REHABILITATION OF EDENTULOUS MAXILLECTOMY PATIENT WITH LIGHTWEIGHT, TOP OPEN OBTURATOR: A CLINICAL REPORT

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ABSTRACT
Patient with maxillary defects requires more attention and care while planning the prosthodontic rehabilitation. The etiology, size and location of the defect are important consideration in choosing the method of rehabilitation. An edentulous patient having maxillectomy with restricted mouth opening is always a difficult situation to manage in terms retention and stability of the prosthesis. The purpose of this clinical report is to describe a procedure for the fabrication of a heat cured acrylic resin, lightweight, top open obturator restoring optimal functions and esthetics of a hemimaxillectomy patient with restricted mouth opening.

KEYWORDS Rehabilitation, Obturator, Maxillectomy, Maxillary Defects

INTRODUCTION - Wide surgical excision of the anatomic structures may result in the loss of palate, maxillae and contiguous structure accompanied by difficulty with speech, deglutition, mastication, and respiration¹. The treatment of large maxillary defects with prosthetic restorations is desirable in carcinoma patients, at least until it is certain that there will not be a local recurrence. Such type of patient can be successfully treated with obturators whether they are edentulous, partially edentulous or have a full compliment of the teeth.² The etiology, size and location of the defect are important consideration in choosing the method of rehabilitation³. Prosthodontic therapy for patients with acquired surgical defects of the maxilla can be arbitrarily divided into three phases of treatment, with each having different objectives.

Initial phase – In this phase surgical obturators are placed at the time of surgery or immediately to restore and maintain the oral function at reasonable level during the initial postoperative period (two week) by frequent modification of the prosthesis.

Second phase – In postsurgical Prosthodontic treatment interim obturator are provided for the function and esthetics until healing is complete.

Rapid tissue changes following surgery and extensive surgical defect may necessitate fabrication of a new interim prosthesis either modification of the existing prosthesis. This phase is usually instituted 2 to 6 week postsurgically for three to six month when the surgical site is well healed and dimensionally stable.

Third phase – This is the phase of definitive obturator prosthesis three to four month of surgery, depending on the size of the defect, post irradiation, present or absence of teeth³ opening of the mouth and overall general health of the patient. The objective of the any definitive obturator prosthesis is to restore the lost tissue structure as well as functional incompetence. Prosthetic intervention with maxillary obturator prosthesis is necessary to restore the contours of resected palate and to recreate the functional separation of the oral cavity, sinus and nasal cavity ⁴. Obturator prosthesis to restore the resected palate should be lightweight so that teeth and supporting tissues are not stressed unnecessarily. Bulky areas should be hollowed to reduce weight so that teeth and supporting tissues are not stressed unnecessarily⁵. The top open design is preferred because of its simplicity, lighter weight and ease of adjustment. Open obturator may be less obtrusive in
the nasal cavity and permit more normal airflow, nasal resonance and speech. The purpose of this clinical report is to describe a procedure for the fabrication of a heat cured acrylic resin, lightweight, top open obturator restoring optimal functions and esthetics of a hemimaxillectomy patient with restricted mouth opening.

**CASE REPORT**

A 65 year old female patient belong to rural and low socioeconomic status reported to the department of Prosthodontics, Faculty of Dental Sciences, C.S.M. Medical University, Lucknow, UP, India with the complain difficulty in food intake and restoration of the acquired defect following surgery. History of the patient reveals that she underwent left maxillectomy procedure to treat squamous cell carcinoma of the left side of the maxilla four month back without any Prosthodontic protocol before and after the surgery. Intraoral examination of the patient revealed a medium hard palate defect but well healed on the left side of the maxilla (Fig-1) along with loss of dentition in the both maxillary and mandibular arch. Patient was having restricted mouth opening just only two fingers can be inserted from the front. Following surgery philtrum of upper lip of the patient was asymmetrical and deviated. Patient was having nasogastic tube in her nose for fluid and food intake along with a scar at lower eyelid of the left eye. Following the discussion, we planned to restore the palatal defect area with heat cured acrylic resin lightweight top open obturator along with mandibular complete denture in the existing restricted mouth opening condition.

**PROCEDURES**

The preliminary impression was taken to record remaining maxillary structure and the useful portion of the defect. Prior to making the impression, the medial and anterior undercuts were blocked out with gauze lubricated with petrolatum because these undercuts would not engage by the prosthesis. Elastic impression material was loaded to the stock tray and impression was made (Fig-2). Care must be taken to place impression material laterally so as to record lateral configuration of the defect. An accurate diagnostic cast, which reproduces the usable undercuts, was poured (Fig-3). The undesirable undercuts recorded in the cast were blocked out with a suitable wax prior to constructing the custom tray. After relieving customary way, custom tray was fabricated with acrylic resin. Conventional border molding was applied using low fusing compound. Final impression was completed with ZnO-E impression material for unresected area and lightbody elastic impression material for defect portion. Master cast was poured in dental stone (Fig-3). An autopolymerizing acrylic resin recording base and wax occlusal rim was fabricated and maxillomandibular relation was recorded (Figure.4). Non-anatomical teeth were arranged according to neuromuscular occlusal concept as this concept minimizes lateral forces and deflective occlusal contacts and thus improve prosthesis stability (fig-5). Trial dentures were tried in the mouth for verifying jaw relations, interocclusal space and esthetics. The waxing was finished and sealed to the master cast for wax boil out and cured with heat cured acrylic resin. The superior extension of obturator was reduced and top open design was formed by making a well shape opening (Fig-6). Final adjustment in the patient was performed before delivery of the Obturator prosthesis and mandibular denture. Homecare instructions were reviewed and recall appointments arranged.

**DISCUSSION**

Greater emphasis should be placed while planning the design consideration of obturator prosthesis from beginning of the surgery so that maximum conservation of the healthy dental tissue and tooth can be planned for the retention as well as for stability of the prosthesis. For the edentulous patient who has an existing complete denture it can be utilized in the construction of interim obturator. This can be accomplished with the tissue conditioning material. this material can be then be converted to heat polymerizing acrylic resin. The placement of osseointegrated implants at the time of surgery or secondarily is discouraged. Only alternative is to make a new set of denture with obturator covering the palatal defects and restoring the optimum function of the patient by utilizing the useful undercuts in defect. The superior bulky area of the obturator should be reduced and left open because of its simplicity, lighter weight and ease of adjustment. The top open obturator design is less obtrusive thus permits better speech quality. The main drawback
of the top open obturato is the accumulation of secretions leading to odor and added weight. If secretions do tend to accumulate, a small diagonal opening may be made between the inferior lateral floors of the top open obturator through to the cheek surface for drainage.

CONCLUSION

Prosthodontic treatment for the head and neck cancer patients having maxillectomy may include the standard protocol of surgical interim and definitive obturator treatment for the speech esthetics and overall quality of life. Obturator prosthesis is the only alternative in the patients seeking the restoration of facial disfigurement and large palatal defects. Top open design of the obturator is preferred because of its easy fabrication, lighter weight and ease of adjustment. Prognosis for the obturator patients is highly depending on the maintenance of the surgical defect as well as positive support from their family, relative and friends.

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