ENDO TRIBUNE

The World's Endodontic Newspaper · U.S. Edition

JULY 2009 www.endo-tribune.com VOL. 4, NO. 7

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Predictable apical microsurgery

Part 1: Preparation of the patient

By John J. Stropko, DDS

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.

Fig. 1: The Six-Handed Team approach enables us to maximize today's technology today!

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

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AAE names new officers at 2009 annual session

The American Association of Endodontists installed the new officers of the AAE Executive Committee for the 2009–2010 term at the group's recent annual session in Orlando, Fla.

• Gerald N. Glickman, DDS, MS, MBA, JD, was named AAE's president. His agenda for the AAE's year centers on "Access to Care," finding ways to deliver endodontic care and help people save their natural teeth. Glickman is professor and chair of the Department of Endodontics and Director of Graduate Endodontics at Texas A&M/Baylor College of Dentistry in Dallas. Long active in leadership roles for the AAE, he has been a member of the executive committee since 2005. He also is a diplomate and past president of the American Board of Endodontics.

• Clara Spatafore, DDS, MS, was named president-elect. Spatafore is a full-time private practitioner in Pittsburgh who also is an assistant professor of endodontics at Drexel University's School of Medicine and Alleghany General Hospital. A member of the AAE since 1987, she has held a variety of leadership roles with the organization, including secretary and vice president of its executive committee and director representing AAE District I.

• William T. Johnson, DDS, MS, was named vice president. Johnson, the Richard E. Walton professor and chair of the Department of Endodontics at the University of Iowa College of Dentistry in Iowa City, has had a long record of service to the AAE. In addition to representing District V on the AAE Board of Directors, Johnson has been board liaison to and a member of various AAE committees.

• James C. Kulild, DDS, MS, was named secretary. Kulild is a professor and director of the Advanced Specialty Education Program for Endodontics at the University of Missouri-Kansas City School of Dentistry in Kansas City. An AAE member since 1981, he has represented AAE District III on the AAE Board of Directors since 2005.

• Robert S. Roda, DDS, MS, was named treasurer. Roda is an adjunct assistant professor at Baylor College of Dentistry in Dallas and a visiting lecturer at the Arizona School of Dentistry and Oral Health in Mesa. An AAE member since 1991, Roda has chaired its Continuing Education Committee and has served as an associate editor of the Journal of Endodontics since 2002. ET

(Source: AAE)

Removal of warm carrier-based products with the Twisted File

By Richard Mounce, DDS

"Does anyone have any advice on how to remove Thermafil with twisted files?"

Recently, I received this question via e-mail from a colleague. Thermafil is a warm carrier-based obturation product of Dentsply Tulsa Dental Specialties (Tulsa, Okla.). The Twisted File (TF) is a product of

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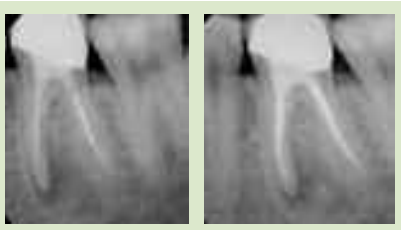

Fig 1a, 1b: Clinical cases treated in the manner described. The Twisted File (SybronEndo, Orange, Calif.) was used to remove the plastic Thermafil Carriers (Dentsply Tulsa Dental Specialties, Tulsa, Okla.).

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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 for predictable apical microsurgery

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 unfavorable 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 pre-medications 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.

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

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.

Fig. 5a: Modified Monoject needle bent similar to the ultrasonic tip used for the REP.

Fig. 5b: Set of three Stropko Irrigators with a variety of tips in place for possible use during the surgical procedure.

Fig. 6a: Due to the ballooning and blanching effect, the muco-gingival line becomes more pronounced during the hemostasis staging injections.

Fig. 6b: When the buccal portion of the hemostasis staging is complete, the operator can easily plan the incision.

Fig. 7: Rinsing the entire surgical site with Peridex.

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 that 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 the procedure. Ideally, neither the doctor nor the scope assistant have to remove their eyes from the oculars of the OM during the entire operation. The task of directing the whole operation belongs to the second surgical assistant. The second surgical assistant is the choreographer for the procedures that take place with the OM. He or she is in a position to observe, coach and/or pass instruments to either the doctor or the scope assistant. The second surgical assistant can see the entire surgical environment and is the only one on the team that has an overview, to keep track of everyone's needs. It is important that all possible surgical instruments are organized for ease of access during the operation.

While the anesthesia is getting profound, this is a perfect time to modify the needles that will be placed into the tips of the Stropko Irrigators (*www.stropko.com*) for use during the surgery. The notched ends of 25 gauge Monoject Endodontic irrigating needles (SybronDental) are removed by bending with Howe Pliers and placed into the end of the Stropko Irrigators. One tip is used with an air/water syringe and the other tip is used on the dedicated "air-only" syringe (DCI). The endodontic irrigating needles are then bent in the same configuration as the ultrasonic tip that is being used for the root-end preparation. After the needle is bent, the ergonomics of the bend can be verified quickly and easily because the patient is in the proper position and so is the doctor.

Optimally, there are three Stropko Irrigators available for any surgical procedure: one three-way syringe fitted with a larger blue tip (SybronEndo) for more general flushing of the surgical area (we call it the "Big John"); another three-way syringe fitted with a modified 25-gauge needle for more precise cleaning and drying ("Little John"); and one with an "air-only" syringe, fitted with a modified 25-gauge needle, for precise and dependable drying of the specific area without worry of moisture contamination.

Also, because the lumen of the high-speed evacuator tips (Young's Surgical) is small, be sure to have extra tips readily available if one should become clogged. A beaker of water should be available so the scope assistant can occasionally clear the evacuator system of blood and tissue debris from the evacuator tip.

After topical anesthetic is placed, local anesthesia is started using less than one carpule of warmed 2 percent lidocaine containing 1:50,000 epinephrine. This small amount is done to anesthetize the injection sites that will be used next for the blocks and infiltrations. The 1:50,000 lidocaine is used prior to the 0.5 percent bupivacaine (Marcaine) because the Marcaine tends to burn upon injection, whereas the lidocaine is much friendlier to the patient. This is then followed with one or two 1.8 cc carpules of warmed Marcaine for nerve blocks and/or infiltrations. All anesthetic is warmed and injected very slowly to avoid any unnecessary trauma to the tissue, which also creates much less discomfort for the patient.

After the completion of adminis-

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GuttaFlow FAST needs no heating

Coltène/Whaledent recently announced the introduction of Hygenic GuttaFlow® FAST, the fast setting (eight to 10 minutes) version of the innovative GuttaFlow obturation system. GuttaFlow is the first flowable gutta-percha obturation system that combines gutta-percha and sealer in one material.

This self-curing, injectible system works at room temperature, ensuring an excellent seal without the shrinkage that occurs with heated obturation systems. With the excellent flow and sealing properties of GuttaFlow, condensation is not required. GuttaFlow and GuttaFlow FAST come in single unit dose capsules that deliver a consistent dosage and minimize contamination. It is also radiopaque and can be removed easily should retreatment or post placement become necessary. Faster, easier and more economical than heated, injectible obturation systems, GuttaFlow® is also biocompatible, providing dentists with a safe, reliable and time-saving root canal obturation system.

For additional information, call (800) 221-3046 or visit *www.coltenewhaledent.com.* ET

The evolution of media in dentistry

In the ever-changing world we live in, technologies are evolving at a pace that surpasses most of our learning curves.

Blogs, social networking sites, message boards, Twitter, Facebook, MySpace and many more interactive media are becoming a part of our every day lives.

Realistically, we must carefully choose which of these multimedia outlets we participate in or, otherwise, there would be no time left in the day for work, friends or family.

When choosing a multimedia forum, one must ask oneself the following important question: "How is this technology improving my life?"

As a dental professional in the year 2009, there are many new technologies being introduced to our industry at a rapid pace. What was once a media-shy industry has evolved to the tune of more than 1,000 media forums aimed at dental professionals. With all of these sites claiming to help you — how can one reasonably choose which to join and participate?

Recently, a new dental multimedia forum was launched called *www.endomailmessageboard.com.* You may ask what makes this site any different from the others. Well, the answer is the community response to the site has been overwhelmingly positive. Endomailmessageboard currently has more than 800 members, all of whom joined after the inception date of September 2008.

Unlike traditional blogs and message boards, *endomailmessageboard* truly utilizes modern technology while remaining user-friendly.

The new online community offers an interactive online forum focused on excellence in dental education. Recently, the multimedia site has enhanced its online features by offering dentists free continuing education credits to its members.

Dentists will be able to print their certificates immediately with a passing grade of 70 percent, and the entire test history will be stored for their record-keeping convenience.

In addition to offering free and innovative continuing education, the message board is a place where dentists can come together to share ideas, post questions, gain peer advice and learn about industry news in a non-threatening environment.

Unlike other message boards, endomailmessageboard does not allow its members to have anonymity. Further, members are held to humane standards of professionalism. The Web site was created so dentists can safely post cases and questions and gain constructive advice from their peers without fear of embarrassment or ridicule.

Members come from countries all around the world, creating a global community of dental professionals. A dentist from India can post a case and receive feedback from his or her peers in Saudi Arabia or Ireland. The sense of globalization is present throughout the site. Dentists quickly realize that clinical cases do not differ from country to country.

Endomailmessageboard also allows dentists to upload X-rays, videos, documents and 3-D images and write private messages or provide content to share among peers.

The message board encompasses technology to create a modern and efficient multimedia forum. Unlike traditional blogs and message boards, endomailmessageboard truly utilizes modern technology while remaining user friendly.

Recently endomailmessageboard conducted a survey of its members. The feedback that the Web site received was overwhelmingly positive. The members all agreed that the site offers them a safe haven on the Internet where their clinical questions are answered professionally and in a timely fashion. The members also stated that the site was unlike any others that they have experienced as dental professionals.

So, ask yourself, "Is the technology I am using today improving my life?" If you even have a moment of hesitation, you should take the time to view *www.endomailmessageboard.com.*

It may be the vehicle you need to enhance your clinical skills. ET

(Source: Essential Dental Systems)

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tering the local anesthetics, it is time to perform hemostasis staging using 2 percent lidocaine containing 1:50,000 epinephrine. It has been shown that 2 percent lidocaine containing 1:50,000 epinephrine produces more than a 50 percent improvement in hemostasis compared to 2 percent lidocaine containing 1:100,000 epinephrine.[2]

While keeping the bevel of the needle toward the bone and directed apically toward the root ends, small amounts of 2 percent lidocaine 1:50,000 are slowly injected into the free gingival tissue in two or three sites to the buccal of each tooth (MB, B, DB), approximately 3 mm apical to the muco-gingival line. Slow injection of just a few drops of the anesthetic causes a slight "ballooning" and blanching of the tissue in the immediate area. This is an important step because it causes the muco-gingival line to become more pronounced, allowing the operator to have better vision, resulting in more accuracy with the following hemostasis injections.

As the anatomy of the tissue unfolds during the injections, the operator should begin visualizing and planning the incision. The amount and nature of the attached gingiva is an important consideration whether a full sulcular or a mucogingival (Leubke-Oshenbein) flap is used. In general, a full thickness, sulcular flap is routinely used unless esthetics is a concern and there is an adequate zone of attached gingiva present. To ensure optimum hemostasis, the lingual tissues should also be infiltrated.

If doing surgery on the posterior quadrant of the mandible, special attention should be given to the apical region of the mandibular second molar. On occasion, a small foramen, called the foramen coli, may be present. The foramen coli, if present, contains an ascending branch of the mylohyoid nerve. This added step, "lingual hemostasis staging," can contribute to more profound anesthesia, enhance crypt management, and, as a result, contribute to a more predictable event with less stress for the entire team.

If the surgery is to be performed on the maxillary, the patient is instructed to close on approximately eight layers of sterile gauze, (four 2x2's folded over once) for stability of the jaws and to keep any debris from inadvertently entering the oral cavity. A single piece of a sterile 2x2 is also gently placed distal of the tooth/teeth to be operated on. If the surgical procedure is on the mandible, especially when a full sulcular flap is used, the operator may want to make the incision with the mouth slightly open before placing the gauze.

In either case, with the aid of the OM and using a pre-filled 3 ml. syringe fitted with a 20-gauge needle, the entire surgical site is rinsed with Peridex to make sure the area is clean of debris and free of plaque before the incision is made. The surgical site is now ready for the next important step in the procedure: Flap design, the incision and atraumatic flap elevation. ET

(This is part one in a six-part series on apical microsurgery. Look for part two in the next issue of Endo Tribune.)

References

1. Thomas SL, Angelopoulos C. Contemporary Dental and Maxillofacial Imaging, Dent Clin North Am 2008; 52: xi

2. Buckley JA, Ciancio SG, McMullen JA. Efficacy of epinephrine concentration in local anesthesia during periodontal surgery. J Periodontol 1984; 55: 653–57

3. Harrison JW, Jurosky KA. Wound healing in the tissue of the periodontium following periradicular surgery II. The dissectional wound. J Endod 1991; 17 (11): 544–52

About the author

John J. Stropko received his DDS from Indiana University in 1964, and for 24 years practiced restorative dentistry. In 1989, he received a certificate for endodontics from Boston University and recently retired from the private practice of endodontics in Scottsdale, Ariz. Stropko is an internationally recognized authority on micro-endodontics. He has been a visiting clinical instructor at the Pacific Endodontic Research Foundation (PERF), an adjunct assistant professor at Boston University and an assistant professor of graduate clinical endodontics at Loma Linda University. His research on "in-vivo root canal morphology" has been published in the Journal of Endodontics. He is the inventor of the Stropko Irrigator, has published in several journals and textbooks and is an internationally known speaker. Stropko has performed numerous live micro-endodontic and micro-surgical demonstrations.