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Abstract
The custom made ocular prosthesis contributes to enhance the tissue health of the anophthalmic socket. The role of the maxillofacial prosthodontist in fabricating an ocular prosthesis with acceptable esthetics to restore facial symmetry and normal appearance for the patient is important. This article presents a case report of a patient with an acquired ocular defect, treated with an ocular prosthesis using a stock conformer which had enhanced the fit, retention and facial esthetics.

Key words: Ocular Prosthesis, Conformer.

Introduction
It is the God-given right of every human being to appear human. The demand for maxillofacial prosthetic device for the rehabilitation of patients has intensified in the recent years. The unfortunate loss or absence of an eye may be caused by a congenital defect, irreparable trauma, tumor, a painful blind eye, sympathetic ophthalmia, or the need for histologic conformation of a suspected diagnosis. The surgical management may include one of the three approaches: evisceration, enucleation, or exenteration. Ocular defects are seen to a varying extent in the younger age groups. Facial bones and adjacent structures must develop in perfect synchronization to ensure the normal development of the face. The loss of an eye and not replacing it with a proper conformer can hinder the stimulus for the normal facial growth. Even though the eye is a vital organ it also plays a major role in facial expressions and appearance. Ocular defects can challenge the patient’s physical health and psychological well-being. Thus the replacement of the lost eye as soon as possible after healing from eye removal is necessary to promote physical and psychological healing for patients and to improve social acceptance.

The need for an artificial eye can sometimes be satisfied by stock prostheses that come in standard size, shapes, and colours. The rehabilitation of a patient who has suffered the psychological trauma of an ocular loss requires a prosthesis that will provide optimum cosmetic and functional results. These prostheses can be used for interim or post operative purposes. Custom made prosthesis should be considered as a definitive prosthesis. A custom made ocular prosthesis provides improved adaptation to underlying tissues, increased mobility of the prosthesis, and improved facial contours.

History of ocular prosthesis
Dating from very early times in Egypt (i.e., the Predynastic period, before 3000 B.C) simple inlaid eyes, consisting usually of white shell beads have been found and human figures bearing such eyes are to be seen in Cairo museum. Ambrose Pare (1510-1590), a Frenchman, was the first to use both glass and porcelain eyes. After Pare, the manufacture of artificial eyes became an active industry. By 1835 artificial glass eyes were being produced on a large scale in Germany, which continued as the center of production. Glass remained the most popular material until the advent of World War II, when it was difficult to obtain glass or glass eyes from Germany. Methyl methacrylate, which had already replaced vulcanite as a denture base material, seemed to be a good replacement material. A definitive technique for fabrication of artificial eyes using acrylic resin was developed by the United States Naval, Dental and Medical Schools and was published in 1944. Unlike glass eye, the acrylic resin eyes were solid, the material is light weight, easy to fabricate, have intrinsic and extrinsic colouring capabilities, and was inert to the socket secretions. Through the years, the techniques and materials have constantly improved, and the plastic eyes became far superior to glass eyes.

Case report
A female patient aged 14 years was referred to the Department of Prosthodontics, KVG Dental College, Sullia, from the Department of Ophthalmology, KVG Medical College, for consultation regarding improvement of the fit of her left artificial eye. The left eye ball was enucleated following penetrating injury due to some road traffic accident about 4 years back. The patient was wearing a stock conformer since four years. She had repeated inflammation, pain and discomfort on wearing the conformer. She was unhappy about the fixed look of the artificial eye.

Clinical and laboratory procedures
A. Patient examination
The patient was seater in the dental chair and the eye socket was examined. The degree of healing and the existing muscle movements should be studied. The type of operation conducted by the ophthalmic surgeon should be made out. The amount of orbital adipose tissue present and the
extent of atrophy of muscles and other tissues, incident to the removal of the eye, as well as the contour and tonus of the eye lids, should particularly evaluated at the time of examination.

B. Selection of the eye shell

An eye shell which matches the pupil and sclera of patients normal eye was selected. Over extension of the eye shell was trimmed to fit the contours of the eye socket.

C. Impression with stock eye shell

A hollow needle cover is attached to the outer surface of the existing eye shell. Patient is positioned upright in the chair and trained to maintain a fixed gaze on a point directly in front. The eye lashes, eye brows and the socket surface were lubricated with petrolatum. Putty silicone impression material is taken to approximate the volume of the eye socket and is loaded in inner surface of the eye shell after application of tray adhesive, and is placed in the socket taking care to avoid entrapment of air [fig 1]. The patient is asked to make all the functional movements. The contour and fullness is checked. If it is in excess the material is reduced and reinserted. After the material was fully set the impression is removed and a small amount of putty material is scraped off from the intaglio surface. A thin layer of light body silicone material is applied over the putty material and inserted into the eye socket making sure that no air bubbles got entrapped. The patient is asked to do all the functional movements and to stare at a point directly in front. After the material is set it was removed from the eye socket and checked for the surface details acceptability (fig2).

D. Fabrication

The impression is then beaded and boxed, and a dental stone cast is made. A wax pattern is made on the stone model with the eye shell in position (fig3). The wax pattern is then tried in the patients eye socket. The size, eyelid coverage, tissue support and stimulation of eye movements are checked. This wax pattern is invested in a denture flask. The prosthesis is then processed with heat cured tooth coloured acrylic resin. The prosthesis is retrieved from the flask and trimmed of the surface irregularities and flashes. The prosthesis is polished with pumice slurry and is tried in the patients eye socket. When properly fitted the prosthesis will retain itself with the help of eye lids. The esthetics and degree of various movements are checked. Minor corrections were done as required and the prosthesis was again finished and polished before insertion. Since the patient was a school going girl, a pair of spectacles was advised when she went out to play. Thus it would prevent the ingress of excess dust into the eye.

E. Patient instructions

Method of inserting and removing the prosthesis and its care demonstrated to the patient. The prosthesis should be removed at least once a day for cleaning. The prosthesis should not be allowed to come in contact with alcohol or solvents of any kind as this would lead to crazing of the acrylic resin. It should be washed with mild soap once every one or two weeks. More frequent cleansing would be indicated if particularly dusty or dirty conditions were encountered. In such conditions the soft tissues of the socket are rinsed with an ophthalmic irrigation solution.

F. Follow up

The patient was recalled after one week for check up. The eye socket was healthy and without any inflammation. The patient was happy and comfortable with the improvement in the appearance with regard to the fullness and the amount of movement possible with the new ocular prosthesis.

Discussion

A correctly placed prosthesis should restore the normal opening of the eye, support the eye lids, restore a degree of eye movement, and be adequately retained and esthetically pleasing7. Using the old eye shell as the stock tray avoids the extra steps needed for the fabrication of the stock tray there by saving time for the patient and the doctor8. The wash impression provides better surface details which can be duplicated in the definitive prosthesis which will provide better fit and increased functional mobility of the prosthesis. Wearing of a spectacle has improved the confidence of the patient in camouflaging the minute variations which will occur in trying to duplicate the natural eye.

The placement of an ocular implant provides additional anatomic support for the residual content of the orbit, increases mobility of the overlying ocular prosthesis, and provides muscular stimulus for orbital growth in a growing child in particular. When the muscles of the eye are preserved, an implant can be placed in which they can be attached. When an ocular prosthesis is fabricated to fit the implant precisely, tracking of the prosthesis can appear as natural as the unaffected eye9. Although implant eye prosthesis has superior outcome, due to economic factors it may not be advisable in all patients10. The custom-made acrylic resin ocular prosthesis achieves intimate contact between prosthesis and tissue bed. The close adaptation of the custom-made prosthesis tends to distribute pressure more equally than does a stock eye prosthesis11. This helps reduce the incidence of conjunctival abrasion or ulceration. It also enhances tissue health by reducing potential stagnation space at the prosthetic-tissue interface12. Fluid collection in this space can cause tissue irritation and increased bacterial
growth. The described technique is simple, decreases treatment time, and requires minimal artistic skills, which are necessary in the iris painting technique. Standard techniques can produce excellent results for most patients, provided the operator has an adequate selection of prefabricated eyes.

**Conclusion**

Ocular prosthesis has a long history of successful use, and variations of the techniques and materials used have been introduced throughout the years. A blind man does not want sympathy; he needs apathy and acceptance as one in the society. Following destructive procedures in the eye, most of the patients will not be in a situation for immediate consultation with an ophthalmic oculoplastic surgeon. This procedure also gives an opportunity to maintain the orbital volume for future ocular implant procedures. The maxillofacial prosthodontist plays an important role in achieving this objective by his knowledge and skill thereby allowing the patient to be socially and psychologically rehabilitated, especially so even when we cannot restore the lost vision of the person. Prosthodontists should be flexible in their treatment modalities because each patient provides a challenge to develop and improve an old accepted practice.
References