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Case Report / Olgu Sunumu

Iatrogenic Cutaneous Sinus Tract of Dental Origin: Case Report

İatrojenik Kütanöz Dental Sinus Trakt: Olgu Sunumu

Özlem Atan[1], Ahmet Küçükçelebi[2], Çavgın Özman[3]

[1]*Acıbadem Bodrum Hospital, Clinic of Pediatrics, Muğla, Turkey*
[2]*Acıbadem Bodrum Hospital, Clinic of Aesthetic, Plastic and Reconstructive Surgery, Muğla, Turkey*
[3]*Acıbadem Hospital, Clinic of Dentistry, Muğla, Turkey*

ABSTRACT

Cutaneous sinus tract of dental origin is rather rare in children. Prompt recognition is necessary to protect long term odontogenesis. In this report, we present a case of cutaneous sinus tract infection that seems to be caused by dental manipulation of adjacent mandibular bone. An odontogenic cutaneous sinus tract originates in the oral cavity and terminates at cutaneous surface of the face. It typically begins at the apex of an infected tooth or an infected portion of the dental alveolus and drains pus through the skin. Patients with these lesions often present to the general practitioner rather than the dentist as they may not associate these with teeth and often may not have symptoms of dental origin. Successful therapy requires an accurate diagnosis which may require cooperative referrals between general practitioner, dermatologists, surgeons and dentists. This may facilitate prompt treatment, minimizes patient discomfort and further complications. *The Journal of Pediatric Research 2015;2(2):96-8*

Key words: Iatrogenic, dental, sinus tract

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ÖZET

Kütanöz sinus traktus çocuklarda nadir görülmektedir. Doğru yaklaşım uzun dönem diş gelişimini korumak için son derece önemlidir. Bu çalışmada mandibula komşuluğundaki bölgeye uygulanan dental girişim sonrasında ortaya çıkan kütanoz sinus trakt enfeksiyonunu sunmaktayız. Odontojenik kütanöz sinus traktus, ağız içinden köken almakta ve yüzeyel ciltte son bulmaktadır. Tipik olarak enfekte diş apeksinden veya alveolun enfekte kısmından başlamakta ve püyü cilde drene etmektedir. Benzeri bulguları olan olgular genel olarak diş hekiminden önce pratisyen hekimlere başvurmaktadır çünkü yakınmalarını diş ile ilişkilendirmemekte ve çoğu zaman diş ağrıları da olmamaktadır. Başarılı bir tedaviye imkan sağlayacak doğru yaklaşım için pratisyen hekim, dermatolog, cerrah ve diş hekimlerinin multidisipliner yaklaşım içinde olmaları gerekmektedir. Bu şekilde doğru tedavi sağlanmakta, hasta yakınmaları ve doğabilecek komplikasyonlar azalmaktadır. *The Journal of Pediatric Research 2015;2(2):96-8*

Anahtar kelimeler: İatrojenik, diş, sinus trakt

Çıkar Çatışması: Yazarlar bu makale ile ilgili olarak herhangi bir çıkar çatışması bildirmemiştir.

Introduction

Sinus tracts (or fistulas) are a common manifestation of pulpal necrosis that requires conventional endodontic treatment in order to heal. They are mainly identified intra orally and sometimes they manifest as an extra oral opening, depending on the causative tooth, root location, bone thickness and muscle inserts. Such conditions may be misdiagnosed and confused with other non-pulpal pathologies. Patients with these lesions often present to the general practitioner rather than the dentist as they may not associate these with teeth and often may not have symptoms of dental origin. Facial fistulas of endodontic origin should be considered in differential diagnosis. It is important

Address for Correspondence/Yazışma Adresi
Özlem Atan M.D., Acıbadem Bodrum Hospital, Clinic of Pediatrics, Muğla, Turkey
Phone: +90 505 482 97 07 E-mail: ozlemnaciyeatansahin@yahoo.com
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that interaction occurs between physicians and dentists to avoid exposing patients to insufficient treatment schemes.

Case Report

A nine year old boy presented to the pediatrician's office with a draining skin opening under the chin, later was consulted with the plastic surgeon. It was treated apparently for caries about a month before by a dentist. Physical examination revealed a sinus opening under the chin (Figure 1). On oral examination, only related tooth identified was lower first permanent molar (#36) with composite occlusal filling. In the examination of the panoramic radiograph taken during the first visit (Figure 2), radiolucencies were observed both in the mezial and distal root apicies of the tooth #36, hovewer these radiolucencies were not found to be related to the cutaneous sinus tract. This radiological finding suggested that the root canal treatment had not been done efficiently. Therefore a computed tomography was necessary for the differential diagnosis. Computed tomography revealed a tubular linear cortical and medullary bone defect of 10 mm in length in the mandible at the first molar root level (Figure 3). There was also increased density of the soft tissues at this level extending caudally and laterally to the skin suggesting cutaneous fistula tract. The root canal was explored by the dentist at our institution. Purulent material was aspirated from the cavity and a sample was sent for bacteriologic examination. The patient was given amoxicillin 50 mg/kg/day, for ten days as oral antibiotic treatment. Parvimonas micra was identified during culturing of the specimen. The patient responded to the antibiotic therapy uneventfully; during follow up visits irrigation and enlargement of both roots of no 36 tooth had been continued untill the endodontic treatment has been completed (Figure 4).

Figure 1. Sinus tract opening under the chin

Discussion

Patients with cutaneos lesions from dental origin often present to the general practitioner rather than the dentist as they may not associate these with teeth and often may not have dental complainsts (1).

Dental caries is the most common cause of pulp necrosis (2). Restorable tooth is usually treated by endodontist. Some cases may undergo crown restoration. Other causes of pulp necrosis include trauma and periodontal infections. Depending on being acute or chronic pulp necrosis, the lesion may remain in the alveolar bone or drain intra-orally or extra-orally through cutaneous structures. In acute cases, patients

Figure 2. Pre-treatment panoramic roentgenogram

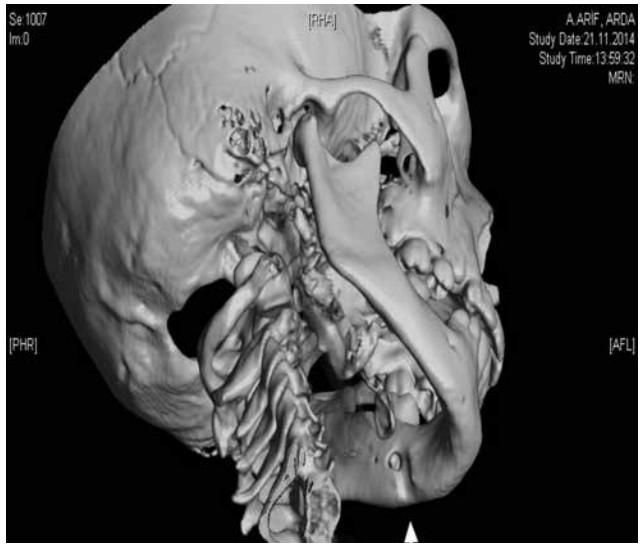

Figure 3. 3-D rendering of bone defect

Figure 4. Post-treatment panoramic roentgenogram

may seek and get proper treatment. In chronic cases, however, alveolar and even cortical bone may be involved through sub-periosteal involvement. The most common sites of extra-oral sinus tract of odontogenic origin are the jaws and chin with the angle of the jaw being the most common site (2-4).

Diagnosis of cutaneous sinus tract of dental origin was straight forward since the patient had been treated for caries a month prior to presentation. The interesting fact about this case was the CT evidence for iatrogenic perforation of mandibular bone during endodontic treatment. There was a tubular linear defect in the bone between the pulp of the involved tooth and cutaneous sinus tract.

Iatrogenic injury may be produced by an inadvertent or erroneous treatment or a result of act of omission by the dentist (5). Several examples of dental iatrogenic case report have been published in the literature. Various iatrogenic dental trauma induced as a result of dental treatment have been identified (6). Traumatically introduced dental materials and instruments have been one of the causes of iatrogenesis. There have been an increase in the occurrence of broken instruments especially after the advent of rotary nickel-titanium (NiTi) files (6). The separated instrument may cause nerve compression and if left in the canal, may lead foreign body reaction and even infection. Root canal perforations has been also cited as being the subject of improper handling of dental instruments (7). There have not any reported mandibular perforation and consequent sinus tract formation in the literature in children. In our case a linear and tubular defect beginning at the tip of the root canal was evident by CT confirmation. Acute nature of the sinus tract formation, the unique shape of the bone defect, the timing of the caries treatment panoramic radiographic evidence pointed to the assumption that this was a case of iatrogenic dental manipulation. The defect created by the inadvertent use of dental bur apparently punctured adjacent mandibular bone and the endodontic treatment. This resulted in void space in the root canal and the bone for bacterial seeding and abscess formation, eventually leading to development of the sinus tract.

In conclusion the skill, experience and up-to-date knowledge in dentistry are critical elements to prevent possible iatrogenic dental traumas. Proper treatment is necessary especially in children where maintenance of tooth for a longer period of time is of paramount importance. Although panoramic roentgenographic examination is the first step diagnostic method for the diagnosis of such cases, CT examination have been proven to be superior to plain radiographs in detecting bone defects.

References

1. Johnson BR, Remeikis NA, Van Cura JE. Diagnosis and treatment of cutaneous facial sinus tracts of dental origin. J Am Dent Assoc 1999; 130:832-6.
2. Brown RS, Johnson CD, Melissinos EG, Smith Br. A large necrotic defect secondary to a cutaneous sinus tract of odontogenic origin: a case report. Compend Contin Educ Dent 1995: 16: 362-4.
3. Cioffi GA, Terezhalmy GT, Parlette HL. Cutaneous draining sinus tract: an odontogenic etiology. J Am Acad Dermatol 1986; 14:94-100.
4. Hodges TP, Cohen DA, Deck D. Odontogenic sinus tracts. Am Fam Physician 1989; 40:113-6.
5. Vandersall Dc. Problem and dangers of adult tooth movement in general dentistry: Schlossberg A ed. Philadelphia, Saunders, 1975:195.
6. Sharma M, Sharma S. Oral iatrogenesis. Journal Dent Sci Oral Rehab. 2012:16-19.
7. McCabe PS. Avoiding perforations in endodontics. J Ir Dent Assoc 2006; 52:139-148.