

Easy duplication of patient's rugae pattern.

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Abstract

Smooth palatal surface of maxillary denture lacks in dexterity of speech and gives patient an unnatural feeling of slimy polished surface. Prosthesis must be such that it has texture and anatomy of the natural mucosa. This article presents an inexpensive, effortless and time saving technique to replicate patients own rugae.

Keyword: Complete denture, palatal surface replication

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Introduction

Palatal rugae are formed by mucosal folds of hard palate and are involved in speech stabilization of bolus during mastication, deglutination, and create a tactile localization of tongue.^[1] Speech is an important activity of humans with which we interact and express ourselves. Pronunciation of words and letters involve articulation of various intraoral structures like tongue, teeth, lips and palate. Partial or complete edentulism leads to temporary or permanent alteration in speech because of loss of the interaction of these structures. Moreover, replacement of lost teeth with removable partial denture, being a foreign body, adds to difficulty in speech. Palatal rugae play a very important role in production of sound. The interaction of tongue with the rugae helps in production of palatoalveolar sounds. The polished smooth cameo surface of prosthesis prevents proper friction required between tongue and anterior palate. A smooth glossy surface of denture alters the dexterity of phonetics.^[2] To overcome this problem one measure that has been advocated and proved to be effective is adding rugae to prosthesis. A study done on completely edentulous patients with existing dentures has shown significant improvement in

frequency of noise energy for 's' & 'sh' and voice onset time for 'd' with incorporation of rugae in prosthesis.^[3]

Literature has many other methods to add rugae to the removable prosthesis. Some replicate patient's own rugae while some carve arbitrary rugae pattern during wax up. Vijayaraghavan^[4] explained a method to develop rugae pattern simulating patient's own pattern by using clear resin matrix and using floss with inlay wax over matrix to form rugae. Another method is by using tinfoil over master cast or any other cast with prominent rugae to copy the pattern and then securing it to the final wax up or to an existing prosthesis by autopolymerizing resin.^[5] Use of expensive material like putty index and vacuum formed thermoplastic resin sheet, for duplication of rugae, has also been cited.^[6,7,8]

This article describes a simpler technique of adding patient's own rugae pattern to the maxillary denture without any need of extra armamentarium or time.

Procedure

1. After making final impression melt a little amount of modeling wax on wax spatula and place it into the rugae area of impression to form a thin section, add

the wax in increments, this can be also done after master cast is poured and retrieved from impression (Figure 1 and Figure 2).

2. Allow the wax to cool, retrieve the wax pattern with carver and preserve it (Figure 3).
3. Then after making jaw relation, try in done.
4. Cut a window in the anterior palatal portion of the trial denture. Leave the rest of the portion to stabilize the denture on the master cast (Figure 4).
5. Now place the preserved wax pattern of palatal rugae on to the anterior portion of palate and seal it with hot wax spatula (Figure 5).
6. Flasking and processing is done in usual manner.
7. Finish and polish the denture (Figure 6).

Summary

Adaki *et al* observed a definite improvement in phonation of completely edentulous patient with rugae incorporated in prosthesis, in which customized rugae dentures showed better result than the arbitrary rugae dentures.^[2] The methods in literature review were found to be time consuming, required use of additional material and additional steps. Duplication of rugae by this method has an advantage that it does not require any special instrument, material or extra effort. Patient's impression itself can be used to recover palatal rugae pattern. In addition, patients own definite rugae pattern can be replicated on the denture.

References

1. Thomas Kotze CJ, Van der merwe CA. An improved statistical method for the racial classification of man by means of palatal rugae. Arch. Oral Biol. 1987;32:315-7
2. Mahross HZ, Baroudi K. Spectrogram analysis of complete dentures with different thickness and palatal rugae materials on speech production. Int J Dent 2015
3. Adaki R, Meshram S, Adaki S. Acoustic analysis and speech intelligibility in patients wearing conventional dentures and rugae incorporated dentures. J Indian Prosthodont Soc. 2013;13:413-20.
4. Vijayaraghavan V, Chandni P. A simple method for palatal rugae carving in complete dentures. J Indian Prosthodont Soc. 2013;13:137-8.
5. Gitto CA, Esposito SJ, Draper JM. A simple method of adding palatal rugae to a complete denture. J Prosthet Dent. 1999;81:237-9.
6. Krishna V, Reddy VV, Kumar NP, Raju KV. Dentures with phonetically contoured palate: a simple technique of adding customized rugae and palatal contours to the maxillary denture. J Contemp Dent Pract. 2012;13:216-8.
7. Manvi S, Ankola A. Simple technique for duplicating the palatal rugae in maxillary complete denture. World J Dent 2012;3:95-6
8. Naqvi S, Dange SP, Khalikar SA. A Simple Method for Patients Palatal Rugae Duplication in Complete Dentures. Int J Prosthodont Restor Dent 2014;4:46-7

Figures

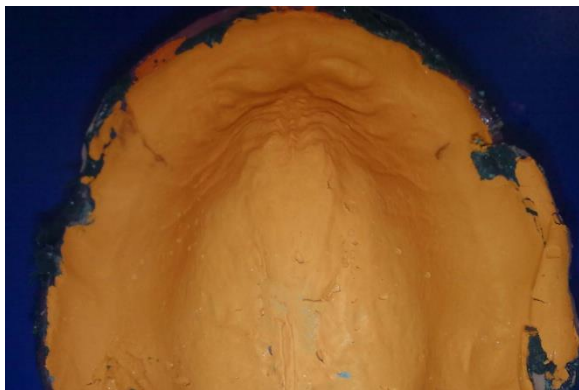


Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6