



# Tubercular cerebellar abscess: A case report from a tertiary care centre, Hyderabad, Telangana state

Swathi Akula<sup>1\*</sup>; Rajkumar HRV<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Microbiology, Gandhi medical college, Secunderabad.

<sup>2</sup>Professor and Head, Department of Microbiology, Kamineni Academy of Medical Sciences and Research Centre, L.B. Nagar, Hyderabad.

**\*Corresponding Author(s): Swathi Akula**

Assistant Professor, Department of Microbiology,  
Gandhi medical college, Secunderabad.

Email: drswathi.gurajala@gmail.com

## Abstract

Abscesses that are enclosed within the bony cage of the skull or spinal column can expand to compress the brain or spinal cord and cause severe symptoms, permanent complications, or even death. Prompt diagnosis and proper treatment can avert complications and achieve cure in many cases. Tuberculosis is one of the rare cause of the brain abscess. Both the diagnosis and management of abscess, often includes a surgical procedure for aspiration or drainage of the abscess, have been greatly aided by the advent of modern molecular techniques like Gene Xpert and imaging techniques such as Magnetic Resonance Imaging (MRI).

We hereby report a case of successfully treated Tuberculosis brain abscess in an 60yr old immunocompromised host by employing these modern techniques.

Received: Aug 18, 2019

Accepted: Dec 11, 2019

Published Online: Dec 13, 2019

Journal: Journal of Tuberculosis

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

Copyright: © Swathi A (2019). *This Article is distributed under the terms of Creative Commons Attribution 4.0 International License*

**Keywords:** Tubercular brain abscess; Gene xpert; Extra pulmonary tuberculosis; Antitubercular treatment; Successfully treated

## Introduction

Tuberculosis affects all the organs in the body. Central nervous system tuberculosis accounts for approximately 1% of Extra Pulmonary tuberculosis (EPTB) [1]. The disease carries a high rate of mortality and neurological morbidity especially in children and immunocompromised individuals. Tuberculous Brain Abscess (TBA) is an infrequent cause of central nervous system tuberculosis with only few cases reported till date [2]. Here we report a case of successfully treated tubercular brain hospital at Kamineni hospitals, LB Nagar, Hyderabad, Telangana state.

## Case history

A 60 yr old male presented with chief complaints of headache and neck pain, multiple vomiting episodes and inability to walk since 15 days. Headache was insidious in onset, mild to moderate in intensity, initially sub occipital and holocranial at the time of admission. Patient is a known case of decompensated heart failure, severe Left ventricular dysfunction, post Percutaneous transluminal coronary angioplasty (PTCA), post Cerebrovascular accident (CVA) with left hemi paresis on anti-platelets, diabetes, hypertension and hypothyroidism on regular medication.



**Cite this article:** Swathi A, Rajkumar HRV. Tubercular cerebellar abscess: A case report from a tertiary care centre, Hyderabad, Telangana state. J Tuberc. 2019; 2(1): 1012.

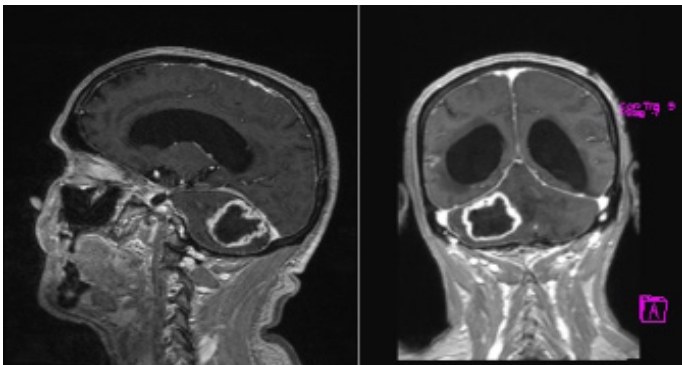
Patient was initially admitted under general medicine department and after initial patient assessment, was shifted to Neuro surgery.

On general examination, the patient was drowsy but arousable, glass gow coma score was -E3V4M6. On clinical examination, Cerebellar signs were present - horizontal nystagmus in right eye, pendular right knee jerk, intentional tremors, dysdiadochokinesia, past pointing, and dysmetria.

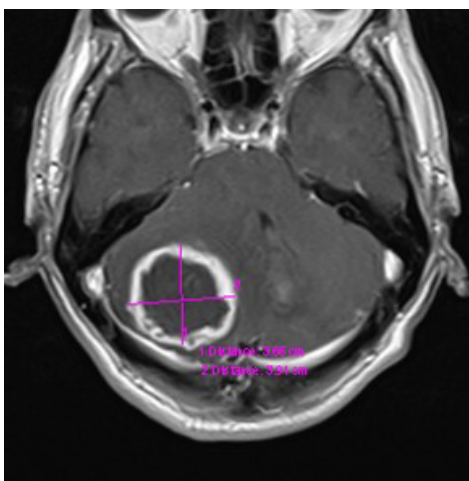
### Course in the hospital

Patient was admitted and investigations were performed. Routine biochemistry, serology and hematological investigations were normal. Chest X ray showed no abnormality.

Magnetic resonance imaging of the brain was done – well defined irregular T1/FLAIR hypointense, T2 heterogeneously hyper intense cystic lesion with T2 hypo intense rim in the right cerebellar hemisphere with central diffusion restriction and no evidence of blooming on GRE, severe perilesional edema with mass effect in the form of obliteration of basal cisterns with compression over the midbrain, pons and fourth ventricle, mild tonsillar herniation, moderate dilatation of supratentorial ventricular system (Figure 1).



**Figure 1:** The Magnetic resonance imaging of cranium showing Intra axial T2 hyper intense parenchyma lesion in right cerebellum



**Figure 2:** The Gadolinium contrast enhanced Magnetic resonance imaging of cranium showing ring enhancement of the same parenchyma lesion

On contrast administration, lesion shows nodular thick peripheral rim enhancement suggestive of cerebellar abscess or cystic metastasis, area of gliosis in bilateral temporal and parietal lobes. (Figure 2)

Attendees were explained regarding the condition of the patient and the need for surgery.

With suspicious of metastatic lesion, he was evaluated with chest X ray and ultrasound abdomen which were within normal limits.

Cardiology consultation was taken in view of post PTCA status. 2D echocardiography (ECG) was done which showed EF 36%, sclerotic aortic valve, trivial aortic regurgitation, moderate left ventricular dysfunction and was advised to continue same treatment by the cardiologist.

Diabetology consultation was taken and high blood sugar levels were managed as per the advice.

Antiplatelets were stopped and the patient was started on Inj Clexane and surgery was planned after 5 days of stopping antiplatelets.

He was treated with analgesics, anti edema measures (3% saline) steroids, antihypertensives and other supportive measures.

After a thorough preoperative checkup and severe risk of perioperative cardiac events, he was taken up for surgery after proper consent and due risks explained to the attendees.

Right sub occipital craniotomy and evacuation of abscess and partial removal of wall of the abscess with right occipital burr hole and reservoir placement was done under general anaesthesia was done.

Intraoperatively the lesion was found to be an abscess and three pus samples were collected for grams, acid fast bacilli (AFB) and fungal staining, culture of suspected pathogens like bacteria, mycobacteria and fungi and Xpert MTB/RIF assay.

The microscopic examination of the pus smear demonstrated plenty of acid fast bacilli. High level of Mycobacterium tuberculosis complex was detected on Cepheid GeneXpert (Xpert) MTB/RIF which was sensitive to rifampicin. The other pus sample was inoculated on to Lowenstein Jensen media and BACTEC MGIT 960 system for the growing the mycobacterium. Growth of Mycobacterium was detected in about 10 days in the MGIT system. Antitubercular Drug susceptibility testing was carried out for both first line and second line drugs. The bacterium was sensitive to all the tested antitubercular drugs. Histopathology of abscess wall showed chronic inflammatory infiltrate with evidence of caseating granuloma.

Post operatively patient was managed with antibiotics, analgesics, steroids, antitubercular drugs and other supportive measures which resulted in clinical resolution of the symptoms.

Patient improved neurologically and symptomatically, had no further vomiting episodes and was shifted to ward. He was gradually ambulated, Foleys catheter was removed.

Regular wound dressing done, sutures in situ and wounds healthy, healing well. Regular physiotherapy was done during his ward stay.

Cardiology review was taken post operatively and patient was started back on antiplatelets at the time of discharge.

At the time of discharge, he is conscious, coherent, tone and power is normal in all limbs, right cerebellar signs present, and sutures in situ, afebrile and stable vitals. He still continues to be

on anti-tubercular therapy and is under regular clinical follow up.

### Discussion

Tuberculous brain abscess is an atypical manifestation of tuberculosis of Central Nervous System (CNS) and is more commonly seen in immune compromised patients who are unable to mount an adequate immune response against the pathogen. The diagnosis of TBA is usually suspected in patients from an endemic region with a pulmonary focus of infection. However studies show that pulmonary focus is evident only in one third of the cases [3]. Our patient did not have any evidence of pulmonary focus.

TBA is characterized by an encapsulated collection of pus, the capsule being formed by vascular granulation tissue and polymorphs. Viable acid fast bacilli can be demonstrated in the pus [4]. Many factors play a key role in the formation of the abscess like immunity of the host, infectious dose of the pathogen, characteristics of the infected site and intake of antituberculous drugs. Tuberculosis accounted for 4% of the all the cases of intracranial abscesses in one study [5].

The following criteria for establishing diagnosis of TBA were proposed by Whitner -(i) evidence of a abscess within the brain as confirmed during surgery or autopsy, (ii) Histopathological proof of presence of polymorphs in the abscess wall and (iii) Demonstration of Acid Fast bacilli (AFB ) in the pus or abscess wall [6].

The key to diagnosis is to consider this rare condition early, then to perform a thorough physical examination followed by appropriate imaging. Magnetic resonance imaging with contrast (eg, gadolinium) usually provides more information showing enhancing capsule with thick wall and characteristic magnetic resonance spectroscopic findings.

The case management includes a combination of surgery and appropriate antitubercular therapy. Though the clinical presentation of such type of cases is rare, the clinician should be aware that one of the differential diagnosis of brain abscess in endemic countries like India is Tuberculosis.

### Conclusion

Strong clinical suspicion, employing the latest available diagnostic methods for early detection of mycobacteria and appropriate treatment based on the susceptibility report prevents complications due to TBA and mortality.

### References

1. Index-TB Guidelines: Guidelines on extrapulmonary tuberculosis for India. 2017; 145: 448-463.
2. Naama O, Boulahroud O, Elouennass M, Akhaddar A, Gazzaz M, Elmoustarchid B, et al. Primary tuberculous cerebellar abscess in an immunocompetent adult. *Intern Med.* 2010; 49: 875-876
3. Garg RK. Tuberculosis of the central nervous system. *Postgrad Med J.* 1999; 75: 133-140.
4. Kumar R, Pandey CK, Bose N, Sahay S. Tuberculous brain abscess: Clinical presentation, pathophysiology and treatment (in children) *Childs Nerv Syst.* 2002; 18: 118-123.
5. Farrar DJ, Flanigan TP, Gordon NM, Gold RL, Rich JD. Tuberculous brain abscess in a patient with HIV infection: Case report and review. *Am J Med.* 1997; 102: 297-301.
6. Whitner DR. Tuberculosis brain abscess. Report of a case and review of literature. *Arch Neurol.* 1978; 35: 148-153.