



## MANAGEMENT OF DESCMET'S MEMBRANE DETACHMENT BY DESCMETOPEXY USING C3F8

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**ABSTRACT** Descemet's membrane detachment is an uncommon condition with a wide range of etiologies; the most common being a localized detachment occurring during cataract surgery. DM detachment is an important cause of surgery related corneal edema which may lead to irreversible corneal decompensation. Prompt recognition and management of this complication may lead to a better visual outcome. In the present case, a middle aged man presented with blurring of vision 3 weeks after having undergone right eye cataract surgery. Anterior segment examination showed corneal edema and DM detachment. It was managed under topical anaesthesia with an intracameral injection of 3 parts of perfluoropropane (C3F8) and 1 part of air to fill 1/3 rd of Anterior chamber. By the second day the gas expanded to fill the entire anterior chamber. At the end of three weeks' follow up patient had a BCVA of 6/9, with a clear cornea and an intact descemet's membrane.

**KEYWORDS :** Descemet's membrane, perfluoropropane, descemetopexy

### Introduction

Descemet membrane detachment(DMD) is a potentially vision-threatening complication of cataract surgery.

Probably the commonest cause is a localized detachment occurring after cataract extraction surgery<sup>1</sup>. The incidence of DMD has been reported from 0% to 5% during phacoemulsification surgery. Of it 0.5% are large and involve the central cornea.<sup>2,3,4,5</sup>

DMD can be classified as: (1) planar: <1 mm separation from the stroma (peripheral detachment only; combined peripheral and central detachment) or (2) nonplanar: >1 mm separation from the stroma (peripheral detachment only; combined peripheral and central detachment).<sup>2,6</sup>

Several mechanisms have been proposed as the possible causal mechanism for DMD: shallow chambers, complicated or repeated operations, inadvertent insertion of instruments between the corneal stroma and Descemet's membrane, anterior and shelved incisions, and the use of dull blades.<sup>7</sup>

Engaging Descemet's membrane during intraocular lens implantation or with the irrigation/aspiration device (when mistaken as an anterior capsular remnant) can also lead to extensive DMD.

Reports of inadvertent injection of viscoelastic material by inserting the cannula between Descemet's membrane and the corneal stroma may be the most common cause of DMD with the current surgical techniques.<sup>8</sup>

Early treatment is essential to achieve visual rehabilitation and to prevent the wrinkling fibrosis and shrinkage of the Descemet's membrane that can occur over time and result in poor visual outcomes.

Though reports of spontaneous resolution of Descemet membrane detachment exist in literature, it has been shown that medical treatment alone might not be sufficient in all cases and the mean time to resolution is also prolonged.<sup>9,10,11,12,13</sup>

Descemetopexy, anterior chamber injection of gas to reposition the detached Descemet membrane, is now accepted as the standard of care for the management of post-cataract surgery Descemet membrane detachment.<sup>7,14</sup>

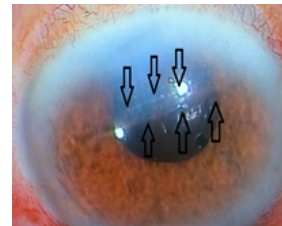
### Case report

A 68 year old male patient hailing from Mangalore, with a history of having undergone cataract surgery (manual SICS) in the right eye presented at three weeks follow up with blurring of vision.

On clinical examination his best corrected visual acuity was found to have reduced from 6/9 at one week follow up to the current best

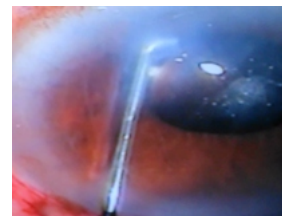
corrected visual acuity of 6/60.

On slit lamp examination: corneal edema was noted extending from the wound down to the pupillary area. On further examination, descemet's membrane was found to be detached and rolled up like a parchment paper scroll in the pupillary area.

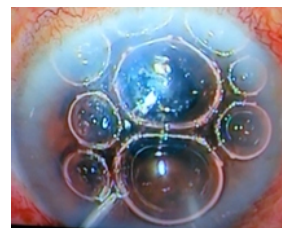


**Figure 1:** DM detached and rolled up like a parchment paper scroll in pupillary area( marked between arrows)

Under topical anaesthesia, viscoelastic was injected through a side port made at 6 o' clock position through which a sinskey's hook was inserted to unfold the descemet's membrane. Following this, 3 parts of perfluoropropane (C3F8) and 1 part of air was injected intracamerally to fill 1/3rd of the anterior chamber.



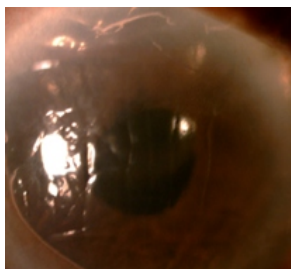
**Figure 2:** DM unfolded using sinskey's hook inserted at 6 o' clock position



**Figure 3:** Intracameral injection of 3 parts of C3F8 and 1 part of air

On the second post operative day, the gas had expanded to cover the entire anterior chamber and the cornea appeared clear with descemet's membrane in position. IOP recorded was normal. At the end of four

weeks follow up, BCVA was 6/9. Cornea remained clear with descemet's membrane in position.



**Figure 4:** 2<sup>nd</sup> post operative day: gas expands to fill the anterior chamber entirely



**Figure 5:** At four weeks' follow up: cornea clear with an intact DM

### Discussion

DMD is a rare but potentially vision-threatening complication of cataract surgery.<sup>13</sup> DM detachment should be suspected when there is localized corneal edema with a distinct demarcation between the edematous and compact cornea.<sup>15</sup>

The mean time for resolution of DMD with medical treatment alone was reported to be 9.8 weeks with a high failure rate of 46.67%.<sup>14</sup> Thus the spontaneous reattachment with a medical line of treatment is reported to be prolonged, unpredictable, and can lead to fibrosis, shrinkage, and wrinkling of the detached Descemet's membrane, which might prevent reattachment and necessitate endothelial transplantation.<sup>7</sup> Keratoplasty has its own inherent limitations, such as nonavailability of corneal tissue, requirement of a long follow-up, and risk of rejection and infection.<sup>8,16</sup>

It is not the extent but the type (planarity) of DM detachment which affects the prognosis for attachment. The time interval between cataract surgery and descemetopexy (interim period) carries prognostic significance and late intervention is associated with poor results.<sup>15</sup> Early recognition of DM detachment and early descemetopexy with isoexpansile perfluoropropane has reasonably successful anatomical and functional outcomes.<sup>15,17</sup>

The success rates with intracameral injections have been reported to be 90–95%.<sup>7,18,17</sup>

In summary, descemetopexy using isoexpansile C3F8 for DM detachment after cataract surgery led to successful DM reattachment and visual improvement.

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