Nodular Bronchiectatic *Mycobacterium Avium* Complex Infection in Older Adults: Should We Treat?

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Learning Objectives

- *Mycobacterium Avium* Complex (MAC) is an opportunistic infection with two disease phenotypes, with fibrocavitary and nodular bronchiectatic forms.
- Prognosis depends on several factors, including the patients' characteristics and the disease phenotype.
- MAC infections in older adults represent a treatment dilemma, whereas at-risk for disease progression, a risk-benefit discussion is required before initiating prolonged antibiotic regimens with potential side effects.

Case Description

An 86-year-old Vietnamese woman presented to the emergency department with two weeks of worsening dyspnea, associated with productive cough with white sputum and occasional blood streaks over the previous two months.

Past Medical History: Hypertension, Hyperlipidemia

Physical Examination:
- Vitals: Afebrile, BP 173/75, HR: 73 bpm, RR: 20 breaths/min
- Body Mass Index (BMI): 17
- Bibasilar crackles on lung auscultation

In Patient Work-Up:
- **Initial Laboratory Analysis:**
  - **White Blood Cell Count:** 21.7 x 10^3/mcL (Normal: 4.0 – 11.0)
  - **Calcium:** 12.8 mg/dL (Normal: 8.4 – 10.3)
- **Chest Radiograph:** Cavitary lesion in the right lower lobe.
- **Chest CT:** Cystic bronchiectasis and large cavitary lesions in the right lower lobe. **See Figure 1a, 1b**
- **Microbiology Analysis:** Three positive AFB sputum cultures.
- **Bronchoscopy:** Patchy erythema with friable mucosa predominantly in the right lower lobe.
- **Bronchoalveolar Lavage:** Two positive AFB cultures.

Figures

Figure 1a. Coronal view displaying multiple cavitary lesions in the right lower lobe

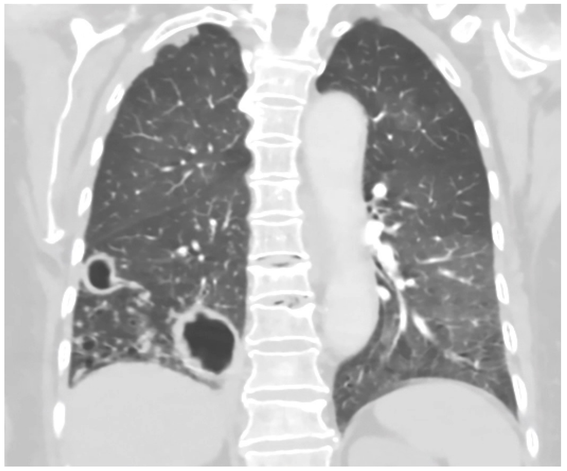
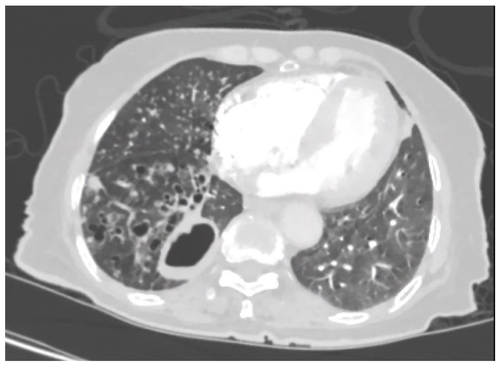


Figure 1b. Axial view displaying cystic bronchiectasis and a large cavitary lesion with thick walls in the right lower lobe



Shared Decision Making

- The patient declined antibiotic treatment given her minimal pulmonary symptoms. She was discharged home and continued self-isolation precautions while awaiting final culture results.
- Six weeks later, AFB sputum cultures confirmed MAC, with DNA probe results negative for *Mycobacterium tuberculosis* complex.

Discussion

- Antibiotic therapy was recommended as multiple risk factors for disease progression were present: cavitary lesions, age >75 years, BMI <18.5, and positive AFB cultures.[1]
- Treatment for nodular bronchiectatic MAC includes Azithromycin, Rifampin, Ethambutol for 12 months following seroconversion. Amikacin or Streptomycin are recommended for the first 8-12 weeks of therapy.[2]
- Sustained culture negativity 12 months after seroconversion is only 30%-60% in geriatric populations.[1] One study found that 48% of patients with the nodular bronchiectatic phenotype had microbiologic relapse following treatment.[3]
- Age >80 years is an independent risk factor of both adverse drug reactions and worse outcomes.[4]
- The Nontuberculous Mycobacteria Module (NTM Module) and Quality of Life Questionnaire-Bronchiectasis (QOL-B) are validated patient-reported outcome measures of treatment efficacy.[5]
- Given the prevalence of MAC in older adults, further investigation is required to determine age-specific clinical guidelines to minimize disease progression, better define treatment efficacy, and ultimately improve outcomes.

References

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