



Improving the quality of life of a geriatric with a lost eye: A Case report

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ABSTRACT

When the standard of living of a maxillofacial patient deteriorates and social integration becomes more complicated, the patient's hopes of returning to "normalcy" frequently crumbles. Underlying emotional issues that were subconsciously buried may come to the surface, or unachievable expectations and unreasonable demands may arise that hinder the prosthodontist's ability to provide adequate treatment. Any facial prosthesis is an art as it is a science. The shape, colour, and texture of the prosthesis must blend in with the surrounding natural tissues as much as possible. The ideal prosthesis would perfectly replicate the missing facial features, so that a casual observer would find nothing that would attract attention to the prosthetic reconstruction. Patients are expected to appear in public fearless of receiving unnecessary attention for rehabilitation to be effective.

Introduction

The role and scope of prosthodontics is not merely about replacement of lost teeth but also pertains with the maxillofacial tissues as well. The creation of an extraoral maxillofacial prosthesis poses a number of daunting challenges to the prosthodontist. Surgical replacement of a lost prosthesis may not be achievable in all the situations where a prosthetic replacement may enhance the psychological well-being of the individual. Extraoral facial prosthesis fabrication is majorly an art than science¹. A missing part of a face, principally an eye, may cause serious physical and emotional consequence. Lost eye can be due to various reasons like trauma, malignancies or congenital factors. Surgical management can take one of three types, depending on

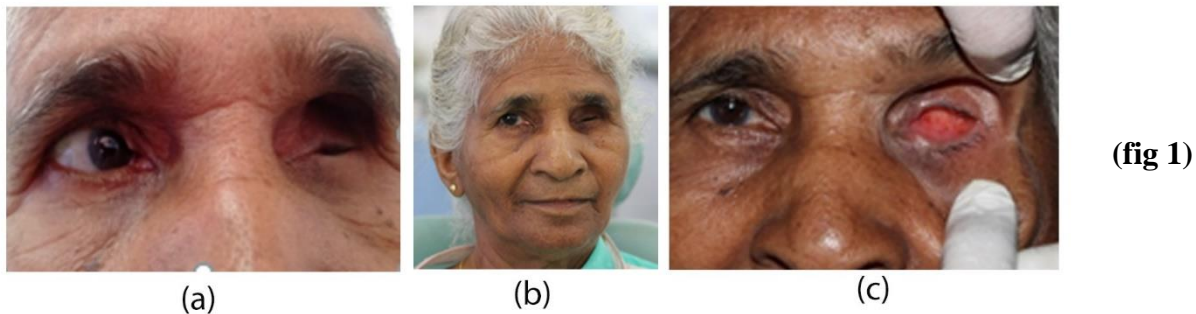
the range of involvement of the lesion viz, evisceration, enucleation or exenteration.² Evisceration is the surgical procedure involving the excision of the intraocular contents of the globe, leaving the sclera, and sometimes the cornea. Enucleation is the surgical removal of the entire globe and a portion of the optic nerve from the orbit. Exenteration is the total elimination of the entire contents of the orbit².

Fabrication of an ocular prosthesis which mimics a natural eye will greatly reduce the psychological distress associated with the lost eye. Prosthetic eyes have been in use since the dawn of time. Egyptians and Romans were the pioneers in fabrication of artificial eyes. Precious stones, copper, gold were the materials of choice in the ancient times. A manufacturer of dolls's eye Ludwig Muller-Uri (1811-88), was the person, who came forward with glass for prosthetic use with native people. Later, methyl methacrylate resin evolved as a material for construction of prosthetic eye due to its resistance to scratches and unbreakable nature. Ocular prosthesis may either be fabricated as custom made or ready-made. However, when cost and time constraints are factors, fabrication with a stock prosthesis is advocated. A flawless prosthesis would perfectly replicate the missing facial features accurately so that the casual spectator would notice nothing which would attract the attention to the prosthetic construction.

This case report illustrates a clinical technique for fabrication of ocular prosthesis with readily available stock prosthesis to render both functionally and esthetically acceptable prosthesis for a geriatric patient.

CASE REPORT

A 70-year-old male patient reported to the Department of Prosthodontics, Annoor dental college and hospital, Muvattupuzha, Kerala, India with a chief complaint of facial deformity due to missing left eye for 20 years (**fig 1**). Evaluation of the physical and psychological condition of the patient was carried out which included the patient's expectations and desires about the prosthesis to be fabricated. The history elicited injury due to trauma of left eye followed which enucleation was done for the same. Visual inspection of the eye socket exhibited a healthy socket without any signs of inflammation covering the posterior wall of the anophthalmic socket and showing mild intermittent movements. The socket was free of irritations. The patient was educated about the steps of making of the prosthetic eye and the expected results of the treatment. The preliminary examinations also comprised of inspection about the relationships of the palpebral fissure both in an open and closed position together with the assessment of the muscle control of the palpebrae and the internal socket anatomy in a relaxed position and during the eye movements of the flawed eye was noted. There were no anomalies in the tissue or muscle attachments were noted.



(a) Anophthalmic socket, (b) Patient's frontal view, (c) Close-up view of the socket

Impressions

The anophthalmic socket was irrigated with saline solution before starting with the preliminary impression procedures (**fig 3**). A preliminary ocular impression of the anophthalmic socket was done with thin mix of irreversible hydrocolloid material (Zhermack tropicalgin, normal setting, IDS Denmed Private Limited, New Delhi) following which plaster of paris was packed to the impression. A cast was prepared from type III gypsum (Stone Plaster, Asian Chemicals, Rajkot) on which a custom tray was prepared using autopolymerising denture base resin (Dental Products of India, Uttarakhand, India) (**fig 2**) (**fig 3**). A specially attached syringe was adjusted to the custom tray through a minor aperture made at the center of it. Border moulding was carried out with low fusing impression compound. Impression of the defect was made using polyvinyl siloxane light viscosity material (Dentsply, Germany). Material was injected into the socket with the syringe attached. The patient was asked to perform various eye movements as the material was injected so that the impression was recorded in functional state. After the material had set, impression was retrieved from the socket and checked to ensure that all the surfaces were recorded. A two-piece type III dental stone cast was poured (**fig 4**). The wax pattern was prepared by dripping molten wax to the impression. The wax was properly outlined and carved to the stock eye shell. This was then tried in patient's anophthalmic socket and checked for size, comfort, support, fullness, and retention by performing all the functional movements. Centering of the prosthesis was done by instructing the patient to look straight and projecting a light source from the backside of the patient to an opposing reflecting glass window so that the reflected light projects on the center of the stock eye (**fig 5**). The stock eye with wax pattern was flaked, dewaxed, and packed with tooth colored heat cure acrylic resin (Dental products of India, Mumbai), with the stock eye shell on the anterior most region. Curing and polishing of scleral shell were done (**fig 6**). A second try-in was performed and the overextensions were marked. It was trimmed to the required size, which was marked on the shell during second try in. The final prosthesis was finished and polished and was inserted in patient's eye (**fig 7**). Post insertion instructions were given and recall check-ups were also done.



(fig 2)

(a) Zhermack tropicalgin, normal setting, IDS Denmed Private Limited, New Delhi, (b) armamentarium for impression making

(a)

(b)



(a)

(b)

(c)

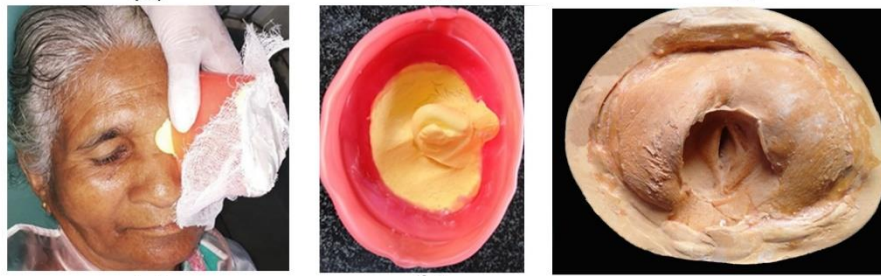


(d)

(e)

(f)

(fig 3)

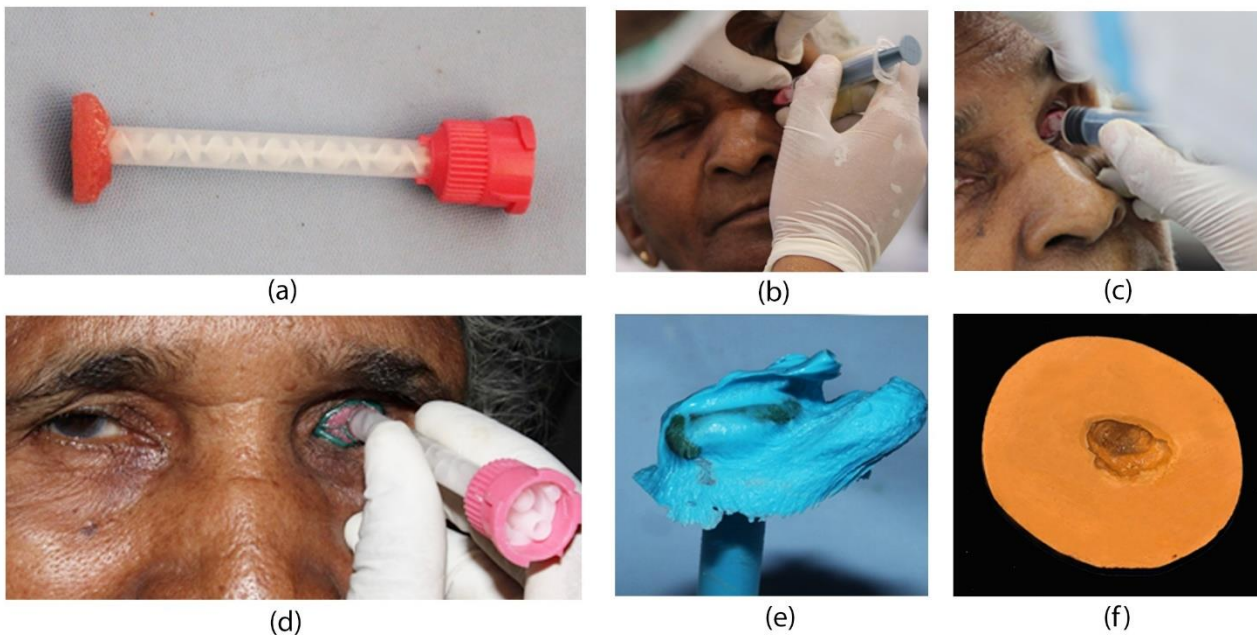


(g)

(h)

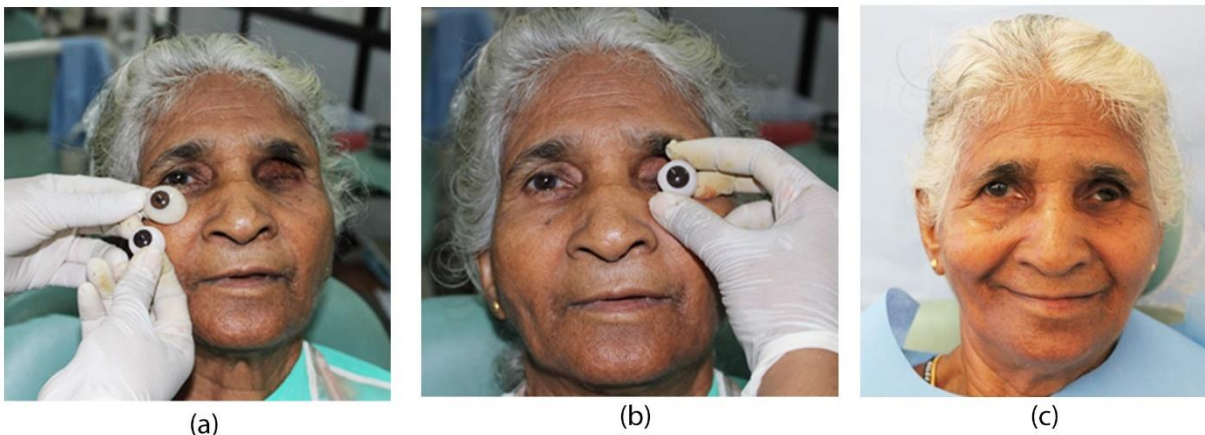
(i)

(a,b) anophthalmic socket was irrigated with saline solution, (c) modelling wax placed as a frame for impression procedures, (d) irreversible hydrocolloid impression material injected to the socket (e,f) packing of plaster of Paris to the impression, (g) the entire unit of impression, (h) retrieved impression, (i) stone cast obtained



(fig 4)

(a) specially attached syringe adjusted to the custom tray, (b, c d) Border moulding with low fusing impression compound, (e) Impression of the defect using polyvinyl siloxane light viscosity material (Dentsply, Germany), (f) type III dental stone cast



(fig 5)

(a,b) shade matching with different stock eye shells (c) stock eye try- in done with wax pattern



(fig 6)

Packing and curing



(fig 7)

(a) frontal preoperative view, (b) frontal postoperative view

Conclusion

Any malformations either facial or not can cause psychological trauma to the patient which can indirectly lead to emotional distress. Rehabilitation aims to reclaim one's credit, self-esteem and social standing. It is necessary to return the missing organ, even if it is in an alloplastic form, in order to complete the procedure. Furthermore, a multidisciplinary interaction is critical to the treatment's success. The patient will be able to protect the area from infection with this prosthesis, and it will also support him mentally in many situations. At the same time, the patient's reintegration into society could be facilitated.

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