Sir,

The term miliary lesions are defined as innumerable, small lesions (1–4 mm) scattered throughout the lungs or the brain. Tuberculosis is the single most important cause of miliary disease, primary affecting lungs. Many other conditions such as a systemic malignancy, fungal infections, and parasitic infections like neurocysticercosis can produce miliary shadows in lungs and/or brain. Frequently, rapid confirmation of diagnosis in patients with miliary shadows in lungs and/or brain is challenging. We are reporting an unusual case of miliary lesions of the brain and asymptomatic miliary lung disease.

A 36-year-old male patient presented with low-grade fever, diffuse headache, and weakness of right-sided weakness of 2-month duration. His general examination was normal. On neurological examination, he had Grade 4 power in right upper limb and Grade 3 power in right lower limb. Deep tendon jerks were asymmetrically exaggerated on the right side. Right plantar was extensor. Mental status and cranial nerve examination were normal. Fundus examination did not reveal any abnormality. Another systemic examination was normal. All hematological and blood biochemical parameters were normal. The patient was tested negative for human immunodeficiency virus. His chest X-ray, Mantoux test, and cerebrospinal fluid (CSF) examination were normal. CSF examination revealed cell count (3 mononuclear), glucose (59 mg/dL), and protein (24 mg/dL). The CSF examination did not reveal the presence of Mycobacterium

Simultaneous Miliary Lesions of Brain and Lungs: A Diagnostic Challenge

Table 1: Differential diagnosis of a simultaneous miliary involvement of lungs and brain (is it tuberculosis or malignancy?)

|                                | Miliary tuberculosis | Miliary carcinoma |
|--------------------------------|----------------------|-------------------|
| Incidence                      | Common               | Rare              |
| Age                            | Younger              | Older             |
| Known malignancy               | Absent may be HIV    | Infrequently present |
| Eyes                           | Choroidal tubercles  | None              |
| Clinical presentation          | Basal meningitis     | Encephalopathy    |
|                                |                      | Hemiparesis,      |
|                                |                      | seizures, ataxia, |
|                                |                      | speech difficulties |
|                                |                      | common            |
| Paradoxical phenomenon after ATT| Common (like         | Not seen          |
|                                | lymphadenopathy)     |                   |
| Tuberculin                     | Positive             | Negative          |
| Size of lung lesions           | 1-3 mm               | up to 1 cm        |
| CSF                            | Inflammatory CSF     | CSF may be normal |
|                                | CSF may show         | CSF may show      |
|                                | Mycobacterium        | malignant cells   |
|                                | tuberculosis         |                   |
| Magnetic resonance spectroscopy| Increase in lipid    | Increase in choline |
|                                | peak                 | decrease in creatine |
|                                |                      | peaks             |
|                                |                      | Absence of       |
|                                |                      | N-acetylaspartate |
|                                |                      | peak             |
| Bronchial wash and transbronchial biopsy | Caseating granulomas | Evidence of malignancy |
| Diagnostic confirmation        | Possible by CSF/     | Autopsy           |
|                                | bronchial wash and   |                   |
|                                | transbronchial       |                   |
|                                | biopsy               |                   |
| Prognosis                      | Excellent response   | An advanced stage |
|                                | to antituberculosis  | of the cancer; a |
|                                | treatment            | poor prognosis    |

ATT = Antituberculosis treatment, CSF = Cerebrospinal fluid, HIV = Human immunodeficiency virus

Figure 1: Axial section of magnetic resonance imaging of the brain shows polyfocal hyperintense perilesional changes on T2-weighted, (a) sequence and multiple small ring-enhancing lesions on spoiled gradient echo -gadolinium sequence, (b) and an axial computed tomography-thorax section with contrast shows a military pattern in the lung parenchyma (c)
Letters to the Editor

Is a miliary chest pattern always indicative of tuberculosis or malignant cells. India ink preparation was negative. Magnetic resonance imaging brain revealed hypodensity involving left frontoparietal region. Contrast-enhanced imaging of the brain revealed multiple ring-enhancing lesion involving bilateral cerebral hemisphere, cerebellum, and pons. There was marked edema in the left frontoparietal region [Figure 1]. High resolution computed tomography thorax detected numerous disseminated small nodular lesions involving bilateral lung field suggestive of miliary pulmonary tuberculosis. The patient was given antituberculosis treatment (ATT) and dexamethasone. After 2 months, there was a significant improvement.

The patient had multiple miliary lesions of the brain. His computed tomography of thorax demonstrated miliary lesions of lungs. A significant response to ATT suggested the diagnosis of tuberculosis. The patient did not have any respiratory symptom.

Miliary pulmonary tuberculosis is frequently associated with miliary tuberculosis brain and tuberculous meningitis. Central nervous system involvement in disseminated tuberculosis may, at times, be asymptomatic.[1] Similar miliary spread of cancer cells may affect lungs and brain simultaneously.[3-5] Timely differentiation between miliary tuberculosis and miliary malignancy is crucial. In miliary tuberculosis, M. tuberculosis in CSF can establish the microbiological diagnosis. Choroidal tubercles, on ophthalmoscopy, is considered to be pathognomonic of miliary tuberculosis.[6] Miliary brain metastases are often termed as carcinomatous encephalitis and represent advanced cancer. Similar miliary carcinomatous lesions may infrequently affect lungs as well. Miliary cancer spread to brain and lungs is most frequently reported adenocarcinoma of the lung. Tissue diagnosis in carcinomatous encephalitis is often challenging. [2-5] Demonstration of malignant cells in CSF is pathognomonic of brain metastasis [Table 1]. We were not able to confirm the diagnosis in our case but good response to antituberculosis treatment suggested miliary spread of tuberculosis.

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Conflicts of interest
There are no conflicts of interest.

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