

The use of intracanal bioceramic medication to achieve disinfection

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Microorganisms and their endotoxins are the main factors responsible for the pathogenesis of pulp and periapical infections. Consequently, one of the main objectives of endodontic treatment is to eliminate microorganisms and their endotoxins in the most extensive and effective way possible.

The use of mechanical preparation, followed by disinfection with chemical agents, is the method used to succeed in the elimination of microorganisms. However, when the infection is in the acute phase and the treatment cannot be performed in a single session, a medication dressing is used between visits, and BIO-C[®]TEMP is the evolution for this goal.

BIO-CTEMP is an intracanal bioceramic medication, available in a premixed syringe and with an applicator tip specially developed to deliver the product directly into the canal.

Among its main features, such as gradual release of Ca²⁺, biocompatibility and high alkalinity, ease of removal stands out in the study below.

Adhesive interface formed between root dentin and filling material

The use of BIO-CTEMP combined with a bioceramic sealer provided greater penetration of the sealer into the dentin tubules in a regular and homogeneous way, forming much longer tags and, therefore, a more hermetic and three-dimensional filling. However, with the use of traditional medication and an epoxy resin-based sealer, it is not possible to observe the formation of such long tags.

Fig. 1 Images in confocal laser scanning microscopy with fluorescence after the use of intracanal medication based on bioceramic compounds (BIO-C TEMP) and obturation with bioceramic sealer. In fluorescent green it is possible to observe the presence of intracanal medication remnant inside the dentinal tubules. In fluorescent blue, the penetration of filling sealer into the dentinal tubules is observed, with the formation of longer and more uniform tags. (Photos/Provided by Angelus)

Fig. 2 Images in fluorescence laser scanning confocal microscopy with fluorescence after using calcium hydroxide-based intracanal medication (Ultracal XS) and sealing with epoxy resin-based sealer (AH Plus). In fluorescent green, it is possible to observe the presence of intracanal medication remnants homogeneously along the entire circumference of the canal, as well as the absence of penetration of the root canal sealer. In fluorescent red, there is little formation of tags, deformed and without continuity. Furthermore, it is possible to affirm that there is no formation of a layer resulting from the interaction of intracanal medication and root canal sealer.

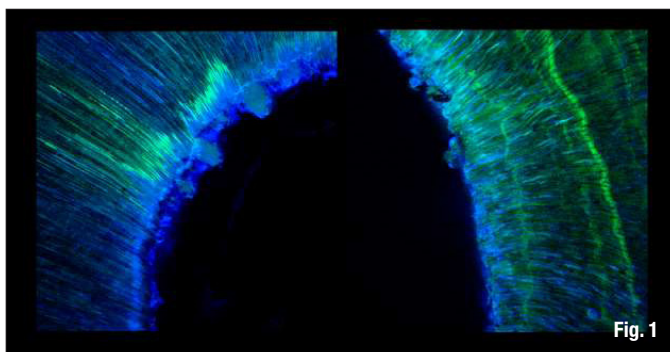


Fig. 1

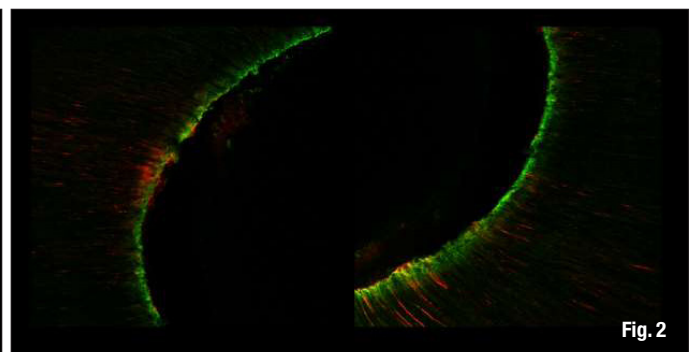


Fig. 2