TB or Not?
Case 3

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Case Background

• 56-year-old female
• White, U.S. born
• 14 week history of productive cough
• More recent onset of fever, malaise, and night sweats
• Lost 10 lbs in last month

History

• Seropositive rheumatoid arthritis
  - Prednisone 5 mg daily
  - Infliximab for last one year
• COPD
  - 20-year tobacco smoking history
Physical

- Small, thin and cachectic appearing woman
- Vitals signs within normal limits (WNL) except HR 105
- No cervical lymphadenopathy
- Breath sounds diminished in right upper lung field
- Rales at mid-lung fields bilaterally
- CV exam without murmur

Diagnostic Studies

- CBC with Hb 10, WBC 10 with increased monocytes on differential
- Renal and liver function panel normal
- Sputum (routine, AFB, and fungal) collected
  - First at clinic visit that day
Differential Diagnosis

- Called that night by lab tech 4+ AFB smear positive
- AFB pulmonary pathogens
  - Mycobacteria
  - Nocardia
- Could this patient have TB?

Differential Diagnosis (2)

- Could this patient have TB?
  - TB risk factors?
  - Prior screening?
  - Potential prior exposure?
Infection Control and Treatment

• Decision-making based on various factors
  – Probability this is TB
  – Potential she could transmit
• Start therapy versus wait?
  – More sputum?

Polling slide

Would you change the immunosuppressive medications?

A. Stop infliximab
B. Stop infliximab and prednisone 5 mg.
C. Continue medications

Predictors of TB among those with respiratory AFB isolates
Oregon, 2005-2006

Figure. Positive predictive values (PPV) for tuberculosis of demographic and clinical factors in combination. TB, tuberculosis; COPD, chronic obstructive pulmonary disease; *9 patients missing birthdate; 145 patients missing birthdate.
Etiology of Confirmed Pulmonary NTM Disease (n=184)

- 87.5% M. avium
- 2.7% M. abscessus/chelonae
- 6% Other

Etiology of Confirmed Pulmonary NTM Disease (n=184)

- 3.8% M. avium
- 2.7% M. abscessus/chelonae
- 6% Other

Other (n=7+)
- 87.5% M. avium
- 12.5% Not MAC/Not speciated (n=5)

Disease Characteristics Differ by Sex

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Female (n=102)</th>
<th>Male (n=72)</th>
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| Age (median)  | 68 y
t | 62 y
t |
| Effusion      | 13 (12%)       | 18 (26%)    |
| Cough         | 21 (20%)       | 16 (23%)    |
| CXR            | 22 (20%)       | 19 (27%)    |
| Immunosuppresive Tx | 12 (11%) | 11 (15%) |
| Previous TB   | 8 (7%)         | 9 (12%)     |

Definition of abbreviations: COPD = chronic obstructive pulmonary disease; TB = tuberculosis; Tx = treatment.

General population 4.1 (3.9-4.4) 2.8 (2.6-3.0)

Age > 50 years 11.8 (11.1-12.6) 5.2 (4.7-5.8)

RA (no anti-TNF) 19.2 (14.2-25.0) 8.7 (5.3-13.2)

RA Anti-TNF users 112 (64-182) 56 (24-111)

NTM Incidence*  TB Incidence*

Anti-TNF associated NTM

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Disease Characteristics Differ by Sex
Nontuberculous Mycobacterium (NTM)

- “MOTT” – mycobacteria other than tuberculosis
- Environmental organisms
  - Soil, lakes, rivers
  - Municipal water systems (yes, including your tap at home)
- Biofilm where water flows
  - Live with amoeba, legionella, others
Pulmonary NTM

- Most common in US
  - *M. avium* complex (MAC), *M. kansasii*, *M. abscessus*
- 2007 ATS/IDSA diagnostic criteria
  - Patient with radiographic evidence of disease and pulmonary symptoms AND
  - At least 2 sputum cultures positive, or
  - One BAL or tissue specimen with positive culture, or
  - Tissue with granulomatous histopathology in conjunction with positive culture (BAL or sputum)

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**Isolation of non-tuberculous mycobacteria from the sputum of patients with active tuberculosis**

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**SUMMARY**

Isolation of non-tuberculous mycobacteria (NTM) from sputum of patients with active tuberculosis (TB) was performed in 2007-2009 (n = 141). Thirty (21%) patients had NTM isolated from sputum. No significant difference was observed between TB patients with NTM and those without NTM. Further study is needed to determine the clinical significance of simultaneous isolation of NTM and TB.

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