

3rd International Congress on

Bacteriology and Infectious Diseases

August 04-06, 2015 Valencia, Spain

A descriptive analysis of nontuberculous mycobacterial infections (NTM) of the upper extremity

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Objectives: Nontuberculous mycobacterial (NTM) infections are frequently reported as a cause of bone and soft-tissue infection of the upper extremity, primarily in the hand and wrist. Limited information exists on clinical characteristics and treatment outcomes of patients with NTM infection of the upper extremity. The clinical and radiological characteristics of these infections in a large group of patients with upper extremity NTM infections are described herein.

Methods: A retrospective analysis was conducted of NTM infections of the upper extremity at Mayo Clinic Florida from December 2000 through December 2012. Only patients with positive mycobacterial cultures from the upper extremities were included. Data collection included demographics, radiologic and clinical characteristics and mycobacterial culture results, time to diagnosis and treatment outcomes.

Results: Forty-two patients were included; 71% were male and the mean age was 60±18 years. Eighteen (43%) patients were diagnosed with skin/soft tissue infections and 15 (36%) had tenosynovitis. Twenty-six (62%) patients were immunosuppressed. The most common underlying medical conditions were rheumatologic disorders (40%) and diabetes mellitus (17%). Sixteen (38%) patients were taking glucocorticosteroids and 11 (26%) patients were receiving tumor necrosis factor alpha (TNF-α) inhibitors at the time of diagnosis. Injuries to the affected extremity were reported in 62% of patients. Fishing (21%) and gardening (14%) were the most common reported exposures. Signs and symptoms of infection were localized to the skin in 62% and extended to the joints in 52%. *Mycobacterium marinum* (36%) and *Mycobacterium chelonae/abscessus* (33%) were the two most commonly identified organisms. Radiologic studies were available in 30 (71%) patients. Average time to clinical evaluation from onset of symptoms was 2.6 (±3.5) months and time to diagnosis from initial clinical evaluation was 4.5 (±4.5) months. Forty-one (98%) patients were treated. Twenty-eight (68%) patients were treated with both antimicrobial and surgical debridement, nine (21%) with antimicrobial treatment alone and four (10%) with surgical debridement alone. Twenty-six (62%) patients were cured, four (9%) relapsed after the first round of treatment, two (5%) failed all treatment modalities and three (7%) patients died.

Conclusion: Diagnosis of NTM infection of the upper extremity is often delayed due to its indolent presentation and lack of clinical suspicion. Healthcare professionals should be aware of the increasing incidence of soft tissue NTM infection after percutaneous injury especially in immunosuppressed patients to improve diagnostic promptness and treatment outcome.

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