

Oral rehabilitation of a patient with sub - total maxillectomy

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Abstract

This clinical report describes oral rehabilitation of a patient with sub-total maxillectomy with palatine process of maxilla and horizontal plate of palatine bone intact to retain the maxillary obturator. Clinical examination has been performed to know the amount of favorable undercuts to be used for retention of the obturator for better functional efficiency. Successful prosthetic reconstruction of hemimaxillectomy defect is a challenging procedure that requires multidisciplinary expertise to achieve acceptable functional speech and swallowing outcomes. This article describes the oral rehabilitation of a patient with sub-total maxillectomy with a maxillary obturator. Oral rehabilitation of sub-total maxillectomy patient is a challenging task. Obturation of the defect depends on volume of the defect, and positioning of remaining hard and soft tissues to be used to retain, stabilize, and support the prosthesis. A maxillary obturator for edentulous patient must provide for retention, stability, support, patient comfort, and cleanliness.

Keywords: Maxillary obturator, oral rehabilitation, retention, stability, sub-total maxillectomy

Introduction

A maxillary oral squamous cell carcinoma (SCC) is generally treated with a conventional surgical excision. The resultant surgical defect often includes part of the hard and soft palates, which results in an oro-antral communication.^[1]

The hard and soft palates are anatomical structures that have widely recognized roles in speech and deglutition. When these structures must be removed, partially or completely, because of malignancies, a team approach is critical. A surgical approach alone without reconstruction or obturation of the surgical defect will result in air, liquid, and food escaping into the maxillary sinus and nasal cavities, causing severe speech and swallowing dysfunction with significant reduction in quality of life.^[2]

Speech is often unintelligible as a result of the marked defects in articulation and nasal resonance resulting from the anatomical and structural defect. Thorough pre- and

postsurgical reconstructive and prosthetic treatment planning will ensure the best rehabilitation of a maxillectomy patient.^[3]

Numerous techniques and materials for making obturators have been suggested.^[4-17] This clinical technique describes oral rehabilitation of a patient with sub-total maxillectomy with a maxillary obturator.

Case Report

A 55-year-old female diagnosed with SCC of the right maxillary sinus had undergone hemimaxillectomy. She had a recurrence on the left side and was reoperated. Sub-total maxillectomy was performed and after proper healing, she was referred to the Department of Prosthodontics, Government Dental College, Bangalore, India.

The patient's chief concerns were relative to speech, mastication, and esthetics. Extra-oral examination revealed reduced fullness due to loss of support [Figure 1]. On intraoral examination, a big communication was present between nasal and oral cavity except a minor part of the palatine process of maxilla and horizontal plate of palatine bone [Figure 2].

Speech pathology, head and neck, and maxillofacial prosthetics/dental oncology services were consulted to evaluate the extent of resection and functional deficits. A consensus among the specialists recommended an obturator to restore speech and swallowing abilities and esthetics.

An irreversible hydrocolloid impression was made with a stock tray [Figure 3]. The impression was boxed and poured in type IV stone (Ultrarock, Kalabhai Karson Pvt. Ltd, Mumbai) [Figure 4]. Undercuts on the cast were blocked. Record bases were made with heat cure acrylic resin (Lucitone 199, Dentsply Int.) [Figure 5]. The jaw relation was recorded. After the try-in, the solid obturator was processed in heat polymerized acrylic resin (Lucitone 199, Dentsply Int.).

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Access this article online	
Quick Response Code:	Website: www.contemplindent.org
	DOI: 10.4103/0976-237X.79293



Figure 1: Pre-treatment photograph showing reduced fullness



Figure 2: Intra-oral photograph showing the defect



Figure 3: Maxillary impression along with the defect



Figure 4: Master cast showing the resected area



Figure 5: Heat-cure acrylic record base



Figure 6: Maxillary obturator in patient's mouth

After curing of the prosthesis, the flash was trimmed. The prosthesis was pumiced, polished, and delivered to the patient [Figures 6-8]. The patient was instructed to correctly position, remove, and clean the prosthesis.

The prosthetic retention and stability were evaluated subjectively. Speech intelligibility improved and the patient was then referred to the speech pathology department for further evaluation of his speech and swallowing abilities. The patient returned a week later for a follow-up appointment. He was satisfied with esthetics and function of the prosthesis.



Figure 7: Patient's frontal view along with the prosthesis



Figure 8: Post –treatment photograph with increased fullness and improved esthetics

Discussion

Obturator prosthesis for maxillary defects is frequently associated with problems that result from the lack of retention and stability. Maxillofacial reconstruction of the partition between the nasal and oral cavities in the edentulous patient relies on anatomical undercuts and structures, such as remnants of the soft palate, palatine process of maxilla, and horizontal plate of palatine bone, for retention.^[3]

An appropriate prosthetic fit and functional success ensure that the patient ultimately uses the device during daily routines. It is important that clinicians do not overlook the importance of referral to the speech pathologist, particularly in patients for whom the success of a prosthetic obturator after total or sub-total maxillectomy depends on the ability to adequately speak and swallow.

Summary

Subtotal and total bilateral maxillectomy defects represent a complex challenge for the maxillofacial prosthodontist. In this clinical report, preoperative treatment planning involving the head and neck surgeon, the maxillofacial prosthodontist, and the speech pathologist resulted in an obturator that enabled the patient to speak and swallow successfully.

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Source of Support: Nil, **Conflict of Interest:** None declared.