The Dangers Of Gardening – Nocardia Infection In An Immunocompromised Patient

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**Introduction**

Nocardia is a gram-positive, partially-acid fast, branching bacillus that is ubiquitous in the landscape. It is most often an opportunistic pathogen that can have devastating effects. As such, a high clinical suspicion is warranted, as is a thorough approach to the evaluation of the immunocompromised patient.

**Case**

**History**

A 56-year-old Filipino-American male with chronic kidney disease and a history of renal transplant in 2008 on chronic immunosuppression, presenting with a 1.5-week history of fever and cough.

- In the past 3 months, he has been treated for pneumonia twice.
- Travelled to the Philippines 2 weeks ago.
- Also complained of posterior axillary pain.

**Baseline Exam**

- Vitals: 37.8, 103/66, 117, 18, 96% on room air
- Lungs: Clear to auscultation.
- Integumentary: Posterior axillary mass, non-erythematous, mildly tender to palpation

**Pertinent Findings**

- Labs: WBC 9.3, ALT 448, AST 80, Creatinine 2.02 (baseline 1.70), Tacrolimus level 9.3
- Imaging:
  - CT chest: diffuse airspace opacities, worst at right upper lobe.
  - MRI brain: Within normal limits.
  - CT abdomen/pelvis: Within normal limits.
- Micro:
  - Sputum AFB negative x3.
  - CMV NAAT 410,000.
  - Blood, sputum, and axillary & calf abscess cultures: Nocardia nova.

**Clinical Course**

- Admitted and started on Ceftriaxone and Azithromycin for community acquired pneumonia.
- Cultures demonstrated positivity for branching gram positive bacilli, started on Imipenem and Trimethoprim-Sulfamethoxazole.
- Worsening kidney injury and hyponatremia, sensitivities of Nocardia returned and transitioned to Ceftriaxone.
- Discharged in stable condition.

**Discussion**

**Important Features of Nocardia Infections**

- **Environmental Concerns:** Nocardia species are found throughout the world in soil and decaying plant matter. It is important to educate immunosuppressed patients on the importance of avoiding careers or hobbies such as gardening in which they are closely involved with such environs.
- **Neurologic Involvement:** Nocardia has a predilection for subcutaneous, pulmonary, and neurologic tissues. Close neurologic monitoring and imaging may be necessary.
- **Risk Factors:** The most definitive risk factor is being immunocompromised. High-dose steroids, history of CMV, and high levels of Calcineurin inhibitors may be independent risk factors.
- **Treatment & Prophylaxis**
  - **Heterogeneity of Susceptibility:** What was once suspected to be one species is now many, with demonstration of variable susceptibility.
  - **Duration:** Treatment is prolonged, especially with disseminated or neurologic disease, typically including 3-6 weeks of multiple IV antibiotics, followed by 1 year of oral monotherapy in the immunocompromised.
  - **Prophylaxis:** Currently, no guidelines for primary prophylaxis exist, but in immunocompromised individuals, secondary prophylaxis is recommended.

**Conclusion**

Nocardia infections present with a variety of findings, which can range from indolent to acute. Immunocompromised patients, especially those with pertinent exposure histories, warrant close monitoring and workup. Treatment with multiple antibiotics including TMP-SMX in combination with Imipenem or Amikacin is used until sensitivities are available.

**References**


