SMART syndrome

Stroke-like migraine attack after radiation therapy

Nancy Wang, MD

Sashank Prasad, MD

A 57-year-old woman presented with intense headache 13 years after cranioplasty and radiation treatment for occipital osteosarcoma. Examination showed anomia and paraphasic errors, right homonymous hemianopia, and dysmetria of the right arm. MRI during hospitalization demonstrated diffuse pathologic enhancement in the left parieto-occipital lobe (figure, A) and extensive gyral edema (figure, B and C). EEG while she was symptomatic showed left-predominant posterior quadrant slowing without epileptiform abnormalities. She was diagnosed with stroke-like migraine attacks after radiation therapy (SMART) syndrome and treated with IV valproic acid and corticosteroids. The headache and neurologic deficits improved over several days. After 3 months, the visual field abnormality, anomia, and dysmetria were fully resolved. She had mild baseline

Figure MRI

Postgadolinium T1-weighted (A), T2-weighted (B), and T2-fluid-attenuated inversion recovery (FLAIR) (C) MRI at presentation. Postgadolinium T1-weighted (D), T2-weighted (E), and T2-FLAIR (F) MRI after 3 months.

Department of Neurology, Brigham and Women's Hospital, Boston, MA.

Funding information and disclosures are provided at the end of the article. Full disclosure form information provided by the authors is available with the **full text of this article** at Neurology.org/cp.

Correspondence to: nwangy@gmail.com

visuospatial deficits, including difficulty copying intersecting pentagons. Repeat MRI showed resolution of pathologic enhancement and gyral edema (figure, D–F).

SMART syndrome is characterized by severe headache and transient focal neurologic deficits occurring years after cranial radiation.^{1,2} MRI at the time of symptoms often demonstrates regions of cortical swelling and contrast enhancement. Additional diagnostic considerations should include tumor recurrence, seizure (which may be associated with SMART syndrome), ischemia, venous sinus thrombosis, posterior reversible encephalopathy syndrome, and infection. Neurologic symptoms and imaging findings are typically reversible, and prompt diagnosis and treatment expedites the course of clinical recovery. Repeat imaging should be considered to assess for resolution of pathologic changes.

REFERENCES

1. Lachance DH, Black DF. SMART: strokelike migraine attacks after radiation therapy. *Neurology* 2005;(suppl 1):A220. Abstract.
2. Pruitt A, Dalmau J, Detre J. Episodic neurologic dysfunction with migraine and reversible imaging findings after radiation. *Neurology* 2006;67:676–678.

STUDY FUNDING

No targeted funding reported.

DISCLOSURES

N. Wang reports no disclosures. S. Prasad received an American Academy of Neurology Clinical Research Training Fellowship. Full disclosure form information provided by the authors is available with the **full text of this article at Neurology.org/cp**.

Share Your Knowledge

Neurology® Clinical Practice encourages readers to share their insights, expertise, and experiences.

- How are you employing drugs and devices in your field?
- What ethical challenges do you face?
- Do you have a case report that is illustrative of a clinical challenge?
- What challenges have you faced or successes have you enjoyed in bringing greater efficiency to your practice?

If you are interested in delivering a high-quality, peer-reviewed message to your colleagues in practice, submit your paper **online**.