Maxillary Periapical Actinomycosis: A Case with an Unusual Roentgenographic Appearance

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Actinomycosis was once a fairly common disease and one that has a long history. "It was undoubtedly observed early in the 19th Century, as actinomycotic lesions were described erroneously in 1826 by LeBlanc as osteosarcomas and later in the 1800s Bollinger (1876) first recognized it as a specific entity which he named 'lumpy jaw.' "[1] The most frequent clinical form of actinomycosis is the cervicofacial type which is seen in 60% of reported cases, the other forms being abdominal (20%), pulmonary (15%), and cutaneous (5%).[2] Young adult males are most frequently affected with actinomycosis.[3] The actinomycetes, the so-called "higher" bacteria, are among the more common microorganisms found within the oral cavity[4]; however, they seldom exist as pathogens within the oral cavity, and Goldstein et al (1972)[5] report that there are fewer than 50 cases of actinomycosis of the maxilla reported in the English literature. Periapical actinomycosis is seen even less frequently. Browne and O'Riordan[6] reported a case of periapical actinomycotic granuloma and found that only ten such cases were on record before 1966. In 1975 Samanta et al[7] reported that the analysis of cases reported subsequently to those of Browne and O'Riordan revealed only five additional cases in which colonies of actinomycetes were demonstrated on histologic studies of the periapical tissue.

The diagnosis of actinomycosis may be accomplished by several means. While a direct smear of the pus and identification of the sulfur granules are suggestive of actinomycosis, anaerobic culture or histologic evidence, or both, are considered diagnostic. The roentgenographic appearance of cervicofacial actinomycosis is not diagnostic, although chronicity and a relative lack of bone reaction are suggestive.[8] The appearance may vary from one of lytic destruction without bone formation to one of a definite thickening and sclerosis.[8] The most common appearance of maxillary actinomycosis is a localized radiolucent periapical or periodontal abscess in a healthy adult who shows no signs of systemic toxicity.[5] In distinction to mandibular actinomycosis, cutaneous fistulas or hard facial swellings are unusual in the maxillary form of the disease. Antral-facial fistulas as well as oral-antral fistulas have been noted from maxillary molar extraction sites. Intraoral mucosal drainage occurs much more frequently with maxillary actinomycosis than with the mandibular form of the disease. Oral trauma or a preexisting condition is a common feature of maxillary actinomycosis.

This paper describes a case of the rare form of maxillary periapical actinomycosis with a bizarre roentgenographic appearance. The clinical signs and symptoms along with the roentgenographic appearance of this lesion were not suggestive of acti-

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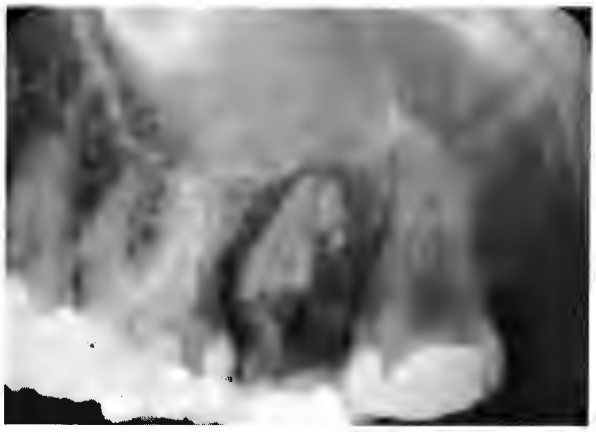

Fig 1—Radiograph showing bizarre periapical lesion. Note "soapbubble" appearance.

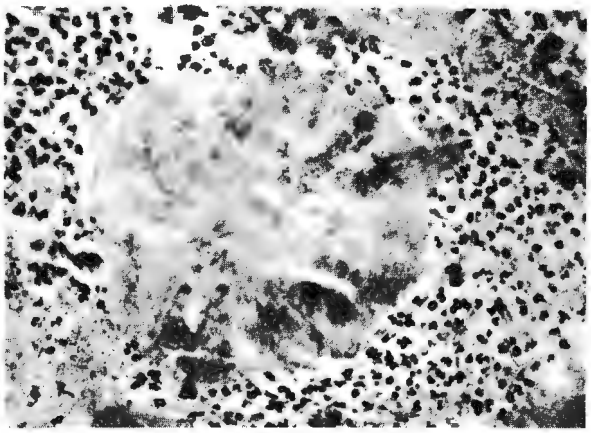

Fig 3—Histologic section showing actinomycotic granule surrounded by sea of polymorphonuclear leukocytes. (H & E, 200 ×)

nomycosis and thus were not included within the clinical differential diagnosis.

Case Report

A 33-year-old white female consulted her private practitioner, and upon radiographic examination, a radiolucent lesion associated with the apex of the upper left first molar was discovered (Fig 1). Questioning revealed that the lesion had been present for over three years during which time the patient had not sought treatment. Clinically, friable brownish tissue with multiple root fragments was surgically removed by excisional biopsy and sent to the laboratory for histologic examination.

Histologic examination revealed a multi-sectioned soft tissue mass composed of granulomatous fibrous connective tissue containing areas of central abscess formation from which radiating hyphae-like structures showing the characteristic eosinophilic "clubs" were seen (Fig 2). These "granules" appeared to be floating in a sea of polymorphonuclear leukocytes associated with an occasional macrophage and multinucleated giant cell (Fig 3). On the surface of this lesion several organisms having budding yeast-like forms scattered along pseudohyphae were noted (Fig 4). Pathologic diagnosis based on histologic examination with special stains was a mixed infection of actinomycosis and a superficial candidosis.

Following surgical removal of the lesion and

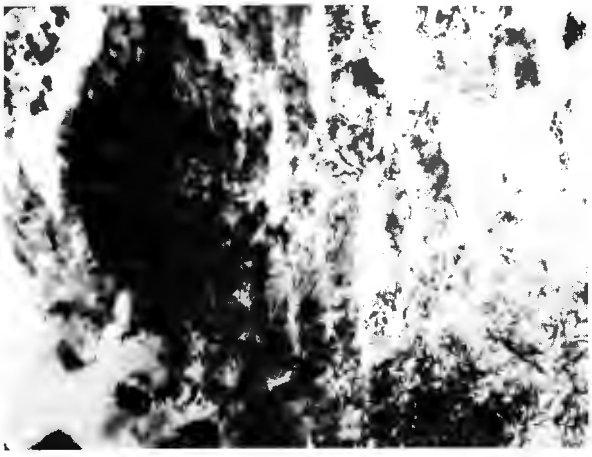

Fig 2—Histologic section showing typical actinomycotic "granule." (Mallory's Gram method, 400×)

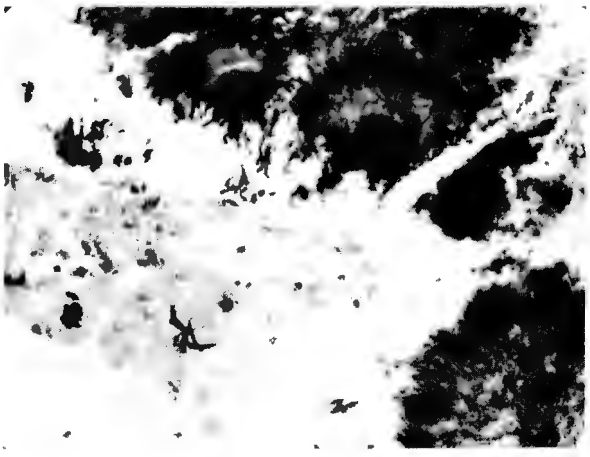

Fig 4—Histologic section showing pseudohyphae of Candida on surface of actinomycotic granule. (Mallory's Gram method, 400 ×)

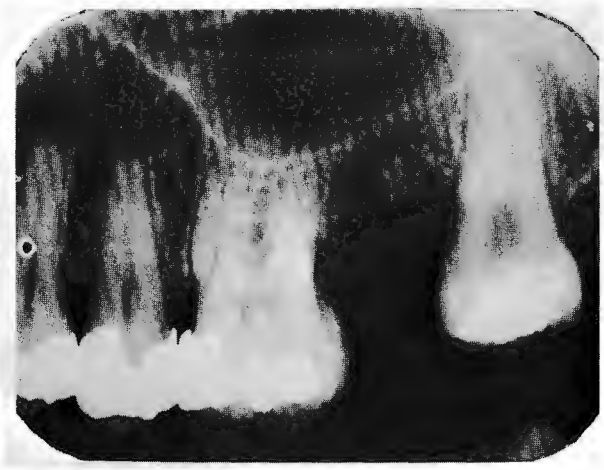

Fig 5—Follow-up radiograph showing resolution and healing of site of localized lesion.

histologic diagnosis of the tissue, the patient's local practitioner began treatment with Penicillin V-K, 250 mg tablets four times per day for twenty days and nystatin (Mycostatin) (500,000 units), 1 tablet three times per day. Systemic involvement of the disease was ruled out by medical examination. One year following treatment, roentgenographs of the area showed complete resolution of the lesion (Fig 5).

Discussion

The unique feature of this case is the bizarre radiographic appearance of the lesion. In contrast to the normal localized radiolucent periapical lesion of maxillary periapical actinomycosis, this lesion appeared radiographically as a multilocular lesion ("soap bubble" appearance) more characteristic in this region of a giant cell granuloma, myxoma, or brown tumor of hyperparathyroidism.

Clinicians often associate actinomycosis with the more florid soft-tissue cervicofacial type and this is obviously not always found owing to the localization of maxillary lesions which tend to remain asymptomatic.

In terms of treatment in maxillary periapical lesions, Stenhouse[3] notes that there appears to be no need for recourse to prolonged antibiotic therapy whenever surgical intervention alone can totally eradicate the infected focus. This case substantiates this claim.

Summary

An unusual case of maxillary periapical actinomycosis presenting with a bizarre roentgenographic appearance is presented. Local surgical eradication coupled with short-term drug therapy resulted in the complete resolution of the lesion.

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