

## Cutaneous facial sinus tract of dental origin: A clinical case report

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أفة جلدية ناشئة عن حالة مرضية في منطقة ما حول الفك السفلي.  
تقرير حالة سريرية.  
يمكن لإثنان سني مزمن أن يتسبب في ظهور ناسور جلدي في الوجه يفرج منه سائل على فترات متقطعة. وقد يشكل تشخيص هذه الحالة تحدياً للطبيب المعالج إلا أنه يعتبر أساس  
المعالجة الناجحة.  
تقدم في هذه الورقة حالة لتشخيص ومعالجة ناسور خارج الفم ذو علاقة بضاخكة سفلية بين.  
أجرى للمريض علاج جذور غير جراحي وبعد أسبوع شفى الناسور تماماً واحتلت كذلك الأفة الدروية. بعد اثنا عشر شهراً.

Intermittently draining cutaneous sinus tract in the area of the face may be caused by chronic dental infection. Diagnosis of the cause may be challenging but is the key to successful therapy. A case report of the diagnosis and treatment of an extra-oral draining fistula associated with a mandibular left first premolar is presented. Conventional non-surgical endodontic treatment was performed. One week later, the orifice of the sinus tract had closed. Twenty-two months later, the sinus tract had healed completely and the periapical lesion had resolved.

### Introduction

A cutaneous sinus tract of dental origin is relatively uncommon and may be misdiagnosed easily. As specific dental symptoms are usually absent in such cases, patients typically first visit a physician for evaluation and treatment. These sinus tracts are most commonly found on the chin or in the submandibular area. However, all chronic draining sinus tracts of the face or neck should signal the need for thorough dental evaluation.<sup>1</sup>

A review of the literature reveals that these patients sometimes undergo multiple surgical excisions and biopsies before it is recognized that the origin of the sinus tract is the extension of pulp disease into the periradicular area. Systemic antibiotic therapy may be tried, but at best, this will only result in temporary cessation or diminution of the drainage, which will return after conclusion of the antibiotic therapy because the cause persists.<sup>2-6</sup>

Recognition of a sinus tract is the first step in diagnosis. Intra-oral periapical radiographs should be taken routinely when such lesions are present, preferably with a gutta-percha core threaded into the sinus tract. Since gutta percha is radiopaque, the source of the infection will be revealed. Any chronic suppurative lesion on the middle or lower portion of the face should be investigated for possible dental cause. If the primary infection site is the pulp of the tooth, the logical diagnosis would be a chronic alveolar abscess, which is defined as a

long-standing, low grade infection of the periradicular alveolar bone. In chronic alveolar abscess, the involved tooth is asymptomatic except for the drainage, which may occur extra-orally. The presence of the sinus tract precludes swelling or pain from pressure build up since it provides continued drainage of the periradicular lesion.<sup>2</sup>

Differential diagnosis of a cutaneous draining sinus tract should include suppurative apical periodontitis, osteomyelitis, congenital fistula, salivary gland fistula and infected cyst and deep mycotic infection. In addition, skin lesions such as pustules, furuncles, foreign-body lesions, squamous cell carcinoma and granulomatous disorders may all be similar superficially in appearance to a draining sinus tract of dental origin, but they are not true sinus tract.<sup>7-9</sup>

This paper presents a case of cutaneous sinus tract of dental origin that underwent complete resolution following conservative non-surgical endodontic therapy.

### Case Report

In December 1997, a 28-year old female was referred to our dental clinic by a dermatologist for evaluation of a draining extraoral fistula on the lower left face (Fig. 1). Extraoral examination of the head and neck revealed no abnormalities, except for an area approximately 0.5 cm in diameter at the lower left portion of her face. The patient reported that the area spontaneously erupted a year previously and she left it untreated because she

Received 9 Feb. 2000, Revised 29 May 2000  
Accepted 12 June 2000

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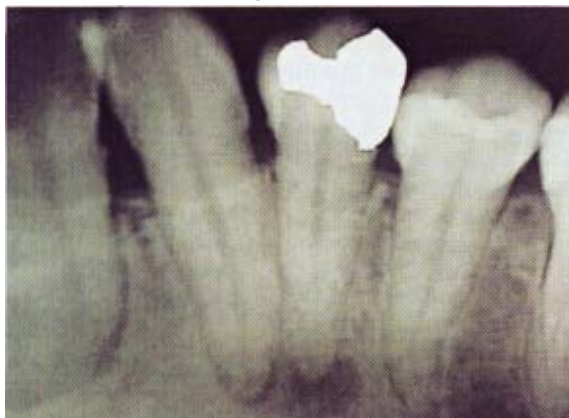
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**Fig. 1.** Draining lesion on the left side of the face.

had no pain. Later when the lesion started to discharge pus, she sought medical treatment. She was under the care of a dermatologist and because there was no response from the treatment, she was referred to a plastic surgeon and surgery was recommended. The patient did not accept the suggested treatment and sought a second opinion. The second dermatologist diagnosed the disorder as a dental problem and referred her to our clinic.

Intraoral examination revealed that the mandibular left first premolar had an amalgam filling on the disto-occlusal surfaces. Periapical radiographs showed a radiolucent area around the apex of this tooth. (Fig. 2) There was no response



**Fig. 2.** Pre-operative radiograph of the mandibular left first premolar showing periapical radiolucency.

to electric pulp testing, thermal percussion and palpation tests. The surrounding teeth had normal response to all tests, and periodontal pockets were 2-3 mm deep. The necrotic pulp of the involved tooth has led to the periradicular abscess. To

confirm a cause and effect relationship between the sinus tract and this tooth, a gutta perch radiographic localization was planned which the patient refused. After placing a rubber dam, accessing opening was done and one root canal was found. There was neither pus nor exudate discharge from the canal nor any viable pulp tissue. What was evident was necrotic debris. The root canal was prepared with files and reamers using a step back technique irrigation with 3% sodium hypochlorite solution and cotton pellet medicated with formocresol was sealed in the pulp chamber and left for one week. No medication was prescribed for the patient. At the second visit one week later, the sinus tract was no longer draining and healing of the lesion had commenced (Fig. 3A) and the patient was asymptomatic. The canal was obturated with gutta



**Fig. 3A.** The sinus tract after one week



**Fig. 3B.** The radiographs after obturation.

percha size 40 and AH26 silver free root canal sealer (De Trey Denstply, USA) with the use of the lateral condensation technique, the access was filled with IRM and amalgam restoration was done (Fig. 3B). Three months later, a ready-made post

was cemented with zinc phosphate and porcelain fused to metal crown was constructed and cemented. Twenty-two months later, a postoperative radiograph showed complete resolution of the periapical radiolucent area (Fig. 4A) and the extraoral defect had healed with almost no difference from the the surrounding tissue (Fig. 4B).



Fig. 4A. Twenty-two months later, the lesion has healed completely leaving a noticeable scar.



Fig. 4B. Post-operative radiographs at 22 months showing nearly complete resolution of the periapical radiolucent area.

### Discussion

intermittently suppurative cutaneous sinus tract in the area of the face and neck may be caused by chronic dental infection. Eighty percent of reported cases of odontogenic origin are associated with mandibular teeth.<sup>3</sup> It is hypothesized that this occurs when the apices of the posterior roots are anatomically inferior to the origin of the buccinator muscle.<sup>10</sup> If the apices are superior to the buccinator origin, a buccal sulcus fistula or more rarely, a lingual perforation occurs.

As a consequence of the anatomy, buccal oral cutaneous fistulas are more frequently seen in the young.

The sinus tract usually disappears in 5 to 14 days after the root canal system has been thoroughly cleansed.<sup>7</sup> Histologically, these tracts are usually lined with granulation tissue. They will heal by granulation after the elimination of the infection in the root canal.<sup>2</sup> Occasionally, healing of the sinus tract leaves a puckered, hyperpigmented or pink scar. It is possible to perform cosmetic surgery to reconstruct a scarred area if necessary.

This case is a classic example of an oral cutaneous fistula caused by a necrotic pulp. Most often, pain is associated with neither the tooth nor the cutaneous drainage site. Endodontic therapy is the treatment of choice and it will result in a rapid healing and a satisfied patient.

### Acknowledgement

The author wishes to express his appreciation to Dr. Amal Tashkandi, Dr Sanaa Al Hibshi and Bonita Petersen for their support.

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