Computer planned and guided implant surgery

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The use of three-dimensional radiography and imaging (Computed Tomography {CT}, Magnetic Resonance Imaging {MRI}) has been used for more than four decades in medicine. It has aided in increasing the accuracy of identification of vital anatomic structures and the pathologies associated within them.

This advanced technology has also prompted the development of protocols whereby surgical intervention can be planned on three-dimensional virtual computer animation or physical anatomic models. Today, computer-guided and robotic surgery in the most dangerous parts of the body such as the brain, spine and heart are routinely performed with great success and predictability.

In dentistry, the introduction of 3-D radiography more than a decade ago has made it easier for the clinician to identify, study and plan a course of therapy to treat the area of disease or defect with increased precision (Fig.1).

In addition, the introduction of office-based cone beam volumetric tomographic (CBVT) machines in 1999 came together with the advances in surgical planning software. This software comes either as a third party or as native to the imaging hardware and has made implant therapy predictable and accurate (Fig.2).

Traditional model-based surgical guides provide a reasonable estimation of the implant position for the prosthetic rehabilitation. The major limitations of these surgical guides was the surgery was often accom-

Event to focus on ‘Implant Restorative Science: The Good, The Bad, The Beautiful’

From May 7-9, the International Congress of Oral Implantologists (ICOI) and Temple University College of Dentistry will co-host a spring implant symposium at the Downtown Marriott Hotel in Philadelphia.

The theme for this meeting, as designed by Dr. John T. Green of Dayton, Ohio, is “Implant Restorative Science: The Good, The Bad, The Beautiful.” The symposium is also being hosted by ICOI’s Component Auxiliary Society, the Association of Dental Implant Auxiliaries (ADIA).

Topics to be covered in the general session are: how to manage the gap; minimally invasive surgery; analysis of tooth size; space size issues; gingival architecture solutions; improvement of doctor/patient/lab communications; implant maintenance issues; i-Cat analysis; treatment for peri-implantitis; ortho-implant realities; immediate provisionalization; CAD/CAM realities; occlusion; abutment selections and complications.

Here are some highlights of the program:

• Dr. William Becker: Implant Restorative
• Dr. Ernesto A. Lee: Implant Supported vs. Tooth Supported