



Research Paper

Definitive Obturator Prosthesis Fabrication For A Hemi Maxillectomy Patient –A Case Report

Dr. Tridib Nath Banerjee¹, Dr. Mandira Ghosh², Dr. Baisakhi Mallick³

¹(Assistant professor, Dept. of Prosthetic Dentistry, North Bengal Dental College, Darjeeling, India)

²(Associate professor, Dept. of Prosthetic Dentistry, Dr. R Ahmed Dental College and Hospital, Kolkata, India)

³(Dental Surgeon cum Clinical Tutor, Dept. of Prosthetic Dentistry, Dr. R Ahmed Dental College and Hospital, Kolkata, India)

Corresponding Author: Dr. Baisakhi Mallick

ABSTRACT: Defects of maxilla are created by surgery of benign or malignant neoplasms or by trauma. Oroantral communication are created by maxillectomy that causes impaired speech, difficulty in mastication and deglutition and facial disfigurement. Patients with small oro-antral and oronasal defects may be amenable to surgical closure, but patients with larger defects are rehabilitated by prosthodontic- means in the rehabilitation of such larger defects the prosthodontist plays an important role by fabricating obturators. Obturator is the prosthesis that is used to close a palatal defect for a dentulous or edentulous patient. A clinical report of fabricating a definitive obturator with a cast metal framework for an acquired maxillary defect is described in this paper. Thus, it provides improves the speech clarity, better masticatory efficiency, and quality of life of the patient.

KEYWORDS: Obturator, Hemi maxillectomy, Clinical report

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I. INTRODUCTION

Palatal defects may result from congenital malformations, pathologic changes or surgical intervention [1]. These defects predispose the patient to nasal intonation of speech, fluid leakage into nasal cavity, and impaired masticatory function. Such defects required which is a special prosthesis to establish oronasal seal [2]. The Glossary of Prosthodontic Terms defines an obturator as “a maxillofacial prosthesis used to close a congenital or acquired tissue opening, primarily of the hard palate and/or contiguous alveolar or soft tissue structures” [3]. The extension of obturator into the defect varies according to the configuration of the defect, character of its lining tissue, and functional requirements for retention, stability, support, of the prosthesis [4]. Moreover, the closed hollow obturator prevents food retention, enables cleaning and maximum extension [5,6]. The prognosis of the treatment depends upon the size of the defect, number of remaining teeth, amount of remaining bony structures, and ability of the patient to adapt to the prosthesis. The preoperative prosthodontic evaluation of patients and close cooperation between the surgeon and the prosthodontist can result in a defect that is more amenable to obturation.

II. CASE REPORT

A 38-year-old male presented to the Department of Prosthodontics and Crown-Bridge for the prosthetic rehabilitation of post maxillectomy defect resulting from squamous cell carcinoma of the left maxilla 10 months back (Picture1). The patient complained of nasal regurgitation of fluids, difficulty in mastication and nasal intonation in his voice. He had worn surgical and interim obturator. Intraoral examination revealed well healed surgical defect in the maxilla involving part of the hard palate, alveolar ridge, and maxillary tuberosity creating an oroantral communication. All teeth posterior to the canine were missing on the left quadrant of the maxilla. Phonetic and masticatory functions of the patient were affected. After a thorough examination, the defect was classified as Aramany's Class II maxillary defect. The treatment plan was done to rehabilitate this patient with a definitive obturator.

III. PROCEDURE

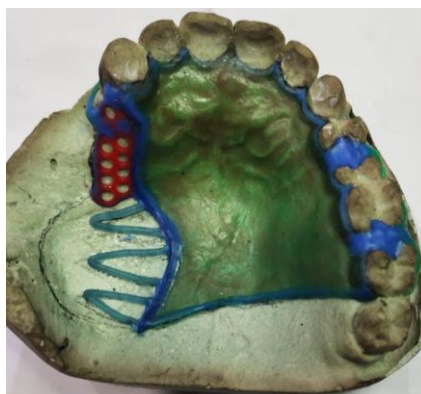
The primary impression of the defect was made using alginate. The defect was blocked with a gauze piece lubricated with petroleum jelly prior to impression making. The primary cast was poured with type IV dental stone. The primary cast was then surveyed on a surveyor and the framework was designed. The design included a tripod obturator design with complete palate as the major connector. Indirect retainer was planned on the right first premolar, and direct retention was provided by the I-bar clasp placed on the left canine embrassure clasp on the right first and second premolar and on the right first and second molars. Rest seat preparations on 14, 15, 16, 17, and 23 were carried out to receive rest of the cast metal framework following the principles of Aramany's Class II obturator design. The final impression (Picture 2) was made with heavy body (putty) and light body addition silicone elastomer. Designing was done over final cast. (Picture3) Jaw relation was recorded and transferred to a semi adjustable articulator (Hanau Wide Vue Articulator). Teeth arrangement was done over the metal framework, and wax try-in was carried out. After try-in, waxed up obturator was processed conventionally with flasking, dewaxing, and packing using heat polymerizing acrylic resin. Finishing and polishing of the obturator prosthesis were done (Picture 4,5). Denture insertion was done into the patient's mouth after intraoral adjustments. The patient was happy and satisfied with his improved speech, function and aesthetics (Picture 6). The patient was given instructions regarding maintenance of the prosthesis and periodic follow-up.



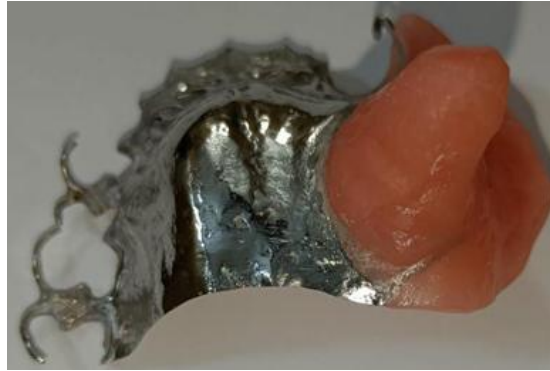
Pic1: Intra oral occlusal view showing post maxillectomy defect.



Pic2: Final impression with heavy body (putty) and light body addition silicone elastomer.



Pic3: Pattern wax designing for metal framework



Pic:4,5: Definite obturator outer surface and intaglio surface



Pic:6: Definite obturator in patient's mouth

IV. DISCUSSION

Obturator prosthesis plays a crucial role in the recovery of oral function in postsurgical maxillectomy patients. Broad stress distribution, cross arch stabilization with the use of a rigid major connector, stabilizing and retentive components significantly minimize dislodging functional forces. A tripodal design was selected in this case. Support of the prosthesis was provided by the remaining teeth, palate, and rest. Rest was prepared on the right canine and left first premolars and first and second molars of the right quadrant of the maxilla. Complete palate was designed to ensure maximum distribution of the functional load to the tissue. Indirect retainer was planned on the right first premolar. Direct retention was provided by the I-bar clasp placed on the left canine, embrasure clasp on the right first and second premolar, and between the right first and second molars [6,7,8]. In dentulous mouth, the remaining teeth play an important role in providing retention, support, and stability to the obturator. Retention can be achieved from the remaining teeth or ridge, lateral part of the defect, soft tissue undercut, and scar band. Stabilization and indirect retention components must be positioned effectively to retard the movement of the defect extension portion away from its terminal position [9]. Different types of retentive aids such as magnets, retentive clips and also implants are used for the conventional obturator prosthesis. However, cost, health of the patient, and bone qualities are some of the factors which limit the use of implants [10]. The advantages of metal framework obturator are the higher longevity of the prosthesis, good thermal conductivity of metal, good polish ability providing good lustre causing more acceptability to the patient [4, 5].

V. CONCLUSION

To achieve adequate retention, stability and support are the great challenges in rehabilitating a hemi maxillectomy patient in fabrication of an obturator prosthesis. The defect, in conjunction with the remaining structures, must be used to provide support, retention, and stability of an obturator prosthesis. Thorough knowledge and skills coupled with a better understanding of the needs of the patients enable the successful rehabilitation of such patients. Definitive obturator prosthesis fabricated with maximum extension and proper design rehabilitates the patient by improving masticatory efficiency, increasing the speech clarity and quality of life. Cautious prosthesis design combined with routine maintenance care should provide adequate rehabilitation for such patients.

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