

*Case report*

# Hypodense cerebellar tuberculoma on CT scan masquerading low grade glioma

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## Abstract

We report a case of hypodense cerebellar tuberculoma in a 26 year old postpartum lady who presented with one episode of generalized tonic-clonic seizures and discuss the histopathology findings where on CT scan the lesion was suspected as low grade glioma. She was started on isoniazid, rifampicin, pyrazinamide, ethambutol and pyridoxine. She is asymptomatic and had no neurological deficits at follow up.

**Keywords:** Tuberculoma; Low grade glioma; Hypodense; Pregnancy; Cerebellum; Seizures

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## INTRODUCTION

It has been hypothesized that tuberculoma in the cerebritis stage may present as non-enhancing hypodense areas on the CT scan<sup>[1]</sup>, however, this hypothetical picture on imaging is rarely confirmed with a histological examination<sup>[2]</sup>. We report a case of hypodense cerebellar tuberculoma in a postpartum lady where the lesion on CT scan was suspected as low grade glioma.

## CASE REPORT

A 26 year female presented two day after delivery with one episode of generalized tonic-clonic seizures. There was no history of fever, headache or seizures on the past. Antenatal course and delivery were uneventful. There was no history of tuberculosis or contact with tuberculosis. Except mild pallor general and systemic examination was unremarkable.

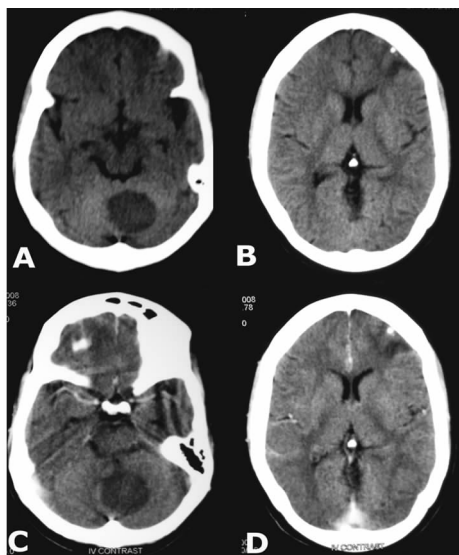
Neurological examination was normal and there were no focal neurological deficits. Blood investigations were normal except low hemoglobin (9 g/dL). Chest radiograph, ultrasound abdomen was normal. Tuberculin and test for HIV were negative. Computed tomography (CT) scan of the brain showed a well defined hypodense lesion in left cerebellar hemisphere without peri-lesional oedema and another calcified lesion in the left frontal lobe with peri-lesional oedema (Figure1). The calcified lesion was thought to be an old healed granuloma (responsible for seizures) but the cerebellar lesion was suspected as low grade glioma. There was no hydrocephalus. Because of the suspicious morphology of the cerebellar lesion the patient underwent midline suboccipital craniectomy and excision of the lesion. The lesion was vascular and grayish in color. Histopathological examination of the specimen showed a dense infiltration of lymphocytes, few plasma cells and presence of giant cells without caseating necrosis. There was extension of these cells into the adjacent cerebellar parenchyma. All these features were suggestive of an early stage of tuberculoma formation (Figure2). She was started on isoniazid, rifampicin, pyrazinamide, ethambutol and pyridoxine. She is asymptomatic and had no neurological deficits at follow up.

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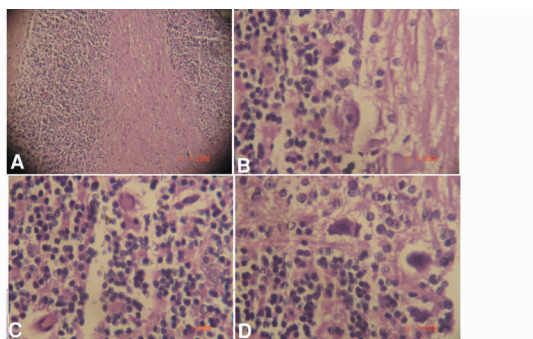
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**Figure 1** CT scan brain plain (A & B) and contrast (C & D) showing well defined hypodense lesion in the left cerebellar hemisphere and a calcified granuloma with peri-lesional oedema in left frontal lobe.



**Figure 2** Photomicrograph showing a dense infiltration of lymphocytes, few plasma cells and presence of giant cells without caseating necrosis. There was extension of these cells into the adjacent cerebellar parenchyma (H & E, A  $\times 40$ , B, C and D  $\times 100$ ).

## DISCUSSION

Macroscopically, the brain tuberculomas can be classified into mature and immature forms<sup>[3,4]</sup>. The CT scan findings of tuberculomas on plain scan include isodense or slightly hyperdense lesions. Following contrast administration these lesions can manifest as solid enhancing lesions, ring enhancing lesions, and mixed or combined forms of lesions<sup>[1,5-7]</sup>. The use of MRI particularly spectroscopy and diffusion is shown to be helpful in defining the correct diagnosis and may avoid the need for invasive procedures<sup>[8-10]</sup>. It has been described that the cerebral tuberculoma can present as hypodense lesions in immunocompromised patients<sup>[11]</sup>, and in patients with pregnancy related immunosuppression clinical and

imaging presentation of tuberculoma may resemble the findings similar to those in highly immunocompromised patients<sup>[8,12,13]</sup>. As we know the imaging findings of intracranial tuberculomas are nonspecific and these lesions needs to be differentiated from other lesions including low grade glioma, malignant gliomas, pyogenic abscess, toxoplasmosis, cysticercosis, lymphoma, and syphilitic gummas<sup>[5,6,14]</sup>. As in our case early institution of the medical treatment will result in complete regression of the symptoms<sup>[8]</sup>.

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