

# Teaching NeuroImages:

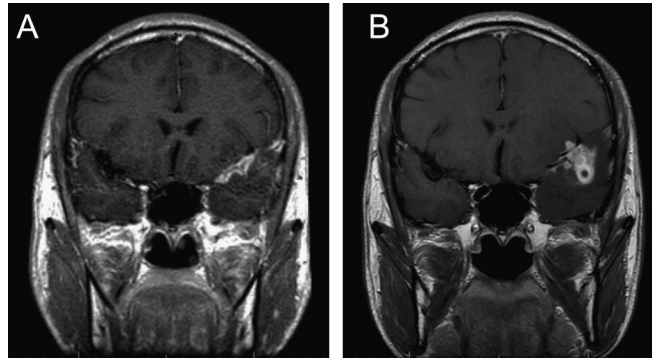
## Fungus in the brain

### Coccidioidomycosis meningoencephalitis

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**Figure** Evolving coccidioidomycosis infection in the brain



(A) Initial MRI after the seizure showed meningeal enhancement in the left sylvian fissure, a nonspecific pattern. (B) Two-month follow-up MRI revealed multiple rim-enhancing nodules extending into the adjacent frontal and temporal lobe parenchyma with extensive surrounding edema. These nodules, along with the clinical history, confirm the diagnosis of coccidioidomycosis.

Coccidioidal meningoencephalitis often carries a poor prognosis.<sup>1</sup> Brain imaging can reveal focal enhancement at the basal cisterns, infarction, and communicating hydrocephalus.<sup>2</sup> A 38-year-old HIV-negative Korean man with a history of CSF- and serum-confirmed coccidioidal meningitis, receiving chronic antifungal therapy, presented with a first generalized tonic-clonic seizure. CSF demonstrated pleomorphic leukocytosis, normal protein and glucose, negative acid-fast bacillus and fungal cultures, negative *Mycobacterium tuberculosis* PCR, and negative *Coccidioides* antibodies. The diagnosis is presumed coccidioidomycosis based on imaging (figure) and clinical history. This case is an uncommon presentation with an enhancing lesion in the sylvian fissure, progressing to parenchymal invasion and extensive edema.

#### AUTHOR CONTRIBUTIONS

D. Goldenholz wrote the text and did a chart review. N. Mehra edited the text. B. Dahlin edited the text, reviewed the radiology studies,

and selected appropriate images. S. Cohen and V. Wheelock edited the text.

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#### DISCLOSURE

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#### REFERENCES

- Mathisen G, Shelub A, Truong J, Wigen C. Coccidioidal meningitis: clinical presentation and management in the fluconazole era. *Medicine (Baltimore)* 2010;89:251–284.
- Erlly WK, Bellon RJ, Seeger JF, Carmody RF. MR imaging of acute coccidioidal meningitis. *AJNR Am J Neuroradiol* 1999;20:509–514.

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## Teaching Neuroimages: Fungus in the brain: Coccidioidomycosis meningoencephalitis

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