

Study Supports Removal of Third Molars

By Collette Knittel

The next time you see a patient who is experiencing no problems with his or her third molars, what should you do?

A recent study sponsored by the American Association of Oral and Maxillofacial Surgeons and the Oral and Maxillofacial Surgery Foundation and published in the November 2002 *Journal of Oral and Maxillofacial Surgery* strongly suggests the removal of third-year molars before age 25. The results of the study are challenging two long-held beliefs: that third molars that have broken through the tissue and erupted into the mouth in a normal, upright position have minimal problems, and that the absence of symptoms from retained third molars indicates that the teeth are free from problems.

Investigators led by Raymond P. White, Jr., DDS, PhD, and Richard H. Haug, DDS, conducted the 30-month institutional review board-approved longitudinal clinical trial. They examined the health of the tissues supporting teeth throughout the mouth, including the third molars of more than 300 healthy patients between the ages of 14 and 45, who had four symptom-free third molars with adjacent second molars. They used standard methods of evaluating the tissues that surround and support the teeth, including probing depth analysis, calculation of a gingival index, and X-ray examination. They also took dental plaque samples and determined the presence and levels of bacteria in these samples. If the probing depth analysis measured a depth of 5 mm or greater, which is an accepted determining sign of periodontitis, they observed that:

- 25 percent of all study-enrolled patients, and 34 percent of African American patients, had at least one probing depth equal to or greater than 5 mm behind a second molar and around a third molar.
- A higher proportion of patients 25 years old or older (33 percent) had a probing depth equal to or greater than 5 mm behind a second molar and around a third molar compared with patients younger than 25 (17 percent).
- Complexes of bacteria previously shown in scientifically designed clinical studies to be associated with periodontitis, were detected at higher levels in plaque samples of patients who had at least one probing depth equal to or greater than 5 mm behind a second molar and around a third molar.

"The results of this large, ongoing study only serve to reinforce what many of us have suspected and seen over the years," said John S. Bond, DMD, president of the California Association of Oral and Maxillofacial Surgeons. "Frequently, even when third molar teeth are erupted in the mouth, they often result in problems with the adjacent second molar teeth over the years."

The results of these investigations further indicate that patients who do not have their third

molars removed prior to age 25 may be at greater risk for the development of disease affecting the tissues surrounding the second and third molars and that early stages of periodontitis may present first in the third molar regions in young adults.

The investigators note that disease behind second molars or around third molars may be attributable in part to the patient's inability to keep the area clean. This would, in turn, allow infectious bacteria to grow and begin the disease process, which could worsen over time. Additionally, third molars that have broken through the tissue and erupted into the mouth in a normal, upright position are as likely to exhibit disease as those third molars that remain impacted or buried.

"Having a patient's third molars evaluated and removed by an oral and maxillofacial surgeon where indicated prior to the patient reaching the age of 25 results in a far easier postsurgical course for the patient," Bond said. "Importantly, it also prevents or eliminates the problems that all too frequently arise as the patient ages if they are ignored or forgotten until pocketing or other disease processes present."

For further information on the study, contact the American Association of Oral and Maxillofacial Surgeons at (847) 678-6200 or visit their Web site at www.aaoms.org.

UCSF Receives \$1.2 Million Grant to Prevent Oral Cancer

In a nationwide project to fight oral cancer through prevention and early detection, the National Cancer Institute has awarded \$1.2 million to researchers at the University of California at San Francisco School of Dentistry to create a program of oral cancer prevention in collaboration with the American Dental Association.

Oral cancer strikes more than 30,000 Americans and accounts for more than 9,000 deaths each year in the United States. Despite advances in oral cancer treatment, only about one-half of all people diagnosed with the disease survive more than five years.

"Early detection is the most important approach in decreasing the morbidity and mortality of oral cancer," said Sol Silverman, Jr., DDS, UCSF professor of oral medicine and principal investigator of the five-year project. Silverman is a consultant to the ADA Council on Access, Prevention, and Interprofessional Relations and a pioneer and expert in oral cancer education, patient care, and research.

The UCSF researchers will develop and implement a continuing education program focusing on oral cancer prevention education for practicing dentists in the United States. Key components will include risk assessment and risk reduction for tobacco and alcohol use, chemoprevention, early detection, and diagnosis.

Data indicate that the majority of at-risk Americans do not benefit from oral cancer screening from their primary care professionals, and survival rates have not significantly changed in the past 20 years, according to Silverman. The plan is to increase dentists' skills in early detection of oral cancer because, thus far, this is the most important approach in decreasing morbidity and mortality of oral cancer.

FDA Releases Final Rule on Classification of Sleep Apnea Devices

The Food and Drug Administration has announced its final rule that changes the classification of

intraoral devices for the treatment of snoring and obstructive sleep apnea to Class II (special controls). This rule became effective Dec. 12, 2002.

Formerly, these appliances remained unclassified as medical devices by the FDA. According to Dr. Susan Runner of the Center for Devices and Radiological Health, the regulation will help increase the legitimacy of oral appliance therapy for the treatment of sleep-disordered breathing. This may also add to the recognition of oral appliances by insurance providers, thus increasing the possibility for reimbursement to practitioners performing these procedures.

Class II refers to medical devices requiring special controls to ensure public health and safety, such as intraoral soreness, TMD, obstruction of oral breathing, loosening or flaring of lower teeth, general tooth movement, and others defined by an FDA guidance document. Mandating these considerations will add medical validity to the use of these appliances.

Dr. Harold A. Smith, president of the Academy of Dental Sleep Medicine, said, "The FDA classification of oral devices is a forward step in the future of oral appliance therapy, but more importantly, will ensure the effective treatment and overall health of patients."

For more information regarding the FDA regulation on medical devices, a copy of the FDA guidance document, or a list of devices currently cleared by the FDA, please visit the Academy of Dental Sleep Medicine's Web site at www.dentalsleepmed.org.

Use of Nitrous Oxide Can Affect Vision of Some Eye Surgery Patients

Patients may lose their sight if they receive nitrous oxide anesthesia within one month after having retinal surgery, a new study reported by Reuters suggests.

Researchers from New Zealand described the cases of three patients who received intraocular gas, which is used to hold the retina in place during surgery to repair retinal detachment.

Within one month, the patients had other types of surgery unrelated to their eye operation. All three patients, who received nitrous oxide gas as anesthesia for their second surgery, suffered severe vision loss immediately after they received the anesthetic. Vision loss was permanent in two of the patients.

Dr. David R. Worsley, the study's lead author, explained that nitrous oxide can cause an intraocular gas bubble to expand, increasing the pressure within the eye and inhibiting circulation to the optic nerve and retina.

"Without a blood supply, these tissues are soon irretrievably damaged, resulting in vision loss that is frequently severe," Worsley said.

The reports highlight the need for surgeons to recognize patients who may have been given intraocular gas recently, the researchers conclude in the November issue of the *American Journal of Ophthalmology*. In all three cases, the anesthesiologist was not aware of the patient's recent retina surgery.

"It is imperative that the anesthesiologist be aware of the presence of an intraocular gas bubble before any anesthetic so that nitrous oxide can be avoided," Worsley said.

Enzyme Key to Dental Enamel Formation

A team of scientists from the Forsyth Institute and the National Institute of Dental and Craniofacial Research have discovered that an enzyme known as matrix metalloproteinase-20 is essential for proper formation and development of dental enamel in mice.

Since the enzyme is expressed in human teeth, the finding, in studies of mice, may be relevant to science's understanding of a human disease known as amelogenesis imperfecta, which causes one in approximately 7,000 children to be born with defective dental enamel, according to John Bartlett, PhD, associate member of the staff at the Forsyth Institute, and the principal investigator.

In the United States, the teeth of such children are ordinarily capped. Left untreated, the disease results in pain and eventual loss of teeth. Because of similarities between the mouse and human genomes, "it is possible that loss of this enzyme in humans would cause this disease," Bartlett said.

The article, "Enamelysin (MMP-20) deficient mice display an amelogenesis imperfecta phenotype" was published in the Dec. 20, 2002, issue of the *Journal of Biological Chemistry*. It is available at www.jbc.org.

Mussels and Barnacles May Some Day Yield New Dental Adhesives

The greatest expansion in adhesive dentistry probably will be at the molecular level and secretions from mussels and barnacles may play a role, wrote Drs. Franklin R. Tay and David H. Pashley in the *Journal of Adhesive Dentistry*, Vol. 4, No. 2, 2002.

They said that this expansion will require far more collaboration between molecular biologists and polymer chemists than has previously occurred.

Adhesive dentistry has progressed at a rapid rate during the past decade, according to the authors. A large part of this success is attributed to the significant advances in dentin bonding technology.

From the early generation systems in the 1970s that yielded weak and unpredictable bonds, to contemporary hydrophilic systems that produce significant improvement in the strength of bonding to normal dentin, the progress in the development of dentin adhesives has been nothing short of phenomenal, wrote Tay and Pashley.

The current trend in the development of dentin adhesives, they said, is to simplify bonding steps and make them more user-friendly. However, they noted, optimizing speed and efficiency should be accomplished without major tradeoffs in the quality or durability of resin bonds.

With the advances in biomimetics, future dentin adhesive monomers may contain domains derived from protein-based, underwater bioadhesives secreted by aquatic animals such as mussels and barnacles, making them less dependent on the surface energy of the bonding substrates as well as less susceptible to hydrolytic degradation.

Using the concept of controlled release, future adhesives may contain fluorescent biosensors that can detect pH changes around leaking restorations. The authors said these adhesives may even have the capacity to heal autonomously, in response to microcracks formed by functional stresses within the adhesive joint. The ability to self-diagnose and self-repair will increase the life expectancy of adhesive restorations.

According to the authors, future dentin adhesives may also assume a more instrumental role in therapeutics apart from caries prevention. These features may include the controlled release of noncollagenous proteins to promote remineralization of collagen matrices and growth factors to induce controlled formation of reparative dentin.

Honors

John C. Greene, DMD, MPH, has been honored with the 2002 Tuttle Award, given annually by the National Spit Tobacco Education Program for national leadership in spit tobacco education and prevention. Dr. Greene is dean emeritus at the University of California at San Francisco School of Dentistry.

Upcoming Meetings

2003

Feb. 5-8 American Academy of Dental Group Practice Annual Conference and Exhibition, Miami, (602) 381-1185, www.aadgp.org.

March 5-8 Academy of Laser Dentistry 10th Annual Conference and Exhibition, Destin, Fla., (954) 346-3776, www.laserdentistry.org.

March 15-23 Arizona Dental Association's Western Regional Dental Convention, Phoenix, (602) 957-4777, www.azda.org.

March 23-29 United Sttes Dental Tennis Association Spring Meeting, Amelia Island, Fla., (800) 445-2524.

April 24-27 CDA Spring Scientific Session, Anaheim, Calif., (916) 443-3382, Ext. 4470.

April 29-May 4 19th Annual American Academy of Cosmetic Dentistry Scientific Session, Orlando, Fla., (800) 543-9220, www.aacd.com.

June 19-22 OSAP 2003 Symposium, Tucson, Ariz., 800-298-OSAP.

July 17-20 Academy of General Dentistry Annual Meeting, Nashville, (888) AGD-DENT, www.agd.org.

Oct. 25-29, ADA Annual Session, San Francisco, (312) 440-2500.

Dec. 5-7 California Academy of General Dentistry Annual Meeting, San Diego, (877) 408-0738, www.cagd.org.

2004

April 15-18 CDA Spring Scientific Session, Anaheim, Calif., (916) 443-3382, Ext. 4470.

Sept. 8-11 International Federation of Endodontic Associations Sixth Endodontic World Congress, Brisbane, Queensland, Australia, www.ifea2004.im.com.au.

Sept. 10-12 CDA Fall Scientific Session, San Francisco, (916) 443-3382, Ext. 4470.

Sept. 30-Oct. 3 ADA Annual Session, Orlando, Fla., (312) 440-2500.

Nov. 1-9 United States Dental Tennis Association Annual Meeting, Palm Desert, Calif., (800) 445-2524.

To have an event included on this list of nonprofit association meetings, please send the information to Upcoming Meetings, *CDA Journal*, P.O. Box 13749, Sacramento, CA 95853 or fax the information to (916) 443-2943.



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