REVIEWS


This study examined bone healing in surgically created gaps adjacent to single stage implants. Four dogs had their mandibular premolars extracted bilaterally. After 8 weeks of healing, 3 nonsubmerged implants were placed in the right side. Crestal defects of 1, 1.5, and 2 mm were created around the implants with custom-made drills. Eight weeks later, implants were placed on the left side in the same fashion. After 8 more weeks of healing, the dogs were killed. Results indicated that healing was uneventful. Four implants exhibited clinical mobility. The histologic analysis indicated that soft tissues were well established, and collagen fibers ran parallel to the implants. Normal bone healing and remodeling were observed adjacent to the implants apical to the surgically created gaps and exhibited greater maturity in the 16-week group compared with the 8-week group. There was bone fill in the surgically created gaps, but the bone fill was greater in the smaller gaps. The authors concluded that the remaining defects were clinically insignificant and therefore concluded that any defect up to 2 mm adjacent to a nonsubmerged implant does not need to be grafted.


This study evaluated the resorption rate of tissue-engineered bone in maxillary sinus grafts. Twenty patients participated in the study. Ten patients (group 1) had 17 sinus grafts performed with the use of iliac crest bone. Ten patients (group 2) had 14 sinus grafts performed with the use of tissue engineered bone. The tissue-engineered bone was created by obtaining periosteum from the lateral border of the mandible. From this tissue, osteoblast-like cells were cultured, concentrated, and seeded onto biodegradable scaffolds. After placement, the resorption rates of the grafts were compared using computed tomography 3 months after placement. The results indicated a resorption rate of 29% in group 1 and 90% in group 2. The bone density of the tissue-engineered bone was similar to that of connective tissue and showed sufficient mineralization for implant placement in only 1 of 14 sinuses. The authors concluded that the tissue-engineered bone construct used in this study was not suitable for sinus augmentation. Further study is required.


This article discussed the rational and indications for flapless surgical placement of root-form implants. The advantage of this technique is that soft tissue recession can be minimized as a result of the lack of a flap reflection and the possible resultant postoperative recession. In addition, this technique can be used with immediate loading of the implant. The article presented two cases. The first case involved the flapless placement of a maxillary lateral incisor with the placement of the restoration after 4 months of healing. The second case involved the replacement of a maxillary premolar followed by immediate restoration loading of the implant. Both cases demonstrated good esthetic results. The authors stated that this technique should be limited to those sites with ≥7 mm ridge width, ≥7 mm mesiodistal distance, and ≥10 mm of ridge height. In addition, the authors stated that there must be a surplus of keratinized tissue because some is sacrificed with the tissue punch at the time of implant placement. There should be at least 2 mm of keratinized tissue on the facial aspect after implant placement. Sites with labial undercuts should be avoided. The use of proper surgical templates along with preoperative cross sectional imaging is also advised.


This article discusses the rationale for screw-retained prostheses by conducting a review of the literature with regards to complications related to implant-supported prostheses. The authors stated at the outset that the major advantage to implant-based restorations is the potential to retrieve the restoration should any biologic or technical complication occur. The arguments for use of cement retention are not based on scientific study. A thorough review of the
literature was performed examining biologic and technical complications. Biologic complications included implant failure, soft tissue complications, and crestal bone loss. Technical complications included porcelain and acrylic fracture, esthetic and phonetic problems, screw loosening, framework fracture, and implant fracture. Comprehensive analysis and discussion of the incidences and etiologies of these complications were presented. The authors argue that the possibility of long-term complications was significant; thus, the use of a retrievable prosthesis was indicated to address these problems. The initial increased costs of fabricating retrievable prostheses was outweighed by the advantage these prostheses impart when complications occur.


This study examined factors that may influence late bone loss adjacent to implants. All 69 patients included had implants (total number of implants = 339) in place at least 3 years. Patients were examined clinically and radiographically and were also given a questionnaire to answer regarding their satisfaction with their prosthesis. Several different implant systems were included in the study. The results indicated that the brand of implant did not significantly affect alveolar bone loss (ABL). However, ABL was affected by type of prosthesis, implant location, and implant length and diameter. Fixed prostheses had twice the ABL of removable prostheses, and ABL was significantly greater for posterior implants compared with anterior implants, implants place in the maxilla, shorter implants (≤10 mm) and wider implants (>4 mm). In addition, the surface (rough vs smooth), type of opposing dentition, and amount of keratinized mucosa did not significantly affect ABL. Smoking affected ABL, but diabetes did not. There was no correlation between soft tissue health and ABL.

Statistical analysis demonstrated that implant length was the most critical factor in maintaining alveolar bone levels.


This study compared 2 methods for treating peri-implant defects. Thirty-two patients with 73 ailing implants were included in the study. All implants were treated with degranulation and implant decontamination with air abrasion. In 39 implants, the surfaces were additionally treated with CO2 laser irradiation. In 41 implants, soft tissue resection was performed after surface decontamination. In the remaining 32 implants, augmentation was performed. Implants with screw-retained prostheses were chosen for augmentation, and cement-retained prostheses were treated with soft tissue resection. The augmentation was performed with a 50/50 mixture of β-tricalcium phosphate/autogenous bone and covered with Gore-Tex membranes (W.L. Gore & Associates, Flagstaff, Ariz) and primary soft-tissue closure. Two implants were covered with the membrane without graft material. Four months of healing was allowed. The implants were followed up for 5 years after treatment. The results indicated that 13 implants were lost, despite the intervention. In the implants treated with resection, those treated with the laser did not demonstrate long-term progressive bone loss whereas those treated with air abrasion only did. In the augmentation groups there was no difference between those treated with air abrasion or air abrasion and laser after 5 years of healing. The results suggest that laser decontamination may help ailing implants treated with soft tissue resection but not those treated with augmentation. More study is needed in this critical area of implant treatment.