of the zonule-lens barrier allowing a migration from the posterior into the anterior chamber. Such changes are usually seen after trauma or in cases of weak zonules such as pseudoexfoliation (Pex). Our patient did not have any Pex and he also did not mention any trauma, so the reason for the zonulysis is still unclear.

YAG laser iridotomy at 5 o'clock next to the margin of the silicone oil bubble was sufficient to treat the pupillary block. The silicone oil remained in the anterior chamber touching the corneal endothelium. The removal by puncture was not successful, since the oil immediately migrated into the anterior chamber again. Therefore a lensectomy was performed 3 weeks later and, to avoid another operation, the silicone oil was also removed by pars plana vitrectomy, since the retina seemed to be stable.

Silicone oil migration into the anterior chamber inducing a pupillary block glaucoma is a rare complication in phakic eyes. Inferior YAG laser iridotomy is a suitable way to reduce IOP in such cases, but additional lensectomy is the only method to remove silicone oil from the anterior chamber.

References

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Fig. 1. Silicone oil in the lower part of the anterior chamber before YAG laser inferior peripheral iridotomy (arrows show the margin of the oil bubble).