Disclosures

No relevant disclosures

Learning Objectives

- Describe clinical and radiologic characteristics of pulmonary non-tuberculosis mycobacterial infection (NTMB).

Non-Tuberculous Mycobacteria

- Ubiquitous organisms
  - water, soil, milk, fish, birds

Non-Tuberculous Mycobacteria

- Infection
  - environmental exposure
  - not person-to-person
  - no isolation required
  - not reportable to health departments
  - ?? true incidence, prevalence
  - very likely increasing
Non-Tuberculous Mycobacteria

**Risk Factors**

- Diffuse lung disease
  - normal immune function
  - emphysema/COPD, ILD
  - bronchiectasis
  - cystic fibrosis

Non-Tuberculous Mycobacteria

**NTMB: Mortality (US)**

- Most common pathogens
  - M. avium complex (MAC)
  - M. kansasii
  - M. abscessus

Cystic Fibrosis

- M. avium complex
Cystic Fibrosis & NTMB

Risk Factors

- Specific phenotype ??
  - normal immune function
  - elderly women, low BMI
  - pectus excavatum, mitral valve prolapse
  - > 33% heterozygous CTFR mutations
  - indolent infection

A Familial Syndrome of Pulmonary Nontuberculous Mycobacteria Infections

To the Editor:

Women over the age of 50 who lack antecedent structural lung damage have emerged as a growing population afflicted with pulmonaty nontuberculous mycobacteria (NTM1). A common body morphology among these women, who are often tall and lean with scoliosis, pectus excavatum (PE), and mitral valve prolapse (MVP), points to a possible genetic basis for susceptibility to NTM (2, 3). Exploration of these traits in family members of patients with NTM provides evidence for the hypothesis that genetic factors modify disease susceptibility. To date, a systematic analysis of a large cohort of patients with NTM and their relatives has not been performed. We describe here a comprehensive review of families with NTM designed to identify a familial phenotype of disease. Some of the results of this study have been previously reported in the form of an abstract (4).

AJRCCM 2013; 188: 1373-1376.

Risk Factors

- Immune suppressed
  - HIV, steroids, TNF-α-inhibitors
  - IRIS (HIV, anti-retroviral therapy)
  - aggressive infections
  - disseminated, extrapulmonary
**Risk Factors**

- Immune suppressed
- HIV, steroids, TNF-Į
- aggressive infections
- disseminated, extrapulmonary

**Diagnosis**

- Problematic
  - ubiquitous
  - may colonize airways
  - active versus indolent infection

**Diagnosis**


American Thoracic Society Documents

An Official ATS/IDSA Statement: Diagnosis, Treatment, and Prevention of Nontuberculous Mycobacterial Diseases

David E. Griffith, Timothy M. Alibek, Barbara A. Brown-Elliott, Antonio Carmano, Charles Daley, Fred Gardes, Howard J. Hall, Robert Harbaugh, David Hulten, Michael J. Isolauri, Michael Karmaz, Kenneth Okawa, Herbert Ranzy, L. Frederick von Mey, Richard J. Wallman, Jr., and Kevin Wittenberg, on behalf of the ATS, American Thoracic Society, and the Infectious Disease Society of America, on behalf of the ATS, American Thoracic Society, and the Infectious Disease Society of America, on behalf of the ATS, American Thoracic Society, and the Infectious Disease Society of America. This Official Statement of the American Thoracic Society (ATS) and the Infectious Disease Society of America (IDSA) was approved by the ATS Board of Directors, September 25, 2007, and by the IDSA Board of Directors, January 2007.

**Clinico-Radiologic Manifestations**

- Classical (cavitary)
- Non-classical (nodular-bronchiectatic)
- Immunocompromised
- HIV (IRIS)
- Deglutition problems
- Hypersensitivity pneumonitis

**Clinico-Radiologic Manifestations**

- Classical (cavitary)
- Non-classical (nodular-bronchiectatic)

Vast Majority
Sputum smear (+) AFB
Isolated

Cavitary or “Classical” Pattern

• Mimics tuberculosis
  ◦ clinical and radiologic manifestations
• Elderly men
• Lung disease (COPD most common)
• Organisms
  ◦ MAC
  ◦ M. kansasii, M. xenopi
Surgical Resection

65 year old woman
Nagging cough

Bronchoalveolar Lavage Cx: MAC

Bronchoalveolar Lavage Cx: MAC
Bronchiectatic or “Non-Classical” Pattern

“Non-Classical” Pattern

- AKA: “Lady Windermere” syndrome

“To account for the distinctive features of this syndrome, we offer the hypothesis that habitual voluntary suppression of cough may have led to the development of nonspecific inflammatory processes in these poorly draining lung regions, upon which MAC engrafted.”


“Non-Classical” Pattern

- Elderly women
  - normal immune function
  - low BMI ...
- Chronic cough
- M. avium complex most common
- M. abscessus
  - much more difficult to treat

“Non-Classical” Pattern

- Thin-section CT
  - cylindrical bronchiectasis

“Non-Classical” Pattern

- Thin-section CT
  - cylindrical bronchiectasis
  - centrilobular, “tree-in-bud” opacities
“Non-Classical” Pattern

- Thin-section CT
  - cylindrical bronchiectasis
  - centrilobular, “tree-in-bud” opacities
  - cavitation uncommon

“Non-Classical” Pattern

- Thin-section CT
  - cylindrical bronchiectasis
  - centrilobular, “tree-in-bud” opacities
  - cavitation uncommon
  - RML, lingula

Initial Presentation

Initial Presentation
Diagnostic accuracy of CT
- highly sensitive
- specificity, PPV variable
- improves with multilobar disease (4 or more lobes) and/or cavities
M. avium complex

References