

An ergonomic way of linking open tray copings- a technique modification

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Introduction

Implant impressions are usually made by open or closed tray transfer copings. Single implant impressions are not very fastidious in nature but multiple implants involving long spans and full mouth rehabilitations require very high degree of precision. Open tray copings are considered to be more accurate because they eliminate the need for relocation in the impression which can introduce errors.^[1-6]

^{6]} These become more relevant in multiple implant impressions as these errors can add up to create significant clinical misfits. It has been proved that the accuracy of open tray copings can be further enhanced by linking them before or after impressing.^[1,4,5,7,8] Several materials have been tried out like auto polymerizing resin, Bis-GMA,

pattern resins, flowable composites, impression plaster and bite registration pastes.^[1-3,7-10] All of these methods have one thing in common. They employ the uses of dental floss or orthodontic ligature wire to form a scaffold for the linking material.^[1-3] This practice is time consuming and cumbersome. Our technique significantly reduces chair side time by employing elastomeric modules for forming the scaffold and using light cure pattern resin to rigidly link the copings. This article describes this elegant and ergonomic technique developed by the authors.

Technique

- The appropriate open tray copings are fixed precisely onto the implants intra orally.

- Orthodontic e-chain (Optima flexi) of adequate length is cut and stretched repeatedly to reduce its activation.
- Orthodontic separator forceps are used to engage the square head of the copings with the e-chain and is continued onto the nearby copings (Fig. 1). One should be careful not to stretch the e-chains excessively which can actively pull the copings together and this can be a source of error after removal. After engagement, the e-chains should passively (Fig. 2) link the copings together forming the scaffold.
- Light cure pattern resin (Resinlay) is now injected onto the scaffold directly intra orally and molded with a hand instrument to ensure even coverage of the e-chains (Fig.3). Care should be taken to remove excess resin and ensure at least 3mm space above the gingiva to allow uninterrupted passage of impression material.
- Linking is completed by light curing (Fig. 4) and then the final impression is made. (Fig. 5)

Discussion

It is common practice to link the open tray copings with dental floss by winding the floss in a figure of eight configuration in sufficient bulk to provide a scaffold.^[1-3] Many authors have experimented with different materials to be applied on to this scaffold, but very little has been done to find an alternative to floss and orthodontic ligature wire. Floss and orthodontic wire is time consuming and working in a challenging environment like the oral cavity is especially taxing with such materials. This becomes more of a hassle when patient cooperation and access adds on to the existing difficulty. Elastomeric modules are cheap and easy to use even for beginners. We would like to emphasize that one precaution that has to be exercised is ensuring passivity of the linking. When linked, the e-chain scaffold should gently sag which is a reliable clinical indicator of adequate passivity.

The emphasis of this technique is fast, accurate linking of copings and that is the reason why we chose light cure pattern resin. Many authors have described methods with autopolymerizing resin, flowable composites, bis acryl composite provisional materials and bite registration pastes.^[1-3,7-10] Our technique can be used with any of these materials and thus is very versatile. It is advocated by some authors that the linked copings have to sectioned and reattached to minimize the effects of polymerization shrinkage.^[2,3] The same can be applied to this technique as well. In vitro studies are being conducted by the authors to get definitive scientific proof of its accuracy.

Conclusion

Multiple and full mouth implant impressions can be physically and mentally demanding for the patients as well as the operators. The objective of this technique is to simplify the existing protocol without compromising on its accuracy. Chair side ergonomics are greatly improved and hence it promises to reduce stress levels of the patient and operator during the course of challenging restorative work.

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Legend Figures



Figure 1: E-chain engaged to coping heads

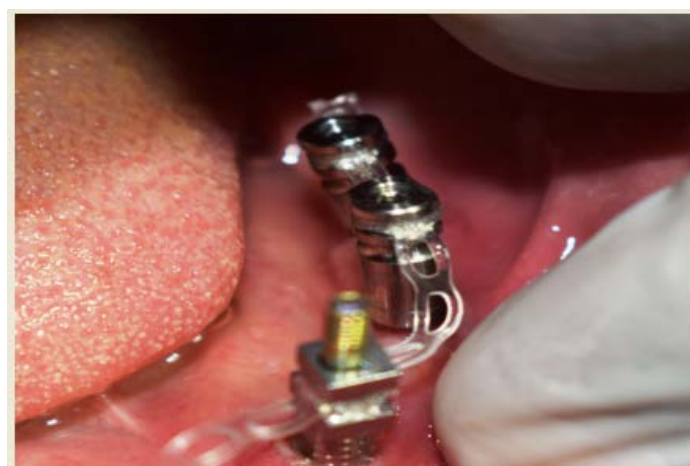


Figure 2: Passive linking of copings

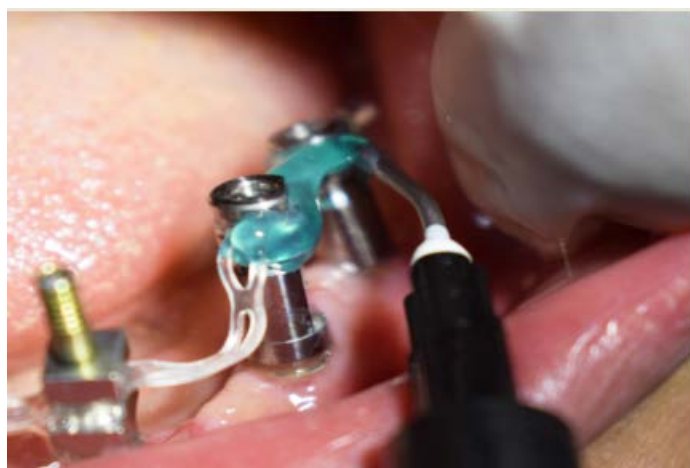


Figure 3: Light cure resin injected on to scaffold



Figure 4: Completed linking



Figure 5: Final impression