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Conversion of faulty designed fixed prosthesis into more predictable telescopic denture: a case report

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Abstract

The partial edentulous arches are not uncommon in clinical practice. However, such cases not be always endeavoured through implant replacement. Clinical decision making should scrutinize on preservation of what remains and respective treatment to be practiced. Tooth supported overdenture well might not be a new concept but should be imbibed when remaining teeth are to be preserved for longstanding prosthetic management. This article delineate the use of double crown overdenture i.e. telescopic overdenture constituting of primary and secondary copings on the abutment and attached to prosthesis respective. The main aim and goal is to retain the teeth present, maintain sensory function and the adjacent residual ridge which consequently aids in retention, stability and support of the denture providing psychological benefit to the patient.

Keywords: tooth supported overdenture, telescopic denture, preventive prosthodontics, primary copings, secondary copings

Introduction

In 1952, Milton DeVan elucidated his opinion that the role of prosthodontic therapy should be “the constant preservation of what remains rather than the meticulous restoration of what is missing.”^[1] In order to accomplish this objective extreme care is to be taken to cause no additional destruction to the remaining teeth and adjacent supporting tissue. Preventive prosthodontics give importance to those procedures that can delay or eliminate future prosthodontic problems^[2].

When only few teeth are remaining the best modality for the preservation of teeth is either fixed or removable prosthetic management. The retained teeth offers benefits such as proprioception, additional retention stability and support to the denture framework by preserving the adjacent alveolar bone. In such cases, the common rehabilitation option can be tooth supported overdenture. Where in removable denture attached by the means of telescopic anchors are regarded to be a good clinical solution. The physiologic benefits related to overdenture therapy are: The first concerns the continued preservation of alveolar bone around the retained teeth while the second relates to the continuing presence of periodontal sensory mechanisms that guide and monitor gnathodynamic functions^[3].

According to GPT, a telescopic denture is also called as an overdenture, which is defined as any removable dental prosthesis that covers and rests on one or more of the remaining natural teeth, on the roots of the natural teeth, and/or on the dental implants^[4]. Various terms relating telescopic denture are overlay denture, tooth supported denture, hybrid prosthesis, crown and sleeve prosthesis and the superimposing denture.

Telescopic denture refers to the type of prosthesis that included double crown as retainers or attachments. These retainers consists of two crowns: primary or inner crown which is fabricated on the abutment and secondary or outer crown which is attached to the framework. Both the components are interconnected by friction due to interfacial surface tension.

The functional movement happens to dislodge the denture which is prevented by the telescopic denture by transferring the forces along the long axes of the abutment teeth providing support and protection^[5]. The objective is to distribute the stress concentration between the retained abutment and the denture supporting soft tissue consequently increasing the stability of the

abutment teeth, preventing it from migration hence enhance the functional effect of prosthetic treatment.

This clinical report describes the preventive prosthodontic management of the patient with few remaining mandibular teeth using telescopic overdenture opposing maxillary conventional complete denture.

Case Report

A 63 year old male patient reported to the department of prosthodontics and Crown & Bridge and Implantology, Subharti Dental College and Hospital, Meerut, with the complaint of food lodgement with ill fitting prosthesis (Fig.1) and poor esthetics in mandibular arch. On intraoral examination, completely edentulous maxillary arch and remaining RC treated teeth present in mandibular arch 32, 42 and 43 were found with primary coping present (Fig. 2). The patient was a maxillary complete denture wearer opposing mandibular denture. The edentulous span had favourable ridge and firmly attached keratinized mucosa with respect to both the arches.

Diagnostic impression were made using irreversible hydrocolloid impression material and the cast was evaluated for different possible treatment modalities. The various treatment options were explained and discussed with the patient. Werein the patient desired to save his remaining teeth and considering this the treatment was planned. It was adviced to rehabilitate a telescopic denture in the mandibular arch apposing current maxillary denture. After taking consent from the patient, oral prophylaxis of the abutment teeth i.e. 32, 42, 43 was performed (Fig. 2).

The impression was made with using elastomeric impression material and was poured to obtained the cast.

Border moulding was performed in the conventional manner and secondary impression was made using the medium body impression for mandibular arch (Fig.3,4). The denture was fabricated with occlusal rim and maxillomandibular jaw relation with previous maxillary denture was done, the records were transferred to semi adjustable articulator(Fig.5). Teeth arrangement followed by wax try in was done in patient’s mouth which was assessed for occlusion, phonetics and esthetics (Fig.6). The trial denture was then acrylized and a mandibular denture with secondary copings attached was obtained which was finished and polished (Fig.7 a, b.).

Finally the conventional maxillary denture and telescopic mandibular denture was inserted in patient’s mouth and post insertion instructions were given (Fig.8). Postinsertion follow up was done after a week and the patient showed up with complete satisfaction.



Fig 2: Oral prophylaxis done of abutments with primary copings.



Fig 3: Border molding done



Fig 4: Secondary wash impression of mandible



Fig 1: Ill fitting faulty prosthesis.



Fig 5: Mandibular jaw relation



Fig 6: Try in



Fig 7a: Mandibular telescopic denture with secondary copings intaglio surface



Fig 7b: Mandibular telescopic denture



Fig 8: Intra oral picture of telescopic denture

Discussion

Edentulism results in loss of proprioception, progressive irreversible alveolar bone loss, the transfer of all occlusal forces from the teeth to the oral mucosa, and esthetic impairments [6]. For this reason an approach has been espoused to retain the roots of the natural tooth beneath a complete denture. Overdenture constitute to the treatment modality which emphasize on preventive approach to preserve the remaining teeth structure and adjacent supporting tissue. The remaining teeth are modified to act as abutment under the overdenture which gives the patient satisfaction of having a prosthesis with his natural teeth still present.

The long lasting usefulness of the telescopic denture is because it delays the process of resorption, improves denture foundation, facilitates masticatory functions as well maintains the vertical dimension in occlusion. In the study by Pacer and Bowman compared occlusal forces discrimination between conventional and overdenture wearers. They found that overdenture patient possessed more typical sensory functions i.e. closer to the natural tooth than complete denture patient and aided in preservation of the ridge and improved retention and stability [7].

The advantages with telescopic denture are the axial load of the tooth and full covering of the abutment, which many reduce tilting forces with their negative influence on the supporting tissues also provide indirect splinting influence. ⁵ Retrievability is the major advantage of telescopic overdenture promoting oral hygiene and periodontal health because the abutment are more accessible for oral hygiene. The overdenture concept is designed so that if for some reason the abutment teeth is extracted the overdenture can readily be converted to a standard complete denture.

The fabrication of the telescopic denture requires careful evaluation of the inter arch space. It is essential to have sufficient space in order to accommodate the primary and secondary copings, to have a sufficient denture base thickness to avoid fracture, space for the arrangement of the teeth to fulfill the aesthetic requirements and to have an interocclusal gap [8].

Thus the successful outcome and long lasting prosthetic management of the telescopic denture completely depends on the remaining abutment. The regular assessment and monitoring of the periodontal health status of the abutment is obligatory to prolong their useful span which helps in making the telescopic overdenture therapy a continued service.

Conclusion

A tooth supported overdenture is an outstanding mode of treatment incorporating preventive prosthodontic concept to its core. The telescopic denture with enhanced retention, stability, support and psychological benefits proves to be efficient clinically.

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