

# BIOMETRIC CHARACTERISTICS OF THE EYE WITH MICROCORNEA/MICROPHTHALMIA AND CONGENITAL CATARACT BEFORE AND AFTER CATARACT EXTRACTION

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## INTRODUCTION

Congenital cataract (CC) may cause up to 25% to 30% of children's blindness if it is not adequately treated. In Egypt, the high prevalence of CC reflects a true national problem.

The association between CC and microcornea / microphthalmia is already reported. Surgery for CC is a challenging task with several approaches, both limbal and pars plana / plicata. Moreover, standardization of any surgical procedure is possible only through a thorough, detailed knowledge of the anatomy of the organ of concern, Additionally, a dreaded complication of CC surgery, glaucoma, is potentially related to the anterior segment anatomy.

## AIM OF THE WORK

This study aimed to report on the biometric characteristics of the anterior segment and axial length of eyes with microcornea and microphthalmia before and after cataract extraction.

## SUBJECTS AND METHODS

An observational hospital-based prospective cohort study done in the department of ophthalmology.

Cataract surgery was done on 133 eyes of 80 children, including 50 eyes with congenital cataracts and microcornea / microphthalmia. A control group of 83 eyes belonging to 52 children with congenital cataract in an otherwise regular anterior segment was enrolled for comparison. An examination under anesthesia (EUA). During the examination keratometry, axial length and corneal diameter were assessed. A 3months and 6months follow-up were scheduled.

Data were fed to the computer and analyzed using IBM SPSS software

## RESULTS

Table 1: pre-operative keratometry K1 and K2 in each group

Keratometry	Cases (n=25)	Control (n=34)	t	p
K1 (mm)				
Min. – Max.	6.40 – 7.63	6.92 – 8.25	5.058	<0.001*
Mean ± SD.	7.26 ± 0.30	7.66 ± 0.30		
Median (IQR)	7.28 (7.1–7.5)	7.71 (7.4–7.9)		
K2 (mm)				
Min. – Max.	6.0 – 7.44	5.47 – 7.80	2.657*	0.010*
Mean ± SD.	6.95 ± 0.31	7.22 ± 0.44		
Median (IQR)	7.05 (6.8–7.1)	7.30 (7.1–7.5)		

IQR : Inter quartile range SD : Standard deviation t : Student t-test  
p: p-value for comparing the two studied groups  
\*: Statistically significant at  $p \leq 0.05$

Table 2: Pre-operative AL and post-operative changes in AL over time

Axial Length (mm)	Cases	Control	t	p
Pre-operative	(n=50)	(n=83)		
Min. – Max.	14.59 – 20.90	18.21 – 26.63	13.999*	<0.001*
Mean ± SD.	17.63 ± 1.28	21.76 ± 2.12		
Median (IQR)	17.52 (16.90–18.25)	21.29 (19.96–23.52)		
Post-operative				
3 months	(n=26)	(n=23)	8.627*	<0.001*
Min. – Max.	17.25 – 21.94	19.25 – 27.83		
Mean ± SD.	18.73 ± 1.24	23.47 ± 2.37		
Median (IQR)	18.45 (17.65–19.60)	23.44 (21.74–24.85)		
6 months	(n=19)	(n=12)	3.814*	0.002*
Min. – Max.	17.90 – 20.70	19.20 – 26.55		
Mean ± SD.	19.25 ± 0.85	21.93 ± 2.34		
Median (IQR)	19.12 (18.53–19.85)	21.22 (20.90–22.22)		

IQR: Inter quartile range SD: Standard deviation t: Student t-test  
p: p-value for comparing the two studied groups  
\*: Statistically significant at  $p \leq 0.05$

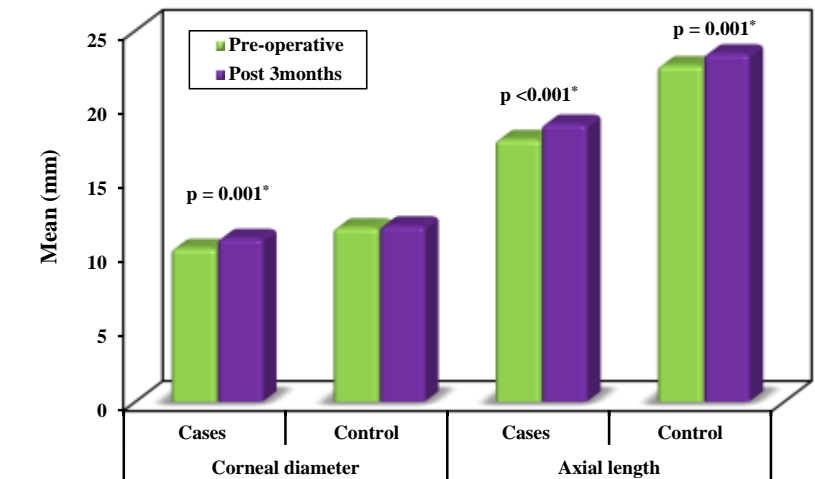


Figure 1: Mean pre-operative and 3months post-operative Corneal diameter and Axial length in each group

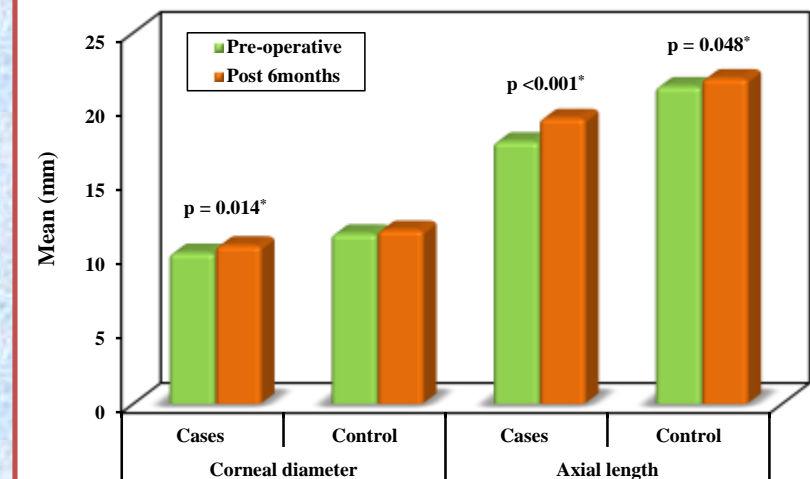


Figure 2: Pre-operative and post 6months mean Corneal diameter and Axial length in each group

## CONCLUSION

The microcornea / microphthalmia eyes have steeper corneas. In the preoperative and the postoperative period the corneal diameter and the axial length were small in microcornea / microphthalmia. The ocular axis growth of those eyes is faster than the growth of normal eyes after cataract removal.