

# **Enucleation and evisceration in the Gambia**

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## **SUMMARY**

The decision to remove an eyeball is usually a difficult one for both surgeon and patient. From the surgeon's position, it is an acceptance of total defeat at any efforts that may have been made to salvage the vision or the eyeball. For the patient, the loss is enormous since any form of artificial replacement of the organ is usually functionless, (vision wise). At best an improved cosmetic appearance is all that is achieved. This study highlights those factors that cumulate in the removal of the eyeball either by enucleation or by evisceration. The commonest is endophthalmitis/panophthalmitis which was responsible for 51% of cases. This was followed by staphyloma which make up 24.7%. Other causes include orbital/ocular tumours 8.1%, trauma 5.8%, painful blind eye 5.8%, and phthisis 4.5%. Over 75% of enucleated/eviscerated eyes were due to preventable or treatable causes most important of which is infection which is the underlying factor in cases of endophthalmitis/panophthalmitis and staphyloma. Health Education to improve awareness as well as improvement in the socio-economic conditions of the general populace will go a long way in reversing this trend.

## **KEY WORDS:**

## **INTRODUCTION**

The Gambia is situated on the West Coast of Africa. It is a small country with population of about 1.02 million<sup>1</sup>. There is a well-structured Primary Health Care Programme nation wide, organised under six administrative health regions. The National Eye Care Programme is an integral part of the health services and was started in 1986. The initial phase consisted of a National Blindness Survey that helped to establish baseline data as well as assist in the planning process. This was followed by restructuring of the only tertiary eye care facility in the country based in the capital to make it more functional, and establishment of two secondary eye care facilities to serve the central and eastern parts of the country. These baseline facilities act as referral centres for several village and basic health service units and outreach points. Patients from neighbouring countries also use these facilities.

This study reviews in all the cases of evisceration and enucleation that were carried out over the eight-year period from 1987 to 1995. Similar studies done in developing countries like Nigeria<sup>2,3</sup> show that infectious trauma and tumours are the major causes

of removal of the eyeball.

In the developed countries<sup>4,5,6</sup> tumours and painful blind eyes are more common. No such study has ever been carried out in The Gambia. The authors therefore aim at finding out the causes and possible risk factors leading to destruction to the eye and so necessitating enucleation or evisceration in all the eye care facilities in The Gambia.

## **MATERIALS AND METHODS**

A retrospective study of all cases of Enucleation and Evisceration in the under listed eye care facilities was carried out from the inception of each of them.

1. Eye Unit, Royal Victoria Hospital, Banjul (established Feb. 1987).
2. Eye Unit Farafenni Health Centre, Farafenni (established Nov. 1990).
3. Eye Unit, Bansang Hospital, Bansang (established Nov. 1993).

Data from theatre records from inception of each of the eye units established at different stages of development of the National Eye Care Programme were collected. Age, sex, diagnosis and modality of treatment of each patient were analysed. These three centres represent the points where all surgical eye procedures are carried out in the Gambia. At present,

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there are no private Ophthalmological services that offer surgery.

### RESULTS

A total of 223 patients had evisceration or enucleation during the eight years period. This forms 3.7% of the 5,977 Ophthalmic surgeries performed during the same period.

Table 1 shows age distribution of the patients. There were 133 males and 90 females giving a male to female ratio of 3:2.

**Table 1: Age and Sex distribution**

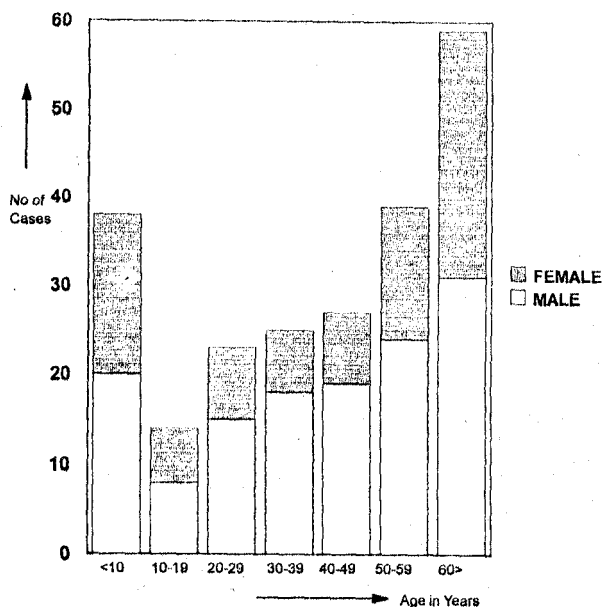
Age in Years	Male	Female	Total	Percentage(%)
< 10	20	19	39	17.49%
10-19	7	5	12	5.38%
20-29	14	9	23	10.31%
30-39	18	8	26	11.66%
40-49	19	8	27	12.11%
50-59	24	15	39	17.49%
60 and above	31	26	57	25.56%
	133	90	223	100%

**Table 2: Causes of Enucleation and evisceration by year**

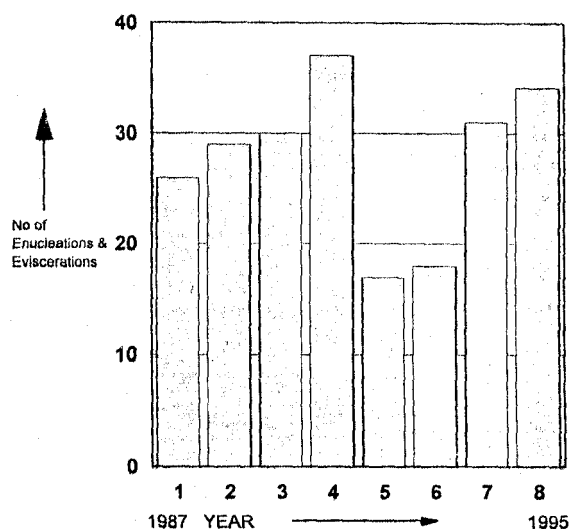
Cause	YR.1	YR.2	YR.3	YR.4	YR.5	YR.6	YR.7	YR.8	Total	(%)
Endoph/panophth	15	14	16	19	13	9	14	14	144	51.1
Staphyloma	11	7	8	9	2	6	9	3	55	24.7
Orbital/Ocular Tumour	-	5	3	5	-	-	1	4	18	8.1
Trauma	-	2	2	3	2	1	3	6	13	5.8
Painful Blind Eye	-	-	1	2	-	1	3	6	13	5.8
Phthisis	-	1	-	-	-	1	4	4	10	4.5
Total	26	29	30	38	17	18	31	34	233	100

Figure 1 shows the age and sex distribution of patients. The extremes of life were most commonly affected. Those under 10 years and 50 years and above formed over 60% of the total cases.

Table 2 shows the causes of enucleation and evisceration by year. Over 75% of cases were due to infection leading to either panophthalmitis, or staphyloma.



**Fig. 1: Age and Sex distribution**



**Fig. 2: Yearly distribution of enucleation and evisceration**

Figure 2 shows the yearly distribution of enucleation and evisceration. The low number of surgeries in year 5 and 6 were due to extensive renovation of the tertiary centre (Royal Victoria Hospital) where most of the surgeries were done. The highest number of surgeries was done in the fourth year.

## DISCUSSION

Generally, the indications for evisceration or enucleation fall into five groups:

- To prevent spread of infection in cases of panophthalmitis.
- To prevent tumour spread.
- To reduce the risk of sympathetic ophthalmitis in cases of severe penetrating injuries with loss of vision.
- To relieve pain in painful blind eyes.
- To improve cosmetic appearance in staphylococcal and phthisical eyes.

The main causes of loss of the eyeball were infections, tumours, trauma and painful blind eye. This pattern is similar to that found by other workers<sup>2,3</sup> who studied the causes of loss of the eye without prejudice to the modality. (That is whether by enucleation or evisceration). Infections were usually highest on the list. Studies<sup>7,8</sup> that focus on loss of an eyeball through enucleation alone tend to have tumours as the commonest cause.

## CAUSES

*Painful Blind Eye:* In many cases, this was due to intractable glaucoma, though in some cases, cause was unknown.

*Trauma:* Almost 50% of all cases of trauma encountered occurred in children under 10 years while 85% occurred in those under 40 years. The male female ratio of 3:1 is not surprising as the preponderance of ocular trauma in males is well documented in other studies<sup>9,10</sup>. In this environment, occupation may play a role since many of the injuries seen in the clinic are farm related.

*Tumours:* All cases of ocular/orbital tumours had enucleation. 78% of tumour cases were seen in children under the age of 10 years. Majority of them were confirmed to have retinoblastoma. Compared to other studies<sup>4,8</sup> tumours were not important causes of loss of the eye as it forms only 8% of this series. This is probably due to the fact that most cases of retinoblastoma present late, with orbital and sometimes distant metastases. These cases were

generally managed conservatively due to lack of cytotoxic drugs and radiotherapy facilities to back up surgical management. Only those who presented early enough with intra-ocular tumours had enucleation with the hope of a cure if it is unilateral and if microscopic metastases had not already taken place. Advanced cases were managed conservatively.

*Infection:* This was the commonest cause of loss of an eyeball in this study. It appears to be the end-stage of a process which could be due to several causes such as minor trauma, use of traditional eye medication, delayed treatment of minor conditions such as conjunctivitis. Hence it was not useful to separate enucleation from eviscerations because very often the aetiology of the disease condition leading to either type of surgery was the same, infection. The general trend was that those with endophthalmitis had evisceration while those with staphylococcal and phthisis bulbae had enucleation. This contrasts with the results of a study in Philadelphia USA<sup>4</sup> which showed the causes of 250 enucleations to be uveal melanoma in 157 patients, (62.8%), Retinoblastoma in 70 patients, (27%), painful blind eye in 22 patients, (8.8%) and intra ocular medullo epithelioma in 1 patient (0.4%). It is noteworthy that infection did not feature in this series.

**USE OF TRADITIONAL EYE MEDICINES (TEM):** The use of traditional eye medicines contributed in no small measure to the disastrous outcome of some of the eyes. In the rural population, mild trauma which could have healed easily with adequate treatment, eventually progressed to corneal ulcers and panophthalmitis due to the use of harmful TEM. In one of the secondary eye units, about 80% of enucleation /evisceration gave a history of having used TEM before arrival at the hospital. Loss of the eye from panophthalmitis following the use of harmful TEM has been documented<sup>7</sup>.

## RISK FACTORS

**AGE:** About 50% of the cases of infection occurred in those over the age of 50 years. In a developing country such as this, where children under 15 years of age make up about 50% of the population,<sup>12</sup> this preponderance of infection in the older age group is quite significant. Both trauma and tumours occurred mostly in children under the age of 10 years.

**SEX:** The risk of loss of an eyeball from trauma was there times higher in males than females. The preponderance of male patients in the endophthalmitis/panophthalmitis group could be attributed to the

farming as bush clearing. They are also more likely to seek surgical treatment than female. This was confirmed in a previous study carried out in the Gambia<sup>13</sup>. Apart from these two groups, the other aetiological factors affected both sexes equally.

**AVAILABILITY OF SERVICES:** The proximity of service affects the uptake. This is depicted by the gradual build up of service over a period of 4 years in the Royal Victoria Hospital Banjul. The small numbers of cases done in year 5 and 6 can be attributed to the fact that enucleation and evisceration were limited to only emergencies due to the extensive renovation of the Royal Victoria Hospital where majority of the surgeries were done.

**PROGRAMME ENVIRONMENT:** There is a general lack of awareness and uptake of orthodox health services. This may be due to several factors: poverty, low literacy, ignorance, entrenched traditional beliefs, fatalistic attitude. These combined with the low level of socio-economic development results in a large number of patients reporting very late to hospital. This trend usually affects the outcome of treatment adversely.

**USE OF TRADITIONAL EYE MEDICINES (TEM):** The use of TEM apart from delaying onset of appropriate treatment, often has undesirable effects on the eye such as masking the primary pathology as well as leading to infections and/or corneal scarring. There is also a traditional practice of using TEM to treat corneal scars. (Corneal scars are the 2nd commonest cause of blindness after cataract in The Gambia<sup>13</sup>).

This often leads to severe infection in an already blind or visually impaired eye. The traditional practice of couching could also lead to panophthalmitis, requiring evisceration. This may explain why infection was a lot more common in those 50 years and above since they are more likely to have pre-existing ocular conditions such as corneal scars, cataract, pterygium etc., which would attract the use of TEM.

## CONCLUSION

In spite of presence of good eye care facilities in this population in the last eight years, over 75% of enucleated/eviscerated eyes are due to preventable causes. A lot still needs to be done in terms of improvement of the socio-economic development and awareness of the population before any significant change in the above trend can take place.

Health problems do not occur in isolation. They are often tied up with socio-economic, political and

educational problems. Factors which contribute to a large number of patients reporting very late to hospital will adversely affect the outcome of the disease process. It is hoped that with time, early uptake of medical services in general and treatment of eye infection in particular will go a long way to reduce this preventable cause of loss of vision and eye ball.

Health education should be intensified to encourage patients to report to hospital at the earliest sign of eye problems. Further expansion of the National Eye Care programme to previously underserved areas will go a long way in providing the much needed eye care services. This is already being done by the opening of a third secondary Eye Unit at Basse at the terminal stages of data collection for this study. More strategically located villages are also being identified to serve as outreach points for existing static facilities. It is hoped that availability of these services at an affordable cost and reasonable distances from the patient will eventually discourage the use of self medication, traditional eye medication and 'watch and see' attitude which delays onset of treatment. Socio-economic development and education of the rural populace to improve awareness and uptake of orthodox health services is a long term solution.

In a prospective study, it will be useful to find out the interval between the onset of the eye problem and the actual surgery for removal of the eye. This will make it possible to differentiate new cases from long standing cases which form the backlog from the period when services were not so readily available. In addition the primary and secondary diagnosis as well as risk factors can be elicited. This will give a more accurate picture of the role underlying trauma and other contributing factors to the development of infection which may have been underplayed in this study.

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