

# Prosthodontic Rehabilitation with Preci-Clix Overdenture System - A case report

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## Abstract

Tooth loss has a negative impact on masticatory function, aesthetics, and self-image. Fixed partial dentures, removable partial dentures, complete dentures, and implant-supported dentures can replace missing teeth, but it is not known whether they differ in their ability to reconstruct the masticatory force and preservation of residual bone ridge. An overdenture is a complete or removable partial denture that has one or more abutment tooth or implants to provide a support. Moreover the shortened crown also changes the crown to root ratio thus the reduced mobility of the tooth facilitate ridge preservation, improves the bone support. Overdentures maintain proprioception of teeth and improve stability and retention. Overdenture is preventive prosthodontics concept involving the multidisciplinary approach involving periodontic, endodontic & prosthodontics intervention. Prefabricated attachments are versatile and provide considerable retention and stability.

This case report of patient with few teeth remaining has been treated with overdenture supported with preci-clix overdenture attachments.

**KEY WORDS:** Overdenture, Abutment tooth, Preci-clix attachments

## Introduction

In mid 20<sup>th</sup> century when health sciences started applying scientific method in clinical medicine and dentistry, it was evident that tooth loss showed a cascade of alveolar bone loss, irrespective of overall skeleton health<sup>1</sup>.

Various studies have reported the destructive results of loss in the past. According to these studies more bone loss occurs in anterior areas than posterior areas of the jaws and more bone loss occurs in mandible than in the maxilla. Thus the area that is most critical for maintaining teeth to retain alveolar bone is the anterior region of the mandible<sup>2</sup>.

Studies have shown that saving teeth will preserve the proprioceptive mechanism in the jaws, thereby preserving the alveolar bone<sup>3</sup>.

In today's world preventive prosthodontics is playing a very important role as it emphasizes the importance of any procedure that can delay or eliminate future prosthodontic problems. For this, certain special complete denture procedures have been developed and overdenture is one of the logical methods for the dentists to use in preventive prosthodontics. Ball and socket devices have become popular now days, because of reduced lab procedure in over denture treatment. In this case report pre-clix over denture system is used to rehabilitate mandibular arch.

## CASE REPORT

A 54 year old female patient reported to the department of prosthodontics; with the complaint of inability to chew due to missing teeth. Patient was a teacher by profession and was much concerned about the retention of the prosthesis.

On clinical examination, it was seen that maxillary ridge was completely edentulous and was quite favourable and mandibular ridge had 33, 34 and 43. Clinically 33 and 43 were seen to be firm with good soft tissue attachment. Lower left premolar was badly mutilated and alveolar ridge in posterior region was resorbed.

Considering patient's complaint, background and condition of the oral cavity; an overdenture was planned with attachments (preci-clix- DFS Belgium). The treatment plan included following three phases: Endodontic phase, Surgical phase and prosthodontic/restorative phase.

Endodontic phase involved intentional endodontic treatment with 33 and 43 (Fig 1a and fig 1b) followed by surgical phase involved extraction of lower left 1<sup>st</sup> premolar. After a period of 15 days, third phase involving prosthodontic phase was started.

Step 1- Diagnostic impressions of maxillary (impression compound) edentulous arch and mandibular (alginate) arch were made.

### Step 2 – Preparation of teeth (33 and 43)

- a) Teeth were reduced to the level of adjacent gingiva and sharp edges of teeth were rounded up.
- b) Root preparation for post placement ( Fig 2)  
The canal was first prepared with No. 1227 predrilling bur. Then No. 1228 cavity bur was used to prepare the canal which facilitates countersinking. Finally No. 1229 precision reamer was used to calibrate the canal for the diameter of No. 1291 post. It should be kept in mind that, when using the burs, we should always proceed at slow speeds.

- c) Cementation of the post.  
Before the post cementation, post was sandblasted. Bonding composite

( Flourocore\* 2- Dentsply caulk) was coated over the post and root canal surface and preci-clix post was seated in the prepared canal. Then at the surface of tooth the composite was cured with light curing unit.

After the composite was set, the root surface was polished with the finishing burs (Fig 3).

Step 3- Impression making- Primary cast was made using irreversible hydrocolloid impression material. Special tray was prepared on primary cast by giving two layer thick spacer around the posts.

Clinical procedure- Following conventional technique sectional border molding of the tray was done with green stick compound impression material. Then the spacer was removed and vent holes were made in the tray. Secondary impression was made with monophase rubber base impression material. No. 1201D post analogue were taken and re-indexed into the recess within the impression (Fig 4) and master cats was made.

### Step 4- Jaw relation and trial of denture

Metal housing with retention caps were placed over the posts on the cast. Then metal housing was blocked out with wax and record base was made. Occlusion rims were prepared. Then the jaw relation was recorded. Teeth arrangement was done and try in of the denture was done to check for the esthetics, centric relation and vertical dimension.

Step 5- Denture fabrication following conventional manner the denture was flaked and dewaxing was done. After dewaxing the analogue were blocked out with tin foil and denture was then fabricated in conventional manner.

### Step 6- Denture delivery

Black rubber spacers supplied in the kit were placed over the posts. The female component-retention caps and metal housing were placed over the posts. Then the denture was placed over female components and rechecked for any interference. The prosthesis was relieved until there was no interference and there was proper occlusion with even tissue contact. It was made sure that the prosthesis had no contact with attachment or abutment. Small amount of self-cure resin was placed in relieved area of the prosthesis and seated in the mouth and was allowed to set.

After the resin was set, the denture was removed out and now the intaglio surface of the denture had metal housing with retention caps deep buried within. The surface was then finished and polished ( Fig 5). Black rubber spacer removed. The advantage of this system is the female retention caps can be easily changed in metal housing in order to adjust the retention. The denture was delivered (Fig 6) and instructions were given to the patient and recalled after 24 hrs for check-up.

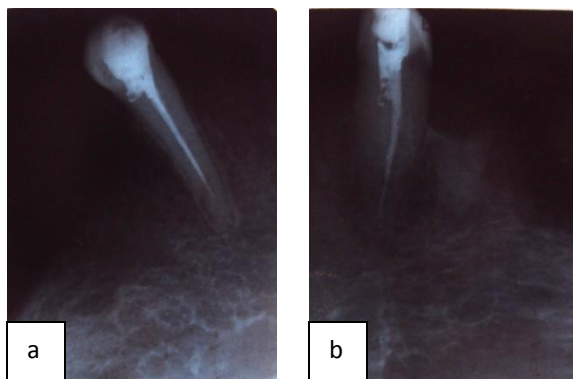


Fig 1. a and b showing endodontically treated 33 and 43



Fig 2. Prepared canal for post placement



Fig 3. Cementation of posts



Fig4. Secondary impression with post analogues in place



Fig 5. Intaglio surface of the final denture with metal housing and retention caps



Fig5. Extra oral photograph after Denture insertion

## DISCUSSION

The ball and socket type of attachment is seen to be user friendly for the patients. The snap fit of the denture in mouth makes the patient more comfortable during functional movements. Tooth supported overdenture is a viable and tissue tested alternative technique for those who cannot have implants due to various reasons like medical contra-indications, cost factors and also for patients who are not willing for the implants. The advantages includes effective and superior method of treatment for edentulous case, ease of maintenance, stable and retentive, reasonable cost compared to implants, familiar procedure and excellent patient acceptance.

Use of teeth for supporting the dentures is always aimed at reducing the load, stresses on the osseous structures of the denture bearing areas and also they minimize the process of resorption when the dentures are worn. Preserving the teeth and making the denture, tooth and tissue borne, helps in preserving the supporting structures, both in health and function.

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