



TO EVALUATE THE CORRELATION BETWEEN DRY EYE AND PTERYGIUM

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ABSTRACT

Introduction: Pterygium is usually asymptomatic but may cause redness, lacrimation, photophobia, foreign body sensation and astigmatism. As it advances, it encroaches the pupillary area causing decrease in the visual acuity. It is a potentially blinding disease in the advanced stage when it encroaches visual axis, which can have significant impact on vision and require surgery for visual rehabilitation. It is generally considered that Tear Film instability in pterygium patients may arise from two major factors: chronic ocular surface inflammation and altered tear dynamics. Whether tear dysfunction is a precursor to pterygium or pterygium causes tear dysfunction is still not clear. **Aim:** To evaluate the correlation between dry eye and pterygium. **Materials And Methods:** A total of 50 patients, aged between 26 and 70 years, were included in this study. Tear film breakup time (TF-BUT) and Schirmer's test (ST) results were compared in pterygium eye and contralateral normal eye of the same patient. TF-BUT and ST results were compared in pterygium eye and contralateral normal eye. **Results:** The mean \pm SD of TF-BUT in pterygium eyes was 7.40 ± 0.86 s compared with 10.86 ± 1.28 s in contralateral normal eyes with P value < 0.0001 which is significant. The mean \pm SDs of ST results in pterygium eyes and the contralateral normal eyes were 7.34 ± 1.08 mm and 11.50 ± 1.31 mm with P value < 0.0001 which is significant. **Conclusion:** The results of the present study strongly suggest that pterygium induces an uneven distribution of tear, resulting in dry eye with tear dynamics abnormality.

KEYWORDS : Dry Eye, Pterygium, Schirmer's Test, Tear Film Breakup Time

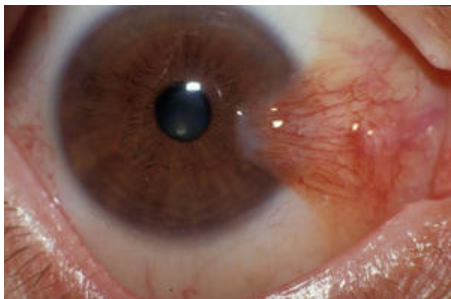
INTRODUCTION

Pterygium is a degenerative condition of the subconjunctival tissues which proliferate as vascularized granulation tissue to invade the cornea, destroying the superficial layers of the stroma and Bowman's membrane, the whole being covered by conjunctival epithelium.⁽¹⁾ Various theories have been put forward to explain the etiopathogenesis of pterygium. Environmental factors including exposure to sunlight is thought to be the most important factor of dry eye. Local tear film abnormalities are also included among the theories of pterygium. Actual etiology of pterygium still remains unexplained, prolonged exposure to ultraviolet B radiation is thought to promote its development^(2,3) It has been reported that pterygium itself could lead to a local conjunctival elevation and an uneven distribution of tear, resulting in dry eye with tear dynamics abnormality.^(4,5)

MATERIALS AND METHODS

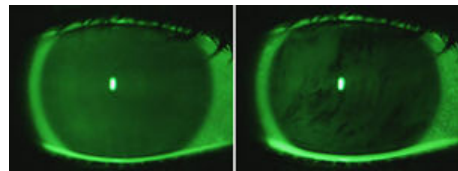
This observational cross sectional study included 50 patients attending the outpatient department of Ophthalmology, of a tertiary care hospital. Written informed consent was obtained from the patients. Patients with unilateral primary pterygium and lack of any systemic diseases were included in the study. The other eye of the patient was taken as control. Patient with recurrent pterygium, bilateral pterygium, systemic diseases/syndromes associated with dry eye (e.g., Sjogren's syndrome), patient on systemic medication (e.g. diuretics, psychotropic) that leads to ocular drying, contact lens users, patients having any adnexal disease, anterior or posterior segment disease which alters tear secretion and stability, patients having recent ocular surgery (e.g., cataract surgery), and patients on topical anti-glaucoma medications were excluded from the study and those who did not give consent.

Slit-lamp examination was done to examine the anterior segment of the eye.



Pterygium on slit lamp

TF-BUT measurement with fluorescein was performed without topical anesthesia. Since instillation of anesthetic or any other topical drug could affect the TF, the TF-BUT was performed before performing any other test. The test was recorded after the eye was stained with fluorescein dye. The patient was then examined on the slit lamp and the time gap between the opening of the eyelid and the appearance of the first dry spot on the cornea was recorded using a stopwatch. Three readings were taken, and the mean value of the measurements was taken. A TF-BUT of < 10 seconds was considered abnormal.



Tear Film break up time on fluorescein

The ST was carried out without topical anesthesia bilaterally, with the Whatman no.41 filter paper, which was placed in the lateral canthus away from the cornea. The ST result was expressed as the wet length of the strip measured after 5 min. Readings were recorded in millimeters of wet strip. A ST of < 10 mm was considered abnormal.



Schirmer Test

Test results were compared in the pterygium eye and contralateral normal eye of the same patient

RESULTS

The study included 18 males and 32 females with a mean age of 47.04 years with the age range of 26–70 years. The maximum number of cases (40%) was between 41 and 50 years.

Age-groups	Males	Females	Percentage of patients in the age group
21-30	0	1	2%
31-40	1	5	12%

41-50	8	12	40%
51-60	5	8	26%
>60	4	6	20%
Total	18	32	100%

The mean \pm SD of TF-BUT in pterygium eyes was 7.40 ± 0.86 s compared with 10.86 ± 1.28 s in contralateral normal eyes with P value < 0.0001 which is significant.

The mean \pm SDs of ST results in pterygium eyes and the contralateral normal eyes were 7.34 ± 1.08 mm and 11.50 ± 1.31 mm with P value < 0.0001 which is significant.

	Pterygium Eye	Normal Eye
T-BUT (seconds)	7.40 ± 0.86	10.86 ± 1.28
Schirmer Test (mm)	7.34 ± 1.08	11.50 ± 1.31

DISCUSSION

In this study, pterygium was more common in females and in the age group of 40–50 years. This may be related to the higher exposure to sunlight and dust as they are more involved in outdoor activities.^[6]

In this study, the difference in the TF-BUT between the pterygium eyes and the contralateral control eyes was statistically significant ($P < 0.0001$). Wang et al.^[7] and Manhas^[8] found that TF-BUT in the eyes with pterygium when compared with the opposite healthy eyes was significantly different. Ishioka et al.^[9] found that TF-BUT was shortened significantly in the eye with pterygium in unilateral cases. He concluded that there is a correlation between pterygium formation and shortened TBUT, and unstable TF may contribute to the initiation of pterygium.

In this study, the difference in the mean ST between the pterygium eyes and the contralateral control eyes was significant. Similar to our study of unilateral pterygium cases, Chaidaroon and Pongmoragot,^[10] Rahman et al.,^[11] and Anthony et al.,^[12] also reported that the ST was decreased significantly in the eye with pterygium.

CONCLUSION

This study found that the TF-BUT and ST was decreased significantly in the eye with unilateral pterygium when compared with the contralateral normal eye.

pterygium showed a positive correlation with TF-BUT and ST results, indicating that pterygium was significantly associated with dry eye. Thus, the results of the present study strongly suggest that pterygium induces an uneven distribution of tear, resulting in dry eye with tear dynamics abnormality.

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