

A Case of Contracted Socket Reconstruction in Rural Part India

ABSTRACT

An empty orbit can result in facial disfigurement and, thereby, has an emotional and psychologic impact on the patient and can lead to an economic setback. Treating the patient with an orbital reconstruction can help the patient to live a normal life and gain acceptance in society. Reconstruction of a severely contracted anophthalmic socket is a challenge for an ophthalmic surgeon as there is shrinkage of orbital tissue with shallow fornices and deep superior sulcus and can give rise to a cosmetic anomaly. In our case, we could correct to a maximum extent the cosmetic defect arising due to enucleation following trauma except some amount of dystopia in a 26-year-old male by dermis fat grafting which gave the patient cosmetic satisfaction. Even though the surgery was performed as per the usual recommended technique, it was a novel surgery for us as it was performed in a rural setup with limited resources and minimal expertise support.

Key words: Anophthalmic socket, Contracted socket, Dermis fat grafting, Orbital prosthesis, Orbital reconstruction

INTRODUCTION

The facial expressions and esthetics of an individual greatly depend on the eyes.^[1] Following enucleation and evisceration or orbital exenteration, the patient can suffer from psychological stress. Rehabilitation of such patients by giving them a normal appearance by reconstruction of the anophthalmic socket is the main goal of an oculoplastic surgeon. Esthetics and facial symmetry can be restored by replacing the empty socket with an artificial implant or prosthesis. This reconstruction can help the patient to have an improved lifestyle.^[2]

CASE REPORT

A 26-year-old male presented with a history of trauma to his right eye with a stick when he was 12 years old, following which he had pain and discharge in the right eye, after which he underwent right eye enucleation after 15 days of ocular trauma. The exact reason for enucleation was not known due to lack of documentation of the same. No prosthesis was placed at that time. He presented to us with a severely contracted socket (Grade 4 contracted socket). Lid movement was present and ocular musculature was normal [Figure 1]. The patient had cosmetic complaints. The left eye had a vision of 6/18 due to refractive error and anterior segment and fundus examination was within normal limits. In the right eye, both the fornices were severely contracted with shortening of the cul-de-sac. Computed tomography scan of the orbits was requested, which showed severely contracted socket of the right side, while the left side was within normal limits. A written consent was taken before surgery. The help of a prosthodontist was taken to take measurements of the right eye orbital implant and a custom made orbital implant was ordered.

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SURGERY: DERMIS FAT GRAFT (DFG)

Surgery was performed in two sittings; first, DFG (approximately 50–55% more than the size of the socket) with fornix formation sutures was done. The graft obtained was placed in the orbit and was adequate for expansion of the different dimensions of orbit and orbital rim in our case; [Figure 2] following which an orbital conformer was placed and tarsorrhaphy was done. Six weeks after the first surgery, a second surgery was performed, in which inferior fornix augmentation was done using buccal mucosal graft harvested from the lower lip [Figure 3] and a customized prosthesis was placed after 8 weeks. A satisfactory cosmesis was achieved [Figure 4]. Each procedure was done under an antibiotic cover and all necessary precautions were taken to prevent any infection or adhesion formation.

Overall, it was a challenging case for the surgeons as it was performed for the 1st time in our institute with minimal expertise in a rural setup, and the outcomes of the surgery were fruitful.



Figure 1: Right eye showing severe contraction of upper and lower fornix

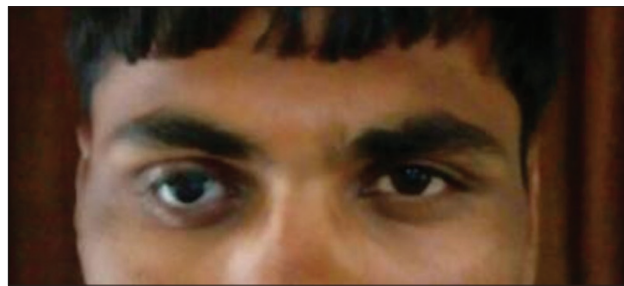


Figure 4: Final outcome where right sided socket is well formed and hold the orbital prosthesis



Figure 2: DFG being placed inside the right eye socket and sutures with surrounding structures



Figure 3: Buccal mucosal graft being harvested

DISCUSSION

An orbital reconstruction involves replacement of an empty contracted socket with an orbital prosthesis.^[3] Implantation of the anophthalmic socket with autologous material reduces the risk of migration or expulsion in artificial prosthesis. The

DFG has an excellent biocompatibility. The DFG has two components: Subcutaneous fat and dermis. The fat restores the orbital volume and dermis provides vascular support for the graft. The epidermis is separated and only the dermis is retained, which increases the graft vascularization and thereby decreases the chances of fat atrophy.^[4]

The use of DFG for orbital reconstruction has been popular since time immemorial due to its easy accessibility from the donor site, cost-effectivity, and less morbidity as it is an autologous graft. The chances for graft rejection are minimal.^[3] In our case, we harvested the DFG from the gluteal region which was approximately 50–55% more than the size of the socket as in a previous study published by Smith *et al.*, it showed that a DFG of < 40% resulted in atrophy.^[5,6] Results seen in a study published by Sihota *et al.* showed that the outcomes were better when the grafts were thicker, whereas a study conducted by Galindo-Ferreiro *et al.* used a graft which was 30% more than the size of the defect.^[3,5,7]

In cases of post enucleation and evisceration, DFG can effectively be used for the primary reconstruction following post-irradiation for secondary reconstruction. However, in cases of compromised orbital vascularity following severe trauma and chemical burns, its use is contraindicated.^[2]

The orbital implants which are placed for maintaining the volume of the defect and also improve the mobility of prosthesis are commonly classified as non-integrated and integrated implants. The non-integrated implants consist of PMMA and silicone implants which are smooth and inert in nature and cause very little host reaction; PMMA being the material of choice among the non-integrated implants; however, no superiority of non-integrated implants over integrated implants was evidenced from the previous studies.^[8,9]

Declaration of patient consent

The authors certify that they have obtained patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other information to be published in the journal. The patients understand that their names and initials will not be disclosed and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

CONCLUSION

Anophthalmic socket reconstruction is a difficult task faced by any oculoplastic surgeon especially in a rural setup with limited resources; however, good cosmetic and functional results can be attained with organized planning and multiple surgeries. The DFG provides orbital enhancement and the buccal mucosal graft provides fornicial support to the orbital implant. The procedure is economical and requires no special handling with minimal chances of rejection.

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