ALTERNATIVE METHOD TO FABRICATE SPECIAL TRAY FOR CUSTOM OCULAR PROSTHESIS- A CASE REPORT

Pallavi V. Chavan[*],Shetty Thilak B[+],Karishma Talreja[*],Nikita Batra[*]

Department of Prosthodontics,

Manipal College of Dental Sciences,Mangalore-4

Abstract:

Eyes are generally the first feature of the face to be noticed and the presence of a pair of eyes is quite essential to maintain the balance and the aesthetics of the face. The loss of an eye can have a psychologically damaging effect on the patient. Such defects are commonly restored with ocular prosthesis. Ocular prosthesis can be stock or custom-made. Custom made prostheses are more comfortable to the patient but are time consuming and need meticulous impression making. This article explains an easy and time-saving method to fabricate a custom tray in order to make accurate ocular impressions.

Key Words: Custom-made, Ocular prosthesis, Custom tray, Ocular impression

Introduction

Eye is a vital organ not only for function but also from an aesthetic point of view. Defects of eye can be broadly classified into enucleation, evisceration and exenteration.[1] These defects have aesthetic, psychological and physiological impact on the patient. Prosthetic rehabilitation of these defect oftenincludes ocular and orbital prostheses. Acrylic ocular prosthesis can be stock or custom-made. Stock prosthesis are used for interim and post-operative purposes.[2] Custom ocular prosthesis involves impression making of the affected socket and subsequently molding the scleral blank to achieve excellent adaptation with tissues. Custom ocular prosthesis has several advantages like better eyelid movements, reduced incidence of ulceration, improved fit, comfort, improved facial contours, and enhanced aesthetics gained from the control over the size of the iris, pupil and colour of the iris and sclera.[3]The article

presents an alternate technique for fabrication of a chair-side custom-impression tray for ocular prosthesis.

Case Report

A 25-year-old male patient with the chief complaint of poorly fitting artificial eye in the right socket reported to the Department of Prosthodontics. He reported of losing his right eye in a factory accident before 10 years and was wearing the present prosthesis since 3 years. Examination revealed enucleation of right eye with healthy socket mucosa**.(Fig. I)** The socket depth was deemed sufficient to retain a custom made acrylic prosthesis for optimal fit and aesthetics. Petroleum jelly was applied to the eyebrow, eyelashes and skin around the socket to prevent impression material from sticking to them.

PRE-OPERATIVE- ENUCLEATION OF RIGHT EYE

FIG_ II IMPRESSION COMPOUND ADAPTED OVER THE DEFECT

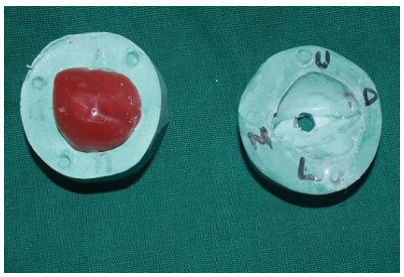
FIG_III SPECIAL TRAY TRIMMED TO CONFINE TO SOCKET PERIPHERIES

FIG_IV IMPRESSION MADE WITH ELASTOMERIC IMPRESSION MATERIAL

To make a chair-side custom tray impression compound was softened in warm water and patient was asked to close his eye. The warm impression compound was adapted over the patient's eye covering the socket externally. **(Fig. II)** It was then progressively trimmed to fit the confines of the socket**. (Fig.III)**

Three holes were made in the tray one to receive syringe nozzle and two for excess material to flow out. Light body polyvinyl siloxane impression material was mixed and loaded in a 10-ml plastic disposable syringe.Impression material was slowly injected into the socket**. (Fig.IV)**The impression was carefully removed from the socket and checked for any air bubbles.

The impression was separated from syringe and invested in type III gypsum stone to make a two-part mould. Molten wax was poured in this mould to obtain scleral wax pattern. (Fig.V)It was tried in the patient and checked for proper contour and retention while performing various eye movements. For iris positioning the patient was asked to maintain a straight gaze at an object kept 4 feet away.(Fig.VI) Shade was selected as per opposite side sclera.Flasking was done in a two-part metal flask followed by dewaxing, packing and curing. The retrieved prosthesis was trimmed, polished and inserted. (Fig.VII)



FIG_V WAX PATTERN MADE IN TWO PART MOLD

FIG_VI IRIS POSITIONING

FIG_VII INSERTION OF CUSTOM OCULAR PROSTHESIS

Prior to insertion of the finished prosthesis, it was disinfected using 70% isopropyl alcohol and 0.5% chlorhexidine solution. After thoroughly cleaning the prosthesis with saline solution to prevent chemical irritation, it was inserted and checked for fit, contour, and movements.

Discussion

Ocular impressions can be categorized as follows: direct impression/external impression, impression with stock ocular tray or modified stock ocular tray, impression with custom ocular tray, impression using stock ocular prosthesis, ocular prosthesis modification, and wax scleral blank technique.[4] Although custom tray and stock tray methods are efficient in impression making they require increased chair-side time and patient appointments. The method explained in this article combines benefits of both these techniques. The custom tray is made chair side in the same appointment without added laboratory steps which makes this a faster and easier method.

Loss of eye has functional, aesthetic and psychological impact on the patient[5]. Rehabilitation of such defects with ocular prosthesis can improve his/her physiological and psychological well-being. An ocular prosthesis should replicate correct gaze, shape, and colour of the natural eye.[6] It should prevent collapse or loss of the shape of the lids, accumulation of fluid in the cavity and provides proper muscular action of the lids.[7]A well-fabricated prosthesis not only restores function and aesthetics but also restore patient's self-confidence and psychological health.

Conclusion

Fabrication of a well-adapted custom prosthesis starts with a good impression. The technique described in this article provides fast and efficient way to fabricate a chair-side custom tray which will help in making an acceptable impression.

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Corresponding Author

Pallavi Chavan

Address: Brighton Manor, Balmatta Road, Mangalore, Karnataka

Phone no. +91 9902283430

Email: pvchavan1991@gmail.com