



## Management of Tilted Molar Abutment by Telescopic Crown: A Case Report

### KEYWORDS

Fixed dental prosthesis; telescopic crown; tilted tooth

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### ABSTRACT

The presence of tilted teeth causes functional and esthetic problems. Management of tilted teeth can be done either orthodontically or by prosthetic means. This case report describes fixed partial denture rehabilitation using telescopic crown for a tilted mandibular third molar.

### Introduction

Tilted teeth are the angulated teeth which are out of ideal centric contact and deviated from the normal long axis. Teeth can be tilted in mesial, distal, buccal or lingual directions depending upon the cause for the same. The most common reason for tilted teeth is the adjacent and opposing edentulous space which make the tooth to migrate.<sup>[1]</sup> Such teeth cause food impaction, dental caries, periodontal and occlusion problems which creates unstable occlusion and improper maintenance of oral hygiene.<sup>[2,3]</sup> Therefore, it is advisable to initiate treatment as soon as possible to restore arch integrity and a stable occlusion. Tilted tooth can be managed by simple recontouring, orthodontic uprighting, three-quarter crowns or telescopic crown.<sup>[4,5]</sup>

Telescopic crowns are also known as a double crown, crown and sleeve coping (CSC), or as Konuskroner, a German term that described a cone shaped design.<sup>[6]</sup> A telescopic crown is defined as an artificial crown fabricated to fit over a coping.<sup>[7]</sup> Each primary coping is usually fabricated parallel to the adjacent copings with an average wall taper of 6-degree angle of convergence. The copings are cemented to abutment teeth and then a fixed prosthesis as a secondary structure is fabricated and cemented over the copings.<sup>[8]</sup> This clinical report describes the use of a telescopic fixed dental prosthesis over a metallic primary coping on a tilted third molar abutment to restore a missing mandibular second molar.

### Clinical Report

A 50 year old male patient reported with the chief complaint of replacement of a missing lower left back tooth as he had difficulty in eating food. An intraoral examination revealed a missing mandibular left second molar. The mandibular left third mandibular molar was mesially tilted. After a thorough clinical, radiographic and model analysis and discussion, it was planned to rehabilitate the missing mandibular left second molar with a telescopic crown retained fixed partial denture.

Diagnostic impressions were made with irreversible hydrocolloid (Marieflex, Septodont Healthcare India Pvt. Ltd.). Interocclusal record was registered with wax wafer. Study casts were prepared and mounted on a semi-adjustable articulator (JP 30 Articulator, Gnatus, Brazil). A diagnostic preparation was done on the study cast. Occlusion was evaluated with a diagnostic wax-up on the articulator. An index of the waxed up tooth was made using addition silicone putty material (Express™ XT Putty Soft, 3M ESPE, Germany). Conventional full crown tooth preparation was done on mandibular left third molar with a chamfer finish line. Gingival retraction was done and impression was made using addition silicone putty wash

technique. (Fig 1)



**Figure 1. Preparation for telescopic crown on mandibular molar.**

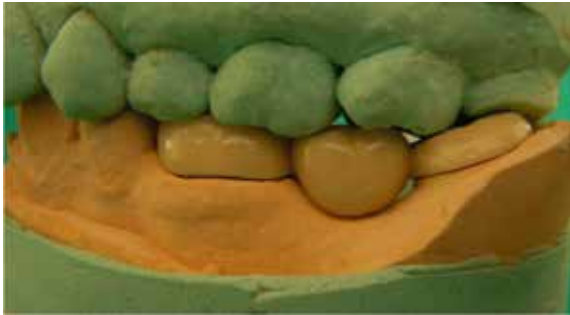
A provisional crown was fabricated using the waxed up index. The primary metal coping was fabricated with extensions till the finish line. The coping was evaluated for fit and margins on the prepared tooth. It was then sandblasted and luted to the prepared tooth using Type I glass ionomer cement (GC Gold Label 1, GC Fuji). (Fig 2)



**Figure 2. Primary metal coping on prepared tilted mandibular molar.**

Conventional metal-ceramic crown tooth preparation was done on mandibular left first molar with a shoulder finish line. Gingival retraction was done and an over impression was made with single step addition silicone putty wash over

the prepared tooth and the primary coping. Interocclusal record was registered with a wax wafer. A provisional crown was fabricated using the waxed up index with self cure tooth colored acrylic resin. This model was used for the fabrication of superstructure which was a full veneer metal-ceramic fixed partial denture. (Fig 3)



**Figure 3. Fixed Dental Prosthesis in situ.**

Superstructure was seated over the metallic coping and restored the form and function of tilted molar abutment. When completing the restoration, the understructure was cemented on the teeth. The overstructure was cemented on the primary metallic coping and the final occlusion and proximal contacts were evaluated.

#### Discussion

It is mandatory to restore the missing teeth with a removable or fixed partial prosthesis. But the treatment gets complicated when teeth that have to serve as abutments are tilted. The problem of achieving a common path of insertion for a fixed partial denture when a tilted posterior abutment is involved, can usually be solved by well planned tooth preparation in conjunction at times with intentional endodontic therapy. When tooth preparation alone cannot solve the problem, the mechanical solutions of the locked attachment and the telescopic retainer are available.

Weaver<sup>[9,10]</sup> outlined a series of advantages and disadvantages of telescopic prostheses. The primary advantages include aligning abutments for the fabrication of a fixed partial denture without over-reducing tooth structure. Excellent fit of copings to the prepared teeth may reduce the possibility

of recurrent caries on the abutment teeth when a long-span fixed partial denture is fabricated, or when abutment teeth have different degrees of mobility. An additional benefit of telescopic prostheses is the retrievability of superstructure, which is usually placed on the copings. This feature may allow removal of the superstructure when there is a need for additional periodontal or endodontic therapy, extraction of failed abutments.

Telescopic copings present some disadvantages that limit their uses to specific clinical situations. The fabrication of copings and superstructure involves an increased number of complex laboratory and clinical procedures, such as additional casting and clinical remounting. Laboratory costs and treatment fees are generally increased. The use of the conventional telescopic prosthesis may not be recommended when there is a high esthetic demand. It may be difficult to place both the metallic collar of the coping and the metal margin of the superstructure subgingivally if a patient presents with high lip line at smile and with thin, delicate gingival tissue around anterior abutment teeth. This gingival tissue biotype is more prone to recession, possibly caused by prosthodontic procedures such as tooth preparation and impression making.<sup>[10]</sup>

The mesial marginal ridge of mesially tilted third molar would have obstructed the insertion of fixed partial denture. Attaining a common path of insertion was overcome with the telescopic retainer because of its retentive, stabilizing properties. Telescopic crowns, as a double-crown prosthodontic system allow cross-stenting of the dental arch thereby facilitating tooth stabilization over the long term. The double-crown concept and the intrinsic design involved ensure maximally favourable masticatory force transmission, since the latter always takes place axial to the teeth.<sup>[11,12]</sup>

#### Conclusion

The management of tilted teeth can successfully be made with the fabrication of a telescopic coping. The treatment planning options depends upon each unique situation presented. The prosthodontic rehabilitation consumes less time compared to orthodontic management. The function, periodontal health and esthetics of a missing tooth was restored adequately in this case by a three- unit fixed partial denture over a telescopic coping on a mesially tilted third molar abutment.

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