Bilateral lower extremity sporotrichoid cutaneous atypical mycobacterial infection due to primary inoculation

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INTRODUCTION

The group of mycobacterial species that excludes Mycobacteria tuberculosis and Mycobacteria leprae is known as nontuberculosis or atypical mycobacteria. Nearly all atypical mycobacteria species can cause cutaneous infection. The diagnosis is challenging as disease may take months to become clinically apparent, morphology is non-specific, routine culture has a low sensitivity, and organisms can be sparse on histopathologic examination. Antibiotic resistance and further complicates management. The Gulf Coast is the highest incidence region of cutaneous atypical mycobacterial infections. Here we present a challenging case of bilateral sporotrichoid atypical mycobacterial infection due to primary inoculation.

CASE

A 74-year old female residing in Florida’s Gulf Coast presented with a one-month history of multiple erythematous, ulcerative, subcutaneous nodules in a sporotrichoid spread on the bilateral lower extremities below the knees (Figures 1 and 2). She was afebrile with no lymphadenopathy or systemic symptoms. Her past medical history was significant for daily backyard gardening.

Aerobic/anerobic bacterial culture resulted growth of Bacillus species other than Bacillus anthracis, commonly considered a laboratory contaminant. Punch biopsy revealed suppurrative and granulomatous inflammation, with acidic fast rod shaped organisms identified on Fite stain (Figure 3). An excisional biopsy was performed for fresh tissue culture; AFB fluorochrome smear was negative, and AFB culture resulted no mycobacterium species isolated after 6 weeks incubation at 30, 37, and 42 degrees Celsius. Tissue was sent for AFB PCR pyrosequencing to both Quest Diagnostics and the Centers for Disease Control Tuberculosis Reference Laboratory for speciation to both Quest Diagnostics and the Centers for Disease Control Tuberculosis Reference Laboratory with negative results. CBC, CMP, and chest x-ray were unremarkable; purified protein derivative tuberculin test, QuantiFERON-TB Gold, HIV, and RPR tests were negative.

DISCUSSION

Acid fast bacilli identified on skin biopsy indicates infection with Mycobacterium tuberculosis, Mycobacterium leprae, or an atypical mycobacterial species. Due to the histologic appearance of the Fite positive organisms and negative tuberculosis specific testing, combined with a negative work-up for systemic disease with cutaneous dissemination, this patient was diagnosed with bilateral lower extremity primary inoculation of atypical mycobacteria.

Bilateral sporotrichoid mycobacterial cutaneous infection is unusual and has been reported in only four prior cases. Frustration in speciating atypical mycobacteria is shared in all of these cases as the sensitivity of fresh tissue culture is low (50-90%, depending on source and species). In recent years, advances in PCR pyrosequencing techniques have helped to address the diagnostic delay imposed by traditional phenotypic identification. However, microorganism identification and susceptibility testing is important as inter- and intra-species antibiotic resistance is common.

CONCLUSION

In cases where repeated speciation attempts via culture and PCR are not successful, empiric treatment with clarithromycin +/- a tetracycline are recommended for at least six months of continuous treatment. Surgical intervention may also aid in resolution. This patient was treated with a total ten-month course of azithromycin 500mg QD + doxycycline 100mg BID with resolution of infection and remaining scars.

References