

ATTACHMENT RETAINED CAST PARTIAL DENTURE - AN ALTERNATIVE OPTION TO DISTAL EXTENSION PARTIAL EDENTULOUS SPACE - A CASE REPORT

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To access & cite this article

Website: jidam.idamadras.com



DOI:10.37841/jidam_2020_V7_I2_05

ABSTRACT

Rehabilitating the partial edentulous patients, especially distal extension situations are mostly challenging to a Prosthodontist. Successful restoration can be achieved with the attachment retained cast partial denture. The use of semiprecision attachments enhances the retention and stability of the removable partial denture where fixed treatment is not possible in the posterior region. This case report describes a method of using semiprecision attachment in bilateral distal extension partial edentulous case.

KEYWORDS: Distal extension, Precision attachment, Partially edentulous

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Received : 17.05.2020

Accepted : 23.05.2020

Published : 27.06.2020

INTRODUCTION:

Functionally successful rehabilitation requires careful examination and treatment planning. In Kennedy's class 1 and class 2 condition, fixed treatment is not possible because of missing terminal abutment. Implant supported prosthesis cannot be considered in elderly patients due to age factors. So, in such situations attachment retained cast partial dentures can be given as a treatment option.¹ Attachments are of intracoronal and extracoronal type. Intracoronal type has male and female components positioned within the normal contour of the abutment tooth. Extracoronal attachments are those that have male and female components positioned outside the normal contour of the abutment tooth.² This case report describes about a patient with maxillary bilateral distal extension Kennedy's classification 1 modification 2 condition which is restored with a cast partial denture retained using extracoronal bilateral semiprecision attachment.

CASE REPORT:

A 60 year old male patient reported to the Department of Prosthodontics at SRM Dental College, Ramapuram, Chennai, India with a chief complaint of missing teeth in the maxillary right and left back teeth region. On clinical examination, it was found that 13, 22 were missing on maxillary anterior region. In maxillary posterior region all teeth were missing bilaterally except the first premolar 14 on the right side. The clinical condition was diagnosed as Kennedy's class I modification 2 (Fig 1-4). The first premolar was restored with glass ionomer cement on the distal side adjacent to the edentulous area. On radiographic examination, it was found that the central incisors 11 and 21 were endodontically treated and the other teeth were found to be periodontally sound. Thus attachment retained cast partial denture was given as a treatment option for this patient.



Fig 1: Intra- oral frontal view



Fig 2: Intra - oral View of Right Quadrant



Fig 3: Intra- oral View of Left Quadrant

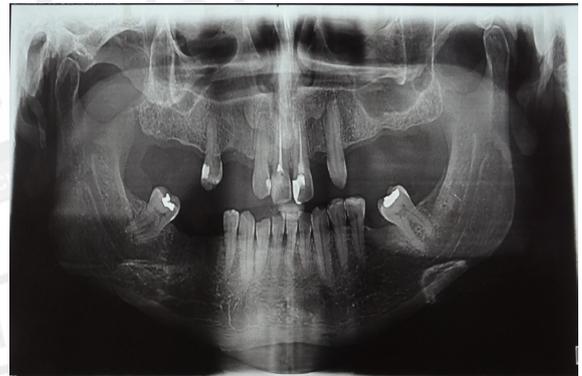


Fig 4: Orthopantomogramgraph

TREATMENT PROCEDURE:

- 1 Diagnostic impressions were made with irreversible hydrocolloid impression material (Zelgan plus, Dentsply) and poured with dental stone. Diagnostic casts were obtained and mounted on a mean value articulator.
- 2 The type of attachment was decided based on the space available. Tooth preparation of 14, 12, 11, 21, and 23 for porcelain fused to metal fixed partial denture was done with occlusal clearance assessed (Fig-5). Temporary FPD was fabricated and provisionalization was done.



Fig 5: Anterior FPD with semiprecision attachment

was recalled after 24 hours for postinsertion check-up.



Fig 6: Rehabilitation with cast partial denture intra-oral view

3 Definitive impression was made with polyvinylsiloxane impression material (Aquasil, Dentsply) and then poured with die stone. Interocclusal records were taken and the casts were articulated.

4 Wax patterns were fabricated for porcelain fused to metal fixed partial denture in the maxillary anterior region. The male components 'matrix' was attached to the axial surface of the abutment with the help of a dental surveyor. This was followed by investing and casting.

5 The fit of the framework was verified in the definitive cast and in the patient's mouth. Ceramic build up was done after sand blasting. The bisque try in was done.

6 Using a correct size tray, pick up impression was made with polyvinyl siloxane impression material along with the porcelain fused to metal FPD.

7 The wax pattern of the metal framework was fabricated using a dental surveyor and palatal strap major connector was given. The framework was invested, casted and the female component matrix was inserted in the metal framework.

8 The fit and retention of the metal framework was verified in the patient's mouth and jaw relation was done. Teeth arrangement and wax try in was done. The processing of the denture was then followed by finishing and polishing the removable partial denture.

9 The porcelain fused to metal fixed partial denture was luted with Glass Ionomer type 1 luting cement (GC, Gold label) and the denture was inserted (Fig 6 & 7). Patient



Fig 7: Rehabilitation with cast partial denture sagittal view

DISCUSSION:

In 1960, Dr.Herman E. S. Chayes designed and invented attachments in the 20th century. His attachments have been modified and being used in Prosthodontics today. Attachments are classified into precision and semiprecision attachments based on the method of fabrication and tolerance to fit.³ Semiprecision attachment is a laboratory fabricated rigid metallic matrix of a fixed or removable partial denture that fits into a matrix in a cast restoration, allowing some movement between the components.⁴

Hedzelek has done a study to evaluate the longevity by a stimulated, repeated denture placement and removal and he investigated the components wear. He stated that casting defects and laboratory procedures have influenced the fit of the semiprecision attachments.⁵

Reeta et al stated that extracoronal attachments reduce the stress on the abutment teeth and transfer to the denture bearing area.⁶ The disadvantages of intracoronal attachments are excessive tooth reduction and at least 3mm of height is needed.⁷ Extracoronal OT caps are of various colors and have different retentive properties. These OT caps are castable attachments with elastic retention.⁸ In this case report, yellow colored extracoronal OT caps were used which provides extra soft retention.

CONCLUSION:

Use of semiprecision attachments based on the patient demands and comfort have increased the retention of the prosthesis when compared with the conventional removable partial denture. In cases where fixed prosthesis are contraindicated, the combination of fixed and removable dental prosthesis aids in better treatment outcome.

FINANCIAL SUPPORT AND SPONSORSHIP:

Nil

CONFLICTS OF INTEREST:

There are no conflicts of interest.

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