Neurosyphilis in a Penicillin Allergic Patient

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Introduction

- Syphilis, a systemic disease caused by infection with Treponema pallidum, is divided into a series of overlapping stages
- The incidence of syphilis is on the rise
- Neurosyphilis can occur during any stage of syphilis
- Clinical evidence of neurological involvement includes cognitive dysfunction, motor or sensory deficits, ophthalmic or auditory symptoms, cranial nerve palsies and symptoms or signs of meningitis
- Current preferred treatment for neurosyphilis is intravenous Penicillin G.

Case Presentation

- A 68 year old African American man presented with an extensive history of progressive lower extremity weakness and dementia.
- Initially the patient was able to ambulate without assistance, and then in sequential order required crutches, cane, walker and finally he was wheelchair bound for the past three years.
- He required assistance with all activities of daily living including transfers to and from his wheelchair. Previous medical records revealed a serum RPR titer of 1:132.
- He underwent a lumbar puncture and his CSF was positive for FTA/ABS. CSF protein was elevated at 63mg/dl, and CSF VDRL was nonreactive.
- MRI of Brain showed no acute abnormalities, and was significant for chronic micro vascular ischemic changes. The MRI of T spine was within normal limits. However, the C-Spine did reveal an enhancing thickening of epidural tissue (Figure 1)

Hospital Course

- The patient had a history of a penicillin allergy so penicillin desensitization was undertaken in the intensive care unit.
- He successfully received three days of intravenous penicillin G in the hospital and was discharged home for completion of IV penicillin therapy.

Discussion

- Symptomatic neurosyphilis can occur at any stage of syphilis (Figure 2)
- Treponemes are detected within hours in the CSF of rabbit following exposure to T. pallidum
- 30% of persons with early syphilis and up to 60% of patients with late latent syphilis have T. pallidum DNA detected in their CSF by PCR
- Neurosyphilis should not be discounted in a patient with a negative CSF VDRL; the false negative rate approaches 30%.
- Patients with a penicillin allergy may receive ceftriaxone but data is limited and skin testing for penicillin allergy should be done if concern exists.
- Patients who do not respond to the alternate therapies may be candidates for penicillin desensitization.
- If concern exists regarding the safety of ceftriaxone for a patient with neurosyphilis, skin testing should be performed.
- Penicillin desensitization should be performed in consultation with a specialist.

References

- Musher, D, Neurosyphilis: Diagnosis and Response to treatment , Clinical Infectious Disease 2008; 47(7) 900-901

![Figure 1: Diffusely enhancing c3-c4, c6-c7 with associated inflammation or edema of the interspinous ligaments](image1.png)

![Figure 2: Neurological involvement in syphilis; the estimates reflect the probability of progressing to each stage, and the brackets on the right provide the average time to progression. Note, the figure assumes no therapeutic intervention (i.e. natural progression; CNS Neurosci Ther. 2010; 16(5) 157-68).](image2.png)