

CLINICAL REPORT

Management of Long Span Kennedy's Class IV Situation with a Fixed Removable Entity

Neelufar S , Rajashree Jadhav , Arti Gachake, Harshavardhan Sawant

ABSTRACT

The treatment modality for treating a patient within the Kennedys class IV with long edentulous span situation demands biomechanical level of balance followed by good aesthetics. The long edentulous span complicates the matter due to the unavailability of sufficient number of abutments to support the synthetic oral prosthesis. Conventional removable prosthesis is not advised for an equivalent reason. This case report describes a way for the fabrication of a custom attachment to retain prosthesis. A cast partial removable denture is retained by a custom attachment. The matrix a part of the custom attachment is fabricated using castable semi precision attachment Rhien 83. The matrix a part of the attachment is fabricated using castable precision attachment 83 which is constituted by embedding inside the tissue-fitting surface of the prosthesis. This manuscript describes custom attachment for rehabilitating the long-span Kennedy class IV situation.

Keywords: Custom fabricated attachment; Long Span Kennedys class IV; Partial removable denture.

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INTRODUCTION

Tooth loss is the consequence of complex reasons such as caries, and periodontal diseases. Teeth replacement is vital necessity and demand of the patients who wish to revive aesthetics and regain function hence the indications and contraindications with the treatment plan should be sensibly considered.¹ Removable Partial Dentures are acceptable method of replacing multiple missing natural teeth for restoring aesthetics and performance in partially edentulous patients. Dr.Herman Chayes first documented attachments in the early 20th century.² Attachment-retained removable prosthesis is a treatment modality which aid in aesthetic and functional rehabilitation of missing teeth. This treatment plan needs more patient visits and superior clinician expertise. Attachments be classified as precision attachments which are prefabricated and machined and semi precision attachments which are commonly made from either wax, nylon or plastic or may be hand waxed and then casted.³ These may be - intracoronal

or extracoronal. Intracoronal attachments act as retainers in fixed prosthesis while extracoronal attachments offer stability and retention for removable prosthesis.⁴ This case report discusses missing teeth in the anterior region of the lower jaw (Kennedys class IV) rehabilitated by fixed removable prosthesis using semi precision attachment and cast partial denture.

CASE REPORT

A 47-year-old female reported to the Department of Prosthodontics and Crown and Bridge with the condition of unpleasant appearance due to missing lower anterior teeth. No relevant medical record was there and past dental history revealed primary explanation for lower anterior teeth loss was periodontal problems.

Clinical examination revealed missing teeth in reference to 35, 34, 33, 32, 31, 41,42, 43, 45 with good periodontal condition and severe bone loss in reference to region 33, 32, 31, 41,42 which revealed

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it belongs to Kennedy's class IV modification 1 classification. In maxillary arch all the teeth were present. Radiographic evaluation revealed adequate bone support around the teeth present. After complete clinical and radiographic examination, a prosthetic treatment plan was executed. As only few mandibular teeth were present and that they were periodontally sound, so it had been decided to retain the remaining teeth and with the assistance of those teeth, treatment planned was attachment retained removable denture for the mandibular arch. A well-read and written consent was obtained from the patient before beginning the treatment. The diagnostic impressions were made using alginate (irreversible hydrocolloid impression material - Tropicalgin; Zhermack, Italy). The casts were made using type III dental stone (Kalstone; Kalabhai Karson Pvt. Ltd., Mumbai, Maharashtra, India). The tentative jaw relation was recorded and interarch space was assessed, which was found to be satisfactory.

Different treatment plan starting from conventional removable denture to implant supported fixed prosthesis was formulated. Removable partial denture is broadly used treatment option for long span edentulous patient but even though it has shortcomings of less stability and hampering of hard and soft tissues due to clasps. Cast partial denture is a good line of treatment for long span edentulous cases as it provides good support, stability and hampering of the soft and hard tissue structures can be avoided. Fixed partial denture treatment option cannot be executed in long span cases. Implant supported fixed denture was ruled out because ridge augmentation surgery was required for severe bone loss and patient was not ready for the long span of treatment.



Figure 1: Teeth preparation with reference to 36, 44 and 46

Appropriate crown height and good bone support was observed with the abutment teeth. Hence an attachment supported cast denture treatment plan was decided. Teeth preparation in reference to 36, 44 and 46 was done (Fig 1). Tooth preparation was performed for metal crown and occlusal clearance was assessed. Final impression of the prepared tooth made with Polyvinylsiloxane impression material

(3M ESPE) using dual impression procedure. The cast was made with die stone Type IV (ultrarock; Kalabhai Karson Pvt. Ltd., Mumbai, Maharashtra, India).



Figure 2: Wax pattern for metal crowns and pre fabricated semi precision attachment



Figure 3: Coping trial of the metal crowns with semi precision attachment



Figure 4: Try in of finished metal crowns with semi precision attachment

Bite record was taken, and casts were mounted on semi-adjustable articulator, wax patterns were fabricated for metal crowns and pre-fabricated semi precision attachment was (Fig 2). Coping trial of the metal crowns (Fig 3) was done and cemented with temporary luting agent and pick up impression was made with polyether after border molding.

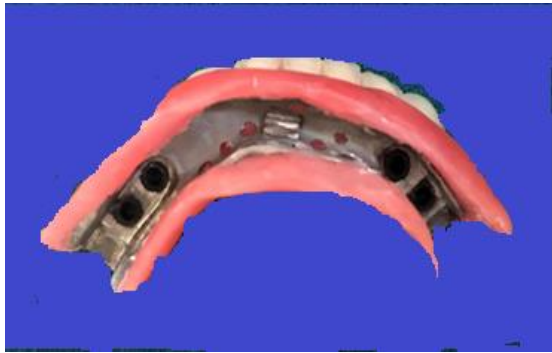


Figure 5: Try in of impression surface with cast partial framework and OT cap



Figure 6: Final prosthesis with metal crowns, semi precision attachment and removable prosthesis



Figure 7a: Impression surface of the final prosthesis with cast partial metal framework and OT cap



Figure 7b: Final prosthesis: Occlusal view

Try in of finished metal crowns with semi precision attachment and the removable prosthesis with cast metal framework was done (Fig 4). Impression surface of the removable prosthesis accompanies OT cap (Fig 5). Final metal crowns with semi precision attachment (Fig 6) were luted with Glass Ionomer Cement and the removable prosthesis (Fig 7a, b) was placed followed by post-operative instructions.

DISCUSSION

Precision attachment has advantageous feature of being a fixed removable prosthetic device with enhanced aesthetics as clasps are not utilised in the anterior region, biomechanics unit of measurement higher as considering that lower torsion is applied to the abutment teeth in a very cervical direction throughout sensible movements, less post-operative changes and better patient comfort.⁵ Moreover, attachment helps to distribute forces significantly and simultaneously between soft and exhausting tissues they are indicated in long span edentulous ridges, distal extension bases and non-parallel abutments.⁵ Attachment will be a source of entity for the support, retention and stability of a restorative connexion consisting of 2 or a lot of components and are classified as semi accuracy and accuracy devices.⁶ Attachments will be a good source for higher cross arch force transmission and stabilization than clasps but this is potentially determined by the type of fashion of the framework followed by the the type of attachment used.⁷ Most of the studies have shown that attachment maintained solid partial dentures offers higher comfort, function, esthetics, less changes, protect abutment teeth and straightforward to clean the stress management on abutment is crucial for the success of the medical specialty rehabilitation that's achieved through correct impression technique, broad coverage, stable device base, a sensible shiming and proper alternative of attachment.⁸

CONCLUSION

This manuscript describes a custom fabricated semi precision attachment for rehabilitating a long-span Kennedy class IV situation. Attachment with cast partial denture provides better stability, function and provides better force distribution between hard and soft tissues. Clasps are not utilized which will increase patient comfort and aesthetics. But the limitations for this therapeutic option includes a good support of abutment teeth which should be free from secondary caries and periodontal disease. The entire technique demands a good diagnosis and a skillful dentist followed by a skillful laboratory technician.

CONFLICT OF INTEREST

There is no conflict of interest

REFERENCES

1. Cristian Schuh, Jovito Adiel Skupien, Mauro Elias Mesko. Resilient attachments as an alternative to conventional cast clasp removable partial denture: 3-year followup. J Indian Prosthodont Soc. 2014;14 (Suppl. 1): S273–S278
2. Shetty NB, Shetty S, Nagaraj E, Shetty O, D'souza R. Precision attachments for aesthetics and function: A case report. J Clin Diagn Res 2014; 8:268-70
3. Sumit Makkar, Anuj Chhabra, Amit Khare. Attachment Retained Removable Partial Denture: A Case Report IJCDs May 2011 3(3)
4. Feinberg E. Diagnosing and prescribing therapeutic attachment-retained partial dentures. NYS Dent J.1982;48(1):27-29.
5. Gopinadh Anne, Krishna Kishore Kadiyala H, Ravi Rakesh Dev J, Mohan Krishna Badisa. Full mouth rehabilitation using fixed partial denture & cast partial denture with attachments and conventional lower denture International Dental Journal of Students Research;5(1):25-28
6. Sharad Vaidya, Charu Kapoor, Yujika Bakshi, Sonam Bhalla. Achieving an esthetic smile with fixed and removal prosthesis using extracoronal castable precision attachments. J Prosthet Dent 2015;15(3)
7. Sharad Vaidya, Charu Kapoor, Yujika Bakshi, Sonam Bhalla. Achieving an esthetic smile with fixed and removal prosthesis using extracoronal castable precision attachments. J Prosthet Dent Jul-Sep 2015 Vol 15 Issue 3
8. Zinner ID, Miller RD, Parker HM, et al. Prefabricated metal intracoronal semi-precision attachments for removable partial dentures. Int J Prosthodont 1989; 2:357364.

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