



International Journal of Medical Research & Health Sciences

www.ijmrhs.com

Volume 3 Issue 2 (April - Jun)

Coden: IJMRHS

Copyright ©2014

ISSN: 2319-5886

Received: 11th Nov 2013

Revised: 24th Dec 2013

Accepted: 5th Jan 2014

Research Article

GONIOSCOPIC CHANGES IN CONVENTIONAL ECCE VS MANUAL SICS: A COMPARATIVE STUDY

Surya Joseph¹, Sundararajan D², *Rajvin Samuel Ponraj³, Srinivasan M⁴, Veluchamy⁵

¹Senior Resident, ²Associate Professor, ³Postgraduate, ⁴Professor ⁵Senior resident Dept of Ophthalmology, Meenakshi Medical College, Kanchipuram, Tamilnadu, India

*Corresponding author email: samuelprj25@gmail.com

ABSTRACT

The aim of the study is to observe and compare the Gonioscopic changes in the angle of the anterior chamber of the eye after surgeries namely; Conventional Extra capsular cataract extraction (ECCE) with Posterior chamber Intraocular lens (PC IOL) implantation, Manual Small incision Cataract Surgery with PCIOL implantation. The clinical study was undertaken after Institutional Ethical committee clearance, securing the informed consent, total number of 100 patients were enrolled in the study. 50 ECCE; 50 SICS consisting of 57 Males and 43 Females aged between 40 - 80yrs who were admitted and operated for Cataract at Meenakshi Medical college Hospital & Research institute. The following parameters are studied: Gonioscopic changes in the angle, namely the PAS formation in the quadrants, pigment dispersion in each of the methods. After this study, we arrive to a conclusion that complications in the angle of anterior chamber occur mostly in Conventional with insignificant change in manual SICS. So manual Small incision Cataract Surgery with PCIOL implantation is preferable over Conventional ECCE with PCIOL implantation.

Keywords: Gonioscopy, Peripheral anterior synechiae, Scheie's classification, Pigment dispersion, Malpositioning of the Superior Haptics

INTRODUCTION

Cataract is the leading cause of Reversible Blindness in our country. The ultimate goal of a cataract surgery is to restore and preserve the pre cataract vision and to alleviate the other cataract related symptoms. In the quest for perfection, the techniques and approaches followed by cataract surgeons have constantly changed over the years.

Hence the realistic portrayal of the trends in cataract surgery can be best described as a wide spectrum, ranging from Intra Capsular Cataract Extraction (ICCE) to Phaco Emulsification. Such a diversity of trend is governed by multiple factors, the most pertinent of which are economical, patients' awareness, surgeon's caliber, availability of equipments and the cataract backlog.

The current surgical trend for the majority of surgeons in the developing world is towards Conventional Extra capsular cataract extraction (ECCE) with PC IOL implantation. Small Incision ECCE techniques are becoming quite popular for those who have accepted the challenges of transition towards a better technique. Perhaps about 5-10% of the cataract surgeons in India routinely perform Phaco. The advent of Phaco emulsification has minimized the size of the incision and its related complications, with an added benefit of early stabilization of refraction.

The main objective of this study is to observe and to compare the Gonioscopic changes in the angle after conventional ECCE with PC IOL implantation and

Small Incision Cataract Surgery with PCIOL. An attempt has been made to note any progression of these changes and the possible effects of these changes over the Intra Ocular Pressure and Visual Acuity.

Aim of the study: The main objective of this study is to observe and compare the Gonioscopic changes in the angle after

Conventional ECCE with PC IOL implantation

Manual Small incision Cataract Surgery (SICS) with PC IOL implantation

An attempt has been made to note the progression of these changes and the possible effects of these changes over the Intra Ocular Pressure and Postoperative Visual acuity.

MATERIALS AND METHOD

This clinical study was undertaken in 100 Eyes- 50 ECCE; 50 SICS consisting of 57 Males and 43 Females aged between 40 - 80yrs who were admitted and operated for Cataract at Meenakshi Medical college Hospital & Research institute. After Securing the inform consent, total number of 100 patients were enrolled in the study.

Institutional Ethical clearance has been obtained before initiating the study. Patients were enrolled observing all proper inclusion and exclusion criteria.

Inclusion criteria: No past history of cerebrovascular accidents, Diabetic patients with a duration of less than 10 years, Non- Proliferative Diabetic retinopathy, Best corrected visual acuity at least 6/9

Exclusion criteria: Cataract, Glaucoma, Vitreous opacities or any evidence of optic atrophy, Peripheral nervous system disease, Proliferative diabetic retinopathy

Gonioscopic changes in the angle of the anterior chamber by Shaffer grading while doing Goldmann 3 plane mirror gonioscopy. Based upon the most posterior structure visible in the angle. Namely Peripheral Anterior Synechiae formation in the quadrants, Pigment dispersion in ECCE as well as SICS.

Partial or complete closure Grade 0 —

10° angle of approach Grade I $AC\ddagger < 1/4 CT\§$

20° angle of approach Grade II $AC = 1/4 CT$

20°–35° angle of approach Grade III $AC = 1/2 CT$

35°–45° angle of approach Grade IV

The Scheie’s method of grading TM pigmentation was followed. Larger numbers represent increasing amount of pigmentation.

Scheie classification

Grade 0 – Entire angle visible as far posterior as a wide ciliary body band

Grade I - Last roll of iris obscures part of the ciliary body

Grade II - Nothing posterior to trabecular mesh-work visible

Grade III - Posterior portion of trabecular mesh-work hidden

Grade IV - No structures posterior to Schwalbe’s line visible⁶.

RESULTS

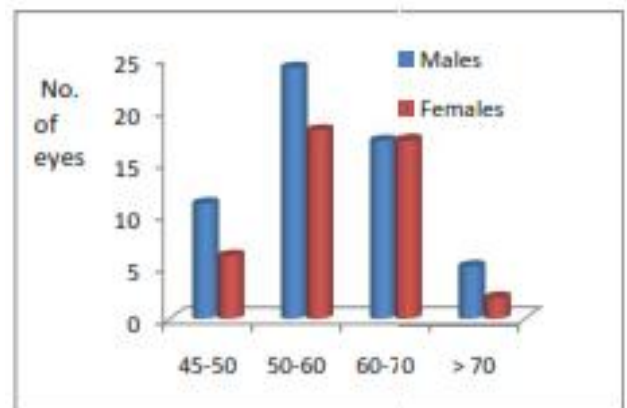


Fig 1: Age-sex wise group distribution graph

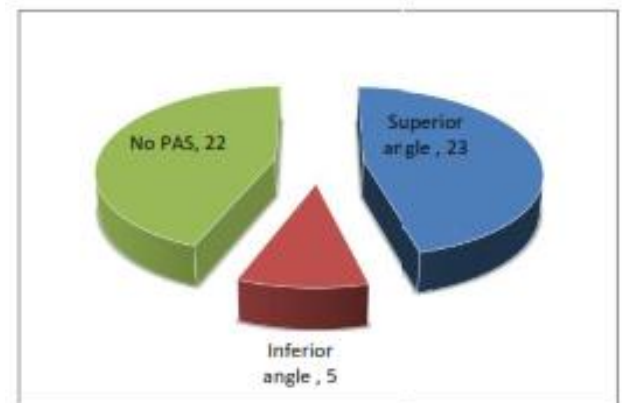


Fig 2: Incidence of peripheral anterior synechiae in ECCE

PAS formation was observed in 28 eyes of 50 cases, which underwent conventional ECCE with PC IOL implantation. Superior angle PAS noted in 23 eyes. Inferior angle PAS in 5 eyes. No PAS was seen in eyes that underwent SICS

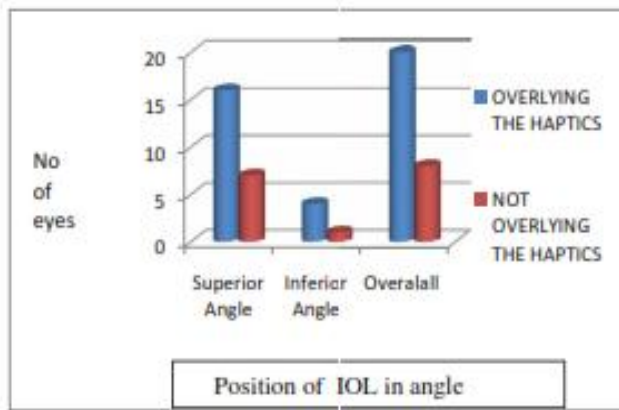


Fig 3: As overlying the lens haptics pigment dispersion in angle structure

20 eyes showed PAS overlying the Haptics of PC IOL. Which accounts to 71.4%. Most of the lens Haptics PAS were observed early in the Post operative period (3 Months) and remain stable in size.

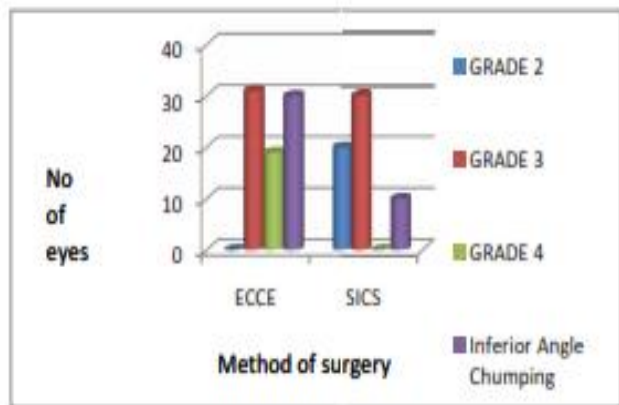


Fig 4: Incidence of pigment dispersion

DISCUSSION

The incidence of PAS in the present study was 56%, which is comparable to 54% observed by Lis, Liao R, Liu.Y, et al in “Gonioscopic observation after posterior chamber IOL implantation” and 41.8% observed by Maden A, Gunenc U, Erkin E et al¹⁰ “Gonioscopic changes in eyes with PC IOL” No PAS was seen in eyes in which SICS was performed a (Capsular Bag Fixation of IOL)

Involvement of the Superior angle is prominent as suggested by 46% of PAS in the Superior angle due to malpositioning of the Sperior Haptics (in the ciliary Sulcus).

PAS were seen more frequently with Lens Haptics at vertical position than in Eyes with horizontally oriented Lens Haptics³.

PAS overlying the Haptics of PC IOL was observed in 20 eyes (71.4%) in this study is comparable to 80%

observed by R Blair Evans “PAS overlying the Haptics of PC Lenses”. The lens haptics PAS possessed a distinct morphology characterised by marked anterior displacement of peripheral iris with broad iris apposition to the trabecular mesh-work and more anterior angle structures.

Most of the lens haptic PAS were observed early in the Postoperative period (3 months). However, progression in size was not noted⁴. No Postoperative rise in IOP attributable to Gonioscopic changes. No changes in the postoperative Visual acuity were observed secondary to these Gonioscopic changes. Pigment dispersion is explained by the Continuous chafing effect of the lens Haptics over the posterior aspect of iris and also due to Surgical manipulation. Interestingly, it’s also noted there is marked and well limited clumping of pigment in the angle at 6 O’clock in 40 eyes (40%) comparable to 57.2% observed by Maden A, Gunenc “Gonioscopic changes in eyes with PC IOL”. Inferior angle pigment clumping is seen due to gravitational settling and aqueous circulation. 28 eyes with PAS had papillary deformation, which is related to the position of IOL Haptics 71.4% compared to 88% of eyes with PAS in Liao R; Lis, Liu Y. Guoy & Pan H⁵

After three months, postoperatively the Residual Cortex still existed in some cases of ECCE with PCIOL.

This study was undertaken in response to the suggestion that routine Postoperative Gonioscopy should be performed after implantation of PCIOLs

CONCLUSION

Conventional Extra Capsular Cataract Extraction with PC IOL implantation significantly and permanently alters the Gonio Anatomy of the Eye when compared to Small Incision Cataract Surgery. (P< 0.001)

Decrease in the incision size, anterior entry into the cornea with a self- sealing Scleral tunnel incision and a Corneal lip prevents the formation of PAS. In the Bag fixation of IOL reduces Iris chafing related pigment dispersion into the AC and lowers the incidence of changes in the angle. (P <0.001)

Continuous Curvilinear Capsulorhexis (CCC) is important for proper capsular bag fixation of the IOL. (P <0.001)

REFERENCE

1. Chen Weirong ,LIU Yizhi, Wang Ningli Guo Yan, HE Mingguang , Comparison of the efftypes of intraocular lens, Chinese Medical Journal 2001;114(12):1286-89
2. Maden A, Gunenc V, Erkin E. Doc. Ophthalmol, 'Gonioscopy changes in eye with posterior chamber intraocular lens' by. 1992, 82(3), 231-8.
3. Peripheral anterior synechiae overlying the haptics of posterior chamber lenses' Occurrence and Natural history, Ophthalmology 1990, 97: 415-23.
4. Evans RB. Peripheral anterior synechiae overlying the haptics of posterior chamber lenses. Occurrence and natural history',Ophthalmology 1990: 97(4), 415-23.
5. LiaoR, LiS, LiuY, Guo Y, Pan H, Tao X. The relation of the location of haptics of posterior chamber intraocular lenses and peripheral anterior synechiae' by. Source: Medicine: PMID: 8575604, UI: 96148006.
6. Steven V. L Brown., Basic and Clinical Science Cours e, Faculty, Section 10, Steven T. Simmons, MD, Steven V. L. Brown, **Consultants** William LH, Janis ER. Gonioscopy in the Management of Glaucoma James A. Savage, MD , Focal Points American Academy of Ophthalmology. 2006;XXIV: (Section 3 of 3)