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CLINICAL REPORT

Full Mouth Rehabilitation with Mandibular Precision Attachment and Cast PartialDenture &ConventionalMaxillary Denture-aCase Report.

Jayashree M,[a] C.Subashini,[b] Parithimar K,[c] Syed Ershad,[d] Sunantha S[e]

ABSTRACT

A prosthesis should fulfill the needs of the patient and also meet the biological, mechanical, and esthetic considerations.Among the various methods of oral rehabilitation, precision attachments are viable alternative to connect fixed (FDP) and cast partial dentures (CPD).Precision attachment partial dentures have been used successfully on natural tooth abutments.The advantages of attachment retained CPD are improvements in appearance by virtue of its design without a clasp assembly and renders improved biomechanics.There are significant number of patients who could benefit from this treatment option. The proposed article is a case report which is intended to provide an overview of a simplified approach to this treatment modality.

Key Words: Full Mouth Rehabilitation, Precision attachment, Cast Partial Denture

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Rehabilitation of a Class I and Class II Kennedys partially edentulous arch can be quite challenging with respect to the support availability, retention and stability needs of the prosthesis.[1]

Fixed dental prosthesis using the remaining teeth to replace a distal extension situation may not be a feasible option because of unfavourable biomechanical factors. The use of dental implants may be an option, if conditions permit otherwise.

Sometimes, it is not uncommon where fixed option through entirely tooth or bone support is not possible. In such cases connecting a fixed prosthesis to a cast partial denture [CPD] by using precision/ semiprecision attachments may be a viable option.[2]A successful prosthesis in such challenging situations require meticulous planning in a carefully selected cases to offer optimal esthetic and functional result. Precision attachments offer considerable advantages in dentistry because of their flexibility in the options available and their use in various clinical situations.[3] Prosthetic Treatment has taken a new direction with

a Professor and Head, Prosthodontics, Vinayaka Missions Sankarachariya Dental College, Ariyanur, Salem, Tamil Nadu
b PG student, Vinayaka Missions Sankarachariya Dental College, Salem, Tamil Nadu,
c Readers in Prosthodontics, Vinayaka MissionsSankarachariya, Dental College, Salem, Tamil Nadu.
d Senior lecturer, Vinayaka Missions Sankarachariya Dental College, Salem, Tamil Nadu, India.

the advent of precision attachments. Precision attachments could be extracoronal or intracoronal. Intracoronal describes an attachment within the confines of the cusps and normal proximal axial contour or within the normal contours of the crown of a tooth. Extracoronal is described as that attachment which exists beyond the confines of the anatomy of the crown portions of a natural tooth. The extracoronal attachment provides either a rigid or resilient connection between the teeth and the prosthesis. Attachment-retained cast partial dentures facilitate both esthetic and functional replacement of missing teeth.[4,5]

This article describes rehabilitation with precision attachment retained cast partial denture for the partially edentulous [Kennedy's Class I] mandibular arch and a conventional complete denture for the maxillary arch.

CASE REPORT

A 62 year old female patient reported to the Department of Prosthodontics of our institution, needing replacement of teeth for completely edentulous maxilla and partially edentulous[Kennedy's Class I] mandible. She complained of chewing disability and poor appearance of her face following loss of teeth. Intra Oral Examination revealed acrylic crowns over mandibular anterior teeth and otherwise healthy completely edentulous maxillary arch bilateral distal extension partially edentulous mandibular arch which are not restored with dentures. There is an obvious collapse of the vertical dimension because of lack of posterior support. Radiographic examination with Orthopantograph revealed root canal treated mandibular anterior teeth with no evidence of periapical pathology. Diagnostic casts were mounted to evaluate the restorative space and for the choice of options available. Based on the above mentioned investigations possible treatment options like implants, conventional cast partial dentures and attachment retained cast partial dentures were explained to the patient. Attachment retained partial dentures for the mandibular arch was chosen by the patient and Implant supported prosthesis was ruled out due to financial constraints. Conventional Complete Dentures was chosen for the Maxillary arch.

Special tray was fabricated over primary cast and border moulding and secondary impression were made for maxillary arch.[Figure 1a] Crown preparation was refined in mandibular central lateral, canine and first and second premolars on right and left side, and impression was made with vinyl polysiloxane elastomeric impression material[GC-Flexceed®, GC, India] using two step putty wash technique. [Figure 1b]

Figure 1a and 1b. Maxillary and Mandibular impressions with vinyl poly siloxane impression material

The maxillary cast was oriented on to the semi adjustable articulator [Hanau™ Wide Vue articulator, Whipmix Corporation, USA] with a facebow record [Hanau Spring Bow™, Whipmix Corporation, USA] and the mandibular cast was mounted with centric interocclusal record. [Figure 2]

Figure 2. Face bow Transfer to semi adjustable articulator

Cobalt Chromium alloy metal substructures were fabricated for the mandibular anterior teeth, with rigid extra coronal precision attachments [OT CAP, Rhein 83 Inc, USA] with a vertical freedom of movement and an activation portion were cast on the distal surface of the mandibular right and left first premolar.[6,7,8][Figure 3]

Figure 3. Metal coping Try in

Extra coronal OT CAP arecastable attachments with elastic retention. With its elasticity it can control the flexure and construct a resilient and shock absorbing prostheses. The patrix portions were positioned during the fabrication of the crown wax patterns using a dental surveyor.

The casting procedures were executed, following standard protocol to obtain a rigid connection between the FPD and the patrix portion. Additional care was taken during the finishing and sandblasting procedures of the casted FPD to avoid abrasive wear of the attachment. As the matrix portion need not be welded to the framework, it was picked up from the patrix portion using autopolymerising acrylic resin. This procedure facilitates long-term repair and/or attachment activation or replacement.[9,10]

The metal copings were clinically examined and the marginal fit was verified. The metal copings were placed on the prepared teeth and pick up impression was made with elastomeric impression material. The FDP/cast assembly was duplicated with reversible hydrocolloid, and a refractory cast was produced. Lingual bar major connector was designed. Framework trial was done along with the bisque trial of mandibular anterior teeth. [Figure 4] Centric Inter occlusal record was taken.

Figure 4:Framework try in

Figure 5. Maxillary and Mandibular prosthesis try in

The artificial teeth were selected and positioned using the form, occlusal plane and color reference.[Figure:5].O-Ring is held into the denture base acrylic (matrix portion) by a metal ring. This allows for ease in replacement of the rubber O-Rings if they are worn out in the future with minimal damage. To ensure adequate seating during FDP cementation, the prostheses were attached extraorally, and glass ionomer cement was used. This procedure must be carried out when attachments are used for the association of an FDP/RPD, because a minimal error during FDP cementation may compromise the oral rehabilitation.[11,12].Maxillary conventional denture was processed. Final prosthesis was given. [Figure 6]

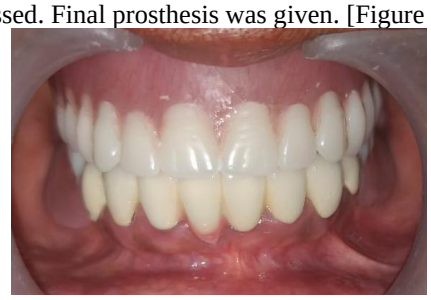

Figure 6. Maxillary Complete Denture and MandibularAttachement retained cast partial denture

The patient received oral hygiene and care instructions in writing and was educated on maintenance care of his prostheses. During 1and 2week control appointments, and after 6, 12 months follow-up, enhanced esthetic appearance and improved retention could be observed.

CONCLUSION

Challenges in Prosthetic rehabilitation in distal extension situations can be overcome by use of smart devices like precision attachments which can provide a superior, effective prosthesis in esthetics and function. Appropriate planning and meticulous execution are key to success in treating such cases. In this case report esthetic and functional outcomes are highly satisfactory.

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Corresponding Author:

Dr. Jayashree Mohan
Professor and Head, Department of Prosthodontics and Crown and Bridge,
Vinayaka MissionsSankarachariya Dental Colleges, Salem, Tamilnadu,
India. PIN 636308.
Email:mohanjay@rediffmail.com
Contact No: +91 9443518231