



ANALYSIS OF CAUSES OF SUBNORMAL VISION POSTOPERATIVELY AT 6 WEEKS IN PATIENTS WHO UNDERWENT SICS WITH PCIOI

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ABSTRACT

Aim: to study and categorise the causes of subnormal vision at 6 weeks post-operatively in pseudophakic patients who underwent SICS at GREH.

Materials and methods: it is a hospital based observational study having study period between Jan 2018-March 2018, and this study conducted at Govt Regional Eye Hospital, Visakhapatnam, having sample size of 100 eyes of 100 individuals.

Results: out of 100 patients, 14 patients were found to have subnormal vision

Conclusion: out of the 14 patients who had subnormal vision, macular pathology was found to be the most important cause

KEYWORDS : SICS, cataract surgery, PCIOI, PCO

INTRODUCTION

- MANUAL SMALL INCISION CATARACT SURGERY
- Manual small incision cataract surgery (MSICS) is a low cost, small incision form of extracapsular cataract extraction (ECCE) that is principally employed in the developing world (government eye hospital set up, India in our study) which is more affordable to the patients (coming from, in and around rural areas of visakhapatnam, andhra pradesh in our study)
- in this technique ECCE with intraocular lens implantation is performed through a sutureless self-sealing valvular sclero-corneal tunnel incision. It has several advantages over phacoemulsification
- This study determines the causes of subnormal vision post operatively at 6 weeks in patients undergoing cataract surgery (SICS-) with intraocular lens implantation with an accurate estimation of the power of intraocular lens, uncomplicated surgery and an uneventful post operative period. However post operative results are not always according to the expectations.
- This study is an attempt to find out causes for unsatisfactory visual reports amongst the patients undergoing small incision cataract surgery with posterior chamber implantation of intraocular lens with no coexisting ocular morbidity.

Aim of the study

To study and categorise the causes of subnormal vision at 6 weeks in pseudophakic patients who underwent SICS at GREH.

MATERIALS AND METHODS

- STUDY DESIGN – hospital based Observational study
- STUDY PERIOD - Jan 2018-March 2018
- STUDY SETUP - Govt Regional Eye Hospital, Visakhapatnam
- SAMPLE SIZE - 100 patients [100 EYES]

Inclusion criteria

- Patients who underwent uneventful cataract surgery (SICS-BY SINGLE SURGEON) at GREH, with normal pre-operative assessment
- Diabetic and hypertensive patients without any maculopathy and retinopathy changes who underwent uneventful cataract surgery were included in the study
- Patients with visual acuity <6/18 postoperatively at 6 weeks

Exclusion criteria

- Children
- Patients with high grade nuclear sclerosis and mature cataracts.
- Patients with ocular infections, inflammations, trauma, congenital anomaly of eye
- Patients with H/O previous ocular surgeries (Trabeculectomy, Retinal detachment surgery, etc)
- Patients with any retinal pathologies, glaucoma, diseases of the posterior segment of the eye or any other ocular morbidity that causes subnormal vision.

METHODOLOGY

- For every patient, a detailed pre-operative assessment was

done. BCVA was noted, direct and indirect ophthalmoscopic examination done. Patients attending to the OPD at 6 weeks postoperatively were picked up and assessed for visual acuity & for those with vision (<6/18) uncorrectable with glasses or by any other means of correction, complete ophthalmic examination including pupillary reactions, measurement of IOP, & direct & IO was performed

- Later these patients in whom there was no improvement in vision even after correction, fundus examination was done by 78D lens under slit lamp and 20D lens with indirect ophthalmoscope after instillation of mydriatic
- OCT examination was done for all these subnormal vision cases
- Fundus and OCT findings were noted down.

RESULTS

- A sample of 100 patients [100 eyes] were examined in a period of 3 months, 6 weeks after cataract surgery [SICS] out of which 14 patients were found to have subnormal vision (vision not improved even after best correction) and remaining patients were normal
- Out of 14 patients the cause of subnormal vision with highest percentage was found to be due to Macular pathology (57.14%), followed by PCO (21.42%), DME (14.28%) and malposition of IOL (7.14%)
- Below is the table 1 showing causes of subnormal causes of vision

Table 1 showing the different types of subnormal causes of vision and their percentages.

Causes	No. of cases	Percentage
Macular pathology	8	57.14%
PCO	3	21.42%
DME	2	14.28%
Malposition of IOL	1	7.14%

DISCUSSION

- The high incidence of subnormal vision in our study is due to macular pathology (57.14%). It is similar to a study done by Hiranmoyee Das et al. [1]
- The second commonest cause of subnormal vision in our study is found to be due to PCO [similar to Hasem Hashemi et al study;] [2], due to non square edge PMMA (polymethylmethacrylate) lenses used in SICS. These lenses can be contributed to the fact that non square edge lenses are associated with high rate of PCO and also issues with capsulorrhexis [faulty technique-high chances of PCO formation]. [2]
- Usage of PMMA (non square edge) LENS cause more PCO than acrylic IOLs
- The third commonest cause in our study is due to DME (diabetic macular edema) (14.28%). On OCT, post cataract surgery, these patients have shown increase in macular thickness at the macular area [4].
- Studies have shown that there occurs increase in severity of Diabetic retinopathy in post cataract surgery due to intraocular inflammation
- The 4th most common cause of subnormal vision in our study is due to malposition of IOL (7.14%). The factor contributing is due to

malposition of Haptics i.e one haptic in the sulcus and another in the capsular bag, it is similar to John Kanellopoulos et al study^[3]

- According to one of the study done by V.H.Karembelkar, Ankit Sharma, Viraj Pradhan^[8], the highest number cases of subnormal vision was due to PCO (80.87%)
- After PCO, it was CME (9.28%), malposition of IOL (7.10%), CSME (2.73%), TASS (0.54%) and delayed endophthalmitis (0.54%) but their study was done at 6 weeks postoperatively over a period of 18 months and in comparison to SICS and phacolytic cataract and type of IOL used
- Study conducted by Nazareth Hospital showed PCO to be 50% most common cause of subnormal vision post cataract surgery

CONCLUSION

- In our study it was observed that there were more number of patients with macular pathology (which might have been present pre-operatively, but might have been missed) as the most important cause for subnormal vision post operatively. Therefore, there is a need for assessment of fundus (IO, OCT) pre-operatively in order to avoid complications post cataract surgery especially for premium IOLs
- Fundus examination every week post cataract surgery starting from 1st post operative day, followed by one week and then 3 weeks minimum until it subsides
- All diabetic patients post operatively must be necessarily examined for the fundus changes and OCT and to check for DR changes.
- For PCO there is a need to check intraoperatively regarding the capsulorrhexis and other faults in the technique during removal of nucleus from the capsular bag and retention of cortical matter if any, which might lead to the formation of PCO in the later stages [after the surgery] and also careful assessment post operatively & treatment accordingly. Usage of square edge PMMA lenses would help decrease PCO formation
- Malposition of IOL must be very carefully dealt intraoperatively and post operatively too.
- Cataract surgery is one of the most important techniques for relieving and prevention of blindness. It is one of the safest and successful procedures in the large majority of cases, but complications may occur at any stage of the operation and the result may not reach the patient's expectation
- Poor visual outcome is an area of research in order to pick up and analyse its causes and put recommendations that may help the policy makers to set certain strategies that help in monitoring the outcome of cataract surgery.

REFERENCES

1. Hiranmoyee Das, Goswami PK, Barua CK. Cause of non improvement of vision in Pseudophakic Eye. *Caduceus* 2008; 3-7.
2. Hasan Hashemi et al.; posterior capsule opacification after cataract surgery and its determinants. *Iranian Journal of Ophthalmology* 2012; 24(2):3-8.
3. John Kanellopoulos, Thanos Papakostas. Malpositioned IOLs; Cataract and Refractive Surgery today Europe, 2008: 70-72.
4. Samer Farah. The Impact of Cataract Surgery on Preexisting Retinal Diseases. *Ophthalmic Pearls* 2010; 41-43.
5. Swan KC. Reactivity of ocular tissues to wetting agents. *Am J Ophthalmol* 1944; 27:1118-1122.
6. Edelhauser HF, Van Horn DL, Schultz RO, Hyndiuk RA. Comparative toxicity of intraocular irrigating solutions on corneal endothelium. *Am J Ophthalmol* 1976; 81(4):473-481.
7. Gonnering R, Edelhauser HF, Van Horn DL, Durant W. The pH tolerance of rabbit in human corneal endothelium. *Inv Ophthalmol Vis Sci* 1979; 18(4): 373-390.
8. V.H.Karembelkar et al.; Subnormal vision in uneventful cataract surgery after 6 weeks-hospital based study, Krishna institute of medical sciences, Karad [Maharashtra].