GAVIN PUBLISHERS

Ophthalmology Research & Reports

Maloba VN, et al. Ophthalmol Res Rep 4: 132.

DOI: 10.29011/ORRT-132.100032

Research Article

Perforating Wounds of the Ocular Globe and its Appendices: Epidemiological, Clinical and Therapeutic Aspects at Lubumbashi University Clinics

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Citation: Maloba VN, Mukengeshayi NA, Borasisi CG (2019) Perforating Wounds of the Ocular Globe and its Appendices: Epidemiological, Clinical and Therapeutic Aspects at Lubumbashi University Clinics. Ophthalmol Res Rep 4: 132. DOI: 10.29011/ORRT-132.100032

Received Date: 20 May 2019; **Accepted Date:** 28 May 2019; **Published Date:** 5 June 2019

Abstract

Aim: To determine the epidemiological, clinical and therapeutic characteristics of perforating wounds of the eyeball.

Method: This is a retrospective descriptive documentary study conducted in the ophthalmology department of the Lubumbashi university clinics, from January 2010 to December 2013. We recorded 59 patient files with perforating wounds of the eyeball with or without reaching the annexes. We studied sociodemographic and clinical variables.

Results: The frequency of perforating wounds of the eyeball was 0.5% on 11458 compiled records. Male patients accounted for 68.4%. The average age of patients was 16.9 with extremes ranging from 7 months to 59 years; patients aged between 19 and 40 years were the majority, i.e., 33.9%. The injury was 52.5% for the right eye and 47.5% for the left eye. Metallic agents were responsible for eye trauma in 33.9% of domestic accidents accounted for 26.7% of cases. The corneal wound was noted in 47.5% of cases, the corneal foreign body involved 5% of patients. Absolute blindness was noted in 18.8% of patients, while 52.5% of patients had almost complete blindness. The functional results depended on the time between the occurrence of the trauma and the effectiveness of the management.

Conclusion: The perforating wounds of the eyeball constitute a health problem that requires a vast public awareness campaign and urgent management of lesions.

Keywords: Appendix: Eye ball wound; Frequency;

Introduction

The World Health Organization estimates that more than 55 million ocular trauma occur each year with total temporary disability exceeding 24 hours. It shows that of these 20,000 are open eye trauma and 1.6 million patients with bilateral blindness; 2.3 million with bilateral vision loss and more than 19 million patients with blindness or unilateral posttraumatic vision loss [1,2]. In Africa, the prevalence of perforating wounds of the eyeball among patients received in ophthalmic service remains important and varies from one country to another. In 1992, it was 30% in Senegal [3]. In the same year, prevalence rates of 12.4% and 48% were reported respectively in Tunisia and Morocco [4,5].

In the Democratic Republic of Congo (DRC), the prevalence of eye pleasure remains unknown while the perforating wounds of the globe are also responsible for blindness and low vision in our environment. The main objective of this study was to determine the epidemiological and clinical characteristics of the patients received at the ophthalmology department of the University Clinics of Lubumbashi.

Method

This descriptive cross-sectional study was carried out at Lubumbashi University Clinics. We analyzed the medical records of 11458 patients consulted at ophthalmology departments of University Clinics of Lubumbashi between January 2010 and December 2013. The studied variables were: sex, age, profession, plains, laterality, nature traumatic agent, the location of the lesion, the consultation time, the circumstances of the wound, the presence or absence of intraocular foreign body, patient management and post-traumatic complications. We used the usual statistics (percent, mean, standard deviation) to profile our study population.

Results

Demographic profile of patients (Table 1)

Age/Year	Sex		Total	Percentage
	Male	Female		
0-2	3	5	8	13.6
3-5	7	4	11	18.6
6-12	8	6	14	23.7
13-18	3	0	3	5.1
19-40	17	3	20	33.9
>40	3	0	3	5.1
Total	41	18	59	100.0

Table 1: Distribution of patients by age and sex.

Of the 11458 patients consulted during the study period, 59 (0.5%) had perforating wounds. Wounds were common in patients aged 19-40 years (33.9%). Children under 5 and 6-12 accounted for 32.2% and 23.7% respectively of perforating wounds. The sex ratio of the patients was 2.28 men for a woman. Students and students accounted for more than half of patients (53.4%).

Clinical profile

Variables	% (n=59)
Laterality	
Right eye	52.5
Left eye	47.5
Agent causal	
Wood	13.6
Metal	33.9
Pierre	15.3
Plastic object	1.7
Glass object	13.6
Other	22.0
Circumstances of occurrence	
Aggression	10.0
Domestic accident	26.7
Road accident	11.7
Work accident	15.1
Thu	21.6
Other	15.0
Siege the wound	
Corneal	47.5
Corneo-scleral	27.1
Eyelid	16.9
Eye ball + Appendix	8.5
Consultation time	
≤ 6h	11.9
7h-24h	20.3
>24h	67.8
Intraocular foreign body	
Corneal	5.0
Other	95.0

Table 2: Clinical profile values of variables in percentage.

This Table 2 shows that all the patients involved in the study had unilateral involvement with 52.5% for the right eye and 47.5% for the left eye, respectively. Metal agents accounted for 33.9% of eye trauma while wood, glass and stone accounted for 13.6%, 15.3% and 13.6%, respectively. Road traffic accidents, the blow on the eye together accounted for 22.0% of the causes of wounds. Regarding the circumstances of occurrence, more than a quarter (26.7%) of perforating wounds were due to domestic accidents, i.e., 26.7% of cases and games played by children, i.e., 21.6% of cases. Occupational accidents accounted for 15.1% of all perforating palms, and road accidents accounted for 11.7% of eye trauma.

In terms of seat, the wounds had a corneal predominance (47.5% of cases), they were corneo-scleral in 27.1% cases. Localized eyelid wounds accounted for 16.9% of cases, while associated eyeball and appendix involvement was found in 8.5% of cases. More than one-third, 67.8% of patients had consulted after 24 hours; 20.3% of patients had done so within 24 hours and 11.9% within 6 hours. The majority of patients, 95.0%, did not have the intraocular foreign body associated with their wounds.

Visual acuity	Effective	Percentage
NIHIL	3	18.8
PL	31	52.5
≤ CD 1m	5	8.3
CD 1m- ≤ 3m	4	6.7

CD 3m-1/10	2	3.3
≥ 3/10	14	23.3
Total	59	100.0

Table 3: Visual acuity.

This Table 3 shows that ocular trauma was responsible for absolute blindness in 18.8% of patients, while 52.5% of patients had almost complete blindness, 8.3% of patients had profound visual impairment 6.7% of patients had severe visual impairment, 3.3% of patients had moderate visual impairment.

Treatment, evolution and complications

All patients were medically and surgically treated. The medical treatment was local and general consisting of antibiotics, steroidal or nonsteroidal anti-inflammatory drugs, anti-tetanus serum. Surgical management consisted of a repair of wounds under anesthesia associated or not with the extraction of foreigners. Complications were made of: cataract (23.3% of cases), hernia of the iris (16.7% of cases), atrophy of the eyeball (5% of cases), endophthalmitis (3%) 3% of cases) and hyphema (1.7% of cases) (Figure 1).

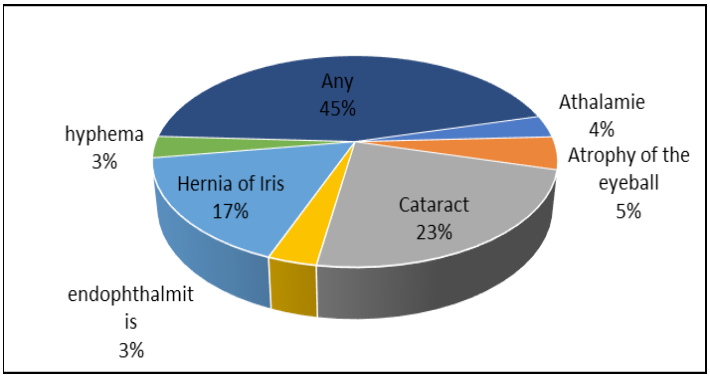

Figure 1: Complications were made of: cataract (23.3% of cases), hernia of the iris (16.7% of cases), atrophy of the eyeball (5% of cases), endophthalmitis (3%) 3% of cases) and hyphema (1.7% of cases).

Discussion

Among the 59 medical files of post-traumatic perforating wounds patients, our study shows a clear male predominance in 68.4% of cases, i.e., a sex ratio of 2.28 men for a woman. Our results are consistent with those of African and Western authors: Meda in Burkina Faso [6], Lam [3] in Senegal and Lala-Gitteau [7] in France, which report a perforation rate of 70.73%; 69.4%; 93% of cases. Male dominance raises the fear of human exposure to various activities that may be domestic, industrial, sports and also by the turbulence of male subjects. The ocular traumatology literature indicates that the man is more often affected than the woman and it is in the context much more of an accident of work [8].

In our series the average age of patients with trauma with perforating eyeball was 16.9 years with extremes ranging from 7 months to 59 years. But patients whose age was between 19 and 40 years were more numerous with a frequency of 33.9% of cases. The result found in our study is consistent with those of African and Western authors. Valle [9] in France, studying oculopelteal trauma had found a high frequency for the age group between 30 and 40 years; Sebilleau [10] found the average age range of 35.4 years in a study that was conducted in France. This high frequency in the age group of 19 to 40 years for our study is explained by the fact that it is a slice of autonomy and responsibility, during which the recovery to activities is maximum. Children aged 7 months to 12 years accounted for a significant portion (55.3%) in our series. We found that the frequency of perforating wounds increased gradually with age, which could be explained by the turbulence of the young boys during the different games. The literature indicates that most wounds are in young adult males, the average age of onset being 36 years in men [2].

We found a frequency of 0.5% or 59 cases of perforating wounds of the eyeball and its appendices out of a total of 99.5% or 11458 patients consulted during the period of the study. Sekkat [4] found in a study conducted in Morocco a frequency of 12.41%. Lam [3] in turn report a frequency of 22% in a study conducted in Senegal. WHO estimates that of the more than 55 million eye injuries that occur each year, 20 miles are open-globe or wound-related [2].

The attack was unilateral with predominance of the right eye (52.5%) compared to the left eye (47.5%) without bilateral involvement in our series. Our results corroborate with Senegal's Seck [11] results and contradict Kaimbo's results in Kinshasa [12], which report a frequency predominated by the left eye. Although we have noted a predominance of the right eye, we share the idea of Sekkat [4] in France, for whom if a difference appears in the frequency of the trauma between the right eye and the left eye, it does not may be due to the chance of the trajectory of the projectile.

In our series it appears that the metallic causal agent was frequent in 33.9% of cases. The occurrence of perforating wounds was dominated by domestic accidents in 26.7% of cases. This is consistent with the study of Gaboune [5] in Marrakech. Games played by children accounted for 21.6% of eyeball wounds. In Senegal, Lam [3] found 58% of cases at gambling and 13.6% related to domestic accidents.

The cornea was the anatomical structure of the eye most concerned with perforating wounds with a frequency of 47.5% of cases in our series. SIDI reports a frequency of 79.4% [13] in a study conducted in Tunisia. Wounds associating the eyeball with the appendages were found in 8.5% of cases. Several authors agree that the external topographic location of the cornea would explain its great exposure to ocular wounds.

In our series, patients consulted in 67.8% of cases 24 hours after the occurrence of the trauma, 20.3% had consulted between 7-24 hours, 11.9% of cases had consulted in the first 6 hours

that followed the trauma. By cons Beby in France, found that 79.9% of trauma especially in children, were seen in consultation the same day [14]. The delay in consultation was also noted by Sekkat [4] in 75.85% of cases who had consulted after 48 hours in Morocco, Meda in Burkina Faso [6] had found in 27.4%; Yaya in Central Africa had found in 91,9% after 48 hours [15]. Lam [3], however, noted in their study that 10% of subjects in their series had consulted within the first 6 hours in Senegal. We remain in the neighborhoods of their results with 11.9% of cases of consultation in the 6 hours' post - traumatic in our series. This high rate of delayed consultation in our community, as elsewhere in Africa, could be explained by the remoteness of specialized health structures from the target population, by the behavior of patients who prefer to start with self-medication, for others who are starting by traditional treatment or patients who start with non-specialized structures. Some patients underestimate the initial lesion by the fact that sometimes the lesion is painless and probably the cost of care.

Our study showed that ocular trauma was responsible for unilateral blindness in 71.3% of cases and 18.3% of cases of visual impairment. Lam [3] in Senegal reports a loss of visual function in 95%, Meda reported to Burkina Faso admission at a visual acuity reduced to the light perception of the eye reached in 60.87% [6]. The visual prognosis depends on the importance of the shock received by the eye, the extent of the wound and the ocular structures affected by the trauma.

The intraocular foreign body was present in 5% of the cases, all with corneal localization. The existence of intraocular foreign bodies in ocular trauma with perforating wounds occurred in case of domestic accidents. All our patients had received medical and surgical treatment (repair of the wound associated or not with the extraction of the foreign body). The medical treatment consisted of antibiotic therapy associated with anti-inflammatory drugs and anti-tetanus serum.

Complications of perforating wounds of the globe were diverse: cataract in 23.3% of cases, hernia of the iris 16.7% of cases, atrophy of the eyeball in 5%, endophthalmia in 3.3%, hyphema in 3.7%. The literature reports that eye trauma to the eyeball is one of the causes of blindness and low vision in the world [2].

Conclusion

Eye trauma is a relatively common reason for consultation in our community. However, the visual prognosis is poor given the shortage of ophthalmic centers and ophthalmologists in rural areas, negligence on the part of parents and / or patients, the limited financial resources of the Congolese population on the one hand. On the other hand, the corneal involvement often led to the appearance of leucoma and astigmatism thus contributing to reduce visual acuity.

Conflict of Interest

None

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