

## CASE REPORT

## Persistent troublesome floaters necessitating the explantation of XtraFocus Pinhole IOL (Morcher)

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**SUMMARY**

A 41-year-old patient presented with blurred vision and photophobia in the left eye with an uncorrected visual acuity of 20/150, improving to 20/30 with pinhole and diagnostic rigid gas permeable lens trial. He had a history of trauma with subsequent cataract extraction with residual irregular astigmatism and traumatic mydriasis. XtraFocus Pinhole intraocular lens (Morcher) was implanted in the left eye and the vision improved to 20/40. Postoperatively, the patient experienced significant floaters which persisted to the extent of necessitating explantation of implant.

higher order corneal aberrations were 3.3 microns and coma was 0.97 micron.

**TREATMENT**

Under topical and monitored anaesthesia care 2.4 mm temporal clear corneal incision was fashioned. Anterior chamber was filled with ophthalmic viscosurgical device Provisc and the XtraFocus Pinhole IOL was implanted in the ciliary sulcus using Monarch D cartridge and Epsilon injector system. Intracameral Miochol was injected to obtain miosis and ensure proper centration of the IOL.

**OUTCOME AND FOLLOW-UP**

One week postoperatively, the uncorrected visual acuity in the left eye improved to 20/40, intermediate uncorrected visual acuity improved to 20/40 and uncorrected near visual acuity improved to J5. The glare and photophobia resolved completely, nevertheless the patient was excessively bothered by floaters which supposedly increased after the surgery. Indirect retinal examination was done to rule out any posterior vitreous detachment, ultrasonogram B-scan was done to rule out any retinal detachment and optical coherence tomography for any vitreomacular traction. Ultrasound biomicroscopy revealed well-placed IOL in the ciliary sulcus. Slit lamp biomicroscopy revealed well-centred IOL (figure 1). The patient was followed up for 3 months with positive counselling, emphasising about neuroadaptation after small aperture implants. There was no improvement with persistent floaters even 3 months after the surgery. Floaterectomy with vitrectomy was offered to the patient postoperatively since he had a good postoperative visual acuity before making a decision of explantation. The patient did not want any vitreoretinal intervention. The patient preferred to have his IOL explanted despite good visual outcome.

This necessitated the explantation of the implant.

**BACKGROUND**

Traumatic mydriasis may be treated with pupiloplasty<sup>1</sup>/iris prosthetic devices.<sup>2</sup>

Ocular aberrations are directly proportion to the pupil's diameter. Reducing the pupil's diameter minimises the higher order aberrations.<sup>3</sup>

Small aperture intraocular lenses (IOL) are exciting tools which address the refractive error and iris loss simultaneously.<sup>4</sup> XtraFocus Pinhole IOL addresses both irregular astigmatism as well as pupillary defects. We report a rare phenomenon of significant floaters accentuated to the extent of necessitating explantation of XtraFocus Pinhole IOL.

**CASE PRESENTATION**

A 41-year-old patient presented with blurred vision and photophobia in the left eye with an uncorrected visual acuity of 20/150 improving to 20/30 with pinhole and diagnostic rigid gas permeable lens trial. He had a history of trauma with subsequent cataract extraction and traumatic mydriasis. The patient was not diabetic and hypertensive. The patient gave a history of single solitary floater not so significant. Dilated retinal examination revealed small vitreous condensation accounting for the floater and normal peripheries without any active retinal pathology. We did not anticipate and discuss prior to the surgery that it might become so bothersome postoperatively so as to necessitate further surgery/explantation of IOL.

**INVESTIGATIONS**

Ultrasound biomicroscopy revealed adequate anterior chamber depth of 3.4 mm and the pre-existing IOL in the bag. Corneal topography revealed irregular astigmatism of 2.74 dioptres. The total

**DISCUSSION**

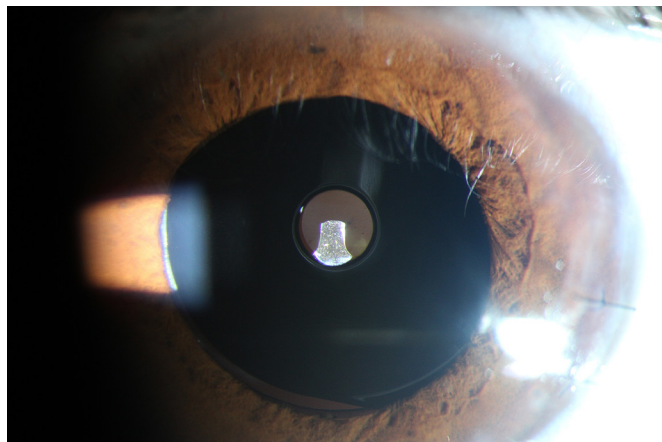
The XtraFocus Pinhole intraocular implant is manufactured by Morcher and received Confor-mité Européenne mark in 2016.

XtraFocus Pinhole IOL addresses both irregular astigmatism as well as pupillary defects.<sup>4</sup> The pinhole device has a black opaque diaphragm with a 1.34 mm central opening without any refractive power. It is implanted in the ciliary sulcus in a piggyback configuration. The haptics are thin and rounded to prevent any injury to the overlying



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**Figure 1** Well-centred XtraFocus Pinhole intraocular lens (IOL) after surgery.

uveal tissue. The haptics are 14° angulated thereby preventing contact with uveal tissue minimising the chances of iris chaffing and pigment dispersion. The overall diameter is 14.0 mm which is larger than most IOLs, thereby preventing decentration. The occlusive optic portion has a concave-convex design which prevents contact with underlying IOL thereby preventing interlenticular opacification.

Floater are defined as symptomatic vitreous opacities lasting for at least 3 months which affect the quality of life severe enough to cause the patient to seek therapeutic options. Acute posterior vitreous detachment settles in 3 months' time whereas vitreous opacities without posterior detachment persist beyond this time frame. Therapeutic options have been reviewed in literature like in the yttrium aluminium garnet (YAG) laser—vitrectomy, small gauge transconjunctival pars plana vitrectomy and deep anterior vitrectomy. The treatment is tailored according to patient-driven complaints and is controversial.<sup>5</sup>

In our case, ultrasound B-scan was done to rule out any posterior vitreous detachment/vitreous haemorrhage/vitritis as a cause of floater.

Indirect examination with limited pupil size identified a small vitreous condensation which existed preoperatively. Floater was present preoperatively without being symptomatic and it got accentuated after the pinhole implant.

The patient did not consider any other option for the floater-like YAG laser vitreolysis. Floaterectomy with vitrectomy was offered to the patient postoperatively since he had a good postoperative visual acuity before making a decision of explanation. He did not want any vitreoretinal intervention. The patient preferred to have his IOL explanted despite good visual outcome.

The patient preferred to get his implant removed despite improvement in visual acuity after surgery because of severe botheration by the floater.

We came to a conclusion that the floater was present preoperatively and it got accentuated due to the pinhole effect of XtraFocus IOL. Accentuation of a previous floater may be due to the increased depth of focus brought about by the pinhole vision. The pinhole accentuates even small-medium opacities and creates a bothersome visual phenomenon. This phenomenon is clearly experienced by patients in bright lighting conditions having even subtle posterior subcapsular cataract who are bothered with their visual quality despite the vision being 20/20 on visual acuity testing.

Furthermore, increase in patient's current complaints of floater may be explained by constriction of visual field by the pinhole effect.

It may be wise to counsel the patients preoperatively about the accentuation of their floaters after XtraFocus Pinhole IOL implantation so as to give them a realistic expectation after surgery.

In conclusion, meticulous fundus examination preoperatively and persistence of floaters should be explained to all the patients who are candidates for small aperture IOLs.

### Learning points

- ▶ This case highlights the importance of meticulous fundus examination preoperatively for any patient undergoing small aperture implants, namely XtraFocus Pinhole intraocular lens (IOL) and IC-8 implantation.
- ▶ It may be wise to counsel the patients preoperatively about the accentuation of their floaters after XtraFocus Pinhole IOL implantation so as to give them a realistic expectation after surgery.

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