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U.S. Edition • Vol. 1 • Issue 1/2011

roots

the international C.E. magazine of endodontics

1 2011

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Predictable apical microsurgery (Part 1)

_case report
Retreatment of a lower molar

_trends
Restoring endodontically treated teeth

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Welcome to *roots*

Torsten Oemus, Publisher
Dental Tribune International

The amount of new information available in the dental field about new products, techniques and research data is astounding. Running a practice and seeing patients leaves little time for catching up on the latest clinical news and product information. Thus, we hope *roots* will not only be a welcome respite for those rare chunks of time you can devote to leisurely reading, but one that provides a practical return on your investment by providing information that you can actually put to immediate use.

For the first issue of the U.S. edition of *roots*, we've assembled a collection of articles from some of the most respected names in endodontics. These expert clinicians are sharing their knowledge and expertise with you.

Within this issue, you can read a report from Dr. Nadim Z. Baba and Dr. Charles J. Goodacre about key principles that enhance success when restoring endodontically treated teeth; case studies by Dr. Konstantinos Kalogeropoulos on retreatment of a lower molar and by Dr. Rafaël Michiels on treating a calcified mandibular molar; plus thoughtful analysis by Dr. L. Stephen Buchanan on new additions to the armamentarium and by Dr. Ken Serota on the question of endodontics vs. implants.

But there's more. Every issue of *roots* magazine also contains a C.E. component. So, by reading the article on predictable apical microsurgery by Dr. John J. Stropko, then taking a short online quiz about that article at ***www.DTStudyClub.com***, you will gain one ADA CERP-certified C.E. credit. Keep in mind that because *roots* is a quarterly magazine, you can actually chisel four C.E. credits per year out of your already busy life without any lost revenue or time away from your practice.

To learn more about how you can take advantage of this C.E. opportunity, visit ***www.DTStudyClub.com***. Annual subscribers to the magazine ($50) need only register at the Dental Tribune Study Club website to access these C.E. materials free of charge. Non-subscribers may take the C.E. quiz after registering on the DT Study Club website and paying a nominal fee.

I know that taking time away from your practice to pursue C.E. credits is costly in terms of lost revenue and time, and that is another reason *roots* is such a valuable publication.

I hope you enjoy this first issue and that you get the most out of it that you can.

Sincerely,

Torsten Oemus
Publisher

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GIOMERS: NEW GIANTS OF MI DENTISTRY

11:15 - 12:15 DR. SHAMSHUDIN KHERANI // COURSE NO. 3790
COMPREHENSIVE DENTISTRY USING DIGITAL IMPRESSION TECHNOLOGY

12:45 - 1:45 DR. RON KAMINER // COURSE NO. 3800
MINIMALLY INVASIVE DENTISTRY: TIPS AND TRICKS TO MAXIMIZE SUCCESS

2:00 - 3:00 DR. LOUIS MALCMACHER // COURSE NO. 3810
THE HOTTEST TOPICS IN DENTISTRY

3:15 - 4:15 TBA // COURSE NO. 3820
TECHNOLOGY TO IMPROVE YOUR CARIES MANAGEMENT

4:30 - 5:30 DR. GEORGE FREEDMAN // COURSE NO. 3830
EVOLVING CONSERVATIVE RESTORATIONS

MONDAY, NOVEMBER 28

10:00 - 11:00 DR. FAY GOLDSTEP // COURSE NO. 4670
WHAT PATIENTS WANT... WHAT DENTISTS WANT: EASY, HEALTHY DENTISTRY!

11:15 - 12:15 DR. DAMIEN MULVANY // COURSE NO. 4680
WHY VIEW YOUR 3D PATIENTS WITH 2D IMAGES? A COMMON SENSE APPROACH TO 3D IMAGING IN THE GENERAL PRACTICE

12:45 - 1:45 DR. LARRY EMMOTT // COURSE NO. 4690
REMEMBER WHEN "E" WAS JUST A LETTER? USE E-SERVICES TO IMPROVE PATIENT CARE AND INCREASE PROFITABILITY

2:00 - 3:00 DR. GEORGE FREEDMAN AND DR. FAY GOLDSTEP // COURSE NO. 4700
DIODE LASERS AND RESTORATIVE DENTISTRY

3:15 - 4:15 DR. SHAMSHUDIN KHERANI // COURSE NO. 4710
LASER DENTISTRY OVERVIEW WITH AN UPDATE ON CLOSED FLAP OSSEOUS

4:30 - 5:30 DR. MARTY JABLOW // COURSE NO. 4720
UNDERSTANDING THE ADVANCES IN SELF-ADHESIVE TECHNLOGY AND HOW TO INCORPORATE THEM INTO YOUR RESTORATIVE PRACTICE

TUESDAY, NOVEMBER 29

10:00 - 11:00 DR. GREGORI KURTZMAN // COURSE NO. 5690
CORE BUILDUPS, POST & CORES AND UNDERSTANDING FERRUL

11:15 - 12:15 TBA // COURSE NO. 5700
THE IMPORTANCE OF THE FLAP DESIGN IN RELATION TO THE TYPE OF THE UNDERLYING BONE DEFECT

12:45 - 1:45 DR. GEORGE FREEDMAN AND DR. FAY GOLDSTEP // COURSE NO. 5710
THE DIODE LASER: THE ESSENTIAL SOFT TISSUE HANDPIECE

2:00 - 3:00 DR. SELMA CAMARGO // COURSE NO. 5720
LASERS IN ENDODONTICS: CLINICAL APPLICATION FOCUS ON DIFFICULT CASES

3:15 - 4:15 DR. STANLEY MALAMED AND DR. MIC FALKEL // COURSE NO. 5730
LOCAL ANESTHETIC PERFORMANCE: FICTION, FACT AND ADVANCEMENTS (PRECISION BUFFERING)

4:30 - 5:30 DR MARIUS STEIGMANN // COURSE NO. 5730
MY FIRST ESTHETIC IMPLANT CASE - WHY, HOW, & WHEN?

WEDNESDAY, NOVEMBER 30

10:00 - 11:00 DR MARIUS STEIGMANN // COURSE NO. 6600
MY FIRST ESTHETIC IMPLANT CASE - WHY, HOW, & WHEN?

11:15 - 12:15 DR. GEORGE FREEDMAN AND DR. PAT ROETZER // COURSE NO. 6610
CEMENTING ALUMINA AND ZIRCONIA RESTORATIONS

12:30 - 5:00 **THE 2ND ANNUAL OSSEO SUMMIT: REVOLUTIONARY IMPLANT DESIGN UNVEILED** // COURSE NO. 6620
12:45 - 1:45 DR. RON KAMINER AND DR. ARMIN NEDJAT
MINIMALLY INVASIVE IMPLANT DENTISTRY FOR THE GENERAL PRACTITIONER
1:50 - 2:50 DR. DAVID HOEXTER
PLUS MANY MORE PREMIUM IMPLANTOLOGY LECTURES...

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For more information, please contact
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E-mail: j.wehkamp@DTStudyClub.com

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> *The sodium hypochlorite product with added surface active agent was the most effective in tissue dissolution at all concentrations and temperatures.*

Source: Journal of Endodontics September 2010 Stojicic S, Zivkovic S, Qian W, Zhang H, Haapasalo M

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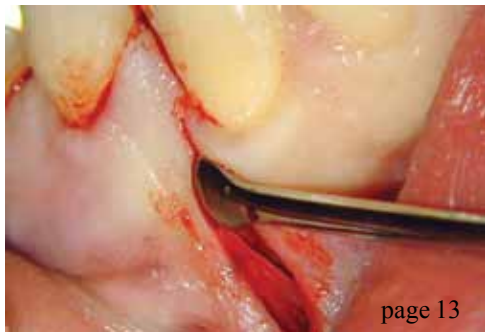
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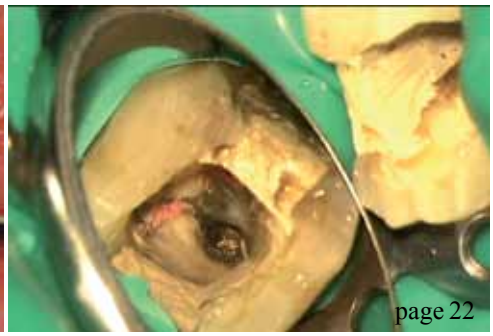
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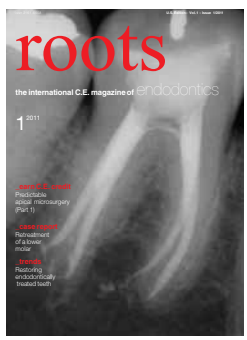

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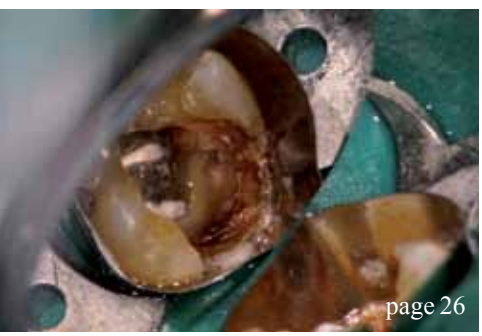
Cover image courtesy of Dr. Justin Kolnick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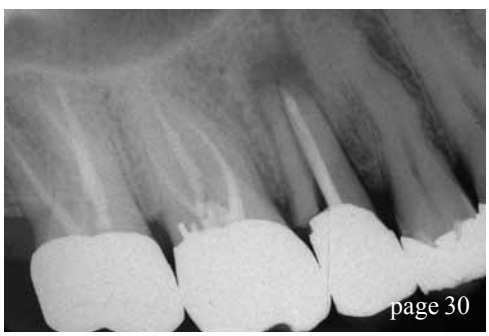
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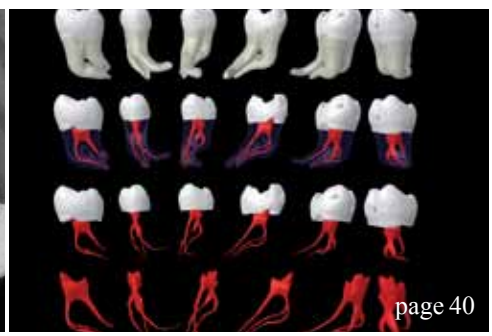
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Predictable apical microsurgery (Part I)

Author_John J. Stropko, DDS

_c.e. credit

This article qualifies for C.E. credit. To take the C.E. quiz, log on to *www.dtstudyclub.com*.

_Surgery will never replace solid endodontic principles and should always be a last resort. Apical microsurgery consists of nine basic steps that must be completely performed in their proper order so we can achieve the desired result for our efforts.

The nine steps are as follows:

1. Instruments, supplies and equipment are ready.
2. Patient, doctor and assistants positioned ergonomically.
3. Anesthetic and hemostasis staging completed.
4. Incision and atraumatic flap elevation.
5. Atraumatic tissue retraction.
6. Access, root-end bevel (root-end resection, RER, and REB) and crypt management.
7. Root-end procedures: root-end preparation (REP).
8. Root-end fill (REF) techniques and materials.
9. Sutures, healing and post-op care.

Predictable microsurgery requires the use of an operating microscope (OM) and a team committed to operating at the highest level. The six-handed team approach optimizes the instruments, equipment, techniques and materials that today's level of technology presents for the benefit of all — especially the patient!

Dr. Berman, an old retired general surgeon, and one of my senior-year dental school instructors, would begin each general surgery lecture by tapping the lectern with his pencil, and after getting our attention, he would say, "Treat the tissues with tender loving kindness and they will respond in a like manner." I have heard those very words many times while performing apical microsurgery. It is truly a gentle technique when the steps are followed in the proper order.

_Preparation of the patient

A thorough past medical history and dental examination, using as many diagnostic aids as possible, is a requirement for a predictable microsurgical event. Being thorough can also avoid un-

Fig. 1_The six-handed team approach enables us to maximize today's technology today. (Photos provided by Dr. John Stropko)

Fig. 2_The six-handed team creates an environment for ergonomics and the most efficient use of time.

Fig. 1

Fig. 2


Fig. 3


Fig. 4

Fig. 3_Smaller straight Tempur pillow can be used for the neck, lower back or knees to give added support for patient comfort.
Fig. 4_Patient's head and chest are draped and the patient's vital signs are constantly monitored using a Pulsoximeter.

favorable experiences. For example, if the patient, or the physician, states he or she is sensitive or allergic to epinephrine, to any degree, the author highly recommends that apical microsurgery not be performed. One of my golden rules of thumb is, "No epi, no surgery ... Period!" If the doctor chooses to proceed with the microsurgical procedure, it will be exceptionally more difficult for both the doctor and the patient.

The technology that exists today presents us with so much more presurgical information than was available even a few years ago, and the recent advances should be included in the diagnostic process whenever possible. A good example of current technology is cone-beam computed tomography (CBCT). The radiological images we have been using for many years were the best we had, but were very limited. Now, CBCT enables the microsurgeon a view of all angles of areas of concern in the maxillofacial region and supplies much of what was missing in the field of dentistry.[1]

The preparation of the patient not only takes the patient into consideration, but also the entire surgical team. The microsurgical protocol we teach involves four people: the doctor (pilot), the scope assistant with the co-observer oculars for evacuation and retraction (co-pilot), the surgical assistant using the monitor as a visual reference (flight director) and the patient (first-class passenger).

The medical history and all necessary premedications are reviewed with the patient to be sure that the latter are taken at the appropriate times before the surgery appointment. The patient is also instructed to rinse with Peridex and take an anti-inflammatory (preferably 600 mg of Motrin, if no allergies are present) the night before and also on the morning of the surgery. At the time of the appointment and before the patient is seated, he or she is once again asked to rinse with Peridex. The dental chair should allow the patient to recline comfortably and even allow the patient to turn to one side or another. Small Tempur pillows placed beneath the patient's neck, small of the back or knees make a big difference when used.

After the patient is completely comfortable in the chair, he or she is coached on how to make slow and small movements of the head, if necessary during surgery. The patient is appropriately draped for the surgery. It is especially important to wrap a sterile surgical towel around the head and over the patient's eyes for protection from the bright light of the microscope and any debris from the surgical procedure.

An important psychological point is being sure to not tell the patient he or she "can't move"! To an already tense patient, saying "don't move" would probably cause unnecessary apprehension, stress or panic. In more than 500 surgeries, I've only had one patient who didn't hold nice and still during the procedure once he was relaxed and had profound anesthesia.

Now is the time for the surgical team to get comfortable with the position of the patient, the microscope, endoscope and associated equipment. Modern OMs have many features to enhance comfort and proficiency during their use. Accessories like beam splitters, inclinable optics, extenders, power focus and zoom, variable lighting and focal length, etc., all contribute to ease of use, ergonomics and proficiency for the entire surgical team. The mutual comfort of the patient, the surgical assistants and the doctor is of the utmost importance. The microsurgical technique may take an hour or more, so unnecessary movements or adjustments for comfort's sake during the operation may cause considerable inconvenience.

The doctor's surgical stool must have adjustable arms to allow the elbows to support the back and serve as a reference point, or fulcrum, if the doctor has to reach for an instrument during