Dental Implant Smiles

Dental Implant & Periodontal Surgeons, P.C.

Periodontics, Reconstructive Dental Implant Surgery & Sedation

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Guided Dental Implant Surgery

Guided dental implant surgery is a procedure in which precision surgical instrumentation (Special guides and drills) are used in conjunction with 3D CBCT (Cone Beam CT/ Dental CT) images to assist in placing dental implants in ideal positions in the mouth. **(Images 1, 2)**.

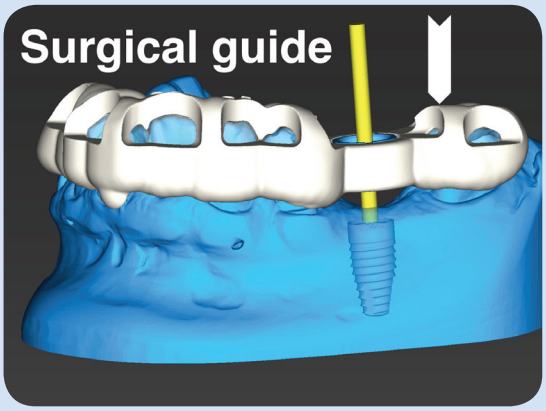


IMAGE 1 Surgical Guide Lower tooth

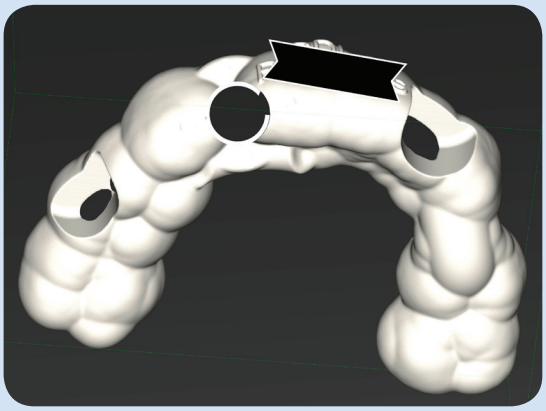


IMAGE 2 Surgical guide for an upper tooth

What are the applications for guided surgery?

1. Precision planning of the angle/trajectory of the dental implant within the bone especially for front teeth **(Images 3, 4, 5)**

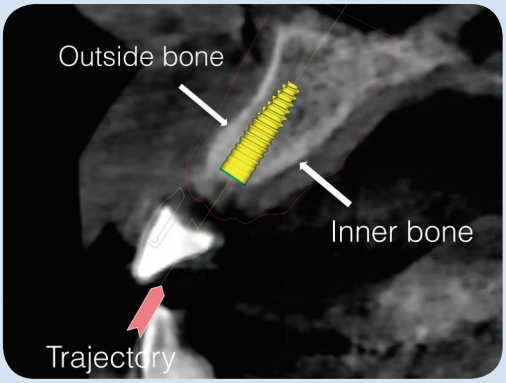


IMAGE 3 Cross sectional view

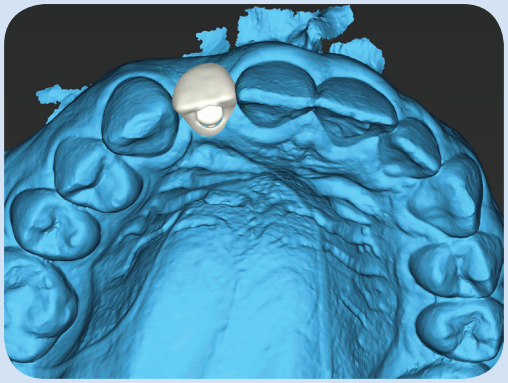


IMAGE 4 Bite view

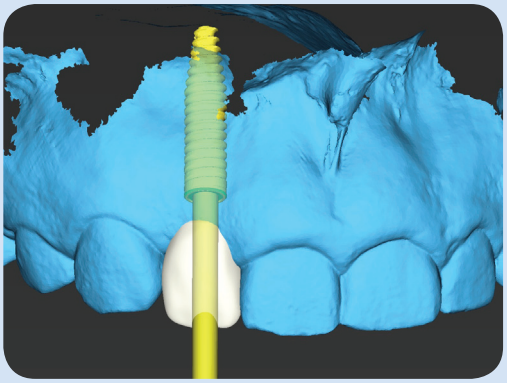
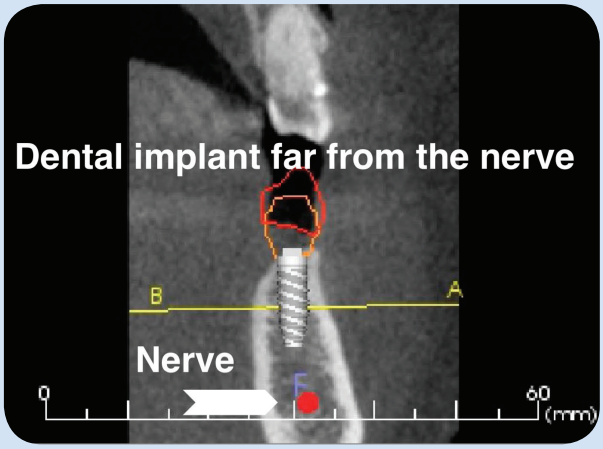


IMAGE 5 Frontal view

2. Placing dental implants away from vital structures such as nerves and the bottom of the sinus **(Images 6, 7)**

IMAGE 6 Dental Implant in the lower jaw far from the nerve



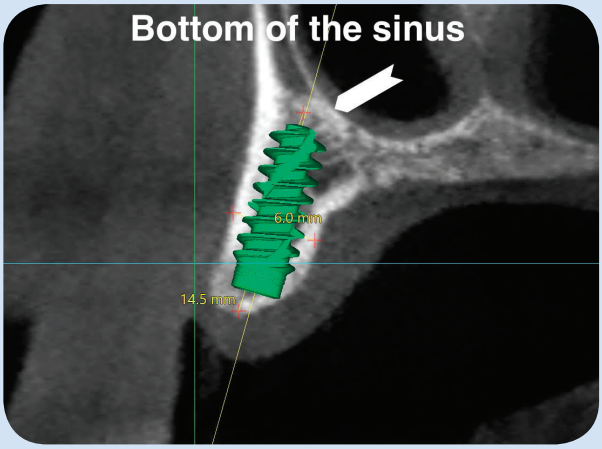


IMAGE 7 Dental Implant in the upper jaw far from the sinus

3. Accurate dental implant placement when there is limited space between teeth for dental implant **(Images 8, 9, 10, 11)**

IMAGE 8 Limited space

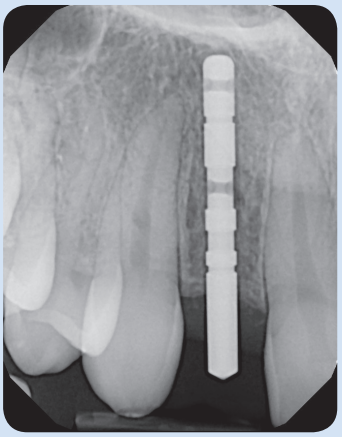


IMAGE 9 Guide allowing for accurate positioning

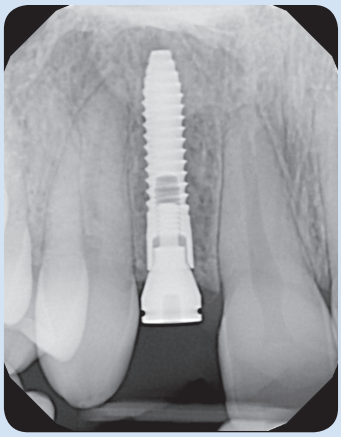


IMAGE 10 Accurate dental implant placement

IMAGE 11 Final implant crown showing a Natural dental implant

4. Making a temporary implant crown before the removal of the front tooth by designing a temporary implant crown before surgery. This allows for removal of the tooth, then placement of the dental implant and then securing an ***Immediate Fixed Temporary*** tooth. If a temporary crown is connected to an immediate dental implant, this is considered immediate loading of the implant. Immediate loading of a dental implant is the most favorable option for any patient because it allows an implant crown to be placed immediately which helps with esthetics and preserves the papilla (triangles between teeth) from collapsing.

What is needed to design a surgical guide?

1. A dental CT (CBCT) which captures the bone
2. Digital or traditional impression of the area which captures the gums
3. Merging the CBCT and impression data into one image using a special software
4. Designing the location, angle and trajectory of the dental implant and choosing size and length of the dental implant
5. Designing the surgical guide and printing it using a 3D printer
6. Designing a temporary immediate implant crown (if applicable)