



RESEARCH ARTICLE

Aerobic actinomycetes that masquerade as pulmonary tuberculosis

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Background: There is an increasing recognition of organisms in the order Actinomycetales including Nocardia sp. causing lung infections that mimic pulmonary tuberculosis or fungal pneumonias.

Methods: We retrospectively evaluated a cohort of patients in the southeastern United States in whom a presumptive diagnosis of pulmonary tuberculosis was initially entertained but who eventually were found to have infection caused by Rhodococcus sp. or Tsukamurella sp.

Results: Among a cohort of 52 individuals diagnosed as case suspects for pulmonary tuberculosis, we identified six patients who were infected with either *Rhodococcus* sp. or *Tsukamurella* sp. Of these six patients, two had co-infection with *Mvcobacterium tuberculosis*.

Conclusions: Infection with aerobic actinomycetes may mimic pulmonary tuberculosis or may cause concomitant disease in patients with pulmonary tuberculosis.

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Introduction

Pulmonary cavities are caused by tissue necrosis that leads to the exclusion of a portion of the pulmonary parenchyma via the bronchial tree.^{1,2} In general, the differential diagnosis of pneumonitis with cavitations includes infectious and noninfectious causes (Table 1). The infectious causes include bacteria such as community-associated methicillin-resistant *Staphylococcus aureus*,³ *Actinomyces* or *Nocardia asteroids*,^{1,2}

Rhodococcus equi, ⁴ Pseudomonas aeruginosa, ¹ melioidosis, ² polymicrobial necrotizing pneumonias or lung abscesses; ² mycobacteria including Mycobacterium tuberculosis ⁵ or nontuberculous mycobacteria such as Mycobacterium kansasiii, ⁶ Mycobacterium avium-intracellulare and others; ⁷ fungi Aspergillus fumigatus, ⁸ Histoplasma capsulatum, ⁹ Cryptococcus neoformans or Cryptococcus gatti, ^{10,11} Blastomyces dermatitidis, ¹² Coccidiodes immitis, ¹³ Penicillium² and others; and parasites Paragonimus

westermani or cystic echinococcosis.^{2,14} Other infectious causes include septic emboli to the lung (right-sided endocarditis, Lemierre's syndrome).² Among the non-infectious causes, the most salient etiologies include autoimmune diseases such as granulomatosis with polyangitis,¹⁵ rheumatoid arthritis,² sarcoidosis,² ankylosing spondylitis,¹⁶ pulmonary contusion and pulmonary infarction.² In addition, bronchogenic carcinomas or metastatic neoplasms to the lung may develop cavities or a bronchogenic carcinoma may lead to postobstructive pneumonia with secondary cavitation.² Thick wall cavities tend to be associated with malignancies.^{1,2}