

The use of Mineral Trioxide Aggregate to repair crown fractures.

Patient Profile

Patient: An 8-year-old boy

Symptoms: An 8 year old boy was sent to our office by his general dentist. His mother reported that he was hit in the mouth with a baseball.

Initial Assessment: He had an incisal fracture of tooth #8 and a midcrown fracture of tooth #9. What made this case interesting is that the injury occurred three months earlier and the parents and child had not sought treatment until now.

Treatment Protocol

When I examined the child I found a vital tooth #8 with a simple fracture of the incisal corner. The radiograph appeared normal. Tooth #9 had a horizontal fracture of 1/2 of the clinical crown. The pulp was previously exposed but there did not appear to be any vitality near the exposure. The radiograph of tooth #9 revealed a pulp exposure due to the trauma and a radiographic area at the apex indicating the pulp was necrotic.

The delay in seeking treatment was due to financial considerations. The reason for the visit was pain and swelling. The general dentist also warned our office that this patient and family were not generally reliable or regular in their dental visits.

I explained to his mother that the treatment options included root canal treatment to deal with the infection. But, because of an open apex we would have two options to complete treatment. The first option, traditional apexification, included cleaning the canal and placing calcium hydroxide paste for three months. Every three months the medication would need to be removed and replaced with a new



Case Studies in Endodontics

mix to ensure the effectiveness. Typically it can take up to one year for the root end to close and then the root canal treatment can be completed.

I then told her that a newer method was now available. If the root walls are thick enough and just the apex is open we can plug the root end and fill the canal in only two visits. In the first visit the canal can be cleaned and disinfected. Using the dental microscope, we can place a small collagen plug through the canal to the open apex. A mix of MTA (Mineral Trioxide Aggregate) can then be carefully placed against the collagen in a non surgical technique. A wet cotton pellet can be placed into the canal to allow moisture necessary for the MTA to set. Within 24 hours the MTA will harden. The patient can return after that for traditional root filling placement into the canal. Or, the canal walls can be primed and bonded and then a flowable composite can be applied to strengthen the root.

As expected, the mother and son were both in favor of the quickest option using MTA cement. The treatment was completed in two visits. Much to my surprise the child returned as requested by postcard one year later for a follow up radiograph and the area had resolved and the tooth was asymptomatic.

Discussion

Newer endodontic techniques and materials are constantly changing how we perform endodontic treatment. What we learned in dental school just a few years ago may be old school now. Our patients deserve the very latest that dentistry has to offer. MTA apexification is just one of many new innovations in endodontics.

For questions or further discussion of the findings in this case study – or to refer a patient to Endodontic Specialists, call (610) 995-0109 or (610) 917-9984.



Bruce R. Terry, DMD *Endodontist*

BS, Biology and Natural Science: Muhlenberg College, Allentown, PA

DMD: Temple University School of Dentistry

Endodontic Residency: Temple University School of Dentistry

Fellow: International College of Dentists, American College of Dentists

Clinical Associate Professor, Department of Endodontics: Temple University School of Dentistry

Hospital Privileges: Phoenixville Hospital, Brandywine Hospital (First area endodontist with hospital privileges, so patients have sedation options)

Member: American Dental Association, American Association of Endodontists, American Association of Dental Editors, Pennsylvania Dental Association, Valley Forge Dental Association

Susan I. Silberg, DMD *Endodontist*

BS: Brandeis University, Waltham, MA

DMD: University of Pennsylvania, Philadelphia, PA

Endodontic Residency: University of Pennsylvania

Endodontic Specialists, PC

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85 Old Eagle School Road • Wayne, PA 19087
(610) 995-0109 • Fax: (610) 995-0107

1220 Valley Forge Road, #40 • Phoenixville, PA 19460
(610) 917-9984 • Fax: (610) 917-9605

www.EndodonticSpecialists.com