



SIMPLE TECHNIQUE TO TRANSFER OCCLUSAL VERTICAL DIMENSION AND ARTICULATE A DEFINITIVE IMPLANT CAST FOR A FULL ARCH IMPLANT PROSTHESIS

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The dental literature is replete with techniques for registering maxillomandibular relationships and transferring them accurately to the articulator. For edentulous patients receiving implants, several methods have been described for articulating the definitive implant cast at the appropriate occlusal vertical dimension (OVD) in the centric relation (CR) position.¹⁻⁶ Techniques available for mounting the definitive implant cast on the articulator include record bases with occlusion rims supported by the healing abutments, or screw-retained record bases.^{1,2} Other options involve the use of a duplicated denture with acrylic resin as a custom impression tray, or even a duplicated denture with vinyl polysiloxane (VPS).³⁻⁶ A time-saving chairside technique is presented for the articulation of the implant definitive cast, maintaining the established OVD, and subsequent fabrication of a silicone index to assist in prosthesis design, both performed in a single visit. The existing denture can then be easily converted into an interim fixed prosthesis on the articulator, thus minimizing chair time and increasing patient comfort and satisfaction.

TECHNIQUE

1. Verify the esthetics, phonetics, function, and OVD of the patient's existing complete denture, previously relieved and relined on the healing abutments during second-stage sur-

gery (Fig. 1, A).⁷ Verify the accuracy of the implant definitive cast with the aid of a verification jig.^{8,9}

2. Inject VPS material (Regisil PB; Dentsply Caulk, Milford, Del) intraorally, and make an interocclusal CR record at the existing established OVD (Fig. 1, B). Measure the distance between the gingivo-cervical areas of 2 reference teeth in the maxillary and mandibular arch. Ensure that the distance is exactly the same before and

after the application of the material in the intaglio surface of the complete denture, to maintain the established landmarks. Relieve the intaglio surface of the patient's complete denture with an acrylic bur (H79EF; Brasseler USA, Savannah, Ga) to accommodate space for healing abutments at least 3 mm in height.

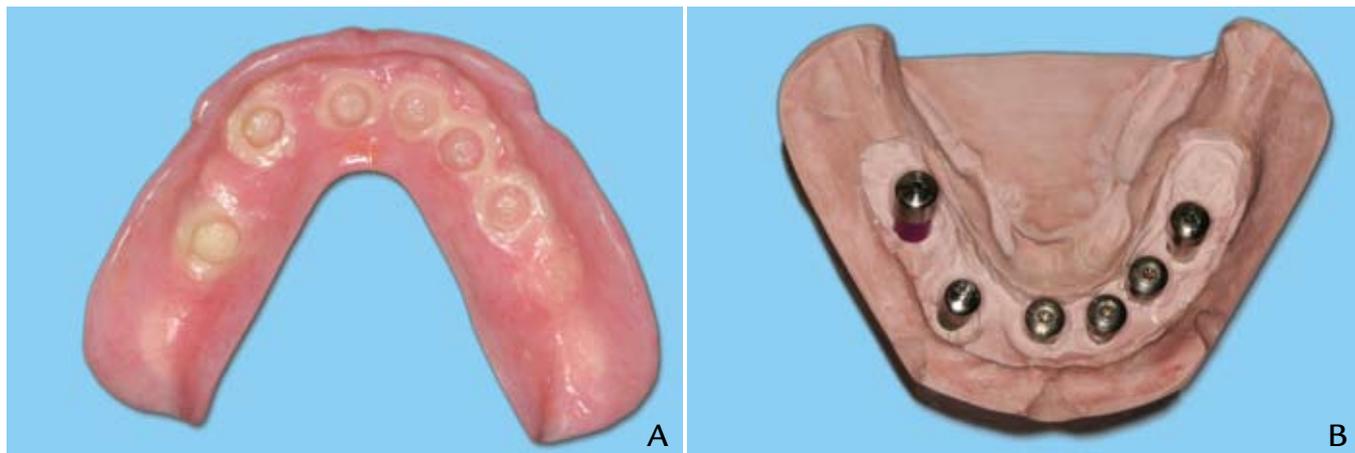
3. Mix autopolymerizing acrylic resin (Alike; GC America, Inc, Alsip, Ill), load a plastic disposable syringe,



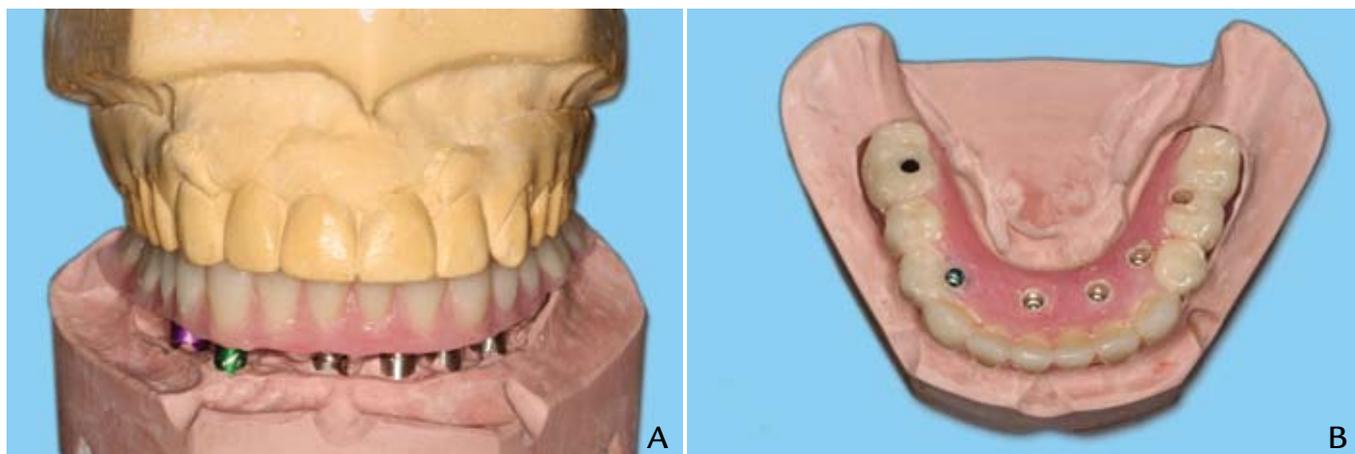
1 A, Intraoral condition without complete denture in place over healing abutments. B, Interocclusal CR record at established OVD to assist articulation.

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2 A, Intaglio surface of relined complete denture over healing abutments. B, Implant definitive cast with healing abutments matching intraoral height and profile.



3 A, Casts articulated with aid of existing removable prosthesis relined over healing abutments. B, Conversion prosthesis fabricated on articulator.

and inject the material on the intaglio surface corresponding to the healing abutments. Alternatively, use a rigid VPS material (Futar D; Kettenbach GmbH & Co KG, Eschenburg, Germany) if the healing abutments are divergent due to severe implant angulation. Do not overload the intaglio surface with acrylic resin to avoid increasing the established OVD.

4. Seat the denture with the loaded intaglio surface on the healing abutments. Instruct the patient to occlude with the aid of the previously made CR record while the material polymerizes, to ensure accurate positioning and seating of the denture. After polymerization of the acrylic resin, remove and trim excess, leaving the indentations of the healing abutments intact (Fig. 2, A).

5. Place healing abutments (Healing Abutments; Nobel Biocare USA, Yorba Linda, Calif) on the definitive

implant cast with the same height and emergence profile as the mouth (Fig. 2, B). Remove the soft tissue mask and seat the denture on the cast until it snaps on the healing abutments. If the denture flange interferes with passive seating of the denture on the cast, adjust the flange until clearance is achieved.

6. Articulate the definitive implant and the opposing casts in a semiadjustable articulator (PCH Articulator; Panadent Corp, Grand Terrace, Calif) with a facebow transfer and an interocclusal CR record (Fig. 3, A). Lute the casts together with wooden sticks and wax (Dentsply Sticky Wax; Dentsply Intl, York, Pa) to achieve rigidity.

7. Make 3 notches on the base of the definitive implant cast and generate a silicone putty index (Lab Putty; Coltène/Whaledent, Inc, Cuyohoga Falls, Ohio) around the buccal sur-

faces of the articulated denture to preserve the spatial orientation of the teeth and aid in the selection of abutments and framework design.

8. Attach temporary nonengaging abutments (Temporary Abutments; Nobel Biocare USA), relieve the denture at the corresponding abutment sites, and inject autopolymerizing acrylic resin (Alike; GC America, Inc) to connect the abutments to the denture. Adjust cantilever length according to antero-posterior spread, remove excess acrylic resin, and polish the prosthesis with flour of pumice.^{10,11} Transfer the conversion prosthesis from the articulator intraorally, hand tighten the abutment screws, and perform occlusal adjustment, if necessary (Fig. 3, B). Place cotton over the screws, and cover the access holes with composite resin (Filtek Z250; 3M ESPE, Seefeld, Germany).

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NOTEWORTHY ABSTRACTS OF THE CURRENT LITERATURE

Influence of saliva contamination on zirconia ceramic bonding

Yang B, Lange-Jansen HC, Scharnberg M, Wolfart S, Ludwig K, Adelung R, Kern M. *Dent Mater* 2008;24:508-13.

Objectives: The purpose of this study was to investigate the influence of saliva contamination and cleaning methods on adhesive bonding to dental zirconia ceramic with a phosphate-monomer-containing luting resin.

Methods: After saliva immersion, airborne-particle abraded ceramic specimens were cleaned with water rinsing, with isopropanol, with phosphoric acid gel, or with additional airborne-particle abrasion. Airborne-particle abraded specimens without contamination were used as the control group. Chemical analysis of the ceramic surfaces of all groups was done using X-ray photoelectron spectroscopy (XPS). The influence of contamination and cleaning methods on ceramic bond durability was examined by tensile bond strength (TBS) testing after 3 days or 150 days water storage with 37,500 thermal cycles.

Results: After saliva contamination XPS revealed an organic coating which was not removed completely with water rinsing, with isopropanol, or with phosphoric acid. Using TBS testing a strong influence of contamination and cleaning methods on resin bond strength and its durability was found.

Significance: Saliva contamination significantly affected resin bonds to zirconia ceramic and its durability. Airborne-particle abrasion was the most effective cleaning method.

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