TB or not TB - A Rare Case of Tuberculosis Meningitis

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Introduction

Tuberculosis meningitis (TBM) is one of the most uncommon, yet deadly forms of Tuberculosis (TB) infection. Mortality of untreated TBM is almost 100%. Due to the devastating effects of TBM we hope to educate on the signs, symptoms, diagnostic methods, and treatment of TBM to raise clinical awareness through the case of a young immigrant who presented to our hospital.

Case Description

A 26 year old Afghani male without past medical history presented to an Emergency Department (ED) 6 weeks prior to his admission to our hospital for evaluation of nonspecific symptoms of fever, fatigue, headache, neck and back pain, erectile dysfunction, poor appetite and weight loss of approximately 40lbs. Workup at that time revealed lymphopenia, macrocytic anemia, thrombocytopenia with scattered pulmonary nodules and mediastinal lymphadenopathy noted on chest imaging. He was discharged with a recommendation for close follow up as an outpatient. He saw an outpatient physician where Quantiferon gold was obtained but within hours of this appointment rapidly he developed confusion and decreased mentation and was urgently brought into our ED.

On arrival temperature was 101.5 Fahrenheit, heart rate was 112, and blood pressure was 106/59. Physical exam revealed a diaphoretic male responsive only to pain with a Glasgow Coma Scale (GCS) of 7. Nuchal rigidity was present as well as waxy flexibility. A lumbar puncture (LP) was performed with elevated white blood cells and protein and low glucose (findings included in Table 1). Meningoencephalitis panel was unrevealing. Patient was empirically initiated on Vancomycin, Rocephin, and Dexamethasone. Repeat LP was performed two days into admission with elevated opening pressure at 46cm H2O, again, with elevated protein and low glucose (Table 1). Given his elevated opening pressure and persistent altered mentation, MRI brain was obtained with findings in Figure 1. On the same day, outpatient QuantiFERON gold returned positive and empiric RIPE therapy plus Dexamethasone was initiated.

Figures and Labs

	Initial LP: Hospital Day 1	Repeat LP : Hospital Day 3	Repeat LP : Hospital Day 5
Opening Pressure	Not obtained	46cm H2O	17cm H2O
RBC	<2000	0	125
WBC	270 (65% N, 34% L, 1%M)	2 (54% N, 46% L)	464 (55% N, 42% L, 2% M, 1% E)
Protein	270.7	268.1	362.6
Glucose	25	15	32

Table 1. Lumbar puncture (LP) findings throughout hospitalization. Neutrophils (N), Lymphocytes (L), Monocytes (M), Eosinophils (E).

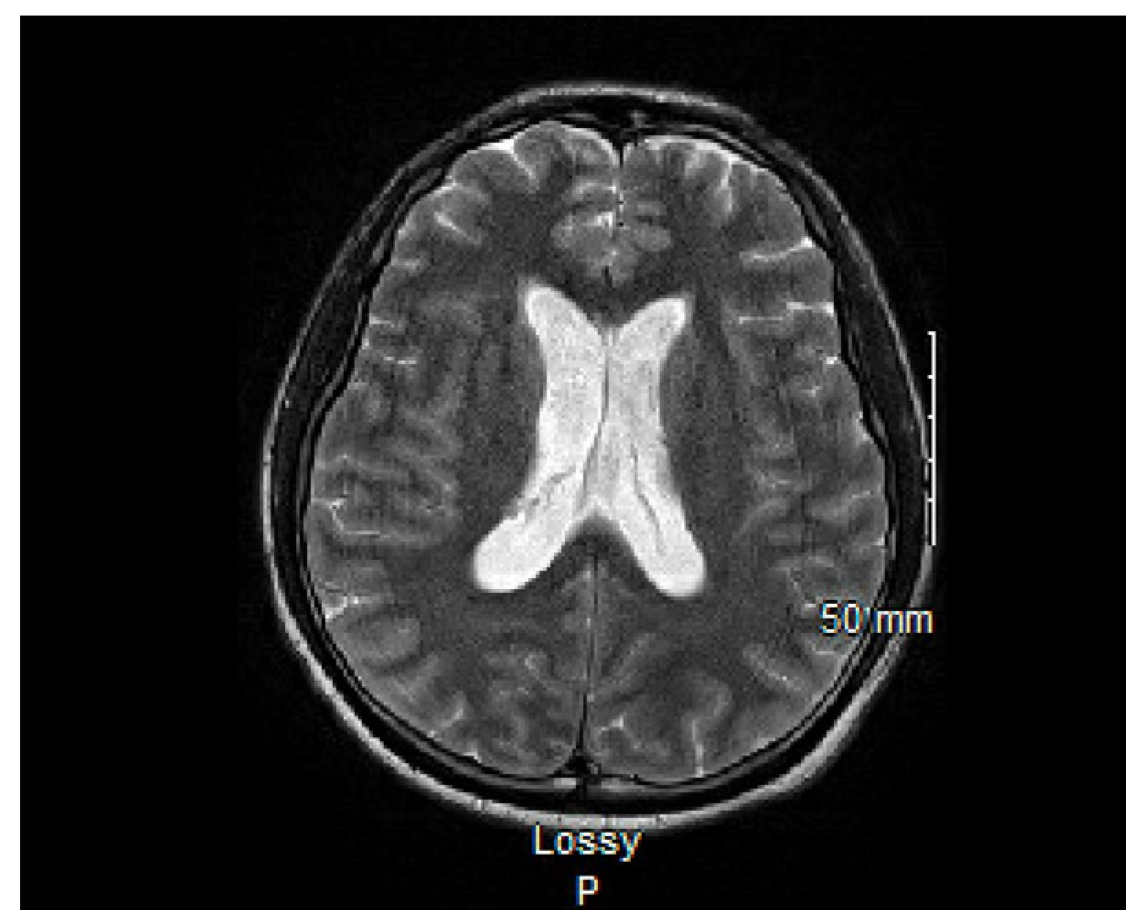

Figure 1. MRI Brain with and without contrast showing diffuse leptomeningeal enhancement and hydrocephalus.

Discussion/Conclusion

TB Meningitis affects approximately 1% of total TB cases worldwide (1). Due to its rarity, insidious onset and progression with the potential for devastating effects, clinical suspicion must be high and treatment cannot be delayed (3). Mortality rates are up to four times higher in CNS TB than non-CNS TB (2) and even with treatment in high resource settings morbidity remains 15-45% (3).

Our patient was initiated on RIPE and adjunctive steroids prior to confirmation of TBM with improved mentation. Days later the Mycobacterium nucleic acid amplification test (NAAT), returned positive confirming our suspicion. He has been established with the department of health to obtain 12 months of therapy with Decadron taper.

Our patient still suffers with short term memory and has occasional headaches with the need for therapeutic LPs. He still has a long road to recovery and unfortunately may never return to baseline given the severe grade of disease on initial presentation. He undoubtedly was at higher risk of more negative outcomes, including death, if not for the high clinical suspicion, rapid testing, and early initiation or therapy.

References

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