Mycobacterium septicum: A 6-year Clinical Experience from a Tertiary Hospital and Reference Laboratory

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Introduction

- *Mycobacterium septicum* is a rarely identified rapidly growing non-tuberculous mycobacterium (NTM).
- It is a ubiquitous organism capable of causing infections in both healthy and immunocompromised individuals.
- Due to limited published data, the more common clinical presentations and optimal management approaches are not well defined

Patients and Methods

- We conducted a retrospective chart review of all patients seen at Mayo Clinic in Rochester, MN from July 2014 to March 2020 from whom *Mycobacterium septicum* was isolated in culture by our clinical microbiology laboratory.

Results

Table 1. Patient Demographics and Specimen Source of *Mycobacerium septicum* Isolates

Characteristic	Number (%)
Patient demographics	
Mean age (range), years	66.9 (48-80)
Male	7 (58.3%)
Female	5 (41.7%)
Specimen source	
Sputum	7 (58.3)
Tissue	
Lymph node	1 (8.3)
Leg	1 (8.3)
Shoulder	1 (8.3)
Calf	1 (8.3)
Peritoneal fluid	1 (8.3)

Table 2. Results of antimicrobial susceptibility testing of the *Mycobacterium septicum* isolates

% Susceptibility	Amikacin	Cefoxitin	Ciprofloxacin	Clarithromycin	Doxycycline	Imipenem	Linezolid	Moxifloxacin	Tigecycline	TMP-SMX
M. septicum	**100**	0	**100**	0	0	**100**	**100**	**100**	NI	**100**

Take-Home Points:

- *M. septicum* is an uncommonly encountered NTM
- Most cases were from sputum samples of individuals with underlying structural lung disease
- When isolated, it is commonly a contaminant or an airway commensal
- Fluoroquinolones, TMP-SMX, linezolid, imipenem, and amikacin had good activity in vitro
- Isolates were universally resistant to clarithromycin and doxycycline

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Table 3. Patient Characteristics and Therapy Provided

Case	Age/Sex	Comorbidities	Source	Macrolide exposure	Contaminant/Colonizer/Pathogen	Therapy
1	54/M	Systemic sclerosis, ESKD	Peritoneal fluid	No	Pathogen	Peritoneal dialysis catheter removal; Linezolid + Moxifloxacin (4 months)
2	77/F	Bronchiectasis, asthma	Sputum	Yes	Pathogen	Moxifloxacin + Rifampin + Clarithromycin + nebulized amikacin (15 months); Moxifloxacin + rifampin + clofazimine + nebulized amikacin (3 months); Moxifloxacin + Rifampin + clofazimine (4 years)
3	73/M	Bronchiectasis	Sputum	Yes	Colonizer	None
4	76/F	Squamous cell cancer of the tongue	Lymph node tissue	No	Contaminant	Aspiration; None
5	75/M	Rheumatoid arthritis	Sputum	Yes	Colonizer	None
6	48/M	Cystic fibrosis	Sputum	Yes	Colonizer	None
7	75/F	Bronchiectasis, Crohn's disease	Sputum	No	Pathogen	None (refused treatment)
8	67/F	Bronchiectasis	Sputum	No	Colonizer	None
9	54/M	None	Leg tissue	No	Contaminant	Transtibial amputation; None
10	67/F	Bicuspid aortic valve	Shoulder tissue	No	Contaminant	None
11	57/M	None	Calf tissue	No	Contaminant	Irrigation and debridement; None
12	80/M	Rheumatoid arthritis, Bronchiectasis	Sputum	No	Colonizer	None

Discussion

- Most cases were not clinically significant and did not require therapy.
- Underlying structural lung disease and gastroesophageal disease are risk factors for developing pulmonary infection although airway colonization is fairly common.
- Generalized treatment recommendations are limited by the lack of prospective controlled trials.
- Susceptibility testing should guide treatment, but the use of combination therapy with potentially empiric agents like amikacin, ciprofloxacin, imipenem, linezolid, moxifloxacin, and TMP-SMX as demonstrated in this small study, can be considered.