

## Palatal Obturator – A Case Report

### Abstract:

Maxillary jaw abnormalities can be traumatic, acquired, congenital, developmental, or surgical, and they can have an impact on the mouth cavity and nearby anatomical tissues. If the soft palate and/or hard palate are lost whole or partially, the remaining tissues will have an inadequate structure or will no longer function as they once did. Defects can lead to nasal reflux during deglutition and influence speech production by affecting articulation and airflow. This study aims to explore postoperative oroantral or oral-nasal communication for patients who underwent partial maxillectomy and received prosthetic rehabilitation. The complete denture was fabricated with an extension into the defect. As a result, this permanent prosthesis improved the patient's masticatory function, speech clarity, and general quality of life.

**Key-words:** maxillary obturator, definitive prosthesis, oroantral communication

### Introduction:

The most common intraoral maxillary defects are openings into the antrum and nasopharynx. Maxillary anomalies that affect the mouth cavity and surrounding anatomical structures might be traumatic, surgical, acquired, developmental, or congenital. The remaining structures become insufficient or function differently as a result of the loss of the soft and/or hard palate.[1]

The opening created may be fairly tiny or it may include any area of the hard and soft palates, alveolar ridges, and nasal cavity floor. Postsurgical maxillary abnormalities predispose the patient to hypernasal speech, nasal cavity fluid leaking, and reduced masticatory function.[2]

A maxillary obturator is a prosthetic used to fix the deformity. An obturator is a disc or plate that plugs an opening or defect in the maxilla caused by partial or entire removal of the maxilla.<sup>2</sup>The Glossary of Prosthodontic Terms defines an obturator as “a maxillofacial prosthesis used to close a congenital or acquired tissue opening, primarily of the hard palate and/or contiguous alveolar or soft tissue structures”.<sup>[3]</sup>

The purpose of this case report is to discuss the prosthetic rehabilitation of patients who underwent partial maxillectomy

and had oroantral or oral-nasal communication as postoperative sequelae to regain function, tissue protection, and psychological therapy.

### Case Report:

A 60-year-old male patient presented to the Department of Prosthodontics at Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh, India, for an evaluation for prosthetic rehabilitation of a post-maxillectomy defect caused by a dentoalveolar infection in his right side, for which he had undergone hemi maxillectomy 6 months previously. The patient's main complaint was difficulty in masticating, nasal reflux of fluids, and nasal tone in his voice. The patient did not use dentures previously.

<sup>1</sup>SAKSHI GOYAL, <sup>2</sup>AKASH GOPI,

<sup>3</sup>CHANDAN KUMAR, <sup>4</sup>SHUBHAM JAIN

<sup>1-4</sup>Department of Prosthodontics and Crown & Bridge, Teerthanker Mahaveer Dental College & Research Centre, Moradabad, (U.P.)

**Address for Correspondence:** Dr. Sakshi Goyal  
Department of Prosthodontics and Crown & Bridge,  
Teerthanker Mahaveer Dental College &  
Research Centre, Moradabad, (U.P.)  
Email : sakshigoyal064@gmail.com

**Received :** 13 Aug., 2023 **Published :** 15 May, 2024

Access this article online	
<b>Website:</b> www.ujds.in	<b>Quick Response Code</b> 
<b>DOI:</b> https://doi.org/10.21276/ujds.2024.10.1.12	

**How to cite this article:** Goyal, S. (2024). Palatal Obturator - A Case Report. UNIVERSITY JOURNAL OF DENTAL SCIENCES, 10(1).

An intraoral examination revealed a well-healed surgical lesion in the maxilla with an uneven ridge and in the mandible, the ridge was resorbed with the absence of teeth in both arches. The patient's masticatory and phonological functions were impaired. The treatment strategy was developed in order to rehabilitate this patient with a definitive obturator.

**Procedure:**

1. In order to prevent impression material from leaking into the defect, a sterilized gauge piece was soaked in saline solution before being placed in the area of concern. (fig2)

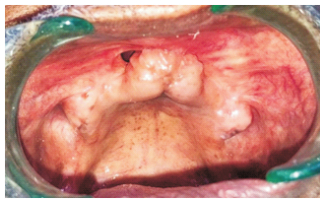


Figure-1 Pre-op

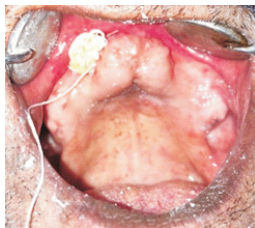


Figure-2-gauge piece placed in the concerned area

1. Using irreversible impression material, a primary impression was made (fig.3), then Type III dental stone was used to cast the impression.

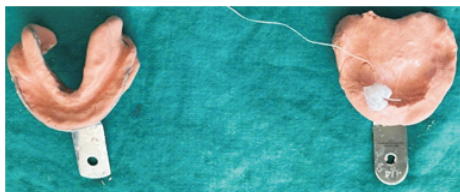


Figure-3 primary impression

1. According to a predetermined outline on the stone model, a custom tray was made from auto-polymerizing acrylic resin.
2. A custom tray's borders were shortened by 2 mm on all sides, and the border moulding was done using green stick and secondary impression was created using light body addition silicon. (Fig.4)

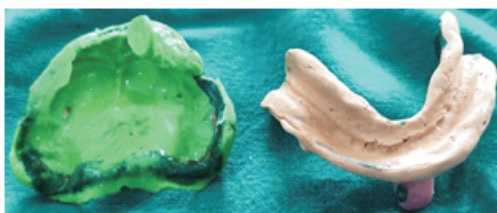


Figure-4 border moulding and secondary impression

1. The appropriate beading boxing was done and Type IV die stone was used to pour the master cast. (Fig.5)

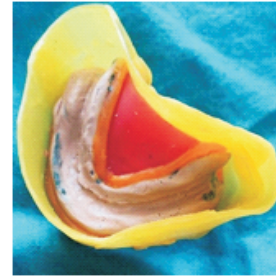


Figure-5 Beading and boxing

2. The master cast was retrieved, the undercut was wax-blocked, and an auto-polymerizing acrylic resin denture base was constructed.
3. The wax rim was fabricated, the record of the centric jaw relation was obtained at estimated vertical dimension, and the master models were mounted on a semi-adjustable articulator.
4. Arrangement of acrylic denture teeth was done in balanced occlusion. (Fig-6,7)

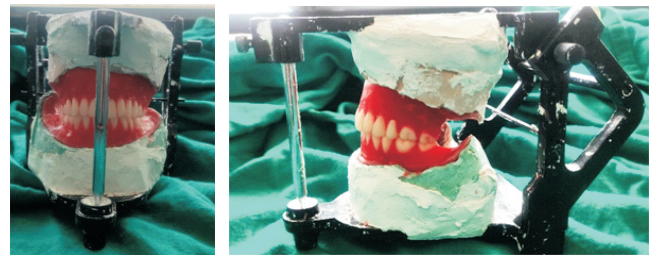


Figure-6,7 Arrangement of denture teeth on the articulator

5. In order to confirm the occlusion, cosmetic appeal, and support for the underlying tissues, the prosthesis was after ward tried in the patient's mouth.
6. Final wax up and post dam carving were completed.
7. Dewaxing and laboratory flasking were completed. The obturator was processed, finished, and polished. (Fig.8,9)



Figure-9 final denture



Figure-8 Laboratory procedure

8. A pressure-indicating paste was used to check for intimate tissue contact on the tissue surface during insertion, and an articulating ribbon was used to rectify any occlusal issues.
9. Following the insertion, the patient received instructions regarding oral and denture cleanliness, and he was contacted to schedule a follow-up appointment.
10. At the subsequent appointment, the patient made no complaints. The patient was placed on a periodic appointment plan with reminders for follow-up appointments every six months, and maintenance instructions for oral and denture appliances were reiterated.



Figure-10 post-op

### Discussion:

Patients who have intraoral disabilities as a result of maxillectomy complain of swallowing issues, fluid reflux via the nasal cavity, and communication/speech problems.<sup>4</sup> It takes invention and imagination on the part of the operator to develop the most suitable obturator that is customized for the patient in order to restore function, aesthetics, and comfort.<sup>5</sup> Rogers et al. evaluated the repair via obturator or free flap in connection to the function and the quality of life recovery-dependent and found that there is still debate over the best way to restore the post-maxillectomy defect. According to Etienne et al., clinical care of patients with maxillectomy with dentition is easier to achieve than that of patients without dentition.<sup>[6]</sup>

In order to collect additional anatomical information and enhance the device's adequacy to the surrounding tissues, the functional imprint was taken with additional silicone. The

obturator in this case study was built out of PMMA. The defect region may experience some retentive undercuts from the heat-curing resin. While titanium and flexible acrylic are more expensive materials, all silicone obturators are bulky and easily permeable.

An obturator supported by dental implants is another option for repairing the problem. However, because of his lower socioeconomic status, this patient was unable to cover the entire bill. He also experiences some travel difficulties coming for follow-up appointments at our clinic because he does not have a reliable monthly income. We chose to use PMMA to build the replacement obturator to consider the patient's budget. The patient can now function better; thus, he was completely delighted with the obturator.<sup>[5]</sup>

Many research has examined how different obturator designs impact speech and the chirping features of the obturators. The study used obturators with different medial and lateral wall heights that were open-ended and closed-space. As a result, it has apparently been shown that open-space obturators with low medial wall heights are more effective.<sup>[7]</sup>

### Conclusion:

While the procedures for treating patients with oral-nasal communication are the same as those for creating conventional prostheses, it is still necessary to plan for each case separately and take extra precautions when taking impressions and fitting the appliance. During their rehabilitation, these patients receive equipment that allows them to carry on with normal daily tasks like talking and eating.<sup>[4]</sup>

The process of prosthodontic rehabilitation for a patient with a maxillofacial abnormality is time-consuming and complex. It can, however, be one of the most rewarding operations if attention is paid to the right sequencing and treatment specifics.<sup>[1]</sup>

### References:

1. Aruna Jawahirlal Bhandari. maxillary obturator, journal of dental and allied sciences, 2017 December 7;6(2):78-83
2. Mayank S, Akshay B, Narendra K, Sharad C. Obturator prosthesis for hemimaxillectomy patients. National journal of maxillofacial surgery. 2013 jan-jun 1;4(1)117-20
3. M. Singh, I.K.Limbu, P.K.Parajuli, and R.K.Singh. definitive obturator fabrication for partial maxillectomy patient. hindawi journal. 2020; 2020:6513210.

4. Domingues JM, Corrêa G, Fernandes Filho RB, Hosni ES. Palatal obturator prosthesis: case series. *clinical journal*. 2016;64(4):477–83.
5. Roslan H, Shahabudin S. Palatal obturator prosthesis: a clinical case report. *Cumhuriyet Dental Journal*. 2018;55–60.
6. Tirelli G, Rizzo R, Biasotto M, Di Lenarda R, Argenti B, Gatto A, et al. Obturator prostheses following palatal resection: clinical cases. *Acta Otorhinolaryngol Ital*. 2010;30(1):33–9.
7. Sadeq Mohammed TF, Emre M. Rehabilitation of a patient with palatal defect- A case report. *J Surg Surg Res*. 2019;5(2):093–6