

## CASE REPORT

## ADMIX MATERIAL FOR NEUTRAL ZONE RECORDING IN COMPLETE DENTURE REHABILITATION: A CASE REPORT

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### ABSTRACT

*Conventional complete denture therapy for patients with severe residual ridge resorption is challenging. For improving denture support, retention, and stability neutral zone technique is also considered to be an important alternative approach to patients complaining of unstable dentures, particularly when implant therapy is not feasible. The utility of this technique in the current case report which is by no means new and has long been used for the management of severely resorbed mandibular ridges is covered. Various materials are used in recording neutral zone, which have their own advantages and disadvantages. This article discuss the use of admix technique which is simpler and more practical.*

**Keywords:** Complete denture, Neutral zone, Admix impression, Residual ridge resorption

### INTRODUCTION

Neutral zone is defined as that area or position where the forces between the tongue and cheeks or lips are equal<sup>1</sup>. We should not be assertive and insist that teeth be placed over the crest of ridge, buccal or lingual to the ridge. Teeth should be placed as pronounced by the oral musculature which may vary for different patients<sup>2</sup>. The influence of tooth position and flange contour on denture stability is equal to or greater than any other factor. Recording neutral zone is most required for patients where there is a highly atrophic ridge. Various materials like tissue conditioners, impression compound, waxes, and impression plaster<sup>3-6</sup> have been advocated to record neutral zone which has their own benefits and

also drawbacks. This article discusses the use of admix technique which is simpler, more practical and cost effective.

### CASE REPORT

A 68 year old female patient reported to Department of Prosthodontics and Oral Implantology, I.T.S – Centre for Dental Studies and Research, Muradnagar, Ghaziabad for complete denture therapy with a chief complaint of lower denture loosening. Although mandibular denture was refabricated repeatedly, the patient was not comfortable due to loss of stability and comfortless of dentures. Intra orally, the maxillary arch form was ovoid with adequate height. However, the mandibular arch revealed severe ridge loss combined with a knife-edge form. The vestibule disappeared and movable tissues were extended onto the residual ridge.

### TREATMENT PLAN

In order to enhance the quality of retention, stability, comfort, a complete denture therapy has been initiated for maxillary denture by conventional technique and mandibular denture by neutral zone technique concept.

### TECHNIQUE:

1. Maxillary and mandibular primary impressions were made in stock trays using medium fusing Impression compound (YDENTS MDM Corp) and Low fusing Green stick compound (DPI PINNACLE). Custom trays were fabricated in auto-polymerizing resin (Quick Ashwin Rapid Repair) and final impression made with zinc oxide eugenol impression paste (DPI Impression Paste). Maxillo-mandibular records were then recorded by conventional technique and transferred to semi-adjustable articulator.
2. An additional auto-polymerizing resin mandibular denture base were made by adding retentive loops over the crest region using orthodontic wire one in the anterior and two in posterior on both sides (Fig. 1). Both the trial bases were checked for stability in the mouth and to ensure that loops do not interfere with muscle movements during function.<sup>6</sup>

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**Fig. 1: Mandibular trial base for with retention loops**

3. Three parts of stick compound and one part of impression compound (Admix technique)<sup>7</sup> were manipulated together and placed over the trial base, inserted in the mouth. Patient was instructed to perform all muscle functions by sucking and swallowing movements and by producing exaggerated 'EEE' and 'OOO' sounds<sup>6</sup>. Excess material if any will be displaced upward in the maxillary denture space from where it can be easily removed. In case of insufficient material, additions can easily be made and the process is repeated. Ensure that the record is stable in the mouth and the final wash impression is made for the same (Fig. 2).



**Fig. 2: Neutral zone recorded with admix material**

4. Indexing is made on side and center of the land area of cast. Lingual index of this denture space was made using Type 2 gypsum product. Mixed stone was adapted into the tongue space of the neutral zone record so that it is in level of occlusal plane of record and extends over the posterior land area of cast. Likewise facial index was prepared along the



**Fig. 3: Plaster index made using type 2 dental stone**

facial contours of the neutral zone record. Wet stone was sectioned and removed from the cast after complete set of material (Fig. 3). Admix material was removed from the base and replaced with wax with the help of index (Fig.4).



**Fig. 4: Admix material replaced with modelling wax**

5. Neutral zone limits the labial position of the mandibular anterior teeth. The mandibular posterior teeth were arranged first. They must be positioned within the neutral zone and to the proper height of the occlusal plane as established on the occlusion rim with the stone index in position. However position of maxillary anterior teeth can be modified based upon the esthetic and phonetic requirements of the patient. The maxillary posterior teeth were then positioned. Care must be taken that the occlusal surfaces of the maxillary posterior teeth fit perfectly against the occlusal surfaces of the mandibular posterior teeth.
6. Carefully remove wax apical to denture teeth on the facial and lingual aspect of the mandibular trial

denture. Apply Aquasil LV Smart Wetting impression material (Type 3 Light-bodied Consistency) Dentsply DE TREY; Germany, onto the facial aspect of mandibular trial denture and seated in the patient's mouth. Instruct the patient to pucker the lips forward, smile broadly. Have the patient repeat these movements several times. Remove the trial denture and evaluate the impression. Similarly external impression of the lingual aspect of mandibular denture was made with light body impression paste. Remove the trial denture and examine denture flange dimensions and extensions. Trim the excess material and eliminate all material covering the denture teeth. The dentures were processed by conventional method.<sup>8,9</sup>

### CONCLUSION

The interface between Conventional Complete denture rehabilitation demand among patients having severe resorbed alveolar ridges with economic constraints and Prosthodontist clinical decision is more often a perplexed task. The prospects of practicing cost effective simplified approach in recording neutral zone using Admix impression material needs to be harnessed further in such clinical situations.

**SOURCE OF SUPPORT:** NIL

**CONFLICT OF INTEREST:** NIL

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