

Case report

Rehabilitation of partial edentulous ridge with semi-precision attachment.

Sanjoy Dutta¹, Ravi Madan², Suzanne L¹, Lakshay Tuteja¹

ABSTRACT

A whole new range of opportunities for prosthodontic rehabilitation are made possible by precision attachments. They may be used in a variety of therapeutic settings due to their variations in size, shape, and design. A precision attachment is a system of interlocking parts, one of which is integrated into a removable dental prosthesis to stabilise or hold it in place, and the other of which is fixed to an abutment or abutments. This article provides an overview and a simplified approach through a case report for treating the patient.

KEY WORDS Precision Attachment, Combined Prosthesis, Semi-precision attachments.

Introduction

Precision attachments are quite advantageous due to their versatility. Nevertheless, because of their high cost and poor understanding of their use, they have historically been disregarded. [1,2].

Both intracoronal and extracoronal precision attachments are possible. Cast partial dentures with attachments make it easier to replace lost teeth both aesthetically and functionally. Research has indicated that the survival rate is 83.35% after five years, 67.3% after fifteen years, and 50% after twenty years. [3,4]

Case Report

A 42-year-old male patient reported to the Department of Prosthodontics, Kothiwal Dental College and Research Centre, Moradabad, with a chief complaint of difficulty in chewing due to missing maxillary posterior teeth. Past dental history revealed that he had lost the teeth due to caries and had been partially edentulous in the past 2 years. There was no significant medical and family history and the patient is not currently under any medications.

Intraoral examination revealed restoration w.r.t – 35, 36, 37, 46 RCT of 15, carious 14 and fixed Prosthesis on 25, 26, 27. It was noted that the patient had missing right maxillary 1st and 2nd molar. The patient was diagnosed as a partially edentulous case of Kennedy's class II in the maxillary arch and was not willing for a removable prosthesis. Implant placement with sinus augmentation for 16,17 was proposed but was also not chosen as the patient showed reluctance to surgery. Hence an attachment retained removable partial denture was chosen as a treatment option.

1. Post graduate student

2. Professor

Department of Prosthodontics and crown and bridge

*Correspondence Address

Dr Sanjoy Dutta Department of Prosthodontics and crown and bridge

Kothiwal dental college and research centre, Moradabad.

Email id: sdutta.kdc21@gmail.com



Figure 1: Pre operative

A prosthetic treatment plan was established following a thorough clinical and radiological evaluation. Since the abutments' crown height was enough for a removable partial denture with extracoronal attachment (Rhein 83), an extracoronal precision attachment (Rhein 83-matrix portion and its sleeve patrix) combination prosthesis was proposed for the maxillary unilateral distal extension arch.



Figure 2: Tooth Preparation Done

After prophylactic endodontic treatment of 14, tooth preparation was done for porcelain fused to metal crowns followed by placement of provisional restorations respectively. In the laboratory, joint crowns were constructed with attachments, and trials were conducted to ensure a precise fit between the crowns and the abutments. A pick-up impression was taken using PVS impression material after the fixed component with matrices (the male portion) was attempted in the patient's mouth.



Figure 3: Fixed Prosthesis try in

Crowns were cemented using glass ionomer cement, and an acrylic prosthesis was attached with a ball attachment. Both centric and eccentric postures were used to assess occlusal contacts. For a post-insertion assessment, the patient was called back after a week. The patient was told to keep up good dental hygiene.



Figure 4: Combined Prosthesis



Figure 5: Post – Cementation



Figure 6: PFM crown with attachment and removable prosthesis

Discussion

The precision attachment is sometimes said to be a connecting link between the fixed and the removable types of partial denture because it incorporates features common to both types of construction.[5]

Rehabilitating a partially edentulous patient with a distal extension is a challenging task. Moreover, it becomes much difficult when there is compromised bone. In our case as the patient was not keen for removable prosthesis, fixed partial denture is not possible due to absent of distal abutment. He was suggested for sinus augmentation followed by placement of implant but he showed no interest in surgery. In such cases, a combination prosthesis offers an effective solution. This type of prosthesis can be secured without surgery, as an acrylic component is attached to the tooth using an extracoronal connector. [6,7]

Retention, aesthetics (no clasp), support (resistance to prosthesis movement towards tissues), stabilization (resistance to prosthesis horizontal movement), and fixation (resistance to separation of the RPD) are the primary benefits of using precision attachment.[8]

This kind of prosthesis was given the term Combined Prosthesis. In the treatment of removable partial dentures, attachments are utilized in place of clasps for both practical and cosmetic reasons.[9] Long span edentulous arches, distal extension bases, and non-parallel abutments are the main situations where precision attachment is recommended. A precision attachment connection is made up of two or more pieces. Part A is attached to the implant, tooth, or root, while Part B is attached to the prosthesis. Extracoronal attachment (Rhein 83), which is positioned as an extension on the distal surface of the crown, is the attachment system in use. Dr. James Andrews presented the concept of fixed removable prosthesis initially [9] Precision attachment dentures are a good treatment choice when the right cases are chosen, diagnosed, and a treatment plan is created. The attachment's drawbacks include the necessity for skilled lab personnel for its construction and the need to repair the attachment's wear-and-tear-related elements over time. [5]

Conclusion

This case report addresses the challenge of choosing between a fixed or removable prosthesis in situations where a distal abutment is absent. The method of prosthesis placement in distal extension situations without surgery is called combined prosthesis.[6] A thorough evaluation, combined with a carefully planned treatment sequence that aligns with the patient's aesthetic desires and perceptions, along with regular check-ups every three months and preventive care, is crucial for the long-term success of a precision attachment-retained removable partial denture. Successful prosthodontic rehabilitation depends on achieving a crucial balance between modern and traditional treatment techniques. Attachment-retained partial dentures are an example of this balanced approach in prosthodontic care.[8]

References

1. Karr AB, Brown DT. Mc Craken's Removable partial denture prosthodontics. Mosby Elsevier;
2. Bakersandr JLJ, Goodkind RJ. Precision Attachment Removable Partial Dentures. Calif, USA: Mosby, San Mateo, 1981.
3. Burns DR, Ward JE. Review of attachments for removable partial denture design: 1. Classification and selection. *Int J Prosthodont*, 1990; 3(1): 98–102.
4. Burns DR, Ward JE. A review of attachments for removable partial denture design: part 2. Treatment planning and attachment selection. *Int J Prosthodont*, 1990; 3(2): 169–74.
5. Angadi P.B., Aras M., William C., Nagaral S., 2012. Precision attachments: applications and limitations. *Journal of evolution of medical and dental sciences*, 1(6): 1113-1121.
6. Gupta N, Bhasin A, Gupta P, Malhotra P. Combined prosthesis with extracoronal castable precision attachments. *Case reports in dentistry*, 2013 Dec 9; 2013.
7. Jain A.R., 2013. A prosthetic alternative treatment for severe anterior ridge defect using fixed removable partial denture Andrew's bar system. *W joud*, 4(4): 282-285.
8. Jain R. and Aggarwal S., 2017. Precision attachments-an overview. *Annals of prosthodontics and restorative dentistry*, 3(1): 6-9.
9. Munot V.K., Nayakar R.P. and Patil R., 2017. Prosthetic rehabilitation of mandibular defects with fixed RPD prosthesis using precision attachment: a twin case report. *Contemp Clin. Dent*, 8(3): 473- 478.