Rehabilitation Of An Ocular Defect For A Geriatric Patient: A Case Report.

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Abstracts: The loss of an eye has a far-reaching impact on an individual's psychology and an immediate replacement is necessary to promote the physical and psychological healing of the patient and to improve his/her social acceptance. The loss of an eye is an emotional and psychological set back to the patient. Acceptable cosmetic results usually can be obtained with a facial prosthesis. Maxillofacial prostheses which restore and replace missing organ, aim to improve the patient's aesthetics, restore and maintain health of the remaining structures and consequently provide physical and psychological well-being. Enucleation of the eye is therefore normally followed by fabrication of an ocular prosthesis to improve esthetics. This case report describes prosthetic rehabilitation of a 75 year old male patient having a right ocular defect. The resultant prosthesis was structurally durable and aesthetically acceptable with satisfactory retention. The importance of meticulous treatment planning to tackle the challenges faced in fabricating an ocular prosthesis is explained with the relevant literature. [Malik Mohammad Salim, NJIRM 2015; 6(2):111-114]

Key Words: Ocular defect, maxillofacial prosthesis, rehabilitation.

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Introduction: Eyes are generally the first feature of the face to be noticed. Eye is a vital organ not only in terms of vision but also being an important component of facial expression. Loss of eye has a psychological effect on the patient. So a prosthesis should be provided as soon as possible for the psychological wellbeing of the patient[1].

The demand for a maxillofacial prosthetic device for the rehabilitation of patients has intensified in the recent years[2]. The art of making artificial eyes has been known to man for centuries[3]. The two difficult challenges for maxillofacial prosthodontist are superior sulcus deformities from inadequate orbital volume and eyelid ptosis or laxity.

Implant retained ocular prosthesis would be the best approach to rehabilitate an anopthalamic eye, if not for economic and systemic factors. The next preferred technique is the custom-made ocular prosthesis. The advantages of customized ocular prosthesis is improved adaptation to underlying tissues, increased mobility of prosthesis, improved facial contours and control over the size of iris, pupil and color of the iris and sclera. As per literature fabrication of custom-made ocular prosthesis, it involves complex painting procedures, high skill and expertise of the dentist[4,5].

Before starting the design of the prosthesis, it is essential to assess the psychological component in order to gain the confidence of the patient, in addition to a detailed medical history that includes the condition that led to the excision and enucleation in order to alert the possibility of recurrence[6]. Hence, in this clinical report using patient's stock eye shell, custom-made ocular prosthesis was fabricated with a simple, reversible and economical technique.

Material and Methods: A 75 year old male patient reported to private dental clinic with a defect in the right eye. Case history revealed that he got his right eye enucleated when he was 25 years old due to a traumatic injury. Patient was already wearing an eye prosthesis but was not comfortable with old eye prosthesis as he complaint of irritation with the old prosthesis, leading to secretions from eye (Figure 1).

Results: On examination mucosa was healthy. Sulcus depth was sufficient enough to retain the prosthesis. A custom-made ocular prosthesis was planned to meet the needs of the patient.

Petroleum jelly was applied to the eyebrows and skin, to prevent impression material from sticking to eyelashes. In the first appointment, primary impression was made with irreversible hydrocolloid material (Tropicalgin, Zhermack, Italy)). A cast was made from type II gypsum on

Figure 1: Right side ocular defect with secretions from eye.

which a special tray was fabricated using self-cure acrylic resin (Dental Products of India, Mumbai, India). A syringe was attached to the special tray through a perforation made at the centre of it. Impression of the defect was recorded using polyvinyl siloxane light viscosity material (Dentsply, Germany). At the second appointment, material was injected into the socket (Figure 2).

Figure 2 : Polyvinyl siloxane light viscosity material injected in eye for making impression.

The patient was instructed to make various eye movements as the material was injected so that the impression was recorded in the functional form. After the material had set, impression was retrieved from the socket and checked to ensure that all the surfaces were recorded. A two-piece type III dental stone cast was poured to immerse the lower part of the impression. After the stone had set, separating media was applied on the surface. Then a second layer was poured. Marking was made on all the four sides of cast for proper reorientation of the cast. (Figure 3 and Figure 4).

Figure 3 and 4 : Wax pattern trial of eye prosthesis

Figure 3

Figure 4

Next, the wax pattern was fabricated by pouring the molten wax into the impression. The wax was properly contoured and carved to give it a simulation of the lost eye. At the third appointment, the wax pattern was tried in patient's socket and checked for size, comfort, support, fullness and retention while performing functional movements.

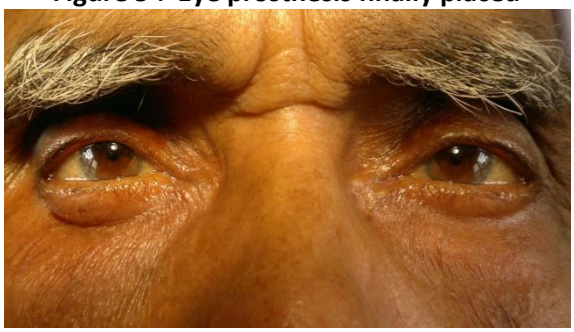
The wax pattern was flasked, dewaxed and packed with tooth colored heat cure acrylic resin (Dental Products of India, Mumbai), the shade of which was initially matched with the scleral portion of contralateral eye. Curing and polishing of scleral shell were done. Patient was made to sit upright and was asked to look straight with head erect. A second try in using custom made shell was done to mark the iris and corneal portion on the shell using contralateral iris and cornea as a reference. The size and color of cornea and iris portion were selected using prefabricated eye shell. It was trimmed to the desired size, which was previously marked on the shell during second try in.

Acrylic was trimmed to a depth sufficient enough to incorporate the corneal portion which was retained using the same shade self-cure acrylic resin. Then a thin layer of wax was placed over the surface of scleral shell to create a space for clear acrylic, which gave a lifelike effect. Flasking, dewaxing, packing and curing of scleral shell were done using heat cure clear acrylic resin (Dental products of India, Mumbai) and small red colored silk thread. After curing, the prosthesis was finished and polished, eye prosthesis was finally inserted in patient's eye (Figure 5).

Discussion: Several different techniques have been tried and proved useful for fitting and fabricating artificial eyes, like empirically fitting a stock eye (ocular shell prosthesis)[7], modifying a stock eye by

making an impression of the ocular defect[8] and the custom eye technique[9].

Figure 5 : Eye prosthesis finally placed



The disadvantages of the empirical fitting of an ocular shell is that, it leaves the vaulted spaces in the cavity and leads to accumulation of tears and mucous secretion, creating heaviness in the cavity and resulting in the dislodgement of the prosthesis from the cavity. Moreover, the aesthetics is also compromised, as the shades of the sclera and the iris do not exactly match those of the contralateral eye.

When the impression of the ocular defect is made and a custom made prosthesis is fabricated, then an intimate contact is achieved between the prosthesis and the tissue bed. The close adaptation of the custom-made prosthesis tends to distribute pressure more equally than does a stock eye prosthesis, thus helping in reducing the incidence of the conjunctival abrasion and ulceration. It also enhances the tissue health by reducing the potential fluid stagnation spaces at the prosthetic-tissue interface[10]. The custom made ocular prosthesis provides more aesthetic results because the iris and the sclera are custom fabricated and painted. The iris painting is one of the important steps in the fabrication of a custom-made ocular prosthesis. This technique is complex, it increases the treatment time and it requires artistic skills, which are necessary in the iris painting. Moreover, the age, systemic conditions and financial constraints may limit their use. If the stock prefabricated eye prosthesis is customized according to the patient's contra lateral eye by using the acrylic resin pigments and if it is fabricated appropriately by making an impression of the ocular defect, then it can provide a satisfactory fit and aesthetic appearance for the patient. In the case of geriatric patients, such prostheses would be of immense use because of their relatively simple fabrication technique and as fewer appointments are required, thus aiding a minimal intervention approach for geriatric patients. The geriatric patient who is being presented here was rehabilitated by using the same technique, as this patient was unable to attend the prosthodontic clinic for a larger number of visits because of his age and general health condition. The easiest and the most effective way of rehabilitating geriatric patients with ocular defects, is mixing the professional treatment with a humane touch.

Conclusion: The maxillofacial prosthodontists should provide with care and sensitive service to rehabilitate geriatric patients with ocular defects. The use of a customized stock ocular prosthesis can provide an acceptable aesthetic result and it can also aid a minimal intervention geriatric approach in the rehabilitation of geriatric patients.

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