Case Report

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A Single Visit Technique to Obtain a Secondary Impression & Jaw Relations for Denture Camps

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ABSTRACT

Aim: To demonstrate a simple yet accurate method of recording the impressions and jaw relations in a single visit without much expense or time to economize the production of dentures either in dental camp settings or in welfare clinics.

Materials & Methods: Impression compound, Green stick compound, Condensation silicone and a plasterless articulator were used in this technique. The impressions were obtained directly by manipulating the impression compound in steps intra orally without a tray. After refinement the rims were included with wax and the jaw relations recorded. Light body condensation silicone wash impressions were made to allow a final perfect refinement of the upper and lower impressions. The jaw relations were verified and the sealed rims removed for pouring of casts and articulation. The whole process from start to articulation took less than an hour with two operators working together.

Result: It was demonstrated that with relatively inexpensive materials and a simple understanding of the denture bearing area jt was possible to reduce the procedural time eliminating extra visits while not compromising on the quality of work

Conclusion: The reduction in clinical visits and thus the time saved could be indirectly equated to expense saved and the same expense directed towards better materials like condensation silicone instead of zinc oxide eugenol for convenience, accuracy, minimal pressure and durability. This allowed for a much more accurate recording of the denture bearing area with a more predictable positive end result.

Keywords: Single visit technique, secondary impression, denture camps.

INTRODUCTION

There are a lot of factors that affect the successful outcome of complete denture prosthodontics rehabilitation.[1] There have been numerous articles in the past years that either aim to simplify or modify the process.[2] Of the three important factors related to a denture – retention, stability and support , it is the first two that are in the control of the operator with a thorough understanding of the limitations of the third.[3,4,5] In a conventional procedure the primary impression is always assumed to be inadequate in its accuracy or extensions thus necessitating the fabrication of special trays and the making of secondary impressions. If instead sufficient care is taken with an understanding of the biological considerations and of the materials being used it would be possible to eliminate the requirement of the secondary impressions by way of an impression & corrective wash approach. Literature describes the use of primary compound impressions modified directly

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Fig 1: Maxillary and mandibular impressions made out of compound without a tray.

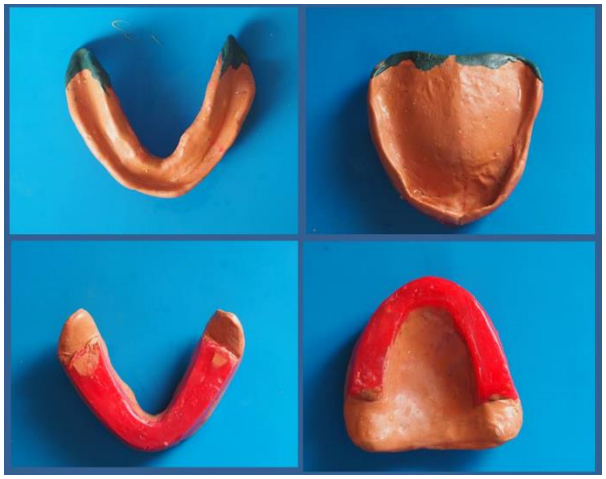

Fig 2: Impressions refined with green stick (PPS and retromolar regions) and rims included.

Fig 3: The finished impressions and jaw relations . Teeth setting on plasterless articulator and processed dentures.

to be used as special trays for the secondary wash impression.[6] Denture impressions are related to 3 Ms – the method, the material and the mould (tray).[7] A tray is defined as a device that carries, confines and controls the impression material until it has set. [8] The problem here is that sometimes with edentulous mandibular ridges the smallest tray is too large and actually comes in the way resulting in an overextension by default. Also of importance is the selection of the material and the method of its use.[9,10] Impression compound is an economical material that is rigid enough to serve as a tray and being thermoplastic it can be modified and refined till the operator is satisfied. The viscosity may be adjusted by adding green stick compound to it if desired. [11] A proper understanding of where not to extend the denture base coupled with a method that avoids the use of a tray is the suggested workaround. Care must also be taken while border molding or muscle trimming that neither too much or too less force is used so as to have adequate extensions for retention and stability.[12,13] Retention also requires intimate contact and this is usually achieved by the final impression, in this case the wash impression with light-body condensation silicone.[14] In fresh extraction cases a standard thickness denture base necessitates subsequent trimming of the denture bases and tooth ridge lap areas for aesthetic placement . A workaround would be the use of extra hard wax bases instead of acrylic to allow the trimmed teeth to be positioned more effectively with no hinderance.

Procedural protocol in the form of planned treatment visits is usually designed for an effortless systematic forward work flow with no needless repetition of steps. An experienced practitioner often designs workaround steps that help condense the same procedure into a simpler form by improvising or including shortcuts. The procedure outlined is by no way easy the first time it is attempted. But like any procedure taught it is easy to accomplish once the operator gets the hang of it.

MATERIALS & METHODS

The following materials were put to use:

1. Low fusing impression compound (DPI Pinnacle Impression Compound, Dental Products of India, Mumbai, India)

2. Low fusing green sticks –(DPI Pinnacle tracing sticks ,Dental Products of India, Mumbai, India)
3. Condensation Silicone –Light body (Oranwash, Zhermack SpA, Italy)
4. Extra Hard modelling wax (Plastiwax , Ruthenium dental products Pvt.,Ltd., Gujarat, India)
5. Teeth set – Acrylic (AcryPan, H1,K1,M1 , Ruthenium dental products, Pvt.,Ltd.,Gujarat,India)

The impression compound was softened in a water bath and molded to the approximate shape of the upper and lower impressions extra-orally. These impressions were then edge softened and modified intra-orally till an adequate coverage ,retention & stability were achieved.(Fig.1) The posterior palatal seal and retromolar regions were refined with green stick compound and an overall verification of the border extensions was performed. Wax rims were included on to the under surfaces of the impressions, the impressions themselves serving as temporary recording bases and the rims helping as handles for the next step of obtaining wash impressions.(Fig.2) The maxillary rim fullness and occlusal plane level was adjusted and then the lower rim adjusted to achieve a suitable vertical relation with a slightly excessive interocclusal space to compensate for the wash impression. The centric relation was recorded and re-verified to ascertain repeatability. The midlines were tentatively marked. Now the relief areas and peripheral edges of the impressions were scraped and a wash impression was obtained using condensation silicone light body. The centric relation was re-verified and the rims sealed together. (Fig.3)

The casts were poured sequentially much like the procedure for a triple tray impression. The assembly of poured casts and rims were mounted onto a plasterless articulator as an experimental approach to save the time required for mounting and demounting and then the rims and impressions removed. The removed impressions were preserved for subsequent verification of the occlusal plane during teeth setting. A simple free plane articulator could be used to retain references of the anterior proclination and occlusal plane by way of the incisal pin.

A sheet of extra hard modelling wax was used instead of acrylic to make the denture bases to allow a much closer setting of artificial teeth to their original positions. The technique proposed avoids the wax trial stage and proceeds on to processing to facilitate faster completion. Extra hard wax is hard enough to allow intra oral verification if it is done with care. This article describes a technique that can be adopted by a clinician who is already adept at complete denture rehabilitation as it only involves the modification of procedural protocol. It was possible to finish the procedure within an hour and soon after to finish arranging the teeth to allow processing to be initiated.

CONCLUSION

There is no substitute for quality of professional services rendered but it is sometimes possible to examine different approaches of attaining the same result. There is never a bias based on the economic status of the patient but there can always be a negative impact of working conditions as may be the case in some dental camps organized at rural places. Simplifying the procedural protocol by smoothening the work flow and relying upon a mix of inexpensive materials and extremely accurate ones provided a fine blend of the initial trial and error start of the procedure culminating in one with the intended precision.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Diehl R, Foerster U, Sposetti V, Dolan T. Factors Associated With Successful Denture Therapy. Journal Of Prosthodontics 1996;5:84-90.

2. Ye Y, Sun J. Simplified Complete Denture: A Systematic Review of the Literature. Journal Of Prosthodontics 2016;26:267-274.

3. Jacobson T, Krol A. A contemporary review of the factors involved in complete denture retention, stability, and support. Part I: Retention. The Journal Of Prosthetic Dentistry 1983;49:5-15.

4. Jacobson T, Krol A. A contemporary review of the factors involved in complete dentures. Part II: Stability. The Journal Of Prosthetic Dentistry 1983;49:165-172.

5. Jacobson T, Krol A. A contemporary review of the factors involved in complete dentures. Part III: Support. The Journal Of Prosthetic Dentistry 1983;49:306-313.

6. Boucher C, Swenson M. Swenson's complete dentures. Saint Louis: Mosby; 1970 : 89.

7. Engelmier Robert. Complete dentures. DCNA 1996;40:39-51

8. Morrow R, Rudd K, Rhoads J. Dental laboratory procedures. St. Louis: Mosby; 1986:26-56.

9. Alqattan W, Alalawi H. Impression Techniques and Materials for Complete Denture Construction. Dental Health: Current Research 2016;2.

10. Singla S. Complete denture impression techniques: Evidence-based or philosophical. Indian Journal Of Dental Research 2007;18:124.

11. McCord J, Tyson K. A conservative prosthodontic option for the treatment of edentulous patients with atrophic (flat) mandibular ridges. British Dental Journal 1997;182:469-472.

12. Shapiro M. The effect of border moulding of impressions on the retention of complete mandibular dentures. Journal Of Dentistry 1991;19:132.

13. Denizoglu S, Yanikoglu N, Yilmaz B, Kürklü D. Effects of tongue movements on lingual sulcus depth while border molding in mandibular complete dentures. Indian Journal Of Dental Research 2014;25:439.

14. Daou E. The elastomers for complete denture impression: A review of the literature. The Saudi Dental Journal 2010;22:153-160.