

Prosthetic management of an ocular defect

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Abstract

The disfigurement associated with the loss of an eye can cause significant physical and emotional problems. Various treatment modalities are available, one of which is implants. Although implant has a superior outcome, it may not be advisable in all patients due to economic factors. The present article describes the prosthetic management of an ocular defect with a custom-made ocular prosthesis.

Keywords: Custom-made ocular prosthesis, impression technique, ocular defect

Introduction

An unfortunate absence or loss of an eye may be caused by a congenital defect, irreparable trauma, a painful blind eye, Sympathetic ophthalmia or the need for histologic confirmation of a suspected diagnosis.^[1] The disfigurement associated with the loss of an eye can cause significant physical and emotional problems. Two surgical procedures are generally used, one is evisceration, which is the removal of the contents of the globe, leaving the sclera and on occasions the cornea in place, and the other procedure is enucleation where the eyeball is completely removed.^[2]

An ocular prosthesis is an artificial replacement for the bulb of the eye (bulbus oculi, eyeball). The eyeball, or organ of sight, is contained in this cavity of the orbit, where it is protected from injury and is moved by the ocular muscles. When the entire contents of the orbit (including muscles fascia, eyelids, conjunctiva, and the lacrimal apparatus) are removed, the artificial replacement is referred to as an orbital prosthesis.

A well-fitting ocular prosthesis enhances esthetics, improves facial contours, and helps the patient to overcome psychologic trauma. Ocular prostheses are either readymade (stock) or custom made.^[3] Stock prostheses are usually advocated when time is limited and cost is a consideration. No special skills or material are required for its fabrication; and the use of stock ocular prostheses of appropriate contour, size, and color can provide an acceptable esthetic result.^[4]

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Case Report

A 17-year-old female patient reported to the Department of Prosthodontics, K.V.G. Dental College and Hospital, Sullia, with a chief complaint of missing left eye [Figure 1]. She gave a history of infection to the left eye in her childhood. On examination, intraocular tissue bed was healthy and with adequate depth between the upper and lower fornices for retention of the ocular prosthesis.

Technique

The impression material (light-bodied elastomer) was injected into the left eye socket [Figure 2] and the patient was instructed to perform all the movements of the eye, before the impression material was set, metal wire loops were placed over the impression to aid in retention [Figure 3], and then plaster was placed over the impression to back up [Figure 4].

After removal from the eye socket, boxing of the impression was done, the impression was invested first with dental stone up to the height of the contour, and then with die stone to get



Figure 1: Preoperative



Figure 2: Light-bodied elastomer injected into the defect



Figure 3: Metal wire loops to aid in retention



Figure 4: Plaster back up over impression



Figure 5: Cast is poured in two sections



Figure 6: Wax pattern fabrication



Figure 7: Wax Try-in



Figure 8: Postoperative

a two-piece mold [Figure 5]. Wax pattern fabrication was done [Figure 6], stock eye that matched the sclera and the iris–pupil complex of the contralateral natural eye was selected, and it was trimmed precisely until it accurately fit into the socket, characterized staining was also done accordingly and try-in was done [Figure 7]. Bulge of the eye was corrected by the addition of wax. Once the correct bulge was obtained, the tissue surface of the prosthesis was again relined with soft tissue conditioner and placed into the socket to record the functional movements of the eye.^[5]

The relined tissue side of the ocular prosthesis was invested, dewaxed, and packed with heat-cured clear acrylic resin and curing was carried out. After the flask was cooled, deflasking was done, prosthesis was separated from the investment and it was polished. The polished prosthesis must be free of

roughness that could irritate the eye socket and encourage secretions to accumulate for additional irritation.

Prior to the insertion of the polished prosthesis, it was disinfected in a solution of 0.5% chlorhexidine and 70% isopropyl alcohol for 5 min. After disinfection, the prosthesis was rinsed in sterile saline solution to avoid chemical irritation and finally the ocular prosthesis was delivered [Figure 8] and postdelivery instructions were given.

Conclusion

The use of custom-made ocular prosthesis has been a boon to the average patient who cannot afford the expensive treatment options available. The esthetic and functional outcome of the prosthesis is superior to the stock ocular prosthesis. Although many treatment options are available, the conventional method is most widely followed all over India.

References

1. Artopoulou I, Mountgomery P, Wesley P, Lemon J. Digital imaging in the fabrication of ocular prosthesis. *J Prosthet Dent* 2006; 95: 327-30.
2. Taylor TD. *Clinical maxillofacial prosthetics*. Carol stream, Illinois: Quintessence publishing co, Inc: 2000. p. 233-76.
3. Cain JR. Custom ocular prosthetics. *J Prosthet Dent* 1982; 48: 690-4.
4. Mazaheri M. Prosthetics in cleft palate treatment and research. *J Prosthet Dent* 1964;14:1146-58.
5. Ow RK, Amrith S. Ocular prosthetics: Use of a tissue conditioner material to modify a stock ocular prosthesis. *J Prosthet Dent* 1997;78:218-22.

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