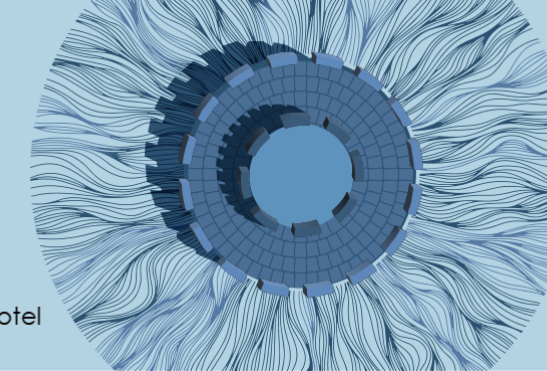


AS-OCT ASSISTED DIAGNOSIS AND FOLLOW UP OF A SUCCESSFULLY MANAGED POST CATARACT DESCEMENT MEMBRANE DETACHMENT

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INTRODUCTION

Descemet membrane detachment (DMD) is an uncommon complication of phacoemulsification surgery. This is a potentially sight-threatening adverse event of cataract surgery, with recorded incidences of 2.6% following extracapsular cataract extraction and 0.5% after phacoemulsification.[1] Aside from the possibility that intraoperative factors can increase the risk, DMD can occur due to patient-related risk factors as the age, pre-existing corneal dystrophies and diabetes.[2] DMD is the separation of the Descemet's membrane (DM) from the posterior stroma which causes accumulation of fluid in the pre-Descemet's space leading to stromal and epithelial edema which causes a decrease in vision.

It has been first described by Weve in 1927 and has been classified as planar and non-planar. [1,3]

CASE PRESENTATION

An 87-year-old female patient underwent phacoemulsification and IOL implantation in her left eye. Pre-operative examination revealed dense cataract and pseudoexfoliation syndrome in her left eye. She was under topical treatment for glaucoma in both eyes. The surgery was otherwise uneventful. Three weeks postoperatively there was significant corneal edema due to DM detachment that was barely visible during slit lamp examination. Anterior segment-optical coherence tomography (AS-OCT) revealed severe peripheral and central DM detachment (Figure 1). The central corneal thickness (CCT) was more than 780 μ m.

MANAGEMENT

The patient was managed surgically with injection of air in the anterior chamber and two venting incisions at the peripheral cornea. At the end of surgery 40% of AC was left with air and the patient was instructed to maintain a supine position postoperatively. AC-OCT directly after the operation confirmed complete reattachment of the DM and CCT was approximately 700 μ m (Figure 2). The first postoperative day the cornea was clear with complete reattachment of the DM with a mild peripheral fold on slit lamp examination. CCT on AS-OCT was approximately 530 μ m (Figure 3). One week postoperatively CCT was 530 μ m and 1 month postoperatively it was reduced to 508 μ m (Figure 4).

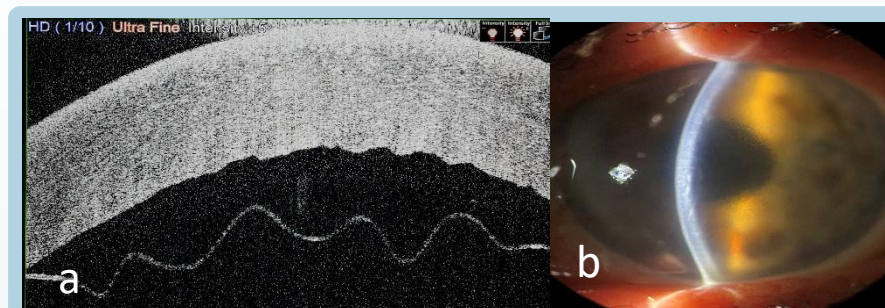


Figure 1. (a) AS-OCT scan and (b) slit-lamp photo preoperatively.

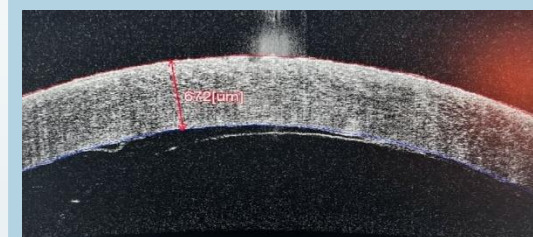


Figure 2. AS-OCT scan immediately after surgical management. The DM is attached, a small fold is visible. The air bubble is also visible in the AC.



Figure 3. (a) AS-OCT scan and (b) slit lamp photo one day after surgical management. The venting incision is visible in AS-OCT.

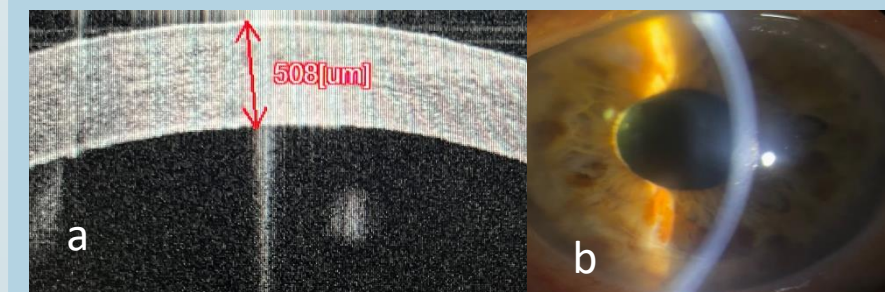


Figure 4. (a) AS-OCT scan and (b) slit-lamp photo one month after surgical management.

DISCUSSION

Early and effective management of DMD is essential to restore corneal clarity and prevent long-term visual impairment. Since there is no one best way to treat DMD, many management tactics have been used, including observation or surgical intervention such as manual unscrolling, suturing, or gas tamponade (using air, sulphur hexafluoride SF₆, or octafluoropropane C₃F₈). Planar and nonplanar DMD (1mm separation from posterior stroma) were identified by Mackool and Holtz in 1977. They reported that nonplanar DMD seldom reattached naturally and hence required surgical correction. We decided that in this case air injection coupled with the creation of two venting incisions at the peripheral cornea would be a suitable approach for the managing of post-phacoemulsification DMD. This method leverages the force of air to reattach the DM, while the venting incisions facilitate the drainage of any residual fluid trapped between the corneal layers, promoting adherence of the membrane to the stroma.[4,2] AS-OCT played a crucial role in the follow-up of post-phacoemulsification DMD management as provided high resolution images that confirmed the reattachment of DM directly after the operation and tracked the rapid resolution of corneal edema by measuring corneal thickness.

CONCLUSION

In this case, the patient demonstrated significant improvement following the combined surgical technique. The reattachment of the DM was confirmed by slit-lamp examination and AS-OCT. The patients' corneal edema resolved within hours and the DM remained attached, confirming the efficacy of the intervention.

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