

CASE REPORT

Wire technique and Mc -Cords Technique for fabrication of complete denture for severely resorbed ridges: A case report

Shabeena Mustafa¹, Narendra Kumar², Rajiv Kr. Gupta³

¹PG student, ²Professor & Head, ³Professor, Department of Prosthodontics and Crown And Bridge, Institute of Dental studies and Technology, Modinagar, U.P., India

ABSTRACT:

The management of highly resorbed ridge has always posed a challenge to the prosthodontist for years. Obtaining consistent mandibular denture stability has long been a challenge for dental profession. In the present report, we presented the case of fabrication of complete denture for severely resorbed ridges in a 62-year old male using Wire technique and Mc -Cords Technique.

Key words: Mc-cords technique, Resorbed ridge, Wire technique

Received: 20 June, 2019

Revised: 30 June, 2019

Accepted: 2 July, 2019

Corresponding author: Dr. Shabeena Mustafa, PG student, Department of Prosthodontics and Crown And Bridge, Institute of Dental studies and Technology, Modinagar, U.P., India

This article may be cited as: Mustafa S, Kumar N, Gupta RK. Wire technique and Mc -Cords Technique for fabrication of complete denture for severely resorbed ridges: A case report. Int J Res Health Allied Sci 2019; 5(3):42-44.

INTRODUCTION

Essential aim of complete denture therapy for patients with severely reduced residual alveolar ridges includes the placement of functional and aesthetics dentition substitutes and replacement or associated dental supporting structures. In so doing the prostheses often occupy a substantial volume within the edentulous oral cavity. So proper relation of artificial teeth to the basal seat and surrounding tissue, is of great importance. The stability of complete denture is influenced by the surrounding neuromuscular system in the oral cavity.¹⁻³ The management of highly resorbed ridge has always been a challenge to the prosthodontists. The alveolar bone resorption under complete lower denture is known to both, the clinician as well as complete denture user.^{4,5} It is also accepted that the rate of resorption varies from person to person this is because the rate of resorption is fast in the mandible than in the maxilla.⁶ Hence; in the present report, we presented the case of fabrication of complete denture for severely resorbed ridges using Wire technique and Mc -Cords Technique.

CASE REPORT

A 62 year old male patient reported to the department of prosthodontics of the dental institute with complete

edentulous upper and lower arches. The lower edentulous arch was severely atrophied on examination (**Figure 1**). Impression for both upper and lower arch was made with impression materials and primary casts were prepared (**Figure 2**). For recording final impression of the atrophied mandibular ridge, Wire technique was used. For maxillary resorbed ridge, Mc -Cords Technique was used (**Figure 3, Figure 4**). Secondary impression was made and secondary cast was made (**Figure 5, Figure 6**). Face-bow relation was recorded and was transferred to the articulator (**Figure 7, Figure 8**). Try-in was done and the teeth positioned were checked for their position in neutral zone. Teeth were set in balanced occlusion. Denture was processed and final denture insertion was done (**Figure 9**).

DISCUSSION

Certain biologic and mechanical properties provide Retention, support and stability to dentures. Retention provides psychological comfort, stability provide physiologic comfort and support provides longevity to the patient, these factors needs to be summated for a successful prosthesis. According to GPT-9 stability in complete denture is defined as "the resistance of a denture to movement on its tissue foundation, especially to lateral

(horizontal) forces as opposed to vertical displacement”. One of the other definitions which is also accepted was given by Krol and Jacobson which states it as “the resistance to horizontal and rotational forces. Stability prevents lateral or anteroposterior shunting of the denture base”. Denture instability adversely affects support and retention and results in deleterious forces on the edentulous ridges during function.⁷⁻⁹



Figure 1: Severely resorbed arch



Figure 2: Primary cast



Figure 3: Wire technique and Mc -Cords Technique



Figure 4: Intraoral placement



Figure 5: Secondary impressions



Figure 6: Secondary cast



Figure 7: Jaw relation



Figure 8: Transfer of jaw relation to articulator



Figure 9: Post-insertion view

A number of clinicians recommend weighted mandibular dentures for severely resorbed lower ridges. A.H.Grunewal (1964) recommended that gold base being heavy, helps in, retention of lower denture and has closest adaptation to the underlying tissues. J.L.Wormley et.al. (1974) also described the advantages of weighted dentures apart from offering the advantages of a cast metal base along with the ease of adjustment and relining. However, studies have shown that weight may not contribute to the retention and stability of a lower denture.¹⁰⁻¹²

A 62 year old male patient reported to the department of prosthodontics of the dental institute with complete edentulous upper and lower arches. The lower edentulous arch was severely atrophied on examination. Impression for both upper and lower arch was made with impression materials and primary casts were prepared. For recording final impression of the atrophied mandibular ridge, Wire technique was used. For maxillary resorbed ridge, Mc - Cords Technique was used. Denture was processed and final denture insertion was done. Rao BI et al described a case report of an edentulous patient with resorbed ridges where a simplified technique of fabricating a hollow mandibular complete denture using wax was used for preservation of denture bearing areas. The hollowing of the denture reduces the weight of the denture, thereby enhancing stability and retention, reducing the further resorption of the jaws.¹²

Kinra MS et al described the making of a functional primary impression for severely resorbed mandibular ridge type IV. In this technique metal wire of 1.5 mm diameter was adapted on the ridge of a mandibular arch from one retromolar pad to another retromolar pad. On the metal wire silicone putty was adapted and phonetics was used for making an initial primary functional impression. The prepared initial primary functional impression was under extended. Thus correction was done by adding putty addition silicone impression material. Later wash impression was made using addition silicone light-bodied impression material. The prepared impression was accurate in term of reproduction of details, and in term of extensions it was a functional impression. An impression was not deformed by the

manipulations done by the dentist or by using oversized or undersized stock trays.¹³

With advent in dental material science and innovation of newer techniques in prosthodontics, it has been made possible to successfully satisfy the esthetic and functional demands of the patients with severe residual ridge resorption. So, efforts has been taken to prevent further damage to patient's already vulnerable residual ridge condition.¹²

CONCLUSION

From the above case report, it can be concluded that is an effective alternate impression technique. It can be used for making functional impression for excessively resorbed edentulous ridges. The prepared impression meets all the objectives and principles of impression making.

REFERENCES

1. Mensor NC., Jr Attachment fixation for overdentures, Part I. *J Prosthet Dent.* 1977;37:366–373.
2. Moghadam BK, Scandrett FR. Magnetic retention for overdentures. *J Prosthet Dent.* 1979;41:26–29. doi: 10.1016/0022-3913(79)90351-2.
3. Becker J. Permanent magnets. *J Appl Phys.* 1970;233:92–100.
4. Sagawa M, Fujimura S, Yamamoto H, Matsuura Y, Hiraga K. Permanent magnet materials based on the rare earth-iron-boron tetragonal compounds. *IEEE Trans Magn.* 1984;20:1584–1589.
5. Croat JJ, Herbst JF, Lee RW, Pinkerton FE. Pr-Fe and Nd-Fe-based materials: a new class of high-performance permanent magnets. *J Appl Phys.* 1984;55:2078–2082.
6. Maeda Y, Nakao K, Yagi K, Matsuda S. Composite resin root coping with a keeper for magnetic attachment for replacing the missing coronal portion of a removable partial denture abutment. *J Prosthet Dent.* 2006;96:139–142.
7. Obatake RM, Collard SM, Martin J, Ladd GD. The effects of sodium fluoride and stannous fluoride on the surface roughness of intraoral magnet systems. *J Prosthet Dent.* 1991;66:553–558.
8. Keith J. Ferro, Steven M. Morgano. Glossary of prosthodontic terms 9. *J prosthet dent.* 2017;117(5s).
9. Okuno O, Ishikawa S, Imuro FT, Kinouchi Y, Yamada H, Nakano T, et al. Development of sealed cup yoke type dental magnetic attachment. *Dent Mater J.* 1991;10:172–174.
10. Grunewald A. H. Gold base lower dentures. *J Prosthet Dent* 1964;14:432-441.
11. Wormley J.H, Brunton D.A. Weighted Mandibular dentures 1974;34:101-102.
12. Rao BI et al. Infundibular denture for highly resorbed ridge a case report. *Paripex - Indian Journal Of Research.* 2019; 8(1): 140- 142.
13. Kinra MS et al. Making of Primary Impression Made Easy for Severely Resorbed Mandibular Ridge – A Clinical Case Report. *British Journal of Medicine & Medical Research* 19(1): XX-XX, 2017.; Article no.BJMMR.28923.