

EVALUATIVE COMPARISON OF THE ABILITY OF THREE BORDER MOLDING MATERIALS IN RECORDING THE FUNCTIONAL LATERAL THROAT FORM IN COMPLETELY EDENTULOUS MANDIBULAR ARCHES. -AN IN VIVO STUDY

Dr Manu verma

Senior lecturer chhattisgarh dental college and research institute Rajnandgaon Chhattisgarh,

Dr Rakesh jaiswal*

Assistant professor, late shree lakhiram agrawal memorial govt medical college raigarh chhattisgarh*Corresponding Author

Dr Brajendra dubey

Senior lecturer, vananchal dental college and hospital garwa Jharkhand,

ABSTRACT

AIM-Evaluative Comparison of the ability of three border molding materials in recording the Functional lateral throat form in completely edentulous mandibular arches.

SETTING AND DESIGN-Twenty patients were selected with age ranging from 40-80 years in the study as per the inclusion and exclusion criteria.

MATERIALS AND METHOD-

1. The customized instrument used in mandibular arch to measure lateral throat form
2. Border molding materials - Soft liner, addition silicon putty material, low fusing impression compound
3. tray material, medium fusing impression compound

The depth of lateral throat form were measure with specially designed instrument and border moulding was done with three different materials in the same patient. Difference in depth of lateral throat form was measured and compared with each other.

STATISTICAL ANALYSIS- average value and frequency table

RESULTS- 50 % times soft liner gave most exact result

CONCLUSION-Within the limitation of the study, it can be concluded that there are difference between the lateral throat form recorded in the patient's mouth and in the functional state.

KEYWORDS : Lateral throat form

INTRODUCTION

Lateral throat form (retro mylohyoid fossa/LTF) is the area situated at the distal end of the alveolingual sulcus. The distal portion of the alveolingual sulcus is designated as lateral throat. Neil¹ has classified lateral throat form as class III lateral throat form has minimum length and thickness. The border usually ends 2-3 mm below the mylohyoid ridge. The thickness should be no more than approximately 2mm. A class I lateral throat form indicates that anatomical structures will accommodate a fairly long and wide flange. The horizontal border is usually 2-3 mm thick. Class II lateral throat form is about half as long and narrow as class I and about twice as long as class III. Denture extended to lateral throat form area can resist horizontal forces, increase border sealing and contribute to neuromuscular control. The length as well as the thickness of the denture flange occupying this space is dictated by the tonicity, activity and anatomy of the adjacent structures. It has been established that the length of lateral throat form was significantly more than that in the dentures. This is mainly caused due to the inadequate extension of the impression tray. Only if the lateral throat form is measured accurately in the pre impression stage, the lingual extension of the impression can be assessed accurately.

The objectives of this study is

1. To evaluate the length of the lateral throat form in active state (control).
2. To evaluate the length of the lateral throat form in functional state by low fusing material, putty and tissue conditione.
3. To compare the depth of lateral throat form of three materials with the active state (control).

SUBJECT AND METHODS- Twenty patients were selected from the department of prosthodontics with age ranging from 40-80 years in the study as per the inclusion and exclusion criteria. The customized instrument used in mandibular arch to measure lateral throat form. [Figure 1] The patient is asked to protrude his/her tongue till vermilion border of lower lip and depth of lateral throat form is measured in this condition with customized device. [Figure 2]

INCLUSION CRITERIA-

1. Completely edentulous mandibular arches
- a) Well-formed alveolar ridge including proper height and thickness
- b) No severe undercuts or bony exostosis
- c) Firm mucosa of moderate thickness
- d) No sign of inflammation, ulceration or hyperplasia
2. Good neuromuscular coordination.
3. No history of systemic diseases.
4. Adequate mouth opening.

EXCLUSION CRITERIA-

1. Congenital defect in jaw.
2. Uncooperative patients
3. Excessive ridge resorption
4. Any surgical procedure of the jaws e.g. hemimandibulectomy, glossectomy

Border moulding in lateral throat form region with three different materials (soft liner, low fusing impression compound, condensation silicon putty) was done. [Figure 3,4] While recording the lateral throat form patient was asked to sit in upright position and asked to protrude his tongue till vermilion border of lower lip. All the records were compared with intra oral records which was taken with customized device.

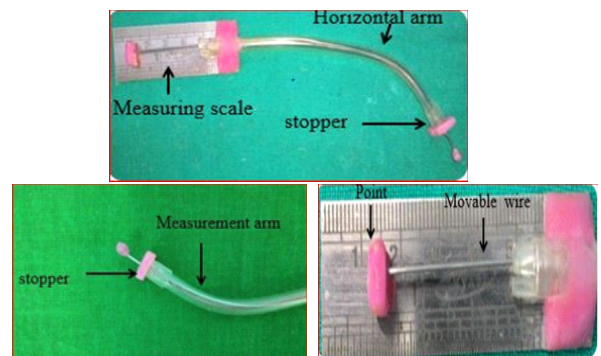
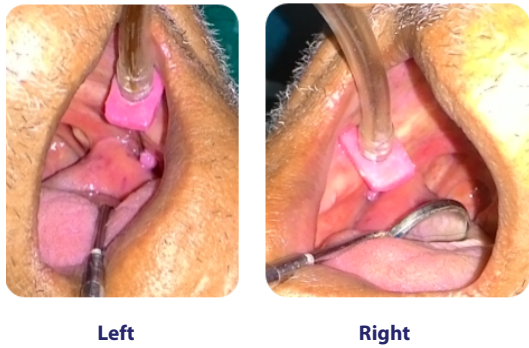


Figure1-customize gauge



Left

Right

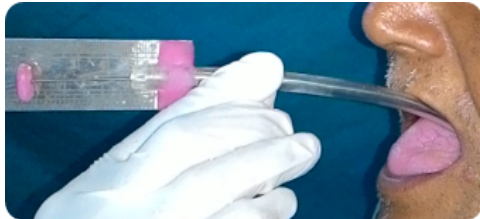


Figure 2- Determination of lateral throat form intraorally by customized gauge

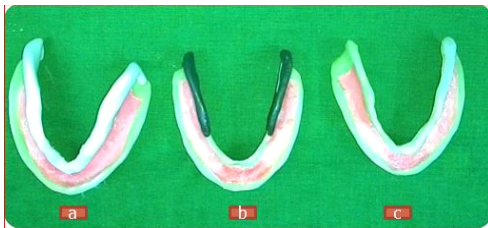


Figure 3- Border molding with (a) condensation silicon (b) green stick(c) soft tissue liner

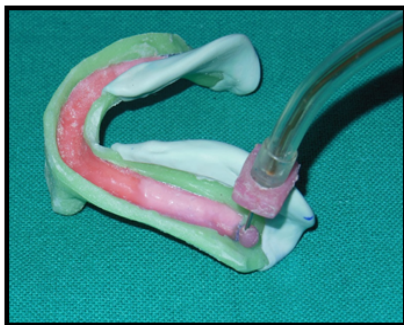


Figure 4- Extra oral recording

RESULTS

Serial. No	Intral oral examination (mm)	Difference from intraoral oral examination (mm)		
		Low fusing compound	Soft liner	Putty
1	14	-2	-0.5	-1
2	14	-2	0	-0.5
3	14	-2	-0.5	-1
4	14	-2	-0.5	-1
5	12	-1	0	-0.5
6	12	-1	0	-0.5
7	13	-1.5	-1	-1
8	13	-1.5	-1	-1.5
9	11	-2	0	-1
10	12	-2	-0.5	-2
11	9	-1	0	-0.5

12	10	-1	-1	-1
13	11	-1	0	-0.5
14	11	-1	0	-0.5
15	12	-2	-1	-1
16	12	-2	-0.5	-1
17	11	-2	-0.5	-0.5
18	11	-2	0	-0.5
19	13	-0.5	0	-0.5
20	13	-0.5	0	-0.5

Table 1-Table of intra-oral measurements and its difference from extra-oral measurements

Serial no.	Differences with intraoral examination(mm)	Frequency of differences(mm)		
		Low fusing compound	Soft liner	Putty
1.	0	0 times	10 times	0 times
2.	-0.5	2 times	6 times	10 times
3.	-1	6 times	4 times	8 times
4.	-1.5	2 times	0 times	1 times
5.	-2	10 times	0 times	1 times

Table 2- Table of frequency

50% times soft liner gave most exact result [table 1]
 50% times low fusing compound gave under-extension of 2mm from intra oral examination [Table 2]
 50% times putty material gave under-extension of 0.5 mm from intraoral examination [Table 2]
 No overextension in lateral throat form observed by any of three material

DISCUSSION

Most edentulous mandibular stock trays are short in length of the lateral throat form, and therefore, the Study cast is short for the fabrication of the custom tray.

There are few studies regarding the measuring of the lateral throat form in the mandibular denture. Study by Kluth EV3, measured the lateral throat form by William's periodontal probe, however it can measure only till 10mm and not more than that. Hence, it was not successful. This study did not report the measurements. To rectify this error, in a study by K.V et al4, there was an instrument designed known as MCS gauge because there was no instrument by which the lateral throat form can be measured. Patient were divided into Class I, which had mean value of 18mm and Class II, with 16mm and Class III, with 10mm.

In a study done by Huang et al5, they measured the lateral throat form by implant depth gauge, which measured till 16mm. This was measured by patient's functional movements. The mean value obtained in this study was 10.0mm.

According to our study any of three material can be used to record the lateral throat form. 50 % times soft liner gave exact result. Soft liner is best material to record depth of lateral throat form out of three material used. Then the measurement can be made with the corresponding portion of the custom tray to examine whether its extension is adequate. Based on the material of choice we can adjust the tray e.g- For low fusing compound 1 mm under extension should be there. The findings of this study suggest that the clinician should use an instrument to measure the length of lateral throat form before fabricating the complete dentures.

CONCLUSION

Within the limitation of the study, it can be concluded that there are difference between the lateral throat form recorded in the patient's mouth and in the functional state.

Out of three materials, soft liner is most accurate material to record lateral throat form followed by putty and low fusing impression compound.

Based on the material of choice we can adjust the tray e.g- For low fusing compound 1 mm under extension should be there.

REFERENCES:

1. Levin B. Impressions for complete dentures. Chicago: Quintessence, 1984:51-55.
2. Azzam M, Yurkstas A, Kronman J. The sublingual crescent extension and its relation to the ability and retention of mandibular complete dentures. *J Prosthet Dent* 1992;67:205-10
3. Kluth EV. Use of periodontal probe to determine the border extension of impression trays. *J Prosthet Dent* 1986;56:746-7.
4. Kinra M, Verma R, Nagpal A, Verma P, Kalra A, Kinra M. Innovative impression technique for complete denture patients. *Ind J Dent Sci* 2013;1(5):34-36.
5. Huang Pei-sheng, ChouTsau-Mau, Chang Hong-Po, Chen Jen-Hao, Lee Huey-Er, Chen Hong-Sen. The proportion of 3 classes of lateral throat form. *Int J Prosthodont* 2007;20:640-642.