Tuberculosis Meningitis with Adrenal Insufficiency and Comorbid Herpes Simplex Meningitis: A Real Head Scratcher

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Introduction

- Tuberculosis (TB) meningitis accounts for 1 percent of all TB cases and 5 percent of extrapulmonary disease in immunocompetent individuals.[1]
- Adrenal involvement is an uncommon complication of tuberculosis. Overt symptoms of Addison's disease occur in 1 percent of reported milliary TB.[2]
- In cases of suspected TB meningitis, differential diagnosis should include viral causes, such as Herpes Simplex Virus (HSV), as CSF findings may present similarly.
- Compounded central nervous system infections with both TB and HSV in a non-HIV infected patient is an exceedingly rare occurrence that warrants further investigation for other immuncompromising factors.

Case Presentation

- A 57-year-old African American male with a past medical history of diabetes mellitus type 2, hypertension, hepatitis C, myelodysplastic syndrome and chronic obstructive lung disease presented with severe headache.

- The patient was recently worked up with a mediastinoscopy for mediastinal lymphadenopathy, which revealed acid fast bacilli and caseating granulomas.

Review of Systems:

- Dizziness on ambulation, night sweats, significant weight loss, chronic cough, severe headache.

Social History:

- Current .5 pack/day smoker, no alcohol use, no illicit drug use, unemployed receiving disability, monogamous with female partner, no travel.

Physical Exam:

- Hypotensive, afebrile, mild hypoxia at 96%
- Appeared ill, diaphoretic, trembling, pallor, no neck rigidity or neurological deficits. Pulmonary rhonchi heard in right lower lung field.

Laboratory studies:

- Chronic anemia, normal white count, worsening thrombocytopenia, markedly elevated creatine kinase, low cortisol, and abnormally low thyroid function tests.
- Lumbar puncture confirmed TB meningitis with positive cultures, elevated lymphocytes, elevated protein and low glucose.

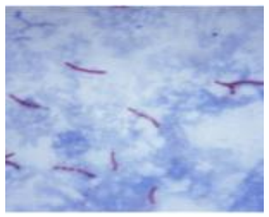


Figure 1[3]. Acid Fast Bacilli with Ziehl-Neelsen stain.

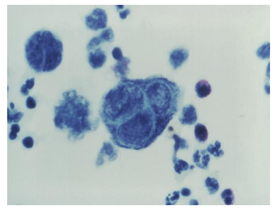


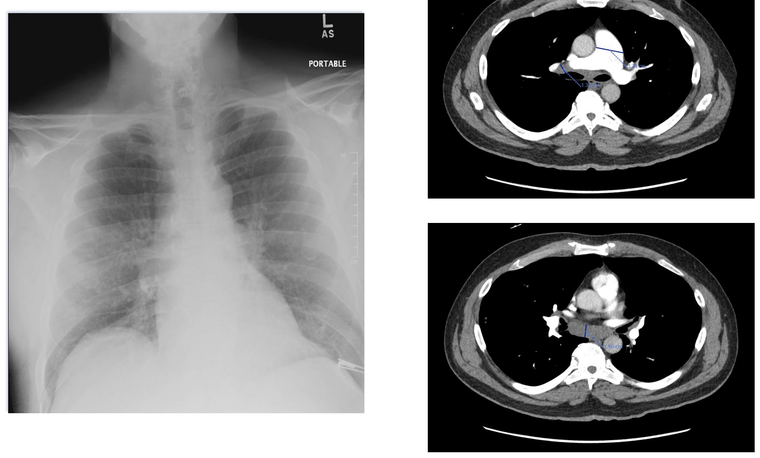
Figure 2[4]. Herpes Simplex Virus Tzanck smear

CSF Results	11/6/18	11/10/18
Color	Clear	Yellow
Xanthochromia	NEG(-)	POS(+)
WBC	230	750
RBC	1	50
Lymphs	89%	93
Protein	309.3	
Glucose	33.6	

Table 1. Lumbar Puncture CSF Findings.

LABS	11/3/18
Cortisol	1
TSH	.22
Free T4	.52
CK	592
AlkPhos	121
WBC	3.5
HGB	10.5
HCT	29.9
PLT	82
MCV	137.5

Table 2. Laboratory Studies.



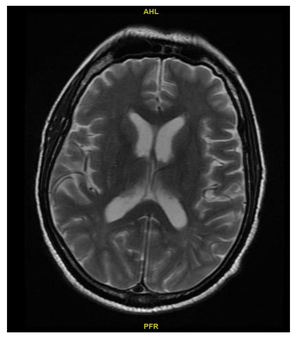
Case Continued

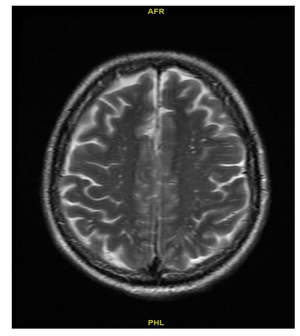
- The patient was initiated on an anti-tuberculosis regimen of Rifampin, Isoniazid, Pyrazinamide, and Ethambutol with supplemental Pyridoxine for TB meningitis as well as daily glucocorticoid and fludrocortisone for primary adrenal insufficiency and Levothyroxine for hypothyroidism secondary to disseminated TB.

- However, worsening headache with vomiting and photophobia prompted further head imaging, which were unrevealing, but laboratory investigations found the patient's repeat lumbar puncture CSF to be newly HSV-2 positive on PCR.

- IV Acyclovoir was initiated for concurrent HSV meningitis infection.

- Over the next few weeks, symptoms gradually improved and the patient was eventually discharged on medications with close follow up with infectious disease and immunology.





Imaging Studies

- **11/3/18- Chest X-Ray on admission**:

Right midlung patchy opacities. Base atelectasis. Biapical pleural-parenchymal scarring. Tiny nodular opacity right upper lung zone. Bilateral hilar adenopathy.

- **11/3/18- Head CT w/ Contrast:**

Small focus of enhancement in the left temporal parietal region.

- **11/6/18- MRI w&w/out Contrast:**

Prominent perivascular spaces in the hemispheric white matter is noted on the axial T2 sequence. Several foci of increased FLAIR signal are seen in the hemispheric white matter which are nonspecific.

- **11/10/18- MRI w&w/out Contrast**:

Prominent perivascular spaces are again seen. Few scattered punctate foci of increased T2 signal within the cerebral white matter, likely chronic small vessel ischemic changes

- **11/18/18-Chest CT PE w/ Contrast:**

Pulmonary hypertension. Patchy nodular opacities in the right middle and left lower lobes. Mediastinal(1.8cm) and bilateral hilar (1.3cm) lymphadenopathy persists.

Discussion

- Cases of extrapulmonary TB are usually seen in immunocompromised patients such as HIV however, this case is an extraordinary example of TB meningitis compounded with HSV-2 meningitis in a non-HIV patient.[1]

- This rarity highlights the importance of continuous work up and evaluation in patients who may or may not present with typical meningitis presentations.

- This case is also a prime example of the value of carefully monitoring patient symptoms and response to treatment.

- The patient's worsening of status after TB treatment could have been interpreted as a paradoxical reaction, but this reaction to treatment is usually improved with the addition of steroids, which the patient was presently on.[5]

- Further analysis was imperative to obtain a complete diagnosis and initiate potentially life saving therapy.

- Co-occurring infections, although rare, may be devastating if missed and should warrant further immunological investigation for appropriate treatment and optimizing outcomes.

Contact

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