

A Case Report

Prosthetic Rehabilitation of Post Enucleation Ocular Defect Using Customized Esthetic Prostheses

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Abstract

The loss of an eye or a disfigured eye can profoundly affect a person's mental and social life.⁽¹⁾ Custom-made ocular prostheses are preferred over prefabricated stock eye shells because they provide intimate contact with the tissue bed, ensuring an ideal fit.^(2,3) This clinical report describes the rehabilitation of post-enucleation ocular defect using custom-made acrylic eye prostheses with acceptable fit, retention and esthetics.

Case Presentation

A 67-year-old male patient reported to the department with chief complaint of facial disfigurement due to missing right eye. History revealed iris and ciliary body melanoma of right eye, followed by enucleation of the same four months ago. Examination of the eye socket revealed a healthy conjunctiva with no signs of infection or inflammation. Patient was using a conformer. A semi customized ocular prosthesis with stock iris and custom made sclera, followed by characterization was planned for the patient.

Technique

Custom tray fabrication:

Putty was adapted to the intaglio surface of the conformer that served as a scaffold for the tray. Tray was fabricated using auto poly merizing acrylic resin (DPI, India). Relief holes were created and custom tray was attached to disposable syringe to act as medium to transfer material into the defect (Figure 1a)

Impression:

Petroleum jelly was applied on eyelashes and surrounding areas. Light body poly vinyl siloxane was loaded in syringe and slowly injected into the defect. To record the functional borders, patient was asked to perform medial, lateral, superior, inferior and rotational eye movements (Figure 1b).

Wax pattern fabrication and try-in:

Impression was invested in alginate in disposable cup. Impression was cut and molten wax was poured into the mould and after cooling wax pattern was removed. (Figure 4). Contours of pattern were altered till he was comfortable in both open and closed positions of the eyelids (Figure 5).

Selection and Iris centering:

The size, shade, and con-figuration of the iris were selected by using the contra lateral natural eye as a guide. Scleral part of the stock eye was trimmed off using an acrylic trimmer to retrieve iris part. A customized scale with graph grid was used for iris centering. Stock iris button was placed in pattern in desired position (Figure 2a and 2b)

Flasking & packing of wax pattern:

Cold cure handle was attached to iris button before flasking, to secure its position during processing of prosthesis in tooth coloured heat cure acrylic resin (DPI, India) (Figure 3).

After finishing prosthesis was tried in patient and all the contours were verified and analysed for any areas that required any adjustment.

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Characterization:

A digital photograph was taken of the patient left eye to act as guide for characterization. Three ceramic stains lemon (E03, Ivoclar), Basic Red (e21, Ivoclar) And Blue (es 11, Vita) were used with bonding agent as solvent and light cured. Red micro pen (Pigma, micron 005) was used to simulate blood vessels. Two layers of optiglazeclear (GC, America) was applied and light

cured to give smooth glass like appearance.(Figure 4a)

Final ocular prosthesis was inserted into the socket and evaluated for fit, esthetics, and the coordinated movements with the contra lateral eye (Figure 4b). Patient was advised to remove ocular prosthesis during night and be soak it in an antibacterial solution before using daily.⁽⁴⁾

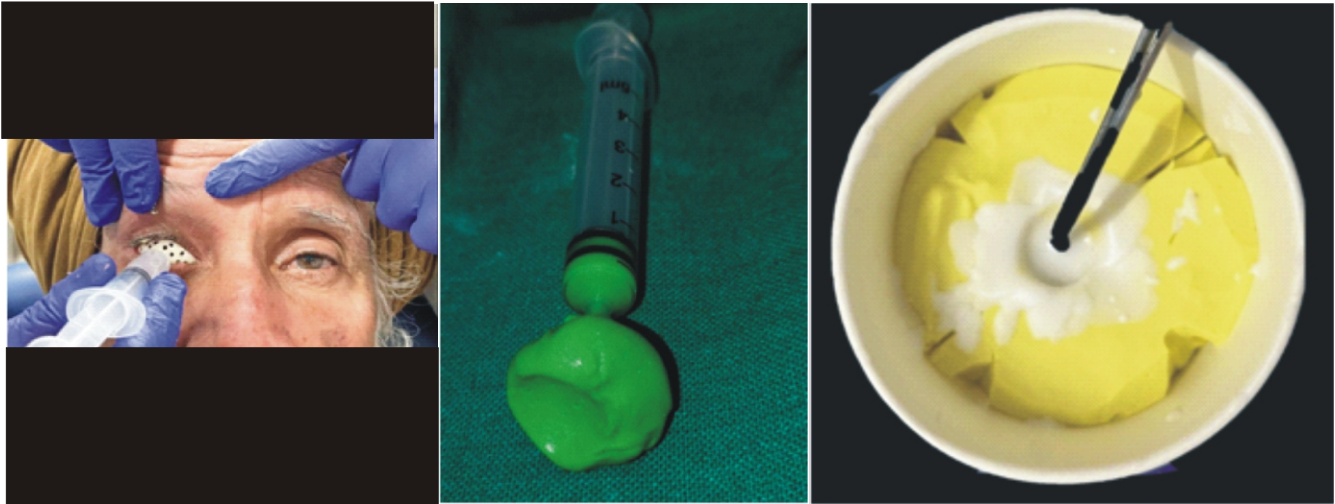


Figure 1: a) Customtray try-in b) Impression of ocular defect c) Preparation of ocular wax pattern

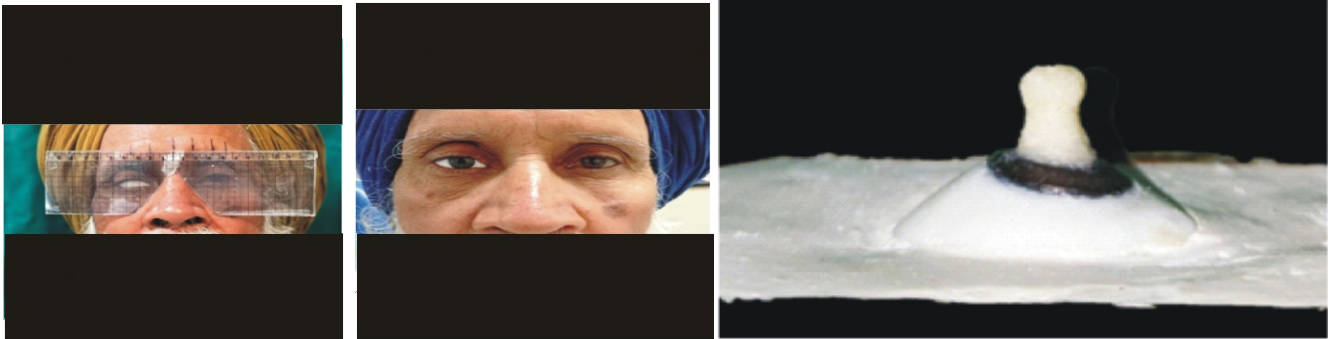


Figure 2: a) Iris centring b) and try -in

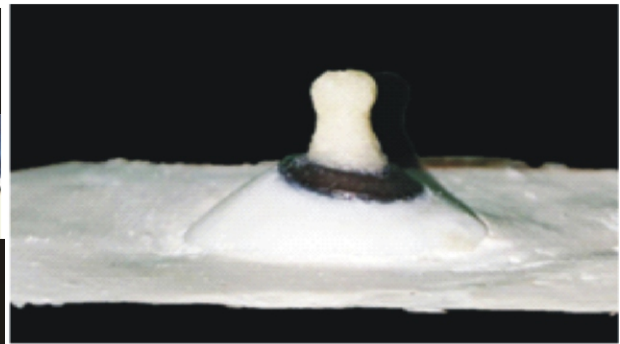


Figure 3: Handle attached to iris button

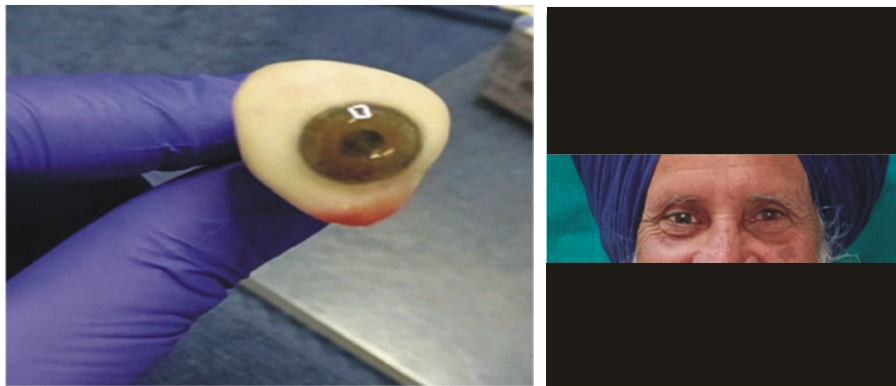


Figure 4: Ocular prosthesis after characterization and post-insertion photograph

Discussion

Customized ocular prostheses have the advantages over stock eyes, like, better contouring, colour matching, and coordinated movements with the contra lateral eye. Customizing the iris demands extra skill and time from the operator. It can be avoided by selecting the stock iris that closely resembles the patient's natural eye and can be characterized accordingly. In this technique, ceramic stains, bonding agent and optiglaze were used for characterization. To simulate red vessels, instead of threads micro nib pen was used to avoid the irregularities caused by threads on the surface of prosthesis. Use of optiglaze helps to avoid dual curing of the prosthesis, prevents the seepage of colours and gives a smooth surface.

Conclusion

This technique reduces laboratory and clinical time and provides a satisfactory result for the indicated patients.

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