

## Overdenture with Endodontic Therapy and Cast Coping- A Case Report

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### Abstract

An implant or tooth supported overdenture prosthesis, is not a new concept in prosthodontic rehabilitation. Dentistry today has shifted its focus towards Preventive dentistry, and overdenture serve as an alternative to be opted for incase there are natural teeth remaining which can serve as an abutment. This article shall discuss about a case, in which natural teeth are endodontically treated and used as an overdenture abutment which shall have a better retention compared to conventional.

**Keywords:** *Overdenture; Endodontic Therapy; Cast Coping*

### Introduction

As it has been right stated by M. M. Devan, "It is not just the meticulous replacement of what is missing, but perpetual preservation of what is left".

Preventive prosthodontics helps seek treatment options which can help eliminate or atleast reduce issues involving the form and function. Overdenture is a highly recommended treatment alternative for preventive Prosthodontics [1].

According to Glossary of Prosthodontics - Overdenture is any removable dental prosthesis that covers and is partially supported by natural teeth, natural tooth roots, and/or dental implants [2]. Various terms have been used to describe this treatment modality: overlay denture, telescoped dentures, tooth supported dentures, hybrid prosthesis etc [3]. Over dentures helps eliminate clinical situations such as progressive bone loss, poor stability and retention, loss of periodontal proprioception, low masticatory efficiency, etc [4].

In order to achieve sufficient abutment height, tooth must be treated endodontically [5]. The present article discusses the case report of a patient with anterior teeth present in the mandibular arch not willing for extraction and edentulous maxillary arch.

The most suitable treatment plan was to construct a tooth supported Overdenture taking support from the endodontically treated abutment teeth.

### Case Report

A 60 year old female patient reported to the Department of Prosthodontics, Crown and Bridge, with a chief complaint of difficulty in mastication due to missing teeth she even complained of unpleasant appearance and expressed desire for its correction. On intraoral examination, 31, 32, 33, 41, 42, 43 were present in the mandibular arch and the maxillary arch was completely edentulous. As Patient's inclination was more towards preservation of her natural teeth, so planned treatment was tooth supported overdenture, considering the feasibility and socio-economic status of the patient in the mandibular arch and a conventional complete denture in the maxillary arch.

Primary impression of maxillary arch (Figure 1) made with impression compound (Y-DENTS impression composition). Post endodontic therapy of the anterior teeth in the mandibular arch, preparation of the abutment teeth was done for the placement of cast copings (Figure 2) and a primary impression was made with vinyl polysiloxane impression material (Flexceed Putty Type) (Figure 3). Impressions were disinfected according to protocol and cast were poured in Dental Plaster.



Figure 1



Figure 2



Figure 3

Low fusion impression compound i.e. Green stick was used for border molding of the maxillary and mandibular arch. Final impression of maxillary arch was made with zinc oxide eugenol impression paste (DPI Impression Paste, Dental Products of India) (Figure 4) and of mandibular arch was made with medium viscosity addition silicone impression material (Reprosil, DENTSPLY Caulk, USA) (Figure 5).



Figure 4



Figure 5

Master cast for maxillary arch was poured in dental stone (Kalstone, Kalabhai Karson Pvt. Ltd., India) and for mandibular arch was poured in die stone (PEARLSTONE, Die Stone Type IV).

Wax patterns were fabricated (Figure 6) and casted using cast metal alloy. Finishing and polishing were done. Metal copings were cemented (Figure 7).



Figure 6



Figure 8



Figure 7



Figure 9

After cementation of the copings, a final impression was made with vinyl polysiloxane impression material (Flexceed Putty Type) (Figure 8). Master cast for mandibular arch with metal cast copings was poured in type 3 dental stone (Kalstone, Kalabhai Karson Pvt. Ltd., India) (Figure 9). Jaw relations were recorded and transferred to the Semi adjustable articulator (Hanau Wide Vue Articulator).

Teeth arrangement was done with acrylic resin teeth as per shade selection done for better esthetics. Wax try in was done to ensure patient satisfaction, as esthetics was one of her major concern (Figure 10). Dentures were flaked, dewaxing was done, packing and curing was done in heat cure acrylic resin (Trevalon Denture Material, Dentsply India Pvt. Ltd., India). Dentures were retrieved, finished, and polished. Patient was scheduled an appointment for denture insertion (Figure 11 and 12).



Figure 10



**Figure 11**



**Figure 12**

Occlusal adjustments were done. The patient was given the essential post insertion instruction and was explained the importance of oral hygiene maintenance for the success of treatment. Minor adjustments were well noted and done during the post insertion follow up visits.

### Discussion

Over denture treatment modality is a feasible approach of Preventive prosthodontics concept as it helps preserve and maintain the remaining natural teeth and their supporting structures [1].

Tooth/ teeth which are considered unsuitable for abutment of a fixed partial denture can be modified and used as an abutment for Overdenture treatment.

It has been well documented that residual ridge undergoes rapid resorption post loss of tooth which has been stated as Residual Ridge Resorption (RRR) [6]. While the bone loss following the removal of teeth is stated to be rapid, progressive, irreversible and inevitable, it is equally well observed that bone is maintained around standing teeth and implants [7].

Cast copings were fabricated in this case due to the clinical situation which was showing tendency of recurrent decay, thus to avoid failure of the treatment plan. However, this is found that if there is a history of caries and if home care is not drastically improved, then the placement of a cast coping does little to prevent carious lesions from beginning on the abutment teeth. A shallow dome shaped casting with supragingival margins are fabricated.

The post is kept short intentionally because of the possibility of removal of the casting if caries should develop [5].

Tooth supported overdenture will always have an edge above the conventional ones as it has better retention, reduced rate of bone resorption and the presence of proprioception gives a sense of better prognosis.

### Conclusion

Overdentures being the old school of thought are still considered as it has a strong impact on the Preventive dentistry. It should be more accepted and implied. To date, most failures have been the result of poor case selection and inadequate supervision to control maintenance. As more is learned about overdentures, success rates will improve. In the future, as more sophisticated techniques develop, success rate will be even greater.

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