

Case Report

Extraocular Myoplasty: Surgical Remedy For Intraocular Implant Exposure

Anupam Singh¹, MVathulya¹, Ajai Agrawal¹, Rupal Verma¹, S. K. Mittal¹, Barun Kumar³, Kirti Aggarwal¹

¹Department of Ophthalmology, All India Institute of Medical Sciences, Rishikesh,

²Department of Burns and plastic surgery, All India Institute of Medical Sciences, Rishikesh.

³Department of cardiology, All India Institute of Medical Sciences, Rishikesh

Abstract

Background: Evisceration and enucleation are commonly performed ophthalmic surgeries for painful blind eye, disfiguring blind eye, endophthalmitis etc. After both these surgeries it is important to replace the lost volume in the orbit with implant. Implant is associated with many complications such as major discharge, exposure with discharge and implant exposure. The main surgical management of implant exposure is basically primary revision or patch grafting with or without removal of the implant.

Case: A 60 years old man presented to ophthalmic OPD with complaint of foreign body sensation and irritation in left eye. There was history of evisceration with silicon ball implant in left eye done one month back for painful blind eye at another hospital. On ophthalmic examination, there was a 3 × 4 mm of implant exposure most probably due to tight closure. As per records the size of implant was 22mm. The patient was planned for extra-ocular myoplasty with buccal mucosal graft under general anaesthesia.

Observation: After sterile prepping and draping, 360° degrees peritomy was performed and care was taken to dissect between tenons and orbital implant. Medial and lateral recti were isolated and dissected upto 10-12mm from insertion site. Both the recti were secured with 6-0 vicryl suture and were detached from their respective insertions, advanced and approximated over the site of implant exposure. Thus the exposed implant was covered with a vascularized base which was reinforced with a mucosal graft harvested from the buccal mucosa and secured with absorbable sutures. After 1 year of follow up patient was asymptomatic.

Conclusion: Extraocular myoplasty with buccal mucosal graft is a good surgical remedy for orbital implant exposure implant.

Key words: Implant exposure, Silicon ball implant, implant exposure after evisceration, extraocular myoplasty for implant exposure

Financial Interest: Nil

Conflict of Interest: Nil

Received: 06.02.2019

Accepted: 05.05.2019

Corresponding author

Dr. Anupam Singh, MBBS, MS

Additional Professor, Department of Ophthalmology,

All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India, 249203.

E-mail: dr.anupamsingh@gmail.

Phone Number: +918475000188, +919997580044

Introduction

Implant exposure is not a rare entity as it is commonly encountered by ophthalmologists all around the world. It is reported to range from 10% to 22% of patients (Lin et al, 2002). It is the third most common complication occurring in enucleated eyes. It depends on

several factors such as age, type of surgery and type of implant. It is more common in children as compared to adults (Valeshabad et al, 2014).

Evisceration is a procedure in which all the intraocular contents are removed leaving behind the outer scleral shell. Enucleation involves the removal of diseased globe with part of the optic nerve. Both these surgeries are performed for various end stage eye diseases. Spherical implants for eviscerated eyes are significantly more likely to become exposed as compared with implants for enucleated eyes (Valeshabad et al, 2014).

The aim of implant is to replace the lost volume, give good cosmetic appearance and to achieve a good functional outcome (Viswanathan et al, 2007). There are two main categories of implants grouped according to the material from which they are manufactured-inert material (glass, silicone, methyl methacrylate) and bio-integrated material like hydroxyapatite and porous polyethylene (Al-farsi et al, 2017). The implant most commonly used are PMMA and silicone implants as both have lowest complication rate. Risk of implant exposure is more common with hydroxyapatite implants (Valeshabad et al, 2014).

We hereby report satisfactory surgical outcome of a case of silicone ball implant exposure after evisceration which was managed by extraocular myoplasty with buccal mucosal graft under general anesthesia.

Case Report:

A 60 years old man presented to ophthalmic OPD with complaint of foreign body sensation and irritation in left eye. There was history of evisceration with silicon ball implant in left eye done at another hospital one month back for painful blind eye. As per records the size of implant was 22mm. Patient was a known case of hypertension controlled on medications for past ten years. On routine examination, vitals

were stable and routine blood investigations were within normal limits.

On ophthalmic examination, there was a 3 × 4 mm of implant exposure most probably due to tight closure. (Figure 1a) The patient was planned for extra-ocular myoplasty with buccal mucosal graft under general anaesthesia. After explaining to the patients and taking an informed consent, the patient was optimized for surgery. After sterile prepping and draping, 360° degrees peritomy was performed and care was taken to dissect between tenons and orbital implant. Implant was inspected for integrity and infection and was replaced. Medial and lateral recti were isolated and dissected upto 10-12mm from insertion site (Figure 1b). Both the recti were secured with 6-0 vicryl suture and were detached from their respective insertions (Figure 1c). Then both the muscles were advanced and approximated over the site of implant exposure (Figure 1d). Thus the exposed implant was covered with a vascularized base. The final vascularized base was further reinforced with a mucosal graft harvested from the buccal mucosa and secured with absorbable sutures (Figure 1e).

The size of the buccal mucosal graft was around 1.5 x 1 cm approximately. The buccal mucosa was marked leaving a margin of 2 cm from upper alveolar margin and also sparing the mucosa posterior to the second molar to prevent injury to parotid duct. After local anesthetic infiltration, the graft of width 1 cm was harvested, hemostasis was achieved and donor site closed with vicryl continuous sutures. (Figure 2) The postoperative care was achieved with regular chlorhexidine mouthwash.

After 6 weeks of follow up there was no sign of implant exposure (Figure 2a) and after 1 year of follow up patient was asymptomatic and satisfied (Figure 2b).

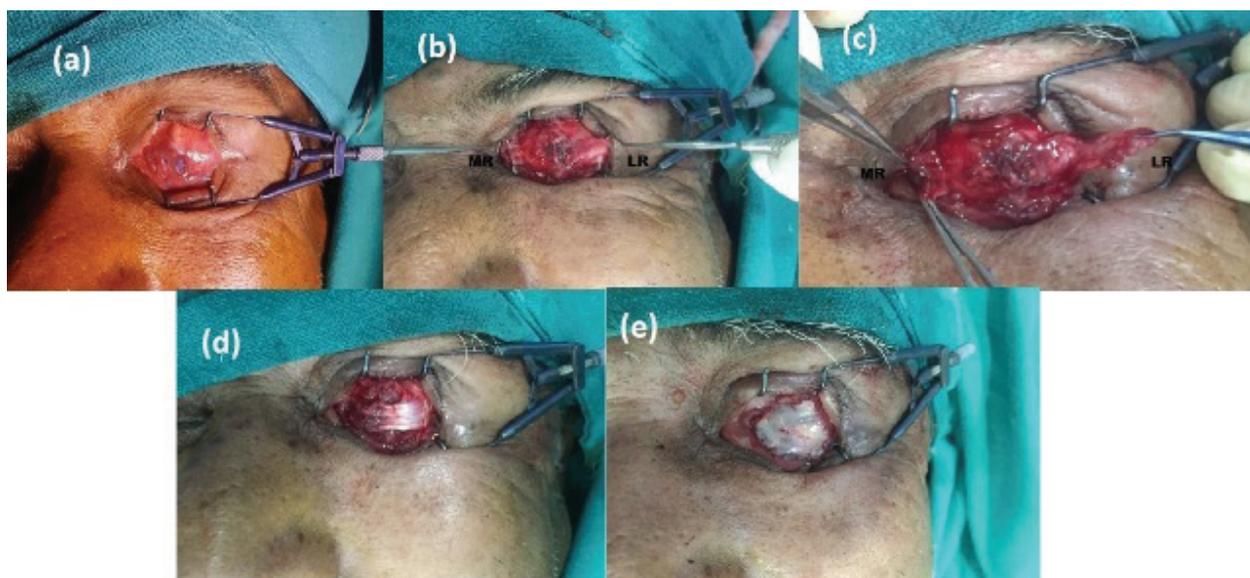


Figure 1: Surgical steps of extraocular myoplasty for orbital implant exposure

- (a) Appearance of the exposed implant.
- (b) MR and LR isolated and dissected upto 10-12mm from insertion site.
- (c) MR and LR detached from their respective insertions.
- (d) MR and LR advanced and approximated over the site of implant exposure.
- (e) Vascularized base reinforced with buccal mucosal graft and secured with absorbable sutures.



Figure 2: Donor site photograph.

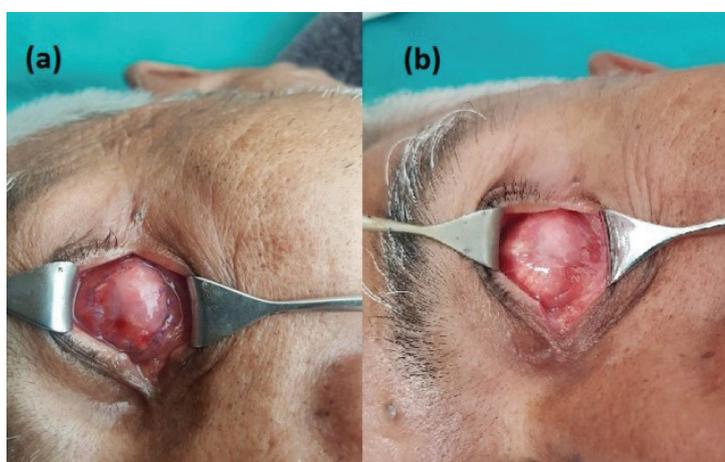


Figure 3: Postoperative photographs

- (a) At 2 weeks of follow up. (b) At 1 year of follow up.

Discussion

Evisceration and enucleation are common surgeries performed in ophthalmology department. The indication can be classified into traumatic and non-traumatic. After evisceration patients are subjected to an implant placement and final closure of the sac over it.

The implants of choice can be cartilage, bone, hydroxyapatite, polyethylene that are available in various configurations depending upon the availability. The most commonly used among them are the porous hydroxyapatite spherical implants (Sheilds et al, 1994). Apart from the other complications, implant exposure varies

from 10-22 % in this surgery (Lin et al, 2002).

The causes of implant exposure are excessive bleeding, infection, edema, faulty technique such as tight closure, inappropriate size of the implants and experience of the surgeon (Remulla et al, 1995).

The surgical management of this complication is primary revision or patch grafting with or without removal of implants (Kayanak et al, 2014).

The patch graft which is used can be myoperiosteal graft which is harvested from the retroauricular area about 1 cm away from the choncamastoid suture or autogenous temporalis fascia graft which is harvested with the help of a vertical scalp incision made in line with the tragus of ear posterior to the superficial temporal artery.

A new technique of remove, rotate and reimplant was proposed by Kayanak P et al, 2014. The sclera with the implant was removed en mass, the axis of the whole mass was rotated anteroposteriorly so that the fully covered implant with scleral tissue was oriented anteriorly and the exposed part was oriented in the posterior part of the globe. The extraocular muscles were then reattached to the neolimbus. A Buccal mucosal graft was harvested to the size of the defect and the defect was resurfaced with good postoperative outcome.

This simple innovation lead to minimal blood loss and existing implant was also spared. Thus, the procedure may be useful for patients in whom more cumbersome procedures (Al-farsi et al 2017, Liao et al 2005) cannot be considered due to their general conditions.

Use of oblique muscles instead of the lateral rectus can be considered for the same procedure

in future so that horizontal movement is not compromised owing to the availability of supportive muscles for the required functions.

References

Al-farsi HA, Sabt BI, Al-Mujaini AS (2017). Orbital implant exposure following enucleation or evisceration. *Oman Journal of Ophthalmology*;10:87-90

Kayanak P et al (2014). Remove, rotate, and reimplant: a novel technique for the management of exposed porous anophthalmic implants in eviscerated patients. *Eye*;28:546-52

Lin CJ, Liao SL, Jou JR, Kao SC, Hou PK, Chen MS (2002). Complications of motility peg placement for porous hydroxyapatite orbital implants. *Br J Ophthalmol*;86:394-6

Liao, S. L. (2005). Surgical coverage of exposed hydroxyapatite implant with retroauricular myoperiosteal graft. *British Journal of Ophthalmology*, 89(1), 92–95. doi:10.1136/bjo.2003.038778

Remulla HD, Rubin PA, Shore JW, Sutula FC, Townsend DJ, Woog JJ et al (1995). Complications of porous spherical implants. *Ophthalmology*;102:586-93

Sheilds CL, Sheilds JA, Potter PD, Singh AD (1994). Problems with the hydroxyapatite orbital implant: experience with 250 consecutive cases. *Br J Ophthalmol*;78:702-6

Valeshabad AK et al (2014). Enucleation and evisceration: indications, complications and clinicopathological correlations *Int J Ophthalmol*;7:677-80

Viswanathan P, Sagoo MS, Olver JM (2007). UK national survey of enucleation, evisceration and orbital implant trends. *Br J Ophthalmol*;91:616-9.