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CASE IMAGE

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Multiple intracranial tuberculomas in an elderly patient: A central nervous system tuberculosis case in the emergency department

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Key Clinical Message

A 67-year-old male presented to the emergency department with a 7-day history of fever, malaise, myalgia, headache, and a seizure episode. Physical examination showed stable vital signs but a fever. Laboratory tests indicated leukocytosis, anemia, thrombocytosis, and elevated inflammatory markers. Imaging revealed multiple intracranial lesions, and cerebrospinal fluid analysis confirmed the presence of acid-fast bacilli. The patient responded well to anti-tuberculosis therapy, showing significant clinical improvement within 8 weeks.

KEYWORDS

central nervous system, tuberculosis, intracranial tuberculoma, Iran, tuberculosis

1 | CASE PRESENTATION

A 67-year-old male with no previous medical conditions presented to our emergency department with a 7-day history of progressive fever, malaise, myalgia, headache, and one episode of seizure. He denied any history of cough, dyspnea, nausea, vomiting, chills, or blurry vision. During the physical examination, his vital signs were stable, but his body temperature was 39°C (axillary). The pupils were midsize and reactive bilaterally, with no papilledema. The neurological examinations were unremarkable with no signs of focal neurological deficits, meningeal irritation, or intracranial hypertension.

Laboratory tests revealed leukocytosis (white blood cell: 21×10^9/L, reference range: $4.0–11.0 \times 10^9$/L), anemia (hemoglobin: 13.6 g/dL, reference range: 14.0–18.0 g/dL), and thrombocytosis (platelet: 540×10^9/L, reference range: $150–400 \times 10^9$/L). Elevated inflammatory markers were noted with an erythrocyte sedimentation rate of 96 mm/h and C-reactive protein of 72 mg/L.

A head CT scan showed multiple suspicious space-occupying lesions in the brain. Gadolinium-based

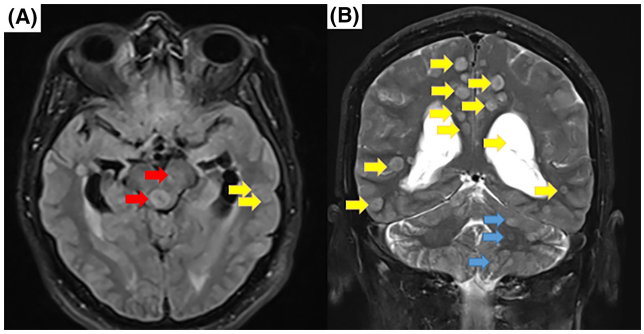

FIGURE 1 T2-weighted magnetic resonance imaging revealed well-defined round hyperintense lesions in the cerebrum (yellow arrows), midbrain (red arrows), and cerebellum (blue arrows): (A) Horizontal view of the brain; (B) Coronal view of the brain.

magnetic resonance imaging (MRI) revealed diffuse, well-defined round lesions. T2-weighted MRI showed hyperintense lesions in the cerebrum, cerebellum, and brainstem (Figure 1).

The differential diagnosis included central nervous system (CNS) neoplasms like primary and metastatic brain tumors, infections such as bacterial (e.g., toxoplasmosis), viral (e.g., herpes encephalitis), and fungal (e.g., cryptococcosis), and noninfectious inflammatory conditions such as sarcoidosis and vasculitis. Cerebrospinal fluid analysis revealed lymphocytic pleocytosis, elevated protein, and low glucose levels, with positive acid-fast bacillus testing. Finally, based on imaging and laboratory findings, multiple intracranial tuberculomas were confirmed. His initial HIV-1 and HIV-2 antibody level was negative.

Upon diagnosis, the patient was promptly started on standard anti-tuberculosis (TB) therapy consisting of isoniazid, rifampin, pyrazinamide, and ethambutol. Dexamethasone was administered to reduce cerebral edema. The patient showed significant clinical improvement after 8 weeks of therapy, with a resolution of fever and neurological symptoms.

2 | DISCUSSION

CNS TB represents a severe form of extrapulmonary TB, accounting for approximately 1% of all TB cases. It can present as meningitis, abscesses, spinal TB, or, less commonly, tuberculomas. Tuberculomas may mimic other space-occupying lesions, posing a diagnostic challenge. Contrast-enhanced MRI is crucial for diagnosis, showing characteristic imaging findings of these lesions.[1,2] Tuberculoma lesions may be solitary or multiple, supra- and/or infratentorial, and might have various sizes.[1]

Long-term anti-TB treatment remains the cornerstone of therapy, often supplemented with corticosteroids to manage inflammation and prevent complications such as hydrocephalus. Treatment duration typically spans from 9 to over 24 months, with a good prognosis if initiated early.[3]

AUTHOR CONTRIBUTIONS

Mehrdad Farrokhnia: Project administration; supervision. **Hanieh Mirkamali:** Writing – original draft; writing – review and editing. **Seyed Danial Alizadeh:** Writing – review and editing. **Mohammad Rezaei Zadeh Rukerd:** Conceptualization; investigation; project administration; writing – original draft; writing – review and editing.

FUNDING INFORMATION

None.

CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

All the data underlying the results is available as part of the article, and no additional source data is required.

ETHICAL APPROVAL

All ethical issues have been thoroughly considered by the authors. Before this case report and any related images were published, the patient's written informed consent was obtained. Our institution does not require ethical approval for reporting individual cases or case series.

CONSENT

This case study followed the World Medical Association's Helsinki Declaration. The patient provided written informed consent for the publication of the case report.

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