

surgery under local anesthesia. Their wounds were sutured, with follow-up examinations conducted after 24, 48, and 72 hours, after 1 week, and after 2 weeks.

Results.—The mean bleeding time was 2.86 minutes, and the mean platelet count was $289 \times 10^3/\text{mm}^3$ for the 51 patients. One patient developed excessive intraoperative bleeding, with constant oozing during removal of a third molar. Control was obtained by applying gauze soaked in 1% feracrylum solution for 10 minutes. All other patients responded to the use of a simple pressure pack and suturing. None of the patients developed bleeding problems postoperatively.

Discussion.—Based on the findings in this study, most minor oral surgical procedures can be done safely while patients continue their low-dose aspirin therapy.

Clinical Significance.—Adding credence to the belief that aspirin need not be discontinued before most minor surgical procedures, this study demonstrated no untoward bleeding. The patient's medical history should be considered in toto.

Madan GA, Madan SG, Madan G, et al: Minor oral surgery without stopping daily low-dose aspirin therapy: A study of 51 patients. *J Oral Maxillofac Surg* 63:1262-1265, 2005

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Orthodontics

Implant surface design and osseointegration

Background.—Compared to traditional treatment approaches that seek anchorage from teeth or extraoral devices, osseointegrated dental implants may provide better orthodontic anchorage. The success of marginal bone remodeling resulting from orthodontic treatment depends on various factors, such as the magnitude of forces applied to an implant, the deformation of the loaded bone, and the bone's nature itself. Evaluations indicate that within a typical orthodontic range of force, when higher forces are applied to threaded dental implants, the subperiosteal bone formation on the compression side of the implants increases. At the same time, bone resorption on the tension side increases. Additionally, morphometric results indicate that orthodontically loaded, porous-surfaced (PS) implants retain marginal bone to a significantly greater height and develop more bone-to-implant contact than machined-threaded (MTh) implants loaded to a similar degree. The nature of the bone remodeling that occurs around PS and MTh implant designs was assessed using fluorochrome labeling techniques and back-scattered scanning electron microscopy.

Methods.—Three implants of each design were placed in 5 beagles in contralateral mandibular extraction sites.

The implants were allowed to heal for 6 weeks, then abutments were placed. One week later, the 2 mesial implants on each side underwent orthodontic loading for 22 weeks. One threaded implant loosened, but the rest maintained their osseointegration over this period. The bone responses around the implants were assessed and compared.

Results.—The percent bone area (%BA) differed significantly between the implant types, with the PS implants having greater %BA values for all conditions and next to all surfaces. The significant differences were primarily found next to the coronal implant subregions. The implant types also differed significantly for bone subjected to both tension and compression, with the PS implants having significantly greater %BA values. All the coronal zones in control PS implants also had higher %BA values than those in MTh implants.

For the orthodontically loaded implants of the 2 designs, no significant differences were noted in %BA measured over the total implant lengths for tension or compression bone regions. Control implants showed significant differences in these areas.

With fluorochrome labeling, significant differences were noted for bone next to PS and MTh implant surfaces. Significantly higher levels of labeling were found in orthodontically loaded bone associated with MTh implants compared to PS implants for compression and tension surfaces. Bone next to MTh control implants exhibited greater labeling activity than bone around PS control implants.

Discussion.—PS implants appear to offer greater usefulness as orthodontic anchorage units than MTh implants. They resist loosening from horizontal forces and require lower remodeling activity to sustain healthy osseointegration. The PS implants are less likely to develop areas of high stress concentration. The more favorable patterns of bone remodeling under orthodontic loading with PS implants mean that shorter implant lengths will still maintain osseointegration.

Clinical Significance.—The use of osseointegrated implants for anchorage in orthodontics broadens the possibilities of appliance design. Suggested in this study, short, porous surfaced fixtures may be more effective than machined-implants for orthodontic use.

Oyonarte R, Pilliar RM, Deporter D, et al: Peri-implant bone response to orthodontic loading: Part 2. Implant surface geometry and its effect on regional bone remodeling. *Am J Orthod Dentofacial Orthop* 128:182-189, 2005

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Improved angulation of mandibular third molars

Background.—The third molars are the most frequently impacted teeth, with impaction of the mandibular third molar presenting a significant concern in modern dentistry. The problem may be blocked eruption or inadequate retromolar space, causing crowding. The angle at which the tooth erupts can influence the functional phase of eruption. A group having extraction of the 4 first premolars to create space for eruption was compared with a group not having these extractions to determine the changes that occur in the angulation of maxillary and mandibular third molars relative to the occlusal plane and changes relative to the long axis of the second molars.

Methods.—The records of 37 first premolar extraction patients and 33 nonextraction patients were examined retrospectively. The time period for the orthodontic treatment was 2 to 2.5 years. The panoramic radiographs taken before and after treatment were assessed to determine the angle measurements between the long axis of the third molar and the occlusal plane and between the long axis of the third molar and the long axis of the second molar.

Results.—For the mandibular third molars, the differences between the extraction and nonextraction groups with respect to the median third molar angulation relative to the occlusal plane were statistically significant. Significant differences also were noted between the 2 groups in the median angle formed by the long axis of third molar angulation relative to the second molar. For

the maxillary third molars, no significant differences were noted between the 2 groups for the change in maxillary third molar angulations after treatment. Once orthodontic treatment was completed, the mandibular third molars of the extraction group showed more uprighting than the maxillary third molars.

Discussion.—Orthodontic treatment involving extraction of premolars was able to positively influence mandibular third molar angulation. However, such a change does not guarantee that the third molars will erupt in a good position. Thus, orthodontists should advise patients that premolar extractions do not ensure either the eruption or the good alignment of third molars.

Clinical Significance.—One of the reasons touted for bicuspid extraction in orthodontics is to improve angulation of third molars to facilitate their eruption. In this study, while angulation was indeed improved, that improvement did not necessarily ensure third molar eruption into a functional position.

Saysel MY, Meral GD, Kocadereli I, et al: The effects of first premolar extractions on third molar angulations. *Angle Orthod* 75:719-722, 2005

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