Odontogenic cutaneous sinus tract: Case report

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ABSTRACT

Introduction: Odontogenic sinus tracts are canals originated from dental inflammation and which drain into the orofacial and neck region. One of the most common causes of odontogenic sinus tract formation is the presence of cavities or dental trauma, with bacterial invasion in the pulp tissue and subsequent pulp necrosis. **Objective:** To report the clinical history of a patient who attended the UESB College of Dentistry presenting an odontogenic cutaneous sinus tract. **Case report:** A 47-year-old woman presented herself to the service of endodontics of UESB College of Dentistry complaining of an extraoral sinus tract on the left side of her face. After appointments with otolaryngologists, ophthalmologists and other physicians, the patient sought dental care. Periapical radiographs revealed carious lesions in the left lateral incisor, with the presence of periapical pathology. Endodontic treatment was proposed and performed in a single session. **Results:** Three days later, the sinus tract had regressed and there was only a scar on the site, due to tissue retraction for closing the opening hole of the lesion. Two months later, a radiographic examination showed bone formation in the apical region of the tooth and no pathology. **Conclusion:** Knowing this condition proves to be of paramount importance for dentists and physicians to correctly conduct the diagnosis and treatment of the disease.

Keywords: Cutaneous sinus tract. Diagnostic services. Endodontics.

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Introduction

The odontogenic sinus tract is a canal originated from dental inflammation and which drains into the orofacial and neck region. They are usually misdiagnosed and in many cases treatment is not appropriate, in which case it is extremely important to know about its etiology.[1,2,3]

One of the most common causes of odontogenic sinus tracts is the presence of caries or dental trauma, with bacterial invasion of the pulp tissue and subsequent pulp necrosis.[4,5] This microbially induced inflammation can penetrate the alveolar bone and spread itself throughout the path of least resistance, causing apical periodontitis.[4] The inflammatory process can reach the surrounding soft tissues and form a path for drainage, thus forming the sinus tract.

The site of extraoral drainage depends on the affected tooth, as well as on specific factors such as the virulence of the microorganism, resistance of the patient's body and the relationship between anatomy and muscle facial attachments.[3,6,7,8] The dental elements mostly associated with cutaneous sinus tract are the third molars, followed by maxillary third molars and maxillary canines.[1,7,9] The areas most commonly affected are the chin and the submental region, other areas include the cheeks, nasolabial folds and the inner corner of the eyes.[4,6,7,10]

The aim of this study is to present the report of an odontogenic sinus tract case, showing the etiology of the disease, the difficulties in establishing an exact diagnosis and the correct procedures, all of which should be followed by health care professionals for the remission of the problem.

Case report

A 47-year-old female patient presented herself to the College of Dentistry UESB complaining of discomfort. The patient presented an extra-oral sinus tract in the left region of her face, with an approximate size of 5 mm x 5 mm, near the bridge of the nose and positioned over the nasofacial groove (Fig 1A). During the interview, the patient reported that the sinus tract had appeared 4 years before and several treatment attempts had been made. The medical history did not include two facial traumas in the same region of the face, one of them had occurred 30 years before and the other 10 years before, with no apparent dental complications.

The patient reported that she sought care for the first time in 2007, with symptoms of headache and itchiness in the tooth. At that time, the doctor suggested that it was sinusitis. Not satisfied with the diagnosis, she sought a second medical opinion with an otolaryngologist who suggested that the lachrymal duct had broken out because of the sinusitis, thus forming the sinus tract. The doctor did not consider the possibility of it being a dermatological problem and confirmed the need for surgery of the lachrymal duct.

One month after the appointment, the patient gave up the surgery and decided to seek other treatments. To control the drainage of pus, she made use of corticosteroid and antibiotics. At that time, there was swelling on the left side of her face and lips, with a purplish color, but the sinus tract always presented the same size. She felt no pain, unless when pressing the site.

Nearly four years after her last appointment, the patient sought dental treatment, reporting itchiness in the tooth. The dentist asked for a panoramic radiograph and diagnosed a sinus tract associated with a tooth. However, the professional extracted a tooth that was not part of the context of the sinus tract. After that, the patient sought treatment at the UESB, looking for a solution for her problem. A radiographic examination revealed periapical lesion associated with #22 tooth (Fig 1B), while a periodontal examination revealed the absence of periodontal pockets, with no possibility of verifying the mobility of the element. Endodontic treatment for the #22 tooth was proposed to the patient, and it was conducted during a single session (Fig 1C). Three days after endodontic treatment, it was possible to see the healing of the sinus tract and the absence of pus (Fig 2A).

At the follow-up appointment, 60 days after endodontic treatment, she no longer complained of discomfort. Only a small tissue contraction was noticed in her face, particularly due to the closing of the sinus tract (Fig 2B). The follow-up radiograph demonstrated an area of tissue repair (Fig 2C). New return visits will be conducted every six months for a period of two years.

Discussion

A dermal sinus tract can be quickly established within a few weeks or as late as 30 years. They are usually caused by apical periodontitis associated with dental cavity.[6] The apical periodontitis, described as

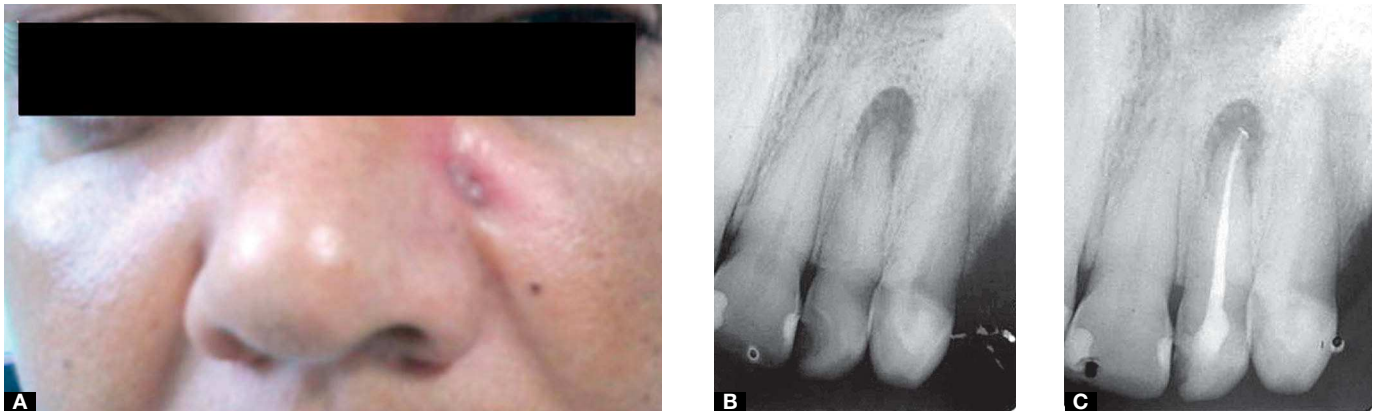

Figure 1. Patient during first appointment. **A**) Location and aspect of the cutaneous sinus tract. **B**) Initial radiograph showing periapical lesion associated with tooth #22. **C**) Final radiograph after root canal obturation.

Figure 2. Patient after endodontic intervention. **A**) Clinical aspect of the sinus tract three days after endodontic treatment. **B**) Clinical aspect of the region 60 days after endodontic treatment. **C**) Follow-up radiograph.

chronic periapical abscess, is characterized by slow and gradual drainage through a sinus tract, intraoral and extra-oral, and without painful symptoms.[11]

An extraoral sinus tract of dental origin can be confused with a variety of diseases, and some authors[1,3,7,8,10,12] include local skin infections, fungal and bacterial infections, ingrown hair, occlusion of the sweat gland duct, traumas, osteomyelitis, neoplasms, carcinoma, tuberculosis, actinomycosis, tertiary syphilis, infected cyst, presence of foreign bodies, pyogenic granuloma. Delays in establishing a correct diagnosis, due to the variety of the situations presented, may lead patients to undergo unnecessary surgeries and treatments. Intraoral and dental examinations are indispensable for the diagnosis. The examiner should assess the presence of cavity, oral hygiene, restorations or identify the presence of periodontal disease, keeping in mind that the affected tooth can look apparently normal.[1,10,13] An effective method to determine if the sinus tract is of dental origin is through the use of a clean gutta-percha cone which, when inserted into the opening of the lesion, goes through the sinus tract path until it reaches its origin (generally, unhealthy teeth)[4,10,12] discovering the cause of the infection and helping in the final diagnosis.[7] In this report, a pulp vitality test was conducted, and the answer was negative for the cold. This method will also help the professional to complement his information for diagnostic decision. However, one must take into consideration the false positives and the several false negatives of these tests, and associating this test with other diagnostic tests.[3]

Panoramic radiographs can be useful for initial triage of cases with suspected dental pathology. Intraoral periapical radiographs, however, are more useful for specific diagnosis, because they provide more details of the teeth and associated structures.[8,12]

Surgical extraction is one of the treatments of choice, provided that the affected tooth has no possibilities of receiving endodontic treatment. Studies indicate that after eliminating the source of infection, either with root canal treatment or extraction, the time of spontaneous closure of the sinus tract should be from 7 to 14 days.[3,7,10,12,13] Endodontics is the first option of treatment which, after root canal obturation, requires a clinic and radiographic follow-up of more than two years in order to assess the process of complete healing.[11] Some studies[15,16] demonstrate the clinical advantages of performing endodontic treatment during one single session.

In the reported case, this therapy was chosen due to patient's favorable health state, the technology used (apex locators and rotary instruments) and the chlorhexidine medication used as an antiseptic agent to facilitate decontamination of root canals during preparation, and of which effectiveness in this process has already been proved in some studies.[17,18] Such studies[19,20] report that, regardless of the pulpal or periapical pathological stage, final obturation could be performed provided that the canals were conically shaped, the patient was asymptomatic and there was time available. It is worth noting that the patient had been affected by the disease for a long period of time, therefore, it would not be satisfactory to slow down the completion of treatment by exchanging intracanal curatives and medication and keeping the tooth with temporary filling, thus, limiting its function in the oral cavity. In this study, regression in the sinus tract could be observed 3 days after endodontic treatment. Some studies have reported the formation of scar tissue after healing and suggest the need for skin cosmetic treatment for esthetic reasons, especially when the healing area of the sinus tract results in skin retraction or dimpling.[6,14]

On a return visit, 30 days after finishing the root canal treatment, the patient presented only a small scar, as a result of tissue retraction for sinus tract closure.

A multidisciplinary interaction is very important to prevent the patient from being subjected to unnecessary treatments, antibiotics or surgical procedures before performing endodontic treatment or definitive surgical extraction.[1] Even when dental symptoms are absent, health professionals should always consult dentists in order to rule out the dental origin of the sinus tract, expanding the possibility of achieving a successful treatment.

Conclusion

According to the present case report we can conclude that:

- Performing a correct diagnosis as soon as possible prevents the patient from being subjected to inadequate and ineffective surgery and antibiotic treatment.
- Sinus tract of dental origin should be considered for face and neck.
- Root canal therapy is the treatment of choice for these cases.
- Monitoring the patients is necessary until complete healing of the disease.

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