A Radiographic Assessment of 3–dimensional marginal bone changes around immediately loaded implants

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Preliminary results of a comparative prospective study comparing radiographic crestal bone changes around endosseous implants placed in extraction sockets following alveoloplasty and endosseous implants placed in healed sites. The surgical procedure is performed using a stereolithographic bone model fabricated from reformatted DICOM files of the patient’s mandible. Reduction guides and initial drill guides are fabricated and the surgery is preplanned on the model. On the day of the surgery the implants are placed in the planned position following extraction and alveoloplasty in the test group. In the control group implants are placed without any ridge modifications. Immediate loading protocol is followed and the patient’s interim denture is converted into an implant supported interim denture on the same day. Standardized periapical radiographs are taken to measure baseline mesial and distal crestal bone levels in relation to the implant platform. J Morita scan is taken to measure baseline crestal buccal and lingual bone levels in relation to the implant platform. The test and the control patients will be followed for 12 months and standardized radiographs will be taken at 3 months and 12 months post-surgery. J Morita scan will be taken at 6 months and 12 months. This study will help determine the 3-dimensional crestal bone changes around implants placed in extraction sockets following alveoloplasty. It will help us determine and compare the post-extraction and post-alveoloplasty bone remodeling and how it will affect the marginal crestal bone levels. Will extensive alveoloplasty dramatically affect the bone remodeling? Will lack of crestal cortical bone in the test group affect implant success in immediately loaded implants? Is there a true benefit for the patient to undergo this extensive surgery or wait till bone remodeling is complete as in the control group?