Teaching Neuro*Images*: Microhemorrhages resulting from cranial radiotherapy in childhood

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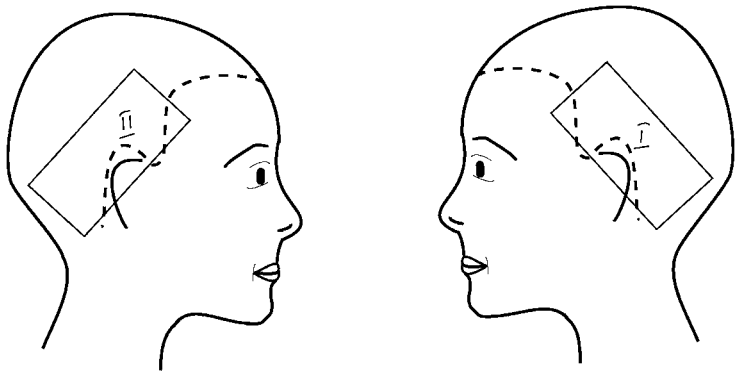
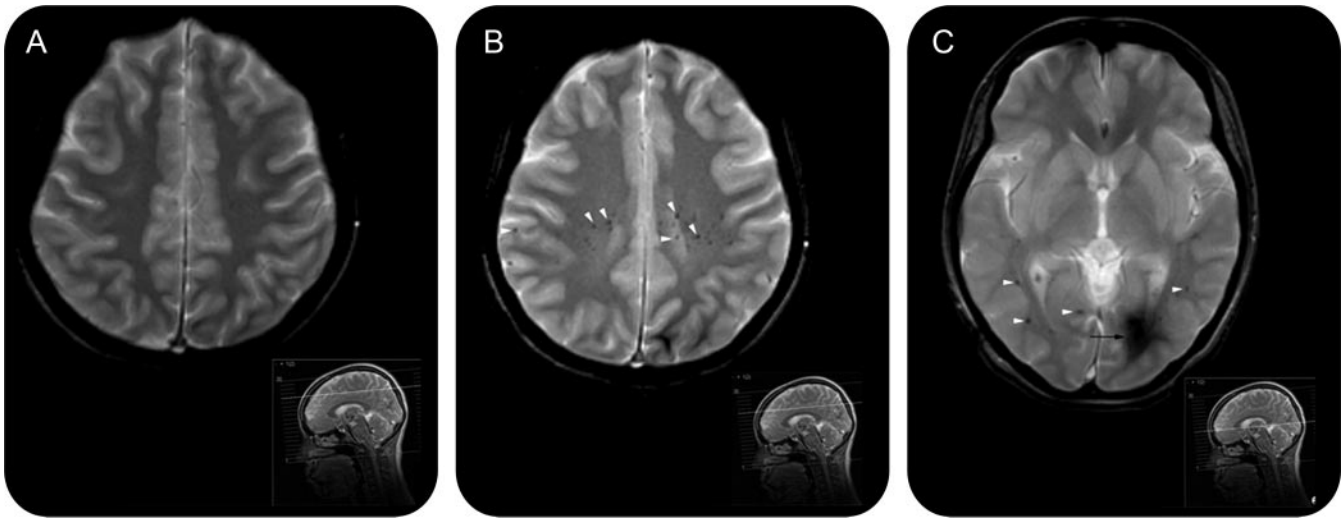
Figure 1 Bilateral radiotherapy windows, 9 × 9 cm



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 microhemorrhages 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).

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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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