An Eye for an Eye Makes Maxillofacial Prosthodontics Beautiful: A Case Report

Rasmita Samantaray[1], Krishna Nanda[1], Sitansu Sekhar Das[2]

[1]Postgraduate Student, [2]Professor, Department of Prosthodontics, Institute of Dental Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar 751003, Odisha, India

Abstract

Loss of eye causes physical and emotional disturbace in patient. Rehabilitating the missing eye with ocular prosthesis can alleviate their suffering and brings back confidence in them.Maxilla facial prosthesis includes artificial prosthesis that replaces missing part of facial region which are removed/lost due to trauma,congenital defects or any kind of malignancies. Customized occular prosthesis is one of the method of rehabilitating a missing eye. The re are many method and materials used for fabrication of these prosthesis which has already been discussed in many literature,out of which acrylic resins prosthesis provides better esthetics. The y are economical and characterization is possible. This case report describes the use of stock iris and custom made sclera made up of heat cure tooth colored acrylic.Acrylic resin provides various advantages over stock prosthesis by mimicking the natural eye.

Keywords: *Occular prosthesis, Eye prosthesis, Maxillofacial Prosthesis.*

Introduction

Losing a part of the face especially eye can cause severe physical and emotional problems. Loss of eye can be due to malignancies,congenital defect or irreparable trauma.[1] Depending on "seriousness of loss of eye,the surgical management may include one of three approaches"[2]

Evisceration: "Excision of the intraocular contents of the globe,leaving the sclera and sometimes the cornea".

Corresponding Author:
Dr. Rasmita Samantaray
Postgraduate Student, Department of Prosthodontics, Institute of Dental Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar 751003, Odisha, India
e-mail: drrasmita91@gmail.com

Enucleation: "Removal of the entire globe and a portion of optic nerve from the orbit'.

Extenteration: "Enbloc removal of the entire contents of the orbit including the extra ocular muscles.[3,4]

Custom made eye prosthesis provides "improved aesthetics and fit but usually more time consuming and complicated".

Case Presentation: An 36 year male patient reported to department of Prosthetics, IDS, Bhubaneswar for a prosthetic replacement of missing left eye. His history revealed that he got his left eye eviscerated 4 years ago due to inverter blast. On Examination it was noticed that anopthalmic socket was healthy with synchronous movement. "Adequate depth was present between upper and lower fornices of the affected side of eye for retention of prosthesis". There was a contracture in left eye lid and healed scar in the eyebrow region.

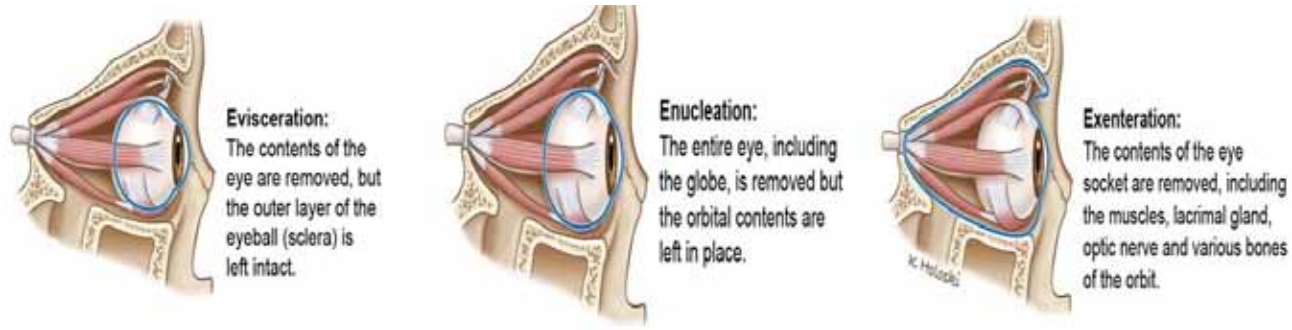

Figure 1.

Figure 2. Left Eye Missing

Technique: Petroleum jelly was applied to the surrounding areas around the eye so that the impression can be retrieved easily. Extra ocular impression was made with alginate (coltene whaledent pvt Ltd) reinforced with simultaneous layering of plaster (BN Chemicals) and Gauge.

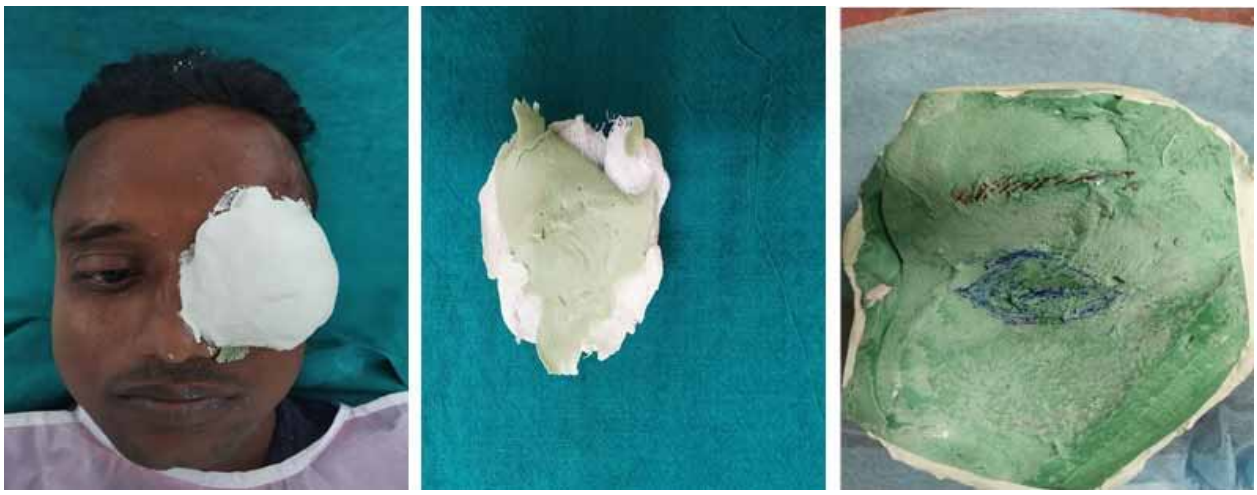

Figure 3. Impression made and cast obtained

After setting of the plaster the whole extra ocular impression was removed and then poured with dental stone (BN chemicals) and cast was retrieved. In the cast spacer of 1 mm was given and a special tray was fabricated using cold cure material (coltene whaledent Pvt Ltd).Fives holes of 2mm diameter was made on the tray. A syringe conformer was attached to the centre of the special trayThe special tray was checked for passive fit in socket and ocular impression was made with light body addition silicone (coltene whaledent Pvt Ltd) by inject through the syringe conformer attached. The patient was asked to make functional movements. After setting of the impression material it was then removed from the eye ball socket. The n the impression was boxed with a paper cup and stone was poured in two layers to obtain a mould. The syringe conformer provided a channel through which molten wax was allowed to flow (maarc,shiva products, mumbai). A commercial available "eye shell" which matched the patients "natural iris" in color and size was selected by matching with the "right eye". The n wax trial was done and position of iris was verified. Flasking and de waxing was done using conventional method. Selected shade of heat cure acrylic resin (coltene whaledent Pvt Ltd) was mixed and packed into the mould and then final curing of heat cure acrylic was done. Trimming and polishing was done. Prosthesis was disinfected. Final insertion of the acrylized prosthesis into the "eye socket" was done and evaluated for esthetics and comfort of the patient. The patient was educated on how to insert and "remove the prosthesis". Regular follow up appointments was scheduled along with instructions on maintenance of prosthesis.

Figure 4. Special tray made and final impression made with light body

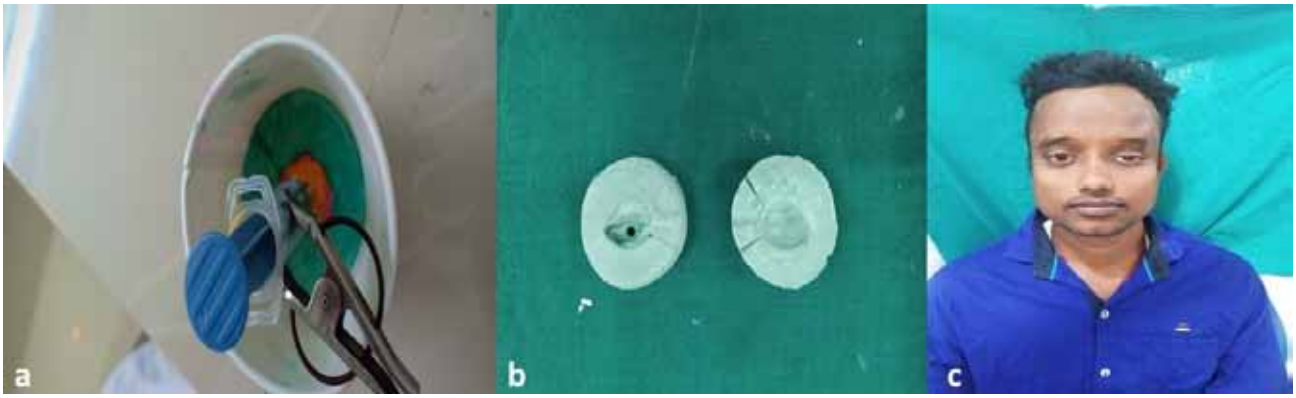

Figure 5. a, b. Final Impression Boxed and Split Cast c. Wax Trial Done

Figure 6. Final Insertion Of Prosthesis

Discussion

Custom made eye prosthesis gives a close contact between prosthesis and tissue bed thus it prevents accumulation of tears and mucous thus incidence of conjunctival abrasion and infection is less. It also provides good esthetic result and retention and stability[5]. Also in custom made prosthesis the iris and the sclera can be painted in accordance with the adjacent natural eye thus making it appear more esthetically pleasing.

Conclusion

Customized occular prosthesis is one of the method of rehabilitating a missing eye. The re are many method and materials used for fabrication of these prosthesis which has already been discussed in many literature,out of which acrylic resins prosthesis provides better esthetics. The y are economical and characterization is possible. This case report describes the use of stock iris and custom made sclera made up of heat cure tooth colored acrylic. Acrylic resin provides various advantages over stock prosthesis by mimicking the natural eye.

Funding: Nil

Conflicts of Interest: There are no conflicts of interest

Ethical Approval: Approved

References

1. Doshi PJ, Aruna B. Prosthetic management of patient with ocular defect. J Indian Prosthodont Soc 2005;5:37-8.
2. Moore DJ, Ostrowski JS, King LM Jr. A quasi-integrated custom ocular prosthesis. J Prosthet Dent 1974;32:439-42.
3. Newton JT, Fiske J, Foote O, Frances C, Loh IM, Radford DR. Preliminary study of the impact of loss of part of the face and its prosthetic restoration. J Prosthet Dent 1999;82:585-90.
4. Kale E, Mese A, Izgi AD. A technique for fabrication of an interim ocular prosthesis. J Prosthodont 2008;17:654-61.
5. Beumer J, Curtis TA, Marunick MT. Maxillofacial Rehabilitation: Prosthodontic and Surgical Considerations. 2nd ed. St. Louis: Ishiyaku EuroAmerica; 1996. p. 422-5.
6. Bartlett SO, Moore DJ. Ocular prosthesis: A physiologic system. J Prosthet Dent 1973;29:450-9.
7. Moore DJ, Firtell DN. A simplified method of measuring the diameter of the anterior segment of the eye. Am J Ophthalmol 1969;67:769-70.
8. Sykes LM, Essop AR, Veres EM. Use of custom-made conformers in the treatment of ocular defects. J Prosthet Dent 1999;82:362-5.
9. Chin K, Margolin CB, Finger PT. Early ocular prosthesis insertion improves quality of life after enucleation. Optometry 2006;77:71-5.
10. Guttal SS, Patil NP, Vernekar N, PorwalA. Asimple method of positioning the iris disk on a custom-made ocular prosthesis. Aclinical report. J Prosthodont 2008;17:223-7.
11. Rathbun JE, Beard C, Quickert MH. Evaluation of 48 cases of orbital exenteration. Am J Ophthalmol 1971;72:191-9.
12. Hooper SM, Westcott T, Evans PL, BoccaAP, Jagger DC. Implant-supported facial prostheses provided by a maxillofacial unit in a U.K. regional hospital: Longevity and patient opinions. J Prosthodont 2005;14:32-8.
13. Parr GR, Goldman BM, Rahn AO. Postinsertion care of the ocular prosthesis. J Prosthet Dent 1983;49:220-4. 14. Cain JR. Custom ocular prosthetics. J Prosthet Dent 1982;48:690-4.
14. Welden RB, Niiranen JV. Ocular prosthesis. J Prosthet Dent 1956;6:272-8. 16. Shivji AR, Bhat S, Shetty P. Prosthodontic management of an ocular defect – A case report. J Indian Prosthodont Soc 2001;1:33-5.
15. Laney WR. Maxillofacial Prosthetics. 1st ed. The

University of Michigan, PSG Pub. Co.; 1979. p. 279-306.

16. Peyman GA, Sanders DR, Goldbeirg MF. Principles and practice of ophthalmology. New Delhi, Jaypee Brothers Medical Publishers (P) Ltd. 1987;3(2). p. 23-34 .
17. V. A. Chalian, R. W Phillips. Maxillofacial prosthetic material. J Biomed Mat. Sep 2004; 8(4):349-363.
18. V. A. Chalian, J. B Drane. Maxillofacial Prosthetics – multidisciplinary practice. The William and Wilkins. Co 1972.
19. J.W Stansbury, J.M Antonucci. Dental Materials. 1999; 15: 166-173.
20. Mark S. Chambers, James C. Lemon, Jack W. Martin. Anterior key method for indexing orbital prosthesis. J Prosthet Dent. 2002; 87: 102-5.