
A clinical predicament—diagnosis and differential diagnosis of cutaneous facial sinus tracts of dental origin: a series of case reports

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A cutaneous draining sinus tract of dental origin is often a diagnostic challenge, because of its uncommon occurrence and absence of dental symptoms. Proper diagnosis, treatment, and the elimination of the source of infection are a must; otherwise, it can result in ineffective and inappropriate outcome of treatment. This article presents 4 cases of facial lesions misdiagnosed as being of nonodontogenic origin. The correct diagnosis in each case was cutaneous sinus tract secondary to pulpal necrosis, suppurative apical periodontitis, and osteomyelitis. In all cases, facial sinus tracts of dental origin were excised and the source of infection eliminated. The purpose of this paper is to provide diagnostic guidelines and examination protocols for differential diagnosis of cutaneous facial sinus tracts of dental origin. (*Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2011;112:e132-e136)

A cutaneous sinus tract of dental origin is relatively uncommon and may easily be misdiagnosed, owing to its uncommon occurrence and absence of dental symptoms.¹ Such a lesion continues to be a diagnostic dilemma. A systematic review of several reported cases revealed that patients have had multiple surgical excisions, radiotherapy, multiple biopsies, and multiple antibiotic regimens, all of which had failed, with recurrence of the cutaneous sinus tract, because the primary dental etiology was never correctly diagnosed or addressed to.²

However, all chronic draining sinus tracts of the face and/or neck should signal the need for thorough dental evaluation. The purulent by-products of pulpal infection will seek the path of least resistance when exiting from the root apex area and travelings through bone and soft tissue. Once the cortical plate has been penetrated, the sinus tract's exit point is determined by the location of muscle attachments and fascial sheaths. Dental etiology can be confirmed by tracing the sinus tract to its origin with gutta-percha or similar radiopaque material, both by orthopantomogram and intraoral periapical radiographic examination and by pulp vitality testing.

Differential diagnosis of a cutaneous draining sinus tract should include suppurative apical periodontitis,

osteomyelitis, congenital fistula, salivary gland fistula, an infected cyst, and deep mycotic infection. Skin lesions, such as pustules, furuncles, foreign-body lesions, squamous cell carcinoma, and granulomatous disorders may be superficially similar in appearance to a draining sinus tract of dental origin, but they are not true sinus tracts.¹

Definitive treatment of the draining sinus tract requires elimination of the source of infection, either by root canal therapy in case of restorable tooth or by extraction in case of nonrestorable tooth, along with complete excision of sinus tract lining.

CASE REPORTS

Case 1

A healthy 12-year-old girl had a pedunculated tumor-like growth under her chin, 1 cm in diameter for the past 2 years. Previous treatment of the patient was with systemic antibiotics and repeated excision 4 times, which were unsuccessful. Intraoral examination revealed that the patient had a slight distoincisor angle fracture of tooth 31. Electric pulp test and heat test were nonresponsive in teeth 31, 32, and 41. The other teeth responded within normal limits. Radiologic examination with gutta-percha cone introduced through the sinus opening revealed a radiolucent area in relation to tooth 31 extending mesially to the distal surface of the root of tooth 41 and distally to the mesial surface of the root of tooth 32. Endodontic therapy in teeth 31, 32, and 41 was started; the canals were enlarged and made infection free with sodium hypochlorite solution and hydrogen peroxide. Subsequently, an elliptic incision was placed around the extraoral discharging sinus, and the whole sinus tract was excised, starting from the extraoral side to the origin, by combination of sharp and blunt dissection; curettage of the apical pathology was done. After that, root canal fillings with gutta-percha cones, api-

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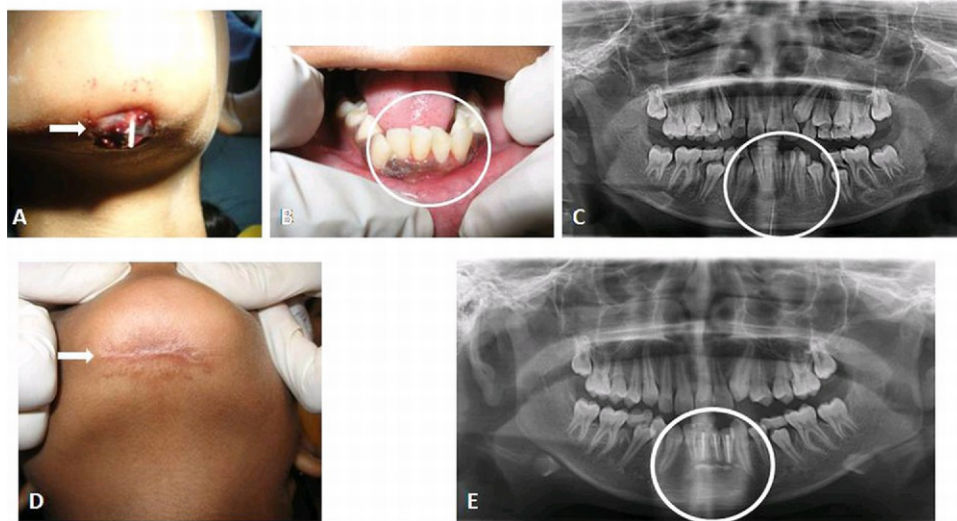


Fig. 1. **A**, Preoperative extraoral view showing gutta-percha inserted into the sinus tract on the chin. **B**, Intraoral view showing slight fracture of distoincisal angle of left central incisor of the mandible. **C**, Orthopantomogram of gutta-percha traced to a radiolucent area at the apex of the mandibular right central incisor, left central incisor, and left lateral incisor. **D**, Postoperative healed sinus tract area on the chin. **E**, Postoperative orthopantomogram after 7 months.

coectomies, and retrograde fillings with glass ionomer cement of involved teeth were performed (Fig. 1).

Case 2

A 35-year-old woman sought treatment with a chief complaint of purulent and hemorrhagic discharge from the submandibular region for 6 months after extraction. The patient gave a history of excision of sinus lining done twice, but the purulent discharge continued. The patient was suffering from uncontrolled type II diabetes for the past 10 years. Radiologic examination revealed an irregular radiolucent area with the presence of a radiopaque mass inside the socket of tooth 46. First, her uncontrolled diabetes was controlled in consultation with an endocrinologist. Then an extraoral spindle-shaped incision was placed around the extraoral discharging sinus. With the help of blunt and sharp dissection, the cord-like sinus tract was identified, starting from the extraoral side to the origin, and the whole sinus tract was excised. After that, soft bone was removed with bone rongeur, reached up to the socket of tooth 46, which was confirmed by passing smooth stellate through from extraoral to intraoral region, and sequestrectomy was performed from the socket of tooth 46. Histopathologic report confirmed osteomyelitis (Fig. 2).

Case 3

A 14-year-old girl presented with an extraoral discharging sinus with tumoral mass on the left cheek for 3 years. The patient had carious exposure of tooth 36 with slight mobility. Electric pulp test and heat test was nonresponsive in tooth 36. Radiologic examination with gutta-percha cone introduced through the sinus revealed irregular radiolucency in the furcation area of tooth 36. Endodontic therapy in tooth 36 was started; the canals were enlarged and made infection free with

sodium hypochlorite and hydrogen peroxide, and root canal filling was done with gutta-percha cones. Subsequently, a spindle-shaped incision was placed around the extraoral discharging sinus; the whole sinus tract was excised starting from the extraoral side to the origin by a combination of sharp and blunt dissection. Curettage of pathologic tissue from the furcation area and periodontal therapy was instituted (Fig. 3).

Case 4

A 45-year-old woman wanted to get rid of nonhealing pus discharge from a growth on her left cheek of 10 months' duration. Drug history of repeated antibiotics administration was reported. Radiologic examination with gutta-percha cone introduced through the sinus opening revealed a periapical radiolucent area in relation to tooth 25. Complete excision of the sinus lining as in the other cases, along with extraction of tooth 25, was done (Fig. 4).

DISCUSSION

Extraoral manifestation of pulpoperiradicular pathosis, is easily misdiagnosed by physicians and dentists. A sinus tract prevents swelling or pain from pressure build-up, because it provides drainage from the primary odontogenic site.³

Diagnostic guidelines

The following guidelines are advocated.

1. Evaluation of a cutaneous sinus tract must begin with a thorough history and awareness that any cutaneous lesion of the face and neck could be of dental origin. An acute or painful onset and the

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