

# TOMOGRAPHIC CHANGES AFTER PTERYGIUM EXCISION WITH CONJUNCTIVAL AUTOGRAFT

Tamer Hamdy Ibrahim Massoud, Shahira Rashad Khoudary Mahmoud, Khaled Mohamed Saleh Dawma

Department of Ophthalmology, Faculty of Medicine, Alexandria University

## INTRODUCTION

Pterygium is a fibrovascular growth arising from the conjunctiva and extending over the cornea. It arises from bulbar conjunctiva and may be stationary or progressive, and it is more common in tropical areas. Most of the population-based studies suggest that cumulative ultraviolet light exposure is the main risk factor for pterygium development. This may explain the variations in gender affection in different communities according to the male-to-female ratio in outdoor occupations.

Corneal invasion leads to the induction of astigmatism and may obstruct the visual axis leading to decreased vision. Pterygia can cause local corneal flattening and increase ocular aberrations which affect the quality of vision. Surgery is the best option to treat pterygium, the main indication for surgery in pterygium is the affection of vision, but surgery could be indicated also in cases of cosmetic disfigurement or chronic irritation. Pterygium excision with conjunctival autograft reduces the recurrence rate in primary and recurrent pterygia.

## AIM OF THE WORK

This study aims to determine the tomographic changes after pterygium excision with conjunctival autograft.

## PATIENTS AND METHODS

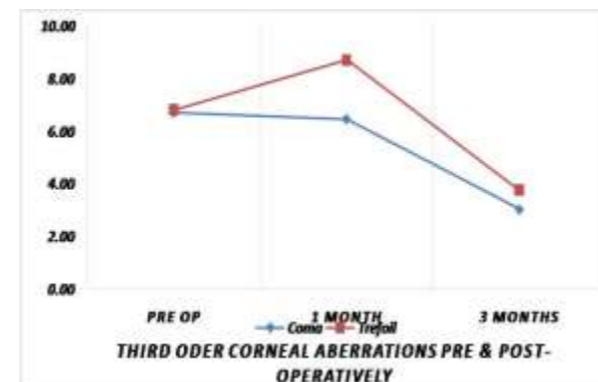
The study was conducted as a prospective non-randomized study.

The study was conducted on patients who underwent pterygium excision with conjunctival autograft presenting to the ophthalmology outpatient clinic at Matrouh General Hospital. Patients suffering from primary pterygia that encroach over the cornea from two to four millimeters were included, and patients who have a history of ocular trauma or surgery, recurrent pterygium, corneal abnormalities, current contact lens wearers, conjunctival scarring, and patients with incomplete follow-up data were excluded. All patients signed a written informed consent to participate in the study and for the publication of data before being enrolled in it (after explaining the nature of the procedure and all study details). Personal, medical, and ocular history were obtained from each patient, and a detailed ophthalmic examination was done with corneal tomography preoperative and repeated at 1 and 3 months after surgery.

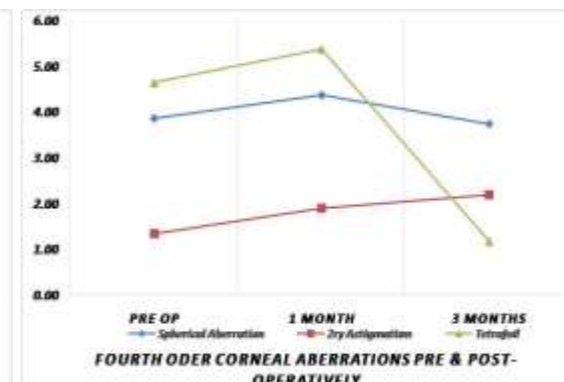
## RESULTS

**Table 1:** Corneal Higher Order Aberrations (anterior) (HOA) ( $\mu\text{m}$ )

Measures	Pre-operation	Month-1	Month-3	Pre/M 1	Pre/M 3	M1/M 3
<b>Coma</b>						
Mean $\pm$ SD	6.7 $\pm$ 4.2	6.5 $\pm$ 4.2	3.0 $\pm$ 1.7	0.999	0.010*	0.018*
Range	1.3–11.2	1.7–11.7	1.3–5.3			
<b>Trefoil</b>						
Mean $\pm$ SD	6.8 $\pm$ 6.4	8.7 $\pm$ 6.8	3.7 $\pm$ 1.9	0.924	0.308	0.029*
Range	0.7–15.4	0.8–16.9	1.3–5.9			
<b>SA</b>						
Mean $\pm$ SD	3.9 $\pm$ 0.4ab	4.4 $\pm$ 0.9a	3.7 $\pm$ 1.2b	0.254	0.999	0.040*
Range	3.3–4.4	3.2–5.1	2.1–4.5			
<b>2ry Astig</b>						
Mean $\pm$ SD	1.3 $\pm$ 1.0	1.9 $\pm$ 1.4	2.2 $\pm$ 1.3	0.554	0.134	0.999
Range	0.4–2.6	0.3–3.6	0.5–3.2			
<b>Tetrafoil</b>						
Mean $\pm$ SD	4.6 $\pm$ 4.8ab	5.4 $\pm$ 5.9a	1.2 $\pm$ 0.9b	0.999	0.068	0.019*
Range	0.5–11.2	0.9–13.4	0.3–2.5			



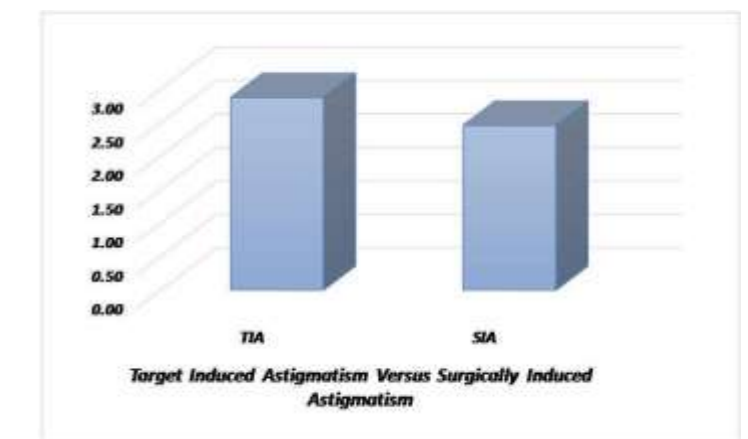
**Figure 1:** Third Oder Corneal Aberrations Pre & Post-Operatively



**Figure 2:** Fourth Oder Corneal Aberrations Pre & Post-Operative.

**Table 2:** Vector Analysis

Variables	Measures	Power (diopters)	Axis (degrees)
<b>TIA</b>	Mean $\pm$ SD	2.9 $\pm$ 2.7	110.4 $\pm$ 65.6
	Range	0.3-10.2	10.0-175.0
<b>SIA</b>	Mean $\pm$ SD	-2.5 $\pm$ 3.1	105.2 $\pm$ 72.3
	Range	0.0-11.3	0.0–177.0



**Figure 3:** Target Induced Astigmatism Versus Surgically Induced Astigmatism

## CONCLUSION

Successful Pterygium excision decreases cylindrical error and reverts corneal curvatures back to normal, which leads to improvement in subjective visual acuity, improves topographic measures and best corrected visual acuity, and reduces most of the corneal high-order aberrations.