

Overdenture with Ceka Attachment – An Approach of Rehabilitating Partially Edentulous Condition: Case Report

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Abstract

Attachment retained overdenture is a pristine treatment modality with few remaining teeth in the oral cavity. These overdentures fulfill both the functional as well as cosmetic requirements by rehabilitating long span distal extension edentulous condition, preserving and maintaining the integrity of few firm teeth which are present in the compromised dentition. The type of attachment must be selected depending upon patient's intra-oral condition and that best suits the patient. This case report deals with

rehabilitation of an mandibular arch with the help of an overdenture supported by the precision attachments.

Keywords- Attachment, Overdentures, Precision attachment

Introduction

Loss of tooth/teeth results in loss of balance in orofacial structure, incompetent oral function with poor esthetics and positional changes of remaining natural teeth. However restoration of missing teeth is considered in order to reduce these adverse effects.¹ In pursuit of replacement of teeth, always preserve the remaining tooth

structure as stated by the M.M. DeVan's dictum- "Perpetual preservation of what remains is more important than the meticulous replacement of what is missing".² Conventionally, replacement of teeth includes the complete denture, removable denture and fixed partial dentures. Although there are also certain treatment modalities that serves as the bridge between these modalities, overdenture and precision attachments are one of them. Overdenture is defined as any removable dental prosthesis that covers and rest on one or more remaining natural teeth, the roots of natural teeth, and or dental implants (GPT-9). These overdenture not only serves the purpose of function and esthetics but also results in more patient's satisfaction due to their better retention capabilities.³ The purpose of this case report is to illustrate the oral rehabilitation of mutilated dentition with the help of overdenture in adjunct with CEKA attachments [figure 1].

Case Report

A 65 year old female patient reported to the Department of Prosthodontics and Crown & Bridge with a chief complaint of difficulty in chewing and unaesthetic appearance since 4 years. A thorough medical history was taken. A detailed dental history revealed that teeth loss was due to caries and periodontal disease. Intra-oral examination reveals that patient was partially edentulous in relation to maxillary and mandibular arches. The missing teeth were 11,12,13,14,21,22,23,26 in the upper jaw and 31,32,34,35,36,37,41,44,45,46,47 in the lower jaw [figure 2]. Radiographic examination reveals enough bone support and long roots of teeth present in the mandibular arch. The patient was explained about the various modalities of treatment which included cast partial denture, flexible denture, implant supported prosthesis and Attachment retained overdenture. Then, patient was planned to be treated with flexible partial denture for

maxillary arch and attachment retained overdenture for mandibular arch.

Treatment Procedure

The treatment was divided into three phases that is Oral Prophylaxis followed by the Endodontic phase and Prosthetic phase respectively. The patient was informed about the treatment time and procedure and the consent was further taken. After completion of oral prophylaxis, Patient was referred to the department of conservative and endodontics for the evaluation of the remaining teeth present, if in need of restoration. Intentional root canal therapy was carried out irt 33,42,43 in order to serve as an abutments for the overdenture. After the completion of root canal treatment, these teeth were reduced to the level of gingiva and post spaces were prepared irt 33 and 43 according to the manufacturer's guidelines (CEKA PERCI-LINE, Belgium) and 42 was restored with post endodontic filling material³ [figure 3]. After the preparation of the post spaces, the radicular ball attachments were cemented using Glass Ionomer Luting Cement (GC FUJI I, America) [figure 4]. Primary impressions were made for both the maxillary and mandibular arch with irreversible hydrocolloid (Algitec, HeraeusKulzer, SouthBend, IN) [figure 5]. For the mandibular overdenture, acrylic custom tray (DPI, India) was fabricated with a thick layer of wax spacer over the tooth. Border moulding was done and final impression was made by using polyvinyl siloxane impression material (Photosil DPI, India) [figure 6]. The impression was disinfected and poured by using type III Gypsum product (Kalabhai, India). Denture base was made on the primary cast of maxillary arch and master cast of the mandibular arch along with the wax biteblocks. Maxillo-mandibular relationship was recorded followed by teeth arrangement. Try-in was done in patient's mouth. The occlusion and esthetics were evaluated once it was

satisfactory processing of maxillary and mandibular denture was done. The female counterparts were attached in the mandibular denture by using the direct technique.⁴The metal sleeves were seated on the ball attachments in the patient's mouth and the mandibular denture was adjusted to remove any unwanted hindrances [figure 7]. Once the denture was properly seated, the metal sleeves were secured in the denture using the self-cure luting material for attachments (QUICK UP, Germany) and the nylon o-rings were secured in the metal sleeves⁵ [figure 8]. The maxillary and mandibular dentures were inserted in the patient's mouth and minor adjustments were done according to the standard protocol. Post-operative instructions were given and patient was recalled after 24 hours.



Figure 3: Reduction of the abutments at the level of gingiva



Figure 4: Cementation of ball abutments



Figure 5: Primary impression for both the arches



Figure 1: Preci-Clix Rc Dentist Kit



Figure 2: Intra oral view



Figure 6: Final impression for the mandibular arch



Figure 7: Metal sleeves were attached to the ball abutments for positioning



Figure 8: Mandibular denture with female counter parts

Discussion

Since, extraction of teeth is followed by the continuous ridge resorption, poor denture foundation and loss of

periodontal receptors. The retention of few remaining teeth will preserve remaining bone and periodontal receptors.⁶Therefore, over denture should always be considered as a treatment modality as the roots of the tooth offers the best available support and decreases the rate of bone resorption.⁷ Moreover, the periodontal membrane is preserved, thus proprioceptive impulses thus increasing the patient's manipulative skills. The incorporation of the precision attachment with overdenture therapy drastically increases the patient's satisfaction.

The attachment-fixation overdenture is far superior to other types of overdentures or other forms of overlay prostheses. It can more closely approximate the results obtained with fixed bridgework than is possible with telescopic overdentures complete dentures.⁸ The patient is more secure in its use than with a complete denture. Although, the dentist must make his selection of precision attachment based upon his knowledge of factors such as crown-root ratio, type of copings, vertical space available, number of teeth present, amount of bone support, location of abutments, and opposing dentition.^{9,10}

Conclusion

In this current era of restorative dentistry, there are various advanced treatment modalities available to rehabilitate a partially edentulous conditions. Attachment retained overdenture is among one of them which is an alternative treatment to extraction of teeth and dental implants to improve the retention of the prosthesis. Hence, the clinician must have a thorough knowledge of each modality that will determine success and longevity of prosthesis.

References

1. Fenton AH (1998) The decade of overdentures: 1970–1980. *J Prosthet Dent* 79:31–36
2. Morrow RM, Powell JM, Jameson WS, Jewson CG, Rudd KD (1969) Tooth supported complete dentures:

- an approach to preventive prosthodontics. *J Prosthet Dent* 21:513–522
3. Burns DR (2000) Mandibular implant overdenture treatment: consensus and controversy. *J Prosthodont* 9:37–46
 4. Burns DR, Ward JE (1990) A review of attachments for removable partial denture design: part 1 classification and selection. *Int J Prosthodont* 3:98–102
 5. reiskel HW (1973) Precision attachments in dentistry. In: Preiskel HW (ed) Precision attachments in dentistry, 3rd edn. Henry Kimpton, London, pp 1–36
 6. Rutkunas V, Mizutani H, Takahashi H (2007) Influence of attachment wear on retention of mandibular overdenture. *J Oral Rehabil* 34:41–51
 7. Fu CC, Hsu YT (2009) A comparison of retention characteristics in prefabricated and custom-cast dental attachments. *J Prosthodont* 18:388–392
 8. Preiskel HW (1996) Overdentures made easy: a guide to implant and root supported prostheses, 1st edn. Quintessence, Chicago, pp 184–193
 9. Stewart BL, Edwards RO (1983) Retention and wear of precision-type attachments. *J Prosthet Dent* 49:28–34.
 10. Prince, JB. Conservation of the supportive mechanism. *J Prosthet Dent*. 1965;19:327–338