



Treatment of teeth with perforation using reparative cement and sealer based on MTA

Maria Antonieta Veloso Carvalho de Oliveira¹, Nayara Rodrigues Nascimento Oliveira², Luciana Arantes Porto Carvalho³, Gisele Rodrigues da Silva⁴

1 PhD Professor of Endodontics in the College of Dentistry of the Federal University of Uberlândia (FOUFU) - MG. Coordinator of the Extension Project for patients needing endodontic and restorative treatment in molar teeth at FOUFU.

2 Specialist in Endodontics, external volunteer for the Extension Project for patients needing endodontic and restorative treatment in molar teeth at FOUFU.

3 PhD Professor of Endodontics in the Dentistry College of the Federal University of Uberlândia (FOUFU) - MG.

4 PhD Professor of Dentistry and Dental Materials in the College of Dentistry of the Federal University of Uberlândia (FOUFU) - MG.

Introduction

Root perforation is a technical accident in which an artificial opening is made, communicating the pulp chamber, root canals and periapical tissues. A good prognosis depends on the perforation being sealed with a biocompatible material that has the appropriate physical properties and allows the repair of the nearby tissues (Juaréz Broon et al., 2006).

Historically, several materials have been used for retrograde fillings and perforation repair, such as amalgam, zinc oxide and eugenol-based sealers, composite resin and glass ionomer cements. Unfortunately, none of these materials could meet all requirements of an ideal material (Johnson, 1999).

Mineral Trioxide Aggregate (MTA) was first described in scientific literature in 1993 and approved for endodontic use in 1998 (Lee, 1993; Schmitt, Bogen, 2001). Since then, it has been used in several situations, such as sealing of perforations, mainly due to its ability to form mineralized tissue, sealing and biocompatibility (Torabinejad, Chivian, 1999; Torabinejad, Parirokh, 2010; Guerreiro-Tanomaru et al., 2016).

MTA is a material that presents high potential for induction of dentinogenesis and cementogenesis, it is antimicrobial and also promotes appropriate marginal

sealing, preventing infiltrations, and it is biocompatible and has a matrix more similar to the teeth color, avoiding discoloration (Mota et al. (1998). This article reports two clinical cases of perforated teeth that were filled with reparative sealer based on MTA during endodontic treatment.

Case report

A 21-year-old male patient sought the Extension Project - Clinical Care needing endodontic and restorative treatment on his molar teeth in the College of Dentistry of the Federal University of Uberlândia (FOUFU), with a previous history (17 days before) of localized, pulsatile, brief pain in tooth 36, which had been treated by an emergency appointment in a private clinic.

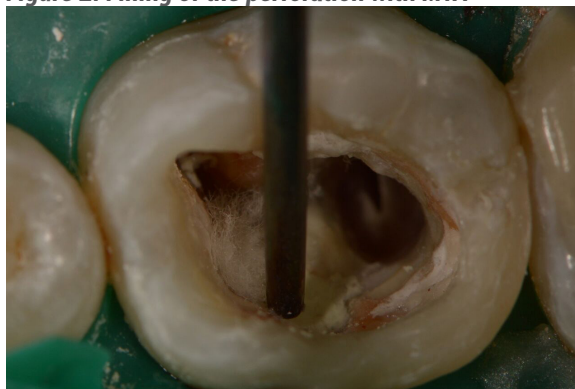
During the first appointment in the project, the patient was clinically without pain, the tooth had a coronary opening, a perforation in the floor near the lingual wall between the mesial and distal canals and a great dentin wear at the entrance of the distal canal (Figure 8). Radiographically, it presented mesial atresic canals with thickening of the periodontal ligament of approximately 2.0 mm (Figure 1A, 1B).

Figure 1A, 1B. Clinical (A) and radiographic (B) aspects of the perforation





Figure 2. Filling of the perforation with MTA



After anesthesia and absolute isolation, the coronary opening was improved with a multilaminated drill with inactive tip (Endo Z, Angelus Indústria de Produtos Odontológicos S/A). Then, the coronary chamber was neutralized with 1% sodium hypochlorite and intracanal calcium hydroxide (Biodinâmica) medication was added to physiological saline in the perforation and in the canals. The tooth was provisionally restored with glass ionomer (Maxxion R, Coltene, Rio de Janeiro, Brazil).

Due to absence in subsequent appointments, the patient was treated only after 40 days. In this appointment, the perforation was sealed with MTA (Angelus Indústria de Produtos Odontológicos S/A) reparative sealer using a 1.2 mm diameter MTA applicator (Angelus Indústria de Produtos Odontológicos S/A) (Figures 2 and 3A, 3B). The canals were instrumented with Mtwo rotational system (VDW, München, Germany) up to file 25.06 and irrigated with 1% sodium hypochlorite. The filling was performed following the technique of lateral and vertical condensation using MTA-based sealer (MTA Fillapex, Angelus Indústria de Odontológicos S/A) and gutta-percha cones (VDW). The tooth was then definitively restored with composite resin (Filtek Z250 XT).

Preservation was performed 6 months after the end of treatment with repair of periapical tissues, and with no signs and symptoms of pathology (Figure 4A, 4B).

Figure 3A. 3B. Clinical (A) and radiographic (B) aspects after sealing the perforation

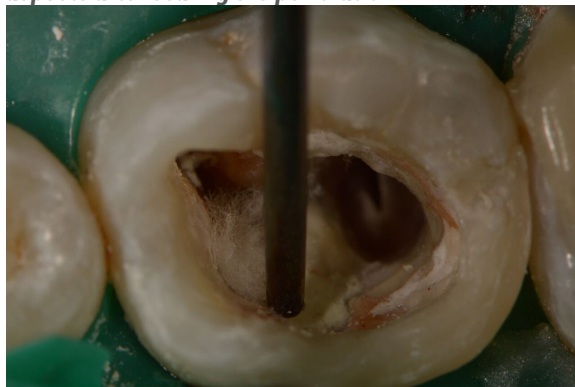


Figure 4A, 4B. Clinical (A) and radiographic (B) aspects after 6 months



Conclusion

After the clinical and radiographic follow-up of the cases 6 months after the end of the treatment, MTA was effective and successful for sealing the perforation. Thus, it allowed the maintenance of the dental element, developing function and periodontal health to the patient.

References

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