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Anterior Chamber Silicone Oil Migration After Retinal Detachment Surgery: A Case Report

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ABSTRACT

Silicone oil is a widely used internal tamponade agent in the management of complex retinal detachments. Although its use is generally temporary, certain clinical situations necessitate prolonged retention. We report a case of anterior chamber silicone oil migration occurring several years after retinal detachment surgery, illustrating the potential long-term complications of this material.

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KEYWORDS:

Silicone oil, Retinal detachment, Anterior segment complication, Vitreoretinal surgery, Internal tamponade.

INTRODUCTION

Since its introduction by Cibis in 1962, silicone oil has become an essential component of surgical management for complex retinal detachments [1]. It serves as an internal tamponade to facilitate effective retinopexy using laser photocoagulation. However, its long-term tolerance remains controversial. Complications such as anterior migration, keratopathy, ocular hypertension, and cataract formation have been reported [2–4]. We present a case of anterior chamber silicone oil migration several years following retinal detachment repair.

CASE REPORT

A 43-year-old male patient underwent retinal detachment surgery in 1995 following a road traffic accident affecting the right eye. He presented to our department with redness, ocular pain, tearing, and purulent discharge in the same eye.

Clinical examination revealed: positive light perception (PL+), intraocular pressure of 18 mmHg (air tonometer), a red eye with a perilimbal injection, conjunctival hyperemia, and crystalline deposits in the anterior chamber. Fluorescein staining was negative. Ocular ultrasonography showed a filled vitreous cavity without posterior abnormalities. The fellow eye was unremarkable.

A bacterial conjunctivitis was diagnosed and treated with topical antibiotics and anti-inflammatory drops, with a favorable outcome. The patient refused surgical extraction of the silicone oil, stating he was satisfied with vision in the fellow eye.

Figure 1. Slit-lamp image showing silicone oil microbubbles in the anterior chamber.

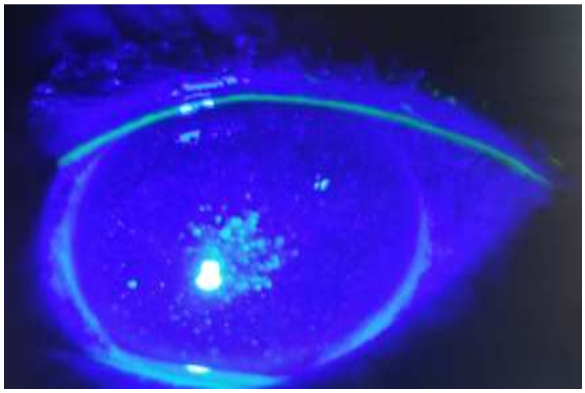

Figure 2. Fluorescein test of the right eye.

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Figure 3. Fundus image of the left eye.

Figure 4. Ocular ultrasound of the left eye.

Figure 5. Additional ultrasound section showing silicone oil presence.

DISCUSSION

Silicone oil remains a valuable therapeutic tool in the management of complex retinal detachments, including cases with giant retinal tears, proliferative vitreoretinopathy (PVR), and severe trauma [5]. Ideally, the silicone oil should be removed within 3 to 6 months to minimize anterior segment complications [6].

The most frequent complications of prolonged silicone oil retention include elevated intraocular pressure due to trabecular obstruction, bullous keratopathy, accelerated cataract formation, and anterior migration of silicone oil [7,8]. Migration into the anterior chamber usually occurs following disruption of the iridocapsular barrier or previous capsular rupture.

Removal of silicone oil is recommended once the retina is stabilized. However, permanent tamponade may be justified in certain cases, especially in monocular patients, recurrent PVR, or extremely fragile retinas [9]. In these situations, close long-term follow-up is essential, including intraocular pressure monitoring, corneal clarity assessment, and ultrasonographic evaluation.

Recent studies confirm that prolonged silicone oil retention is associated with anterior segment complications. Kumaran et al. (2023) reported an anterior migration rate of 5.2% after five years [10]. Yu et al. (2022) demonstrated the influence of silicone oil viscosity and capsular status on migration occurrence [11]. Ramezani et al. (2024) emphasized the need for regular corneal monitoring and echographic follow-up [12].

CONCLUSION

In specific clinical situations, long-term retention of silicone oil may be necessary to prevent recurrent retinal detachment, particularly in monocular patients. However, this therapeutic decision should remain exceptional and must be accompanied by regular ophthalmic follow-up to detect anterior segment complications early. Whenever feasible, silicone oil removal after retinal stabilization remains the recommended practice.

Author Contributions

Dr. BOUI Hatim: conception, data analysis, manuscript drafting.
Dr. FILALI Zineb: data collection, critical revision.
Dr. Hanine Mohamed Amine: data collection, critical revision.
All authors approved the final version of the manuscript.

Conflict of Interest Statement

The authors declare no conflict of interest related to this study.

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