

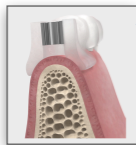
## GUIDED DIGITAL SURGERY

A completely digital flow for traditional dentistry is accomplished via a digital impression/scan of the teeth, combined and overlaid on a CBCT of the internal bony structures. A precision surgical guide is fabricated with sleeves and using drill keys to control the exact position, angle and depth of the drill relative to the planned implant position on the digital images.

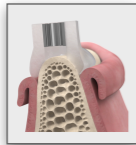


The surgical guide can be supported by the teeth, the mucosa, or the bone, depending on a few variables:

**Tooth supported:** for single tooth and partially edentulous cases, with or without flap reflection.



**Bone supported:** for partially or fully edentulous cases when increased visibility is needed. Pins can be used for stabilization.



**Mucosa supported:** for fully edentulous cases when minimally invasive surgery is preferred. Pins can also be used for stabilization.



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## ANALOG TO DIGITAL

We all know digital dentistry is slowly becoming more and more common place in each of our practices.

Most universally, and most quickly adopted into the dental practice, were digital radiographs first introduced in the mid 1980s. Even CBCT machines are working their way into private offices as cost reductions have made them more attainable.

Many of you are also familiar with digital impression taking and have invested in CAD/CAM machines such as the CEREC. This digital technology has also been around since 1985, but it has taken time for the technology to be accurate enough and cost effective enough to use it in more and more applications in dentistry.

About 3 years ago, I invested in a CBCT machine and a TRIOS digital scanner. My primary objectives respectively were to 1. better visualize vital structures like the inferior alveolar nerve or tooth positions for surgical uprighting, and 2. get accurate Essix and Flipper appliances fabricated, as well as screw retained temporary implant crowns for shaping soft tissues prior to final restoration with the referring dentist.

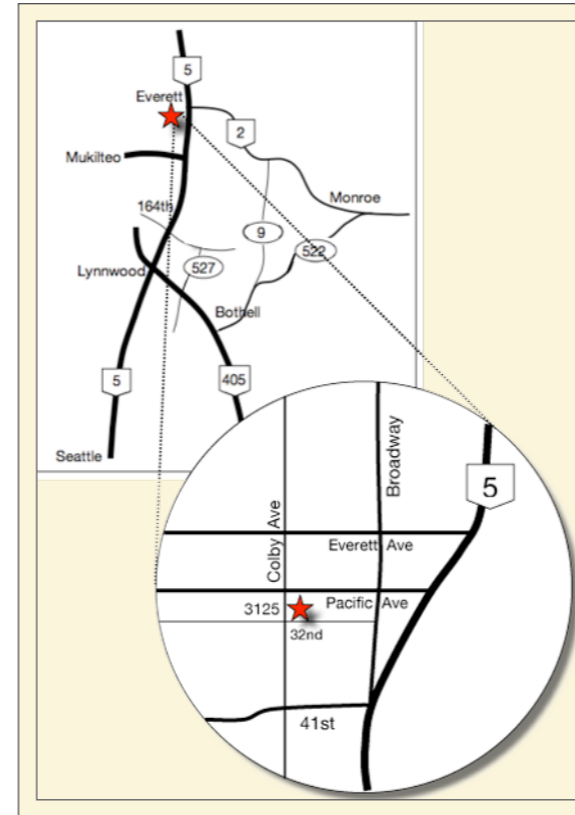


I combined the later two technologies first for fabricating occasional surgical guides, and more recently for the immediate placement and provisionalization of an anterior implant.

This issue of ProbeTips will document one such case. I hope you will enjoy it.

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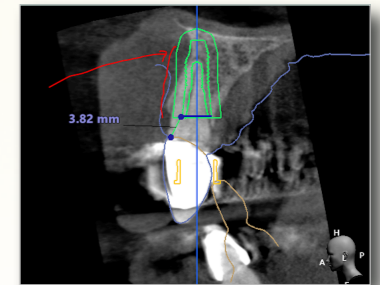
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# PROBE TIPS

A QUARTERLY PERIODONTAL  
NEWSLETTER

BY PAMELA NICOARA DDS MSD

## Digital Immediate Anterior Implant Case of the Quarter



VOLUME 13, No. 2

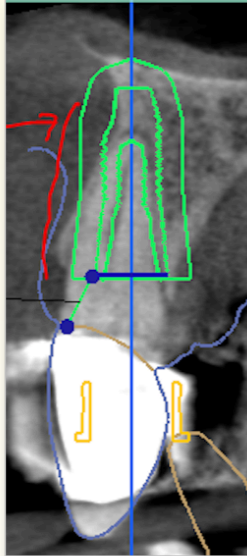
AUGUST 2020

# Digital Immediate Anterior Implant Placement and Temporization

## GENERAL CONSIDERATIONS

Immediate restoration of anterior implants is generally something I don't like to do.

One of the biggest concerns is the stability of the implant in the bone. In my practice, nearly all anterior implants are placed at the time of extraction. This allows a facial socket wall to graft to in order to best maintain ridge dimensions. But the socket space is generally bigger than my implant, leaving only a few millimeters of apical bone for implant stability as you can see in the implant overlay on the CBCT slice adjacent. Proximity to nasal cavities or canine fossa can further reduce apical bone availability. And because the implant is generally placed more palatally, there is a lack of solid facial bone to act as support against a protrusive movement or pressure from food during mastication.





Any excess occlusal force on an immediate restoration on that implant could be a reason for implant failure. Cutting down the incisal edge to clear the occlusion is an option, but sometimes can be an esthetic problem. And even if there is no occlusion on the restoration, forces such as biting food in the area can be of significant detriment. Thorough education of the patient is paramount to help ensure success.

## TREATMENT PLANNING

The case below shows a 70 year old male with a broken crown on tooth #8. He had an existing implant in site #6 with a cantilever for tooth #7. He hated the removable appliances that he had to wear during the healing phase for that implant, and insisted that implant replacement of tooth #8 must not include any removable appliances.



Therefore, CBCT and TRIOS scans were taken and submitted to the laboratory for overlay and fabrication of a the following:

1. A 'Guided Surgery' precision surgical guide. 
2. A temporary cylinder that was opaqued and cut back.
3. A temporary shell of the crown of tooth #8 that could be luted to the opaqued temporary cylinder with composite in case there was some reason why the implant position was not identical to the surgical guide. 
4. A spare Essix appliance in case it all failed.

The tooth was successfully removed, and the implant placed with good stability. Bone grafting material was placed in the gap between the implant and the lingual wall of the facial socket.

The temporary implant cylinder was tried on with a guide pin in order to slide the crown shell over it and luted with composite. Once an initial bond is made, the remaining composite is added outside the mouth.



In this case, allograft connective tissue was used to augment the soft tissues to prevent collapse or shrinkage of the gingiva post operatively. The technique used here is the 'Dermal Apron Technique' by Barry Levin.

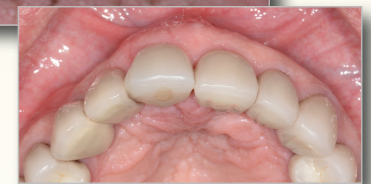


Occlusion was carefully checked, and composite placed interproximally between the temporary and adjacent teeth for further stability, as seen in the merged radiographs.



Despite loss of the interproximal composites and a slight facial shift of the implant during the initial 2 week

healing period, the implant successfully integrated and was beautifully restored by the referring dentist. Below are images at 3 weeks, with superb healing.



The final restoration below is facilitated by soft tissues having been formed by the temporary so anesthetic is not required for final seating, in this case with cement.

