

Dr. Nabarun Chakraborty*, **Dr. Mandira Ghosh***, **Dr. Tridib Nath Banerjee****
Dr. Amit Kumar Bera***, **Dr. Shiny Konar******

Abstract

This article presents a case report of a complete denture fabrication in a flabby maxillary ridge and severely resorbed mandibular ridge situation. This situation was treated with a special impression technique of maxillary ridge which will compress the non flabby tissues to obtain optimal support, and, at the same time, will not displace the flabby tissue. For severely resorbed lower ridge neutral zone technique is followed to achieve maximum stability.

Key Words Flabby maxillary ridge, resorbed mandibular ridge, special impression technique for maxillary ridge, neutral zone technique for mandibular ridge.

INTRODUCTION

Severe atrophy in the residual alveolar ridges poses a clinical challenge for successful prosthodontic rehabilitation. A 'fibrous' or 'flabby' ridge is a superficial area of mobile soft tissue affecting the maxillary or mandibular alveolar ridges. It can develop when hyperplastic soft tissue replaces the alveolar bone and particularly in the upper anterior region of long-term denture wearers. This prevalence of flabby ridges is found to be 24% in the edentulous maxilla and 4% in the mandible. There will be difficulty in wearing complete denture if flabby tissue is present in denture bearing area. If the flabby tissue is compressed during conventional impression making, it will later tend to recoil and dislodge the resulting overlying denture.

Management of flabby tissue can be done by surgical removal of fibrous tissue prior to conventional prosthodontic rehabilitation or use of sclerosing solution like 5% sodium morrhuate, 3% sodium tetradecyl sulfate or implant retained prosthesis or conventional prosthodontics without surgical intervention. For conventional complete denture prosthesis without surgical intervention an impression technique is required which will compress the non flabby tissues to obtain optimal support, and, at the same time, will not displace the flabby tissues. A multitude of impression techniques were suggested by different authors in the past to help record a suitable impression of a flabby denture-bearing area.

Liddlelow in 1964 described a technique where two different impression materials are used in one custom tray; Impression Plaster over the flabby tissues and Zinc Oxide Eugenol over the normal tissues.

Osbourne in 1964 described a two-tray impression technique, relating both the trays intraorally

Watson in 1970 recommended cutting a "window" in the custom tray over the anterior maxillary ridge in the region of the flabby tissue. A mucocompressive impression of the surrounding normal tissues is made using zinc oxide eugenol following the registration of the flabby tissues with impression plaster in a non-compressed form.

Watt and MacGregor in 1976 described a technique recently advocated by Lynch and Allen 2005 where impression compound adapted within a custom tray is used to record the normal tissues in a compressed form,

ABOUT THE AUTHORS

*Assistant Professor, **Clinical Tutor, ***Dental Surgeon on Supy Duty, ****House Surgeon
Department of Prosthetic Dentistry, Dr. R. Ahmed Dental College and Hospital

avoiding displacement of the flabby tissues. This is followed by a wash with zinc oxide eugenol.

Conventional restoration of the severely atrophied mandibular residual alveolar ridge has modified by a number of different designs to accommodate patients who have difficulty wearing a mandibular denture. In case of resorbed residual ridge, dental implants may provide stabilization of mandibular complete dentures, but in cases when it is not possible to provide implants on the grounds of medical risks, economic limitations or patients attitudes, an alternative technique should be thought of. The Neutral Zone Technique is an alternative approach for these cases. The main aim of the Neutral zone technique is to construct a denture in muscle harmony, so that it does not get displaced during the actions of swallowing, mastication, speech etc. According to Glossary of Prosthodontic Term 8 neutral zone is the potential space between lips and cheeks on one side & tongue on the other; the area or position when the forces between the tongue and cheeks or lips are equal. The two men who probably have contributed the most to these concepts are Wilford Fish and Russell Tench. Many others, including Perry, have helped to advance and develop both the theoretical basis and practical procedures

The following case report describes the technique where a complete denture was provided for a patient with flabby maxillary ridge and severely resorbed mandibular ridge by special impression technique for maxillary arch and neutral zone technique for mandibular arch.

CASE REPORT

A seventy two year old edentulous patient reported to the department of prosthodontics of Dr R Ahmed Dental College and Hospital, Kolkata for fabrication of complete denture in upper and lower jaw. On examination it was noted that both the upper and lower ridge were extremely resorbed and in addition to that there was a flabby component to the upper ridge in canine to canine region.

TREATMENT PLAN

Primary impression was recorded using impression compound. A cast was made in plaster of paris for both upper and lower arch. Flabby portion was marked on the upper cast with a pencil. For final impression of the upper arch, a special tray was fabricated. Border moulding was performed using greenstick compound and zinc oxide eugenol impression was used to record final impression. Flabby portion was marked over the tray by indelible pencil.(Fig1) Tray was cut along the flabby portion.(Fig2) Then modified plaster of paris was used to record the flabby portion of the tissue.(Fig 3) For lower arch, a special tray was fabricated and it was border molded with greenstick compound. Then final impression was recorded with zinc oxide eugenol. Final cast was poured with dental stone and stabilized base plate was made over final cast. Lower base plate was modified by incorporating acrylic ramp to hold the rubber base material.(Fig4) Neutral zone was recorded with rubber base putty impression



Fig 1: Marked flabby tissue in recorded final impression



Fig 2: Window made in final impression



Fig 3: Flabby areas impression recording with impression plaster



Fig 4: Tray modification for neutral zone technique



Fig 5: Neutral Zone recording with heavy body silicone



Fig 6: Complete denture with monoplane teeth

material by performing various lip and tongue movements ((Fig 5).Neutral zone was demarcated and redefined and the height of the bite rim was adjusted according to the landmarks like the corner of the mouth and retromolar pad. Upper rim was made in wax and was adjusted according to phonetics and esthetics guidelines. The vertical and horizontal relation was recorded. The cast including occlusal rim was mounted on an articulator. The monoplane teeth were used without incorporating any compensating curve.(Fig6) Trial was done. During denture delivery posterior ramp was fabricated to prevent the dislodgement. Patient was followed up and upper denture need minor adjustments.

CONCLUSION

Fibrous or flabby ridges pose a prosthodontic challenge for the achievement of stable and retentive dental prostheses. Emphasis has moved away from surgical removal of the fibrous tissue. Implant retained prostheses may not be most suitable treatment option for many patients on the grounds of medical risks, economic limitations or patients attitudes. Considering conventional prosthodontics, there are a variety of impression techniques available to address the problems caused by the unsupported tissue during denture construction, however currently there is a lack of scientific evidence for support of any technique over another. Considerations for selection should include the location and extent of unsupported tissue, as well as the patient's presenting complaint. Neutral zone technique' is one of the best alternative techniques in case of highly atrophied mandibular residual ridge. The neutral zone philosophy is based on the concept that for each individual patient there exists within the denture space a specific area where the function of the musculature will not unseat the denture, and at the same time where the forces generated by the tongue are neutralized by the forces generated by the lips and cheeks. Complete denture failures are often

related to non compliance with neutral zone factors. But neutral zone technique has certain limitations like involvement of the extra clinical step. Thus the neutral zone must be evaluated as an important factor before one rates any changes in arch form or alignment of teeth.

REFERENCES

- 1) Beresin, V. E. & Schiesser, F. J., 'The neutral zone in complete dentures', *Journal of Prosthetic Dentistry*, vol. 36, pp. 356-367 1976
- 2) Brill N, Tryde G, Cantor R. The dynamic nature of the lower denture space. *J Prosthet Dent* 1965;15:401-18
- 3) Halperin AR, Graser GN, Rogoff GS, Plekavich EJ. *Mastering the art of complete dentures*. Chicago: Quintessence; 1988. p. 125
- 4) McCord JF, Grant AA. Impression Making *BDJ* vol 189, No.9 pp. 484-492 May 2000
- 5) Patil V, Hallikerimath RB, Magadum S. Enhancement of stability for mandibular complete denture prosthesis in atrophied ridge with neutral zone technique *Journal of Advanced Dental Research* Vol II : Issue I: January, 2011
- 6) Porwal A, Jain P, Neutral zone approach for rehabilitation of severely Atrophic ridge *International Journal Of Dental Clinics* No. 2 (3):53-57 2010
- 7) Roraff AR. Arranging artificial teeth according to anatomic landmarks. *J Prosthet Dent* 1977;38:120-30.
- 8) The Neutral Zone Concept Revisited – Overcoming Instability and Lack of Retention in Complete Lower Denture Construction, Lilik Indrawati, Lindawati Kusdhany, Titi S. Soebekti, *Malaysian Dental Journal* (2009) 30(1) 49-52