

Demyelinating disease of the brain presenting as ring enhancing lesions in a critically ill patient

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Case Presentation

A 26-year-old Latin-American woman with a history of alcohol and cocaine abuse was brought to the emergency department with the complaint of fever, altered mental status and weakness of 3-day duration. Her initial vital signs included a blood pressure of 80/40 torr, heart rate 140/min, respiratory rate 32/min, SaO₂ 96% on room air, temperature 41°C. Aggressive fluid resuscitation was started, blood cultures obtained, and empiric antibiotics started. A lumbar puncture revealed six white blood cells per field with normal glucose levels. An emergent magnetic resonance imaging (MRI) of the brain revealed multiple ring enhancing lesions seen as areas of increased signal on T2 flair and diffusion sequences. These lesions were seen almost exclusively in

the deep white matter (Figures). Based on these images toxoplasmosis was considered as the cause of the patient's altered mental status. Serum toxoplasma titers were abnormal. The patient's condition deteriorated evolving into *status epilepticus* requiring airway management and assisted mechanical ventilation. An open brain biopsy was performed and cultures were negative for bacterial, fungal, tuberculosis or toxoplasmosis. Microscopic pathological analysis revealed findings consistent with an acute demyelinating disease. The presence of multiple white matter lesions on MRI favors demyelinating disease but ring-enhancing lesion makes it an unusual presentation of demyelinating diseases of the brain.

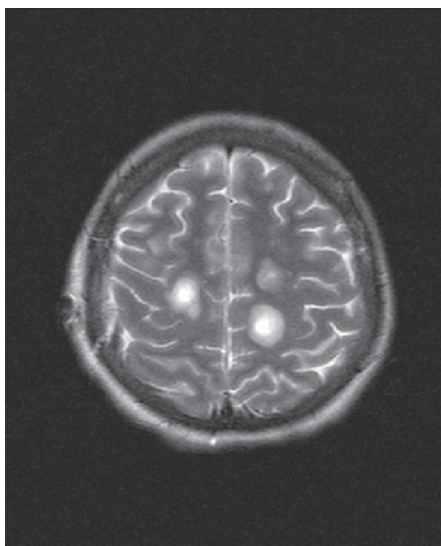
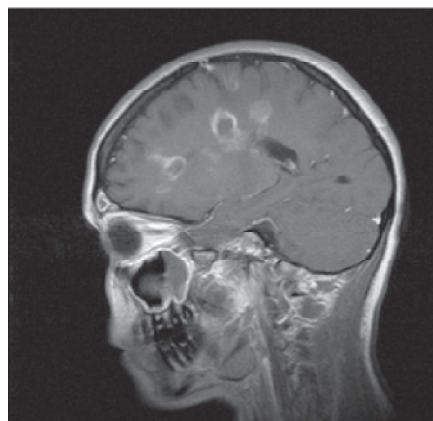
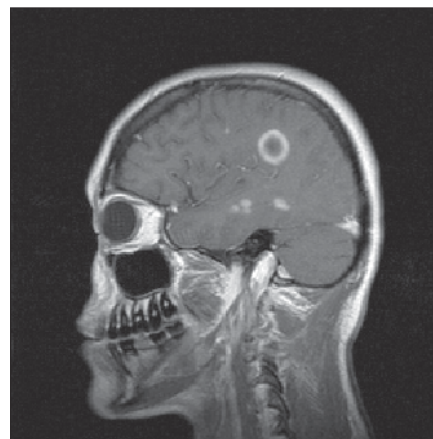


FIGURE 3. T2 IMAGE WITH CONTRAST REVEALING THE DEEP WHITE MATTER LESIONS



FIGURES 1 AND 2. T1 IMAGES WITH CONTRAST REVEAL THE RING-ENHANCING LESIONS



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