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A clinical study on outcome of prosthetic implant following evisceration

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Abstract
Aim: This study was done to assess the outcome of PMMA (polymethylmethacrylate) orbital implants following evisceration.
Study design: Interventional.
Place of study: Department of ophthalmology, RIO, RIMS, Ranchi.
Material and Method: Modified technique of evisceration was done in 37 patients who presented with various causes of painful blind eye. Post operative performance of implant was assessed in terms of motility, extrusion rates and other complications.
Results: In this study, out of 37 patients, 25 had good movement of prosthesis and 12 had fair motility. Extrusion rate was nil.
Conclusion: Evisceration with modified technique followed by placement of PMMA orbital implant can be an effective treatment for painful blind eyes with excellent post operative outcome.

Keywords: Evisceration, PMMA orbital implant, painful blind eye

1. Introduction
Evisceration is a destructive procedure where all the intra ocular contents are removed and we preserve only the outer sclera shell. This is performed when all other treatment options have failed with the aim of safeguarding life of the patient or alleviating the symptoms [1, 2].
Evisceration of a painful eye leaves an empty or anophthalmic socket resulting in volume loss of 7-7.5 cm^3 from the total orbital volume of 30 cm^3. The common problems arising from anophthalmic sockets are ptosis, retraction of upper lid, deep superior sulcus, laxity of lower lid, and enophthalmous [3].
Various orbital implants have been developed to rehabilitate the anophthalmic socket. An ideal implant should be easy to place, well tolerated, resist migration, extrusion and infection and be reasonably priced [4, 5]. As health care cost is an issue, there is a pressure to use silicone or PMMA implants and not the more expensive porous polyethylene or hydoxyapatite implants [6].

2. Material and Methods
This prospective study was conducted between December 2017 to August 2019 at a tertiary care centre of Jharkhand. 37 patients with painful blind eye were included in this study. All the surgeries were performed by a single surgeon. Second opinion was taken from other ophthalmologist before proceeding with the procedure.

Inclusion criteria: Painful blind eye secondary to perforated corneal ulcer, absolute glaucoma, anterior staphyloma and eyes with ocular trauma not amenable for salvage.

Exclusion criteria: Patients less than 18 years of age and those not willing to participate in the study.
The type of procedure and the implant used, the characteristics and benefits of each procedure were explained to the patients and informed written consent was taken.

Surgical procedure: The evisceration procedure included a 360° peritomy followed by excision of the corneal button. Evisceration scoop was used to separate the uvea from the

sclera and deliver the intra ocular contents. All visible uveal tissue remnants were scrapped. Anterior sclerotomy incisions were made in opposite oblique meridians between the vertical and horizontal muscles at 2 and 8 o' clock position. An appropriate sized PMMA sphere was placed in the sclera shell. Anterior sclera flaps were sutured with 6-0 vicryl and conjunctiva was closed with running 6-0 vicryl suture. Appropriate sized conformer was placed in conjunctival cul-de-sac. Eye was patched for 24 hours. Patients were followed on 1st, 3rd and 6th week post operatively. Prosthesis was given at 6 weeks after surgery. Implant was assessed in terms of motility and other complications.

3. Results

A total of 37 patients underwent evisceration with primary implantation of PMMA intra ocular implant. Table 1 shows patients demographics.

Table 1: Patient demographics

Number of patients	37
Number of eyes	37
Age range (years)	27-75
Mean age (years)	55.5 years
Sex ratio (male: female)	54:46 (%)
Eye (right: left)	60:40 (%)
16 mm implant	29 patients (78.38%)
18 mm implant	8 patients (21.62%)

Reasons for evisceration is summarised in table number 2.

Table 2: Indication for surgery

Absolute glaucoma	1 (2.7%)
Anterior staphyloma	16 (43.25%)
Expulsive choroidal haemorrhage	1 (2.7%)
Endophthalmitis	1 (2.7%)
Perforated corneal ulcer	17 (45.95%)
Ocular trauma	1 (2.7%)

Good motility was noted in 25 cases (67.57%) and fair motility in 12 cases (32.43%). The current study reported no extrusion or migration of PMMA orbital implant.

4. Discussion

The evisceration technique has undergone several modification with the goal of achieving a lower rate of exposure and permitting colonisation of the integrated implant by the receptor tissue.

The purpose of these techniques was to improve surgical outcome and reduce complications.

In the present study, after the intra ocular contents were scooped out, scleral bed was wiped with cotton swab stick soaked with 100% absolute alcohol, as absolute alcohol denatures any residual uveal protein. This was followed by saline irrigation.

The mean age of patients was 55.5 years in our study, similar results were observed by Tajunisah *et al.* [7] while in a study by Tariq *et al.*, 44.7% of patients undergoing evisceration were >41 years [8]. The most common age group was above 60 years in a study by Babar [9].

Male (54%) preponderance was seen in our study similar to that reported in other studies [7-9].

Perforated corneal ulcer (45.95%) was the most common cause of evisceration in our study. This was comparable to Tajunisah *et al.* [7].

As a rule it is good to restrict implant size to 18 mm or less in diameter larger implants are difficult to cover adequately with the sclera shell [10]. The average diameter of PMMA implant used by Massry and Holds in their study was 20.2 mm [11] while Kim *et al.* used 18 mm sized implants in their study [12].

In our study, good motility was seen in 25 cases (67.57%) and fair motility in 12 cases (32.43%) (Figure 1). Kundu *et al.* reported good motility in 56% and fair in 44% [13].

The current study had no case of implant exposure. Previously reported extrusion rates varied from zero to more than 20% according to different surgical techniques [10].

Other factors such as implant size, duration of antibiotic therapy and post operative wound care regimen may play a role in implant extrusion [14].

Fig 1: Post operative motility of implant and prosthesis

5. Conclusion

Evisceration with PMMA orbital implant can be an effective treatment for painful blind eyes, cosmetically unacceptable blind eyes and medically uncontrolled endophthalmitis.

6. References

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