

Malar Mass Due to *Actinomyces odontolyticus*

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Actinomyces odontolyticus was isolated from a patient with a soft tissue mass in the malar region. The organism was identified on the basis of morphological, cultural, and biochemical characteristics. On histological examination, the tissue mass contained several granulomatous foci with small, basophilic staining areas resembling microscopic sulfur granules. This is believed to be the first reported case of actinomycosis due to *A. odontolyticus*.

Actinomyces odontolyticus was described by Batty in 1958 (1). Although *A. odontolyticus* has been consistently isolated and/or detected by a fluorescent-antibody technique from dental plaque, caries, and calculus of man (1, 2, 4), it has not been directly implicated in human infection. In this report we present a patient with a soft tissue mass in the malar region due to *A. odontolyticus*.

A 54-year-old sawmill worker from northern Wisconsin was first examined in the Oral Surgery Department in September 1975 for evaluation of a mass in his left cheek. The patient had first noticed the mass approximately three years earlier. Although the patient had been asymptomatic, the size of the mass had gradually increased for about a year and caused him to seek treatment. The patient gave a history of being struck in the face with bark and wood chips many times while operating a debarking machine.

The patient was a healthy, rugged man who obviously had spent a great deal of his time outdoors. Visual examination of his face and neck was unremarkable. An indurated, poorly defined, slightly tender lesion could be palpated externally in the left cheek (Fig. 1). Approximately 1.5 by 3.0 cm, it was located just inferior and slightly anterior to the zygomatic process of the maxilla. There was no lymphadenopathy. Inside the oral cavity, the mass could be palpated in the superior aspect of the left vestibular sulcus (Fig. 2). Fluctuance could not be demonstrated, and the overlying mucosa was normal. Poor oral hygiene and periodontal disease were obvious.

An incisional biopsy was performed from an intraoral approach. Initial exploration with sharp and blunt dissection exposed a white, infiltrating, non-encapsulated lesion having a texture similar to that of a cicatrix. A wedge of

tissue was removed and submitted for histopathological studies. Subsequently, a granulomatous process was reported. Although the diagnosis of actinomycosis was entertained at this point, a specific diagnosis could not be established. After 10 days, a second, intraoral, incisional biopsy was performed to provide tissue for microbiological studies.

After the isolation of *A. odontolyticus*, the patient was admitted to the hospital and treated daily with 12×10^6 U of penicillin G intravenously for 12 days. After discharge, the patient was placed on 500 mg of penicillin V four times a day for 5 months. Resolution of the lesion was gradual but complete, with no sign of recurrence 1 year later.

Histopathology. The tissue obtained by incisional biopsy measured 7 by 6 by 4 mm. On microscopic examination, distinct lesions were observed composed of multiple, epithelioid, granulomatous structures embedded in dense, fibrous, connective tissue (Fig. 3). Central necrosis without true caseation was observed along with rare giant cells. The granulomas were fairly sharply circumscribed, and the periphery was infiltrated with lymphocytes and plasma cells. No evidence of malignancy was observed.

Although special stains did not reveal acid-fast or fungal microorganisms, a small area of dense basophilic staining was detectable within the central portion of several granulomatous lesions. This was interpreted as superficially resembling a microscopic sulfur granule (Fig. 4 and 5).

Microbiology. No microorganisms were cultured aerobically from the second biopsy specimen. Anaerobic cultures after 4 days of incubation revealed nonsporogenous, gram-positive, diphtheroidal bacilli. On anaerobic subculture, microcolonies that were characterized as

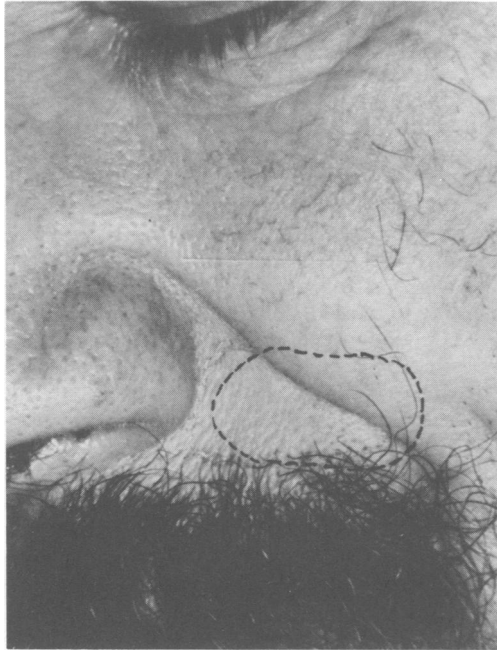


FIG. 1. Face view with the circumscribed area indicating the location where the mass could be palpated.



FIG. 2. Intraoral view with the circumscribed area indicating the location where the mass could be palpated.

smooth and granular were detectable within 24 h. Macrocolonies demonstrated a reddish pigment, which became more intense in color after incubation at 24°C. Gram stains of thioglycolate and agar colonies revealed short, gram-positive branching filaments and diphtheroidal bacilli (Fig. 6). Biochemical reactions of the isolate are presented in Table 1. On the basis of these morphological, cultural, and biochemical characteristics, the organism was identified as *A. odontolyticus*.

The etiology of human actinomycosis is well defined and has been reviewed elsewhere (3). *A. israelii* is the most prevalent cause of classical actinomycosis, but *A. naeslundii*, *A. visco-*

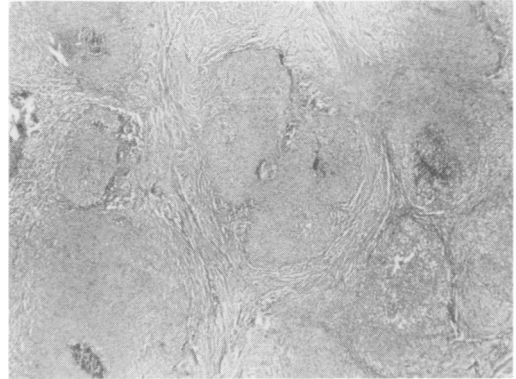


FIG. 3. Multiple epithelioid granulomas with central necrosis and acute and chronic inflammatory cell infiltration. $\times 25$.

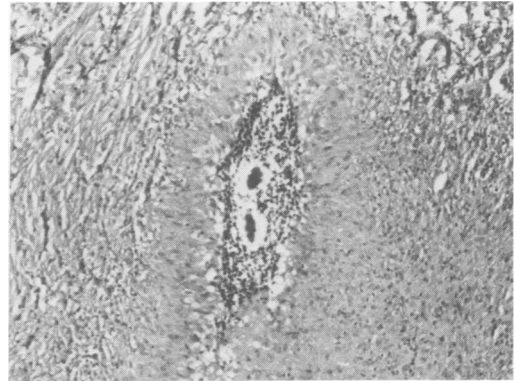


FIG. 4. Granuloma with central "abscess" and two "granules." $\times 100$.

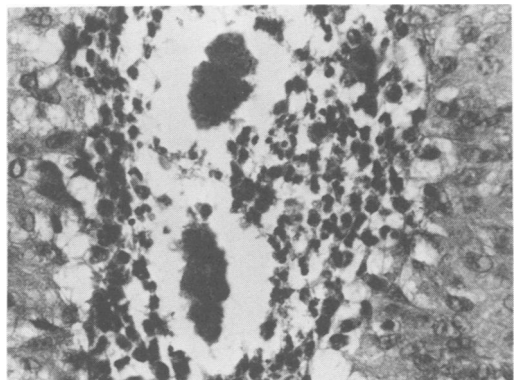


FIG. 5. Higher magnification of Fig. 4 showing the central abscess and the granules. $\times 400$.

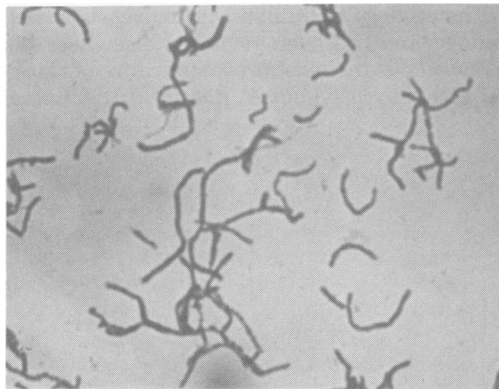


FIG. 6. Gram stain of *A. odontolyticus* isolate from 48-h thioglycolate broth. $\times 1,500$.

TABLE 1. Biochemical reactions of the *A. odontolyticus* isolate

Test or substrate	Result
Catalase	-
Esculin	+
Nitrate	+
Gelatin liquefaction	-
Arabinose ^a	+
Glucose	+
Lactose	-
Maltose	+
Mannitol	-
Salicin	-
Sucrose	+
Xylose	-

^a Thioglycolate fermentation base.

sus, and *Bifidobacterium eriksonii* may cause clinically similar infections. Because these species and *A. odontolyticus* are found as indigenous inhabitants of the oral cavity, it is surprising that *A. odontolyticus* has not been associ-

ated with infectious processes of the facial and neck tissues. It may be that *A. odontolyticus* is less virulent than the other species or that virulence may be host dependent. The above-presented case depicts a patient not considered compromised and presenting with an ill-defined, chronic malar mass, factors that would support either contention. Nonetheless, the clinical, histopathological, and microbiological findings are consistent with those of a self-limiting, actinomycotic lesion, which responded to partial excision and penicillin therapy. Documentation of this case as an actinomycotic infection due to *A. odontolyticus* is warranted.

The case in question exemplifies the appropriateness of microbiological studies on involved tissue specimens of the oral cavity. Complete microbiological examination of tissues is of utmost importance because the specimen may represent the entire pathological process and is obtained at some risk and expense to the patient. In addition, it is apparent that *A. odontolyticus* can cause infection in man, and the clinical microbiologist should be cognizant of the cultural, morphological, and biochemical characteristics of *A. odontolyticus*.

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