NUTS & BOLTS

Solutions in Implant Impressioning

by Michael J. Melkers, DDS, FAGD

If you peruse the Dentaltown implant discussion boards, the subject of implant impression techniques is a frequent area of frustration and discussion. We strive for stability and accuracy in our implant impression techniques and as we do so, we must balance the accuracy of the techniques with their ease and efficiency.

The debate on the accuracy of open versus closed impression tray technique continues to drag on, with opinions and research split nearly equally between each technique. Almost universally agreed upon is the need for an accurate and more rigid impression material. In the past, the gold standard in this area was thought to be polyether – loved for its rigidity and accuracy, but hated for its setting time, taste and smell.

All current impression material systems include light, medium and heavy body materials, depending on practitioners' preferences and clinical material demands. The heavy body materials in this category tend to have a Shore A hardness in the range of 50-60. The following is a presentation of implant impressioning techniques using a newer vinyl polyether silicone (EXA'lence, GC America).

New Rigid Impression Material

This newer impression system reaches outside of this standard and brings to clinicians a heavy body rigid material that is key to the techniques that will be presented. The heavy body rigid material, with its Shore A hardness of 82 brings a rigidity and stability that was previously only available in putty and bite registration material. Traditional polyether materials have a Shore A of 60. Given its rigidity, this newer viscosity/rigidity material was intended to be used exclusively for triple tray quadrant applications (Fig. 1). These properties allowed for predictable and excellent clinical results, even in second molar and multi-unit applications.

The rigidity of the material however, precluded its use in full-arch applications. This paradoxically made it the perfect material for implant impressions without the ability to use it in such an application. By modifying its intended use and utilizing a mixture of viscosities, clinicians can enjoy the rigid stability of the heavy body rigid material in a full-arch implant technique.

Technique

After the impression tray size has been selected and tried in on the patient, the area of the tray that will receive the implant impression coping is marked with indelible marker. This area is then filled with the heavy body rigid material (Fig. 2). This sectional filling of the impression tray will allow for the benefits of the ultra-rigid material, without the risk of locking the tray in the patient's mouth due to increased rigidity.

Fig. 1

Fig. 2

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Fig. 3


Fig. 4

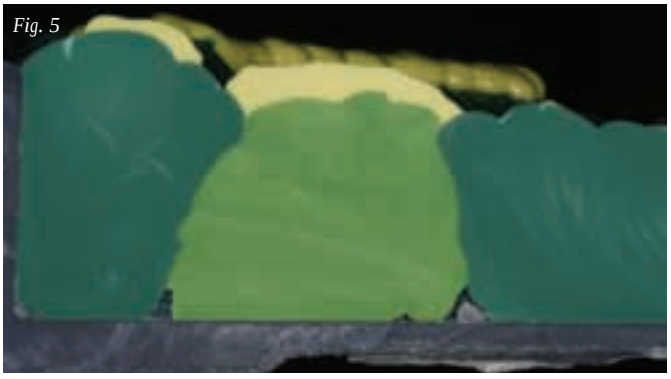
Fig. 5

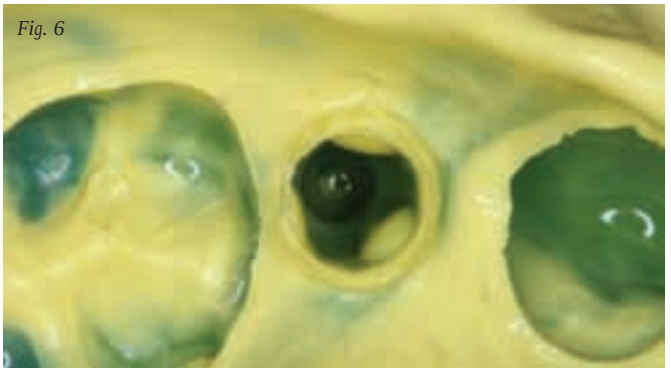
Fig. 6


Fig. 7


Fig. 8

The remainder of the tray is then filled with heavy body impression material (Fig. 3). Finally, a bead of extra light wash is extruded throughout the arch as well as in the area of the impression coping (Fig. 4). This will facilitate capture of occlusal morphology detail but also intimate capture of the impression coping surface and retention areas. In the cross section, the impression material strata can be visualized (Fig. 5). The components are organized to maximize their material benefits in the implant impression procedure.

In the final implant impression, all of the components of an excellent implant transfer impression can be seen. Fine, detailed capture of the transfer coping can be visualized on the internal aspect of the impression (Fig. 6). With the impression coping and analog seated, the light body's subgingival extension can be seen to accurately record the existing emergence profile that has been formed by the implant healing cap (Fig. 7).

The final clinical results (Fig. 8), with no required adjustments in this case, are a reflection of not only the accuracy, but the efficiency of this new implant impressioning protocol. This protocol, using user-friendly crown and bridge impression materials with unique viscosities and applications, is a welcome addition to our impressioning armamentarium. ■

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Author's Bio

Dr. Michael Melkers maintains a private practice with an emphasis on comprehensive and restorative care in Spokane, Washington with his wife Dr. Jeanine McDonald. Dr. Melkers is the founder and author of the Nuts & Bolts Occlusion programs & DVD series and visiting faculty at The Spear Institute. Dr. Melkers can be contacted at info@michaelmelkers.com.