Removable prosthesis using extra coronal precision attachment: A case report

Shakeel SK
College of Dentistry, Gulf Medical University, Ajman, UAE

ABSTRACT
Attachment retained removable partial denture (RPD) is an important alternative for oral rehabilitation preferably in distal extension cases when the use of clasp retained partial denture, dental implants and fixed partial denture (FPD) is limited or not indicated. Patients treated with attachment retained partial dentures can fulfill the requirements of patients’ expectations like comfort, esthetics and function. In the present case report patients expectations were fulfilled by placing combination of metal ceramic restorations and semi precision attachments.

Keywords: attachment, removable partial denture

INTRODUCTION
In our fast paced and upwardly mobile society, patients will see a dentist for two main reasons: discomfort and/or Esthetics. The dental professional must be able to relate to the patients concerns, both physically and psychologically. Treating partially edentulous situations can be challenging particularly distal extension situations where a fixed prosthesis is not indicated. Implant supported fixed partial denture is an option but this is sometimes not possible due to economic reasons. In these situations Acrylic or Cast Partial Dentures are preferred, with barely satisfactory esthetical results. Clasp retained partial dentures undergo multiple adjustments and repair. The dentist has an alternate treatment option in the form of attachment retain partial denture to the patients. Attachment retain partial denture gives patient comfort, esthetics and function. Studies have shown that the survival rate of attachment retained partial denture for 5 years is 83%, of 67% up to 15 years and of 50% up to 20 years

An attachment is a connector consisting of two or more components. One component is connected to a tooth, tooth root or an implant and the other component is connected to prosthesis. Precision attachment can give maximum comfort to the patient and can be inserted and removed easily by the patient. Precision attachments can be classified into four main groups:

1. Intra coronal attachments: Are mainly used in connecting units of fixed partial prosthesis, retaining restorations with distal extension or bounded removable prosthesis.
2. Extra coronal attachments: These types of attachments provide stability and attention for removable distal extension prosthesis.
3. Stud attachments: Usually in the form of ball and socket, this attachment serves primarily for over denture stabilization and retention of the prosthesis. Swiss logic, ZAAG, Zest anchor is example of stud attachments.
4. Bar attachments: Originally used for splinting groups of teeth, currently used for over denture retention and stabilization.
CASE REPORT 1
A female patient aged about 35 years old reported to dental clinic complaining of missing teeth in the mandibular posterior region and inability to chew food. On examination she was wearing a distal extension treatment partial denture (acrylic partial denture) and the extra coronal metal clasp was affecting the esthetics. On examination 46 and 47 were absent and 45 and 44 had sound periodontal support.

CASE REPORT 2
A female patient aged about 40 years old reported to dental clinic complaining of missing teeth in the mandibular posterior region. On examination 36 and 37 were absent and 34 and 35 had good clinical crown height and sound periodontal support.

TREATMENT PLAN FOR CASE 1 & 2
Tooth preparation was done in relation to 44 and 45 to receive metal ceramic crowns (figure 1). Gingival retraction was done and impressions were made with Polyvinyl siloxane (PVS) impression material using putty wash technique, type IV die stone is poured and interocclusal records were made. Wax patterns were prepared for metal ceramic crowns and with the help of dental cast surveyor precision attachments were attached to the distal aspect of the distal abutment. Following which casting, finishing and veneering of the fixed component were made.

The porcelain fused to metal crowns and matrices were tried in the patient mouth (figures 2 and 5) and a pick up impression was made (3M ESPE Dental products). The matrices of the attachment were placed in the receptacles which were in the crowns on the refractory cast. Subsequently’ attachment retain partial dentures were fabricated. Pink coloured O rings were inserted in the female counter part. These O rings will give the retention to the prosthesis. Crowns were cemented with the attachment (figure 3). During cementation petroleum jelly was applied to the attachments for the easy removal of the cement. Semi precision attachment is placed. (Figure 4). Similar procedures were followed for the case no 2 (Figures 5, 6,7).
DISCUSSION
Treating distal extension cases is one of the most challenging situations that a dentist could come across. Among the various treatments available Implant Supported Prosthesis serves to be the optimum treatment because it serves the embarrassment of ill-fitting prosthesis. But there is a large population who do not opt for this treatment due to financial constraints. Dr. Herman Chayes first reported the invention of attachment in early 20th century. The extra-coronal precision attachment serves to be an acceptable option in these situations. The major drawback with a RPD is the continuous loss of teeth after the restoration. Moreover, plaque retention, fracture of the component, periodontal breakdown of the abutment teeth or unacceptable esthetics adds to the failure of these prosthesis. Studies have also shown that attachment retain partial dentures give better comfort, esthetics, function, less adjustments, protect abutment teeth, easy to clean and can worn most of the time by the patient. Precision attachments have also been used in fixed prosthesis, over dentures and implants for years and have contributed to the success removable partial dentures fabricated with precision attachment is the better option where fixed prosthesis are contraindicated. Even though there are differences in opinions regarding replacement of missing teeth in the distal extension cases, the present treatment option plan has been put forth by others also.

CONCLUSION
Clasp retained partial dentures are still considered to be the most economic treatment for the distal extension cases, but these partial dentures could not satisfy patients expectations and were causing more damage to oral structures. With proper case selection and treatment planning precision attachments are the viable option and can improve retention, esthetics and function.
REFERENCES