Contents lists available at ScienceDirect

Asian Pacific Journal of Tropical Disease

journal homepage:www.elsevier.com/locate/apjtd

Document heading doi:10.1016/S2222-1808(11)60021-2

# A case of multiple tuberculomas in brain presenting as hemiparesis

Amit Gupta[1], Sameer Singhal[2*]

[1]*Department of Medicine, JNMC, DMIMS, Wardha*

[2]*Department of Pulmonary Medicine, JNMC, DMIMS, Wardha*

ARTICLE INFO

*Article history:*
Received 17 January 2011
Received in revised form 2 February 2011
Accepted 18 February 2011
Available online 28 March 2011

*Keywords:*
Tuberculoma brain
RNTCP
Hemiparesis

ABSTRACT

Tuberculosis of central nervous system can be present in many different clinical and radiological patterns with disseminated or miliary brain tuberculomas as a rare presentation. Multiple central nervous system tuberculoma is commonly associated with human immunodeficiency virus (HIV) infection. Tuberculomas develop following haematogenous dissemination of bacilli from an infection elsewhere in the body, usually lung. Here we describe a case of immunocompetent host with a past history of pulmonary tuberculosis, presenting with headache and generalised weakness, and later was diagnosed as a case of multiple tuberculoma brain.

## 1. Introduction

Tuberculosis of central nervous system can be present in many different clinical and radiological patterns with disseminated or miliary brain tuberculomas as a rare presentation[1]. Here we describe a case of immunocompetent host with past history of pulmonary tuberculosis, presenting with headache and generalised weakness, and later was diagnosed as a case of multiple tuberculoma brain.

## 2. Case report

A 45-year-old male presented to the pulmonary medicine OPD with complaints of weakness and headache. The weakness was mainly manifested in the form that he was unable to move his right side of body since 2 months ago. This weakness was gradually progressive. He also started complaints of headache since around 1 month ago. He was a known case of pulmonary Koch's taken 6 months of AKT CAT I around 3 years ago. On physcial examination, the patient was conscious, oriented but drowsy, responding to verbal commands. The built was poor. The power was grade 2/5 in right upper limb and grade 3/5 in right lower limb while the left side power was grade 5/5 in both upper and lower limbs. There was hypertonia with exaggerated

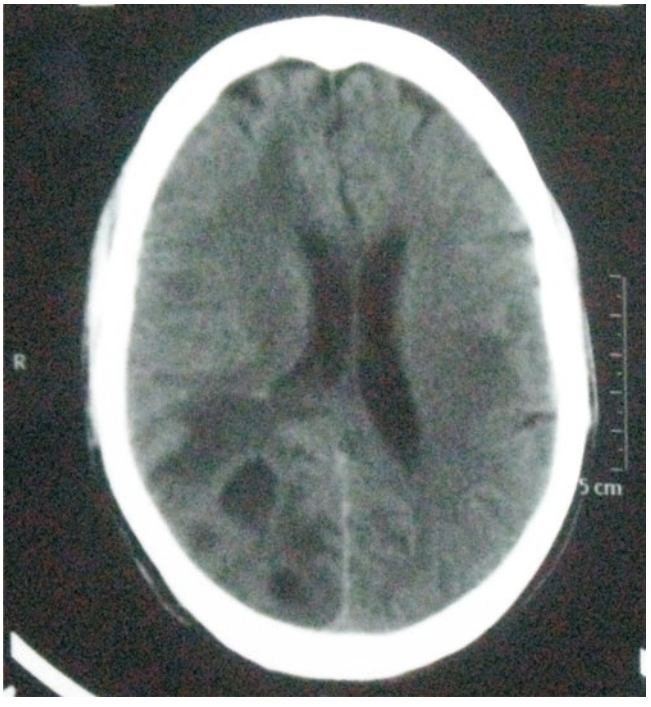


**Figure 1.** CT scan of cranium with contrast.
It shows multiple hypodense rim enhancing lesion in right frontal, right parieto occipital and high parital on left side with white matter edema causing mass effect in the form of effacement of ipsilateral occipital and frontal horns of lateral ventricle.

*Corresponding author: Dr Sameer Singhal, Associate Professor, Department of Pulmonary Medicine, AVBRH, JNMC, DMIMS,Wardhaa, Maharashtra, India.
E-mail: singhal_sameer@yahoo.co.in

reflexes in right upper and lower limb. Planter response was extensor on the right side and flexor on the left side. There was no sensory neurological deficit. The rest of the CNS examination was normal. A CT scan of cranium with contrast (Figure 1) was done which showed multiple hypodense rim enhancing lesion in right frontal, right parieto occipital and high parital on left side with white matter edema causing mass effect in the form of effacement of ipsilateral occipital and frontal horns of lateral ventricle. The fundus examination showed mild papilloedema changes. Chest radiograph (Figure 2) showed bilateral upper zone fibrosis suggestive of old Koch's. The patient was put on CAT II AKT as per revised national tuberculosis control programme (RNTCP) guidelines. He was also put on Mannitol drip to reduce intracranial tension and injection of dexamethasone was given to reduce cerebral edema. The patient responded within 2 weeks. The power in both right upper limb and lower limb was grade 4 on discharge. The drowsiness was also improved and the patient became alert.

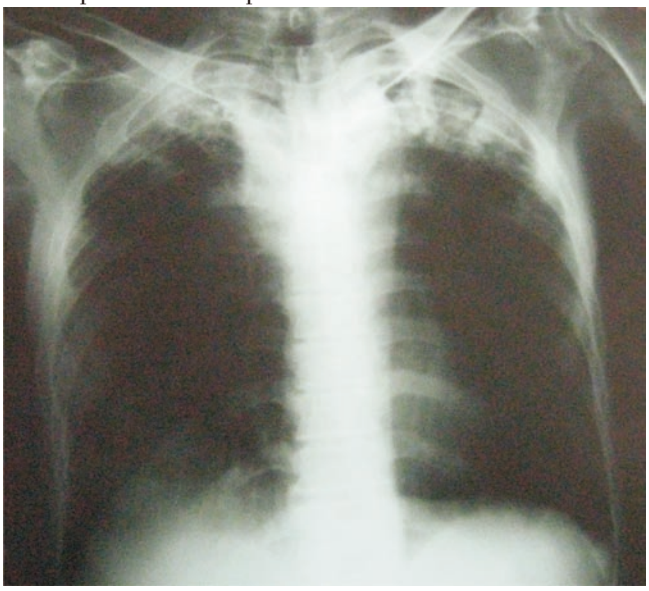

**Figure 2.** Chest radiograph showing bilateral upper zone fibrosis suggestive of old Koch's.

## 3. Discussion

Intracranial tuberculomas continue to be a serious complication of central nervous system tuberculosis. Multiple central nervous system tuberculoma is commonly associated with human immunodeficiency virus (HIV) infection[2]. Tuberculomas develop following haematogenous dissemination of bacilli from an infection elsewhere in the body, usually lung. Jang Eun Lee *et al.*[3, 4] demonstrated in mice that both inflammatory and anti-inflammatory responses developed in the CNS following mycobacterial infection. Felix *et al.*[5, 6] reported a fatal case of patient with spinal TB who was mistakenly irradiated for suspected metastatic lung cancer of the spine in the presence of solitary pulmonary nodule demonstrating the importance of considering suspicion of tuberculosis in every case of spondylitis, intraspinal or paravertebral abscess. The case reported here is an immunocompetent host but has a past history of pulmonary tuberculosis. In a study conducted in National Center for Neurological Diseases in Khartoum, Sudan[7], consecutive patients with multiple intracranial tuberculomas were admitted. The commonest presenting features were headache (100%), generalized convulsions (68.7%) and hemiparesis (56.2%). In case above, headache, hemiparesis and drowsiness were the main presenting symptoms. The diagnosis of tuberculoma is usually made based on pathology, neuroimaging or clinical response to tuberculous chemotherapy. The diagnosis in above mentioned case was based on neuroimaging findings consistent with past history of tuberculosis with dramatic response to antitubercular therapy and injectable steroids. Most of these lesions are usually resolved completely with antituberculous therapy[8] and surgical excision of the lesion is advised in patients with mass effect and paradoxical enlargement of the tuberculoma[9,10]. Hyung and Young[11] in 2008 published a rare case of disseminated tuberculomas involving the spinal cord and brain, and discussed the role of urgent surgery in combination with medical treatment of these rare lesions. The confirmatory method of diagnosis in case of multiple brain tuberculomas is brain biopsy from the lesion[5].

## Conflict of interest statement

We declare that we have no conflict of interest.

## References

[1] Alkhani A, Otaibi FA, Cupler EJ, Lach B. Miliary tuberculomas of the brain: case report. *Clin Neurol Neurosurg* 2006; **108**(4): 411-414.
[2] Kioumehr F, Dadsetan MR, Rooholamini SA, Au A. Central nervous system tuberculosis: MRI. *Neuroradiology* 1994; **36**: 93-96.
[3] Lee JE, Ling C, Kosmalski MM, Hulseberg P, Schreiber HA, Sandor M, et al. Intracerebral mycobacterium bovis bacilli calmette-guerin infection induced immune responses in the CNS. *J Neuroimmunol* 2009; **213**(1-2): 112-122.
[4] Rock RB, Olin M, Baker CA, Molitor TW, Peterson PK. Central nervous system tuberculosis: pathogenesis and clinical aspects. *Clin Microbiol Rev* 2008; **21**: 243-261.
[5] Ringshausen FC, Tannapfel A, Nicolas V, Weber A, Duchna HW, Werninghaus GS, et al. A fatal case of spinal tuberculosis mistaken for metastatic lung cancer: recalling acient pott's spine. *Ann Clin Microbiol Antimicrob* 2009; **8**: 32.
[6] Ringshausen FC, Schlosser S, Nienhaus A, Schablon A, Schultze-Werninghaus G, Rohde G. In-hospital contact investigation among health care workers after exposure to smear-negative tuberculosis. *J Occup Med Toxicol* 2009, **4**: 11.
[7] Idris MN, Sokrab TE, Arbab MA, Ahmed AE, El Rasoul H, Ali S et al. Tuberculoma of the brain: a series of 16 cases treated with anti-tuberculosis drugs, *Int J Tuberc Lung Dis* 2007; **11**(1): 91-95.
[8] Thacker MM, Puri AI. Concurrent intra-medullary and intra-cranial tuberculomas. *J Postgrad Med* 2004; **50**: 107-109.
[9] Citow JS, Ammirati M. Intramedullary tuberculoma of the spinal cord: Case report. *Neurosurgery* 1994; **35**: 327-330.
[10] Nomura S, Akimura T, Kitahara T, Nogami K, Suzuki M. Surgery for expansion of spinal tuberculoma during antituberculous chemotherapy: a case report. *Pediatr Neurosurg* 2001; **35**: 153-157.
[11] Park HS, Song YJ. Multiple tuberculomas involving the brain and spinal cord in a patient with miliary pulmonary tuberculosis. *J Korean Neurosurg Soc* 2008; **44**: 36-39.