Case Report

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Internal Medicine Section

Tubercular Meningitis Presenting as Multiple Cranial Nerve Palsy

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ABSTRACT

Tubercular Meningitis (TBM) is caused due to the seeding of meninges with *Mycobacterium tuberculosis* and about one-third of the world's population is infected with it. The risk of contracting the infection increases in immunocompromised states which includes diabetes mellitus, chronic use of steroids, chronic alcoholism and Human Immunodeficiency Virus (HIV) co-infection. Here, a case of 47-year-old female has been presented, who reported to the Department of Medicine with complaints of weakness over the left side of the face associated with diminished hearing and tinnitus in the left ear and subjective vertigo since 20 days. Initially, all the above involvement was attributed to bell's palsy but no improvement was seen with its treatment. Incidentally, she was found to be HIV positive and lumbar puncture was done and eventually, she was diagnosed as a case of TBM. The patient was successfully treated with antitubercular medications and supportive measures and she responded well. She was discharged with antitubercular medications with regular follow-up in view of starting antiretroviral therapy after 6 weeks.

Keywords: Bell's palsy, Immunocompromised state, Tuberculosis

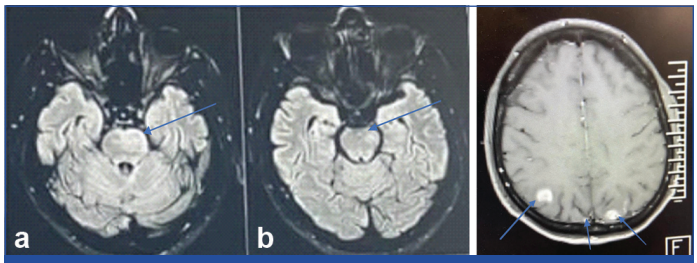
CASE REPORT

A 47-year-old female patient reported to the Department of Medicine with complaints of weakness over the left side of the face from past 20 days associated with difficulty in chewing food and drooling of saliva from the left angle of the mouth. She also complained of difficulty in closing the left eye while sleeping. She had slurring of speech which was noticed by her son. There was also diminished hearing and tinnitus in the left ear along with subjective vertigo, which was intermittent since 20 days. She gave a history of weight loss of 10 kg in past 2 months. No significant past history was present. No history of similar complaints in the family members were present.

On examination, she was afebrile, pulse rate was 100 beats/minute, and blood pressure was 110/70 mmHg. On physical examination there was no pallor, icterus, cyanosis, clubbing, lymphadenopathy or oedema. Deviation of angle of the mouth towards right side was seen [Table/Fig-1].

[Table/Fig-1]: Deviation of angle of the mouth towards right side.

The visual acuity in the left eye was reduced to hand movement close to face. Cardiovascular, respiratory and per abdominal examination was within normal limits. Hence, with the above findings, it was concluded that the left 2nd, 7th and 8th cranial nerves were affected. Initially, the findings were attributed to bell's palsy and the patient was referred to Neurology and Ear, Nose and Throat Department and she was started on tablet acyclovir 400 mg four times a day and injection dexamethasone 8 mg intravenous (i.v) three times a day with tapering dose. No improvement was seen after a week. On routine blood investigations, she was found to be HIV positive. The Cluster of Differentiation 4 (CD4) count was 98 cells/mm^3. A review was done with a Neurologist and Magnetic Resonance Imaging (MRI) of the brain was done. The MRI brain was suggestive of Tubercular Meningitis (TBM) with multiple tubercular granulomatous lesions and involvement of proximal portion of 7th cranial nerve in the left Cerebellopontine angle [Table/Fig-2a,b,3].



[Table/Fig-2a,b]: Magnetic Resonance Imaging (MRI) brain {Fluid-Attenuated Inversion Recovery (FLAIR) sequence} shows a lesion in the left pons.
[Table/Fig-3]: MRI brain (T1 weighted sequence) shows multiple tubercular granulomatous lesions in the right parieto-occipital and left occipital region. (Images from left to right)

Lumbar puncture was done which showed lymphocytic predominant pleocytosis with elevated proteins and low glucose. Adenosine Deaminase (ADA) test was positive which was 24 U/L. Cartridge Based Nucleic Acid Amplification Test (CBNAAT) was negative. She was started on weight-based Antitubercular Therapy (AKT 4), tablet cotrimoxazole 800 mg OD, tablet aspirin 150 mg OD and steroids were continued. The patient improved within 10 days of starting the treatment and was discharged on AKT with regular follow-up in view of starting Antiretroviral Therapy (ART) after 6 weeks.

DISCUSSION

Infection with *Mycobacterium tuberculosis* is a common complication of HIV infection. Individuals with HIV infection are more prone to develop pulmonary as well as extrapulmonary tuberculosis which can either be due to increased susceptibility of infection or

reactivation of latent tuberculosis [1]. The risk of extrapulmonary tuberculosis in a HIV infected individual increases with the declining CD4+ count usually less than 200/mm^3. The most common cranial mononeuropathy in HIV patients involves the Facial nerve which usually occurs around the time of seroconversion. Facial paralysis in HIV infected patients does not clinically differ from typical bell's palsy, as seen in the present case. The neurological manifestations of Tuberculosis include TBM, tuberculous granulomas, or tuberculous brain abscess [2,3]. TBM contributes to high mortality rates in HIV patients, especially in developing countries, due to late diagnosis. Clinical manifestations are usually non specific and may mimic other opportunistic infections of Central Nervous System (CNS) such as cryptococcosis, neurosyphilis, and bacterial meningitis [4].

Berenguer J et al., reported that the frequent presenting symptoms of TBM in a HIV infected individual were fever, headache and altered consciousness [5]. However, no such symptoms were present in this case. Another study conducted by Katrak SM et al., reported that most of the HIV positive patients with TBM had cognitive impairment on presentation [6]. However, no cognitive impairment was observed in this case. A similar case reported by Kama S et al., reported a case of HIV positive patient with multiple cranial nerve palsies including sixth, ninth, tenth and twelfth nerve [7].

In a study conducted by Dian S et al., various findings of TBM in brain imaging was meningeal enhancement, tuberculomas, brain infarction and hydrocephalus [8]. The present case had all findings except hydrocephalus. Therefore, a high index of suspicion should always be considered, and lumbar puncture along with radiological interventions should be considered in patients with HIV infection.

Delayed initiation of AKT is associated with increased risk of mortality hence tuberculosis should always be considered as a differential diagnosis in patients with HIV. It has also been reported that early initiation of antiretroviral therapy among People Living with HIV (PLHIV) with TB meningitis is associated with adverse effects, hence it is safer to delay the initiation of ART [9]. TB Immune Reconstitution Inflammatory Syndrome (IRIS) manifests as paradoxical worsening of existing TB infection or development of new infection after initiation of antiretroviral therapy in a patient with tuberculosis [10].

HIV infected individuals who present with features of bell's palsy should always undergo a lumbar puncture to rule out tubercular infection. The goal is early diagnosis and initiation of antitubercular treatment in these patients.

CONCLUSION(S)

Tubercular infection was suspected in the patient as no improvement was seen with treatment of bell's palsy. Tuberculosis complicates the disease course of HIV infection. Hence, early detection and initiation of treatment with AKT is necessary to reduce the incidence of HIV related mortality.

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