

CASE REPORT

A simple approach to overdentures: A case report

Abhay Sharma¹, Neha Sharma², Atul Sankhyan³

¹M.D.S. Prosthodontics, Department of Dental Health Services, H. P. Government, Himachal Pradesh, India

²B.D.S, Bhojia Dental College and Hospital, Baddi, Nalagarh, Himachal Pradesh, India

³M.D.S Junior Resident 3rd Department of Public Health Dentistry, Swami Devi Dyal Hospital and Dental college, Bharwala, Haryana

ABSTRACT:

In this article, a simple and inexpensive method for fabrication of overdenture using cast metal copings. Excellent results were obtained using this technique taking into account patients esthetics, comfort and satisfaction. The prosthesis definitely increased patient's self- confidence by enhancing retention and esthetics. In patients of young age and poor economic factors, overdenture with cast copings provides a conservative, esthetic, inexpensive and a simple method of rehabilitation.

Key words: Overdenture

Received: 12 June, 2020

Accepted: 1 July, 2020

Corresponding author: Dr. Abhay Sharma, M.D.S. Prosthodontics, Department of Dental Health Services, H. P. Government, Himachal Pradesh, India

This article may be cited as: Sharma A, Sharma N, Sankhyan A. A simple approach to overdentures: A case report. Int J Res Health Allied Sci 2020; 6(4):56-58.

INTRODUCTION

An overdenture is a removable prosthesis either complete or partial, whose denture base covers one or more natural teeth or tooth roots.¹ Overdentures embodies a preventive prosthodontic concept by conserving the few remaining teeth. The two main physiologic tenants of this therapy are, the continued preservation of alveolar bone and the continued presence of periodontal sensory mechanism that acts as a guide to monitor gnathodynamic functions.^{2,3,4} Overdentures also have a longer life expectancy since the root presence decreases the time and stress related resorption. Modern Endodontic and periodontics treatment makes it possible to preserve the tooth structure affected by caries or periodontal disease.⁵ The current case report is of fabrication of a overdenture with cast copings to restore esthetics, retention and support in a partially edentulous young male patient.

CASE REPORT

A 22-year-old young male patient reported to the Department of Prosthodontics, H.P. Government Dental College and Hospital, Shimla with a chief complaint of missing teeth and wanted to get them replaced with artificial fixed teeth. No relevant medical history, patient had a history of extraction over a period of years

due to caries and limited treatment options. Upon careful examination, it was revealed that the patient was partially edentulous with only five remaining teeth, two in the maxillary arch and three in the mandibular arch. The interarch space, status of remaining teeth was checked properly and an overdenture with cast metal coping with post was suggested as a treatment option taking into consideration the cost and retention factors.



Figure 1

PROCEDURE

1. A detailed examination was completed. Two teeth with favourable crown root ratio were selected as

abutments on opposite sides of maxillary and mandibular arch.¹⁵ To preserve remaining teeth intentional root canal treatment was done on the opposing canines of maxillary and mandibular arch respectively.

2. The diagnostic impression were made using irreversible hydrocolloid impression material (Alginate) and cast poured in type III dental stone to preserve detail and anatomy



Figure 2



Figure 3

3. Post space preparation done with anti-rotation groove and margin preparation was done in the same appointment keeping chamfer margins and indirect impression made using addition silicone (affinis coltene) to preserve tooth structure and a cast metal coping with a post extending upto two thirds of root length and was fabricated.¹ Cast coping with post was cemented using glass ionomer cement (type-I) taking into consideration the caries index.



Figure 4

4. Impression made with irreversible hydrocolloid material and special tray fabricated on the cast blocking the undercuts and placing double spacers on the abutments.

5. The maxillary and mandibular special trays are border molded conventionally and impression made with medium body addition silicone (Affinis-Coltene).

6. A pick-up impression was made using irreversible hydrocolloid impression material (Alginate).

Impressions were evaluated for accuracy and master cast was poured with type-III dental stone.



Figure 5



Figure 6



Figure 7



Figure 8

7. The wax record rims were then constructed and assessed for extension, comfort and stability. Jaw relation was carried out conventionally to record vertical and centric relation and the cast was articulated on mean value articulator.

8. Teeth arrangement was done. Trimming of the artificial teeth over abutments has to be done to accommodate it on the narrow space. After satisfactory wax try-in the dentures were processed and finished in a routine manner.



Figure 9

9. Dentures were polished and finally inspected before insertion.



Figure 10

Patient was issued instructions on care of denture and abutment teeth before dismissal. Follow-up was done after 24 hours, 1 week, 1 month and 1 year with no issues.

DISCUSSION

The natural tooth loss is a major and irreversible loss for the patient. The extent of anxiety, with which people face the prospect of losing all their teeth and having to rely on complete denture is unlimited.⁹ Irrevocable tooth loss can be a serious for a patient's morale as it signals, perhaps, that a major milestone in life has been reached and that all that senile decay.^{10,11} The earliest reference to the use of roots for providing support was by Prothero¹² in 1916, he stated, "Oftentimes two or three widely separated roots or teeth can be utilized for supporting a denture".¹³ The overdenture offers many advantages not obtained with the conventional mandibular complete denture. The most important benefits are the preservation of the remaining alveolar supporting bone and increased stability and retention of the denture.¹⁴ The patient also enjoys a degree of proprioceptive guidance with resultant psychological advantages.⁴ This case involves the preservation of two canines and three molar. The canines were retained in tooth-supported overdenture because the canines are usually amenable to endodontic treatment, have strong roots and are strategically located at the corner of the arch.^{15,16} Retaining of mandibular canines also has the main concern for alveolar bone preservation particularly in mandibular anterior segment. Reducing the canine

abutments to a dome shape about 3 mm above the free gingival margin providing a point of contact between base of denture and abutment allow free movement of mandibular denture thus reducing the damaging effect of horizontal forces.¹⁶

CONCLUSION

Retention of a few teeth allows the stresses of occlusion to be transmitted partially to the alveolar bone thus reducing the abuse on the alveolar process and the mucoperiosteum while the dentures are in use. By reducing the trauma to the mucosal tissues, it is reasonable to expect that resorption of the alveolar process will be lessened. Preservation of the remaining tissues in optimum health and providing the patient a comfortable and esthetic option is almost the goal of every dentist. Proper case selection, with good clinical skill, accurate technical procedures and patient motivation can assure a successful outcome to the overdenture therapy.

REFERENCES

1. Henking JP. Overdentures. *J Dent* 1982; 10:217.
2. Prince IB. Conservation of the supporting mechanism. *J Prosthet Dent* 1960; 10:724.
3. Yalisove IL. Crown and sleeve-coping for Removable partial dentures. *J Prosthet Dent* 1966; 16:1069.
4. Dhir RC. Clinical assessment of the overdenture therapy. *Journal of Indian Prosthodontic society*. 2015; vol 5: issue 4:187-192.
5. Langer Y and Anselm Langer A. Root retained overdentures- Biomechanical and clinical aspects. *J.Prosthet.Dent*. 1991; 66: 784-789.
6. Miller PA. Complete dentures supported by natural teeth. *J Prosthet Dent* 8:924-928, 1959.
7. Morrow RM. et al. Tooth-supported complete dentures: An approach to preventive prosthodontics. *J Prosthet Dent* 21:513-522, 1969.
8. Dodge C. Prevention of complete denture problems by use of overdentures. *J Prosthet Dent* 30:403-411, 1973.
9. Todd JE, Lader D. *Adult Dental Health 1988*: United, Kingdom. Social Survey Report SS1260. HMSO, London, 1991.
10. Basker RM, Davenport JC, Tomlin HR. *Prosthetic treatment of the dentulous patient*. 4th ed. Blackwell Co; 2002. p. 32-53.
11. Schwartz IS, Morrow RM. Overdentures. Principles and procedures. *Dent Clin North Am* 1996; 40:169-94.
12. Prothero, J. H.: *Prosthetic Dentistry*, ed. 2, Chicago, 1916, Medico-Dental Publishing Company, p. 519.
13. Phillip V. Reitz PV, Weiner MC, Levin B. An overdenture survey: Preliminary report. *J. Prosthet. Dent*. March 1977, Volume 37, Number 3, Pg- 246-258.
14. Journal: H.H Thayer, A.A Caputo. Occlusal force transmission by overdenture attachments. *Journal of Prosthet Dent* 1979; 41; 266-271.
15. Renner RP. The overdenture concept. *Dent Clin North Am* 1990; 34:593-606.
16. Langer Y, Langer A. Root-retained overdentures: Part II Managing trauma between edentulous ridges and opposing dentition. *J Prosthet Dent* 1992; 67:77-81.