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RESEARCH ARTICLE

TREATMENT OF LARGE PERIAPICAL LESION BY ENDODONTIC TREATMENT WITH NO SURGICAL INTERVENTION- A CASE REPORT

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ABSTRACT

Endodontic procedures are used to treat large periapical lesion. Additional apical surgery is performed in few cases. Various irrigating solutions like Chlorhexidine, Sodium hypochlorite are used. Some clinicians prefer Ca(OH)₂ as intracanal medication. Non-surgical and surgical methods show no difference in long term follow up. Non-surgical endodontic treatment leads to complete resolution of periapical lesions and should be the treatment of choice.

Key Words:

Large periapical lesions,
Non-surgical endodontics.

Glossary of abbreviation

CA(OH)₂- Calcium Hydroxide
BMP- Biomechanical Preparation
IOPA- Intraoral periapical radiograph

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INTRODUCTION

Clinicians commonly come across periapical pathologies. Aetiology varies from carious exposure leading to pulp necrosis, trauma leading to exposure of pulp chamber, developmental causes. Exposure of pulp chamber leads to degeneration. Necrosis of pulpal tissue transforms the pulpal chamber into an unprotected environment. Micro-organisms may colonise it. Periapical lesions are formed as a result of immunologic host response to bacteria or its product (Venugopal *et al.*, 2011). A young boy of 13 years was treated for a large periapical lesion associated with maxillary incisors. Only endodontic treatment was performed. No surgical intervention was done. The recovery was amazing.

Case Report: A young boy reported to the clinic with a complaint of swelling over upper lip and left nasolabial area. Examination revealed intraoral swelling on the left side in relation to maxillary central and lateral incisor. Central incisor was fractured and the pulp chamber was open. Patient gave history of trauma due to road accident 2 years back. The central incisor had fractured in the accident. Patient had pain for few days and then tooth showed no symptoms.

Swelling developed 4-5 days before he reported to the clinic. Intraoral periapical radiograph revealed large periapical pathology over central and lateral incisors on the left side. Root canals were opened after swelling subsided. Biomechanical Preparation was carried out and canals were irrigated with chlorhexidine and sodium hypochlorite Irrigation was repeated alternate day for 2 weeks. No intracanal medication was used. Exudate stopped after 2 weeks and canals were dry. Obturation with Guttapercha points and Zinc oxide eugenol as sealer was carried out. Sealer extruded into periapical area as the apices were open. Figure 1 shows obturated canals with extruded sealer. Apical surgery was suggested if unfavourable consequences develop. Patient was advised regular follow up every 3 months with follow up radiographs. Patient didn't turn up for follow up and reported back to the clinic after 1 year. IOPA radiograph showed complete resolution of sealer in periapical area. Figure 2 shows the healed lesion and resorbed extruded sealer.

DISCUSSION

Endodontic treatment alone or with apical surgery is the treatment of choice in large periapical lesions.



Figure 1. Radiograph showing obturated root canal and extruded sealer



Figure 2. Radiograph showing healed lesion and complete resorption of extruded sealer after 1 year

Surgery has its disadvantages like damage to adjacent vital structures, additional cost, and discomfort. Current concept and rationale of endodontic treatment of periapical lesions is centred on stopping bacterial stimulation of host response at the apical foramen that would allow healing of the lesion^{1, 2}. Bacterial aetiology if removed by non-surgical endodontic treatment will lead to regression of lesion by mechanism of apoptosis (Lin *et al.*, 2009). Once contamination through root canal or degenerating pulpal tissue is taken care of repair follows (Maaloof, 1994). In a study, non-surgical management of periapical lesions of teeth, it was observed that 84.4% had healed successfully. Nature or size of the lesion had no correlation with success. Larger lesions had little more failure rate. Immunologic host response was found to have more importance for the success (Shah, 1998). Study of healing of periapical radiolucencies after non-surgical endodontic therapy of 89 periapical lesions showed complete resolution in 17.6%

cases in less than 6 months. 70.6% cases resolved after 12 months. After BMP, chlorhexidine solution was used for irrigation. Ca(OH)₂ was used for intracanal medication (Oztan, 2002). In some instances, Sodium hypochlorite and Ca(OH)₂ was used (Saatchi, 2007). Ca(OH)₂ as intracanal medication was used to treat large periapical lesions, non-surgically by many clinicians (Soares, 2006; Dwijendra, 2010; Caliskan, 2004). Few cases where Sodium hypochlorite for irrigation and antimicrobial dressings in the canal were combined to treat large periapical lesions (Ozan, 2005). In a failed case, where endodontic treatment and surgery was tried before an interim filling of propolis and propylene glycol was placed for almost 2 years. It showed complete resolution (Abhishek Parolia, 2010). Non-conventional techniques like aspiration through root canal (Fernandes, 2010) or cannulisation through the involved teeth were also tried and proved successful (Thomas Walker Malcom Davis *et al.*, 1984). Comparison of surgical and non-surgical procedures in a randomized study showed that the results with surgical procedures were better after 1 year. But after 4 years, the results of surgical and non-surgical cases were comparable showed no difference (Thomas Krist, 1999). It is now believed that activated macrophages in the periapical lesion are the reason for delayed healing in absence of bacterial antigens (Venugopal *et al.*, 2011). A biodegradable local sustained release drug delivery points could be put into the lesion before obturating the canal to deactivate the macrophages and enhance healing (ZviMetzer).

Conclusion

Conservative treatment of large periapical lesions is a challenge to the clinician. If treated properly, with proper BMP, use of irrigants and use of intracanal medications if required, most of these lesions can regress without surgery. Surgical and non-surgical approaches may show comparable success rate after sufficient length of time. Immunological response may play a role in the healing process and so whether 'age' has a role to play needs to be investigated.

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