Disseminated Tuberculosis with CNS Involvement: A Complex Case of Miliary Tuberculosis and Tuberculomas Presenting with Altered Sensorium

Arnav Agarwal

Dr Ashwini Kumar Mohapatra, Dr Divya Balan, Department of Respiratory Medicine

INTRODUCTION

Disseminated tuberculosis (TB) involves hematogenous spread of Mycobacterium tuberculosis to two or more noncontiguous sites, resulting from primary infection, reactivation of latent TB, or rare iatrogenic causes. Miliary TB, a form of disseminated TB characterised by millet seed granuloma in various organs. This life-threatening condition poses diagnostic challenges due to nonspecific symptoms and limited confirmatory tests, including low sensitivity of acid-fast bacilli (AFB) smears and time-consuming cultures, complicating timely treatment. In miliary TB, CNS involvement is usually in the form of Tubercular meningitis (TBM), Central nervous system tuberculoma or spinal arachnoiditis, resulting from hematogenous spread or rupture of tubercular foci. Diagnosing CNS-TB is challenging due to its paucibacillary nature, necessitating a comprehensive approach that includes CSF analysis and imaging. It is associated with high morbidity and mortality rates.

CASE REPORT

A 54-year-old male presented two-month history of intermittent fever that was temporarily alleviated with medication and reported breathlessness for the past two months, classified as grade 3 on the Modified Medical Research Council scale.The patient also presented with one-week history of altered sensorium, and also experienced recent episodes of brief loss of consciousness, occurring three times daily for approximately 10 seconds.

Patient vitals were stable, pallor was noted and patient was not oriented to time and place but was oriented to person. Laboratory investigations confirmed an ongoing infectious process, indicated by mildly elevated inflammatory markers. Sputum GeneXpert Mycobacterium tuberculosis not detected.Imaging studies demonstrated bilateral miliary shadows on CT thorax. MRI of the brain revealed multiple smooth ring-enhancing lesions with altered signal intensity, diffusion restriction, and perilesional edema, some appearing conglomerated within the bilateral cerebral hemispheres and cerebellar hemispheres. These findings were suggestive of tuberculomas, consistent with caseating granulomas in the central liquefaction stage.

The patient was diagnosed clinically as a case of miliary tuberculosis with CNS involvement

MANAGEMENT

The patient was already on anti-tubercular therapy (ATT) since 13/06/2024 and was subsequently started on corticosteroids (dexamethasone) to address suspected central nervous system involvement and to mitigate inflammation. Additionally, antiepileptic medication (levetiracetam) was initiated due to the risk of seizures associated with the identified CNS lesions. Gradual tapering of corticosteroids was implemented to minimize withdrawal symptoms and manage potential side effects.

DISCUSSION

Miliary tuberculosis (TB) can occur in immunocompetent individuals, despite being more common in those with compromised immunity. While it constitutes about 25-30% of disseminated TB cases, central nervous system (CNS) involvement occurs in 1-2% of active TB cases and 5-8% of extrapulmonary TB. In regions like India, CNS tuberculomas represent 20-30% of intracranial lesions.This case is notable for the patient's acute neurological symptoms, including altered sensorium and brief loss of consciousness which differ from the typical subacute presentation. The rapid symptom development suggests an acute inflammatory response to disseminated TB. This situation shows the importance of considering extra-pulmonary involvement in suspected miliary TB cases. Prompt diagnosis and treatment are essential to mitigate potential morbidity and mortality associated with this serious condition.

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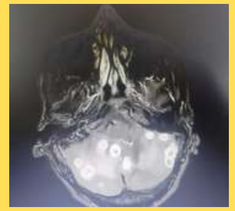
C 

CONCLUSION

This case underscores the need for awareness of CNS tuberculosis in patients with miliary tuberculosis. The interplay between disseminated TB and CNS involvement in miliary TB poses significant diagnostic challenges due to the nonspecific clinical features, limited confirmatory laboratory tools and poor prognosis with delayed diagnosis and treatment .Physician awareness is essential for timely diagnosis and treatment to improve outcomes in affected patients.