

Rehabilitation of missing teeth with severely tilted abutment tooth using telescopic bridge: A case report

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Abstract

Background: Prolonged missing teeth can cause the adjacent and or antagonist teeth to migrate towards the edentulous area which then complicate the rehabilitation process. From the patient perspective, it can also affect the functional and aesthetic aspect of their life. Hence, tooth loss whether in small or big number has to be replaced. Telescopic bridge defined as an artificial crown constructed to fit over a coping. It consists of inner and outer coping where the outer coping is cemented over the inner coping.

Objective: To rehabilitate posterior missing teeth with severely tilted abutment tooth by fabrication of telescopic bridge.

Case Report: A 55-year-old male patient came to prosthodontics specialty clinic at Universitas Airlangga Dental hospital on his volition with a chief complaint of replacement of missing one posterior tooth on both side of lower jaw as he has difficulty in chewing food and recurrence of food entrapment on the missing teeth area. The patient reported to have had missed his lower teeth since 5 years ago. The treatment chosen for this case was telescopic bridge fabrication. This treatment was conducted in order to correct the path of insertion of the prosthesis whilst give a satisfactory aesthetic and functional result.

Conclusion: Telescopic bridge can restore aesthetic and functional aspect of missing teeth with a severely tilted abutment tooth.

Keywords: Telescopic bridge; Double crown; Primary and secondary coping; Bridge; Aesthetic; Medicine

1. Introduction

Tooth loss whether in a small or big number can hinder patient's daily activities whether it is in aesthetic or functional aspect. Loss of posterior teeth can also result in curvature of the jaw disharmony as it may cause the surrounding teeth to migrate towards the edentulous area (1). This condition can become a challenge for the practitioner to rehabilitate, as the space for the tooth need to be replaced is narrower. Thus, tooth loss has to be replaced with denture whether it is in fixed or removable form. In a case with limited edentulous space, several treatments namely diagnostic wax up, orthodontic repositioning, or small pontics can be a solution though small pontics area is tend to be unaesthetic and lead to food entrapment as well as difficult to clean (2).

The glossary of Prosthodontic Terms defines telescopic crown as an artificial crown constructed to fit over a coping (framework). The coping can be another crown, a bar, or any other suitable rigid support for the dental prosthesis" (3).

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In general, it consists of inner and outer coping. Inner coping are cemented to abutment teeth and then a fixed prosthesis as a secondary structure is cemented over the coping (4). The primary indications of a fixed telescopic dental prosthesis are the periodontally compromised abutment teeth that need splinting and cross arch stabilization (3).

A few advantages that this technique offers are minimization of destructive horizontal torque and enhancement of vertical long axis forces, achievement of parallelism of abutments using primary copings for common path of insertion, cross arch stabilization and retrievability due to the use of provisional cement (3). On the other hand, this technique present some disadvantages that limit their uses, for instance in some case intentional endodontic treatment may be suggested and slight over tooth preparation especially on the mesial aspect of the tilted molar. This technique also involves a very complex laboratory and clinical procedures, which leads to additional costs and chair side appointments (4).

2. Case report

A 55-year-old male patient came to prosthodontics specialty clinic at Universitas Airlangga Dental hospital on his volition with a chief complaint of replacement of missing one posterior tooth on both side of lower jaw as he has difficulty in chewing food and recurrence of food entrapment on the missing teeth area. The patient presented no significant medical history or adverse habits. The patient reported to have had missed his teeth since 5 years ago and have already used a metal frame partial denture on the upper jaw since less than a year ago. An intraoral examination revealed a missing mandibular first molar on the left and right side of the lower jaw with a severely tilted second molar to the mesial. An extensive caries area was also found on tooth number 37, 35, and 47. An extraoral examination showed a sound temporomandibular joint (TMJ); the face was oval in shape; eyes, nose and lips were symmetrical. From the radiographic evaluation, taken approximately 1 year ago, there is a noticeable horizontal bone loss in almost every region, especially in the anterior lower jaw region. However, no mobility was found other than tooth number 32, 31, 41. After a thorough intraoral, extraoral and radiographic examination, it was decided to rehabilitate the missing teeth by telescopic bridge fabrication with metal as the inner coping material and porcelain fused to metal as the outer coping material.



Figure 1 Extraoral Examination



Figure 2 Panoramic Radiograph Examination



Figure 3 Intraoral Examination, view from the right side (A), left side (B), labial (C), occlusal maxilla (D), and occlusal mandible (E)



Figure 4 Patient with the old denture on the upper jaw, from the right side (A), labial (B), left side (C), occlusal maxilla (D)

3. Case management

Preliminary impression of maxilla and mandible were taken using irreversible hydrocolloid on the first visit to make a diagnostic cast and to make a putty index for temporary bridge. Then, preliminary casts were made by pouring type III dental stone into the preliminary impression. Following that, diagnosis, survey, and block out were conducted to finalize the treatment plan.

On the second visit, final treatment plan was discussed with the patient. The patient was advised to do a scaling and root planning as well as endodontic treatment on tooth number 37, 35, and 47 prior to the telescopic bridge fabrication. After the patient consent with the treatment plan proposed, scaling and root planning was performed as the preliminary treatment while endodontic treatment was done on the next visit.

After all of the preliminary treatments were done, Abutment preparation was carried out on the next visit. Abutment preparation was done on region 4 first as to maintain vertical dimension of occlusion. Preparation on tooth number 45

and 47 were done simultaneously with a chamfer finish line. Shade guide taking was done beforehand to prevent tooth dehydration. After abutment preparation was done, gingival retraction using Ultrapack® retraction thread size 000 (Ultradent, South Jordan, Utah) was carried out followed by functional impressions on mandible using one-step technique with polyvynilsiloxane putty and light body elastomer (3M Espe, Minnesota, United States). Bite registration was also recorded using polyvynilsiloxane medium body O-bite (DMG, Hamburg, Germany). After make sure that every anatomical landmarks have recorded precisely, provisional bridge was then placed with putty index as the guide and Luxatemp fluorescence (DMG, Hamburg, Germany) as the material. The final impression was sent to the dental laboratory for inner and outer coping fabrication.



Figure 5 Abutment preparation

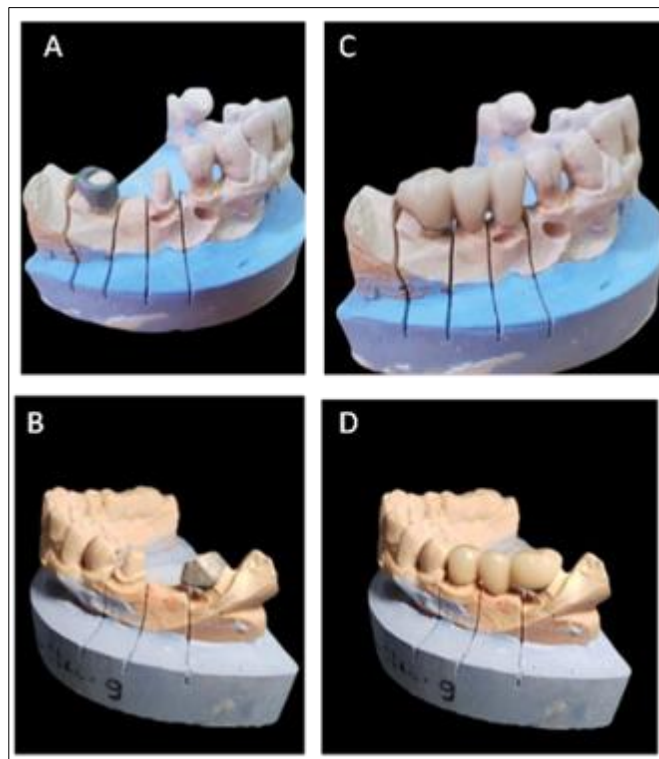


Figure 6 Final prosthesis, inner coping structure on right side (A), left side (B) and secondary structure on right side (C) left side (D)

Following inner and outer coping fabrication, try-in inner and outer coping was conducted to check the fitting, path of insertion, and to make sure the color matched patient desired. After the patient consent with the telescopic bridge fabricated, it was then cemented using Type I glass ionomer cement (GC Gold Label 1, GC Fuji). The inner and outer copings were cemented simultaneously to prevent any distress on path of insertion. Following insertion, marginal fit was checked, excess cement was cleaned, and proximal contacts as well as final occlusion were evaluated using

articulating paper. Occlusal adjustment was done on the occlusal surface of 47. After treatment on the region 4 was done, telescopic bridge on the region 3 was fabricated soon after in the same manner.

The patient was given specific instruction on how to clean the bridge area especially around the pontic using dental floss and to consume soft food diet for the first 3 days until the next visit. 72 hours post insertion, the patient was recalled to checked for any ulcer or redness around the bridge area. The patient was also asked whether he has any kind of complaint and reported to not have any. Patient was recalled 1 week after all treatment was done for further evaluation and no irregularities were found. Regular check up every 6 months was suggested.



Figure 7 Intraoral Condition after Telescopic bridge insertion , view from the right side (A), labial (B), left side (C), and Occlusal mandible (D).

4. Result and discussion

Tilted tooth are a condition where the teeth is out of ideal centric contact and deviated from the normal long axis. It can be tilted in mesial, distal, buccal or lingual directions depending upon the cause for the same. The most common reason for tilted tooth is missing adjacent or opposing tooth, which make the tooth migrate towards those area. Missing tooth can also complicates the oro-facial dynamics leading to various compensatory mechanisms that lead to enigmatic circumstances for prosthetic rehabilitation, especially when done after a prolonged delay. Therefore, it is advisable to initiate treatment as soon as possible to restore arch integrity and stable occlusion. Various strategies have been suggested in the literature on how to deal with such situation, for instance orthodontic up-righting of the tipped abutment, mesial-half crown retainers, non rigid connector systems, and telescopic crown (5,6).

Telescopic crowns are also known as double crown, crown, and sleeve coping (CSC) is defined as an artificial crown fabricated to fix over a coping. Each primary coping is usually fabricated parallel to the adjacent copings. The copings area cemented to abutment teeth and then a fixed prosthesis as a secondary structure is fabricated and cemented over the copings (4).

In the case presented in this article, first molar on both side of the mandible were missing while the second molar as the A B C D 6 abutment were severely tilted caused by allegedly prolonged missing first molar. Patient objects to any kind of orthodontic treatment but still want an acceptable aesthetic, thus smaller pontic as a treatment plan was exclude and telescopic crown as a treatment was chosen.

This techniques has several advantages including minimization of destructive horizontal torque and enhancement of vertical long axis forces, achievement of parallelism of abutments using primary copings for common path of insertion, and cross arch stabilization (3). While offering several advantages, telescopic crown present some disadvantages including intentional root canal therapy and slight over tooth preparation especially on the mesial aspect of the tilted molar. The fabrication of copings and superstructure also requires meticulous laboratory and clinical procedures, thus laboratory costs and treatment fees are generally increased. This technique may also not recommend for aesthetically demanding area as metallic component might shows especially with patient presents a high smile line or thin, delicate gingival tissue around the abutment teeth (4).

5. Conclusion

Telescopic bridge is a treatment choice that can be indicated where severely tilted abutment tooth were found. This technique can emend the path of insertion whilst give a satisfactory functional and aesthetic result.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in this study.

References

- [1] Arifin R, Pertiwi F. Rehabilitation of Mastication and Lack of Space Treatment in Narrow Edentulous with Fixedfixed Bridge (Case Report). *Dentino Jurnal Kedokteran Gigi*. 2021; 6(2):183-9.
- [2] Nagib MA, Abhinav A, Naeem A, Abhishek G, Kaushik P, Mariyam A. All About Dental Pontics: Bridging the Gap-a Review. *Journal of Science*. 2017; 7(8):294-8.
- [3] Zoidis P, Panagiota S, Poyzois G. A Fixed Telescopic Prosthesis Designed to Retrieve and Convert to FixedRemovable Combination Case: A Clinical Report. *Acta Stomatologica Croatia*. 2015; 49(2):145-50.
- [4] Kalpana D, Pathivenkatesh, Bhat P, Naila P. Telescopic Bridge Revisited: Apt Solution for Tilted Molar Teeth-A Case Report. *International Jpurnal of Scientific Research*. 2018; 7(5):77-8.
- [5] Yadav K, Rathee M. Management of Tilted Molar Abutment by Telescopic Crown: A Case Report. *Ind J App Res*. 2014; 4(5): 490-1.
- [6] Mukhopadhyay P, Khalikar A, Wankhade S, Deogade S. Managing Tilted Molar Abutment Using a Digitally Fabricated Split-Pontic Fixed Dental Prosthesis-A Case Report. *Open Journal of Stomatology*. 2021; 11(8):311-6