

Full-Arch Immediate-Load Provisionals: Why Technique and Materials Matter

Thomas Wade, CDT, explains his alternative next-day technique for converting a conventional denture into a screw-retained immediate-load provisional.

In the popular and rapidly growing All-on-4® immediate-load treatment arena, it has become the focus of many clinicians and technicians to convert a conventional denture into a screw-retained immediate-load provisional in the fastest manner possible so the patient can receive it the same day.

However, speed can often result in improper or inadequate technique, causing the provisional to fail during the four-to-six-month osseointegration/healing phase and final restoration fabrication process and creating a time-consuming, frustrating repair situation for the patient, clinician and laboratory. This begs the question: Who actually benefits the most from the same-day protocol: the patient or the business model of the clinician and/or laboratory?

As the All-on-4 immediate-load treatment becomes more popular and more people get involved, perhaps there should be less emphasis on *how fast* the provisional is produced and more emphasis on *how well*. In general, implant centers in which the surgeon, restorative doctor and laboratory all reside under the same roof and have rigid, set protocols are more capable of achieving consistent same-day results than the vast majority of teams who reside in their own “cottages” and collaborate from afar; these teams often vary with ever-interchanging players that possess different levels of experience and expertise.

Converting a conventional denture into a screw-retained, immediate-load provisional can be a profitable technique, but for the sake of the patient, it must be done correctly and without taking shortcuts. For the past few years, I’ve been using an alternative technique that’s been very successful for our clients as well as several other teams around the country.

It’s a next-day technique, although it’s possible to convert single arches in the same day provided the laboratory has at least three hours and uses many of the same procedures. While the patient goes home without his provisional for the night, this technique is less grueling for him, especially in double-arch cases, and focuses on quality over speed.

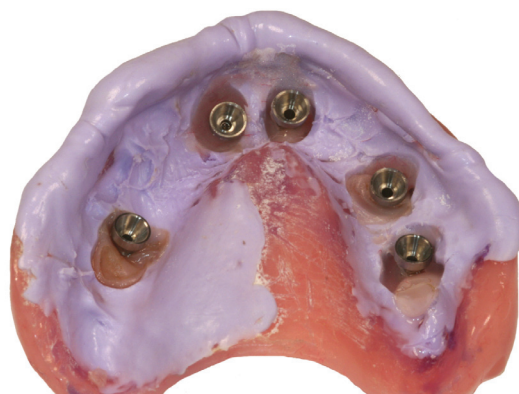
Since there’s less in-office downtime, the surgeon’s office evacuates sooner, the restorative doctor is freed up to produce that afternoon and the technician can return to his superior and comfortable facility where he has ample time to use proper techniques. The finished provisional is then inserted by the restorative doctor sometime the next afternoon, usually in under an hour and with little difficulty.

If the patient is educated about the pros and cons of same-day versus next-day treatment and the realities of the patient experience vs. the marketing message of the implant centers, I believe the majority will choose to wait 24 hours in order to receive a provisional that has been better engineered to resist failure and provide long-term success.

My Technique

Phase 1: Lock-Up (Clinical)

After successful implant and abutment placement by the surgeon, the restorative team takes over and a wash impression is made in the denture (adhesive should be used) to accurately reflect the new tissue surface, as well as the precise location of the abutments to aid in the strategic drilling of the holes. The denture will then be “locked up” by firmly fixating it to the titanium temporary abutments with a fast-set acrylic.

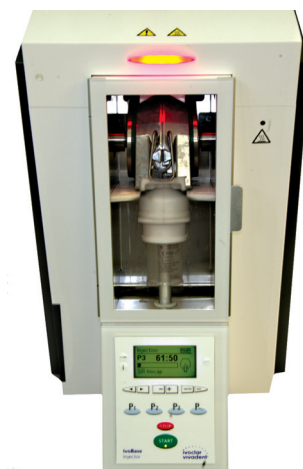


After confirmation of complete fixation, void of any micro-movement, healing caps *must* be placed to keep the tissue from collapsing over the abutments/margins while waiting for insertion and the patient is stabilized and dismissed for a much-needed rest.

Since All-on-4 is an expensive treatment plan, the patient deserves the best quality provisional possible and shouldn’t be condemned to six months of poor esthetics, potential breakage, bad breath or increased risk of failed implants. A successful provisional starts with a well-made denture using high quality denture teeth and ideally, the provisional should incorporate the exact same brand, mold and shade that will be used in the final bar prosthesis. Ivoclar Phonares® and BlueLine® teeth have served our clients and patients well.



To fabricate a denture that’s to be converted into an immediate-load provisional, I use injected acrylic, such as Ivoclar’s Ivocap and/or Ivobase system, which provides great density that translates into the necessary strength and hygienic qualities required for these appliances. Currently, injection is also the superior solution for the final bar prosthesis as well.

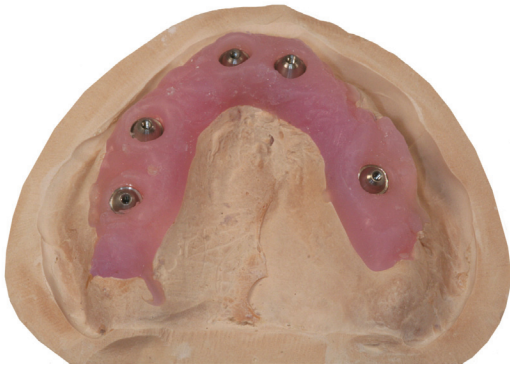


When relining/modifying the provisional during the conversion process, I use Monoject syringes to inject and deliver the matching Ivoclar ProBase self-polymerizing acrylic quickly and efficiently to cure under pressure for superior results.

Phase 2: Conversion (Laboratory)

While the entire in-lab process can take up to four to five hours to complete, much of it is downtime waiting for gypsum and acrylic to set and I typically visit the pressure pot three to five times during the process. I usually try to get all the model work, articulating and teardown done in the afternoon immediately after the surgery, and I start the reconstruction process in earnest when I'm fresh the following morning!

Step 1: Make a soft tissue cast.



Step 2: Use a large diameter silicone bur to make a concave trough to allow for a slight tissue impingement on the crest of the ridge. This helps train the tissue for a better emergence profile and allows for a better acceptance of a more convex intaglio surface moving forward to the final bar restoration. This is especially important in the maxilla where air escape can cause phonetic problems, blowing bubbles, etc.



Step 3: Mount the case on an articulator; this enables you to correct any lock-up errors (midline, fox plane, labial contour and occlusion) as well as restore full occlusion and render accurate milling to achieve equilibration of the provisional to the clinical remount. Often, the entire occlusal table(s) is destroyed in the lock-up process and the tooth/teeth needs to be replaced.



Step 4: Remove the porous air-cured acrylic (which often has large air pockets) that was injected chairside to fixate the denture to the cylinders and replace it with dense, pressure-cured acrylic. The bottom half is replaced while relining the intaglio surface while the top half is replaced while reworking the tooth/cylinder occlusal portion of the provisional.



Step 5: Since many failures occur at the titanium cylinders, I apply Schutz's Se-bond Smart metal bond to the cylinders to increase the bond strength. Synca's Fiber-Force reinforcement can be incorporated for additional strength if the vertical/overall dimensions are minimal.

Step 6: Shorten the tops of the metal cylinders, especially underneath denture teeth. Use guide pins to create precise, glass-walled screw shafts and highly accurate access holes that are in the acrylic, not titanium; this makes it easier for the clinician to close the holes in a clean, esthetic manner.



Step 7: Thoroughly pumice and highly polish all acrylic surfaces.



This is especially important on the intaglio surface where as much concavity and ridge-lap should be removed as possible to facilitate patient hygiene which is critical to proper osseointegration and soft tissue healing.

The finished provisional is then steam cleaned, disinfected and forwarded to the restorative doctor for insertion. The analog cast should be kept intact in case a repair is required; it also facilitates the first step in the final bar restoration process.



This final bar restoration illustrates the most strategic placement of the implants/abutments specific to a full arch prosthesis that uses denture teeth and PMMA base acrylic, as opposed to a ceramic-metal or zirconia prosthesis. For additional tips and explanation, visit LMTmag.com.



Thomas Wade, CDT, has owned New Horizons Dental Laboratory in Broomfield, CO, since 1983 and specializes in the fabrication of removable and implant prosthetics. He is a published author and pres-

ents master-level, hands-on courses for Ivoclar and Nobel Biocare on the clinical and laboratory aspects of the multiple implant treatment of the edentulous arch with an emphasis on CAD/CAM-milled titanium bar restorations, digital planning and the All-on-4 treatment module. He is a 1976 graduate of the Dental Laboratory Technology program at the U.S. Air Force School of Health Care Sciences, Sheppard AFB, Wichita Falls, TX.