

3rd European Otolaryngology-ENT Surgery Conference

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2nd International Conference on Craniofacial Surgery

October 08-10, 2018 | London, UK

3D digital dental implant using CBCT, intra oral scanner and 3D printer

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Most of the current implants have been subjected to surgery by relying on the manual operation of the surgeon by establishing a diagnosis and treatment plan using two-dimensional X-ray, and then taking impression for prostheses are being applied to the implants thus placed (called analogue implant). Author would like to introduce a more accurate system that allows doctors to easily perform surgery and prosthodontics by combining the CBCT, intra-oral scanner, CAD-CAM machines and 3D printer. First, we can obtain all the information and the 3D anatomy by merging the CT and intra-oral scanned three-dimensional virtual images. Before operation, CAD (Computer Aided Design) software is used to complete the entire operation simulation and prostheses design and then fully surgical guide and provisional crown and bridge are manufactured by CAM (Computer Aided Milling) and 3D printer. In order to precisely reproduce the implant position 3-dimensionally at the time of surgery, we use a simulated digital data to fabricate a fully surgical guide, and fabricate abutments, crowns and bridges. After this preparation, the operation is carried out and the provisional crown and bridges are also immediately loaded (called 3D digital implant). All procedures of fully guided implant surgery and prosthodontics are completed easily, accurately and comfortably to the patients and doctors. He wants to introduce a fully guided implant system with highly precision. In addition, he introduces the CAD-CAM-PRINT system which produces the whole process in-house.



Recent Publications

1. Brandt J, Brenner M, Lauer H C and Brandt S (2018) Accuracy of a template-guided implant surgery system with a CAD/CAM-based measurement method: an *in vitro* study. *Int. J Oral Maxillofac Implants*. 33(2):328-334.
2. Silva AALS, Franco A, Fernandes Â, Costa C, Barbosa J S and Westphalen F H (2017) Accuracy of linear measurements performed with two imaging software in cone-beam computed tomography scans of dry human mandibles. *An Acad Bras Cienc*. 89(4):2865-2873.
3. Deeb G R, Allen R K, Hall V P, Whitley D, Laskin D M and Bencharit S (2017) How accurate are implant surgical guides produced with desktop stereolithographic 3-dimensional printers? *J Oral Maxillofac Surg*. 75(12):2559.e1-2559.e8.
4. Lanis A and Álvarez Del Canto O (2015) The combination of digital surface scanners and cone beam computed tomography technology for guided implant surgery using 3Shape implant studio software: a case history report. *Int J Prosthodont*. 28(2):169-78.
5. Parsa A, Ibrahim N, Hassan B, van der Stelt P and Wismeijer D (2015) Bone quality evaluation at dental implant site using multislice CT, micro-CT, and cone beam CT. *Clin Oral Implants Res*. 26(1):e1-7.

Biography

Sei-Young Chun is presently working as the Director of Dohwa Good Morning Dentistry in Korea. His major area of work is Dental Orthodontics, and in fact all round players. It is a lot of minor Surgery such as Implant and Extraction. He studied with interest in Digital Dentistry for 7 years, introduced Digital machine and Software into Dentistry 4 years ago, and has been using modeless practice. He is trying to simulate orthodontics, prosthesis and implant surgery in virtual simulations beforehand, and are trying to realize predictable high-quality treatment.

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