



A Decade of Evisceration: Investigating the Influence of Demographic, Clinical, and Psychosocial Factors

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Abstract

Objectives: The study aimed to evaluate the demographic and clinical characteristics of evisceration cases and to assess the psychosocial effects of prosthesis usage using the newly defined Global Ocular Prosthesis Score (GOPS).

Methods: The records of 245 patients who underwent evisceration surgery between January 2010 and May 2021 were retrospectively reviewed. The study included 216 eyes of 216 patients who had regular follow-up of at least 6 months. Their demographic characteristics, indications for surgery, surgical methods, implant size, and complications were recorded. A total of 175 patients with ocular prostheses were evaluated using a 20-item questionnaire called GOPS.

Results: About 154 of the 216 patients were male (71.3%), and 62 were female (28.7%), with a mean age of 34.9 years (range: 3–83). The mean follow-up duration was 52.5 ± 34.2 months (range: 6–125). Among the cases, 101 (46.7%) had a penetrating globe injury, 91 (42.1%) had painful absolute eyes, 10 (4.6%) had corneal abscess, 8 (3.7%) had painless blind eyes due to Behçet's disease, 7 (3.2%) had endophthalmitis, 1 (0.04%) had prematurity retinopathy, 1 (0.04%) had corneal melting due to toxic epidermal necrolysis, and phthisis bulbi. Most of the traumas (74.5%) were caused by young (mean age 33.6 years) males. Sphere extrusion was observed in 16 (7.4%) patients at an average of 3 months (15 days to 6 months). Tenon cyst excision was performed in two patients. The mean GOPS was 71.74.

Conclusion: It has been observed that the most common reasons for evisceration in a tertiary eye hospital are globe injuries and painful eyes. Although losing an eye can have negative physical and psychological effects on patients and may prevent them from fulfilling their social roles, it has been observed that the use of ocular prostheses positively impacts patient satisfaction. The use of the GOPS questionnaire can be helpful in assessing the quality of life of evisceration patients.

Keywords: Evisceration, global ocular prosthesis score, ocular trauma, orbital implant

Introduction

Evisceration is a surgical procedure in which the contents of the eyeball are removed while the sclera remains intact. It is often performed as a last resort to treat conditions such as intractable pain, endophthalmitis, or globe trauma that cannot be managed with other treatments (1,2). Numerous studies can be found in the literature in which evisceration patients were evaluated for their demographic and clinical characteristics (1-4). Although evisceration can alleviate

physical symptoms and improve a patient's quality of life (QoL), it also has a significant psychosocial impact. The loss of an eye can have profound effects on a person's self-image, social interactions, and emotional well-being. Anxiety and depression appear to be more common compared to the general population (5,6). While much is known about the surgical techniques and outcomes of evisceration, little research has been done on the psychosocial factors that may impact patients with evisceration (5,6). Therefore, it is cru-

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cial to understand the demographic, clinical, and psychosocial factors associated with evisceration to provide comprehensive care for these patients. In this article, we aim to analyze the outcomes of evisceration procedures performed in the tertiary eye clinic over the past 10 years and examine the impact of prosthesis use on patients' lives using a newly defined, validated QoL questionnaire.

Methods

In this study, the medical records of 245 patients who underwent evisceration surgery between January 2010 and May 2021 at the oculoplastic surgery clinic were retrospectively reviewed. The study was designed in accordance with the Helsinki Declaration and approved by the Ethics Committee (8.6.2022-E22-992). Informed consent was waived for retrospective medical record study. Patients with regular follow-up records and at least 6 months of follow-up were included. In the event of implant extrusion in a patient, only their initial surgery was taken into consideration during the evaluation.

Patient demographic data (age and sex), mean duration of follow-up, indication for evisceration surgery, type of implant used (if applicable), size of implant, and complications were assessed by reviewing medical records. The patients who fulfilled the inclusion criteria were over 18 years old and had received an ocular prosthesis, were contacted by phone (by a blind observer-FBA) to complete a 20-item questionnaire and calculate their Global Ocular Prosthesis Score (GOPS) (7). The GOPS consists of four subscales: functional abilities and care (five questions), comfort (five questions), cosmesis (five questions), and psychosocial (five questions). The questionnaire was graded on a 5-point scale ranging from "Fully agree" to "Fully disagree." Scoring was calculated separately

for each category as well as for the total score at the end. The GOPS is determined by adding up all the subscores, and it ranges from 20 to 100. The highest QoL is represented by a maximum GOPS, whereas a minimum GOPS represents the lowest QoL.

In evisceration surgery, the classic method of corneal removal was applied as the surgical technique. After performing a 360° limbal peritomy, the conjunctiva and Tenon's capsule were dissected. The cornea was excised, and uveal tissues were completely removed. The inner surface of the sclera was washed with alcohol. V-shaped resections were made at the medial and lateral ends of the sclera. Acrylic spheres of appropriate size were placed into the scleral cavity. The sclera and tenon's capsule were sutured separately with 6/0 polyglactin. The conjunctiva was sutured with 6/0 polyglactin sutures. The ocular prosthesis has been started to be used in the 6th week after surgery.

Statistical Analysis

Statistical analyses were performed with Statistical Package for the Social Sciences (SPSS Inc., Chicago, Illinois, USA) version 22.0. Explanatory statistics of variables are reported as mean±standard deviation and number (%).

Results

Of the total of 245 medical records analyzed, 216 patients were included in the study. Twenty-nine patients with irregular or < 6-month follow-up were excluded from the study. One hundred and fifty-four patients were male (71.3%) and 62 female (28.7%), with a mean age of 34.9 years (range: 3–83). The mean follow-up time was 52.5±34.2 months (minimum: 6 and maximum: 125). Table 1 shows the demographic data and the indication for evisceration surgery.

Table 1. Demographic characteristics of patients indications of evisceration (n=216)

Characteristics	
Mean age (year±SD)	34.9±19.8
Sex (female/male)	62/154
Mean duration of follow-up (months±SD)	52.5±34.2
Indications of evisceration	
Penetrating globe injury (%)	101 (46.7%)
Painful eyes (%)	91 (42.1%)
Corneal abscess (%)	10 (4.6%)
Painless blind eyes due to Behçet's disease (%)	8 (3.7%)
Endophthalmitis (%)	7 (3.2%)
Prematurity retinopathy (%)	1 (0.04%)
Melting due to toxic epidermal necrolysis and phthisis bulbi (%)	1 (0.04%)

SD: Standard deviation.

Table 2. Demographic characteristics and indications of evisceration in the patients evaluated with GOPS (n=175)

Characteristics	
Mean age (year±SD)	37.2±11.3
Sex (female/male)	51/124
Mean duration of follow-up (months±SD)	49.3±32.7
Indications of evisceration	
Penetrating globe injury (%)	87 (49.7%)
Painful eyes (%)	68 (38.8%)
Corneal abscess (%)	7 (4%)
Painless blind eyes due to Behçet's disease (%)	8 (5%)
Endophthalmitis (%)	4 (2.1%)
Melting due to toxic epidermal necrolysis, and phthisis bulbi (%)	1 (0.4%)

SD: Standard deviation.

Most traumas (74.5%) were caused by young men (mean age 33.6 years). Of the traumas, 63.7% were caused by accidents at work, 30.6% by accidents at home, and 5.7% by firearm injuries. In patients under the age of 18, a bullet injury was the most common cause of evisceration (92.3%). Patients were implanted with an acrylic bullet with an average size of 17 mm (range: 12–22).

In 25 patients (11.5%), swelling of the eyelids and conjunctiva was observed in the first few days after the procedure, but this disappeared again at the follow-up examination in the 1st week. Extrusion of the globe was observed in 16 (7.4%) patients on average 3 months (15 days to 6

months) after the procedure. In two patients, the implant was removed and the sclera closed over it. In two patients, the Tenon’s cyst was removed after 6 and 18 months.

Of the 216 patients evaluated, 12 were under 18 years of age and 29 could not be reached by telephone. Therefore, only 175 of 216 patients could be examined for GOPS. In this group, 124 (70.8%) of the 175 patients were male and 51 (29.2%) were female. The mean age of the patients was 37.2±11.3 years. The mean follow-up time was 49.3±32.7 months. The demographic data and indications for evisceration are shown in Table 2. The mean GOPS was 71.74 (Table 3).

Table 3. 20-item questionnaire for the global ocular prosthesis score (n=175)

	Fully disagree	Disagree	Neutral	Agree	Fully agree	Mean
Functional abilities and care						
1. I have experienced more balance problems since the loss of my eye	5	4	3	2	1	3.23
2. I can easily pick up a glass from the table	1	2	3	4	5	4.35
3. I was well informed by the ocularist about the treatment.	1	2	3	4	5	4.47
4. I bump into objects	5	4	3	2	1	3.78
5. I worry about the health of my fellow eye	5	4	3	2	1	2.26
Subscore						18.09
Comfort						
6. I experience irritation when wearing my prosthesis	5	4	3	2	1	4.17
7. I can easily remove my prosthesis.	1	2	3	4	5	4.55
8. My prosthesis stays in place during sneezing and coughing.	1	2	3	4	5	4.68
9. I use wetting eye drops or ointment for my prosthesis.	5	4	3	2	1	2.47
10. I am concerned that the prosthesis can fall out.	5	4	3	2	1	3.72
Subscore						19.59
Cosmesis						
11. My prosthesis looks larger than my other eye.	5	4	3	2	1	3.73
12. The iris (colored part) of my prosthesis looks the same as that of my other eye.	1	2	3	4	5	3.11
13. My prosthesis moves the same way as my other eye when looking to the right and left.	1	2	3	4	5	3.05
14. In the mirror, my face looks the same as before the loss of my eye.	1	2	3	4	5	2.78
15. The lower eyelid looks the same on both sides.	1	2	3	4	5	4.1
Subscore						16.77
Psychosocial						
16. I feel uncomfortable looking people in the eyes.	5	4	3	2	1	4.02
17. People do not look at my face because of my eyes.	5	4	3	2	1	4.31
18. I have stopped activities social/sport/job/travel) because my eyes make me less able to concentrate.	5	4	3	2	1	3.07
19. I feel stressed because of my eyes.	5	4	3	2	1	2.68
20. I get fewer opportunities because of my eyes.	5	4	3	2	1	3.11
Subscore						17.19
Total Score						71.64

Discussion

This study examined the demographic and clinical characteristics of evisceration patients and the psychosocial effects of ocular prosthesis use in a tertiary eye hospital over the past 10 years. The most common indication for evisceration was injury to the eyeball, and it was found to be most commonly performed in young men. The use of the prosthesis after evisceration was evaluated using the GOPS questionnaire and satisfactory results were observed in the patients.

The indications for evisceration may vary depending on the economic situation of the country. In industrialized countries, eyeball injury and painful blind eye are reported to be the most common reasons for evisceration (1,8-10). In two Danish studies conducted 10 years apart, the cause of evisceration changed from trauma to painful blind eye associated with glaucoma and eye surgery (8,10). Another study from France documented that the number of evisceration surgeries performed due to infection gradually decreased over time and instead trauma was the predominant cause (11). In developing countries, infection and trauma have been reported as the most common risk factors for evisceration (12-16). Studies conducted in our country indicate that trauma is the most common cause of evisceration (4,17,18). As a result, trauma is one of the most common causes of evisceration in both developed and developing countries. According to the literature, injury to the eyeball was the main indication for evisceration in the present study.

The most common complications of orbital implants are wound dehiscence and implant extrusion, similar to our study (4,15,17). In the current study, we observed implant extrusion in 16 (7.4%) patients, which occurred on average 3 months (15 days to 6 months) after surgery. The rate of this complication has been reported in the literature as 5.2–9.5% (15) (using silicone beads). No long-term post-operative complications occurred in our study.

It is known in the literature that loss of vision for any reason has a negative impact on the psychosocial care and QoL of the patient (5-7,19,20). Anxiety and depression are commonly observed in patients with vision loss, especially in patients who also have cancer and coronary heart disease (6). Heindl et al. (5) studied 295 eye prosthesis wearers using an anxiety disorder scale and a 9-item patient health questionnaire and found that anxiety and depression appear to be underdiagnosed in these patients. Recently, the impact of wearing ocular prostheses was investigated for the first time using a disease-specific questionnaire (7). Ruiters et al. (7) developed the GOPS questionnaire to quantitatively measure patient-reported outcomes of ocular prosthetic rehabilitation. They prospectively studied 100 patients who had been wearing an ocular prosthesis for an extended

period of time (over 2 years) and reported that these patients were satisfied with their physical appearance and had adequate psychosocial functioning. Our results were similar to those of the newly developed scale when we evaluated it in our own patients (mean GOPS: 71.74 vs. 70.87). Similarly, we found that patients wearing dentures were satisfied with their appearance. However, the majority of patients were concerned about the health of the other eye, highlighting the importance of recommending the use of polycarbonate spectacles to all patients after surgery. We also found that eye drops were often needed for moisturization. For patients wearing ocular prostheses, it can be assumed that a special questionnaire can easily assess the psychosocial effects. The results of the questionnaire may help to increase ophthalmologists' awareness of the information provided to patients after surgery.

Our study has some limitations. The number of patients is relatively small compared to other studies. The reason is that our hospital is not a multidisciplinary center, which prevents the follow-up of many trauma patients. However, in this study, patients were evaluated using GOPS, a newly defined questionnaire. Apart from the article where this questionnaire was published, this is the first study to utilize this questionnaire. Patients with ocular prostheses were evaluated only with GOPS and no other QoL questionnaire was administered. This may prevent a more comprehensive evaluation of the QoL of all patients. In addition, this study was conducted in a tertiary eye hospital and may not be generalizable to the community.

Conclusion

Globe injury was found at the forefront of indications for evisceration over the past 10 years in tertiary eye centers. The management of a painful and blind eye through evisceration surgery remains important because it eliminates the patient's pain in the long term and provides satisfactory cosmetic results. The use of the GOPS questionnaire can help assess the QoL of evisceration patients.

Disclosures

Ethics Committee Approval: The study was designed in accordance with the Helsinki Declaration and approved by the Ethics Committee (8.6.2022-E22-992).

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