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Factors associated with pterygium based on historyand clinical examination ofpatient in Bundelkhand Region

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Abstract
Purpose: *The purpose of this study was to determine the factorsassociated with Pterygium, on the basis of history and clinicalexamination in Bundelkhand Region.*
Methods: *In this prospective case series study, a total of 500 patients with Pterygium presenting at the Department of Ophthalmology,Maharani Laxmi Bai Medical College Hospital Jhansi UP, India, from June2018 to June 2020 were included. A standard proforma containing proposed riskfactors was filled in for every patient. Clinical examination was performed on slit-lamp biomicroscope to confirm presence of pterygium.*
Results: *Out of the total 500 patients, 277 (55.32%) were males, and 233 (44.68%) were females. Mean age ± standard deviation was 53.12*
years ± 15.85 years, and the age range was 20 to 79 years.428(85.56%) patients belonged to areas with hot and dry weather,162 (32.35%)patients had a positive family history for Pterygium,309 (61.36%) patients had history of previous exposure to toxic chemicals, and 142(28.36%) patients had dry eye.
Conclusion: *This study points towards the simultaneous role of multiple risk factors including sun exposure, hot climate, toxic materialexposure, familial transmission, and dry eye in association with pterygium.*

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I. Introduction

Pterygium is a slow growing proliferation of wing shapedfibrovascular tissue arising from the conjunctiva,[1]subconjunctivalconnective tissue,[2]or from the limbal epithelialbasalcells.[3]Prevalence of pterygium ranges from 0.7% to 31% invarious studies around the world.[4] Pterygium can harbor malignancieslike squamous cell carcinoma[5]or malignant melanoma[6]and may become threat to the very existence of theindividual.Presently, it is believed that Pterygium mostcommonly affects the individuals who are exposed to theoutdoor environment particularly in tropical and subtropicalcountries, therefore, exposure to dry, dusty, windy, and sunnyweather is blamed to be the risk factor.[7]This study was conductedto determine factors associated with pterygium throughobservations in the history and clinical examination of patientswith diagnosedPterygium in the Department of Ophthalmology, Maharani Laxmi Bai Medical College Hospital Jhansi UP, India.

II. Methods

In this prospective case series study, a total of 500 patients withPterygium presenting at the Department of Ophthalmology, Maharani Laxmi Bai Medical College Jhansi UP, India, from June 2018 to June 2020 were included after ethical approval. Patients below 20 years of age, with recurrent Pterygium and Pterygiumharbouring cysts ormalignancies like squamous cell carcinoma and malignant melanoma were excluded from thestudy. A standard proforma was filled in for every patient. Itincluded age, sex, family history of Pterygium, environing atmosphericconditions (dry or humid weather), toxic chemical(e.g. fertilizers, insecticides, and pesticides) exposure, and tearfilm break up time for initial evidence of dry eye (when present,

Schirmer's test was performed). Presence of Pterygium in first

degree relativeswas considered as positive family history. Clinicalexamination was performed on slit-lamp biomicroscope toconfirm presence of pterygium, and diagnosis of pterygium wasconfirmed by one specific senior faculty member to standardizethe results. Data was entered and analysed in SPSS version 20.

III. Results

Out of total 500 cases of Pterygium, 277 (55.32%) weremales, and 233 (44.68%) were females. Mean age ± standarddeviation was53.12years ± 15.85 years, and the age rangewas 20 to 79 years. Most of the patients (29.94%) were in the61 to 70 years age group, followed by 41 to 50 years age group,with (27.84%) cases.

Inhabitants of the hot and dry weatherareas were 428 (85.56%), and 72 (14.44%)ofpatients werefrom humid or cold areas. Positive family history for Pterygiumwas present in 162 (32.35%) patients. History of previousexposure to toxic chemicals (e.g. fertilizers, insecticides, andpesticides)waspresent in 309 (61.36%) patients, and 142 (28.36%)patients had dry eye (Table 1).

Table 1 Frequency of risk factors in 500 patients with Pterygium.

Risk factors	Subheading	No. ofpatients (n =500)	Percentage
Age	20 to 30 years	46	9.14
	31 to 40 years	57	11.43
	41 to 50 years	139	27.84
	51 to 60 years	36	7.21
	61 to 70 years	150	29.94
	71 to 79 years	72	14.44
Gender	Males	277	55.32
	Females	233	44.68

Risk factors	Subheading	No. ofpatients (n =500)	Percentage
Atmospheric conditions	Hot and Dry Weather	428	85.56%
	Humid or Cold Weather	72	14.44%
Family history	Positive	162	32.35%
Exposure to toxic chemicals[a]	Positive	309	61.36%
Dry eye	Positive	142	28.36%

a fertilizers, insecticides, and pesticides

IV. Discussion

Pterygium was found to be more common (55.32%) inmales thanfemales in our study, which is consistent with thestudy reported by Salagar et al.[8]In our study, Pterygium wasmore common in the 61to 70 year age group (29.94%), whichis unlike the 30 to 40 year age group as reported by Rajiv et al.[9]Patients in our study living in hot and dry weather were(85.56%), which is similar to the findings reported by Mackenzieet al.[7]Positive family history for Pterygium was found in32.35% of patients, which resembles the study reported byIslam SI et al.[10]Patients with history of previous exposure totoxic chemicals andother irritating substances were 61.36%,which is similar to the study reported by Kwon JS et al.[11]Patients with dry eye were 28.36%, resembling the study reportedby Rajiv et al.[9] Etiology of Pterygium has given rise tomuch discussion, and many causes have been proposedthrough passing times like inflammatory,[10] degenerative,[12]neoplastic[13]and genetic.[10]Most of theophthalmologistsbelieve thatexposure to sunny, hot, dry, and dusty climates[7]somehow causes Pterygium, and some others add exposureto ultraviolet light[14,15]as a significant risk factor. However,our observations point towards presence of multiple associationssimultaneously in most of the patients, and this overlapof associations indicates several factors operating together tocause pterygium, not a single factor. Our study has severalstrong limitations and does not confirm any association. Morestudies are required on this subject.

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