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Epidemiological, clinical and therapeutic aspects of 146 cases at the Ophthalmology Center of the Sheikh Zayed Hospital in Nouakchott

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Résumé

Introduction : Le pterygion est une prolifération conjonctivo-vasculaire, de la conjonctive bulbaire qui empiète sur la cornée, de forme triangulaire a base canthale et a sommet cornéen ; il s'agit de l'une des pathologies de la surface oculaire bénigne les plus fréquentes dans le monde. La distribution du pterygion est mondiale, mais sa prévalence est plus élevée dans les pays à climats chaud et secs.

Objectif : Déterminer les aspects épidémiologiques, cliniques et thérapeutiques du pterygion ainsi que son taux de récurrence après cure chirurgicale au centre d'ophtalmologie de l'hôpital Cheikh Zayed de Nouakchott.

Résultats : Au cours de notre étude, nous avons colligés 146 cas de pterygion soit une fréquence de 7,52% .Plus de la moitié soit 62,3% de nos patient étaient des femmes, avec un sexe ratio H/F : 0,6. La tranche d'âge plus de 60 ans était la plus représentée avec 34,24%.la rougeur oculaire et les larmoiements ont dominés les signes d'appel avec 85,6% et 60%

respectivement. Le stade I était majoritaire avec 43%. Le pterygion nasal était le plus fréquent avec 93,7%. 67,1% des patients de notre série ont bénéficiés d'un traitement médical seul et 32,9% d'une exérèse avec autogreffe conjonctivale dans 50% des cas. Nous avons enregistré un taux moyen de récurrence après 18 mois de la chirurgie de 12,5% pour les patients qui ont bénéficiés d'une exérèse avec autogreffe conjonctivale et le taux était plus élevé chez les patients opérés par d'autres techniques chirurgicales.

Conclusion : Le pterygion bien que bénigne, constitue un vrai problème de santé public dans nos pays, à cause de la prévalence élevée et le risque de récurrence qui reste élevé pour toutes les techniques chirurgicales. Dans notre série le taux de récurrence après 18 mois était le plus bas avec autogreffe limbo-conjonctivale.

Mots-clés : Pterygion, Rayonnement ultraviolets, Autogreffe, Récurrence

Introduction: Pterygium is a conjunctivovascular proliferation, of the bulbar conjunctiva that encroaches on the cornea, triangular in shape with a canthal base and corneal apex; It is one of the most common benign ocular surface pathologies in the world. The distribution of pterygium is global, but its prevalence is higher in countries with hot and dry climates.

Objective: To determine the epidemiological, clinical and therapeutic aspects of pterygium as well as its recurrence rate after surgical treatment at the ophthalmology center of the Sheikh Zayed Hospital in Nouakchott.

Results: During our study, we collected 146 cases of pterygium, a frequency of 7.52%. More than half, or 62.3%, of our patients were women, with a sex ratio of 0.6. The age group over 60 years old was the most represented with 34.24%. eye redness and watery eyes dominated the warning signs with 85.6% and 60% respectively. Stage I was in the majority with 43%. Nasal pterygium was the most common with 93.7%. 67.1% of patients in our series benefited from medical treatment alone and 32.9% from excision with conjunctival autograft in 50% of cases.

We recorded an average recurrence rate after 18 months of surgery of 12.5% for patients who underwent excision with conjunctival autograft and the rate was higher in patients operated on by other surgical techniques.

Conclusion: Pterygium, although benign, is a real public health problem in our countries, because of the high prevalence and the risk of recurrence which remains high for all surgical

techniques. In our series, the recurrence rate after 18 months was lowest with limbo-conjunctival autograft.

Keywords: Pterygium, Ultraviolet radiation, Autograft, Recurrence

Introduction:

Pterygium is a conjunctivovascular proliferation of the bulbar conjunctiva that encroaches on the cornea.

It is one of the most prevalent ocular surface pathologies in the world [1] and whose clinical, therapeutic and aesthetic problem dates back to the dawn of time [2], particularly in tropical or subtropical countries with high levels of sunlight [3,4]. The etiopathogenesis remains uncertain and debated. However, risk factors have been identified, the most incriminated of which is prolonged exposure to solar ultraviolet rays [5], which is supported by the fact that pterygium often occurs concomitantly with ocular pathologies known to be favoured by exposure to solar UV rays [4,6]. Other factors correlated with the occurrence of pterygium are advanced age, male sex, living in rural areas and outdoor occupations [5].

It is a proliferation considered benign but has properties generally attributed to neoplasia such as the ability to invade the surrounding normal tissues and to recur after surgical excision, in addition to its coexistence with certain precancerous lesions [6,7]. Clinically, it is characterized by an unpredictable, progressive and invasive course, which ultimately threatens the corneal center and consequently visual acuity. Its severity is mainly due to its tendency to recur and many treatments, both medical and surgical, have been devised and described in order to limit this recurrence.

The contribution of medical treatment is only symptomatic [7, 8]. Radical treatment is still surgical excision [9], which is nevertheless burdened with a high recurrence rate [10, 11]. As Mauritania is located in a geographical area with climatic characteristics favoring the appearance of pterygium, the present work aims to determine the epidemiological, clinical and therapeutic aspects of pterygium as well as its recurrence rate after surgical treatment at the Priority Sight Center (CPV) of Nouakchott.

II. PATIENTS AND METHODS:

II-1 Patients:

This is a prospective descriptive study carried out at the of the Cheikh Zayed Hospital Center in Nouakchott (former Priority to the View (CPV-) on adult subjects operated on or treated for a Primary pterygium, which took place over a period of 40 days from July 25 2019 to September 2, 2019. Epidemiological, clinical, Paraclinical, therapeutic and evolutionary data were collected using the of exploitation developed for this purpose; as well as reports and records of operated patients.

II-2 Methods:

The patients thus included were divided into 2 groups: the group of patients with medical/conservative treatment and for whom no follow-up was considered in the context of this study; and the group of patients in whom the treating ophthalmologist has opted for surgical treatment pterygium by the three techniques: Simple excision of pterygium; Excision with suture and Excision with conjunctival auto-graft and for which a post-operative follow-up has been undertaken in order to detect the occurrence of complications and determine the rate of recurrence inherent in each.

II.3 Criteria

Inclusion criteria:

- Confirmed unilateral or bilateral ocular pterygium
- Primary or recurrent pterygium at any stage
- All genders and ages.
- Consent to be part of the study

Non-inclusion criteria:

- Absence of ocular pterygium
- Non-consent to be part of the study.

II-4 Data Analysis:

Data analysis was performed using IBM® SPSS® Statistics 23.0 software and Microsoft Excel 2016. Data entry was done on Microsoft Word 2016. The correlation between the

variables was assessed using the statistical test Khi2 (χ^2). This correlation was considered statistically significant for any p-value < 0.05.

III. Results:

• Prevalence:

In our series, there were 146 patients with pterygium out of a total of 1942 consultations during the study period, i.e. a prevalence of 7.52%

• Gender:

More than half, or 62.3%, of our patients were women, with a sex ratio of 0.6.

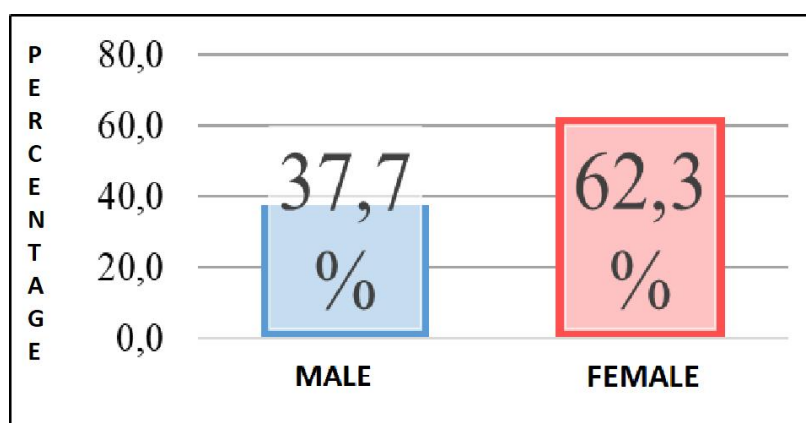


Figure 1: Gender distribution of patients

• Age:

The age group over 60 years old was the most represented with 34.24%

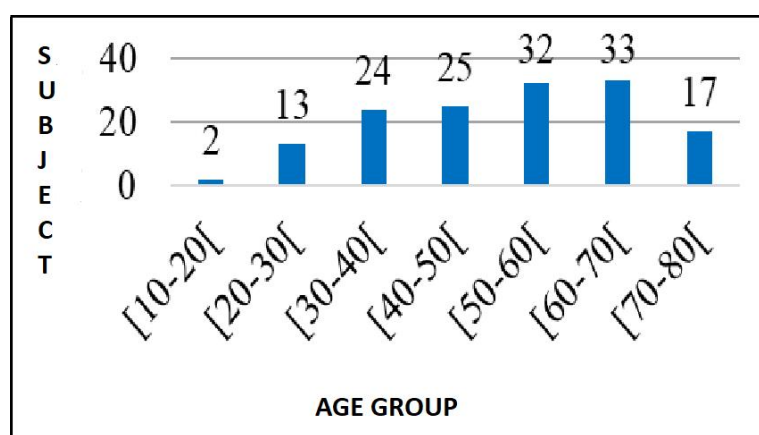


Figure 2: Distribution of patients by age group

• Risk/exposure factors

Table I: Risk factors / exposures:

	FREQUENCY	PERCENTAGE
SIGNIFICANT EXPOSURE TO SOLAR RADIATION	119/146	81.5
EXPOSURE TO WIND	135/146	92.5
EXPOSURE TO DUST	124/146	84.9
EXPOSURE TO HOT AND DRY CLIMATE	93/146	63.7
WELDER	3/146	2.1

- Functional signs

Table II: Functional signs

Frequency Percentage (%)

Watery eyes 88/146 60.3

Pruritus 78/146 53.4

Eye redness 125/146 85.6

Sand Grain Feel 33/146 22.6

Subjective visual disturbances 18/146 12.3

Decreased visual acuity 26/146 17.8

Functional signs reported by patients and their relative frequencies.

The discovery of pterygium was the occurrence of functional signs in 90.5% of cases, i.e. in 132 of the patients in the target population.

- The stages of pterygium

Stage I was in the majority with 43%

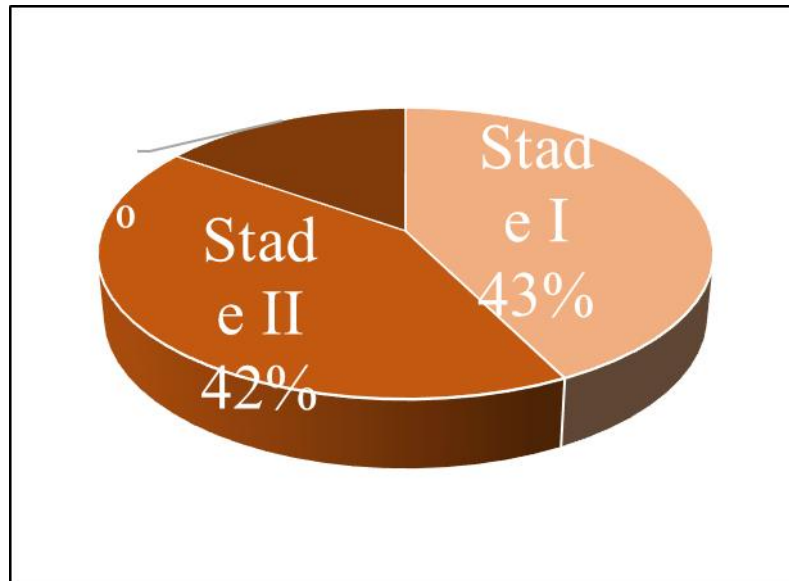


Figure 3: Distribution of pterygia according to their stage

- The location of pterygium:

Nasal pterygium was the most common with 93.7%.

- The therapeutic decision:

Conservative medical treatment = 98 patients (67.1%)

Surgical treatment = 48 patients (32.9%)

- Distribution of patients operated according to surgical technique:

Simple excision was performed in 12 (25%) of the 48 patients operated. Excision with conjunctival autograft was performed in 24 patients (50%). Excision with suture was performed in 12 patients (25%).

- The rate of recurrence according to the surgical technique

Table III: Summary table of recurrence rates by surgical technique

LONG TERM RECCURENCE (18 MONTHS)						
AUTO GRAFT		yes	no	lost	total	P-value
	YES	19	3	2	24	0,045
	NO	11	11	2	24	
	TOTAL	30	14	4	48	
LONG TERM RECCURENCE (18 MONTHS)						
SIMPLE EXCISION						
	YES	3	8	1	12	-
	NO	27	6	3	36	0,002
	TOTAL	30	14	4	48	
LONG TERM RECCURENCE (18 MONTHS)						
EXCISION WITH SUTURE						
	YES	8	3	1	12	-
	NO	22	11	3	36	0,9
	TOTAL	30	14	4	48	

IV.Discussion :

In our series we found a frequency of pterygium cases of 7.5%, which represents 146 cases of pterygium out of a total number of consultations in 1942; 8.58% was the frequency found by Senaa(12) on a sample similar to ours (1980).the North Norwean study by Lee et al. found a frequency of 6%(13).the same rate (6%) was found in the 2011 Spanish study by VISO et al.(14).in their 2018 study of 12258 subjects, Chun et al. Had found a prevalence very similar to ours (7.09%)(4).the prevalence we found was high compared to that found by some African authors (15,16,17,18).

In our series, the female sex was predominant with 62% women against 32% men; these results are similar to the results found by: Uba-Obiano et al in Nigeria in 2021(19) which found 59% women compared to 41% men [19]. Viso et al. reported a higher prevalence in women [14]. In Senegal, a sex ratio of 0.72 in favour of women was reported in 2017 by Ndiaye-Sow et al. [20]. But the predominance of men among populations with pterygium is an established fact in the vast majority of studies that deal with this subject; thus The male predominance was found by 2 meta-analyses: Rezvan et al. Found that the risk of pterygium in men is 1.3 times higher than in women [7]; He et al. They found 14.5% and only 13.6% among women (21). According to Rezvan et al. [7] and Joudi [22], the male predominance can be explained by higher exposure to risk factors. Abdelaoui in Marakech in 2014 regains 57% of men compared to 43% of women [15]. Magnirisoa found similar results [16]. The female predominance in our study can be explained by aesthetic concerns. The average age of our patients was 50.37 ± 15.05 years. These results are similar to the results found by: Abdelaoui and al.au Morocco(15), Nganga et al. (Brazaville)(9) and Numbi-Ngoy (D.R.Congo) (17) find respectively:51.10 years; 48.73 years and 48.3 years. Pterygium is a pathology of the adult subject.

In our study, 81.5% of patients with at least one pterygium reported significant sun exposure. Qadi et al. in Taif [23] report a very similar percentage: 81.8% of the subjects in their study say they are exposed to the sun.

Hatsusaka et al. had found a statistically significant relationship between exposure to solar UV and the development of pterygium [24].

Chun et al. [4] used serum vitamin D levels as an objective indicator of sun exposure in the subjects of their study and thus found a direct correlation between exposure to solar UV rays and the development and recurrence of pterygium. Lee et al. [13] reveal a statistically significant association between daily sun exposure greater than 5 hours/day and the

occurrence of pterygium. In addition, they reveal that pterygium is 3 times more common in those whose work exposes them to the sun (farmers, farmers, fishermen [13], shepherds, etc.) than in those who are not exposed to a profession. This high prevalence among external workers is also found in Saudi Arabia by Qadi et al. (23).

In their 2018 meta-analysis, Rezvan et al. also report on the importance of sun exposure greater than 5 hours/day as a risk factor for pterygium [7]. Their results also show that prolonged exposure to the sun increases the risk of pterygium by 24%. Eighty-five percent of the patients in our study were exposed to dust on a regular basis in everyday life. This figure is 40% in the series by Fakadu et al. [25] and 60% in that of Anbesse et al. [26], both studies being carried out in Ethiopia.

Exposure to wind and heat and drought accounted for 92% and 63% respectively in our series; Wind, heat and dry ambient air are factors in the desiccation of the ocular surface, which in turn is an irritant to the ocular surface (27,28). They participate in the genesis of pterygium and cause episodes of inflammation of an already constituted pterygium. In our series: eye redness and tearing dominated the functional signs in our series with 85.6% and 53.4% respectively; followed in order of frequency by the sensation of grains of sand: 22.6% and visual disturbances: 12.3%. In different proportions These functional signs have been found by other authors: Uba-Obiano et al. (2021)(19) in Nigeria found: eye redness 50.6%, foreign body sensation 49.9%, tearing 17.9% and visual disturbances 9.6%. Abdelaoui et al. (2014)(15) in Morocco finds: Tearing 78.5%, eye redness 37.4%, localized irritation 84.7% and visual disturbances 42.9%.

Stages I and II of pterygium were the most represented in our series: 85% of all pterygium were either stage I (43%) or stage II (42%). Stage III accounted for the remaining 15%. These results are similar to the results found: Numbi-Ngoy et al. in (17)Congo: stage I=49%, stage II=46%, stage III=4.4% and Abdelaoui in Morocco(15): stage I=43%, stage II=47%, stage III=10%. In the study by Li et al., a clear predominance of Stage I emerges: stage I=58.1%, stage II=31.2%, stage III=10.7%. Nevertheless, and just like our results, stages I and II together account for the majority of cases (89.3%).

In our series: the location of pterygium was nasal in 93.1% these results are similar to those found by some authors: Alsarhani et al. (Saudi Arabia)(29); Joudi (Morocco)(22); Uba-Obiano et al. (Nigeria)(19); Bueno et al. (Algeria)(30); Senaa (Morocco)(12), which respectively: 92.6%; 95.6% ; 97.5% ; 91.5% and 92.5%. According to the literature, the nasal side is more exposed to solar radiation, due to the lack of protection by the shadow of the nose

and may also be the focus by the corneal dome of ultraviolet and infrared rays at the level of the nasal limbus.

Medical/conservative treatment was the therapeutic decision in 2/3 of the patients in our series. Conservative treatment also predominates in the study by Numbi-Ngoy et al. (20) where it represents 78% compared to 22% for surgery. This could be explained by the predominance of stage I and II pterygium cases (43% and 42% respectively), stages where surgical treatment is not indicated as a first-line treatment. The recurrence rate differs according to the technique and this rate is low when the excision + autograft technique was performed with a rate of 12.5% and this is comparable with the results found by :d'Eisenmann (31) Bammou (Morocco)(12) and ozer (turkie)(32) with a rate of 11%, 12.5% and 14% respectively, this recurrence rate is reached about 66% of the cases in our series, and this result is close to that of Tan et al. (Singapore)(33) Mahar and Nwokora (Saudi Arabia)(34) and Rafiq et al. (Pakistan)(35) who find respectively: 65.8%; 60% and 70%.

Conclusion:

Pterygium is still one of the most common ocular surface pathologies in the world and particularly in our country and its sub-region located in the middle of the pterygium belt. This benign proliferation of the bulbar conjunctiva is a source of functional signs that can be disabling and a decrease in visual acuity that can be very severe. A link between the occurrence of pterygium and exposure to solar rays is unanimous; But several risk factors are proposed to explain the genesis of pterygium, which is therefore probably multifactorial. Despite centuries of research on the issue, the therapeutic problem still arises: a definitive treatment has yet to be found. The multitude of surgical techniques practiced nowadays testifies to the difficulty encountered in finding a method that compensates for recurrences. Conjunctival or conjunctivo-limbal autograft is a technique that is unanimously accepted in the world because of its low recurrence, its relative ease and the rarity of its complications.

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