BULLETIN OF THE SAN FERNANDO VALLEY DENTAL SOCIETY

DENTAL DIMENSIONS

WWW.SFVDS.ORG

Spring 2012

A Growing Success!

- The MB2 Conundrum
- Root Canal Perforations
- Regenerative Endodontics
- Risk Categories for Dental Decay
- Root Canal Enhanced Irrigation

You've built a practice as exceptional as you are. Now choose the optimum insurance to protect it.

TDIC Optimum

Anything but ordinary, Optimum is a professional bundle of products that combines TDIC's singular focus in dentistry, thirty years of experience and generous multipolicy discounts. Creating the ultimate coverage to protect your practice, perfectly. And you wouldn't have it any other way.

TDIC Optimum Bundle

- Professional Liability
- Building and Business Personal Property
- Workers' Compensation
- Employment Practices Liability

Endorsed by
San Fernando Valley Dental Society

Protecting dentists. It's all we do.®

800.733.0633
tdicsolutions.com
CA Insurance Lic. #0652783

Eligible multipolicy discounts apply to Professional Liability, Building and Business Personal Property and Workers' Compensation.

tdic®

DENTAL DIMENSIONS

Published by the San Fernando Valley Dental Society
22110 Clarendon Street, Suite 101
Woodland Hills, CA 91367
Office: (818) 884-7395
Fax: (818) 884-2341
E-mail: exec.sfvds@sbcglobal.net
Web Site: www.sfvds.org

Published quarterly by the San Fernando Valley Dental Society. The Society solicits essays, letters, opinions, abstracts and publishes reports of the various committees; however, all expressions of opinion and all statements of supposed fact are published on the authority of the writer over whose signature they appear, and are not regarded as expressing the view of the San Fernando Valley Dental Society unless such statement of opinions have been adopted by its representatives. Acceptance of advertising in no way constitutes professional approval or endorsement.

Graphics by: C. Stieger Designs

In This Issue

Spring 2012

Volume XLVI Number 2

On The Cover.....

Member Chris Herron, DDS from Woodland Hills provided screenings & fluoride treatment to children of the Woodman Head Start program in Van Nuys.

From the Desk of the Editor

Dedication to Service and Democracy

I am very pleased to bring you this issue of Dental Dimensions. We appreciate the tremendous positive feedback you have given us on the improvements we have made to Dental Dimensions. Thanks to our talented member dentists and central office staff submitting outstanding articles, we are able to provide you with more valuable articles on relevant topics in dentistry, as well as keep you up to date on current issues that affect our practices. If you have a flair for writing, I encourage you to submit articles for future issues. It is a great way to showcase your area of expertise and get your name out to our members.

Many of you have been following our progress on CDA's role in improving the "Access to Care" issue in our state. Lately, Senator Alex Padilla's Senate Bill (SB694) passed very quickly through the state Senate and is scheduled to be heard in the Assembly in June. Your SFVDS Board and CDA delegates were surprised and concerned that CDA was supporting this bill, which called for a pilot study of high school graduates with less than 2 years of training to perform dentistry on the underserved children in California, without supervision by a dentist.

We worked closely with other dental societies and components to get the word out to member dentists to take action. You have all been receiving our emails requesting you to send letters to senate and assembly members. We immediately scrambled to see who could juggle their schedule to fly to Sacramento, and were able to send Dr. Virginia Hughson-Otte, one of our Board members and a past-president, to testify at a Senate Health Committee hearing. We felt that CDA's support of SB694 was against the spirit of the 2011 House of Delegates' resolutions on the "access to care" issue.

In various articles and columns in this issue you will read how we used the democratic processes in place at CDA to bring about change, and how that process will continue to ensure that the voices of all CDA members are heard.

Anita Rathee, D.D.S., M.P.H.
Editor, SFVDS

Letters to the Editor

Dental Dimensions: Rotary Club call for Donations

The Rotary Clubs of the Mid San Fernando Valley, Woodland Hills, Granada Hills, and Burbank Sunrise, have some funds to set up a portable dental clinic headquartered at New Horizons.

New Horizons is one of the largest and most vibrant agencies in our local community serving the needs of adults with developmental disabilities. It provides a full continuum of programs including job placement, education, counseling, training, social and recreational activities, residential services and employment opportunities to more that 850 individuals.

The cuts in DentiCal last year left almost all of the clients without dental services. A small percentage of the most disabled can be helped with dental hygiene services, and two hygienists come in to treat those individuals. A local dentist is providing emergency extractions (They are paid for, minimally, by the State of California for those who report in pain). But that leaves most needed dental care untreeted – and small problems becoming big ones.

The portable dental clinic can be taken to other sites when dental treatment needs to be done. The Salvation Army residents have a similar need, and other organizations may provide dental examinations and fluoride care for preschoolers in the west San Fernando Valley.

We are asking dentists to donate whatever extra instruments, equipment or supplies that they can to supplement the portable dental unit-chair that the Rotary grant has provided.

Do you have - that you can donate?

- A portable x-ray machine?
- Or a regular working x-ray machine?
- A sterilizer?
- An amalgamator?
- Any handpieces?
- A light for curing composites?
- Hand instruments for surgery, composites, and hygiene?
- Burs and diamonds that you don't use?
- Extra syringes, mirrors, explorers, cotton pliers?
- Any supplies not being used?

Please help with whatever you can to make this possible.
And thank you in advance.
Please call us at 818-709-1200.

Barbara R. Pampalone, DDS, President of Mid San Fernando Valley Rotary Club

In Dr. Zierhut's article, we left out her citation of references and they are as follows:

Works cited

• Corrente, G., Abundo, R., Re, S., Cardaropoli, D., Cardaropoli, G.. "Orthodontic Movement into Infrabony Defects in Patients with Advanced Periodontal Disease: A Clinical and Radiological Study." J Periodontol 2003; Aug;74(8):1104-1109.
DOI 10.1902/jop.2003.74.8.1104.
<http://www.joponline.org/doi/abs/10.1902/jop.2003.74.8.1104%20>

• Eliasson, L., Hugoson, A., Kurol, J., Siwe, H.. "The effects of orthodontic treatment on periodontal tissues in patients with reduced periodontal support." Eur J Orthod (1982) 4 (1): 1-9. doi: 10.1093/ejo/4.1.1 <http://ejo.oxfordjournals.org/citmgr?gca=eortho;4/1/1>

• Lee JW, Lee SJ, Lee CK, Kim BO. "Orthodontic treatment for maxillary anterior pathologic tooth migration by periodontitis using clear aligner." J Periodontal Implant Sci. 2011 Feb;41(1):44-50.
<http://dx.doi.org/10.5051/jpis.2011.41.1.44>

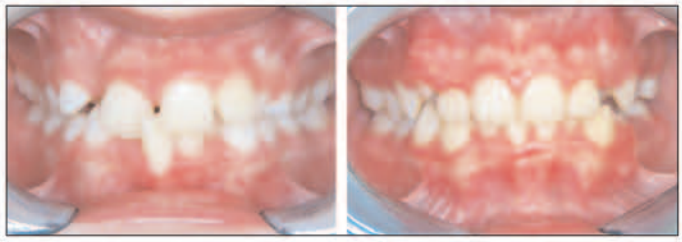
• Ngan PW, Burch JG, and S. H. Wei. "Grafted and Ungrafted Labial Gingival Rrecession in Pediatric Orthodontic Patients: Effects of Retraction and Inflammation." Quintessence Int. 1991 Feb;22(2):103-11.
<http://www.ncbi.nlm.nih.gov/pubmed/2068245>

• Sanders, N.. "Evidence-based Care in Orthodontics and Periodontics: A Review of the Literature". JADA. 1999 April; 130: 527.
<http://jada.ada.org/content/130/4/521.full.pdf>.

• Wennström, J.L.. "Mucogingival Considerations in Orthdontic Treatment." Seminars in Orthodontics. 1996 Mar; 2 (1): 46-54.
<http://www.sciencedirect.com/science/article/pii/S1073874696800399>

Our apologies to the authors and readers of "When is Early too Early?" by Dr. Brian Kim, and "Periodontal Preparation of the Orthodontic Patient" by Dr. Eileen Zierhut in the last issue of Dental Dimensions.

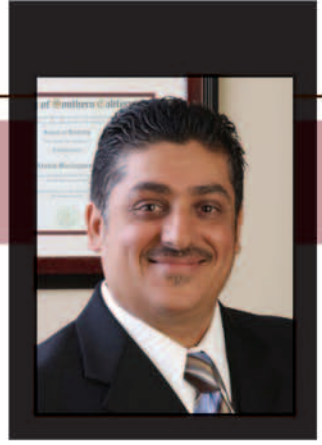
In Dr. Kim's article, we mistakenly printed the same photos for Picture 4 as we did for Picture 1. The correct photos for Picture 4 are now shown below.



Picture 4: Correction of arch-length discrepancy, note the improved position of the lower right incisor and the improved gingival architecture.

From the Desk of the President

Leaving the gate running!!!!



Dear colleagues and friends,

It is my honor to serve as the president of the San Fernando Valley Dental Society this year. The year began with a jam-packed schedule with a sense of urgency on one specific issue.

For the past several years the California Dental Association (CDA) has been involved in researching and studying the access to dental care issue for the 30% of Californians who don't regularly see a dentist. The San Fernando Valley Dental Society Board of Directors and its delegates to the CDA House of Delegates (HOD) have been in the forefront of this issue, working to guide and assist CDA leadership in adopting policy that would protect and serve our members and the public we proudly serve. After the November 2011 HOD and the filing of the access report which was presented to the HOD, State Senator Alex Padilla authored Senate bill 694 (SB694), calling for a pilot study to allow non-dentists to perform irreversible/ surgical procedures on California's underserved children. CDA announced its full support of this bill.

Your 11 SFVDS delegates, along with 40 others, called for a special session of the HOD because they felt that the spirit of the HOD was compromised and CDA's support of SB 694 was premature. The special session was held on March 3, 2012 in Oakland and a compromise resolution was adopted. Rest assure that your board of directors and delegates will continue to fight for what is best for our profession, and the public we so proudly serve.

As I said in my introduction, this is a jam-packed year for our component!

We have an outstanding lineup of speakers for our general meetings. The Madow brothers rocked the house with their marketing tools in January, Dr. Parvizpour presented a very informative and entertaining lecture on Anterior Implants, and off course, Dr. Christensen packed the house with more than 200 attendees, the most we have had in the past several years.

We are not done yet! There are several high caliber speakers scheduled to speak in the second part of the year. Please refer to the SFVDS website or call the central office to reserve your seat for these future general meetings.

February has always been a busy month as the GKAS program takes place. I can proudly report that 2,122 children were screened by 41 member dentist volunteers. The GKAS program has reached a new level compared to a few years back, and I am grateful for all the volunteers and the staff that make this a successful program year after year.

With the coming of spring and new beginnings, the SFVDS foundation is also sprouting. Its mission is "to provide access to and improve the oral health of the underserved of Northern Los Angeles County by members and associates of the San Fernando Valley Dental Society". We are planning fundraising programs and events, and your participation would be greatly appreciated. Please stay tuned for further details in the near future.

I look forward to seeing you at our general meetings and I would welcome any questions and/or concerns you may have.

Sincerely, Afshin Mazdey D.D.S.

THE INSURANCE COMPANIES HOLD ALL THE CARDS

By: Dr. Jim Mertzel

If you are having problems negotiating with the dental insurance companies you are not alone.

There are several issues presently causing problems for dental providers.

Recently Delta Dental, and other providers are expected to follow, issued an edict that any provider who wants to be included as a Delta provider must sign up for all the programs for which Delta writes policies. This would mean that if you only want to be a premier Delta provider, you would now have to be willing to take Delta PPO programs as well. Ultimately this could result in Delta only selling PPO policies and the Premier policy would fall to the wayside. This could possibly lead to the inclusion of HMO programs, which would than result in PPO programs diminishing.

Another issue facing providers is the fact that many insurance companies will not accept assignment of benefits to the dentist if the dentist is not a contracted provider for the for the patient's insurance company. This places an added burden on the patient to be obligated to pay the entire amount due to the dentist and then file a claim to the insurance company. CDA has sponsored AB 1579 to obligate the insurance company to accept assignment of benefits from out of network non-contracted dentists.

AB 2252 sponsored by CDA requires dental plans to provide dentists with whom they contract, notice of any changes to the plan's rules, regulations, guidelines, policies or procedures concerning dental provider contracting coverage or payment for dental services. The mandate would not only require notice when the terms are changed, but also when a dental plan proposes a change in coverage or benefits for the plan's products, including how and how much a plan will pay for those benefits

As a result of an article in the Sacramento Bee which was critical of the Sacramento County's Children's Managed Care program, State Senator Steinberg may be taking steps to eliminate the mandatory requirement for Healthy Family patients to sign up for the HMO program and allow them to voluntarily choose the Denti-Cal program as an alternative. This would probably apply to Los Angeles County as well.

Congressman Paul Gosar, a dentist from Arizona, submitted an amendment to HR 5 "Help Efficient Accessible Low-cost, Timely Healthcare Bill (HEALTH) to repeal the McCarren-Freguson Act which provides anti-trust exemption for insurance plans. The amendment was approved by the House of Representatives and by the time this article appears the full bill will probably be passed by the House. A similar amendment was approved by the HR last year but defeated in the Senate. It is urgent that you write to Senators Feinstein and Boxer urging passage of the bill with the Gosar amendment included.

We have an outstanding legislator representing dentistry in Washington, Paul Gosar.
He will be running for re-election and needs our financial support. Dentistry needs all the help it can get with the clouds of government and the insurance industry threatening our profession.

James Mertzel D.D.S. Legislative Chairman, Member of CDA Government Affairs Council

Trustees Report

By: Gary Herman

The California Dental Association Board of Trustees held their quarterly meeting on March 9th and 10th. While the bulk of the meeting agenda was relatively mundane, a significant amount of time and effort was spent on a Special Order of Business.

As many of you may be aware, the Issue of Access to Care, including CDA's report, outside foundation efforts, and legislative activity surrounding SB 694 has been consuming much time and attention of your local board members as well as the leadership of CDA.

Since the introduction of SB 694, organized dentistry has been consumed with efforts related to lobbying, legislating, and educating about this issue.

Your local Board of Directors has worked tirelessly to raise concerns regarding the assumptions of the Access Report and concerns pertaining to the efforts of CDA. These concerns, not limited to our component, have resulted in two special meetings. The first, a Special Board of Trustees meeting, was held in Sacramento in February to address a number of unresolved issues related to CDA's actions subsequent to the 2011 House of Delegates. This meeting, along with a petition from the delegates, resulted in a Special House of Delegates meeting that was held in Oakland on March 3rd.

The Special House produced a clarified resolution, but really emphasized the concerns of your leaders that the process and results of CDA's actions needed further scrutiny. The most recent Trustee meeting addressed these concerns.

The Board of Trustees authorized a Process Review Subcommittee charged with conducting a review of the processes related to the preparation of the access report for the 2011 House, all activities related to SB 694 and the overall policy making process of CDA. This review, at the direction of the subcommittee, will be carried out by outside experts who will interview staff and volunteers. The committee will be comprised of six trustees and chaired by the Immediate Past President, Andy Soderstrom. I am honored to be one of the Trustees selected to prepare this report.

The remainder of the meeting was pretty boring and provided nothing exciting to report. I will focus on keeping you updated about CDA activities throughout the year.

General Meetings - Preview

JUNE 20, 2012

"Dental Materials"
Speaker: Todd Snyder, DDS
Sponsored by GCAmerica

2PM – 9PM Airtel Plaza Hotel, 7277 Valjean Ave., Van Nuys, CA 91406 818.997.7676

About the Program: A review of the hottest new materials, technology and techniques in dentistry will be discussed in this program. These new products and devices will change the way we all practice dentistry, because they have the potential to find disorders in the tissues and teeth earlier than ever before, giving the practitioner diagnostic capabilities to assist in less invasive techniques matched with products that can assist in strengthening and restoring damaged tooth structure.

SEPTEMBER 12, 2012

"Hot Topics in Aesthetic and Restorative Dentistry"
Speaker: David Hornbrook, DDS

2PM – 9PM Airtel Plaza Hotel, 7277 Valjean Ave., Van Nuys, CA 91406 818.997.7676

About the Program: This course will explore our options for aesthetic, metal-free dentistry for our patients in applications including smile design, posterior restorative, bridge applications, and full mouth rehabilitation. Discussion will include updates of dentinal adhesion, ideal cementation of the new materials using the new resin cements, and addressing the role function plays in our decision making. This truly is the "Platinum Age" of dentistry and the potential for what we can offer to our patients, both aesthetically and functionally, is more exciting and rewarding than ever before.

General Meeting Review

January 18, 2012

Speaker: Dr. Richard Madow and Dr. David Madow

"Are You Ready to Love Dentistry, Have Fun and Prosper?"

Kicking off the new year with some serious laughs, these two, both dentists, presented a fast-paced, fun and humor-filled session on Practice Management. This presentation shared the secrets of delivering better patient care, practice growth and fulfillment, in a funny yet practical way that drove their points home and made them easy to remember.

February 29, 2011

Speaker: Shahriar Parvizpour, DDS

"Creating Predictability in Anterior Tooth Replacement & Management of Esthetic Complications"

This program reviewed the basic concepts for achieving predictable esthetic outcomes using dental implants, including decisions such as implant size, type, screw retained vs cement retained, and abutment type made prior to treatment. The goal of this presentation was for the audience to be able to predict the final outcome prior to treatment, and judging by the course evaluations turned it, the goal was accomplished.

March 28, 2012

Speaker: Gordon Christensen, DDS

"The Christensen Bottom Line"

It was our honor and privilege to hear Dr. Christensen present his fast moving "bottom line" course which covered the areas of dentistry with the most activity and change in the past year. He made his presentation easily understood and had numerous summaries that helped attendees to interpret the on-going advancements in the profession. The course encouraged audience participation, questions and answers, and was presented in an enjoyable and humorous manner.

The SFVDS' special House delegation caucused the night before the House.

CDA Holds Special House of Delegates Meeting in Oakland

By: Andy Ozols, Executive Director

March 3, 2012 saw only the second Special House of Delegates meeting in CDA's 40 year history. Called by 50+ delegates of the 2011 CDA House, this special session took up the issue of how House resolutions 2RC and 24S1, as passed by the full house in November, 2011, were being interpreted and acted upon by CDA.

So what was the big deal about that, you may be asking?

Well, that group of 50+ delegates, as well as many, many others, thought that CDA had misunderstood the directive of the House to oppose anyone other than a licensed dentist from performing surgical/irreversible procedures, while beginning to implement the Phase I (of three phases) recommendations of the Access to Care Report.

Without going into the layers and layers of detail and the personalities behind this issue, what follows is a summary of what led up to the Special House of Delegates meeting and what happened during the meeting.

Shortly after the November, 2011 CDA House of Delegates meeting came to a close, Senator Alex Padilla filled in the details of his spot bill, SB 694, and began to push it through the CA State Senate. Your CDA House Delegates, along with many, many others, were shocked to see that CDA was endorsing and supporting that bill. Within that bill were provisions calling for the expansion of the dental workforce by creating a study to establish the safety, efficacy and patient satisfaction of high school grads, with 22 months of training, to diagnose, drill, fill, extract, and perform other dental procedures on children in underserved areas, without direct dentist supervision. While Phase I of the Access Report did call for a study to establish the ability of an expanded dental workforce (read mid-level provider) to have a meaningful impact on the Access to Care issues in California, no one expected that CDA would support a study of undereducated and minimally trained non-dentists to perform surgical/irreversible procedures on California's children without a dentist's supervision.

Seeking to roll back CDA's support of the Padilla bill, members of the SFVDS delegation put forth the initial resolution to be considered by the special house. This resolution's aim was to withdraw CDA's support of the bill, remove the study provisions from the bill and reaffirm CDA's opposition to anyone other than a licensed dentist performing surgical/irreversible dental procedures.

Fearing a backlash from the legislature and damage to CDA's credibility with individual legislators, the Redwood Empire Dental Society put forth a substitute resolution that was eventually passed by the House. Although lengthy and a bit confusing in its approach to the issue, the resolution recommends that the proposed study in the original Senate bill be adjusted to reflect members' concerns that inadequately educated and trained technicians would be a danger to the public health. Instead of high school graduates with 22 months of training, the study should only look at the safety, efficacy and patient satisfaction levels of specifically defined surgical/irreversible procedures performed by licensed, extended function auxiliaries (RDAEF2 & RDH), with specific modular training, under the direct or remote supervision of a dentist, in a university setting only. What will happen after the study is completed no one knows for sure, but we all know how government programs and bureaucracies tend to live on and on.

Whether Senator Padilla will take the advice of the Special House of Delegates or not is anyone's guess. As you read this, the bill will be making its way through the State Assembly and will likely be amended further yet. Your Board of Directors and CDA Delegates will be keeping a close eye on this bill as it continues to move through the legislature and will do everything in their power to fight the erroneous idea that expanding the dental workforce is the solution to the Access to Care problem. Authorizing and licensing mid-level provider-type practitioners has not worked anywhere else in the world where it has ben tried, and there is no reason to think it would work here in California either. There is plenty of literature available about similar efforts in New Zealand, Saskatchewan, Alaska and elsewhere, so another study is simply not necessary. In fact, the study itself is dangerous to the oral health of Californians, never mind actually licensing such tradespeople to try and 'drill and fill' our way out of the Access to Care problem. Interestingly enough, while we all know that oral health literacy and good oral hygiene habits are the best ways to prevent dental disease, thereby reducing the need to see a dentist beyond regular cleanings, there is no mention of those two items in the current Senate bill.

Dentistry is a profession to be carried out by licensed, doctorate level practitioners with one standard of care for all Californians… and with your help to periodically lobby individual legislators and committees, your dental society's leadership will continue the fight to keep it that way!

Give Kids a Smile – A Growing Success

As 2012's GKAS program came to a close, SFVDS volunteer dentists screened 2,122 children in the San Fernando Valley. That's 648 more kids than we screened last year. We provided these kids with a basic oral health screening, fluoride varnish and oral hygiene instructions.

Coordinating this program for the second year, I was personally very happy working with every single dentist who volunteered this year. Member dentists all went above and beyond my expectations, including getting down on their knees to screen special needs children and some gladly volunteering more than once. As a result, this has been the best GKAS program year so far.

62 member dentists signed up to help this year and most of them were able to juggle their schedules to volunteer for the screenings. While we arranged for various free and low cost clinics to help with the needed follow up care, about a dozen of our members also volunteered to provide the needed follow-up restorative care that was discovered during the screenings.

The ADA gave us enough supplies for 1500 children but their kits did not include mirrors or gloves this year. Thanks to the new SFVDS Foundation, we were able to purchase disposable mirrors and gloves and the balance of needed supplies like fluoride, toothbrush and toothpaste gifts for the remaining 622 kids.

One of the things that stood out from this event for me this year was the number of stainless steel crowns we saw. There were about a dozen kids with mouths full of stainless steel crowns. Of those kids, there was one little girl who I will never forget because she was extremely shy and even a bit embarrassed to show us her mouth full of crowns. The rest of the kids with crowns were more than happy to show off their "shiny" and "super strong" crowns.

Another thing that stood out for me was how many of the parents refused the free service. On average there were about 2-3 kids in a class of about 30 who didn't have consent forms from their parents. There were a few parents with whom I was able to speak and ask why they hadn't allowed their children be seen by our dentists. Almost every time the parents said "we just went last week" or "we have an appointment next week". It seemed conveniently coincidental that it was always the week before or the week after the screenings. One parent said her child was terrified of the dentist and she would rather not put her child through what she perceived was the torture of a dentist. I tried to explain to these parents that a pediatric dentist would be best for their children, and that they are exceptionally gentle and understanding, but I just got waved off. Experiences like this made me think about the 'Access to Care' issue, saddened at the reality of yet another barrier to care, especially for small children: their own parents!

Dr. Karin Irani providing dental screening

Most of the kids were happy, excited and curious to have a dentist at their school. Some were a bit hesitant at first but by the end of the screenings, everyone was happy and many

By: Bella Penate, Administrative Assistant and SFVDS GKAS Coordinator

either had a crush on the dentist or wanted to be a dentist when they grew up. Having a dentist, someone who they thought would cause "ouchies", come into their environment and sit in one of their little chairs, made them feel comfortable and at ease. Some children even came close enough to stand right next to the dentist, ask questions and look into the mouths of their classmates with the dentist.

There were kids who were at first frightened to hear the word "dentist" but at the end of the day no one was crying and everyone said thank you with a look of contentment.

If you were not able to help out this year, but would like to help these underserved kids, please volunteer for our February, 2013 program. You will feel an immense reward helping and I guarantee you will not regret shuffling your schedule around to help those less fortunate than us.

"SVFVDS Member Doctors who Participated in the 2012 GKAS"

Jorge Alvarez • Jason Sands
Juan Falabella • HonPing Wong
Dell Goodrick • Joshua Kang
Eileen Zierhut • Jennifer Holtzman
Michael Lasky • Michael Lee
Nita Dixit • Steven Galaif
Matt De La Rionda • Shukan Kanuga

Dr. Dell Goodrick with a group of children at the Santa Clarita Head Start Program.

After their screenings, SFVDS staffer, Bella Penate, hands out toothbrush & toothpaste kits to children of Vaughn Next Century Learning Center in San Fernando

Sako Karakozian • Gerald Kirschbaum
Karin Irani • Afshin Mazdey
Susan Jarakian • Morris Azad
Nairi Kureghian • Khan Le
Haleh Shaheedy • Shahrzad Sami
Chris Herron • Adrienne Fang
R.Craig Ford • Gregory Don
Jill Lasky • Punita Oswal (non-member)
Nick Ghazaryan • Sahar Mirfarsi
Niloo Tavakol

Above: A thank yu note to Dr. Morris Azad from the children of Arleta Head Start.
Below: Dr. Nick Ghazaryan poses with a few of the children he screened at Vaughn Next Century Learning Center in San Fernando.

M_B2 Conundrum

Do you do root canals? If so, experience tells you a high percentage of maxillary molars have two canals in the MB root. Studies indicate anywhere from 40-90% have the elusive MB2 canal.

I've noticed, however, that the majority of previously-treated maxillary molars I observe in my endodontic practice only exhibit three treated and filled canals. I've also noticed that the majority of these endodontically treated teeth are successful (let's, for the sake of simplicity, define success as a lack of lesions and symptoms).

This leads me to believe, therefore, that a lot of these successful, endodontically-treated cases really have MB2 canals present that were not treated.

Sometimes we're just plain lucky. Percentage wise, a great deal of the MB and MB2 canals join together and exit the root terminus as one canal. Adequately cleaning and sealing one canal may seal the portal of exit for both canals. If we miss finding the MB2 but do an adequate job of cleaning and sealing the MB canal, we are often fortuitously spared eventual failure of the case due to this anatomic reality.

We all know where the elusive MB2 orifice is supposed to live. It is most likely found somewhere palatal to the MB orifice along an imaginary line between the MB orifice and the Palatal orifice. It may be mesial or distal to this line, but it is usually near it. If not readily apparent, we know to remove the overhanging mesial chamber wall dentin that often obscures the orifice. We know that smoothing the chamber floor with diamonds or ultrasonic instruments increases the likelihood of discovering the "dentin roadmap" that serves to guide us in our search for canals. Troughing the chamber floor with ultrasonic instruments may increase our chance of identifying the tiny orifices by judiciously removing tooth structure while minimizing the chance of perforation. Magnification helps. Loupes or a microscope increase our success. A good, sharp endo explorer is invaluable. When it sticks, you know where to search. Sometimes a liquid caries detector or methylene blue dye flowed across the chamber floor will help to distinguish the orifice. Full strength sodium hypochlorite placed on the chamber floor may produce a bubble stream as the bleach reacts with the tissue in a canal. The bubble stream may lead us to the orifice. Transillumination is another aid. The orifice may show up as a dark spot in the transilluminated tooth.

If you treat maxillary molars, you should assume that there are two canals present in every maxillary molar's MB root. Only after a thorough search for a second canal, utilizing some or all of the search aids previously described, and only after it is determined that further searching would be fruitless or highly likely to cause a perforation, should you accept treating only one canal in the mesial buccal root on a maxillary molar.

In my endodontic practice, I see many previously-treated maxillary molars with signs or symptoms of endodontic failure. The patient may complain of soreness to chewing on the tooth, an intermittent or constant dull ache in the area, or pressure sensitivity when they push on the mucosa above the tooth with their finger. Radiographic examination often reveals a periapical radiolucency associated with the MB root and only one root filling in the root. Although endodontic failure can be the result of many things, not treating the MB canal, if present, greatly increases the chance of failure.

If it appears that the rest of the canals were adequately cleaned and sealed, often the reason for failure is that the MB2 canal was not located and treated. This should leap to your mind when you see a periapical radiolucency associated with the MB root on a previously-treated tooth.

OK. We know the MB2 canals are there. We know we should expect them to be there on every maxillary molar we treat. We have strategies to locate them, and we put in the effort to search for them. Great.

The MB2 conundrum.

A treated maxillary molar presents with great-looking fills in three canals. The endodontic treatment may have been recently performed by me or by you. The fills all appear of adequate length and density radiographically. A nice crown is present. The patient has had intermittent pain in the area since the RCT, and a MB periapical radiolucency is present that wasn't there at the time of the initial endodontic treatment.

Of course the first thing I think of is a missed MB2 canal. An examination is performed. A diagnosis is made. The patient is presented treatment options. Risks, benefits and alternatives are discussed. Retreatment versus surgical treatment is discussed. As most patients don't especially savor the idea of periapical surgery, many opt to have the tooth re-entered to rule out the possibility of a missed fourth canal.

As an endodontist, I secretly envision what a hero I'll become when I miraculously discover the offending missed canal and save the day. I know . . . I'm sick.

Upon entry, I remove the buildup material and locate the gutta percha dots at the MB, DB, and PAL orifices. I smooth the chamber floor, first with a diamond, then with ultrasonics. I look at the relationship between the orifices and begin my search in the area between the MB and PAL openings. I know the MB2 may be found anywhere along this line and mesial or distal to the line. The "dentin roadmap" is explored. The floor is troughed and visualized with magnification. A sharp explorer is utilized with firm apical pressure searching for that elusive "stick". The "champagne indicator" may be utilized (warm sodium hypochlorite on the chamber floor will often bubble or effervesce in the presence of necrotic tissue). If no success, I may place methylene blue dye on the floor to help in the search. If still no success, I place my fiber optic light on the cervical area of the tooth and transilluminate, hoping to pick up more information.

Still no MB2. Now what?

Here's my dilemma.

I know that the farther apically I search, the more likely I am to come up with a patent canal (the MB2 canals are usually tiny and more calcified coronally).

I remove more dentin.

Search. Search. Search.

Still no MB2. Repeat all of the above.

Search. Search. Search.

Still no MB2. Repeat all of the above.

Search. Search. Search.

I know the risk of perforation is increasing. I hate to keep searching, but I know the best explanation for the tooth's present situation is a missed canal. I'm driven to continue.

Search. Search. Search.

Eventually, I feel perforation is imminent. Do I admit defeat? Oh, how will I tell the patient it was all for naught?

When do I stop?

If I continue searching for something that is truly not there, I may create a bigger problem than previously existed. I may ultimately condemn the tooth!

But . . . I know the more I search, the more tooth structure I remove, the more time I spend, the more likely I am to find that darn canal (that is, if it really is present!).

When do I stop?

Sometimes I'll make the decision that the risk of perforation is too great, quit searching and close it up.

Sometimes, if I can't find a canal, I'll search until I get a tiny perforation. That immediately ends the search. I place MTA over the entire area, retreat the other canals, and close it up. Now I get to have the dreadful discussion with the patient about my lack of success, a new possible complication (the perf), and the probability of future surgery or extraction in spite of all the effort expended.

Loser. Loser. Loser! If only I had searched a little longer .

I might have been a hero!

So . . . how do you handle the MB2 conundrum?

John T. Evans, D.D.S.
Practice Limited to Endodontics
25880 Tournament Road, Valencia, CA 91355
661-255-ENDO • jte@earthlink.net • www.endoevans.com

Clinical Management of Root Canal Perforations: Is the Tooth Doomed?

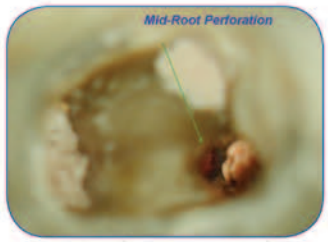
Endodontic treatment (aka RCT) can be, both, a very rewarding and sometimes challenging dental procedure for the practitioner. While generally endodontic treatment may be straightforward once the root canals have been located and negotiated to length, sometimes iatrogenic perforation of the pulp chamber floor or the root becomes a stressful reality for the clinician, and perplexing, if not upsetting, for the patient. Is such a tooth doomed in those circumstances? In this article, I will address the different factors (location, size, length of time since perforation, repair material of choice, use of magnification, and the experience of the clinician dealing with perforation) that may determine the success of perforation repair, and the long term retention of such teeth.

Procedural accidents present a source of frustration to the dental clinician. One such accident is the perforation of the tooth during endodontic treatment. However, *contrary to the belief that once a tooth has been perforated, that its prognosis becomes poor to hopeless, perforation repair can be a very successful and predictable procedure,* a procedure that is routinely performed in our clinic.

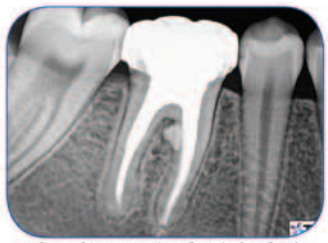
The factors that determine the success of teeth that have had a perforation include: location (sub-osseous, coronal, furcal, mid-root, or apical); size (small, medium, or large); length of time since the perforation (recent, or long standing); repair material (MTA, amalgam, Dycal, composite, or IRM); use of magnification (none, loupes, endoscope, or microscope); and the experience of the operator (none, low, medium or extensive).

Perforations that are of small size, are *sub-osseous* in the *coronal* aspect of the root, are *repaired immediately* with *MTA* (due to its sealing ability and its biocompatibility) using a *surgical operating microscope (SOM)* by an *experienced clinician* has the best prognosis for long term success. However, perforations of different sizes (provided they are below the crest of the bone) and at different levels of the tooth will often have good long term success rates if it is repaired with *MTA* under proper isolation and moisture control, delivered by specialized carriers, using the *SOM*. The critical keys to successful management include an *experienced operator* using proper protocol and material under the *SOM*. Successful recalls of teeth repaired with MTA date back close to 20 years.

It becomes important for a general practitioner to refer the patient who has experienced the unfortunate event of a perforation as soon as reasonably possible. It behooves the dentist as well as the patient to be seen by an endodontist with extensive experience in dealing with procedural accidents, and one who makes full use of a SOM. Both patient and referring doctor will often be pleasantly surprised as to the long term success and predictability of such procedure; thereby averting the loss of the tooth and maintaining the patient's natural tooth for a long period of time.

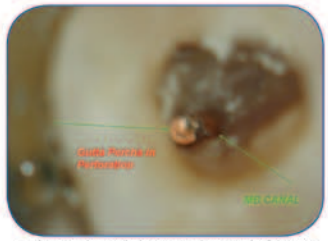


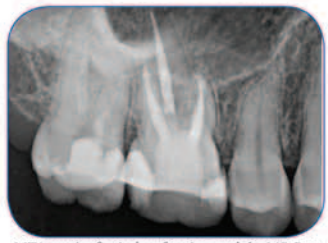
Clinical Photo of mid-root iatrogenic perforation during initial RCT by GP


Radiographic presentation of repaired perforation with MTA--Two years follow up.


Apical perforation in the lateral aspect of the MB Root. Note PAL


MTA repair of apical third perforation in MB Root. Note Healing of PAL--One year follow up.


Perforation by Endodontist in the apical of the MB Root, apical entry into the MB canal apex.


MTA repair of apical perforation, and the MB Root Canal Obturated. Patient finally symptom free.

Nishan Odabashian, DMD, MS
Specialty Limited to Microscopic and Diagnostic Endodontics

Dr. Odabashian is a graduate of LLU, Department of Endodontics, where MTA was developed by his program chairman, the renowned Dr. Mahmoud Torabinejad in the early 1990's. Dr. Odabashian has authored, with his co-residents, Dr. R. Handysides, and Dr. E. Apaydin on the properties and different uses of MTA.

Glendale Microendodontics
1138 N. Brand Blvd., Suite B
Glendale, CA 91202
(818) 552-ENDO
www.glendalemicroendodontics.com

The Importance of Enhanced Irrigation During Root Canal Therapy

By: Valerie Kanter, DDS, MS

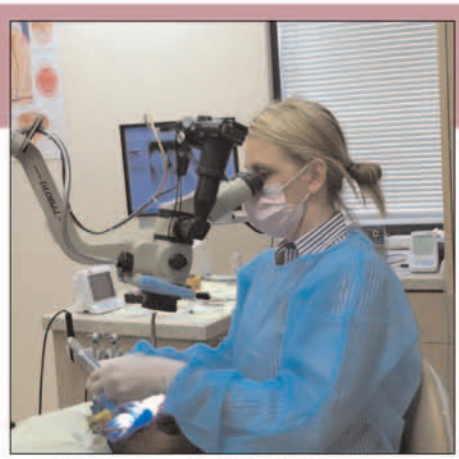
Proper debridement of the entire root canal system is an important predictor of endodontic success. This goal is traditionally achieved by combining mechanical instrumentation with irrigation (1-3). Sodium hypochlorite (NaOCl) is the most widely used irrigating solution in Endodontics (4). It interferes with cellular metabolism, inactivates bacterial enzymes, and causes lipid and fatty acid degradation (5). Possibly the most important property is its ability to digest vital and necrotic pulp tissue (6). When canals are instrumented, a smear layer; a mixture of organic and inorganic material, is left coating the canal walls up to 2 mm thick, and packed up to 40 mm deep into the dentinal tubules (7). Ethylenediaminetetraacetic acid (EDTA) is a chelator advocated by certain authors (4). It reacts with calcium in hydroxyapatite and removes it from dentin (8). The combination of NaOCl and EDTA used alternately removes the smear layer from the instrumented root canal surfaces and pulpal remnants from the uninstrumented surfaces (9, 10).

Nevertheless, the complexity of the root canal anatomy makes it very difficult to efficiently clean all ramifications of the root canal system (11, 12). Different devices, techniques, and solutions have been proposed in the quest for cleaner canals (1, 13). A major breakthrough was made by Martin in 1976, when he first introduced the concept of ultrasonic activation as a method to increase antibacterial efficacy of irrigating solutions (14). Later, Cunningham and Martin demonstrated that ultrasonic can also improve canal debridement (15) by removing organic and inorganic debris from root canal walls (16).

Irrigants activated with ultrasonic vibration are directly associated with effective cleaning of the root canal space (17). In a fluorescence microscopy study assessing the efficiency of irrigant activation in the apical third of curved canals, Paragliola et al. concluded that final activation of irrigants after mechanical preparation improves debridement of the root canal system (18). One minute of ultrasonic irrigation with NaOCl significantly reduces CFU counts and is seven times more likely to yield negative cultures than hand or rotary instrumentation alone (19).

Files activated ultrasonically produced streaming patterns close to the file, continuously moving irrigants around. This produces shear stress, which can damage biological cells and disrupt debris (20). Separation of the ultrasonic files can be a concern during this phase of the root canal treatment.

The EndoActivator (EA) is a new device that safely cleans the canal system, including lateral canals, fins, and apical deltas by energizing the root canal irrigants with a flexible, non cutting polymer tip (6).



The auther, Dr. Valerie Kanter, at work in her Sherman Oaks office

The purpose of this study was to analyze canal cleanliness by the use of scanning electron microscopy. Twenty-five extracted non-carious human maxillary canines were used in the study. The canals were located with a #10 stainless steel Flex-o-file (Dentsply Maillefer, Tulsa, OK). Working length was determined by visualizing the file at the apical terminus and subtracting 1mm from this measurement. The coronal portion of the canal was flared with #2 through #4 Gates Glidden burs (Dentsply Maillefer, Tulsa, OK). The canals were further instrumented with EndoSequence rotary NiTi files (Brasseler USA, Savannah, GA) using a crown-down technique to an apical size of 40/.06. Irrigation with 6.15% NaOCl (Clorox, The Clorox Co., Oakland, CA) was performed using a 28 gauge irrigation needle (Max-i-probe; Dentsply RINN, Elgin, IL). one ml of irrigating solution was dispensed at one mm short of working length over a period of one minute between successive files. In addition, EndoGel (Jordco Inc., Beaverton, OR) was used as a lubricant to reduce friction during canal preparation.

Samples were then randomly divided into three equal groups (n=25) according to the final irrigation protocol:

> <u>*Group 1*</u>: EA: The canals were flooded with 6.15% NaOCl. EndoActivator (EA; Advanced Endodontics, Santa Barbara, CA) was used accord ing to manufacturer's recommendations. A small (25/.04) tip was used in a pumping action with two to three mm vertical strokes for 60 seconds. A capillary tip (Ultradent Products Inc, South Jordan, Utah) was used to suction loose debris and fluid from the canal. These steps were repeated with a solution of 17% EDTA (Roth International Ltd., IL USA) .

Continued on page 16

The Importance of Enhanced Irrigation During Root Canal Therapy

Continued from page 15

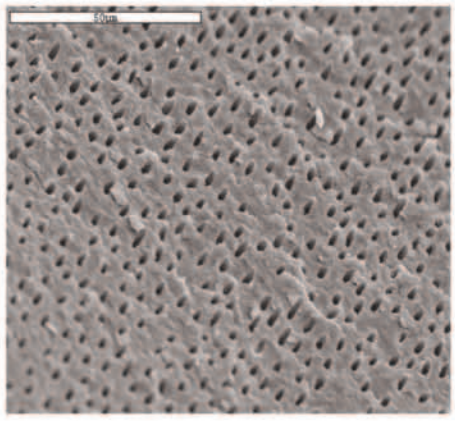
Group 2; US: The canals were flooded with 6.15% NaOCl. A Suprasson P5 Newtron ultrasonic unit (Power setting six; Acteon Group, Mount Laurel, NJ) was used to activate a K 15/21mm endodontic irrigation file (Acteon Group, Mount Laurel, NJ). The file was inserted in the center of the canal, one mm short of the working length, activated for 60 seconds and then carefully withdrawn. A capillary tip was used to suction loose debris and fluid. These steps were repeated with a solution of 17% EDTA.

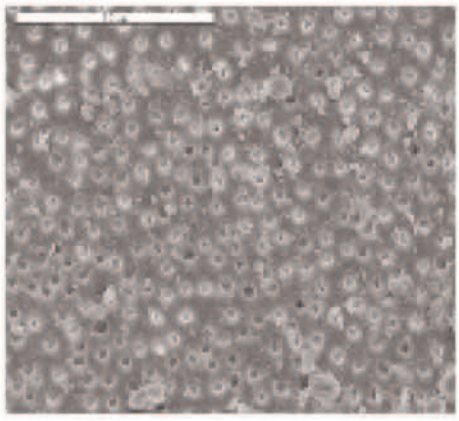
Group 3; Control: The canals were flooded with 6.15% NaOCl with a 27-gauge slotted needle, and then a capillary tip was used to suction out loose debris and fluid. These steps were repeated with a solution of 17% EDTA.

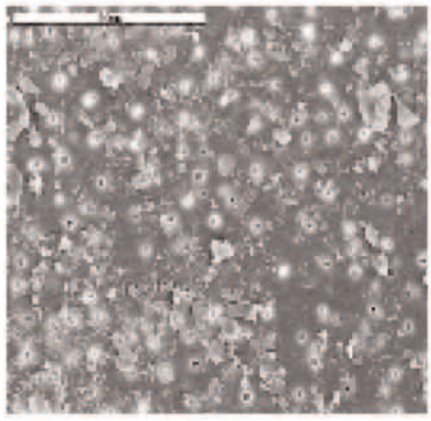
Teeth in each group were split in half using a diamond disc. Samples were evaluated with a scanning electron microscope at 500 X magnification, at three mm and five mm from the apical foramen. Each image was then evaluated and the total area (um2) containing remaining debris was quantified using a calibrated image processing program (Image J; National Institutes of Health, Bethesda, Maryland, USA). This allowed an assessment of the percentage of loose debris remaining in a given area of the root canal system. A qualitative assessment of the tubules was then performed using a graded scale of 0-2 in order to assess the quality of smear layer removal (0 = no open tubules, 1 = partially opened tubules, 2 = completely opened tubules with complete smear layer removal).

During this study the EA was placed in the center of the canal and a pumping action was used for the activation period. The ultrasonic was placed one mm short of working length kept centered in the canal. The pumping action recommended by the EA manufacturer may contribute to the cleanliness of the canals. Due to the safe tip used, this motion aids in debridement without increasing the chance for procedural errors. Using ultrasonic files carelessly can cause canal transportation (21). Sundqvist and Figdor stated that ultrasonically activated K-type files have sharp cutting surfaces that can ledge and perforate canal walls (22).

Ultrasonic devices operate at a higher frequency (25-40 kHz) than that of sonics (2-3 kHz). Lower frequency produces lower shear stresses which cause less modification to the tooth surface. The EA operates at a range of 0.33 kHz to 1.66 kHz. The driver defaults to 10,000 cycles per minute, which is recommended to enhance debridement and promote the disruption of the smear layer and biofilm (6).







Endoactivator

Ultrasonic

Control Group

The irregular agitation of solutions creates an effective scrubbing and cleaning mechanism. However, despite clinicians' greatest efforts to clean the canal system, some surfaces may still remain untouched (23).

The oscillation of an endosonic file produces the greatest displacement at the unconstrained tip (20). Ahmad et al. found that root canals need to be enlarged to a size #40 to allow free oscillation of a #15 file (24). In a study by Roy et al, it was found that the imposition of file-wall contact did inhibit the production of transient cavitation (25). While negotiating the apical third of a curved root canal, the oscillating tip is more susceptible to constraint. This explains occasional inefficiency of the ultrasonic device, especially in the apical third of curved canals (20). According to Vertucci, 30% of canines have lateral canals (26). Most are found in the apical third where the ultrasonic tip is less effective.

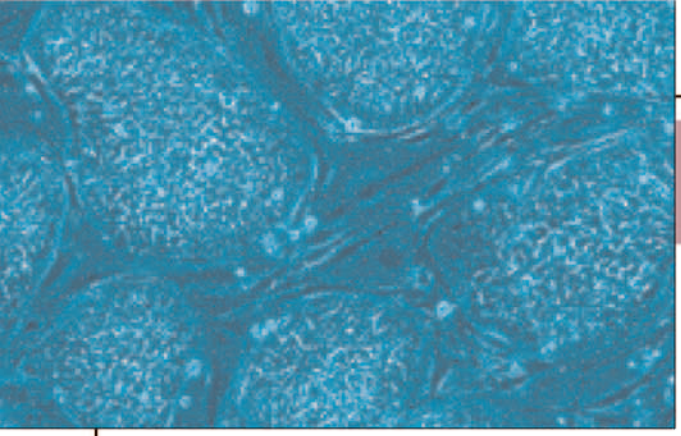
Sonic irrigation has been shown to be more effective in removing dentin debris from artificial standardized grooves than syringe delivery alone (27). In contrast to our findings, Jensen et al. found no significant difference in cleaning efficiency between sonically and ultrasonically activated files (28). This was confirmed by Walker who found no difference among the groups for tissue debridement(29). In this study both the EA and US groups showed cleaner surfaces than the control and the EA group showed cleaner surfaces at the three mm level than the US group.

Dr. Kanter graduated from the University of Florida College of Dentistry with her DMD and MS degree with a specialty in Endodontics. She has active dental licenses in Florida and California.

Sherman Oaks Endodontics
4910 Van Nuys Blvd Suite 100
Sherman Oaks, CA 91403
Phone : 818-783-5234
Website: www.kanterendo.com

References:

1. Regan JD, Fleury AA. Irrigants in non-surgical endodontic treatment. J Ir Dent Assoc 2006;52(2):84-92.
2. Gambarini G. Shaping and cleaning the root canal system: a scanning electron microscopic evaluation of a new instrumentation and irrigation technique. J Endod 1999;25(12):800-803.
3. Camara AC, de Albuquerque MM, Aguiar CM, de Barros Correia AC. In vitro antimicrobial activity of 0.5%, 1%, and 2.5% sodium hypochlorite in root canals instrumented with the ProTaper Universal system. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2009;108(2):e55-61.
4. Zehnder M. Root canal irrigants. J Endod 2006;32(5):389-398.
5. Estrela C, Estrela CR, Barbin EL, Spano JC, Marchesan MA, Pecora JD. Mechanism of action of sodium hypochlorite. Braz Dent J 2002;13(2):113-117.
6. Ruddle CJ. Hydrodynamic disinfection: tsunami endodontics. Dent Today 2007;26(5):110, 112, 114-117.
7. Mader CL, Baumgartner JC, Peters DD. Scanning electron microscopic investigation of the smeared layer on root canal walls. J Endod 1984;10(10):477-483.
8. Calt S, Serper A. Time-dependent effects of EDTA on dentin structures. J Endod 2002;28(1):17-19.
9. Baumgartner JC, Mader CL. A scanning electron microscopic evaluation of four root canal irrigation regimens. J Endod 1987;13(4):147-157.
10. Goldman LB, Goldman M, Kronman JH, Lin PS. The efficacy of several irrigating solutions for endodontics: a scanning elec tron microscopic study. Oral Surg Oral Med Oral Pathol 1981;52(2):197-204.
11. Peters OA. Current challenges and concepts in the preparation of root canal systems: a review. J Endod 2004;30(8):559-567.
12. Love RM. Enterococcus faecalis--a mechanism for its role in endodontic failure. Int Endod J 2001;34(5):399-405.
13. Gu LS, Kim JR, Ling J, Choi KK, Pashley DH, Tay FR. Review of contemporary irrigant agitation techniques and devices. J Endod 2009;35(6):791-804.
14. Martin H. Ultrasonic disinfection of the root canal. Oral Surg Oral Med Oral Pathol 1976;42(1):92-99.
15. Cunningham WT, Martin H. A scanning electron microscope evaluation of root canal debridement with the endosonic ultrasonic synergistic system. Oral Surg Oral Med Oral Pathol 1982;53(5):527-531.
16. Martin H, Cunningham W. Endosonics--the ultrasonic synergistic system of endodontics. Endod Dent Traumatol 1985;1 (6):201-206.
17. Lee SJ, Wu MK, Wesselink PR. The effectiveness of syringe irrigation and ultrasonics to remove debris from simulated irregu larities within prepared root canal walls. Int Endod J 2004;37(10):672-678.
18. Paragliola R, Franco V, Fabiani C, Mazzoni A, Nato F, Tay FR, et al. Final rinse optimization: influence of different agitation protocols. J Endod;36(2):282-285.
19. Carver K, Nusstein J, Reader A, Beck M. In vivo antibacterial efficacy of ultrasound after hand and rotary instrumentation in human mandibular molars. J Endod 2007;33(9):1038-1043.



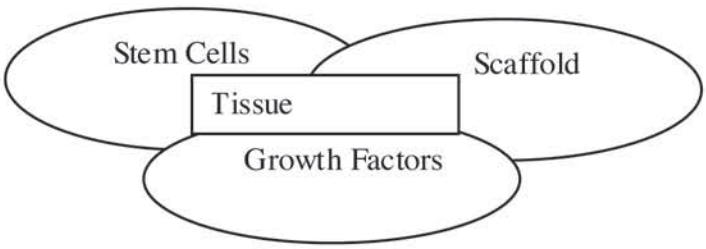
Undifferentiated human stem cells
This image was published in a Public Library of Science journal.

Tissue Engineering in Dentistry: Regenerative Endodontics

With a clinical success rate of over 90%, millions of teeth are saved each year by conventional endodontic treatment. Nevertheless, for a variety of reasons a significant number are still doomed to extraction. Teeth are routinely replaced with conventional prosthetics or implants. However, it is clear that the best replacement for a natural tooth is another natural tooth. The field of tissue engineering has literally exploded in the last decade. Regenerative medicine holds great promise for the restoration of diseased tissues and organs. Using tissue engineering principles derived from regenerative medicine, regenerative endodontics is becoming a realistic option. In the future, dental stem cells may be able to correct cleft palate, save injured teeth and bones, correct periodontal defects and regenerate entire tooth structure. This would give patients a viable alternative to the artificial tooth implants currently available.

Tissue engineering is the interdisciplinary field that combines the principles of engineering and life sciences toward the development of biological substitutes that can restore tissue function. Regenerative endodontic procedures make use of these tissue engineering principles to replace damaged structures, including dentin and root structures as well as the pulp-dentin complex. Revascularization of these structures must occur for these procedures to be successful.

The field of tissue engineering requires a triad of interactions between stem cells, growth factors (signaling molecules) and a matrix or scaffold.



A stem cell is a type of cell that has the ability to continuously divide and produce cells capable of differentiating into other types of tissues. They can be classified in several different ways. The origin of the cells may be embryonic or adult (post-natal). As there are legal and ethical issues with embryonic stem cells, most research focuses on the use of post-natal stem cells. The source of the stem cells may be autologous (from the same individual to whom they will be implanted), allogenic (donor of the same species) and xenogenic (donor of a different species). Obviously, there is less chance of immune rejection issues with autologous cells. They may also be classified based on potency (plasticity or the range of differentiation). The stem cells may be totipotent (differentiate into all cell types), pluripotent (differentiate into all cell types except embryonic membrane), multipotent (differentiate into more than one cell type) and unipotent (can differentiate into only one cell type).

For endodontic regeneration, the most promising cells are autologous post-natal dental stem cells. These cells show a striking odontogenic capability when compared to a non-dental stem cell population. There are several sources of post-natal dental stem cells. Dental pulp stem cells (DPSC) are derived from adult teeth such as third molars. These cells are sometimes called odotoblastoid cells because they appear to secrete dentin matrix. Stem cells from human exfoliated deciduous teeth (SHED) have a higher potency than DPSC because they are more immature and are thus able to differentiate into a greater variety of cell types. SHED cells offer an easy source of cell collection with minimal invasion and could be a desirable cell source for regenerative endodontics. Stem cells from apical papillae (SCAP) are another multipotent source of very immature cells and may be the source of primary odontoblasts. Periodontal ligament stem cells (PDLSC) have been shown to generate a cementum-PDL like structure. Autologous stem cells are relatively easy to harvest and inject by syringe. However, using this injection technique cells have a low survival rate and may migrate to different locations within the body leading to aberrant patterns of mineralization.

A solution to this problem is to seed the cells onto a scaffold material. A scaffold is a three dimensional structure that provides a framework for cell growth in a spatially correct position. A scaffold should be porous, biocompatible with host tissue and biodegradable so that it can be replaced with regenerative tissue. Scaffolds may be natural (collagen, fibrin, dentin, alginate) or synthetic (various polymers). Synthetic polymers are degraded by hydrolysis while natural polymers are degraded enzymatically. Collagen is the most widely studied natural scaffold, while synthetic scaffolds are polymers of lactide and glycolide. Since, in regenerative endodontics, the tissue engineered pulp does not need to provide structural support to the tooth, the engineered pulp tissue can be administered in a soft three-dimensional scaffold matrix which can be implanted or injected at the site. Synthetic hydrogels are injectable scaffolds that have similar properties as that of

By: James D. Beller, DDS

living tissue. The hydrogel may promote pulp regeneration by providing a substrate for cell growth into an organized tissue structure. The seeding of stem cells on tissue engineered scaffolds is known as "creating a tissue construct". To promote the formation of higher order tissue structures, tissue constructs are maintained in cell culture in the presence of bioactive molecules called growth factors.

Growth factors are proteins that bind to receptors on the stem cell and induce cellular proliferation and differentiation. In endodontic regeneration, growth factors play a role in signaling events in pulp-dentin regeneration. Dentin itself contains growth factor proteins which are released during decalcification and are capable of stimulating secondary and tertiary dentinogenesis. Much of the therapeutic effect of calcium hydroxide, in fact, may be due to its extraction of growth factors from the dentin matrix.

For tissue engineering to be successful it is critical to deliver appropriate growth factors to the desired site at the correct dose for an appropriate amount of time. One potential problem is that many of the growth factor proteins have a short half life in the body but need to be active at the site for longer periods of time. Gene therapy is an alternative approach that delivers a specific gene that encodes for the required growth instead of the growth factor itself. Viral or non-viral vectors may be used to deliver these genes. Viral vectors are genetically altered to eliminate their disease-causing ability. Non-viral techniques involve electroporation, plasmids, peptides and ultrasound. One potential use of gene delivery in endodontics would be to deliver mineralizing genes into pulp tissue to promote tissue mineralization. Until now there has been very little research done in this field and there remains much to be accomplished in order to use gene therapy as part of endodontic treatment. Moreover, potentially serious health hazards exist with the use of gene therapy that arise from the vector itself rather that the genes expressed. Gene therapy is a relatively new field and although significant research is being done it is unlikely to be used in endodontic treatment in the near future.

Recent case reports have described a promising new technique for the regeneration and revascularization of a pulp-like tissue in necrotic, immature teeth. Canal disinfection followed by initiation of bleeding into the canal space via overinstrumentation and resultant clot formation will create a fibrin matrix scaffold suitable for three dimensional ingrowth of tissue. At the initial appointment the canal is thoroughly debrided and cleaned by the copious use of intracanal irrigants (sodium hypochlorite and chlorhexidine) followed by placement of antibiotics into the canal space (a triple paste consisting of ciprofloxacin, minocycline and metronidazole). This particular combination of antibiotics effectively disinfects root canal systems. After several weeks, the tooth is reopened and the canal is intentionally overinstrumented to allow bleeding into the canal space where it is allowed to clot. An MTA (Mineral Trioxide Aggregate) plug is placed followed by a permanent restoration. These studies have reported continued thickening of the dentinal walls and subsequent apical closure with return of vitality. Clearly, the development of regenerative endodontic procedures may require reexamination of many of the closely held precepts of traditional endodontic procedures. It is important to note that thus far this procedure has been effective only on younger patients due to their greater capacity for healing. The regeneration of tissue by a patient's own blood cells avoids the possibility of immune rejection. Revascularization is different from apexification which simply forms a calcific barrier at the apex of the root and apexogenesis which makes use of remaining vital pulp tissue to complete formation of the root.

The complete restoration of the physiologic, structural and mechanical integrity of the pulp-dentin complex is the ultimate goal of endodontic treatment. The success of regenerative endodontic therapy is dependent on researchers who can create a technique using tissue engineering principles that will allow clinicians to restore a functional pulp tissue within root canal systems and ultimately, perhaps to replace real teeth with real, bioengineered teeth.

Dr. Beller attended the UCLA School of Dentistry where he received his DDS degree in 1972. He completed his Endodontic training at the Washington University School of Dentistry in 1976. He has limited his practice to Endodontics since 1976 and practiced in Woodland Hills, CA since 1979. He may be contacted at Jbeller@bellerdds.com or by telephone at 818-992-3355.

Risk Categories for Dental Decay

There are numerous systems designed to determine the risk category for decay, periodontal disease, and occlusal trauma (bruxing, grinding, etc). We will specifically address the risk category for decay in this article.

What is described is the system the author uses in daily dental practice. This system can and should be modified to suit each practice profile.

Patients are divided into 3 groups: child, adolescent, or adult. The distinction is made on the basis of dentition. The actual chronological age of the patient is not a qualifying factor. Child means the patient has only deciduous dentition and no permanent dentition has erupted into the oral cavity. Adolescent is from the time when the first permanent dentition erupts into the mouth until the last deciduous tooth has exfoliated. The adult category is from that time forward when no deciduous teeth exist in the mouth.

For each of these distinct groupings there are three risk categories: high risk, moderate risk, and low risk. The determination of risk category is based on a number of areas of interest as follows:

Area 1-Family History

Mother's dental condition, father's dental condition, and the primary care givers dental condition must all be considered in determining the risk factor for an individual. The questioning process for children and adolescents starts with a history of the family's dental experience. The bacteria in our mouth are acquired from Mom, Dad, and who cares for us immediately after birth. It is important to look at the state of health in these people and their dental histories. The greater the amount of previous and current decay in the caretaker group the greater the risk the child will follow the same disease path. Even for an adult patient the question must be explored as to the state and condition of their parent's teeth. It is part of our standard questioning with all new patients to ask the current condition of the parent's teeth and what history the parents had with dentistry. It is always amazing how similar and parallel the history of the parent is reflected in the current condition of the child, even if the child is now a mature adult.

Area 2-pH

Salivary pH is one of the strongest indicators of decay risk for patients. Salivary pH should be in the range of 5.5 to 7.5. A pH of 5.5 or lower will drive teeth toward demineralization. The enamel of the adult dentition will begin to lose calcium, phosphate, fluoride, and trace minerals at a pH of 5.5 or lower. Deciduous teeth will begin the demineralization process at a pH of 6.5. Deciduous enamel is different in it's make up from adult mature enamel and has a higher disassociation curve. Simply put deciduous teeth will decay earlier and faster than permanent teeth.

Testing of the pH is done with pH testing strips placed in the pooled saliva in the floor of the mouth for 15 seconds. The strip is removed and matched to the color code on the side of the test strip container. It is important to take this reading prior to any dental treatment. The lower the pH the more risk there is for decay. pH readings are kept as part of the patient's ongoing record. pH testing strips are easily obtained from most of the dental supply houses or on line.

Area 3-Carbonated Beverages/Sport Drinks

Carbonated beverages and sport drinks as a category are the single most damaging substance and consumption behavior activity that a patient can exhibit. Carbonated beverages and many sport drinks contain large quantities of citric, acetic, carbonic, folic, glucuronic, and malic acids. These drinks have the ability to supersaturate the dental biofilm with a pH in the range of 2.2 to 3.8. (There is a list of the pH of many of the most popular carbonated beverages and sport drinks on the web site www.drshoup.com.) This highly acidic environment in the biofilm is preferential toward acidophilic and acidogenic bacterial species. These bacteria in turn drive the pH of the biofilm even lower. The acidogenic and acidophilic bacterial through competitive inhibition drive a stratification process that excludes the commensal bacteria from populating the dental biofilm. This creates a viscous cycle of more and more acid in the biofilm fostering more and more acid loving bacteria.

As mentioned earlier in Area 1. If a child is inoculated with a population of acidogenic and acidophilic bacteria from the primary care givers the tenacious nature of these pathologic bacteria almost certainly destines the child to a lifetime of dental decay. This pH lowering and saturation is so strong

By: Dr. Randy Shoup

that the ingestion of one can of carbonated beverage requires the ingestion of 32 glasses of alkaline water to neutralize the acid effect.

It is and will be extremely difficult to gain control of a patients dental decay pattern without a significant change in the behavior pattern in regards to ingestion of carbonated beverages and sport drinks.

Area 4-Current and Restored Decay

Current caries activity is self evident of a high risk of dental disease. The presence of restored lesions may or may not indicate a current condition of high risk for dental decay. Patients may have been at high risk for decay at some point and had those lesions restored along with a change in the decay activity. Simply because a patient has had dental restorations in the past does not mean they remain at high risk for decay currently. By the same token the absence of decay in the patient does not accurately predict if that patient is or is not at risk for decay in the future.

Patients who have been treated by a practitioner who simply restores dental decay and who does not pursue with the patient a comprehensive course of prevention can create a patient who at any point in time will be "decay free" but only for a short period of time. That patient is and will remain at high risk for dental decay since nothing about the environment that has fostered the decay has changed.

Area 5-Hygiene

Certainly dental hygiene plays a central role in decay prevention. The patient has to do their part in removing the biofilm and providing the pellicle with the raw materials to rebuild the tooth enamel. Calcium, potassium, phosphate, and fluoride are the essential building blocks of mature fluro-hydroxyapetite. OTC dentifrices and mouth washes are usually adequate to supplement the bodies own mineral supply via the saliva.

The corner stone of patient health begins with brushing and flossing. The use of commercially available toothpaste and mouth washes/rinses is indispensable. Additional products such as MI Paste, topical fluoride gels, and Xylitol containing products are important in the patient's efforts to reduce the caries risk. How effectively the patient follows oral hygiene care instructions will be the single most important element in any decay prevention protocol.

Area 6-Saliva

Saliva is the body's main defense against tooth decay. Saliva is responsible for buffering the acid in the diet and providing the minerals that re-mineralize teeth. The patient's own saliva has the ability to facilitate the re-mineralization process of tooth enamel if in adequate supply. Saliva exhibits numerous functions including modifying the pH of the mouth, buffering the acidification of the biofilm, antimicrobial activity, agglutination of bacterial cells, the maturation of pellicle, and starting the digestive process.
Saliva varies throughout the day with salivary flow dropping to almost zero during sleep.

Saliva changes during eating in both composition and volume. This "stimulated" saliva is the saliva that is most capable of restoring minerals into teeth. It appears that immediately after a meal is the most opportune time for saliva to exert its best re-mineralizing power. Saliva has the greatest percentage of minerals and antimicrobial factors in the stimulated state.

Gum chewing can simulate the meal time experience and can excite salivary production to meal time levels. We will discuss strategies in a subsequent article but suffice it to say that and excellent strategy for decay prevention is to chew Xylitol containing gum after each meal.

There are systemic diseases such as Sjogrens Syndrome which markedly reduce salivary flow. The most common causative agents for salivary deficiencies are pharmaceuticals including many of the anti-anxiety medications, narcotic pain relievers, anti-hypertensive, and diuretics.
Recreational drugs such as methamphetamine have devastating effects to the dentition from a combination of salivary, dietary, and hygiene components.

With these 6 critical risk factors in hand a dentist can be confident in assembling a profile for each patient that is extremely accurate in predicting current and future dental decay activity. This information will also guide the dentist to what are the most effective methods of changing a high risk patient into a low risk patient.

Continued on page 22

Antelope Valley Report

2012 SCHOOL SCREENINGS

To date SFVDS members in the Antelope Valley have screened approximately 6,000 4th Grade Students.

4th Annual ROP Dental Fair

This year's Annual ROP Dental Fair has been set-up to give our dental professionals ALL of the major California requirements in one seminar! Speaker, Nancy Andrews, RDH, will cover: OSHA Review, California Dental Law and Infection Control. Attendees will receive six C.E. Units. There will be prize raffles and lunch is included!

Date: Saturday, May 19, 2012
Time: 9:00 a.m. to 3:00 p.m.
Place: Antelope Valley ROP
1156 East Avenue S, Palmdale, CA

UPCOMING ANTELOPE VALLEY SEMINAR

June 13, 2012
Topic: Superior Customer Service
Speaker: Joan Garbo

For information on any of the above seminars, contact Kathy McKay @ (661) 945-7868

Risk Categories for Dental Decay - *continued from page 21*

The following matrix is completed by either observation or questioning of the patient. The empty ( ) is filled in with a check mark and the total of the check marks is tabulated at the bottom of the column.

Risk category:	High	Moderate	Low
Area 1-Family History	Extensive ( )	Limited ( )	None ( )
Area 2-pH	Below 5.5 ( )	5.6 to 6.8 ( )	Above 6.8 ( )
Area 3-Carbonated Beverages	>3/day ( )	1 to 3 ( )	None ( )
Area 4-Current decay	Yes ( )	----	------
Area 5-Hygiene	Poor ( )	Acceptable ( )	Excellent ( )
Area 6-Saliva	Dry ( )	Marginal ( )	Abundant ( )
Totals:	____	____	____

By checking the appropriate box the dentist or auxiliary team member can make a determination as to the risk category that is appropriate for the patient. Simply put the column with the most checks is the risk category. If a question arises as to the appropriate category for a patient the dental team is advised to opt for the more severe category. For example if the team is undecided between moderate risk and high risk, go with high risk.

In the next article we will address the protocols that are appropriate for each decay risk category. We will look at equipment, treatment, products, and protocols for the patient.

Dr. Randy Shoup will be presenting on Biomimetic and Minimally Invasive Dentistry at the SFVDS General Meeting on November 07, 2012 at the Airtel Plaza Hotel. Please call the central office at 818.884.7395 for additional information.

Welcome New Members

CLASSIFIED ADS

WANTED -- BURBANK SHORT TERM LEASE or SPACE SHARING - looking for an office to rent for 3-5 months starting in June or late May while my office is remodeled. I need 4 days in a fully plumbed and preferably vacant dental office space. Email 1963kg@gmail.com or call 818-326-4567

Rare opportunity to share space in a gorgeous office in the highly sought after West Hills Medical complex (adjacent to West Hills Hospital). Must see! 4 ops can be expanded to 5. Great opportunity for dentist with a nucleus of patients or any Dr. looking to reduce overhead while upgrading to a high end office, fully equipped including digital X-rays.
Call 818-348-8898 or email: twila@ratheedds.com.

Office space for sublease 2-3 days a week. Excellent way to start your business without any capital.
Please call 818-547-4398

Lecia E. Harmer, DDS
19510 Ventura Blvd Ste. 207
Tarzana, CA 91356
Pediatric
(818) 708-2393
UCLA, 2006

Chela Sarah Altman, DDS
7325 Medical Center Dr. Ste. 101
West Hills, CA 91307
(818) 348-6068
General
UOP, 2003

Leon R. Kiraj, DDS
3600 N. Verdugo Rd Ste 201
Glendale, CA 91208
818.841.1110
General
USC, 2007

Daniel Hemmati, DDS
4955 Van Nuys Blvd Ste 716
Sherman Oaks, CA 91403
818-784-6145
General
UCLA, 2007

Inna Kagan, DDS
11720 Sherman Way
Sherman Oaks, CA 91335
(818) 705-0111
General
Leningrad Med Inst., 1983

Maurice Simanian, DDS
23206 Lyons Ave., Ste. 212
Santa Clarita, CA 91321
(661) 255-7338
General
UCLA, 2011

UPCOMING EVENTS

2012

MAY 17: SFVDS NEW PROFESSIONALS SOCIAL - BJs, PALMDALE

JUNE 2: SCHLEP AND SHRED - CHATSWORTH

JUNE 7: SPEED PAIRING EVENT THAT MATCHES SFVDS MEMBERS SEEKING ASSOCIATESHIPS, PARTNERSHIPS AND PRACTICES WITH THOSE MEMBERS OFFERING ASSOCIATESHIPS, PARTNERSHIPS AND/OR TO SELL THEIR PRACTICES - BALBOA BILTMORE MULTI-PURPOSE ROOM, ENCINO, 6-9PM

JUNE 10: ANNUAL SFVDS MAGIC MOUNTAIN PICNIC - VALENCIA

JULY 11: CPR RECERTIFICATION - SFVDS CENTRAL OFFICE

JULY 14: HOLLYWOOD BOWL – GREASE SING-ALONG (WITH ALL LA COUNTY DENTAL SOCIETIES)

AUGUST 2: NEW DENTISTS SOCIAL – GLENDALE

AUGUST: ZONE MEETING - PALMDALE

PLEASE WATCH FOR FUTURE ANNOUNCEMENT, PARTICULARLY IN YOUR SNAIL-MAIL AND EMAIL BOXES, OR CALL THE CENTRAL OFFICE FOR MORE INFORMATION CALL (818) 884-7395.

San Fernando Valley Dental Society
22110 Clarendon Street, Suite 101
Woodland Hills, CA 91367

PRESORTED STANDARD
U.S. POSTAGE
PAID
CANOGA PARK, CA
PERMIT NO. 337

DATED MATERIAL