

LETTER

Intravitreal intrusion of an intrascleral MIRAgel buckling implant

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MIRAgel (Medical Instruments Research Associates, Waltham, MA) is a hydrogel implant introduced as a new scleral buckling material in 1979 [1]; it is no longer used because of late complications in its extrusion and intrusion [2].

We report the case of a severe complication involving the use of this material in which it caused intravitreal intrusion resulting in retinal laceration and detachment 12 years after the implantation.

Case report

A 37-year-old man noticed abrupt visual field loss OD and was referred to the University of Yamanashi Hospital with a possible diagnosis of retinal detachment and an intravitreal foreign body. The corrected visual acuity was hand motion, and intraocular pressure was 4 mmHg OD. Slit-lamp examination revealed inferior subconjunctival masses OD (Fig. 1a, b). Fundus examination showed the end of a white-gray fixed implant in the vitreous cavity emerging from the torn inferior retina without any hemorrhage

(Fig. 2). The retina in the macula was obscured by the implant material. There were no remarkable changes OS. The patient had undergone scleral buckling surgery OD for rhegmatogenous retinal detachment using an intrascleral MIRAgel implant of 7 mm width at another hospital 12 years previously. The retina had been successfully reattached, and the patient had regained good visual acuity postoperatively. The present condition was diagnosed as a rhegmatogenous retinal detachment caused by intrusion of the intrascleral MIRAgel buckle, which eroded the inner scleral wall and perforated the retina and choroid. The swollen MIRAgel buckle also extruded and appeared beneath the conjunctiva.

After removing the extruded MIRAgel buckle pieces from the subconjunctiva and closing the torn sclera with sutures, we started a three-port pars plana vitrectomy to remove the intraocular MIRAgel implant according to the surgical procedure reported by Cekiç et al. [3]. Liquid perfluorocarbon was injected in the vitreous cavity to protect the macular area. Since the MIRAgel material would not fragment easily within the vitreous cavity even with the use of a fragmatome and an MVR blade, we removed the whole body of the material through a large, 14-mm-wide sclerocorneal incision after lensectomy. Subsequently, 12% octafluoropropane (C3F8) gas tamponade and endolaser photocoagulation around the retinal tear were performed, resulting in reattachment of the retina. As the wound in the scleral bed was under a scleral flap the C3F8 gas didn't leak out. Proliferative vitreoretinopathy developed and caused retinal detachment 12 days later; therefore, a second vitreous surgery with silicone oil tamponade was required. Thirteen months after the last surgery, the retina remained attached, and the best-corrected visual acuity OD was 20/300.

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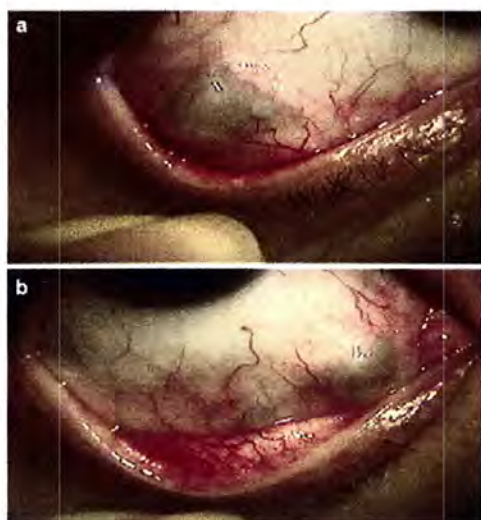


Fig. 1 Preoperative slitlamp photograph. A subconjunctival bulge was observed in **a** an inferotemporal and **b** inferonasal direction O/D

Comment

Water-absorbing MIRAgel tends to expand gradually to cause its characteristic late complications [1]. Compared with the extrusion complications causing pain, discomfort, redness, protrusion of the lid and diplopia [4], the intrusion complications of the MIRAgel buckle in the subretinal space may be a more serious threat to vision [5]. In the present case the intruding MIRAgel buckle appeared in the vitreous cavity from the subretinal space through the torn retina, the repair of which can be quite challenging. Cekiç [3] reports a technique to shave the material ultrasonically using a fragmatome, which did not prove successful in the present case, probably because of the firm nature of the material. Instead, we removed the whole material through a scleral wound.

When MIRAgel is used as an intrascleral buckling material, intrusion complications are more likely to develop because of the thinner scleral wall under the buckle and because of its expansive nature due to the swelling, which tends to expand inwards.

Once buckle swelling is found in eyes that have undergone intrascleral MIRAgel implant, the removal of



Fig. 2 Fundus photograph taken before surgery. A MIRAgel buckle was observed in the vitreous cavity in front of the macular area with the retinal detachment. The MIRAgel penetrated the retina near the retinal scar created by previous cryoretinopexy

the material should be considered when necessary, because surgical repair of the complication is difficult.

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