ATTACHMENT RETAINED CAST PARTIAL DENTURE USING RHEIN 83 OT-CAP

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ABSTRACT
The awareness and demand for quality of dental treatment is relatively increasing in recent generation and more so, as far as aesthetics are concerned, along with other functions of the prosthesis. Attachment-retained Removable Partial Denture (RPD) is not an outdated treatment modality. It is even more contemporary in today's appearance-oriented society than when it was first introduced. The purpose of this article is to provide an overview and a simplified approach to this treatment modality by a clinical case report.

KEYWORDS: Cast Partial Denture, Aesthetics, Prosthesis.

INTRODUCTION - With the increase in awareness and demand for quality dental treatment, the preference for missing teeth is more incline towards fixed prosthesis replacement. However, this is not possible in all situation especially distal extension cases i.e Kennedy class I and II as these is no posterior abutment for fixed restoration whereas implant rehabilitation depends on amount of bone, location of vital structure and cost factors. So, in such situation, acrylic or cast partial dentures are expected to perform satisfactory. However, rehabilitation of distal extension cases are more challenging compared to tooth supported partial dentures1. These removable partial dentures can be made more retentive by used of retainer and precision attachment components, thus, achieving better function and esthetic. Previous literature shows several rates of 83.3% for 5 yrs, 67.3% till 15 years, and 50 % after 20 years. Attachment is defined as a connector consisting of two parts; one part is connected to a root, tooth or implant and the other part to the prosthesis. Attachment can be intracoronal, extracoronal, radicular, depending upon the location, depending upon resilient2. These attachment supported prosthesis provides the advantage of both fixed and removal prosthesis3. These attachment supported prosthesis This paper describe a case report of a patient with a maxillary bilateral distal extension (kennedy’s class I) condition which was prosthodontically rehabilitated using extracoronal supported cast partial denture (Rhein 83 OT)

CASE REPORT
A 45 year old male patient reported to department of Prosthodontics with a chief...
complaint of missing teeth in upper right and left back region of the jaw and lower left back region of the jaw and desire to get them replaced (Figure 1a and b). On examination, patient had bilaterally missing 2nd premolar, 1st, 2nd and 3rd molars in maxillary arch and 1st, 2nd and 3rd molars of 3rd quadrant. On radiographic examination, both maxillary canine and 1st premolar were found to be periodontically sound. Thus, attachment supported cast partial denture was planned with lower conventional removable partial denture. A written consent was obtained from the patient prior to the treatment.

LAB PROCEDURE

Diagnostic impressions were made for both maxillary and mandibular edentulous area using irreversible hydrocolloid impression material and diagnostic mounting was done on semi adjustable articulator. Putty index (Express STD Putty, 3M ESPE, St Paul MN, USA) was made on the diagnostic cast. The attachment system was selected on the basis of available space. (OT CAP, Rhein 83 Inc. USA)

Tooth preparation of both maxillary canine and 1st premolar was performed for porcelain fused to metal and occlusal clearance was assessed (Figure 2). Final impression of the prepared tooth was made with Polyvinylsiloxane impression material and then poured using die stone. Bite records were taken and the casts were mounted on semi-adjustable articulator, wax patterns were fabricated for porcelain fused to metal crown.

The patrices was added to the axial surfaces of the abutment using a dental surveyor, lingual to the centre of proximal contour. This ensures that the bulk of matrice does not interfere with esthetic of buccal cusp of replacing denture tooth. Following which casting, finishing of the component was done. The fixed component including the metal coping & the patrices were tried in the patient mouth (Figure 3, 4a and 4b). Using custom tray border moulding was performed by using low fusing compound and a pick-up impression was made with Polyvinylsiloxane impression material (Figure 5). Then, ceramic build-up was performed on the metal coping conventionally. The wax up of the framework was done, invested and casted for cast partial denture using dental surveyor.

The framework was evaluated in the patient mouth and a conventional jaw relation was done using occlusal rims. Try-in procedure was done and acrylisation of removable partial denture was performed (Figure 6).

Then, Metal ceramic crowns were cemented with glass ionomer luting cement and cast partial denture was inserted (Figure 7). Deflective contacts were checked and corrected using articulating paper, and post insertion instructions were given (Figure 8a and b). Patient is kept under observation for subsequent periods. On recall after few weeks, patient was satisfied with the given treatment not only aesthetically but also functionally.

DISCUSSION

There are several treatment options for the rehabilitation of partial edentulism. Depending on several given diagnostic factors and a patient’s perspective, best treatment plan should be selected for the patient. It was Dr. Herman Chayes who first reported the invention of attachment in the early 20th century. Precision attachment gives a removable prosthesis the exceptional feature of improved esthetics, less postoperative adjustments,
and improved comfort. It is mostly indicated for long-span edentulous arches, distal extension bases, and non-parallel abutments. In case of partially edentulous mouth, retention provided by the usage of precision attachments which may be related to comfort, satisfaction, chewing ability, as well as adequate distribution of occlusal loads to, and preservation of abutment teeth in patients with removable partial dentures. Apart from improving esthetics and retention of removable partial dentures, the availability of precision attachment has made designing of removable partial dentures more flexible. Various cases with esthetic and retention challenges can be solved with correct selection of attachment.

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 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 Extra coronal OT CAP are castable attachments with elastic retention. With its elasticity it is possible to control the flexure and construct a resilient and shock absorbing prostheses.

**SUMMARY & CONCLUSION**

Use of precision attachment has amplified the aspects of retention and particularly, aesthetics when compared to conventional removable partial dentures. 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.

**Figure 1:** (a) Preoperative maxillary and (b) mandibular occlusal view
**Figure 2:** Tooth preparation of abutment teeth

**Figure 3:** Metal coping trial of the coping

**Figure 4:** (a and b) Right and left lateral view for occlusal clearance

**Figure 5:** Pick-up impression

**Figure 6:** Metal framework try in

**Figure 7:** Attachment retained and final prosthesis inserted

**Figure 8:** Occlusion in right and left lateral view
REFERENCES


