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A Rare Case of Tuberculoma of Brain Presenting for the First Time as Tuberculous Longitudinally Extensive Transverse Myelitis (LETM)

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Abstract: ***Background: Longitudinally extensive transverse myelitis is an inflammatory lesion of spinal cord which involves 3 or more spinal segments. It is a rare presentation of M. Tuberculosis infection. Case description: Here is a case of 46 years old male presented with weakness of both lower limbs for 10 days and both upper limb for 7 days with a band like sensation around clavicle for 7 days and acute retention of urine for 6 days. On examination: Patient was hemodynamically stable with thin body built with BMI of 16 kg/m2 with spastic quadriparesis, bilateral plantar extensor, all deep tendon reflexes of upper and lower limbs exaggerated, loss of all modalities of sensation below c5level ,acute retention of urine, fundoscopy normal, MRI spine showing ill-defined intrinsic lesion extending from c2 to d12-l1 vertebral level, contrast MRI of brain shows multiple ring and nodular enhancing lesions suggestive of tuberculoma of brain, CSF study with low sugar and high protein content and CBNAAT positive for M. Tuberculosis. The patient was diagnosed with tuberculoma of brain with tuberculous LETM and then started on ATT and steroid and he is improving slowly. Conclusion: Our case highlights that tuberculoma of brain though a common manifestation sometimes presents with an unusual presentation like LETM which is a very rare presentation therefore tuberculosis as a cause of LETM should not be overlooked***

Keywords: Longitudinally extensive transverse myelitis (LETM), Brain Tuberculoma, Tuberculosis

1. Background

The most common manifestation of central nervous system tuberculosis is tuberculous meningitis followed by tuberculoma of brain and tubercular brain abscess. [1]

Intramedullary spinal tuberculosis is an infrequent manifestation of mycobacterium tuberculosis infection. Longitudinally extensive transverse myelitis is characterized by immune mediated inflammatory lesion of spinal cord extending 3 or more contiguous spinal segments and it is a rare manifestation of tuberculosis. [1,2,4]

2. Case Description

A 46 years old man presented to the hospital with chief complains of weakness of both lower limbs for 10 days and both upper limbs for 7 days with a band like sensation around clavicle for7 days and acute retention of urine for 6 days. There is no history off fever, cough, recent vaccination, trauma to the back, blurring of vision or altered sensorium.

On examination patient was a thin built person with BMI of 16kg/m2,hemodynamically stable, higher mental function, cranial nerves and bilateral fundus were normal with hypertonia of both upper and lower limbs without any atrophy ,power of the muscles of the upper limbs were medical research council (MRC) 4/5 bilaterally and 2/5 in both lower limbs, bilateral plantar extensor ,abdominal reflex absent bilaterally, deep tendon reflexes were exaggerated(+++) in both upper and lower limbs bilaterally, all modalities of sensation were lost below c5 level, there was autonomic involvement in the form of acute retention of urine ,no meningeal or cerebellar signs were found.

Blood investigations including liver function, renal function, thyroid function, hemogram and serum vitaminB12 assay were normal, ESR was raised (56 in first hour), Xray of chest and cervical spine were normal, ELISA for HIV was negative. Markers for autoimmune and connective tissue disorder like ANA, Anti-ds DNA, Anti-Sm, Anti-histone, anti Scl 70, Anti-JO, Anti-RO, Anti SS-A, Anti SS-B were negative.

Magnetic resonance imaging (MRI) screening of whole spine revealed a contiguous long segment intra medullary lesion extending from C2 to D12-L1 vertebra level which was hypo to isointense in T1WI and hyperintense in T2WI involved more than 50% of cord surface area which was suggestive of longitudinally extensive transverse myelitis .

Contrast MRI of brain revealed multiple ring and nodular enhancing lesions in the brain suggestive of tuberculoma of brain, MR spectroscopy was also suggestive of tuberculoma of brain .

Lumbar puncture showed normal intracranial pressure with CSF analysis report of 70cells/mm3 with lymphocytic predominance and elevated protein140mg/dl and normal sugar 45mg/dl. CSF CBNAAT for M.Tuberculosis was positive. CSF Anti AqP4 antibody (NMO antibody) and Oligoclonal band were negative.

From the clinical, imaging and CSF study it was confirmed to be tuberculoma of brain with tuberculous LETM. The patient was then treated with high dose of injection methylprednisolone iv (1000mg per day for 5 days) and anti-tubercular drugs (isoniazid 300 mg Rifampicin 450 mg,Pyrazinamide 1500 mg and ethambutol 800 mg) along with Pyridoxine 40 mg per day. After 5 days the patient showed mild improvement in muscle power MRC grade 3/5 in both lower limbs. Patient was then discharged with 4 anti tubercular drugs as mentioned above and pyridoxine 40mg and dexamethasone 12 mg per day. Dexamethasone was tapered off over 8 weeks. We planned to continue these anti tubercular drugs for 2 months and then shift to dual anti tubercular drug that is Rifampicin and Isoniazid for next 10

months. At 6 month follow up patient was able to walk with minimal support.

3. Discussion and Evaluation

LETM is an exceedingly rare form of neurological manifestation of CNS-TB [3]. Tubercular LETM is a result of abnormal activation of immune response against spinal cord leading to immune mediated inflammatory secondary demyelination [5].in recent studies, anti AQP-4, anti-MOG, and anti-MBP-antibodies have been found in high titers in CSF with tubercular LETM which supports secondary demyelination. Radiologically these lesions are hypo to iso intense in T1WI and hyper intense in T2WI without contrast enhancement.

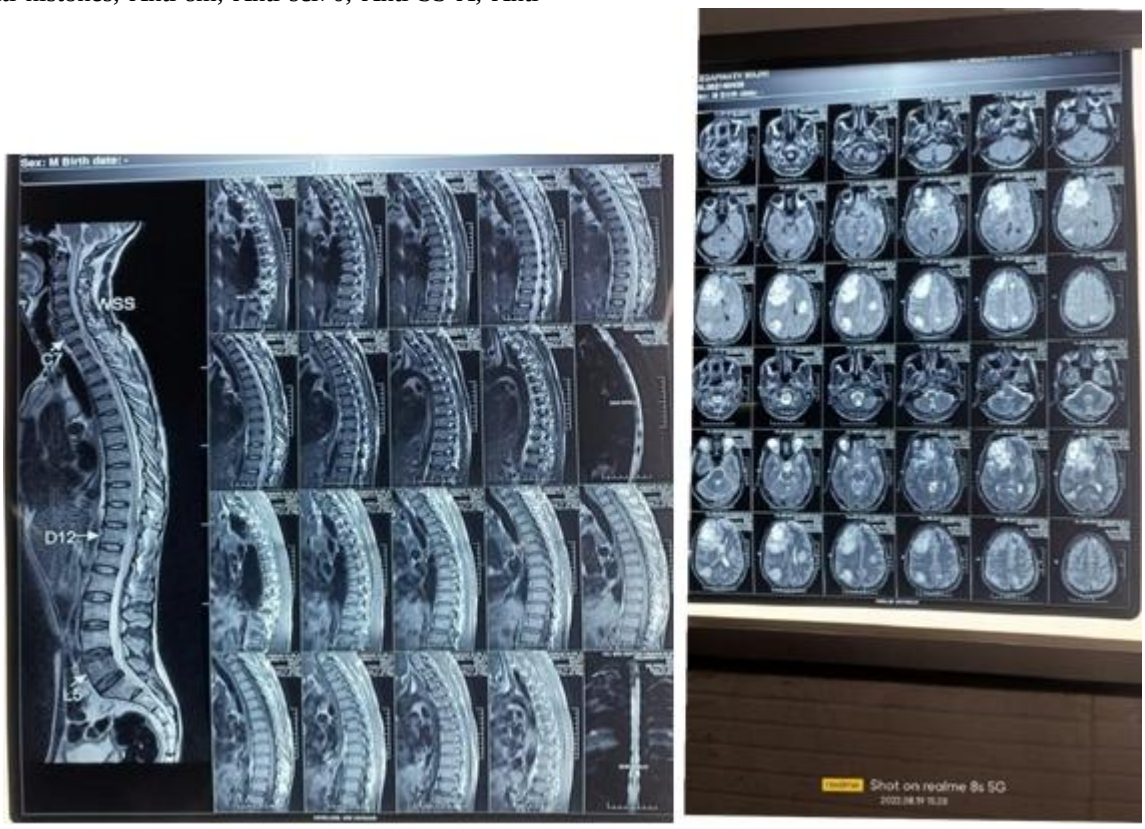
In this patient clinical features, MRI and CSF studies confirmed that this is a case of tuberculoma of brain which presented as tuberculous LETM. However other differential diagnosis like infective cause (bacterial, viral, parasitic), vascular, spinal cord tuberculoma, demyelinating disorders (MS, NMO), autoimmune and connective tissue disorders, neoplastic and paraneoplastic conditions were also kept in consideration. MRI of spinal cord ruled out any presence of tumor, tuberculoma or vascular lesions. Autoimmune and connective tissue disorders were ruled out as ANA, Anti-ds-DNA, Anti histones, Anti-sm, Anti-scl70, Anti-SS-A, Anti-SS-B, Anti JO, were negative in our patient. Oligoclonal bands and Anti AQP4antibody which are specific for MS and NMO respectively were negative in our patient.

4. Conclusion

Early detection of tubercular LETM is extremely important otherwise it may turn in to cavitary syrinx formation and permanent disabilities. With proper clinical history, physical examination and high degree of suspicion with early imaging studies accurate diagnosis of tubercular LETM can be made and it is also necessary to do imaging of brain because tuberculoma of brain sometimes remains silent for years and detected incidentally while evaluating for other manifestations as in our case. Here our case highlights that tuberculosis should always be kept in list while evaluating a case of acute Non compressive myelopathy with LETM on imaging and brain imaging is a mandatory investigation to rule out any other tubercular lesion of brain.

5. Consent

The patient has given written consent for the use of personal and medical information for the publication of this case report and any accompanying images.



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