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A Comparative Study Of White Mineral Trioxide Aggregate And White Portland Cements Using X-ray Microanalysis

Abstract

The purpose of this study was to determine and compare the composition of white mineral trioxide aggregate (WMTA) and two different white Portland cements (WPCs). Samples of WMTA and WPCs were prepared and then imaged in a JEOL JSM6400 scanning electron microscope, equipped with an Oxford Instruments light element energy dispersive spectrometer detector for determining the elemental composition. Electron probe microanalysis (EPMA) results indicated that lime (CaO) and silica (SiO_2) were the dominant compounds in each case. The results showed that the trace elements are similar in all of the samples but there was no detectable trace of bismuth oxide (Bi_2O_3) in WPCs. The range of crystal sizes observed in WMTA was found to be distinctly smaller than those observed in the WPCs. It was concluded that there is no significant difference between the dominant compounds in both WMTA and WPCs except the presence of bismuth oxide in WMTA.

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Conservative Endodontic Management Of Teeth Associated With Extensive Periapical Pathology: Report Of Two Cases

Abstract

Traditionally, long-term calcium hydroxide dressings have been recommended for the conservative management of large periapical lesions. However, calcium hydroxide therapy has some disadvantages such as variability of treatment time, difficulties with patient follow-up and prolonged treatment periods that increase the risk of root canal contamination via microleakage and crown fractures. This paper reports the healing of large periapical lesions following conservative non-surgical treatment with calcium hydroxide dressings.

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Intentional Replantation Of A Lower Premolar

Abstract

Intentional replantation is the purposeful extraction of a tooth to perform extraoral endodontic treatment, curettage of apical soft tissue when present and the replacement of the tooth in its socket. This paper demonstrates the use of intentional replantation as a technique to successfully treat a case where conventional endodontic retreatment and apical surgery were considered unfeasible.

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Photo-Activated Disinfection Of The Root Canal: A New Role For Lasers In Endodontics

Abstract

Because micro-organisms play a crucial role in the development of pulpal and periapical disease, the prognosis of endodontic therapy is intimately related to the presence of bacteria within the root canal system. Micro-organisms may persist in the apical region of the root canal system despite chemo-mechanical preparation. The usefulness of Class IV lasers (such as Nd:YAG, diode, KTP and Er:YAG) for photo-thermal disinfection of the root canal has been demonstrated in numerous studies.

An alternative approach to microbial killing in the root canal system by laser light involves the use of low-power lasers to drive a photochemical reaction that produces reactive oxygen species, a technique termed photo-activated disinfection (PAD). By using exogenous photosensitisers such as tolonium chloride, killing of all types of bacteria can be achieved. *In vitro* studies of PAD have demonstrated its ability to kill photosensitised oral bacteria (such as *E. faecalis*), and more recently microbial killing *in vivo* in the root canal system has been demonstrated. While PAD can be undertaken as part of the routine disinfection of the root canal system, it also has potential use for eradicating persistent endodontic infections for which conventional methods have been unsuccessful.

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Role Of Occlusion In Endodontic Management: Report Of Two Cases

Abstract

The two clinical cases reported demonstrate that traumatic occlusion can play a role in the initiation and progression of pulp and periradicular inflammation. The symptom of persistent pain did not subside after the commencement of endodontic treatment. Traumatic occlusion was identified in both cases to be the main cause and hence occlusal adjustment was performed. This resulted in the gradual resolution of the symptoms. The findings suggest that occlusal trauma is often overlooked in the diagnosis and management of endodontic diseases.