

# Localized Alveolar Bone & Gingival Necrosis Following Pulp Devitalization with Caustinerf Forte: A Case Report

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## Abstract

An endodontic clinician may face unwanted situations during root canal treatment. We present here an unusual case of necrosis of periodontal tissues and supporting alveolar bone following the use of Caustinerf Forte in an iatrogenic perforated pulp chamber floor during endodontic treatment.

**Keywords:** Necrosis, iatrogenic perforation, Caustinerf Forte.

## Introduction

Historically, pulp devitalizing agents were commonly used in endodontic treatments. They act quickly and devitalize the pulp within few days<sup>1</sup>. Bone damage can occur as a result of contact with caustic chemicals and other protoplasmic poisons<sup>2</sup>. Osteomyelitis is an inflammatory disease of bone caused by infection. The virulence of the causative microorganisms is an important factor for the progression and development of Osteomyelitis. The hallmark of Osteomyelitis is the development of sequestra which are segments of bone that have become necrotic because of the ischemic injury caused by the inflammatory process<sup>3</sup>.

This report presents a case of severe bone and gingival necrosis complicated further by superimposed pyogenic infection. Caustinerf Forte is a paraformaldehyde preparation containing 46% paraformaldehyde, 37% lidocaine, and 6% phenol. It is applied to the inflamed painful pulp for devitalization mostly in those cases when local anaesthesia is not sufficiently effective<sup>4</sup>.

## Case Report

A 35-year old male presented to the department of periodontics with chief complain of pain in left mandibular second molar. The history revealed that he had attended his dentist with severe pain and that endodontic treatment had been initiated immediately on tooth 37. He was informed that 'a pulp necrotizing agent' had been applied. The patient reported after 48 hours with the complain of pain in the same region. Clinical examination revealed desquamation of the gingival epithelium and presence of grayish white slough and necrotic areas in relation to 37 with probing depth 9 mm on distal aspect and 6 mm on lingual aspect. There was no measurable tooth mobility. Periapical radiograph revealed perforation of pulp chamber floor.

## Treatment Given

The first aim was to alleviate the symptoms of pain and to prevent further progress. The operative area was irrigated with saline and betadine and necrotic tissue was removed from the area and attempt was made to preserve tooth by completing root canal treatment. The perforation was irrigated with sodium hypochloride and saline solution and sealed with MTA (mineral trioxide aggregate). It was then endodontically treated and restored with temporary restoration. Antibiotics and analgesics were prescribed; oral hygiene instructions were given to the patient and he was recalled. One week later, there was no mesial papilla and gingiva from facial and mesial side was detached exposing approximately 2-3 mm of bone. At this stage flap surgery was planned to remove the necrotic tissue. A sulcular incision on facial side was given in relation to 36 and 37 and flap was raised to gain access to remaining necrotic tissue. Exposed necrotic bone was removed and area was thoroughly curetted, sutures were given and medications were prescribed. The patient was reviewed post operatively and sutures were removed. Panoramic radiographs revealed well defined radiolucent demarcation line between the surrounding trabecular pattern of the teeth 34-37. Focal zones of opacification surrounded with distinct margins. Patient experienced throbbing pain and healing was poor with presence of sequestrum. Patient was advised extraction of 37 to prevent further spread of the lesion.

## Discussion

Various chemicals used in medicating root canals are capable of creating adverse tissue reactions<sup>5</sup>. This fact, combined with the knowledge that the pulp and periodontal ligament are interconnected via accessory canals, dentinal tubules and iatrogenic communications, suggests that overzealous use of intracanal medicaments can lead to deleterious effects to the host tissue with resultant post operative discomfort<sup>6</sup>. Ozgoz et al<sup>7</sup>, Verma et al<sup>8</sup> reported an unusual case of gingival necrosis following the use of paraformaldehyde containing paste in root canal treatment. Stabholtz et al<sup>9</sup> reported the necrosis of the crestal bone that was caused by the use of paraformaldehyde dressing placed in pulp chamber. Dumlu et al<sup>10</sup> presented a case of

Osteomyelitis due to arsenic trioxide used for tooth devitalization during endodontic treatment. Ozmeric et al<sup>10</sup> described toxic effects of arsenic trioxide in mouth and presented a case of localized alveolar bone necrosis following use of an arsenical paste. Similar two cases of tissue necrosis and their surgical management have also been reported by Garip et al<sup>1</sup>. According to European society of Endodontology<sup>11</sup>, preference should be given to materials that are inorganic, do not bind to proteins and/ or do not act as immunogens. Disinfectants based on organic solutions containing phenols or aldehydes are therefore not recommended.

## Conclusion

There are several and superior clinical alternatives to devitalize pulp, dentists should be aware of such materials and their adverse consequences, and be prepared to recognize and manage the tissue injuries that may result from their use.

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