

The O-Ring Universal Impression Technique

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Abstract

Recording the implant position for master cast fabrication for multiple implant systems may require a large inventory of impression copings. A technique is described whereby implant impression-making procedures can be modified to be more universal to all implant systems. This makes the procedure more cost-effective by simply incorporating the use of a rubber O-ring on the abutment or fixture mount, which then eliminates the use of a transfer coping. This technique can be applied at the time of surgery for indexing as well as during the final impression appointment.

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During the impression-making procedure for an implant, the precise position of the implant must be transferred to a definitive cast; only then can an accurate and passive restorative fit be accomplished.^{1,2} Studies have reported the advantages of the open-tray impression technique over other techniques^{3,4}; for this reason, the open-tray impression technique has become more popular in recent years. A two-piece impression pick-up coping, which engages the implant fixture, is attached onto the implant fixture and is radiographically confirmed. An implant fixture level impression is made of the arch using an elastic impression material. This is considered the most accurate impression procedure routinely performed in practice.⁵ This article suggests how a modification of this technique, using a simple O-ring, saves time, is simple, and is cost-effective.

Technique

1. Following the standard open-tray impression procedure, place the customized preable abutment instead of the pick-up impression coping on the implant fixture and make a radiograph for accuracy. Then, place the O-ring on the prepared abutment (Fig 1).
2. Inject the polyether medium body impression material (Impregum Penta Soft; 3M ESPE AG, Seefeld, Germany) around the O-ring and abutment. The O-ring is held by tight friction on the abutment, which gives an adequate amount of undercut for retention of the impression material.
3. Fill the tray with the impression material as normally accomplished in an open-tray technique and then seat it in the mouth. Make sure an access hole is kept open for retrieving the abutment screw; a hand-molded wax or 10-gauge (2.6-mm) plastic sprue (DentiFax/Di-Equi, Buffalo, NY) or any latch-type drill placed inverted can be used as an aid to maintain the access.
4. Once the impression material has completely set, remove the access hole opener and unscrew the abutment screw. The impression tray is removed as one piece, including the abutment, which is engaged by the O-ring (Fig 2).

Discussion

The restorative dentist treating implant patients who may already have implants planned and placed elsewhere may require a large variety of implant restorative components. This may be particularly true in a large city. With more than 100 implant companies worldwide, stocking a large variety of implant components can be inconvenient and costly. The proposed technique, which has been used routinely for the past 4 years for more than 50 implant patients, provides an accurate alternative when an impression coping is not available.

The O-ring universal impression post technique has the following advantages:

1. It is applicable to any implant system in the world (unlike the available systems that are not even applicable to a larger- or narrower-diameter implant of their own system).



Figure 1 O-rings placed around the prepared definitive abutment.

2. This O-ring is available in a rubber format, which, when sent as part of the impression to the laboratory, is ultimately disposable and does not require increased inventory.
3. It allows an evaluation of the permanent abutment, particularly its soft tissue profile, so instruction can be given to the laboratory.
4. In patients where there is limited mesiodistal space to place a traditional impression coping, the O-ring can be placed as occlusally or cervically as required to bypass the neighboring tight space.
5. In instances where an implant crown is being fabricated to fit an existing removable partial denture (RPD), this technique allows the abutment and O-ring to be picked up in the impression along with the RPD, where a traditional impression coping may not fit.
6. The O-ring cost is minimal, and the time and cost savings are potentially significant.

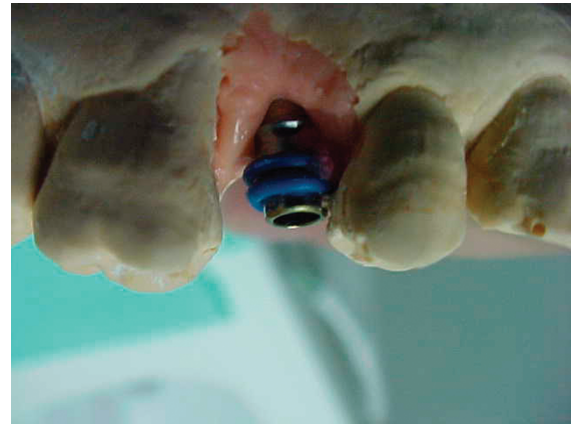


Figure 2 Soft tissue cast with the prepared definitive abutment in place.

A disadvantage of this technique is that it requires having the definitive abutments available for the impression. An alternative to this technique is to make a direct impression of the definitive abutment intraorally, following conventional crown and fixed partial denture impression-making procedures.

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