



Benefits of CBCT-Assisted Guided Surgery

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PATIENTS OFTEN COME TO OUR PRACTICES unable to tolerate their conventional mandibular complete dentures any longer, especially if there is significant bone loss. Their dentures can be unstable and often unretentive, creating sore spots and diminishing quality of life for the patient. Small-diameter dental implants are a viable solution for many of these issues. They are useful when the clinician is presented with challenges related to bone quantity, anatomic restraints such as thin residual ridges, and esthetic complications. While meeting the goals of implant dentistry by fostering oral rehabilitation and improved form and function, small-diameter implants can also be more cost-effective, addressing the economic difficulties many patients face.

When dealing with compromised mandibular ridges, cone beam computed tomography (CBCT) diagnostics allow us to visualize the patient's available bone in 3-D and to virtually place the implants prior to any surgical intervention (*Fig. 1*). CBCT scanning is an important tool in the positioning and placement of dental implants, especially in areas of the mouth where bone contours are difficult to determine with conventional radiography and oral palpation alone. This tool

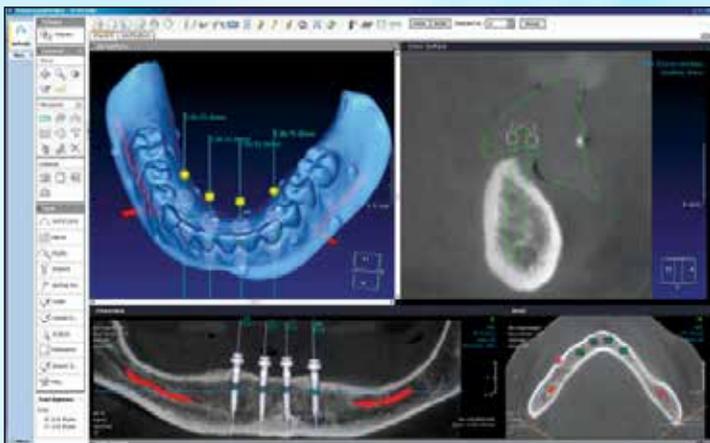
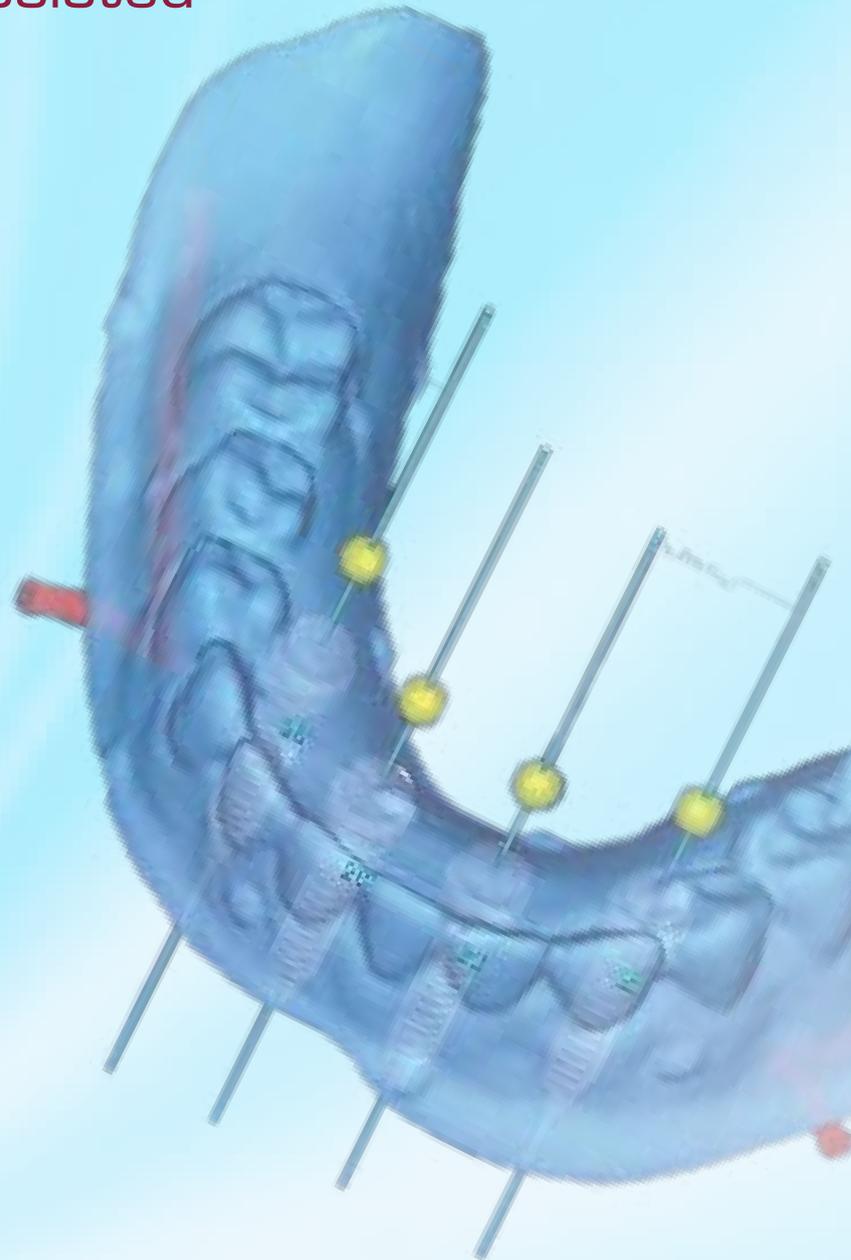


Figure 1: Digital treatment plan for four small-diameter implants.

helps to determine quality and quantity of bone, potential risks involving surgical placement of dental implants, and the location of nerves and sinuses.

CBCT scanning software allows for less invasive, more predictable surgery because there is no longer a need for full-thickness flap procedures. The implants are placed using a flapless approach, which is much more comfortable for the patient and improves postoperative healing.

In reviewing the diagnosis, the clinician can evaluate the CBCT scan and determine proper implant position with confidence. A stable surgical guide can then be created (Fig. 2), which allows for predictable, precise dental implant placement (Fig. 3). **IM**

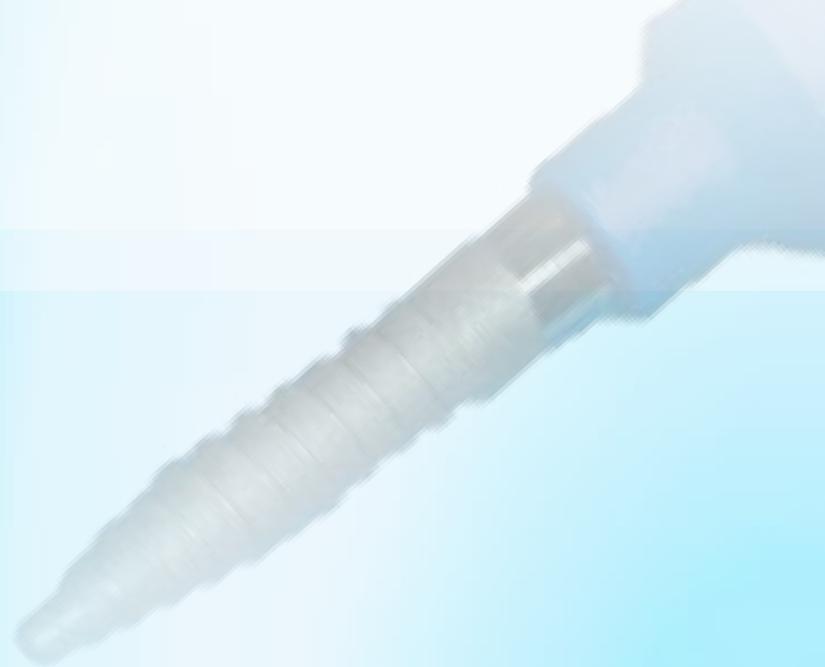


Figure 2: Pilot drill with surgical guide using a flapless protocol.



Figure 3: Post-op scan of final implant placement.

BENEFITS OF DIGITAL TREATMENT PLANNING AND GUIDED SURGERY IN CONJUNCTION WITH SMALL-DIAMETER IMPLANTS

- 3-D view
 - Helps determine quality and quantity of bone
 - Helps identify critical anatomical structures pre-surgically
- Ability to plan the case from surgical and prosthetic perspectives
- Accurate transfer of digital treatment plan to the clinical setting utilizing a surgical guide
- Minimally invasive procedure through a flapless approach
- Ideal implant placement