

Fabrication of Verification Jig for Full Arch Implant Supported Fixed Prosthesis – A Novel Technique

Dr. Haby Mathew Somson*

Department of Prosthodontics, Pushpagiri College of Dental Sciences, Tiruvalla, Kerala, India

Abstract

Full arch implant supported fixed prosthesis requires precise and passive fit of the framework on the implants which is ensured by using a verification jig on models. After the preparation of models, verifying the accuracy of impressions made using polyvinylsiloxane with splinted copings may be difficult in certain situations where the angulations of implants are not favorable. This article enumerates an innovative method of fabrication of verification jig with pattern resin using open tray impression copings for maxillary and mandibular full arch implant prosthesis. This technique utilizes open tray impression copings on each implant replica on the master models on which pattern resin is adapted in a unique manner with a slot. This method provides easy verification of accuracy of implants intraorally than the conventional techniques.

Keywords: Fabrication; Dental implant; Innovative method

*Corresponding author:

Dr. Haby Mathew Somson

✉ drhabymys@gmail.com

Dr. Haby Mathew Somson, Senior Lecturer, Department of Prosthodontics, Pushpagiri College of Dental Sciences, Tiruvalla, Kerala, India.

Tel: +0091 9961719933

Citation: Somson HM (2019) Fabrication of Verification Jig for Full Arch Implant Supported Fixed Prosthesis – A Novel Technique. Periodon Prosthodon Vol.5 No.1:47

Received: September 03, 2019; **Accepted:** September 23, 2019; **Published:** October 03, 2019

Introduction

The demands for implant supported fixed prosthesis is on the rise, and so is the need for expertise in more accurate procedures. After the surgical placement of implants, accurate transfer of inter-implant positions, use of open tray impression copings with splinting and without splinting has been in practice. Studies have favored open tray impression techniques in which implants are splinted together with resins. After the impression is made in polyvinyl siloxane impression material, the master model is prepared. Conventionally, a single assembly of splinted copings is used as a verification jig to confirm the accuracy of the impression intraorally over the osseointegrated implants. Placing the splinted assembly may be a challenge in certain cases, as factors like polymerization shrinkage of the acrylic resin is inevitable. A major problem faced may be lack of a passive fit of the splinted assembly when the verification jig is placed intraorally. This may be worse in situations where the implants are non-parallel [1-3]. This article describes a simple, yet precise method of fabrication of a verification jig for full arch implant supported fixed prosthesis for maxillary and mandibular arches [4-8].

Methods

1. Prepare a custom tray for a full arch impression (Rapid Repair; Dentsply Intl, Milford, Del)
2. Make an open tray impression in Polyvinyl siloxane (Aquasil, Dentsply Intl) (**Figure 1**).
3. Pour the model in Die Stone (**Figure 2**).
4. Separate the copings from the impression.
5. Place individual open tray copings on the model and tighten it accurately.
6. Adapt auto-polymerising acrylic resin (Pattern Resin GC America) on the impression coping in a specific manner that creates a slot or female component parallel to vertical axis, on the lingual or palatal side (**Figure 3**).
7. Mark an indication line on the cast corresponding to the slot. This will help in orienting the copings intra orally during verification step.
8. Apply petroleum jelly on the prepared resin surface.
9. Fabricate a separate template in resin with a male component for each slot on individual copings (**Figure 4**).



Figure 1 Open tray full arch implant impression with implant replica.



Figure 2 Master model in die stone.



Figure 3 Open tray copings with attached pattern resin.



Figure 4 Separate template in pattern resin.

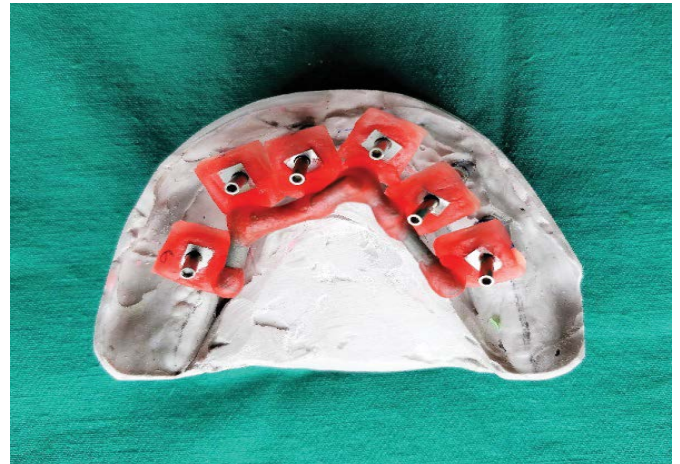


Figure 5 Template in pattern resin to fit on the slot on individual coping with resins: Occlusal view.



Figure 6 Template in pattern resin to fit on the slot on individual coping with resins: Labial view.

10. Check if template is accurately seated in a single path of insertion on all the individual copings (**Figures 5 and 6**).
11. The verification jig is ready to be used intra orally over the implants.
12. Seat the individual copings with the resin over the implants with precise orientation. (**Figure 7**).
13. Check for the uni-directional path of insertion of the template, thereby, the accuracy of open tray impression can be verified (**Figures 8 and 9**).

Results and Discussion

The technique described above is a novel and efficient method for fabrication of an intraoral verification jig with pattern resin which can be easily placed on the osseointegrated implant. The advantages of this method are that it allows trouble free placement of impression copings on the implants and is a more



Figure 7 Individual copings with pattern resin fixed on the implants.



Figure 9 The template tried over the coping for accuracy of open tray impression: Occlusal view.



Figure 8 The template tried over the coping for accuracy of open tray impression: Labial view.

precise way of checking the accuracy of the impression with the template. This technique proves useful in situations where the implant angulations on a full arch maxilla or mandible are not favorable otherwise.

Conclusion

This technique utilizes open tray impression copings on each implant replica on the master models on which pattern resin is adapted in a unique manner with a slot. This method provides easy verification of accuracy of implants intraorally than the conventional techniques.

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