

## Precision Attachment: A Precise Solution for Distal Extension Case

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### ABSTRACT

*Treating unilateral or bilateral distal extension case has been always a challenge for the dentist. Kennedy's classification of partially edentulous arches is still a milestone for all of us in visualizing & treating the patients. Studies involving treating the partially edentulous patients with distal extension case show significant problems, especially till the introduction of implants in market. Difficulty in chewing & mastication is of special concern in such a patient. Though removable partial denture could be the choice of treatment; precision attachment can definitely deliver better satisfaction to the patient if proper technique is followed. Precision attachment acts as a retentive element and this form of treatment is considered as one of the most sophisticated treatment. Few retrospective studies available shows survival rate of 83.3% for 5 years and 67.3% for 15 years.*

*Proper case selection followed by comprehensive treatment planning is essential in success of precision attachment cases.*

**KEYWORDS :** attachments, distal extension, , surveying, parallelometer

### Introduction -

Oral rehabilitation of partially edentulous case in distal extension areas or long edentulous span areas could be arduous procedure. Fortunately, with the introduction of various precision attachment kits, the dentist can plan the treatment in easier way delivering the satisfaction to the patients. Attachment is a precision connector made up of two or more parts. One part is connected to tooth, root or implant and the other one is connected to an artificial prosthesis and used to provide the mechanical retention between the two. This provides a better mechanical retention as well as comfort to the patient as compared to removable partial denture. Adequate inter arch distance is one of the crucial criteria for the selection of the case<sup>1, 2, 3, 4, 5, 6</sup>.

### Method -

We're discussing a case of 38 yr old lady patient reported to the department of prosthodontics, complaining posterior missing teeth (tooth number 16 & 17) (fig 1) The patient was not willing for removable type of prosthesis. The implants were ruled out due to financial reasons as well as long duration of treatment for the same. Hence, we planned fixed removable form of treatment and the patients consent was taken after explaining the details of the treatment. The aim of the article is to provide a simplified method in fabrication of fixed-removable type of prosthesis.

The abutment teeth selected were 14 and 15 and the same were evaluated for their periodontal status. The teeth were healthy without any periodontal problems. The inter arch distance was 10mm which was sufficient to provide adequate space for the prosthesis. The PFM (porcelain fused to metal) joint crowns were planned and the tooth preparation was done following the basic principles. The gingival retraction was performed using mechano- chemical method by using '00' size retraction cord followed by final impression using putty- light body (double mix double impression technique).

A check cast was poured and analyzed for tooth preparation undercuts and other parameters followed by pouring the master cast using type IV dental stone. The master cast was trimmed properly and surveying procedure was carried out using Nay surveyor. Tripoding was done (marking of 3 widely separated points on cast to ensure repositioning of cast in the same way) on the cast which is mandatory procedure to ensure proper parallelism.

Wax patterns were prepared on abutment tooth using inlay wax to which castable presectioned beveled bar was attached using a par-

allelometer. The wax pattern along with attachment was invested in a conventional way and casting procedure was performed using Nickel-Chromium alloy. The metal framework was retrieved and sand blasting as well as ultrasonic cleansing was done. The surface of the castable presectioned beveled bars (round surface) should be untouched and any alteration must be avoided at this area to avoid an ill fitting of the prosthesis.



**Intraoral view (fig. 1)**



**Tooth preparation and gingival retraction (fig. 2)**



Wax pattern with attachment (fig.3)



Stainless steel housing with pink cap for retention (fig 7)



Wax pattern ready for investing (fig.4)



Tissue surface of acrylic RPD showing Final Prosthesis (fig 8)



Metal try-in (fig.5)



Final prosthesis intraoral view (fig.9)



Ceramic Try- In and RPD attached to attachment (fig. 6)



Final prosthesis extraoral view (fig.10)

Metal try in was done to check the fitting as well as clearance for the ceramic. Ceramic build up was done. The acrylic component of the prosthesis was made using cold cure acrylic resin and then the same was replaced by heat cure acrylic resin. The stainless steel housing was embedded at the tissue side of the acrylic prosthesis in which the pink cap (used for retention) fits precisely into the stainless steel housing. This cap would fit into the round surface of the beveled bars (part of fixed prosthesis) providing snap kind of retention. The patient was explained about the usage of prosthesis. We also explained about maintenance of the prosthesis. Proper follow up schedule was planned at 1<sup>st</sup> week, 1<sup>st</sup> month and 2<sup>nd</sup> month and then every six month to evaluate fit of prosthesis, hygiene, plaque control etc.

#### **Discussion –**

The fabrication of fixed removable type of prosthesis can provide eye catching results and moreover this can work as a bridge between fixed and removable kind of prosthesis. It is of prime importance to select a proper case as well as proper attachments<sup>7,8</sup> and it is mandatory for the dentist rather than exception to have thorough knowledge about the various attachment options as well as lab procedure involved in it. The patient was quite happy with the prosthesis. Proper follow up schedule is mandatory to ensure the success of the prosthesis.

#### **Key message –**

Precision attachment can act as vital treatment options in many cases. A well planned treatment can play a crucial role to improve patient's appearance, masticatory abilities and also adds positively to patient's psychological status.<sup>9,10</sup>

#### **Conclusion –**

The precision attachments are frequently neglected and rarely selected as treatment option by the dentists. This may be due to lack of complete knowledge, lack of well equipped lab and also lack of trained technicians. Multi specialty approach can help us to improve treatment and ensure success. The dentist should explain all the possible treatment option available to the patients and proper communication skills with the patients would help in treating the patient in a much better way.

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