

# PROSTHETIC REHABILITATION OF THE MAXILLARY DEFECT WITH HOLLOW BULB DEFINITIVE OBTURATOR: - A CASE REPORT

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### ABSTRACT

The presence of a large palatal or maxillary defect after partial or total maxillectomy for tumor, trauma or congenital deformation poses a challenge to prosthodontists. Diseases like carcinomas can cause significant effects on human beings like psychological, functional and surgical and can influence the overall quality of life. It is the responsibility of the Prosthodontist to restore the lost esthetics, function and speech. While we strive to achieve the above, it has to be borne in mind that the proposed prosthesis should be simple to handle, easy to maintain, biocompatible, light in weight and convenient for future adjustments. This clinical case report describes the rehabilitation of a patient with a maxillary defect using a single-piece hollow bulb obturator, replacing the missing teeth. For that primary and final impressions, jaw relation, articulation and mounting, teeth set up and curing of the hollow bulb obturator was done by lost salt technique.

**Key Words:** Definitive obturator, hollow bulb, single-piece, maxillectomy; maxillofacial defects; obturator.

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### INTRODUCTION:

Maxillofacial defects are caused by trauma, tumor or congenital deformations. Severe deficiencies in appearance, pronunciation and swallowing occur when maxillofacial defects cause oral–nasal transport. These severe malfunctions may ultimately result in psychological problems.<sup>1</sup> Since the 1940s, prosthodontists have tried to help these patients by separating the oral and the nasal cavity using obturator prostheses to improve deglutition, articulation, pronunciation and facial appearance.<sup>2</sup> The absence of teeth, and the size and configuration of the maxillary defect, may influence the masticatory function of patients wearing an obturator prosthesis and may lead to a poor rehabilitation outcome. Restoring function, speech and esthetics is a challenging task when the defect presented is large. Treatment becomes even more difficult when the problem is associated with restricted mouth opening caused by radiation therapy.<sup>3,4</sup> The present article is a case report explaining the rehabilitation of a patient who had undergone partial maxillectomy of the left side maxilla.

### Case Report

75 years old male patient reported to the department of prosthodontics in Ahmedabad dental college and hospital with the chief complaint of the difficulty in the chewing, drinking, deglutition and speaking.

Patient was relatively asymptomatic before 2 years

then he was experienced pain in upper left back teeth region and went to the civil hospital, Ahmedabad for the same. extraction of the 26 were done under local anesthesia. After 20 days of extraction he was experienced, water coming from the nose and he was diagnosed as the oro-antral fistula with osteomyelitis in relation to upper left back region. He had undergone the partial maxillectomy surgery under general anesthesia before 2 years with the radiotherapy.

### Examination

Intra oral examination revealed the class II Armani's maxillectomy defect. (**Figure 1**) With the present teeth are as follow : 18,16,15,14,13,12,38,37,36,35,34,33,42,43,44,47, 48. There were acrylic prostheses in relation to 34, 33,32,31,41,42,43,44.

### Treatment Plan

A definitive obturator, replacing missing teeth would be fabricated, to restore patient's functional demand.

### Procedure for Definitive Obturator

A maxillary defect was blocked using gauze pack, which was soaked in betadine solution. Maxillary and mandibular primary impressions were taken with stock metal tray using irreversible hydrocolloid (Zermack tropicalgin alginate powder) (**Figure 2a & 2b**). The maxillary and

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mandibular primary models were fabricated by using the type III dental stone (apexion gold stone) (**Figure 3a & 3b**). The special tray was fabricated and the border moulding was done by low fusing green stick compound (DPI) (**Figure 4**). The final impression was taken with the help of light body elastomeric impression material (DPI photosil) (**Figure 5**). Pick up impression was taken with the help of irreversible impression material (**Figure 6**). The master model was prepared using type III dental stone (**Figure 7**). The permanent record base with occlusal wax rim was fabricated. The jaw relation was recorded and the articulation and mounting was done in mean value articulator. (**Figure 8 & 9**). Teeth set up was carried out by using acry pan teeth set and final trial was done. (**Figure 10a & 10b**). The routine wax up, flasking and dewaxing procedures were carried out (**Figure 11 & 12**). At the time of heat cure acrylic resin (Pyrex Fship) packing the salt was incorporated at the defect area to reduce the weight of the prosthesis. And short duration curing cycle was completed. After retrieval from the curing unit finishing and polishing was carried out. The salt was removed by making the escape hole over the bulb. (**Figure 13a, 13b, 13c**) The escape holes were closed with the help of cold cure acrylic resin. The occlusal adjustment was carried out and the final prosthesis was delivered to the patient. (**Figure 14, 15, 16a & 16b**)

## Discussion

With any size of palatal perforation, retention as it applies to conventional complete denture prosthesis is impossible. Therefore, the contours of the defect must be used to maximize the retention, stability and support.<sup>5</sup> since the lateral portion of the obturator exhibits the greatest degree of movement, retention can be improved by appropriate obturator-tissue contact superolaterally.<sup>6</sup> Many authors have insisted that the obturator for a large defect should be routinely made hollow to reduce the weight.<sup>7</sup> Most clinicians agree that the obturator should be hollow and lightweight, but there is some controversy concerning whether the superior surface can be left open or should be closed. Clinicians who prefer the closed top concluded that if the obturator is left open, nasal secretions accumulate leading to odor and added weight.<sup>8,9,10</sup>

## Conclusion

The patient with maxillectomy defect has greater problems in speech and mastication than the conventional maxillary removable partial or complete denture. Sound prosthodontic principles of using bony undercuts, achieving maximum tissue coverage without overextension, and placing the dentition in harmony with the functional tissues are paramount for prosthetic success when treating these patients.

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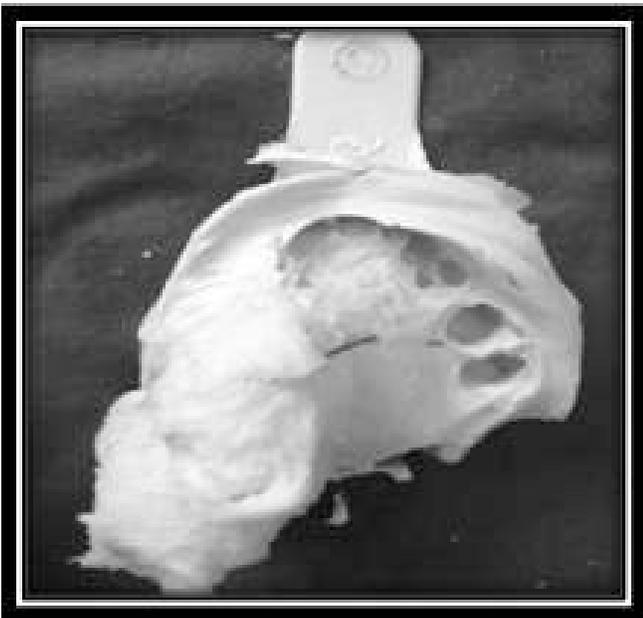
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**Figure 1: Armani's class II maxillary defect.**



**Figure 2a: Maxillary primary impression.**



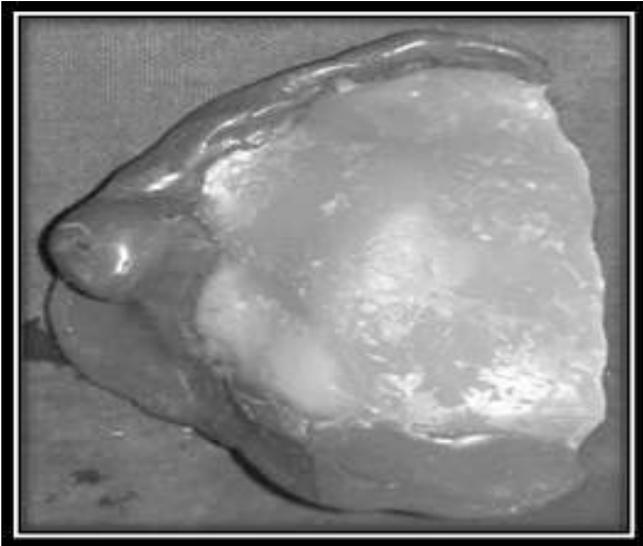
**Figure 2b: Mandibular primary impression.**



**Figure 3a: Maxillary primary cast.**



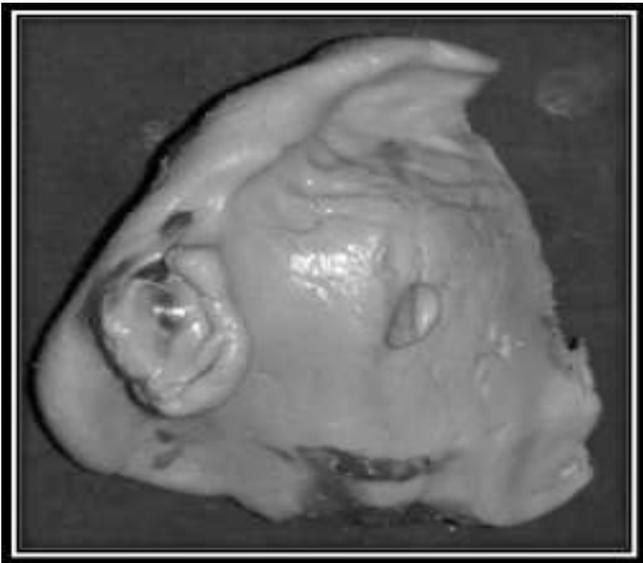
**Figure 3b: Mandibular primary cast.**



**Figure 4: Maxillary border moulding.**



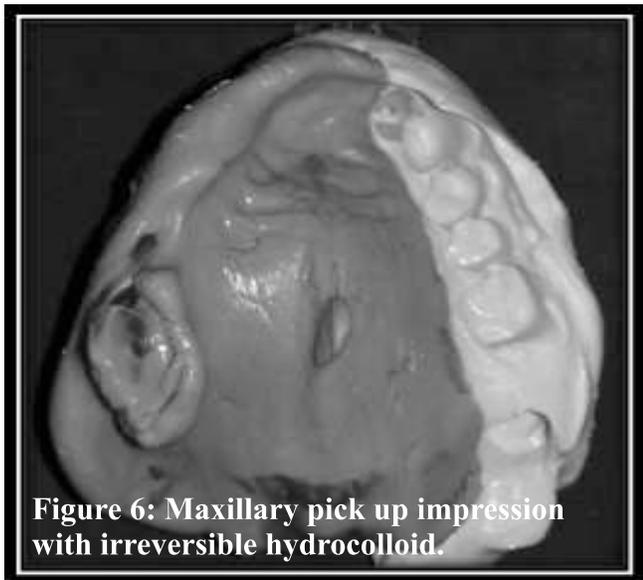
**Figure 7: Maxillary master cast.**



**Figure 5: Maxillary final impression.**



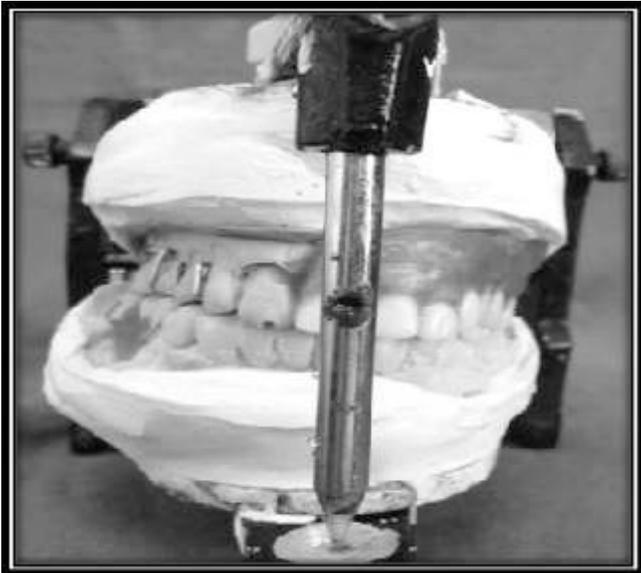
**Figure 8: Jaw relation record.**



**Figure 6: Maxillary pick up impression with irreversible hydrocolloid.**



**Figure 9: Articulation and mounting on mean value articulator.**



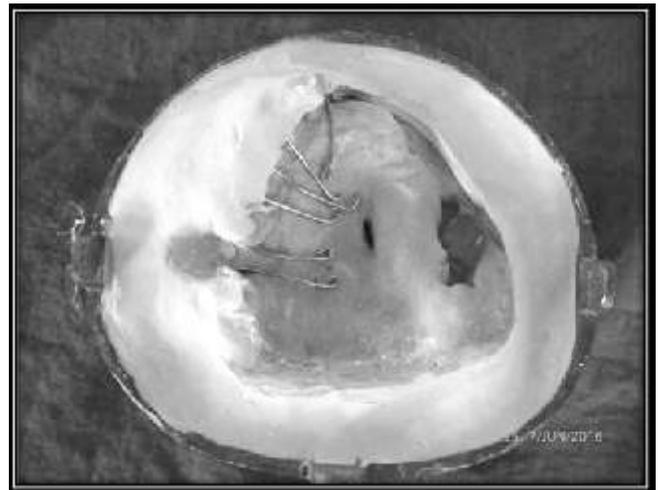
**Figure 10a: Teeth set up on mean value articulator.**



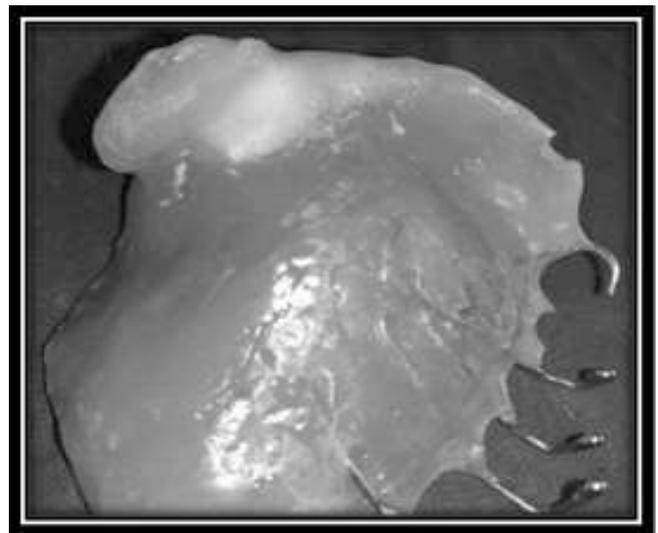
**Figure 10b: Final trial.**



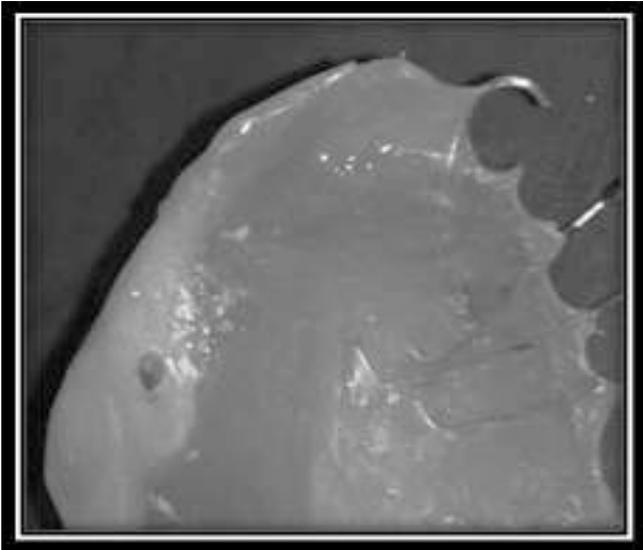
**Figure 11: Flasking procedure.**



**Figure 12: After dewaxing procedure.**



**Figure 13a: Maxillary obturator with hollow bulb.**



**Figure 13b: Escape holes for salt removal.**



**Figure 13c**



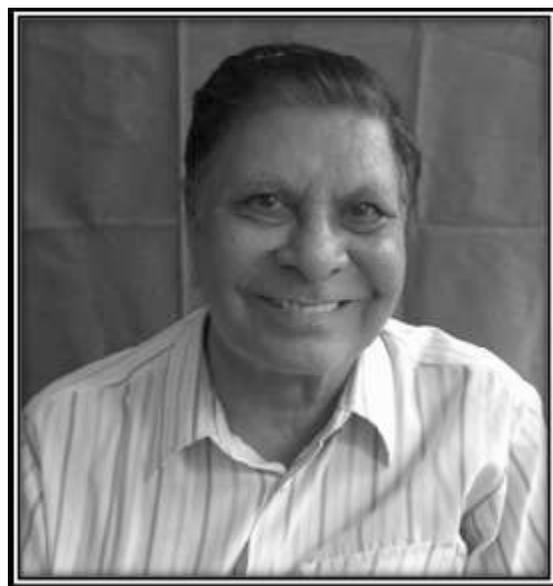
**Figure 14: Maxillary obturator placed in patient's mouth.**



**Figure 15: After occlusal adjustment**



**Figure 16a: Before the treatment**



**Figure 16b: After the treatment**