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Endodontic Management of Acute Apical Abscess: A Case Report

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Abstract

Acute apical abscess is an inflammatory reaction to infection that may spread to extra-oral tissues. Knowledge of its clinical management is of utmost importance. This article describes the case of an 17-year-old girl who was referred to the Department of Endodontics The patient complained of pain and progressive swelling in the left cheek region. The clinical diagnosis was acute apical abscess and a root canal treatment was performed. Follow-up appointments were done at 1 month and 9 months.

Keywords- Acute apical abscess, systemic antibiotic, endodontic treatment, clinical outcome

Introduction

One of the acute emergencies in endodontics is acute periapical abscess due to an infected or non-vital tooth. Various treatment protocols and regimens have been discussed and suggested by the clinician on the basis of clinical results. The cardinal rule for management of these infections is to achieve drainage and eradicate the source of the infection.¹

Acute apical abscess (AAA) is defined as "an inflammatory reaction to pulpal infection and necrosis

characterized by rapid onset, spontaneous pain, tenderness of pressure, pus formation and swelling of associated tissues". This disease is formed when infection contacts the periapical tissues through the apical foramen and an acute inflammatory response is induced followed by pus formation. 2

AAA is considered one of the most common causes of dental emergency. Tissue damage in this condition depends on the bacterial counts, virulence factors and host response.

Since root canals are not completely cleaned during the instrumentation of the canals, still resolution of abscesses has been reported with these procedures.³ In addition, the use of systemic antibiotics may be useful in the clinical management of these infections. Cleaning and shaping are paramount to success regardless of drainage, because bacteria remaining within the root canal system compromises the resolution of the acute condition. Copious irrigation should be performed throughout the cleaning and shaping of the canal.⁴

The purpose of this article was to describe the endodontic management of an Acute Apical Abscess in an 17-yearold girl. The patient presented inflammation of extra-oral

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tissues and was referred to the Department of Endodontics.

Case Report

A 17-year-old girl was referred to the Department of Endodontics. The patient had a chief complaint of pain and swelling on the left side of the face. Facial asymmetry in the left cheek region was observed (Figure 1A). On clinical examination there exists pain on percussion and the tooth was non-responsive to the pulp vitality test (figure 2). On radiographic examination tooth revealed periapical radiolucency (Figure 3). The clinical diagnosis was acute apical abscess and an endodontic treatment was indicated.

After administration of local anesthesia, the tooth was isolated with rubber dam. The access cavity preparation was done using endo access bur. The working length was determined using an apex locator with K-files and confirmed radiographically (figure 4). During chemomechanical preparation there was no drainage of pus through the canals. Irrigation was performed with 2.5% sodium hypochlorite (NaOCl) at 2 mm from the Working Length. Calcium hydroxide was placed as an intracanal medicament. The tooth was coronally sealed with IRM (Dentsply International, Milford, DE) and Amoxicillin 500 mg was prescribed. After two days, a clinical examination appointment was done. A decrease in inflammation and symptomatology was noted.

At the second treatment appointment (fifteen days after the first visit), the patient was asymptomatic and a significant decrease in facial inflammation was observed (Figure 1C). The canals were irrigated with 2.5% NaOCl and obturated with AH plus (Dentsply DeTrey GmbH, Konstanz, Germany) and gutta-percha (Figure 5). A permanent restoration was indicated. Follow-up appointments were performed at 1 month and 9 months (Figure 6). In addition, radiographic examination revealed absence of periapical radiolucency at 9 months after endodontic treatment (Figure 7,8).



Figure 1 & 2 : Showing Facial asymmetry in the left cheek region and intra-oral abcess respectively.



Figure (3), (4), (5), (6): Showing periapical radiolucency, Determination of working length, Master cone Placement and 9 months follow up respectively.



Figure (7), (8): Showing the resolution of the lesion Discussion

In this article, the clinical management of an Acute Apical Abscess was performed by endodontic treatment in conjunction with the systemic administration of amoxicillin. Systemic antibiotics are not generally used in apical abscesses.⁵ However, these drugs may be indicated in cases of abscesses associated with systemic involvement, disseminated infections resulting in cellulitis, progressive diffuse inflammation and in some medically compromised patients.⁶ Also analgesics may be prescribed for pain management.⁷

Most bacteria involved in endodontic infections are susceptible to penicillins. Amoxicillin is semisynthetic penicillin with a broad antibacterial spectrum and may provide a rapid improvement in pain and swelling.⁸ In more complicated cases of Acute Apical Abscess, amoxicillin in conjunction with clavulanic acid or metronidazole may be necessary to achieve an effective antibacterial effect.⁹

The management of Acute Apical Abscess in addition to endodontic treatments includes surgical drainage and/or extraction of the involved tooth.¹⁰ Patient may feel relief from pain due to the decrease in periradicular acute inflammation, when there is drainage of pus is achieved.¹¹ In the clinical management of Acute Apical Abscess, proper knowledge of root anatomical variations also plays an important role during endodontic procedures.¹² Furthermore, intracanal medicaments may be indicated for their antibacterial properties.¹³

Conclusion

In the present case report, the regression of Acute Apical Absceaa was achieved by endodontic treatment in conjunction with a systemic antibiotic. The patient was asymptomatic at follow-up appointments. At 9th months, radiographic examination revealed absence of periapical radiolucency.

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