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Tooth supported over denture: An obscure concept with a propitious result

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ABSTRACT

The concept of conventional tooth-retained overdentures is much simple and cost-effective treatment plan than the implant overdentures. When few firmor compromised teeth are present, instead of extracting them - they can be retained and used as abutments for overdenture fabrication. This boosts the retention and stability of the final prosthesis significantly.

This clinical report describes a novel method of fabricating a tooth supported overdenture retained with metal copings for maxillary arch retaining both second premolars

I. INTRODUCTION

Overdenture is a ideal treatment modality for elderly patients with few remaining teeth. Furthermore, the use of copings and precision attachments on the remaining teeth enhances the retention of the denture

The roots of the tooth offer the best available support for occlusal forces. Accelerated rate of bone resorption is prevented. It also increases patient's manipulative skills in handling the denture, in this way the periodontal membrane is preserved and thus the proprioceptive impulses. All this increases patient acceptance and their biting force.

Hence, we can say the concept of overdenture helps in bone preservation and also delays complete edentulism

CASE REPORT

A 65 -year-old female patient reported to the Department of Prosthodontics, St.gregorios dental college , ernakulam, with the chief complaint of difficulty in chewing due to missing teeth. The medical history of the patient was taken, and it shows no relevant medical history affecting the prosthodontic treatment. Intraoral examination revealed well-formed maxillary and mandibular ridges in Class I ridge relationship

Only teeth that were present 15 and 25 in the maxillary arch and radiographic examination revealed good bone support and long roots. In mandibular arch 32,33,35,38 and 43,47 (fig 1)

The patient gave a history of loss of her missing teeth over a period of 15 years due to multiple caries and periodontal problems. She had worn removable partial dentures during that period which was not satisfied and also had multiple fracturs on it . No mobility and periapical pathology were noticed in the clinical and radiographical examination. The patient desired for a prosthesis with good retention as compared to her previous denture.

TREATMENT PLAN

The different treatment options available for this patient's maxillary and mandibular arch were – extraction of the remaining teeth followed by conventional complete denture, implant-supported overdenture, and tooth-supported overdenture on maxillary arch and a Valplast flexible denture on mandibular arch which many patients find very comfortable. The patient denied implant-supported overdenture due to additional surgery and long treatment time as well as high expenditure. Hence a tooth-supported maxillary overdenture and Valplast flexible denture on mandibular arch was decided.

To retain 15, and 25, first an intentional root canal treatment (RCT)and a metal coping over the teeth was necessary (fig 2). So, after RCT, preparation was done with tapered round end diamond point with a chamfer finish line. Post space preparation was done and Impression was made with additional silicone for the fabrication of copings. The copings obtained were checked for fit in the patient's mouth and finally cemented with glass ionomer cement. The thickness of the copings was 1mm.

Primary impressions for the maxillary and mandibular arches were made with alginate. The impressions were poured and special tray was

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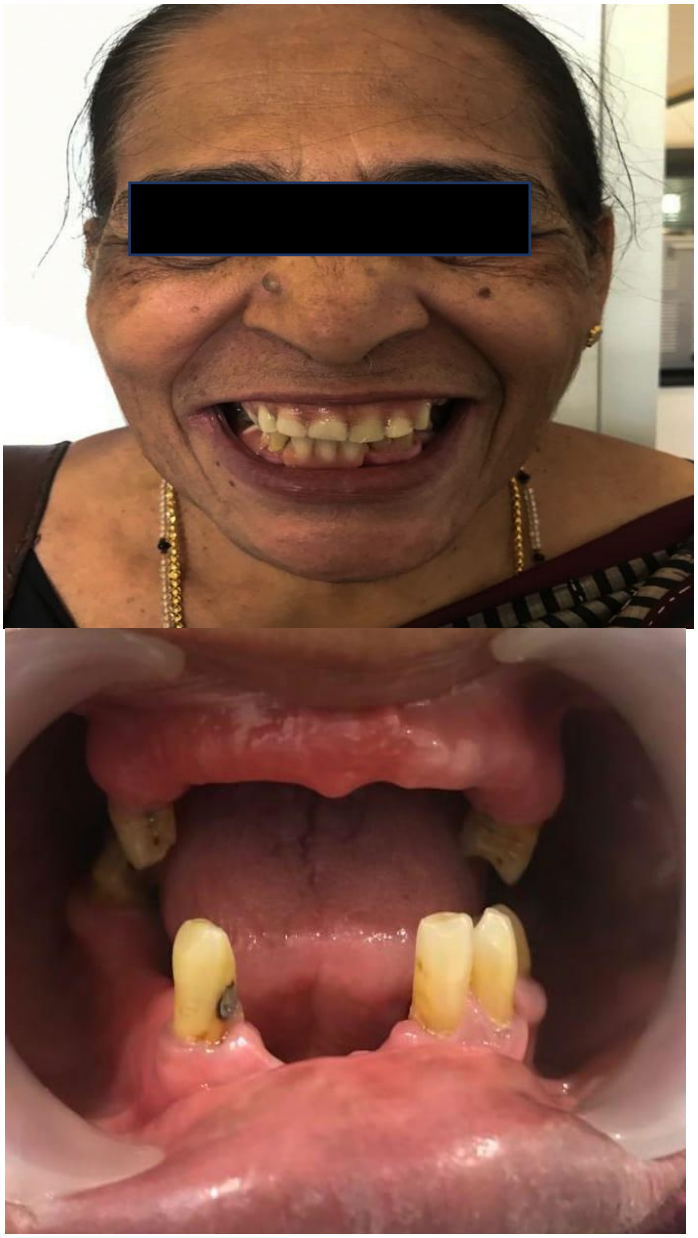
fabricated with self-cure acrylic resin with double spacer over abutment teeth for maxillary arch. Border molding was done for maxillary arch with low fusing compound. Final impressions for the maxillary arch were made with light body addition silicones. Master casts were prepared by pouring the impressions in Type IV gypsum products.
Occlusal rims were fabricated; maxillomandibular relations recorded and transferred onto non-adjustable articulator. Teeth setting was done, evaluated in the patient's mouth for phonetics, vertical and centric relation and finally esthetics (fig 3) . Vertical dimension was verified and centric and eccentric contacts checked. Patient's approval was taken, and the curing of the final denture was done in heat-cure acrylic resin (Lucitone199 denture base material, Dentsply, Germany)
The final prosthesis was trimmed and polished (fig 4) and inserted in the patients mouth and the outcome was very satisfactory to patient (Fig 5)



Pre operative photographs (fig 1)

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Metal copings on 15,25 (fig 2)

Tooth arrangement done (fig 3)

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Finished and polished dentures (fig 4)

Final insertion (fig 5)

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(fig 5)

Post operative photographs

II. DISCUSSION

The prospect of losing all the teeth can be very disturbing for a patient, bringing down patient's morale as it is an in direct reminder for being dependent on others and losing senescence. In such conditions, overdenture option as preventive prosthodontic treatment modality should be regularly imbibed in our dental practices because of its innumerable advantages. [12]

Crum and Rooney graphically demonstrated in a 5 years study that an average loss of 0.6 mm of vertical bone in the anterior part of the mandible of overdenture patients through cephalometric radiographs as opposed to 5.2 mm[9] loss in complete denture patients.

The average threshold of sensitivity to a load was found to be 10 times as great in denture wearers as in dentulous patients Rissin et al., in 1978, compared natural dentition, conventional complete denture, and overdenture and it was found that the over-denture patients had a better chewing efficiency and it was about one-third higher than the complete denture patients. [5]

Crown and Rooney, in 1975, also proposed that preservation of alveolar bone occurs when the tooth is retained for overdenture.

Overdenture helps reduce shrinkage of surrounding bone, reduces pressure on the alveolar ridge and proprioception is maintained. There is the presence of directional sensitivity; dimensional discrimination.

These dentures provide mainly the preservation of alveolar bone, maintenance of proprioception and stability of prosthesis. However, if there is requirement of additional retention then variation in design is required. Oral hygiene instructions are given to the patient and reinforcement of the same has to be done. After abutment loss, an overdenture can be converted into a conventional denture.

III. SUMMARY

Tooth supported overdentures are still an outstanding and economic therapeutic concept. In this study use of root abutments with metal copings are used as an aid to support complete denture is presented.

Even though the retained teeth may be periodontally compromised, they still may provide sufficient support for the transmission of masticatory pressure and periodontal ligament receptors to initiate a jaw opening reflex. The abutments enhance support and stability of the denture and slow the rate of alveolar resorption. The clinical procedure is straight forward and can be readily applied in general dental practice

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