Received: 26 September 2022 | Revised: 30 October 2022 | Accepted: 26 October 2022

DOI: 10.1002/emp2.12855

JACEP OPEN
JOURNAL OF THE AMERICAN COLLEGE OF EMERGENCY PHYSICIANS OPEN
A GLOBAL JOURNAL OF EMERGENCY MEDICINE
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IMAGES IN EMERGENCY MEDICINE

Neurology

A 22-year-old woman presenting with syncope and seizure

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This manuscript has not been published, or presented at, a previous academic journal or meeting.

1 | PATIENT PRESENTATION

A 22-year-old female was brought in by emergency medical services (EMS) after her husband found her unresponsive and surrounded by emesis. She was given midazolam by EMS after she displayed tonic-clonic seizure-like activity en route to the emergency department. After intubation and stabilization, computed tomography (CT) revealed a left hyperdense middle cerebral artery (MCA) sign (Figures 1 and 2). Tissue plasminogen activator was subsequently administered, and she was transferred to a higher level of care for emergent thrombectomy. She was later found to have a patent foramen ovale during her hospital course.

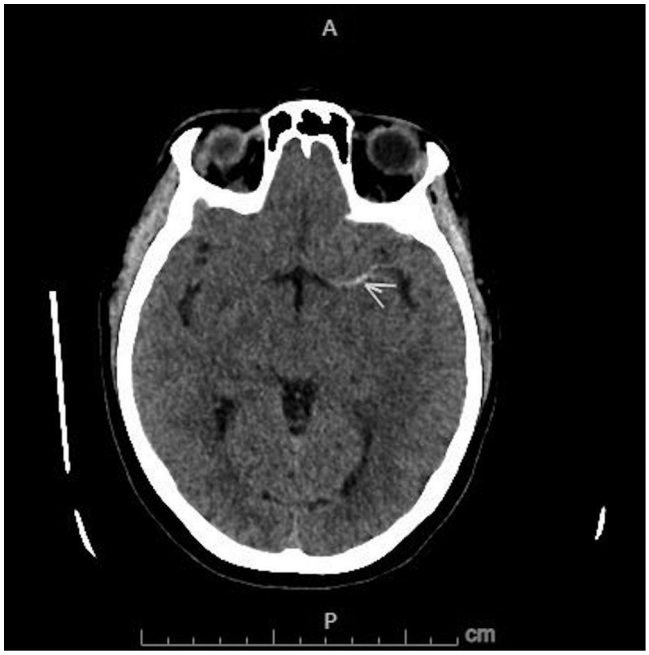

FIGURE 1 Non-contrasted axial computed tomography head imaging showing a left hyperdense middle cerebral artery sign (green arrow).

2 | DIAGNOSIS

2.1 | Acute embolic stroke

Given the incidence of seizure in the acute phase of stroke is ~3%, the emergency department clinician must maintain a high level of suspicion for both ischemic and hemorrhagic stroke.[1] Factors that increase the risk of stroke presenting with seizures include both younger age and hemorrhagic stroke.[2,3]

Typically, CT imaging is the diagnostic modality of choice for intracranial hemorrhage and magnetic resonance imaging (MRI) for ischemic stroke due to their relative sensitivities and specificities.[1,4] However, MRI presents a challenge in time-sensitive pathologies, such as ischemic strokes. CT scans can, however, still provide valuable diagnostic information in ischemic stroke, such as the hyperdense MCA sign—an appearance of increased attenuation of the proximal MCA associated with thrombosis of the M1 MCA.[5] Hyperdensity of cerebral vessels has a high specificity (approaching 100%), but poor sensitivity (30%–50%) for ischemia.[6,7] Given this, the presence of a hyperdense arterial sign can facilitate a quick and accurate diagnosis, making it an imperative imaging finding to recognize.

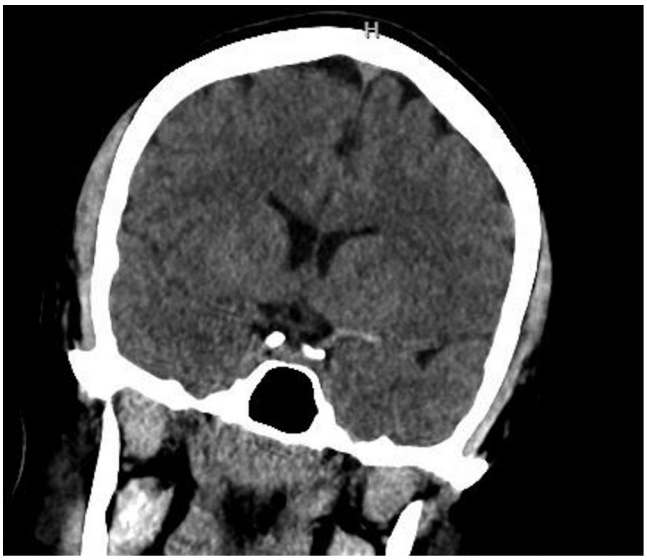

FIGURE 2 Non-contrasted coronal computed tomography head imaging showing a left hyperdense middle cerebral artery sign.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

DISCLAIMER

The view(s) expressed herein are those of the author(s) and do not reflect the official policy or position of the Madigan Army Medical Center, the US Army Medical Department, the US Army Office of the Surgeon General, the Department of the Army, Department of Defense, the Defense Health Agency, or any agency of the US Government.

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How to cite this article: Wade CI, Kelly E, Kelly C, Braun J. A 22-year-old woman presenting with syncope and seizure. *JACEP Open*. 2022;3:e12855. https://doi.org/10.1002/emp2.12855