

Case Report

Rehabilitation With Tooth Supported Overdentures – Report Of Two Cases

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Bhasin AS, Bhasin V, Bhasin M, Paul CE, Laller S, Malik M. **Rehabilitation With Tooth Supported Overdentures Report Of Two Cases.** J Periodontal Med Clin Pract 2014; 01:315-320

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ABSTRACT: An over-denture is a prosthesis that covers and is partially supported by natural teeth, natural tooth roots and/implants. It is also called as Telescopic dentures, overlay dentures, hybrid dentures or superimposed prosthesis. A variety of techniques and theories have been reported for using natural teeth to support and stabilize complete dentures. This article describes two case reports treated with tooth supported overdentures.

Key words: Telescopic denture overlay denture, overdenture, abutment, cast coping, Preventive prosthodontics, root supported overdentures.

INTRODUCTION:

The architecture of maxilla and mandible is designed to house the roots of teeth, not to act as support for artificial dentures. Resorption occurs when teeth are removed from this architecture.^[1] Removal of teeth because they interfere with the construction of prosthesis does not promote preventive dentistry practice. Preventive prosthodontics emphasizes the importance of any procedure that can delay or eliminate the future prosthodontic problems.

Overdenture treatment follows the concept of

preventive prosthodontics, requiring multidisciplinary approach involving surgical, endodontic and prosthodontic intervention. Overdentures are removable partial denture or complete denture that covers and rests on one or more remaining natural teeth, the roots of the natural teeth, and/or dental implants.^[2] A variety of theories and techniques have been reported for using natural teeth to support and stabilize complete denture.^[3] This article describes two case reports of tooth supported overdenture with cast metal short coping on the abutment teeth.

CLINICAL CASE 1: A 65 years old male patient reported with completely edentulous mandibular arch and partially edentulous maxillary arch with retained six anterior teeth which appeared periodontal compromised. Intraoral periapical radiograph revealed loss of alveolar bone support of central and lateral incisors. Canines had adequate bone support. Central and lateral incisors were

planned for extraction and maxillary overdenture was planned with canines as abutments. (Fig.1) Canines were endodontic ally treated. Gutta-percha (DENTSPLY, Maillefer) was the material used to seal the canals. The teeth were reduced to a height of 1-2mm above the ridge. A chamfer finish line was prepared all around the teeth. Root canal was prepared prepared to receive a post of around 2mm in the canal using peso reamer and xylene as Gutta-percha dissolvent. After preparation of abutment and post space, pattern for the short coping was prepared using pattern resin by direct method (Fig. 2) Ni- Cr alloy (Bellabond Plus, Bego, Bremen, Germany) was used to cast the copings. (Fig-3) The copings were cemented using Type 1 glass ionomer cement. (GC Corporation, Tokyo, Japan) (Fig.4) Once the copings were cemented, complete denture was fabricated in conventional manner with heat polymerized acrylic resin (Trevalon HI, DENTSPLY India Ltd, Guragoan, and Haryana). (Fig 5)

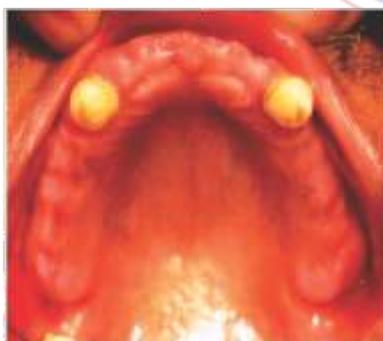


Fig. 1 Intraoral Preoperative View



Fig – 2 Pattern by direct Method



Fig.- 3 Metal coping



Fig. 4 Copings Cemented Over prepared Canines



Fig. 5 Denture placed over abutments with copings

During denture insertion, the maxillary overdenture was checked for pressure spots using pressure indicator paste. The area of the marginal gingiva and the coping was relieved to avoid gingival irritation. Oral hygiene instructions were given to the patient who included the use of toothbrush in the area of the copings.

CLINICAL CASE 2: A 61 year old male patient reported to the department with edentulous maxillary arch with retained canines and all mandibular teeth present (Fig 6). Dental history revealed that the maxillary teeth were extracted due to periodontal involvement. Flap surgery was done in mandibular arch with bone grafting and

temporary splinting of mandibular teeth. Clinically both the canines appeared periodontally sound. Intraoral periapical radiograph of 23 revealed excessive bone loss so the tooth was extracted. Maxillary overdenture was planned for the patient with canine (13) as abutment. The abutment tooth was treated endodontically. The tooth was prepared to receive short cast coping with preparation of the canal to receive a post pattern of the coping was prepared using pattern resin. Ni-Cr alloy was used to cast the coping. Once the coping was cemented (Fig.7); maxillary single denture was fabricated by conventional technique.(Fig 8)



Fig.6- Intraoral pretreatment view



Fig.7- Copings Cemented



Fig. 8 Single Maxillary Denture Placed opposing Natural Teeth

Overdenture maintenance: Patients were instructed for proper care and hygiene maintenance of the removable prosthesis and placed on a regular recall programme .A proper brushing technique was taught to the patients for cleaning the prosthesis.Oral hygiene instructions for maintenance of abutment and copings were given. They were advised to use soft tooth brush around the coping. They were asked to leave the dentures out of the mouth in a cleaning solution overnight.

DISCUSSION: Overdenture prosthesis constructed over existing teeth or tooth structure is not a new concept. Its use is dated back over hundred years. In 1861 Barker reported on

“Surgical preparation of mouth for artificial dentures”. During Second World War many dentists in military services used overdentures in the treatment of inadequate or mutilated dentitions. In 1958, Miller reported that retention of few teeth under complete denture allowed the weak teeth to regain healthy status.^[2] This foresight was of prime importance in convincing the profession that overdentures are a superior treatment modality. In 1968, Lord and Teel reported seven years of successful treatment with overdentures.^[4]

Tooth-supported overdentures are a step in a direction of preventive prosthodontics. Preservation of residual ridge, support and

stabilization for the denture base gives the patient a sense of security that their own teeth are supporting the prosthesis. Increased biting force, proprioception and enhanced retention are few of the advantages of overdentures.^[5]

Various designs of abutment preparations are described in literature which included short coping overdentures which are round shaped copings 1 – 2mm above the gingiva, long coping overdentures and attachment coping overdentures.^[6] Round dome shaped preparation permits the stresses of occlusion to be directed along the long axis of the abutment teeth and allow some movement of the denture. The dentures were relieved around the copings which ensured that the abutments will not be overloaded at initial placement. The abutment tooth plays no role in retention of the denture but only act as stabilizer.^[6] To improve retention of overdentures, attachments are recommended. Magnetic attachments are also been used for added retention of overdentures.^[7,8] At present there are several kind of attachments that may be applied to implant supported overdentures. It includes the use of clip embedded in the denture with implant connecting bar^[9] or O-ring embedded in denture with snap-on ball attachment connected to implant.^[10]

CONCLUSION:

Unlike other parts of the body, teeth and supporting structures are not regenerative. There is no support for occlusion as adequate as the roots of natural teeth. Therefore we being physicians, surgeons, physiologists of the oral cavity should look forward

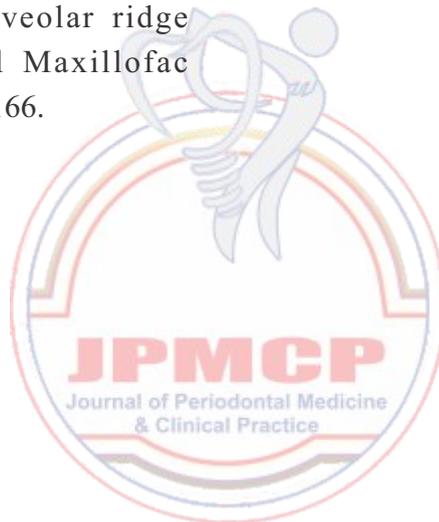
towards preserving what is present in the oral cavity. Retention of the part of the natural dentition affords the over denture patients a gain in neuromuscular performance thereby having an edge over his edentulous counterpart.

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Competing interest / Conflict of interest The author(s) have no competing interests for financial support, publication of this research, patents and royalties through this collaborative research. All authors were equally involved in discussed research work. There is no financial conflict with the subject matter discussed in the manuscript.

Source of support: NIL

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