

## A profile of destructive surgery in Nepal Eye Hospital

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### Abstracts

This is a study profile of the patients undergoing destructive surgery in Nepal Eye Hospital over a period of 2 years (2001-2003). The rationale of the study was to know the incidence and causes for destructive surgery (enucleation/evisceration) and the measures to prevent them. Patients admitted in the ward from emergency and outpatients departments for the purpose of enucleation and evisceration were taken into this study. Their visual acuity, slit-lamp examinations, fundus evaluation were done. Most of the patients had no perception of light with painful blind eyes, panophthalmitis, endophthalmitis, staphylococci, crush injuries and malignancies. After a decision made by the surgeons in the round, a full consent was taken for the operation. Evisceration was done for cases with history of ocular infections and the rest were enucleated. Destructive operation was done for (a) saving the other eye, (b) life saving, (c) painful condition and disfigurement. The incidence of destructive surgery in Nepal Eye Hospital was 1.40%. male : female ratio was 1.41:1. The causes for destructive surgery were panophthalmitis (31.71%), painful blind eye (21.95%), endophthalmitis (14.63%), staphylococci (14.63%), retinoblastoma (12.20%) and crush injuries (4.88%). Number of evisceration (73.17%) was higher than enucleation (26.83%) as most of the cases were sequelae of corneal ulcer. Enucleation was mostly seen in children and evisceration in adults. Lastly, the incidences of destructive surgery would be minimized by (a) Prompt treatment of corneal ulcers for reducing panophthalmitis (b) pre, intra, and post operative care in intra ocular surgery for reducing endophthalmitis, and (c) genetic counselling (pre marital) for reducing childhood malignancies. Decision for destructive surgery should be a team work rather than a single surgeon's opinion. It should be done under general anaesthesia or retrobulbar block. Precaution must be taken to prevent the appalling tragedy of enucleating the wrong eye by marking above on the eye to be operated or EUA prior to surgery. Last but not the least, there should be fitting of a prosthesis for cosmesis, psychological support and careful follow-up of the healthy eye.

**Key Words:** enucleation, evisceration, prosthesis

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Enucleation was first performed by Johann Langes in 1555AD in Germany. It was a barbarous procedure by passing large threaded needle through the eye and hacking away at the eye while exerting traction on the thread - a painful procedure as described by Bartisch of Saxony in 1583AD. In 1830AD, Mackenzi reported bleeding to unconsciousness and then removed the eye. In 1841AD Ofrail in Ireland and Bonnet in France prepared an enucleation technique that is still practiced. The advent of modern anaesthesia has made it less painful. The first evisceration was done by Beer in 1817 AD by removing the intraocular contents following expulsive haemorrhages during iridectomy. In 1884 Von Graeffe and Mule reported the efficacy of evisceration in endophthalmitis to avoid the spread of infection along the optic nerve or its sheath. In the medieval period enucleation of eyes and making blind was a punishment to crimes committed. The historical climax of enucleating the eyes of Brahmins charged with conspiracy when seven full buckets of eyes were enucleated while others were killed.<sup>6</sup> Now a days, the destructive

surgery is an ultimate decision made by surgeon to save other eye, to save life, to treat painful blind eye and for cosmetic reasons. The destructive surgery includes enucleation and evisceration. enucleation is a surgical procedure in which the globe and a attached portion of the optic nerve are excised from the orbit. While evisceration is the complete evacuation of the intraocular contents through an opening in the sclera or through a keratectomy, preserving the scleral shell and all of the extraocular appendages thus preventing the spread of infection to meninges. Enucleation is one of the oldest procedures in ophthalmic surgery and was initially done in painful blind eyes. It was performed as a rapid mutilating surgery due to lack of anaesthesia. The most common indication for enucleation is a painful blind eye or badly damaged eye due to trauma to prevent sympathetic

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ophthalmitis or to treat intraocular tumours such as retinoblastoma or malignant melanoma of choroid. Enucleation is indicated in malignant tumour, intractable intraocular foreign body, crush injury where the eyeball can't be preserved, sympathetic ophthalmitis. It is contra indicated in eyes with h/o infection where evisceration is done. Evisceration became the alternative procedure of enucleation. Many surgeons advocate evisceration rather than enucleation because it is associated with improved motility, cosmesis and patient acceptance but some Institute do not allow evisceration due to risk of sympathetic ophthalmitis and malignancy.

**Objectives**

To know the incidence and causes of destructive surgery and the measures to prevent them.

**Methods and Materials**

A retrospective study of 41 cases destructive surgery done in Nepal Eye Hospital during a period of 2 years of duration (2001-2003 AD) was done. All cases undergoing enucleation and evisceration were included in the study. The Blind eyes undergoing operation e.g., phthisical eyes were excluded from study. Patients developing endophthalmitis or panophthalmitis during treatment were also included. The patients admitted either from emergency or out patients were routinely examined after thorough history taking. Visual acuity was taken with Snellen's chart / finger counting(CF) /hand motion(HM+)/or torch light projection. (PL+PR+) Patients with panophthalmitis, endophthalmitis, painful blind eye, staphylomas, crush injuries were examined thoroughly. Slit-lamp biomicroscopy, fundus

evaluation was done. All malignant cases and other cases having no perception of light with chances of affecting vision of healthy eyes, painful conditions were advised for destructive surgery. A full consent both from patient and guardian were taken .The decision of destructive surgery was taken by a group of surgeons rather than after a single surgeon's opinion.

**Results**

Forty one cases had undergone destructive surgery out of 2929 intraocular surgery in 2 years period (2001-2003). The incidence of destructive surgery was 1.40%. Most of the patients undergoing destructive surgery had non-perception of light(NPL). Male female ratio was 1.41:1 Evisceration was nearly 3 times more than enucleation. Enucleation was more in the underage group and evisceration in the overage group. The causes of destructive surgery were panophthalmitis (31.71%), painful blind eye (21.95%), endophthalmitis (14.63%), staphyloma (14.63%), retinoblastoma (12.20%) and crushed injuries (4.88%). A thorough analysis of data was done and tabulated as follows types of surgery, sex distribution, age distribution, pattern of disease, visual acuity prior to surgery and clinico-pathological diagnosis. In 2 years 41 patients underwent destructive surgery in NEH out of which 30 cases were evisceration and 11 cases enucleation. Male patients were more than female patients (M:F=1.41:1). Enucleation was more common under 40 (82% than over 40(18%) while evisceration was more common after 40 (66.66%) than under 40(33.34%).

**Table 1: Types of Surgery**

Types of Surgery	No of Cases	Percentage
Evisceration	30	73.17
Enucleation	11	26.83
Total	41	100

**Table 2: Sex Distribution**

Sexes	No. of Cases	Percentage
Male	24	58.54
Female	17	41.46
Total	41	100

**Table 3: Age Distribution**

Age	Evisceration	Enucleation	Total
Under 10 years	2	5	7 (17.07%)
11-20	3	2	5 (12.20%)
21-30	3	1	4 (9.76%)
31-40	2	1	3 (7.31%)
41-50	2	-	2 (4.88%)
51-60	5	-	5 (12.20%)
61-70	9	-	9 (21.95%)
71-80	4	2	6 (14.63%)
Total	30	11	41 (100%)

**Table: Pattern of Diseases**

Diseases	No. of Cases	Percentages
Panophthalmitis	13	31.71
Painful Blind Eye	9	21.95
Endophthalmitis	6	14.63
Staphylomawith infection	2	4.88
Staphyloma without infection	4	9.76
Retinoblastoma	5	12.20
Crushed Injuries	2	4.88
Total	41	100

Panophthalmitis (31.71%) following corneal ulcers was the prime cause of evisceration. The other causes were painful blind eye (21.95%) and endophthalmitis (14.63%) retinoblastomas (12.20) and crushed injuries (4.88%) were causes for enucleation. Among staphyloma cases either evisceration or enucleation

were done depending on history of infection. All the pathological reports sent for biopsy after enucleation were tallied to the preoperative diagnosis. The clinico-pathological diagnoses were all found justifiable.

**Visual Acuity Before Operation**

Types of surgery	PL	NPL
Evisceration	-	30
Enucleation	-	11
Total	-	41

### Discussion

The male:female ratio was 1.41:1 as 58.4% were male and 41.46% were female. The cause for higher incidences of male could be due to more exposure of the male in the field and likelihood of getting ocular trauma and corneal ulcer. The evisceration (73.17%) was higher than enucleation (26.83%) because of higher number of infected cases undergoing destructive surgery. The causes for evisceration were panophthalmitis (31.71%), painful blind eye (21.95%), endophthalmitis (14.63%) and staphyloma with h/o infection (4.88%). The commonest causes

for enucleation were retinoblastoma (12.20%) staphylomas without h/o infection (9.76%) and crush injuries (4.88%). The visual acuity prior to operation were perfectly blind (No perception of light). The decision for enucleation / evisceration were taken by a group of surgeons rather than a single surgeon's opinion. For cosmetic reason also, patients with staphylomas (14.63%) underwent surgery. No surgery was done to the phthisical eyes. To prevent sympathetic ophthalmitis and malignancy a small stump was left behind after evisceration. Meticulous

cleaning of the uveal tissue was done. Of the total 21.95 percent patients were between 61 to 70 years age group while 17.07 percent were under 10 years of age. Thirty percent of evisceration was done at the age of 61 to 70 years age group while 45.45 percent of enucleation was done under 10 years of age. The surgery was done with full consent under general anaesthesia in children and with retrobulbar block in adults. The enucleated eyes were sent for histopathological examination. The other eye was fully evaluated and the patient was discharged with antibiotics to come for prosthesis and follow up after 2 months. Prosthesis was fitted at the time of follow up after the complete healing of the wound. The nonfitting prosthesis with contracted socket was reoperated. Psychological consultation was advised in upset patients. The remaining eye was advised for periodic check-up.

According to Vemujanti, J.K; Jalali, S; et al<sup>7</sup> report the male female ratio was 1.85:1, children below 15 years were 85.2%. This data was higher than observed at NEH where male:female ratio was 1.41:1 and 21.27% were below 20 years. Severe injuries of eyeball resulting in enucleation were 13%, which was 4.88% in NEH study. Painful blind eye was 21.95% in NEH while 9% including absolute glaucoma in Vemujanti et al study. Retinoblastoma were 36.26% while in NEH it was 12.20%. The preoperative diagnosis and the post-operative biopsy report were all tallied. According to Dr. Padam R. Bista<sup>3</sup>, in Geta Eye Hospital 13 patients (0.5%) had undergone destructive surgery in 1993 and 20 patients (0.18%) had undergone same surgery in 1994. Thus, in 2 years, the total of 33 patients had undergone destructive surgery which is lower than in Nepal Eye Hospital. Early diagnosis and treatment of retinoblastoma not only save life, but also spare eye from removal<sup>4,5</sup>. According to Dr. Azad<sup>2</sup> as long as we continue to perform intraocular surgery, we shall be encountering the problem of endophthalmitis which is like an accident and happens without anticipation. This is a potentially devastating condition. To reduce this problem there should be strict checking of diabetes mellitus, skin infection, chest infection and infections elsewhere. The sources of infections in the operation theatre are movement of patients in the theatre unnecessary crowd in the theatre, improper ventilation and air conditioning system, opening of drapes within the operating room, gloves with powder, inadequate scrubbing and unclean tap water. Besides this indigenous flora of patients conjunctiva and lid, periocular inflammation, hygiene, malnutrition, systemic disease are also predisposing factors. Alcoholic and immunosuppressed patients are more prone to

develop endophthalmitis<sup>1</sup>. The appalling tragedy of removing the wrong eye where no evidence of the disease is seen as in the excision of tumour of choroid, endophytic growth of retinoblastoma. So either the forehead above the to be enucleated should be marked with a tag or funduscopy should be done prior to surgery. No such events has been reported in NEH study. To prevent panophthalmitis, the corneal ulcer should be treated properly according to protocol. Much emphasis should be given to corneal scraping, culture and sensitivity with change of medication accordingly which needs a microbial laboratory. Operations like Gunderson Flap and Tarsorrhaphy should be done for indolent (non-healing) corneal ulcers.

### Conclusion

The objective of the study was to know the incidence of destructive surgery, their causes and measures to prevent them. The incidence of destructive surgery in Nepal Eye Hospital was 1.40%. The causes for evisceration was panophthalmitis (31.71%), painful blind eye (21.95%), endophthalmitis (14.63%) staphylococci with infection history (4.88%). The causes for enucleation was retinoblastoma (12.20%), staphylococci without infection history (9.76%), and crush Injuries (4.88%). Evisceration was done more than enucleation. The destructive operation in children was due to childhood malignancy (retinoblastoma), in old age was due to painful blind eye and in adolescent group due to staphylococci. The incidence of endophthalmitis and panophthalmitis were mixed up in all ages. Measures to prevent destructive surgery were early diagnosis of glaucoma and retinoblastoma and the prompt treatment of corneal ulcer. A good microbiological laboratory set up should be attached to the hospital for efficient corneal ulcer treatment. Application of prosthesis for cosmetic purposes should be encouraged. Hence, the ophthalmic treatment of the patient requiring enucleation or evisceration does not end in the immediate postoperative phase but also includes careful fitting of a prosthesis for cosmesis, psychological support and careful follow up of the healthy eye.

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