



## DAWN TO DUSK OF A REHABILITATION: A Case Report

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**ABSTRACT**

Management of palatal defects is always a challenging procedure that requires multidisciplinary expertise to achieve acceptable function, speech and esthetics. Successful rehabilitation improves the quality of life for the patient. The prosthesis should be easy to handle and maintain, light in weight and convenient for any future adjustments. This case report describes a clinical case of hemi maxillectomy which had prosthodontic intervention right from the pre surgical planning through to the fabrication of a definitive hollow bulb obturator prosthesis.

**KEYWORDS :** Hemi maxillectomy, Immediate surgical obturator, Definitive hollow bulb obturator prosthesis.**Introduction**

Maxillofacial defects may be a result of congenital malformations, trauma or surgical resections of tumours. Rehabilitation of such defects presents a challenge both for the patient as well as the clinician.

One of these defects occurs after maxillectomy, which results in the formation of a communication between the oral cavity and the antrum or nasopharynx. Such defects inevitably results in difficulty in mastication and swallowing as well as impaired speech and facial esthetics<sup>1</sup>.

Several methods have been advocated in the literature for the reconstruction of such defects. Most often the surgical defects of hard palate are covered by a prosthesis called obturator. Prosthetic restoration of the defect often includes use of surgical obturator, interim obturator and definitive obturator.

The present article is a case report describing the prosthetic management of a patient with Aramany Class I palatal defect

**CASE REPORT**

A 38 years old female patient diagnosed with squamous cell carcinoma on right maxilla (fig1&2) was referred from the Department of Oral and Maxillofacial surgery to the Department of Prosthodontics for prosthodontic intervention from the time of surgery.

**Treatment plan:**

- After pre-surgical evaluation and assessment, treatment planning was done.
- We planned for an immediate surgical obturator followed by an interim obturator which will then be replaced by a definitive obturator.

**Procedure:****Pre surgical phase:**

- Impression of the maxillary and mandibular arches were made using Alginate impression material. (ALGITEX – DPI).
- Stone cast was altered according to the planned surgical defect.
- An Immediate surgical obturator (ISO) was fabricated for an Aramany Class II palatal defect
- The lateral border was contoured as a cheek bumper to prevent the hollowing of cheeks.

**Surgical phase:**

- At the time of surgery the type of planned defect (Class II) got altered due to the extension of lesion margins.
- The palatal defect was then an Aramany's Class I defect<sup>2</sup>.
- ISO was relined for extension and better adaptation using soft relining material. (GC Reline)

- For the fabrication of interim obturator, impression of the defect area was made using Elastomeric impression material. (GC Flexceed)
- After the surgical packing was done, the relined ISO was placed and screwed on to the available palatal bone (fig 3).

**Interim phase:**

- Interim obturator was fabricated replacing the teeth from 11 to 16.
- Retention was obtained from the ball end clasps between 24, 25 and 26,27
- It was used by the patient for 8 weeks
- Was relined twice, once in 4 weeks (fig 4)

**Definitive obturator prosthesis**

- o Primary impression was made using impression compound by blocking out the teeth on the contralateral side using modeling wax. Impression compound was used due to reduced mouth opening (19mm) and was also used as a tray material (fig 5). Wax block out was removed from the teeth and impression was made using elastomeric impression material.
- o A Custom tray was fabricated (fig 6)
- o Tooth preparation for rest seats were done.
- o Secondary impression was made using elastomeric impression material (Single stage putty light body wash impression technique) (fig 7).
- Since the defect was large, patient was planned to be rehabilitated with a hollow bulb obturator, to reduce the weight of the prosthesis and will be attached to cast partial denture considering stability, retention, load distribution and supra structure longevity.
- The cast partial frame work followed the design given by Mohammed Aramany – Class I linear obturator design for curved arch form.
- The remaining teeth had good periodontal condition to provide support to the prosthesis.
- In the present case, support was provided by the remaining teeth and the palatal tissues.
- Major connector design – Complete palatal coverage.
- Direct retention - embrasure clasps on 25,26,27,28 and an I bar clasp on 21
- Indirect retention – cingulum rest on 23 and mesial occlusal rest on 24. (fig 8)
- Fit and passivity of the metal frame work was checked.
- Teeth arrangement was done. (fig 9)
- Try-In was done again.
- Acrylization was followed in the conventional manner.
- o For acrylization of hollow bulb of obturator Wax-Shim technique was followed
- Following the finishing and polishing of the prosthesis, insertion was done. (fig 11&12)

**Recall and review:**

- Patient was recalled after 2 days – necessary adjustments were made.(fig 13)
- Follow up visits done after 1 week, after 1 month and then every 3 months.(fig 14)
- During each visits there was an improvement in the mouth opening, functioning and speech.(fig 15&16).
- Patient also had aesthetic satisfaction.

**Discussion:**

Obturator prosthesis are commonly used in the rehabilitation of total or partial maxillectomy patients. It helps in separating the oral and nasal cavities and restores normal deglutition, speech and further improves the mid facial esthetics by supporting the soft tissues<sup>5</sup>. Usually the prosthetic rehabilitation for such cases will be done after some period for definitive prosthesis. Here we have adopted a complete treatment planning from presurgical assesment for an Immediate surgical obturator(ISO) then for an interim obturator which was then replaced by a definitive obturator prosthesis. Advantage of providing an immediate obturator was that it helped as a surgical pack holder ,to stabilize the large extent of wound and also prevents the post surgical sagging of tissues<sup>6</sup>.

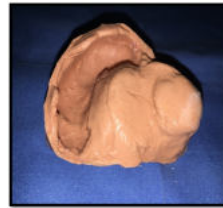
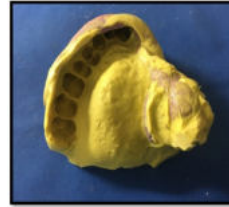
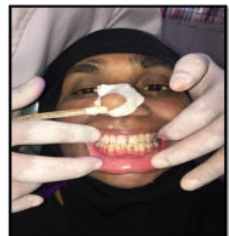
Inadequate retention, stability and support are common treatment problems associated with the rehabilitation of maxillectomy patients<sup>7</sup>.

Mohammed Aramany classified acquired maxillary defects and described the basic principles to be strictly adhered to in designing removable cast framework on which obturators for partially edentulous patients will be fabricated. It is also a useful tool for teaching and for enhancing communication among prosthodontists. Usually a quadrilateral or tripodal design is favoured over a linear design because this allows a more favourable distribution of forces for enhancing the support, stabilization and retention of the prosthesis<sup>8</sup>.

A hollow bulb design was chosen for the obturator in order to reduce the weight of the prosthesis and to make it more comfortable for the patient<sup>8</sup>. Many methods have been advocated in the literature for the fabrication of hollow bulb obturator. The method adopted here was wax shim technique advocated by Chalian and Barnett.

**Summary**

The present case report described the complete sequence of prosthetic rehabilitation of a patient who had undergone partial maxillectomy. It involved the fabrication of an immediate surgical obturator followed by an interim obturator which was then replaced by a definitive hollow bulb obturator prosthesis attached to a cast metal frame work. Patient showed drastic improvement in speech and functionality and was very much pleased with the esthetics it provided.

**Fig 1&2: PREOP****Fig 3: IMMEDIATE SURGICAL OBTURATOR****Fig 4: INTERIM OBTURATOR****Fig 5: CUSTOMIZED PRIMARY TRAY****Fig 6: PRIMARY CAST & SPECIAL TRAY****Fig 7: DEFINITIVE IMPRESSION****Fig 8: FRAMEWORK****Fig 9: WAX TRIAL****Fig 10: DEWAXED DENTURE WITH HOLLOW WAX SHIM OBTURATOR****Fig 13: POSTINSERTION****Fig 14: AFTER 3 MONTH REVIEW****Fig 15&16: INTRA ORAL VIEW (POST INSERTION)****REFERENCES**

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