

## General Seizures Due to Brain Abscess Causa Suspected Intracranial Tuberculosis at Prof Aloei Saboe Hospital Gorontalo

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### ABSTRACT

**Introduction:** Seizures are a severe clinical condition with complications of brain abscess. This report will describe the rare occurrence of generalized seizures due to Mycobacterium tuberculosis (MTB) brain abscess.

**Case:** Male, 57 years old, admitted to the emergency department with two episodes of generalized seizures one hour before admission. The patient had a history of pulmonary tuberculosis during four months of treatment and was treated with an anti-tuberculosis fixed drug combination (FDC) 3. The patient was in a state of delirium and had lower extremity weakness. The chest radiograph shows a multifocal patchy opacity in the right upper lobe with thickening in the right pericardium. Pre-Contrast MSCT-Scan of the brain showed multiple hypodense lesions in the left frontal lobe, right frontoparietal, left basal ganglia, and pons. Post-contrast shows multiple low-attenuation, oval-shaped lesions with peripheral enhancement (double rim sign) with vasogenic edema. Finally, the patient was diagnosed with a tuberculous brain abscess.

**Discussion:** CNS tuberculosis is a rare cause of seizures and is often followed by a history of pulmonary tuberculosis. Tuberculosis appears on the Contrast MSCT Scan Brain as an avascular mass lesion of low density and sometimes more significant than expected around cerebral edema. End-stage tuberculosis is well encapsulated and has peripheral ring enhancement with vasogenic edema.

**Conclusion:** Pre-Post Contrast Brain MSCT is the diagnostic imaging of choice for suspected tuberculous brain abscess.

**Keywords:** Brain Abscess; MSCT-Scan; Tuberculosis



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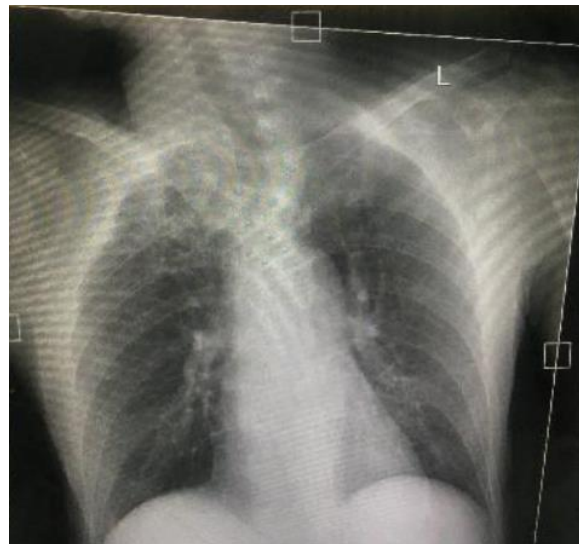
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## Introduction

All body organs, such as the central nervous system (CNS), can be infected by tuberculosis. The incidence of extrapulmonary CNS is around 10%, and one of the causes is Tuberculosis Abscess.<sup>1,2,3,4</sup> CNS tuberculosis is a rare cause of seizures and is often followed by a history of pulmonary tuberculosis. Approximately 1% of all TB patients develop CNS TB, which usually presents as meningitis. A less common form of CNS TB, intracranial tuberculoma, usually affects immunocompromised patients.<sup>5</sup> Seizures are a neurological emergency as a clinical manifestation of complications of bacterial brain abscess, both early and late.<sup>5</sup> This paper presents a rare case of generalized seizures due to a tuberculous brain abscess.

## Case

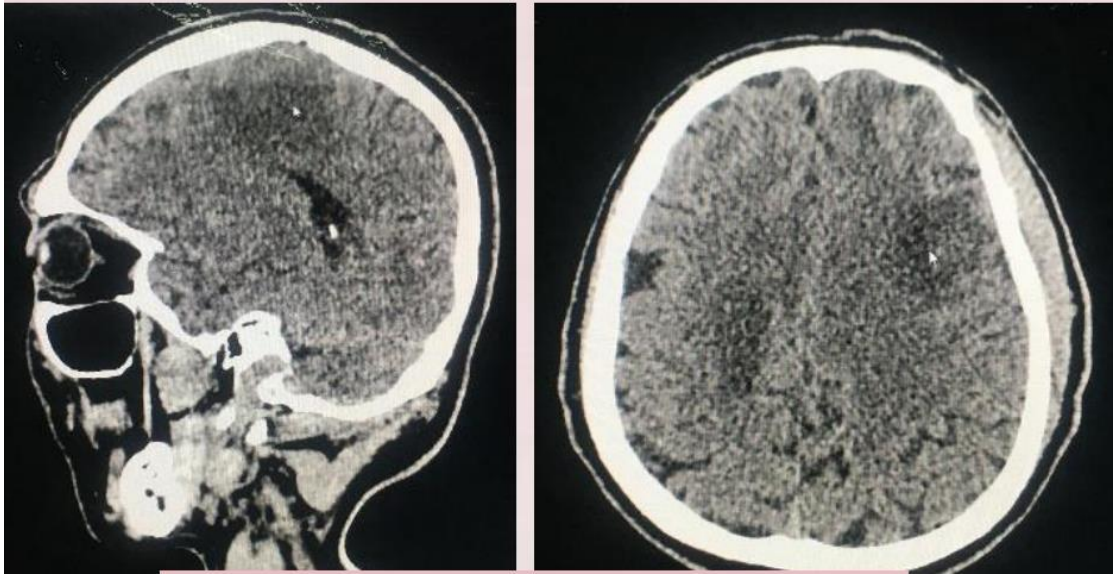
A 57-year-old man had two episodes of generalized seizures one hour before hospitalization. The patient had a history of pulmonary tuberculosis during four months of treatment and was treated with FDC 3. A general examination showed normal vital signs. The patient was in delirium on physical examination and had decreased inferior motor strength. The chest radiograph showed a multifocal patchy opacity in the right upper lobe with right pericardial thickening (Figure 1).



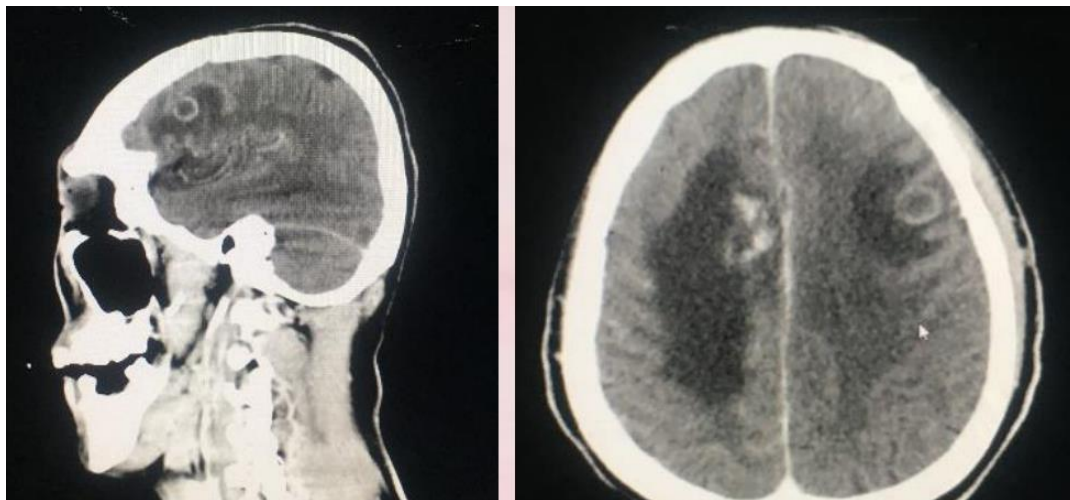
**Figure 1.** The results of the chest X-ray examination of the patient

Pre-Contrast Head MSCT Scan showed multiple hypodense lesions in the left frontal lobe, right frontoparietal, left basal ganglia, and pons (Figure 2). Post-Contrast Head MSCT Scan showed multiple low-attenuation oval-shaped lesions with peripheral enhancement

(double rim sign) with vasogenic edema (Fig. 3). The patient was diagnosed with Generalized Seizure and Inferior Paraparesis due to Tuberculosis Brain Abscess.



**Figure 2.** The results of the Pre-Contrast Head CT-scan in the patient.



**Figure 3.** The results of the Post-Contrast Head CT-scan in the patient.

### **Discussion**

CNS tuberculosis is a rare cause of seizures and is often followed by a history of pulmonary tuberculosis. Approximately 1% of all TB patients develop CNS TB, which usually presents as meningitis. A less common form of CNS TB, intracranial tuberculoma, usually affects patients with compromised immune systems.<sup>6</sup>

Tuberculosis brain abscess is a much rarer manifestation. They originate from the hematogenous spread of *Mycobacterium tuberculosis* (MTB) from the lungs to the brain

parenchyma, creating well-demarcated granulomatous foci. These foci may enlarge and cause a localized mass effect without rupturing into the subarachnoid space.<sup>6</sup>

Tuberculosis appears on contrast MSCT Scan Brain as an avascular mass lesion of low density and sometimes more significant than expected around cerebral edema. End-stage tuberculosis is well encapsulated and has peripheral ring enhancement with vasogenic edema.<sup>2,3</sup>

It is often difficult to identify the clinical manifestations of a tuberculous brain abscess in an emergency. The clinical signs of tuberculosis are variable and non-specific, and the radiological features are often similar to those of other infectious and non-infectious disorders. Although intracranial biopsy and histopathology are technically required to diagnose intracerebral tuberculoma, these procedures are often impractical because of the invasiveness and proximity of the lesion to structures critical to survival and the risk of meningitis from accidental spread through the subarachnoid space.<sup>7,8</sup> This case is a challenge for the radiologist in the setting of generalized seizures in a patient with a tuberculous brain abscess and an unknown immune status.

### **Conclusion**

Tuberculous brain abscesses are rare, and diagnosing the disease is challenging for radiologists. Pre-Post Contrast Brain MSCT may be useful as diagnostic imaging in this case.

### **Conflict of Interest**

We do not have any potential conflict of interest

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### **Acknowledgments**

Nothing to declare.

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