

Indications for Enucleation of the Eyes of Children in Eastern Nigeria

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SUMMARY

Objective: To determine the reason for enucleation of the eyes among children in eastern Nigeria as this should serve as a guide for initiating appropriate preventive measures where possible.

Materials and Methods: A retrospective study of records of enucleated eyes from children aged 15 years or less received in a central laboratory service situated in Enugu, eastern Nigeria, over a 29-year period (20/2/70 - 19/2/99) was undertaken.

Results: A total of 82 enucleated eyes were received. Retinoblastoma accounted for 36 (56.1%) enucleations, both sex being equally affected. Avoidable ocular problems resulting in enucleations such as panophthalmitis, endophthalmitis, some staphyloma and others were noted in as high as 42.7%. Trauma, measles and corneal ulcers of unknown aetiology preceded most of these.

Conclusions: A significant proportion of enucleation among children in eastern Nigeria is due to avoidable causes, Health education and other positive measures to reduce the incidence of avoidable enucleations are advocated.

KEY WORDS: *Eye Enucleations, Children, Retinoblastoma, Avoidable Enucleations*

INTRODUCTION

Incidence and reason for enucleation of the eyes have been studied worldwide¹⁻⁸. Some of the studies were done with reference to specific age group^{1,3}. One was in a defined community⁵ and others concerned all age groups^{2,4,6-8}. In 1973, Olurin³ noted that pathological conditions necessitating enucleation differ from place to place and usually reflect the patterns of eye disease in a given environment. In particular, determining the reasons for removal of the eyes in population gives some insight into the causes of unocular blindness in the community. Haile and Alemayhu⁶ in Ethiopia identified the groups at risk for different pathological conditions resulting in enucleations. This study reviews the reasons for enucleation of the eyes among children in eastern Nigeria as this would serve as a guide for initiating appropriate preventive measures where possible.

MATERIALS AND METHODS

Records of enucleated eyes from children aged 15 years or less received in a central laboratory service

situated in Enugu, eastern Nigeria, over 29-year period (20/2/72) - 19/2/99) were reviewed. Globes obtained at exenteration of the orbit were excluded. Data were entered on a protocol designed for the study. It contained such variable as referral hospital and doctor, age and sex, clinical notes (e.g symptoms, duration, clinical diagnosis) and histopathological findings/diagnosis. From these, frequencies and distributions were derived.

RESULTS

A total of 82 enucleated eyes were received from 19 doctors working in 8 hospitals during the defined period. Six of the hospitals are located in Enugu town: three being government owned and three privately owned. The other two hospitals were General Hospitals Onitsha, Anambra State and General Hospital Aba, Abia State. Table I shows the age-sex distribution of the children. More males (57.3%) were recorded than females (42.7%). Most of the enucleations were done at the age of 4 years or less. Table II shows the aetiological findings. Retinoblastoma (56.1%) and staphyloma (22%) were the most common

conditions. Retinoblastoma affected 25 boys and 21 girls giving a male/female ratio of 1.2:1. The mean age at diagnosis was 2.97 years. There were 3 cases of bilateral retinoblastoma. Two were aged 2 years and one 3 years giving a mean diagnostic age 2.3. None gave a family history of retinoblastoma. Of the 21 cases in which the optic nerve was discernible, the nerve was involved in 14 (66.7%) cases. No other tumours were found to have led to enucleation.

Avoidable causes for enucleation accounted for 42.7% of cases. Majority was staphyloma (48.6%). Five of these were preceded by measles, six by trauma and two by corneal ulcers of undefined aetiology. In the remaining five cases, the predisposing factors were not stated. Trauma also predisposed to panophthalmitis (4 cases) and endophthalmitis (1 case). Of all the cases of trauma, 9 occurred in boys and 2 in girls.

Other pathological conditions necessitating enucleation included pseudotumours, 3; intraocular haemorrhage, 2, retinal detachment, glaucoma and uveitis, 1 each. These diagnoses refer to the histopathological diagnoses. The 2 cases of intraocular haemorrhage had the clinical diagnosis of staphyloma and panophthalmitis following stick injury respectively. The case of retinal detachment, glaucoma and uveitis were clinically diagnosed as retinoblastoma, congenital buphthalmos (in a 13 year old child) and uveitis in a painful blind eye respectively.

TABLE I
Age/Sex Distribution of the Children

Age (years)	Sex		Total	Percent %
	Male	Female		
0 - 4	25	25	50	61.0
0 - 5	15	5	20	24.4
10 - 15	7	5	12	14.6
Total	47	35	82	100.0

TABLE II
Aetiological Findings of the Enucleated Eyes

Histopathological Diagnosis	Number of Children	Percent%
Retinoblastoma	46	56.1
Staphyloma	18	22.0
Panophthalmitis	6	7.3
Endophthalmitis	4	4.9
Pseudotumour	3	3.7
Intraocular haemorrhage	2	2.4
Retinal detachment	1	1.2
Uveitis	1	1.2
Glaucoma	1	1.2
Total	82	100.0

DISCUSSION

Retinoblastoma was identified to be the commonest reason for enucleation in this study as in a previous local study. Majekodunmi⁴, Onwasigwe⁸, and Gunalp et al⁷ studied causes for enucleation of the eyes in all age groups and found tumours to be commonest causes. Of the tumours, in Majekodunmi's study⁴, retinoblastoma was the most common. In the present study retinoblastoma was the only tumour found which corresponds to Onwasigwe's⁸ findings. An equal male/female ratio was noted as is the experience elsewhere^{9,10}.

The average age at diagnosis for the bilateral retinoblastoma was 2-3 years. This is in sharp contrast to the studies done in England¹¹ and New York¹² where they were 18 months and 9.2 months respectively. This disparity could be as a result of lateness in presentation in this locality. Nigerian ophthalmologists need to educate parents on the seriousness of leucocoria as others have previously recommended^{9,10,13}. This will ensure early diagnosis and improved prognosis. Subsequently other treatment modalities such as external beam radiotherapy, focal radiotherapy, cryotherapy and photocoagulation¹⁴, which preserve the globe with useful vision should be made available in the country.

It is noteworthy that avoidable reasons for enucleation accounted for as high as 42.7% of cases. Avoidable reasons for enucleation encompass those ocular conditions, which can be prevented or treated. In contrast, Gunalp et al⁷ working in Turkey noted that the number of enucleations for phthisis bulbi, infections corneal diseases, trauma and inflammations had dropped significantly. Similarly, Spraul and Grossniklaus¹⁵ found that the relative frequency of trauma and ocular inflammation as causes for enucleation has decreased significantly. This drop was attributed to improved diagnostic and therapeutic methods, vitreoretinal surgery for trauma and effective antimicrobial treatment⁷.

In the present study, 27.7% of cases of staphyloma were preceded by measles keratitis. In Majekodunmi's study⁴ measles corneal ulcers preceded 85.7% of the cases. Measles remain a major cause of childhood blindness in developing countries¹⁶. Although the Expanded Programme on Immunization (EPI) (now National Programme on Immunization, NPI) was launched in the country over a decade ago, a lot of work still needs to be done in the area of health education. Availability of a service is not synonymous with its utilization. Moreover, people are yet to abandon old practices such as use of traditional eye medications.

Trauma was not a major cause for enucleation in this study. This is unlike the experience in several other places^{1,2,6,15}. This may be because in this locality, parents do not like to consent to removal of the eye for penetrating injuries. Since

sympathetic ophthalmitis, a sequel of penetrating trauma is rare¹⁷, the ophthalmologists allow them to have a primary repair. Additionally, some of the patients present several days after the trauma when the eyes have become heavily infected and are offered evisceration.

In conclusion, a significant proportion of enucleation among children in eastern Nigeria is for avoidable reasons. Health education should be directed to the community to create awareness on the need to utilize available preventive services such as measles immunization. Mothers can be reached at the community level through various women's groups in churches and social organizations. The traditional health talks given in clinics apparently do not get to a wide audience.

General practitioners should refer high-risk cases promptly so that the ophthalmologist can initiate early appropriate treatment in the level of diagnostic and therapeutic methods available to the Nigerian ophthalmologist. These will go a long way to increase the number of eyes that can be salvaged.

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