What's New in Dentistry

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Severe dental erosion associated with gastric reflux. Tooth abrasion or wear is usually caused by bruxism. However, some patients may have deep erosion in the occlusal surfaces of posterior teeth that extends below the level of adjacent restorations. The cause of this type of abrasion is usually chemical. A recent study published in the *Journal of Prosthetic Dentistry* (2000;83:675–680) reports that severe erosion could be caused by gastric reflux. In this investigation, the authors evaluated a sample of 20 consecutive subjects who appeared for treatment at a university hospital gastroenterology clinic. Initially, each subject's saliva was sampled to determine the presence of higher than normal acid levels, which indicate gastric reflux. Ten individuals fell into this group. Then the tooth wear of all subjects was compared to determine if the subjects with gastric reflux had more or less erosion than subjects with normal salivary pH levels. The results were conclusive. Subjects with a higher degree of dental erosion had significantly more tooth erosion than patients with a normal salivary pH.

Periodontal ligament forms on titanium implants. Although titanium implants are highly successful for tooth replacement in adults, they cannot be placed in growing individuals. Since implants are fused to the bone, they cannot erupt and gradually become submerged as adjacent teeth erupt in children and adolescents. However, an article published in the *International Journal of Oral and Maxillofacial Implants* (2000;15:193–196) shows that a periodontal ligament can be grown on titanium implants in experimental animals. In this study, the authors extracted permanent teeth from dogs, removed the fibroblasts from the periodontal membrane, transferred the cells to the surfaces of titanium implants, and cultured the implants until the fibroblasts entirely covered the implant surface. Then the implants were placed in the mandibular alveolar ridges of dogs, covered with a membrane, and allowed to remain for 3 months. The implants were removed, and the surfaces were evaluated to determine if a periodontal membrane had developed on the surface. The results showed that 37% of the implant surfaces had formed a cementumlike layer, with periodontal ligament fibers extending from the implant to the adjacent bone. Cementum did not develop on the socket wall. The authors concluded that a periodontal ligamentlike tissue attachment can form around dental implants when they are implanted with cultured periodontal ligament cells.

Impacted third molars may erupt over the long term. Orthodontists are commonly asked for an opinion about the need for third molar removal after orthodontic treatment in adolescents. Most orthodontists have specific criteria that they evaluate to determine the need for early extraction. If the third molar will become impacted, early extraction is probably indicated. But how often is the prediction of future impaction accurate? A study published in *Acta Odontologica Scandinavica* (2000;58:31–36) assessed the actual need for third molar extraction in a large group of university students in Finland over a 12-year period. The sample consisted of 81 students who had panoramic radiographs taken at age 20 years and later at 32 years. An oral surgeon evaluated the initial radiographs and estimated that 75% of the students needed 1 or more third molars removed because of future impaction. When the subjects were evaluated 12 years later, only 59% of the individuals had required third molar removal. It was estimated that 77% would require surgical removal; however, only 38% required flap surgery. Some of the students had not had their third molars extracted. When they were evaluated at 32 years of age, most of the third molars had erupted, and only a few remained impacted. The authors concluded that estimating third molar impaction is difficult, and prophylactic extraction of third molars at an early age may not be indicated without specific substantiated criteria.

Acid etching aids in remineralizing white-spot lesions. Adolescent orthodontic patients with poor oral hygiene often have white-spot lesions on their teeth after band and bracket removal. Previous studies have shown that application of fluoride to these lesions helps the areas to remineralize. However, a study published in *Acta Odontologica Scandinavica* (2000;58:31–36) shows that the remineralizing process may be enhanced by acid etching. A sample of 74 extracted teeth were embedded in plastic. Caries-type lesions were established in the blocks by subjecting them to a lactic acid solution. Then the blocks were treated in different ways. In one group, the enamel in the area of the lesion was etched with 35% phosphoric acid for 30 seconds. The other group was not etched. Then the surface of the enamel was remineralized with a solution containing fluoride. The remineralizing process was carried out for 10 weeks, 24 h/d. When the lesions were evaluated after 10 weeks, the remineralizing process was significantly more

successful on those surfaces that were etched before application of the fluoride remineralizing solution. The authors conclude from this study that acid etching enhanced the remineralization process of white-spot enamel lesions.

Taste perception improves after lingual nerve repair. A potential sequel of sagittal osteotomy of the mandibular ramus or difficult third molar extraction is damage to the lingual nerve, which results in the loss of taste sensation. Although the incidence is not high, loss of taste can be a devastating aftermath of mandibular oral surgery. A study published in the *Journal of Oral and Maxillofacial Surgery* (2000;58:3–5) reports that damage to the lingual nerve can be repaired in some situations. The purpose of the study was to retrospectively evaluate 30 patients who had lingual nerve damage after third molar extraction. All of these individuals had suffered from a loss of taste sensation after their surgery. Lingual nerve repair was completed on all subjects by use of microsurgery. The individuals were evaluated after the surgical repair to determine if their taste sensation had improved. After surgery, 80% of the patients showed an improvement with neurosensory testing; ie, their overall levels of taste were better. However, only about one-third of the patients showed a return of whole-mouth taste perception.