Prosthodontic Rehabilitation of Hemimaxillectomy Patient With Hollow Bulb Obturator

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Abstracts: One of the most rapidly growing areas of dentistry from the standpoint of both interest and need is maxillofacial prosthetics. The research on cancer has made understanding and treatment of this dreadful disease a possibility, still the rehabilitation of these patients is a daunting job, and is more so in post-surgical cases. With the advent of new materials and techniques, vast improvement in rehabilitation of maxillofacial patients has been realized. The objective of this case report was to obturate acquired palatal defects and allowing the restoration of functions such as esthetics, mastication, deglutition and speech. This report throws light on the simplified technique to prepare hollow bulb obturator using shim fabrication. This technique results in a prosthesis which is light in weight and aids in better retention and patient's comfort. [Mehta S et al NJIRM 2012; 3(1) : 147-149]

Key Words: Hemi maxillectomy, Hollow bulb Obturator, Shim fabrication.

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Introduction: Surgical resection of a maxillary tumor often creates a large post-operative defect. To adequately restore the physiology of speech, mastication, deglutition, and aesthetics obturator prostheses are required.[1]

A prosthesis must be retentive and stable to function comfortably. However, palatal defects that are treated prosthodontically present several biomechanical challenges. An obturator prosthesis fabricated for a unilateral maxillary resection has intrinsic leverages that act as dislocating factors. The weight of the maxillary obturator is also a dislocating factor because the prosthesis often acts as a cantilever specially in edentulous patients. This can be reduced by eliminating the mass of material in the nasal extension. Many methods have been recommended to accomplish weight reduction of maxillary obturator prostheses such as joining two separate processed sections; processing against sugar or ice; and processing with polyurethane foam within the defect.[2,3,4,5]

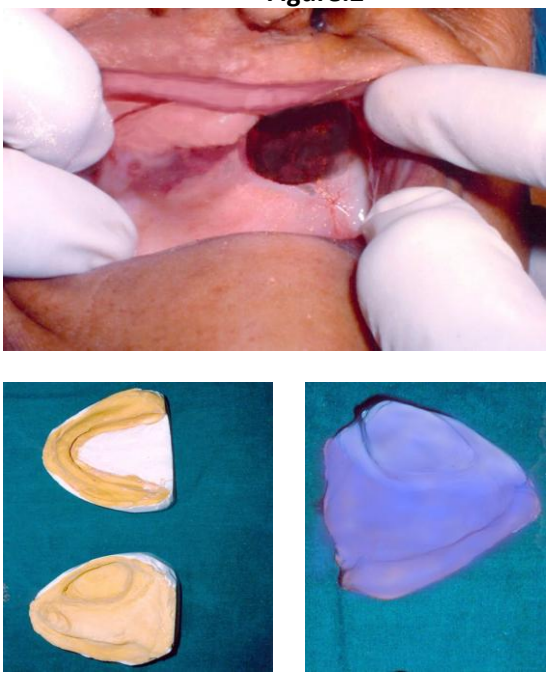
But previously reported techniques for hollow obturator fabrication may be cumbersome, inefficient and limited in application.Materials and techniques used for fabrication of these obturators vary from patient to patient depending upon location and extent of defect. In the present case a hollow bulb obturator was advised due to its light weight which is needed to act, against gravitional forces and to provide better retention, stability and patient's comfort. The process of fabrication employed in the present case was simple and less technique sensitive.

Case report :A 55 year old female patient (Fig.1) reported at CDSRC, Bopal , Ahmedabad, with the chief complaint of nasal regurgitation of fluids, compromised esthetics, disharmony and difficulty in speech.

Figure.1

Intra oral examination revealed a surgical defect present on the left side of maxilla along with complete loss of dentition (Fig. 2). The defect could be classified as Class III according to Aramany's classification of acquired maxillary defects. [6]

Figure.2



Prosthetic Rehabilitation: Preliminary impression was made with impression compound after blocking all undesirable undercuts and cast was poured.

A special tray of uniform thickness was fabricated with self-cured acrylic resin. Border moulding was done with low fusing impression compound and final impression of defect and remaining arch was made with help of rubber-base impression material. This was boxed, poured, trimmed and the periphery was outlined with the pencil. Any undesirable hard and soft tissue undercuts were blocked out. But these will be salvaged later to help increase retention. Wax rims were adapted and added to record jaw relations. Final trial was approved after verifying esthetics and phonetics.The denture was flasked in the conventional manner and a shim was fabricated to construct a hollow bulb.

Shim fabrication: The cavity in the mould(replica of the defect) was lined with one thickness regular base plate wax.Three widely separated notches were cut in the wax, which reached the underlying stone of the master cast to facilitate proper positioning of the shim. One thickness of base plate wax was placed in the top half of the flask over the defect area.

Autopolymerising acrylic resin is adapted over the wax relief in the defect area. The flask was closed and the resin was allowed to cure. Flask was reopened and wax flushed out with a stream of boiling water. The shim was correctly repositioned with the help of the three stops. Heat cure acrylic resin was packed in to the defect and the shim correctly repositioned. Denture was cured, deflasked, finished and polished in the conventional manner.[7,8,9]

The prosthesis was then inserted in the mouth and checked for accuracy and retention. Patient's speech and masticatory ability was improved. Appearance was found to be satisfactory (Fig. 3).

Figure.3

Discussion: The present case report illustrates the fabrication of simplified technique for fabrication of an obturator for a large Class III defect in an edentulous maxillectomy patient.

Hollow bulb obturator was selected to reduce the weight of the prosthesis which would otherwise have been a deterrent in the retention and stability of the same.

Primary impression was made with impression compound because of its advantages like ease of manipulation and economy. It can also be modify several times which gives proper tissue extension and contours. Rubber-base material was used for final impression.

Shim fabrication technique was used to prepare one-piece hollow obturator having following advantages.

- There is no line of demarcation on the denture to discolor.
- The undercut areas of the defect were thick enough to allow necessary adjustments.
- It is simple and less time consuming.
- Accuracy is assured. [10]

Patients who have hollow open bulb obturators may complaint of food, fluid, and mucous accumulations that result in bad odors and altered taste sensation. Hence, a closed hollow bulb obturator was fabricated.

Materials, such as the silicon rubbers have shown some promise in effective cushioning, however the delirious effects of oral fluids and micro-organisms have tarnished their practicality. Hence, heat cured methyl methacrylate resins still remains the material of choice for tissue compatibility, environmental resistance and ease of adjustments.

Conclusion : Living with such a defect causes a lot of psychological trauma to the patients due to impaired esthetics and functions. Hence, we as Prosthodontists must try to restore the lost form and function of the oral and peri-oral structures, that will enable the patient to live normal human life. Prosthetic rehabilitation not only restores esthetics and functions but also boosts patient's moral. In the present case, this closed hollow bulb obturator restores the functions like speech, mastication and deglutition. It also improves the resonance of sound with subsequent improvement in quality of speech.

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