

Purulent Nodule on the Mandible

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A 27-year-old man presented with a recurrent nodule with purulent discharge on the mandible of 3 months' duration. He underwent several surgical excisions before he was referred to our outpatient clinic, but each time the lesion recurred. The patient was otherwise healthy with no associated discomfort. He denied exposure to animals or ticks, and he did not have a family history of similar lesions. He had a root canal treatment several years prior to the current presentation. Physical examination revealed 2 contiguous nodules with purulent secretions on the left mandible.

WHAT'S YOUR DIAGNOSIS?

- a. infected epidermoid cyst
- b. odontogenic cutaneous sinus tract
- c. osteomyelitis of the mandible
- d. pyogenic granuloma
- e. syringocystadenoma papilliferum

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The authors report no conflict of interest.

This work was supported by the Hangzhou Science and Technology Bureau, China (Grant No. 202004A17).

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doi:10.12788/cutis.0486

THE DIAGNOSIS:

Odontogenic Cutaneous Sinus Tract

In our patient, panoramic radiography showed a radiolucency in the periapex of the mandibular first molar (Figure 1). Ultrasonography depicted a hypoechoic band that originated from the cutaneous lesion and extended through the subcutaneous tissue to the defective alveolar bone, suggesting odontogenic inflammation (Figure 2).¹ The infected pulp was removed, and the purulent nodules then disappeared.

The dental etiology of odontogenic cutaneous sinus tracts can be confirmed by panoramic radiography and ultrasonography. The odontogenic sinus path can be clearly observed via radiography by injecting or inserting a radiopaque substance into the sinus tract.² Effective treatment of the diseased tooth is removal of the infected pulp, performance of a root canal to eliminate infection, closure and filling of the root canal, and repair of the crown. Once the source of infection is eliminated, the sinus typically subsides within 2 weeks. When residual skin retreats or scars are present, cosmetic surgery can be performed to improve the appearance.^{3,4}

Odontogenic cutaneous sinus tracts usually are caused by a route of drainage from a chronic apical abscess. They follow a path of least resistance through the alveolar bone and periosteum, spreading into the surrounding soft tissues. With the formation of abscesses, sinus tracts will erupt intraorally or cutaneously, depending on the relationship of the posterior tooth apices to the mandibular attachments of the mylohyoid and buccinator muscles and the maxillary attachment of the buccinator.^{2,5} Clinically, cutaneous lesions present as nodules, cysts, or dimples that have attached to deep tissues through the sinus tract. Half of patients may have no dental symptoms and often are misdiagnosed with nonodontogenic lesions. Subsequent improper treatments, such as repeated use of antibiotics, multiple biopsies, surgical excision, and chemotherapy, often are repeated and ineffective.⁶ The most common cause of chronic cutaneous sinus tracts in the face and neck is a chronically draining dental infection.^{2,5} A thorough history is necessary when odontogenic cutaneous sinuses are suspected. Toothache before the development of the sinus tract is an important diagnostic clue. Pyogenic granuloma, syringocystadenoma papilliferum, osteomyelitis, infected epidermoid cyst, actinomycoses, and salivary gland fistula also should be considered in the differential diagnosis.⁷⁻¹⁰

Pyogenic granuloma (also known as lobular capillary hemangioma) is a benign overgrowth of capillaries showing a vascular phenotype that usually occurs as a response to different stimulating factors such as local stimuli, trauma, or hormonal factors. Clinically, pyogenic granuloma presents as a red, solitary, painless nodule on the face or distal extremities.^{11,12} Syringocystadenoma



FIGURE 1. Panoramic radiography showed a radiolucency in the periapex of the mandibular first molar.

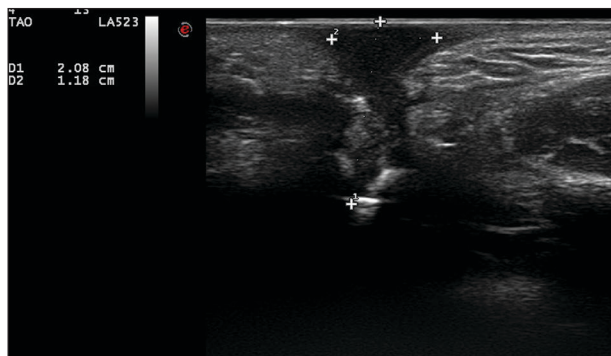


FIGURE 2. Ultrasonography depicted a hypoechoic band that originated from the cutaneous lesion and extended through the subcutaneous tissue to the defective alveolar bone.

papilliferum is a benign adnexal proliferation with apocrine differentiation that usually presents as a hairless papillomatous plaque or nodule measuring 1 to 4 cm in diameter and often is first noted at birth or during early childhood.⁷ Osteomyelitis is progressive inflammation of the periosteum and bone marrow that rapidly breaks through the periosteum and spreads to surrounding areas. The mandible is the most susceptible bone for facial osteomyelitis.⁸ Epidermoid cysts are formed by the proliferation of epidermal cells within a circumscribed dermal space. Infection of the cysts is characterized by redness, swelling, heat, and pain. As the infection progresses, suppurative inflammation develops, leading to local liquefaction and abscesses.⁹

This case was initially misdiagnosed as infectious skin lesions by outside clinicians. Multiple surgical treatments and long-term antibiotic therapy were attempted before the correct diagnosis was made. The clinical diagnosis of odontogenic cutaneous sinus tracts is challenging due to the variety of affected sites and clinical signs.

Ultrasonography should be performed as early as possible to identify the disease and avoid unnecessary surgery. For appropriate dental therapy, close liaison with the stomatology department is warranted.

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