

# Treatment of Acute Apical Abscess in Diabetic Patient by Single Visit Endodontics- A Case Report

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## Case Report

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## Abstract

The aim of the case report is to describe the effectiveness and success of single visit endodontics in apical abscess in patient suffering from diabetes. Infected non vital tooth was treated with single visit endodontic and the abscess was drained in the same visit. The patient was kept on follow up and the lesion showed good prognosis and was healed with in the period of 3 months although the patient was diabetic.

**Keywords:** Acute apical abscess; Single visit RCT; Diabetes mellitus

## Introduction

Conventional endodontic treatment used to require multiple visits, but some clinicians have suggested that single-visit endodontic treatment is considered superior as compared to conventional endodontic treatment. Both types of treatments have their advantages and disadvantages [1]. Nowadays, root canal therapy has become increasingly automated and can be performed more quickly, so some clinicians are incorporating single-visit endodontics into their own clinic routine as a main component of contemporary practice. On the other hand, some dentists believe that the traditional multiple-visit protocol has a long history and a high clinical success rate, preferring to provide multiple-visit endodontic treatment to their patients. Acute peri-apical abscess is one of the acute emergencies in endodontics due to an infected or non-vital tooth. In order to treat such emergencies, several regimens have been designed and implemented to conclude the best possible treatment. The cardinal rule

for managing all these infections is to achieve drainage and remove the source of the infection [2,3]. Eradication of infection can be done either by incision of the fluctuant soft tissue swelling and drainage with antibiotic cover or by draining the infection through the canal space which also helps in combating the intra-radicular infection, preventing recurrence. This case report shows significant results both clinically and radiographically in treating acute apical abscess by single visit endodontic procedure.

## Case Report

A 47 years old female reported to dental department SZABMU/PIMS Hospital Islamabad in July 2016 with the chief complaint of pain and swelling in lower left posterior tooth. The pain was moderate, localized and was aggravated while taking food and touching the tooth. The pain was relieved by taking antibiotics and analgesics. On taking medical history we found that the patient was diabetic since 3 years and her fasting blood

sugar remained between 150 -200mg\dl. On extra oral examination no abnormality was seen. Intraoral and radiographic examination revealed a periapical abscess of 3mm beneath the lower left 2nd premolar on buccal side. The tooth was carious distally with pulpal exposure as shown in (Figure 1). After proper examination and evaluation it was diagnosed as irreversible pulpitis with acute apical abscess. After diagnosis the endodontic treatment was planned. Access opening was done with proper pulpectomy and irrigation. The abscess was drained buccally. Maximum drainage of pus was achieved by compressing the swelling followed by copious irrigation with saline. After taking working length the canal preparation was done using proTaper rotary endodontic system and was prepared till the F2 file of the system. Between filing, copious irrigation of root canal was done with 5.25 % sodium hypochlorite. Canals were obturated with guttapercha cones using eugenol based sealer and then the cavity was filled with amalgam (Figure 2). Antibiotics and pain killers were prescribed to the patient for 5days. The patient was recalled after one week for follow up. The pain was completely cured, clinically abscess was healed and radiographically apical radiolucency was also reduced. Successive follow ups after 2 weeks, 1month, 2months and 3 months were carried out showing considerable bone healing radiographically (Figure 3).



Figure 1: Showing pre-operative clinical and radiographic picture.



Figure 2: Showing immediate post-operative picture. Marked radiolucency visible in periapical area.



Figure 3: At 3 months follow up. Bone healing is evident radiographically and normal healing clinically.

## Discussion

Apical periodontitis is an inflammatory response in the periapical tissues against a bacterial infection in the root canals of a tooth and also cause destruction of the surrounding bone. Acute presentation of apical periodontitis is a frequent occurrence in the endodontic practice and the purpose of the emergency treatment in these patients is to reduce the pain to an acceptable level as efficient as possible. A number of studies have been made to find the best, urgent and most cost effective emergency treatment options for acute symptoms which include removal of the inflamed tissue in the pulp chamber, complete disinfection of the root canal system and systemic antibiotic treatment alone or in combination with other treatments. These treatments are performed either in a single appointment or in multiple visits [4]. The key to endodontic success was described by Gutmann [5] the debridement and neutralization of any tissue, bacteria, or inflammatory products within the root canal system [5]. Surveys found many general dentists and endodontists preferred to perform root canal treatment in a conventional way, i.e., multiple visits [6,7]. Both single visit and multiple visit endodontic treatments have its own advantages and disadvantages. However, a meta-analysis found no significant difference in postoperative complications between single-visit and multiple-visit endodontic treatments [1]. The advantage of doing single visit endodontic treatment in the present case is the reduction of chair time without reduction in the quality of treatment and also to avoid the problems associated with intra canal medicament which works efficiently when present in direct contact with the microorganisms. *E. faecalis* is the most resistant bacterium against calcium hydroxide [8] while sodium hypochlorite is effective against it in both buffered and unbuffered states [9]. Therefore, in the present study sodium hypochlorite was used to disinfect canals. Additional advantages of single visit endodontic treatment are also obvious. The patient is not disturbed

by additional anesthetic injections, the replacement of the rubber dam, the time spent by the clinician in refreshing his memory and tactile sensations regarding prepared canal anatomy, tooth lengths, the problem of inter-visit leakage, loss of temporary seal, and no risk of flare-up induced by leakage of the temporary seal between appointments. These days it is considered a better option to do single visit endo in such cases and disinfect the canals with copious irrigation of 5.25% sodium hypochlorite and sealing the canals resulting in better peri-apical healing and better treatment outcome. A successful clinical outcome is commonly as absence of signs and symptoms and no radiological evidence of periapical pathology [10].

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