

Simplified Edentulous Treatment Technique for Edentulous Hemimaxillectomy Patients: Case History Report

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Technical difficulties in the construction of hard palate obturators following oncologic surgery are due to the recording limitations of the entire defect area, plus prosthesis base instability during recording of maxillomandibular relationships. This article describes a time-saving technique that ensures stable and precise recording bases. A light-polymerizing acrylic resin layer is used for making the first impression of the defect, while simultaneously obtaining an acrylic resin impression tray and base for recording maxillomandibular relationships. Adhesive paper copies are used for the arrangement of the anterior teeth. *Int J Prosthodont* 2015;28:48–50. doi: 10.11607/ijp.3980

Surgical management of hard palate cancer with extensive tissue loss is functionally and esthetically compromised unless prosthodontic intervention is immediately initiated. The technical difficulties associated with obturator fabrication result from the limitations associated with recording the entire area of the defect and the instability of the trial denture bases while recording maxillomandibular relations. These difficulties are due to the extension of the defect, the necessary blocking out of undercuts, and the weight of the obturator.

Although different techniques have been proposed^{1,2} to obtain rigid, stable, and retentive record bases, a newer, simpler, and time-saving technique has been adopted from the simplified edentulous treatment (SET)^{3–5} method that facilitates a reliable recording phase and early delivery of the prosthesis.

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Materials and Methods

Description of the Patient

A 52-year-old man was diagnosed with keratinized squamous carcinoma of the maxillary sinus mucosa and underwent a left hemimaxillectomy with surgical removal of the anterior part of the masseter, temporalis, and lateral pterygoid muscles, together with resection of the terminal part of the pterygoid process. He received postoperative radiotherapy treatment and wore his old complete maxillary denture, which was adapted to the palatal surgical defect. He presented with a restricted opening of the mouth and reduced interarch space.

Clinical Procedures

A suitable maxillary commercial tray for edentulous arches was chosen. Intraoral modeling of a soft putty polyvinyl siloxane buildup in the tray was performed in order to roughly adapt it to the defect area. The clinician trimmed the silicone buildup and then completed the following:

1. Heated and adapted the multilayer impression tray (MIT, Major) in the tray. The MIT (Fig 1)³ is a baseplate made of three layers: soft yellow wax and light polymerizing resin interposed with a thin plastic film. The MIT has to be heated in controlled hot water (+ 60°C) until the wax is softened and then adapted in the inner surface of the tray. All excess material in this phase was removed.
2. Reheated the MIT to facilitate the further adaptation of the baseplate.

Fig 1 (top) The multilayer impression tray is made up of a 2-mm light polymerizable composite resin layer and a sheet of soft wax used as a support for the impression. (bottom) The bone resorption compensating curve is a device to quickly and easily orient the occlusal plane three-dimensionally, defining the height of the maxillary rim and vestibular support for the soft tissues.



Fig 2 (below) Impression is taken with the multilayer impression tray adapted to the custom tray.



Fig 3 (left) The maxillary rim is constructed on the acrylic resin base by means of the bone resorption compensating curve and an unpolymerized light polymerizing acrylic resin roll. Once the rim is adapted in the proper shape and dimension, it is polymerized.



Fig 4 (right) Anterior teeth arrangement defined with the aid of plasticized paper teeth copies. An impression of the defect was taken using ultra light and putty soft silicone.



3. Created a relief of the first impression of the defect (Fig 2) with the tray and the MIT.
4. Removed the impression tray and polymerized the MIT acrylic resin layer still in the tray.
5. Separated and finished off the resin layer, which was by then a stable individual baseplate precisely adapted to the edentulous ridge and the defect. Any palatal and ridge defect in the baseplate may be reconstructed by adding and adapting pieces of light polymerizing acrylic resin and molding the borders. The correct fit was checked with a fit checker silicone.
6. Constructed and oriented a maxillary rim on the resin base plate with a bone resorption compensating curve (BRCC, Major)³ (see Fig 1) and an unpolymerized light-polymerizing resin preshaped rim. The rim can easily be oriented three-dimensionally and shaped until it is light-polymerized (Fig 3).
7. Chose and arranged the anterior teeth: plasticized adhesive paper teeth copies that correspond to the definitive artificial resin teeth (Adhesive Paper Teeth Major Plus, Major⁵) were chosen and stuck on the surface of the rim. The arrangement was double checked with the approval of the patient.
8. Made a relief of the final impression using silicone or polysulfide material.
9. Realized a silicone index to record the maxillo-mandibular horizontal relationships (Fig 4).
10. Transmitted the block obtained⁴ (base, impression, rim, esthetic data, and maxillomandibular recording) to the laboratory for the construction of the obturator.
11. Delivered the definitive obturator and performed follow-up in the customary way.

Results

The patient was rehabilitated in three clinical sessions: (1) relief of impression, esthetic data, and maxillomandibular recording; (2) trial dentures; and (3) delivery. The usual small adjustments were performed during follow-up sessions.

Discussion

SET is a flexible and modular method that permits denture completion and delivery in just a few appointments, as per patient needs and dentist preference. The method ensures precise and stable trial denture record bases and impression tray that is molded directly in the patient's mouth, thereby taking advantage of all desirable undercuts and favorable aspects of the defects.

Conclusions

The described technique accurately records the defect morphology and permits simultaneous recording of the maxillomandibular relationship. The protocol is virtually error proof and ensures optimal precision during all of the clinical steps leading up to the delivery of the denture.

Acknowledgments

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Literature Abstract

Interaction of alcohol use and specific types of smoking on the development of oral cancer

This case-control study investigated the combined and interactive effects of different types of smoking and alcohol consumption on the development of oral cancer. A total of 350 cases and 350 controls from Morbai Naraindas Budhrani Cancer Institute, Pune, India, were interviewed. The case and control groups were matched in terms of age (mean age: 52.4 years versus 51.8 years), gender (male:female sex ratio, 2.5:1 versus 2.6:1), and residential status. Results showed that smoking and alcohol consumption were significantly higher in the case group (35.7% versus 17.4% and 30.3% versus 13.7%, respectively). Among smoking types, *bidi* (a thin, hand-rolled cigarette filled with tobacco flakes and wrapped in a leaf) showed highest association with oral cancer (odds ratio [OR] = 4.1; 95% confidence interval [CI], 2.4 to 6.9); followed by nonfiltered cigarettes (OR = 2.5; 95% CI, 1 to 6.7). Among alcohol types, hard liquor had the highest association with oral cancer (OR = 2.6; 95% CI, 1.2 to 5.5), followed by country liquor (OR = 2.5; 95% CI, 1.3 to 3.6), and beer (OR = 2.2; 95% CI, 1.2 to 5). Individually, filtered cigarettes (OR = 1.4; 95% CI, 0.8 to 2.3) and wine (OR = 1.7; 95% CI, 0.6 to 4.3) were not significantly associated with oral cancer. Use of both tobacco and alcohol has a multiplicative effect on risk of oral cancer. Bidi and alcohol had significantly higher risk of oral cancer (OR = 19.6; 95% CI, 4.6 to 83.5), followed by nonfiltered and filtered cigarettes and alcohol [(OR = 4.2; 95% CI, 1.8 to 12.0) and (OR = 2.3; 95% CI, 1.1 to 5.0), respectively]. The authors concluded that smoking and alcohol consumption have a significant, interactive role in oral cancer development.

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