European Journal of Molecular & Clinical Medicine
ISSN 2515-8260 Volume 09, Issue 02, 2022

Original Research Article

TO STUDY THE EFFECT OF PROFILE AND PLACEMENT OF INCISION ON POST-OPERATIVE CORNEAL CURVATURE IN MSICS

Dr. Sudhir Mahashabde[1] (Associate Professor), Dr. Piyusha Mahashabde[2] (Assistant Professor), Dr. Shubhangi Mahashabde[3] (Associate Professor), Dr. Pawan Bhambani[4] (Associate Professor)

[1]Dept. of Ophthalmology, Index Medical College Hospital & Research Centre, Indore
[2]Department of Community Medicine, Government Medical College, Ratlam
[3]Dept. of Physiology, Index Medical College Hospital & Research Centre, Indore
[4]Dept. of Pathology, Index Medical College Hospital & Research Centre, Indore

First Author: Dr. Sudhir Mahashabde
Corresponding Author: Dr. Shubhangi Mahashabde

Abstract

Background & Method: The aim of the study is to study the effect of profile and placement of incision on post-operative corneal curvature in MSICS. A thorough general and systematic examination was carried out to exclude any systemic illness. BP was recorded, lab investigations like complete blood picture with ESR, and blood sugar were performed.

Result: The age and sex distribution of cases in our series. 44(52%) patients were male and 40 patients(48%)were females. Maximum patients were in the age group of 60-65 yrs Size of incision. 60 patients(71%) were given a 6.5 mm incision, 18 patients(22%) were given incision measuring 7mm and 06 patients(7%) were given 8mm incision. Thus majority of patients were given incision measuring 6.5mm.

Conclusion: The largest group was formed by patients between 60-65 yrs of age with natural senile cataract. A gradual change in post op corneal curvature was observed with time. This study suggests that the surgically induced WTR astigmatism following MSICS via temporal approach. All the patients in the superior incision group showed further shift towards ATR astigmatism.

Keywords: incision, post-operative, corneal & curvature.

Study Designed: Observational Study.

1. INTRODUCTION

Incision being the first and most important determinant of postoperative astigmatism, can be modified in various ways in terms of site, size, shape, axis etc to reduce the degree of post-op astigmatism[1].

Placing a temporal incision is one of the methods to minimize a high pre-existing ATR astigmatism[2]. Temporal incision induces less amount of astigmatism as compared to a superior incision and has better seperational force of lid pressure and gravity .The temporal limbus being farther from the visual axis, it causes less distortion of central corneal curvature[3].

Changes in corneal curvature were determined at regular intervals over a1 yr period following ICCE by microsugical techniques. During 1st post-op month photokeratometric measurements showed rapid changes in astigmatism associated with large changes in the direction of axis[4]. Thereafter ATR astigmatism predominated. Data from a small group of patients who underwent surgery in which phacoemulsification was used showed smaller changes in corneal curvature; attributable to the smaller incision size, site and reduced number of sutures[5].

2. MATERIAL & METHOD

This prospective study was conducted in the Department of Ophthalmology of Index Medical College Hospital & Research Centre, Indore, M.P. from May 2019 to April 2020, 84 cases of different age and sex with senile cataract and ATR astigmatism were enrolled.

Pre-operative ophthalmic assessment included:-

Name, age, sex, address, history of patients were carefully recorded pertaining to the cause of cataract, and other systemic diseases like diabetes, hypertension, chronic respiratory diseases, ocular history of any previous episodes of redness, watering, photophobia, coloured halos, headache. History was taken to rule out glaucoma and iridocyclitis.

A thorough general and systematic examination was carried out to exclude any systemic illness. BP was recorded, lab investigations like complete blood picture with ESR, and blood sugar were performed.

3. RESULTS

Table No 1: Age and sex distribution of cases

S. No.	Age Group	Total	Male		Female	
			No	%	No	%

1	50-55	08	02	2.38%	06	7.14%
2	55-60	06	04	4.76%	02	2.38%
3	60-65	30	18	21.42%	12	14.28%
4	65-70	18	10	11.9%	08	9.52%
5	70-75	12	04	4.76%	08	9.52%
6	75-80	10	06	7.14%	04	4.76%
	Total	84	44	52.38%	40	47.61%

Table shows the age and sex distribution of cases in our series. 44(52%) patients were male and 40 patients(48%)were females. Maximum patients were in the age group of 60-65 yrs

Table No 2: Size of incision

S. No.	**Size of incision**	**No. of cases**	**%**
1	6.5mm	60	71.42%
2	7mm	18	21.42%
3	8mm	06	7.14%
	Total	84	100%

Size of incision. 60 patients(71%) were given a 6.5 mm incision, 18 patients(22%) were given incision measuring 7mm and 06 patients(7%) were given 8mm incision. Thus majority of patients were given incision measuring 6.5mm.

Table No: 3 (Incision) Post-op Karetometry

S. No.	Degree of astg.	Types of astigmatism					
		ATR		WTR		No Astg.	
		No.	%	No.	%	No.	%
1	0.25-0.75	04	9.52%	-	-	-	-
2	1-1.75	14	33.33%	-	-	-	-
3	2-2.75	18	42.85%	-	-	-	-
4	3-3.75	04	9.52%	-	-	-	-
5	>3.75	02	4.76%	-	-	-	-
	Total	42	100%				

4. DISCUSSION

All patients with senile cataract were included in our study but maximum patients were in the age group of 60-65yrs ((36%). The male female ratio in our study was 22:20(52%:48%).
Jaffe (1975) [6] observed WTR astigmatism in 305 cases, ATR astigmatism in 42.5% cases and oblique astigmatism in 1.7% cases pre operatively.
Singh and Kumar (1976)[7] observed pre-operative astigmatism82% of cases, out of which 45% were ATR , 30% were WTR and 15% were oblique astigmatism.
Lee T. Nordan (1992)[8] found 80% of cases with pre-operative astigmatism of less than 1.5 D(WTR/ATR/Oblique), 13% cases with >1.5 D of WTR or oblique astigmatism while 7 % cases with ATR astigmatism of more than 1.5 D.
Chou J C et al (1997)[9] in their study on oriental eyes found WTR shift of 0.5 D via 3.5 mm temporal clear corneal incision, found significant reduction in pre existing ATR or oblique astigmatism by placing a 5-6 mm sclera tunnel incision along the steep meridian (i.e. lateral approach).
Neilson PJ (1995)[10] reported a WTR induced change by a temporally placed incision, hence causing a significant reduction in pre operative astigmatism.

5. CONCLUSION

The largest group was formed by patients between 60-65 yrs of age with natural senile cataract. A gradual change in post op corneal curvature was observed with time. This study suggests that the surgically induced WTR astigmatism following MSICS via temporal approach. All the patients in the superior incision group showed further shift towards ATR astigmatism.

6. REFERENCES

[1] Reduction in astigmatism in manual small incision cataract surgery through change of incision site; Nikhil S Gokhale, Indian J Ophthalmol 2005 Nov-Dec; Volume : 53; Issue : 3; Page : 201-203.

[2] Small incision cataract surgery: Review of journal abstracts; Rajesh Sinha, Indian J Ophthalmol. 2009 Jan–Feb; 57(1): 79–82.

[3] Sutureless cataract surgery with nucleus extraction: outcome of a prospective study in Nepal; A Hennig, Br J Ophthalmol. 2003 March; 87(3): 266–270.

[4] Wound construction in manual small incision cataract surgery; S S Haldipurkar Indian J Ophthalmol. 2009 Jan–Feb; 57(1): 9–13.

[5] Refractive changes following cataract surgery: the Blue Mountains Eye Study, Magdalena Guzowski 24 MAY 2002.

[6] The pathophysiology of corneal astigmatism after cataract extraction Trans. Jaffe N.S, Am. Acad. Ophthalmol. Otolaryngol. 79;p615-630,1975.

[7] Keratometric changes after cataract extraction, Singh and Kumar, B.J.O. 60;638-41, 1976.

[8] Combined glaucoma and cataract procedures using temporal cataract surgery. Gayton J.L, J. cataract refract surgery. Dec. 1996, 22 (10), Pg. 1485-91.

[9] Corneal refractive changes after clear corneal phacoemulsification with foldable intraocular lens. Chou J.C, Chung huac I, husch tsa chih, (Taipei) (Taiwan) Oct. 1997 Pg. 195-8.

[10] Prospective evaluation of surgically induced astigmatism & astigmatic keratotomy effects of various self sealing small incision. Nielson P.J, J. refract surg. Jan. 1995 Pg. 43-48.