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Acute Apical Abscess Treatment with an Iranian Folk Remedy: A Case Report

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Authors' contributions

This work was carried out in collaboration between both authors. Author MB has drafted the manuscript and finalized it. Author SG has checked the text technically and approved the draft version. Both authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Background: There are only a few treatment approaches for periapical abscess as a prevalent complication and as the most common type of dental abscess. Drainage and/or antibiotic therapy is the first step to treat this infection, depending on its severity and symptoms.

Case Presentation: Amoxicillin/clavulanate (TID for 3 days), clindamycin (QID for 3 days), and a single local dose of an Iranian home remedy called metmeto, a mixture of toasted flour and ghee covered with a sterile piece of cotton fabric-, were respectively prescribed, for a 32-year-old male patient with a spreading periapical abscess. The first two antibiotics were not able to mitigate the symptoms (pain, inflammation, infection, etc.), while the abscess disappeared remarkably the morning after using a single dose of metmeto "as a dressing" for 6 hours. To eliminate the possible risk of recurrence, the patient underwent an endodontic retreatment after 2 weeks.

Conclusion: Some folk home remedies such as metmeto can be considered for treatment of dental problems as noninvasive and safe choices. Further studies are necessary to conclude a causal association.

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1. BACKGROUND

Periapical abscess as the most common type of dental abscess is a collection of pus at the root apex of a tooth. The endodontic infection (acute apical abscess) is the most dramatic symptomatic form of periapical abscess, and is mostly characterized by severe pain and swelling. The infection and inflammation are usually localized, but in some cases, apical abscess spreads from the affected tooth area to the surrounding tissues and results in complications, including systemic symptoms such as fever, adenopathy, malaise, etc. It is noteworthy that acute apical abscess (AAA) develops only in root canals of teeth without a vital pulp, and in most cases, the involved tooth is extremely sensitive to percussion [1-3]. Almost 60% of all non-traumatic dental emergencies are associated with AAA and apical toothaches [4].

Treatment of AAA includes incision for drainage and root canal treatment or extraction of the involved tooth to remove the source of infection. Adjunctive systemic antibiotics are not necessary in most cases of localized and uncomplicated apical abscesses. Analgesics may be prescribed to reduce pain [2,5]. Therefore, in complicated cases, in addition to prompting and performing aggressive surgical drainage for the treatment, initiation of empirical therapy with antibiotics is highly recommended [2,6,7]. Accordingly, the combination of early diagnosis, initiation of empirical antibiotic therapy, and timely surgical intervention can be regarded as a decisive triad for a successful treatment of AAA [7].

In the present study, periapical abscess was diagnosed in a 32-year-old male patient during COVID-19 pandemic. Since there was no access to appropriate equipment and environment to operate an incision and because culture-dependent antimicrobial tests of anaerobic bacteria may take too long to provide results of antibiotic susceptibility [2], empirical antibiotic therapy and an Iranian folk medicine were considered for treatment of the infection, respectively.

2. CASE PRESENTATION

On March 20th, 2020, a 32-year-old male patient complaining of a sharp pain in the left side of his mandible originating from one of his mandibular molars called his dentist. As he declared, his left

mandibular first molar tooth was sensitive to percussion, and a bulged-out scab on the buccal side of gingiva without any discharge had developed (Fig. 1). The patient had an aggravating toothache, especially during mastication for 3 days, at the first call. He did not feel relieved taking ibuprofen, mefenamic acid, and celecoxib. A root canal therapy had been performed on the affected tooth four years earlier.

Because of COVID-19 pandemic and lack of access to appropriate endodontic operation environment, he was advised to start taking amoxicillin/clavulanate (500/125 mg) three times a day in conjunction with ibuprofen 400 mg, as needed.

The patient called after 3 days and revealed that the scab size had developed and his pain had become more severe. Accordingly, clindamycin 300 mg four times a day and voltaren[®] (75 mg sustained release diclofenac sodium tablet) twice a day were administered.

The patient called again after 3 days with asymmetrical swelling of the mandible (Fig. 2) and with no improvement in the symptoms. The analgesic (voltaren[®]) was effective only for 3-4 hours, as the case stated.

After obtaining a verbal informed consent, a single dose of an Iranian folk remedy called metmeto was locally administered to the patient. Metmeto is a mixture of toasted flour and ghee covered with a sterile cotton fabric. This remedy has been used among people of the Bakhtiari tribe in Iran for many decades [8]. The patient was advised to put metmeto between his upper and lower molars for the whole night while he was sleep.

The patient woke up the next morning without complaining of pain. The inflammation of the lymph nodes and the abscess had subsided significantly (Fig. 3).

After 2 weeks, the patient underwent an endodontic retreatment to eliminate the risk of recurrence.

3. DISCUSSION AND CONCLUSION

Clinical symptoms of AAA usually include sharp pain in the facial area, tenderness to percussion, pus formation, swelling of the surrounding

tissues, and lymphadenopathy [8]. The recommended intervention in patients with AAA is root canal treatment of the affected tooth, possibly after drainage or antibiotic therapy. There are several complications associated with invasive treatment (incision), such as swelling, pain, bleeding, etc. The antibiotic therapy may fail to treat the infection due to possible antibiotic resistance [9].

In Iranian medicinal remedies to cure AAA, several components have been reported as "Jazeb", i.e. adsorbent, which drain pus and moisture [10]. For instance, in a case report of AAA published in 2017, Mosaffa-Jahromi et al. believed that oregano (*Origanum majorana*) as a commonly used medicinal herb in Iranian medicine acted as an adsorbent agent, which was able to aspirate the pus into the surface,

through a fistula. It is unfortunate that they did not demonstrate the potential mechanism of action of this remedy [10].

To the best of our knowledge, there is no other published study about the effect of adsorbent agents on dental abscess.

To sum up briefly, it is worth mentioning that wheat flour is composed primarily of starch, protein, and lipid. Starch as the most abundant component can be broken down into glucose by salivary amylase. In addition, starch can absorb up to about 40% water of its original mass, and swell [11-14]. Interestingly, in this case, it appears that metmeto might be a potent adsorbent collecting water along with germs via the gap between the amalgam mass and the tooth tissue.



Fig. 1. Acute apical abscess of the left mandibular first molar (day 3)



Fig. 2. Lymphadenopathy and asymmetrical swelling of the mandible (day 6)



Fig. 3. A red spot left in the abscess area, on the morning after using metmeto (day 7)

We could not find any justification for the role of ghee in this formulation. It is necessary to perform further studies to ensure the efficiency of this intervention more precisely.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT AND ETHICAL APPROVAL

Because the identities of the involved individuals are concealed, ethics approval for this particular case report was not required.

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We want to appreciate our mothers.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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