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CASE REPORT

Esthetic Rehabilitation of an Orbital Defect Secondary to Surgical Management of Rhabdomyosarcoma

[1]Vinay N Wadhwa, [2]KV Arun Kumar, [3]Virender S Legha, [4]Dinesh K Saini, [5]Pramod K Chahar, [6]Abir Sarkar

ABSTRACT

Rehabilitation of facial defects is an exigent task for the prosthodontist requiring an innovative design and technique for each patient. The disfigurement associated with the loss of an eye may result in significant physical and emotional problems. The placement of an artificial prosthesis serves a great psychological, social, and cosmetic benefit to the patient. The present article describes a straightforward technique for the fabrication of a silicone orbital prosthesis retained using spectacle in a patient who had undergone exenteration of the right eye due to rhabdomyosarcoma.

Keywords: Orbital defect, Rhabdomyosarcoma, Silicone prosthesis, Spectacle retained.

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INTRODUCTION

The disfigurement associated with the loss of an eye can cause significant physical and emotional trauma. It may result from trauma, tumor, or an infection.[1] When the entire contents of the orbit (including muscles fascia, eyelids, conjunctiva, and the lacrimal apparatus) are removed, the defect is referred to as an orbital defect.[2] The constructed prosthesis must replicate the anatomy so accurately that the prosthesis is unnoticed on casual glance. This article describes a straightforward method for fabrication of a silicone orbital prosthesis.

CASE REPORT

A 20-year-old female patient was referred to the Division of Prosthodontics for the fabrication of an orbital prosthesis. After being diagnosed with rhabdomyosarcoma of right eye 10 years back, she underwent right orbit exenteration. The patient had received no radiotherapy after her primary surgery and the site had healed well with no complications (Fig. 1). At the initial consultation, possible treatment options, such as implant retained, magnet-, adhesive-, or spectacle-retained silicone prosthesis were discussed with her. However, due to financial constraints, a spectacle-retained orbital prosthesis was planned.

Fig. 1: Orbital defect

Facial moulage was made using irreversible hydrocolloid material backed with dental plaster and the impression was poured using dental stone for better surface details and strength (Fig. 2).

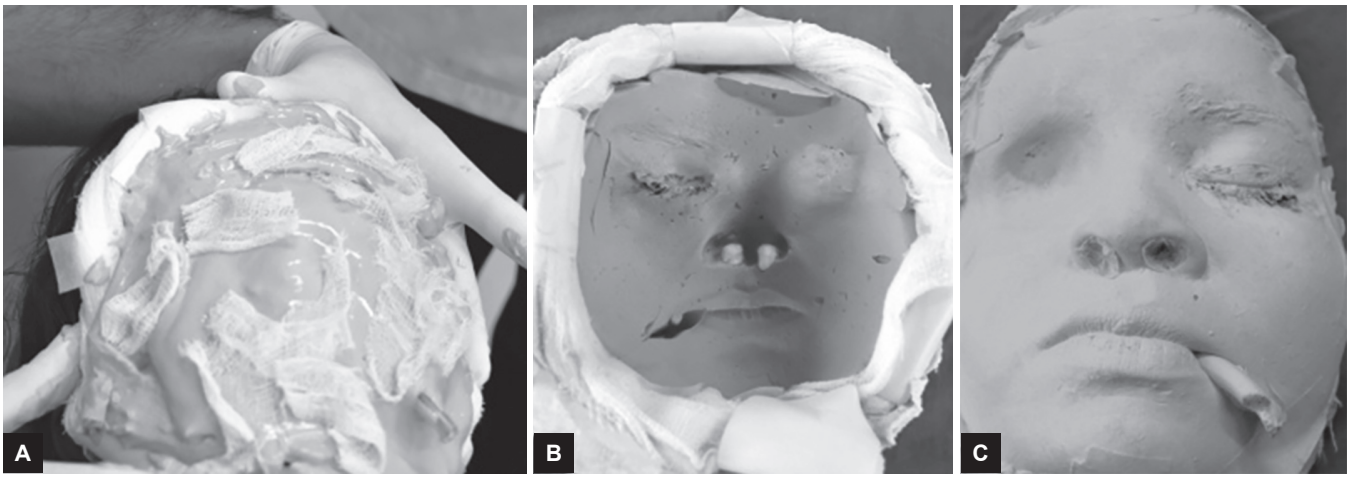
An acrylic shim was made on the moulage to facilitate the attachment of silicone prosthesis to the eyeglass frames. The patient was asked to fix her gaze at a distant object, and markings were made from the facial midline to the center of the pupil and from the inner canthus of the eye to the nasal bridge. These markings were transferred onto the moulage to help in positioning of the ocular portion of the orbital prosthesis. A stock ocular prosthesis that closely matched the color, size, and shape of the iris and sclera of the normal eye was selected (Fig. 3).

The wax pattern was sculpted using modeling wax. With the selected stock eye embedded into the wax pattern, vertical, horizontal, and anteroposterior positions of the pattern were evaluated and verified on the patient. Following few adjustments, the wax pattern was flasked (Fig. 4).

[1,5,6]Resident, [2,3]Reader, [4]Associate Professor

[1-6]Department of Prosthodontics, Armed Forces Medical College, Pune, Maharashtra, India

Corresponding Author: Vinay N Wadhwa, Resident Department of Prosthodontics, Armed Forces Medical College Pune, Maharashtra, India, Phone: +919820699032, e-mail: vnw2312@gmail.com



Figs 2A to C: (A and B) Impression made with irreversible hydrocolloid; and (C) facial moulage

Fig. 3: Selection of iris

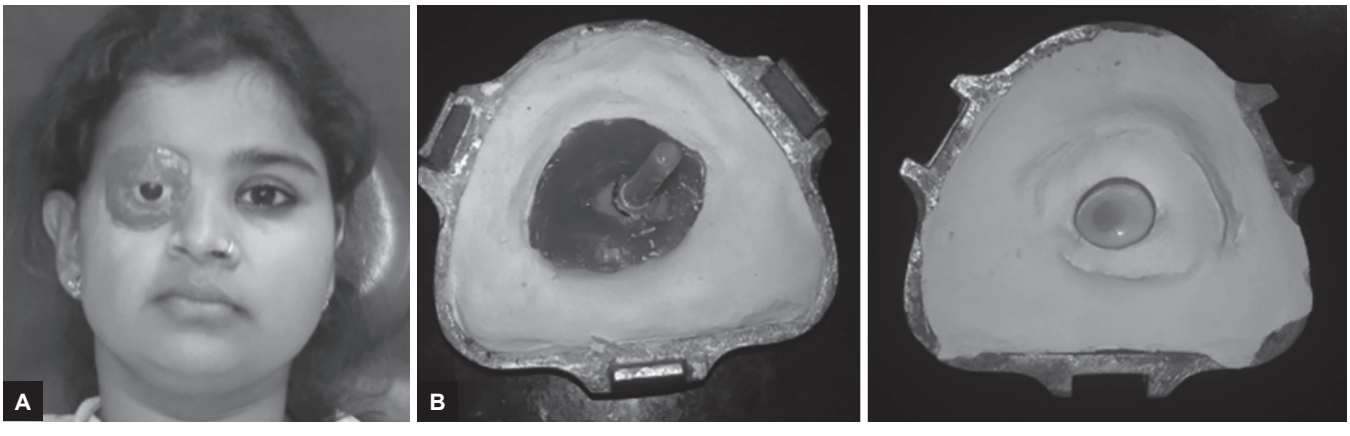
Room temperature vulcanizing medical-grade silicone material was mixed with pigments according to manufacturer's instructions to match the skin shade of the patient. After shade matching, silicone was packed into the mold and bench cured for 24 hours. Following polymerization, the prosthesis was retrieved and finished. Patient's hair was luted over the eyebrow area and upper and lower eyelids of the silicone prosthesis. The eyeglass frame was selected to camouflage the borders of the prosthesis and attached to the acrylic shim with the help of cyanoacrylate adhesive resin (Fig. 5). The patient expressed satisfaction with the definitive result.

DISCUSSION

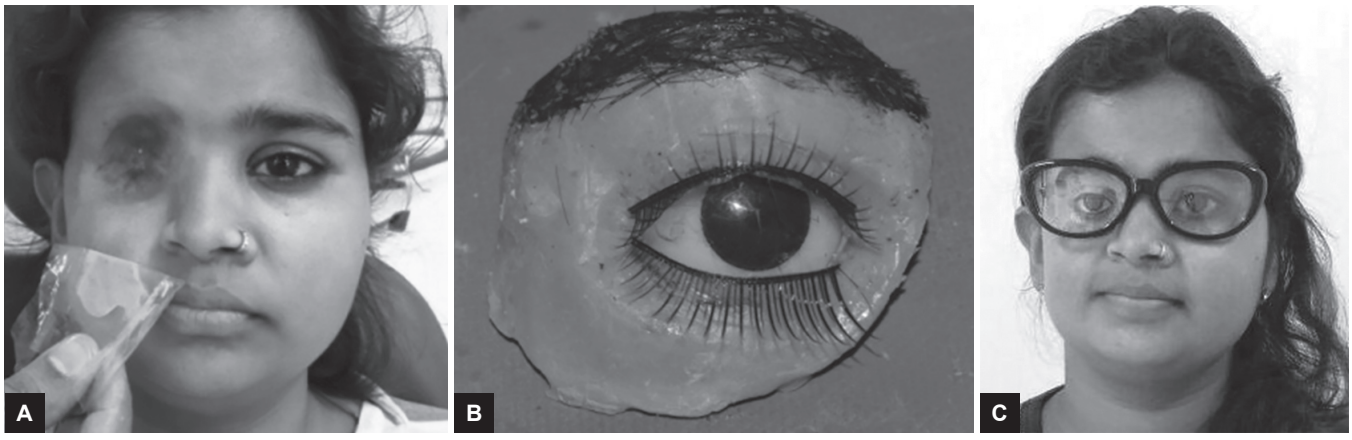
Gaspare Tagliacozzi (1545–1599), an Italian reconstructive surgeon once stated, "We restore parts of the face which nature has given but which fortune has taken away, not so much that they may delight the eyes, but that they may bring up the spirit and help the mind of the afflicted."

Exenteration is a surgical procedure that involves the removal of the entire contents of the orbit. Orbital prosthesis presents a viable alternative when esthetic needs are beyond the reach of local reconstructive procedures.[3] Since silicone has better marginal adaptation and lifelike appearance than acrylic, it has been used in this case for the fabrication of orbital prostheses.[4]

The conventional method to retain orbital prostheses is the eyeglass frames and anatomic retentive undercuts.[5] Although osseointegrated implants provide reliable



Figs 4A and B: (A) Wax pattern try-in; (B) flasking and dewaxing



Figs 5A to C: (A) Silicone shade matching; (B) final prosthesis; and (C) posttreatment

prosthesis retention, expense, inadequate bone, and prior radiation to the area may limit this type of treatment.[6] Also, continual use of adhesives may cause an allergic response or irritation.[7] Spectacle-retained orbital prostheses are practical, cost-efficient, and successful. The silicone prosthesis has the advantage of being lighter in weight and has an esthetic lifelike appearance than acrylic.

CONCLUSION

Loss of an eye can severely affect a person in terms of function, esthetics, and psychological trauma. A well-retained, user-friendly, orbital prosthesis is the key to successful prosthetic rehabilitation in such cases.

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