A Wild NoCARDiosis Entry In Chronic Steroid Use

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Introduction

Nocardiosis is a localized or systemic opportunistic bacterial infection caused by *Nocardia* species, which typically affect immunocompromised hosts. *Nocardia*, a gram-positive aerobic bacteria, is ubiquitous in soil, water, and organic matter and can typically affect the skin, pulmonary, and central nervous systems. With the extensive use of steroids, cancer therapy, and organ transplantation, the incidence of Nocardiosis has increased in the United States (US) [1].

Case Presentation

A 70-year-old male with a past medical history significant for mild dementia, pulmonary fibrosis, and rheumatoid arthritis on prolonged steroid therapy presented with worsening confusion and syncopal episodes without fever. The initial workup revealed leukocytosis, hypoglycemia, and hypotension, which were suggestive of sepsis. Notably, the patient was admitted nearly two months ago with an upper gastrointestinal bleed and was also suspected to have pneumonia, for which he received Ceftriaxone and Azithromycin. Upon further evaluation at that time, blood cultures were consistently negative for the duration of the hospital stay; later turned positive for *Nocardia* a month later. Consequently, in the current admission, the patient was proactively started on intravenous trimethoprim and sulfamethoxazole (TMP-SMX). Repeat blood cultures at this time were again significant for gram-positive filamentous bacteria, consistent with *Nocardia farcinica*, sensitive to TMP-SMX. Further investigation to assess for the systemic spread of infection with an MRI brain revealed ring-enhancing lesions suggestive of septic emboli in the brain, while an echocardiogram revealed mitral valve endocarditis. Chest imaging was unremarkable, and a diagnosis of disseminated Nocardiosis was made. The patient was first administered a combination of Imipenem, Amikacin, and IV TMP-SMX for one month, after which the antibiotic therapy was de-escalated to oral TMP-SMX, which was continued for over six months. The patient clinically improved and remained stable.

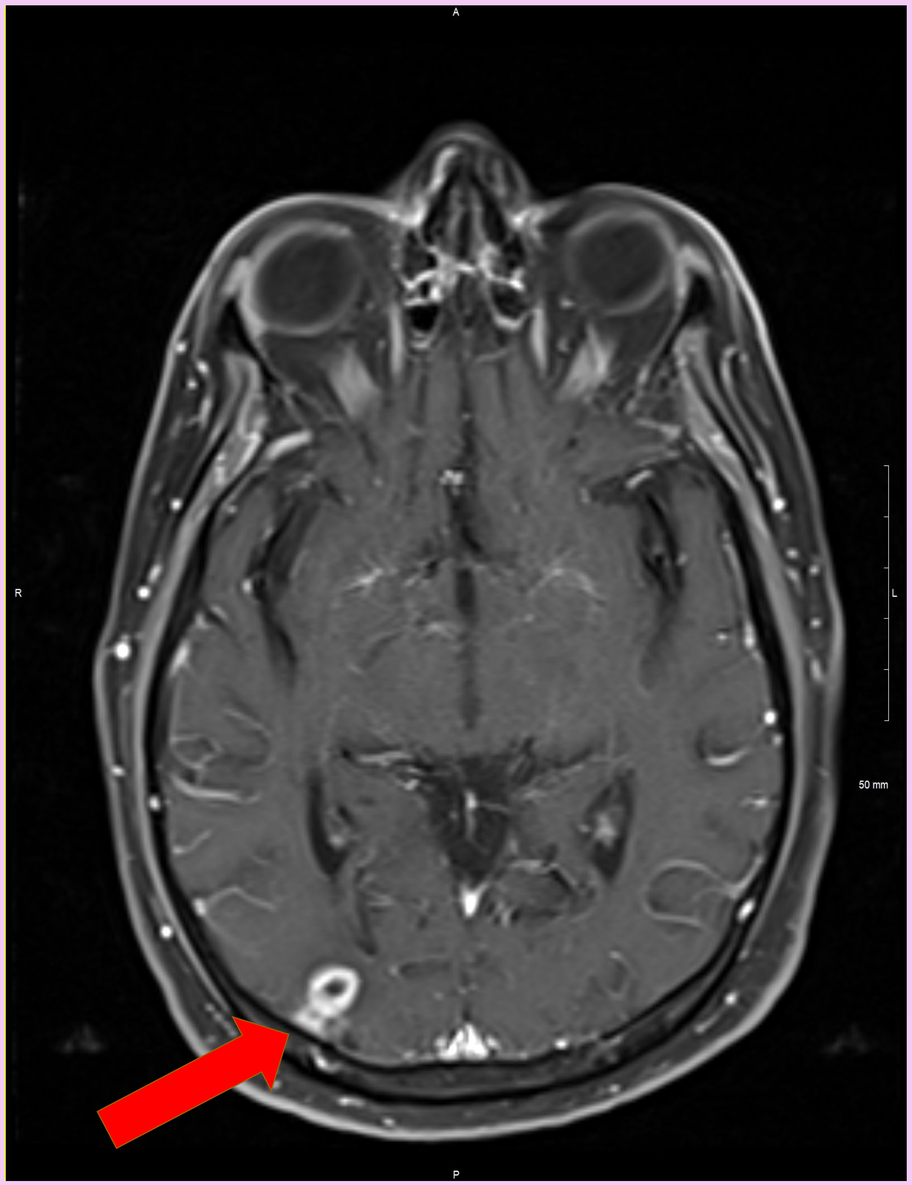

Figure 1: Axial T1 Fat Saturated With Contrast.

Discussion

Nocardia is predominantly transmitted through inhalation or inoculation to the skin. Immunocompromised hosts are more susceptible to disseminated infection with *Nocardia*. Although the primary site of infection is the lung, the central nervous system is the most common site of disseminated infection, usually due to hematogenous spread of the infection from the lung[2]. Disseminated Nocardiosis is associated with an approximately 60% mortality rate, even though the mainstay of treatment is antibiotics. Sulfonamides for a minimum of 6 months initially and at least one month after resolution of symptoms are the mainstay of treatment. However, a combined antibiotic regime is warranted for disseminated disease.

Conclusion

Despite significant medical advances in the previous decade, timely diagnosis of Nocardial infection remains challenging. While this can be attributed to its long incubation period[3], delays in the accurate diagnosis and initiation of appropriate treatment are often fatal for these patients. Hence, a strong clinical suspicion is always warranted in high-risk populations.

References

1. Beaman BL, Burnside J, Edwards B, Causey W. Nocardial infections in the United States, 1972-1974. J Infect Dis. 1976;134(3):286-289. doi:10.1093/infdis/134.3.286
2. Fatahi-Bafghi M. Nocardiosis from 1888 to 2017. Microb Pathog. 2018;114:369-384. doi:10.1016/j.micpath.2017.11.012
3. Wilson JW. Nocardiosis: updates and clinical overview. Mayo Clin Proc. 2012;87(4):403-407. doi:10.1016/j.mayocp.2011.11.016

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