



Research Paper

## Non-Surgical Triumph: 8-Month Follow-Up on Managing a Large Periapical Abscess - A Case Report.

Dr. Kalpna Chaudhry, (Head Of Department)

Dr. Pooja Panwar, (Postgraduate student)

Dr Nitin Khanduri, (Professor)

Seema Dental College and Hospital, Rishikesh

### ABSTRACT

This case report presents a successful non-surgical management of a large periapical abscess with the use of combination of various conservative techniques. A 10 year-old female patient with large periapical abscess in lower left first permanent molar was treated with non- surgical endodontic treatment. Clinical and radiographic follow-ups over an 8-month period, revealed resolution of symptoms and significant reduction in periapical radiolucency.

Received 01 Oct., 2024; Revised 07 Oct., 2024; Accepted 09 Oct., 2024 © The author(s) 2024.

Published with open access at [www.questjournals.org](http://www.questjournals.org)

### I. INTRODUCTION

The necrotic dental pulp occurs as a result of infection of dental pulp that may occur as a consequence of dental caries. It mainly consists of a biofilm which is mostly anaerobic bacterial flora.<sup>[1]</sup> These can cause pulpal necrosis which stimulate an immune response in the periapical region leading to a periapical lesion. Conventionally, the management of large periapical abscesses often involves surgical intervention, such as apicectomy, periapical surgery or extraction of the affected tooth. However, non-surgical approaches utilizing intracanal medicaments like premixed calcium hydroxide-based root canal material, Triple antibiotic pastes and Mineral trioxide aggregate have shown promising results in certain cases.

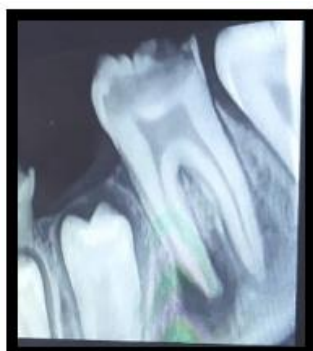
### CASE REPORT

A 10-year-old female patient reported to the outpatient department of Pediatric and Preventive Dentistry, Seema Dental College and Hospital, Rishikesh Uttarakhand with the chief complaint of pain and swelling in lower left back tooth region. Pain was spontaneous, dull, aching, nocturnal and continuous. Clinical examination revealed tenderness to percussion and palpation associated with tooth 36. Radiographic evaluation using periapical radiographs revealed a large periapical radiolucency (1.8c.m.×2c.m.) extending beyond the apex of the affected tooth, indicative of a periapical abscess (Fig.1). Based on clinical and radiographic findings, a diagnosis of symptomatic apical periodontitis with a large periapical abscess was established.

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 her informed consent was obtained from parents. In the first appointment after administration of inferior alveolar nerve block to the affected side emergency access to the root canal system was gained under rubber dam isolation, and all the carious part was removed. Canal instrumentation was performed using nickel-titanium rotary files under copious irrigation with saline, 5.27 % sodium hypochlorite, chlorhexidine and betadine. Working length was determined and access was gained beyond apex to maintain the patency of the canal and to facilitate the intracanal medicament reach into the periapical area ( Fig 2). After vigorous and copious irrigation the patient was asked to sit for 15 minutes in the waiting area with a cotton loosely placed in the access cavity to allow the pus drainage.. After 15 minutes again rubber dam was placed and canals were again irrigated. Canals were then filled with triple antibiotic paste (ciprofloxacin, metronidazole and minocycline) using a lentulo spiral and the cavity was filled with zinc oxide eugenol restoration. Antibiotic regime was advised for 5 days. Patient was recalled after 1 week and the temporary restoration was removed followed by copious and vigorous irrigation

again with different irrigating solutions. The biomechanical preparation was finished and the canals were then filled with calcium hydroxide and iodoform paste (Metapex)<sup>TM</sup> as an antibacterial intracanal medicament. The medicament was inserted beyond the apex to fill the abscess cavity (Fig 3).

After 2 months, the radiograph was taken and it revealed reduction in radiolucency (Fig 4). The old dressing was flushed with irrigating solution and replaced again. Subsequent replacement of medicament was done in every 2 months followed for 6 months. After 6 months the apex was closed with mineral trioxide aggregate followed by the obturation with gutta percha using lateral condensation technique (Fig 5). At 8<sup>th</sup> month follow up, no periapical radiolucency was seen, patient had no pain and discomfort, and finally stainless steel crown was placed wrt 36. The radiographic findings showed complete resolution of periapical radiolucency with intact lamina dura and evidence of bone healing (Fig 6).



**FIGURE 1: Pre-operative image of large periapical lesion wrt 36**



**FIGURE 2: Working length determination beyond apex**



**FIGURE 3: First intracanal dressing with Metapex<sup>TM</sup> in 36**



**FIGURE 4: Second intracanal dressing with Metapex<sup>TM</sup>**



**FIGURE 5: Post obturation in 36**



**FIGURE 6: Stainless steel crown placement wrt 36**

## II. DISCUSSION

In managing periapical lesions, various non-surgical methods are often employed before considering surgical interventions. Non-surgical approaches typically include: conventional endodontic treatment (root canal therapy), lesion sterilization and repair (LSTR), apexum procedure etc.<sup>[2]</sup>

Surgical intervention, recommended only when nonsurgical approaches fail<sup>[3]</sup>. Numerous studies have demonstrated success rates of up to 85% following endodontic treatment of teeth with periapical lesions.<sup>[4]</sup>

We initially applied triple antibiotic paste for 7 days as Lesion Sterilisation and Repair method. In a study by Taneja S et al<sup>[5]</sup>, three case reports were discussed where nonsurgical endodontic treatment was performed on teeth with large periradicular lesions and all three cases demonstrated progressive healing of the periradicular lesions. Dhillon J S et al<sup>[6]</sup>, stated that a patient with a large periapical lesion underwent non-surgical treatment using intracanal aspiration and triple antibiotic paste and complete periapical healing was documented at the 24-month follow-up in their case. Ghorpade TM et al<sup>[7]</sup> also suggested that use of TAP for lesion sterilization can be a suitable alternative treatment to salvage a tooth with a poor prognosis. Reddy GA<sup>[8]</sup> et al proved the efficiency of TAP in endodontic treatment of infected primary teeth treated with 3MIX-MP (mixture of metronidazole, ciprofloxacin, and minocycline) followed by instrumentation and obturation provided an excellent success. Gupta

P et al <sup>[9]</sup> has reported a clinical case that showed a large periapical lesion which was healed after 6 months with non-surgical approach using Metapex™ as an intracanal medicament.

In our case Radiographic evaluation after 8 months revealed evidence of resolution of periapical radiolucency and bone healing characterized by increased density, trabecular reconstruction, formation of lamina dura.

Based on above finding, a combination of medicaments and various non surgical techniques can be combined to be the best option to treat any kind of periapical lesion specially in case of children. Further investigations and extended follow-up studies are essential to substantiate the effectiveness and long-term results of this therapeutic approach.

**Why this paper is important to paediatric dentists :**

- Periapical abscess are very common in children
- If left untreated may lead to loss of a tooth.
- We can treat periapical lesions by combining various conservative techniques thus avoiding surgical trauma in case of young children.

**REFERENCES:**

- [1]. Sundqvist G. Taxonomy, ecology, and pathogenicity of the root canal flora. *Oral Surg Oral Med Oral Pathol.* 1994;78(4):522–30.
- [2]. Fernandes M, Ataide I. Nonsurgical management of periapical lesions. *J Conserv Dent* 2010;13(4):240.
- [3]. Alghamdi F, Alhaddad AJ, Abuzinadah S. Healing of Periapical Lesions After Surgical Endodontic Retreatment: A Systematic Review. *Cureus.* 2020 Feb 7;12(2):e6916.
- [4]. Obada DN. Nanosurgical treatment for anterior teeth with large periapical lesion. *Oral Health and Dental Management.*2018.
- [5]. Taneja S, Kumari M, Parkash H. Nonsurgical healing of large periradicular lesions using a triple antibiotic paste: A case series. *Contemporary clinical dentistry.* 2010 Jan 1;1(1):31-5.
- [6]. Dhillon JS, Saini SK, Bedi HS, Ratol SS, Gill B. Healing of a large periapical lesion using triple antibiotic paste and intracanal aspiration in nonsurgical endodontic retreatment. *Indian Journal of Dentistry.* 2014 Jul;5(3):161.
- [7]. Ghorpade TM, Katge FA, Poojari MS, Shetty SK, Deshpande SS, Jain RN. Success Rate of Triple Antibiotic Paste for Lesion Sterilization and Tissue Repair Therapy in Primary Molars: A Systematic Review. *World Journal of Dentistry.* 2024 Jan 31;14:1112-8.
- [8]. Reddy GA, Sridevi E, Sankar AS, Pranitha K, Gowd MP, Vinay C. Endodontic treatment of chronically infected primary teeth using triple antibiotic paste: An in vivo study. *Journal of Conservative Dentistry and Endodontics.* 2017 Nov 1;20(6):405-10.
- [9]. Gupta P, Koul MV, Yaqoob A, Singh S, Ansari F. Non-surgical management of a periapical lesion with Metapex as an intracanal medicament: A case report with 6 months follow up. *Journal of Advanced Medical and Dental Sciences Research.* 2022 Jul 1;10(7):44-6.