ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 8, Issue, 07, pp.35121-35123, July, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

CASE STUDY

A NEW APPROACH IN FABRICATION OF CUSTOMIZED OCULAR PROSTHESIS

***Dr. Prem Bhushan, Dr. Meena A. Aras, Dr. Vidya Chitre and Dr. Kennedy Mascarenhas**

Department of Prosthodontics, Goa Dental College and Hospital

ARTICLE INFO

Article History:
Received 04th April, 2016
Received in revised form
23rd May, 2016
Accepted 26th June, 2016
Published online 31st July, 2016

Key words:

Young adult male, Trauma,
Ocular prosthesis, Fibrous band.

ABSTRACT

Eyes are one of the important senses of our body. Damage to the eyes can severely affect patient functioning, his psychology and overall personality. It is not always possible to repair and provide complete functioning, but reconstruction should always be attempted. Though a routine standard procedure has been provided in reconstruction of an ocular prosthesis, ideal cases scenarios are rare and require certain modifications. Through this article we are going to discuss a simpler way of making an ocular prosthesis for a complicated case using basic concepts of dentistry and an attempt to save on laboratory time.

Citation: Dr. Prem Bhushan, Dr. Meena A. Aras, Dr. Vidya Chitre and Dr. Kennedy Mascarenhas, 2016. "A new approach in fabrication of customized ocular prosthesis", *International Journal of Current Research*, 8, (07), 35121-35123.

INTRODUCTION

Surgical procedures in the removal of an eye can be broadly classified as: evisceration (where the contents of the globe are removed leaving the sclera intact), enucleation (most common, where the entire eyeball is removed after severing the muscles and the optic nerve) and exenteration (where the entire contents of the orbit including the eyelids and the surrounding tissues are removed). These cases require fabrication of an ocular prosthesis in an attempt to restore normal facial appearance. (Kaur*et al*., 2010)Ready-made ocular prosthesis, more commonly known as stock eyes, is easily available. These come in standard sizes, shapes, and colours. These are generally used for interim or post-operative purposes. (Case Reports in Ophthalmological Medicine, 2013) On the other hand, one canfabricate ocular prosthesis (also known as custom eyes) to suit specific needs of the patient. These have several advantages like better eyelid movements, even distribution of pressure, better fit, comfort, adaptation and enhanced aesthetics. (Beumer and Zlotolow, 1996) Here in this article we will discuss a case of 35-year-old male who reported to the Department of Prosthodontics, for fabrication of ocular prosthesis after losing his right eye (Fig. 1). Procedure for custom ocular prosthesis started on a regular basis. However, in the try-in stage of wax pattern it was found that the wax pattern was not stable in the eye socket. It was required to remove bulk of wax in order to stabilize it. This resulted in a smaller prosthesis, which was not proper in contour, size and shape. On close examination, it was found that there was a thick fibrotic band in the eye socket attached to upper eyelid (Fig. 2) which was preventing the retention of the ocular prosthesis. After consultation from the Department of Ophthalmology, the patient was advised to undergo a minor surgery, which the patient refused on economic grounds. Hence, we decided to modify the procedure for the ocular prosthesis to suit to the patient. Apre-fabricated (stock) eye was selected whose iris and the pupilclosely matched with that of the contralateral natural eye (Fig. 3). The eye shell was duplicated using additional silicone ((Panasil® Putty Soft, Kettenbach GmbH & Co.KG, Germany) and autopolymerising acrylic resin (DPI-RR cold cure, Acrylic Repair Material, Dental Products of India, Mumbai, India) to serve as a custom tray. This tray was modified to give relief for the fibrous band and then perforated to avoid any compression of the ocular tissues. This step provided adequate amount of relief for the movement of fibrous band (Fig.4). Polyether light body impression material (Impregnum soft, Polyether Impression Material, 3M ESPE, Germany) was then injected on to the tissue surface of the prosthesis and the patient was advised to move his normal eye in all directions to allow the impression materialto flow into all areas of the enucleated socketfor accurate reproduction of surface details. Once the impression material set completely, it was removed from the defect and was compared with those of the normal eye.

****Corresponding author: Dr. Prem Bhushan,***
Department of Prosthodontics, Goa Dental College and Hospital

Figure 1. Right ocular defect

Figure 2. Presence of fibrotic band in the right eye

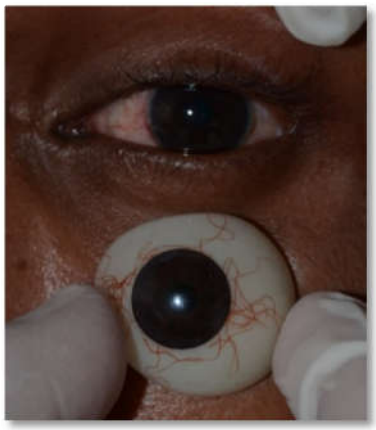

Figure 3. Matching of the stock iris to the contralateral natural eye

Figure 4. Providingadequate amount of relief for the fibrous band

Figure 5. Heat cure pigments were added to match the basic shade of sclera while packing

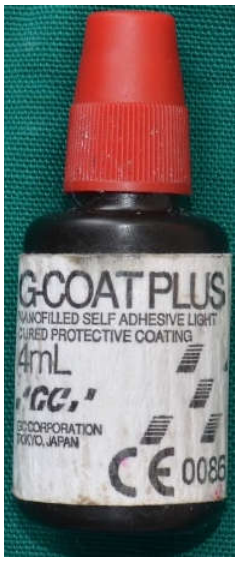

Figure 6. Protective coating for the characterized ocular prosthesis

Figure 7. Before and after insertion of ocularprosthesis

The impression surface was placed with type III dental stone (Kalstone, Kala BhaiPvt Ltd., Mumbai, India) in a flexible rubber cup to get a cast. This cast was then invested in a flask filled with type III gypsum material (Kaldent, KalaBhaiPvt Ltd., Mumbai, India). After the cast was completely set, the impression material was removed from the flask and replaced by molten wax (Modeling Wax, The Hindustan Dental products, Hyderabad, India). Once the wax cooled down, the wax pattern was tried on the patient and this time the prosthesis was not dislodging due to the extra relief provided for the fibrous band. The outer contour was adjusted to match it with contralateral eye. This was followed by positioning of iris with grid method (Guttal *et al*., 2008). After the trial, the customized prosthesis was acrylised using heat cure clear polymethylmethacrylate (Heat Cure, Dental products of India Ltd., Mumbai, India) and heat cure pigments (M.P Shahi dental products, Mumbai, India) were added to match the basic shade of sclerawhile packing (Fig. 5). After processing, the prosthesis was recovered from the flask, for polishing and other finishing touches. This custom ocular prosthesis was tried in the patient's eye to check for extent, fit and comfort. Light curing stains and light curing units were used for characterization of the sclera (SR Adoro;Ivoclar/Vivadent, Schaan, Liechtenstein, Targis Power Upgrade, Ivoclar-Vivadent, Leichtenstein). Sclera was painted with the light curing stains using a fine artist's brush to match the final shade of sclera of the contralateral eye.

The prosthesis was first photo activated for 40 s (Quick curing unit, Ivoclar-Vivadent, Leichtenstein.), then placed in the Targis Power Upgrade unit for 16 min under light and vacuum to complete the polymerisation. After cleaning the prosthesis with mild soap the prosthesis was coated with light active protective coating (Fig. 6) and delivered to the patient (Fig. 7).

REFERENCES

Beumer J. and I. Zlotolow, 1996. "Restoration of facial defects," in Maxillofacial Rehabilitation - Prosthodontic and Surgical Considerations, *J. Beumer, Ed*., pp. 350–364, Mosby, St. Louis, Mo, USA.

Case Reports in Ophthalmological Medicine Volume 2013, Article ID 207634, 3 pages http://dx.doi.org/10.1155/ 2013/207634

Guttal SS, Patil NP, Vernekar N, Porwal A. 2008. A Simple Method of Positioning the Iris Disk on a Custom-Made Ocular Prosthesis.A Clinical Report. *J Prosthodont*., 17:223-7

Kaur A, Pavaiya A, Singh SV, Singh RD, Chand P. 2010. A simplified approach to fabrication of an ocular prosthesis: A case series. *Indian J Dent Res*., 21:615-7

****