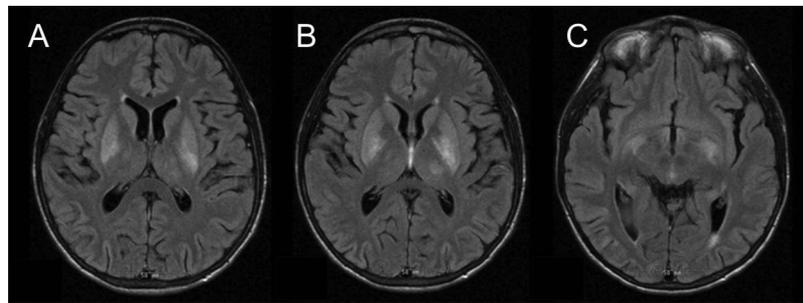


Teaching NeuroImages: Manganese neurotoxicity of the basal ganglia and thalamus

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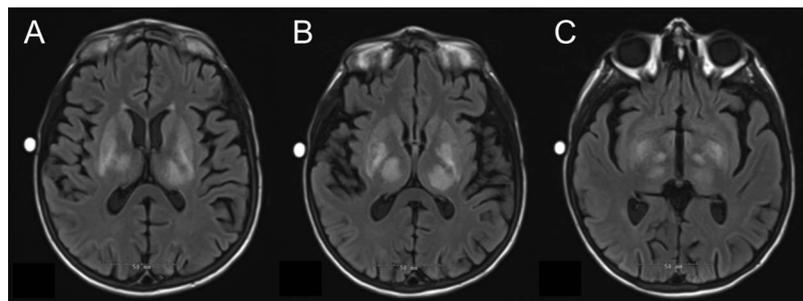
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Figure 1 Brain MRI, T2/fluid-attenuated inversion recovery sequence, 4 weeks after symptom onset



MRI demonstrates bilateral basal ganglia and left thalamus hyperintensities (A–C).

Figure 2 Brain MRI, T2/fluid-attenuated inversion recovery sequence, 8 weeks after symptom onset



MRI demonstrates symmetric hyperintensities of the basal ganglia and thalami (A–C).

A 27-year-old man with cholestasis presented with 4 weeks of progressive spastic quadripareisis and hypophonia. MRI revealed T2/fluid-attenuated inversion recovery hyperintensities in the basal ganglia and thalamus (figure 1). He was treated with IV methylprednisolone for acute disseminated encephalomyelitis. His condition worsened. MRI 4 weeks later showed larger symmetric hyperintensities in the basal ganglia and thalami (figure 2). Blood manganese was elevated (25.4 $\mu\text{g/L}$, reference 4.4–15.2). There was no known exposure. He was treated with chelation and levodopa with limited response.

This case represents manganese toxicity without known exposure. Cholestasis is a risk factor as manganese undergoes biliary excretion. Other workups were negative, including toxic (carbon monoxide, methanol), metabolic (hyperammonemia, osmotic myelinolysis), vascular (deep cerebral vein thrombosis), degenerative

(pantothenate kinase–associated neurodegeneration), and infectious (flavivirus, toxoplasmosis) diseases.¹

AUTHOR CONTRIBUTIONS

Shaheen E. Lakhan: drafting/revising the manuscript, accepts responsibility for conduct of research and final approval. Hesham Abboud: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and final approval, acquisition of data.

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DISCLOSURE

S. Lakhan serves on the American Academy of Neurology's Distance Learning Subcommittee and is an editorial team member of the Resident & Fellow Section of *Neurology*[®]. H. Abboud reports no disclosures. Go to Neurology.org for full disclosures.

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