



Sub-foveal PFCL: Don't Delay the Removal

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Abstract

We report a case of a 54-year-old male who developed sub-foveal PFCL after vitrectomy for traumatic retinal detachment.

Postoperative OCT showed a sub-foveal PFCL bubble. The patient refused early surgical removal. After three weeks, he developed a full-thickness macular hole, and the PFCL bubble displaced spontaneously into the vitreous cavity.

Retained sub-foveal PFCL can induce toxic retinal changes and result in irreversible foveal damage. Early recognition and prompt removal are crucial to prevent secondary complications such as macular hole.

Keywords: Perfluorocarbon Liquid (PFCL);

Introduction

Perfluorocarbon liquid (PFCL) is an indispensable surgical adjunct in vitreoretinal procedures, particularly in cases of giant retinal tears and complex retinal detachments. Although generally safe, retained PFCL can be associated with complications, particularly when trapped sub-foveally. Sub-foveal PFCL is known to cause photoreceptor toxicity, outer retinal thinning, and permanent central visual loss. The development of a full-thickness macular hole secondary to sub-foveal PFCL retention is rarely reported. We present such a case and emphasize the importance of early PFCL removal.

Case Report

A 54-year-old male presented with sudden diminution of vision in his left eye following a road traffic accident. Ocular examination revealed a dislocated cataractous lens and a macula-off total retinal

detachment with a giant retinal tear. The patient underwent pars plana vitrectomy with PFCL assistance.

On postoperative day 1, optical coherence tomography (OCT) demonstrated a sub-foveal PFCL bubble (Figure 1A, 1B). The patient declined a second surgical procedure for removal. After three weeks, he re-presented with worsening vision. Fundus evaluation and OCT revealed a full-thickness macular hole with spontaneous displacement of the PFCL bubble into the vitreous cavity (Figure 1C, 1D).

Discussion

PFCL is widely used for retinal stabilization during vitreoretinal surgery. However, retained PFCL, particularly in the sub-foveal location, can cause significant toxicity due to its direct contact with

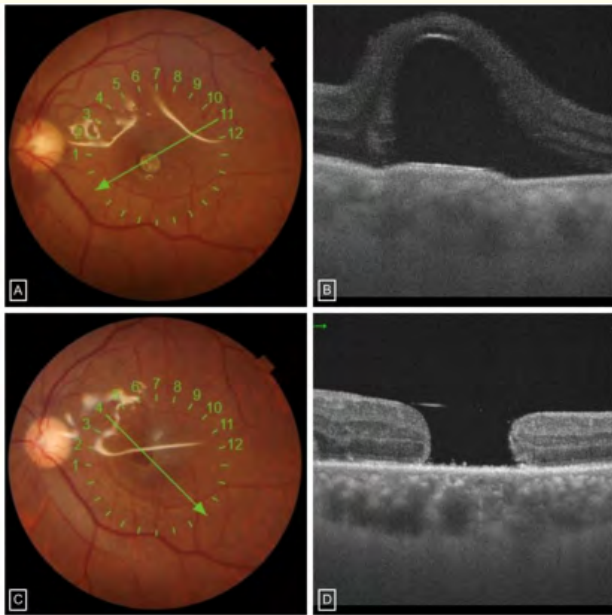


Figure 1: A,B -Fundus photo and OCT on post operative day1, showing subretinal PFCL at fovea. C,D – shows fundus photo and OCT at 3 weeks showing spontaneous displacement of PFCL in vitreous cavity after formation of a full thickness macular hole.

the retinal pigment epithelium and photoreceptors. Animal and clinical studies have demonstrated dose- and duration-dependent photoreceptor damage [1-4].

In the present case, sub-foveal PFCL retention led to progressive retinal degeneration and subsequent macular hole formation. The OCT findings of a full-thickness macular hole three weeks after initial detection of sub-foveal PFCL highlight the toxic effects of delayed removal. While spontaneous displacement of PFCL from the subretinal to the vitreous cavity has been reported, this is often accompanied by irreversible foveal damage.

Several techniques, including juxtafoveal retinotomy and direct PFCL aspiration using a fine cannula, have been described for sub-foveal PFCL removal. Early intervention is critical to minimizing photoreceptor loss and preventing complications such as macular hole formation.

Conclusion

This case underscores the vision-threatening potential of retained sub-foveal PFCL. Early recognition and timely surgical

removal are essential to prevent secondary foveal damage, including macular hole formation. Surgeons should maintain a high index of suspicion and act promptly when sub-foveal PFCL is identified.

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Nil.

Conflict of Interest

No conflicts of interest.

Declaration of Patient Consent

The author certify that they have obtained all appropriate patient consent forms. In the form the patient has/have given his/her consent for his/her image and other clinical information to be reported in the journal. The patient understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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