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Case Report

Spontaneous Extrusion of Sub Foveal Perfluorocarbon Liquid: A Case Report

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ABSTRACT

Objective: To report a case of spontaneous extrusion of subfoveal perflurocarbon liquid (PFCL).

Methods: A 60-year-old lady presented with poor visual recovery in the right eye following vitrectomy for retinal detachment with macular hole. Clinical examination revealed her vision in right eye as finger counting 4 meter, pseudophakia, and silicone oil filled globe with attached retina with subfoveal PFCL. The patient underwent fundus photograph and OCT macula for the right eye. The patient was advised to undergo silicone oil and subfoveal PFCL removal under peribulbar block. Intraoperatively spontaneous extrusion of PFCL was noted. Postoperative funds photo and OCT at 1 month were documented.

Results: Postoperatively the vision in right eye improved to 6/24 with OCT showing atrophy of the retinal layers at the macula with fundus photograph showing pigmentation at the superotemporal arcade signifying the probable point of exit of the PFCL globule due to pressure fluctuation during peribulbar block and silicone oil removal.

Conclusion: Spontaneous extrusion of PFCL globule is possible, care should be taken to avoid the intraocular pressure fluctuation during peribulbar block and silicon oil removal.

Keywords: Perfluorcarbon liquid; Glaucoma patients; Retina

INTRODUCTION

Perfluorocarbon liquids (PFCL) are a useful adjunct in the armamentarium of modern day vitreoretinal surgeon. PFCL is used in membrane peeling in cases associated with proliferative vitreoretinopathy, nucleus drop removal, intraocular lens drop removal, intravitreal foreign body removal etc. The use of PFCL is associated with certain unique clinical scenarios like fish egging, retention of PFCL in the intraocular cavity (migration into anterior chamber in aphakics, into sub retinal space. The PFCL globule warrants removal if it is in sub foveal in location, which is performed by various techniques like direct aspiration (39G, 40G needle, 50G micropipette), through therapeutic macular hole creation by inducing a retinal detachment from the arcade so that the PFCL globule gets displaced inferiorly on account of its high specific gravity [1-5]. The PFCL globule is known to migrate within the sub retinal space. The purpose of this case report is to highlight spontaneous extrusion of sub foveal PFCL globule.

CASE PRESENTATION

A 60-year-old lady presented to us with complaints of poor visual recovery in right eye post-surgery. She gave history of undergoing vitrectomy, endolaser. Internal limiting membrane peeling (performed under PFCL) with silicone oil injection for total retinal detachment and coexisting macular hole performed in right eye 15 days back. The patient had previous history of cataract surgery with intraocular lens implantation in both eyes. On examination vision OD: FC 4 Metre, OS: 6/9, intraocular pressure OU 18 mmHg. The anterior segment examination revealed OU pseudophakia. On fundus examination OD revealed clear media with attached retina; silicone oil filled globe; presence of subfoveal PFCL; endolaser marks seen in the periphery; the cup disc ratio was 0.3; and normal blood vessels. The left eye was suggestive of normal fundus. The patient was advised for fundus photograph and optical coherence tomography examination (OCT, Stratus OCT TM, ZEISS) so as to document the nature of the retina overlying the PFCL globule. The fundus photograph revealed silicone oil filled

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globe, attached retina with subfoveal PFCL globule (Figure 1). The OCT line scan taken at 180 degree revealed hyporeflective area in the sub sensory space, steep angle between the sensory retina and the retinal pigment epithelium with thinned out retina overlying the PFCL globule (Figure 2). Since the toxic effects of PFCL are known at this location, the patient was advised to undergo urgent removal of PFCL with silicone oil removal followed by resilicone oil injection or C3F8 tamponade. The planned surgery was performed after 2 weeks. The patient underwent routine indirect ophthalmoscopy examination on the day of surgery. The examination revealed the presence of the PFCL globule with other findings being the same. Silicone oil removal was performed under peribulbar block by three port techniques with automated extrusion using Constellation vision systems through 23 gauge valved cannula (Alcon laboratories). Intraoperatively after silicone oil removal it was noted that the PFCL globule was no longer in its subfoveal location it was found to lie on optic nerve head and was aspirated with cutter suction. The retina was examined which revealed no breaks or macular hole with attached retina, the retina was kept on air tamponade after silicone oil removal. The patient was advised to use routine postoperative treatment of antibiotic steroid drops for 4 weeks. The first week follow-up patients vision was OD HMCF, the anterior segment revealed grade 1 cells with flare, there was air in the vitreous cavity with attached retina. On second week follow-up in addition to the routine examination fundus photograph and OCT documentation was performed. The patient's vision was OD 6/36, IOP OD 17 mmHg, right eye pseudophakia and on fundus examination it revealed an attached retina with dull foveal reflex with pigment mottling within the superotemporal arcade (Figure 3). The OCT line scan at 180 degree revealed foveal thinning with atrophy of retinal layers (Figure 4). On one month follow-up the patients visual acuity was 6/24 the intraocular pressure was normal and the retina was noted to be attached with pigment mottling at the super temporal arcade.

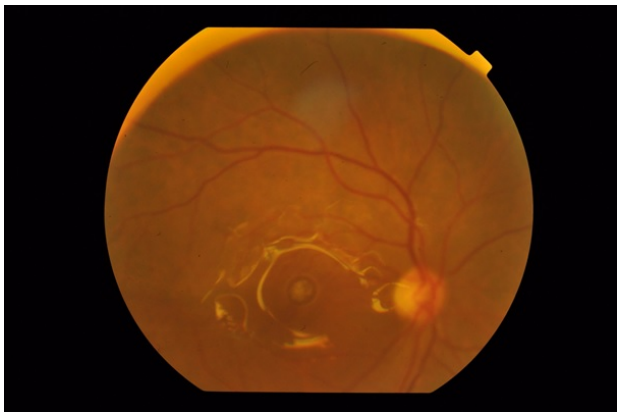

Figure 1: Fundus photograph of right eye showing silicone oil filled eye with attached retina and subfoveal perflurocarbon liquid.

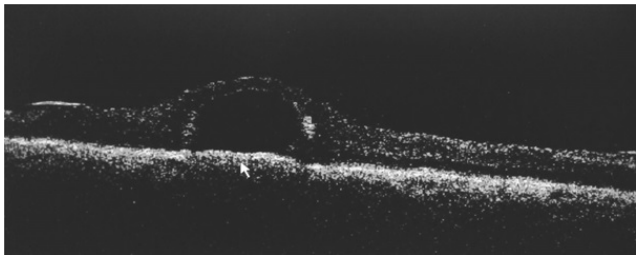

Figure 2: Optical coherence tomography scan through macula showing subfoveal perflurocarbon liquid bubble with steep angle between the sensory retina and retinal pigment epithelium.

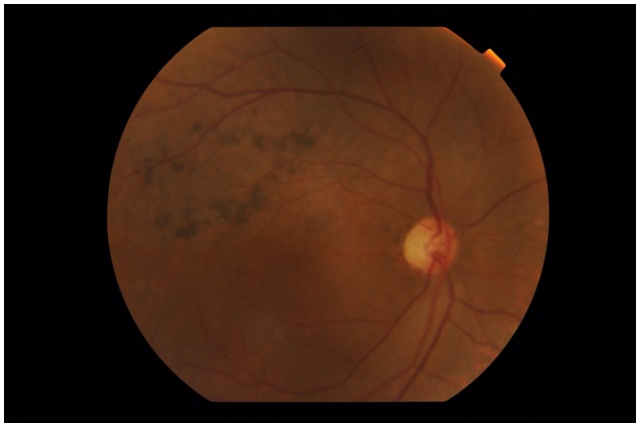

Figure 3: Fundus photograph of right eye post silicone oil removal showing attached retina with pigmentation along the superior arcade.

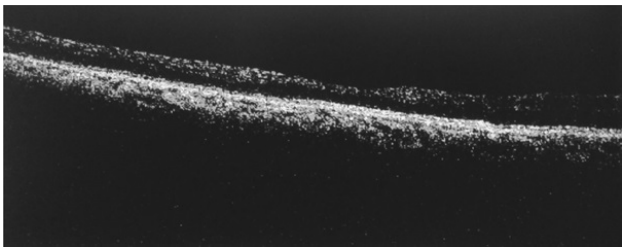

Figure 4: Optical coherence tomography scan through macula showing attached retina with atrophy of the retinal layers.

DISCUSSION

Subretinal PFCL is rare occurrence with incidence in the range of 0.9 to 11.1% [6,7]. The subretinal PFCL retention is known to occur in cases associated with extensive retinectomies [6].The retention of the PFCL in the subfoveal space becomes a cause of concern as PFCL is known to damage the outer segment of photoreceptors (in animal models) along with macrophage predominated inflammation in the area of retention [8,9]. In such situation the PFCL is known to be found in intracellular vacuoles [9]. The subfoveal PFCL induces a scotoma which has been documented on microperimetry by an earlier study with subsequent improvement in the visual field post removal [10]. The toxic effect is associated with location, duration of contact and size of the PFCL bubble [11].

In our case we feel the PFCL made its way through the foveal retinal tissue (as internal limiting memebane was peeled in that area) over a period of time and the defect was healed in due

course. In our understanding the pressure fluctuation at the time of peribulbar block and silicone oil removal can be the possible causative factors for development of small retinal defect which led to change of location of the PFCL globule at the time of surgery. The pigment mottling at the arcade seen in the post oil removal fundus photo can be clue to the possible migration of the PFCL globule. Further the thinned out retina with RPE atrophy evident on OCT highlights the toxic effect of the PFCL [12].

CONCLUSION

This case highlights the course of possible migration and spontaneous extrusion of subfoveal PFCL globule which to our knowledge is second such case reported. However the earlier report postulated that the PFCL globule was dispersed and was not detected which was not a case with our report. This case highlights the importance of minimising intraocular pressure fluctuation while peribulbar block and silicone oil removal. The intraocular pressure fluctuations can be minimised but cannot be entirely avoided using valved cannula at the time of silicone oil removal.

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