



CASE REPORT

## Fabrication of Interim Hollow Bulb Obturator Using Lost Salt Technique - A Case Report

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**ABSTRACT:** This report describes a simplified method for construction of an interim hollow bulb obturator for an acquired maxillary defect. Final impression was made with irreversible hydrocolloid and the master cast was blocked out with plaster. Wax up was done leaving the hollow bulb open after acrylization, the defect was filled with table salt and selfcure resin was used to cover the defect. Later a small hole was made and the table salt was washed off in water and the hole was also filled with self cure resin. The obturator was well retained in the patient's mouth and markedly improved his ability to speak and swallow-This technique proved to be a simple, quick, and cost-effective method for construction of hollow bulb Obturators for acquired maxillary defects.

**Key words:** Interim obturator, lost salt technique, Maxillofacial prosthesis.

Rehabilitation of the patient with acquired or congenital maxillary defect is the most tedious job. The defect causes an oro-antral communication, making the speech and swallowing difficult due to the regurgitation of fluids. Disfigurement of face due to the loss of tissue, leads to severe psychological impairment in these patients.<sup>[1]</sup> The maxillofacial prosthodontist, as a member of the surgical team, plans the design of the obturator right from the diagnostic phase before the surgery in consultation with the oral surgeon. He is able to aid in the recovery and rehabilitation of the maxillectomy patient by fabricating and placing a surgical obturator.<sup>[2]</sup> The immediate postoperative restoration of mastication, deglutition, and speech shortens the recovery time in the hospital and expedites the patient's return to the community as a functioning member.



Figure-1 Squamous cell carcinoma of the palate.



The traditional treatment sequence for a patient requiring a maxillectomy is the initial insertion of an immediate surgical obturator at the time of surgery or soon thereafter and an interim obturator placed after initial healing of about 7-10 days after surgery. When the tissues are stabilized, after contraction and scarring (approximately 3-6 months) a definitive obturator is placed. This case report describes a simple method for fabricating interim hollow bulb obturator prosthesis for a hemimaxillectomy patient.



Surgical obturator.

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Figure-3



Figure\_4 Surgical site post operatively after 10 weeks.



Figure-9 Table salt used to fill hollow bulb Of the interim obturator.



Figure-5 Final cast. Figure-10 Self cure acrylic resin used to cover the opening of the hollow bulb.



Figure-6 Unfavorable undercuts blocked out salt. with plaster— pumice.



Figure\_11 Small hole made to dissolve and wash out the



Figure-7 Wax up of final cast invested in dental flask.



Figure-12 Small hole sealed with self cure resin.



Figure-8 Open bulb interim obturator after curing.



Figure-13 Final prosthesis in place covering the defect completely.

## CASE REPORT

A female patient, aged 53yrs, reported to the Department of oral and maxillofacial surgery with a chief complaint of ulcer on the left side of the upper jaw for the past 1 year. On examination the patient was dentate with root stumps of 14, 15, 16 and missing 25, 26. An ulceroproliferative lesion with everted border was seen on the left side of the hard palate. It was about 2\*2\*2cm, extending from the missing 25 region upto 28 region. It extended medially to the midline of palate (Fig 1).

Radiographic evaluation revealed a radiolucent lesion in relation to the first molar extending up to the floor of the orbit. Biopsy was taken and the lesion was diagnosed as squamous cell carcinoma of palate. A hemimaxillary resection was planned to remove the entire carcinoma and to place a subcutaneous skin graft.

The prosthetic design plan was to achieve a class I maxillary defect according to Mohammed Aramarty classification. A diagnostic impression was made with alginate reversible hydrocolloid, Zhermack, Italy. (Fig 2) and the design of the obturator was planned on the diagnostic cast to provide a stable retentive interim obturator prosthesis. The surgical resection site was marked and removed for fabricating a surgical obturator (Fig-3). The surgical obturator was secured using circumzygomatic wiring at the place after grafting. The immediate post operative period was uneventful and the surgical obturator was removed after 10 days.

The surgical site showed good healing with less shrinkage (Fig-4). A dentulous, perforated, stainless steel stock tray size 4 (Jabbar & Co) was selected and modified with impression compound to cover the defect area. Dampened gauze was placed in the surgical site to cover the unwanted undercuts and to aid favourable removal of the impression. The irreversible hydrocolloid (Zhermack, Italy) was used to make the impression. The impression was beaded and boxed and the final cast was poured in type III dental stone (Kalrock, Kalabhai International) (Fig-5). The unfavorable undercuts were blocked with pumice plaster mixture (Fig-6). Clasps were placed on teeth T3 and 18 to aid in retention of the prosthesis. The wax up of the defect was completed on the master cast. A large size dental flask was taken and reverse flasking was planned. The master cast was invested in the first pour leaving the hollow bulb opening open (Fig-7). The second pour was used to fill the hollow wax up. On dewaxing, heat cure acrylic resin packed and cured using the short curing cycle. Deflasking was done and the hollow bulb was inspected (Fig-8). Table salt was

used to fill the defect (Fig-9) and Autopolymerising acrylic resin used to cover the opening and create the hollow bulb (Fig- 10). On completion of curing, a small hole (Fig- 11) was made on the base of the hollow bulb obturator and it was placed in water to dissolve all the salt (Fig 12). The hollow bulb was washed with water in a syringe to remove the salt completely. The small hole was sealed with Autopolymerising acrylic resin. The obturator was finished and polished and inserted in the patient's mouth (Fig- 13).

The post insertion follow up was done after 24 hours, after three days and after one week. A review after every 10 to 14 days over the next two months period is needed. The prosthesis will require revision due to tissue changes at the surgical site.

## DISCUSSION

The aim of the interim obturator prosthesis is to improve speech deglutition and to maintain oral hygiene to aid in tissue healing of the patient until a definitive prosthesis is constructed. An obturator can be made solid or hollow. The interim obturator is never kept half open as it is unhygienic and invites infection. The hollow bulb obturator can be fabricated using two piece procedure or single piece procedure.<sup>[8,9]</sup> An interim hollow bulb obturator has the advantage of being less weight to provide better retention and comfort to the patient and it also has a greater surface area for relining.<sup>[10]</sup> The technique used to fabricate the interim hollow bulb using table salt eliminates the making of the hollow hard shim which is made during the single piece procedure and two piece procedures for fabrication of hollow bulb obturator. This simple procedure of making the hollow bulb reduces the laboratory time considerably to thirds.

## CONCLUSION

This technique proved to be a simple, quick, and cost effective method for construction of a hollow bulb obturator for acquired maxillary defects compared with the other two techniques of making a hollow bulb obturator.

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