Teaching *NeuroImages*: Microhemorrhages resulting from cranial radiotherapy in childhood

Alastair John Noyce,
BMedSci, MB BS
Sutapa McCrae, MRCP,
MB BS
Jeffrey Gawler, FRCP
Jane Evanson, FRCR

Address correspondence and
reprint requests to Dr. Alastair
John Noyce, Neuroscience
Centre, Institute of Cell and
Molecular Science, Queen Mary
University of London, 4 Newark
Street, London, UK E1 2AT
a.noyce@qmul.ac.uk

Figure 1 Bilateral radiotherapy windows, 9 × 9 cm

A child with a brainstem glioma was treated with cranial radiotherapy (total radiation dose 4,500 cGy) (figure 1). Eight years later, she had a symptomatic spontaneous intracerebral hemorrhage (ICH). Sixteen years after the initial presentation, follow-up MRI included gradient-recalled echo T2*-weighted sequences. Numerous microhemor-

rhages were confined to the radiotherapy treatment field (figure 2).

Gradient-recalled echo is a heme-sensitive sequence that shows microhemorrhages as small, round areas of low signal intensity.¹ Calcium deposition may appear similar. Microhemorrhages occur in 60% of people with nontraumatic ICH and

Figure 2 Microhemorrhages

(A-C) Gradient-recalled echo T2*-weighted MRI. Microhemorrhages confined to radiotherapy field in the parietal and occipital lobes (arrowheads). No pathology in the superior parietal or frontal lobes. Macrohemorrhage seen in left occipital lobe (arrow).

From the Royal London Hospital, London, UK.

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can be caused by amyloid, hypertension, or vasculitis.¹ Cranial radiotherapy is the likely cause in this patient, and has been reported previously.²

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