SHORT REPORT

Indications of enucleations and eviscerations performed at a tertiary eye care unit: A case series

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Abstract

The retrospective study was planned to look at the indications of eye enucleations and eviscerations, and comprised all such procedures done at the Aga Khan University Hospital, Karachi, from January 2006 to December 2015. Data was collected regarding age at the time of procedure, gender, procedure type, indication for enucleation or evisceration, type of implant if used and complications. Of the 66 eyes of 65 individuals, 47 (71.2%) underwent evisceration and 19 (28.8%) enucleation. The mean age at the time of the procedures was 37.86±23.09 years. The indication for enucleation or evisceration were keratitis 14(21.2%), introcular tumours 13(19.7%), trauma 10(15.2%), endophthalmitis 10(15.2%), cosmesis 10(15.2%) and painful blind eye 9(13.6%). Only 5(7.5%) procedures had postoperative complications such as wound dehiscence, infected socket, loose suture, or stich abscess. Most of causes of enucleation and evisceration in this case series could have prevented through the application of evidence-based safety practices.

Keywords: Enucleation, Evisceration, Case series, Indication, Complication.

Introduction

Enucleation and evisceration are not uncommon surgical eye procedures.[1] They may be necessary after severe ocular trauma, to treat some intraocular tumours or endophthalmitis unresponsive to medical therapy, and for cosmetic improvement of a disfigured eye.[2] During an enucleation, the entire eyeball is removed whereas during an evisceration, the sclera and the outer covering of the eye remains, but the contents of the eyeball are removed.[3] When needed, these procedures are combined with orbital implantation.

The indications of enucleation and evisceration have been studied in different settings in both developing and developed countries with significant variation by age, gender, geographical location, occupation and other factors.[1,4-7] However, there is paucity of published reports on indications of enucleation and evisceration in Pakistan. This study was planned to determine the indications of these procedures in an urban tertiary care setting.

Methods and Results

The retrospective study was planned to look at the indications of eye enucleations and eviscerations, and comprised all such procedures done at the Aga Khan University Hospital, Karachi, from January 2006 to December 2015. Approval was obtained from the institutional review committee. Medical records were retrieved using the hospital information system and International Classification of Diseases (ICD).[8] A structured proforma was used to collect data on age at the time of procedure, gender, enucleation or evisceration, indication for enucleation or evisceration, type of implant if used, and postoperative

Table-1: Characteristics of enucleated or eviscerated eyes (n=66 eyes).

Characteristic		Freq	%
Gender	Male	48	72.7
	Female	18	27.3
	Total	66	100.0
Best-corrected visual acuity	20/25	1	1.5
	20/80	1	1.5
	20/100	1	1.5
	CF, HM, PL	20	30.3
	NPL	34	51.5
	Could not be assessed	9	13.6
Affected eye	Right	35	53.0
	Left	31	47.0
Anaesthesia	Local	8	12.1
	General	58	87.9
Procedure	Enucleation	19	28.8
	Evisceration	47	71.2
Implant use	Yes	16	24.2
	No	50	75.8

CF: Counting fingers
HM: Hand motion
PL: Perception of light
NPL: No perception of light.

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Table-2: Indications for enucleations and eviscerations (n=66 eyes).

Indication	Freq	%
Keratitis	14	21.2
Introcular tumours	13	19.7
Trauma	10	15.2
Endophthalmitis	10	15.2
Cosmesis	10	15.2
Painful blind eye	9	13.6
Total	66	100.0

complications. Data were entered and analysed using SPSS 20. Qualitative data was reported as frequencies and percentages and quantitative data was reported as means and standard deviation.

Of the 66 eyes of 65 individuals, 19(28.8%) eyes underwent enucleation, and 47(71.2%) underwent evisceration (Table-1). The mean age at the time of the procedure was 37.86±23.09 years. Most of the affected eyes 48(73%) were male. The indication for enucleation or evisceration were keratitis 14(21.2%), introcular tumours 13(19.7%), trauma 10(15.2%), endophthalmitis 10(15.2%), cosmesis 10(15.2%), and painful blind eye 9(13.6%) (Table-2).

Besides, 58(87.9%) procedures were performed under general anaesthesia, and 8(12.1%) under local anaesthesia. Only 5(7.5%) procedures had post-operative complications such as wound dehiscence, infected socket, loose suture, or stich abscess. Also, 16(24%) procedures involved acrylic 13(81%), hydroxyapatite 2(12.5%)) and silicone 1(6.25%) implants. The implant was found to be intact in 13 (81.3%) cases at their last follow-up.

Conclusion

In our case series, most of the enucleation and evisceration were due to preventable causes such as trauma, post-operative endophthalmitis and keratitis.

Infectious keratitis was the leading indication of evisceration and enucleation in our setting. It is a sight-threatening condition and a leading cause of monocular blindness worldwide. Most cases in our cases series were due to contact lens wear or neglected epithelial defects that had not been treated timely or properly. Once keratitis becomes resistant to medications, it can lead to devastating results like corneal melting, corneal perforations with uveal tissue prolapsed and anterior staphyloma which are difficult to treat and require a lot of patience of the clinician as well as the patient's.[9]

Trauma was major indication for evisceration and enucleation in our study. This finding is consistent with previous studies both in developing and developed countries.[6,10] The trauma in our cause series occurred at home (battery explosion), work (exposure to high pressure blower), or during motor vehicle accidents and violent attacks (bomb blast, gunshot). Open globe injuries caused by blunt objects are more likely to undergo enucleation or evisceration than those caused by sharp objects.

In our study, the most common indication for enucleation was intra-ocular tumours of which retinoblastoma was the most common. Mostly unilateral, it is the most common intraocular malignancy among children. In one child, both the eyes were affected and were enucleated at 4 and 6 months of age due to this tumour. Other indications included ciliary body melanoma, squamous cell carcinoma of the conjunctiva and squamous dysplastic carcinoma abutting the zygomatic bone. In two cases, the vision was 20/80 and 20/25 but the eyes were sacrifised to save life.

In many low-income countries, endophthalmitis is a common reason for evisceration and enucleation.[11] All cases of endophthalmitis (a sight-threatening and painful inflammation of the eye) requiring evisceration were referrals from outside AKUH. The main bulk was due to cataract surgery, followed by penetrating keratoplasty and trabeculectomy. The intact sclera provides an excellent barrier to orbital spread of the infection.

Losing an eye can be devastating at any age, giving rise to many worries around one's self-image and self-esteem, as well as some job restrictions due to loss of binocular vision. Psychological support is essential because the removal of the eye is likely to cause severe emotional trauma. A prosthetic eye can improve the appearance of the affected eye.

Being a single-centre study, the results are not generalizable to other contexts.

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