A Case of Cutaneous Sinus Tract of Dental Origin

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The most common cause of chronic draining sinus tract on the face and neck is the extension of chronic dental infection. The presence of an intermittently draining granulomatous lesion on the face or neck should alert clinicians to the necessity of routine dental examination including radiographic studies. Early correct diagnosis and appropriate dental treatment can prevent unnecessary and ineffective antibiotic therapy or surgical treatment. We report a case of a 22-year-old woman with a cutaneous sinus tract on submental region, associated with a periapical abscess of the left mandibular lateral incisor.

(Ann Dermatol 14(4) 235~238, 2002).

Key Words : Cutaneous fistula, Periapical abscess

Cutaneous sinus tracts may arise from chronic dental infection. Diagnosing cutaneous sinus tract of dental origin has been challenging although it is the most common type of cutaneous sinus on head and neck [1,2]. Early correct diagnosis and appropriate dental treatment can prevent unnecessary and ineffective antibiotic therapy or surgical treatment. We report a case of cutaneous sinus tract of dental origin, associated with a periapical abscess.

CASE REPORT

A 22-year-old woman was presented with a submental skin lesion that had been discharging pus intermittently for 4 months. Before visiting our clinic, she received electrodessication and CO_2 laser treatment at the private clinics, recurring in several weeks. She also received multiple courses of systemic antibiotics, which led to decreasing or stopping of drainage temporarily. She denied a history of toothache and could not recall any previous trauma to the site. She has not taken a dental examination in several years.

Physical examination revealed a 4-mm erythematous dome-shaped papule, resembling pyogenic granuloma, on the patient's submental region. Adjacent skin showed dimpling and erythema (Fig. 1). On palpation, it was nontender and its center was fixed to the mandible, suggesting a sinus tract. She was referred to department of dentistry for further evaluation and management. Intraoral examination revealed slight swelling and tenderness at the vestibule of left madibular lateral incisor. Dental roentgenogram demonstrated diffuse periapical radiolucency involving the left lateral mandibular incisor, consistent with periapical abscess (Fig. 2). Suppuration ceased to drain immediately after initiation of conservative endodontic root canal therapy. Marked regression of pyogenic granulomatous skin lesion was noticed one month after the dental treatment. Erythema of surrounding skin disappeared, but the dimpling remained.

DISCUSSION

Cutaneous sinus tract of dental origin is relatively

Received April 25, 2002.
Accepted for publication July 10, 2002.
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*This article was presented at the 54th Annual Meeting of Korean Dermatological Association on April 17-18, 2002.

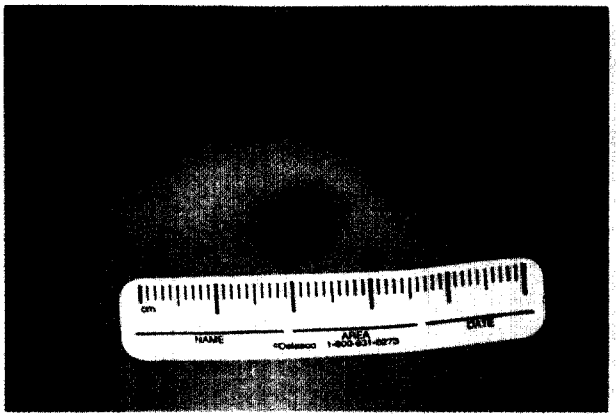

Fig. 1. An erythematous papule, 4 mm in diameter, with surrounding skin dimpling on the patient's submental area.

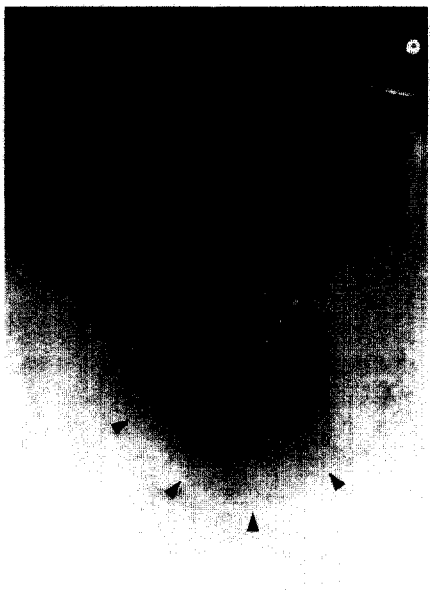

Fig. 2B. A periapical radiograph demonstrating periapical radiolucency surrounding the root of left mandibular lateral incisor (arrowheads).

uncommon. The main cause of odontogenic sinus tract formation is periapical dental abscess due to a carious tooth. The other common etiologic factors are pulpal degeneration secondary to trauma or periodontal infection[1,3]. In chronic dental infection, the local inflammatory destructive process progresses slowly through the alveolar bone along the path of least resistance, ultimately forming subperiosteal abscess. Once through the periosteum, in-

Fig. 2A. A radiolucent apical cyst in panoramic view (arrow).

fection may spread into the surrounding soft tissue, limited by muscle attachments and fascial planes. When the cortical plate is perforated beyond its muscle attachments, the spread of infection may be extraoral, and remote structures, including the skin, may be affected[1-3]. The site of extraoral drainage depends on which tooth is diseased (Table 1). The cutaneous lesion in our patient was located at the most common site for dental sinus tract. In a review by Cioffi et al[1], 80% of dental origin was mandibular teeth, and 40% was anterior mandibular teeth. These tracts arise most commonly in the chin or submental area.

Typically, the cutaneous lesion of dental sinus presents as an erythematous smooth nontender nodule, 1 to 20 mm in diameter, with occasional crusting. It usually accompanies intermittent drainage and bleeding. Retraction or dimpling of the skin may be secondary to the healing process or a late finding in active disease[4]. There may be no dental symptoms because of the low-grade, insidious nature of odontogenic infection[3]. Also, chronic drainage through the sinus tract prevents pressure build-up associated with swelling and pain[5].

Patients with dental sinus show a tendency to seek help from various physicians. Diagnostic errors may lead to multiple lengthy trials of antibiotics and unnecessary surgical procedures such as incision and drainage, excision, electrodessication and CO_2 laser treatment (Table 2). Patients are often unaware that they have any dental problems, and the associated cutaneous lesion may appear early or up to 30 years after the primary dental problem occurs[1,5]. Palpation of the involved area for a cord-like tract may give a clue to the diagnosis. Identifying the

Table 1. Common sites of extraoral drainage from dental infection

Sites of dental origin	Sites of extraoral drainage
Maxillary	
Molars and premolars	Cheek
Incisors and canines	Canine spaces
	Nasolabial fold
	Nose
	Upper lip
	Inner canthus of eye
Mandibular	
Molars and premolars	Posterior mandible
	Submandibular region
Incisors and cuspids	Chin
	Submental region

Table 2. Reported cases of cutaneous sinus tract of dental origin in Korean dermatological literatures

Case No.	Sex	Age (year)	Dental symptom or history of toothache	Surgical procedures to skin lesions before the diagnosis of CSTDO*	Treatment after the diagnosis of CSTDO
1[6]	Male	43	Absent	Electrodessication	Extraction of offending teeth Fistulectomy Systemic antibiotics
2	Male	62	Present	Not described	Extraction of offending teeth Fistulectomy Systemic antibiotics
3[7]	Male	18	Present	Not described	Extraction of offending teeth Fistulectomy Systemic antibiotics
4[8]	Female	77	Not described	Dressing	Excision Extraction of offending teeth Incision and drainage Systemic antibiotics
5	Male	39	Not described	Incision and drainage	Endodontic root canal therapy
6	Female	80	Absent	Not described	Endodontic root canal therapy
7	Female	43	Not described	Excision	Extraction of offending teeth
8[9]	Male	40	Not described	Not described	Fistulectomy
9†	Female	22	Absent	Electrodessication CO_2 laser treatment	Endodontic root canal therapy

*CSTDO = Cutaneous Sinus Tract of Dental Origin

† Our case

purulent discharge by "milking" this tract can also be helpful[4,5]. Not only pyogenic granuloma but also actinomycosis, congenital fistula, the deep mycosis, and foreign body reaction must be considered in the differential diagnosis[10]. After a detailed dental examination, the panoramic and periapical radiographic examination should be performed. Sinograms may demonstrate the exact location of the sinus tract when multiple teeth are carious[1,10].

Appropriate treatment of offending tooth can lead to the resolution of the skin lesion[1,5]. Conservative nonsurgical endodontic treatment or surgical root canal therapy is the treatment of choice if the tooth can be restored. If this is not possible, extraction of the offending tooth is indicated[1,10]. Usually systemic antibiotic therapy is not necessary[5]. When appropriate dental therapy is applied, the drainage will cease soon. Sinus tract is usually closed spontaneously within a few weeks. Dimpling and hyperpigmentation of the area usually diminish slowly. However small dimpling or umbilication due to a residual fibrous tract may remain. Surgical revision may be indicated for esthetic reasons[1,5,10].

We report a case of cutaneous sinus tract of dental origin, which showed rapid response to dental therapy. Cutaneous sinus tract of dental origin should always be included in the differential diagnosis of chronic lower facial lesions that persist or recur despite treatment. The presence of an intermittently draining granulomatous lesion on the face or neck should alert clinicians to the necessity of routine dental examination including radiographic studies.

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