

Precision attachment with intraradicular post in bilateral free end edentulous

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ABSTRACT

Loss of the molar on both sides can interfere with the important process of mastication and affect the shape of the face, that is greatly interferes mastication process. Therefore, dentures must be replaced immediately. A 63-years-old female complained about her dentures because they feel loose and uncomfortable. The patient lost teeth 16-11, 21-27, 34, 35, 46, and 47. The jaw lost its occlusal support. Loss of the posterior teeth on both sides of the mandible condition; the teeth with a strong grip are the indication to make a removable denture with precision attachments. The treatment is a removable denture with an upper and lower metal frame with a retention ball attachment. First, fiber posts were installed on teeth 45, which have been endodontically treated. Then, teeth 34, 35, 44, and 45 were prepared, and a crown was made with a ball attachment handle as male part on the posterior part of the porcelain fused to metal. It is concluded that the patient is satisfied with her new denture, feels more comfortable chewing, and the appearance was much better than before.

Keywords: edentulous, occlusal stop, precision attachment, intraradicular post

INTRODUCTION

Dentures must distribute occlusion pressure evenly on all mucosa and teeth to reduce movement when the denture is functioning properly, the condition is called cross arch stability. The use of metal frames as major and minor connectors can minimize the movement of the denture because of its rigid nature so as to create cross arch stability.¹ Precision attachment is a special type of direct retainer used in the manufacture of removable partial dentures (RPD).²

The advantages of precision attachment partial dentures over conventional metal frame RPD are aesthetic because they do not have wire retention components and are not susceptible to caries.¹ Precision attachments provide better vertical support, better tissue stimulation and lower stress distribution to abutments than conventional denture.³ This paper is aimed to describe a case of bilateral free end edentulous that is rehabilitated with precision attachment and intraradicular post.

CASE

A 63-years-old female came to Department of Prosthodontic *Universitas Gadjah Mada* complained about her denture were no longer comfortable to use and felt painful when she used to eat, the lower jaw had many missing teeth so that the patient has difficulty chewing food. Case history revealed that she uses the denture for 2 years and now some of other teeth is missing so the old denture is not retentive anymore (Fig.1).

The right second premolar has been performed root canal treatment before. So, a fiber post must be attached to the tooth to increase retention and

strength to the tooth (Fig.2). Then, teeth 34,35,44, 45 were crown-preparation for precision attachment (Fig.3).

MANAGEMENT

Double impression technique was made with light body of polyvinyl siloxane. The models were sent to the dental laboratory to make metal coping for teeth 34, 35, 45, and 46.



Figure 1 Profile of the patient.



Figure 2 intra oral.



Figure 3 Crown preparation



Fig 4. Dental impression, **Figure 5** Work model impression

Next step is try in the precision attachment, the metal frame for the upper and lower jaw and check the inclination of the anterior teeth.

Because the patient lost all of the anterior teeth, we have to measure the proportion of the teeth and the face with MMR (mandibula maxila relationship) first. This step is important because patient feel that the older denture inclination is incorrect and make her difficult to close the lips.

Try in metal coping into the teeth and check the retention was done to evaluate the retention, stabilization and occlusion as well as space between of metal coping and antagonist teeth. The second impression is carried out with the metal coping placed in the teeth. And then send it back to laboratorium for make a metal frame denture.



Figure 6 Try in metal coping and MMR



Figure 7 Try in precision attachment denture

Check the retention, stabilisation, occlusion, aesthetics of the teeth and phonetics. Retention, the denture does not come off when installed. Stabilization, the denture remains stable when functional movements are carried

out. Occlusion, the overall arrangement of the teeth must be harmonious during occlusion. Aesthetics, the color of porcelain fused to metal teeth have same color with the remain teeth. Phonetics, pronounce the letters p, b, t, s, d, f, V clearly and without interference.

After that, we cemented the precision attachment denture to the abutment teeth with luting cement (GIC type 1). Then educate the patient about her denture such as :

How to use and to how to remove denture

How to maintain dentures. There are two ways. Mechanical way: gently brushed under running water and Chemical method: with denture cleanser.

Remove the dentures at bedtime and cleaning them before they are stored in a clean place (no need to soak in water when storing).

DISCUSSION

In this case, the Direct retainer used is a precision attachment in 34,35,44,45 teeth. The type of precision is an extracoral type because it can avoid excessive tooth preparation.

The type of hook that we use in this case is a ball-type extracoral. The type of attachment requires consideration of several basic principles, such as crown-root ratio, the type of coping, the available vertical space, the number of abutments, the amount of bone support available, the location of abutment teeth, the cost and long-term care.⁴ The RPD with an extraoral ball link can be done without having to reduce many teeth so as to reduce the possibility of teeth becoming non-vital. Otherwise, it can provide good retention and aesthetics.⁵⁻⁷

It is concluded that precision attachment RPD can be used to improve retention, stabilization and aesthetics. This type of denture can also be used in some conditions where there are non-parallel abutment teeth and bilateral free end case.

REFERENCES

1. Carr AB, Brown DT. Removable partial prosthodontics, 12th Ed. Ottawa: Elsevier; 2012.
2. Miller E, Grasso J. Removable partial prosthodontics, 2nd Ed. Baltimore: William & Walkins; 1981.
3. Angadi PB, Aras M, Williams C, Nagaral S. Precision attachments: applications and limitations. J Evol Med Dent Sci 2012; 1(6): 1113-21
4. Jain AR, Philip JM, Ariga P. Attachment-retained unilateral distal extension Kennedy's class II modification 1 cast partial denture. Int J Prosthodont Restor Dent 2012; 2(3): 101-7.
5. Patel H, Patel K, Thummer S, Patel RK. Use of precision attachment and cast partial denture for long – span partially edentulous mouth – A case report, Int J Appl Dent Sci 2014; 1(1): 22-5
6. Kartika F, Wahyuningtyas E, Sugiatno E, Kusuma HA. Retainer kaitan presisi ekstrakorona pada kasus Kennedy klas I rahang bawah. Maj Ked Gi 2014;21(1): 66-71.
7. Preiskel HW. Precision attachment in dentistry. Alih bahasa Ny. Herman W, Erlangga: Jakarta; 1981.p.1-265.