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Case Report

Non surgical management of a large periapical cyst like lesion using metapex, a three year followup - A case report

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ABSTRACT

This case report describes the non - surgical management of a large periapical lesion using Metapex as a intracanal dressing and root canal therapy. Periapical lesions usually develop in non-vital teeth as a result of chronic aggression by the pathogenic microorganisms into the root canal which may appear as radiolucent in periapical radiographs. Treatment of such lesions usually varies from non-surgical and surgical means depending on the individual. In the era of minimally invasive, dentistry, non-surgical endodontic approach has been highly recommended in the periapical healing. This case report shows the healing of large periapical lesion using metapex as intracanal medicament at various time intervals followed by root canal therapy.

1. Introduction

Lesions of the periapical region or one of the most common pathological conditions affecting periradicular tissues. The necrotic dental pulp occurs as a result of infection of dental pulp that may either occur as a consequence of dental caries, operative dental procedures and trauma and consists of a biofilm which is mostly anaerobic bacterial flora.[1] These can cause pulpal necrosis often which stimulate an immune response in the periapical region leading to a periapical lesion. The periapical lesions are mostly classified as periapical cyst or granuloma or abscess.[2]

The Root canal therapy may be needed for eliminating the microbial flora and also to prevent the further spread of the infection.[3] However, the primary aim has to be making the patient painless and proceeding towards a conservative approach.[4]

Many ways of non-surgical methods of managing a periapical lesion which mainly include Ortho grade root canal therapy, decompression therapy, using calcium hydroxide as intracanal dressing, aspiration - irrigation technique, lesion sterilization and repair therapy, active non-surgical decompression technique and apexum procedure.

If the host immune response is not efficient, it does not prevent spreading of the infection in root canal.[5] In these cases, the primary aim will be eliminating bacteria completely at the time of obturation for higher success rate and providing calcium hydroxide or metapex or anyother intracanal medicament since mechanical instrumentation alone cannot completely eliminate microbes from the root canal.[6]

Over the years, a cystic lesion may grow in size, remain static, or regress its growth can involve, not only the periodontal ligament and the alveolar supporting bone, but also with the adjacent structures, or even to the neighbouring healthy tooth.

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Calcium hydroxide mixed with inert vehicles or active substances such as chlorhexidine or metapex formulation which said to have a broad spectrum of activity against several endodontic pathogens. Favourable healing outcomes have been achieved with the necrotic teeth with apical periodontitis using calcium hydroxide or chlorhexidine or metapex as intracanal medicaments. Orthograde treatment of cyst like relations should aim at overcoming persistent intracanal infection. Recently the use of triple antibiotic paste, double antibiotic paste has also gained its interest as effective intracanal medicaments. So the use of efficient intracanal medicaments could be advantages in these cases.

Therefore, the early diagnosis and treatment of cystic relations is of major importance using either non surgical, surgical or comment approaches as early as possible.

2. Case Report

A 30 year old male came to the clinic with the chief complaint of fractured teeth in his upper anterior region. The patient gave a history of road traffic accident and also gave a history of pain which is sharp and intermittent in nature. His past medical history was not contributory. Extraoral examination showed non palpable lymph nodes and no facial swelling. Intraoral examination revealed Ellis class III fracture in relation to 11 and 21. Vitality tests were performed for all upper anterior teeth and 11 and 21 and were tender on percussion. The infected tooth in the present case report i.e. 22 tested vital in the initial diagnosis and 11 and 21was tested non vital on cold test. Also radiography revealed radiolucency involving enamel, dentin, pulp with periodontal ligament space widening in 11 and 21. We decided to perform root canal treatment in 11 and 21. The patient was asymptomatic for period of 3 month follow up.

After two years of the endodontic treatment, the patient again presented with the chief complaint of pain in his upper anterior region. On intra oral examination there was a tender on percussion in 22. On intra oral periapical radiograph, a large unilocular well defined radiolucency surrounding the periapical region of 21 and 22 was noted (Figure 1). The lesion was diagnosed as Periapical lesion in non-vital teeth 21,22. A non surgical endodontic treatment was planned as it being the most conservative approach, with the continuous monitoring of the lesion at various follow up time period. The treatment plan was explained to the patient and his informed consent was obtained. In the first appointment after local anesthesia in 22, under rubber dam isolation, access opening was performed and there was a suppurative yellowish fluid was draining out of the access cavity. After the pus has drained completely, working length was determined (Figure 4) and cleaning and shaping was done using 2.5% sodium hypochlorite and normal saline and step back preparation done till 70 K file.

The canal is then filled with a metapex using a lentulo filler as a antibacterial intracanal dressing (Figure 2). After 2 months, the old dressing was flushed with normal saline and replaced again. Again after two months, there was a replacement of intercanal dressing, with the metapex (Figure 3). With the intervals of using metapex as a intracanal dressing, the canal was obturated with the help of gutta percha and AH26 sealer (De trey, Konstanz, Germany) using cold lateral condensation technique (Figure 5). After 3 years follow up the patient was asymptomatic, no tender on percussion and the radiograph showed complete evidence of bone healing (Figure 6).

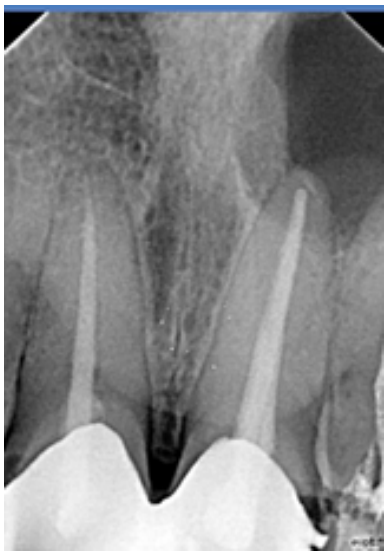

Fig. 1: Pre-operative image of large periapical lesion involving 21 and 22.

Fig. 2: First intracanal dressing with metapex in 22.

Fig. 3: Second intracanal dressing with metapex in 22

Fig. 4: Working length determination in 22.

Fig. 5: Post obturation in 22

Fig. 6: Complete healing of periapical bony lesion involving 21 and 22 after a three year follow up.

3. Discussion

Historically, periapical granulomas commonly range uto10mm and more than 10 mm are considered as periapical cysts.[7] Epithelial cell rests of Malassez in the periodontal membrane are responsible for creating the epithelial lining of the cysts.[8] In this case the presence of straw – colored exudate, size of the lesion and its association with the non vital teeth, radiopaque border divergence of adjacent teeth roots strongly suggest this as a radicular cyst. However a definitive diagnosis can be done only with an histopathologic examination.[9]

Several treatment modalities are available in the management of large periapical cystic lesions of endodontic origin. Various methods are non-surgical endodontic therapy with or without antibacterial dressing and surgical procedures like decompression (being the least invasive), marsupialization and cystectomy.[10] When selecting the treatment option, the clinician should always consider the benefits and risks that the procedure can offer to the patient and at the same time select the minimally invasive one which has the high success rate and least trauma to the patient.

In the present case report, the the large periapical cyst like lesion were successfully treated using endodontic

treatment and metapex as intracanal medicament between the appointments. Aapproximately 70% of the cases with the periapical lesions, heal apparently within two years of the treatment.[11] Metapex, a silicone oil based calcium hydroxide paste containing 38% of the iodoform is a well known intracanal dressing. It contains silicone oil as a vehicle and has a pH below that which is said to be effective in killing Enterococcus feacalis. Oily vehicles are said to increase the antimicrobial effects of calcium hydroxide against Enterococcus feacalis and other bacteria.[12] The antimicrobial effects of calcium hydroxide is related to its high pH of 12.5 which is said to have a destructive effect on the cell membranes and protein structures.[13]

The advantage of performing non-surgical endodontic treatment with large periapical radiolucency is that it causes less psychological trauma and adds more comfort to the patient. The large periapical lesion in this case has completely resolved. The periapical tissues is said to have the regenerative potential, so the treatment should always directed towards the removal of the causative factor alone.

4. Conclusion

A non-surgical approach should always be an first option before attempting a surgery although it seems to be little time consuming. Regular change of metapex as intracanal dressing and root canal therapy has proven to be very beneficial in complete healing of the periapical lesion in this case.

5. Conflict of Interest

None.

6. Source of Funding

None.

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