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roots

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3 2010

clinical report
Crown preparation techniques utilising the operating microscope

research
Endodontic treatment of primary teeth in the general dental practice

case report
Removal of a fractured instrument

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Dear Reader,

Dr Clara Spatafore

_It is my pleasure to share with you greetings on behalf of the American Association of Endodontists (AAE). This year, our association set the theme of *Bridging the Gap* in seeking to enhance communication and partnerships with various professional groups: general dentists, dental specialists, dental students and international communities, amongst others. Our efforts in this regard have taken shape in a few significant initiatives. I encourage you to evaluate and take advantage of them, for the benefit of your referral relationships and professional growth.

The first initiative is the pending release of a new clinical resource, the *AAE Treatment Options Guide for the Compromised Tooth*. The guide will be available this autumn and aims to assist in the assessment of and treatment planning for compromised teeth by providing specific case examples that illustrate good outcomes for patients, including treatment considerations and prognoses. The guide will be distributed at national dental meetings in the US, to dental schools and to target groups of general dentists, and will be available in print and electronic format via the AAE website at www.aae.org.

On that note, I am pleased to announce that the AAE website has recently been redesigned to enhance access to reliable content and stimulate dialogue amongst all who have an interest in endodontics worldwide—both dental professionals and patients. Clinical and practice management tools, dental news from various reliable sources, patient education materials, discussion boards, the first AAE blog and Facebook page, and more are all now available on our site. In addition, the AAE Live Learning Center (www.aae.org/livelearningcenter) has expanded its library of online continuing education content, now offering CE credit for articles in the *Journal of Endodontics* and the *ENDODONTICS: Colleagues for Excellence* newsletter, in addition to multimedia presentations from AAE events.

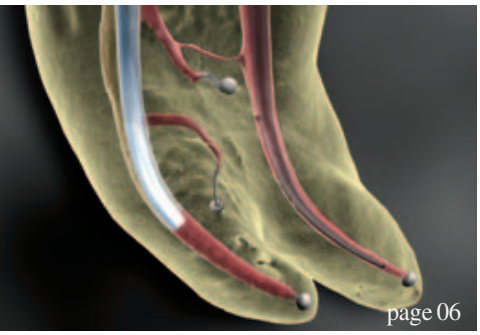
Finally, AAE meetings have never been better, with the upcoming 2011 Annual Session in San Antonio, Texas, promising to be another outstanding venue for learning, networking and volunteering in the local community (www.aae.org/annualsession). Educational sessions will emphasise multidisciplinary speaker panels, hands-on workshops and continued expansion of the Master Clinician series. An *Access to Care* event will also be held to provide complimentary endodontic treatment to underprivileged patients in the area.

Our endodontic community continues to be strong and is constantly growing. I am pleased that the AAE has been able to gather peers from all corners of the world to engage in truly impressive knowledge sharing and camaraderie. If you have not yet considered the possibility, please do join us!

With warm regards,

Clara M. Spatafore

Dr Clara Spatafore
President of the American Association of Endodontists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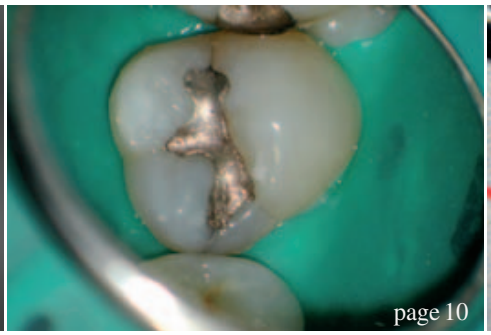
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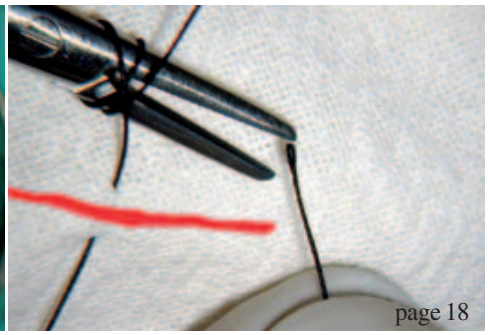
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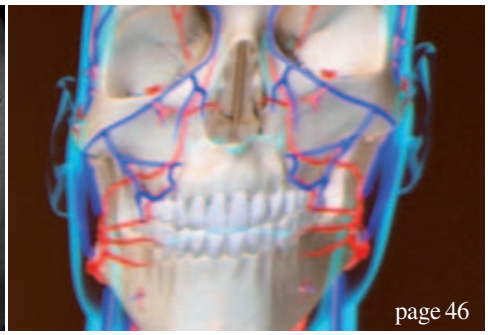
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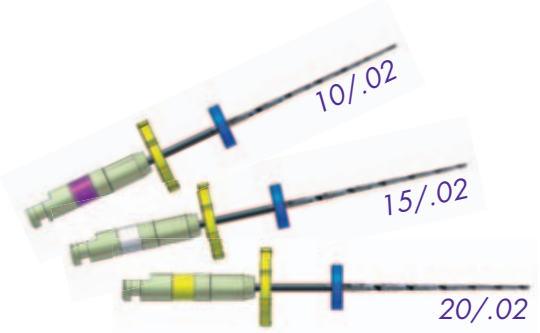
Desobturation made easy

Scout-RaCe

Mechanical scouting sequence



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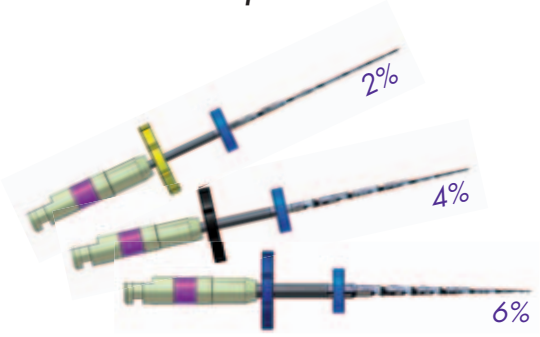

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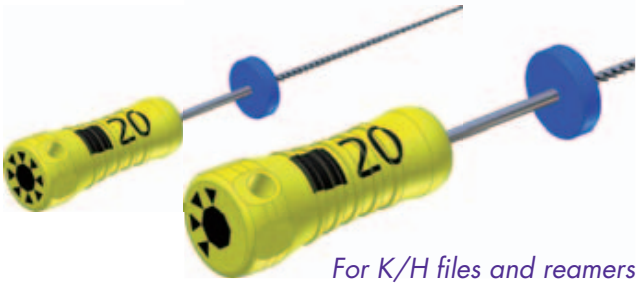

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The Continuous Wave of Obturation Technique for enhanced precision

Author_ Dr L. Stephen Buchanan, USA

_I invented the Continuous Wave of Obturation Technique (CWOT) in 1986 and used it with the Touch'n Heat (SybronEndo) until the winter season of 1988/1989. At this time, Johan Massreillez of Analytic Technologies asked me whether I could use his heat source with temperature control-designed for hospital surgical operating rooms. It worked better for my technique and pluggers, as it was easier to control the heat. In 1994, SybronEndo bought Analytic Technologies and the rest is history. As with any method of obturation, its success is completely dependent upon the cleaning and shaping of the root canal system. The steps for the CWOT are detailed below.

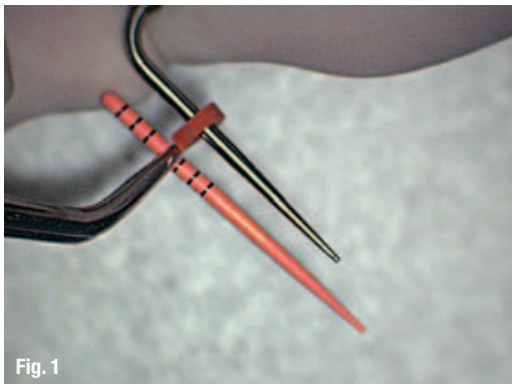
Fig. 1

_Step 1: Down-pack

Once cone-fit has been accomplished and radiographically confirmed, the Continuous Wave (CW) plugger that matches the gutta-percha cone is fitted in the canal. The tip should be fitted within 5 mm from the canal terminus, never closer than 3 mm.

The canal is dried and measured one last time with feather-tipped GT Series X paper points, the cone is trimmed to be 1.5 mm short, coated with sealer, and cemented in the canal. The cone can then be seared at the orifice with the tip of the pre-heated CW plugger at an angle to the cone, and the butt-end can then be removed. The larger stainless-steel end of a CW hand plugger is used to compact the softened gutta-percha at the canal orifice.

The cold CW electric heat plugger is pushed against the gutta-percha and the heated plugger is driven smoothly through the gutta-percha to within 3 mm of the binding point. This single down-pack stroke should take 1.5 to 3.5 seconds, but never more than 4 seconds, for safety. The CW plugger will slow

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

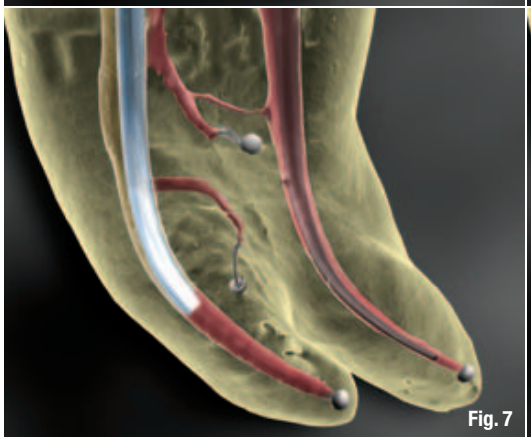
Fig. 7

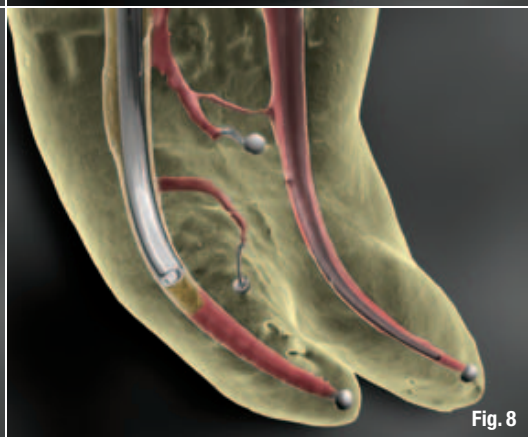
Fig. 8

its apical movement and stop just shy of the binding point, about 1 mm short. At this point, any previously cleaned lateral and accessory canals are filled.

Firm apical pressure should be sustained for a full 5-second push in order to take up any shrinkage that might occur upon cooling of the apical mass of gutta-percha. The System-B/Elements unit will sound a click signal 5 seconds after the switch has been released.

_Step 2: Separation burst

Still maintaining apical pressure, the button should again be activated for a full second in order to heat the plugger fully. When the button is released, the clinician should pause for another full second, and then slowly withdraw the plugger.

After removal of the CW plugger, the small, flexible NiTi end of the CW hand plugger can be introduced. With pressure, the clinician should confirm that the apical mass of gutta-percha has not dislodged, and that it has cooled and set. In medium and large canals, the plugger should not be buried in the apical mass of gutta-percha, as it will create a tubular space—the primary cause of backfill voids.

The canal is now ready for the backfill by any means preferred. If post space is required, this has been achieved. The backfill can be accomplished using one of the following methods: a syringe-backfill technique, using the extruder function of the System-B/Elements, or an optional single-cone technique for back-filling medium and large canals.

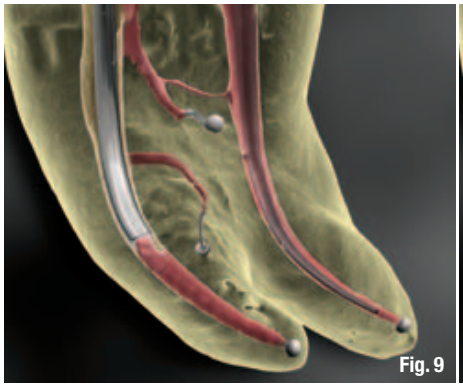
Fig. 9

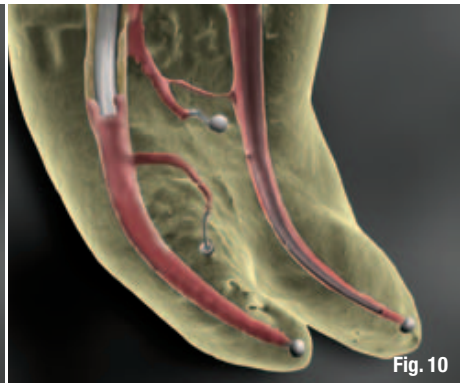
Fig. 10

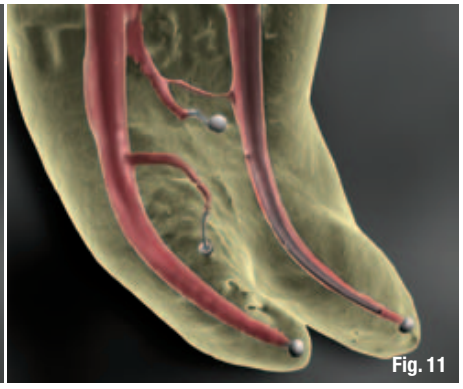
Fig. 11

Fig. 12

Fig. 13

Fig. 14

Fig. 15

_Step 3a: Syringe-backfill technique

The speed of extrusion is set on the control panel of the System-B/Elements unit. After pre-heating is completed (45 seconds), the forward toggle switch on the handpiece is pressed until material extrudes out of the needle tip to 'prime' the needle. The heated needle can then be placed into the canal for 5 seconds, allowing the needle to reheat after being cooled by contact with the dentine.

After the 5-second pause, with the needle lightly held in place, one of the handpiece toggle switches (back button for medium speed, forward button for faster speed) should be activated in order to extrude the gutta-percha. After the extruded material has filled the backfill space ahead of the needle, the back-pressure of the extruded gutta-percha will move the needle back out of the canal. At this point, it is important that the clinician resist the temptation to pull the needle out of the canal. The extruded gutta-percha should be allowed to back it out. Care should be taken to allow approximately 5 to 10 seconds for the needle to reach the orifice level.

Using the rigid, stainless-steel end of the appropriate CW hand plugger, a very firm condensation push should be given to the warm gutta-percha. A void of 4 mm can be filled if sufficient pressure is applied.

_Step 3b: Single-cone backfill option (ideal for medium and large canals)

While the filler material should be down-packed through the master cone as usual, the 1-second separation burst is not necessary. Instead, the plugger should be allowed to cool in the canal for approximately 10 seconds (two clicks from the unit). The plugger can be removed by rotating it back and forth with apical pressure, and the still-cold plugger can be teased out during rotation.

An AutoFit backfill cone (the same size as the plugger used for the down-pack) can be coated with sealer, and moved in and out of the empty back-filling space three to four times in order to ensure that the sealer material coats the backfill space. The area left by the plugger will exactly match the shape of the backfill cone. The cone can then be seared off at the orifice level with the System-B/Elements electric heat plugger.

The rigid, stainless-steel end of the hand plugger can then be placed against the gutta-percha. With a firm sustained pressure, the coronal mass can be condensed at the orifice level. This technique is ideal for filling voids created during an extruder backfill. The stop on the CW electric heat plugger should be adjusted so that it will reach beyond the existing void. The heated plugger can then be thrust through the void, cooled for ten seconds, then removed so that the backfill can be completed following the steps outlined above._

_about the author roots

Dr L. Stephen Buchanan is a Diplomate of the American Board of Endodontics and a Fellow of both the International College of Dentists and American College of Dentists. Clinicians interested in his DVD series, *The Art of Endodontics*, and his hands-on laboratory workshops in Santa Barbara, USA, can call +1 800 528 1590 (US and Canada) or +1 805 899 4529 (for international calls).

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