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Case Report

Orbital Prosthesis – A Case Report

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Abstract

For the patient's cosmetic and psychological recovery, an orbital prosthesis is a good option to surgical reconstruction. It needs to be attractive, robust, lightweight, affordable, and most crucially, retentive. A case of orbital damage that required surgery and was then followed by orbital exenteration has been detailed in a clinical report with an explanation of prosthetic rehabilitation. The patient's psychological and mental health were intended to be improved as well as their appearance, thanks to the orbital prosthesis. The procedures used and the addition of the patient's own hair to the eyelashes significantly improved the esthetics. The purpose of the orbital prosthesis was to improve the patient's psychological and mental health while restoring his or her esthetics.

Key words: Eye prosthesis, Maxillofacial prosthesis, Orbital exenteration, Prosthetic eye

INTRODUCTION

The primary organ of sight is the eye. They play a crucial part in facial expression as well.[1] Loss of an eye or a disfigured eye has a far-reaching impact on an individual's psyche. In addition, it affects one's social and professional life.[2] The loss or absence of an eye may result from a congenital defect, irreparable trauma, a painful blind eye, sympathetic ophthalmia, or the need for histologic confirmation of a suspected diagnosis.[3]

Rehabilitation of various maxillofacial defects is a time-consuming, complex, and overwhelming task requiring a patient-specific design and technique. Human face disfigurement involving loss of an eye enhances physical and emotional challenges.[4] The surgeon frequently performs extreme surgeries, such as orbital exenteration, to treat malignancies or chronic, progressive disorders that do not respond to any form of conservative therapy.[5] The associated psychological effect of these defects on the patient requires immediate management and rehabilitation intervention by a team of specialists.[6]

An orbital prosthesis is a potentially cost-effective and conservative substitute for surgical restoration for the patient's emotional and esthetic recovery as well as for the preservation of the orbital cavity. Therapy planning and therapy selection are influenced by the patient's post-operative status as well as social and economic circumstances.[7] Ocular prosthesis may be either readymade (stock) or custom made. Fabrication of a custom ocular prosthesis allows for a range of variations during construction.[8]

An orbital prosthesis should have good esthetics, be durable, lightweight, affordable, and most significantly, be retentive. The type of fabrication material and retention depends on the patient's cosmetic requirements, the size and extent of the defect, the type of lifestyle, the financial situation, etc.[9] The custom-made ocular prostheses achieved intimate contact with the tissue bed enabling an ideal fit.[10]

Polysiloxane, room-temperature vulcanized (RTV) silicones, high-temperature vulcanized silicones, silphenylenes, chlorinated polyethylene, polyvinyl chloride, and polyurethane are examples of recent materials. RTV silicones are the materials that are utilized the most frequently.[9]

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Figure 1: Extraoral photographs

CASE REPORT

A 42yr old female-year-old female patient reported in the Department of Prosthodontics and Maxillofacial Prosthetics, Dr. HSRSM Dental College and Hospital, Hingoli, Maharashtra, with a chief complaint for the rehabilitation of her left eye which had been resected *en bloc* because of trauma and subsequent persistent infection. Examination showed a completely healed ocular socket. There was no pain or discomfort in the defect region. Definite bony undercuts were found on the superior and inferior borders of the socket which ultimately aided in retention of the prosthesis.

A master impression of the defect and non-defect side was made once the patient was at ease and sitting comfortably in an upright position, the impression extending 3 cm beyond the desired eventual prosthesis borders, which were defined before making the impression. Petroleum jelly was used as a lubricant for the eyebrow and for the anophthalmic socket after careful inspection, and the iris and pupil diameters on the unimpaired side were measured using a pair of vernier calipers.

Step 1

Extraoral photographs of the patient were taken in frontal left and right lateral views (Figure 1).

Step 2

Preliminary impression was made with alginate and plaster of the anophthalmic region (Figures 2-4).

Step 3

Cast was fabricated; later, fabrication of the wax pattern was made on the cast with proper orientation (Figure 5).

Step 4

The wax pattern along with the eye shell was checked in the patient's site. Proper measurements were made using the graphic tracers (Figures 6-9).

Figure 2: Primary impression made with alginate

Figure 3: Primary impression made with alginate

Figure 4: Primary impression made with alginate

Step 5

A final impression of the anophthalmic site was made with the elastomeric impression materials (Figures 10-13).

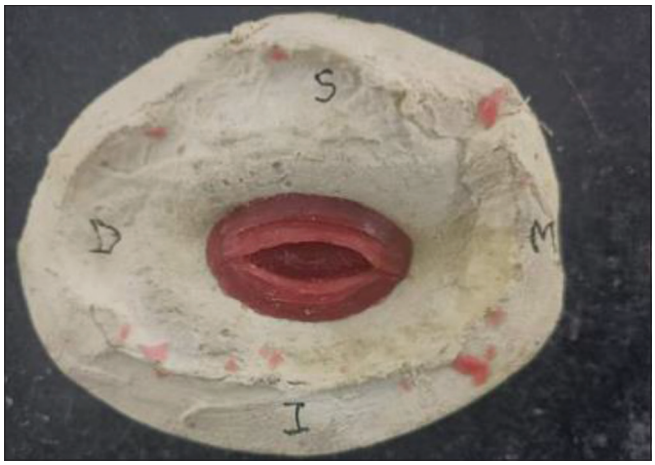

Figure 5: Primary cast with waxup

Figure 6: Wax trail in position

Figure 7: Iris positioning

Figure 8: Frontal view iris positioning in patient

Figure 9: Lateral view

Figure 10: Final impression with light body and putty

A master cast was obtained with orientation (Figure 14).

Step 6

Dewaxing was done with the help of eye shell stabilizer followed by proper shade matching with the help of stains mixed in silicone material and was made of the patient's skin tone with the help of the neighboring eye taken as a guide (Figures 15-18).

Figure 11: Final impression with light body and putty

Figure 12: Final impression with light body and putty

Figure 13: Final impression on removal

Step 7

After the complete set of the material, the prosthesis was taken out of the mold. False eyelashes were attached to the prosthesis (Figures 19 and 20).

Figure 14: Iris positioning on cast

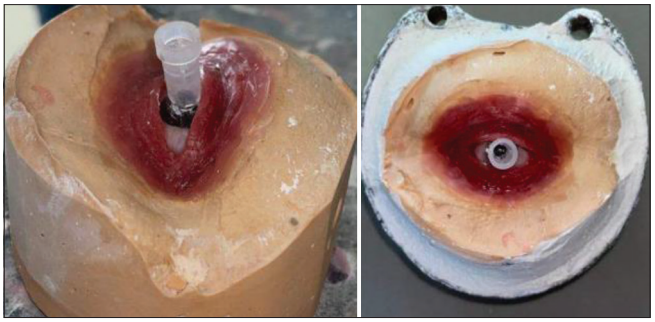

Figure 15: Flasking

Figure 16: Dewaxing

Step 8

The prosthesis was then tried in the patient (Figures 21 and 22).

An appropriate eyeglass frame was selected to mask the margins of the prosthesis (Figure 23).

The pre and post-operative photographs of the patient were recorded (Figures 24 and 25).

Home care instructions were given. The patient was instructed home care of the prosthesis, cleaning with soap

Figure 17: Packing

Figure 18: Packing

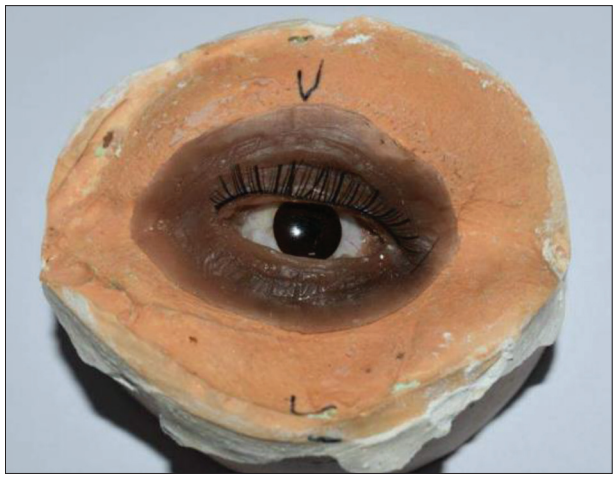

Figure 19: Final prosthesis

and warm water once per day. Removing the prosthesis during sleep and keeping it in a refrigerator at night to prolong the life span of the silicone should be advised. The patient was asked to report on a 6 monthly to yearly basis for evaluation of the prosthesis condition.

Figure 20: Final prosthesis

Figure 21: Final prosthesis lateral view

Figure 22: Final prosthesis frontal view

DISCUSSION AND CONCLUSION

Following surgical removal of an organ, prosthetic rehabilitation is the preferred course of care for individuals with a significant facial deformity of the maxillary-orbital complex. If a split-thickness graft is used to fill the deficiency, the prosthesis will be more tolerable and retain its shape better.

Figure 23: Final prosthesis frontal view

Figure 25: Final Prosthesis photograph

Figure 24: Pre-prosthetic photograph

A practitioner can treat a patient who needs a personalized ocular prosthesis using a variety of effective ways. Conventionally retained orbital prostheses are useful, trouble-free, cost-effective, and successful, even though implant-retained ocular prosthesis plays a significant part in the success of treatment. Utilizing adhesive, securing the prosthesis to eyeglasses, or cutting into both hard and soft tissue can help keep the device in place.

The silicone eye prosthesis offered the benefits of being lightweight, having superior esthetics than acrylic prosthetics, and having a realistic look. However, as the prosthesis obtains retention through anatomic undercut, the application of adhesive was not necessary. As a result, the likelihood of an allergic reaction to adhesives was reduced in this instance because more tissue came into contact with the prosthesis.

The use of spectacle was optional for the patient but it was not used specifically as the method of retention for the present patient as he was comfortable with the prosthesis.

The fabrication of the maxillofacial prosthesis is a labor-intensive, artistic process that takes time. Successful prosthetic rehabilitation depends on having a maxillofacial prosthesis that is well-retained, simple to use, and detachable.

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