International Journal of Research in Medical Science
www.medicalpaper.net
Online ISSN: 2664-8741; Print ISSN: 2664-8733
Received: 03-11-2019; Accepted: 04-12-2019; Published: 13-01-2020
Volume 2; Issue 1; 2020; Page No. 09-12

Fabrication of a Custum ocular and definitive palatal obturator

Ammar Belal[1], Abdul Mouin Aljammal[2]
[1] Master Degree in Prosthodontic, Faculty of Dentistry, Al Wataniya Private University, Hama, Syria
[2] Professor. PhD in Prosthodontic, Faculty of Dentistry, Hama University, Hama, Syria

DOI: https://doi.org/10.33545/26648733.2020.v2.i1a.17

Abstract
Defects of maxillofacial may lead to a functional and aesthetic deficiency, this results in the patient becoming visually esthetically and psychologically handicapped. This clinical report describes the fabrication of a custum Ocular and palatal obturator for a patient with an acquired injury because of a gunshot that led to the loss of the entire left eye and part of his palate.

Keywords: maxillofacial prosthodontic, palatal obturator, ocular prosthetic

Introduction

Removable partial prosthodontic is a component of prosthodontics, the branch of dentistry pertaining to the restoration and maintenance of oral function, comfort, appearance, and health of the patient by the restoration of natural teeth and/or the replacement of missing teeth and craniofacial tissues with artificial substitutes [1].

Patients can be categorized by maxillofacial defects that are developmental defects whitch occur because of some genetic predisposition that is expressed during growth and development, whereas the acquired ones are the most common maxillofacial defects which managed by using removable prostheses include those that are the result of trauma or of disease and its treatment. prostheses can be extraoral (cranial or facial replacement) or intraoral (involving the oral cavity) [1].

Oral functions including chewing, swallowing, respiration and speech can be affected whenever the patient suffers from a palatal defect such as a nasal leakage of food or fluid and the hypernasality of speech become inevitable problems [2].

Defects of the eye may follow removal of part or entire orbit and restoring the defect with a silicone‐ or acrylic‐based prosthesis not only restores the esthetics but also lost confidence to the patient [3], though a multiple specialties including prosthodontist, ophthalmologist and maxillofacial surgeon can be considered for a good esthetic and stable outcome [3, 4, 5], Indwelling eyes are made to fit precisely the confines of the ocular socket of the patient, they mainly comprise of the sclera and iris, therefor are colored and polished to make the prosthesis look natural, also they protect the eye cavity from infection, these eyes can be prefabricated or custom made, but the latter one offering better fit and esthetics [3, 4, 6].

Case Report

A twenties young male patient reported to us with acquired defect in his eye and maxilla because of several gunshots, the sclera and iris were not completely present and Complaining of nasality and nasal reflux because of the defect in his maxilla, the only option avilable for the patient was a prosthetic Eye and palatal obturator prosthetic (Fig 1) (Fig 2).

Fig 1: pre-treatment view.

Ocular prosthetic Fabrication

Preliminary impression was made with irreversible hydrocolloid (Hydrogum, Zhermac, Ialy) for the fabrication of custom tray using a sterile injection without needle for injection of the alginate into the socket and for holding the

Fig 2: intraoral view.

impression material in the place during the impression procedures and puring on outside the socket, a roll of putty sillicone (Zeta plu, Zhermak, Italy) were placed (Fig 3) (Fig 4).

Roll of modelling wax (Tenatex, Kemdent, UK) were placed for puring the impression with type III gypsum (Shera, Italy) and the base were made with pink gypsum type IV (Shera, Italy), (Fig 5).

The custom tray was made with autopolymerizing clear acrylic resin (Kemdent orthodontic, Kemdent, UK), and the special tray

was evaluated for any overextension in the ocular defect and corrected before final impression, also some holes created in the custom tray.

Fig 3: roll of putty sillicone befor injetion of alginate.

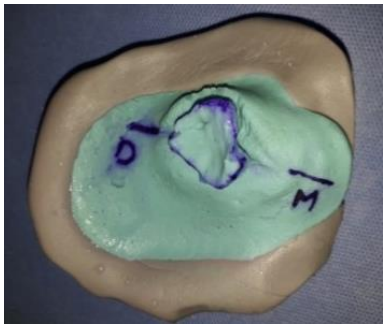

Fig 4: Preliminary Impression.

The final impression was made by light body polyvinyl siloxane (Elite hd, Zhermac, Italy) and pured with the pink gypsum type IV (Shera, Italy), (Fig 6).

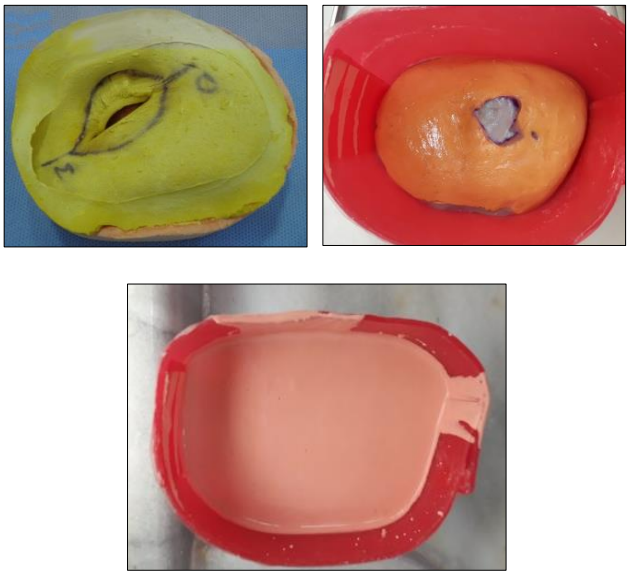

Fig 5: Study cast.

Fig 6: final impression and cast.

wax eye model was created through the final cast and tested in the eye socket, then a prefabricated eye shell was matched with the healthy eye for the patient and fitted in the eye socket by trimming it, after that the shell was fitted to the wax model, The wax relined the stock eye and was adjusted by softening the wax in hot water and the patient was asked to do various eye movements which included closure of eyelid and moving the other eye in upward and downward direction as well as right and left movement (Fig 7).The wax-in trial ocular prosthesis was replaced by a heat polymerized clear acrylic resin (Dots acrylic, Dots, England) (Fig 8). The ocular prosthesis was trimmed and polished, then inserted (Fig 8). The post insertion instructions were given and patient was recalled for follow-ups.

- **Palatal obturator prosthetic Fabrication**

preliminary impressionwas made with Irreversible Hydrocolloids (Hydrogum, Zhermac, Ialy) and pured with dental stone Type III (Shera, Italy) to obtian the study cast which were Surveyed by a surveyor (Fig 9).

Fig 7: wax model and prefabricated eye

Fig 8: post insertion ocular prosthetic.

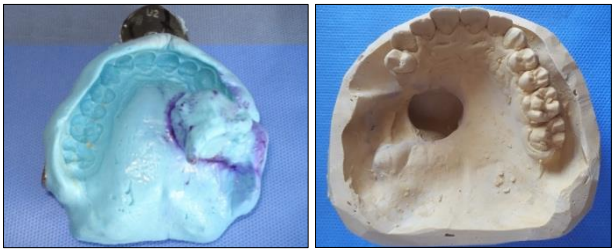

Fig 9: Preliminary impression and study cast.

The custom tray was made by autopolymerizing acrylic resin (Simplex Hi, Kemdent, UK) and checked in the patient mouth brfore making the final impression which was made by polyvinyl siloxane (Elite hd, Zhermac, Italy) and corrected by impresion compound sticks (Kerr, Italy), after that pured with the pink gypsum type IV (Shera, Italy), (Fig 10). Palatal major connector was adopted as a major connector and extracoronal circumferential clasps were used as retainers (Fig 11).

The framework fitting was checked in the patient mouth and the occlusal relationship was Registered and confirmed in the mouth after arificial tooth setting (Fig12).

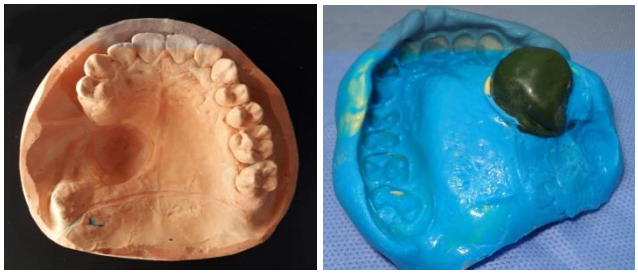

Fig 10: Final impression and final cast.

Fig 11: the cast metal for the obturator.

Fig 12: Arificial Tooth setting.

The denture was processed with heat polymerized clear acrylic resin (Acron Rapid, Kemdent, UK), after that the obturator was delivered to the patient after assessment for the speech, mastication and adjustment procedures for the denture base borders or occlusal errors (Fig 13).

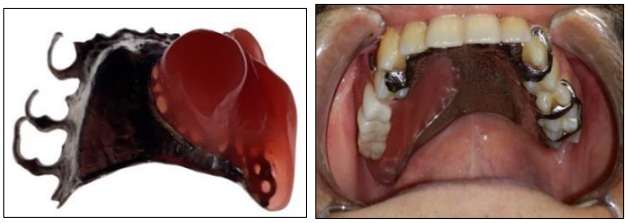

Fig 13: The definitive palatal obturator.

Discussion

Although the ocular prosthetic in not functional device, but it is a very suitable esthetic replacement for such patients. It restores self‐confidence to the patients and prevents social embarrassment. This technique describes the fabrication of a prosthesis with materials that are easily available and regularly used by removable prosthodontic specialist. The procedure ensures a good fit of the artificial eye and a good natural esthetic outcome and this corresponds to a previous case [7].

Regarding to palatal obturator is considered an excellent esthetic and functional option that eliminates surgical steps or reduces it and gives the patient more predictable and lasting results and can be easily repeated or repaired in case of need.

Conclusion

Prosthetic rehabilitation can be a good alternative to surgical reconstruction for patients who have an Excision in his palate or losing in the structures of his face as eye defects and gives a good appearance and function for his masticatory, speech ,deglutition and his facial esthetics.

References

1. Carr AB, Brown DT. McCracken's Removable Partial Prosthodontics. Elsevier Health Sciences, 2016, 315.
2. Lin FH, Wang TC. Prosthodontic rehabilitation for edentulous patients with palatal defect: report of two cases. Journal of the Formosan Medical Association. 2011; 110(2):120-4.
3. Guttal SS, Joshi SM, Pillai LK, Nadiger RK. Ocular prosthesis for a geriatric patient with customised iris: a report of two cases. Gerodontology. 2011; 28(2):152-6.

4. Artopoulou II, Montgomery PC, Wesley PJ, Lemon JC. Digital imaging in the fabrication of ocular prostheses. The Journal of prosthetic dentistry. 2006; 95(4):327-30.
5. Bartlett SO, Moore DJ. Ocular prosthesis: A physiologic system. The Journal of prosthetic dentistry. 1973; 29(4):450-9.
6. Patil SB, Meshramkar R, Naveen BH, Patil NP. Ocular prosthesis: a brief review and fabrication of an ocular prosthesis for a geriatric patient. Gerodontology. 2008; 25(1):57-62.
7. Sethi T, Kheur M, Haylock C, Harianawala H. Fabrication of a custom ocular prosthesis. Middle East African journal of ophthalmology. 2014; 21(3):271.