

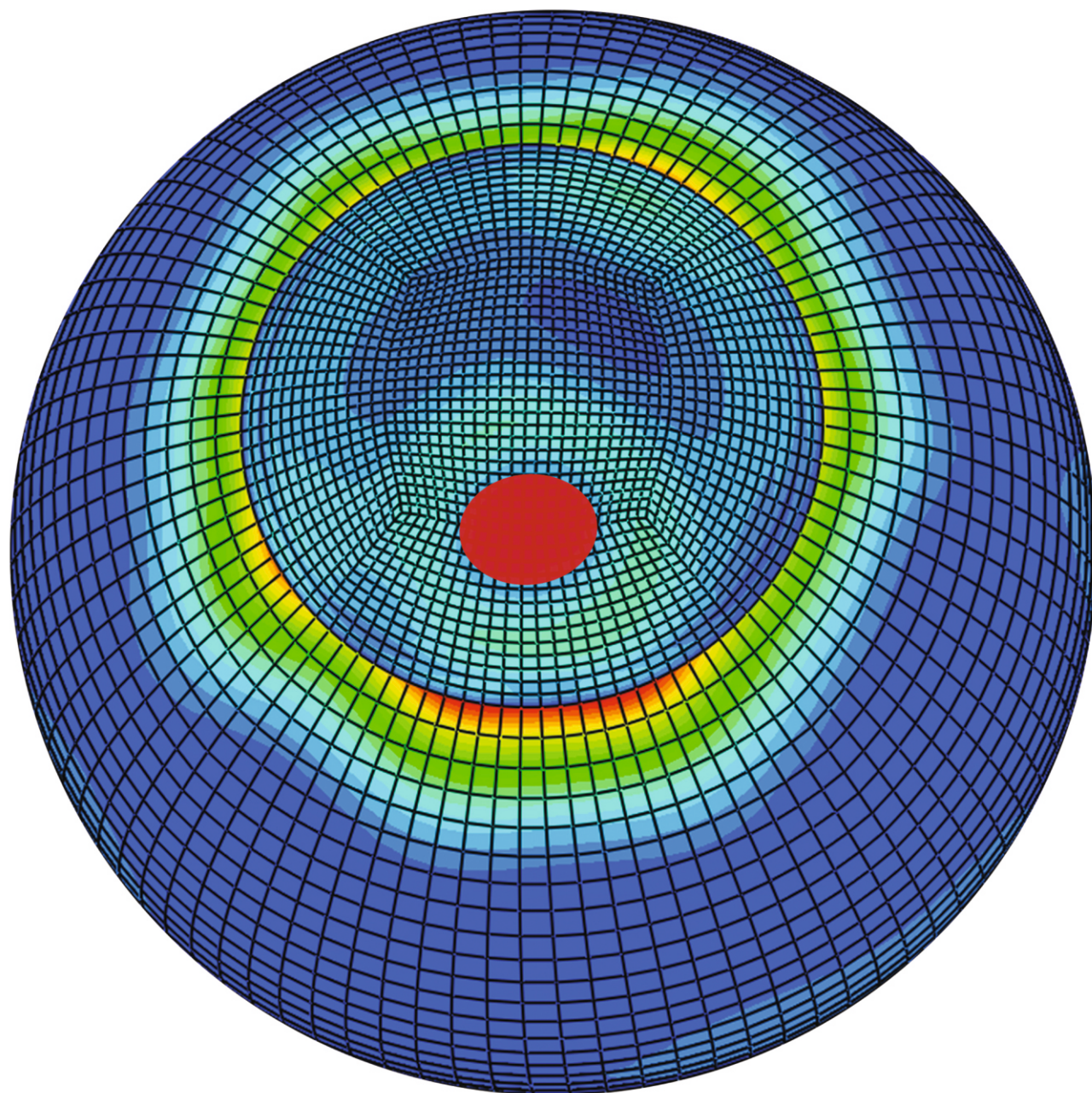
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Case of intraocular foreign body partly lodged in the ethmoid sinus

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Ocular trauma is an important cause of preventable morbidity worldwide, and a major cause of unilateral visual loss in developing countries.^[1,2] Perforating injuries being the most serious, early management can lead to good prognosis. Approximately, one-third is diagnosed with posterior segment intraocular foreign body (IOFB).^[3]

The 25-gauge microincision vitrectomy surgery (25G-MIVS) has been used worldwide for various retinal diseases including rhegmatogenous retinal detachments.^[4-7] For an IOFB case, a 25 gauge sclerotomy usually needs to be enlarged to facilitate its removal.

A unique feature of this case was the removal of an IOFB by retrieving it into extraocular ethmoidal space and removing without a need to enlarge the 25 gauge sclerotomy.

Case Report

A 32-year-old male presented to us with a history of trauma by the iron material to his right eye (RE), causing sudden onset of diminution vision. X-ray showed a radiopaque foreign body (FB) in the right orbit. On examination, visual acuity was limited to hand movements close to the face in RE and 20/20 in the left eye. Anterior segment examination revealed a scleral perforating wound extending from 3 o'clock limbus to 5 o'clock toward inferior medial canthus. A dense vitreous hemorrhage, subhyaloid hemorrhage, IOFB with retinal and choroidal detachment was noted on ultrasound [Fig. 1]. Computed tomography scan revealed a well-defined metallic density linear FB in the right orbital cavity extending to involve medial wall of right bony orbit to ethmoid sinus [Fig. 2]. The location rendered the case unique and necessitated early vitrectomy and FB removal along with primary repair.

Hence, we advised the patient to undergo primary scleral wound repair with vitrectomy and FB removal. During surgery, conjunctival peritomy was done from 3 to 5 o'clock limbus to explore the extent of the scleral perforating wound. The medial rectus muscle was noted to be severed along its length with its

insertion intact. The two halves of the medial rectus muscle were carefully hooked using the muscle hook and a 2-0 silk suture was passed underneath. The metallic FB was seen protruding into the vitreous cavity on one side and involving the medial wall of the bony orbit extending into the ethmoid sinus on the other. After disengaging the FB from the eyeball and pushing it posteriorly further into the ethmoid sinus, it was pulled out along the medial wall of the bony orbit out of the ethmoid sinus [Fig. 3]. The scleral wound was closed using 8-0 vicryl suture. After the wound was closed, 25-gauge infusion cannula and other pars plana cannula were placed. Pars plana lensectomy was performed. Vitrectomy was initiated and vitreous hemorrhage with subhyaloid hemorrhage was cleared. A retinal detachment and choroidal detachment with a subretinal hemorrhage were noted nasal to the optic disc. Heavy perfluorocarbon liquid (PFCL) was injected to stabilize and assess the posterior pole. A 360 degrees laser photocoagulation was performed in multiple rows. On removal of the PFCL, the subretinal hemorrhage trickled toward the macula and we decided to leave the PFCL in the eye postoperatively.

Twenty days later, the patient underwent a second surgery to remove the PFCL. PFCL was removed under air. Drainage retinotomy was made at 11 o'clock, and some residual subretinal fluid was drained. Relaxing retinectomy was done around the perforation site, which was surrounded by multiple rows of laser photocoagulation. A total of 6 cc Silicon oil (5000 cs) was injected to provide internal tamponade. The patient was advised to maintain prone position. The immediate postoperative period was uneventful.

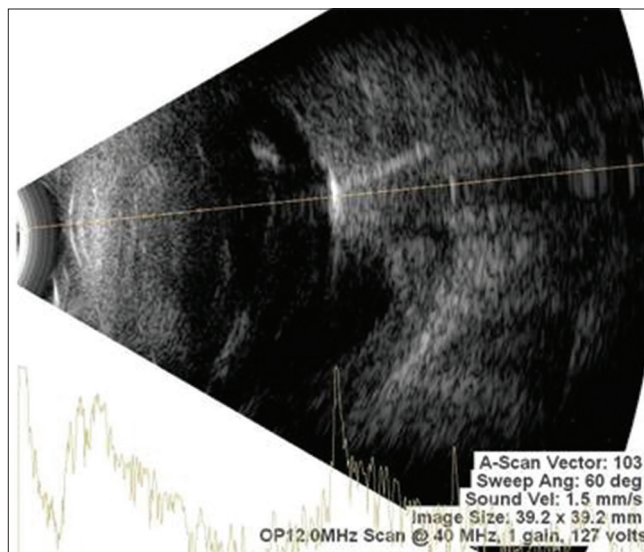


Figure 1: A dense vitreous hemorrhage, subhyaloid hemorrhage, intraocular foreign body with retinal and choroidal detachment seen on ultrasonography

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Figure 2: A well-defined metallic density linear foreign body in right orbital cavity medially with perifocal streak artefacts involving right eyeball and retrobulbar region just caudal to medial rectus muscle extending to involve medial wall of right bony orbit to ethmoid sinus

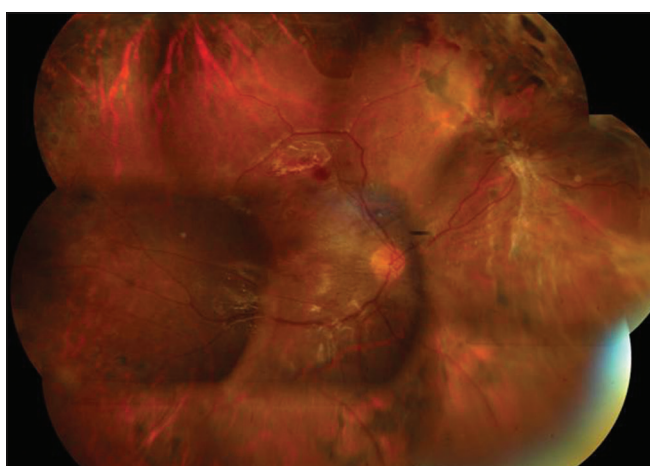


Figure 4: Settled retina at 1-month follow-up

At 1 month follow-up, the patient's retina was well settled [Fig. 4]. The postoperative visual acuity was 6/60. However, disc pallor was noted and thinning was noted at fovea which would explain the limited visual recovery at this stage.

Discussion

In the case presented, IOFB posed a challenge because of its large size, extraocular extension, and the presence of vitreous hemorrhage with retinal detachment. The aim of intervention was to extract the IOFB as early as possible without damaging any retinal tissue, intraocular structures, clearing vitreous hemorrhage, attaching the retina, and prevent endophthalmitis.

While planning, we contemplated different surgical techniques and discussed with the otorhinologist, to find how safe was it to push the IOFB into the ethmoid sinus. The aim of intervention was to remove the IOFB, restore the ocular integrity and obtain a good visual outcome. In this case, removing the FB from sclerotomy route would have led to more trauma in view of the open globe and length of the object. Hence, we choose to remove it from the external route by pushing the medial wall of orbit further into the ethmoid sinus.



Figure 3: Dimensions of intraocular foreign body removed

PFCL is often used in these cases to protect the retina from contact with the IOFB if it falls back during removal.^[8] In this case, however, we retained it postoperatively to reduce the chance of subretinal hemorrhage trickling into the macula and let the inflammation decrease before exchanging it with silicon oil. Hence, the peculiar location and size of the FB required a specific approach and we removed it externally and then retained PFCL postoperatively for a limited period to preserve the anatomical and functional integrity of the eye.

Conclusion

A large IOFB with extraocular extension was removed by an innovative external approach to avoid the need for a large sclerotomy and further iatrogenic ocular trauma.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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