

## Prosthetic rehabilitation for a maxillectomy patient – A case report

Dr Peter John<sup>1</sup>, Dr Sridhran<sup>2</sup>, Dr Eazhil<sup>3</sup>, Dr Saritha<sup>4</sup>, Dr Deepak<sup>5</sup>

1,3 Reader,  
2 Prof & HOD,  
4,5 Lecturer  
Department of Prosthodontics  
& Implantology,  
Chettinad Dental College, Chennai

Received : 29.01.2015  
Review Completed : 06.02.2015  
Accepted : 10.02.2015

### ABSTRACT

Surgical correction of benign or malignant tumors of the oropharyngeal regions often results in maxillofacial defects. Patients suffering from these defects often present themselves with problems like speech disturbances, difficulty in mastication and poor aesthetics. Prosthodontic rehabilitation of these defects will improve the quality of their life. This article describes the fabrication of a simple hollow bulb obturator<sup>1</sup> with better retention, comfort, and light in weight for a hemimaxillectomy patient.

**Keywords:** Hemimaxillectomy, Psammomatoid ossifying fibroma, Hollow bulb.

### INTRODUCTION

Maxillary defects can be due to congenital abnormalities or may be acquired and caused by trauma or surgical resections to treat different pathological conditions. An obturator is designed for patients after maxillectomy as a part of management of these defects<sup>2</sup>. It is defined as a prosthesis used to close a congenital or an acquired opening in the palate. The major concerns while restoration is correction of speech, mastication, deglutition, and esthetics. Since the weight of an obturator is often the most common reason to dislodge, it should be as light as possible which is attained by hollowing the prosthesis. By decreasing the weight of the prosthesis, the retention and stability may be optimized to allow the obturator to function comfortably during mastication, deglutition and speech. This case report describes the fabrication of a hollow bulb obturator by a simple impression technique and thereby enhancing the retention, speech, mastication, deglutition and aesthetics.

### CASE REPORT

A 20 year old gentle man from Jharkhand, presented with complaints of a swelling in the right cheek for the past 2 years, which was progressively increasing in size, and was associated with nasal discharge. He underwent right lateral rhinotomy in Jharkhand, following which there was no relief of the symptoms. On examination the swelling was diffuse in nature extending from the right infraorbital rim, inferiorly upto the alveolar process, laterally upto the zygoma, medially obliterating the nasolabial and nasomaxillary groove pushing the right lateral wall of the nose medially. He was diagnosed of juvenile psammomatoid ossifying fibroma of right maxilla<sup>3</sup>. Whole of the right maxilla and the floor of the orbit were excised in toto under GA. (Fig. 1)



Fig 1: Clinical Picture of the Defect

### PROCEDURE

The treatment objective was to provide prosthesis to obturate the defect to improve the speech, mastication and aesthetics. Impression was made with irreversible hydrocolloid (cavex) with stainless steel stock tray. Since the defect was more than 10mm in depth and width, it was not blocked because the hydrocolloid can withstand the tearing strength. (Fig. 2)

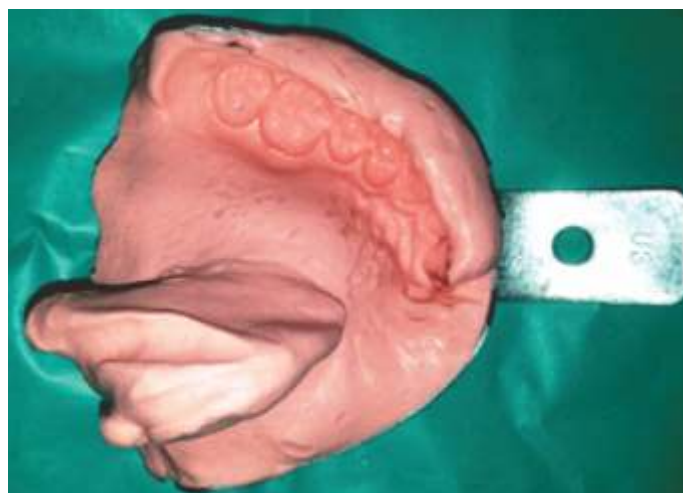


Fig 2: Impression made with irreversible hydrocolloid (cavex)

An impression extending into the defect was made<sup>4</sup>. Master cast poured with Type IV dental stone after beading and boxing. Permanent denture base made with acrylic resin (DPI-heat cure clear acrylic) after minimally blocking the cast with wax. (Fig. 3) A conventional C clasp anteriorly and adams clasp on the posterior were incorporated for better retention. Trial was done in the patient mouth after trimming to check the fit. Occlusal rims were fabricated and jaw relation done. Wax trial was done after doing teeth setting and adjustments were made chair side. Processing was done conventionally with heat cure resin (DPI-heat cure pink acrylic). A hollow bulb was fabricated by using salt and water technique with self cure acrylic (DPI-cold cure clear acrylic) after the initial processing.(Fig. 4) The obturator was tried in the patient's mouth after trimming and polishing. The soft tissue undercuts present in the defect and the weightlessness due to hollow bulb aided in good retention of the prosthesis.(Fig. 5) The patient was recalled after 24 hours after insertion of the prosthesis, after one week, then after three months and found satisfied.

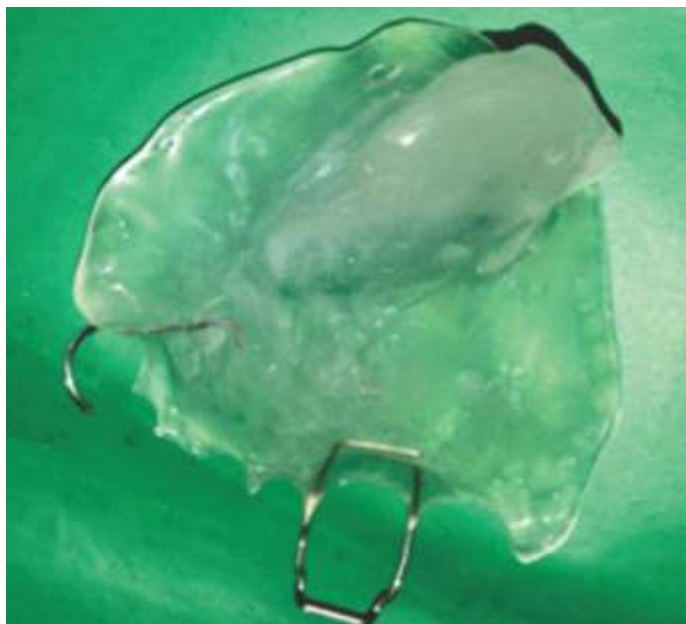


Fig3: Permanent denture base made with acrylic resin



Fig4: Denture After Teeth Setting



Fig5: Post Operative

## DISCUSSION

Rehabilitation of patients who have undergone resection of the maxilla requires restoration of function, speech and aesthetics. A prosthesis which satisfies these goals should have good retentive properties also<sup>5</sup>. Reducing the weight of the prosthesis by hollowing the obturator is found to be beneficial. Several techniques have been advocated in the fabrication of hollow obturators. Parel and La Fuede<sup>6</sup> filled the hollow part of the obturator with sugar and covered it with acrylic resin. The sugar was later removed by making an opening in the acrylic lid. Aaron Schneider<sup>7</sup> used crushed ice to fill the defect, which was covered by acrylic resin. Elliotts<sup>8</sup> used clay to fill the hollow bulb, which was later removed by making an opening and flushing it out. Ashok Jhanji<sup>9</sup> and Steve T Stevens resented a technique to make a one - piece obturator using silicone putty. Numerous studies have been put forth in the literature for the fabrication of hollow bulb obturator using variety of materials. These materials used should be biocompatible, impermeable, smooth and easily made. Hollow obturators are made with acrylic resin in either open or closed configuration. However silicone either solely or in combination with other materials has also been used for this purpose.

## CONCLUSION

The concept of rehabilitation of patients with large defects of the maxilla with hollow bulb obturators provides a means of enhancing the retention, mastication, deglutition, speech and esthetics in the post-operative period. A prosthesis so designed provides a functional solution to the compromised state of the patient<sup>10</sup>. The size of the maxillectomy defect and its extent is one of the main factors governing the prognosis of the treatment.

## REFERENCES

1. Tanaka Y, Gold HO, Pruzansky S. A simplified technique for fabricating a lightweight obturator. *J Prosthet Dent.* 1977;38: 638-642.
2. Panje WK, Hetherington HE, Fyler A. Bilateral maxillectomy and midfacial reconstruction. *Ann Otol Rhino Laryngol* 1995;104(11);845-9.
3. Abuzinada S, Alyamani A. Management of juvenile ossifying fibroma in the maxilla and mandible. *J Maxillofac Oral Surg.* 2010 Mar; 9(1):91-5.

4. Desjardins RP. Obturator prosthesis Design for Acquired Maxillectomy Defects. J Prosthet Dent 1978;39(4):424-35.
5. Ampil P, Ellinger CW, Rahn AQ. A temporary prosthesis for an edentulous patient following maxillary resection. J Prosthet Dent 1967;17(1):88-91.
6. Parel SM, La Fuente H. Single visit hollow obturators for edentulous patients. J Prosthet Dent 1978;40(4):426-9.
7. Schneider A. Method of fabricating a hollow obturator. J Prosthet Dent 1978;40(3):351-3.
8. Elliott DJ .The hollow bulb obturator: Its fabrication using one denture flask. Quintessence Dent Technol 1983;7(1):13-4.
9. Jhanji A, Stevens ST. Fabrication of one-piece hollow obturators. J Prosthet Dent 1991;66(1):136-8.
10. Armany MA. Basic principles of obturator design for partially edentulous patients. Part I: Classification. J Prosthet Dent 2001;86:559-61.

