

Research Article**EQUILIBRATING FUNCTIONAL STABILITY WITH AESTHETIC HARMONY IN A
KENNEDY CLASS II SADDLE AREA USING PRECISION ATTACHMENT:
A DEXTEROUS ALTERNATIVE TO IMPLANTS !****Sanjay B Lagdive¹, Rupal J Shah², Sunil N Shrof^{3*}, Pratik B Acharya⁴, Vishal Verma⁵ and Kiran Hadiya⁶**^{1,2,3,4,5,6}Department of Prosthodontics & Crown & Bridge, Govt. Dental College & Hospital, Ahmedabad/ Gujarat University, IndiaDOI: <http://dx.doi.org/10.24327/ijrsr.2017.0803.0025>**ARTICLE INFO****Article History:**Received 15th December, 2016
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ABSTRACT

The vigilance and demand for quality of dental treatment is relatively incrementing in recent generation and more so, as far as aesthetics are concerned, along with other functions of the prosthesis. Distal-extension removable partial dentures have always posed a challenging situation to the clinician and in such cases the strategic positioning of the direct retainers would ascertain the long-term prosperity of the prosthesis. The balance between functional stability and cosmetic appeal is a major challenge to dentists, and a variety of solutions have been proposed in the form of minuscule interlocking devices, often called "precision attachments," designed to connect the prosthesis to the abutment teeth. Attachment retained RPD is a viable treatment alternative to implant through which a significant number of patients could be benefited both long and short term.

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INTRODUCTION**Case History**

A 55-year old female reported to government dental college and hospital ahmedabad with chief complain of missing teeth in upper posterior region and inability to eat food.



Figure 1 Pre-operative view

She was wearing a distal extension removable partial denture and the presence of mandibular extra coronal clasp retainers was negatively affecting the aesthetics. On clinical examination maxillary 1st & 2nd molar were absent and maxillary 1st & 2nd premolar was of adequate height with sound periodontal support. [Figure 1] Radiographic evaluation showed adequate bone support around the teeth present.

In lieu of compromised aesthetics, impaired function with existing partial denture it was planned to construct mandibular removable partial denture with extra coronal attachment. The patient rejected the options of implants because of the need for additional surgery and the unacceptable duration of treatment phase.

METHODOLOGY

1. Diagnostic impressions were made and mounted on semi adjustable articulator using a face bow.

Following which diagnostic wax-up was done on the mounted casts.

2. A putty matrix (Express STD Putty; 3M ESPE, St. Paul, Minn.) was made over the completed diagnostic

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wax-up for evaluation of the existing space for the extra coronal resilient attachment.

3. The attachment system was selected on the basis of available space. (OT CAP, Rhein 83 Inc, USA)
4. Tooth preparation was done on maxillary 1st & 2nd premolar to receive PFM crowns. [Figure 2] Impression was made and poured in die stone. [Figure 3] Following which crowns have been waxed to full contour and milled in wax for maximum guiding plane surface. The patrice was added to the axial surfaces of the abutment using a dental surveyor, lingual to the centre of proximal contour. [Figure 4] This ensures that the bulk of matrix does not interfere with aesthetic of buccal cusp of replacing denture tooth.



Figure 2 Teeth preparation



Figure 3 Final impressions



Figure 4 Wax pattern of matrix and patrice

5. Following which casting, finishing, and veneering of the fixed component was done.
6. Metal trial of copings was evaluated on master cast [Figure 5] as well as in patient's mouth. [Figure 6]



Figure 5 Metal trial on master cast



Figure 6 Metal trial in patient's mouth

7. The fixed component including veneered metal-ceramic crowns & the patrices were tried in the patient mouth [Figure 7] and picked up using putty impression for fabrication of removable partial denture. (Imprint II; 3M ESPE)



Figure 7 PFM trial in patient's mouth

8. The wax up of framework of the removable partial denture was done, invested and casted.
9. The framework was evaluated in the patient mouth and jaw relation was done using occlusal rims and Try-in was done. [Figure 8]



Figure 8 Teeth setting try in

10. Acrylisation of removable partial denture was performed and final prosthesis was evaluated in patient's mouth. [Figure 9]



Figure 9 Final prosthesis in patient's mouth



Figure 10 Gratifying smile of satisfaction



Figure 11 Post-operative view

DISCUSSION

Rehabilitation options for the partially edentulous patient with a single tooth or multiple missing teeth include interim acrylic resin removable partial denture (RPD), conventional cast partial denture, partial denture with attachment, fixed partial denture, or implant-retained prosthesis. Clinical decision-making is critical in deciding the most suitable treatment option for a particular patient.

Our ever-incrementing erudition of the oral environment, together with technological ameliorations and good armamentarium, has taken us to give a restoration which is esthetically delectating and comfortable. This makes it all the more consequential to reconcile what is genuinely feasible with the patient's own prospects.

The clinical use of unilateral removable partial denture (RPD) is limited because of poor stability and retention. A regular problem is faced by the partial edentulous patient is the nuance of adapting to removable prosthesis. A unilateral prosthesis is always less stable, because it lacks the effect of cross arch stabilization.

Rehabilitation of partially edentulous situations can be challenging when it is distal extension situations where a fixed prostheses cannot be fabricated. Implant retained restoration are an option but this is sometimes not possible due to insufficient amount of bone or economic reasons. In these cases acrylic or cast partial denture was largely preferred, with barely satisfactory esthetical results.

Precision attachment has long been considered the highest form of partial denture therapy. Precision attachment is an interlocking device, one component of which is fixed to an abutment or abutments, and the other is integrated into a removable dental prosthesis in order to stabilize or retain it. These attachments take the place of damaging clasp arm. Mensor (1971) (Mensor MC. Classification and selection of attachments. The Journal of prosthetic dentistry. 1973 May 31;29(5):494-7.) has classified attachments as intra-coronal, extra-coronal, push button type, bar type and auxiliary type. Based primarily on the function of these attachments they are classified as rigid or passive. (Makkar S, Chhabra A, Khare A. Attachment retained removable partial denture: A Clinical Report. International Journal of Clinical Dental Science. 2011 May 7;2(2).)

OT CAP Attachment (rhein 83inc, USA) a passive type of attachment consists of a matrix (a sphere available in preformed plastic patterns, which is cast to the abutments and a patrix which are preformed housings which are casted into the framework and contains retentive caps made of nylon or rubber in different colours corresponding to different retentive degrees, both in normal and micro sizes.)

There are several treatment options for rehabilitation of partial edentulism including the use of conventional or implant retained fixed prosthesis. Newer technologies like CAD CAM, precision milled attachments, impression materials have been improving the quality of RPD.

Dr. Herman Chayes (Preiskel HW. Precision attachments in prosthodontics: overdentures and telescopic prostheses. Quintessence Publishing Company; 1985.) first reported the invention of attachment in early 20th century. To the late 20th century, with growing technology the attachment has been applied to the superstructure of implant. Precision attachment has exceptional feature of being a removable prosthesis with improved aesthetics, less post-operative adjustments and better patient comfort. (Feinberg E. Diagnosing and prescribing therapeutic attachment-retained partial dentures. The New York state dental journal. 1982 Jan; 48(1):27) They are mostly indicated in long edentulous spans, distal extension bases and non parallel abutments.

Understanding the difference in nature and behaviour of the tissues supporting RPD is critical for long term success of the prosthesis. (Preiskel HW. Precision attachments in prosthodontics: overdentures and telescopic prostheses. Quintessence Publishing Company; 1985.) These differences multiplied by the function create major stresses on the tooth-tissue prosthesis. The stress-control on abutment is an essential factor for the success of distal extension cast partial denture which is achieved through dual impression technique, broad coverage and stable denture base, rigid design, physiologic shimming, splinting of abutments, proper selection of attachment and clasp design. (Preiskel H. Precision attachments for free-end saddle prostheses. British dental journal. 1969 Nov 18;127(10):462. Picton DC, Wills DJ. Viscoelastic properties of the periodontal ligament and mucous membrane. The Journal of prosthetic dentistry. 1978 Sep 30; 40(3):263-72.)

In this case report abutments were of adequate clinical crown height to receive attachment; multiple abutments were splinted anterior to edentulous span to aid in better distribution of stresses. Kapur et al (Kapur KK, Deupree R, Dent RJ, Hasse AL). A randomized clinical trial of two basic removable partial denture designs. Part I: Comparisons of five-year success rates and periodontal health.

The Journal of prosthetic dentistry. 1994 Sep 30;72(3):268-82) has suggested that splinted 1st and 2nd premolar by full coverage crown, has provided good support and improved the prognosis of cast partial denture. Moreover Extracoronol OT CAP (Attachment and Prefabricated Castables Component. Accessed on 2016 July 18. Available from: <http://www.rhein83.com>.) are castable attachments with elastic retention. With its elasticity it is possible to control the flexure and construct a resilient and shock absorbing prostheses.

CONCLUSION

Removable partial dentures fabricated with precision attachments are the viable options for patients in whom fixed prosthesis, implants are contraindicated. Adherence to precision techniques, proper diagnosis and periodic recall preventative therapy will result in successful treatment and preservation of the patient's existing dentition.

References

- Attachment and Prefabricated Castables Component. Accessed on 2016 July 18. Available from: <http://www.rhein83.com>.
- Feinberg E. Diagnosing and prescribing therapeutic attachment-retained partial dentures. The New York state dental journal. 1982 Jan;48(1):27.
- Kapur KK, Deupree R, Dent RJ, Hasse AL. A randomized clinical trial of two basic removable partial denture designs. Part I: Comparisons of five-year success rates and periodontal health. *The Journal of prosthetic dentistry*. 1994 Sep 30; 72(3):268-82.
- Lorencki SF. Planning precision attachment restorations. *The Journal of prosthetic dentistry*. 1969 May 31;21(5):506-8.
- Makkar S, Chhabra A, Khare A. Attachment retained removable partial denture: A Clinical Report. *International Journal of Clinical Dental Science*. 2011 May 7; 2(2).
- Mensor MC. Classification and selection of attachments. *The Journal of prosthetic dentistry*. 1973 May 31; 29(5):494-7
- Picton DC, Wills DJ. Viscoelastic properties of the periodontal ligament and mucous membrane. *The Journal of prosthetic dentistry*. 1978 Sep 30; 40(3):263-72.
- Preiskel HW. Precision attachments in prosthodontics: overdentures and telescopic prostheses. *Quintessence Publishing Company*; 1985.
- Preiskel H. Precision attachments for free-end saddle prostheses. *British dental journal*. 1969 Nov18; 127(10):462.

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