

A stroke mimic

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Abstract

Cryptococcal meningitis (CM) is an invasive mycosis with high morbidity and mortality. If unsuspected, particularly in immune-competent individual, delayed diagnosis may lead to poor outcome. High prevalence of tuberculous meningitis which shares similar clinical manifestations, further results in delayed diagnosis of CM. Stroke is a known complication of CM. Nevertheless, infection as a cause of stroke is poorly appreciated. We report a case of cryptococcal meningitis complicated by stroke to emphasize the complexities of management and value of early diagnosis for better outcome.

Case report

A 44-year-old, previously well man, presented with headache, and low grade fever for one month. He developed a generalized tonic clonic seizure on admission. In the recent past he has had an aviary of love birds for 2 years and has abandoned it as all birds died about 6 months back. Additionally, he handled chicken excreta as a fertilizer at his home cultivation.

He was febrile and had neck stiffness. He was alert and rational. There were no focal neurological signs. His cerebrospinal fluid analysis (protein 96 mg/dl, sugar 2.4 mg/dl, neutrophils 80/mm³, lymphocytes 330/mm³) and the leptomeningeal enhancement of the MRI brain with gadolinium contrast supported tuberculous meningitis. He was commenced on Anti Tuberculous Therapy (ATT) and oral prednisolone and made a gradual but partial recovery.

Two weeks later he suddenly deteriorated and developed double vision, unsteady gait and slurring of speech. He remained febrile with nuchal rigidity and Glasgow coma scale was 13 /15. Pupils were unequal, had R/S gaze palsy, and an ataxic gait with normal limb power. Over next 24 hours his GCS deteriorated to 6/15 and developed right sided hemiparesis. CT scan of brain showed multiple bilateral infarctions. Repeat MRI brain showed basal patchy meningeal enhancement worse than previously and multiple bilateral infarctions including in the cerebellum and left internal capsule.

Repeat CSF examination showed predominant polymorphs (protein 89mg/dl, polymorphs 100/mm³, lymphocytes 30/mm³). TB screening, fungal and bacterial studies were repeatedly negative. His cardiovascular risk factor assessment was unremarkable. CSF for cryptococcal antigen became positive with a titer of 1:100 with a subsequent positive culture. The diagnosis of cryptococcal meningitis was made and IV amphotericin was commenced following which the patient made a dramatic recovery. Investigations ruled out HIV and other immunodeficiency states. In 6 months he had no residual disability.

Discussion

This case report highlights the complexities involved with arriving at the early definitive diagnosis of chronic meningitis particularly in resource constraint settings. TB meningitis is the leading cause of chronic meningitis in Sri Lanka. Low sensitivity of specific laboratory investigations has made it a diagnosis made with high assumption. Hence the patient was commenced on ATT. Detecting organism in CSF on direct examination with India ink and isolating in culture are the locally available tests for definitive diagnosis of CM. However, India ink staining would be falsely negative in about 50% particularly if concentration of fungi are low as well as due to variation in the thickness of the capsule which is demonstrable as an unstained rim around¹. Delay in culturing the organism has made it least helpful for therapeutic decision making. Further, 20-40 ml CSF sampling is required for culture.

When he deteriorated further, his CSF India ink stain remained negative and culture reports were not available. Soluble cryptococcal antigen detection by agglutination on latex particle which became positive is highly sensitive up to 92-98%^{2,3}. As such, the reported case highlights the need for investigations with high specificity and sensitivity in investigating chronic meningitis. Contact history of birds supported the diagnosis of cryptococcal meningitis, but specific therapeutic interventions become possible only once the definitive diagnosis is established.

Many CNS infections including TB, syphilis, aspergillus meningitis are known to be complicated by

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stroke caused by vasculitis⁴. TBM was associated with cerebral infarctions in 47% and cryptococcal meningitis in 32%⁵ suggesting CNS infections as an important cause of infarctions particularly in developing countries.

Conclusion

The case highlights the need to pursue cryptococcal meningitis as a differential diagnosis of tuberculous meningitis. Availability of highly specific and sensitive investigations will help in early diagnosis and having a better outcome. Further, it brings to light infections as an important cause of stroke in developing countries.

References

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