MRI spot sign

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A 47-year-old woman presented with fever and acute right subdural hematoma. Her neurologic examination was normal, but she experienced persistent severe headache and repeat CT showed increasing mass effect. Lumbar puncture was deferred for risk of herniation. MRI was performed to evaluate for septations, abnormal enhancement, or other atypical features that would suggest an alternative diagnosis such as subdural empyema. An area of active contrast extravasation was seen on MRI (figure) and corresponded, at surgical evacuation, to a small bleeding artery that was ablated with bipolar cautery. Despite extensive evaluation, no cause for the hemorrhage was identified. There was no vascular malformation and no history of trauma.

In prospective studies, an analogous CT angiography spot sign has been linked to worse clinical outcomes in intracerebral¹ and subdural hemorrhages.² Contrast-enhanced MRI is rarely indicated in practice. When performed, however, finding the MRI spot sign is essentially pathognomonic for active hemorrhage. The MRI spot sign can be distinguished from an intact vessel when scrolling through adjacent cuts demonstrates a rounded focus rather than linear branching.

Craniotomy was pursued in our case because of expansion of the hematoma and suspicion of an actively bleeding vessel as suggested by the MRI spot sign. Based on one case, we cannot conclude that craniotomy should be performed in every patient with the MRI spot sign, but

Figure MRI spot sign in acute subdural hematoma

T1-weighted MRI with gadolinium contrast shows a rounded focus of enhancement suggestive of active extravasation in the lateral portion of the subdural hematoma (arrows; A, axial; B, coronal).

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the presence of this finding should raise suspicion for active hemorrhage. The decision to pursue open surgery over burr hole drainage should be based on a combination of clinical and radiologic findings.

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