

Versatility of Aluminum Spacer In The Two Step Putty Wash Technique - A Unique Clinical Approach

Pradeep Samuel¹, Menon Prasad Rajagopal², Rahul Nageshraj³,
Nidhin Ramabhadran⁴, And Benny Thomas⁵

¹Associate professor, Department of prosthodontics and crown & bridge, Educare institute of dental sciences, Kerala, India.

²Professor, Head of the department, Department of prosthodontics and crown & bridge, Educare institute of dental sciences, Kerala, India.

³Assistant professor, Department of prosthodontics and crown & bridge, Educare institute of dental sciences, Kerala, India.

⁴Assistant professor, Department of prosthodontics and crown & bridge, Educare institute of dental sciences, Kerala, India.

⁵Assistant professor, Department of prosthodontics and crown & bridge, Educare institute of dental sciences, Kerala, India.

Corresponding author: Pradeep Samuel

Abstract: We here describe an innovative approach to the tried and tested two step impression technique using polyvinyl siloxane putty and light body impression materials. The technique by principle is a two step technique but in spirit becomes a one step technique clinically. The aim of this technique is to reduce the chair side time during the definitive impression making and to retain the inherent advantages of the two step technique. The uniqueness of the technique lies in finishing the first part of the impression process prior to the clinical appointment of the patient and delegating that part to a laboratory technician. This helps to save a lot of clinical time during the appointment and also achieve proper wash material thickness by ingenious use of aluminum foil as a spacer material.

Key words: Two- step technique, aluminum foil spacer, diagnostic cast, spacer thickness

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I. Introduction

Elastomeric impressions are currently the mainstay of fixed prosthodontics though they are under threat from the digital impression modality. The prohibitive expenses of the digital modality remain a constraint as of now. Operators have long been divided in their opinion regarding the ideal way of making an elastomeric putty wash impression, as to whether it should be one- step or two- step.^{1,2,3} Studies have often contradicted each other regarding the superiority of each technique, although now it generally considered that the two step putty wash technique is marginally superior in terms of detail reproduction and dimensional accuracy.³

The two step technique ensures that there is enough space available for the light body material to record the fine details.⁴The best way to provide this space is a bone of contention among various authors. Polyethylene sheets have been used traditionally to provide this space during the first step of the process. Difficulty to adapt the sheet and a highly crinkled surface are the main drawbacks of this material. Some authors have used modified metal spacers in studies to provide uniform space for the wash material. This article describes a unique way of using the aluminum foil as a spacer during the first step of the putty wash technique. This particular material offers greater control over adaptation prior to impression making and also ensures proper space for the second step wash material.

Technique

In this unique approach to the two step putty wash technique, the first step of the impression procedure is completed before the clinical appointment for tooth preparation. The first step is completed on the diagnostic cast made in dental stone as per standard protocol. This step can be easily delegated to auxiliary dental personnel to save time Alternatively the procedure can be done intra orally by directly adapting the foil on the unprepared teeth on the day of appointment (Fig:1). The description of the technique follows

First step (prior to the appointment)

1. Aluminum foil(description of foil) is cut into longitudinal strips of appropriate size, it is then adapted over the diagnostic cast in two sheet thickness ensuring it covers all the teeth including a zone 4mm apical to the gingival margin and edentulous areas. The foil is loosely adapted to ensure sufficient space for the wash impression material in all areas (Fig:2).
2. A suitable stock perforated metal tray is chosen according to the dimensions of the cast. Putty material is mixed, placed on the tray and impressed on the cast (Fig: 3).
3. The foil is peeled off, the impression is then disinfected according to standard protocol⁵ and kept aside for use during the impression making procedure. (Fig:4).

Second step (appointment day)

After tooth preparation, the second step of the putty wash impression is carried out using light bodied material.

1. The light body is applied on to the prepared tooth surfaces and to the stock tray containing the putty (Fig:5).
2. The stock tray is the carried in to the oral cavity with gentle pressure. The areas not covered by the spacer will act as stops to prevent excessive compression and thus maintain even film thickness (Fig:6).
3. A modification of this technique suggested by the authors is the direct foil adaptation over the entire arch before tooth preparation. This modification is especially useful in cases where patients have a constricted time schedule.

II. Discussion

In the technique described above, we have adapted the spacer over the entire arch on the diagnostic stone cast covering the teeth and extending 4 mm apical to the free gingival margin. The uniqueness of this approach is that although it is theoretically a two step technique, clinically it can be considered as a one step technique. A survey of literature has failed to reveal any previous instances of the same approach. This technique can drastically cut down on chair side impression time because most of the time consuming process of the impression making, like tray selection, spacer adaptation, mixing of putty material and even scraping away of putty material² in some techniques can be completely bypassed. It is view of the authors from clinical experience that the technique described is faster and less cumbersome than the one step putty wash technique.

The one step putty wash technique has many drawbacks,^{6,7} the most important one being very little control over the wash material thickness. It has been pointed out by earlier authors that the simultaneous placement of putty and light body material leads often to the displacement of the light body material away from the critical areas to be impressed. The degree of displacement is dependent on the viscosity of the materials involved and pressure exerted by the operator during impression making. Moreover simultaneous mixing and placement of two consistencies of impression material requires precise timing and co-ordination between the operator and the assistant. This makes the two step impression technique far more reliable and predictable.

Polyethylene spacers are usually placed on top of the mixed putty material on the stock tray and then carried intra orally. The spacer prevents proper seating of the stock tray and hence offers very little control over the thickness of the wash material subsequently applied. Aluminum foils are easier to handle which makes the manipulation and adaptation of the stock tray much easier. The double thickness aluminum foil used in this technique is adapted on the cast and hence is not affected by intra oral factors. The foil is adapted prior to tooth preparation and hence space available for the wash material is almost ideal.⁸ Some studies have probed the role of wash material thickness on the dimensional accuracy of the impression and have found that 1 – 2mm wash thickness gives the best results.⁹ The studies so far have emphasized the importance of the wash material thickness but have failed to throw light on their clinical application. In vitro studies with steel models and metal spacers are a far cry from the clinical situation where accurate control over wash material thickness is dependent on the operator skill and finesse.^{10,3} Techniques which involve trimming away the set putty material from the impression surface are messy, unreliable and offer very little control over wash material thickness. The technique described in this article solves the problems encountered in most of the other two step techniques and even saves time making it arguably faster than the one step technique.

III. Conclusion

The aluminum foil spacer technique described in this article, we believe is a novel idea and will make the clinical application of the two step putty wash technique much easier and predictable. The technique is versatile, efficient and time saving, thus can go a long way in popularizing the two step technique.

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Fig 1: Foil adapted on unprepared tooth



Fig 2: Foil adapted on diagnostic cast



Fig 3: First stage putty impression

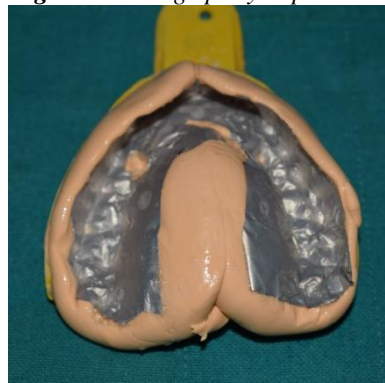


Fig 4: Foil peeled from the putty impression

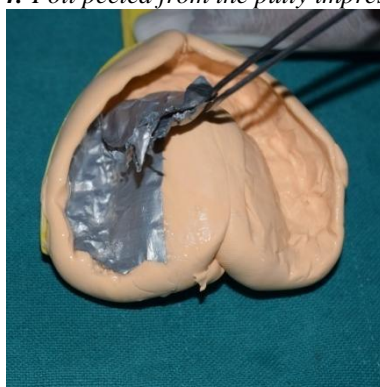


Fig 5: Application of light body elastomer

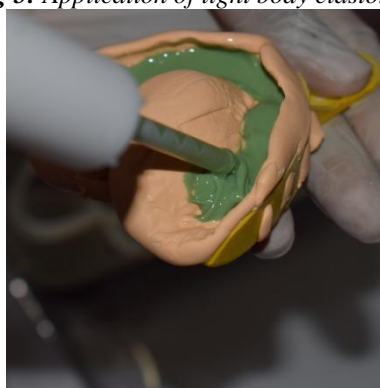


Fig 6: Final impression



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