Odontogenic Sinus Tract to the Chin: A Diagnostic Dilemma

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Sinus tracts of odontogenic origin most commonly open into the oral cavity but occasionally may drain extraorally. The diagnosis is more difficult when necrosis of the tooth occurs in the absence of dental caries. We report a 23-year-old man with a long-standing chronic wound on the inferior aspect of the chin that was refractory to treatment. This case demonstrates the use of a simple technique to identify a necrotic mandibular incisor tooth as the source of infection.

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Extraoral sinus tracts can represent a diagnostic challenge to the clinician. Characteristics of this wound appear similar to the presentation of an infected epidermoid cyst, squamous or basal cell carcinoma, foreign body reaction, mycotic or bacterial skin infection, trauma, or odontogenic pathology.[1-4] We describe a case of a chronic periapical dental infection tracking to the inferior aspect of the chin that was initially misdiagnosed. It is presented to raise awareness of this rare clinical entity and to describe the use of an inexpensive adjunct to assist in diagnosis.

Case Report

A 23-year-old man was referred for evaluation of a chronic lesion on the inferior aspect of his chin of 2 years' duration. The patient described that the wound would seem to come close to healing only to recur and become tender with persistent drainage. On examination there was a 6-mm, raised, erythematous mass on the inferior aspect of the chin with a central opening. The lesion was tethered but not fixed to the underlying mandibular symphysis. No active drainage was noted. Intraoral examination was unremarkable. Laboratory values were within reference range, including an erythrocyte sedimentation rate of 3 mm/h (reference range, 0–20 mm/h) and a C-reactive protein of less than 0.1 mg/L (reference range, 0.08–3.1 mg/L). The lesion was presumptively diagnosed as an infected epidermoid cyst and treated with wide local excision. Histopathologic evaluation of the specimen revealed scar and granulation tissue with both acute and chronic inflammation. By the third postoperative week, the lesion had returned to its original size. The histopathologic findings, location, and behavior of the lesion raised suspicion of a dentocutaneous sinus tract.

A gutta-percha point was inserted into the cutaneous aspect of the wound to localize the source (Figure 1). Gutta-percha is an inert material used to obturate or fill a tooth as part of the root canal treatment process. Radiographic examination with the gutta-percha point in the wound indicated a mandibular incisor tooth as the suspected source of inflammation (Figure 2). The tooth was found to be necrotic with dental pulp testing, thus confirming the diagnosis. Ten days following root canal debridement and dental treatment, the cutaneous lesion of the chin resolved. Interval periapical radiographic follow-up revealed evidence of bony regeneration in the formerly radiolucent area at the base of the tooth (Figure 3). Trauma was likely the etiology precipitating necrosis of the tooth, as the patient was an avid basketball player.

Comment

A sinus tract is an abnormal tunnel connecting 2 body cavities or a body cavity to the skin.[5] If the process is caused by an odontogenic source, the tract most commonly presents intraorally but

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Figure 1. Nodular chronic nonhealing chin wound with a gutta-percha point in place.

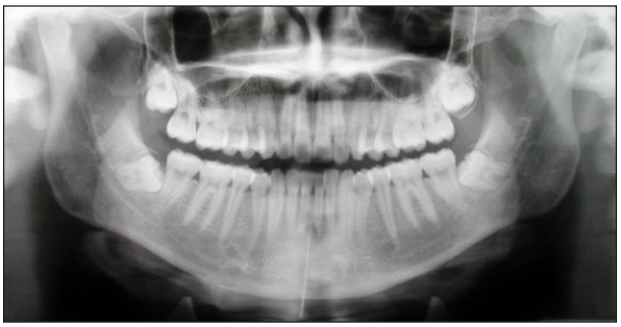

Figure 2. Panoramic radiograph reveals a gutta-percha point defining a pathway to the anterior mandibular teeth.

occasionally may route extraorally.[1] In addition to the density of investing bone, the relative locations of the tooth root apex and insertions of the orofacial musculature will influence the presentation of dental infections that open onto the skin.[6] Odontogenic sinus tracts have been reported to communicate with the nasal cavity and the skin on the cheek, submandibular region, neck, and even the chest.[7]

In many cases, the dentition may not be considered as a source of infection if the patient does not complain of odontogenic pain, if a carious lesion is not obvious, or if the expression of the infection is a distance from the oral cavity. Misdiagnosis of such lesions is common.[8] In a series of 16 dentocutaneous sinuses, only 1 patient had odontalgia.[7] Nonetheless, when questioned, many patients admit to a history of toothache, restorative dental work, or maxillofacial trauma prior to the onset of the facial lesion.

Clinically, a dentocutaneous sinus tract may appear as a focal, tethered, nodular pustule with a central stoma, most commonly on the chin and

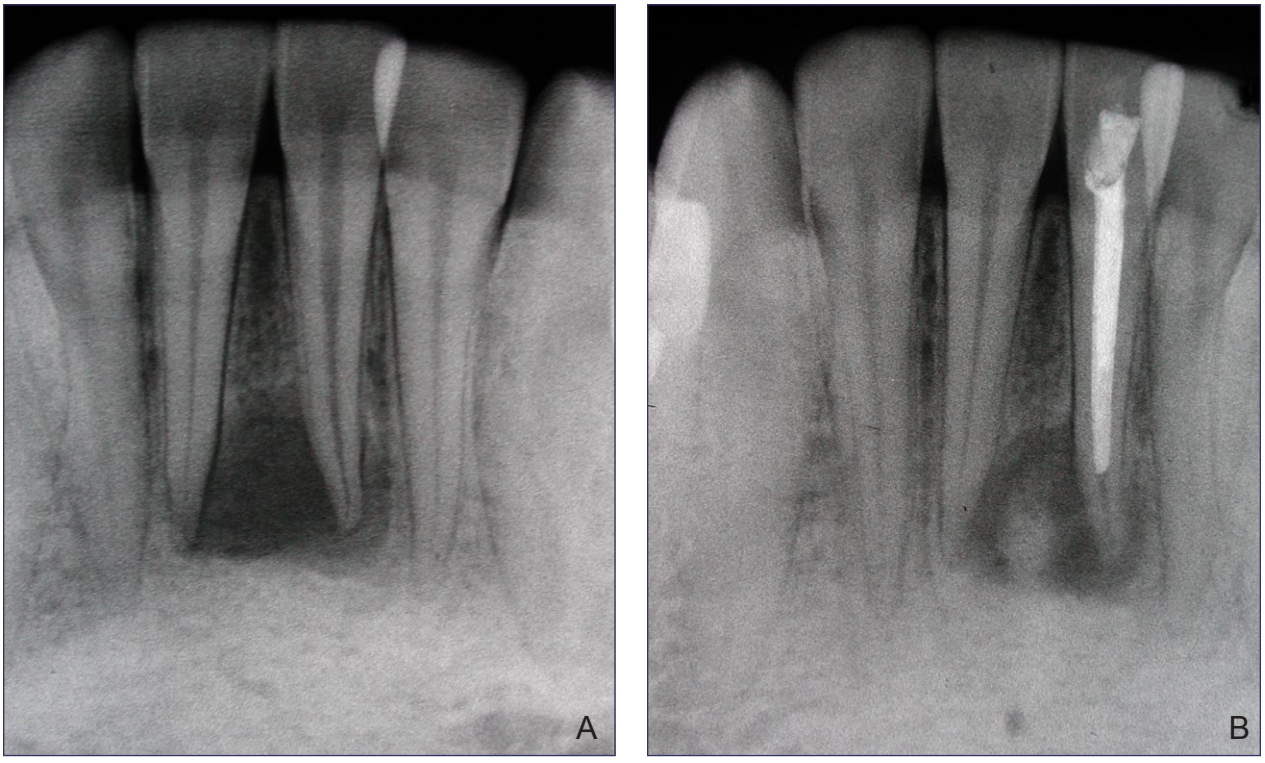

Figure 3. Periapical radiograph of nonvital mandibular incisor tooth prior to root canal therapy (A) and 6 months after definitive root canal therapy was completed (B).

along the inferior mandible.[2,3,9] Firm palpation of the area may elicit a purulent discharge from the central opening.[2] Oral examination should be conducted and may not necessarily reveal an obvious site of decay or defect within a tooth, but the dentition also can be tested for tooth mobility, pulpal vitality, percussion, and thermal sensitivity.[8] Palpation of the oral vestibule may reveal a firm area of attached tissue in the region of the sinus tract,[4,10] but this finding might be obscured by the presence of intervening musculature, such as the mentalis muscle in the chin.

Valuable information can be gained by the gentle placement of a radiopaque instrument or gutta-percha point within the lesion prior to radiographic evaluation to assist in tracking the offending tooth (Figures 1 and 2). The use of a tracking technique is important, as the location of the sinus stoma is not necessarily adjacent to the offending tooth.[1,7] A dental radiograph, such as a periapical or panoramic radiograph, is inexpensive and typically can be obtained the same day as the initial clinical evaluation, especially in centers that have a dentistry clinic on the premises. Some lesions may be quite subtle on radiography if remarkable bone destruction around the tooth has not yet occurred, and a normal result on radiography cannot definitively rule out an odontogenic source. Occasionally, a repeat radiographic evaluation may be required.[10] Definitive treatment of the offending tooth with root canal therapy or extraction of the tooth should bring resolution to the extraoral skin lesion within 7 to 14 days.[1,3]

Conclusion

Dentocutaneous sinus tracts of the head and neck are indeed uncommon. While the process has been described in case reports,[9] lesions will likely continue to puzzle patients and caregivers, especially in the absence of odontogenic pain or when the external tract orifice is remote from the mucosa of the oral cavity. To prevent delayed diagnosis and preclude unnecessary surgical therapies, facial skin lesions of unknown or suspicious etiology merit dental consultation and radiographic evaluation of the teeth and jaws.[10,11]

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