

## Multiple Intracranial Tubercular Brain Abscesses: A Case Report and Review of the Literature

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**Abstract:** 20 year old female diagnosed with Tubercular meningitis (TBM) with hydrocephalous treated with VP Shunt Surgery; initially she showed improvement with Anti-tubercular Therapy (ATT) and shunting but later deteriorated for which Decompressive Craniotomy was performed. Multi-Drug Resistant (MDR) TB was suspected and second line ATT was started. She did not improve much and developed multiple brain abscesses for which multiple tapping was done and sent to pathology. Sensitivity was done and rifampin sensitivity was found. So, fixed regime was stopped and mixed drugs were given. This case highlight the difficulty in the diagnosis of TBM possibly due to non specific clinical features, pauci bacillary nature of CSF, lack of proper sensitive and specific test, and difficulty in taking the pathological sample from brain during follow up. Due to which in majority of cases empirical ATT is given. Authors present a case report of a suspected case of MDR tubercular meningitis with hydrocephalous to highlight the challenge in the management of CNS TB.

**Keywords:** Central Nervous System (CNS), Tubercular Meningitis (TBM), Hydrocephalous, Anti-Tubercular Therapy (ATT), Multiple Drug Resistant TB (MDR TB), Cartridge based Nuclear Acid Amplification Test (CB NAAT)

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### I. Introduction

Tuberculosis (TB) of CNS is very common in south East Asian region and particularly in India. TBM is one of the severe manifestations of extra pulmonary tuberculosis. CNS TB is associated with high mortality and morbidity, prognosis of cases of MDR TB is even worse [1].

Globally, MDR TB accounts for 5% of all TB patients, 3.5% of new cases and 20.5% of retreated cases [1] [2] [3]. Drug resistant TB may occur due to genetic mutation that makes a drug ineffective against the mutant bacilli, it may be due to primary infection with drug resistant strains or may develop during the course of the treatment mainly due to inappropriate treatment [2]. MDR TB has a rapid course (some die in 4-6 week). Treatment of these cases is difficult because one or more second line drug are to be given for 12 to 24 months [4].

### II. Case Report

A 20 year old presented with history of headache, high grade fever and vomiting for last 15 days. Non contrast computed tomography (NCCT) was done along with lumbar puncture which showed tubercular picture and a diagnosis of TBM was made. Immediately ATT was started comprising of Isoniazid, Rifampin, Pyrazinamide, and ethambutol with streptomycin. After 6 months of therapy patient still complained of severe headache and presented with an episode of seizure. NCCT of head was done which revealed hydrocephalous. Ventriculo- Peritoneal Shunt Surgery was performed under general anesthesia. Patient improved following surgery and was eventually discharged. One month later she again had a seizure along with deterioration of consciousness. Contrast Enhanced CT Brain was done suggestive of tuberculoma with tubercular meningitis, ventriculitis and choroiditis with generalized brain edema. Decompressive craniotomy of right side of the brain was done and MDR was diagnosed following which second line ATT drugs were started comprising of Cycloserine, ethionamide, ethambutol, levofloxacin, pyrazinamide and pyridoxine. Patient did not improve with time and developed multiple brain abscesses for which multiple tapping was done and sample sent to

pathology for CB NAAT. . CB NAAT testing showed rifampin sensitivity. So, second line ATT fixed regime was stopped and mixed therapy consisting of rifampin was given. Even with the new regime patient did not improve and eventually died because of the massive brain swelling.

### III. Discussion

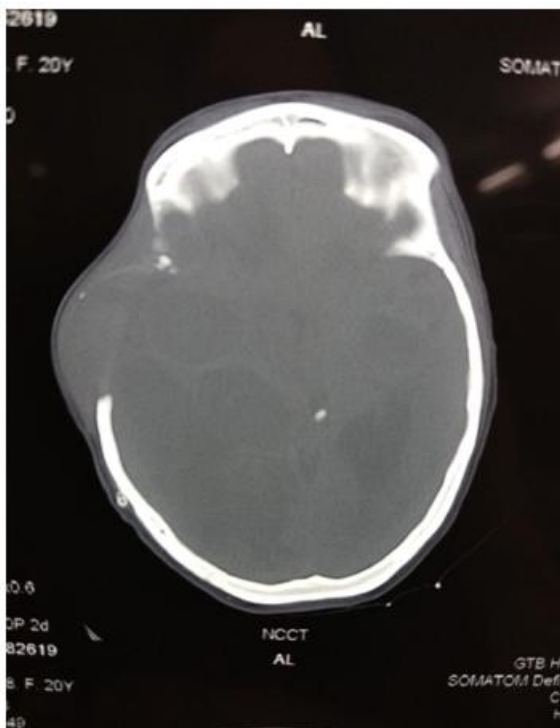
Clinical diagnosis of TBM is difficult as the clinical features are non specific and vary widely, and are often diagnosed when brain damage has already occurred [5]; [6];[8]..

Hydrocephalous is common sequelae of the tubercular meningitis and is always present in patient who has had the disease for four to six weeks. it is the commonest reason for neurosurgical referral in patient with TBM . Communicating type of hydrocephalous is more common complication in a patient of tubercular meningitis [7]

Patient whose prior course of therapy has failed have a high likelihood of MDR, they should therefore receive an empirical MDR regime. New guidelines of WHO 2010 have emphasized the value of Drug Susceptibility test (DST) at the start of all previously treated patient with an aim of finding and treating MDR TB. An attempt should always be made to obtain a pathological sample, like in this patient CB NAAT testing on the tapped sample revealed sensitivity to Rifampin , so Rifampin , a first line drug was added to MDR TB therapy.

### IV. Conclusion

CNS TB is still a diagnostic and therapeutic challenge despite the availability of anti- tubercular therapy and a battery of tests which varied sensitivity and specificity. The clinical diagnosis of CNS TB is equally difficult due to non specific and varied clinical features. The access to the granulation tissue or tuberculoma is not possible in all cases. So, the definitive or gold tests are not possible in most of the cases of CNS TB , because of this the decision to start second line ATT to treat resistance cases and specific drug sensitivity is often delayed and increases the morbidity.



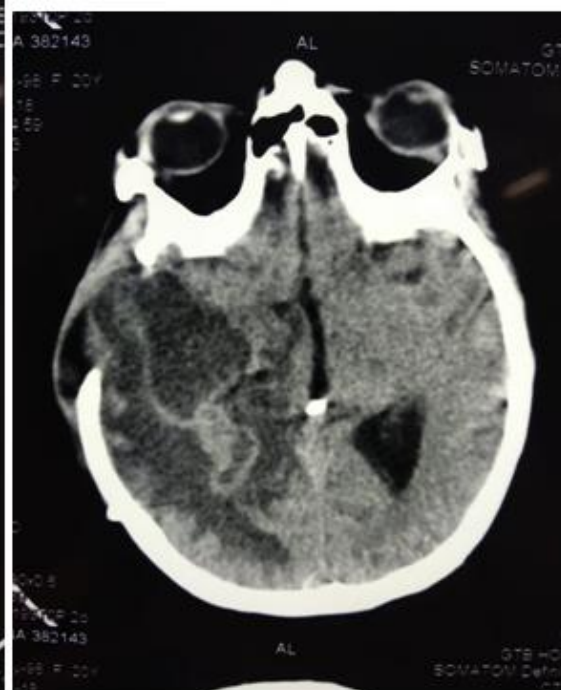
**Figure 1** NCCT Head with bone window showing post decompressive craniotomy picture and massive brain swelling.



**Figure 2** NCCT head showing granulation tissue



**Figure 3** NCCT Head showing Shunt position.



**Figure 4** NCCT head

#### Reference

- [1]. Gautam VKS, Khurana S, Singh R. Multi drug resistant (MDR) tubercular meningitis with hydrocephalus treated with ventriculo-peritoneal shunting – a review. *International journal of medicine*, 3(1)(2015)22-25.
- [2]. Murthy J. Multi drug resistant central nervous system tuberculosis. *Neurol India* 2012; 60:143-145.
- [3]. WHO. *Global tubercular report 2014*, Geneva, Switzerland.
- [4]. Tripathi KD, *essentials of medical pharmacology*, jaypee, 6<sup>th</sup> edition.
- [5]. Murthy J, tubercular meningitis: the challenge. *Neurol India* 2010, 58:716-722.
- [6]. Thwaites GE, Bang ND, Dung NH, et al 2005. The influence of HIV infection on clinical presentation, response to treatment and outcome in adults with tuberculosis meningitis. *J. infect. Dis.* 192:2134-2141.
- [7]. Gautam VKS, khurana S, Singh R. Diagnostic and therapeutic challenge in the surgical management of CNS tuberculosis. *Int J med health sci* 2013 , 2, 161-169.
- [8]. WHO report: treatment of tuberculosis guidelines 4<sup>th</sup> edition 2010.

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