EFFECT OF PTERYGIUM EXCISION ON PTERYGIUM INDUCED REFRACTIVE CHANGES

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ABSTRACT

BACKGROUND

Pterygium most often refers to a benign growth of the conjunctiva. A pterygium is a triangular fibrovascular subepithelial ingrowth of degenerative bulbar conjunctival tissue over the limbus onto the cornea. It commonly grows from the nasal side of the sclera. Vision may be reduced due to astigmatism induced by the pterygium or due to direct invasion of the visual axis. This abnormality has been measured by keratometry.

METHODS

The prospective study entitled "Effect of pterygium excision on pterygium induced refractive changes" was conducted on 50 eyes on 50 patients of primary pterygium attending the Outpatient Department of Ophthalmology, NSCB Medical College and Hospital, Jabalpur from January 2015 to December 2015. The inclusion criteria were patients with primary pterygium with ≥2D WTR astigmatism as measured by manual keratometry. In the present study an attempt was made to assess the effect of pterygium excision on the induced astigmatism and the relationship between the size of pterygium and the amount of astigmatism. Preoperative and postoperative values were compared using the paired t-test.

RESULTS

The astigmatism decreased significantly following Pterygium excision. The mean preoperative refractive cylinder decreased from 3.12D±2.02 to 1.43D±1.24 postoperatively (p<0.001) depending on grade of pterygium.

CONCLUSION

There was statistically significant correlation between grade of pterygium and induced astigmatism (p-value ≤0.001). The present study verifies the fact that amount of pterygium induced astigmatism is directly proportional to increase in the size of pterygium.

KEYWORDS

WTA, BCVA, SLE, CLAG.

The above table shows that among 50 eyes of 50 cases 32 (64%) were male and 18 (36%) were female.

The above table shows that maximum number of cases selected consecutively were of >20-40 years of age; 84% of cases were >20-60 years of age.

The above table shows that maximum number of cases were in Grade II; 8 eyes (16%) had Grade I pterygium; 19 eyes (46%) had Grade II pterygium; 19 eyes (38%) had Grade III pterygium.

The above table shows that mean astigmatism following pterygium surgery reduced from 3.24±2.01 to 1.47±1.20 (P-value ≤0.001).

The above table shows that amount of astigmatism varied with the grade of pterygium. Mean astigmatism in eyes with Grade I was 2.32±0.42 D. In eyes with Grade II pterygium astigmatism was 2.84±1.26 D and in eyes with Grade III pterygium astigmatism was 3.64±1.20 D.

The above table shows that amount of astigmatism after pterygium excision was 0.94±0.52 in Grade I pterygium; 1.20±0.82 in Grade II pterygium and 3.62±1.72 in Grade III pterygium.

The above table shows that amount of mean astigmatism before and after pterygium excision. P-value was statistically significant in Grade II and Grade III, but not significant in Grade I.

The above table shows that maximum number of cases amount of astigmatism following pterygium excision was ≤2 D.

The above table shows effect of pterygium excision on BCVA, which significantly (P-value ≤0.001) improves after pterygium excision.

DISCUSSION

Pterygium induced refractive changes can lead to visual complaints. Previous studies have shown that pterygium causes corneal distortion, which induces a significant amount of astigmatism.\(^2\) Most of those topographic changes in the cornea have been reported to be reversed by successful pterygium surgery, although eyes with advanced pterygium may not normalize completely.\(^3\) It has been established that pterygium surgery decreases the pterygium induced corneal astigmatism at central 3 mm 10, but its effect on whole cornea remains unclear.

In the present study, manual keratometer was used to study corneal astigmatism at central 3 mm before and after pterygium excision with CLAG. Stern GA et al. in 199815 have reported that the pterygium begins to induce significant degrees of astigmatism once it reaches up to 45% of the distance from the limbus to the visual axis. Astigmatism was with the rule in all patients.

The amount of astigmatism decreased significantly following pterygium excision in Grade 2 (p≤0.001), Grade 3 (p≤0.001) and in Grade 1 the amount of...
astigmatism decreased following pterygium surgery was not statistically significant (p=0.575). The amount of astigmatism seen in the patients with Grade 1 pterygium (≥2D) was not only due to pterygium induce refractive. This is noticed by the fact that in Grade 1 pterygium the amount of astigmatism decreased following pterygium surgery was not statistically significant (p=0.575).

When primary pterygium increases in size (More than Grade 1), it induces with-the-rule significant astigmatism. This significant astigmatism tends to increase with the increasing size of the lesion. Pterygium induced astigmatism decreased significantly by successful removal of the pterygium in Grade II and Grade III of pterygium. Our findings are in accordance with the findings of other workers Tomidokora A et al in 2000;6 Avisar R et al in 2000;7 Seitz B et al in 2001;8 SMaheshwari in 2003;9; Bahar, Irit et al in 2004;10; Maheshwari S in 2007.9

Surgical intervention resulted in an increase in the mean refractive power of cornea after one month of surgery, which indicates a steepening of the flattened cornea.

There was flattening of the cornea horizontally in the nasal quadrant, where the pterygium was located. This flattening effect dissipated after pterygium removal.10 Our findings are in accordance with the findings of other workers Cameron ME in 1983;3 Oldenburg et al in 1990;7 Pavilack MA et al in 1993;11 Yagmur M et al in 2005;12; JooYoun Oh et al in 2010.13

SUMMARY AND CONCLUSION

The prospective study entitled “Effect of pterygium excision on pterygium induced refractive changes” was conducted on 50 eyes on 50 patients of primary pterygium attending the Outpatient Department of Ophthalmology, NSCB Medical College and Hospital, Jabalpur from January 2015 to December 2015. The inclusion criteria were patients with primary pterygium with ≥2D WTR astigmatism as measured by manual keratometry.

Examination includes Snellen’s visual acuity, refraction and slit lamp examination and manual keratometry preoperatively and one month postoperatively. Pterygium excision with conjunctival autograft was done in all cases.

The Following Observations were made

1. In the present study, the age distribution of cases ranged between 17 and 72 years (Mean 40.52±13.06 years). Maximum number of cases belongs to ≥20-60 years of age (84%).

2. In the present study, the prevalence of pterygium was more in males (64%) as compared to females (36%).

3. In the present study, 8 eyes had Grade 1 pterygium, 23 eyes had Grade 2 pterygium and 19 eyes had Grade 3 pterygium.

4. The astigmatism decreased significantly following pterygium excision. The mean preoperative refractive cylinder decreased from 3.12D±2.02 to 1.43D±1.24 postoperatively (p=0.001). Surgical removal of pterygium caused a significant reduction in refractive astigmatism.

5. The amount of astigmatism decreased significantly following pterygium excision in Grade 2 (p≤0.001) and Grade 3 (p=0.001).

6. There was statistically significant correlation between grade of pterygium and induced astigmatism (p-value ≤0.001). The present study verifies the fact that amount of pterygium induced astigmatism is directly proportional to increase in the size of pterygium.

7. The mean horizontal refractive power of cornea increased from 4.1D±2.00 preoperatively to 42.53D±1.86. There was flattening of the cornea horizontally in the nasal quadrant, where the pterygium was located. This flattening effect dissipated after pterygium removal.

8. Pterygium surgery significantly improves BCVA in Grade II (from 0.58±0.44 to 0.79±p-value ≤0.001) and Grade III (from 0.54±0.28 p-value ≤0.001).

REFERENCES


