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Advancements in digital all-on-X surgeries: Improvements to quality, cost and efficiency

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Introduction: Doctors who undergo large All-On-X cases often have to sacrifice one or more of quality, cost and efficiency in treatment outcomes. With the advances in digital surgery however, compromise of this nature can be avoided. Costs can be kept low for the treating doctor, accuracy is improved and the patient can achieve treatment objectives in a very short time with fewer side effects than traditional methods. The purpose of this case study is to describe the experience of performing All-On-X completely digitally and seamlessly.

Methodology: A patient with necrosis of both jaws presents for extraction, debridement of necrotic material, degranulation of infected soft tissue, bone remodeling, bone grafting and bone stabilizer placement for an all-on-6 mandibular and maxillary fixed synthetic prosthetic orthognathic system. Digital tools such as Cone-Beam Computed Tomography, Digital Facebow transfer, Digital 3-D dynamic navigation system, Photogrammetry, Digital prosthetic planning and in-office 3D Printing of the prosthesis were used to achieve a result that took place in just 8 hours, 1 day after meeting the patient for the first time.

Conclusions: Instead of having to wait weeks or even months for more traditional surgical planning using laboratory-fabricated surgical guides, bone foundation guides and analog placement of bone stabilizers, a completely digital workflow enhances quality, cost and efficiency to the practitioner and to the patient, resulting in more desirable treatment outcomes.

Biography

James T Craig received a Doctor of Dental Surgery degree from the University of Missouri in 2006. He was on a research team for the National Institutes of Health Department of Dental and Craniofacial Research where he developed novel bone grafting materials and pioneered the use of diatoms to reduce polymerization shrinkage in restorative polymers. He also served as a professor of Histology and Biochemistry for the University of Missouri. As the CEO of BFB Inc., he is an expert speaker on topics of Digital Surgery, bone grafting and head and neck surgical techniques and currently lectures internationally for EnvistaCo.

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