

Rare lesions of the oral cavity: case report of an actinomycotic lesion limited to the gingiva

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Abstract: Actinomycosis is an infectious disease that frequently has chronic granulomatous and suppurative lesions caused by saprophytic *Actinomyces* species. Although cervicofacial actinomycosis is known to be the most common type, intraorally and periodontally types occur rarely in a localized fashion. The present case reports on an adult periodontitis patient with a diffuse and atypic actinomycotic lesion which was limited to the gingiva and had an abscess formation, a large desquamation and subsequent exposure of the alveolar bone in the involved region. Diagnosis was based on histopathological examination, the history of the case and clinical nature of the lesion. The patient responded to daily administration of 100 g doxycycline (first day-bid) for 3 weeks and 0.2% chlorhexidine gluconate irrigation (following tooth brushing) performed with oral hygiene reinforcement and periodontal debridement procedures. Complete improvement of the lesion was observed after 5 weeks. Due to the opportunistic characteristics of the actinomycotic infection, early and adequate differential diagnosis of actinomycosis prior to therapeutic attempts, as well as management steps, are of great importance in the oral cavity to prevent the spread of the disease. (J. Oral Sci. 45, 39-42, 2003)

Key words: actinomycosis; actinomycotic lesion; gingival desquamation; gingiva.

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Introduction

Actinomycosis is a saprophytic infection that is characterized by granulomatous and suppurative lesions caused by *actinomycetes* that are part of oral flora (1-3). Approximately 60% of actinomycotic infections in human are cervicofacial (4). Intraoral infections are relatively rare and usually are accompanied by the cervicofacial type (5). Lesions in oral cavity frequently involve the mandible, tongue, lips and oral mucosa (5,6).

Actinomyces species are classified as anaerob, gram (+) and filamentous bacteria despite their fungal and bacterial characteristics (7,8). This microorganism possesses a low-grade virulence and develops a saprophytic infection progressing into the tissues in susceptible hosts (9,10). Most of the species isolated from actinomycotic lesions have been identified as *A. israelii*, *A. viscosus*, *A. odontolyticus*, *A. naeslundii* or *A. meyeri*. These microorganisms have been identified in dental plaque, dental calculus, necrotic pulp, and oral tissues such as tonsils. *Actinomycetes* may become pathologic due to poor oral hygiene, dental/periodontal problems, trauma and following oral surgical procedures (2,9,11).

Among oral mucosal membranes, actinomycosis usually involves the tongue and the oro-alveolar mucosa. It is relatively rare in the gingival, where it typically possesses similar characteristics with lesions in the tongue and oral mucosa. This lesion occasionally may be the initial site of the disease. The developing granulomatous and suppurative lesion disrupts the mucosa and progresses into the deeper tissues producing a permanent discharge of purulent exudate (6,11,12).

Our report describes a patient with an unusual actinomycotic lesion that was limited to the gingiva.

Material

Case

The case is of a 60-year-old woman who was hospitalized in the Medical Hospital of our University for management of a cardiac disorder. She was referred to our clinic for an extremely painful, bleeding and bad tasting lesion in her mouth that had developed during her hospitalization. During the first examination in the hospital, it was considered to be a fungal lesion and topical antifungal chemotherapy (nystatin, oral suspension 5 ml -qid) with a broad-spectrum antibiotic (ampicillin, 1 g - bid) was administered. However, the lesion did not respond to this regimen, was infected and progressed adversely.

Clinical examination

A gross lesion was noted in lingual gingiva extending from the mandibular incisors to the left mandibular premolar region. The lesion was ulcerative, desquamative and suppurative with a gingival abscess formation (between incisors and canine) and a large desquamation (between canine and first premolar) exposing the subjacent alveolar bone. A purulent exudate discharge was observed in the desquamation site (Fig. 1). Radiographic examination of the region demonstrated that this lesion did not affect any bones (Fig. 2).

Poor oral hygiene, gross accumulation of dental plaque and calculus, attachment and horizontal bone loss (adult periodontitis) were observed in the periodontal examination of this patient (Figs. 1 and 2).

Histopathological examination

An incisional biopsy was taken from the gingiva of the abscess formation adjacent to the desquamation site and



Fig. 1. Clinical appearance of the actinomycotic lesion (arrows).

sections were prepared and stained with PAS. The submitted tissue revealed a granulomatous inflammation with a mixed type of inflammatory cell infiltration. In the center of this granulomatous structure, an actinomycotic colony (sulfur granules) with a radial pattern was noted (Fig. 3).

Due to prior drug usage, the clinical nature of the lesion and the urgency of the case, laboratory culturing was not attempted.

Methods and Results

Management

At the time of the patient's referral, the lesion and the oral cavity was irrigated with 0.2% chlorhexidine gluconate following the biopsy procedure. The patient was asked not to disturb the lesion (e.g. with irritating foods). The irrigation regimen was continued daily until the histopathological diagnosis. Based on the histopathological

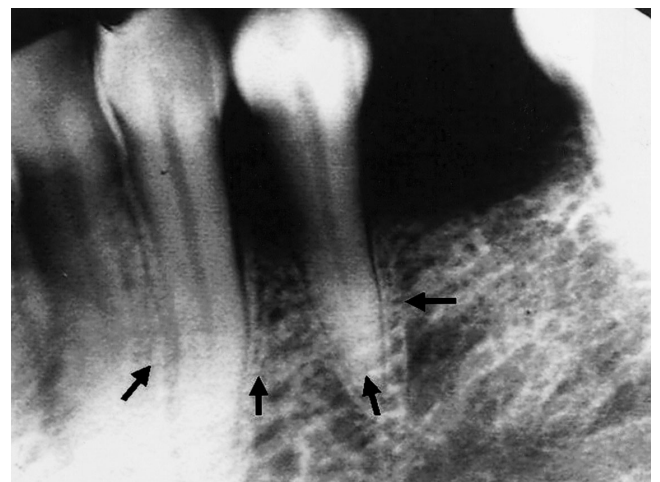


Fig. 2. Periapical radiograph of the involved region (arrows).

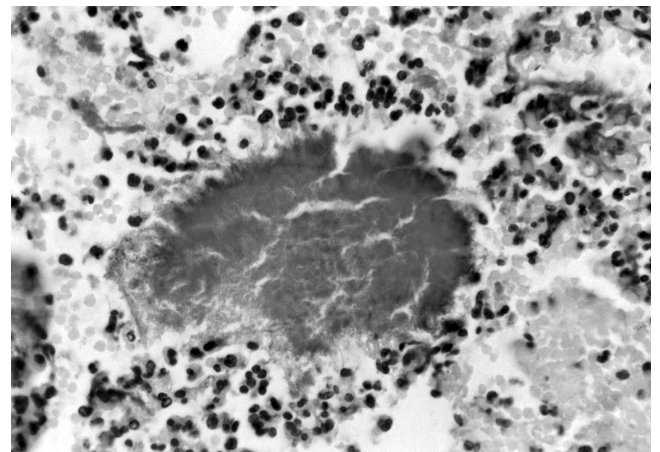


Fig. 3. Actinomycotic colony and sulfur granules with a radial pattern surrounded by a granulomatous inflammation (PAS, × 400).

findings, daily administration of 100 g doxycycline (first day-bid) and 0.2% chlorhexidine gluconate irrigation (following tooth brushing) were performed for 3 weeks. The patient was instructed on and encouraged to engage in good oral hygiene behavior with periodontal debridement (scaling + root-planing + gingival curettage) being initiated 3 days after systemic antibiotic usage. All the debridement procedures were performed with hand instruments to help prevent the spread of *actinomyces* from the involved region. The patient's condition responded to the therapy after 5 weeks with a complete resolution of the lesion. During monthly recalls for 6 months no recurrence was noted (Fig. 4).

Discussion

Although the oral mucosa is often the penetration site of the *Actinomyces* species into the deeper tissues, actinomycosis in oral mucosal membranes is extremely rare and may mimic other lesions due to its lack of distinctive clinical features (6,12). As a part of the oral mucosal membranes, gingiva may be considered as an entrance for this microorganism. Further, *actinomyces* may also become pathologic due to periodontal disease. Suzuki and Delisle (13), reported that pulmonary actinomycosis may develop as a result of aspiration of *actinomyces* that originated from dental plaque, dental calculus and diseased periodontium. In the present case, it may be that the actinomycotic lesion was due to a fungal infection or penetration caused by misuse of the medicaments. In addition, the presence of poor oral hygiene and periodontitis might have facilitated the penetration and pathogenicity of the microorganisms.

Desquamative gingivitis may also be observed as a clinical feature of necrotising, and with chronic and severe

infections such as tuberculosis and syphilis, but desquamation of gingiva in actinomycosis and likewise for our case is uncommonly encountered in dental practice. However, the initial history and diseased nature of the region suggests that periodontitis may have promoted its clinical appearance.

Actinomycosis cases limited to periodontal tissues are not common in the dental literature. In a recent report, Nagler et al. (14) presented a case limited to the left mandibular molar region representing a juvenile periodontitis-like lesion and emphasized the importance of early and differential diagnosis of actinomycosis by the dental profession.

The history and clinical characteristics of our patient did not allow us to perform a laboratory culturing. However, the strict anaerobic qualities of *Actinomyces* species may inhibit the growth of this microorganism and may prevent clinicians from obtaining positive laboratory cultures (15,16). Differential diagnosis through histopathology, therefore, may still be the most reliable diagnostic technique.

Doxycycline, although not commonly used in the treatment of actinomycosis (2,5), was effective treatment in this case study. This is probably because of its additional positive effects on periodontal tissues and gingival crevicular fluid as a tetracycline-group drug. Likewise, it may be speculated that chlorhexidine gluconate irrigation facilitated the management with its additional antiplaque effects. However, periodontal therapy and oral hygiene reinforcement should also be considered essential in the treatment of such lesions.

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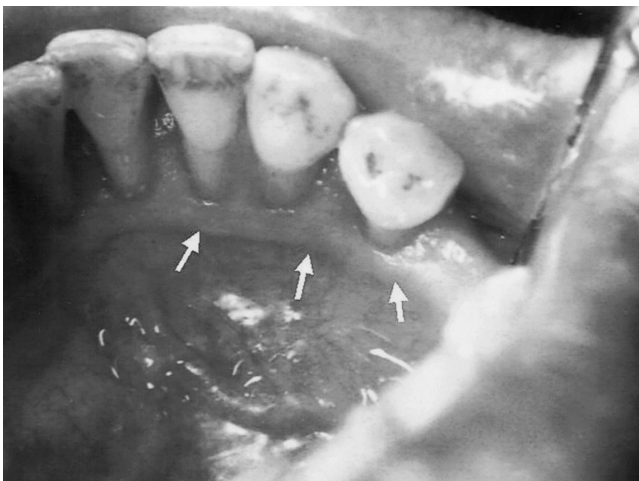


Fig. 4. Clinical appearance of the region 6 months after therapy (arrows).

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