



RESEARCH ARTICLE

**A STUDY ON VISUAL OUTCOME OF DESCOMETOPEXY IN POST CATARACT SURGERY
DESCOMET MEMBRANE DETACHMENT IN A EYE HOSPITAL IN JHARKHAND**

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ABSTRACT

Aim: A study on visual outcome of descemetopexy in post cataract surgery descemet membrane detachment in an eye hospital in Jharkhand. **Methods:** This is retrospective cohort study. Total of 83 patients who underwent descemetopexy were included in the study. Cases were determined on the basis of assessment of size and location of detached Descemet membrane post cataract surgery. Intracameral air injection was given and post operative follow ups were done. All cases underwent small incision cataract surgery (SICS). **Result:** Wilcoxon signed rank sum test was done to compare the baseline and final best corrected visual acuity (BCVA). Snellen's equivalent median & mean of baseline BCVA was 1.00(6/60) & 1.13(0.49) respectively while final BCVA was 0.48(6/18) & 0.57(0.52) respectively. **Conclusion:** Modern cataract surgery is considered a refractive surgery these days and a complication like Descemet membrane detachment can lead to severe visual morbidity unless actively intervened. Descemetopexy using air can be beneficial in such cases and early vision restoration is seen.

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INTRODUCTION

Descemet membrane detachment is a well-known, potentially sight-threatening complication of cataract

surgery. Analogous to a rhegmatogenous retinal detachment, DM detachment occurs when fluid enters the pre-DM space through a break in the membrane, such as that created with a limbal or clear corneal incision during cataract surgery which leads to loss of vision. The natural history and prognosis of Descemet membrane detachment are uncertain. Typically, the detachment is recognized immediately after surgery, but several cases of delayed detachment have been reported.^{1,2} There are some reports of spontaneous reattachment of Descemet membrane detachment^{3,4}.

Detachments are classified as planar or nonplanar, with the later being more complex because of large breaks with folding or scrolling of the membrane in the anterior chamber. Surgical intervention to reattach a detached Descemet membrane has been shown to hasten the process of visual recovery.⁵ Successful reattachment of Descemet membrane has been observed

with the intracameral use of air, sulfur hexafluoride (SF₆), and perfluoropropane (C₃F₈) followed by appropriate patient positioning, may force fluid from the pre-DM space and tamponade the break.^{6,7,8} In this report, we describe our experience with post-cataract surgery descemetopexy using intracameral air injection.

Separation of the membrane from the stroma may occur inadvertently during surgery from the injection of fluid into the potential space, but the condition may also result spontaneously after an uncomplicated surgery.

MATERIAL & METHODS

This retrospective cohort study was done for the period from June 2021 to May 2024 in which data of 83 patients who underwent pneumatic descemetopexy for developing post-operative DM detachment in CENTRAL HOSPITAL KANKE ROAD, CCL, Ranchi was collected and analysed. Small incision cataract surgery (SICS) was done in all cases. Descemet's membrane detachment was identified on slit-lamp examination as separation of the DM from the posterior stroma with an area of corneal edema overlying it. Patients who had DM detachment that was recognized during surgery and were treated with descemetopexy in the same setting, and patients without a minimum follow-up of 1 month were excluded from

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the study.

Descemetopexy was performed using intracameral air injection under local or topical anaesthesia. Injection site was at limbal area where cornea is relatively compact and opposed DM is apparent at least in close relation to posterior stroma. 29-gauge needle was used in bevel down position to reach beneath the plane of detached DM with slow injection of air to tamponade DM. Entry was sealed with a surgical sponge for 1 minute in order to prevent the air from escaping. Supine position was maintained for half an hour post complete fill of anterior chamber with air. This practice is in similarity to practice of attaching a posterior lamellar graft in endothelial keratoplasty.

After half an hour, partial, controlled release of air was performed in all eyes to maintain an air fill of approximately two-thirds of the anterior chamber. One drop of tropicamide and phenylephrine was instilled in most cases to prevent pupillary block in the immediate postoperative period. The patients were examined post operatively at 1 day, 1 week and after 4 & 6 weeks. Visual acuity measurement was done using snellen's chart. Wilcoxon signed rank sum test was done to compare the baseline and final best corrected visual acuity ((BCVA). Slit lamp examination and intraocular pressure (IOP) assessment were performed at each visit.

RESULTS

Range of age distribution of patients was from 45-91 years with mean age of 67.75 ± 8.87 yrs. Out of 83 patients, 57(68.7%) were female {CHART I}. Wilcoxon signed rank sum test was done to compare the baseline and final best corrected visual acuity (BCVA). Snellen's equivalent median & mean of baseline BCVA was 1.00(6/60) & 1.13(0.49) respectively while final BCVA was 0.48(6/18) & 0.57(0.52) respectively. P value was <0.001. {TABLE I}

Chart I

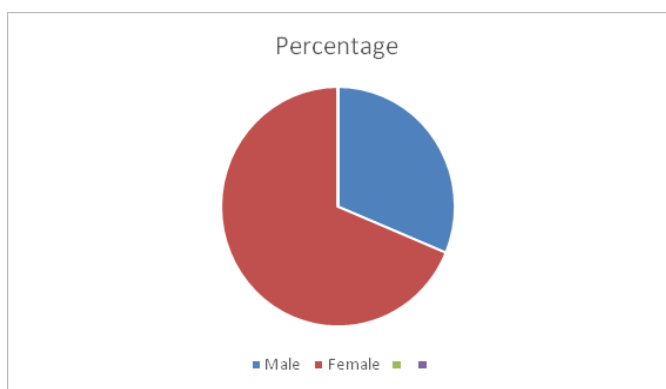


Table I

BCVA	Median (Snellen's equivalent)	Mean(SD)	Min - Max	P-value*
Baseline	1.00(6/60)	1.13(0.49)	0.18 - 2.90	<0.001
Final	0.48(6/18)	0.57(0.52)	0 - 2.6	

*Wilcoxon signed rank sum test

The mean duration between the cataract surgery and descemetopexy was 8.5 days (range 2 to 25 days). Repeat descemetopexy was needed in 13 patients (15%) which was mostly done within a week of operation, After successful

reattachment of Descemet membrane, the corneal stroma was compact in 23 eyes on the first postoperative day. In the remaining eyes with attached Descemet membrane, stromal edema decreased rapidly in the 1-week postoperative period and continued to decrease progressively over the subsequent 4 to 6 week follow-up visits in all eyes.

DISCUSSION

There is a relative paucity in the literature regarding the guidelines for the management of DMD. Some of the questions that still remain unanswered are whether an intervention is warranted in all cases of DMD and, if required, what duration is ideal, which is the best agent to treat it with, and whether any other factors influence its final outcome. Smaller or inferior DMD might not need any intervention risk as they resolve on their own^{9,10} however any repair delay might lead to shrinkage, wrinkling or fibrosis of DM which could prevent its reattachment. Modern cataract surgery is considered to be a refractive surgery, and patients expect excellent vision almost immediately. Thus, despite several reports of spontaneous DMD reattachment an early repair is advocated.¹¹⁻¹³

Several authors have found that DMD was most commonly associated with SICS¹⁵ especially in the presence of incisions anterior to the DM. All patients in our study underwent SICS

Mahmood et al¹⁴ in their study found some patients requiring multiple air or SF₆ injections for DMD which was also seen in our study as repeat descemetopexy was needed in 13 patients (15%) however visual outcome after one month was similar to the patients not requiring repeat procedure. One of the reasons for need of repeat descemetopexy might be insufficient air injection similar to practice in Descemet stripping endothelial keratoplasty.

One anticipated and undesirable complication of any intracameral air or gas injection is IOP elevation in

the postoperative period. The risk for IOP elevation may be lower with the use of air than with longstanding

gases because air is absorbed more quickly. Other measures that can help prevent this complication

are pupil dilation at the conclusion of the surgery and partial evacuation of air, as performed in DSEK.

In our study the time period of corneal edema resolution was variable with most cases showing resolution maximum in 1st week itself. Physiologically the time for edema resolution depends on health of endothelium.

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