Interim rehabilitation of a patient with orbital defect by a customized ocular prosthesis -A case report.

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Abstract

Rehabilitation of an orbital defect is a challenging task, which requires a multidisciplinary approach. The aesthetic and psychosocial impairment associated with ocular defects may cause significant physical and emotional problems. Various treatment modalities are available such as the conventional ocular prosthesis retained by bony and soft tissue undercuts, implant-supported orbital prosthesis etc. Although implant-supported orbital prosthesis encompasses a superior outcome, it may not be advisable in all patients due to economic factors. The present article describes a simplified technique for the fabrication of an interim customized ocular prosthesis that rehabilitates the patient with ideal fit and aesthetics.

Keywords: Ocular defects, ocular prosthesis.

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Introduction

The eyes can be considered the most prominent feature of the face. The unfortunate loss or absence of an eye may be caused by a congenital defect, irreparable trauma, tumour, a painful blind eye and sympathetic ophthalmia.[1]. Ocular Defects may include evisceration, exenteration and enucleation. An orbital exenteration denotes the removal of the entire eye globe and surrounding structures whereas enucleation is the surgical removal of the eye globe after severing the optic muscles and optic nerve. These types of eye defects can be congenital and acquired. Congenital absence of the entire eye or acquired defects due to trauma or malignancy is the main causes of such defects. These patients not only suffer from a loss of vision but also become aesthetically compromised which has a great social and psychological impact on the patient.[2] In such cases, a prosthetic eye can improve a patient's social acceptance and confidence.[2] This case report describes a simple technique to rehabilitate a patient with ocular defects with an interim ocular prosthesis.

Case report:

A 35 years old male patient reported to the Department of Oral and Maxillofacial Surgery at Guru Nanak Institute of Dental Sciences and Research with a pan facial fracture involving mainly the right side of the face including the right orbital region with significant damage to the right eye. The patient was operated surgically and his right eye was removed including part of the lower eyelid with the upper eyelid intact. After an initial healing period of 15 days, the patient was referred to the Department of Prosthodontics and Crown and Bridge, for esthetic rehabilitation. After proper investigation and examination (Fig 1), it was decided to fabricate implant-supported prosthesis. But as the patient was not willing

for any further surgical procedure, we planned for an interim ocular prosthesis utilizing the bony and soft tissue undercuts. The whole procedure was described to the patient and consent was taken.

Procedure:

1. Patient was observed and examined clinically. The socket was cleaned properly. The patient was asked to look straight and keep all facial muscles relaxed.
2. Putty impression was made with the help of a plastic stalk. 1 mm surface of the impression was reduced uniformly. Polyvinyl siloxane light body impression material was injected with the help of a 5ml injection syringe (Fig 2).[3] Putty impression was inserted back into the socket (Fig 3). Various eye movement was performed.
3. Impression was retrieved from the socket (Fig 4) and poured in type IV dental stone and a cast was obtained (Fig 5).
4. The mould was coated with separating media and filled with tooth coloured acrylic resin for a thin scleral shell (Fig 6). The shell was placed inside the patient's eye. and adjustment was done.[4]
5. The position of the pupil was marked on the shell (Fig 7). The diameter of the pupil of the other eye (left eye) was measured and a small disc of clear acrylic resin with an identical diameter was fabricated. The disc was painted with acrylic colour to simulate the natural look of the contralateral pupil. The disc was positioned properly on the acrylic shell (Fig 8) and base-plate wax was used to properly contour the prosthesis.[5] The wax pattern was checked on the patient. A small wire was attached to the centre of the pupil as a position indicator and a wax pattern was flasked.[4] After dewaxing, packing was done with tooth-coloured heat cure acrylic resin incorporating fine red coloured fibres for characterisation.[6] Curing and bench cooling was done and the prosthesis was retrieved from the flask. Finishing and polishing were done (Fig 9,10,11). After insertion of the ocular prosthesis, the patient was satisfied with the esthetic outcome(Fig 12).

Discussions:

Lost eyes are replaced with prostheses for several years in the form of stock or custom ocular prosthesis. Often, however, a custom-made ocular prosthesis that provides a more precise and satisfactory esthetic appearance is indicated, especially for those who have lost ocular structures through orbital evisceration or orbital enucleation.[7]An ocular prosthesis can be stock or custom-made. Retention of the ocular prostheses is mechanical where the sulcular fornix usually retains the prosthesis. The adaptation of an adjusted stock eye with the tissue surface can never be as precise as a customized ocular prosthesis.[8] A properly fabricated customized ocular prosthesis not only provides better adaptation but is also more aesthetic. Custom-made prosthetic eye fabrication involves complex painting procedures in various stages that are quite difficult and are based purely on the painting skills of the operator.[9]

The patient was rehabilitated with an ocular prosthesis that was retained mechanically using the anatomical undercuts of the orbital socket. The follow-up appointment showed shrinkage of the lower eyelid creating gradual esthetic discrepancies for long term outcomes. After rehabilitation with an interim ocular prosthesis, the patient was satisfied as it drastically changed the appearance and social acceptance as well as the confidence of the patient. For definitive treatment modalities, we planned to rehabilitate the patient with an implant-supported orbital

prosthesis in future.

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FIGURES:

Figure 1

Figure 2

Figure 3

Figure 4

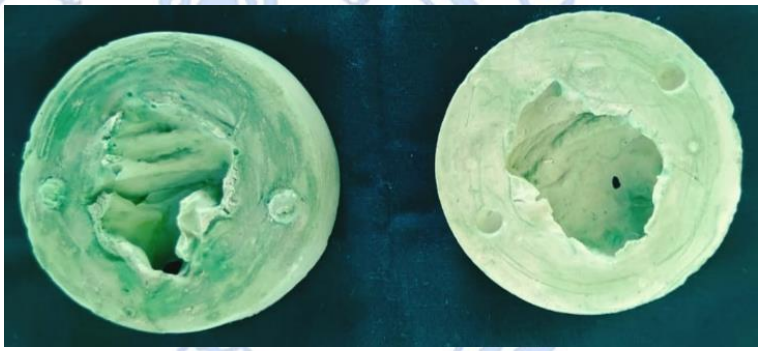

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12