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Case Note

Calcium hydroxide in management of large periapical lesion

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Abstract

The success of root canal treatment is based on total elimination of root canal content, thorough cleaning and shaping of canal and obturation of root canal system. Calcium hydroxide is recommended as intra-canal medicament because of its antibacterial properties, tissue dissolving ability, inhibition of tooth resorption and indication of tissue repair by hard tissue formation. Here we present a case report, where calcium hydroxide was used as an inter appointment endodontic dressing for management of large periapical radiolucency for six months. Follow up after six months of treatment completion revealed complete bone regeneration in the areas where there was extensive bone loss.

Key words: Calcium hydroxide, Periapical lesion

Introduction

Periapical lesions in most of the cases can be classified as periapical granuloma, periapical abscess and periapical cysts and it cannot be differentiated from each other based on radiograph alone, although there is a trend towards increased incidence of cysts among larger lesions[1]. Dental trauma is often associated with the disruption of pulp blood supply, leading to pulp necrosis. This circulatory breakdown causes tissue necrosis and anaerobic conditions for the growth of opportunistic microorganisms[2]. The success of root canal treatment is based on total elimination of root canal content, thorough cleaning and shaping of canal and obturation of root canal system. There are various armamentariums, irrigants and medicaments available to perform root canal therapy. One of the medicaments is Calcium hydroxide which was first used in dentistry in 1930 by Herman[3]. Though calcium hydroxide is not a restorative material by itself it is used in various clinical situations and often forms a part of restoration. Calcium hydroxide is advocated as an inter-appointment endodontic therapeutic dressing because of its antibacterial effect on most of the microorganisms identified in the root canal system[4]. The antimicrobial properties of calcium hydroxide are directly related to its pH[5].

Case Report

A 12 year old patient reported to dental department of Kathmandu Medical Teaching Hospital with a complaint of swelling on the anterior region of lower jaw. Patient gave a history of trauma on lower anterior teeth two years back. On clinical examination there was swelling and pus discharge around the lower incisors. Orthopentamogram (OPG) was advised which revealed a well defined large radiolucency in relation to 31, 32, 41, & 42 (Fig 1) Treatment planning was discussed with the patient and his family before starting the procedure. Access was opened, pus was drained from 31, 32, 41 & 42, canals were irrigated with normal saline and closed dressing was placed. In the following appointment, working length was determined, canals were cleaned & shaped using K and H files (MANI, Inc. Japan) and a closed dressing was placed in all the involved teeth. Patient was recalled after one week, canals were irrigated with 3% sodium hypochlorite (Novo Dental Pvt. Ltd., India) & saline, dried with paper points, and calcium hydroxide (RC Cal, Prime Dental, India) dressing was placed after which the canals were filled with temporary cement (Caviton GC Corporation, Japan). This procedure was repeated once every month for five times (Fig 2). Patient was advised to report to the hospital if he experienced pain or discomfort and/or the temporary restoration came out. After five months, the canals were obturated using AH plus (Dentsply Maillerfer, Switzerland) sealer and gutta percha (Dentsply, France SAS) and the access cavities were restored with GIC (GC Corporation, Japan). Patient was recalled after 6 months for follow up. IOPA was made which showed bone formation around the

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