Original Research Article

A study on prevalence and risk factors of pterygium

Gudla Vasantha

Assistant Professor, Department of Ophthalmology, Government Medical College, Nizamabad, INDIA.
Email: drvasantha2019@gmail.com

Abstract

Background: A pterygium is a wing-shaped fibrovascular proliferation of the conjunctiva that grows across the cornea. If pterygium is left untreated and its associated risk factors are not avoided, it can result in blindness due to fibro vascular coverage of conjunctiva over the visual axis of the cornea. The prevalence of pterygium varies widely across the globe implying various risk factors which are region specific. Hardly any data is available about the southern part of India. **Objective:** This study aimed to determine the prevalence and risk factors associated with pterygium. **Design:** This was a cross-sectional study. **Duration:** One year i.e; from December 2017 to November 2018. **Setting:** Government Medical College, Nizamabad. **Participants:** 100 randomly selected eligible patients attending the Out Patient Departement of Ophthalmology were included in the study. **Methods:** The participants were interviewed for potential risk factors of pterygium and later a comprehensive ophthalmology examination was done. Data obtained was entered in MS Excel 2016 and Statistical analysis was done using SPSS version 23. A p-value of less than 0.05 was considered as significant. **Results:** The prevalence of pterygium among the patients attending ophthalmology OPD was 42%. It was more among the older age group ($p<0.05$), those working outdoors ($p<0.05$), those exposed to hot and dry atmospheric conditions ($p<0.05$) and those belonging to lower socio-economic group ($p<0.05$). **Conclusion:** There was a considerably high prevalence of pterygium among study participants. Elderly age group, outdoor workplace, hot and dry atmospheric conditions and low socio-economic status were the observed potential risk factors for pterygium.

Key Words: Pterygium, Prevalence, Risk factors, South India.

*Address for Correspondence:
Dr Gudla Vasantha, Department of ophthalmology, Government Medical College, Nizamabad.
Email: drvasantha2019@gmail.com

Received Date: 30/03/2019 Revised Date: 21/05/2019 Accepted Date: 07/07/2019
DOI: https://doi.org/10.26611/100911210

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 11 August 2019

INTRODUCTION

Pterygium is a non-malignant, slow growing, wing shaped proliferation of the fibrovascular tissue, which arising from the subconjuctival tissue, which may extend over the cornea and, thus disturbing the vision. It is organised into head, neck and body. It is a common external ocular disease with prevalence ranging between 0.3% and 36.6% globally. Progressive pterygium is thick, fleshy and vascularised whereas an atrophic pterygium is less vascular and thin. Type I pterygium shows <2 mm encroachment into the cornea. Type II between 2 to 4mm and type III - >4 mm encroachment on to the cornea. Its main clinical presentations are redness, irritation, decreased vision and ocular discomfort. It may also be asymptomatic. It can induce significant astigmatism and cause visual impairment. Pterygium is often preceded by a related non-cancerous condition called pingueculum. The prevalence rate of pterygium varies widely with the variation of altitude, age, gender, occupation and socio economic status. Treatment for pterygium has been improved in recent years. Although the anti-inflammatory drugs and lubricants minimize the patient's discomfort, it cannot cure it. Surgical removal is the treatment of choice. Methods of pterygium excision by bare sclera technique or McReynolds operation were associated with high recurrence. Adjunct therapies such as β-radiation, thiotepa, 5-FU, and mitomycin C remain controversial. Autologous conjunctival grafting is reported to be the best method,

How to cite this article: Gudla Vasantha. A study on prevalence and risk factors of pterygium. *MedPulse International Journal of Ophthalmology.* August 2019; 11(2): 53-56. https://www.medpulse.in/Ophthlmology/

giving both low recurrence rate and few complications. If pterygium is left untreated and its associated risk factors are not avoided or reduced, it can result in visual impairment or blindness due to fibro vascular coverage of conjunctiva over the visual axis of the cornea. This is due to the induction of astigmatism and opacity.

MATERIALS AND METHODS

Place Of Study: Government Medical College, Nizamabad.
Type Of Study: This was a cross-sectional study.
Sample Collection: Sample size = 100
Sampling Methods: Systematic random sampling.
Inclusion Criteria: Patients aged above 20 years attending the Ophthalmology OPD.
Exclusion Criteria:

1) Patients below 20 years of age.
2) Patients with severe dry eyes.
3) Patients with primary or secondary Sjogren's syndrome.
4) Patients with recurrence of pterygium.

Statistical Methods: Data obtained was entered in MS Excel 2016 and Statistical analysis was done using SPSS version 23. A p-value of less than 0.05 was considered as significant.
Ethical Approval: Approval was taken from the Institutional Ethics Committee prior to commencement of the study.

OBSERVATIONS AND RESULTS

The prevalence of pterygium in the study population was 42% (n=42). A pterygium was operationally defined as a radially oriented fibro-vascular lesion crossing the nasal or temporal limbus and was graded clinically by slitlamp examination as Grade 1 (atrophic and transparent), Grade 2 (intermediate) and Grade 3 (fleshy and opaque).

Table.1: Socio-Demographic Profile Of Study Participants With Pterygium

Characteristic	N(%)
Sex	
Male	22(52.3%)
Female	20(47.6%)
Age Group	
20-29 Years	8(18.6%)
30-39 Years	10(23.8%)
40-49 Years	11(26.1%)
50 Years and Above	13(30.9%)
Area Of Residency	
Urban	33(78.5%)
Rural	9(21.4%)
Socio-Economic Status	
Lower Class	18(42.8%)
Middle Class	16(38.0%)
Upper Class	8(18.6%)

52% of the subjects having pterygium were male. There was higher incidence of pterygium in the elderly age group ($p<0.05$, which was statistically significant). About 78.5% of the significant study population resided in urban settings. Lower Socio-Economic Status was highly correlated with the occurrence of pterygium ($p<0.05$, which was statistically significant).

Table 2: Clinical Profile of Study Participants with Pterygium

Characteristic	N(%)
OPHTHALMOLOGICAL	
Eye Involvement	
Unilateral	28(66.6%)
Bilateral	14(33.3%)
Position Of Pterygium	
Nasal	39(92.8%)
Temporal	1(2.3%)
Both	1(2.3%)
Usage Of Spectacles	
Yes	6(14.2%)
No	36(85.7%)
Astigmatism	
Present	29(69%)
Absent	13(30.9%)
SYSTEMIC	
Smoking History	
Smoker	21(50%)
Non-Smoker	21(50%)
Alcohol History	
Alcoholic	16(38%)

	Non-Alcoholic	26(61.9%)
Hypertension History		
	Hypertensive	20(47.6%)
	Normotensive	22(52.3%)
Diabetes History		
	Diabetic	18(42.8%)
	Non-Diabetic	24(57.1%)

The occurrence of Pterygium in the nasal side was 93% in this study. The Pterygium involved both the eyes in 2.3% of the individuals with Pterygium. Only about 14.2% of people gave history of wearing spectacles. About 50% of Pterygium population gives history of smoking, 16% gives history of alcohol intake, 47.6% of Pterygium population are hypertensive while 42.8% is diabetic.

Table 3: Risk factors Elicited on History

Observations	N(%)	P Value
Work Place		
Primarily Outdoor	33(78.5%)	p<0.05*
Primarily Indoor	9(21.4%)	
Atmospheric Conditions		
Hot and Dry	28(66.6%)	p<0.05*
Cold and Humid	14(33.3%)	
Socio-Economic Status		
Lower Class	18(42.8%)	p<0.05*
Middle Class	16(38.0%)	
Upper Class	8(18.6%)	

*P Value Significant

The prevalence of pterygium was more among those working outdoors (p<0.05), those exposed to hot and dry atmospheric conditions (p<0.05) and those belonging to lower socio-economic group (p<0.05).

DISCUSSION

Pterygium means wing shape. It is triangular fold of conjunctiva over cornea. Actually pterygium is degenerative condition of subconjuctival tissue which proliferates as vascularized granulation tissue to invade the cornea destroying superficial layers of stroma and Bowmans membrane, the whole being covered by conjuctival epithelium. The objective of this study was to determine the prevalence and risk factors associated with pterygium. The Prevalence of Pterygium in this study was 42%. The percentage is higher among the males which may be contributed by the increased duration of outdoor hours spent by males and it was 52% in this study, while in the study Chavan *et al*. it was 62%. 33 (78.5%) patients were working in outdoors when compared to 9 (21.4%) patients. This finding is comparable to that of similar studies evaluating the relationship between outdoor work and pterygium conducted in different parts of the world. Exposure to dust, hot, and dry atmosphere was found in 28 (66.6%) patients unlike in the study by Mackenzie *et al*. who reported an incidence of 86.63%. The prevalence of pterygium was more among those belonging to lower socio-economic group (p<0.05). The pathogenesis of pterygium is associated with p53 oncogene expression, fibroblast transformation, alterations in cytokines and matrix metalloproteinase activity. Ultraviolet light exposure has been implicated in p53 mutagenesis. The current study finding of significant correlation with outdoor activity supports this fact. Outdoor lifestyle and genetic susceptibility were implicated for the later study finding. The current study finding of greater correlation with outdoor activity is in consistence with the long-held belief that UV irradiation plays a role in the pathogenesis of pterygium. This finding is also in accordance with other study findings.

CONCLUSIONS

There was a considerably high prevalence of pterygium among study participants. Elderly age group, outdoor workplace, hot and dry atmospheric conditions and low socio-economic status were the observed potential risk factors for pterygium.

REFERENCES

1. Radhika Tandon, R. S. (2015). Parsons' Disease Of Eye. Reed Elsevier Pvt Ltd.
2. Chavan WM, K. M. (April 2015). Study of prevalence and socio-demographic determinants of pterygium patients attending at a tertiary care teaching hospital of Western Maharashtra,india . International Journal of Research in Medical Sciences, 846-848.
3. Shelke E, K. U. (2014). Effect of Pterygium Excision on Pterygium Induced Astigmatism and Visiual Acuity. International Journal of Advanced Health Sciences, 1(8):1-3.

4. Shrestha P, K. R. (2016). A Hospital Based Study of Pterygium in Tertiary Care Hospital of Nepal. Kathmandu University Medical Journal, 55(3):192-7.
5. Gazzard G, Saw S-M, Farook M. Pterygium in Indonesis: prevalence, severity and risk factors. Nr J Ophthalmol. 20012;86:1341-6.
6. Luthra R, Nemesure B, Wu S-Y. Frequency and risk factors for ptrygium in the Barbados Eye Study. Arch Ophthalmol. 2001:119:1827-32.
7. Wong TY, Foster PJ, Johnson GJ. The prevalence and risk factors for pterygium in an adult Chinese population in Singapore: the Tanjong Pagar survey. Am J Ophthalmol. 2001;131:176-83.
8. McCarty CA, Fu CL, Taylor HR. Epidemiology of pterygium in Victoria, Austratia, Br J Ophthalmol. 2000;84:289-92.
9. Saw SM, Tan D. Pterygium: prevalence, demography and risk factors. Ophthalmin Epidemiol. 1999;6:219-28.
10. Panchapakesan J, Hourihan F, Mitchell P. Prevalence of pterygium and pinguecula: the Blue Mountains Eye Study. Aus NZ J Ophthalomol. 1998;26(Suppl 1):2-5S.
11. Forsius H, Maertens K, Fellman J. Changes of the eye caused by the climate in Rwanda, Africa. Ophthalmic Epidemiol. 1995;2:107-13.
12. Rojas JR, Malaga H. Pterygium in Lima, Peru. Ann Ophthalmol. 1986;18:147-9.
13. Detels R, Dhir SP, Pterygium: a geographical study. Arch Ophthalmol. 1967;78:485-91.
14. Kumar PK, Sasi P, Kumar PS, Sanjeevkumar P, Chandra MR. The efficacy of fibrin glue vs sutures for attaching conjunctival autografts after pterygium excision: A randomized clinical trial. J Evol Med Dent Sci 2016;5:3868-71.
15. Rajiv, Mithal S, Sood AK. Pterygium and dry eye - A clinical correlation. Indian J Ophthalmol 1991;39:15-6.
16. Mackenzie FD, Hirst LW, Battistutta D, Green A. Risk analysis in the development of pterygia. Ophthalmology 1992;99:1056-61.
17. Islam SI, Wagoner MD. Pterygium in young members of one family. Cornea 2001;20:708-10.
18. Kwon JS, Choi O. A study of pterygium on Cheju Island. Yonsei Med J 1977;18:151-6

Source of Support: None Declared
Conflict of Interest: None Declared