

## CASE REPORT

# Prosthetic Management of Patient with Ocular Defect

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## ABSTRACT

The agony over the loss of an eye and the resulting facial defect has a crippling effect on the psychology of the patient. An artificial prosthesis is probably the only alternative in such cases to help rehabilitate the patients. An ocular prosthesis is undoubtedly a challenge to any maxillofacial prosthodontist because you are attempting to replace a moving organ with a static prosthesis.

Presented here is the case report of a stock acrylic ocular prosthesis which had acceptable fit, retention, and esthetics.

**Keywords:** Maxillofacial defect, Ocular defect, Stock acrylic ocular prosthesis

**How to cite this article:** Mathews BN, Sam S, Mohan AK, Subhash AK. Prosthetic Management of Patient with Ocular Defect. *Int J Prev Clin Dent Res* 2017;4(3):241-245.

**Source of support:** Nil

**Conflict of interest:** None

## INTRODUCTION

Eyes are generally the first feature of the face to be noticed. Removal of this organ due to tumors, trauma, or any other condition not only causes unesthetic look, but also there is loss of function and has a psychologic effect on the patient.<sup>1,2</sup> Also, in some cases, age and the medical condition of the patient may contraindicate any major constructive surgery, leaving a huge void in the complete rehabilitation of the patient. An artificial prosthesis is probably the only alternative in such cases for the psychological well-being of the patient.<sup>3</sup>

This clinical case report is about the management of a patient with an ocular defect with a stock acrylic ocular prosthesis.

## CASE REPORT

A 65-year-old male reported to the prosthodontics department with the left eye lost due to surgery. On history, it

was found that the patient was suffering from malignant melanoma of the left eye and the eye had to be enucleated. It was decided that a stock acrylic ocular prosthesis would be best to meet the needs of the patient (Fig. 1).

After careful examination of the area of the defect, an acrylic ocular prosthesis was planned. Patient was explained about the procedure and its limitations.

First petroleum jelly was applied to the eyebrows for easy removal of the impression material when it sets. A wax frame was fabricated defining the area of the face to be included in the impression. Alginate was mixed in a fluid consistency in a large quantity and poured into



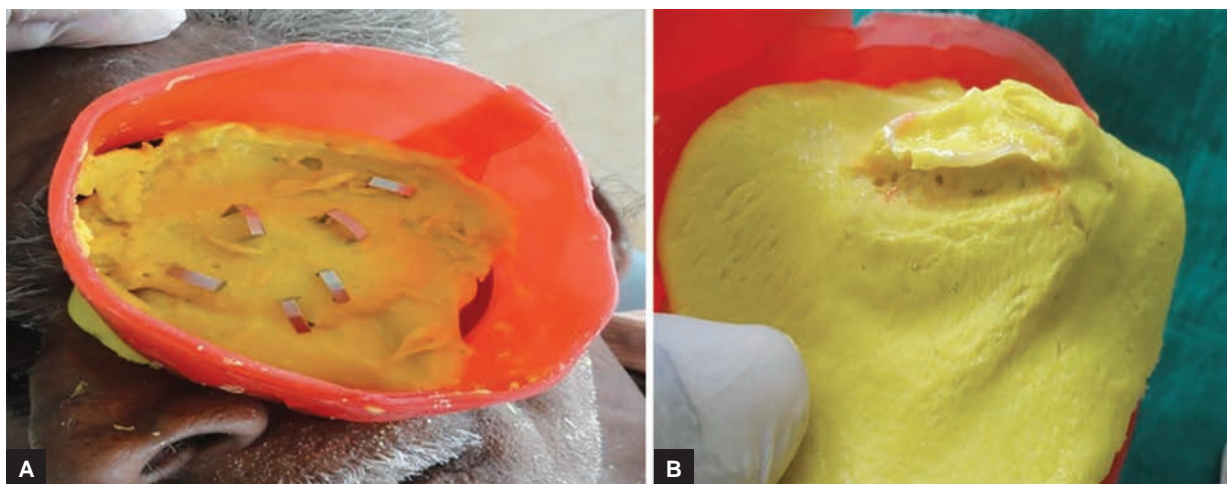
**Figs 1A and B:** Pretreatment view of the patient with ocular defect

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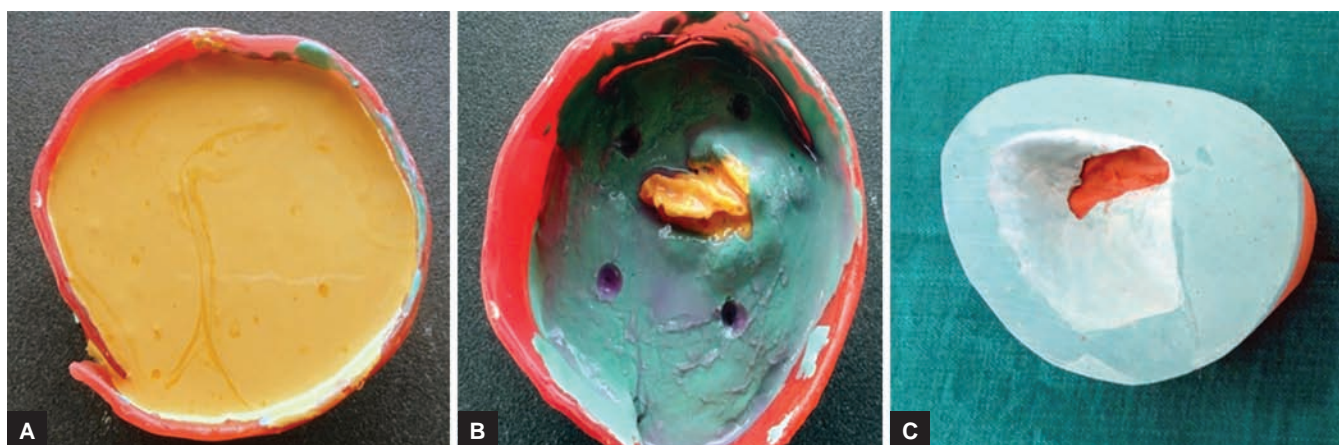
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**Figs 2A and B:** Pouring alginate to make primary impression of defect



**Figs 3A to C:** Pouring of primary cast for fabricating special tray to make final impression

the defect in an even thickness in two layers. Staple pins were embedded into the unset alginate surface to provide retention (Fig. 2).

Over this a layer of plaster of paris was poured to provide a stable base for the impression. A stone cast was poured on the impression to get a model of the defect (Fig. 3).

The defect was then filled with self-cured clear acrylic resin to fabricate a special tray for making the final impression.

The borders of the special tray were checked and contoured as necessary. A syringe was attached to the special tray to hold it in position and for easy removal after the impression material sets<sup>3,4</sup> (Fig. 4).

The light body consistency elastomeric impression material was slowly injected into the socket taking care to avoid any air bubbles. The patient was instructed to make various eye movements so as to get a functional impression of the eye (Fig. 5). After the material had set, it was carefully removed from the socket (Fig. 5).

Impression was checked to ensure that all the surfaces were recorded. A two-piece die stone was poured to immerse the lower part of the impression. After the

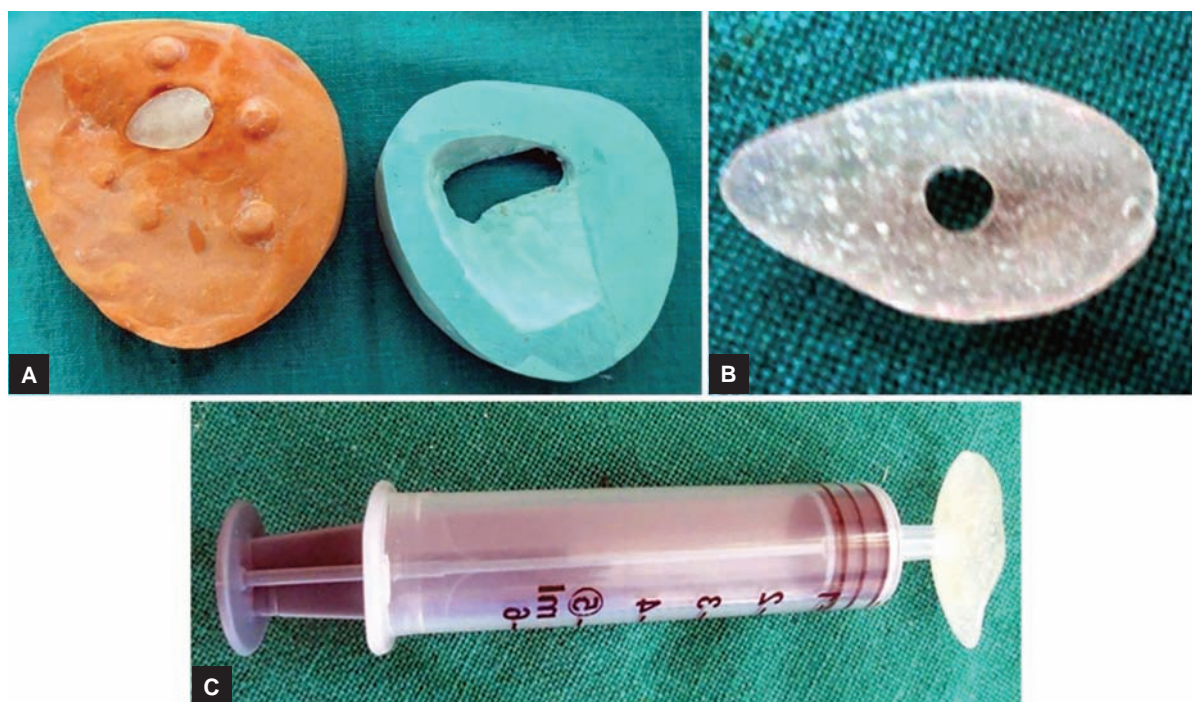
stone had set, the separating medium was applied on the surfaces. Then, second layer was poured. Markings were made on the cast for the purpose of reorientation of the cast (Fig. 6).

An appropriate eye shell was selected and necessary adjustments were made. The eye shell was positioned and the tissue side of the eye shell was contoured with modeling wax. Necessary carvings were done to ensure the size, support from the tissues, stimulation of eye movements, and eyelid coverage (Fig. 7).

The prosthesis was trimmed and polished and tried on the patient for further adjustments (Fig. 7).

Flasking was done. Packing was done with heat-cured clear acrylic resin. Slow cycle was carried out for the acrylization (Fig. 8).

After curing, the prosthesis was recovered and polished (Fig. 9). Next, it was inserted in the patient's eye. Insertion of the prosthesis was done by lifting the upper eyelid with one hand and sliding the prosthesis into the socket depth and pulling the lower lid down. Removal of the prosthesis was done by pulling the lower lid down and engaging the lower margin of the prosthesis (Fig. 10).



**Figs 4A to C:** Special tray fabricated with a syringe attached for making final impression



**Figs 5A and B:** Final impressions—Light body addition silicone impression material injected into the defect area with a syringe through the tray



**Fig. 6:** Pouring of master cast

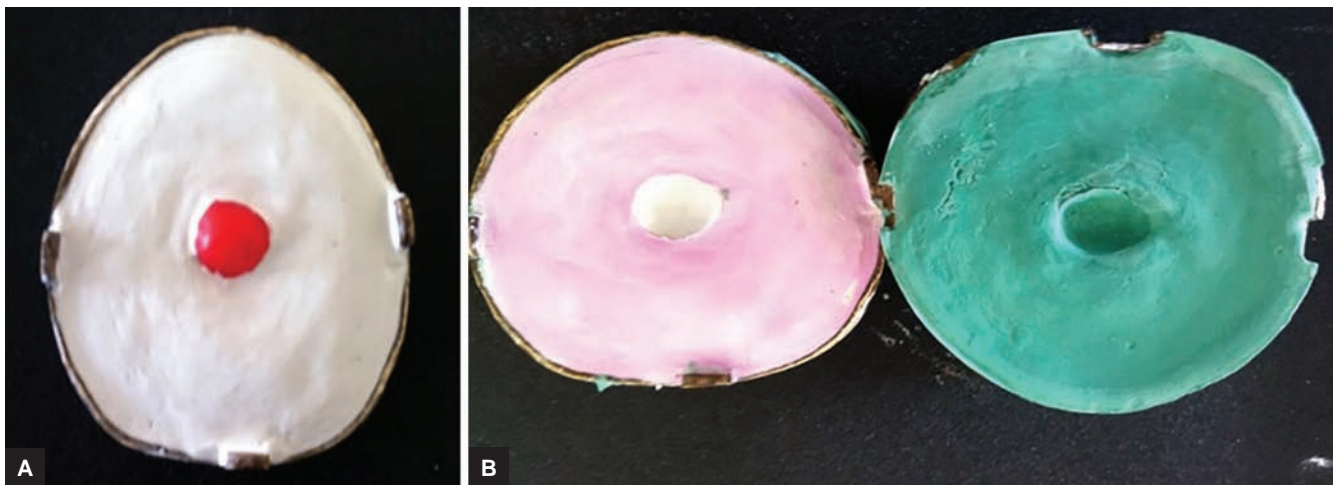
## DISCUSSION

The ocular prosthesis is an artificial replacement for the bulb of the eye. After the surgeon enucleated the eye, prosthodontist is a person who comes into the act of providing the patient with an artificial eye to overcome the agony of losing an eye.<sup>5</sup>

A well-made and properly planned ocular prosthesis maintains its orientation when the patient performs various movements.<sup>6</sup> With the development of newer materials, the socket can be finely recorded on which stock ocular prosthesis can be fabricated with exact fit and esthetics. Also with the introduction of computer-aided design/computer-aided manufacturing and extraoral scanners in maxillofacial prosthetics, it is possible to scan



**Figs 7A and B:** Wax frame of the prosthesis and trial in the patient



**Figs 8A and B:** Acrylization of the prosthesis



**Fig. 9:** Final prosthesis



**Fig. 10:** Final prosthesis inserted into the defect

the entire defect easily and thus achieve a more precise fit and lifelike appearance for the prosthesis.<sup>7</sup>

A stock acrylic prosthesis is one of the easiest ways of rehabilitating an ocular defect.<sup>6</sup> Acrylic resin has its significance in this procedure since the early 20th century.<sup>8</sup>

The prosthetic rehabilitation of an ocular defect may be enhanced with the use of implants which can coordinate the movements with the natural eye. They are not always possible or feasible because of the requirements of the advanced facilities and expenses encountered.

**CONCLUSION**

The use of stock acrylic ocular prosthesis has been a boon for the patients who cannot afford implant placement. Although the patient cannot see with the prosthesis, it has definitely restored his self-esteem and allowed him to confidently face the world rather than hiding behind dark glasses.

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