

## HOW TO

# UTILIZE MILLED CHAIRSIDE ABUTMENTS

Using e.max crowns with CEREC 4.2 and GALILEOS on a two-unit immediate molar implant case.

[ By August de Oliveira, DDS ]

Information provided by Sirona Dental.



DR. AUGUST DE OLIVEIRA

**DR. CARL MISCH ONCE SAID,** “An implant is not a tooth.” And he is absolutely right, it’s far from it. It’s gray, it’s cylindrical, and much smaller than a tooth. Dr. Scott Ganz once said, “Patients don’t come to us for implants, they come to us for teeth.” And he too, is absolutely right. Patients don’t understand that implants are not teeth; they look online at implant cases and just assume they have the proper biology to have implants that look like teeth. So what’s a doc to do? Custom esthetic abutments give us the ability to take implants that do not look like teeth, and deliver to our patients the teeth they want, at times, even on the first appointment.

## STEP 01 Diagnosis and treatment planning

The following is a case I completed utilizing both CEREC and GALILEOS technologies in both the surgical and restorative aspect of this implant case. This patient presented with pain on an existing bridge. Tooth No. 31 had a retreated root canal and some “heroics” done to an existing failed bridge with a lot of decay. There was bone loss in the furcation and the patient was given options of seeing a periodontist for osseous surgery or sectioning the bridge, extracting No. 31 and placing implants in

the Nos. 30 and 31 areas (Fig. 1). The patient did not love cleaning around his bridge with floss threaders, so the patient opted for implants with individual crowns. After planning and ordering the surgical guide in the GALILEOS software with optical scan data from CEREC (Fig. 2), a Sirona OPTIGUIDE was delivered in 6 days.

## STEP 02 Surgery

After No. 31 was removed atraumatically with periostomes sectioning the bridge distal to No. 29, the guide was seated (Fig. 3). The osteotomies were prepared utilizing Implant Direct’s Guided Surgery Kit. In the No. 30 position we placed a 4.7 by 11.5 Legacy 3 Implant from Implant Direct and in the No. 31 position we placed a 7 by 11.5 Legacy 2 Implant (Fig. 4). When any immediate implant is placed, there is almost always some degree of a gap between the implant and the tooth socket. As a rule of thumb, I will place bone graft material (Demineralized Freeze Dried Bone Aggregate DFDBA) from a cadaver in this gap if the space is greater than 2mm. Under 2mm I do not graft and let the socket heal by secondary intent. When grafting you are in a battle against time. Tissue cells such as Fibroblasts and Epithelial cells will attempt to grow into your graft and prohibit the growth of bone. To counteract this result, a collagen membrane was used to cover the graft material and primary closure was attempted to seal the membrane from the oral cavity. It’s

sometimes difficult to suture around membranes. A great trick is to punch a hole in the membrane and tack it down with the healing abutment or cover screw. The membrane is then stabilized and sutured over (Fig. 5).

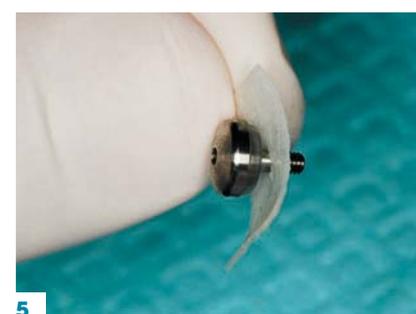
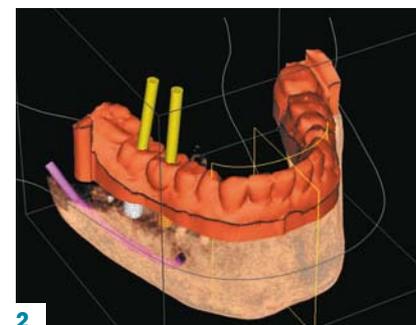
## STEP 03 Restoration

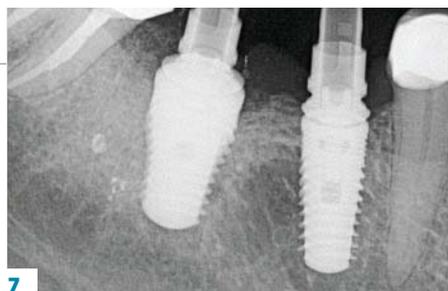
After 4 months, the case is now ready to restore. The benefits of digital intraoral impressions over conventional impressions are numerous. There are many steps in which errors can be introduced into an implant impression with PVS material such as the misplacement of implant restorative parts and contraction of the impression material. This case was imaged with the CEREC Omnicam using version 4.2 with ScanPosts compatible with the Zimmer TSV line (Figs. 6 and 7).

Within the CEREC 4.2 Software there are numerous advancements from previous versions. The biggest change, in this author’s opinion, is the ability to design and mill implant abutments and screw retained crowns chairside. First the type of restoration is selected in the software and various intraoral models are generated. The ScanPosts are located in the model digitally and then the restorations are designed. In this case, we planned to use two InCoris TZI blocks to fabricate custom zirconia abutments and e.max crowns were milled chairside to compliment these (Fig. 8).

## STEP 04 Choosing materials

As many know there are numerous materials available for most CAD/





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## AT A GLANCE

1. Radiographic evidence of a periapical lucency in the furcation of No. 31.
2. After planning the case using CEREC and GALILEOS an implant OPTIGUIDE surgical guide was ordered from SICAT.
3. The OPTIGUIDE was placed after sectioning the bridge between Nos. 29 and 30. The OPTIGUIDE was stabilized with an Isolite that also aided in suctioning the irrigation.
4. Implants were placed and the No. 31 socket was grafted with human demineralized freeze dried bone.
5. A collagen membrane was stabilized by making a hole in it and using the 3mm healing abutment to tack it down.
6. ScanPosts were used and scanned with CEREC Omnicam.
7. Seating of the ScanPosts was verified with a radiograph.
8. After intraoral scanning, two Zirconia abutments and two e.max crowns were designed and milled using CEREC version 4.2.
9. Zirconia abutments were milled chair side and sent to a lab for sintering.
10. The e.max crowns were milled and finished in the dental office.
11. Note the tissue contours around the abutments. Margins placed 1mm subgingival for esthetics and easy cement clean up.
12. Crowns cemented using composite cement and BluSep™ to facilitate easy cement clean up.
13. Crowns cemented. Easy cement appointment due to proper implant and margin placement.
14. Happy patient and doctor



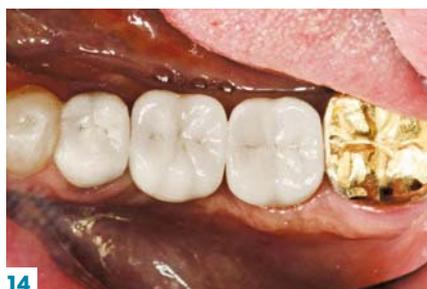
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### GALILEOS Comfort

- Features low dose with great detail
- Fully compatible with Dolphin® Imaging Software, Galileos Comfort Plus with HD Mode, large FOV and integrated FaceScan offers all the options needed for diagnosis, treatment and patient consultation.

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CAM systems, however there are only a few available now for abutments and screw retained crowns. In this case we utilized Sirona's InCoris TZI (translucent Zirconia) blocks for the abutments and Ivoclar Vivadent's e.max for the crowns. Since we are utilizing Zirconia abutments and I do not have a Zirconia sintering oven, we replaced cylindrical healing abutments with Contour Healers, which are anatomic healing abutments used to shape the tissue (Fig. 11). We got the abutments back from the lab after being sintered. The e.max crowns were milled and finished in my office (Fig. 10).

#### STEP 05 Case completion

The Zirconia abutments were tried in and later torqued down to 35 Ncm as per Sirona's recommendations using a variable torque wrench. Because we had full control of the shape of the abutments the margins were placed 1mm sub gingival to allow for esthetics as well as easy cement clean up.

The crowns were seated and the occlusion adjusted. BluSep™ was used in the interproximal and cement clean up was verified with a bitewing (Fig. 12). In my opinion, this is what implants are all about, an easy cement appointment. Gone are the days in my office of trying to make the tissue work around stock abutments. I plan my implants with the restorative outcome in mind so when it comes time to restore, there are no surprises (Fig. 13). Patients are getting educated on the benefits of implants over bridges and want this

type of treatment. Get educated on implants; work with your specialists to see the benefits of guided surgery and CAD/CAM restorations. Everyone will be happy, especially your patients! (Fig. 14).●

#### ABOUT THE AUTHOR

August de Oliveira, DDS, began lecturing on 3D technology in 2004 when he became a CEREC basic trainer. Dr. de Oliveira has written two books on implantology and has been involved with beta testing Sirona's Sidexis program. Dr. de Oliveira moderates both the Implantology and Mini Implant Forums for Dentaltown.com. He lectures nationwide for Sirona on the GALILEOS conebeam system and guided implant surgery. Dr. De Oliveira practices General Dentistry in L.A. and is co-founder of DigitalEnamel.com and implantsmadeeasy.com



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