

## Miliary tuberculosis with left brachial monoplegia: A case report

Nayyar Iqbal, Nagarajan Natarajan, Sivakumar Periyasamy, Sanjoy George, Aneesh Basheer, Sudhagar Mookkappan

Department of General Medicine, Pondicherry Institute of Medical sciences, Puducherry, India

---

### CASE STUDY

---

Please cite this paper as: Iqbal N, Natarajan N, Periyasamy S, George S, Basheer A, Mookkappan S. Miliary tuberculosis with left brachial monoplegia. AMJ 2014;7(10):400-404. <http://doi.org/10.21767/AMJ.2014.2169>

---

#### Corresponding Author:

Dr. Nayyar Iqbal  
Assistant Professor  
Department of General Medical  
Pondicherry Institute of Medical Sciences  
Ganapathichettikulam, Puducherry, India 605014  
Email: [drinayyar@gmail.com](mailto:drinayyar@gmail.com)

---

### ABSTRACT

---

Tuberculoma of the brain is a major neurological problem in developing countries accounting for 12 to 30 per cent of all intracranial masses. It often presents with focal neurological symptoms or seizures. Simultaneous occurrence of brain tuberculoma with miliary mottling in the lungs is uncommon in the immunocompetent patient. We report only the second case of monoplegia and miliary tuberculosis, wherein the patient presented with acute onset left brachial monoplegia, upper motor neuron facial palsy, and fever with an MRI of the brain showing multiple granulomas and chest x-ray showing miliary mottling. The patient's neurological deficit started to resolve with corticosteroids and anti-tubercular treatment.

#### Key Words

CNS tuberculoma; Miliary tuberculosis; Monoplegia

---

#### Implications for Practice:

##### 1. What is known about this subject?

John Jacob Magnet first described miliary tuberculosis owing to a millet seed-like appearance on a chest x-ray. It has various clinical manifestations, making timely diagnosis

difficult. Mortality from miliary tuberculosis has remained high despite effective therapy. Though brain tuberculoma with miliary mottling in the lungs is common in immunocompromised individuals, its occurrence in immunocompetent individuals has rarely been reported.

##### 2. What new information is offered in this case study?

The patient presented with acute onset weakness of the left upper limb, upper motor neuron facial weakness, and headache along with low-grade fever of two weeks' duration. An MRI of the brain showed multiple granulomas and a chest x-ray/HRCT were suggestive of miliary tuberculosis without bacteriological evidence in the sputum and cerebrospinal fluid (CSF). All symptoms and imaging abnormalities resolved with anti-tubercular therapy.

##### 3. What are the implications for research, policy, or practice?

Given the high prevalence and mortality in countries like India, it may not be feasible to wait for microbiological evidence of tuberculosis to initiate therapy. Prompt institution of anti-tubercular therapy with corticosteroids with typical clinical and imaging findings can be lifesaving in these situations.

---

### Background

Tuberculosis is endemic to India: more than two million people suffer from the disease and it claims more than one life every minute.<sup>1,2</sup> Miliary tuberculosis, if left untreated, is nearly always fatal. Miliary pattern on a chest x-ray is a classical finding of this disease. It can disseminate to other organ systems through blood and lymphatics and manifest as meningitis, intracranial tuberculoma, tuberculosis of the liver, bone marrow, choroid tubercles, and acute respiratory distress syndrome.

Central nervous system (CNS) tuberculoma is a space-occupying lesion caused by *Mycobacterium tuberculosis* (*M. tuberculosis*). It is a major neurological problem in developing countries.<sup>3</sup> It usually presents with focal neurological deficit, features of raised intracranial pressure,

or seizures. It is uncommon to find CNS tuberculoma concurrent with miliary tuberculosis in an immunocompetent patient. We report a case of miliary tuberculosis with CNS tuberculoma that presented as left brachial monoplegia and upper motor neuron type of left facial weakness in an immunocompetent patient.

**Case details**

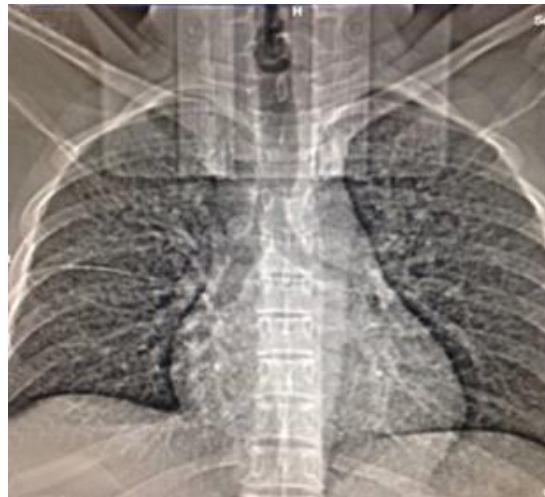
A 24-year-old male, with hypothyroidism for the past two years on 50µg of thyroxine, presented to the outpatient department with complaints of weakness of his left upper limb for the past two days and mild facial deviation towards the right, along with severe headache and neck pain for the past day. He also had a history of evening increase of body temperature with loss of appetite for the past two weeks. There was no history of seizure or altered sensorium. On examination he was febrile with a temperature of 38°C, conscious and oriented, with left upper limb monoplegia (power 0/5), and upper motor neuron type of left facial weakness. Meningeal signs were absent. Other systemic examinations were unremarkable. There was no history of diabetes mellitus or tuberculosis in the past.

His investigations showed Haemoglobin-12.7gm/dl; WBC-5600cu.mm; ESR-10mm/1hr; CSF analysis: WBC-1 (lymphocyte); Sugar-50mg/dl (simultaneous RBS-116 mg/dl); Protein-99 mg/dl; CSF adenosine deaminase assay-5.8. The CSF TB PCR was negative; TSH-10.0; chest x-ray-miliary mottling (Figure 1); HRCT-bilateral miliary lesions (Figures 2a and 2b). An MRI of the brain showed a few small enhancing nodular lesions involving bilateral brain parenchyma, possibly tuberculomas within basal cisterna magna (Figures 3a, 3b, and 3c). Sputum AFB, Mantoux test, HbsAg, AntiHCV, HIV, and VDRL were negative.

**Figure 1: Chest x-ray showing miliary mottling**



**Figure 2a: HRCT thorax (topogram) showing miliary pattern**



**Figure 2b: HRCT chest (axial section) showing miliary pattern**



The patient was started on dexamethasone and anti-tubercular treatment, pending sputum and CSF culture report. His thyroxine dose was also increased to 100µg. On the second day of treatment, his weakness started resolving and the facial deviation resolved. He was discharged in stable condition. The patient has been under regular follow-up for the past 16 weeks and is doing well. He has no symptoms and his repeat chest x-ray shows complete resolution of the miliary pattern (Figure 4).

Figure 3a: MRI of the brain showing granuloma in high parietal region (right)

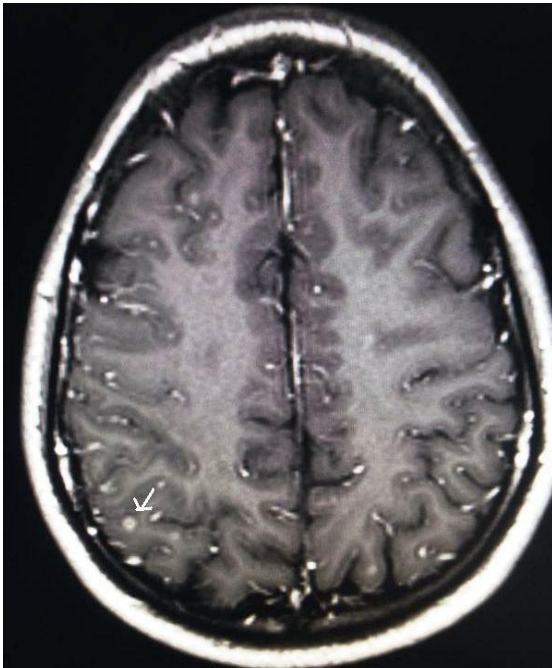


Figure 3c: MRI of the brain showing granuloma in left hippocampal area

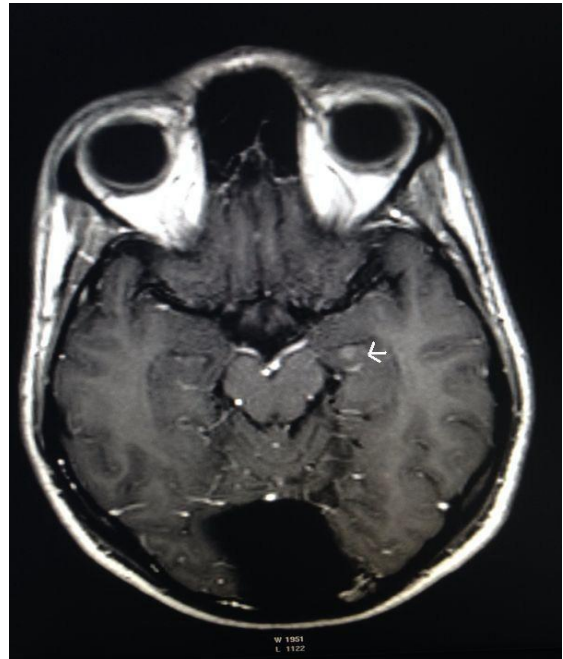


Figure 3b: MRI of the brain showing granuloma and basal cisterna magna

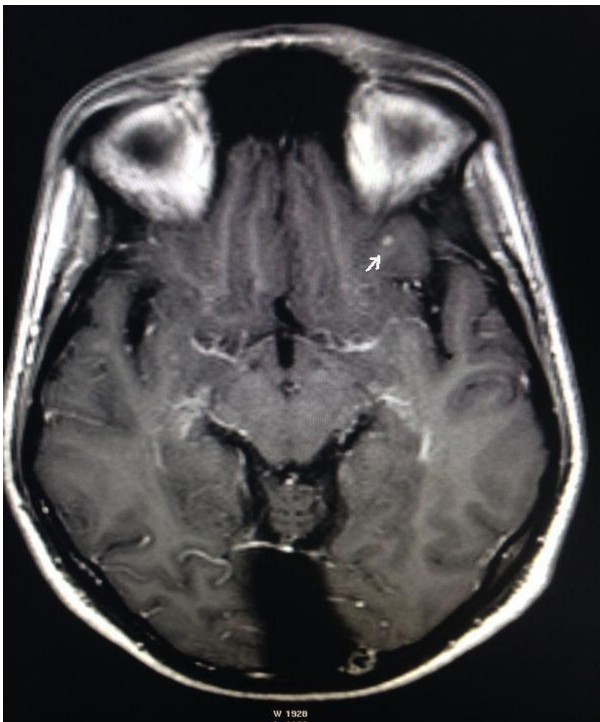
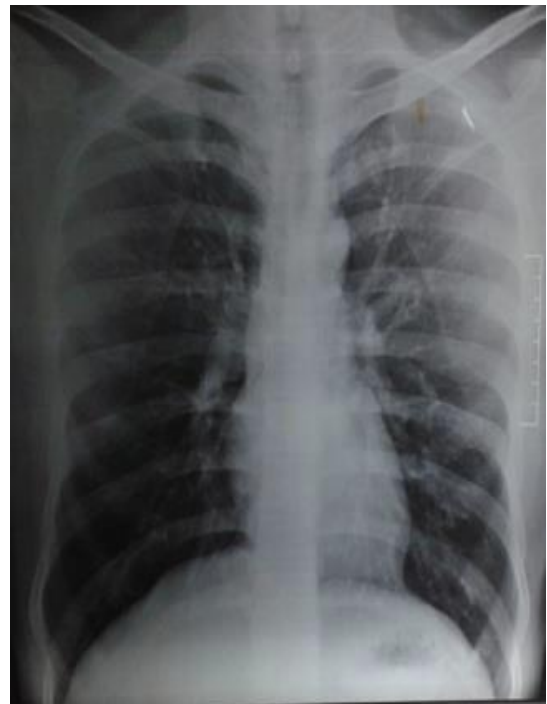


Figure 4: X-ray showing resolution of miliary mottling



### Discussion

Brain tuberculoma is a non-neoplastic mass caused by *Mycobacterium tuberculosis*. It usually occurs in immunocompromised individuals due to haematogenous or lymphatic spread from primary focus, mainly the lungs. CNS tuberculoma usually presents with ophthalmic symptoms, intracranial hypertension, papilloedema, hemiplegia, hemiparesis, monoplegia, aphasia, cerebellar syndromes, cranial nerve lesions, and epilepsy.<sup>3</sup> Tumor necrosis factor

(TNF) alpha has been considered as an important cytokine in the neuropathogenesis of *M. tuberculosis*.<sup>4</sup> It alters the blood brain barrier permeability and triggers CSF leukocytosis. Tuberculomas are firm, avascular, spherical masses, with size varying between 2cm and 10cm in diameter. They are well circumscribed, and the compressed surrounding brain tissue shows oedema and gliosis.<sup>5</sup>

John Jacob Magnet first described miliary tuberculosis as a form of disseminated tuberculosis. It is difficult to diagnose because of its various atypical presentations such as normal chest x-ray, abnormal behaviour with tubercular meningitis, hyponatremia, and skin manifestations. It mainly manifests in immunocompromised individuals. Mortality from this disease is very high despite effective therapy.<sup>6</sup> Previously, Corcos et al. have reported a case of aphasia with right brachial monoplegia with miliary tuberculosis in a three-year-old child.<sup>7</sup> Ete et al. described a case of miliary tuberculosis with tuberculoma that presented like meningitis.<sup>8</sup> A third case has been reported by Ceylan et al. about miliary tuberculosis with multiple granulomata in a 12-year-old child who presented with seizure.<sup>9</sup> Our case is similar to Corcos et al. and is only the second case report of miliary tuberculosis with tuberculoma presenting as left brachial monoplegia and mild left upper motor neuron type of facial weakness without any aphasia, seizure, or meningeal signs.

The criteria proposed for diagnosing miliary tuberculosis<sup>2</sup> are: (1) clinical presentation consistent with tuberculosis such as evening rise of temperature, weight loss, anorexia, tachycardia, and night sweats; (2) classical miliary pattern on the chest x-ray; (3) bilateral diffuse reticulonodular lesion on HRCT; and (4) microbiological and or histological evidence of tuberculosis. Our patient fulfilled the first three criteria of miliary tuberculosis except the microbiological evidence. This is similar to the findings in case series of miliary tuberculosis reported by Sharma et al,<sup>2</sup> in which out of 88 patients only 10 (11 per cent) were sputum smear-positive and four were sputum-culture positive. Two out of 37 patients tested positive on broncho alveolar lavage (BAL) fluid analysis. CSF analysis was done in 10 patients out of whom three (30 per cent) were culture positive. Overall, only 41 per cent of the study population had bacteriological evidence. Fifty-one per cent of the study population had only clinical and radiological evidence of miliary tuberculosis and responded well to anti-tubercular treatment. Our patient did not consent for broncho alveolar lavage.

Although miliary tuberculosis is known to cause hypothyroidism,<sup>10</sup> this was unlikely in our case as the patient was already on treatment for the past two years.

India is a high burden country for tuberculosis. If a patient presents with a clinical picture and a chest x-ray compatible with miliary tuberculosis, it is common practice to start treatment immediately due to the condition's high fatality rate. Our patient has completed the intensive phase of the treatment and is currently doing well on two drugs. His neurological symptoms have resolved completely with a power of 5/5 in his left upper limb. He is afebrile with improved appetite. His follow-up chest x-ray shows complete resolution of the miliary shadow.

### Conclusion

Although the combination of CNS tuberculoma and miliary tuberculosis is common in immunocompromised patients, its occurrence in immunocompetent individuals has been reported very infrequently. Our case clearly demonstrates that immunocompetent patients might also present with this rare duo, and prompt imaging and CSF studies followed by rapid institution of steroid and anti-tubercular therapy, even in the absence of microbiological evidence, may not only be lifesaving, but limb saving as well.

---

### References

1. India, Central TB Division, Directorate General of Health Services, Annual Status Report, TB India, New Delhi, Ministry of Health and Family Welfare, 2014.
2. Sharma SK, Mohan A, Pande JN, Prasad KL, Gupta AK, Khilnani GC. Clinical profile, laboratory characteristics and outcome in miliary tuberculosis. QJM. 1995 Jan;88(1):29-37.
3. Abuhamed M, Bo X, Yan C. Central Nervous System Tuberculomas: A Review Article. Am J Infect Dis 2008;4:168-73.
4. Curto M, Reali C, Palmieri G, Scintu F, Schivo ML, Sogos V, Marcialis MA, Ennas MG, Schwarz H, Pozzi G, Gremo F. Inhibition of cytokines expression in human microglia infected by virulent and non-virulent mycobacteria. Neurochem Int. 2004 May;44(6):381-92.
5. Chatterjee S. Brain tuberculomas, tubercular meningitis, and post-tubercular hydrocephalus in children. J Pediatr Neurosci. 2011 Oct;6(Suppl 1):S96-S100.
6. Sharma SK, Mohan A, Sharma A. Challenges in the diagnosis & treatment of miliary tuberculosis. Indian J Med Res. 2012 May;135(5):703-30. Review.
7. Corcos A, Corcos V. Aphasia & right brachial monoplegia during miliary tuberculosis without

- meningeal involvement in a 3 year old child; recovery with a combination of metacortandracine & antibiotic, *Pediatric*. 1957;12(4):411-2. English, French.
8. Ete T, Mondal S, Sinha D, Siddhanta S, Patra A, Pal J, Ghosh A. Miliary tuberculosis and tuberculoma of brain presenting like meningitis. *Int J Med Sci Public Health*. 2014; 3(6): 772-773.
  9. Ceylan E, Gencer M. Miliary tuberculosis associated with multiple intracranial tuberculomas. *Tohoku J Exp Med*. 2005 Apr;205(4):367-70.
  10. Da Silva BP, Amorim EG, Pavin EJ, Martins AS, de Matos PS, Zantut-Wittmann DE. Primary thyroid tuberculosis: a rare etiology of hypothyroidism and anterior cervical mass mimicking carcinoma. *Arq Bras Endocrinol Metabol* 2009 Jun;53(4):475-8.

### **ACKNOWLEDGEMENTS**

We acknowledge Department of Neurology in helping us to manage this case.

### **PEER REVIEW**

Not commissioned. Externally peer reviewed.

### **CONFLICTS OF INTEREST**

Dr. Aneesh Basheer discloses that he is on the editorial board of the Australasian Medical Journal.

### **PATIENT CONSENT**

The authors, Iqbal N, Natarajan N, Periyasamy S, George S, Basheer A, Mookkappan S declare that:

1. They have obtained written, informed consent for the publication of the details relating to the patient(s) in this report.
2. All possible steps have been taken to safeguard the identity of the patient(s).
3. This submission is compliant with the requirements of local research ethics committees.