DISSEMINATED NOCARDIOSIS: CLASSIC PRESENTATION AND IMPORTANCE OF EARLY RECOGNITION

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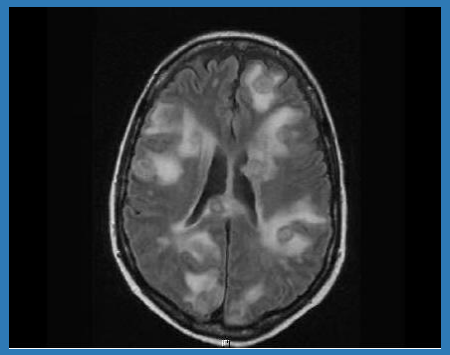
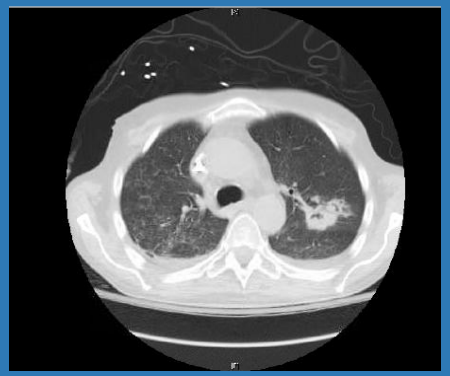
Background: Disseminated nocardiosis is a relatively rare disease that commonly has CNS, pulmonary and cutaneous involvement. Medical advancements have led to an increase in numbers of chronically immunosuppressed patients and a subsequent rise in the incidence of disseminated nocardiosis. Nocardiosis should be suspected in immunosuppressed patients with pulmonary and neurologic or subcutaneous findings. Although it is treatable, early diagnosis and initiation of appropriate multi-agent antibiotic therapy are key for reducing mortality.

Case Description: A 56 year old man with Wegener's Granulomatosis and end-stage renal failure requiring hemodialysis had been treated with cyclophosphamide, and prednisone for several months, then switched to prednisone and rituximab. One week after initiation of rituximab, he developed respiratory failure due to acute pulmonary edema requiring intubation. During the hospitalization, staff noticed two large subcutaneous masses. After discharge, he continued with progressive physical decline. Two weeks after his 2nd rituximab infusion, he developed acute left-sided weakness, ataxia and confusion. Plain films revealed a multi-lobar pneumonia and CT of the head revealed multiple brain lesions. He was transferred to our hospital, where CT demonstrated a cavitary lung mass, and MRI demonstrated multiple small abscesses. Broad-spectrum antibiotics were started. Labs returned with elevated Fungitell®, indeterminate Quantiferon®-TB, and negative tests for Toxoplasma, Histoplasma and Cryptococcus. Aspirates from the subcutaneous masses demonstrated branching gram positive rods, later identified as *Nocardia farcinica*. Meropenem, linezolid and amikacin were initially started. Trimethoprim-sulfamethoxazole was avoided due to renal failure and sulfonamide allergy. Linezolid was later switched to minocycline due to thrombocytopenia. Abdominal pain prompted the discovery of a large, multi-loculated pancreatic pseudocyst which grew *Candida albicans*. His condition continued to decline despite appropriate therapy, and he was discharged to home with hospice.

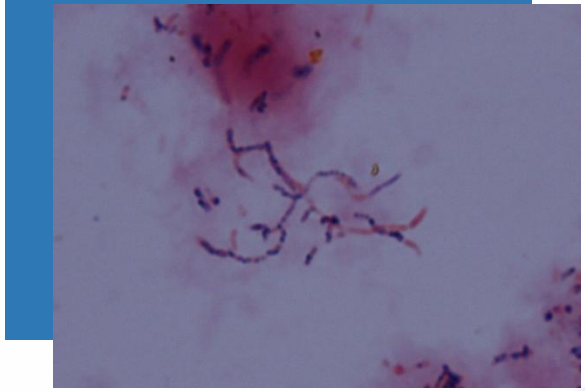


Non-contrast MRI image demonstrating multiple small abscesses.

Non-contrast CT image demonstrating infiltrates and cavitary lesion.



Discussion: Although this case was complicated by multiple co-morbidities, it illustrates the importance of considering Nocardiosis in the immunosuppressed patient with pulmonary and neurologic or subcutaneous findings. Commonly used serologic laboratory tests are not useful in diagnosis, which requires a sample of the involved tissue to be sent for culture. Treatment of Nocardia species requires long-term antibiotic therapy. *Nocardia farcinica* is generally more antibiotic resistant than other species and possibly more virulent. The mainstay of treatment is generally trimethoprim-sulfamethoxazole for susceptible species, with empiric combinations generally involving amikacin and imipenem until susceptibilities return. In this patient, renal failure and sulfonamide intolerance further complicated treatment.



Gram stain (above) of Nocardia demonstrating a typical poorly-staining beaded, branching gram positive rod. Photo courtesy of Marsha Wilson, MT.

Reference:
Mandell, GL. (2010) *Mandell, Douglas, and Bennett's principles and practice of infectious diseases*, 7th ed. Philadelphia, PA: Churchill Livingstone Elsevier. Retrieved May 2011 from University of Kansas Medical Center Library website: library.kumc.edu

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