

Simple Way to Achieve Esthetics of Customized Ocular Prosthesis - A Case Report

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ABSTRACT

Rehabilitation of ocular defect is a challenge to the maxillofacial Prosthodontist due to limited material properties. Ocular prosthesis is important component in facial expression. As superoinferior and mediolateral dimensions of ocular prosthesis can be determined easily. But it is difficult to achieve the anterioposterior positioning of the prosthesis to get proper esthetics. The technique used to treat the patient to achieve proper anterioposterior dimension and 3D positioning of the prosthesis is essential. This technique reduces chairside time of operator as well as patient. Prosthetic reconstruction helps in raising the morale of the patient. This article aims to highlight the simplest procedure for esthetics of ocular prosthesis.

KEYWORDS

Ocular defect; Iris; Esthetics

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 has a crippling effect on the psychology of the patient [1]. Removal of this organ either due to tumors, trauma or any other condition not only causes loss of function but also unaesthetic look or has a psychological effect on the patient. Depending on the situation, surgical management may include [2].

A female patient aged 60-year-old reported to the Department of Prosthodontics, Bharati Vidyapeeth Dental College and Hospital; Sangli, with complaint of inability to chew and unesthetic look.

CASE HISTORY

History reveals that patient had lost her eye because of accidental trauma to the left eye and the eye had to be enucleated (Figure 1). She had ocular prosthesis which was not centered causing shift of iris laterally and not properly contoured (Figure 2). It was decided that a custom-made ocular prosthesis to enhance the esthetics and confidence of the patient.

PROCEDURE

Treatment was planned after careful examination of the area of the defect. Patient was explained about the procedure and its limitations. Informed consent was obtained from her and treatment was planned.

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Figure 1: Enucleated eye.



Figure 2: Previous prosthesis.



Figure 3: Primary impression.



Figure 4: Tray fabricated on spacer.

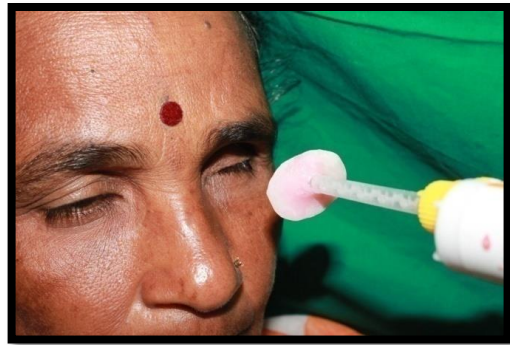


Figure 5: Incorporation of dispenser tip.



Figure 6: Final impression.



Figure 7 & Figure 8: Split cast technique.



Figure 9 & Figure 10: Wax pattern try.



Figure 11 & Figure 12: Centering of eye shell.



Figure 13: Positing on cast.



Figure 14: T - shaped acrylic extension.



Figure 15: After dewaxing eye shell embedded in determined position.



Figure 16: Ocular prosthesis with vein application.



Figure 17: Insertion of ocular prosthesis. (Written consent obtained from the patient for publishing the photographs in compliance with the publication policy).



Figure 18: Before and after.

Petroleum jelly was applied to the eyebrows and eyelashes for the ease of impression removal. The Rubber base impression material with light body consistency (polyvinylsiloxane elastomeric impression material) (3M ESPE Express TMXT Light Body VPS Impression material 3M Deutschland Gmb H, Dental Products, Germany) used for impression making of eye socket [3]. The impression material was slowly injected into the socket taking care it should not hurt to patient and avoid any air bubbles entrapment. The patient was instructed how to make various eye movements so as to get functional impression of the muscular bed. The material was dispensed along with dispenser tip which is help to hold it in place and for ease of removal after it sets. It was carefully retrieved from the socket after

material was set (Figure 3). This was primary impression which was poured with type IV dental stone (Pearl Stone, Die Stone Class IV, Asian chemicals, Veraval Industrial area, Rajkot, Gujarat, India); spacer wax was applied on it. Clear acrylic (DPI Cold Cure Acrylic material, Dental Products of India, Mumbai, India) tray fabricated on spacer along with incorporation of dispenser tip in it (Figure 4 & Figure 5). The impression of the socket was taken with the rubber base impression material of light body consistency. The impression material was slowly injected into the socket taking care to avoid any air bubbles entrapped. The patient was instructed to make various eye movements so as to get functional impression of the muscular bed. In final impression because of tray impression was hold properly (Figure 6). This final impression was poured with type IV dental stone and embedded in plastic container. On the first pour triangular notches were prepared for reorientation of split cast (Figure 7 & Figure 8). Separating media was applied on the surface after setting of die stone. Then a second layer was poured with type III dental stone. The wax pattern was fabricated by pouring the molten wax (MAARC, Shiva products, Thane, Maharashtra, India) into the impression [4]. The wax was properly counterered and carved to give it a simulation of lost eye (Figure 9). Try in of the wax pattern was done. Petroleum jelly applied to wax pattern to avoid irritation to the tissues. The wax pattern was checked for the size and support from tissue simulation of eye movement and eyelid coverage. Wax pattern was carved according to esthetics. Next three points were marked; one according to facial midline and two on equidistance to facial midline which simulate the center of eye. These equidistance markings were directly transferred to wax pattern which was inserted in eye socket (Figure 10). Plaster pumice was added to the counter flask to stabilize anteroposterior dimension of prosthesis. As super inferior and mediolateral dimensions were already determined, by this technique we can orient the anteroposterior dimension so

that 3D positioning can be achieved. A prefabricated eye shell was matched with the contra lateral eye, was selected. An eye shell was reposition according to centering markings. The final try in was done keeping the iris in its centering position (Figure 11 & Figure 12). Flasking was done. The eye shell was secured to one counter of the flask (Figure 13). 'T' shaped acrylic extension was applied to center of iris to secured proper centering and remaining part in the other portion of flask. Dewaxing was carried out. Acrylic extension with eye shell was locked into counter part of flask (Figure 14). Flask was cleaned properly to remove all remaining wax and left open until it achieved room temperature. Then separating medium was applied to both parts. Packing was done with the selected heat cure clear. Apply the red color fibers dipped in monomer at medial and lateral canthus (Bredent, GmbH & Co. KG. Senden, Germany) to simulate the blood vessels.⁵ Acrylization was carried out by using slow curing cycle after curing the prosthesis was removed and extension was cut off. Finishing was done and polishing was done using pumice powder (Figure 15). Then properly checked for any remaining roughness and after conformation ocular prosthesis was ready for insertion (Figure 16).

DISCUSSION

Ocular prosthesis is an artificial substitute for bulb of an eye. Maxillofacial Prosthodontics has leading role in

rehabilitation after enunciation of eye. Loss of an eye occurred because of various reasons [1].

Patient required treatments with custom made prosthesis are those who lost their eye because of orbital evisceration or orbital enucleation. There are different techniques are available i.e. using different oven, different processing operation and different methods. These techniques are essential for matching patient's ocular prosthesis to contra lateral natural eye. Success of these kind of treatment requires skill, experience and thorough knowledge.

Prosthetic rehabilitation classified the defect into orbital and ocular prosthesis. A well-made prosthesis is maintaining its position during functional movement and boost patient's confidence. Maxillofacial implant is better choice but it's not possible and feasible always.

Most patients benefit from custom made ocular prosthesis that is modified to the individual needs. This approach is more time consuming but the esthetic and functional results are better with this technique [6].

CONCLUSION

The custom made prosthesis is godsend to patients those who have no opportunity for maxillofacial implants. As we discussed proper centering of ocular prosthesis during functional movements enhances the esthetics. So this prosthesis builds confidence. Though there is dark they have spark of confidence.

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