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# A Method to Construct an Interim Obturator using Presurgical Tissues for Maxillary Palatal Defect

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## Abstract

The presence of oral cancer necessitates the surgical removal of all or part of the maxilla, leaving the patient with a defect that compromises the integrity and function of the oral cavity. Surgical unit along with the prosthodontic counterpart goes hand in hand for the fulfilment of the post restorative re-establishment of the oral functioning.The immediate line of treatment includes maxillectomy with the initial insertion of an immediate surgical obturator at the time of surgery followed by the insertion of interim obturator for initial healing which thereafter replaced by definite prosthesis once the tissues are stabilised. This article will provide a method of fabricating an interim obturator which will be very easy, less time consuming, inexpensive and comfortable for the patient. Material used for this type of obturator is the common self cure acrylic resin duplicating the lost tissues using the preoperative cast.

***Index terms—***

A Method to Construct an Interim Obturator using Presurgical Tissues for Maxillary Palatal Defect Sumeet Sharma ? , Harvinder Singh ? , Sarbjeet Singh ? & Nikhil Dev wazir ? Abstract-The presence of oral cancer necessitates the surgical removal of all or part of the maxilla, leaving the patient with a defect that compromises the integrity and function of the oral cavity. Surgical unit along with the prosthodontic counterpart goes hand in hand for the fulfilment of the post restorative re-establishment of the oral functioning.

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## 1 I. Introduction

axillary cancer surgery often creates a defect that may affect speech, swallowing, mastication, and facial appearance. Prosthetic rehabilitation after total maxillectomy has historically involved the use of maxillary obturator prosthesis 1 . Resection of the hard palate establishes communication between the oral and nasal cavities and often the maxillary sinus 2 .

A maxillary obturator prosthesis can re-establish physical separation of the oral cavities [3][4] .obturator constructed for maxillectomy patients are grouped according to their stage of use. The surgical obturator is fabricated prior to surgery; the interim obturator prosthesis is constructed removal of the surgical obturator and packing, while the definitive obturator prosthesis is provided for the patient 6 to 12 month after surgery [3][4] .

Interim obturator prosthesis is normally placed after 7 to 10 days after surgery [5][6] . As healing progresses, interim obturator prosthesis is fabricated and extended further into the defect, with subsequent additions to improve the seal and retention 7 . Artificial replacement of the teeth and palate aids in speech, mastication, esthetics and morale [7][8] . However, the prosthodontist should not rush to provide artificial for the interim

obturator prosthesis. The friability of tissue after Author ? ? ? ?: Department of Prosthodontics, Institute of Dental Sciences, Sehora, Jammu, India. e-mail: drsumit02@gmail.com radiation therapy, if it has been used, usually allows use of only the simplest type of prosthesis 7 . Also posterior teeth should not be added to interim obturator prosthesis since they may impose excessive stress on the wound and delay the healing process 7 .

Numerous methods of polymerization and processing are now available and attracted the attention of several investigators [9][10] . Takamata and Setcos 9 reviewed the various modifications of denture base resins and evaluated pourable resin, microwavepolymerized resin, and light activated resins. They found that conventional techniques with heat-activated resins are not only more time consuming, but also may provide reduced accuracy. Takamata et al 11 compared the adaptation of denture base materials processed on a master cast. The greatest discrepancy in adaptation to the master cast occurred with the heat activated resin than self activated resin while the microwave-processed resin provided the best adaptation.

This article describes an easy method to make interim obturator prosthesis more comfortable during the time required for postsurgical healing. The time saved and ease of the procedure, in addition to the use of duplicated artificial teeth, make this technique more economical than the flasking method using heat polymerized acrylic resin and light activated resin. It also provide improved fit and a smoother surface than achieved by other techniques, such as making a matrix with irreversible hydrocolloids and using the pre-existing tissue for duplication before surgery 12 . 7. Once the teeth and the shellac base plate wax is secured on the presurgical cast, a putty impression material (Affinis; Coltene Whaledent, Cayahoga, Ohio) is then adapted over the cast which includes all the arranged acrylic teeth, the palatal area, remaining natural teeth and the anterior sulcus. 8. A stainless steel hollow cylindrical mould with the dimension of 25mm length and 10mm width is then inserted on the palatal portion on the adapted putty impression material which will facilitate the ingress of the acrylic resin. (Fig. **??**)

# 2 II. Technique

Figure **??** : Stainless steel mould inserted in palatal portion 9. Remove the putty matrix from the presurgical cast. Arrange the acrylic resin teeth in the respective indentation made in the putty matrix. 10. Secure the acrylic teeth with the matrix using a cyanoacrylate. (Fig. **??**)

Figure **??** : Acrylic teeth secured in place 11. Adapt Co-Cr wire (Sun-Cobalt Clasp wire; Dentsply, Tochigi, Japan) clasps to the teeth on the postsurgical cast to retain and stabilize the prosthesis and secure the tags of the clasp using cyanoacrylate and coat the cast by painting separating medium with a brush.(Fig. **??**)

Figure **??** : Clasps adapted 12. Adapt the putty matrix on the postsurgical cast using the reference of natural teeth and the buccal tissues. 13. Secure the putty matrix periphery with the tissues using a sticky wax.(Fig. **??**).

Volume XIV Issue IV Version I Year ( ) Place the cast with the resin during dough stage in a pressure pot with water. Heat the water gradually from room temperature to 45 degrees celcius, at 2bar pressure for 30 mins12, to harden and reduce porosity of acrylic resin. 16. Once the resin is set, remove the putty matrix from the cast and evaluate the teeth and palatal portion duplicated in acrylic resin. 17. Remove the prosthesis from the cast. Trim the excess acrylic resin with carbide bur (Laboratory Cardibe bur; Mani) and polish the prosthesis with finishing bur and waterproof abrasive paper conventionally.12 (Fig. 11) Effective obturation of the unilateral or bilateral maxillectomy defect is a difficult task for the maxillofacial prosthodontist. Multidisciplinary appr-oach to the treatment is essential to achieve adequate retention and function for the surgical obturator prosthesis. Duplication of the presurgical contours of the teeth and palatal tissue in interim obturator prosthesis may facilitate speech and deglutition and also improve estetics of the patient. This technique of making obturator prosthesis permits the immediate replacement of postoperative anterior teeth and maxillary palatal form. This method of fabrication not only reduces the time consumed during fabrication also helps in rehabilitation of patient undergoing maxillectomy in an expedious and non-traumatic manner. This kind of method is limited to a lesser extent of the tissue loss whereas; when the extent of the maxillectomy is deeper a hollow bulb type of obturator is more preferable.J [1]


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Figure 1: 1 .Figure 1 :

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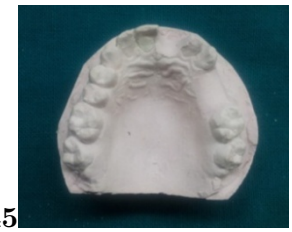
**345** 

Figure 2: Figure 3 :Figure 4 :Figure 5 :

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Figure 3: Figure 9 :Figure 10 :

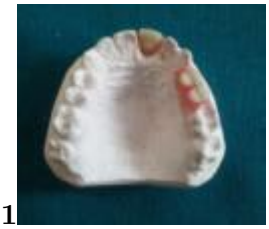
**11** 

Figure 4: Figure 11

[Takamata et al.] , T Takamata , J C Selcos , R W Phillips . Boone ME.

[Haraguchi et al. ()] , Mihoko Haraguchi , Hitoshi Mukohyama , Hishashi Taniguchi . *J Prosthet Dent* 2006. 95 p. .

[Adaptation of acrylic resin denture as influenced by the methods of polymerization J Am Dent Assoc ()] 'Adaptation of acrylic resin denture as influenced by the methods of polymerization'. *J Am Dent Assoc* 1989. 119 p. .

[Kouyoumdjian and Chalian ()] 'An interim obturator prosthesis with duplicated teeth and palate'. J H Kouyoumdjian , V A Chalian . *J Prosthet Dent* 1984. 52 p. .

[Alkhatib et al. ()] 'Comparison of microvave -polymerized denture base resins'. M B Alkhatib , C J Goodacre , M L Swartz , C A Munoz , C L Andres . *Int J Prosthodont* 1990. 3 p. .

[Desjardins ()] 'Early Rehabilitative management of the maxillectomy patients'. R P Desjardins . *J Prosthet Dent* 1977. 38 p. .

[Johnson et al. ()] J T Johnson , Aramany Ma , Myers En . *Palatal Neoplasm Reconstruction Considerations*, 1983. 16 p. .

[Beumer et al. ()] *Maxillofacial Rehabilitation; Prosthetic and Surgical Considerations*, J Beumer , T A Curtis , D N Eirtell . 1989. St. Louis. p. . CV Mosby

[Dabreo et al. ()] 'Prosthetic and surgical management of osteogenic sarcoma of the maxilla'. E L Dabreo , V A Chalian , R Lingeman , M H Reisbick . *J Prosthet Dent* 1990. 63 p. .

[Loh and Tan ()] 'Prosthetic management of maxillofacial defects after surgery'. H S Loh , P H Tan . *Singapore Med J* 1989. 30 p. .

[Takamata and Selcos ()] 'Resin denture bases: Review of accuracy and methods of polymerization'. T Takamata , J C Selcos . *Int J Prosthodont* 1989. 2 p. .

[Curtis et al. ()] 'Restoration of acquired hard palate defects; etiology, disability, and rehabilitation'. T A Curtis , J Beumer , Iii . *Maxillofacial rehabilitation: prosthodontic and surgical considerations*, J Beumer, T A Curtis, M T Marunik (ed.) (St. Louis) 1996. p. . (: Ishiyaku EuroAmerica)

[Kaplan ()] 'Stabilization of an interim obturator prosthesis using a denture duplicator'. P Kaplan . *J Prosthet Dent* 1992. 67 p. .