

Restoration of a post-surgical maxillectomy defect with an interim obturator - A review with case report

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ABSTRACT

The prosthodontic rehabilitation of patients with acquired defects of the maxilla after surgical resection is the complete responsibility of a maxillofacial prosthodontist. He has to recreate an artificial barrier between the cavities and thus restore the functional capabilities of speech, mastication and swallowing.[1] The second phase of postsurgical prosthodontic treatment is called interim obturation, the first being immediate surgical obturation. The objective of this phase is to provide the patient with a comfortable and functional prosthesis until healing is complete. Following is a case report of a post surgical maxillectomy patient rehabilitated with an interim obturator.

Introduction

Few areas of dentistry offer more challenges to the technical skills and ingenuity or greater satisfaction, than the successful rehabilitation of function and esthetics of patients with acquired or congenital intraoral and extra oral defects. A rewarding area of prosthodontics is the rehabilitation of patients with acquired maxillary hard and soft palatal defects. Here, the prosthodontist contributes to facets of patient care from diagnosis and treatment to rehabilitation. In most circumstances, the prosthetic prognosis is favorable; patients are pleased and grateful upon completion of rehabilitation.

The term obturator has been derived from the latin word 'obturare' which means to shut off. Prosthodontic therapy for

patients with acquired surgical defects of the maxilla can be arbitrarily divided into 3 phases of treatment, with each phase having different objectives. The initial phase is called surgical obturation and entails the placement of a prosthesis at surgery or immediately thereafter. The primary objective of immediate surgical obturation is to restore and maintain oral functions at reasonable levels during the initial postoperative period. The second phase of postsurgical prosthodontic treatment is called interim obturation. The objective of this phase is to provide the patient with a comfortable and functional prosthesis until healing is complete. The timing of the interim obturator phase is somewhat variable. This phase may not be necessary if the defect is small and the patient is functioning well with the immediate surgical obturator. However, variations in the extent of surgery as determined presurgically, rapid tissue changes



Figure 1: Pre-operative view



Figure 2: Initial Impression

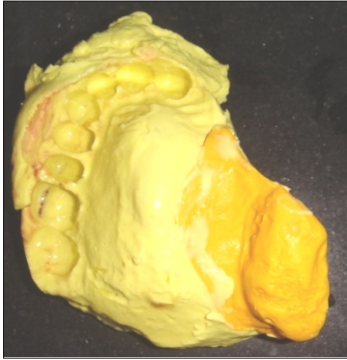


Figure 3: Final Impression

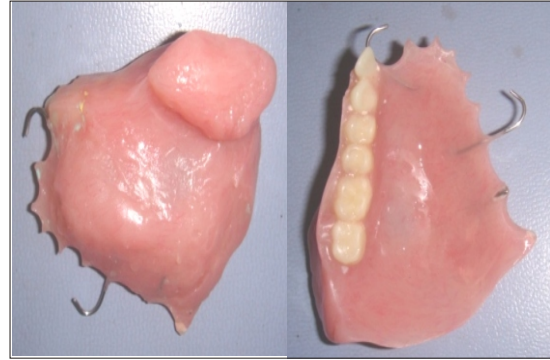


Figure 5: Finished Obturator



Figure 4: Wax up



Figure 6: Post Operative view

immediately following surgery and extensive surgical defects may necessitate fabricating either a new interim prosthesis, or major modifications to the surgical obturator. The timing of the interim phase is dependent upon the level of patient function and, if treatment is necessary, it is usually instituted 2 to 6 weeks postsurgically. Three to six months after surgery, the surgical site becomes well-healed and dimensionally stable, thus permitting construction of the definitive prosthesis or the third phase of prosthodontic therapy.

This article is a case report describing a simple technique for the fabrication of an obturator for the rehabilitation of a patient who had undergone partial maxillectomy for the treatment of carcinoma hard palate.

Case Report

A 45 year old male patient reported to the department of Prosthodontics, Regional Dental College for prosthetic rehabilitation after 2 months of having undergone a partial maxillectomy for the removal of carcinoma in the right side of the hard palate. He had an Aramany's Class I defect (Figure 1).[2] On examination a defect was seen on the right maxilla upto the lateral incisor. The central incisor on the resected side was present. All teeth in the left quadrant were present. Patient presented with complaint of reflux of food through nose especially fluids. He also wanted his

esthetics to be restored which got lost due to loss of teeth. Since healing was not adequate enough for fabrication of a definitive cast metal definitive prosthesis, it was decided to give the patient a heat cure acrylic interim obturator with teeth to serve both the function of mastication as well as esthetics.

Impression Technique

Softened impression compound was placed in the defect area as the undercut was not irregular and preliminary impression was made in a stock tray using irreversible hydrocolloid (Figure 2) as the tissues were still in the healing phase. The primary cast obtained was used to fabricate a custom tray for the definitive impressions. The custom tray was made from cold cure acrylic and undercut this time was blocked with putty (Figure 3) so that entire undercut is properly engaged and the elasticity of putty allows easy removal of the impression as well. Over impression was made with quick setting alginate as the patient did not allow any low viscosity material due to hyperactive gagging. The caste was poured in Type III dental stone

Jaw Relations

Occlusal wax rim was made in the maxillary arch in the area devoid of teeth. Jaw relations were recorded. An attempt was made to compensate for the loss of facial support on the defect side. The jaw relation was transferred to a semi-adjustable articulator.

Verification of Jaw Relation and Esthetic Try In

After selecting the teeth denture try-in was performed in the conventional manner, as in the complete denture construction. Patient's approval regarding esthetics was obtained

Processing of the Interim Obturator

The obturator was processed in heat polymerizing acrylic resin. The final prosthesis was inserted into the patient's mouth and it was checked for proper palatal contour and peripheral seal. The patient was educated about the maintenance of the prosthesis and was recalled for regular post-insertion visits. Adequate retention, stability and support were observed on subsequent recalls.

Discussion

The main difficulty in this case was to record the undercut area accurately as there were no teeth on the resected side to support a clasp for retention. The undercut had to be used to the maximum for achieving retention. At the same time the unhealed tissues had to be taken care of. Dual impression with a low viscosity material was not possible due to patient's unco-operation. So it was decided to use putty to record the undercut and thin mix of alginate was loaded on the custom tray for the overimpression. The extension of the tray was kept to the maximum for proper border seal. The Interim obturator helped in separation of the nasal and oral cavities of the patient, from each other to form speech voices better and to protect nasal cavity from the food escape during chewing, and swallowing. It has to be noted that in the absence of an interim obturator, soft tissues remain unsupported and collapse dramatically and aesthetic and/or possible psychological problems may occur.[3]

Conclusion

Fabricating a successful obturator prosthesis used for the prosthetic

rehabilitation of congenital or acquired defects in maxilla depends on making a detailed impression and constructing the prosthetic parts compatible with the oral tissues. Basic prosthodontics principles are followed during the fabrication of an obturator prosthesis while taking extreme care of the more resilient and unsupported tissues.[1,4,5] Some principles need to be modified according to defect, the condition and the position of the remaining structures. The defect in conjunction with the remaining structures must be used to provide support, retention and stability to the prosthesis. Acceptable prosthodontics care for a patient with acquired maxillary defect should include making of a detailed impression and a cautious prosthesis designing, combined with routine maintenance and ample care to provide comfort, function, aesthetic and minimal changes to the remaining compromised structure.

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