Teaching NeuroImages: Magnetic resonance perfusion and diffusion findings in hemiplegic migraine

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Figure Magnetic resonance (MR) perfusion, diffusion, and apparent diffusion coefficient sequences

(A) MR perfusion shows decreased cerebral blood flow involving the entire right hemisphere. Cortical spreading depression is thought to be the pathophysiologic basis. (B) Diffusion-weighted MRI shows restriction involving the right parietal cortex, suggesting some degree of ischemia. (C) Associated apparent diffusion coefficient MRI shows dropout changes correlating with restriction.

A 6-year-old boy presented with acute onset of left-sided weakness and homonymous hemianopia in the setting of 3 days of severe, unilateral, pulsating headache. MRI 3 hours after symptom onset showed hypoperfusion of the entire right hemisphere, with foci of diffusion restriction predominantly involving the right parietal lobe with apparent diffusion coefficient correlate (figure). He gradually improved and was discharged with no neurologic deficits. He was discovered to have a strong family history of hemiplegic migraine.

Cerebral hypoperfusion is a relatively well-established finding in hemiplegic migraine,^{1,2} but associated diffusion-weighted imaging changes are rare, with only a handful of cases reported in the literature.

Study funding

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Disclosure

The authors report no disclosures relevant to the manuscript. Go to Neurology.org/N for full disclosures.

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Appendix Authors

Name	Location	Contribution
Alison Ilana Thaler, MD	Icahn School of Medicine at Mount Sinai, New York, NY	Manuscript drafting and preparation, image acquisition
Brian D. Kim, MD	Icahn School of Medicine at Mount Sinai, New York, NY	Image acquisition and manuscript revision
Michael G. Fara, MD	Icahn School of Medicine at Mount Sinai, New York, NY	Manuscript revision

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