

Visual Outcome after Removal of Dropped Nucleus by Impaling Technique and Simultaneous Scleral Fixated Intraocular Lens Implantation

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ABSTRACT

Introduction: Today cataract surgery has advanced to a level which was never dreamt of in the past. But with the advancement comes the high expectations by the patient. Sometimes structural variation or technical difficulty by the surgeon leads to posterior capsular rent and dropping of nucleus into the posterior segment. Aim of the study was to find out visual outcome and complications in patients undergoing Pars Plana Vitrectomy for dropped nucleus/ nuclear fragment by impaling technique and secondary scleral fixated Intraocular lens implantation.

Material and Methods: 10 patients had to undergo pars plana vitrectomy with removal of dropped nucleus during phacoemulsification by impaling technique with simultaneous implantation of scleral fixated IOL from 2012 to 2014 by single surgeon under standard operative conditions.

Result: Post surgery 6 (60%) patients had visual acuity of 6/18 – 6/9. 3 (30%) patients had visual acuity of 6/60- 6/24 and 1 (10%) patient had visual acuity of <6/60. 60% patients were above 60 years and 40% below 60 years. 70% patients had nuclear sclerosis gr III/IV and 30% had nuclear sclerosis gr II out of which one patient had pseudoexfoliation syndrome.

Conclusion: Impaling technique is a good option for removing dropped hard nucleus with good surgical and visual outcome.

Keywords: Visual Outcome, Dropped Nucleus, Intraocular Lens Implantation

INTRODUCTION

In the modern era of topical phacoemulsification expectations of both the surgeon and patients are very high. It incurs an undue pressure on the surgeon to give the best to his patient but sometimes due to technical or structural challenges during surgery there is posterior capsular tear with dropping of nucleus /nuclear fragment in posterior segment. At this point of time the surgeon has the dilemma of whether to put an IOL and send patient to retinal surgeon or else close the wound and refer the patient, as most of the time retinal surgeon would not be present at that moment of time.¹

Our strategy for dealing with Posterior capsule rent with nucleus drop is that we wait for a week or two for corneal edema to clear so intraoperative visibility becomes good and then do two port Para Plana Vitrectomy (PPV) along with Anterior Chamber (A/C) maintainer. Dropped nucleus is removed by impaling with 20G MVR (MicroVitreotomy) blade and scleral fixated Intraocular lens is implanted in the same sitting.²

Our study highlights good visual outcome with minimal complications in a series of 10 patients who had been followed for an average of one year period. Aim of the study was to find out visual outcome and complications in patients undergoing Pars Plana Vitrectomy for dropped nucleus/ nuclear fragment by

impaling technique and secondary scleral fixated Intraocular lens implantation.

MATERIAL AND METHODS

Retrospective study of 10 patients who had been operated between 2012 to 2014 and who had primary posterior capsule rent with nucleus/nuclear fragment drop were taken into study after informed written consent for the procedure and followed for an average period of one year. Sample was selected based on inclusion exclusion criteria.

Inclusion criteria: All patients who had primary posterior capsular rent with drop of nucleus /nuclear fragment during phacoemulsification procedure.

Exclusion criteria: Patients who had traumatic dislocation of lens along with retinal pathology were not included in the study. All patients underwent 2 port PPV with A/C maintainer and EIBOS non contact viewing system was used.

All patients underwent Core vitrectomy and nucleus was freed of any vitreous adhesions. Nucleus was impaled with 20G MVR blade and prolapsed into anterior chamber from where it was removed with the help of wire vectis after enlarging the scleral tunnel to 6.5mm.³⁻⁵

Two point scleral fixated IOL was implanted after ruling out any peripheral retinal breaks. Scleral fixated IOL was tied at 3 and 9 o'clock position using intrascleral zig-zag prolene 10.0 suture and scleral tunnel was sutured with 10/0 ethilon.⁶⁻⁸ After completion of the procedure peribulbar Triamcinolone acetate 40mg/ml injection was given to take care of post-operative inflammation.

Patients were seen on day 1, after 1 week, 1 month and 2 month interval and followed for a period of one year.⁹ On each follow up best corrected visual acuity, Slit lamp examination for anterior chamber inflammation, Intra ocular pressure by Goldman Applanation tonometer and fundus examination was performed.

STATISTICAL ANALYSIS

Descriptive statistics were computed for the demographic and clinical variables.

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RESULT

Post surgery 6 (60%) patients had visual acuity of 6/18 – 6/9. 3 (30%) patients had visual acuity of 6/60- 6/24 and 1 (10%) patient had visual acuity of <6/60. 60% patients were above 60yrs and 40% below 60 yrs.

70% patients had nuclear sclerosis gr III/IV and 30% had nuclear sclerosis gr II out of which one patient had pseudoexfoliation syndrome.

Post surgery one patient had lens tilt leading to an astigmatism of 4 diopters and one patient had intraoperative choroidal bleed which lead to vitreous hemorrhage. The vitreous hemorrhage cleared over a period of one month after which patient was advised resurgery but he refused for the same.

Overall the surgical and visual outcome was good in our series of patient. None of the patient had retinal break, retinal detachment or suture erosion after a follow up period of one year.

DISCUSSION

Posterior capsular rent with nucleus drop is a nightmare for the surgeon and the patient as both have to go through trauma of second procedure. If the cornea is clear and there is availability of retinal surgeon one can go for primary removal of nucleus along with secondary IOL implantation in the same sitting.^{10,11} But this is very ideal situation, most of the time due to excessive manipulation and surgical trauma cornea is not clear enough to give good view of posterior segment. In such situations it is wise enough to wait for a week or two for cornea to clear and inflammation to subside. Also if there is any anterior capsular rim present it gets fibrosed, so it becomes easy to place secondary IOL in the sulcus with only one point scleral fixation. Instead of going for total PPV we go for core vitrectomy to make the nucleus mobile and free from any vitreous adhesions. Once it is freely mobile we engage it with 20G MVR blade by impaling technique and prolapse it into anterior chamber over the iris from where we remove it through scleral tunnel with the help of wire vectis. We avoid using viscoelastic substance during procedure, instead we use A/C maintainer to prevent anterior chamber collapse. It prevents accumulation of viscoelastic in posterior segment so post operative rise of IOP is not seen in our series.

In most of the cases of nucleus drop it is advisable to go for complete PPV along with removal of dropped nucleus but in view of corneal haze and associated inflammation the retina is fragile and chances of iatrogenic break are more so we prefer to go for core vitrectomy along with removal of nucleus by impaling technique.^{12,13} This saves time as well as reduces the chances of port burn due to phacoemulsification in side the vitreous cavity after levation of nucleus over perflurocarbon liquids, which later on could lead to retinal break and detachment.¹⁴

A larger sample size and long term follow up would be helpful in giving a better idea about the usefulness of the technique and its delayed complications.

CONCLUSION

It is advisable to wait for a period of 7-10 days after nucleus /nuclear fragment drop and then remove the nucleus, as the corneal edema clears and visibility of posterior segment improves so any inadvertent retinal breaks can be visualized and treated simultaneously along with implantation of secondary

scleral fixated intra ocular lens.

Removal of nucleus/nuclear fragment by impaling technique is a good option which saves surgical time and resources along with good visual outcome.

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