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RESEARCH ARTICLE

PRECISION ATTACHMENTS: A NOVEL TREATMENT MODALITY FOR PARTIAL EDENTULISM.

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Abstract

The prosthetic rehabilitation of partial edentulism is arcane due to the exacting functional and aesthetic demands. In dentistry, precision attachments employ key and keyway housing that connects a removable partial denture to a fixed crown or fixed partial denture framework. To consider precision attachments as an option in the treatment planning of long span distal extension cases the practitioner requires profound knowledge and technical skills. Based on the biomechanics, a suitable restorative design is considered so that the attachment aids in fixation, retention and cross arch stabilization of the prosthesis. In recent years, the use of precision attachments has reinforced both the retention and aesthetic aspects as opposed to the conventional removable partial denture.

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Introduction:-

Partial edentulism which occurs typically in middle age is one of the main problems faced in Prosthodontic rehabilitation requiring esthetic and functional demands. A typical rehabilitation includes cast partial denture service or fixed dental prosthesis.^{1,2}

Cast partial dentures have got comparatively less rate of acceptance by the patient as they are 'removable' in nature, 'bulky' because of large frame work.³ On the other hand fixed dental prosthesis may not be possible in all cases like in distal extension situation, pier abutment, long edentulous span.^{1,2,4}

A precision attachment which gives effect of fixed partial denture is a viable treatment alternative in such clinical conditions to achieve better esthetics and function. There are various attachments available based on location, the precision attachments are divided into:-

1. Intracoronal Attachments
2. Extracoronal Attachments
3. Radicular / Intraradicular Stud Type Attachments
4. Bar type attachment

There are a few criteria that help to decide the appropriate attachment based on the individual need of the case, Location, Function, Retention, Space, Cost.⁵

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Case Report:-

A male patient aged 58yrs old, visited to the Department of Prosthodontics with the chief complaint of difficulty in chewing due to missing teeth. Patient had no any clinically relevant past and present medical history and no any extra oral abnormality.

On intraoral examination in Maxillary arch patient had a Kennedy's Class I situation with missing pre-molars and molars. Mandibular arch had only canines in both quadrants. A maxillary cast partial denture retained by sleeve attachment and a mandibular bar connected tooth supported over denture was planned for the patient.



Figure 1:- Metal try in.

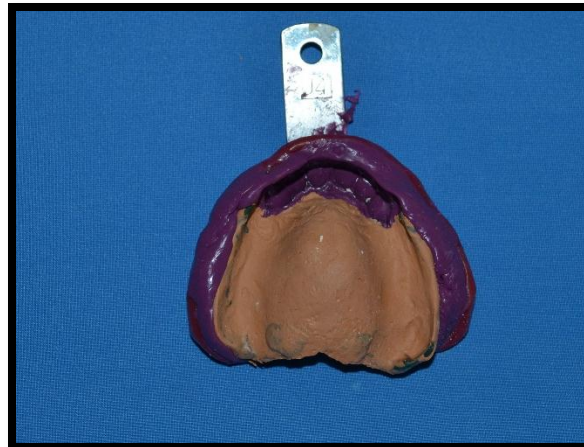


Figure 2:- Dual impression with elastomer and ZOE.



Figure 3:- Final cast partial denture and Mandibular Denture.



Figure 4:- Final Denture in patient's mouth.

Diagnosis and Treatment Planning:-

Diagnostic impression were made and OPG was done.

Sequence of Treatment:-

1. Periodontal and Endodontic treatment of the remaining teeth were done
2. For mandibular arch: Post space preparation was done i.r.t 33 and 43 and space impression was taken with inlay wax followed by coping fabrication with bar attachment. Casting was done and the metal Bar copings were cemented with glass ionomer cement.
3. For maxillary arch :- Tooth preparation of 11-13, 21-23 was done for metal ceramic crown with shoulder finish line and simultaneously both mandibular canine's were prepared for over denture abutment.
4. Metal try in was done i.r.t 11-13, 21-23 with sleeve attachment. (Figure 1) Ceramic build up was done and cemented with temporary cement. Dual impression was done in maxillary arch with ZOE paste and elastomer. (Figure 2) Beading boxing was done, master cast was poured, surveying and designing was done. Maxillary cast was duplicated and refractory cast was made, wax pattern were adapted, metal framework was casted. Cast partial denture framework was checked in patients' mouth.
5. Maxillary and mandibular jaw relation was recorded. Final trial was approved and both dentures were converted with heat cure acrylic resin. (Figure 3)
6. For mandibular bar supported over denture, direct technique pick up was done with auto polymerized acrylic resin.
7. Following occlusal corrections, insertion was done, patient was relieved with post insertion instructions. (Figure 4)
8. Follow up was done at regular intervals for necessary corrections.

Conclusion:-

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

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