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Research Article

Eviscerations and Enucleations' Etiologies at the University Hospital HKM of Cotonou

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Abstract

Aim: Study the etiological profile of evisceration and enucleation at the University Hospital HKM of Cotonou.

Materials and Methods: This is a descriptive, analytical and retrospective study which took place from January 1st, 2006 to December 31st, 2016. It concerned all the files of the patients having benefited from evisceration/enucleation.

Results: 64 subjects were identified with a sex ratio of 1.78. The average age was 37.83 ± 10.7 years old. These 2 interventions had an overall prevalence of 4.31% that of evisceration was 3.84% versus 0.47% for enucleation. The main cause was traumatic (56.1%) for evisceration and tumoral (6 cases out of 7) for enucleation.

Conclusion: Evisceration and enucleation are not uncommon. Traumatic causes are the most gutting while enucleation is mainly due to tumors. It is important that preventive measures are implemented to reduce their prevalence.

Keywords: *Evisceration; Enucleation; Prevalence; Causes*

Introduction

Anophthalmic cavity is an orbital cavity deprived of its contents. It can be congenital (rare) or acquired (postoperative) [1]. The ophthalmologist, despite significant advances in the management of eye conditions, is sometimes confronted with certain pathologies requiring the removal of the eyeball. It can be either enucleation or evisceration. These interventions have a significant psychosocial impact, which makes decision-making complex for both the physician and the patient [2].

The causes of these interventions are multiple and varied. To assess the prevalence of evisceration and enucleation, to determine the socio-demographic characteristics of eviscerated or enucleated patients, and to identify the main etiologies and to establish a link between the various factors are the objectives of this work.

Method

This was a retrospective study with a descriptive and analytical type, which covered an 11-year period from January 1, 2006 to December 31, 2016. It concerned patients aged 0 to over 60 years who had been eviscerated or enucleate in the department during the study period and met the inclusion criteria. Patients having undergone these interventions outside the University Hospital, having consulted secondarily, and those whose file was incomplete or lost, were not included. The variables studied were socio-demographic (age, sex, socio-professional activity) and etiological (trauma, tumors, infections, corneal affections, glaucoma).

The data was entered and analyzed using the Epi Data and Epi info version 3.3.2 software. Frequency comparisons were made using the chi-square test, averaging comparisons using Student's test. Statistical tests were performed to see the distribution of the phenomenon in the reference population: the difference was statistically significant for a value less than 0.05.

Results

Prevalence

From January 1st 2006 to December 31st 2016, 1483 eyes underwent surgery in the department of Ophthalmology. We identified 64 eyes, of which 57 had evisceration and 7 enucleation. There was no bilaterality or 64 subjects. These 2 interventions had an overall prevalence of 4.31%. The prevalence of evisceration was 3.84% and that of enucleation 0.47%.

Socio-demographic aspects

Age

Table 1 shows age distribution of the patients.

Age	n	%
0 - 06	11	17,2
06 - 18	5	7,8
19 - 40	21	32,8
41 - 60	12	18,8
> 60	15	23,4
Total	64	100

Table 1: *Age distribution of the patients (2017, University Hospital of Cotonou).*

The 19 - 40 age group was the majority (32.8%). The average age was 37.83 years ± 10.7 and the extremes were 1 year and 84 years. As for enucleation, the 0 - 6 age group was the most represented with a peak of 6; followed by the age group of 19 - 40 years with 1 subject. The mean age of enucleate was 6.35 ± 4.5 years.

Sex (gender)

The 64 subjects in the study were divided into 41 males (64.1%) and 23 females (35.9%), a sex ratio of 1.78.

The 7 enucleated individuals were divided according to sex in almost equal proportion with 3 males and 4 females.

Causes of eviscerations/enucleations

For the 64 eyes, the leading cause was trauma with 33 subjects (51.6%), followed by endophthalmitis/panophthalmitis and corneal affections, which accounted for 14.1% each. We did not find any cases of phthisis/dystrophy of the eyeball among the causes.

Causes of eviscerations

Table 2 shows the cause distribution of eviscerated subjects.

Causes	Evisceration	
	n	%
Trauma	32	56,1
Endophthalmitis/panophtalmie	9	15,8
Corneal affections	9	15,8
Glaucoma	3	5,3
Tumour	2	3,5
Other reasons	2	3,5
Total	57	100

Table 2: *Cause distribution of Eviscerated Subjects (2017, University Hospital of Cotonou).*

(p < 0,05).

For the 57 eviscerated, it was a traumatic cause in 56,1% of the cases.

Causes of enucleations

The main cause of enucleation in our series was tumoral in 6 out of 7 cases and these subjects belonged to the 0 - 6 age group. We note that the diagnosis of retinoblastoma was retained for the 6 patients. But only a case was confirmed to the pathology. A subject was involved in traumatic etiology and was in the 19 - 40 age group.

Association factors

Evisceration and age

Table 3 illustrates the age distribution of eviscerated patients.

Age	Evisceration	
	n	%
0 - 06 years	5	8,8
06 - 18 years	5	8,8
19 - 40 years	20	35,1
41 - 60 years	12	21,1
> 60 years	15	26,3
Total	57	100

Table 3: *Age distribution of eviscerated patients (2017, University Hospital of Cotonou).*

Evisceration and sex (gender)

Figure 1 shows the sex distribution of eviscerated subjects.

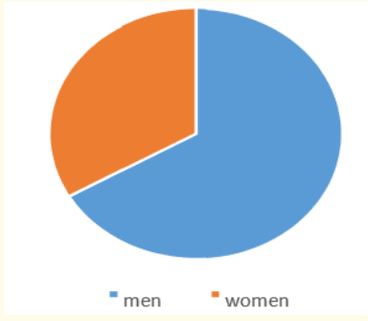

Figure 1: *Gendered distribution of eviscerated subjects (2017, University Hospital of Cotonou).*

The 57 eviscerated subjects were divided into 38 male (66.7%) versus 19 female (33.3%); therefore males are twice more concerned.

Causes of eviscerations and sex (Gender)

Table 4 illustrates the sex causes of eviscerations.

Causes	Evisceration	
	Men n (%)	Women n (%)
Trauma	22 (57,9)	10 (52,6)
Endophthalmitis/panophtalmie	5 (13,2)	4 (21,1)
Glaucoma	3 (7,9)	0
Tumour	0	2 (10,5)
Corneal affections	7 (18,4)	2 (10,5)
Other reasons	1 (2,6)	1 (5,3)
Total	38	19

Table 4: *Sex causes of eviscerations (2017, University Hospital of Cotonou).*

(p = 0,0001).

Males eviscerated were the most concerned about the traumatic etiology (57.9%). The causes of evisceration varied significantly with sex (gender).

Age as causes of eviscerations

The causes of eviscerations by age are shown in table 5.

Causes		Evisceration			
	0 - 6 n (%)	6 - 18 n (%)	18 - 40 n (%)	41 - 60 n (%)	> 60 n (%)
Trauma	4 (80,0)	3 (60,0)	15 (75,0)	4 (33,3)	6 (40,0)
Endophthalmitis/panophtalmie	0	0	1 (5,0)	3 (25,0)	5 (33,3)
Glaucoma	0	0	0	0	3 (20,0)
Tumour	1 (20,0)	0	1 (5,0)	0	0
Corneal affections	0	1 (20,0)	3 (15,0)	4 (33,3)	1 (6,7)
Other reasons	0	1 (20,0)	0	1 (8,3)	0
Total	5	5	20	12	15

Table 5: *Age-cause of eviscerations (2017, University Hospital of Cotonou).*

P = 0,0001.

Causes of evisceration varied significantly with age.

Discussion

Prevalence

In our study, the prevalence of evisceration was 3.84% and that of enucleation 0.47%. This prevalence of enucleation is similar to that found in Morocco (0.43%) in a study conducted in 2004 by Tahri H., *et al*. over a 12-years period [3]. A lower prevalence was found in Uganda (0.2%), in Jerusalem (0.29%) and in India (0.33%) [4-6]. On the other hand, a higher value (5.7%) was found by Majekodunmi S in Lagos. But in this study the sample size was 101 eyes for a period of 9 years [7]. We did not find in the prevalence literature concerning evisceration.

Socio-demographic aspects

The mean age was 37.83 ± 10.7 years old. A similar finding was made by Gyasi ME., *et al.* in Ghana (36.4 years), Keenan TD in Palestine (39 years), Monsudi KF in Nigeria (35.5 years) [8-10]. The 64 subjects in the study were divided into 64.1% males and 35.9% females. This result is similar to that of Kord Valeshabad A., *et al.* (65.4% of men) in Iran [11].

As for the 7 enucleated subjects, our results are similar to those of Haile M., et al. in Ethiopia [12]. Overall evisceration is practiced much more than enucleation in our department to keep on the conservative trend recommended.

Causes of eviscerations/enucleations

The causes vary according to the studies. In our series, considering these two interventions, the primary etiology was traumatic (51.6%), followed by endophthalmitis/panophthalmitis and corneal affections, which accounted for 14.1% each. The same observation has been made by most authors [12-14]. However, in Lomé (Togo), a country bordering ours, Vonor., *et al.* found as main indications: staphyloma (38%), tumors (30%), bulbous phthisis (24%) [15]. In their study, they included exenteration. In Accra, (Ghana) endophthalmitis/panophthalmitis were in the foreground (47.9%) with trauma (23.2%). In this study, the sample size was 5 times greater than ours [8].

Causes of eviscerations

On the one hand, trauma was the main indication (56.1%), followed by endophthalmitis/panophthalmitis which stands for 15.8%, as well as corneal disease. In Turkey, in a study that covered from 2005 to 2013, Balta Ö., *et al.* made the same observation: trauma as the first cause (60.1%) [16]. Odugbo OP in Nigeria, revealed the same result for which trauma counted for 45.9% [17]. On the other hand, trauma was in second position (35,1%) after the infectious causes (40,5%), according to Monsudi KF in Nigeria in 2013 [10].

Causes of enucleations

The main cause of enucleation in our series was tumoral in 6 cases out of 7, then traumatic in a case. The age group 0 - 6 was the most represented. This is consistent with the etiology of tumors, including retinoblastoma, which is essentially a pathology of early childhood. This etiology is at the forefront of our study because of the delay in consultation, certain social habits and even the ignorance of parents who, unfortunately, bring children to a stage where conservative treatment no longer has its place. Adeoye AO in Ile-Ife, (Nigeria) observed the same trend (87.2%) [18].

Several studies find as first cause tumors. These are Knezevic M., *et al.* in Serbia (76.11%) and Mondal SK in India (64%) [19,20]. This proportion is slightly lower than ours. Skat Y., *et al.* (Hopital Quinze Vingts) in Paris, Majekodunmi S in Lagos, for their part, obtained a much lower proportion respectively 32% and 41.7% [7,21]. This is because their technical platform is more efficient, allowing early diagnosis with the possibility of conservative treatment.

As for traumatic etiology, it was the third indication in the Paris and Serbian studies, respectively 18% and 38.8% [19,21].

Other authors, however, have found trauma at the forefront of indications. These are Kaimbo K in Zaire in 1988, Tahri H., *et al*. in Morocco (1988 to 2000), Lim JK., *et al.* and Bal A in India [3,22-24]. We note also that these studies were done before the 2000s, during which the conservative attitude was perhaps not yet in use. In addition, the size of their samples was much larger than ours. On the other hand, in Cameroon the infectious causes prevailed over the others (33,20%), but this study of Kagmeni G was made in a rural area where access to the ophthalmologist is limited [25].

Conclusion

In our study, the prevalence of evisceration was 3.84% and that of enucleation 0.47%. Both interventions varied significantly with age. The male sex was predominant with a sex ratio of 1.78. The average age was 37.83 ± 10.7 years old. The main cause was traumatic (56.1%) for evisceration and tumoral (6 cases out of 7) for enucleation.

It is important to take action to prevent the causes of these mutilations because the prosthetic rehabilitation remains hypothetical in our counties.

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