John Ley, DDS, Editor

REVIEWS

"Five-year results from a randomized controlled trial on early and delayed loading of implants supporting full-arch prosthesis in the edentulous maxilla" by Fischer K, Stenberg T, Hedin M, Sennerby L. Clin Oral Implant Res. 2008;19:433–441.

This study compared the effects of early and delayed loading of implants in the maxilla. Twenty-four patients were randomly divided into 2 groups: early loading (n = 16) and delayed loading (n = 8). All patients met the same inclusion criteria, which included bone quantity to accept 5 to 6 implants. All patients received 5 to 6 Esthetic Plus SLA Straumann implants (Straumann, Basel, Switzerland) 4.1 mm in diameter and 8 to 12 mm in length. All received fixed prostheses of the same design. The early loading group was loaded at 9 to 18 days and the delayed group at 2.5 to 5.1 months after placement. Patients were followed up at set intervals after loading, at which time the prostheses were removed to assess the implant. Implant stability was measured using the Osstell device (Instrument Device Integration Diagnostics, Gothenberg, Sweden). Implants were also monitored for soft tissue health and radiographic osseous levels. Results indicated that no prostheses were lost. There was no significant difference in implant loss between the groups (4.3%–5.3%). There was no difference in implant stability between the groups. There was increased crestal bone loss in the early loading group, but this was explained by the fact that these implants were placed deeper in the bone and that with these implants a certain amount of bone loss is expected when the smooth implant neck is in bone. The authors concluded that there was no difference in implant survival when implants were loaded in a delayed or early fashion with fixed maxillary prostheses.

"Soft tissue dehiscience coverage around endosseous implants: a prospective cohort study" by Burkardt R, Joss A, Lang N. Clin Oral Implant Res. 2008;19:451–457.

This study examined the efficacy of covering dehiscent gingival defects associated with integrated implants. Ten patients were included in the study, and 3 different types of implants were restored. All were restored with pleasing esthetics at the time of crown insertion and for at least a period of 1 year after loading. Soft tissue recession occurred after 1 to 6 years of loading. All implants included in the study were single-tooth implants located in the anterior maxilla with an unrestored contralateral tooth for comparison. None of the patients had active periodontitis and all were nonsmokers. Treatment consisted of coronally advanced partial thickness flaps that were placed over connective tissue grafts. In each case the flap was advanced at least 2 mm coronal to the desired final tissue height. The patients were followed up for 6 months postoperatively. Results indicated that after 1 month there was a significant decrease in soft tissue coverage. At 3 and 6 months after surgery, recession increased but not significantly. All of the defects were improved compared with their preoperative states. The authors concluded that the procedure resulted in a clinically significant improvement; however, complete repair of the defects could not be achieved.

"The influence of tobacco on early dental implant failure" by Sverzut A, Stabile G, Moraes M, et al. J Oral Maxillofac Surg. 2008;66:1004–1009.

This retrospective study examined the effect of tobacco use on implant success rates. The authors examined early implant failure (those occurring between first- and second-stage surgery) in 650 patients (574 nonsmokers and 76 smokers) that had 1628 implants placed in a 2-stage fashion over an 8-year period. The study examined several variables affecting implant success, including location in the mouth, presence of a bone graft and its source, and length of the implants. These variables were statistically compared with the frequency of tobacco use and the incidence of early implant failure. Results indicated that the presence of smoking was not deemed a factor in early implant failure. Factors that did affect failure included grafting with chin bone, use of alveolar distraction, and location of the implant in the mouth. It was also noted that failure increased in older patients and males. The authors concluded that tobacco use alone cannot be considered as a risk factor for early implant failure. Further study was recommended.

"Anatomical variation in arterial supply of the mandible with special regard to implant placement" by Loukas M, Kinsella C, Kapos T, et al. Int J Oral Maxillofac Surg. 2008;37:367–371.

This study examined the arterial supply to the mandible of 100 cadavers. The main arterial supply

to the anterior mandible was the sublingual artery, which exhibited 3 main branches defined as the ascending (ascended to the alveolar ridge), middle (anastomosed with the contralateral sublingual artery to the middle lingual canal [MLC]), and descending (supplying the mucosa inferior to the MLC). The sublingual artery was found to originate from the lingual artery in 73% of cases and from the submental artery in the remaining cases. Branches of the submental and inferior labial arteries contributed to the supply of the external and internal surfaces of the mandible. Anastomosis was noted between various arteries in the majority of cadavers. Perforating cortical branches were found at an average height of 10.3 mm from the inferior border of the mandible. Mucosal branches exhibited a mean diameter of 0.9 mm, and perforating branches exhibited a mean diameter of 0.8 mm. The article provides several clear photographs demonstrating the location of the various arteries. The proximity to the lingual border of the mandible of the mandible is of vital importance to the implant surgeon.

"Tissue alterations after tooth extraction with and without surgical trauma: a volumetric study in the beagle dog" by Fickl S, Zuhr O, Wachtel H, et al. J Clin Periodontol. 2008;35:356–363.

This study examined the amount of bone lost after tooth extraction with or without a muco-periosteal flap raised at the time of extraction. In 5 dogs the first and second premolars were extracted and treated with one of 4 methods: group 1, no treatment; group 2, flap elevation and repositioning with sutures; group 3, no flap and sockets filled with a xenograft; and group 4, flap and sockets filled with a xenograft and flap repositioned with sutures. In the latter 2 groups (socket preservation) the graft material was covered primarily by free soft tissue harvested from the palate. The sites were compared with preoperative models by taking impressions at 2 and 4 months after surgery. The models were compared with the use of digital image analysis. Results indicated that the flapless groups (groups 1 and 3) suffered significantly lower resorption rates compared with their respective group. The use of socket preservation was also deemed to significantly aid in ridge preservation. The use of socket preservation in the flapless group resulted in significantly less resorption. The authors concluded that exposure of the buccal bone resulted in bone loss after tooth extraction. Use of socket preservation was also beneficial to reduce bone loss.