John Ley, DDS, Editor

REVIEWS

"Measurement of anterior loop length for the mandibular canal and diameter of the mandibular incisive canal to avoid nerve damage when installing endosseous implants in the interforaminal region" by Uchida Y, Yamamshita Y, Goto M, Hanihara T. J Oral Maxillofac Surg. 2007;65:1772–1779.

This article analyzed the length of the anterior loop of the mandibular canal and the diameter of the incisive canal at several points using cadavers. Seventy-five hemimandibles from 38 cadavers were examined for the length of the anterior loop of the mandibular canal using standardized measurements. In addition, the diameter of the incisive canal was measured at 1-mm intervals from its origin to 5 mm from its origin. The results indicated that the anterior loop varied from 0 to 6.0 mm, with a mean of 1.5 mm $\pm$ 1.4 mm. The incisive canal varied in diameter along the measured points, with a range of 0.5 mm to 6.6 mm. The authors concluded that because of wide variation in the loop length, there should be no fixed length that is deemed safe for implant placement. Direct observation of the mental foramen is advocated when implants are placed in the interforaminal region.

"Influence of implant diameter on surrounding bone" by Brink J, Meraw S, Sarment D. Clin Oral Implants Res. 2007;18:563–568.

This article examined the effect of implant diameter on the surrounding bone using a dog model. Five dogs had their second, third, and fourth premolars and first molars extracted. After 2 months of healing, 1 regular-diameter implant (3.75 $\times$ 5 mm) and 1 wide-diameter implant (5 $\times$ 5 mm) was placed in a randomized fashion in each quandrant. The implants were uncovered after 2 months of healing and left exposed in the mouth for 3 months with healing collars in place. After this, the dogs were killed and the jaws/implants subjected to histologic and histomorphometric analysis. The results indicated that 40 implants were placed. Two implants were lost at second-stage surgery. Initial bone density (bone at least 3 mm from the implants) varied from 13% to 68% (average = 41%) in standard implants and 8% to 60% (average = 37%) in wide implants. The bone implant contact was on average 71% in standard implants and 73% in wide implants. These differences were not significant. Similar results were obtained in adjacent bone density (bone close to the implant). The authors then correlated initial bone density to adjacent bone density and bone implant contact. This revealed that wide-diameter implants had decreased bone density in proximity to the implants. From this, the authors concluded that the force distribution may be diluted in wide-diameter implants and thus may offer an advantage over narrower implants.

"Schneiderian membrane perforation rate during sinus elevation using piezosurgery: clinical results of 100 consecutive cases" by Wallace S, Mazor Z, Froum S, Cho S-C, Tarnow D. Int J Periodontics Restorative Dent. 2007;27:413–419.

This article examined the incidence of membrane perforation during sinus elevation using a piezosurgery unit. One hundred sinus elevations were performed in the private practices of the participating clinicians using a lateral wall approach. All clinicians performed an initial case using the piezosurgery unit prior to the study. In 100 sinus elevations, there were no perforations during the antrostomy or initial membrane elevation with the piezosurgery unit. Seven perforations occurred upon further elevation of the membrane with hand instruments. These were attributed to either the presence of septa or thin membranes. These results suggest that the use of the piezosurgery unit decreases the incidence of membrane perforation during lateral wall approach sinus lift procedures.

"Immediate rehabilitation of the completely edentulous jaw with fixed protheses supported by either upright or tilted implants: a multicenter clinical study" by Capelli M, Zuffetti F, Del Fabro M, Testori T. Int J Oral Maxillofac Implants. 2007;22:639–644.

This study examined the efficacy of immediate restoration of full arch prostheses. Six implants were placed in edentulous maxilla, and 4 implants were placed in edentulous mandibles. A total of 24 mandibles and 41 maxillae were treated. The distal implants were tilted 25° to 35° from the other vertically placed implants. All cases were loaded with a metal/acrylic hybrid prosthesis within 48 hours of placement. After 3 months of loading, the final prosthesis was delivered. The patients were followed at set intervals up to 5 years postsurgery. Established criteria for implant success were employed. The success rate was 97.59% in the maxilla and 100% in

the mandible. Prosthesis survival was 100%. There was no difference between the success of the tilted and upright implants. These results suggest that immediate loading can be successful and the tilted implants can have similar success to vertically placed implants.

"Effects of a cell adhesion molecule coating on the blasted surface of titanium implants on bone healing in the rabbit femur" by Park J-W, Lee S-G, Choi B-J, Suh J-Y. Int J Oral Maxillofac Implants. 2007;22:533–541.

This article examined the effect of novel implant coating on osseointegration. Rough-surfaced implants were coated with a mixture of 4 cell adhesion molecules combined into a tetra cell adhesion molecule (T-CAM). Seven blasted implants coated with T-CAM and 7 noncoated implants were placed into oversized (to simulate minimal stability) osteotomies in the femurs of rabbits. After 8 weeks of healing, the rabbits were killed and subjected to histologic and histomorphometric analysis. The results indicated that the T-CAM coating resulted in significantly greater bone-to-implant contact compared with the control implants. In addition, the bone density (new bone formation) adjacent to the T-CAM–coated implants was significantly greater than control implants. These results suggest that the T-CAM coating significantly increases osseointegration in the rabbit model.

"A prospective clinical study of non-submerged immediate implants: clinical outcomes and esthetic results" by Chen S, Darby I, Reynolds E. Clin Oral Implants Res. 2007;18:552–562.

This article reported on the efficacy of immediate placement of single-stage implants in extraction sockets. Thirty consecutive patients were selected for the study. All patients required 1 or several nonadjacent teeth to be extracted in the anterior and premolar regions of the maxilla. Those teeth with acute infection or clinical attachment loss of 5 mm or more were excluded. After raising buccal and lingual flaps, the teeth were extracted. One-stage implants were placed into the sockets so that the implant shoulders were placed at the level of the buccal crestal bone and no less than 2 to 3 mm apical to the final anticipated mucosal marginal level. At the time of implant placement, several landmarks relating the implant and bony defect were identified and measured. The patients were randomly divided into 3 groups: bone graft alone (10 implants), bone graft and resorbable membrane (10 implants), or no-graft controls (10 implants). The bone graft and membrane used were Bio-Oss and Bio-Gide, respectively (Gleistlich Pharma, Wolhusen, Switzerland). After 6 months of healing, the implants were uncovered, and healing caps were placed. After 2 months of healing, the implants were restored. The patients were followed for 3 years postrestoration. The results indicated that the vertical resorption of bone defects was similar in all groups. The amount of horizontal bone resorption was significantly less in the groups with bone grafts placed. Mucosal recession (10 implants) was associated with buccal placement of the implants. Eight implants were deemed to have an unesthetic result. Nineteen patients had stable mucosal and bone levels. These results suggest that immediate implant placement may result in adverse esthetic results. The use of Bio-Oss and lingual position of the implants appears to improve the results.