

Functional Prognosis of Surgical Ocular Pathology in Brazzaville

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Abstract

Introduction: The management of surgical ocular pathology (SOP) may be urgent when the visual prognosis is involved or postponed if the patient's sight is not immediately in danger. The objective of this work was to assess the risk of occurrence of blindness in the event of SOP.

Materials and Methods: Case-Control study carried out over a period of 4 years. Cases consisted of charts of patients with SOP and Controls of charts of patients with medical eye disease (MED). MED means that the treatment is strictly medical. The visual prognosis was engaged in both groups. The tumors had been excluded. The parameters analyzed were: structures affected, etiologies and risk of occurrence of blindness. The statistical tests used were: Odds ratio (OR) and p-value (significant if $p < 0.05$).

Results: 238 Cases vs 235 Controls, the mean age was 53.9 ± 26.4 years vs 40.7 ± 20.8 years ($p < 0.05$). The main structures involved were: lens (46.15%) vs iris-ciliary body complex (25.9%). The main etiologies were: cataract (55.5%) vs uveitis (41.7%) and keratopathy (28.1%) vs optic neuropathy (30.6%). The risk of blindness was: 2.8 Cases vs. 1 Controls ($p < 0.05$).

Conclusion: The risk of occurrence of blindness is three times higher in the event of surgical eye pathology in Brazzaville.

Keywords: Eye; Surgery; Blindness; Brazzaville

Introduction

The ocular system is made up with the annex structures of the eyeball and the eyeball's structures. The surgical ocular pathology can be traumatic, congenital, infectious, degenerative or tumor [1,2]. Its management can be urgent or deferred when the visual prognosis is not engaged within hours or days of diagnosis [3,4]. As early as the 19th century, improvements in anesthesia techniques combined with the invention of sophisticated surgical instruments allowed safer ophthalmic surgery practice in developed countries. In developing countries, certain pathologies requiring basic surgical treatment are still causes of blindness. Thus, it is not still exceptional today in black Africa that a common cataract is a cause of permanent blindness [3,5].

Objective of the Study

The objective of this work was to assess the risk of occurrence of blindness in the event of SOP.

Materials and Methods

It was a case-control study carried out in Brazzaville. In the ophthalmology department of the University Hospital and in the ophthalmology unit of the Clinique Médicale Optique. This study was based on the records of patients seen over a period of 4 years (January 2015 - December 2019). The Case group consisted of the records of patients seen for surgical ocular pathology (SOP). The Controls group consisted of files of patients seen for medical eye disease (MED). MED means that the treatment is strictly medical. only the files of patients with a poor visual prognosis were retained. The files of patients suffering from cancer had been excluded due to the complexity of their treatment. The structures affected, the etiologies and the risk of occurrence of blindness in the two groups were analyzed. The logistic regression in varied uni had made it possible to obtain the values of the Odds Ratio (OR) associated with a significance level of the $p < 0.05$. This data was then processed using R software version 4.0.2.

Results

The study population consisted of 238 cases vs 235 controls. The mean age was 53.9 ± 26.4 years [1 year - 95 years] Cases vs 40.7 ± 20.8 years [1 year - 95 years] Controls ($p = 0.02$). The sex ratio was 0.9 vs 1.1 ($p = 0.15$). The distribution according to the ocular structures affected is made in table 1. Table 2 shows the distribution of the different etiologies of SOP and MED. The difficulties associated with the aetiologies of SOP are detailed in table 3. The risk of occurrence of blindness was: 2.8 cases vs. 1 controls ($OR = 2.8 p < 0.05$).

Eyeball's structures	Case n (%)	Control n (%)	OR	p
Cornea	67 (28,1%)	28 (11,9%)	2,8	0,003
Sclera	0 (0%)	34 (14,5%)	0,4	0,001
Iris-body ciliairy complex	0 (0%)	61 (25,9%)	0,3	0,001
Lens	132 (55,5%)	0 (0%)	3,7	0,002
Choroid-Retina complex	15 (6,3%)	57 (24,3%)	0,5	0,004
Papilla	10 (4,2%)	23 (9,8%)	0,5	0,001
Annex structures of Eyeball	Case n (%)	Control n (%)	OR	p
Orbit	0 (0%)	32 (13,6%)	0,2	0,001
Eyelid	14 (5,9%)	0 (0%)	3,4	0,001
Total	238 (100%)	235 (100%)		

Table 1: Distribution according to the ocular structures affected of the patients seen in Brazzaville between January 2015 and December 2019, for surgical (Case) and non-surgical (Control) ocular pathology. The eyeball's structures were affected in the following proportions: 94.1% Cases vs. 86.4% ($p = 0.003$). The annex structures of eyeball were affected in the following proportions: 5.9% cases vs. 13.6% ($p = 0.002$).

Eyeball's structures	Etiology Case	Etiology Control	%Case vs % Control
Cornea	Wound	-----	28,1% vs 8,5%
	Abcess*	Abcess	
	Keratoconus**	-----	
	Scar ***	-----	
Sclera	-----	Scleritis	0,0% vs 5,8%
Iris-ciliairy body complex	-----	Anterior uveitis	0,0% vs 25,9%
Lens	Cataract	-----	55% vs 0,0%
	Luxation	-----	
Choroid-Retina complex	Retina detachment	Posterior uveitis	6,3%vs 15,8%
	Complicated diabetic retinopathy****		
Papilla	Glaucoma*****	Glaucoma	4,2% vs 30,6%
Eyeball ancillary structures	Etiology Case	Etiology Control	%Case vs % Control
Orbit	-----	Orbital cellulitis	0% vs 13,4%
Eyelid	Abcess	-----	5,9% vs 0,0%
Total			100% vs 100%

Table 2: Distribution of patients seen in Brazzaville between January 2015 and December 2019 according to the etiology of the surgical (Case) or medical (Control) ocular pathology.

*Abscess of at least one third of the corneal surface due to multi-resistant germs (*Pseudomonas, Acanthamoeba, Fungus*).

**Keratoconus with center-corneal opacity due to Vogt striations.

***Centro-corneal scar.

****Retinopathies complicated by vitreous hemorrhage and/or significant vitreoretinal proliferation with pockets of retinal detachment.

*****Glaucoma with a large papillary excavation (0.8 at cauldron) and higher eye pressure at 15 mm Hg despite local and oral combination therapy for at least 3 months and congenital glaucoma.

Etiology (Case)	Difficulties related to treatment	Effective (%)
Corneal wound	Delay of treatment (beyond 72 hours)	28/ 42
Corneal abcess*	Lack of money	10/10
Keratoconus**	No treatment	8/8
Corneal scar***	No treatment	7/7
Cataract	Lack of money	25/125
Luxation of the lens	Lack of money	3/7
Retinal detachment****	No treatment	8/8
Complicated diabetic retinopathy****	No treatment	7/7
Glaucoma	Refusal of surgery	9/10
Eyelid abcess	Lack of money	4/14
Total		109/238 (45,8%)

Table 3: Distribution of patients (Cases) suffering from a surgical ocular pathology seen in Brazzaville between January 2015 and December 2019 according to the difficulties associated with their treatment.

*Cornea transplant not available in Congo.

**Cornea transplant not available in Brazzaville.

***Cornea transplant not available in Brazzaville.

****Lack of Retinologist.

Discussion

We had been confronted with certain difficulties inherent in a retrospective investigation, in particular the bias of information in connection with the bad archiving of some files. Some of these files could not be exploited either because they were damaged or because they were incomplete. However, the strength of this work lies in the size of the sample, close to 500 including Cases and controls. The conclusions of this work can therefore be considered as a modest contribution, on the etiologies of surgical eye diseases and on the difficulties associated with their treatment in many countries of black Africa. These countries have a comparable social and health structure. The average age was higher in the population of patients with SOP. The improvement in life expectancy is probably a determining factor that can explain this fact. With age certain degenerative diseases develop, such as cataracts and glaucoma, which in the medium to long term will require surgical management [6-8]. There was no connection between SOP and gender. Men and women were affected in similar proportions.

The eyeball’s structures were more affected in SOP. By far the most affected structures were the lens followed by the cornea and to a lesser extent the choroid-retina complex. The pathology of the lens is mainly related to age, namely the loss of its transparency at the origin of cataracts. The management of cataracts is in theory simple and well codified. Two techniques are used, the manual extra capsular technique and phacoemulsification. However, the small number of Ophthalmologists in Congo (less than 15 for 5 million inhabitants) does not cover the national territory. Many patients are never seen in consultation, and others will not be able to have surgery due to the cost of cataract surgery.

The cornea is very exposed due to its anatomical position [8]. The corneal sequelae of measles are still frequent in Africa, as are infectious bacterial and fungal keratitis favored by the climate (hot and humid) as well as the ambient poverty and promiscuity [1,3,9]. Surgical management of the cornea scars and severe progressive keratitis sometimes requires a corneal transplant. The diseased corneal eyes that required surgical treatment all progressed to permanent blindness. Keratoplasty is currently not available in Brazzaville. These conclusions are comparable to those of two surveys carried out on the difficulties of corneal transplantation in black Africa [10,11].

The damage to the choroid-retina complex was divided between complicated diabetic retinopathy and retinal detachment. It is not yet exceptional today in Africa in general and in the Congo in particular that a complication, notably retinopathy, is the first manifestation at the origin of the discovery of diabetes mellitus [12]. No eye with posterior SOP was treated. There is only one reason for this, the absence of a Retinologist. If the number of Ophthalmologists remains a major health problem for large regions in Africa, the number of Retinologists active in French-speaking black Africa is even more. The creation of fellowship training programs would probably improve this situation. Patients with glaucoma requiring surgical treatment were all very reluctant to have the operation. Previous surveys in Brazzaville had already highlighted the reservations of glaucomatous patients with regard to surgical treatment [4,7,13]. The “no to operation” answer is almost immediate when you explain to the patient that the surgery will not improve their vision, it is only intended to slow the progression of already existing lesions. African medical anthropology helps us understand this phenomenon. Indeed, a chronic disease that cannot be cured, such as glaucoma, becomes a source of speculation. The patient passes from village healer to pastor of the church, abandoning his treatment in favor of mystical rites since the disease is assimilated to a spell [14]. These situations explain the three-fold higher risk of progressing to blindness for patients with SOP compared to those with MED.

Conclusion

The risk of blindness is very high in the event of surgical eye pathology in Brazzaville. The creation of a social security system, the increase in the membership of ophthalmologists and their training in micro-specialties can reverse this trend.

Conflicts of Interest

None.

Bibliography

1. Atipo -Tsiba PW. “Cécité chez l’enfant: cause et maladies associées”. *RMJ* 71.3 (2014): 19-22.
2. Koki G., *et al.* “Profil des affections oculaires en milieu militaire au Cameroun”. *Revue SOAO* 1 (2015): 46-52.
3. Atipo- Tsiba PW. “Urgences oculaires traumatiques: difficultés liées a leur prise en charge au CHU de Brazzaville”. *Health Sciences and Disease* 16.1 (2015): 1-4.
4. Atipo-Tsiba PW, *et al.* “Glaucoma: the difficulties related to its management in Brazzaville”. *East African Medical Journal* 93.12 (2016): 44-46.
5. Atipo - Tsiba PW, *et al.* “Ocular injuries in female victims of domestic violence in Brazzaville Congo”. *Health Sciences and Disease* 17.2 (2016): 1-3.
6. Koffi KV, *et al.* “Chirurgie de la cataracte au centre hospitalier de Bouake: aspects épidémio-cliniques et résultats fonctionnels”. *Revue SOAO* 1 (2015): 39-45.
7. Atipo-Tsiba PW, *et al.* “The peculiarities of glaucoma in Brazzaville”. *EC Ophthalmology* 10.2 (2019): 116-119.
8. Kahle W. “Atlas de poche d’anatomie”. Paris, Médecine-Sciences Flammarion (2000): 342-344.
9. O Mahony AM, *et al.* “Measles and eye complications”. *Irish Medical Journal* 112.9 (2019): 1007.
10. Pineda R. “Corneal transplantation in the developing world: lessons learned and meeting the challenge”. *Cornea* 34.10 (2015): S35-S40.

11. Ikpoh BI, *et al.* "Lost to follow-up: reasons and characteristics of patients undergoing corneal transplantation at Tenwek Hospital in Kenya, East Africa". *The Pan African Medical Journal* 36 (2020): 95.
12. Karumanchi DK, *et al.* "Early diagnosis of diabetes through the eye". *Photochemistry and Photobiology* 91.6 (2015): 1497-1504.
13. Atipo-Tsiba PW, *et al.* "Glaucoma in Africa: Will we be able to achieve the objectives set by the WHO's initiative "Vision 2020"?" *EC Ophthalmology* 10.4 (2019): 253-254.
14. Obrist B, *et al.* "Medical anthropology in, of, for and with Africa: three hotspots". *Medical Anthropology* 39.8 (2020): 782-793.

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