IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Effect of Chalazion Excision on corneal topography and refractive error in Indian Population: A Prospective Study in a Tertiary Healthcare Centre in India.

Dr.Nyai Ete, Senior Resident, Department of ophthalmology, Trihms, Naharlagun, India.

Dr Shashwat Shekhar, Senior Resident, Department of ophthalmology, AIIMS, Rishikesh , India.

ABSTRACT

PURPOSE: The goal of our study was to compare changes in corneal curvature before and after chalazion excision.

Methods: 40 eyes from 40 patients with upper eyelid chalazion were enrolled in this prospective followupstudy .Chalazion were excised by standard transconjunctival vertical incision. Corneal curvature were evaluated by corneal topography preoperatively ,on d and 6 weeks postoperatively respectively.

Result: In Group 1 which had chalazion of size 3 to 5mm there was insignificant change in refraction,corneal curvature(K1,K2) ,astigmatism before and after chalazion excision.
In Group 2 which included eyes with a chalazion of more than 5mm there was significant improvement in refraction(cylindrical power) , Corneal curvature(K1,K2) and astigmatism pre and postoperatively on 6 weeks after chalazion excision.
There was no significant change on 7 days postoperatively.Visual acuity and spherical correction remained unchanged.

Conclusion:

The present study concludes that large sized upper eyelid chalazion induces greatest change in corneal topography.Centrally located large sized chalazion induce significant astigmatism which decreases following excision. Thus, we recommend early surgical excision of chalazion>5 mm in order to produce visual improvement.

INTRODUCTION

A chalazion is a small,usually painless lump or swelling that appears on the eyelid .It is lipogranulomatous inflammation caused by plugging of the meibomian glands.[1]

Patients with chalazion usually complain about cosmetic disfigurements and ocular discomforts such as foreign body sensation, visual disturbance, mass effects due to lid ptosis or swelling.[1,2,5,8]

Astigmatism and ptosis- Large lesions can induce mechanical ptosis and corneal astigmatism. Through compression of the limbus and cornea, chalazion could cause corneal distortion and changes to the corneal topography.[2]

Corneal topographic changes are important factors in corneal refractive surgery, intraocular lens power calculations for cataract surgery, and visual acuity assessments.[3] In addition, amblyopia may develop in children with corneal astigmatism.[3] It has been reported that the pressure of an upper lid chalazion induces hyperopia and astigmatism.[3]

Chalazia can increase higher-order aberrations (HOAs), as measured by the Hartmann–Shack aberrometer; these can affect the preoperative evaluation and refractive surgery outcomes, especially wavefront-guided approaches.[4]

In addition, decreased vision due to a chalazion of the upper eyelid has been documented in a patient following laser-assisted in situ keratomileusis (LASIK).[5] Furthermore, corneal aberration has been reported to contribute to the visual function.[6,7] As corneal refractive surgery becomes more prevalent, astigmatism is becoming more importantin preoperative evaluation. Likewise, decision of chalazion excision before refractive surgery becomes important in postoperative results.

In this study ,we shall prospectively :

1. Evaluate the potential effect of chalazion on corneal curvature
2. Evaluate whether the use of surgical chalazion excision reduce corneal astigmatism.

MATERIALS AND METHODS

It was Prospective followup study conducted in a Tertiary Healthcare Center in India for a period of twenty three months.

Total number of 40 patients were included in this study.

All patients with upper eyelid chalazion with age 12-70 years and size of lesion>3mm were included in the study.

Patients with prior intraocular &refractive surgery, corneal scarring, history of ocular trauma,

corneal pathologies including pterygium, keratoconus or contact lens user ,dry eyes, recurrent chalazion, multiple chalazia were excluded.

On visit 0(on first visit to opd) patients were selected on the basis of inclusion & exclusion criteria.

Only upper eyelid chalazion>3mm wasincluded in the study.

Patientswere divided into 2subgroups according to the size of chalazion.Group 1(3-5mm) Group 2 (>5mm). Horizontal and vertical diameter of the chalazion was measured by ruler from skin side, and the average value was used for the study. Patient's fulfilling the above mentioned criteria was enrolled in the study after explaining pertinent details of the study and obtaining valid informed consent for the same.

Once patients were selected, baseline assessment included standard ophthalmic examination like visual acuity,refraction,IOP,slit lamp evaluation ,fundus examination, corneal topography.

Having thus obtained baseline parameters,incision and curettage was done in the study eye.

Incision and curettage (I and C) was performed under local anesthesia with 2% lidocaine injection. To anesthetize the eyelid, 1-2 mL of 2% lidocaine was injected subcutaneously into the eyelid with a 26-gauge needle. Alid clamp was placed and eyelid was everted. A vertical incision was made through the tarsal plate into themeibomian gland. A curette wasinserted into the chalazion to break up the loculations and drain the chalazion. After Iand C, pressure patching with antibiotics(moxifloxacin) wasdone and patients were instructed to retain the patch for more than 4hrs.

The patients were asked to come for follow-up on

Day 7,6 weeks after I and C.

Post- operative corneal curvature was assessed by corneal topographer at

- Day 7 postoperatively
- 6 weeks post-operatively

Outcome measures evaluated were corneal curvature(K1,K2),Astigmatism and Refraction.

STATISTICAL ANALYSIS

Data were analyzed using the Statistical Package for the Social Sciences version 24.0 (SPSS, Chicago, IL, USA). Normal continuous variables were presented as mean ± standard deviation. Test of significance was calculated by unpaired student's t-test between cases and controls. P value was considered to be statistically significant when < 0.05.

RESULTS

The present prospective follow-up study was conducted to determine effects of chalazion and its excision on cornea curvature.

Overall 40 lids with upper eyelid chalazion were included in the study.

It was divided in to two groups group 1 =(3-5)mm and group 2=>5mm

The study revealed following results:

- The mean age in Group 1 was 25.57 ±8.50 years and Group 2 was 27.81 ±11.91 year and there was no significant difference in age distribution in two groups. (p>0.05)
- The distribution of patients according to location showed majority of patients had central location i.e. 6 (42.85%) patients among Group 1 and 12 (46.15%) patients in Group 2.

Table 1: Distribution of patients according to location among two groups:

Location	Group 1 (size 3-5m)	Group 2 (size >5mm)	Total
Nasal	04	04	08
Central	06	12	18
Temporal	04	10	14
Total	14	26	40

- The IOP was within normal range in both groups 15.71 ± 2.86 in group 1 and 15.58 ± 2.84 in group 2.

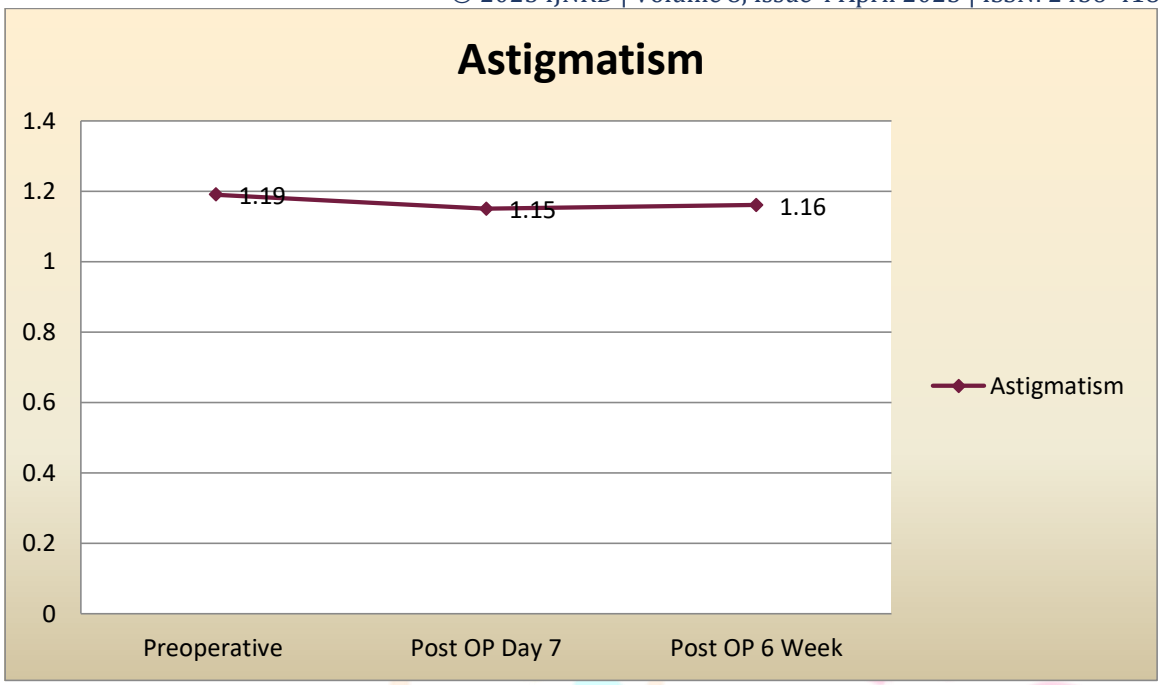
- **In Group 1**:The mean visual acuity preoperatively was 0.28±0.32 and there was no significant change in postop visual acuity at 7 days and 6 week respectively.The mean pre-operative refraction (spherical) was -1.18 ±2.83. Post operative day 7 and 6 week mean refraction (spherical) was -1.10 ±2.98 and -1.03 ±1.89 respectively. Similarly, the mean pre-operative refraction (Cylindrical) in was -0.70 ±0.79. Post operative day 7 and 6 week mean refraction (Cylindrical) was -0.55 ±0.58 and -0.43 ±0.51 respectively. But, this difference in decrease in mean refraction post operative compared to pre operative among patients in Group 1 was statistically not significant. (P>0.05). The mean pre-operative corneal topography (CK1) was 42.84 ±0.81 and CK2 was 44.23 ±1.10. Post operative day 7 and 6 week mean CK1 was 43.00 ±1.03 and 42.97 ±0.92 respectively and CK2 was 44.27 ±1.21 and 44.09 ±1.10 respectively on postoperative day 7 and 6 week. But, this difference in increase in mean CK1 and decrease in CK2 post operative compared to pre operative among patients in Group 1 was statistically not significant. (P>0.05). The mean pre-operative astigmatism was 1.19 ±0.62. Post-operative day 7- and 6-week mean

astigmatism was 1.15 ±0.60 and 1.16 ±0.61 respectively. But, this difference in decrease in mean astigmatism post-operative compared to pre-operative among patients in Group 1 was statistically not significant. (P>0.05)

Table 2:OutcomeParametres as evaluated preoperatively,Day 7 and 6 week postoperatively in Group 1.

PARAMETERS		Preoperative (mean ± S.D)	Post OP Day 7 (mean ± S.D)	Post OP 6 Week (mean ± S.D)	P Value (Pre Vs Post 7 days)	P Value (Pre Vs Post 6 weeks)
	Visual acuity	0.28±0.32	0.26±0.30	0.26±0.30	>0.05 (NS)	>0.05 (NS)
Refraction	Spherical	1.18 ±2.83	1.10 ±2.9	-1.03 ±1.89	0.73 (NS)	0.43 (NS)
	cylindrical	-0.70 ±0.79	-0.55 ±0.58	-0.43 ±0.51	0.21 (NS)	0.39 (NS)
Corneal topography	K1	42.84 ±0.81	43.00 ±1.03	42.97 ±0.92	>0.05 (NS)	>0.05 (NS)
	K2	44.23 ±1.10	44.27 ±1.21	44.09 ±1.10	>0.05 (NS)	>0.05 (NS)
	ASTIGMATISM	1.19 ±0.62	1.15 ±0.60	1.16 ±0.61	>0.05 (NS)	>0.05 (NS)

Fig 1: Astigmatism among group 1 at different intervals:



The mean pre-operative astigmatism in Group 1 was **1.19 ±0.62**. Post-operative day 7- and 6-week mean astigmatism was **1.15 ±0.60** and **1.16 ±0.61** respectively. But, this difference in decrease in mean astigmatism post-operative compared to pre-operative among patients in Group 1 was statistically not significant. (P>0.05)

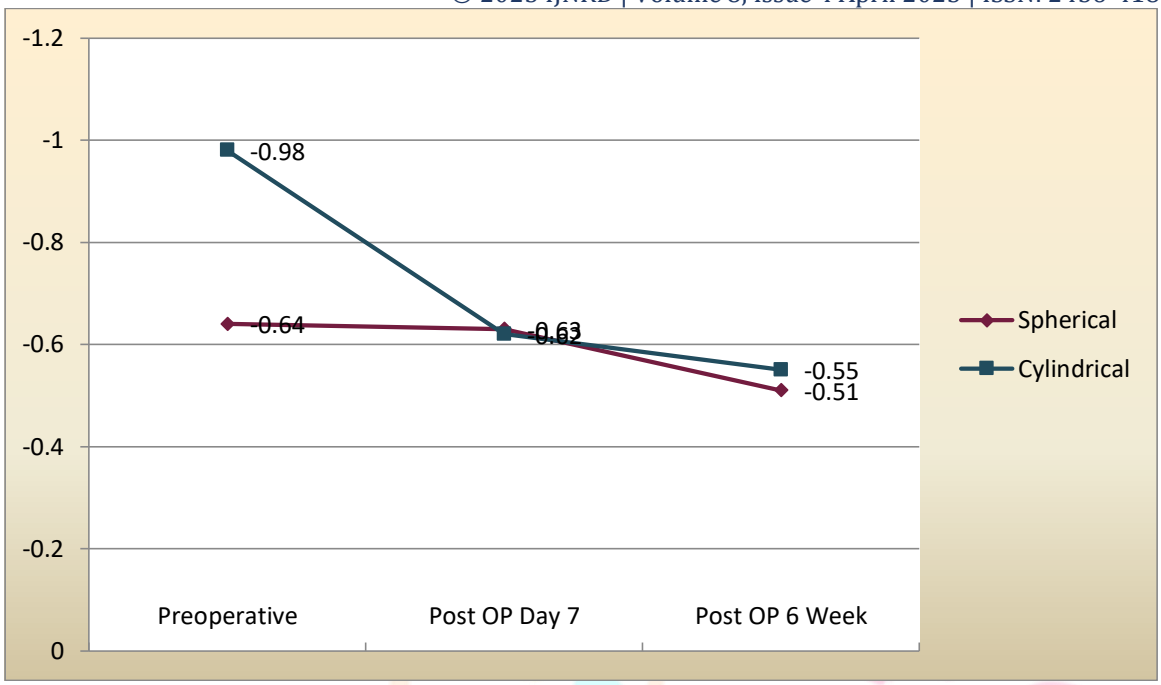
- **In Group 2:**The mean pre-operative visual acuity was 0.28±0.34. Post-operative day 7 mean visual acuity was0.24±0.31 and 6 weeks was 0.23±0.32. This difference in improvement in mean visual acuity post-operative 6 weeks compared to pre-operative among patients in Group 2 was not statistically significant. (P>0.05).The mean pre-operative refraction (spherical) in was -0.64 ±1.09. Post operative day 7 and 6 week mean refraction (spherical) was -0.63 ±1.08 and -0.51 ±1.34 respectively. This difference in decrease in mean refraction (spherical) post operative compared to pre operative among patients in Group 2 was statistically not significant. (P>0.05).Similarly, the mean pre-operative refraction (Cylindrical) in Group 2 was -0.98 ±0.97. Post operative day 7 and 6 week mean refraction (Cylindrical) was -0.62 ±0.47 and -0.55 ±0.61 respectively. But, this difference in decrease in mean refraction (Cylindrical) post operative compared to pre operative among patients in Group 2 was statistically significant. (P<0.05).The mean pre-operative corneal topography (CK1) was 42.57 ±1.06 and CK2 was 43.98 ±0.97**.** Post-operative day 7- and 6-week mean CK1 was 42.6 ±1.08 and 42.74 ±1.09 respectively and CK2 was 43.88 ±1.01 and 43.66 ±0.97respectively. This difference in increase in mean CK1 and decrease in CK2 6 weeks post operatively compared to pre-operative among patients in Group 2 was statistically significant (P<0.05).The mean pre-operative astigmatism in Group 2 was 1.41 ±0.94. Post operative day 7 and 6 week mean astigmatism was 1.23 ±0.78 and 0.94

±0.58respectively. This difference in decrease in mean astigmatism post operative compared to pre operative among patients in Group 2 was statistically significant at 6 weeks. (P<0.05)

Table 3: Outcome Parameters in Group 2 as evaluated preoperatively,postoperatively Day7 and 6 week.

PARAMETERS		Preoperative (mean ± S.D)	Post OP Day 7 (mean ± S.D)	Post OP 6 Week (mean ± S.D)	P Value (Pre Vs Post 7 days)	P Value (Pre Vs Post 6 weeks)
	Visual acuity	0.28±0.34	0.24±0.31	0.23±0.32	>0.05 (NS)	>0.05 (NS)
Refraction	Spherical	-0.64 ±1.09	-0.63 ±1.08	-0.51 ±1.34	0.54 (NS)	0.07 (NS)
	cylindrical	-0.98 ±0.97	-0.62 ±0.47	-0.55 ±0.61	0.32 (NS)	0.02 (S)
Corneal topography	K1	42.57 ±1.06	42.6 ±1.08	42.74 ±1.09	>0.05 (NS)	<0.05 (S)
	K2	43.98 ±0.92	43.88 ±1.01	43.66 ±0.97	>0.05 (NS)	<0.05 (S)
	ASTIGMATISM	1.41 ±0.94	1.23 ±0.78	0.94 ±0.58	0.09 (NS)	0.031 (S)

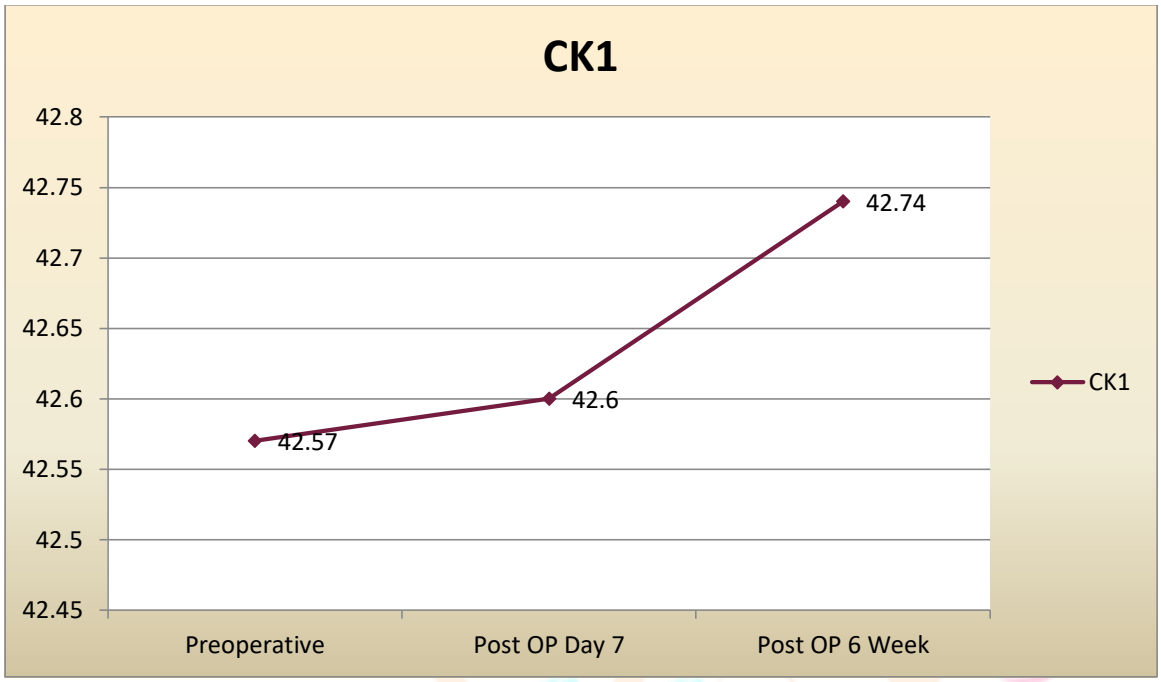
Figure2: Refraction among group 2 at different intervals:



The mean pre-operative refraction (spherical) in Group 2 was -0.64 ±1.09. Post operative day 7 and 6 week mean refraction (spherical) was -0.63 ±1.08 and -0.51 ±1.34 respectively. This difference in decrease in mean refraction (spherical) post operative compared to pre operative among patients in Group 2 was statistically not significant. (P>0.05)

Similarly, the mean pre-operative refraction (Cylindrical) in Group 2 was -0.98 ±0.97. Post operative day 7 and 6 week mean refraction (Cylindrical) was -0.62 ±0.47 and -0.55 ±0.61 respectively. But, this difference in decrease in mean refraction (Cylindrical) post operative compared to pre operative among patients in Group 2 was statistically significant. (P<0.05)

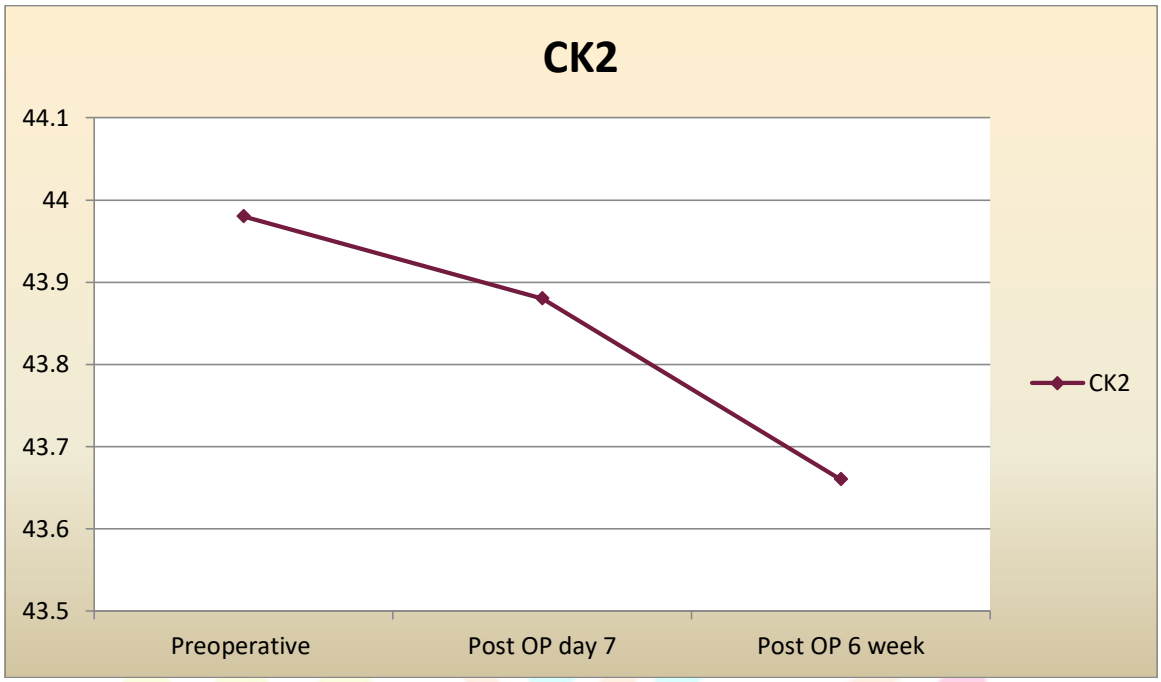
Figure3: CK1 among group 2 at different intervals



The mean pre-operative corneal topography (CK1) in Group 2 was 42.57 ±1.06. Post-operative day 7- and 6-week mean CK1 was 42.6 ±1.08 and 42.74 ±1.09 respectively.

This difference in increase in mean CK1 6 weeks post operatively compared to pre-operative among patients in Group 2 was statistically significant. ($P<0.05$)

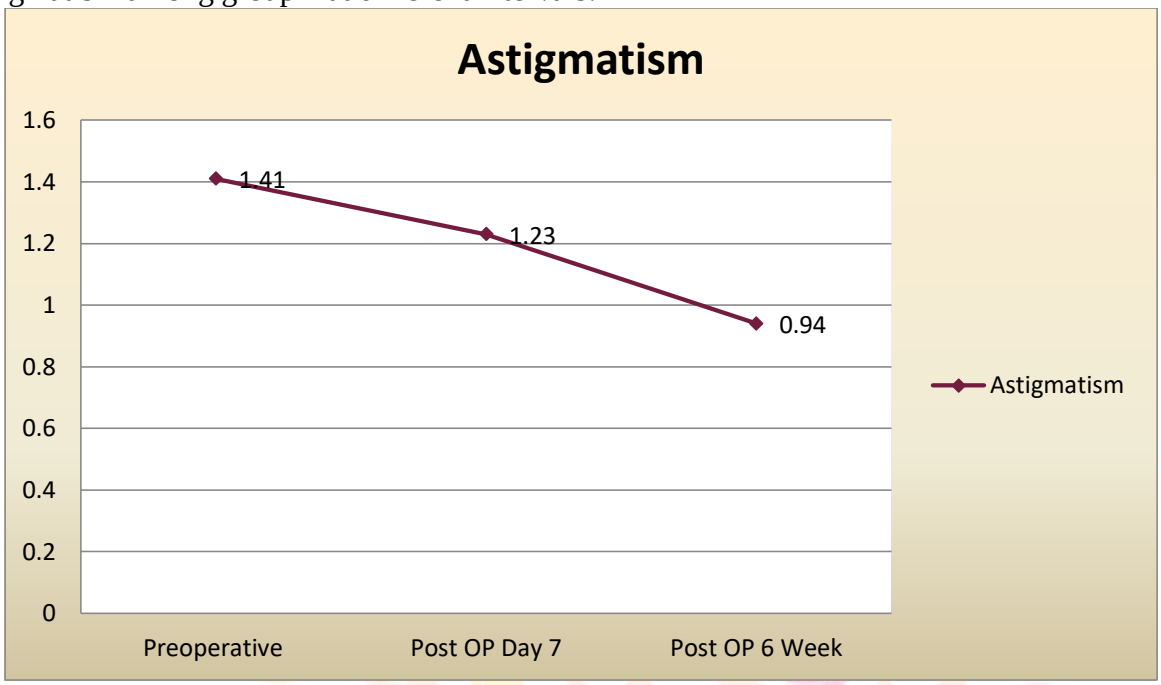
Figure 4: CK2 among group 2 at different intervals



The mean pre-operative corneal topography (CK2) in Group 2 was 43.98 ±0.92. Post-operative day 7 and 6-week mean CK2 was 43.88 ±1.01 and 43.66 ±0.97 respectively.

This difference in increase in mean CK1 weeks post operatively compared to pre-operative among patients in Group 2 was statistically significant. ($P<0.05$)

Figure 5: Astigmatism among group 2 at different intervals*:*



The mean pre-operative astigmatism in Group 2 was **1.41 ±0.94**. Post-operative day 7- and 6-week mean astigmatism was **1.23 ±0.78** and **0.94 ±0.58** respectively.This difference in decrease in mean astigmatism post-operative compared to pre-operative among patients in Group 2 was statistically significant at 6 weeks. (P<0.05)

- The comparison of astigmatism according to location among patients at different intervals showed post-operative day 7 and 6-week later astigmatism improved more in central location chalazion as compared to nasal and temporal with significant difference. (p<0.05)

Table 4: Comparison of astigmatism according to location:

Astigmatism	Nasal (n=08) (mean ± S.D)	Central (n=18) (mean ± S.D)	Temporal (n=14) (mean ± S.D)
Pre-operative	1.08 ±0.51	1.70 ±0.59	1.04 ±0.61
Post OP Day 7	1.01 ±0.42	1.43 ±0.52	1.02 ±0.39
Post OP 6 Week	0.86 ±0.51	1.13 ±0.57	1.01 ±0.42
P Value (Pre Vs Post 7 days)	>0.05 (NS)	>0.05 (NS)	>0.05 (NS)
P Value (Pre Vs Post 6 Weeks)	>0.05 (NS)	<0.05 (S)	>0.05 (NS)

(P<0.05 statistically significant)

The above table shows comparison of astigmatism according to location among patients at different intervals. It was observed that post operative day 7 and 6 week later astigmatism improved more in central location chalazion as compared to nasal and temporal with significant difference. ($p<0.05$)

DISCUSSION:

The present prospective follow-up study was conducted to determine effects of chalazion and its excision on corneal curvature. Patients were divided into 2 subgroups according to the size of chalazion i.e. Group 1(3-5mm) and Group 2 (>5mm) size chalazion. Once patients were selected, baseline assessment and standard ophthalmic examination were done.

From a descriptive point of view, our study revealed that most patients with chalazia are young or middle aged. The lesion is slightly more prevalent in females, and right eyes. This study, which was conducted on a sizable number of patients with chalazia, revealed that excision of these lesions decreases corneal steepness induced by the mass. Chalazion excision also improves corneal symmetry and regularity, as documented by changes in corneal topographic indices, and reduces corneal astigmatism. Our findings confirm observations by Cosar et al[5], who reported a case of visual improvement after excision of a chalazion in a patient with prior laser-assisted in situ keratomileusis surgery; Santa Crus et al[3], who noted the pressure effect of chalazia in the upper lid inducing hyperopia and astigmatism; and Nisted and Hofstetter[9], Rathschuler[10], and Asseman et al[11], who reported corneal astigmatism induced by chalazia due to pressure on the cornea in the meridian of the lesion.

Bagheri et al[2] showed that chalazion excision can decrease corneal astigmatism and irregularity, which are more prominent in upper lid lesions.

This study also showed that central large sized chalazia induced greater astigmatism than nasal and temporal,has the greatest effect on topographic indices and optical properties of the cornea.

In this study, we evaluated the effect of chalazion on corneal curvature before and after chalazionexcision.In group 1 there was no significant changes on visual acuity ,refraction, corneal curvature(K1,K2) and astigmatism both preoperatively and postoperatively on day 7 and 6 weeks later respectively.In group 2 chalazionexcision resulted in significant improvement in cylindrical power, flattening of stepper meridian(K2) and steepening of flatter meridian(K1) ,and decrease in astigmatism on 6 weeks postoperatively.There was no significant change on day 7

postoperatively.Comparison of astigmatism according to location among patients at different intervals showed post-operative day 7- and 6-week later astigmatism improved more in central location chalazion as compared to nasal and temporal with significant difference. ($p<0.05$)

The mechanisms behind the effects of chalazion on corneal astigmatism can be suggested as follows .Firstly excessive levels of pressure due to chalazion can induce the corneal astigmatism. On the other hand, even lower pressure can affect cornea under reduced strain by corneal refractive surgery (such as LASIK).[5] Secondly, mechanical properties is because of lamellar orientation in human corneas.[12,13]As they become closer to the center of the cornea,the mechanical effects increase in the meridian direction.[13] Variations in the regional elastic performance of the human cornea have been reported; the pressure-induced meridional strains were smallest at the corneal para-center and periphery, with the largest recorded at the limbus.[14]The circumferential strains varied less between regions with the para-center straining to the greatest extent. In the meridional direction, Young's modulus of elasticity was greatest at the central and para-central corneal regions, while the greatest circumferential elastic modulus was found at the limbus.[13,14] Some authors have suggested the notion of circumferentially orientated reinforcing structures in human limbal tissue.[14]

The para-central region of the human cornea was found to be stiffer in the meridional direction compared with the circumferential direction, suggesting a meridionally-orientated reinforcement of the para-central parts of the human cornea.[14]

Furthermore, the preferred collagen orientation in the human corneal stroma exhibit a inferior-superior and nasal-temporal directions. However, at the limbus, the preferred orientation is tangential to the cornea.[15,16] Therefore, it is difficult for the pressure on the sclera to have an effect on the cornea in the meridian direction. Chalazion in the middle eyelid can more easily induce corneal astigmatism in the meridian direction because it is located superior to the cornea and close to the center of the cornea. The mass effect of a chalazion could increase with size.

The recognition of the effects of chalazion on the cornea is very limited. Large-sized chalazia greatly induce changes in the corneal topography, astigmatism which may hamper the quality of vision thus warrant early intervention.They should be treated before performing any refractive procedure or before cataract surgery as the distorted high wavefront aberrations may greatly affect the surgical outcomes.

REFERENCES

1.Ben Simon GJ, Rosen N, Rosner M, Spierer A. Intralesional triamcinolone acetonide injection versus incision and curettage for primary chalazia.Am J Ophthalmol 2001;151:714–8.

2. Bagheri A, Hasani HR, Karimian F, Abrishami M, Yazdani S. Effect of chalazion excision on refractive error and corneal topography. Eur J Ophthalmol2009;19:521–6.

3. Santa Cruz CS, Culotta T, Cohen EJ, Rapuano CJ. Chalazion-induced hyperopia as a cause of decreased vision. Ophthalmic Surg Lasers 1997;28:683–4.

4. Sabermoghaddam AA, Zarei-Ghanavati S, Abrishami M. Effects of chalazion excision on ocular aberrations. Cornea 2013;32:757–60.

5. Cosar CB, Rapuano CJ, Cohen EJ, Laibson PR. Chalazion as a cause of decreased vision after LASIK. Cornea 2001;20:890–2.

6. Packer M, Fine IH, Hoffman RS. Wavefront technology in cataract surgery.CurrOpinOphthalmol. 2004;15:56–60.

7. Tang CY, Charman WN. Effects of monochromatic and chromatic oblique aberrations on visual performance during spectacle lens wear. Ophthalmic Physiol Opt 1992;12:340–9.

8. Donaldson MJ, Gole GA. Amblyopia due to inflamed chalazion in a 13-month old infant. ClinExpOphthalmol 2005;33:332–3.

9.Nisted M, Hofstetter HW. Effect of chalazion on astigmatism. Am J OptomPhysiol Opt 1974; 51: 579-82**.**

10. Rathschuler R. Transitory corneal astigmatism due to superior eyelid chalazion in patients with lowered scleral rigidity. Ann OttalmolClinOcul 1970; 96: 365-9.

11.Asseman R, Corbel M, Taine L. Acquired astigmatism caused by chalazion. Bull SocOphtalmolFr 1965; 65: 148-50.

12. Boote C, Dennis S, Huang Y, Quantock AJ, Meek KM. Lamellar orientation in human cornea in relation to mechanical properties. J StructBiol 2005;149:1–6.

13. Shin TJ, Vito RP, Johnson LW, McCarey BE. The distribution of strain in the human cornea. JBiomech 1997;30:497–503.

14. Hjortdal JO. Regional elastic performance of the human cornea. J Biomech1996;29:931–42.

15.Meek, K.M., Newton, R.H. Organization of collagen fibrils in the corneal stroma in relation to mechanical properties and surgical practice. J Refract Surg 1999;15:695-9.

16.Murray IJ, Elliott SL, Pallikaris A, Werner JS, Choi S, Tahir HJ. The oblique effect has an optical component: Orientation-specific contrast thresholds after correction of high-orderaberrations. J Vis 2010;10:10.

ANNEXURE-: INFORMED CONSENT FORM

Participant details :

Name : _____ Age/Sex : _____ MRD No. : _____

Address : _____ Phone no. : _____

I _____ the undersigned do hereby give my consent for the investigations and procedure to be carried upon me. I am satisfied with the information given about this clinical study titled "**Effect of chalazion and its excision on corneal curvature**" being conducted by Dr.Nyai Ete under the guidance of Dr.L.Sarkar, Professorand Consultant , Department of Ophthalmology, VMMC and Safdarjung Hospital. I have been informed and explained about the risks involved and I hereby voluntarily and unconditionally give my consent without any fear or pressure, in mentally sound and conscious state to participate in this study. I confirm that I have had the opportunity to ask questions and clarify doubts. I understand that my participation is completely voluntary and that I am free to withdraw at any time without stating any reasons, and without my medical care or legal rights being affected. I understand that information collected from my participation in this research and any section of my medical notes may be looked at by medical personnel and responsible individuals from regulatory authorities where and when relevant. I agree to having my clinical pictures taken and their publication if need be for research purposes. I give permission to these individuals to maintain and access my records. I agree to take part in the above-mentioned study.

Participant Signature: _____

Dated:

Doctor's Name: _____

Doctor's Signature: _____

Dated:

In case of any concern,feel free to contact: Dr Nyai Ete (mobile no.9891560532)

Witness name: Witness signature

अनुबंध:सहमतिपत्र

प्रतिभागीविवरण:

नाम: _____ आयु / लिंग: _____ एमआरडीसंख्या: _____

पता: _____ फोननंबर।: _____

मैं ----------

अधोहस्ताक्षरी,अपनीजाँचकेलिएऔरमुझपरकीजानेवालीप्रक्रियाकेलिएसहमतिदेताहूँ |
डॉएल।सरकारकेमार्गदशनमेंडा.न्याईईटेद्वाराआयोजित"**कॉर्नियावक्रतापरचलाज़िओंऔरउसेनिकलनेकाप्रभाव**"नामकइसनैदानिकअध्ययनकेबारेमेंडीगईजानकारीसेमैंसंतुष्टहूँ |
मुझेइसअध्ययनमेंभागलेनेकेलिएजानकारीडीगईहै,इसमेंशामिलजोखिमोंकोसमझायागयाहैऔरमैंइसकेद्वारास्वेच्छासेऔरबिनाशर्त, किसीभीभयया दवाबकेबिना ,मेरीसहमतिदेरहाहूँ | मैंपुष्टिकरताहूँकीमुझेप्रश्नपूछनेकाअवसरमिलाहै | मैंसमझताहूँकीमेरीभागीदारीस्वेच्छिकहैऔरकिसीभीकारणबताएबिना, किसीभीसमयखुदकोअध्ययनसेवापसलेनेकेलिएस्वतंत्रहूँ| मैंसमझताहूँकीइसमाध्यमसेएकत्रितजानकारीअधिकृतकर्मियोंद्वाराउपयोगकीजासकतीहै|मैंइनव्यक्तियोंकोमेरेरिकॉर्डबनायेरखनेकेलिएजानकारीअनुमतिदेताहूँ?मैंअपनीनैदानिकचित्रोंकोलेनेऔरप्रकाशितकरनेकीअनुमतिदेताहूँ |
मैंउपयुर्क्तअध्ययनमेंभागलेनेकेलिएसहमतहूँ |

प्रतिभागीहस्ताक्षर: _____

दिनांक : स्थान:

डॉक्टरकानाम: _____डॉक्टरकाहस्ताक्षर: _____

दिनांक : स्थान:

किसीभीचिंताकेमामलेमें, संपर्ककरनेमेंसंकोचनकरें: डॉन्याईईट (मोबाइलनंबर 9 8 9 1560532)गवाहगवाहकानामगवाहकेहस्ताक्षर