International Journal Of

Recent Scientific Research

ISSN: 0976-3031

Volume: 7(6) June -2016

A TWO STAGE IMPRESSION TECHNIQUE FOR REHABILITATION OF PATIENT WITH ACQUIRED MAXILLARY DEFECT USING CAST PARTIAL DENTURE BULB OBTURATOR

Deshraj Jain., Alka Gupta., Smita Parate and Mukesh Soni

THE OFFICIAL PUBLICATION OF
INTERNATIONAL JOURNAL OF RECENT SCIENTIFIC RESEARCH (IJRSR)
http://www.recentscientific.com/ recentscientific@gmail.com

ISSN: 0976-3031

Available Online at http://www.recentscientific.com

International Journal of Recent Scientific Research
Vol. 7, Issue, 6, pp. 11921-11923, June, 2016

International Journal of Recent Scientific Research

Research Article

A TWO STAGE IMPRESSION TECHNIQUE FOR REHABILITATION OF PATIENT WITH ACQUIRED MAXILLARY DEFECT USING CAST PARTIAL DENTURE BULB OBTURATOR

Deshraj Jain., Alka Gupta., *Smita Parate and Mukesh Soni

Department of Prosthodontics, Government College of Dentistry, Indore (M.P.), India

ARTICLE INFO

Article History:

Received 16th March, 2016
Received in revised form 24th April, 2016
Accepted 23rd May, 2016
Published online 28th June, 2016

Key Words:

Acquired maxillary defect, bulb obturator, impression technique.

ABSTRACT

Preservation of remaining structure is a primary goal of maxillofacial prosthetic rehabilitation. Maxillofacial defect may be congenital or acquired. surgery and tissue reconstruction is the treatment of choice. However, in certain clinical condition obturator prosthesis can be the only option available. There are various technique described for fabrication of bulb obturator. This article describes a two stage impression technique for fabrication of cast partial denture bulb obturator.

INTRODUCTION

In maxillofacial prosthetic rehabilitation preservation of remaining structure is a primary goal [1]. Maxillofacial defect may be congenital or acquired. Surgical resection due to tumors, burn, infection and trauma are some of the leading causes of maxillofacial defects[2]. Problems with chewing(mastication), speaking(phonation and pronunciation) swallowing (deglutition) and facial disfigurement are a direct results of problems caused by maxillofacial defects a result of opening between the oral cavity and nasal cavity[3].

A prosthesis that fits into and closes oral cavity defect is known as obturator[3]. Sequence of events during treatment includes surgical obturator placement during intervention which is removed after 5 to 10 days followed by construction and placement of interim obturator for the time period of wound healing, finally construction and placement of definitive obturator is done 3 to 6 months after initial surgery as thereafter major tissue conformation changes are not expected[4].

Palliative care for patient with maxillofacial defect includes prosthetic designing combined with routine maintenance and ample care to provide comfort, function, aesthetics and preservation of remaining compromised structures. According to Aramany partially edentulous palatal defect patient are classified using kennedy classification and treated by taking support from the remaining natural teeth.[5]

Such type of cases require a multi-disciplinary team approach after detailed patient evaluation considering his functional and psychosocial requirements. Long term planning and family counseling can dramatically improve patient's social life.[2]

Case report

A 20 years male patient, who had undergone surgery for a maxillary tumour on the right side of the maxilla, reported to the post-graduate department of prosthodontics, for restoration of palatal defect. The patient reported with complaints of missing right side of maxillary teeth and an opening in palatal region, with nasality of voice as well as nasal regurgitation of food. He was experiencing difficulty in speech and deglutition.

On examination, the defect extended from buccal vestibule to the mid palatine region, medially and from the canine region to the posterior extent of hard palate anteriorly (Fig.1). It was found that the right half of the patient's face was disfigured. His major complaint was missing maxillary teeth which compromised his esthetic, jeopardizing his psychology and confidence.

After taking a thorough medical and dental history, examination and detailed discussion, patient and his attendants, were counseled regarding obturator and prepared him psychologically for rehabilitation with cast partial denture obturator to improve his function of mastication, speech, esthetic and psychosocial well being.

*Corresponding author: **Smita Parate***
Department of Prosthodontics, Government College of Dentistry, Indore (M.P.), India

Fig. 1 Intra oral view of maxillary defect area

Procedure

Mandibular primary impressions were made using irreversible hydrocolloid impression material. To make use of antrum defect for retention a two stage maxillary impression was planned. Severe undercuts in the maxillary defect area were blocked using wet gauge piece to prevent the flow of impression material into the nasal opening. Addision silicon impression material of putty consistency is used for 1st stage of impression of the defect area while the material was in setting stage using to and fro motion thus establishing impression of defect area (Fig.2).

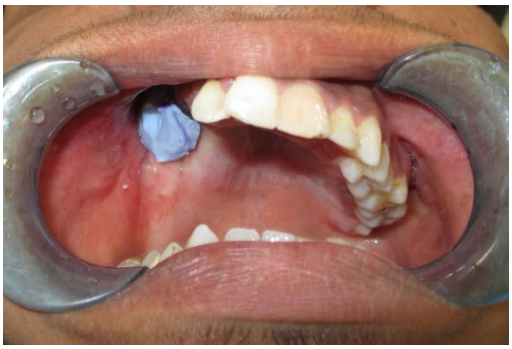
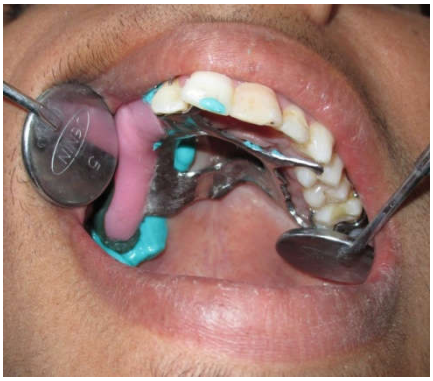


Fig.2 First stage impression showing extension of defect

This prevents its blockage into the undercut area yet making use of depth of defect for stability of final prosthesis. Once the material is set 2nd stage impression was made using irreversible hydrocolloid with perforated stock tray. Cast obtained was used for fabricating cast partial framework. After designing and surveying of cast, block out and duplication is done to obtain refractory cast. On this refractory cast fabrication of wax pattern and casing is done. Cast partial framework with record base is used for Dual impression. Border molding was done to record the soft tissue surrounding the defect using low fusing impression compound. Impression of the defect area were recorded using putty and following the above mention method. The wash impression was made using light body addition silicon elastomer (Fig.3 and Fig.4). Final cast was obtained and wax rim prepared to record jaw relation, followed by arrangement of teeth and try in of wax up cast partial denture. This was also checked for retention, stability and comfort in the mouth.



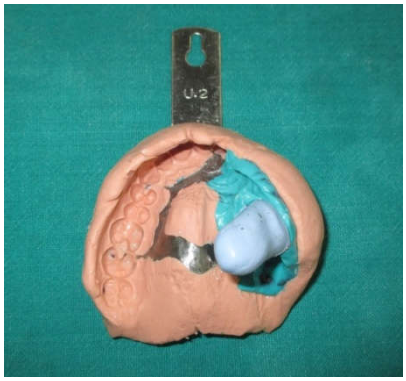


Fig. 3 Final impression (Two stage) with cast partial in situ.

Fig. 4 Definitive prosthesis with permanent soft denture liner

The waxed up maxillary cast partial denture was flasked, dewaxed, and putty Addision silicon impression material was left behind in the defect area and remaining part of prosthesis was acrylised. The putty of the defect area was removed and replaced by permanent heat cured silicon soft liner (Fig.5). This maxillary cast partial denture was finished, polished and inserted in the patient's mouth. Post insertion results showed improvement in speech, mastication, swallowing and facial esthetics. A thorough prosthesis care was explained to the patient and follow-up was planned. The patient was recalled after 24 hour and one week later and was checked for accuracy

and comfort. The patient was satisfied with the prosthesis (Fig.6 and Fig.7).

Fig. 5 Intra oral view before prosthetic rehabilitation

Fig. 6 Frontal view after prosthetic rehabilitation

DISCUSSION

Management of maxillofacial defects is the application of a multidisciplinary team approach. This includes Prosthodontist, Periodontist, Orthodontist, Pedodontist, Oral Surgeons, Psychologist, Speech Therapist and other medical specialists.[2,3] Surgical resection of maxillary arch results in communication between oral cavity and nasal cavity affecting speech, deglutition and facial esthetics as well as psychology of patient.[3]

Rehabilitation of oral cavity and dentition defect following mid face-palatal- maxillectomy, can be achieved by grafting a vascularised free flap containing a bone segment, but many times it fail because of large size of defect. Obturator prosthesis is only option left for minor palatal defect while large maxillary palatal defects represent a challenge for functional and esthetic rehabilitation [6]. In 1978, Dr. Mohamed A. Aramany presented a classification system for obturator design based on the relationship of the defect to the remaining teeth [7]. The defect in this case corresponded to the Aramany's class 2. The defect is unilateral, retaining the anterior teeth and the contralateral side. In dentate patient primary retention, stability and support of an obturator depends on the distribution and number of remaining teeth and engagement of soft tissue undercuts including the defect area. This design is similar to the design of Kennedy class 2 removable partial denture.

The obturator offers several advantages including immediate restoration of dentition and oral structure without need of further surgery and enables the residual cavity to be kept under control in case of recurrence of the disease.[6] The retention and stability of obturator was improved by finger like extension engaging the undercut, framework design, and monoplane occlusal design. Monoplane occlusion with reduced tooth size is employed to minimize masticatory stress and lateral placement of teeth in relation to the resected area reducing the unfavorable lever mechanism of the prosthesis.[8] Depending upon the tissue nature of the defect, movement of the obturator prosthesis varies and creates soreness and discomfort for the patient. The sore spot are adjusted at the post insertion and follow-up appointments.

CONCLUSION

Definitive prosthodontic treatment is one of the final therapies for rehabilitation of anatomical and functional defects of oral cavity. The prosthodontist plays an important role in the satisfactory rehabilitation of the palatal defect. The successful rehabilitation of such patient requires thorough knowledge, skills and better understanding of patient's need. The maxillofacial patient is a compromised person who requires total rehabilitation of functionally, anatomically, esthetically as well as psychologically to improve quality of life. A simplified approach for two stage impression of defect area for better retention and stability of the obturator with cast partial denture is used for fabrication of successful prosthesis.

References

1. Oh W, Roumanas E. Optimization of maxillary obturator thickness using a double-processing technique. Journal of prosthodontics 2008; 17: 60–63.
2. Ahmed B, Hussain M, Butt A M, Yazdanie N. Maxillofacial rehabilitation of a large cleft palate using fixed-removable prosthesis. Journal of the college of physicians and surgeons pakistan 2011; vol. 21 (1): 52-54
3. Bhasin A, Singh V, and Mantri S. rehabilitation of patient with acquired maxillary defect, using a closed hollow bulb obturator. Indian J Palliat Care 2011 Jan-Apr; 17(1): 70–73.
4. Rilo B *et al*. A hollow-bulb interim obturator for maxillary resection. A case report. Journal of Oral Rehabilitation 2005; 32: 234–236.
5. Dable R. A hollow bulb obturator for maxillary resection in a completely edentulous patient. Journal of clinical and diagnostic research. 2011 Feb; Vol-5(1):157-162.
6. Tirelli G *et al*. Obturator prostheses following palatal resection: clinical cases. ACTA otorhinolaryngologica italica 2010; 30:33-39.
7. Aramany M. Basic principles of obturator design for partially edentulous patients. Part I: Classification. The journal of prosthetic dentistry nov 1978; 40 (5): 554-557.
8. Brown K, Commander. Clinical considerations improving obturator treatment. .J Pros. Dent October 1970; 24(4): 461-466.

TSSN 0976-3031