

## Customised Ocular Prosthesis for Young Adult: A Case Reports

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The eye is a vital organ not only in terms of vision but also being an important component of facial expression [1]. Loss or absence of a part of the face especially eye can cause severe physical and emotional problems [2]. Loss of eye could be because of different eye diseases, malignancies, congenital defect, trauma, chemical injuries, painful blind eye or sympathetic ophthalmia [3].

Several stock ocular prosthesis are readily available in the market but Custom-made ocular prosthesis has many advantages and looks realistic. The complaint like discharge, itchiness, redness is more in stock eye prosthesis. Cosmetically compromising and movement is less due to improper fitting, shape and size. Impression taking in the custom-made eye prosthesis plays the vital role in shape, size of ocular prosthesis and comfortability of the patient while wearing it. Custom made ocular prosthesis provides better fit and improved exquisite, but they are more time-consuming and needs more patience and expertise [5]. This case report demonstrates innovative technique for fabricating custom ocular prosthesis with manual scleral and iris painting using coloured pigments which provides delicately satisfactory result long lasting with comfortable and better fit.

**Keywords:** Eye; Trauma; Ocular Prosthesis**Case Description**

A 24 years old male patient reported in our department of ocular prosthesis at Vittala international Institute of ophthalmology, Bangalore with a history of left painful blind eye. His history revealed that left eye had retinal detachment with complicated cataract diagnosed few months back and he was high myopic on seeing right eye with the power of -12.00 D spherical. So, he had undergone left eye evisceration with PMMA (Poly methyl methacrylate) ball implant under local anaesthesia 45 days back at Prabha Eye Clinic. His present complaint was watering and mild

discharge in the same eye. He came in our department for cosmetic rehabilitation with hope of better cosmesis with prosthetic eye. There was no sign and symptoms of any systemic illness, vitals were within normal limit.

**Materials and Methods**

On Examination, socket was healed and healthy. There was adequate volume, well-shaped, healthy lids, enough sulcus depth to retain and support the prosthesis.

Based on the clinical findings and history, the case was diagnosed as eviscerated left eye. Various treatment options were considered and keeping in mind the advantage of custom eye over stock eye. Comprehensive treatment plan was formulated and entire treatment procedure was explained to patient with its limitations and his consent was taken.

### Impression

To provide a custom ocular prosthesis, an accurate impression of the ocular defect of left socket was first obtained. Patient was made to sit comfortably on the chair and impression procedure was explained. An ophthalmic topical anaesthesia (paracaine) was administered for patient's comfort. An impression tray was inserted in cul-de-sac, was asked patient to relax and look straight ahead. Impression was taken using alginate material. Reverse impression was done.

### Sculpting the wax model

Once wax model was ready, aluminium iris button was placed and adjusted to fix the plane and position of the pupil.

### Wax trial

Try in was done to check for proper, fit, contour and bulk. This procedure was repeated until satisfactory results were obtained in match with patient's contralateral eye.

### Fabrication of scleral shell

Flasking, de-waxing and packing were done conventionally using clear PMMA monomer and polymer with white colouring agent which will give the sclera a characteristic white colour. Long curing cycle was carried out for acrylization. After curing scleral shell was carefully removed. Trimming and polishing was done to get a smooth shiny scleral shell.

### IRIS and scleral painting

Finished scleral blank was tried in the patient and position of the iris was once again verified. The initial step in painting an artificial iris is done by observation of the colour, size, and morphological elements of the patient's iris. Painting was done with colour pigments and thin brushes. Painting was done in two steps: iris painting followed by scleral painting

### IRIS painting

Using a thin brush and colour pigments, many strokes from the center of the iris to the periphery were painted to match the colour of opposite natural iris. Colouring was done in layers to get more life like appearance. Pupil was painted in the center of the disk.

### Scleral painting

Basic requisites in matching the sclera with fellow eye was achieved by careful reproduction of conjunctival vascular patterns near medial, lateral canthi and circumcorneal region and location of yellow, black or brown pigments in the prosthesis similar in the sclera of contralateral eye.

### Second stage curing

After the eye painting was complete, it was allowed to set. Painting was secured in place with monopoly syrup. Second stage curing was done by packing the painted eye with clear layer of PMMA back in the original mold, curing cycle was repeated. After complete curing, final prosthesis was removed and trimming was done.

### Finishing and polishing

Finishing and polishing was done using finishing burs, pumice and polishing soap to get a natural glossy appearance of an artificial eye.

### Insertion and instructions

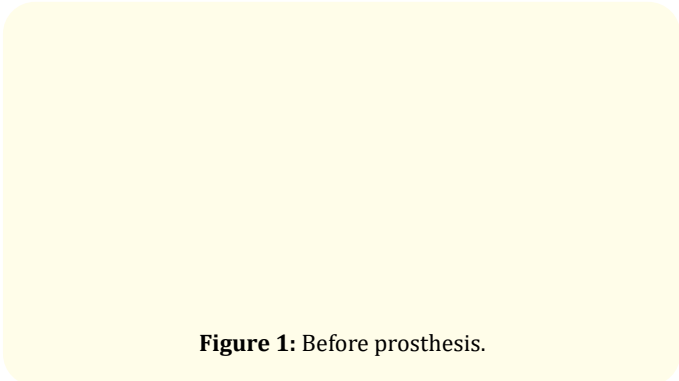
Before insertion of the finished prosthesis, chemical free hand wash was used to disinfect the prosthesis and thoroughly cleaned with sterile tissue paper. It was inserted and checked for fit, contour and movements. Patient was demonstrated about proper insertion and removal the prosthesis. Necessary maintenance instructions were given to the patient.

### Results

Patient who came to us with hope of getting better cosmetic look with ocular prosthesis was rehabilitated with a customised ocular prosthesis with better fit, comfort and cosmetic. A properly finished, polished custom-made prosthesis enhances the patient's confidence and comfort by adaptiveness natural appearance. Moreover, it also maintains its orientation when the patient performs various eye movements.

Patient was highly satisfied with his new prosthesis and he complemented that though he cannot see the world with left eye at least he can face the world with confidence.

As the patient was high myopic, we advise the high index glass to look more cosmetically better. Same power of glass was advice to the prosthetic eye to manage the magnifications of both eyes. Vigamox eye-drop was given for the 10 days to avoid the infection and Refresh liquid-gel eye-drop was given for 1 month to keep the socket moist and avoid dryness.



**Figure 1:** Before prosthesis.



**Figure 2:** After prosthesis.

## Discussion

This case report tries to explain a simple technique to rehabilitate patients with ocular disfigurement which are both cosmetically acceptable and economical for the individual. Every human being is created with a pair of eyes which serve as sense organs of sight and adds to the beauty of the face [4]. Ocular disfigurement can drastically lower the victim's quality of life through its physical and psychological handicap [2]. Human eye has many parts, layers, colours which is very difficult to mimic with contralateral eye with

colouring it. Methyl methacrylate resin is superior to other ocular prosthetic materials with regard to tissue compatibility, thetic compatibilities, durability and permanence of colour, adaptation, cost and availability. A 24 years old boy who have just age to enjoy the life and have wishes to look good was shattered and looked depressed due to disfigurement of the face. Though we can't give vision to see world but we definitely give the courage to face the world.

## Conclusion

The careful sequence of preparation of customised ocular prosthesis ensures a better drape of lid tissues, provides superior natural appearance and improved hygiene. The key of success in Ocular prosthesis is highly depends on the artistic skills and experienced laboratory techniques of an Ocularist. Custom made ocular prosthesis gives the best result in cosmesis, durability and comfortability. An Ocular Prosthesis rehabilitation changed the patient quality of living in society at a significant level.

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