



PROSTHETIC REHABILITATION OF OCULAR DEFECT- CASE REPORT

Dental Science

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ABSTRACT

Ocular prosthesis is a prosthesis that replaces the lost eye which may be missing due to trauma, tumours or may be congenitally missing. An aesthetically pleasing ocular prosthesis helps patient regain confidence both socially and psychologically. Custom made ocular prosthesis provide an edge over the stock ocular prosthesis as it is more retentive and cosmetically better matched with the adjacent natural eye.

KEYWORDS

ocular prosthesis, maxillofacial defect, customized cornea

Introduction

Maxillofacial defects not only alter the facial appearance, but also results in psychological trauma to the patient¹. Ocular defects may be congenital or due to any traumatic injury². Patients requiring treatment with ocular prosthesis are those who have lost ocular structure through orbital evisceration or orbital enucleation².

An intraorbital ocular prosthesis serves the purpose in those defects where the orbital margin is intact.

Though the stock eye may match the natural eye's iris and sclera in colour, but the fitting of the prosthesis over the tissue may not be as good as desired³. Customized ocular prosthesis is fabricated to rule out this problem.

CASE REPORT

A male patient aged 24 years (fig-1) was referred to the department of Prosthodontics, NIMS Dental College from the Department of Ophthalmology, NIMS Medical College & Hospital.



Fig-1: Preoperative photograph of patient

The patient on investigation revealed that he got his left eye enucleated after trauma with a blunt object. Examination of the defect revealed a healthy mucosa. The patient was able to perform normal eye movements with the right eye.

For the fabrication of the prosthesis following clinical and laboratory steps were carried out.

The primary impression of the defect was made with irreversible hydrocolloid impression material (Alginate, Zelgan DPI). The mixed mass was loaded in a small perforated stock tray and some material was introduced in the eye with the syringe before placing the tray. After the setting of the material, impression was retrieved from the socket.



Fig-2: Wax pattern with iris

The impression was examined for any defect or void. Then the cast was poured in two layers with type III gypsum product (Neelkanth Minechem, India). The split cast was prepared that the special tray is easily retrieved.

A special custom tray was then fabricated with rapid repair acrylic resin (DENTSPLY). The tray was kept 1mm short from the margins to avoid overextension of the final prosthesis. A small handle was made in the middle of the tray. Then the tissue surface of the tray was loaded with light body impression material (Zetaplus L, ZERMACK S.P.A ITALY) for final impression of the socket. The tray was then removed from the eye. The split cast was poured with Type IV gypsum product (NEELKANTH DIE STONE PLASTER).

A wax pattern was then fabricated in the cast. The wax pattern was tried in the patients socket for proper fit and orientation and the patient was asked to perform various movements.

The iris was obtained from a prefabricated ocular prosthesis after matching of colour and size of the iris. The iris was then incorporated into the wax pattern.



Fig-3: Final finished prosthesis

The proper positioning of the iris is very important. For proper

positioning of the iris few points are marked on the face and patient is asked to look straight forward. The points marked are, one above the medial and lateral canthus of the eye and one at the midpoint. Then the distance between the medial canthal and midpoint of the existing iris is measured. These points were transferred onto the wax pattern (fig-2) placed in patient's socket.

After try in procedure, the finished wax pattern was invested in a small two piece metal flask. After investing the wax pattern, the flask was placed in dewaxing unit. The flask after dewaxing was opened and after cooling of the flask. With iris in place the colour of the sclera was matched for packing with tooth colored heat cure acrylic (ORTHOPLAST).

The flask was then cured for 2 hours. After curing, the final prosthesis (fig-3) was finished and polished to remove any irregularity and to give shiny appearance of sclera. Final prosthesis was placed into the defect (fig-4).



Fig-4: Postoperative photograph of patient

DISCUSSION

Maxillofacial defects such as ocular defects have a great impact on psychology of the patient. The defect needs to be addressed as early as possible'. The custom made ocular prosthesis has advantage over prefabricated ocular prosthesis as it closely adapts to the tissue bed, so as to provide more natural surface for normal lacrimal tear function and to produce desired movement at its full extent'.

In the present case, the prosthesis was fabricated using a combination of iris button from prefabricated eye and customized scleral portion from impression of the socket. A good fitting prosthesis could be achieved by the two impression technique. The sclera was made of polymethylmethacrylate which has good strength and after polishing it is possible to achieve glossy finish which gives life like appearance to the prosthesis. There are various other methods also for fabrication of iris like painting of iris, or cutting out the iris part from the photograph of existing eye and sticking it onto the sclera and coating it with clear acrylic. A prefabricated iris was used to avoid the tedious procedure. A tremendous improvement in the confidence of the patient was observed after the insertion of the prosthesis.

CONCLUSION

This prosthesis could help boost confidence in patient as the prosthesis was satisfactory aesthetically and retentive. The method described in this case report was simple and yielded good results.

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