Prosthetic Rehabilitation of Maxillectomy Patient with Immediate and Post-Surgical Obturator: A Case Report
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Abstract
Prosthodontists in general faces different problems during the construction of a pre and post-surgical obturator. This paper reports the management of maxillectomy case with pre and postsurgical obturator.
Key Words: Maxillectomy, Obturator.

Introduction
The demand for maxillofacial prosthetic devices for the rehabilitation of patients with congenital or acquired defects has intensified in recent years. The extensive surgical procedures necessary to eradicate cancer of the head and neck and to prevent local recurrence or regional metastasis often leave extremely large physical defects which present almost insurmountable surgical difficulties in restoring acceptable function or esthetics.(1, 2) The prosthesis needed to repair the defect is termed a maxillary obturator.(2) The post pathologic and post traumatic obturators include: a) the immediate temporary obturator, b) the temporary obturator, and c) the permanent obturator.(2) This article describes the method used to fabricate the surgical obturator and also the treatment obturator.

Case Report
A 47 year old male patient was reported to a free dental camp conducted by Rama dental College and Hospital, Kanpur, India. He was brought to and diagnosed of carcinoma. Surgical resection of the tumor was carried out with partial maxillectomy of inferior, middle and superior portions of the maxillary bone crossing the midline, floor of the orbit and ipsilateral nasal spine. The obturators were made as described below.

Procedure for fabricating surgical obturator: The maxillary and mandibular impressions were made in irreversible hydrocolloid impression material and casts were poured (Fig1a). The tumor bulk present on the hard palate and alveolus was reduced to normal contour on the working cast. Following the mock surgery, the surgical obturator was fabricated directly on the cast with auto polymerizing resin (Fig 1b). The completed surgical obturator was sterilized and inserted following the resection. Surgical dressing was placed over the surgical obturator. The surgical obturator and dressing was removed one week post operatively by the surgeon. The patient was then referred back to us for fabrication of the post-surgical obturator.

Procedure for fabricating post-surgical obturator: Impression was made in a stock tray with poly-vinyl siloxane impression material. (Fig 1c) The impression was boxed and poured in stone. Modelling clay was put into the open defect area, and with the patients normal palatal ridge being used as a guide, the false palate and ridge were shaped and contoured in clay, leaving an approximately 2 mm thickness for the wax pattern on the reshaped palate and ridge (Fig 1d). The modelling clay is covered with tin foil as a separating medium. Autopolymerizing acrylic base plate was constructed over the stone cast and reshaped defect area. Wax occlusal rim was then seated over it. The base plate and rim was then inserted into the mouth, the vertical dimension is ascertained, and the jaw relation records are taken. The maxillary and mandibular casts were mounted the teeth were selected and set with normal occlusion. Wax try-in and rechecking of the centric relation was done. After this, the waxed-in obturator was invested in a flask and dewaxing was done. The two halves were then separated and wax was flushed out. The modeling clay was also removed (Fig 1e, 1f). A shim was then constructed. The undercut areas in the defect were blocked out and the entire defect area relieved with one thickness of base-plate wax. Three stops deep enough to reach the underlying stone of the master cast was placed in wax to facilitate proper partitioning of the shim. One thickness of base plate wax was also placed in the top half of the flask over the teeth and palate area to form the top wall of the shim. A layer of resin was then contoured over the wax relief. The flask was then opened and wax was flushed out and allowed to
set. After curing the flask was then closed and allowed to set. The excess acrylic was removed from the shim and placed back into the defect, using the 3 stops for correct positioning for final processing with heat cure resin (Fig 1g, 1h). The heat cure resin was mixed and prepared in the usual manner. A layer of material was pressed to place in the bottom of the defect, and the shim reinserted for final processing. The heat cure was also placed in the top half of the flask, trial closure and then final closure was done.

![Figure 1a, pre-surgical Impression, 1b. Pre-surgical Template, 1c. Post-surgical Impression, 1d. Wax Pattern, 1e. Flasking, 1f. Dewaxing, 1g. Acrylic Resin Flushed, 1h. Post-Surgical Obturator, 1j. Post-Operative View](image)

After that, the obturator was cured, deflasked, finished and polished in the customary manner, then inserted into the mouth (Fig 1i, 1j). At delivery of the prosthesis, the intaglio surface of the remaining hard palate area and cut edge of the hard palate areas were checked with pressure indicating paste. The patient was asked to report back every 10-14 days over the next 2-3 months, to do any correction in the prosthesis due to tissue changes in the surgical site. The patient was advised for fabrication of permanent obturator after six months.

**Discussion**

The surgical obturator, placed at the time of tumor resection in the operating room, provides the surgeon with an anatomically accurate stable, clean scaffold upon which to support the surgical dressing that, in turn, supports the facial flap and keeps pressure on the skin graft placed over the denuded intraoral surface of the facial flap.(1, 2) It provides a barrier between the surgical dressing and oral cavity so the patient does not feel the extent of the defect or dressing with his or her tongue during the initial healing period.(3) Surgical obturator also allows patients to take nourishment without a nasogastric tube, enable the patients to speak normally, and minimize the initial feelings of loss that occur when patient realize the extent of their surgical defects.(4) The technique employed has the following advantages a) there are no lines of demarcation on the denture to discolor, b) the undercut areas of the defect are thick enough to allow for adjustment of necessary, c) It is simple and consumes a little more laboratory time than a conventional denture and d) accuracy is assumed.(1) In conclusion the post-surgical obturator fabricated for this case is a one piece follow obturator which is more hygienic and more esthetic than the two piece obturator.

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