

Prosthetic rehabilitation of hemimaxillectomy with attachment retained obturator – A case report

¹Dr. Meenakshi Akshaya Lingam, MDS, Professor and HOD, Department of Prosthodontics, Tamilnadu Government Dental College and Hospital, Chennai.

²Dr. Periyasamy, MDS, Past Postgraduate, Department of Prosthodontics, Tamilnadu Government Dental College and Hospital, Chennai.

³Dr. Ishwarya Balasubramanian, Post graduate, Department of Prosthodontics, Tamilnadu Government Dental College And Hospital, Chennai.

Corresponding Author: Dr. Ishwarya Balasubramanian, Post graduate, Department of Prosthodontics, Tamilnadu Government Dental College And Hospital, Chennai.

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Abstract

Prosthetic rehabilitation for a hemimaxillectomy case can be challenging and needs careful case study analysis and treatment planning. Moreover, to restore proper function, proper oronasal sealing while providing retention and stability is of utmost importance. In this case report, fabrication of an attachment retained definitive obturator with precision attachment, which overcome the short comings of conventional obturator and therefore providing better retention and stability is discussed in detail.

Keywords: Definitive obturator, attachment retained, retention and stability

Introduction

Etiology for a palatal defect can be various, including congenital malformation, pathological changes, radiotherapy, trauma, surgical intervention due to an infection like osteomyelitis or a disease like carcinoma among others [1,2]. Irrespective of the etiology, these defects subject the patient to compromised speech with hypernasal tone, communication of oral contents into nasal cavity and vice versa, and impaired masticatory functions.

Obturator prosthesis is special rehabilitation prosthesis, fabricated to establish the oronasal seal, therefore improving speech, esthetics, mastication and deglutition [3]. Definition for an obturator according to Glossary of Prosthodontic Terms is that “a maxillofacial prosthesis

used to close a congenital or acquired tissue opening, primarily of the hard palate and/or contiguous alveolar or soft tissue structures” [7].

Case report



Figure 1: Intra-oral view- maxillary arch

A male patient of age around 51 years, reported to the Department of Prosthodontics, Government Dental College, Chennai, with the chief complaint of regurgitation of oral fluids and food into the nose for the past 1 and half years. No relevant medical history. Past dental history is that Patient has undergone hemi-maxillectomy due to Chronic Osteomyelitis before 1.5 years in a Private Hospital in Hosur. Extra-oral findings included compromised and hypotonic upper lip. Upon Intra-oral examination, maxillary ridge was found to be flabby anteriorly, with well healed surgical margins involving anterior part of the maxilla and pre-maxilla. Teeth present were 17 and 18 (Figure 1). Mandible had retained root stumps in relation to 36, which was extracted and later rehabilitated with TPD. After careful and thorough classified as Aramany's Class IV maxillary defect. Treatment plan devised was to rehabilitate the patient with Rhein attachment retained maxillary obturator.

Procedure



Figure 2a: Tentative jaw relation right side.



Figure 2b: Tentative jaw relation left side.

Tentative jaw relation (Figure 2a and 2b) was done first to determine the adequacy of the inter-occlusal space required for the attachment retained maxillary obturator. The defect was blocked with a Vaseline lubricated guaze piece prior to primary impression making. Preliminary impression was then done using irreversible hydrocolloid(alginate) (Figure 3) and primary cast (Figure 4) poured using type II dental stone. Special tray fabricated (Figure 5) using light cure sheets, mockup of the teeth present -17 , 18 was done using double spacer and border molding done using green stick compound. Separate special tray was fabricated for the defective area and border molding done using green stick compound. The special tray of the defective area was placed on the special tray of the maxillary arch and pick-up impression was made using elastomeric impression material for secondary impression.



Figure 3: Primary impression.



Figure 4: Primary cast.

For the attachment, minimal vital preparation of the teeth 17 and 18 done for metal crown (Figure 6). Retentive sleeves of the Rhein attachment was placed on the mid-occlusal surface of the crown. Careful considerations were made and secondary impression in taken in such a way that the male component of the retentive sleeves of the attachment gets picked up along with the impression (Figure 7). Master cast poured using type IV dental stone (Die stone). Jaw relation was recorded and transferred to a mean-value articulator; teeth setting was done. After the wax try-in (Figure 8a,8b,8c) and modifications carried out, the waxed-up obturator was fabricated by conventional flasking method using heat cure resin, final finishing and polishing of the obturator prosthesis done conventionally (Figure 9a, 9b). The finished and polished obturator was inserted into the patient's mouth, intra-oral adjustments made, well-polished and delivered to the patient (Figure 10). The retention at the time of insertion was very good and the patient was completely satisfied with the prosthesis for improved esthetics, function and that his

chief complaint being addressed. Maintenance instructions and oral hygiene instructions were given to the patient. Review done after three months and the retention quality was assessed to be very good.



Figure 5 : Special tray fabricated using acrylic sheets.



Figure 6 : metal crowns having attachments.

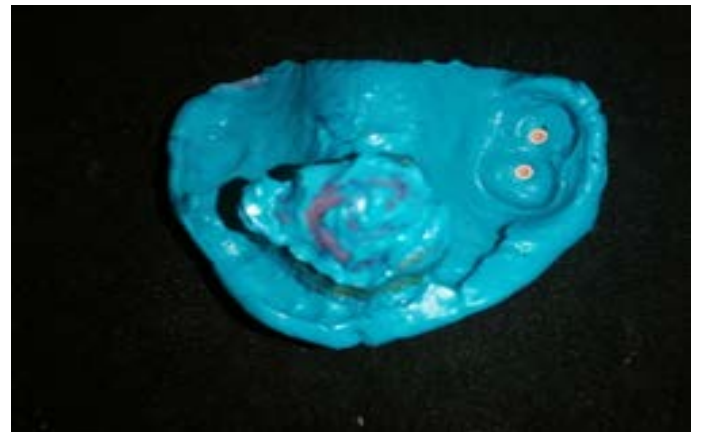


Figure 7 : Secondary pick-up impression.



Figure a



Figure b



Figure c

Figure 8 (a, b, c) : wax try-in



Figure a



Figure b

Figure 9 (a,b) : Final finished and polished obturator along with mandibular TPD.



Figure 10: Post-insertion patient image.

Discussion

Rehabilitation of oral functions in maxillectomy patients using attachment is an established treatment modality. Although proven to be light in weight comparatively [6], hollow bulb obturator is still proven to have some disadvantages like being heavier than a conventional removable prosthesis [4, 5], having water and food leakage. Cast partial obturators are heavy and thus can jeopardize patient's comfort. Implant retained obturators are new advancements and shows significant improvement in quality of life, although lesser to presurgical state. However, cost, patient's overall health and bone quality are several limitations to implant usage [8].

By using precision attachment, these shortcomings are overcome while providing better retention similar to that of a fixed prosthesis. This type of obturator not only provides better retention and stability, but is also easy to maintain thereby facilitating better oral hygiene.

Conclusion

Fabricating a definitive obturator prosthesis for a hemimaxillectomy patient requires thorough case analysis, taking into consideration the patient factors

such as addressing the chief complaint, at the same time providing better retention, function and stability. Comprehensive knowledge and skills along with better understanding of the patient psychology can facilitate providing better design to enhance the masticatory functionality, improve speech clarity and overall health, esthetics and quality of life.

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