

## MANAGEMENT OF FIBROSED DESCMET'S MEMBRANE DETACHMENT AFTER CATARACT SURGERY

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### ABSTRACT

**Purpose:** To report a case of fibrosed and detached Descemet's membrane (DM) after cataract surgery managed with Descemet's stripping endothelial keratoplasty (DSEK).

**Surgery:** The fibrosed and detached DM layer was stripped from the cornea and donor DSEK graft was placed.

**Results:** A 6 months follow-up showed a good visual recovery with clear cornea and an attached donor graft to the host cornea.

**Conclusion:** DSEK is an effective option for managing a fibrosed and detached DM which fail to attach spontaneously or after decemetopexy.

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### INTRODUCTION

Descemet's membrane (DM) is the posterior layer of cornea along with endothelium it is vital for maintaining corneal transparency. Descemet membrane detachment (DMD) is a potential vision threatening problem, occurring in up to 2.6% of cataract surgeries<sup>1</sup>; of it 0.5% involve the central cornea<sup>2</sup> and 8% of these subsequently require a corneal transplant procedure to regain corneal clarity<sup>3</sup>.

The natural history of DMD has long been an area of controversy, and the appropriate timing of intervention is unclear. Although reports of spontaneous reattachment of DMDs are scattered throughout the literature, recent reports are in favour of early surgical intervention.

We report a case of iatrogenic DMD, in the visual axis, which failed to reattach with initial desmetopexy, underwent fibrosis and was successfully managed with Descemet's stripping endothelial keratoplasty (DSEK).

#### Case report

67 year old male, underwent phacoemulsification with foldable intraocular lens in his left eye on August 2014. On postoperative day 1, his visual acuity was counting fingers (CF) 2mts with central corneal edema overlying a small detached DM. He was managed medically with steroid and 5% sodium chloride eye drops for 20days. With the DMD failing to reattach a second procedure of desmetopexy with octafluoropropane (C3F8) gas was carried out.

He was then lost for follow-up and came later after 2 years on June 2016, the slit lamp examination then of cornea revealed a detached, scrolled DM with fibrosis involving the visual axis (Figure 1).



Figure 1 Preoperative photograph showing fibrosed Descemet's membrane (DM)

On august 2016, he underwent DSEK in the left eye. A 7mm Descemetorrhexis was planned which included the central fibrosed DM and 8mm diameter pre-cut donor corneal tissue was trephined and the same was inserted in anterior chamber and attached with the help of air bubble. Postoperatively he was prescribed tapering doses of steroid and antibiotic. At 6 months follow-up his best corrected visual acuity improved to

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6/6 with a clear cornea and donor graft was well apposed to host cornea (Figure 2).

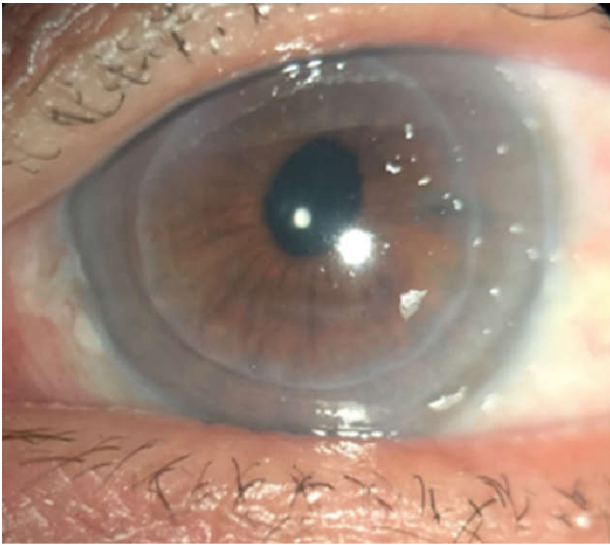


Figure 2 Postoperative Photograph showing graft in place

## DISCUSSION

Mackool and Holtz<sup>4</sup> classified DMDs into planar type (DMD <1mm) and nonplanar type (DMD > 1mm). Planar detachments, especially in periphery do not require intervention while non planar detachments especially in the visual axis need intervention. Several mechanisms of surgically induced DMD have been proposed with the risk factors being shallow chamber, complicated or repeated operations, inadvertent insertion of instruments or viscoelastic between the corneal stroma and DM, engaging DM during intraocular lens implantation or with the irrigation/aspiration device<sup>1</sup>.

Assia *et al*<sup>5</sup> in their report of five spontaneously resolving DMDs, made the distinction between DMDs with scrolling of the detachment which is unlikely to resolve and those without scrolling which resolve even if the distance of separation exceeds 1 mm. Complications like fibrosis and scrolling of the DM prevent its reattachment and decrease the capability for complete visual recovery. Spontaneous reattachment of DMDs usually takes several weeks to several months although reattachment over as long as 1 year has been reported.

Traditional methods of reattachment include medical management with topical osmotic agents, descemetopexy with air, 14% C3F8 (octafluoro propane) 20% Sulfur hexafluoride (SF6) or suturing of DM to host cornea<sup>6</sup> and descemetopexy with corneal vents<sup>7</sup>.

The mean time for resolution of DMD with medical treatment alone was reported to be 9.8 weeks with high failure rates of 46.67% and with potential complications like fibrosis, shrinkage and wrinkling of the detached DM which might prevent reattachment and necessitate endothelial transplantation<sup>6,8</sup>.

The success rates with descemetopexy have been reported to be 90-95%<sup>6</sup> but in rare cases with failed initial descemetopexy, next step in the management remains unclear. To the best of our knowledge there are very few case reports on management of complicated DMD<sup>9,10</sup>.

In our case, the DMD failed to attach with initial medical management and descemetopexy with 14% C3F8 gas. Due to its fibrosis and scrolling and decreased potential to reattach and recover physiologically, we decided to manage the case surgically with DSEK. The fibrosed membrane was excised and replaced with healthy donor corneal stroma, DM and endothelium. Postoperatively the patient had good visual recovery with clear cornea and the donor graft remained well apposed to host cornea.

Hence, a fibrosed and detached DM which fail to attach spontaneously or even after descemetopexy can be managed successfully with Descemet's stripping endothelial keratoplasty.

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