

Obturator: A Boon For Maxillofacial Defect

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Abstract

The main aim of maxillofacial prosthodontics is successful rehabilitation of function and esthetic of patients with gross anatomic defects and deformities of head and neck. The demand for maxillofacial prosthetic devices for the rehabilitation of such types of patients has intensified in recent years. This paper presents a case report of a female patient who has undergone hemimaxillectomy of right side.

Key Words: Maxillofacial prosthesis, maxillary obturator, maxillary resection, oro-nasal communication.

Introduction

Maxillofacial prosthodontic rehabilitation of the patients with congenital or acquired defects after surgical resection helps them to restore hope and ambition to lead a normal life in society. The common etiologic factors for acquired defects of the palate are trauma, pathological changes, radiation burns, or surgical intervention. The resultant defects create oro-nasal or oro-antral communications with difficulty in eating, speaking and breathing. An obturator (Latin: obturare, to stop up) is a disc or plate, natural or artificial, which closes an opening or defect of the maxilla as a result of a cleft palate or partial or total removal of the maxilla for a tumour mass.^{1,2}

The purpose of this case report is to demonstrate the method of fabricating obturator & benefits of appropriate maxillofacial prosthetic rehabilitation following surgical resection of pleomorphic adenoma of minor salivary glands of the maxilla.

Case Report

A 32 years old female patient, who had undergone surgery (Partial Maxillectomy) for pleomorphic adenoma of minor salivary glands on right side of palate, reported to Department of Prosthodontics, for the restoration of defective area and lost teeth (fig.1&2). The problems encountered by the patient after surgery was difficulty in eating, nasal regurgitation of fluids and poor esthetics. On intra oral examination oronasal & oroantral communication were seen (fig.3). Oral tissues, the palatal bone and the remaining residual ridge were incapable of supporting the conventional prosthesis.

After taking thorough medical & dental history the patient was planned for prosthodontic rehabilitation with obturator. Although we have choice of materials for fabrication of maxillofacial prostheses for eg. Vulcanite, Gelatin-glycerine compound,

Latex, Vinyl plastisols, Acrylic resin copolymer, Vinyl polymers & copolymers, Polyetherurethane, Polydimethylsiloxane but in our case considering the feasibility, socio-economic status of patient & ease of manipulation, Acrylic resin was selected for the rehabilitation, so one piece close bulb obturator was planned & subsequently fabricated for the patient.³

Method

For making primary impression, defective area was analyzed & lined with sterilized gauge piece to prevent flow of material in undercut areas. The gauge piece was tied with a sterile silk suture material which was hanging out of the mouth for easy retrieval and prevention of accidental loss of gauge in defect. Maxillary & mandibular primary impressions were made with irreversible hydrocolloid material.

Impressions were poured in dental stone to produce casts. Dentulous portion of cast was covered with double thickness wax spacer & then special tray was made using autopolymerising resin which covered the teeth & remaining portion of palate and the defect area. Tray was adjusted in patient's mouth & then border moulding was done with low fusing compound. Posterior palatal seal area was recorded with special attention. Then spacer was removed and perforations were made in the tray. Entire medial, anterior & unwanted portion of lateral undercut were blocked with sterilized gauge pieces tied with suture. Then the impression of defect as well as rest of the portion was recorded with medium bodied poly vinyl siloxane impression material (fig.4). The final impression was analyzed & poured in die stone to produce master cast.

Trial denture base was fabricated using chemical cure acrylic resin. Wax occlusion rim were built over denture base. Orientation jaw relation was recorded using Hanau face-bow & transferred to semi-adjustable articulator. Bite registration was recorded; the occlusion in natural teeth present on left side of both arches was used as guidance in recording the jaw relations. Casts were mounted on semi-adjustable articulator. After the selection of teeth, the teeth arrangement was done.

Retention for obturator prosthesis is commonly obtained through contact with the remaining dentition and the anatomic soft tissue contours of the defect.⁴ To aid in retention continuous clasp over the premolars & molars were used. After the try in of the denture, the denture was finally waxed up, flasked & boiled out in conventional manner

(fig.5).⁵

The two halves were then separated and wax was flushed out. 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.

The heat cure acrylic 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 acrylic resin was also placed in the top half of the flask, trial closure and then final closure was done. After that, the obturator was cured, deflasked, finished and polished in the customary manner, then inserted into the mouth (fig.9,10), the intaglio surface of the remaining hard palate area and cut edge of the hard palate areas were checked with pressure indicating paste. Necessary post insertion adjustments were done (fig.11). Patient was educated & motivated for meticulous oral hygiene. The patient was asked to report back after every 10-15 days over the next 6-7 months to do any post insertion adjustments in the prosthesis due to tissue changes at the surgical site.

Discussion

The technique described in this case report is simple, time saving & inexpensive. In this technique there is no line of demarcation between bulb & plate portion, which helps in better oral hygiene maintenance. The patient's ability to handle oral secretions was improved, acceptable esthetic results were achieved and no breathing problems were observed, with the use of obturator prosthesis which had positive psychological effects on the patients thereby enhancing their self-esteem postsurgically.

Conclusion

The prosthodontist play a significant role in the restoration of maxillofacial defects either congenital or acquired. Here a technique has been described for the

construction of obturator for a patient who had undergone partial maxillectomy. Though it is difficult to improve the quality of life for hemimaxillectomy patients compared with patients with conventional prostheses, but optimum treatment result can be best achieved through the judicious use of treatment modalities if specialist is careful to apply skill, knowledge and experience at all the stages of the treatment.

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Legends

- Fig.1. Preoperative frontal view
- Fig.2. Preoperative lateral view
- Fig.3. Pre-operative intra oral view
- Fig.4. Oro nasal communication
- Fig.5. Final impression
- Fig.6. Dewaxing
- Fig.7. Curing
- Fig.8. Finishing
- Fig.9. Finished prosthesis
- Fig.10. Post operative intra oral view
- Fig.11. Post operative view



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