



CASE REPORT

Management of Extended Orbital Exenteration using Spectacle retained Orbitofacial Prosthesis

¹KV Arun Kumar, ²NK Sahoo, ³Dinesh Kumar, ⁴Virender Singh Legha

ABSTRACT

Restoration of facial defects is a challenge for both reconstructive surgeon and prosthodontist. There should be collective efforts from the restorative team involved in rehabilitation of the lost tissue to best of the form and esthetics. Orbitofacial defects warrant early and effective treatment protocol to allow incapacitated patients some level of social acceptance. A removable maxillofacial prosthesis which is closely adapted, well retained and with good color match is easily accepted by the patient. Retention of the orbitofacial prosthesis is achieved using various means, like implants, tissue undercuts, adhesives, magnets. A material chosen should be easy to manipulate and compatible to different retentive aids employed. This paper presents rehabilitation of extended orbital exenteration defect with spectacle retained orbitofacial prosthesis.

Keywords: Exenteration, Prosthesis, Orbitofacial, Rehabilitation.

How to cite this article: Kumar KVA, Sahoo NK, Kumar D, Legha VS. Management of Extended Orbital Exenteration using Spectacle retained Orbitofacial Prosthesis. *J Contemp Dent* 2014;4(3):157-159.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Disfiguring wounds resultant to removal of orbital tumors often lead to psychological trauma to the patient. Large facial defects have limited means of anatomical retention but high expectation of esthetics.¹ Providing protection to the vital deeper structures and maintaining the form and esthetics is a greatest challenge in prosthetic rehabilitation of midfacial defects. When restoring lost orbital and surrounding facial structure, orientation of ocular component, shade matching plays a crucial role in the best outcome of the prosthesis. Retention of the facial prosthesis plays a vital role in the success of treatment.

A well-retained and indiscernible prosthesis allows the patient to be accepted in society without being a victim of unwanted empathy.

CASE REPORT

A 43-year-old male patient was referred to outpatient department for the prosthetic rehabilitation of orbitofacial defect on right side. His medical documents revealed that the patient had undergone orbital exenteration along with wide local excision including removal of eye lids for the management of sebaceous cell carcinoma of right eye. Craniotomy of right parental region was also been done. Adjuvant chemoradiation therapy was not given. Three months postsurgery, patient was referred to the division of prosthodontics for rehabilitation. Clinical examination revealed completely healed extended orbital exenteration of right orbit (Fig. 1).

Various treatment modalities were discussed with patient as well as the ophthalmologist. After weighing the pros and cons of different materials and techniques a treatment plan was formulated to fabricate orbitofacial prosthesis using heat-cured polymethyl methacrylate (PMMA) resin retained by the spectacles.

Impression of the defect along with the contralateral eye and surrounding structures was made using irreversible hydrocolloid material along with the type 1 impression compound acting as the tray (Fig. 2). Impression was poured using type 3 gypsum, and cast was retrieved. Wax pattern of the future prosthesis was



Fig. 1: Preoperative photograph of the patient

^{1,4}Reader and Instructor, ²Professor and Head
³Assistant Professor

¹⁻⁴Department of Dental Surgery, Armed Forces Medical College
Pune, Maharashtra, India

Corresponding Author: KV Arun Kumar, Reader and
Instructor, Department of Dental Surgery, Armed Forces Medical
College, Pune, Maharashtra, India, Phone: 02026332931, e-mail:
prarun2009@gmail.com



Fig. 2: Impression retrieved

prepared sculpting the anatomy of orbitofacial area using contralateral nondefect side as a guide. Pre-fabricated acrylic eye shell was selected after matching the color, size and shape of the unaffected eye. Selected eyeshell was incorporated into the wax pattern. Trial of the wax pattern and necessary corrections were done (Fig. 3). Thin polymerized acrylic sticks were attached to the corner of the eye shell to prevent its movement during dewaxing and PMMA resin packing. The wax pattern was flaked and dewaxed to prepare the mold. Intrinsic stains were added to heat cure PMMA resin mix to closely match the patient's skin.

The prosthesis was acrylized and finished. Extrinsic stains were used to match patient's skin. Eyelashes were created using patient's own hair and incorporated onto the prosthesis using cyanoacrylate resin. A properly fitting spectacle was selected. The prosthesis was attached to the rim of the spectacle using autopolymerizing resin (Fig. 4). The completed prosthesis was inserted (Fig. 5). The patient was instructed about the home care and maintenance of the prosthesis. Recall visits were scheduled every week for a month and subsequently once a quarter. NCCN protocol was followed during recall management.



Fig. 3: Wax pattern try in

DISCUSSION

Orbital exenteration is a surgical technique in which the orbital content (eye, adnexa and part of the bony orbit) is removed, to manage large orbital tumors. Bartisch G² a German Physician first described this procedure in 1583. This technique is generally reserved to life-threatening malignancies which are unresponsive to more conservative treatment modalities.³ In extended exenteration, excision of adjacent tissues is performed in achieving complete excision of the tumor with healthy tissue margins.⁴ For many facial defects, surgical reconstruction is the most natural way to restore appearance and normal function. However, surgical reconstruction is not always possible. Orbital prosthesis presents an attractive and possible alternative when esthetic and functional requirements are beyond the capacity of local reconstructive efforts.⁵ Prosthetic rehabilitation of orbital exenteration involving eye lids and facial structures are done by selecting suitable reconstructive material and retentive aid. Frequent clinical examination of the exenterated wound would be necessary to evaluate the recurrence of the malignancy. Hence in the present case, easily removable maxillofacial prosthesis which can be firmly attached to spectacle frame was devised. Orbital prosthesis can also be retained in tissue under cuts, by use of medical grade adhesive and osseointegrated orbital implants.⁶ Use of maxillofacial implants may not be a first option in the radical surgeries involving malignant tumors. In the present case, implants were not considered because lateral and supraorbital ridge was surgical removed.

Polymethyl methacrylate resins are one of the oldest materials used in the fabrication of facial prosthesis. They are used because they are durable, color stable, have good edge strength, economical, easily stained extrinsically or intrinsically, and can be firmly attached to mechanical aid like optical frames, but the disadvantage includes rigidity and water sorption. Medical grade



Fig. 4: Completed prosthesis



Fig. 5: Prosthesis *in situ*

silicone is another material frequently used for extraoral prostheses as it is biologically inert and has life-like appearance⁷ but their disadvantages include the need of sophisticated equipments, poor edge strength as well as color deterioration on exposure to sunlight.⁸ The spectacle used helped in retaining and camouflage the prosthesis.

Home care of the prosthesis includes washing the tissue surface of the prosthesis with mild soap and water twice a day. The prosthesis needs to be removed at night and a soft sterile dressing pad retained around the defect with adhesive tapes are used to cover the defect.

CONCLUSION

Extended orbital exenteration was managed with spectacle retained orbitofacial prosthesis. Prosthetic rehabilitation is preferred treatment modality for orbital defects. An early, well-retained prosthesis with good esthetics would uplift the psychosocial well-being of the patient.

REFERENCES

1. Marunick M, Harrison R, Beumer J. Prosthetic rehabilitation of midfacial defects. *J Prosthet Dent* 1985;54(4):553-560.
2. Bartisch G. Ophthalmodoulcia, Dresden 1583;3:208.
3. Rahman I, Cook AE, Barrow BL. Orbital exenteration: a 13-year Manchester experience. *Br J Ophthalmol* 2005;89(10):1335-1340.
4. Shetty R, Kothari R, Srivatsa G, Sudhakar A. Prosthesis for a case of subtotal orbital exenteration. *IJCDS* 2012;3(1):6-10.
5. Konstantinidis L, Scolozzi P, Hamedani M. Rehabilitation of orbital cavity after total orbital exenteration using oculo-facial prostheses anchored by osseointegrated dental implants posed as a one step surgical procedure. *Klin Monbl Augenheilkd* 2006;223(5):400-404.
6. Glantz PO. On retention of maxillofacial prosthesis. *Odontol Revy* 1972;22:317-325.
7. Rodrigues S, Shenoy VK, Shenoy K. Prosthetic rehabilitation of a patient after partial rhinectomy: a clinical report. *J Prosthet Dent* 2005;93(2):125-128.
8. Chalian VA, Philips RW. Materials in maxillofacial prosthetics. *J Biomed Mater Res* 1974;8(4):349-363.