IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 23, Issue 5 Ser. 11 (May. 2024), PP 57-61
www.iosrjournals.org

A Customized Acrylic Ocular Prosthesis Fora Geriatric Patient With Monopoly Syrup: A Case Report

Ispita Roy[1], Pratibha Katiyar[2,] Kaushik Kumar Pandey[3], Shaily Tyagi[4], Fauzia Tarannum[5], Abhishek Kumar Katiyar[6], Mariyam Ali[7], Sana Khan[8], Diksha Singh[9]

Pg Student, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital, Lucknow, Uttar Pradesh, India.
Professor, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital,Lucknow, Uttar Pradesh, India.
Associate Professor, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital, Lucknow, Uttar Pradesh, India.
Associate Professor, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital, Lucknow, Uttar Pradesh, India.
Associate Professor, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital, Lucknow, Uttar Pradesh, India.
Assitant Professor, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital, Lucknow, Uttar Pradesh, India.
Professor & Head, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital,Lucknow, Uttar Pradesh, India.
Pg Student, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital, Lucknow, Uttar Pradesh, India.
Pg Student, Department Of Prosthodontics, Career Post Graduate Institute Of Dental Sciences & Hospital, Lucknow, Uttar Pradesh, India.

Abstract
Geriatric patients with maxillofacial defects need a clinician who can handle their psychological issues with confidence. The clinician should also be aware and respectful of their medical and financial situations. Losing an eye can affect a person's psychology deeply, so it is important to replace it as soon as possible. This can help the patient heal physically and psychologically, and improve their social acceptance. Geriatric patients with ocular defects have different treatment goals and approaches than other patients. The clinician should consider the length and number of appointments, as well as their medical and financial statuses. This article shows how a geriatric patient with an ocular defect was rehabilitated with a customized ocular prosthesis, using monopoly syrup and a minimal intervention geriatric approach.

Keywords: *Ocular prosthesis, Geriatric patient, customized ocular prosthesis, monopoly syrup.*

Date of Submission: 21-05-2024 Date of Acceptance: 31-05-2024

I. Introduction

Replication of a human by the present advancement of technology has not yet been successful, and out of all the incredible cameras and lenses that are made till date are yet to match the sophistication of the human eye. It's an organ that enable us to logically comprehend our external environment with their colors and shape. Loss of this organ will definitely impair us visually as well as effect the mental and social well being.

Restoring the vision may not always be possible by replacing the organ and might have medical consequences and financial burden. Another viable solution to the issue is to restore the natural appearance of the eye, which can provide a sense of normalcy to the patient and will be aesthetically pleasing as well as boost his self esteem and social life.

A prosthetic eye can help improve the appearance of people who have lost an eye to injury or disease. It's also commonly called a "glass eye" or "fake eye" which is a type of craniofacial prosthesis that replaces an absent natural eye following an enucleation, evisceration or orbital exenteration. It is indicated in the patient with eye injuries, eye disease, eye surgery and pre-existing conditions such as blindness. There are 5 types of artificial eyes- conformer, prosthetic eye, scleral shell, flush shells and orbital prosthesis. Ocular prothesis is used for reinstating the natural appearance by utilizing stock or custom made organs. Customized ocular

prosthesis are basically made from biocompatible material such as medical grade acrylics or silicone elastomers. Ocular prosthesis can retained by using cuts present on the eye or through implant. Implanting a prosthetic eye (ocular prosthesis) is almost always recommended after an eye is surgically removed due to damage or disease. This implant supports proper functioning of eyelid but a prosthetic eye cannot restore the vision. After the natural eye is removed and it is replaced by prosthetic eye, a person will have no vision in that eye. Therefore, someone with an ocular prosthesis is altogether blind on the affected side and has monocular (one sided) vision.

II. Case Report

A 80 yearold male patient reported to the Department of Prosthodontics, Career Institute of Dental Science and Hospital, Lucknow, U.P, India, for prosthetic rehabilitation of his missing right eye. His history revealed that his right eye was congenitally missing (Figure-1). On examination, no signs of inflammation as well as there was sufficient depth in the socket and movement between the upper and lower eyelids. Upon, all the through examination procedure, all the available treatment options were discussed with the patient and with the final patient concern, the decision was made to create a customized acrylic ocular prosthesis that can give a natural looking appearance as the patient's left eye.

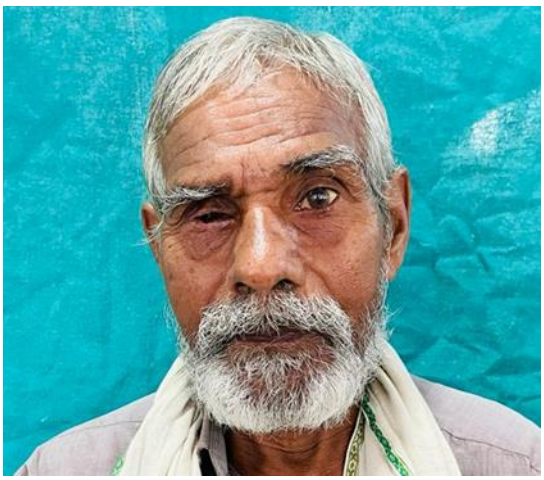

Figure-1 Pre Operative

The patient's eye underwent irrigation with saline water, followed by the application of thin layer of Vaseline.Impression of contralateral side was made using alginate in disposable syringe1. Poured the impression with dental plaster. Fabricate an ocular tray with perforation on it and then fix it to tip of the syringe. Light body wash impression material was loaded onto the syringe and the material was injected on the defected side of the eye and ask the patient to perform various eye movement.Once the impression material is set. The impression is taken out and evaluated carefully if there is any presence of voids (figure 2).

Figure 2 Impression Made

The impression was encapsulated and cast in type 3 dental stone employing a two-pour casting technique (fig-3). Subsequently, molten modelling wax was introduced into the master cast, lubricated with a separating medium, to fabricate a wax conformer. Following its refinement, the wax conformer was positioned

within the patient enucleated socket, and the retention was assessed by instructing the patient to perform various eye movements (fig-4).

Figure 3 Impression Poured
Figure 4 Wax Pattern Trail

Six lines were marked on the face (fig-5).The contralateral natural eye's iris was gauged at 12 mm using a divider and using the same measurement mark the center on the wax and place the stock iris over that center point. Once the position of iris is confirmed than the wax pattern along with the iris is ready for acrylization.

Figure 5 Orentation Of Iris

The dewaxing of the wax pattern, along with the stock iris, was carried out using the wax elimination technique to achieve the mold. A tooth color molding powder was employed to form a scleral blank, with the stock iris acrylized along with it using the conventional method. Upon completion of acrylization, the custom-made ocular prosthesis underwent finishing. A try-in of the prosthesis was conducted, and the patient was instructed to perform all eye movements to assess the fit and retention of the prosthesis.

Acrylic paints were applied to match the scleral color of the patient's left eye, with shell coloring typically conducted in natural light. Monopoly syrup, a mixture of monomer and polymer of pink-colored self-cure acrylic resin in a 1:10 ratio, was utilized to secure the artificial blood capillaries over the colored sclera. A 1 mm layer of modeling wax covered the entire sclera, followed by dewaxing to achieve the mold. The mold was then filled with transparent heat-cure acrylic and cured using a short curing cycle as per the manufacturer's instructions. The ocular prosthesis underwent meticulous polishing with burs, pumice, and buff, maintaining its convexity and contour to achieve a glossy finish appearance. Following cleaning and lubrication with ocular lubricant, the prosthesis was inserted into the eye socket (fig 6).

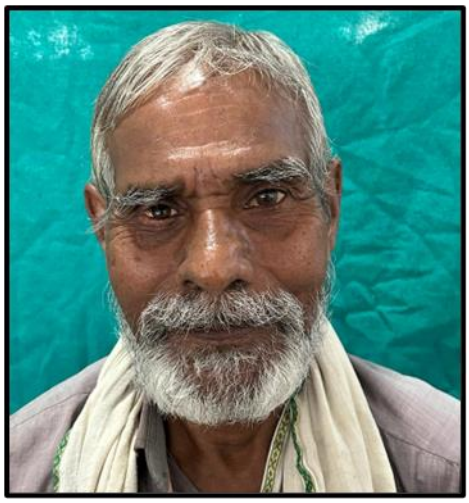

Figure 6- Final Prosthesis

The patient received guidance on placing and removing the prosthesis, with straightforward care and hygiene instructions that can be easily followed. The need for periodic repolishing was also explained. Following instructions to care for and maintain the prosthesis, the ocular prosthesis was handed over to the patient.

III. Discussion

The non-functional yet aesthetically suitable prosthesis serves as a confidence-restoring solution, preventing social embarrassment for patients. This technique outlines the fabrication using readily available materials by Maxillofacial prosthetic personnel and ocularists, ensuring a well-fitted artificial eye with natural aesthetic. The 'reverse curing' protocol eliminates residual monomer through elevated-temperature curing, a departure from prior methods. The double curing procedure involves initial curing procedure involves initial curing of the base eye shell and a subsequent cycle for the thin clear layer. Notably, the reverse curing method, proven effective in denture fabrication, has shown no allergic reactions in various regions emphasizing the importance of meticulous polishing to prevent conjunctival irritation.

It's important to note that prostheses may not be feasible in every case. Alternative treatment approaches, such as surgery or opting for no treatment, may be considered in certain situation.

IV. Conclusion

In conclusion, ocular prostheses created using conventional methods have served as a crucial solution for individuals who have experienced the loss of an eye. These traditional techniques, often involving skilled artisans who meticulously sculpt, paint, and fit the prosthesis, offer a unique and personalized approach to restoring the natural appearance of the eye. The process requires careful attention to detail to ensure that the artificial eye closely resembles the patient's remaining natural eye in color, size, and shape, contributing to a realistic appearance. The conventional method has proven reliable, offering a well-established framework for creating prostheses that meet the individual needs of each patient. However, this approach also demands considerable expertise and manual craftsmanship, which can make it a time-consuming and resource-intensive process. Despite the emergence of new technologies, conventional methods remain valued for their personalized touch and artistic craftsmanship. They provide a sense of familiarity and tradition that continues to be appreciated by many patients and practitioners. Moving forward, combining conventional methods with modern innovations could yield even more precise and comfortable ocular prostheses, ultimately benefiting those who rely on these devices for their physical and emotional well-being.

References

[1] Ocular Prosthesis-A Simulation Of Human Anatomy: A Literature Review. Sajjada. Cureus. 2012;4:74. [Google Scholar]
[2] Evisceration, Enucleation And Exenteration. Perman Ki, Baylis Hi. Otolaryngol Clin North Am. 1988;21:171–182. [Pubmed] [Google Scholar]
[3] Prosthetic Rehabilitation Of An Ocular Defect By Custom Eye Prosthesis: A Clinical Report. Basnet Bb, Singh Rk. Int J Dent Sci Res. 2014;2:115–119. [Google Scholar]
[4] The Ocular Impression: A Review Of The Literature And Presentation Of An Alternate Technique. Mathews Mf, Smith Rm, Sutton Aj, Hudson R. J Prosthodont. 2000;9:210–216. [Pubmed] [Google Scholar]
[5] An Ocular Prosthesis: A Case Report. Kohli D, Mehta S, Makwana P, Choudhary S..Pravara Med Rev. 2011;3:27–30. [Google Scholar]
[6] Relining An Ocular Prosthesis: A Case Report. Smith Rm. J Prosthodont. 1995;4:160–163. [Pubmed] [Google Scholar]

[7] The Fitting And Fabrication Of A Custom Resin Artificial Eye. Benson P. J Prosthet Dent. 1977;38:532–538. [Pubmed] [Google Scholar]
[8] A Technique For Fabrication Of An Interim Ocular Prosthesis. Kale E, Meşe A, Izgi Ad. J Prosthodont. 2008;17:654–661. [Pubmed] [Google Scholar]
[9] Ocular Prosthesis Incorporating Ips E-Max Press Scleral Veneer And A Literature Review On Non-Integrated Ocular Prosthesis. Da Costa Gc, Aras Ma, Chalakkal P, Da Costa Mc. Int J Ophthalmol. 2017;10:148–156. [Pmc Free Article] [Pubmed] [Google Scholar]
[10] Rehabilitation Of Phthisis Bulbi: A Case Report. Brajesh Pa, Nivedita Mh, Ramesh C, Nagaraj E. J Clin Diag Res. 2011;5:1679–1681. [Google Scholar]