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Original Research Article

Study of prevalence and socio-demographic determinants of pterygium in Sub Himalayan region, India

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ABSTRACT

Background: Pterygium, derived from the Greek work 'pteryx', meaning wing is a growth of fibrovascular tissue on the cornea and conjunctiva in the palpebral fissure. The present study was conducted to find out the prevalence and Socio-demographic determinants of pterygium in Sub Himalayan region of Himachal Pradesh, India.
Methods: A cross-sectional study was conducted between the months of May-June 2018, in the outpatient department of Ophthalmology of Pt. Jawahar Lal Nehru Govt. Medical College and Hospital, Chamba, H.P, India. Among all the patients visiting the OPD in the given duration, a total of 200 patients having Pterygium were selected for the study. Detailed history of the all the patients were taken and required examination was done. Data collected was analysed with Microsoft excel software.
Results: Out of the 200 patients, 59% were males and 41% were females. 70% of the total study population were seen in the age group 41-60years. In present study a total of 130 patients (65%) were outdoor workers. Left eye (40.5%) was the eye most frequently involved eye in present study, right eye (36.5%) also both the eyes were involved in 23% of study population. Nasal pterygium was seen in 93%, temporal pterygia 5.5% and double pterygium (both nasal and temporal presentation in same eye) in 1.5% patients. Grade I pterygium was seen in 43.5% patients, grade II in 40% and grade III pterygia were found in 16.5% of the study population.
Conclusions: People living in high altitude regions and who work outdoors, are subjected to increased U.V. exposure. So, they must take appropriate precautions like wearing protective glasses and caps etc.

Keywords: Pterygium, Prevalence, Socio-demographic determinants

INTRODUCTION

Pterygium is a growth of fibrovascular tissue on the cornea and conjunctiva in the palpebral fissure. Derived from the Greek work 'pteryx', meaning wing, pterygium is a common condition presenting in ophthalmic OPDs. It is a degenerative condition occurring secondary to limbal stem cell deficiency. The limbal stem cells delineate the corneal and conjunctival borders and prevent the growth of the later over the former. These, when deficient due to destruction by UV radiations result in pterygium formation. It occurs in the palpebral fissure area, much more often nasally than temporally, although either or both ("double" pterygium) can occur. Initially being asymptomatic, it can interfere with the visual acuity of the patient. The diminution of vision initially is due to irregular corneal curvature caused by the pull of the fibrovascular tissue from the pterygia. The pterygia if

progresses to involve the papillary area can lead to vision as low as PL+ PR+. These warrant treatment if they begin to encroach the visual axis, cause significant astigmatism or are cosmetically bothersome. The treatment consists of surgical removal of the growth which is mostly supplemented with techniques to prevent recurrence like application of mitomycin C, conjunctival autografting and amniotic membrane grafting. Recurrent pterygia have been reported to cause restrictive strabismus and distortion of eyelids (Ela-Dalman N et al)[1] It is a common external ocular disease with prevalence ranging between 0.3% and 36.6% globally (Anbesse DH et al).[2] The prevalence rate of pterygium varies widely with the variation of altitude, age, gender, occupation and socio economic status (Chavan WM et al).[3] This study was done to evaluate the prevalence of pterygium and its various modifiable and non-modifiable risk factors so that this recurrent, potentially blinding disease can be prevented.

METHODS

A cross-sectional study was conducted between the months of May-June 2018, in the outpatient department of Ophthalmology of Pt. Jawahar Lal Nehru Govt. Medical College and Hospital, Chamba, H.P, India.

Inclusion criteria

Among all the patients visiting the OPD for different ocular ailments in the given period, a total of 200 patients having pterygium were selected for the study, irrespective of age and gender, eye involved and position of pterygium.

Exclusion criteria

- The patients having history of surgical intervention
- The patients not willing to participate.

A verbal consent from all the patients willing to participate was taken in their local language. As per ICMR and CDSCO guidelines for good clinical practice, all principles of bioethics were followed. The patients were thoroughly examined with torch, slit lamp and direct ophthalmoscope. UCVA and BCVA in either eye was noted in all patients.

All the necessary data regarding age, sex, occupation, educational status, eye involved, chief complaint, nature of pterygium, position of pterygium as well as grading of pterygium were collected and entered into MS Excel (Microsoft Corporation, Redmond, WA, USA) to review in the form of percentages and proportions.

RESULTS

In this study, among the 200 patients taken into consideration, 118 (59%) were males and 82 (41%) were females (Table 1). The age group with maximum number of pterygium patients (40.5%) was the group 41-50years followed by the group 51-60years (29.5%).

Table 1: Summary table about the characteristics of the data collected.

Variables	Frequency	Percentage
Age group		
20-30	14	7
31-40	32	16
41-50	81	40.5
51-60	59	29.5
61-70	9	4.5
71-80	3	1.5
>81	2	1
Sex		
Males	118	59
Females	82	41
Occupation		
Outdoor workers (labourers/ farmers/ vendors/ drivers security guards)	130	65
Office workers	21	10.5
Housewives	18	9
Students	16	8
Others	15	7.5
Education status		
Nil	51	25.5
Primary school	79	39.5
Secondary school	48	24
College/university	22	11
Eye involved		
Right	73	36.5
Left	81	40.5
Both involved	46	23
Chief complaints		
Appearance of fleshy mass in interpalpebral region	111	55.5
Blurring of vision	36	18
Foreign body sensation	27	13.5
Redness	13	6.5
Itching	13	6.5
Position of pterygium		
Nasal	186	93
Temporal	11	5.5
Both	3	1.5
Nature of pterygium		
Progressive	152	76
Atrophic	48	24
Pterygium grading		
I	87	43.5
II	80	40
III	33	16.5

The least percentage of pterygium patients presenting to the OPD were in the age group >71years (2.5%). The data collected regarding the occupation shows that majority of patients were outdoor workers (65%), followed by office workers (10.5%). A total of 79 patients (39.5%) were educated up to primary school, 51 patients (25.5%) were the illiterates whereas the group least affected with pterygium were the class who were well educated (11%).

Majority of the people had their left eye affected with pterygium (40.5%), while 23% of the patients were seen to have their both eyes affected with pterygium. A large no. of study population presented to us in the OPD with chief presenting complaint of fleshy mass in interpalpebral region (55.5%), followed by blurring of vision (18%), foreign body sensation 13.5%), itching and redness (6.5%) each. A huge majority presented with nasal pterygium (93%), temporal pterygia were seen in 11 (5.5%) followed by double pterygium (both nasal and temporal presentation in same eye) in 3 patients (1.5%). Progressive pterygium was seen in 152 (76%) people while 48(24%) people presented with atrophic type. Grade I pterygium was seen in 43.5% patients, grade II in 40% and grade III pterygia were found in 16.5% of the study population.

DISCUSSION

In the present study, male patients (59%) were more in number as compared to females (41%), well in concordance with studies conducted by Rohatgi S et al, Khurana AK et al, Parthasarathy NR et al, Wong TY et al.[4-7]

Ganeshpuri AS et al, had also reported that pterygium is more common in males than females.[8] In his study on 62 pterygium patients, he found that 58.06% were males and 41.94% patients were females. In India, it is a common practice that the male member of the family is exposed to the outdoor activities for earning livelihood, thus being more exposed to dust and sunlight. This could well be the reason for higher no. of males in present study too.

As shown in Table 1, a total of 140 patients (70% of the total study population) were seen in the age group 41-60 years. Similar observations were made by Rohatgi S et al, Viso E et al, and Yoon KC et al.[4,9,10] showing that prevalence of pterygium increases with advancement of age. The south western Island of Japan and Barbados eye study published in 2009 and 2001 respectively also reported a positive association between pterygium and old age.[11]

In present study a total of 130 patients (65%) were outdoor workers, consistent with the study conducted by Beki-bele CO et al, wherein he stated that outdoor occupation is an independent risk factor for the development of pterygium.[12] This correlates well with a study conducted by Liu et al, stating that patients who had outdoor jobs had fleshier and more advanced type of pterygium.[13] Left eye (40.5%) was the eye most frequently involved eye in present study, right eye (36.5%), whereas both the eyes were involved in 23% of study population. This is in contrary to studies conducted by Rahman A et al, Krishnaram K, and Maharjan MI et al, who found that right eye is the commonly involved eye.[14-16]

Among the patients taken by us for study, 51 patients (25.5%) were illiterates, 79 patients (39.5%) were educated up to primary school, 48 patients (24%) up to secondary school and a total of 22 patients (11%) were either pursuing or had completed their college/ university education, as shown in Table 1. This explains well for the 65% of the population engaged in outdoor activities as their occupation (labourers/ farmers/ vendors/drivers/ security guards). The chief presenting complaint of the majority of patients (55.5%) was appearance of fleshy mass in interpalpebral region. This is in concordance with studies of Beki-bele CO et al, Liu et al, Marmamula S et al, Mutlu FM et al, and Nemet AY et al.[12,13,17-19]

Nasal pterygium (186 patients) followed by temporal pterygium (11 patients) was the most common position of the pterygium seen in our study population. 3 patients had both nasal and temporal pterygiums in the same eye (Table 1). It was found that 92% cases of pterygium belong to nasal side, while only 4% were temporal side.[4] Similarly, 100% patients had nasal presentation in a study conducted by Chavan WM et al.[3] Nasal presentation being more common may be due to transmission of UV light from temporal side of cornea through the stroma on to the nasal aspect of eye. Another reason for high incidence of pterygium on nasal side could be due to flow of tears towards medial canthus carrying with it sand and dust particles towards nasal side.

In present study progressive pterygium was seen in 152 patients (76%) and atrophic pterygium seen in 48 patients (24%), as depicted in Table 1. Chavan WM et al, in their study found progressive pterygium in 72.4% eyes and atrophic in 27.6% eyes.[3] Krishnaram K et al, in a study on 115 pterygium patients found that in 78 patients, pterygium was progressive in nature type while in 37 patients it was atrophic.[15] Manhas A et al, in their study stated that progressive pterygium was present in 80% of patients whereas atrophic was seen in 20% of patients.[20]

CONCLUSION

Pterygium is a common presentation in the Sub-Himalayan region. Due to the hilly terrain of the region the people are more exposed to direct sunlight. Old age, male sex and outdoor working area were significant predictors of pterygium. Incidence of pterygium was maximum in outdoor workers due to environmental irritants like heat, dust, fumes and UV radiation which are the main etiological factors. Patients working outdoors tend to have fleshy pterygium with more corneal

involvement. Appropriate precautions should be taken by people working outdoors such as use of UV protective glasses, hats and umbrellas to protect their eyes.

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