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Case Report

Multiple Intracranial Tuberculomas In Immunocompetent Patient: An Uncommon Primary Manifestation Of Central Nervous System Tuberculosis (CNS TB)

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ABSTRACT

Tuberculosis (TB) is a serious yet potentially-curable health issue among most developing countries including Pakistan. We report the case of an immunocompetent patient having multiple intracranial tuberculomas without evidence of meningitis which is an uncommon manifestation of CNS tuberculosis. A 50-year old man presented with 5 episodes of tonic-clonic generalized fits for 1 day, right sided body weakness for 2 weeks, generalized headaches and intermittent low-grade fever for 1 month. No contact or past history of tuberculosis was reported. On neurologic examination, there was hypertonia, exaggerated deep tendon reflexes and power of 3/5 in both right upper limb and right lower limb with a right plantar extensor response. CT scan (Brain) showed hyperdense areas in left frontal and temporal lobes with surrounding vasogenic edema. ESR was raised at 86 mm/hour. CSF analysis demonstratedRBC 0 cells/uL, WBC 783 cells/uL with 100% lymphocytes, Glucose 39 mg/dl andProtein 81 mg/dl with negative organism microscopy onAFB and Giemsa staining. However, CSF was positive for GeneXpert-PCR-MTB but drug resistance was not detected to rifampicin. Brain MRI with FLAIR demonstrated multiple disseminated, rim enhancing lesions with perilesional edema in bilateral cerebral hemispheres, thalami, left basal ganglia, medulla oblangata and cerebellum having no meningeal enhancement. Workup for immune-suppression was normal. A diagnosis of multiple intracranial tuberculomas was established and Anti-tubercular therapy was commenced. He was asymptomatic and taking ATT with good compliance having no adverse affects by 6-week follow up.

Keywords: Intracranial Tuberculoma, Anti-tubercular therapy, CS Tuberculosis, GeneXpert-PCR for MTB.

INTRODUCTION

TB is a serious yet potentiallycurable health issue among developing countries including Pakistan which ranks 5th among countries having highest tuberculosis burden. In Pakistan, 4.6% cases of extra-pulmonary TB involve CNS with 74.3% treatment success rate[1].Tuberculous meningitis is the commonest manifestation of CNS tuberculosis with other forms being relatively less common including tuberculomas, tubercular abscess, cerebritis and tubercular empyema[2].Intracranial tuberculomas can manifestas focal neurological deficit without having any systemicsymptoms or signs which leads to difficulties in establishing a diagnosis[3].Presence of concurrent TBcan present as headache, fever, vomiting, nausea, seizures, and neck stiffness[3]. CNS tuberculosis is 5 times more frequent in HIV-positive patients as compared to healthy people[4]. Furthermore a resurgence in tuberculosis infection notablyat atypical sites are being reported with increase in prevalence of immunosuppressive disorders especially HIV/AIDS[5,6]. Early diagnosis and prompt initiation of anti-tuberculosis therapy is necessary to reduce morbidity and mortality associated with CNS tuberculosis. However diagnosing CNS Tuberculosis can be difficult as clinical features may be mild, variable and non-specific particularly in initial stages[7,8].Herein, we report the case of an immunocompetent patient having multiple intracranial tuberculomas without evidence of meningitis which is an uncommon manifestation of CNS tuberculosis.

CASE REPORT

A 50-year old previously healthy man presented with 5 episodes of tonic-clonic generalized fits. The

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episodes remained for 3-5 minutes and were associated with urinary incontinence, salive frothing and post-ictal drowsiness lasting 10-15 minutes. Prior to this there history of intermittent low grade fever documented 100°F and moderate intensity generalized headache having no specific aggravating or relieving factors for last 1 month. In addition to this, there was history of right sided body weakness for last 2 weeks for which he had consulted local hakeems without any improvement in symptoms. No history of trauma, oral or genital ulcers,joint pains, respiratory infections, skin rashes, sinusitis, weight loss, cough, dyspnea, lumps or bumps, previous psychiatric or neurological manifestations. He worked as a shopkeeper and was married with 4 children.There was no history of smoking or illicit drugs use.No contact or past history of tuberculosis was reported. On GPE examination, temperature of 100.2°Fwas noted. On neurologic examination, there was hypertonia, exaggerated deep tendon reflexes and power of 3/5 in both right upper limb and right lower limb with a right plantar extensor response. Pupils were reactive to light and equally round bilaterally. Extraocular muscle movements were normal. Signs of papilledema were not present on fundoscopy. There was no neck rigidity with negative Kernig and Brudzinski signs. No focal cerebellar or sensory loss was found. Abdominal, precordial and respiratory examinations were unremarkable.

A CT scan (Brain) was done showing hyperdense areas in left frontal and temporal lobes with surrounding vasogenic edema (Figure1) and he was admitted with a differential diagnosis of intra-cranial space occupying lesions including brain abscess, malignancy, tuberculosis and neuro-sarcoidosis. CBC showed normal WBC but elevated ESR at 86 mm/hour. LFTs, RFTs and urine analysis were normal. CSF analysis demonstrated RBC 0 cells/uL, WBC 783 cells/uL with 100% lymphocytes, Glucose 39 mg/dl and Protein 81 mg/dl with negative organism microscopy on AFB and Giemsa staining. However, CSF was positive for GeneXpert-PCR-MTB but drug resistance was not detected to rifampicin. Blood, urinary and spinal fluid cultures showed no organism growth. MRI scan Brain with FLAIR (Figure 2) showed multiple disseminated, rim enhancing lesions with perilesional edema in bilateral cerebral hemispheres, thalami, left basal ganglia, medulla oblangata and cerebellum having no meningeal enhancement. Work up was done for immunosuppressive condition, sarcoidosis and malignancy. Serologies of HIV, HCV, HBV and syphilis were normal. Blood glucose monitoring and HbA1c were normal. Serum ACE and calcium levels were normal. His echocardiography, abdomen and chest CT scan were normal. He was diagnosed as having Multiple Intracranial Tuberculomas. Anti-tubercular therapy (ATT) compromising oral isoniazid, rifampicin, ethambutol and pyrazinamide was commenced in addition to steroids. He was asymptomatic and taking ATT with good compliance with no adverse affects by 6-week follow up.

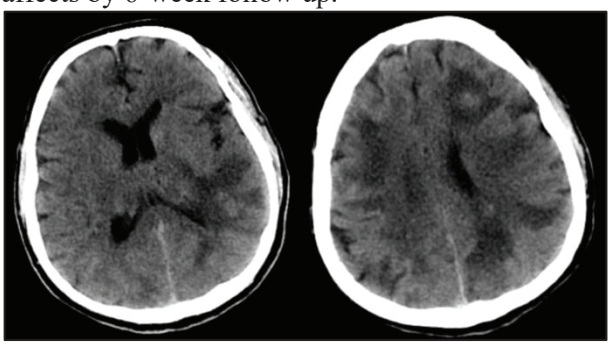

Fig-1: CT Scan Brainshowing hyperdense areas in left frontal and temporal lobes with surrounding vasogenic edema.

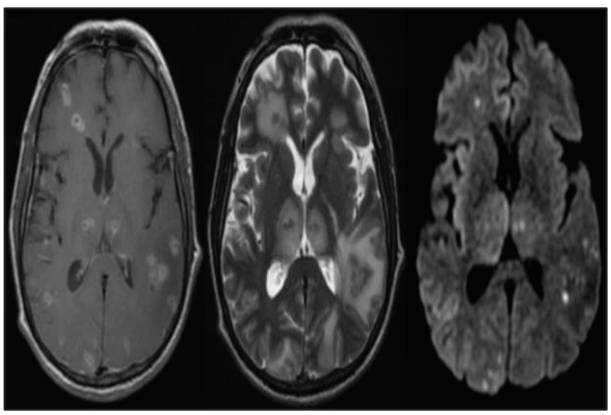

Fig-2: MRI Scan Brain (left image: T1/FSE sequence, center image: T2 sequence, right image:DWI/FLAIR sequence) showing multiple disseminated, rim enhancing lesions with perilesional edema in bilateral cerebral hemispheres, thalami, left basal ganglia, medulla oblangata and cerebellum having no meningeal enhancement

DISCUSSION

CNS tuberculosis is reported in up to 1% patients of tuberculosis. Tuberculous meningitis, being the most common presentation, is responsible for approximately 80% CNS tuberculosis cases[9,10]. Extra-pulomary tuberculosis, CNS tuberculosis and tuberculosis at atypical sites are more common in patients with immunodeficiency especially HIV/AIDS[10]. In the present case, there was no past history of any illness, HIV serology was negative and there was no evidence of immunodeficiency.

Cerebrospinal fluid analysis findings suggestive of CNS tuberculosisare decreased glucose, mononuclear pleocytosis and elevated protein[10,11]. Mycobacterium identification by AFB stain microscopy, AFB culture or GeneXpert-PCR-MTB in the CSF aid in establishing the diagnosis of CNS tuberculosis but remains challenging[11,12]. In the present case, CSF analysis showed low glucose, 100% lymphocytes and high protein. Further CSF analysis showed negative gram stain and bacterial culture along with positive GeneXpert-PCR-MTB helping to establish the diagnosis of multiple intracranial tuberculomas in absence of TB meningitis. The mainstay treatment of CNS tuberculosis is anti-tuberculous therapy (ATT) for a duration of 9-12 months[13]. If there are no contra-indications to therapy, treatment may be started promptly on grounds of high clinical suspicion and laboratory confirmation may be sought later on[13]. Co-administered steroids also aid to reduce morbidity and mortality in all except late-stage disease[13,14]. Poor outcome in CNS tuberculosis is indicated by drug resistant tuberculosis, co-existing HIV/AIDS and altered consciousness at initial presentation[9]. Our patient was started on Anti-tubercular therapy with steroids and was asymptomatic at 6-week follow up having experienced no adverse effects.

In conclusion, timely diagnosis by keeping a high clinical suspicion, adequate work-up, prompt treatment and monitoring of drug side effects are necessary to help limit the morbidity and mortality associated with CNS tuberculosis.

CONCLUSION

We reported the case of an immunocompetent patient having multiple intracranial tuberculomas without evidence of meningitis which is an uncommon manifestation of CNS tuberculosis. Timely diagnosis by keeping a high clinical suspicion, adequate work-up, prompt treatment and monitoring of drug side effects are necessary to help limit the morbidity and mortality associated with CNS tuberculosis.

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