UCLA Health

Department of Medicine
2023 Solomon Scholars Research Program

Abstract Form

Hospital Affiliation:	Kern Medical Center
Presenter Name (Last, First):	Espinoza MD, Valerie
Co-Authors:	Jeffrey Nguyen MSIII, Amar Shah MD, Kasey Fox DO, Carlos D'Assumpcao MD, Arash Heidari MD, Rasha Kuran MD
Project Title:	The Neurosyphilis and Cocci Conundrum

Research Category (please check one):

☐	**Original Research**	☒	**Clinical Vignette**	☐	**Quality Improvement**	☐	**Medical Education Innovation**

Abstract

Neurosyphilis is an infection of the central nervous system caused by Treponema pallidum that can occur after the initial infection. Early forms of neurosyphilis affect the cerebrospinal fluid, meninges and vasculature, while late forms of the disease affect the brain and spinal cord parenchyma. We describe a case of neurosyphilis that was complicated by fluconazole toxicity during treatment of pulmonary coccidioidomycosis.

We present the case of a 26-year-old Hispanic male with type 1 diabetes mellitus, bilateral posterior subcapsular cataracts, pulmonary coccidioidomycosis, and left cranial nerve III and right cranial nerve VII palsy. The patient was brought to the emergency department by ambulance following multiple brief witnessed syncopal episodes. Upon presentation to the emergency department, he met systemic inflammatory response syndrome (SIRS) criteria with a temperature of 38.4 Celsius and tachycardia of 115 beats per minute, and a blood pressure of 142/82 mmHg. Physical exam was remarkable for left cranial nerve III and right cranial nerve VII palsies, asymmetric facial expression with mild right-sided facial droop and persistent right upper and lower facial droop, unequal and poorly reactive pupils, atrophy of lower extremity muscles, and decreased sensation to pin prick and position sense of bilateral lower extremities. The patient also complained of lethargy, headaches, lumbosacral back pain, and lower extremity weakness requiring use of a walker.

The patient's initial laboratory values were significant for sodium of 126 mmol/L, potassium of 2.8mmol/L, chloride of 92 mmol/L, creatinine of 1.36 mg/dL, magnesium of 1.5 mg/dL albumin 2.8 g/dL and glucose 163mg/dL. Electrocardiogram obtained showed sinus tachycardia at 140bpm and QTc of 395ms. Chest x-ray showed persistent left more than right reticulonodular opacities and small left and trace right pleural effusions. Cardiac echocardiogram demonstrated a significantly reduced left ventricular ejection fraction of 30% with moderate left ventricle dilation, mild pulmonary hypertension, and mild mitral regurgitation noted. MRI brain with and without contrast showed slight diffusely increased enhancement compared to two months prior. Cerebrospinal fluid analysis obtained from lumbar puncture showed white blood cell count (WBC) 5mcl, red blood cell count (RBC) 5 mcl, glucose 48mg/dL, protein 254mg/dL with cocci immunoglobulin G (IgG) weakly reactive complement fixation (CF) 1:4 and an opening pressure of 14cm H2O. Cerebrospinal fluid culture was unremarkable. Flow cytometry and cytology was performed to evaluate for carcinomatosis meningitis, in addition to oligoclonal bands and IgG synthesis rate given a family history of multiple sclerosis. Repeat lumbar puncture showed WBC 3 mcl, RBC 2 mcl, glucose 78mg/dL, protein 135.9mg/dL and opening pressure of 30cm H2O and nonreactive CSFVDRL. Cerebrospinal fluid was positive for albuminocytologic dissociation consistent with the diagnosis of neurosyphilis. In patients with suspected neurosyphilis who do not have HIV, a CSF lymphocyte count of greater than 5 cells/microL or a protein concentration of greater than 45mg/dL confirms the diagnosis.

Due to worsening generalized weakness and new onset of lower extremity weakness in setting of supratherapeutic fluconazole, it was discontinued and replaced with Cresemba. Given the patient's history of bilateral posterior subcapsular cataracts at the age of 18, rapid plasma reagin (RPR), venereal disease research laboratory (VDRL) and fluorescent treponemal antibody test-absorption (FTA-ABS) tests were ordered. Results showed nonreactive RPR and VDRL with reactive FTA-ABS and positive syphilis antibody. A diagnosis of late latent syphilis with bilateral posterior subcapsular cataracts, cranial nerves III and VII palsy was made and the patient was then started on penicillin G for treatment of neurosyphilis. The patient had an uneventful recovery after completing antibiotic therapy. Further outpatient management included a multidisciplinary approach with cardiology, pulmonary, and infectious disease in addition to primary care. Six months following his initial presentation, the patient had a 10% improvement of his left ventricular ejection fraction to 40%,