Case Report
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Prosthetic Approach for a Patient with an Ocular Defect: A Case Report

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Abstract

A 48 year old physically fit female patient was reported to Department of Prosthodontics with missing right eye. The patient gave a history of infection in the right eye leading to its surgical removal. A custom made artificial eye prosthesis was planned. On clinical examination, the defect site showed no pain and discomfort however, the orbital mucosa of orbit was shrunken.

Keywords: Ocular Defect, Ocular Prosthesis, Rehabilitation, Light Body Elastomeric Material, Direct Impression Technique

1. Key Message

Eyes hold the significance of vision. Various impression techniques used to record tissue in the past showed difficulty in contouring the palpebral conjunctiva resulting in improper fitting and esthetics of prosthesis[1]. In this article direct impression technique was performed to record and fabricate ocular prosthesis.

2. Introduction

Ocular prosthesis is defined as an artificial replacement for the bulb of the eye. Orbital cavity contains eyeball and ocular muscles attached to it. Different etiological factors for the loss or absence of an eye are: by birth defect, injury, tumor, or surgical removal. Loss of center organ of body causes psychological and social impact on the patient[2]. Maxillofacial prosthetics is one such branch, which improve the patient's appearance by replacing lost facial structures with artificial substitutes, and thus helps enhancing the general well−being of the patient[3].

Prosthetic treatment approach can be either by stock ocular prosthesis or custom made ocular prosthesis. A Custom-made ocular prostheses are a better choice when compared to a stock or prefabricated ones because of several advantages mentioned as-better movement of eye lids, distribution of pressure, enhanced fit, comfortable, adaptation improved facial contours, and enhanced aesthetics[4].

In the present case direct impression technique was used which recorded both the tissue surface and the palpebral surface in a single step, using light bodied poly vinyl siloxane elastomeric impression material. This technique also enables us to record the defect boundaries in a physiological and functional state allowing the final prosthesis to move according to the retained ocular movements of the patient making it functionally and esthetically acceptable.

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3. Case Report

A 48 year old physically fit female patient was reported to Department of Prosthodontics, K D Dental College and Hospital, Mathura, with a defect in the right eye. The patient gave a history of surgical removal to treat septicemia (Figure 1) Patient was having a prefabricated eye shell since 16 months which was oversized and restricts complete closure of the eye. Hence, the patient was seeking replacement of the same. On clinical examination, the defect site showed no pain and discomfort however, the orbital mucosa of orbit was shrunken. Our treatment plan was to restore the defect with a- custom made acrylic ocular prosthesis fabricated by using the direct impression technique.

Material used to make impression of the defect was Light body polyvinyl siloxane impression material (Aquasil Ultra; Dentsply, India). Its property of uniform viscosity, mix ability and better moldability makes it the material of choice. Eyebrows, eyelashes and skin were greased with soft paraffin lubricant to prevent sticking of impression material. A syringe without needle was loaded with impression material and was introduced directly into the socket without using any pre-fabricated tray (Figure 2). This procedure of direct impression technique help to overcome the interferences experienced during closure of lids while recording impression.



Figure 1. Patient with right ocular defect.

After the impression had set hard it was removed from the defect by putting slight oblique pressure towards outside. The recorded impression was examined carefully for details and absence of porosity. The impression was poured in dental stone (Ultrarock, India.) by using split cast technique to create mold cavity (Figure 3).

After this, wax pattern fabrication was done by adding molten wax into the stone mold. The wax conformer was properly outline to replicate natural eye and was checked in patient's socket for proper support, contour, retention, comfort, and extension. Iris position determination was done by using modified eye glass. The distance from corneal limbus to the respective medial and lateral canthus of the natural eye was measured and marked on the eye glass. Later, this same measurements were transferred to the defect eye side and iris position was located (Figure 4). Next, a second try in was done using wax pattern with selected iris button (Figure 5).



Figure 2. Direct impression technique.

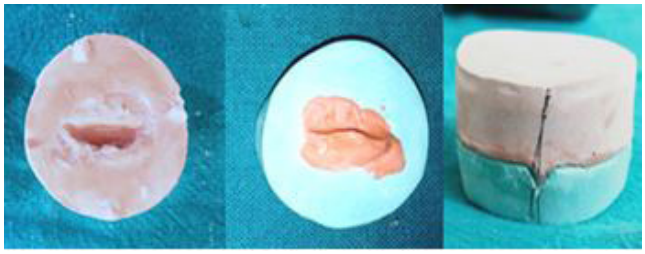


Figure 3. Stone mold with impression.



Figure 4. Iris positioning.



Figure 5. Final wax try in with iris button.



Figure 6. Before and after Ocular prosthesis insertion.

After the wax trial, processing of pattern with iris button was done using heat cure acrylic resin, the shade of which matches the sclera of natural eye. Natural look effect of prosthesis effect was enhanced by applying a coat of clear acrylic resin during processing. Final finishing and polishing of prosthesis was done before inserting into patient's eye. Post-op handling instructions of ocular prosthesis were explained to the patient. (Figure 6)[5].

4. Discussion

Orbital prosthesis help in overcoming psychological and socio-mental impact by artificial eye replacement. Use of custom tray helps in getting a more aesthetically and functionally acceptable prosthesis. However, use of stock eye can't be neglected. Present article describes, direct impression technique with light body polyvinyl siloxane material to accurately record defect space without any interference[1]. Use of proper shade of heat cure acrylic resin (DPI), for sclera give the prosthesis more natural like appearance.

5. Conclusion

The main aim of any prosthesis is advancement of patient to society with normal orientation. Any disfigurement from loss of eye can cause psychological impact on patient. Ocular prosthesis can be used effectively to rehabilitate such defects. Thus, increasing self confidence in the patient.

6. References

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