

## Surgical Management of Periapical Lesion in the Maxillary Anterior Region Caused By Trauma in an Athletic Child-A Case Report

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### Abstract

The periapical lesions are the result of an inflammatory response to bacterial infection within the root canal. Conservative approach of treatment of any lesion is always preferred over surgery. Non surgical method involves cleaning and disinfecting the root canal system which reduces the bacteria and creates an environment in which periapical healing can occur. This has limited periapical surgery in very selected dental cases such as in those cases in which causative factors are located outside the root canal eg-bacteria colonizing the periapical tissues, cysts and foreign body reactions. Here a case report of a 17 year old boy who presented with maxillary anterior periapical lesion is presented and discussed. The patient gave a history of trauma to anterior teeth while playing cricket 8 years back. This case was managed by root canal treatment followed by periapical surgery.

*Key Words: Periapical Surgery, Anterior Teeth, Trauma*

### Introduction

Traumatic injuries are one of the serious unanticipated events that results in pain, apical periodontitis, swelling and psychological problems to the patient. Periapical lesions and pathologies are the outcomes of untreated traumatic teeth (Grossman, 1967). Treatment options available to treat such cases include periapical surgeries. First the treatment of choice is the management of periapical lesion with nonsurgical method by using calcium hydroxide as an intracanal medicament. But if the periapical lesion is large then periapical surgery is the choice (Nair, 1998). Natkin et al (1984) analyzed the data of various studies relating radiographic lesion size to histology. They concluded that if the radiographic size of the lesion was greater than 200 mm<sup>2</sup>, the incidence of cyst was 100 % and if the lesion is separate from the apex with an intact epithelial lining it may not heal

when treated nonsurgically. In the present case report pertains to a periapical lesion which was large and could be treated with periapical surgery only.

### Case Report:



Figure 1: Discoloured & fractured teeth nos 11, 21.

A 17 year old boy reported to the department of Pedodontics and preventive dentistry with the chief complaint of pain and recurrent swelling in the upper front teeth region since 8 weeks. The patient gave a history of trauma to anterior teeth while playing cricket 8 years back. On

clinical examinations the teeth nos 11, 21 were found to be discoloured and swelling was seen on the labial aspect of these teeth and the area was found to be tender to palpation and percussion (Figure 1). Teeth did not responded to thermal and electrical pulp tests indicating nonvital teeth. A discharging periapical sinus was seen apically between the roots of teeth nos 11 and 21. Based on the history, clinical examination, sensitivity test and radiographic examination a diagnosis of pulp necrosis with symptomatic periapical pathosis was made for right and left maxillary central incisor. Treatment was planned with a combined approach using orthograde endodontic treatment of nonvital teeth followed by surgical enucleation of the lesion. Isolation followed by access opening was done in 11 and 21 without local anaesthesia Biomechanical preparation followed by step back method was done using 2% sodium hypochlorite and normal saline as irrigant. Calcium hydroxide (vitapex, neo dental chemical products, Tokyo, Japan) was placed as an intracanal medicament for a week. Seven days later when the patient was completely asymptomatic, the root canals were obturated with gutta percha with lateral condensation method.



**Figure 2: A large soft lesion involving the roots and the apices of right and left maxillary central incisor**

Two days after the completion of the treatment the patient was asymptomatic so a full thickness mucoperiosteal flap was raised to expose the area of the periapical lesion by giving local infiltration on both bucal and lingual aspects of 21 and 11. A large soft lesion was revealed involving the roots and the apices of right and left maxillary central incisor (Figure 2). Already existing pathological cortical bone window was expanded until the underlying pathology was exposed adequately and curettage could be done easily. The periradicular lesion was fixed in 10% buffered formalin solution for histopathological evaluation. The roots of 11 and 21 were smoothed and resected at the apical end and retrograde filling with Glass ionomer filling was done. The bone cavity was irrigated with normal saline and the cavity was inspected to ensure that no residual lesion tissue was left behind. The flap was repositioned and sutured using 5-0 silk sutures.(Figure 3).



**Figure 3: The repositioned and sutured flap after using 5-0 silk sutures**

Postoperative instructions were given and antibiotics, analgesics and mouthwash were prescribed. The healing was uneventful and 6 months post operatively the patient was free of signs and symptoms.

## Discussion:

The response of trauma can be varied. Some pulps remain normal with no adverse effects whereas others become necrotic. The case report presented with trauma to teeth 10 years back in an athletic child while playing cricket which further lead to necrosis of the pulp. The necrotic pulp provided a good nutrition to pathogenic bacteria which further lead to the development of a periapical area above the apices of the traumatised teeth. Therefore root canal treatment was initiated followed by calcium hydroxide pushing in the canals since calcium hydroxide is a bacteriostatic agent (Watson & Torabinejad, 2002). Sjogren et al, (1991) founded that 1 week pushing of the calcium hydroxide in the canals kills the bacteria, so in the present case also calcium hydroxide was pushed for 1 week. Since the periapical lesion was very large and could not be healed with calcium hydroxide so periapical surgery was done in the present case.

**Conclusion:** In modern endodontic treatment the number of indications for endodontic periapical surgery is

decreasing. Still it accounts to 3 to 10% of the endodontic practice. So, endodontic treatment with calcium hydroxide as an intracanal medicament is a viable approach for promoting periapical healing in nonvital teeth associated with periapical lesion. But the periapical surgery may be the only alternative when the tooth with periapical lesion fails to respond to calcium hydroxide as an intracanal medicament.

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