Effect of Pterygium on Corneal Topography and Astigmatism

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Purpose: To study the effects of pterygium on corneal topography and evaluate the relationship between pterygium morphology and corneal astigmatism in eye with unilateral primary pterygium.

Methods: A total of 33 patients with unilateral primary pterygium were recruited. The patients were evaluated for visual acuity, pterygium morphology in term of width, corneal extension, and grading. Orbscan II corneal topography was used to determine corneal astigmatism and topography.

Results: There were 22(66.7%) women and 11(33.3%) men. Mean age of the patients was 56.2± 10.9 years. Mean corneal extension was 2.7±1.0 mm and mean width was 4.2 ± 1.2 mm. Pterygium were classified as grade 1, 2, and 3 in 3.0%, 45.5%, and 51.5% of eyes, respectively. Most common type of astigmatism was oblique (51.5%), followed by with-the-rule (36.4%), and against-the-rule (12.1%), respectively. Mean keratometry (K) obtained from Orbscan II including sim K, K reading at 3 mm, 5 mm zone was significantly different between study eyes and contralateral eyes (2.1±2.3 D and 0.8±0.5 D,2.4±2.6 D and 0.9 ± 0.5 D, 3.9± 8.9 and 1.0 ±0.7 D, respectively). Pterygium induced astigmatism of ≥1 D when it extended ≥2.25 mm on to the cornea (mean 2.20±0.65, p value 0.04, sensitivity 76.2 % and specificity 66.7 %).

Conclusions: Corneal extension was the important parameter in assessment of astigmatism induced by pterygium. Surgical intervention is recommended in pterygium exceed 2 mm on the cornea as it may lead to significant amount of astigmatism.