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Case Report

Prosthetic management of Ocular Defect- Case Report

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***ABSTRACT*:**
The eye is an important component of facial expression and an important vital organ. On the psychology of the patient, loss of eye has a crippling effect. Maxillofacial prostheses restore and replace stomatognathic and associated facial structures with artificial substitutes. The objectives of eye prosthesis are to improve the patient esthetics, restore and maintain the health of the remaining associated structures, consequently provide physical and mental well-being. A case of a custom-made ocular acrylic prosthesis is presented with acceptable fit, good retention, and esthetics.

Key words: Defect, Ocular, Prosthetic Tooth

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INTRODUCTION

The eye is a vital organ not only in terms of vision but also being an important component of facial expression. Loss of eye creates a psychological effect on the patient. Hence, prostheses should be provided as soon as possible for the psychological well-being of the patient.[1] The loss or absence of an eye can be caused due to congenital defect, irreparable trauma, tumor, painful blind eye, sympathetic ophthalmia.The current presentation is a review article and a case report of providing the subject with an eye prosthesis.[2]

CASE REPORT

A 26-year-old male patient reported to the Department of Prosthodontics, HP Govt Dental College, Shimla with a chief complaint of facial disfigurement because of a missing right eye since 4 months. The history revealed traumatic injury to the right eye followed by the enucleation of the same. Examination of the eye socket revealed a healthy conjunctiva with no signs of infection or inflammation covering the posterior wall of the anophthalmic socket and showing synchronous movements.

Impression Procedure

An ophthalmic topical anesthesia was applied to increase the comfort of the patient while recording the impression and Vaseline was applies on eye lashes. The direct impression or external impression technique was used with low viscosity alginate (DENSPLY; Haryana) for making the impression of the socket with the help of 5 ml syringe . The impression was evaluated for proper extension and smooth surfaces. Pouring of primary cast was done with dental stone (Kalastone, kalabhai pvt ltd, Mumbai). A spacer with multiple holes was adapted and customized impression tray was fabricated from the autopolymerizing acrylic resin. The approximate pupil location on the resin tray was assessed and a perforation of 3–4 mm diameter hole is made. A 5-ml disposable syringe cap was used for supporting the tray and to carry the final impression material. For final impression, the extension of the tray was checked in the socket and additional silicon light bodied impression material was mixed homogeneously and injected into the socket . Putty consistency material was injected over this so that it get engaged in the holes of special tray. The patient was asked to perform his normal eye movements in all directions to allow the material to

flow into all areas of the enucleated socket as well as on to the tray's outer surface to record lid movements. The patient was instructed to sit erect and asked to stare at a distant spot and instructed to hold his gaze in a straight forward position with eyes open while the impression was being made and all functional movements were done like upward,downward,right and left. After setting the material, it was carefully removed from the socket and evaluated for proper border extension to ensure that all the surfaces were recorded correctly.

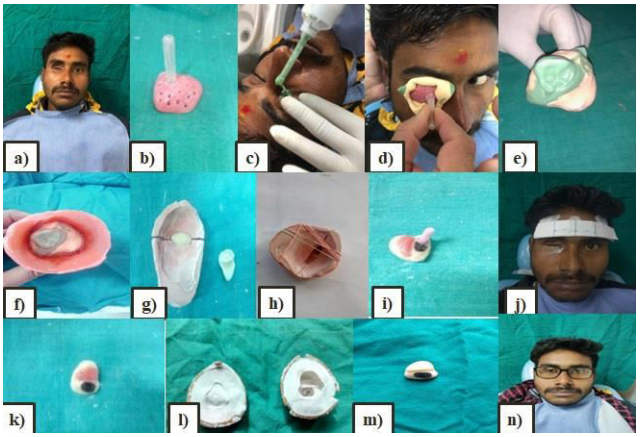

Figure 1: a) Patient front profile, b) Special tray with holes, c) & d) Final impression taken, e) Final impression, f) Boxing done for cast, g) & h) Master cast, i) Wax conformer, j)Try in with help of customized grid, k) Wax conformer finally, l) Flasking done, m) Final eye prosthesis, n) Final prosthesis delivered

Pouring Of Impression After Boxing

Boxing of impression was done and then pouring is done to obtain two piece mould. A two-piece dental stone mold was planned. First, the lower part of impression was poured in Type 4 dental stone. After the stone had set, the four-side indexing was done for proper orientation followed by the application of separating medium on the surface. A second layer was added over it made of Type 4 dental stone

Fabrication And Fitting Of The Sclera Wax Pattern

The wax pattern/conformer was fabricated by pouring the molten ivory wax into the cast. The wax was properly contoured and carved to give it a simulation of the lost eye. Try-in wax pattern was done. The wax pattern was checked for the size, support from tissue .More wax may be added for giving bulk to eye.The position of the iris was located with the help of a millimeter grid placed on the patient's face. The patient was instructed to see at an object at least 3 feet in front and at eye level. The size,shape and configuration of the iris was selected by taking the contralateral eye as an guide.Most closely matching iris (American optical corp.,southbridge ,Mass)was selected from the stock eyes. That iris portion of the stock eye was carefully removed from the scleral shell and fixed on the wax pattern according to the transferred markings and again try-in done .Shade selection for the sclera was done using natural eye as guide.

Flasking -

Small stick of autopolymerizing resin(DPI-self cure,dental products of India) was attached to the iris. Flasking was done taking care that the iris was secured to one counter of the flask and remaining part in the other portion of the flask. Packing was done with the customized heat cure tooth colored acrylic (DPI Mumbai – Shade E). A long curing cycle (9 h at 165°F) was carried out for acrylization.

Characterization and Fabrication of Final Prosthesis

After processing, preserving the split mold,prosthesis was recovered. Then,0.5–1mm of the surface layer of scleral portion was trimmed. Nylon fibrils separated from denture acrylic resin polymer were used to mimic veins. This was covered with clear heat cured clear acrylic resin and was processed and cured in the same mold which was preserved after acrylization. This helps to give life like appearance for the characterization. The prosthesis was finished and polished with the flour of pumice ,

DISCUSSION

The ocular prosthesis is an artificial replacement for the bulb of the eye. Prosthodontist comes into the act of to provide the patient with an artificial eye to overcome the agony of losing an eye after surgeon enucleates eye[3].A multidisciplinary team approach is required to provide an accurate and effective rehabilitation and follow up[4].According to Beumer et al., intimate contact between the ocular prosthesis and the tissue bed is needed to distribute even pressure, so a prefabricated prosthesis should be avoided. Moreover, the voids in the prefabricated prosthesis collect mucus and debris, which can irritate mucosa and act as a potential source of infection, which are minimized in the custom made prosthesis. Hence, we decided to fabricate a custom-made eye prosthesis[5]. Effectiveness often depends on patients presentation, operator experience, materials, and equipment available.

CONCLUSION

The optimum functional and cosmetic results of a custom made ocular prosthesis enhance the patient's rehabilitation to a normal lifestyle.A properly finished and polished custom made prosthesis enhances the patient's confidence and comfort by adaptiveness and natural appearance and also maintains its orientation when the patient performs various eye movements .

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