

Pterygium-induced Corneal Astigmatism

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Abstract

Background: Previous work has suggested an association between increasing size of pterygium and increasing degrees of induced corneal astigmatism.

Objectives: To assess the quantitative relation between pterygium size and induced corneal astigmatism using a computerized corneal analysis system (TMS II) and slit-lamp beam evaluation of pterygium size, and to conclude whether corneal astigmatism is an early indication for surgical intervention.

Methods: We evaluated 94 eyes of 94 patients with unilateral primary pterygium of different sizes, using TMS II and slit-lamp beam measurements of the size of the pterygium (in millimeters) from the limbus to assess parameters of pterygium size with induced corneal astigmatism. Best corrected visual Snellen acuity was performed.

Results: Primary pterygium induced with-the-rule astigmatism. Pterygium extending 16% of the corneal radius or 1.1 mm or less from the limbus produced increasing degrees of induced astigmatism of more than 1.0 diopter. Significant astigmatism was found in 16.16% of 24 eyes with pterygium of 0.2 up to 1.0 mm in size, in 45.45% of 22 eyes with pterygium of 1.1 up to 3.0 mm in size ($P \leq 0.0004$), and in 100% of 3 eyes with pterygium of 5.1 up to 6.7 mm in size ($P = 0.0005$). We found that visual acuity was decreased when topographic astigmatism was increased.

Conclusions: When primary pterygium reaches more than 1.0 mm in size from the limbus it induces with-the-rule significant astigmatism (≥ 1.0 diopter). This significant astigmatism tends to increase with the increasing size of the lesion. Topographic astigmatism tends to be improved by successful removal of the pterygium. These findings suggest that early surgical intervention in the pterygium may be indicated when the lesion is more than 1.0 mm in size from the limbus.