



▪ Case Report

## Prosthetic rehabilitation of patient with maxillofacial defect by hollow bulb obturator

GK Shrestha, P Parajuli, P Suwal, RK Singh  
Department of Prosthodontics

B P Koirala Institute of Health Sciences, Dharan, Nepal

### Abstract

**Introduction:** Post-surgical maxillary defect is mostly repaired by the use of an obturator, which is often quite heavy due to the extension into the defect that is better relieved by making it hollow. **Objective:** To fabricate hollow bulb obturator in simple way. **Case:** An 85 year old man was referred from ENT department after hemimaxillectomy to remove squamous cell carcinoma, for obturator prosthesis and was treated with hollow bulb obturator prosthesis. **Conclusion:** The hollow bulb reduces the weight of prosthesis making is comfortable for the patient.

**Keywords:** hemimaxillectomy, hollow bulb obturator, maxillectomy, maxillofacial prosthesis

### Introduction

Prosthetic rehabilitation after hemimaxillectomy becomes challenging due to diverse clinical and technical problems. The usual treatment sequence becomes placement of a surgical obturator during the surgery for 5–10 days that is followed by a removable interim obturator that is placed for the duration of the wound healing period and the definitive obturator that is placed for about 3–6 months post-surgery, when major changes in tissue conformation are no longer expected.<sup>1</sup> The construction of the interim obturator is a source of pain and discomfort, during a period which is already very stressful for the patient. The clinician must not only cope with the patient's difficulties, but in technical terms must deal with mobile, non-cicatrized, bleeding tissues, with mucous secretions, and with jaw and mouth movements restricted by pain and swelling.<sup>2</sup> Similarly the definitive palatal obturators the undesirable weight of the prosthesis becomes the challenge as it affects the retention, stability and support of this maxillofacial prosthesis.<sup>3</sup>

Different techniques of fabrication of various types of obturator have been proposed with the aim of simplifying this process; both for clinician and patient.<sup>4,5</sup> Similarly various techniques of reducing the load of definitive obturator bulb have been proposed.<sup>6-10</sup> As

most of these techniques are complex, time-consuming and costly, this article explains a simple method of fabrication of a light weight hollow bulb obturator for an edentulous maxillectomy patient.

### Case report

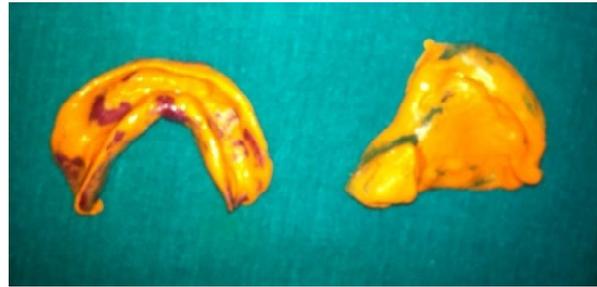
An 85 year old male patient was referred from Department of Otorhinolaryngology, BPKIHS to the Department of Prosthodontics, CODS, BPKIHS for the prosthetic rehabilitation of a left maxillectomy that was done four months ago for removal of squamous cell carcinoma. The patient had the complaints like difficulty in feeding, nasal regurgitation of fluids and nasal twang in his voice. Extraoral examination showed depressed left malar region with scars along the left ala of nose and limited mouth opening (Fig. 1). Intraoral clinical examination revealed healthy post-maxillectomy defect on the left side of hard and soft palate communicating superiorly to the nasopharynx with edentulous maxillary and mandibular ridges (Fig. 2). A light weight hollow bulb definitive obturator along with complete denture was planned for the rehabilitation of this patient.

Primary impressions of the defect and edentulous ridges were made with irreversible hydrocolloid (Zelgan 2002 Dust free easy mixing, DENTSPLY India Pvt Ltd, Haryana) and customized trays were fabricated using autopolymerized acrylic resin (Self cure acrylic Repair material, DENTSPLY India Pvt Ltd, Haryana). Final impressions were made using light viscosity addition

### Address for Correspondence

Dr. Prakash Kumar Parajuli  
Assistant Professor  
Department of Prosthodontics, CODS, BPKIHS  
Email: drprakashparajuli@gmail.com

silicone impression material after obtaining the peripheral seal using green stick impression compound (DPI Pinnacle, tracing stick, Dental products of India, Mumbai) as border molding material (Fig. 3). Final casts of dental stone (Kalstone, Kalabhai Karson Pvt. Ltd, Mumbai) were obtained and record bases as well as occlusal rims were made for the recording of maxillomandibular relationship. Artificial denture teeth were arranged (Fig. 4) and try in performed on patient, after approval of denture for esthetics and comfort from the patient, the waxed up denture along with obturator was processed for acrylization. The maxillary denture was processed for a hollow bulb obturator along with it and a separate lid part to cover the bulb part of obturator (Fig. 5) The mandibular denture was processed conventionally using heat polymerizing acrylic resin (Trevalon Denture Material, DENTSPLY India Pvt Ltd, Haryana). The lid part of obturator was attached covering the bulb part making the bulb hollow inside with the help of autopolymerising resin (Fig. 6). Final complete denture prosthesis along with definitive hollow bulb obturator (Fig. 7) was inserted inside the patient's mouth to rehabilitate the edentulous post-maxillectomy patient to acceptable comfort function and esthetics (Fig. 8).



**Fig. 3:** Final impressions of maxillary defect and edentulous ridges



**Fig. 4:** Artificial teeth arranged for complete denture



**Fig. 1:** Pre-treatment extraoral clinical picture of the patient



**Fig. 5:** Maxillary denture processed with bulb and lid part of obturator separately



**Fig. 2:** Intraoral picture of the maxillary defect



**Fig. 6:** Lid part of obturator joined to bulb part with autopolymerising acrylic resin



**Fig. 7:** Final complete denture prosthesis with hollow bulb obturator



**Fig. 8:** Prosthesis placed in situ

### Discussion

Obturator seals are the treatment of choice for hemimaxillectomy and maxillectomy patients once the defect is the result of surgical removal of pathology or neoplasm. The functional demands of speech, mastication and deglutition require the obturator seal the defect to prevent loss of air and fluid through the nose. Furthermore, a bulb extension is required to improve the resonance of sounds to be heard with noticeable clarity. This extension, if made of solid acrylic, possesses undesirable weight to the prosthesis that hampers the retention, stability and support of it and results in patient's dissatisfaction.<sup>3</sup> The challenge to the clinician increases more if the patient doesn't have any remaining natural teeth to hold the prosthesis in place. Hence various technical attempts have been performed by different clinicians across the world to make the bulb part of obturator to make lightweight. The technique described in this article gives a simple way of making lightweight hollow bulb obturator by processing it in two parts with separate lid. The lid is later joined covering the bulb part of prosthesis making it hollow inside and reducing its weight significantly. The reduced weight helped in achieving better retention, stability and support of the obturator that was a part of

maxillary complete denture. The patient after wearing the prosthesis had better comfort, function and appearance.

### Conclusion

The fabrication of obturator prosthesis in two parts and joining them with an autopolymerized acrylic resin making inside the bulb a hollow space reduces the weight of obturator prosthesis significantly. This reduced weight of prosthesis gives the patient better comfort as the retention, stability and support of the prosthesis is improved.

### References

1. Beumer J, Curtis T, Marunick M. Maxillofacial rehabilitation: prosthodontic and surgical considerations. St Louis: Ishiyaku EuroAmerica, Inc.; 1996. p. 240–285.
2. Lapointe HJ, Lampe HB, Taylor M. Comparison of maxillectomy patients with immediate versus delayed obturator prosthesis placement. *J Otolaryngol.* 1996; 25:308–312.
3. Tanaka Y, Gold HO, Pruzansky S. A simplified technique for fabricating a lightweight obturator. *J Prosthet Dent.* 1977; 38:638–642.
4. Cunningham R. A laboratory technique for the production of immediate surgical appliances and “one stage” obturators for the hemi-axillectomy patient. *Br J Oral and Maxillofac Surg.* 1990; 28:59–61.
5. Dabreo EL. A light-cured interim obturator prosthesis. A clinical report. *J Prosthet Dent.* 1990; 63:371–373.
6. Bair FM, Hunter NR. The hollow box maxillary obturator. *Br Dent J.* 1998; 184:484–487.
7. Shaker KT. A simplified technique for construction of an interim obturator for a bilateral total maxillectomy defect. *Int J Prosthodont.* 2000; 13:166–168.
8. Buckner, H.: Construction of a Denture with Hollow Obturator, Lid, and Soft Acrylic Lining, *J Prosthet Dent* 1974; 31:95-99.
9. Niffer, T. J., and Shipron, T. H.: The Hollow Bulb Obturator for Acquired Palatal Openings, *J Prosthet Dent* 1957; 7:126-134.
10. Mahdy A. S.: Processing a Hollow Obturator. *J Prosthet Dent* 1969; 22:682-686.