



CASE STUDY

Management of Apical Periodontitis in Dental Clinic

Dr. Vishal Thakur^{1*} | Dr. Alvi Fatima² | Dr. Harees Shabir² | Dr. Puneet Kour³ | Dr. Madhvi Chauhan³ | Dr. Shivangi Sahi⁴ | Sachin Raina⁵

¹Dental surgeon (Ekdant Dental Clinic), H.P.

²MDS 3rd year, Pedodontics and Preventive Dentistry, Bhojia Dental College and Hospital, Baddi, H.P.

³MDS 2nd year, Pedodontics and Preventive Dentistry, Bhojia Dental College and Hospital, Baddi, H.P.

⁴Dental surgeon

⁵Intern, HIDS, Paonta Sahib, H.P.

Abstract

Apical periodontitis is an inflammation and destruction of peri-radicular tissues, with a clinical feature of mild pain or no pain to moderate to severe pain that couldn't be tolerated by the patient depending upon the type to AP from which patient is suffering from. Here in this article, we are going to describe briefly about the AP with its dental management in dental clinic. Although, it could not be possible to give confirmatory diagnosis for AP in every dental clinic because of lack of histopathological labs, but on the basis of clinical & radiographical findings we can go for the provisional diagnosis of AP and thus manage it accordingly depending upon the prognosis of the disease.

Keywords: Apical Periodontitis, Pain, Tenderness, AP

1 | INTRODUCTION

Apical periodontitis is an inflammation and destruction of peri-radicular tissues that occurs as a sequence of insult to dental pulp that can be either due to including infection or physical and iatrogenic trauma or following endodontic treatment & the damaging effects of root canal filling materials and so it is generally a sequel to endodontic infection (1). The prevalence of apical periodontitis increases with age by 50 years of age, 1 in 2 individuals will experience the disease and in individuals over 60 years old, the prevalence of apical periodontitis rises to 62% (2). The most common etiological cause in AP is the bacterial infection and the most commonly involved bacteria are *Streptococcus*, *Peptostreptococcus*, *Prevotella*, *Porphyromonas*, *Enterococcus*, *Campylobacter*, *Fusobacterium*, *Eubac-*

terium, *Fusobacterium*, *Centipeda*, *Veillonella*, etc. Bacteria that are involved in the pathogenesis of AP may have participated in the early stages of pulp inflammation and necrosis or they may have gained entry into the canal space any time after pulpal necrosis. Depending on several factors, AP can be either chronic or acute.

A chronic disease is usually associated with low virulence of bacterial count, in turn an acute infection is usually caused by a high virulence of bacterial

Supplementary information The online version of this article (<https://doi.org/10.15520/jcmro.v4i01.390>) contains supplementary material, which is available to authorized users.

Corresponding Author: Dr. Vishal Thakur
Dental surgeon (Ekdant Dental Clinic), H.P.
Email: doctorvishal10@gmail.com



count. Chronic apical periodontitis usually doesn't produce any clinical signs or symptoms; however, this chronic condition produces inflammation of the tissue surrounding the teeth and can cause the destruction of that tissue and the periapical tissue is sterile in most cases, even though microbes may be present in the root canal system (3). Sometimes symptoms may be minimal with mild pain or none at all.

The clinical symptoms of acute AP include –

- Tooth is tender on percussion, pain, negative or delayed vitality test, no swelling, pain on biting, cold may relieve pain or no reaction & heat may exacerbate pain or no reaction (4)
- The affected tooth is often having a large decay area, a filling or may be discolored due to a dead pulp in the tooth.
- The gum over the root of the affected tooth is red and sore.
- Sometimes connected with fever or body discomfort.
- with a moderate to severe intensity in pain.

Pain on percussion is the classical diagnostic feature of symptomatic acute apical periodontitis. The tooth is tender on percussion or slight pressure, whereas the mucosa overlying the root apex may or may not be tender to palpation. Radiographic changes in nonvital tooth are that there is a slight widening of the apical periodontal ligament space and loss of the apical lamina dura of the involved pulpless tooth may be seen but in case of vital tooth no radiographic changes seen in most cases that there are normal peri-radicular structures (3). Possible complications of acute apical periodontitis are pus or abscess formation, swelling of the lymph nodes on the face or neck or spread of the infection to other areas. The treatment of AP is periapical periodontitis is root canal procedure to minimize the inflammation and to sterilize root canals and surrounding apical area of tooth by irrigating the canals with disinfectants or antibacterial solutions. And if a patient has already had root canals and the inflammation seems to be

the result of a persistent infection or a new infection, a procedure called an apicoectomy might be needed in which the root tip of the tooth is surgically removed and it is the last resort to save the tooth. There may be some cases when the best treatment is to extract the tooth when either tooth is non-restorable or socio-economic status of the patient or limited access for performing root canal or when the endodontic prognosis of tooth is poor. In pharmacological management of AP use of antibiotics like penicillin, cephalosporins is commonly employed; whereas painkillers that can be prescribed are generally NSAIDs like PCM, ibuprofen, diclofenac or in combination like chymoral plus, etc.

2 | CASE PRESENTATION

Case 1 – A female patient aged 45 came to the clinic with a chief complaint of mobile crown portion in lower left tooth region after taking meals. On asking the dental history she had never gone to dental clinic before that. There were no extraoral presenting signs in that patient. On examining her intraorally, it was found that she had grossly decayed tooth in lower mandibular posterior region. The involved tooth was 36 with grossly decayed, on further evaluation there was very little tenderness to tooth otherwise normally she had no pain. There was also mild swelling apical to gum on palpitation apically w.r.t 36 on buccal surface. Also, she revealed in dental questionnaire that there is no sensitivity, no pain and that decayed portion was more than of 1 year and she never get any dental treatment for that. There was also calculus on all lower teeth with recession of gums in anterior teeth. The vitality tests were negative indicating non-vital pulp. After that, we took RVG w.r.t. 36 and there was interruption of lamia dura and peri radicular changes. On the above clinical & radiographical findings we came to the conclusion with a provisional diagnosis of asymptomatic (chronic) apical-periodontitis, although the confirmatory diagnosis can only be made after histopathological report. Also, the tooth having 3 roots in mandibular 1st molar instead of two & the term known as radix.

In the management of this CAP, the extraction of 36 was done in the same visit since the tooth was non-



FIGURE 1: Radiograph of the patient involving the tooth 36 (radix, peri-radicular changes in distal bone region, lamina dura or PDL changes can also be seen)

restorable with clinically separated mesial & distal roots and fractured crown portion too. On extracting the tooth there was also mild pus discharged along with distal root extraction. The socket was gently curettage and then irrigated after extracting the tooth with betadine antiseptic and she was prescribed with antibiotics i.e., cefpodoxime 200mg Bd & painkillers i.e., PCM 650 SOS for 3 days along with post-op instructions. She was also motivated to go for oral prophylaxis thereafter she came to clinic 2 weeks later and got her cleaning of oral cavity.



FIGURE 2: Extracted 36

Case 2 – A female patient aged 36 came to clinic with severe intermittent pain in lower tooth specially on biting for 5 days. She also told that she had a dental filling on same tooth a year ago, and 1 day after the pain raised, she went to clinic where she

was prescribed with doxycycline 100mg BD, brufen 400mg TDS and advised to extract the same tooth and so she came to our clinic for the second opinion. On taking history, she also told that one month ago she got a hypersensitivity for few days and there after the symptoms resolve and so she didn't go to the dentist that time. On dental examination, it was found that the tooth involved was 32 i.e., lower left lateral incisor. The pain associated with 32 was spontaneous in onset and she wasn't able to tolerate that pain intensity. There was severe pain to that tooth on percussion tests as well as soreness of gum was found in 32, 33 regions. Hot and cold vitality test were also negative indicating non-vital pulp w.r.t 32. Also, she had 4 unit of dental crowns w.r.t teeth 31, 41, 42, 43 ten years back and there was dental restoration in tooth 32 & 33 one year back. On taking dental x-ray it was found that there was PDL widening and peri-radicular bone changes in tooth 32.



FIGURE 3: PDL changes & peri-radicular changes in 32, filling in 32 radiographically.

NOTE- 31, 41, 42 also in chronically diseased state. On the above clinical and r/o findings it was concluded that she was suffering from acute AP w.r.t 32. Although, there were also peri-radicular changes in 31, 41 but those teeth were asymptomatic and our 1st aim was to relieve the pain of that patient. She was advised for non-surgical endodontic procedure rather to extract a tooth. The access opening and bio-mechanical preparation was done on same day with preparation of the canal with K-files up to 15no. with a working length of 21mm and then 4% endodontic cement files with master apical file of 30 number. The technique that was used in BMP was crown-down

technique. The irrigating media that were used for disinfection and lubrication of the canal was EDTA, 1.5% NaOCl and normal saline solution. Thereafter, canal was filled with chlorhexidine points with 25 no. with placement of temp filling material and patient was called after 1 week for follow-up.



FIGURE 4: Accessopening in 32 & BMP of the canal with 15no. K-file.

After a week, she said that the pain was gone on 3rd day after the endodontic procedure. And on that day the canal was obturated with calcium hydroxide based (sealapex) sealer and she was also advised to go the treatment of remaining asymptomatic teeth and came for follow-up after 6 months.

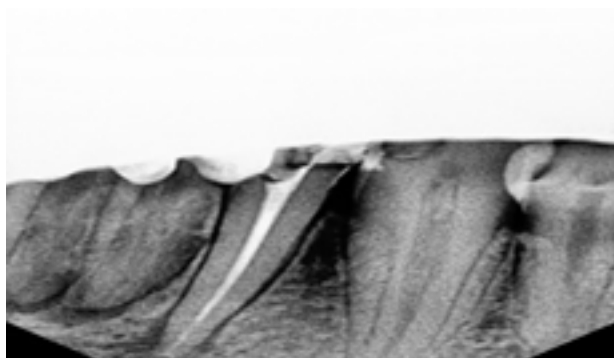


FIGURE 5: Obturated canal

Also, her left lower canine tooth was restored again properly with GIC. After 7 months of the procedure the patient was called for telephonic follow up as she didn't come for clinical follow up and for the management of other diseased teeth, but she said that she is absolutely fine with no pain or even no pain on biting.

3 | CONCLUSION

On the above two cases it can be concluded that proper history taking and dental examination is important to distinguish between CAP & AAP. The management of the AP depends upon whether that tooth can be restored or not, also management depends upon patient that either he is willing to save tooth or is he having a good oral condition that are very important in success rate of the endodontic procedures or otherwise it is better to remove that tooth. Sometimes medical conditions also change the treatment plan or sometimes clinician knowledge & clinical analysis or clinical skills also decides the rate of success of endodontic procedures or to opt out which treatment plan will be better for the patient. Overall, patient's oral health awareness is also important factor in better management of dental problems either it may be mild caries or AP or abscess, patient should be aware that a mild ignorance to your oral health can lead them to suffer a condition like AP or if further ignored may lead to dentoalveolar abscess or cellulitis. As in case 1 patient ignorance to her decayed tooth and her poor oral hygiene leads to the condition like CAP with removal of her tooth that could be saved if she had visited to dental clinic timely.

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How to cite this article: Thakur D.V., Fatima D.A., Shabir D.H., Kour D.P., Chauhan D.M., Sahi D.S., Raina S. **Management of Apical Periodontitis in Dental Clinic.** Journal of Current Medical Research and Opinion. 2021;751–754. <https://doi.org/10.15520/jcmro.v4i01.390>