



Winners of the 2007 Table Clinic Competition

Each year, the California Dental Association invites dental, dental hygiene and dental assisting students and military residents from across the state to enter the Table Clinic Competition at the Anaheim Scientific Session. The first-place finishers in each category receive cash awards and an invitation to write an abstract of their work to appear in the *Journal of the California Dental Association*.

SCIENTIFIC STUDENT WINNERS

The CDA Foundation awarded a \$1,000 scholarship to the recent winners of the Dental Assisting Student Table Clinic Competition. Supporting promising students is crucial to developing a competent work force and, therefore, the CDA Foundation is committed to sponsoring this scholarship. Ultradent Products, Inc., was the sponsor of the table clinics. Following are the winners of the 2007 table clinic competition.

Photos by Charr Crail

An online application for the 2008 Table Clinic competition will be available Oct. 1 at cda.org.



Dr. Ron Mead, CDA president, and Judy Durrant of Ultradent Products flank a beaming University of Southern California dental student George Abichaker, winner in the scientific category of the annual table clinics competition held during the 2007 Spring Session in Anaheim.

Cytomegalovirus-induced Embryopathology: Mouse Submandibular Salivary Gland Epithelial-Mesenchymal Ontogeny as a Model

Michael Melnick, George Abichaker, Tina Jaskoll, University of Southern California School of Dentistry; Edward S. Mocarski, Stanford University School of Medicine

PURPOSE: Human studies suggest, and mouse models clearly demonstrate, that cytomegalovirus, CMV, is dysmorphic to early organ and tissue development. CMV has a particular tropism for embryonic salivary gland and other head mesenchyme. CMV has evolved to co-opt cell signaling networks so to optimize

replication and survival, to the detriment of infected tissues. It has been postulated that mesenchymal infection is the critical step in disrupting organogenesis. If so, organogenesis dependent on epithelial-mesenchymal interactions would be particularly vulnerable. In this study, we chose to model the vulnerability by investigating the cell and molecular pathogenesis of CMV infected mouse embryonic submandibular salivary glands, SMGs.

METHODS: We infected E15 SMG explants with mouse CMV (mCMV) for 24 hours and cultured them in the presence or absence of active infection for up to 12 days.

RESULTS: We infected E15 SMG explants with mouse CMV (mCMV). Active infection for up to 12 days in vitro resulted in a remarkable cell and molecular pathology characterized by atypical ductal epithelial hyperplasia, apparent epitheliomesenchymal transformation, oncocytic-like stromal metaplasia, β -catenin nuclear localization, and upregulation of Nfkb2, Relb, Il6, Stat3, and Cox2. Rescue with an antiviral nucleoside analogue indicated that mCMV replication is necessary to initiate and maintain SMG dysmorphogenesis.

CONCLUSION: mCMV infection of embryonic mouse explants resulted in

dysplasia, metaplasia, and, possibly, anaplasia. The molecular pathogenesis appeared to center around the activation of canonical and, perhaps more importantly, noncanonical NF κ B. Further, COX-2 and IL-6 are important downstream effectors of embryopathology. At the cellular level, there appeared to be a consequential interplay between the

transformed SMG cells and the surrounding extracellular matrix, resulting in the nuclear translocation of β -catenin. From these studies, a tentative framework has emerged within which additional studies may be planned and performed.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE
CONTACT George Abichaker at abichake@usc.edu.

CLINICAL STUDENT WINNERS



Loma Linda University dental students Audrey Mojica and Natalie Cochran graciously accept their first-place award for the clinical category. They are joined by Judy Durrant and Dr. Ron Mead.

Treatment of Common Oral Conditions

Natalie Cochran, Audrey Mojica, Loma Linda University School of Dentistry

ABSTRACT: Common oral conditions are often diagnosed but left untreated due to confusion and uncertainty about proper treatment. The purpose of our project was to provide a concise and informative reference guide covering treatment options of common oral conditions for students and dental professionals.

MATERIALS AND METHODS: Using clinical photos, courtesy of Dr. Susan Richards, and an Apple Computer with iPhoto software, we created a reference guide in an iPhoto book format. The book was published by Apple, as well as published online in pdf format through our school's

education Web site (Blackboard). Pre- and post-tests were given on Blackboard to the Loma Linda University School of Dentistry dental class of 2008. The post-test was only made available after the student had studied the online reference guide.

RESULTS: A paired-t test at a significance level of $\alpha=0.05$ showed that the post-test performance was significantly higher than the pretest, with $p < 0.0001$. The median pretest score was 6 out of 10, and the median post-test score was 8. The percentage of students whose scores improved was 71.7 percent.

CONCLUSION: Our reference guide, *Treatment of Common Oral Conditions*, assisted students in accessing pertinent treatment information, producing a statistically significant improvement in their test performance.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE
CONTACT Natalie Cochran at ncochran@llu.edu or Audrey Mojica at amojica@llu.edu.

RDA STUDENT WINNERS

Do You Want Your Child to Have a Brighter Smile and a Brighter Future? It All Begins at Birth!

Yun Hee Chung, Sandra P. Ayala, Whitney V. Iosua, Olivia Bugarin, Hacienda La Puente Adult Education

PURPOSE: The purpose of this presentation is to increase the awareness of bacterial transmission from mothers to infants. As dental assistants, we have a responsibility to educate patients about the transfer of their saliva to their babies.

MATERIALS AND METHODS: We gathered various articles and literature from the *Journal of the California Dental Association* and pediatric dentistry journals. We discussed how the bacteria are transferred from mothers to their babies. Also, we discussed how we can prevent and improve through patient education. We spoke to pregnant women and mothers of infants from the class and explained to them how they could transmit bacteria to their babies. They realized the damage this action created and they wanted to correct their behaviors. In addition, we suggested seeing their dentist during the pregnancy to start antibacterial salivary treatment earlier so they can prevent bacterial transmission. We produced an exemplary clinical brochure that has brief information on treatments and explanation of bacterial transmission. The mothers thought it was informative and useful. There are three ways of treatment for mothers with high level of mutans streptococci: fluoride varnish, chlorhexadine mouthrinse, and xylitol. Considering cost, time, and patient compliance, we thought chewing gum containing xylitol has the most potential. We ran a mini-experiment to see the effectiveness of chewing gums that contained xylitol.

EXPERIMENT: We prepared xylitol extract from xylitol gum; 6g of xylitol was extracted to 20 ml of sterile saline water. A colony of saliva bacterial culture was



diluted to 9 ml of sterile saline water, and it was divided into three different test tubes: one was control, another was for three drops of xylitol, and the other was for six drops of xylitol. When a bacterial culture was mixed with six drops of xylitol extract, it showed significant inhibition of bacterial growth compared to three drops of xylitol extract grown at the same period of time. The result indicated that when a proper amount of xylitol is consumed, recommended 6~10g of xylitol per day, xylitol helps to prevent the bacterial transmission from mothers to infants.

CONCLUSION: Dental caries is an infectious and transmissible disease that is caused by bacteria, mutans streptococci. However, not many mothers and soon-to-be mothers are aware of this information. We emphasized how important it is to educate all mothers. We, as dental assistants, need to inform our patients about available treatments so they can prevent transferring bacteria to their babies.

SUGGESTION: We felt there is a lack of communication between the medical and dental professional. We would like to promote that the medical and dental professionals work together in the future for the benefit of the patient, including the combination of the diagnostic process becoming a team effort.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Yun Hee Chung at withdear@hotmail.

Drs. Anthony Perez and Bruce Toy (far left and far right) take a moment with RDA student winners Sandra P. Ayala, Olivia Bugarin, Yun Hee Chung, and Whitney V. Iosua of Hacienda La Puente Adult Education.

RDH STUDENT WINNERS



Jamie Davidson (far left) and Candace Barclay (holding blue ribbon) of Cypress College are all smiles with Judy Durrant and Dr. Ron Mead after the announcement that the students had won in their category.

Probing Into Manufacturers' Differences

Jamie Davidson and Candace Barclay, Cypress College

BACKGROUND: To determine the calibration and manufacturers' differences of manual probes.

METHODS: Six variations of periodontal probes were obtained from different manufacturers. Probes shared the 3, 6, 9, 12 design. A single blind study was conducted, N=24. First molars were probed then re-probed after 30 minutes. Random selection of the probes allowed

for a complete comparison of all probes against each manufacturer to determine differences. The amount of pressure was standardized with a less than 2 percent variation between examiners. Data was analyzed using a Winks statistic software program. Probes were measured for variations in size and weight.

RESULTS: Data analysis determined differences from manufacturer to manufacturer were not statistically significant; however, individual comparisons determined slight variances in readings from manufacturer to manufacturer.

CONCLUSION: Results of the study determined a difference exists between manufacturers of periodontal probes. Data supported the need for a standardized probe for dentistry, millimeters are crucial in disease assessment and progression.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Jamie Davidson, P.O. Box 1658, La Mirada, Calif, 90637.

MILITARY PEER-VOTE WINNERS



Vinh T. Ton, DDS, is shown with his winning entry, "Immediate Loaded Implants," in the military peer-voting category.

(There was a three-way tie in the peer-voting competition; however, only one abstract was provided to the *Journal*.)

Immediate Loaded Implants

Vinh T. Ton, DDS, LT, DC, United States Navy

BACKGROUND: As dental implants become the standard of care, there has been a tremendous increase in implant treatment. Two-stage surgical implant or delayed loaded implant, DLI, protocol for "loaded free and submerged healing" was designed to maximize predictability of osseointegration. However, discomfort, inconvenience, and anxiety related to healing time associated with this technique, DLI continues to be a challenge for both the patient and the clinician. Single-stage or immediate-loaded implant, ILI, protocol is designed to reduce the steps

and length of treatment time and ultimately eliminate some of these challenges.

PURPOSES: The purpose of this table clinic was to review the success rate of ILI versus DLI, and discuss the surgical, implant, host, and occlusion-related factors that may influence outcome of ILI treatment modality.

MATERIAL AND METHODS: Review of the literature was limited to human studies over the past 25 years. Data was organized in a table format to demonstrate the differences between the success rates of ILI versus DLI, and address factors that have a significant impact on implant success; especially important in ILI treatment.

RESULTS: The success rate of ILI is clinically and statistically similar to those found in DLI. Regardless of implant type, surface coating, and design, ILI has similarity success rate when com-

pared to DLI. Bone quality, quantity, and bone morphology of bone to implant contact postosseointegration are found to be similar in both ILI and DLI.

CONCLUSION: This review of the literature supports the use of the ILI technique due to similar clinical and statistical success rates between ILI and DLI. Bone and quantity around ILI are found to be similar to those found in DLI. No significant clinical difference of crestal bone loss between ILI and DLI were noted. Solid initial stability of implants is considered to be the most important criteria for achieving ILI success. A meticulous case selection is necessary to integrate ILI treatment modality into daily practice. Importantly, surgical, host, occlusion, and implant-related factors should be carefully studied and analyzed prior to starting treatment.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Vinh T. Ton, DDS, LT, DC, USN 1st DenBn/NDC Camp Pendleton, Calif, 92055.

Following are the other two Military Peer-Vote winners:

Resin Modified
Glass Ionomer,
Resin Composite,
Sandwich
Technique
Spencer Wirig, DMD

Restoring a Tooth
With External
Resorption
*Christopher
Stewart, DDS*

Socket Preservation: An Overview of the Indications, Benefits and Techniques of Preserving Alveolar Bone After Tooth Extraction

Alfonso Navarrete, DDS, and Matthew Burke, DDS, Veterans Administration Northern California Health Care System, general practice residency, Mare Island, Calif.

OBJECTIVES: A review of the general principles, techniques, materials, and indications for socket preservation after tooth extraction.

METHODS: A literature review was conducted and specialists were consulted.

RESULTS: Tooth extraction may result in alveolar ridge resorption or collapse. As part of the informed consent process, it is important that the potential sequella to the surgical procedure be thoroughly reviewed with the patient. As part of this discussion, socket preservation with

MILITARY PUBLIC-VOTE WINNERS



the goal of preserving bone volume for future treatment should be considered. There is a 25 percent decrease in width of alveolar bone in the first year and a 40 percent to 60 percent decrease in

Drs. Gary Ackerman, far left, and Dennis Shinbori, far right, congratulate Drs. Matthew Burke and Alfonso Navarrete for their first-place table clinic.

TABLE 1

Grafting Materials

	Osteogenesis	Osteoinductive	Osteoconductive
Autograft	Yes	Yes	Yes
Allograft	No	Yes/No	Yes
Xenograft	No	No	Yes
Alloplast	No	No	Yes

width in two to three years' postextraction.²⁻⁵ After multiple extractions, there is a 4 mm decrease in height of alveolar bone.^{4,5} This bone loss experienced after tooth extraction can have undesirable esthetic, hygienic, and prosthetic results.

Due to potential undesirable results postextraction, patients should be educated about the indications for pocket preservation. Indications include, but are not limited to 1) prevention of or reduction of bone resorption postextraction; 2) preservation of bone contour and volume; 3) provide adequate bone for future implant placement; 4) maintain soft tissue esthetics; and 5) help with the maintenance of the adjacent tooth periodontal status.

Extraction site management includes atraumatic tooth extraction, asepsis, removal of all granulation tissue, evaluation of remaining bony walls, ensuring adequate blood supply, choosing the appropriate grafting materials, soft tissue closure, and allowing for adequate healing time.¹

The decision to utilize grafting material presents many choices to the clinician. Autografts are taken from the patient's own body, either from extraoral or intraoral harvest sites. Allografts are obtained from members of the same species (TABLE 1).

Xenografts are from a different species such as porcine or bovine. Alloplasts are synthetic materials such as ceramics or bioglass.

Graft selection criteria should include the following: biologic availability, predictability, clinical feasibility, minimal operative hazards, minimal postoperative sequelae, and patient acceptance.

Graft potential varies depending on

the material used and is critical for the clinician to understand. Ideal characteristics of graft material are its ability to form bone and induce bone formation. Osteogenesis is the formation of new bone by cells contained in the graft. Osteoinduction is a biochemical process by which molecules contained in the graft convert the neighboring cells into osteoblasts. Osteoconduction is the physical effect by which the matrix of the graft forms a scaffold that favors outside cells to penetrate the graft and form new bone.

CONCLUSION: Key factors for success include proper diagnosis, treatment planning, careful extraction technique, utilizing the appropriate materials and methods for the patient and postoperative follow-up. When extractions are being considered, patients should be given the appropriate information to make an informed decision and part of this would be to present the possibility of socket preservation to minimize potential bone loss and optimize the area for future treatment.

REFERENCES

1. Tischler M, Misch CE, Extraction site bone grafting in general dentistry: review of applications and principles. *Dent Today* 23(5):108-13, May 2004.
2. Carlsson G, Persson G, Morphologic changes of the mandible after extraction and wearing of dentures. A longitudinal clinical and x-ray cephalometric study covering 5 years. *Odont Revy* 18(1):27-54, 1967.
3. Misch CE, What you don't know can hurt you (and your patients). *Dent Today* 19(12):70-3, December 2000.
4. Misch CE, Contemporary Implant Dentistry, second ed., St. Louis: Mosby Inc., 455-64, 1999.
5. Christensen GJ, Ridge preservation: why not? *J Am Dent Assoc* 127(5):669-70, May 1996.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Matthew Burke, DDS, at mattburke46@hotmail.com.