

Clinical and Epidemiological Characteristics of Pterygium Seen in Laquintinie Hospital of Douala-Cameroon

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Abstract

Purpose: The aim of this research was to determine the epidemiological and clinical characteristics of pterygium in patients seen in Laquintinie hospital of Douala.

Method: We carried out from January the 2nd to the 30th of April 2016 in the Ophthalmology Department of the Laquintinie Hospital of Douala, a cross-sectional study of patients with pterygium.

Results: We identified 59 patients with pterygium among 1640 people that were consulted, giving a hospital prevalence of 3.6%. The average age of patients with pterygium was 50.9 +/- 14.2 years. Informal street traders were the most represented (n = 30 ; 50.8%). Pterygium was bilateral in 38 cases (64.4%) and unilateral in 21 cases (35.6%). Nasal location in 82 eyes (84.5%). Grade 1 pterygium according to the Vaniscote and Lacombe classification was the most frequent in the right eye (n = 21; 42%) and in the left (n = 23; 49%). Fifty five eyes presented a regular corneal astigmatism (56.7%).

Conclusion: Anybody exposed to sunlight as informal street traders should be educated on the prevention of pterygium.

Keywords: Pterygium; Douala; Cameroon

Introduction

Pterygium is a triangular conjunctiva mass located in the area of the palpebral fissure; with many clinical forms and unpredictable evolution, leads to low visual acuity due to astigmatism that it induces [1-4]. Exposure to ultraviolet (UV) radiation, mainly B UV, is a leading cause of pterygium [1,3,5]. The prevalence of pterygium is geographically variable, ranging from 1.2% in western countries to 23.4% in tropical countries [2]. Surgery is the primary treatment, with a recurrence of up to 80% despite the various surgical procedures available [1,5-7]. The aim of this research was to determine the epidemiological and clinical characteristics of pterygium in Douala, a hot tropical Cameroonian city characterized by an average annual temperature of 30°C.

Patients and Methods

We carried out an analytic cross-sectional study on patients with pterygium, seen in the Ophthalmology department of the Douala Laquintinie Hospital from January 2nd to April 30th, 2016. Each patient had a complete ophthalmological examination.

Parameters analyzed were: age (under and over 40 years), sex, occupation, past medical history, location of the pterygium (unilateral, bilateral, nasal or temporal), evolution stages according to the Vaniscote and Lacombe grades where grade 1 is a pterygium located at the limbus; grade 2, the pterygium extends up to the cornea at the periphery; grade 3, the pterygium is at the middle of the limbus and the pupillary zone and grade 4, where the pterygium is at the pupillary area or more [8]; clinical features (membranous, cystic, pseudo tumoral and varicous) and the type of astigmatism were evaluated using an auto keratorefractometer.

Data were analyzed using Windows 7 SPSS 16.0 software. Qualitative data were compared using the Chi-square test while the quantitative data were analyzed using the Student t-test or the Wilcoxon test. The significance threshold was set at 0.05.

Results

Among the 1640 patients consulted, 59 patients had pterygium, giving a hospital prevalence of 3.60%. There were 34 women (57.6%) and 25 men (42.4%), with a sex ratio M/F of 0.7. The mean age was 50.9 +/- 14.2 years (extremes of 22 and 94 years); the most affected

age group was those aged 40 years and above (n = 46; 78%), while those under 40 years were 13 (22%). Informal street traders were the most represented (n = 30 ; 50.8%). Family history of pterygium was found in 18 patients (30.5%). The mean uncorrected far visual acuity of the right eye was 0.89 +/- 0.23 and the left eye was 0.92 +/- 0.18 (p = 0.3). Of the 59 patients with pterygium, we observed 50 cases of pterygium in the right eye (52% RE) and 47 cases of pterygium in the left eye (48% LE), a total of 97 affected eyes. It was bilateral in 38 cases (64.4%) and unilateral in 21 cases (35.6%).

Nasal location was the most frequent 84.5% (82 eyes/97) and both temporal and nasal location in 13 eyes (13.4%) (Table 1). Membranous clinical feature was the most common, 26 cases in each eye (52% RE and 55.3% LE) (Table 2).

| Location | RE | | LE | |
|------------------|----|-----|----|------|
| | n | % | n | % |
| Nasal | 41 | 82 | 41 | 87.2 |
| Temporal | 2 | 4 | 0 | 0 |
| Nasal + temporal | 7 | 14 | 6 | 12.8 |
| Total | 50 | 100 | 47 | 100 |

Table 1: Location of pterygium.
RE: Right Eye; LE: Left Eye

| Type of pterygium | RE | | LE | |
|-------------------|----|-----|----|------|
| | n | % | n | % |
| Membranous | 26 | 52 | 26 | 55.3 |
| Cystic | 18 | 36 | 16 | 34 |
| Pseudo-tumoral | 5 | 10 | 5 | 10.7 |
| Varicous | 1 | 2 | 0 | 0 |
| Total | 50 | 100 | 47 | 100 |

Table 2: Clinical features of pterygium among the 97 affected eyes.
RE: Right Eye; LE: Left Eye

According to the Vaniscote and Lacombe classification, grade 1 pterygium was the most frequent, 21 cases in the RE (42%) and 23 cases in the LE (49%) (Table 3). Grade 4 was seen only in patients over 50 years of age (n = 4; 6.15%)

| Grade | RE | | LE | | RE + LE | |
|-------|----|-----|----|------|---------|------|
| | n | % | n | % | n | % |
| 1 | 21 | 42 | 23 | 48.9 | 44 | 45.4 |
| 2 | 19 | 38 | 18 | 38.3 | 37 | 38.1 |
| 3 | 6 | 12 | 4 | 8.5 | 10 | 10.3 |
| 4 | 4 | 8 | 2 | 4.3 | 6 | 6.2 |
| Total | 50 | 100 | 47 | 100 | 97 | 100 |

Table 3: Pterygium according to Vaniscote and Lacombe classification.
RE: Right Eye; LE: Left Eye; RE+LE: Right and Left Eyes Associated

For corneal astigmatism, 55 eyes had regular corneal astigmatism (56.7%), the difference between the mean values of astigmatism in the RE (1.5 +/- 0.7 D) and the LE (1.6 +/- 0.8 D) was not significant (P = 0.185) (Tables 4 and 5). In figure 1, for a grade x pterygium, astigmatism is determined according to the formula $y = 0.8135x - 0.3678$. In other words, when the grade of the pterygium increases by one unit, the astigmatism increases by 0.8135 Diopter.

| Presence of astigmatism | RE | | LE | |
|-------------------------|----|-----|----|------|
| | n | % | n | % |
| No | 22 | 44 | 20 | 42.6 |
| Yes | 28 | 56 | 27 | 57.4 |
| Total | 50 | 100 | 47 | 100 |

Table 4: Pterygium and astigmatism.
RE: Right Eye; LE: Left Eye

| Astigmatism values | RE | LE | RE+LE | p |
|--------------------|-------------|---------------|---------------|------|
| Mean | 1.5 | 1.6 | 1.55 | 0.18 |
| SD | 0.7 | 0.8 | 0.8 | |
| C.I 95% | [-2 ; -1.1] | [-2.4 ; -1.2] | [-1.8 ; -1.3] | |
| Median | 1 | 1 | 1 | |
| Mode | 1 | 1 | 1 | |
| Maximum | 3.5 | 3.5 | 3.5 | |
| Minimum | 0.5 | 1 | 0.5 | |

Table 5: Pterygium and astigmatism values.
RE: Right Eye; LE: Left Eye; RE+LE: Right and Left Eyes Associated

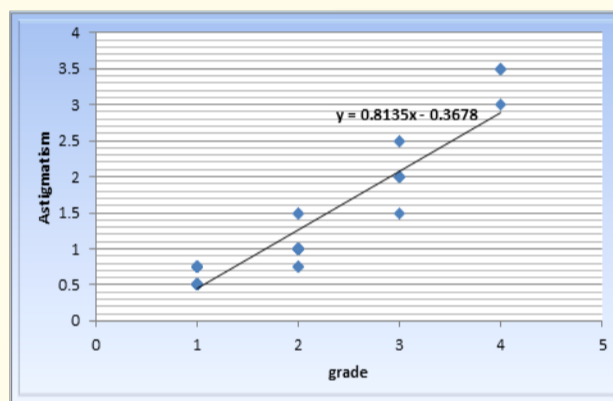


Figure 1: Variation of astigmatism according to the grade of pterygium.

Results and Discussion

The hospital prevalence of 3.6 % found was higher than that reported by Ebana, *et al.* of 1.1% at the General Hospital of Douala in 1997 [4], and that of Moukoury, *et al.* at the Yaounde University Hospital Centre in 2009, which was 1.26% [5]. Our prevalence was similar to the 3.76% of Liang, *et al.* in 2010 in China [2]. This relatively high prevalence may result in an increase in UV exposure, which is the main risk factor for pterygium. Unemployment has increased and informal street trading activities have become common, exposing their actors to the UV radiations. Moreover, the phenomenon of global climatic change and warming could also explain the emergence of pterygium in this industrialized city of Douala, Cameroon.

The average age of patients with pterygium is superimposable to that obtained in Togo and in Tunisia [9,10], which was 48 and 50 years. From these results, two observations can be made: in Togo, the climate is tropical, very close to the equatorial climate of Cameroon. It can be assumed that at about age 50, the number of years of cumulative exposure to the sun leads to the development of pterygium compared to younger people. Secondly, the sun is probably not the only risk factor in the outbreak of the pterygium, since Tunisia has a temperate climate where the sunshine is not as harsh as in Cameroon. A family history of pterygium was described in one third of the patients. It is known that there is no genetic transmission of pterygium. However, the predisposing geographical and socioeconomic environment shared by the members of the same family, exposes the whole group to the risk factors involved in the pathogenesis of pterygium [1,5,11,12].

Some authors found a slight predominance of women amongst patients with pterygium [10,13,14] while others have found a male predominance [1,6,15-17]. There is no explanation yet for women or men predominance in pterygium; maybe a recruitment bias, but in our setup women are very present in the informal street traders of many markets in Douala, and are exposed to sunlight. In India and China, the most affected by pterygium are people with occupations that expose them to sunlight [16,18]; such as street traders which we found in many of our patients.

The most common nasal location of the pterygium is well-known [16,19-23], as we observed in our cases, without any clear explanation. Its frequent bilateral location, as we have found, has been reported by many authors, who explain it by the similar exposure of both eyes to the UV [9,13]; even though for some patients, the condition is predominantly unilateral [22,24,25].

According to the evolution, stage 1 of the Vaniscote and Lacombe classification of the pterygium is the most described in the literature [9,11,22], as we observed in our setup, where 45.4% of pterygium cases were in grade 1 evolution, reflecting the slowness of the evolution of the disease.

Pterygium lead to astigmatism, the average corneal astigmatism was 1.50 diopters, lower than the 3.47 diopters of Rana., *et al.* in India and higher than the 0.50 diopters average reported by Li., *et al.* in 2013 in China, associated with pterygium [23,26]. It is further established that the more advanced the pterygium is, the greater is the astigmatism [19,23,26] as we noticed in our pterygium cases.

Conclusion

Pterygium is frequent in adults in Douala. It would therefore be important to organize education campaigns for groups of people exposed to sunlight as informal street traders about the benefit of wearing sunglasses or hats in preventing the onset of pterygium.

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