



Telescopic Denture : A Case Report

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Abstract

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Introduction

Preventive prosthodontics emphasizes the importance of any procedure that can delay or eliminate future problems. Retention of teeth, roots of one or more teeth for overdenture offers the patient a lot of advantages like better retention, stability, proprioception, support, maintenance of alveolar bone and psychological aspect of retaining teeth. The use of tooth-supported overdenture is a common form of treatment.¹

Telescopic crowns were initially introduced as retainers for removable partial dentures (RPDs) at the beginning of the 20th century. They are also known as a double crown, crown and sleeve coping (CSC), or as Konuskrone, a German term that described a cone shaped design. Because of its resemblance to the collapsible optical telescope, this system of double crowns, which can be fitted into each other, became known as the telescopic overdenture².

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. It is also called as overlay denture, overlay prosthesis, and superimposed prosthesis.

The concept of telescopic crown comes from optics, because it reminds the way of the optical telescope works with movement of two parallel cylinders. Telescopic crown is a system, which consists of two elements: internal crown, called male or primary

crown or coping and external crown, called female or secondary crown or sleeve. The primary crown is cemented on the abutment and the secondary crown is attached to the removable denture and has the shape similar to natural tooth³.

The telescopic overdenture philosophy postulated a transfer of occlusal forces to the alveolar bone through the periodontal ligament of the abutment teeth or the retained roots. A proprioceptive feedback from the periodontal ligament prevents the occlusal overload and it consequently avoids the residual ridge resorption which is adjacent to the roots and the rest of the ridge, due to excessive forces⁴. They also provide improved functions as compared to the conventional dentures, such as an improved biting force, chewing efficiency and even phonetics. The impairment of these functional parameters which are created by edentulism, reflects the significant role of the periodontal receptors for a sensory feedback and a discriminatory ability from the retained roots. Tooth loss results in loss of the proprioception mechanism that has been a part of the sensory programme throughout life¹

Case Report:

A 47 year old female patient reported to the department of Prosthodontics, Crown & Bridge and Oral Implantology with the chief complaint of difficulty in chewing due to missing teeth and desire to improve esthetics.

Intraoral examination –

1. teeth present were 11,12,21,22,23,24. (fig.1)

Fig.1 preoperative maxillary arch



Diagnostic impression were made , diagnostic jaw relation were recorded and OPG was assessed. Based on the evaluation all treatment options were presented and discussed with the patient, which included total extraction and conventional denture or telescopic denture for maxillary arch and conventional denture for mandibular arch or implant supported prosthesis. After considering the beneficial aspect of telescopic denture over conventional denture, financial aspects and amount of time, the patient elected to have telescopic maxillary over denture and conventional mandibular complete denture.

After taking consent from the patient, oral prophylaxis, root planning and endodontic treatment of abutment teeth were carried out, emphasizing oral hygiene instructions and maintenance.

Procedure:

1. After assessing endodontic therapy, tooth preparation was done for primary copings with 11,12,13,21,22,23,24, a chamfer finish line and parallel walls were prepared. Gingival retraction was carried out followed by impression with additional silicon putty and light body wash. (putty reline technique).(fig.3&4)
2. The impression was poured to obtain the cast, on which the wax pattern for primary copings were

2. The teeth were firm with caries with all remaining teeth.
3. Atropic mandibular ridge.(fig.2)

Fig.2 preoperative mandibular arch



- made & parallelism assessed with surveyor and copings were fabricated & again & parallelism rechecked with surveyor (Fig 5).
3. The fit of the primary coping was evaluated in the patient's mouth, after which they were cemented on the abutments with glass ionomer cement (Fig 6).
 4. Final Impression for maxillary arch made with addition silicon and mandibular final impression was made with all green technique and master cast was poured.
 5. facebow transfer was done and jaw relation was recorded.
 6. Frame work was fabricated for maxillary telescopic denture. (Fig.7) Trial was done intraorally.
 7. ceramic layering of secondary copings were done & teeth arrangement was done with maxiilary posterior and mandibular arch.
 8. Tryin was done.
 9. final prosthesis was fabricated(Fig 9). and delivered after evaluation of esthetics , phonetics , occlusion and retention.(fig.10 & 12)
 10. Post insertion instructions were given. During the following recall visit the patient reported with satisfactory fit and ease of use of the dentures.

Fig . 3 Tooth preparation



Fig . 4 Impression

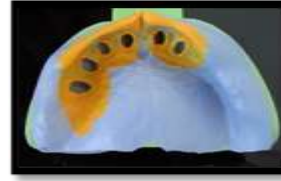


Fig . 5 Surveying



Fig . 6 Cementation of copings



Fig . 7 framework for telescopic denture



Fig.8 ceramic layering of secondary copings were done & teeth arrangement



Fig.9 processed denture



Fig.10 Denture insertion



Fig.11 preop view



Fig.12 postop view



Discussion:

It is a documented fact that after the loss of the teeth the residual alveolar ridge undergoes rapid loss in all dimensions. The phenomenon of residual ridge resorption (RRR) following removal of teeth been well observed and documented in literature. 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 implants³.

Over denture therapy constitutes essentially a preventive prosthodontics concept as it endeavors to preserve the few remaining teeth and the supporting structures. The telescopic overlay denture system used in This case revealed a long lasting usefulness in the prosthetic treatment of the patient with reduced dentition. Similar clinical observations were also described in reports made by other authors³.

There are many advantages of telescopic crowns like axial load of the tooth and full covering of the abutment (on the contrary to clasps), which may reduce tilting forces with their negative influence on abutment supporting tissues. The axial forces stimulate periodontal tissues and alveolar bone. They also provide indirect splinting influence, easy oral hygiene maintenance and easy ways of repair³.

Careful assessment of the interarch space is very important for the successful fabrication of the telescopic dentures. Sufficient space must be present to accommodate the primary and secondary copings. The space consideration usually requires the devitalization of the abutments⁹. The selected abutments should be periodontally sound with adequate bone support and no/ minimal mobility. There should be at least one healthy abutment in each quadrant. An even distribution of the abutment in each quadrant of the arch is preferable for better stress distribution and for increased retention and stability of the prosthesis¹.

As the status of telescopic overdenture prosthesis and its benefits to the patient depend solely on the continued retention of the underlying abutments, it is necessary to periodically monitor their health through recall and review appointments and institute necessary steps to prolong their useful span which helps in making the telescopic over denture therapy a continued service⁶.

Conclusion:

Although there are increased costs and appointments associated with this technique, telescopic overdentures are a superior health service compared to the conventional complete denture. Tooth supported removable overdentures with telescopic crowns provide better retention, stability, support,

stable occlusion and proprioception which increases chewing efficiency and phonetics. It also decreases the rate of residual ridge resorption due to conversion of compressive forces into tensile and better stress distribution. Even with the increased use of implants for overdenture therapy, tooth/root supported telescopic overdenture still remains an excellent treatment modality.

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