Bio-socio-demographic study of individuals with Pteryzium: A case series type of descriptive study

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Abstract— *Pterygium is a common disorder in many parts of the world including India. So this study is designed to find out the bio-socio-demographic profile of Pteryzium cases which can help in understanding its distribution. This study observed that mean age of individuals with Pteryzium was 37.23±1.71 years. Maximum number of cases belongs to ≥26-50 years of age (83%). Pterygium was found slightly more in females was 55.71% as compared to males (44.29%). Most of the cases were housewife (52.86%) followed by labourer (14.29%). Majority (80%) cases were exposed to sunlight. Mean size of pterygium was 2.616±0.529 mm ranging from 2 mm to 3.8mm.In our study, with Keratometer, mean astigmatism was found 1.35±1.127D and from Scheimpflug imaging, mean astigmatism was found 1.22±0.95D in this study.*

Keywords: Pterygium, Bio-socio-demographic factors, Astigmatism Scheimpflug imaging.

I. INTRODUCTION

Sight is one of the best and most precious gift that God has bestowed upon us. Pterygium most often refers to a benign growth of the conjunctiva

Pterygium is a common disorder in many parts of the world, with reported prevalence rates ranging from 0.3 to 29%. Pterygium is commonly seen in India, a part of the "pterygium belt" described by Cameron[1]. A “pterygium belt” has been mapped within the 30th parallels and is rare in north or south of the 40th parallels. Studies suggest an association with chronic exposure to UV- B radiations[2,3]

Several reports have previously demonstrated that pterygia cause corneal distortion and induce a significant amount of astigmatism. [4,5,6,7,8] Most of those topographic changes in the cornea have been reported to be reversed by successful pterygium surgery, although eyes with advanced pterygia might not normalize completely.[14,8,9]

Heat, dry atmosphere, high winds and abundance of dust have been implicated in etiopathogenesis.[10] Pterygium occurs as a result of disruption of tear film either by rapid evaporation or by microtrauma from microparticles of dust.[10]

II. METHODOLOGY

This case series type of observational study was conducted on 70 individuals with Pteryzium at Department of Ophthalmology, SMS S.M.S. Medical College and Hospital in Jaipur.

For this study 20-50 year aged individuals with Pteryzium encroachment over cornea >2mm were selected. Out of these selected subjects, subjects with recurrent Pteryzium, Symblepharon, Conjunctival malignancy and occular surface disorder were excluded from the study. Subject with H/o glaucoma or ocular hypertension and not giving consent for the study were excluded from the study.

After taking a written informed consent from all the subjects included in the study, these cases were interrogated for each and every detail.

Data thus collected were compiled as master chart in MS EXCEL 2010 worksheet. Qualitative data were expressed in percentage and proportion. Quantitative data were expressed in mean and standard deviation.

III. RESULTS

Mean age of study population was 37.23±1.71years (mean ± standard deviation) with range of 20 years to 50 years. Maximum cases were observed in 46 to 50 years of the age groups i.e. 28.57% followed by 36 to 40 years of age. Cases were little bit females preponderence i.e. 55.71% females and 44.29% males. (Figure 1 & 2)

Figure 1
Age wise distribution of the cases

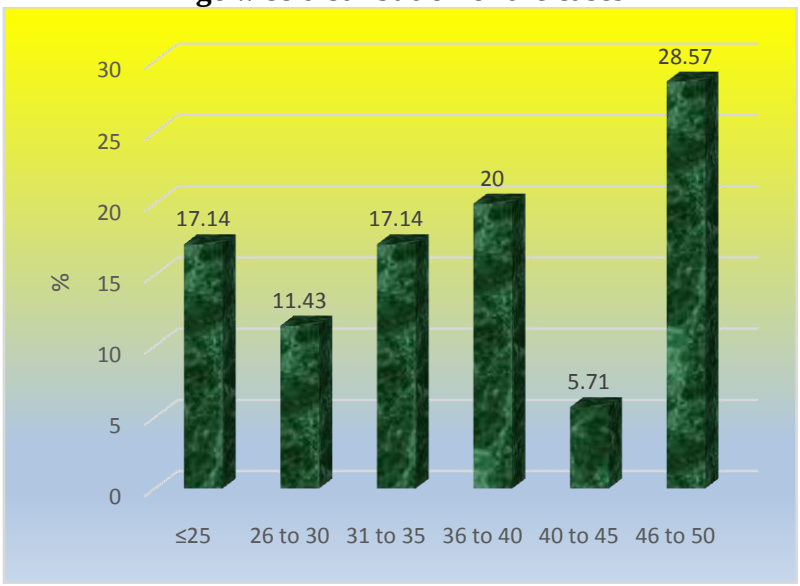
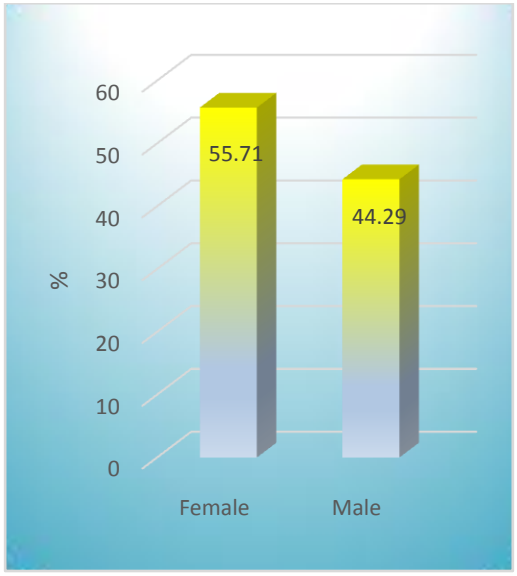


Figure 2
Sex wise distribution of the cases



Regarding occupation of study population, most of the cases were housewife (52.86%) followed by Labourer (14.29%), farmers (5.71%) etc. (Table 1)

Table 1
Distribution of study population as per their Occupation

S. No.	Characteristics	Number	Percentage (%)
1	Driver	1	1.43
2	Farmer	4	5.71
3	Government Servant	7	10
4	Housewife	37	52.86
5	Laborer	10	14.29
6	Student	7	10
7	Teacher	3	4.29
8	Vegetable Seller	1	1.43
	Total	70	100

Regarding exposure to sunlight of study population, majority (80%) were exposed to sunlight. (Table 2).

Table 2
Distribution of study population as per their exposure to sunlight

S. No.	Characteristics	Number	Percentage (%)
1	Absent	14	20
2	Present	56	80
	Total	70	100

When Pteryzium was observed, mean size was found 2.616 ±0.529 mm with minimum 2 to maximum 3.8mm. (Table 3)

Table 3
Descriptive Statistics of Pteryzium of study population (N=70)

	Descriptive Statistics (in mm)				
	Minimum	Maximum	Mean	Std. Error	Std. Deviation
Size of pteriygium (mm)	2	3.8	2.616	0.0632	0.5291

When astigmatism with Pteryzium was observed, mean Keratometer was 1.35±1.127 and from Scheimpflug imaging was1.22±0.95. (Table 4)

Table 4
Descriptive Statistics of Pteryzium of study population (N=70)

Type of method	Descriptive Statistics				
	Minimum	Maximum	Mean	Std. Error	Std. Deviation
From Keratometer	0	5	1.3507	0.1371	1.127
From Scheimpflug imaging	0	3.5	1.2207	0.11380	0.952

IV. DISCUSSION

Pterygium is a common disorder in many parts of the world, with reported prevalence rates ranging from 0.3 to 29%. The recurrence of the pterygium remains an important health care issue in patients in Asian countries. 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.[7] Most of these topographic changes in the cornea have been reported to be reversed by successful pterygium surgery, although eyes with advanced pterygium may not normalize completely.[7] It has been established that pterygium surgery decreases the pterygium induced corneal astigmatism at central 3 mm,[5] but its effect on whole cornea remains unclear.

In this study, the mean age of patients was 37.23±1.71 years and 28.57% of the patients were in age group of 46 to 50 years which was in concordance with the study conducted by Yagmur M et al (2005).[5]

In this study, the risk of formation of pterygia was more in females as compared to males which was contrary to the belief that it occurs more in males. This shows that in our study the females were housewives and belonged to farmers/laborer group. Thus, showing greater exposure to sunlight. conjunctiva.

Eighty percent cases were exposed to sunlight, 81.43% cases were grade 2 of pterygium whereas 18.57% were grade 3 type of pterygium in our study, therefore the role of ultraviolet (UV) light as an etiological factor has supportive evidence in the patho-physiological changes associated with pterygium. UV radiation is a recognised etiological factor in skin malignancy and can induce mutations in Bowen's disease, solar keratosis and squamous cell carcinoma of the skin (Tan et al. 1997).[11] Pterygium in turn has clinical characteristic of mimicking a growth disorder or benign tumour. UV radiation has been

shown to cause p53 mutations in human skin cancer and abnormal expression of the tumour suppresser gene p53 has been shown to occur in pterygium epithelium (Tan et al. 1997)[11]

The mean size of pterygium was 2.616±0.529 mm ranging from 2 mm to 3.8mm. In our study, with Keratometer, Astigmatism was 1.35±1.127D and whereas from Scheimpflug imaging, Astigmatism was 1.22±0.95D. The automated keratometer being readily available to the Ophthalmologist as compared to scheimpflug imaging. It's utility in analyzing the astigmatic effects of pterygium and then deciding whether to excise it or not is very convenient. In the majority of cases, there is with the rule astigmatism. This astigmatism occurs by mechanical pull which causes localized flattening of horizontal meridian of the cornea.[12] However, pterygium also induces against the rule and oblique astigmatism.[13]

LIN and STERN found a significant correlation between the pterygium size and corneal astigmatism, they reported that pterygium induces significant degrees of corneal astigmatism once it exceeded >45% of the radius of the cornea or within 3.2 mm of visual axis.[14]

V. CONCLUSION

This study concludes that mean age of individuals with Pteryzium was 37.23±1.71 years. Maximum number of cases belongs to ≥26-50 years of age (83%). Pterygium was found slightly more in females was 55.71% as compared to males (44.29%). Most of the cases were housewife (52.86%) followed by labourer (14.29%). majority (80%) cases were exposed to sunlight. Mean size of pterygium was 2.616±0.529 mm ranging from 2 mm to 3.8mm. With Keratometer, maen astigmatism was 1.35±1.127D and from Scheimpflug imaging, mean astigmatism was 1.22±0.95D in this study.

CONFLICT OF INTEREST

None declared till now.

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