A REVIEW OF 115 CASES OF ENUCLEATION IN WEST MALAYSIA

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SYNOPSIS

115 cases of enucleated eyes in the University Hospital, Kuala Lumpur, are reviewed. Trauma 36, Glaucoma 28, tumours and suspected tumours 24 and infection 17 are the main causes. Trauma caused mainly by sticks, stones and sharp instruments is largely confined to the age group below 30. Primary narrow angle glaucoma accounts for 5 cases. The main types of secondary glaucomas are due to aphakia (12) and a hypermature lens (7) . Two thirds of the tumours are retinoblastomas and this is the commonest cause of removal below the age of 5 years. There are 4 cases of malignant melanoma, all are Chinese. The average age incidence is 43 years, which appears to be a decade earlier than in the Caucasians. Preventive measures especially in regards to trauma and glaucoma are discussed.

INTRODUCTION

Surgical anophthalmos is one of the most severe consequences of eye disease. This is a retrospective study to establish the pattern of disease leading to the loss of an eye, and to suggest possible preventive measures.

MATERIAL

A review is made of the eyes removed for a period of 9 years, 1968-1976. The Eye Department of the University Hospital, Kuala Lumpur, has 28 beds. The patients (belonging to the three ethnic groups, namely Malays, Chinese and Indians) were usually from the State of Selangor and the Federal Territory while some were referred from other hospitals throughout the country. The

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eyes were either enucleated or eviscerated and this series includes one exenteration of the orbit.

RESULTS

In all cases only one eye was removed. An effort was made to determine the primary and not the immediate cause leading to the enucleation. Where reliable history was lacking and a definite diagnosis was not possible, these were grouped either under Painful Blind Eye or Phthisis Bulbi.

TABLE I compares the number of eyes removed per year; against the number of operations performed. The total percentage of enucleations performed is 2.9%.

TABLE I: No. of Eyes Enucleated Compared with Operations Performed

Year	No. Enucleated	No. of Op. performed	%
1968	5	165	3.0
1969	10	294	3.4
1970	20	287	7.9
1971	10	572	1.8
1972	13	434	3.0
1973	13	500	2.6
1974	16	459	3.5
1975	8	535	1.5
1976	10	736	1.4
	115	3,982	2.9

TABLE II shows that trauma, glaucoma, tumours and infections form the chief causes of enucleation. The overall ratio of male to female is 5:3 with a marked male predominance in trauma of 4:1.

TABLE II: Causes of Enucleation

Diagnosis	Total	Male	Female
Trauma	36	29	7
Glaucoma	28	13	15
Tumours & Suspected Tumours	24	12	12
Infection	17	9	8
Phthisis Bulbi	7	6	1
Painful blind eye	3	2	2
	115	71	44

FIGURE I shows the frequency of causes in percentage.

Figure 2 shows the distribution of the causes according to the age group.

DISCUSSION

Trauma (36 patients)

Several post traumatic complications can occur in the eye. Inflammatory reactions account for 15% of our cases. There was one case of sympathetic ophthalmitis. Most of the injuries were sustained during childhood. Sticks, stones, knives, often associated with perforation of the globe accounted for nearly 45% of the cases (TABLE III). Lack of parental supervision may be a factor. Children have to be constantly reminded of these ocular hazards. Of the road traffic accidents 2 were due to windscreen lacerations; safety belts could have prevented the head being thrown forward towards the windscreen. In the industrial accidents 2 were due to intraocular foreign bodies while the third resulted from a perforating injury by a wire. Industrial eye injuries are caused by lack or failure of wearing suitable protection (Chandran & Ooi, 1971). Badminton and hockey accounted for one each. The former was due to a secondary hyphaema while the latter resulted in a ruptured globe. The duration between injury and enucleation ranged from a few days to 22 years. The majority of the eyes were removed between the ages of 20 and 30 (Fig. 2). This was mainly for cosmetic reasons.

Glaucoma (28 patients)

24.3% of enucleated eyes was due to this cause (Fig. 1). All were over 40 years of age (Fig. 2). Narrow angle glaucoma which is 3 times more common than the open angle glaucoma in this region (Lim A.S.M., 1964) accounted for the loss of 5 eyes. This could have been prevented had the patient sought medical treatment earlier.

12 cases were due to glaucoma following cataract

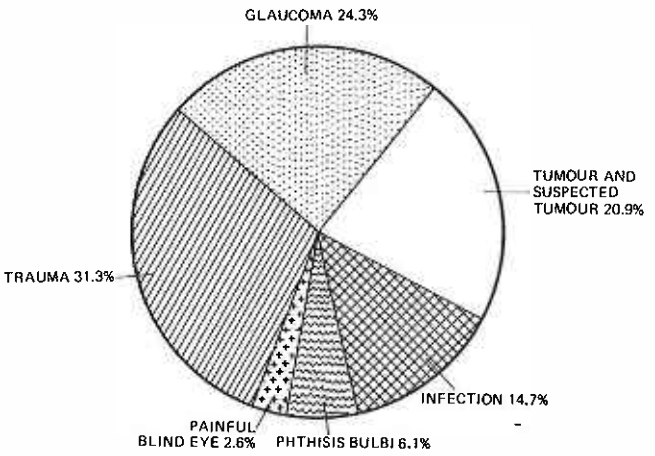

Fig. I. Frequency of Cases of Enucleation of 115 Cases

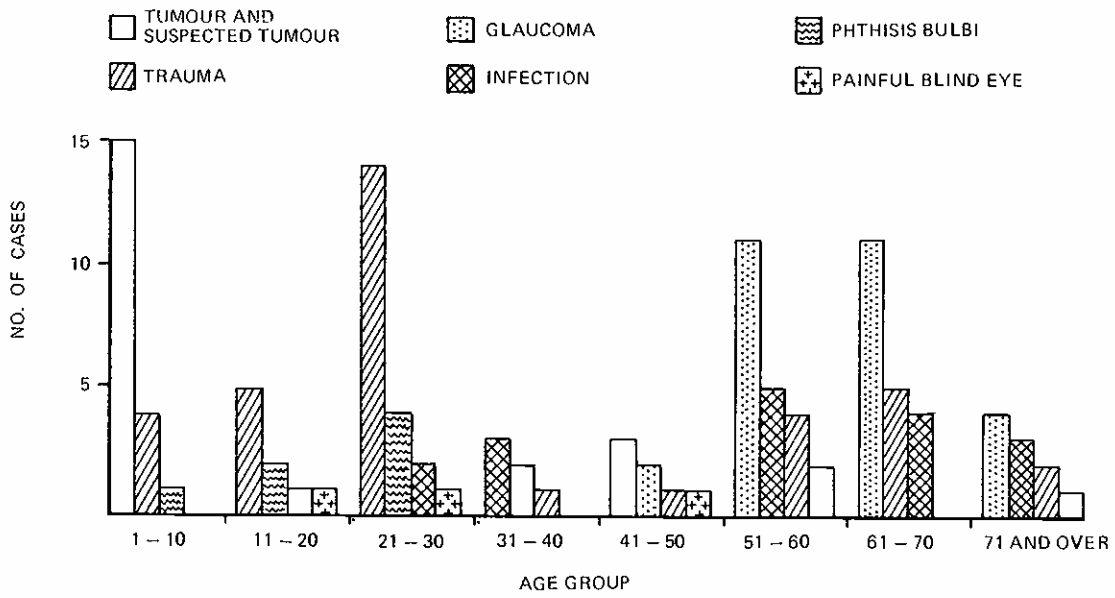

Fig. 2. Distribution of Causes According to Age Group

extraction. 7 of the cases had the cataract extraction done at this hospital. In 5 of these 7 cases the cataract was removed by the Graefe Section and 2 via an ab externo approach. Most of the aphakic glaucomas were seen mainly during the earlier period of the study when the Graefe section without the conjunctival flap and 6'0 silk suture was used. On removing this suture it was noticed that in some cases the anterior chamber became flat and accounted for secondary glaucoma (Then & Chandran, 1975). 3 of the aphakic glaucomas resulted in this way. Now with the ab externo incision and the use of the buried 8'0 virgin silk this complication is infrequent.

Most of the phacolytic glaucomas are found in patients who had had one cataract removed. They neglect the cataract in the other eye leading to hypermaturity and its complications. We are trying to overcome this problem especially in rural patients by operating on both eyes in one hospital admission.

Tumours & Suspected Tumours (24 patients)

All were verified histologically. In this series the incidence of tumour (and suspected tumour) of 20.9% is much higher when compared with the Ugandan series, 6.7% (Davenger 1970) and the Jeruselam study, 5% (Batten, K.L. 1971).

(a) *Retinoblastoma* accounted for nearly 2/3 of the tumours (TABLE V). The average age of the patient was 3 years. The youngest was 1 year and the oldest 7. The sex ratio was about equal, 8 females and 7 males. In 5 of the cases the optic nerve was involved and in one the orbit. There is often a delay of between one week to a year, in obtaining consent for enucleation. Some of the patients did not come for follow up and thus the survival rate could not be adequately studied.

(b) *Malignant Melanoma* (4 patients). Three involved the choroid and one the ciliary body. All were Chinese aged 18, 37, 45 and 72. The average age is 43, which appears to be a decade younger than the Caucasians, in whom it occurs more commonly in the sixth and seventh decades (Hogan & Zimmerman, 1962). According to Paul and associate (1961) the median age of the patient with malignant melanoma of the ciliary body and choroid is 54.7 years. No large series has been reported to different racial groups other than in the white race and American Negroes. The tumour occurs so rarely in the Negro that in the Registry of Ophthalmic Pathology the ratio in Caucasians versus non Caucasians is 175:1 (Hogan & Zimmerman, 1962). Davenger (1970) did not have a single case of melanoma out of 207 enucleations and Batten (1971) had only one out of a total of 235. Sturman (1972) did not find 1 case of malignant melanoma in the Moari group in a study of 174 cases in New Zealand between the years 1955-1967. The incidence of malignant melanoma in this series is very low as compared with the Caucasians. 4 cases out of 3,982 operations (TABLE I) as against 31 in 8,091 in Moorfields, London. (Ida Mann, 1966).

(c) *Suspected tumours*. These 3 cases presented clinically as malignant melanoma of the choroid. Histopathology revealed that these did not contain a tumour. Two were retinal detachments in patients aged 51 and 54 while one aged 32 showed a non-specific granulomatous reaction. In Harry's study (1973) 89 eyes out of the 102 misdiagnosed cases in malignant melanoma did not contain a tumour. Retinal detachment was the most common diagnostic error accounting for 31 out of 89

TABLE III: Type of Trauma

Type	No.	%
Stones, sticks, knives	16	44.4
Assault	4	11.1
Road Traffic accidents	4	11.1
Industrial	3	8.3
Sport	2	5.6
Chemical burns	1	2.8
Not known	6	16.7
	36	100.0

TABLE IV: Types of Glaucoma

Types of Glaucoma	No
Primary Narrow angle glaucoma	5
Secondary glaucoma	
(a) Aphakic glaucoma	12
(b) Phacolytic glaucoma	7
(c) Thrombotic glaucoma	2
(d) Uveitis	1
(e) Pseudoxfoliation of the lens	1
Total No. of cases	28

TABLE V: Type of Tumours

Type	No.	%
Retinoblastoma	15	62.5
Malignant Melanoma	4	16.5
Secondaries (in the orbit)	2	8.5
Suspected tumours	3	12.5
Total	24	100.0

cases and ocular inflammation was the next common cause accounting for 15.

(d) *Secondaries.* The orbit was involved in 2 cases from secondaries of a fibrosarcoma of the maxilla. One was a Chinese and the other a Malay. Both were 43 years old. Both had refused radical surgery and the eye was removed because of severe proptosis and endophthalmitis.

Infection (17 patients)

In this series not more than 2 enucleations per year were done due to an infection as the primary cause. The sex distribution was fairly even. 6 cases showed a growth of Pseudomonas Aerugionosa.

Most of these patients had corneal disease and did not come for early treatment. 3 cases were severely ill from other medical conditions. One had an aplastic anemia, the second was in diabetic coma while the third had a subarachnoid haemorrhage. This shows that eye care is very important in an unconscious patient.

Phthisis Bulbi (7 patients)

This group included 4 cases of microphthalmos. Males predominated females by a ratio of 6:1 (TABLE II). All were below 30. They requested removal for cosmetic reasons.

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