

Irrigating the root canal: A case report

By Dr Vittorio Franco, UK and Italy

The patient reported on in this article is a student in dentistry and his parents are both dentists. They referred their son to a good endodontist, who then referred the case to me. As always, peers are more than welcome in either of my practices, in Rome and London, so when I treated this case, I had three dentists watching me, a future dentist on the chair, placing a great deal of pressure on me.

The 22-year-old male patient had a history of trauma to his maxillary incisors and arrived at my practice with symptoms related to tooth #21. The tooth, opened in an emergency by the patient's mother, was tender when prodded, with a moderate level of sensitivity on the respective buccal gingiva. Sensitivity tests were negative for the other central inci-

sor (tooth #12 was positive), and a periapical radiograph showed radiolucency in the periapical areas of both of the central incisors. The apices of these teeth were quite wide and the length of teeth appeared to exceed 25 mm.

My treatment plan was as follows: root canal therapy with two apical plugs with a calcium sili-

cate-based bioactive cement. The patient provided his consent for the treatment of the affected tooth and asked to have the other treated in a subsequent visit.

After isolating with a rubber dam, I removed the temporary filling, and then the entire pulp chamber roof with a low-speed round drill. The working length

was immediately evaluated using an electronic apex locator and a 31 mm K-type file. The working length was determined to be 28 mm.

As can be seen in the photographs, the canal was actually quite wide, so I decided to only use an irrigating solution and not a shaping instrument. Root canals are usually shaped so that there will be enough space for proper irrigation and a proper shape for obturation. This usually means giving these canals a tapered shape to ensure good control when obturating. With open apices, a conical shape is not needed, and often there is enough space for placing the irrigating solution deep and close to the apex.

I decided to use only some syringes containing 5 per cent sodium hypochlorite and EDDY, a sonic tip produced by VDW, for delivery of the cleaning solution and to promote turbulence in the endodontic space and shear stress on the canal walls in order to remove the necrotic tissue faster and more effectively. After a rinse with sodium hypochlorite, the sonic tip was moved to and from the working length of the canal for 30 seconds. This procedure was repeated until the sodium hypochlorite seemed to become ineffective, was clear and had no bubbles. I did not use EDTA, as no debris or smear layer was produced.

I suctioned the sodium hypochlorite, checked the working length with a paper point and then obturated the canal with a 3 mm in thickness plug of bioactive cement. I then took a radiograph before obturating the rest of the canal with warm gutta-percha. I used a compomer as a temporary filling material.

The symptoms resolved, so I conducted the second treatment only after some months, when the tooth #11 became tender. Tooth #21 had healed. I performed the same procedure and obtained the same outcome (the four-month follow-up radiograph showed healing).



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