

ACHIEVEMENT OF RETENTION IN MAXILLARY OBTURATORS

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ABSTRACT

The study was done to evaluate various means of retention in fabrication of maxillary obturators. It was a descriptive study and it was carried out at Hamdard University Dental Hospital, Karachi. It was spread over three years from August 2010 to July 2013.

Twenty eight patients formed the study group. Age ranged from 03-78 years. Twenty were males and eight females. Five of them had already used obturator. After taking consent, they were asked to fill a specially designed Proforma. Thus all required information was obtained.

All patients were provided with maxillary obturators. Interim obturator was fabricated for 46% patients, while surgical and definitive obturators were made for 29% and 25% patients respectively. In 24 patients conventional means of retentions like clasp, indirect retainer, utilization of retentive under cuts, proper extension of prosthesis were used. In three patients implant supported obturator were fabricated while in one patient magnets were used. Utilization of various means of retention bring better compliance in maxillary defect patients.

Key Words: Obturators, maxillary defect, retention, implant.

INTRODUCTION

Obturator is derived from Latin word "Obturare" which means to stop up. It is a maxillofacial prosthesis used to close a congenital or acquired tissue opening, primarily of the hard palate or contiguous alveolar / soft tissue structures.¹

The earlier attempts for obturator construction are credited to Ambrose Pare who around 1530, described button-shaped obturators made of metal and sponge.² Acquired maxillary defects are comparatively more common than congenital one. Oral cancer is the main

cause for acquired maxillary defects. Due to surgical removal of lesion, these patients confront multiple problems like hypernasal speech, fluid leakage into nasal cavity, impaired masticatory function, and cosmetic deformity.³

Multidisciplinary approach is often needed for oral rehabilitation of cancer patients, in which role of Prosthodontist is very important. Before provision of prosthesis certain factors like volume of the defect, positioning of remaining hard and soft tissues to be used for retention, stabilization, and support. Presence of teeth, selection of abutment, type of clasps should be considered during fabrication of obturator.⁴

Retention is the basic requirement of any dental prosthesis and it is defined as the "quality inherent in the dental prosthesis acting to resist the forces of dislodgement along the path of placement".⁵

For achievement of retention in obturator various types of direct retainers in the form of conventional clasps or indirect retainer can be used. Where situation favors precision attachment can also be used. Apart from conventional ways of retention various other

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means like spectacle frame, conformers, adhesives, osseointegrated implants, magnets or buttons can also be employed to obtain retention.^{6,7}

Armany classification is adapted to classify maxillary defects which helps in designing of obturator and selection of appropriate means of retention. In case of extensive maxillary defect or in situations where single tooth is present the principles of achieving retention in complete dentures should be followed.⁸

During clasp selection, tooth which is adjacent and farthest from the defect should be selected as abutment tooth. Retentive undercut is usually present on buccal surface, depending upon the type of defect, linear, tripod or quadrilateral designs can be employed. When indicated then incorporation of indirect retainer can also enhance the retention as well.⁹

The use of other means like magnets, springs, two part obturator can be very useful in achieving retention, especially in situations where placement of conventional clasps is difficult due to limited mouth opening, use of magnets can markedly improve the retention of obturators.¹⁰

Introduction of dental implants in obturator brings wonderful improvement in performance of obturator by exhibiting better mechanical qualities. Provision of dental implants not only serves as a primary source of retention for prosthesis but can also be used successfully in situations where bone augmentation or bone graft is used to cover the defect.¹¹

Use of latest techniques like computer-aided design/computer-aided manufacturing prosthesis in maxillo-facial prosthodontics is now used successfully in order to obtain better mechanical qualities.¹²

METHODOLOGY

It was a descriptive type of study and was carried out at the Department of Prosthodontics, Hamdard University Dental Hospital, Karachi. The duration of study was three years. Twenty eight patients were selected by purposive non-probability sampling technique. After taking consent, self designed Proforma was filled. Age ranged from 03-78 years. Twenty of them were males and eight were females. Five of them were already using obturator. With the help of obtained information, various means of retention in maxillary obturator were considered.

TABLE 1: TYPES OF OBTURATOR WITH MEANS OF RETENTION

No. of patients	Type of Obturator	Conventional (Clasp, Indirect Retainer)	Implants	Magnets
08	Surgical	8		
13	Interim	13		
07	Definitive	3	3	1

RESULTS

All patients were provided with maxillary obturators. Interim obturators were fabricated for 13 patients, while surgical and definitive obturators were fabricated for 8 and 7 patients respectively. In 24 patients conventional means of retentions like clasp, indirect retainer, utilization of retentive under cuts, proper extension of prosthesis were used. In three patients implant supported obturator were fabricated while in one patient magnets were used. Out of eight patients provided with surgical obturator, seven patients were followed the regimen by having interim and definitive obturator as well. One patient was provided obturator and extra oral prosthesis simultaneously.

DISCUSSION

Maxillofacial defects can be due to surgical resection, infections, trauma or congenital reasons. As a result such patients have compromised esthetics with decrease functional efficiency along with psychological disturbances as well. Due to lack of proper continuation of lips, alveolar processes, hard or soft palate such patients often have food regurgitation and unintelligible speech. Multidisciplinary approach is needed for rehabilitation of such patients in which Prosthodontist can play a key role by fabricating an appropriate obturator.¹³

To achieve better performance of obturators, it is mandatory to utilize various means to have adequate mechanical qualities like retention and support for obturator in order to have better functions and improve esthetics which in turn affects the psychology of such patients.¹⁴

Traditional ways to achieve retention in partial dentures are equally effective in maxillary obturators. Padmanabhan et al¹⁵ discussed the role of clasp in obturator and found results by utilization of retentive under cuts, placement of adequate clasps. In this study, 24 patients were provided maxillary obturators with incorporation of conventional means of retention and adequate retention was achieved.

Pattanaik et al discussed the role of magnets in maxillary obturator, due to the effect of gravity max-

illary obturators tend to dislodge, and incorporation of magnets in obturators can overcome this problem. Use of magnet is beneficial especially where both intra oral and extra oral prostheses are used simultaneously.¹⁶ In the present study in one patient, magnets were used but perhaps due to inferior quality of magnets or faulty design of the obturator adequate retention could not be achieved.

With introduction of dental implants in Maxillo-facial Prosthodontics, there is marked improvement in achieving retention in maxillary obturators. In this study three patients were provided with implant supported obturator and retention was far better than their interim conventional maxillary obturators. Provisions of implants are more beneficial for patients who had undergone total maxillectomy. Aydin et al discussed a case report in which implants were provided for patients using obturators due to total maxillectomy and observed great improvement in speech, mastication and esthetics.¹⁷

Bohle et al discussed the role of mini dental implants in obturator, with provision of mini dental implants in obturators better mechanical qualities can be achieved immediately, which not only improve the performance of obturator but also have an strong impact on the patient's psychology as.¹⁸

Retention can also be improved on follow up visit by some modification in the obturator. Zafar et al found improvement in performance of obturator after resurfacing the tissue surface of obturator with heat cure acrylic.¹⁹

Proper evaluation and education of oral cancer patients have a strong influence on patient's cooperation during their treatment. In this study out of eight patients provided with surgical obturator, seven patients followed the regimen by having interim and definitive obturator as well. In developed countries special rehabilitation centers are now established for oral cancer patients where team comprises of medical and dental personnel work together to provide better guidance, education and treatment for such patients. This will help these patients to become an active member of society.²⁰

CONCLUSION

Oral rehabilitation of patients with maxillary defect often requires multidisciplinary approach. Prosthodontist have to play a key role in oral rehabilitation of such patients by fabricating maxillary obturators. Provision of maxillary obturators with good retention not only improve the quality of life but also enhance self esteem of the patients.

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