

## Management of an edentulous maxilla with palatal defect by hollow obturator- A case report

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### Abstract

Prosthodontists play a major role for management of patients with congenital and acquired maxillary defects by fabricating obturator. Oronasal communication is an abnormal epithelized tract between mouth and nasal cavity, which causes difficulty in deglutition and speech by nasal regurgitation of fluid and nasal speech respectively. This case report describes prosthodontic management of a sixty year old male patient with completely edentulous maxilla and dentate mandible with an iatrogenic palatal defect developed as a result of maxillary left molar extraction.

**Keywords:** Obturator, Extraction, Oronasal communication, Rehabilitation.

### Introduction

An important area of prosthodontics is the management of patients with congenital and acquired maxillary defects. Prosthetic rehabilitation of maxillary defects is so effective that reconstructive surgery is not indicated in most cases. Most patients with maxillary defects can be rehabilitated to restore to normal function and appearance with obturator prosthesis. Oronasal communication may result due to infection, radiation therapy, dental extractions, trauma, and removal of maxillary cysts, or neoplasms.<sup>(1)</sup> The extraction of maxillary posterior teeth is the most common factor for developing oronasal communication due to close proximity between the root apices of posterior teeth and the maxillary sinus. In cases of primary closure failure, it becomes important to close these defects prosthodontic ally to prevent food, liquid and saliva contamination that could lead to infection and impaired healing.<sup>(2)</sup> Edentulous obturator patients have many problems in speech, retention and chewing than conventional maxillary denture patients. Thus this case report aimed to present obturator fabrication technique to manage a patient with palatal defect.

### Case Report

A 60 year old male patient came in the Department of Prosthodontics and Crown & Bridge with a chief complaint of difficulty in chewing food and speech. He gave a history of nasal regurgitation of fluid, food lodgments in the defect and hyper nasality of voice. A thorough medical and dental history was taken. Medical history showed that the patient is diabetic since 12 years and he is on medication. Patient told that this defect is present after the extraction of left maxillary molar teeth. Intraoral examination showed a palatal defect extending into lateral portion of hard palate on left side (Fig 1). A reasonable amount of residual alveolar ridge was also involved. All mandibular teeth

were present. It was decided to plan a hollow obturator considering economic status of patient. The defect was closed with gauze moistened with petroleum jelly. Preliminary impressions were made with irreversible hydrocolloid (Algitax, DPI) using stock trays. These impressions were poured with type III dental stone to obtain casts. Defect was filled with modeling wax and one sheet of spacer wax was adapted. Auto-polymerized acrylic resin custom tray was made. After trimming, maxillary border molding was done with green stick compound (DPI, PINNACLE). The defect was again closed with gauze moistened with petroleum jelly before making final impression. Then secondary impression was made using light body condensation silicone (Zetaplus, Zhermack). (Fig 2) and poured to obtain master cast. On a maxillary master cast, the defect was filled with modeling wax and occlusal rim was fabricated. Bite Registration was done. After selection of acrylic teeth, arrangement of teeth was done. After try-in and taking approval from the patient, first hollow bulb was made with auto-polymerizing resin using salt. Then the obturator was fabricated using conventional technique by placing bulb in the defect area. Obturator was finished and polished (Fig 3, 4). Prosthesis was inserted in the patient's mouth (Fig 5). All occlusal adjustments were done. Instructions were given to the patient. The patient was recalled at 24hrs, 48 hrs and one week.



**Fig. 1: Pre-operative view**



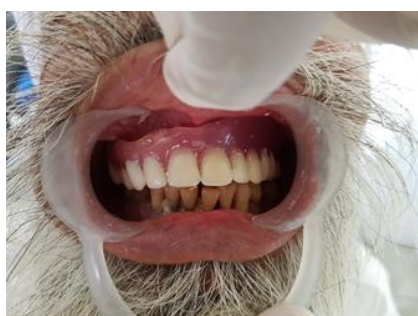
**Fig. 2: Definitive impression**



**Fig. 3: Obturator (Tissue surface)**



**Fig. 4: Obturator (Polished surface)**



**Fig. 5: Post-Operative view**

### Discussion

Some prosthodontic principles of using bony undercuts, achieving maximum tissue coverage without overextension and placing the occlusion with harmony with the functional tissues are important for prosthetic success while treating the edentulous Maxillectomy patients.

Aramany<sup>(3,4)</sup> provided a classification system of obturator defects and obturator framework for the partial edentulous and maxillectomy patients, and

designed templates for each classification. Wu and Schaaf reported that the open hollow obturator reduces the prosthesis weight from 6.55% to 33.06%, depending on the size of the defect.<sup>(5)</sup> Retention and the stability are increased, providing comfort during mastication, speech, and swallowing by reducing the weight of the prosthesis. Second treatment option was prosthesis incorporating magnets. In this method, maxillary prosthesis consisted of two separate components, a bulb obturator to seal off the defect and maxillary denture for rehabilitation. Both these components were connected with magnets to increase retention of maxillary denture. After discussing all the available options, it was decided to manage the defect prosthodontically with obturator with hollow bulb.

### Conclusion

In this case report, prosthodontic rehabilitation of maxillary complete edentulism along with defect closure was achieved without need for any surgery. The patient was very well satisfied with the final prosthesis and its function and esthetics.

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