

Extrapulmonary Infections Associated with Nontuberculous Mycobacteria in Immunocompetent Persons

Claudio Piersimoni and Claudio Scarparo

CME ACTIVITY

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Learning Objectives

Upon completion of this activity, participants will be able to:

- Diagnose and treat nontuberculous mycobacterial (NTM) lymphadenitis effectively
- Identify elements of NTM osteoarticular infections
- Treat NTM skin infections according to standards of care
- Describe infections with rapidly growing mycobacteria

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Disclosures: Claudio Piersimoni, MD; and Claudio Scarparo, MD, have disclosed no relevant financial relationships.

Over the past several years, the prevalence of human disease caused by nontuberculous mycobacteria (NTM) has increased. Whether the increase in cases is real or whether more cases are being recognized remains unclear. Despite a considerable increase in knowledge about NTM infections, they still represent a diagnostic and therapeutic challenge for several reasons: 1) pathogenic isolates may be indistinguishable from contaminant or saprophytic isolates; 2) timely and reliable identification of isolates may depend on proper communication between clinicians and laboratory staff; 3) lack of standardized susceptibility testing makes adoption of tailored therapies unrealistic; and 4)

lack of treatment guidelines exposes patients to toxic drugs and disappointing outcomes. Laboratory research and multicenter controlled trials are needed to improve diagnosis and treatment of these infections.

The >120 recognized species of nontuberculous mycobacteria (NTM) share common features: 1) they are facultative pathogens; 2) evidence of human-to-human transmission is lacking; 3) some NTM species are ubiquitous and others have more restricted distribution; 4) treatment may be difficult and vary according to the involved organism and disease site; and 5) pathogenesis is still undefined, depending on the interaction between the microorganism and the host's immune system (*I*). About 90% of cases involve the pulmonary system; the rest involve lymph nodes, skin, soft tissues, and bones. Less frequently

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DOI: 10.3201/eid1509.081259

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Article Title

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CME Questions

1. Which of the following statements about nontuberculous mycobacterial (NTM) lymphadenitis is most accurate?

- A. It is the most common NTM disease in children
- B. The most frequently isolated organism is *Mycobacterium haemophilum*
- C. NTM adenitis almost always presents with the sudden onset of severe illness
- D. Chemotherapy is more effective than surgical excision for uncomplicated NTM lymphadenitis

2. Which of the following statements about osteoarticular infections with NTM is most accurate?

- A. NTM are usually spread through the blood to the bones and joints
- B. The ankle is the most common anatomic location of NTM tenosynovitis
- C. The clinical presentation for NTM and tuberculous osteoarticular infections is very similar
- D. Chemotherapy is unnecessary when surgical debridement is used to treat osteoarticular infections with NTM

3. Which of the following treatments is appropriately matched with its NTM skin or soft tissue infection?

- A. *Mycobacterium marinum*: Doxycycline monotherapy is acceptable for severe infection
- B. *Mycobacterium ulcerans*: Clarithromycin is the treatment of choice
- C. *M. ulcerans*: Minocycline is the treatment of choice
- D. *M. avium* complex: Treatment usually consists of 3 antibiotics for 6–12 months

4. Which of the following statements about rapidly growing mycobacteria (RGM) is most accurate?

- A. They respond to sterilization with formaldehyde solutions only
- B. They include organisms, such as *Mycobacterium fortuitum* and *Mycobacterium chelonae*
- C. Symptoms of RGM always occur within 4 weeks of exposure
- D. The usual duration of antibiotic therapy for infection with RGM is 1–2 months

Activity Evaluation

1. The activity supported the learning objectives.					
Strongly Disagree					Strongly Agree
1	2	3	4	5	
2. The material was organized clearly for learning to occur.					
Strongly Disagree					Strongly Agree
1	2	3	4	5	
3. The content learned from this activity will impact my practice.					
Strongly Disagree					Strongly Agree
1	2	3	4	5	
4. The activity was presented objectively and free of commercial bias.					
Strongly Disagree					Strongly Agree
1	2	3	4	5	
