EVALUATION OF REFRACTIVE AND CORNEAL TOPOGRAPHIC CHANGES FOLLOWING UPPER EYELID BLEPHAROPLASTY

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INTRODUCTION

Blepharoplasty is a surgical procedure in which the eyelid skin, orbicularis oculi muscle, and orbital fat are excised, redraped, or sculpted to rejuvenate the esthetic look of the patient along with correction of any functional abnormality.

In upper eyelid blepharoplasty removal of excess skin and raising the eyelid may lead to redistribution of the pressure applied by the lids over the cornea and cause changes in corneal shape which could be proved with corneal topography. Also pressure of excess skin and prolapsed fat may cause alterations in normal corneal curvature. This could change corneal refraction or astigmatism and that may cause blurred vision.

AIM OF THE WORK

Evaluation of refractive and corneal topographic changes that follows upper eyelid blepharoplasty.

SUBJECTS AND METHODS

SUBJECTS

Inclusioncriteria:

Patients with upper eyelid blepharochalasis without previous upper eyelid surgeries

Exclusioncriteria:

Previous corneal surgery, dry eye, uncontrolled diabetes milletus, keratoconus or keratectasia, corneal surface irregularities and lenticular pathologies.

METHODS

A prospective study in which10 patients(20 eyes) with age range from 35 to 81 years 2 of them were males(4eyes) and 8 females(16eyes) subjected to the following before undergoing upper eyelid blepharoplasty: Complete history taking including: Age, medical and surgical history.

Complete ophthalmic examination, Visual acuity testing, Cycloplgic refraction upper eyelid examination: marginal reflex distance(MRD), marginal crease distance(MCD) and Pentacam (Oculyzer II, WaveLight, Germany) study of the cornea.

The acquired image was examined and the following measures were documented:

1- Thinnest location(in micrometer)
2- Kmax (in diopter)
3- Mean K (in diopter)
4- Corneal pattern configuration. As a result, four types of corneal topographic patterns were defined: symmetrical, asymmetrical, round and oval.

One month after operation all patients were subjected to: Visual acuity testing, Cycloplgic refraction and Pentacam (OculyzerII, Wave Light, Germany) study of the cornea.

RESULTS

There were no statistical differences in refraction(astigmatism and spherical equivalent) between preoperative and one month postoperative data.

There were no statistical differences in corneal topography (thinnest location, meanK, Kmax and corneal surface pattern) between preoperative and one month postoperative data.

Astigmatism	Pre	Post
Min. – Max.	-0.50 – -2.25	-0.25 – -2.50
Mean ± SD.	-0.90 ± 0.51	-0.93 ± 0.60
Median (IQR)	-0.75 (-1.0– -0.50)	-0.75 (-1.0 – -0.50)
P	0.658	

Table 1:comparison between preoperative and postoperative astigmatism

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Thinnest location (µm)	Preoperative	Postoperative
Min. – Max.	492.0 – 587.0	488.0 – 594.0
Mean ± SD.	542.3 ± 31.41	545.3 ± 33.06
Median (IQR)	540.5 (515.5 – 571.0)	547.0 (516.5 – 571.5)
P	0.111	

Table 2 :comparison between preoperative and postoperative thinnest location

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K max(D)	Pre	Post
Min. – Max.	42.70 – 46.50	42.70 – 46.50
Mean ± SD.	44.89 ± 1.22	44.90 ± 1.15
Median (IQR)	45.25 (43.85– 45.80)	45.35 (43.90– 45.75)
P	0.950	

Table 3 :comparison between preoperative and postoperative K max

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Km(D)	Preoperative	Postoperative
Min. – Max.	41.40 – 45.10	41.50 – 45.20
Mean ± SD.	43.70 ± 1.17	43.77 ± 1.18
Median (IQR)	44.25 (42.75– 44.50)	44.30 (42.65– 44.60)
P	0.120	

Table 4:comparison between preoperative and postoperative mean K.

CONCLUSION

- There were no statistically significant differences between preoperative and one month postoperative refraction (astigmatism and spherical equivalent) and corneal topography (thinnest location, mean K ,corneal surface pattern and K max).
- .upper eyelid blepharoplasty has no effect on corneal topography and refraction.