

Epidemiological, Clinical and Therapeutic Aspects of Childhood Eye Diseases at the Prefectural Hospital of Macenta in Guinea

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Abstract

Introduction: Eye health in children is a real public health problem in developing countries. The aim of this work was to determine the frequency of ocular pathologies in children aged 0 to 16 at the prefectural hospital of Macenta in Guinea. **Patients and Method:** This was a descriptive prospective study. It covered a period of 6 months from October 1 to March 31, 2022 at the prefectural hospital of Macenta in Guinea. Children aged 0 to 16 received during the study period were included. Were excluded, those with an incomplete file and whose parents did not consent. **Results:** Out of 1816 consultations, 224 children aged 0 to 16 were collected 7.95%; mean age 7.35 years \pm 4.6; sex ratio 1.38. The age group of 6 to 11 years was more represented. More than half of the patients were educated 50.4% and came from rural areas 52.7%. Pathologies of the orbit were dominated by orbital cellulitis 13% and those of the annexes by conjunctivitis 40.6%. Keratitis and cataracts were pathologies dominating the cornea and the lens, respectively 5.4% and 8.5%. Atrophy of the eyeball was the most frequent among those of the eyeball, at 3.6%. The most performed surgical procedure was phacophagy in 6.7%. The most common reason for consultation was eye pain, at 33.5%. Both eyes were affected at the same time in the majority 49.5%, and the most represented antecedent was malaria 22.3% of cases. Visual acuity without correction \geq 3/10 was the most represented 37.5% in the right eye and 34.8% in the left eye. The therapeutic classes used were dominated by antibiotic-corticoid combinations 88.8%. **Conclusion:** Ocular pathologies in children from 0 to 16 years old

constitute a real public health problem. They are dominated by pathologies of the conjunctiva and the lens. Popularization for early management of ophthalmological pathologies would be beneficial.

Keywords

Ocular Pathologies, Children, Macenta, Guinea

1. Introduction

Eye health in children is a real public health problem in developing countries. The consequences of not caring go far beyond vision, affecting education, social integration and future economic productivity [1]. Worldwide, more than 90 million children suffer from ocular pathologies [2], of which 1.4 million and 22 million have moderate and severe visual impairment respectively [3]. In France in 2015, according to J. Mayouego Kouam *et al.* [4], ocular trauma was the most common ocular pathologies in children aged 0 to 15 at 45.22%. In Cameroon in 2018, Dovahoma VA *et al.* [5] report that refractive errors were the most frequent ocular pathologies in children aged 0 to 15 years. Amedome K *et al.* [6] in Niger in 2016 in their study on ocular pathologies in children aged 0 to 15 in the Sahelian zone, found that the most encountered pathologies were LCET followed by cataracts. In Guinea, Sovogui MD *et al.* [7] in their study in children aged 0 to 15, ocular surgical pathologies represented 2.49% with a predominance of cataracts. Children's eye conditions are sometimes very serious with often-significant repercussions on vision, while most of these are curable. The aim of this work was to determine the frequency of ocular pathologies in children aged 0 to 15 years at the prefectural hospital of Macenta in Guinea.

2. Patients and Methods

2.1. Study Design

This was a prospective descriptive study. It lasted 6 months from 1 October to 31 March 2022 during ophthalmological consultations. It took place in the Ophthalmology Department of the Prefectural Hospital of Macenta, which is a secondary hospital. The prefecture of Macenta is located 801 km southeast of Conakry (the capital of Guinea) and is located 35 km from N'Zérékoré place of administrative region to which it belongs.

2.2. Study Participants

A total of 224 children received in ophthalmological consultations at the Bartimaeus Clinic participated in the study. Included in this study were children aged 0 to 16 years whose parents agreed to answer our questionnaire, and with a complete file; Not included in this study were all children with parents whose free and informed consent was obtained.

2.3. Sampling

We conducted extensive sampling according to the above selection criteria as patients came in for consultation during the study period.

2.4. Data Collection Instrument

Questions related to socio-demographic variables as well as clinical variables concerning children were asked of accompanying persons in local language or French. After clinical examination, the ocular pathologies found in the children were the subject of therapeutic and/or surgical management. Ocular pathologies have been defined as any medical condition affecting the eye. The parameters studied were age, sex, education, provenance, ocular pathologies, surgical procedure performed, reason for consultation, laterality, history, visual acuity and therapeutic classes of the drugs used.

2.5. Data Analysis

The data was processed and analyzed by Epi-info software version 7.4.0, entered using Word and Excel software from the Office 2016 package. Zotero software version 5.0.96.2 was used for reference documents.

2.6. Ethical and Regulatory Aspects

The study protocol was approved by the scientific committee of the Faculty of Health Sciences and Technology of Gamal Abdel Nasser University in Conakry. We ensured the confidentiality of the data and the free and informed consent of the participants was obtained prior to inclusion.

3. Results

During this study, 1816 patients of all ages were seen for ocular pathologies, among whom we collected 224 children aged 0 to 16 the frequency is 7.95%.

In **Table 1**, the mean age was 7.35 years \pm 4.6 with extremes of 3 months and 16 years. The age group from 6 to 11 years old was the most represented with a male predominance. More than half of the patients were educated and came from rural areas.

Average age: 7.35 years \pm 4.6; Extremes: 3 months and 16 years; Sex ratio: 1.38.

According to **Table 2**, orbital pathologies are dominated by orbital cellulitis and those of the appendix by conjunctivitis followed by palpebral wounds and tumors. Keratitis, corneal dystrophies with corneal foreign bodies dominated corneal pathologies; Cataracts were the only pathologies found in the lens. Atrophy of the eyeball followed by exophthalmos, endophthalmitis and panophthalmos were the most common among those of the eyeball.

Table 3 shows that the most performed surgical procedure is phacophagy, followed by the trimming of wounds and removal of ocular foreign bodies.

According to **Table 4**, the most common reason for consultation was eye pain,

followed by redness and loss of visual acuity. Both eyes were affected at the same time in the majority of cases and the most represented antecedent was malaria.

Visual acuity without correction $\geq 3/10$ was the most represented followed by visual acuity between 1/10 and 2/10 (See **Table 5**).

The therapeutic classes used in this study are dominated by antibiotic-corticosteroid combinations followed by antihistamines and pure antibiotics and pure corticosteroids. Vitamin therapy, anti-glaucomatous drugs, anti-inflammatory drugs and cycloplegia were also used (**Table 6**).

Table 1. Sociodemographic variables (n = 224).

Variables	Effective	Percentage
Age in years		
0 - 5	75	33.5
6 - 11	107	47.7
12 - 16	42	18.8
Sex		
Male	130	58.0
Feminine	94	42.0
Schooling		
Schooled	113	50.4
Unschooling	111	49.6
Origin		
Urban area	106	47.3
Rural area	118	52.7

Table 2. Ocular structures and pathologies encountered.

Ocular structure	Pathology	Effective	Percentage
Orbit	Orbital cellulitis	3	1.3
	Avulsion of the globe	2	0.9
Appendices	Conjunctivitis	91	40.6
	Palpebral wound	16	7.1
	Tumor	3	1.3
	Eyelid burn	1	0.4
	Symblepharon	1	0.4
cornea	Keratitis	12	5.4
	Corneal dystrophy	7	3.1
	Foreign body	7	3.1
	Corneal staphyloma	4	1.8
	corneal abscess	3	1.3
	leucoma	1	0.4

Continued

Anterior chamber	hyphopion	2	0.9
	Hyphemia	2	0.9
Crystalline	Cataract	19	8.5
Uvea	Uveitis	4	1.8
Retina	Retinoblastoma	3	1.3
	Retinitis pigmentosa	2	0.9
Optic nerve	Optic neuropathy	3	1.3
	Glaucoma	3	1.3
Eye-ball	Globe atrophy	8	3.6
	exophthalmos	2	0.9
	Panophthalmos	2	0.9
	endophthalmitis	2	0.9
	Anophthalmia	1	0.4

Table 3. Surgical procedures performed.

Surgical procedure performed	Effective	Percentage
Phacophagy	15	6.7
Wound dressing	9	4.1
Foreign body removal	7	3.1
Trabeculectomy	3	1.3
Tumor excision	3	1.3
Washout of hyphemia	2	0.9
Abscess drainage	2	0.9
Evisceration	2	0.9
Angio-diathermo-coagulation	2	0.9
Enucleation	1	0.4
Catheterization of LVs	1	0.4
Surgical procedure not performed	177	79.1
Total	224	100

Table 4. Clinical variables.

Variables	Effective	Percentage
Reason for consultation		
eye pain	75	33.5
Eye redness	70	31.3
Decline in visual acuity	61	27.2
tearing	61	27.2
Eye pruritus	55	24.6

Continued

Eye secretions	21	9.4
Eye trauma	20	8.9
Eye swelling	11	4.9
White eye patch	7	3.1
Ocular foreign body sensation	5	2.2
Night vision disorder	5	2.2
Headaches	4	1.8
Laterality		
Right and left eye	111	49.5
Left eye	60	26.8
Right eye	53	23.7
Medical background		
Malaria	50	22.3
Measles	10	4.5
Pneumonia	5	2.2

Table 5. Distance visual acuity without and with preoperative correction.

Acuity without correction	OD		OG	
	Effective	Percentage	Effective	Percentage
<1/10	27	12,1	32	14.3
1/10 - 2/10	38	16.9	39	17.4
≥3/10	84	37.5	78	34.8
Not done	75	33.5	75	33.5

Table 6. Therapeutic classes of drugs used.

Pharmaceutical class	Effective	Percentage
Antibiotic + Corticosteroid	199	88.8
Antihistamine	52	23.2
Antibiotic	51	22.8
Corticosteroid	50	22.3
Vitamin	16	7.1
Anti-glaucomatous	8	3.6
Anti-inflammatory	6	2.7
Atropinization	6	2.7
Antiviral	1	0.4
Analgesic	1	0.4

4. Discussion

According to this study, the hospital frequency of ophthalmological conditions in children aged 0 to 16 years was 7.95% with an average age of 7.35 ± 4.6 years. The pathologies of the orbit were dominated by orbital cellulitis and those of the annexes by conjunctivitis. Keratitis and cataracts were the pathologies dominating the cornea and the lens. Atrophy of the eyeball was the most frequent among those of the eyeball. The most performed surgical procedure is phacophagy, followed by the trimming of wounds and removal of ocular foreign bodies. This study presents a difficulty related to the refusal of some parents of children to take part in the questionnaire. However, we had no limitations in this study. Its prospective character is a quality, because, it allowed us to determine the hospital frequency of ophthalmological disorders in children from 0 to 16 years old and to know the most frequently encountered anatomical disorders. With respect to socio-demographic variables, these results are identical to those of Assavèdo CRA *et al.* [8] in their study of children aged 0 to 15 in Benin, who reported a mean age of $6.3 \text{ years} \pm 5.1$ and a sex ratio of 1.08; on the other hand different from the frequency point of view. Regarding the pathologies encountered, our results are different from those of Dovahoma VA *et al.* [5] in Cameroon who reported a predominance of refractive errors followed by conjunctivitis. However, Assavèdo CRA *et al.* [8] report conjunctivitis as the most frequent pathology. Compared to the surgical procedures performed, these results corroborate those of Sovogui MD *et al.* [7] in their study in Bartimee who reported that cataract surgery was the most performed surgical procedure. The most common reason for consultation in this study was ocular pain followed by ocular redness and then visual acuity loss; these results are different from those of Amedome K *et al.* [6] in Niger in 2016 in Niger who reported ocular pruritus as the main reason for consultation, *i.e.* 22%, followed by ocular lesions, *i.e.* 17.5% and leucocoria, 16%. Both eyes were affected at the same time in the majority of cases; malaria was the dominant antecedent followed by measles which are pathologies with an infantile tropism and rife in the tropics. The existence of similarities between these different results despite some differences by location could be explained by the fact that all these studies were carried out in tropical areas. Uncorrected visual acuity $\geq 3/10$ was most represented in both eyes. Assavèdo CRA *et al.* [8] reported a visual acuity of $>7/10$ in both eyes, *i.e.* 41.1% for the right eye and 40.5% for the left eye. Combinations of antibiotics and corticosteroids in eye drops were the most used in patients, followed by antihistamines and pure antibiotics, the use of which is justified by the lesions encountered, dominated by conjunctivitis.

5. Conclusion

Ocular pathologies in children from 0 to 16 years old constitute a real public health problem in Macenta in Guinea, due to their frequency and the visual handicap caused in the majority of cases. They are dominated by pathologies of

the conjunctiva and the lens, whose management involves antibiotic therapy, corticosteroid therapy, antihistamines and surgery. Popularization for early management of ophthalmological pathologies, through information, education and awareness, would make it possible to effectively fight against blinding diseases in children from zero to 16 years old.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] UNICEF (2014) Convention on the Rights of the Child: A World of Difference: 25 CRC Achievements. <https://www.unicef.org/child-rights-convention/convention-text-childrens-version#SnippetTab>
- [2] Bourne, R., Steinmetz, J.D., Flaxman, S., Briant, P.S., Taylor, H.R., Resnikoff, S., *et al.* (2021) Trends in Prevalence of Blindness and Distance and Near Vision Impairment over 30 Years: An Analysis for the Global Burden of Disease Study. *The Lancet Global Health*, **9**, e144-160.
- [3] Vision Atlas (2022) International Agency for the Prevention of Blindness. Child Eye Health. Agence Int Pour Prév Cécité. <https://www.iapb.org/fr/learn/vision-atlas/magnitude-and-projections/child-eye-health/>
- [4] Mayouego Kouam, J., Epée, E., Azria, S., Enyama, D., Omgbwa Eballe, A., Ebana Mvogo, C., *et al.* (2015) Clinical and Therapeutic Epidemiological Aspects of Childhood Eye Trauma in an Ophthalmological Emergency Department in Île-de-France. *Journal Français d'Ophtalmologie*, **38**, 743-751. <https://doi.org/10.1016/j.jfo.2015.04.009>
- [5] Dohvoma, V.A., Epee, E., Ebana Mvogo, S.R., Zouong Nkomba, W.A., Koki, G., Mvilongo, C.T. and Zoua, M.E.A. (2018) Pediatric Ophthalmic Diagnoses at the Yaounde Central Hospital. *Journal of Ophthalmology & Clinical Research*, **2**, 1-3. <https://doi.org/10.33140/IOCR/02/01/00002>
- [6] Amedome, K., Ayéna, K.D., Amza, A., Vonor, K., Dzidzinyo, K., Mariama, B., *et al.* (2016) Profil des affections oculaires chez l'enfant en zone sahélienne: Cas de l'Hôpital National de Lamorde à Niamey au Niger. *Journal of Scientific Research of the University of Lomé*, **8**, 209-215. <https://www.semanticscholar.org/paper/Profil-des-affections-oculaires-chez-l%E2%80%99enfant-en-%3A-Amedome-Ay%C3%A9na/35ec44557d6dd72937539f8f861832ef62eec5f4>
- [7] Sovogui, M.D., Zoumanigui, C., Bangoura, M.A., Sevogui, M. and Vonor, K. (2022) Ocular Surgical Pathologies in Children Aged 0 to 15 Years in the Barmée Ophthalmological Clinic in Conakry, Guinea. *Open Journal of Pathology*, **12**, 120-129. <https://doi.org/10.4236/ojpathology.2022.124014>
- [8] Assavèdo, C.R.A., Tchabi, S., Boni, S., Lassissi, A.H. and Doutetien, C.L.A. (2011) Epidemiological and Clinical Aspects of Childhood Eye Diseases at CHD-BORGOU, Benin (about 1109 Cases). *Revue SOAO*, **1**, 21-28.