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# **Calcium Hydroxide And Zinc Oxide Eugenol As Root Canal Filling Materials In Primary Molars: A Comparative Study**

## **Abstract**

Calcium hydroxide, a material widely used for the treatment of permanent teeth has not been used frequently for endodontic treatment in primary teeth. A comparative evaluation of calcium hydroxide and zinc oxide eugenol used as root canal filling materials in primary molars is presented.

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# Comparing The Quality Of Anaesthesia In Normal And Inflamed Teeth By Pulp Testing

## Abstract

Failure to achieve complete anaesthesia of teeth with acutely inflamed pulps is a well-known clinical symptom. In this study, we compared the quality of anaesthesia in intact and inflamed mandibular teeth by using an electric pulp tester.

Thirty patients with inflamed lower teeth, which had spontaneous or night pain, were selected; two healthy teeth in the same quadrant were used as control teeth. Electric pulp testing and thermal tests were made on each inflamed and control tooth. Teeth were then anaesthetised by inferior alveolar nerve block and electric pulp tests were repeated on inflamed and control teeth.

Significant differences were found between electrical stimulation of inflamed and intact pulp ( $p \sim 0$ ). There was no significant difference between the responses of inflamed teeth to electric pulp testing before and after anaesthesia ( $p = 0.327$ ), which showed that the teeth could become resistant to anaesthesia due to the inflammation.

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# Determination Of Root Canal Curvatures Before And After Canal Preparation (Part 1): A Literature Review

## Abstract

The continuing development of methods and materials for root canal preparation is resulting in enhanced preparation techniques with only minor alterations to the canal morphology. Improved evaluation methods are required for differentiated assessment of these innovations. One criterion for assessment of the preparation quality of curved root canals is preparation-induced straightening of the canal.

The first canal curvature measurements served to divide teeth into different curvature classes. However, their actual execution represented mere angular measurement rather than root curvature assessment. This purely graphic method lacked precision, nor could it be readily applied to all tooth groups. Further developments of that method resulted in it being applicable to molars and to canals with multiple curvatures.

Some years ago, the graphically determined curvature radius was added as a further parameter to measurement of the canal deviation angle, thus permitting a curvature to be correctly described for the first time in geometric and analytic terms. The first mathematically accurate description was presented by Dobó-Nagy *et al.* (20), who correctly described the mean canal curvature in a two-dimensional image in concrete terms by means of fourth-degree polynomial functions.

Recent developments in the application of microcomputed tomography of extracted teeth permit non-destructive three-dimensional assessment of root canal configurations. It remains to be seen whether this resource-intensive form of *in vitro* examination can assert itself.

## Case Report

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# Endodontic Treatment Of Dens Invaginatus With A Periradicular Lesion: Case Report

## Abstract

A left maxillary lateral incisor with Type III dens invaginatus with a periradicular lesion was treated non-surgically. Pulp involvement and periapical abscess subsequent to contamination through the invagination space were observed. The signs (sinus tract) and symptoms ceased after treatment. Complete healing of the periradicular lesion was observed at the one-year follow-up examination.

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# Histological Observations Of Periradicular Healing Following Root Canal Treatment

Editor's Note:

This article is based on a presentation to the 13th Asian Pacific Endodontic Confederation Scientific Meeting held in Kuala Lumpur on 25 May 2005.

## Abstract

The purpose of this study was to observe histologically the sequence of events leading to resolution of periradicular tissues, with a view to advancing the perception of periapical healing. Our material consisted of periapical specimens obtained from 15 single-rooted, endodontically treated teeth of patients aged 25–40 years. All the teeth required extraction because of complicated crown-root fracture following trauma, iatrogenic aetiology (cervical root resorption following bleaching) or extensive carious lesions. The patients were informed that, based on their clinical condition, surgical procedures should be performed under flap reflection in order to extract the fractured root. Informed consent, which was necessary for the surgery, was obtained in all cases. A small block section containing the apical root tip and surrounding periapical tissues was removed prior to root extraction. The results of histological examination revealed osteoblastic activity and osteoid bone formation six days after the root canal instrumentation. Periapical tissue healing was observed despite the presence of overfilled material. The lining epithelium was infiltrated with chronic inflammatory cells and surrounded by collagen bundles and newly formed bone.

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# Myofascial Pain And Toothaches

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## Abstract

Despite improved understanding of orofacial pain in recent years, accurate diagnosis of pain is still challenging in modern dentistry. Many disorders in the head and neck region are known to refer pain to dental structures and imitate dental pain. Due to the location of the perceived pain dental clinicians are often involved in the diagnosis and management of the pain. Myofascial pain (MFP) is widely believed to be the most frequently occurring orofacial pain of non-odontogenic origin. It has long been known that MFP could mimic pulpitic symptoms. Past studies have shown that MFP is a relatively prevalent condition among the general population and the one that is most often misdiagnosed by dentists. Despite its prevalence and the potential for misdiagnosis, there has been little investigation into this old problem, and information about myofascial pain remains fragmented and poorly understood.

In this article some of the features associated with myofascial pain will be highlighted. The inter-relationship between myofascial pain and toothaches will also be examined and suggestions made in the areas of diagnosis and management of the condition. It is hoped that dental clinicians will be able to differentiate and manage the conditions effectively when dealing with them in the future.

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# Tissue Engineering In Endodontics

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## Abstract

The key elements of the regeneration of dentine-pulp complex are stem cells, morphogens and a scaffold of extracellular matrix. The pulp stem cells have the potential to differentiate into odontoblasts in response to bone morphogenetic proteins (BMPs). However, the use of BMPs *in vivo* has been restrained by lack of a suitable scaffold. Therefore, two alternative approaches, *in vivo* and *ex vivo* gene therapy were performed. *Bmp11/Gdf11* gene was directly transferred into amputated pulp by sonoporation and the reparative dentine formation was stimulated *in vivo*. However, there should be enough responsive stem cells in the pulp. Therefore, the isolated progenitor stem cells from pulp were transfected with *Bmp11/Gdf11* by electroporation and implanted onto the amputated pulp. This *ex vivo* gene therapy stimulated reparative dentine formation more optimally and rapidly compared with the *in vivo* gene therapy. These results suggest the possible clinical use of gene therapy of BMPs for endodontics.

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# What We Leave Behind In Root Canals After Endodontic Treatment: Some Issues and Concerns

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## Abstract

The benefits of using sodium hypochlorite (NaOCl) and ethylenediaminetetraacetic acid (EDTA) as endodontic irrigants, and calcium hydroxide as an inter-appointment medicament, are well known to dentists. Many steps undertaken during endodontic treatment and retreatment are rather mechanical in nature, and less attention is committed to understanding the biological issues underlying endodontic treatment and retreatment. It should be noted that dentine is the fundamental substrate in endodontic treatment, and its properties and characteristics are the key determinant of nearly all disease and post-disease processes in the teeth. In this article the effects and counter-effects of NaOCl and EDTA on root canal dentine, and some other related issues are reviewed. This information will enable clinicians to use the beneficial effects of these chemicals, while necessary steps are considered to reduce their harmful effects on dentine substrate.