

Mycobacterium Cavitory Pneumonia - Not Your TB Type - A Case of Rare Mycobacterium szulgai

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Published In/Presented At

Pandya, D., Shah, H., & Dalessandro, N. (2016, May 13). *Mycobacterium Cavitory Pneumonia - Not Your TB Type - A Case of Rare Mycobacterium szulgai*. Poster presented at International ATS, San Francisco, CA.

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Mycobacterium Cavitory Pneumonia - Not Your TB Type - A Case of Rare *Mycobacterium szulgai*

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Introduction

Mycobacterium szulgai is a rare nontuberculous mycobacterium (NTM) pathogen reported in <1% of diseases related to mycobacterium. Its presence is clinically significant and is mostly found in immunocompromised individuals with an existing and/or underlying lung disease. Upon diagnosis and pathogen sensitivities, treatment is recommended with triple therapy over prolonged period of time to prevent complications and further respiratory deterioration. This type of pathogen mostly forms upper lobe cavitations and may radiologically and clinically resemble tuberculosis.

Case Report

A 59-year-old Caucasian male with oxygen dependent COPD presented with complaints of subjective fevers, chills, hemoptysis and fatigue after. He had a similar presentation one year ago when he was treated for right lobar necrotizing pneumonia with negative diagnostic work-up. Upon this admission, he was febrile at 101°F with CT chest showing left upper lobe cavitory pneumonia. Diagnostic work-up showed leukocytosis of 15,000 with negative blood cultures. An acid-fast stain of bronchial washing fluid was positive and susceptibility testing demonstrated *Mycobacterium szulgai*. He was promptly started on triple therapy – Clarithromycin, Rifabutin and Bactrim DS for a 12 month period with routine blood work to monitor for side effects. Over the duration of treatment, his symptoms improved and his imaging showed interval improvements due to treatment.

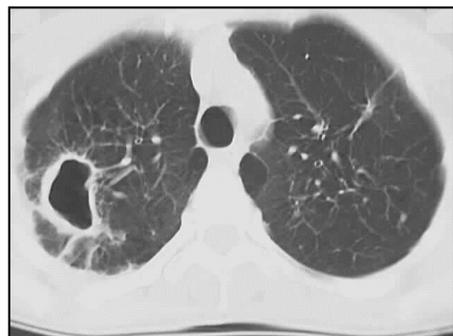
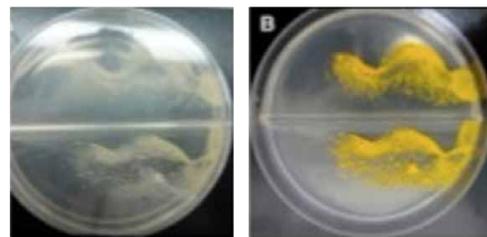
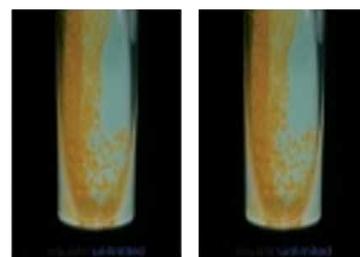


Figure 1: Right upper lobe lung cavitory lesion – a classic hallmark of NTM as presented in this case.



25° C - Photochromogen



37° C - Scotochromogen

Discussion

In 2007, the American Thoracic Society (ATS) and the Infectious Diseases Society of America (IDSA) published diagnostic criteria for NTM infection. The guidelines consist of clinical, radiological, and microbiological criteria as listed = 1) pulmonary symptoms, nodular or cavitory opacities on chest radiograph, or a HRCT scan that show multifocal bronchiectasis with multiple small nodules, 2) appropriate exclusion of other diagnoses, such as tuberculosis, and 3) positive culture results from at least two separate expectorated sputum samples.

Mycobacterium szulgai is a slow-growing NTM that presents as an opportunistic pathogen in individuals with systemic immune suppression or pulmonary disease. It accounts for less than 1% of all non-tuberculous mycobacterium infections. Pulmonary *M. szulgai* is often clinically identical to *M. tuberculosis* with symptoms such as weight loss, cough, hemoptysis and radiographic evidence of cavitory lesions. The demographic distribution is commonly in men above the age of 50 with risk factors such as tobacco or alcohol abuse with COPD and/or history of pulmonary tuberculosis. Diagnosis, as defined by American Thoracic Society – is with pulmonary symptoms, exclusion of other diseases with a positive culture, specifically from bronchial fluid. Given our patient's demographic profile and ultimate diagnosis, it becomes important to keep this pathogen as part of a differential when there is suspicion for mycobacterial infection and even with detection of small numbers of *M. szulgai*, susceptibility testing and treatment should begin promptly given its long-term treatment and possible morbidity.

Diagnosis

- Grows at 37° in 12-25 days, Niacin (-), Nitrite (+)
- Only AFB that has different light test based on temperature
 - Scotochromogen at 37°
 - Photochromogen at 25°
- Unique characteristic of this species:
- No human to human spread, environment is the source of human infections

American Thoracic Society Diagnostic Criteria of Nontuberculous Mycobacterial Lung Disease

Clinical criteria

1. Pulmonary symptoms, nodular or cavitory opacities on chest radiograph, or an HRCT scan that shows multifocal bronchiectasis with multiple small nodules.
- and
2. Appropriate exclusion of other diagnoses.

Microbiological criteria

1. Positive culture results from at least two separate expectorated sputum samples. (If the results from the initial sputum samples are nondiagnostic, consider repeat sputum AFB smears and cultures.)
- or
2. Positive culture results from at least one bronchial wash or lavage.
- or
3. Transbronchial or other lung biopsy with mycobacterial histopathologic features (granulomatous inflammation or AFB) and positive cultures for NTM or biopsy showing mycobacterial histopathologic features (granulomatous inflammation or AFB) and one or more sputum or bronchial washings that are culture positive for NTM.

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