



**Research Article**

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## Alveolar bone and gingival necrosis following pulp devitalization

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### Abstract

Dental caries is a common disease which stands second to common cold, forms a bases for pulp involvement in extensive lesions and hence painful. Most of the general practitioners find it difficult to extirpate pulp completely and hence to face this challenge, clinicians use devitalizing agents in cases where anaesthesia is ineffective. The following series of cases describes the tissue degeneration in patients treated with pulp devitalizing agents during endodontic treatment.

**Keywords:** Devitalizer, Gingival Necrosis, Caries, Endodontic treatment.

### INTRODUCTION

One of the most important step in endodontic management is the proper isolation. Before starting endodontic treatment it is must to remove all caries down till the sound tooth structure is attained and removal of restorations showing signs of leakage or instability or both <sup>[1]</sup>.

On historic basis the pulp devitalizing agents were common in endodontic practice, they were quick in action and devitalized pulp within few days <sup>[2]</sup>. These caustic chemicals and other protoplasmic poisons can cause bone damage when in contact <sup>[3]</sup>.

The virulence of the causative microorganisms is an important factor for the development and progression of the inflammatory disease of bone, osteomyelitis. The development of the sequestra is the hallmark of the osteomyelitis, which are the segments of the necrosed bone due to ischaemic injury, caused by the inflammatory process <sup>[4]</sup>.

Pulp devitalizer applied to the inflamed painful pulp for devitalization mostly in those cases where local anaesthetic is mostly ineffective <sup>[5]</sup>. This study presents the cases with bone and gingival necrosis with variation of extent.

### MATERIALS & METHODS

100 patients were selected randomly irrespective of gender, who underwent endodontic treatment for posterior teeth irrespective of the arch and experienced pain after local anaesthesia, so devitalizer (Caustinerf, Septodont) was used to settle the inflamed pulp, from August 2017 to August 2018.

### RESULTS

Out of these, 32 cases were recorded who reported with pain after the first visit. These patients revealed the history of usage of pulp devitalizing agent after initiation of the endodontic treatment. The patients experienced pain in the region of treatment mainly after 48 hours of the treatment initiation. The thorough examination intraorally revealed the areas of desquamation over gingival epithelium and presence of grayish white slough, these cases did not reveal any tooth mobility.

Majority of patients (65) did not show any postoperative complications after the usage of devitalizing agent. The remaining respondents reported with pain as the most common complication and few reported with

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variable degree of damage to the surrounding tissue. 3 patients did not report at follow up visit.

No. of cases (32)	Adverse Effect
26	Severe pain
3	Necrosis of Gingiva (Figure 1,2)
3	Necrosis of bone (Figure 3)

### Management

The primary aim was the alleviation of the symptoms and prevention of further destruction. The operative area was irrigated with saline and betadine and necrotic tissue was removed from the affected area and endodontic treatment was completed to save the involved teeth.

Antibiotics and analgesics were prescribed to the patients and were instructed to follow the oral hygiene instructions. These patients were recalled after 1 week.

Most of the patients were pain free and revealed signs of healing. Some patients required curettage of the affected region and few required flap surgery, where the damage was extensive. 2 patients required extraction of affected teeth to restrict the destruction and further spread.



Figure 1: Gingival Necrosis



Figure 2: Gingival Necrosis



Figure 3: Gingival Necrosis with Bone involvement

### DISCUSSION

Pulp devitalization is an operative technique considered painless and used commonly to manage pulpitis; so the efficacy of it has a direct impact on treatment outcome<sup>[6]</sup>.

Various chemicals used in medicating the root canals are capable of having adverse reactions towards the tissues<sup>[7]</sup>. This fact combined with the known fact that the pulp and periodontal ligaments are interconnected via accessory canals, dentinal tubules and iatrogenic causes, depicts that the overzealous usage of these chemicals can be deleteriously harmful to the host tissue causing post op discomfort<sup>[8]</sup>.

Ozmeric et al described the toxic effects of arsenic trioxide in mouth and presented a case of localized alveolar bone necrosis following the use of arsenical paste<sup>[9]</sup>. Stabholtz et al reported the necrosis of the crestal bone that was caused by the use of paraformaldehyde dressing placed in the pulp chamber<sup>[5]</sup>.

Dumlu et al presented a case of osteomyelitis due to arsenic trioxide used for devitalization of tooth during endodontic treatment<sup>[10]</sup>.

According to European society of Endodontology, preferable materials should be inorganic, should not bind to proteins and should not act as immunogens. Also disinfectants based on organic solutions containing aldehydes and phenols are not recommended<sup>[11]</sup>.

### CONCLUSION

As far as possible the devitalizing agents should be avoided in the endodontic practice and the practitioner should try and employ local anaesthetics for complete extirpation of the pulp to avoid such complications and emergencies.

### Conflict of Interest

The author reports no conflicts of interest.

### Source of Support

Nil.

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