Teaching NeuroImages: *Balamuthia mandrillaris* amebic encephalitis

Clinical–radiologic–pathologic correlation

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Figure Brain MRI fluid-attenuated inversion recovery (FLAIR) sequence and brain MRI T1 with gadolinium

(A.a) Brain MRI FLAIR sequence and (A.b) brain MRI T1 with gadolinium at the time of presentation show left parietal hyperintensity surrounding a complete ring-enhancing lesion (B.a) Brain MRI FLAIR sequence and (B.b) brain MRI T1 with gadolinium 7 days from presentation show extension of hyperintensity in left frontal and parietal lobe with larger ring-enhancing lesion. (C.a) Brain MRI FLAIR sequence and (C.b) brain MRI T1 with gadolinium 15 days from presentation show extension of the hyperintensity anteriorly and appearance of new lesion in the right frontal lobe with ring-enhancing lesions. Pathology: Several trophozoites (D) and 4 trophozoites (bottom E, arrow shows one of them) of *Balamuthia mandrillaris* in brain tissue, stained with hematoxylin & eosin (A scale is 100 μ m, B scale is 50 μ m).

A 32-year-old immunocompetent man presented with new-onset generalized tonic-clonic seizures. On examination, he had mild right hand weakness, with right-sided Hoffman sign, ankle clonus, and Babinski reflex present. MRI of the brain demonstrated vasogenic edema surrounding a ring-enhancing lesion in the left parietal lobe (figure, A). Repeat brain MRIs showed rapid progression of the lesion, with new lesions appearing in the contralateral hemisphere (figure, B and C). Pathology showed necrotizing meningoencephalitis with organisms consistent with ameba (figure, D). Indirect immunofluorescence and PCR was positive for *Balamuthia mandrillaris*. About 200 cases of *Balamuthia* infection have been reported worldwide, and it has a very high mortality rate of 95%.¹

AUTHOR CONTRIBUTIONS

Shivam Om Mittal: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and final approval. Omar Alsinaidi: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and final approval, contribution of vital reagents/tools/patients, acquisition of data.

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DISCLOSURE

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