

A Peculiar Case of Recurrent Late Descemet's Membrane Detachment Following an Uncomplicated Cataract Surgery

Vipul Bhandari*

Department of Cornea, Nethradhama Super Speciality Eye Hospital, Kanakapura Road, Jayanagar 7th block, Bengaluru, India

***Corresponding Author:** Vipul Bhandari, Department of Cornea, Nethradhama Super Speciality Eye Hospital, Kanakapura Road, Jayanagar 7th block, Bengaluru, India.

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Abstract

Descemet's Membrane Detachment (DMD) can be a serious complication following cataract surgery, leading to severe corneal edema and reduced visual acuity. Management usually is intracameral injection of air, gases like C3F8 or SF6 and viscoelastics. We report the case of a 79-year-old female who developed Descemet's Membrane Detachment (DMD) in the Left eye, 2 weeks after a uneventful temporal clear corneal phacoemulsification, with posterior chamber lens implantation (PCIOL). The patient presented with blurring of vision in the same eye. The DMD was treated with pneumatic descemetopexy and transcorneal suturing. However, the attempted reattachment was only temporarily successful. This case report highlights that after an uneventful cataract surgery, delayed corneal edema can be related to late-onset DMD, which requires proper treatment to avoid permanent corneal decompensation.

Keywords: *Descemet's Membrane Detachment; Cataract Surgery; Corneal Stroma*

Abbreviations

DM: Descemet's membrane, DMD: Descemet's membrane detachment; C3F8: Octafluoropropane gas; OCT: Optical Coherence Tomography

Introduction

The Descemet's membrane (DM) is an acellular, collagenous basement membrane that separates between the corneal stroma and endothelium. Descemet's Membrane Detachment (DMD) can occur during anterior segment ocular surgery with instrumentation [1] or following inadvertent injection of fluid just posterior to the corneal stroma [2,3]. DMD is classified into rhegmatogenous, tractional, bullous and complex [4]. The DMD can be a serious complication following cataract surgery, leading to severe corneal edema and reduced visual acuity. Management usually is intracameral injection of air, gas like C3F8, SF6 or viscoelastics [3].

In this case report, we highlight a peculiar case of late spontaneous DMD, which could not be reattached despite several conventional management techniques.

Case History

A 79-year-old female presented with Grade 2 Nuclear cataract with visual acuity of 0.4 logMAR, N6 in the left eye. Pre-operative specular microscopy performed revealed she had low Endothelial Cell density of 1329 cells/mm² in the Left eye. She had best corrected visual acuity (BCVA) of 1.6 logMAR in the right eye and, examination of that eye revealed pseudophakic bullous keratopathy (PBK). Medical history, family history and psychosocial history were not significant.

She had underwent phacoemulsification surgery with (Intraocular Lens) IOL implantation in the Right Eye, 5 years back and had a history of DMD in that eye 3 weeks post-operatively. At that time, she underwent C3F8 injection in the Right eye with successful reattach-

ment. 2 years later she presented with Right eye decompensated Cornea (Pseudophakic Bullous Keratopathy). She refused to undergo any further surgical intervention for the Right Eye.

She underwent temporal clear corneal phacoemulsification with IOL implantation in the left eye. Given the predisposition in the fellow eye, precautions such use of diamond blade to make main incision (temporally) and side port (superotemporally) and careful manipulation of the incisions was done to avoid intraoperative Descemet’s detachment. Hydroxypropyl methylcellulose 2% (Aurocoat) was used intra-operatively. At the end of surgery, hydration of the main incision and side ports was done. On Day 1 postoperative follow-up, Cornea was clear and unaided visual acuity was in Left eye was 0.3 logMAR, N6. On Day 7 post-operative follow-up, cornea was clear, BCVA was 0.2 logMAR, N6. One month postoperatively, she presented with sudden onset of painless diminution of vision in the Left eye, with BCVA of 1 logMAR, N36. A large central DMD was noticed on slit –lamp biomicroscopy, which was later confirmed on Anterior Segment OCT the RTVue (Optovue. Inc, Fremont, CA, USA) (Figure 1). DMD in this case was both tractional and bullous in grade. The same day, 100% air was injected as a single bubble using a 26-gauge needle introduced through superotemporal peripheral cornea and 3 transcorneal Descemet membrane sutures were placed and the membrane was re-attached. Corneal edema cleared dramatically with improvement of unaided visual acuity to 0.8 logMAR, N24. Four days after air injection, as the air bubble was absorbed, a recurrence of DMD centrally and paracentrally was noticed in the Left eye with a concurrent visual acuity of 1.6 logMAR (Figure 2,3).

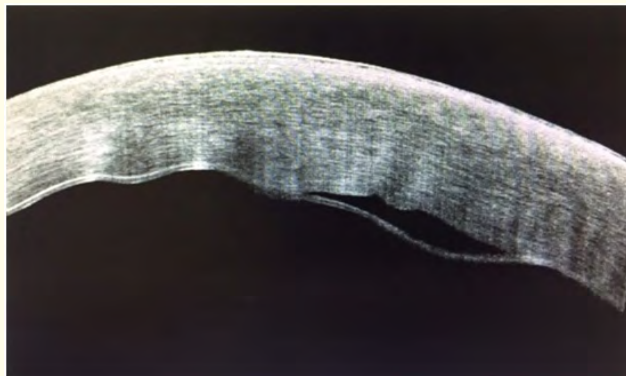


Figure 1: Anterior segment OCT done on day 30 after cataract surgery showing DMD.

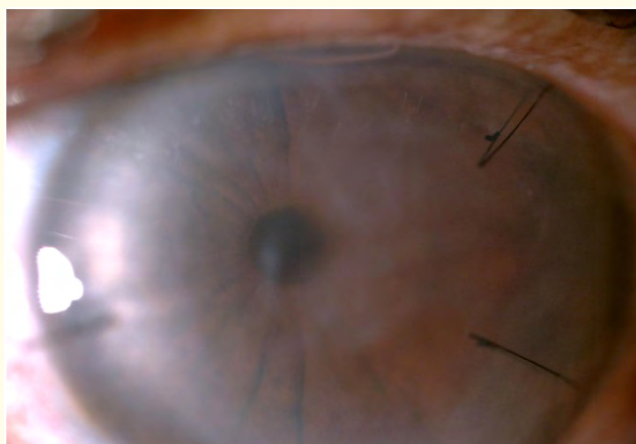


Figure 2: Left eye after intracameral air injection and transcorneal sutures were placed.

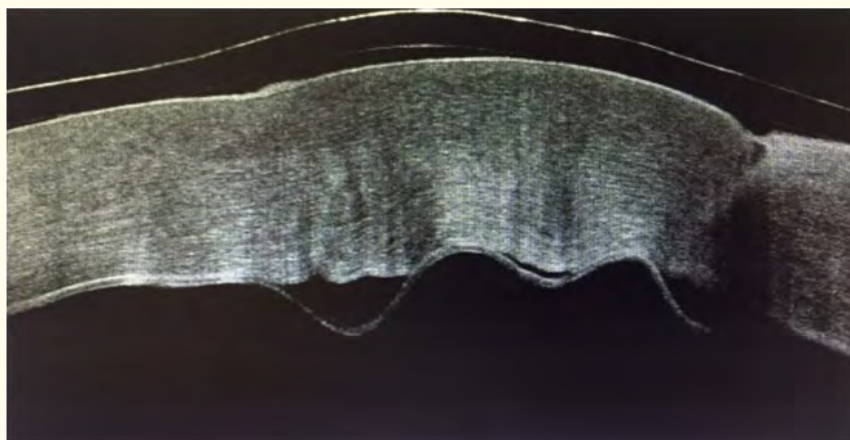


Figure 3: Anterior segment OCT showing recurrent DMD 4 days after intracameral air injection and transcorneal sutures.

The patient was immediately taken up for injection of intracameral C3f8 and placement of 3 more transcorneal sutures. Once again, the Left eye cornea cleared and visual acuity of 1 logMAR, N36 BLUR was achieved (Figure 4). However, two days later, it was noticed that while at the sutured areas the DM remained attached, shallow central detachment persisted.

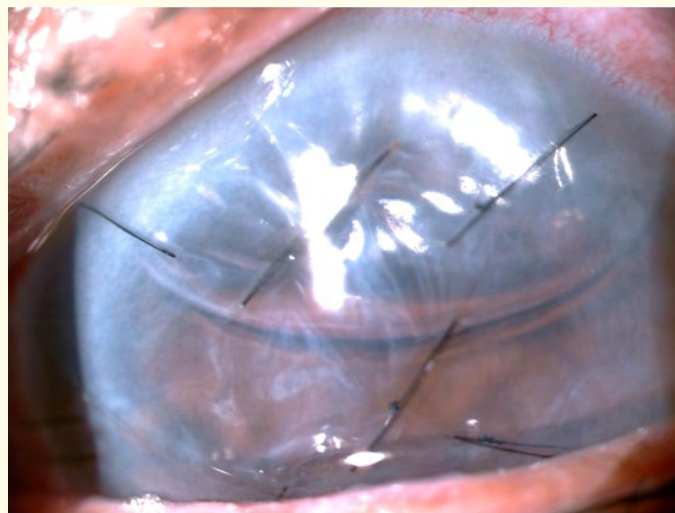


Figure 4: Left eye after intracameral air injection and transcorneal sutures were placed for the second time.

Discussion

DMD can be a cause of corneal oedema and should be considered as a differential diagnosis in cases of corneal oedema following cataract surgery, especially if the procedure has been uneventful. Careful examination is prudent, as the signs of DMD can be subtle especially if masked by extensive corneal oedema. Some reports have suggested that DMD is related to an anatomic predisposition, such as endothelial abnormalities or surgical procedures, including instrument trauma [5-7]. There are a few reports of patients developing delayed DMD after phacoemulsification [8-10]. Although spontaneous resolution of DMD have been reported [10,11] the intracameral injection of air, C3F8, SF6 and corneal suturing have shown to be successful at preventing fibrosis and resulted in the restoration of excellent visual acuity [3]. In this case, despite rigorous management, there was recurrent detachment of the DM which may be attributed to low endothelial cell density and compromised endothelial function.

Conclusion

It should be emphasized that delayed corneal edema can be related to late-onset DMD, which requires proper treatment to avoid permanent corneal decompensation.

This is a unique case with late spontaneous DMD after one month of uncomplicated cataract surgery in both eyes. Though, we aggressively tried to re-attach the detached DM but results were not satisfactory. Patient is waiting for a corneal transplant surgery.

Declarations

Ethics and Consent to Publish: Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal. The Institutional Ethics Committee approval has been obtained for publishing this case report.

Competing Interests: The authors declare that they have no competing interests.

Author's Contribution: Dr. Vipul Bhandari has contributed to the conception and design, and acquisition of data, drafting the manuscript and revising it critically.

Dr. Kritika Chopra has contributed to the conception and design, and acquisition of data, drafting the manuscript and in other technical support. Dr. Sri Ganesh has contributed by giving the final approval of the version to be published.

Availability of Data and Materials: The datasets supporting the conclusions of this article are included within the article and its additional files in the form of post-operative photographs and Anterior segment OCT pictures.

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