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Case Report

Healing of a Large Periapical Lesion- A Non Surgical Approach

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ABSTRACT

Bacteria is considered as the etiological agents for most of the endodontic diseases. Mere surgical removal of the periapical lesions without proper root canal disinfection and obturation will not result in the healing of periapical tissues. When the treatment is done properly, healing usually happens by osseous regeneration, which is seen as reduction in radiolucency in subsequent radiographs. This case highlights follow up results of resolution of periapical pathology achieved through a non surgical approach, observed over a period of 12 months. Emphasis is laid on thorough debridement and three dimensional obturation of root canal system by a simple lateral condensation technique in the case.

Key words: Periapical Lesion, Non Surgical, Obturation, Lateral Condensation

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INTRODUCTION

Endodontic disease is attributed to the presence of micro organisms in the root canal system. This was proved in a classical study by Kakehashi et al in 1965. The treatment of primary apical periodontitis consists of eradication of micro organisms fom the root canal systems or substantially reducing the load and preventing reinfection by orthograde obturation. When the treatment is done properly, healing usually happens by osseous regeneration, which is seen as reduction in radiolucency in subsequent radiographs.[1] Based on histological findings a large periapical lesion can be a cyst or a granuloma. Many endodontists hold the view that most cysts heal after endodontic treatment. Oral surgeons believe that cysts do not heal and should be removed by surgery. This difference of opinion is because of the reported large incidence of cysts which varies from 6-55%. A correct histopathological diagnosis is possible only by serial sectioning or step serial sectioning of the lesions removed in toto. A radicular cyst can be further subdivided into true cysts and periapical pocket cysts/bay cysts.[2] True cysts are lined by epithelium on all sides. In bay cyst, the epithelium lined cavity open into the root canal. Until recently endodontic treatment followed by surgery was done to treat large periapical lesions . Orthograde endodontic treatment followed by three dimensional obturation can lead to healing of periapical pocket cyst / bay cyst. The following case describes a large periapical lesion treated by orthograde root canal treatment and regular follow up.

CASE REPORT

A 40 year old lady reported to Dept Of Conservative Dentistry, Govt Dental College ,Thiruvanathapuram complaining of swelling in the palatal aspect of upper right canine. She had complains of intermittent swelling in relation to the same region which would subside on taking self medication. There was a history of orthodontic treatment to correct proclination of teeth about 15 years back. The teeth 12 and 13 had a yellowish discoloration and were tested non vital on thermal and electrical pulp testing. Both periapical and occlusal radiographs were taken which reveals a well defined radiolucency associated with the apices of 12 and 13 (Fig 1). Conventional root canal therapy was initiated. Following isolation with rubber dam, access cavity was prepared on the maxillary lateral incisor and canine and the working length determined(Fig 2&3).Canals were cleaned and shaped using K-Files by conventional method. 5.25 % sodium hypochlorite was used as the intracanal irrigant. The files were liberally coated with RC-Prep throughout instrumentation. The canal was enlarged to an apical size of ISO #60. Calcium hydroxide dressing was placed in the canal as the intracanal medicament, and access cavity was closed with Cavit. Patient was recalled a week later and received a fresh dressing of calcium hydroxide, following thorough irrigation and drying of the canal. This procedure was repeated again after one week. In the fourth visit, the canals were cleaned and dried using paper points. Master cone selection was done corresponding to ISO #60 size. The obturation was completed by lateral condensation technique using gutta-percha and Zinc Oxide Eugenol root canal sealer (Fig 4). The post obturation radiographs at 3, 6, 9,12 and 15 months show complete resolution of the radiolucency.(Fig 5, 6,7&8).

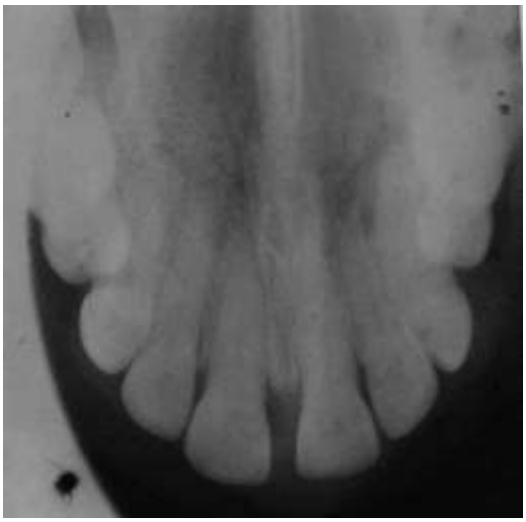

Figure 1: DIAGNOSTIC IOPA

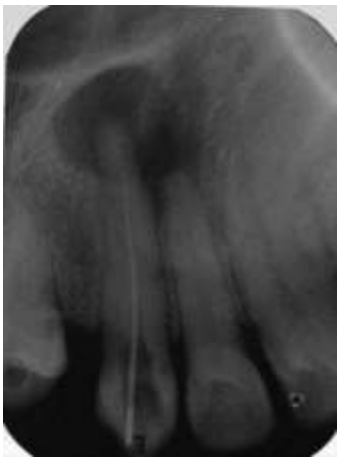

Figure 2: W L IOPA

Figure 3: MASTER CONE GP PLACED

Figure 4: POST OBTURATION IOPA


Figure 5: AFTER 3 months


Figure 6: AFTER 6 months


Figure 7: AFTER 9 months


Figure 8: AFTER 12 months

DISCUSSION

Treatment options to manage large periapical lesions range from non-surgical root canal treatment and /or apical surgery to extraction. When non surgical root canal treatment is not successful in resolving the periradicular pathosis, additional treatment in the form of surgical intervention (curettage and apical resection with retrograde filling) can be under taken.[3] Root canal treatment is based primarily on the removal of microbial infection from the complex root canal system. Irrigants and intracanal medicaments aid in reducing the microbial flora of infected root canals. In the present study, calcium hydroxide was used as the intracanal medicament. It has been shown that use of calcium hydroxide as a dressing for 1 week efficiently eliminates bacteria from the root canals.[4] The aim of orthograde root canal treatment is the elimination of bacteria from the root canal system and prevention of reinfection by means pf a three dimensional obturation. Periapical pocket cysts may heal after root canal therapy. A true cyst is self sustaining since the lesion no longer depends on the presence or absence of root canal infection.[5] Therefore, true cysts do not heal by conventional endodontic treatment.

CONCLUSION

This questions the rationale of certain diagnostic and therapeutic practices like disproportionate application of apical surgery based on radiographic diagnosis of apical lesions as cysts or the widely held belief that majotity of the cysts heal after conventional orthodontic treatement. However it should be remembered that cysts can sustain post treatment apical periodontitis and the option of apical surgery should be considered if orthograde root canal treatment has not resuled in satisfactory healing.

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