Bitewing radiograph showing failing first and second molars. Teeth 28 and 32 were sectioned and the roots were delivered. Finally, 3-0 chromic gut sutures were placed.

**Transporting the teeth**
The teeth were transported in a 10 per cent buffered formalin solution. Upon arrival, they were immediately transferred to a hydrochloric acid solution and soaked for 24 hours. From there they were moved to a 95 per cent alcohol solution. They were then soaked for 24 hours, and after that they were placed in methyl salicylate for one hour.

For the photography, the teeth were placed in a glass dish and totally submerged in methyl salicylate. They were then back lit with a xenon fibre optic light source and photographed with a Canon A 650 IS camera mounted on a high power dental operating microscope.

**A valuable process**
Clearing teeth is a valuable process to allow us to evaluate endodontic failures as teeth are left in virtually their true anatomic form yet we can see through them to see what was accomplished or not accomplished in a treatment protocols.

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**About the author**
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**Dr Hank Willis**
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The patient presented for endodontic treatment of a maxillary molar. The tooth had developed mild to moderate unprovoked pain, and the referring dentist had prescribed penicillin five days prior to the treatment visit. The pre-operative diagnosis was necrotic pulp with periradicular periodontitis of endodontic origin.

A lesion was visible radiographically at the apical area of the mesiobuccal root. (See Figure 1).

Upon entry, the chamber presented as a curved groove from the mesio-buccal to the palatal. Figure 2 shows debris accumulated in the mesiobuccal orifice (bottom of image), the distobuccal orifice (middle of image), and the palatal orifice is not shown (top of image).

Mesiobuccal roots of maxillary molars are characterized by an isthmus extending palatally from the mesiobuccal orifice. These isthmus areas present with a variety of configurations, and can harbor significant amounts of bacteria and debris. It is imperative to debride these areas thoroughly as possible, because the isthmus may be incom- communication with the attachment apparatus, and may be a source of persisting disease after treatment.

Vital cases with inadequately treated mesiobuccal root canal systems may present with vague symptoms of discomfort, and non-vital cases may show lesions which do not resolve or worsen, following therapy.

The dentin ledge covering the mesiobuccal isthmus is removed with a Munce Discovery bur (www.cjmengineering.com). Ultrasonic tips in a variety of shapes and sizes are also ideal for this work. This case demonstrates the use of the bur, and shows the dark furcal dentin surrounded by the dentin shavings (left intact for demonstration purposes).

Within the dark area created by the bur, a small white dot is formed which can be visualised with extreme magnification and lighting. The “dot” is formed by troughing debris collecting in the orifice, or isthmus, area. The next image shows the “dot” becoming more of a “line” as the access is improved. It may be possible to gain entry with a small k-file (06 stainless steel, 08, or 10) at any point along this line.

Figures 7 and 8 show the result of careful development of the “mb2” orifice. In this case, the resulting canal was confluent apically with the primary mesiobuccal canal. This is frequently not the case, and furthermore, this author has retreated cases with persisting disease on the MB root with untreated MB2 canals, despite the canals being confluent after instrumentation.

An excellent source for information about the morphology of maxillary molars can be found in an article by Dr John Stropko, Journal of Endodontics, June 1999, “Canal morphology of maxillary molars: Clinical observations of canal configurations.”
In a study of more than 1,700 teeth (1,096 first molars), the operator discovered the MB2 in 93 per cent of maxillary first molars, with 54.9 per cent of those being separate canals. This emphasises the importance of uncovering and negotiating this mesiobuccal root isthmus to maximise debridement.

Obturation of the canals to orifice level is accomplished prior to placement of an orifice barrier (not shown). Final radiographs, as well as radiographs from other cases, demonstrating a variety of presentations of mesiobuccal root anatomy.

About the author

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Choosing wisely

Deciding which materials and products to use in your practice can be a difficult task, but one that has been made easier by Dr Michael Miller, founder of RealityEsthetics. Prof. Dr. Liviu Steier explains

You’ve just come across a new material (maybe a new technology) that you really like. You’re unsure of what to do next - should you buy it? There are lots of questions:

• Could it help/compliment my daily work?
• Who is the manufacturer?
• What are the strengths and weaknesses?
• Where could I get some additional user information and/or tips?
• How does this perform with my colleagues? Rating?

A colleague told you some time ago about product evaluators... are they worth looking at? What was the name again...? Yes, indeed that is exactly what could help now... Does this scenario sound familiar? It is 20 years since someone made this dream come true: Dr Michael Miller. He founded RealityEsthetics (www.realityesthetics.com) and not so long ago RealityEndo.

How does it work?

Dr Miller gathered a group of about 20 renowned clinicians. He then spoke to product manufacturers and offered them the chance to have their products tested by the clinicians.

Hm, you may think now: “This sounds awkward! Why would the manufacturers want to have clinicians test, evaluate and rank their products?”

The answer is simple: The feedback received is extremely useful in that it can be implemented in further developments; for example, the evaluation received can be useful for advertising.

What you might be thinking now is that the people carrying out the product evaluations are working for the dental manufacturers. Well, they’re not and this is what makes this group so special.

To be accepted as an evaluator, Dr Miller set up a very strict list of criteria. To maintain objectivity, the RealityEsthetics group does not accept any advertisements nor support by third parties or manufacturers. The publication is created by professionals like yourself to benefit professionals like yourself.

Now it is time to have a closer look into the way the evaluations are done.

Carrying out evaluations

Each product evaluation starts with a ranking out of five. Details are then given of the manufacturer and its website. Next, a product’s benefits and disadvantages are mentioned – perhaps it’s a Gold standard, a new design or a new piece of software. Or maybe it’s cumbersome or complex to maintain.

Most of us don’t take much care or notice of the information we are given when we purchase a new product, so it’s good to know there is a place we can find this. On this website, you can find out what to do if your product, for example, needs a repair.

A detailed product description follows, and because it is created by professional colleagues, all their good and bad experiences, their helpful suggestions and advice are implemented in the specially created section called Use. It is highly accessible and easy to read, interesting, extremely relevant for the daily work. It isn’t called the “bible of Esthetic Dentistry” by many colleagues for no reason!

Because one day you may need to know about maintenance, RealityEsthetics stores this information for you. Almost everyone prefers first to learn about the essence of a product before reading the details – well here you go!

If you’re curious? Just have a look by logging on to www.RealityEsthetics.com.