ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 6, Issue – 4, July - 2023, Page No. : 45 - 48

Ocular prosthesis rehabilitation: Boosting self-esteem of the young: A case report.

[1]Dr. V Sivaraman, PG Student, Department of Prosthodontics, Crown & Bridge, NIMS Dental College and Hospital Jaipur Rajasthan, India

[2]Dr. Alok Sharma, HOD &Professor, Department of Prosthodontics, Crown & Bridge, NIMS Dental College and Hospital Jaipur Rajasthan, India

[3]Dr. Yashikha M, PG Student, Department of Pediatric and Preventive Dentistry, NIMS Dental College and Hospital Jaipur Rajasthan, India

[4]Dr. Priyanka, PG Student, Department of Prosthodontics, Crown & Bridge, NIMS Dental College and Hospital Jaipur Rajasthan, India

Corresponding Author: Dr. V Sivaraman, PG Student, Department of Prosthodontics, Crown & Bridge, NIMS Dental College and Hospital Jaipur Rajasthan, India.

Citation of this Article: Dr. V Sivaraman, Dr. Alok Sharma, Dr. Yashikha M, Dr. Priyanka, "Ocular prosthesis rehabilitation: Boosting self-esteem of the young: A case report", IJDSIR- July - 2023, Volume – 6, Issue - 4, P. No. 45 – 48.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Loss of an eye leads to significant psychological stress due to functional disability and societal response to the facial disablement. Rehabilitation with ocular prosthesis relieves this psychological trauma by restoring the lost facial structure and esthetics of the patient, thus aiding the individual in leading a normal, social and professional life. Prosthodontic rehabilitation of such cases includes fabrication of prosthesis by acrylic resin, silicone and implants. However, not all patients are willing to use implants for maxillofacial rehabilitation. Therefore, a custom-made orbital prosthesis serves as an affordable and satisfactory alternative.

Keywords: Eye Prosthesis, Iris Positioning, Eye Defect.

Introduction

Rehabilitation of a missed eyeball using an ocular prosthesis is a crucial procedure in the field of oral and maxillofacial prosthetics. A congenital defect, disease, accidental injury, or surgical intervention can all result in the loss of face tissues or organs. An ocular prosthesis serves as a prosthetic replacement for the missing eye. Maxillofacial prosthetics aims to improve the patient's facial aesthetics, and thus their physical, psychosocial, and mental well-being. An ocular prosthesis can either be stock or custom made. Stock ocular prosthesis are available in a variety of conventional sizes, shapes, forms, and colours. They are typically used for interim or postoperative treatment.[1] Custom-made ocular

prosthesis makes more intimate contact with the tissue bed, distributes pressure more evenly than stock prosthesis, and reduces conjunctival abrasion. This close tissue contact improves tissue health by decreasing accumulation of fluid in the tissue prosthesis interface. The accumulation of fluid can cause tissue irritation and increased bacterial growth.[2] However, fabricating a custom-made prosthetic eye presents several obstacles. One of the most difficult tasks is accurately positioning an iris. Pupilometer, anatomical landmarks, ocular locator, profile gauze, visual assessment, tongue blades, rulers, vernier calliper, adobe photoshop, graph grid, spectacles with grid, occlusal plane with grid, and other techniques have been well documented in the literature for proper iris positioning. To achieve an aesthetic result, the iris must be precisely positioned.[3] This case report describes a simplified technique to fabricate an acrylic custom-made ocular prosthesis.

Case report

A 30-year-old male patient was referred from the Department of Maxillofacial surgery to the Department of prosthodontics, Crown and Bridge for rehabilitation of a missing eye with a prosthesis. Patient came with the chief complaint of missing right eye due to an automobile injury, 6months ago. On examination, the right eye socket exhibited completely healed-up eye socket, eyelid constriction, reduced size and depth. A decision was made to fabricate a customized ocular prosthesis, using the iris from the stock eye. [figure1]

The patient was seated in an erect position to allow the tissues involved in the defect to be recorded in their natural drape. An impression of the orbital socket was made with light body addition silicone impression material (Aquasil, DENTSPLY) using a special tray fabricated from the stock eye [figure 2] and modifications were made to achieve the correct shape and contour of the eye reducing any overextensions. A silicone putty index was made of the impression. [figure 3] Once it had set, it was cut open and blue carving wax (pyrax) was flown into it. On hardening, the wax pattern was gently retrieved, cooled in cold water and smoothened with the help of a carver and gauze. The wax pattern was then tried in the patient's eye for fit, comfort, bulkiness of the pattern and drape and mobility of the eyelids. Necessary adjustments were made.

To attach the iris (Hanau Springbow; Whip Mix Corp) reverse U-shaped frame of the Hanau spring bow was used such that the orbital pointer was stabilized on the lower border of the left ala of the nose. This standardized and stabilized the facebow and act as the third point of reference. Transfer clamp assembly of the facebow was attached to the reversed facebow frame which enabled it to readily accommodate the distance between the outer and inner canthi of the eye and attach it to the transfer clamp assembly. Graduated scale was attached horizontally to the edentulous facebow fork with double-sided tape (Scotch-brand double-sided white tape; 3M). Width of the iris of the normal (healthy) eye and the width of the mediolateral clinical sclera were measured. Patient was asked to look straight ahead and central point of the iris of the normal eye based upon the midpoint value on the scale was noted. Position of the iris was marked based on the markings on the scale. Position of the iris and sclera in the ocular/orbital prosthesis based on the markings on the scale was determined. All the recorded measurements relating to the healthy eye to the wax pattern with the help of the scale measurements were transferred. [figure 4] A suitable stock eye having an iris that matches the size and shade of contra lateral eye was selected. The stock eye was trimmed to eliminate the scleral portion and the

iris was obtained. Wax pattern with the stock iris was tried in.

The wax pattern was then flasked in a two-part flask using dental plaster. After dewaxing, [figure 5] the flask was packed with clear heat-cured acrylic resin (Technovent Ltd, South Wales, UK). Rough edges of the prosthesis were trimmed off. It was polished with the help of polishing burs, pumice and a buff to give the prosthesis a natural glossy finish. The patient was taught how to place and remove the prosthesis. Instructions regarding the care and hygiene were very simple to follow and can be executed by the patients. Repolishing of the prosthesis may be required on a timely basis and this was explained to the patient. [figure 6].

Discussion

The prosthesis, while not functional, is an excellent aesthetic replacement for such patients. It helps patients regain confidence and avoid social embarrassment. This technique discusses the fabrication of a prosthesis using readily available materials that are frequently used by maxillofacial prosthetic personnel and ocularists. It must be remembered that it is not possible to make prosthesis in all cases. Other treatment options like surgery or sometimes performing no treatment may be chosen in some cases.[4]

A custom-made ocular prosthesis achieves intimate contact with the tissue bed, allowing for an optimal fit and evenly distributing pressure on the tissue bed. The procedures used for a custom-made ocular prosthesis include imprint of the socket, wax pattern trial, iris position, and acrylization.[5] Mc Arthur described technique to use an ocular locator for correctly positioning an artificial eye in an orbital prosthesis. He also recommended for using face measurements to compare the pupil of a prosthetic eye to the pupil of a normal eye. Pupilometer was described by Roberts. Benson proposed visual evaluation as a technique of choosing. The method discussed here is a basic procedure that modifies previous methods for iris placement.[5] Other advantages of this technique are it is less time consuming, requires minimal skill, no need for assistance, uses established reference plane, allows repeated checking of iris position, can be used for multiple patients and is easy to use in clinical setup. The disadvantage is the limitation in the selection of colour and size of the iris.[6]

Conclusion

The technique described in this report represents a straightforward and cost-effective method that meets the technical requirements of the clinician and results in a more aesthetically pleasing and accurate prosthetic outcome. The technique described in the article uses the established reference plane which hence gives an accurate registration of position of iris disk assembly.

References

1. Shetty PP, Chowdhary R, Yadav RK, Gangaiah M. An iris positioning device and centering approach: A technique. The Journal of prosthetic dentistry 2018 Jan1;119(1):175-7.
2. Debnath N, Gupta R, Meenakshi A, Ramkumar K, John J. A simplified approach to fabricate a custom-madeocular prosthesis. Int J Prosthodont Restor Dent 2013 Jan;3(1):25-9.
3. Belkhode VM, Nimonkar SV, Chaudhary SC, Hakkepatil A, Nimonkar P, Prajapat J. An innovative method for iris positioning in a prosthetic eye. The Journal of Contemporary Dental Practice 2020 Aug 19;21(7):815-8.
4. Sethi T, Kheur M, Haylock C, Harianawala H. Fabrication of a custom ocular prosthesis. Middle East African journal of ophthalmology 2014 Jul;21(3):271.

5. Meena AA, Vidya C, Praveen R, Manjita MP. Precise iris positioning in ocular prosthesis using an eyewear. J Dental Sci 2017;2(1):000121.
6. Chamaria A, Aras MA, Chitre V, Da Costa GC. Iris positioning using a grid attached to a spring bow for a custom ocular prosthesis. Journal of Clinical and Diagnostic Research: JCDR. 2017 Mar;11(3):ZD12.

Legend Figures

Figure 1: Preoperative

Figure 2: Impression using light bodied impression material

Figure 3: Fabrication of the trial wax shell

Figure 4: clinical sclera measured on scale and recorded.

Figure 5: dewaxing and orientation of eye shell

Figure 6 : postoperative