

Causes of Evisceration of Eyeball and Clinicodemographic Profile of the Patients in a Tertiary Eye Hospital of Eastern Nepal

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ABSTRACT

Introduction: Evisceration is a type of destructive ocular surgery which involves removal of all the contents of the eyeball leaving behind the sclera and optic nerve. Study aimed to determine the causes of evisceration and clinicodemographic profile of patients requiring evisceration in tertiary eye hospital in Eastern part of Nepal.

Material and methods: The case sheets of patients who underwent evisceration in Mechi eye hospital from January 2018 to December 2019 were retrospectively reviewed to find the cause of evisceration and the clinic-demographic profile of the patients.

Results: There were a total of 232 evisceration surgeries performed in the 2 years. The mean age of the patients was 47.05 ± 19.81 years (range 3-96 years) and the most common age group was 44-64 years (middle aged adult). Infections (48.3%) was the most common cause leading to the evisceration of eyeball which included sequelae of corneal ulcer (32.8%), panophthalmitis due to other cause (11.2%) and postoperative endophthalmitis (4.4%). This was followed by trauma (39.6%), Neovascular glaucoma (7.3%) and degenerative conditions (4.8%). When studied as per the age groups, trauma was the most common cause in pediatric age group (0-18 years), whereas infection was the commonest cause in both adults (19-64 years) and senior citizens (65 years and above).

Conclusion: Evisceration was more common in the middle-aged adults. Most common cause for evisceration in our study was ocular infection followed by ocular trauma. The most common cause for evisceration of eyeball in pediatric age group was trauma whereas it was infection in both the adults and senior citizens.

Keywords: Evisceration of Eyeball, Causes, Infection, Trauma, Panophthalmitis

has less complications such as ptosis and implant migration; it is the preferred destructive surgery with or without ocular implant.^{2,3} The decision to remove the eye is difficult for both patient and treating physician. It is usually performed when vision cannot be salvage, as a last resort for painful blind. The major indications of evisceration are infectious or non-infectious intraocular inflammation causing total loss of vision, end stage glaucoma, severe ocular trauma and degenerative diseases causing disfigurement. In developing nation, due to delay in presentation, diagnosis and intervention along with distance to modern health facility and poor socioeconomic condition, patient present late with end stage disease with loss of visual potential.

The objectives of the study were to determine the underlying ocular conditions leading to evisceration of eyeball and to study the clinical and demographic profile of the patients undergoing the evisceration surgery.

MATERIAL AND METHODS

This was a retrospective descriptive study which included all the patients who underwent evisceration of eyeball from January 2018 till December 2019 (total 2 years) in Mechi Eye Hospital. The study was conducted following approval from institutional review committee of Mechi Eye Hospital and adhered to the tenets of the Declaration of Helsinki.

The demographical profile of patients included age, gender and geographical location. The age of the patients was further sub classified according to the National Library of Medicine (NLM) Pub Med Central Medical Subject Headings (MeSH) terminology [<http://www.ncbi.nlm.nih.gov/mesh>] into Infant (<2 years), Preschool child (2-5 years), Child (6-11 years), Adolescent (12-18 years), Young adult (19-23 years), adult (24-43 years), middle aged adult (44-64 years), Aged (65-79 years) and Elderly (80 and above)⁴. For the purpose of simplicity, the age group was further classified into pediatric (upto 18 years), adults (19-64 years) and senior citizens (65 years and above). Clinical profile included the diagnosis

INTRODUCTION

Evisceration is a type of destructive ocular surgery which involves removal of all the intraocular contents of the eyeball through incision in sclera or cornea while preserving sclera, Tenon's capsule, conjunctiva and optic nerve.¹ Other method of destructive ocular surgeries are Enucleation – which involves removal of the entire eyeball except for tenons and conjunctiva, and Exenteration where along with the eyeball, periorbital and retroorbital fat and orbital bony periosteum with or without eyelids.¹ These surgeries are usually the last resort of management when there are no options left to salvage the eyeball.

As evisceration is technically easier, causes less disruption of orbital anatomy and thus having a better cosmetic outcome,

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at admission, visual acuity at diagnosis, course of disease, operated eye and indication for evisceration. On the basis of history, clinical examination and relevant investigations, the causative factor for evisceration was determined from the existing records.

The surgical method included a 360-degree conjunctival peritomy, limbal stab incision followed by removal of corneal button with Westcott scissors, separation of choroid from underlying sclera and evisceration of the intraocular contents with evisceration scoop. Care was taken to remove all the uveal tissues completely followed by implantation of a polymethylmethacrylate (PMMA) spherical implant, closure of scleral shell, closure of conjunctiva, placement of conformer to maintain fornices and finally a temporary tarsal suture tarsorrhaphy. The tarsorrhaphy and conformer was removed in 6 weeks followed by prosthetic eye placement if the socket was deemed to be healthy after evaluation.

The data was collected and entered in Microsoft excel. Statistical analysis was performed using SPSS v25 (IBM corporation, Chicago). Descriptive analysis was done by calculating frequency and percentage (for categorical data), while mean and standard deviations were calculated for continuous data. Graphical and tabular representation of data was done.

Age groups	Frequency (n)	Percentage (%)
Preschool child	4	1.7
Child	9	3.9
adolescent	11	4.7
young adult	11	4.7
Adult	53	22.8
middle aged adult	102	44.0
aged adult	33	14.2
Elderly	9	3.9
Total	232	100

Table-1: Frequency distribution according to age group

Age groups	Frequency (n)	Percent (%)
Pediatric	24	10.3
Adult	166	71.6
Senior citizen	42	18.1
Total	232	100.0

Table-2: Frequency distribution according to simplified age group

Causes	Sub-division	Number	Percentage	Total (n)	Total (%)
Infection	Corneal ulcer	76	32.8%	112	48.3%
	Panophthalmitis – other causes	26	11.2%		
	Postoperative Vitreo Retina	5	2.2%		
	Postoperative cataract	5	2.2%		
Trauma	Severe trauma (nonsalvagable eye)	27	11.6%	92	39.6%
	Post-trauma endophthalmitis/ panophthalmitis	95	28%		
Neovascular Glaucoma	-	-	-	17	7.3%
Degenerative	Anterior staphyloma	9	3.9%	11	4.7%
	Ciliary staphyloma	2	0.9%		
Total		232	100%	232	100%

Table-3: Causes of evisceration of eyeball

RESULTS

This study included 232 cases of evisceration of eyeball of 232 patients who were operated from 1st January 2018 to 31st December 2019 (total of 2 years). The mean age of the patients was 47.05 +/- 19.81 years (range 3-96 years). Most common age group for evisceration of eyeball was 44-64 years (middle aged adults) with 44% share of the total cases. The distribution of cases as per the age grouping are as shown in table 1.

When further classified into 3 age groups for simplicity i.e. pediatric - upto 18 years, adult - 19-64 years and senior citizen >65 years, majority of the patients belonged to the adult age group (71.6%), as shown in table 2:

There was a male preponderance (61.6%) in the cases in our study with m:f ratio of 1.6:1. The gender distribution is as shown in figure 1

Right eye was more commonly operated (n=132, 56.9%) compared to the left eye (n=100, 43.1%).

Regarding the cause for evisceration of eyeball, Infections (48.3%) was the most common cause leading to the evisceration of eyeball in our study followed by trauma (39.6%). The distribution of causes for evisceration has been shown in table 3.

When the causes of evisceration were sub-classified according to the age groups (simplified age grouping) as shown in table 4, the most common cause for evisceration of eyeball in pediatric age group was trauma (58.3%) followed by infections and degenerative conditions whereas infection

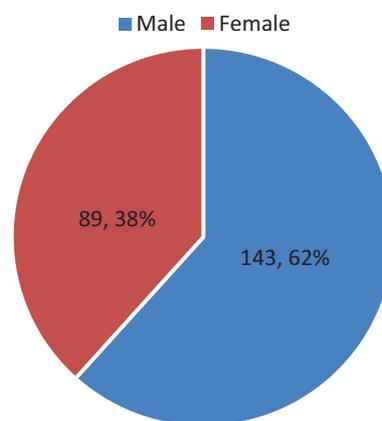


Figure-1: Gender distribution of the patients

		Frequency (n)	Percentage (%)
Pediatric	Trauma	14	58.3
	Infectious	5	20.8
	degenerative	5	20.8
	Total	24	100.0
Adult	Trauma	63	38.0
	Infectious	87	52.4
	degenerative	6	3.6
	painful blind eye (NVG)	10	6.0
	Total	166	100.0
Senior citizen	Trauma	15	35.7
	Infectious	20	47.6
	painful blind eye (NVG)	7	16.7
	Total	42	100.0

Table-4: Simplified age group wise distribution of causes of evisceration of eyeball

was the most common cause in adults (52.4%) and senior citizens (47.6%)

DISCUSSION

Evisceration is indicated when all the management options to salvage the eye are unsuccessful leading to painful blind eye, discomfort, disfigurement or risk of systemic and regional spread of infections. In our hospital, evisceration of eyeball with PMMA spherical implant and conformer is the choice of surgery for destructive procedure in all cases apart from the intraocular tumors and phthisis bulbi, where we perform enucleation of eyeball. von Graefe first advocated the use of evisceration in eyes with severe panophthalmitis as a major to prevent intracranial spread of infection⁵. Nowadays, evisceration is commonly performed destructive surgical procedure because of better cosmetic result and improved mobility as compared to enucleation^{6,7}. Recent studies have shown evisceration is to be safe and very low risk of sympathetic ophthalmia^{8,9}. Some surgeons believed enucleation provide better pain relief than evisceration. However, Shah-Desai et al¹⁰ found that ultimate pain relief was achieved in all patients after enucleation or evisceration at an average of 3 months with no difference in postoperative pain between the eviscerated or enucleated groups.

In our study, adults of 43 to 64 years were the most common age group who had undergone evisceration surgery with mean age group 47.05 ± 19.81 years (3-96 years) which is comparable to studies done by Tanuj Dada et al¹¹ (51 ± 13.84 years), Ababneh et al¹² (47.12 ± 24.11 years) Monsudi KF et al¹³ (35.51 years) and Ben et al¹⁴ (30-59 age group). Our study showed male preponderance (61.6%) similar to various studies^{11,12,15,16}. This may be aggressive nature of men with risk taking behaviors and frequently involved in outdoor activities

Similar to the studies done by Tanuj Dada et al¹¹ (78.6%), M E Gyasi et al¹⁶ (47.9%), Imitaz A. Chaudhry et al¹⁷ (45.5%) and Chaudhary et al¹⁸ (41.3%), ocular infection was the most common cause for evisceration (48.3%) in our study. However, our findings are lower than that of Tanuj Dada et al¹¹ whereas comparable to that of the other authors¹⁶⁻¹⁸.

Panophthalmitis may result from neglected ocular trauma, poorly managed or late presented corneal ulcer, post-operative infection. Patient may be delay in seeking health facility due to poor financial condition, distance to health care facility or poor availability of health facility or non-availability of trained ophthalmologist landing up in the end stage of the disease requiring evisceration to prevent spread of infection.

Severe ocular injuries from Road traffic accident, penetrating injury or globe rupture which cannot be salvaged lead to evisceration in 11.6% of our patients and the sequelae of trauma leading to panophthalmitis or endophthalmitis with no visual potential was the cause for evisceration in 28% patients. Thus, trauma accounted for 39.6% of evisceration and was the second most common cause. These findings were similar to studies done in India by Tanuj Dada et al¹¹ (21.34%) and ME Gyasi et al¹⁶ (23.2%) whereas, it was lesser when compared with the findings by Ozgur Balta et al¹⁵ who found trauma to be the most common cause for evisceration with 60.1% of cases. However, ocular trauma was the commonest cause (58.3%) in pediatric age group in our study. Studies by Ababneh O H et al¹² and Chaudhary et al¹⁸ reported trauma and infection as the major cause of evisceration which is similar to our study.

As this study is a retrospective study with case records as the source of data, the strength of the study is low. However, this study highlights the causes and clinical profile of the patients who are undergoing evisceration of eyeball. We emphasized on the fact that ocular trauma is the most common cause for evisceration in children whereas ocular infections in the adults. This can be useful for education and advocacy purposes.

CONCLUSION

Evisceration was more common in the middle-aged adults. Our study showed ocular infection and severe ocular trauma as the two main causes for evisceration. Most common cause for evisceration in our study was ocular infection followed by ocular trauma. The most common cause for evisceration of eyeball in pediatric age group was trauma whereas it was infection in both the adults and senior citizens.

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