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Real-time Imaging of Aneurysmal Rupture Causing an Isolated Acute Subdural Hematoma

Author(s):

Christopher Hong, MD¹; Daniela Renedo, MD¹; Nanthiya Sujijantararat, MD¹; Andrew Koo, MD¹; Guido J. Falcone, MD²; Ajay Malhotra, MD³; Nils H. Petersen, MD²; Charles Matouk, MD^{1,3}

Corresponding Author:

Charles Matouk
charles.matouk@yale.edu

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Affiliation Information for All Authors: 1. Department of Neurosurgery, Yale School of Medicine, New Haven, CT; 2. Division of Neurocritical Care and Emergency Neurology, Department of Neurology, Yale School of Medicine, New Haven, CT; 3. Department of Radiology, Yale School of Medicine, New Haven, CT

Contributions:

Christopher Hong: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data

Daniela Renedo: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data

Nanthiya Sujjantararat: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data

Andrew Koo: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data

Guido J. Falcone: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Analysis or interpretation of data

Ajay Malhotra: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Analysis or interpretation of data

Nils H. Petersen: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data

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A 51-year-old woman with hypertension presented with a 3-week history of progressive, right cranial nerve III palsy and headache. During her emergency department evaluation and while in the MRI scanner, she became acutely unresponsive. MRI captured a rapidly expanding acute subdural hematoma (aSDH) (Figure 1). She was emergently taken for decompressive craniectomy. Post-operative imaging demonstrated a ruptured right-sided posterior communicating artery aneurysm.

Isolated aSDH from aneurysmal rupture has previously been reported, but remains underappreciated.^{1,2} Given the dynamic documentation with brain MRI, this case uniquely captures the real-time rupture of an aneurysm directly into the subdural space without associated subarachnoid or intracerebral hemorrhage.

FIGURE LEGEND

Figure 1. Peri-operative imaging. (A) Normal MRI (localizer) prior to aneurysmal rupture. (B) T2-weighted MRI (axial) showed rapid aSDH enlargement over 5 and (C) 11 minutes into MRI acquisition. (D) Post-craniectomy CT (coronal) showed subtemporal aSDH extension. (E) CTA (coronal) and (F) cerebral angiogram (AP) demonstrated a ruptured posterior communicating artery aneurysm.

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