Case Report

Restoring Ocular Esthetics Using Ocular Prosthesis

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Abstract
The rehabilitation of patients with congenital or acquired defects of eye is a challenging job. The loss of an eye causes disfigurement of the face due to which children and adults become emotionally weak and conscious and avoid taking part in social events, which in turn causes anxiety, stress and depression in their life. Ocular prosthesis is very comfortable and improves their appearance which in turn, encourages them to build up their self confidence to return back to their social life.

Key words: Enucleation, eye shells, Tooth colored Resin

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Introduction
Anaophthalmos is a condition in which no eyeball can be found in the orbit. Injury to the eye is a very a common cause for removal of an eye. A seemingly minor trauma can be serious if the eye penetration goes unnoticed or if secondary infection develops. The other common cause for anophthalmia is Glaucoma. Other than these two causes, the indications for removal of an eye include malignancy, congenital deformities, infection and cosmetic reasons.
The unfortunate loss or absence of an eye may be caused by a congenital defect, irreparable trauma, tumor, a painful blind eye, sympathetic ophthalmia. Depending on the severity of the situation, the surgical management may include one of 3 approaches: Evisceration, Enucleation, or Exenteration. Evisceration is the surgical procedure wherein the intraocular contents of the globe are removed, leaving the sclera, Tenon’s capsule, conjunctiva, extraocular muscles, and Optic nerve undisturbed; the cornea may be retained or excised. Enucleation is the surgical removal of the globe and a portion of the optic nerve from the orbit. The choice between evisceration and enucleation may be difficult, because the indications for each operation are not always clearly defined. Enucleation is often considered the treatment of choice for primary intraocular malignancies because it permits histopathologic examination of the intact globe, as well as determination of intraneural or extrascleral spread of the disease. Orbital exenteration is the en bloc removal of the entire orbit, usually involving partial or total removal of the eyelids, and is performed primarily for eradication of malignant orbital tumor.

Ocular prosthesis can be either readymade (stock) or custom made. Stock eyes have some advantages including better mobility, even distribution of pressure due to ulceration, improved fit, comfort and adaptation, improved facial contours and esthetics. This enhanced tissue health by reducing potential stagnation spaces at the prosthesis-tissue interface. It is the god given right of every human being to appear human.

**Case Report**

A 60 year old patient was referred to the department of prosthodontia for complete dentures. Patient was also convinced for ocular prosthesis
as there was missing left eye (Fig 1).

Fig 1: Pre-treatment Photograph

Preliminary impression was made using alginate impression material (irreversible hydrocolloid). Before making the impression, a thin layer of petroleum jelly was applied on the eyelashes and around the eye socket to prevent the impression material from sticking to the eyelashes.

**Preparation of special tray and final impression:** A layer of wax is placed as a spacer (Modelling wax, Hindustan Dental Products Ltd.) Special tray is prepared using auto polymerizing resin (DPI) with escape holes. Spacer is removed.

The impression of the socket was made with a light viscosity polyvinyl siloxane impression material, with an auto-mixing device (Contrast, Voco, Germany). Before making the impression, a thin layer of petroleum jelly was applied on the eyelashes and around the eye socket to prevent the impression material from sticking to the eyelashes. The material was then injected slowly into the socket and as well as to the special tray and the patient was asked to perform various eye and eyelid movements to facilitate the flow of the impression material into all aspects of the socket. The impression was carefully removed from the socket once the material had set.

**Formation of the cast:** The impression was poured in two sections. First the upper half of the impression was immersed. After the stone had set, keyholes were cut and boxing was done around the first layer using modeling wax after which separating medium (Cold mould seal, Dental Products of India Ltd.) was applied. Then a second layer was poured to cover the lower half of the impression.
After it had set, the two sections were separated in order to remove the impression (Fig 2).

Fig 2: Sections of the Cast

Preformed eye shell is selected according to patient’s orbit size. Borders were trimmed and border moulding performed using green stick compound with various eye and eyelid movements to facilitate the flow of the impression material into all aspects of the socket.

Acrylisation: Flasking and dewaxing was carried out in a usual manner. Heat polymerizing tooth coloured acrylic resin (Stellon, Dental Products of India Ltd.) of appropriate shade was used and after doing a trial closure, stains and veins were added to give a more natural appearance of the artificial eye. After the final closure, the processing was done by a slow curing cycle. After recovering the prosthesis it was polished to get a smooth and shiny surface (Fig 3).

Fig 3: Finished Eye Prosthesis

On the final appointment the prosthesis was inserted into the patient’s eye socket (Fig 4).

Fig 4: Post-treatment Photograph

Instructions to the patients:
The patient was taught the proper method of removal and insertion.

- Removal is done by pulling the lower lid down, gazing overhead and engaging the
lower margin of the prosthesis with one finger so that it is expelled downward in to hand.
- Insertion is done by lifting the upper lid with the thumb and forefinger, sliding the prosthesis with other hand as much as possible under the upper lid and pulling the lower lid down to allow the prosthesis to slip into the socket
- The patient was instructed to wear the prosthesis day and night, removing and washing it with a mild soap once a day.
- To improve the movements of the eyelids and to get a sparkle on the surface of the prosthesis, use of an ophthalmic silicone liquid was advised.

Summary
Ocular prosthesis can be either readymade [stock] or custom made. In this case we have used readymade eye shells. Certain limitations by using this include Characterization and movement. Stock eyes have some advantages like better mobility and improved fit. These readymade shells used in this case, that are partially customized was also very comfortable for the patient with better esthetics.

References


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