Case report

Prosthetic rehabilitation of a patient with enucleated eye - a case report

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Abstract

Background: The loss of an eye has a crippling effect on the psychology of the patient, making rehabilitation process challenging for both doctor and patient. **Objective:** To report a case of anophthalmic socket with prosthetic rehabilitation in a cost effective manner. **Case:** A 32-year-old female presented with anophthalmic socket for prosthetic rehabilitation. A custom made ocular prosthesis was implanted successfully.

Conclusion: The custom made ocular prosthesis is simple, affordable and can be carried out in a small clinical set-up and provides a superior natural appearance.

Key-words: Ocular prosthesis, ocular defect, evisceration, enucleation

Introduction

Because the loss of an eye has a psychological effect on the patient and their families, immediate replacement of the lost eye is necessary to promote physical and psychological healing for the patient and to improve social acceptance (Mishra et al, 2009). According to the Society for the Prevention of Blindness, 50% or more of eye losses are caused by trauma. Other conditions that cause eye loss include malignancies and congenital defects. Depending on the severity of the situation, the surgical management may include one of the three approaches; evisceration, enucleation and, exenteration (Kumar et al 2008). The art of making artificial eyes has been known to man for centuries with the earliest known examples found in mummies dating back to the Forth Dynasty in Egypt [1613-2494B.C.]. Ambroise Pare, a French Surgeon-dentist, is considered to be the pioneer of modern artificial eyes. He fabricated artificial eyes made of glass as well as porcelain. In 1944, a Naval dental school tested the use of acrylic resin in fabricating a custom- fitted ocular prosthesis. Unlike a glass eye, an acrylic resin eye was easy to fit and adjust, unbreakable, aesthetically pleasing, longer lasting and easier to fabricate (Gupta et al 2010). This article

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describes a case report where a simple technique has been used for fabrication of an ocular prosthesis.

Case report

A 32-year-old female reported to the Department of Prosthodontics and Maxillofacial Prosthetics, in a dental college, for the fabrication of an ocular prosthesis for the left eye (fig.1). History revealed surgical removal of the eyeball due to malignancy. Examination of the socket revealed healthy conjunctival lining and absence of infection. Treatment plan included fabrication of custom made ocular prosthesis by a team including prosthodontists and an ophthalmologist. An impression of the anophthalmic socket was made by injecting impression material directly into the socket using a syringe. Once filled, the head was moved to the vertical position and the patient was directed to move his eyes both up and down and side to side to facilitate the flow of the impression material into all aspects of the socket. Next the patient was asked to look at a distant spot at eye level with gaze maintained in a forward direction to ensure that the posterior aspect of the enucleated socket and tissue bed will be in the correct position for the fitting procedure (Kumar et al 2008). After the material sets, the impression was rotated out of the socket and was checked for accuracy (fig.2). Then two-piece dental stone mold was made by placing the impression in the dental stone leaving a hole in the anterior part of the mold (fig.3). The hole left in the mold was filled with molten wax to fabricate a scleral wax pattern. Wax pattern was finished and polished and was evaluated for the fit. Wax was added or trimmed from the basic scleral pattern until satisfactory contours of the eyelids were achieved both in open and closed positions. The position of the contra lateral eye's iris was used as a guide, to mark the expected position of the iris on a wax pattern (Adarsh et al 2011). A stock eye was selected with the correct iris size and color. The peripheral and posterior surfaces of the stock eye were reduced leaving only iris portion of the stock eye. This trimmed stock eye was embedded in correct position on the wax pattern (fig 4). The try in for the wax pattern was done to verify the iris position, the eye was fitted. After the wax pattern was found to be satisfactory, it was invested and processed by selecting appropriate shade of heat cure acrylic that matches the sclera of patient's natural eye. After processing, the final prosthesis was recovered and polished with pumice powder to a high shine. Prosthesis was inserted into the socket, and checked for any areas requiring adjustment (fig.5). The esthetics and comfort of the patient were evaluated and the patient was educated on insertion and removal of the prosthesis. The patient was instructed to wear the prosthesis 24 hours and clean it once in 3-5 days with gentle soap (Kapoor et al, 2010).

Figure1: Patient with left anophthalmic socket

Figure 2: Impression of the Left Eye

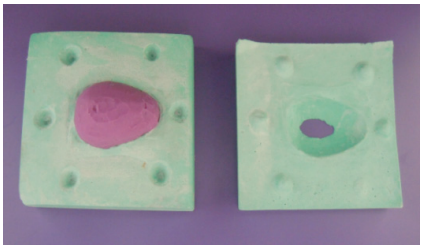

Figure 3: Two Piece Dental Stone Mold

Figure 4: Trimmed stock eye embedded in scleral wax pattern

Figure 5: Patient with final prothesis

Discussion

The importance of an ocular prosthesis with acceptable aesthetics and reasonable mobility in restoring normal appearance in patients with

anophthalmia has long been recognized. Ocular prosthesis can be either ready-made (Stock) or custom made. A Custom made prosthesis has several advantages. Since it is made to fit a particular patient, it has an improved fit and better retention. An exact color match of the iris and sclera can be achieved with the adjacent eye, and if well-made, it maintains its orientation when patient performs various ocular movements (Mishra et al 2008). It can also be polished and cleaned repeatedly when needed and are practically unbreakable. A custom made ocular prosthesis is a good option when reconstruction by plastic surgery or the use of osseo-integrated implants is not possible or desired (Gupta et al 2010).

Conclusion

The use of custom made ocular prosthesis has been a boon to the patient who cannot afford the expensive treatment options available. The technique provides a form which is more closely adapted to the dimensions of the defect and allows better tracing response during eye movements. The procedure used here is Simple, affordable and can be carried out in a small clinical set-up and provides a superior natural appearance.

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