Received: 19 November 2019 | Revised: 26 February 2020 | Accepted: 27 February 2020

DOI: 10.1002/emp2.12052

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

Man with altered mental status

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1 | PATIENT PRESENTATION

A 67-year-old man with C7-T1 radiculopathy and iodine contrast allergy presented to the emergency department with altered mental status. Prior to ED presentation, the patient was in an interventional pain clinic, where he received an interlaminar epidural dexamethasone injection under fluoroscopic guidance. The patient's allergy to iodine contrast led to the use of gadolinium (2 mL gadobutrol) as an alternative agent to confirm uptake into the epidural space. Shortly after the procedure, the patient developed headache, vomiting, hypertension 207/141 mm Hg, depressed mental status, and seizures. An initial computed tomography (CT) radiology report stated, "there is diffuse subarachnoid blood in the basal cisterns, and transverse fissures" (Figure 1). The interventional pain physician later called the radiologist and emergency physician informing them about the off-label use of gadolinium during the procedure. A radiology addendum later added, "given the new information, the findings likely represent pseudo-subarachnoid bleed, with hyperdensity in the cisterns secondary to gadolinium."

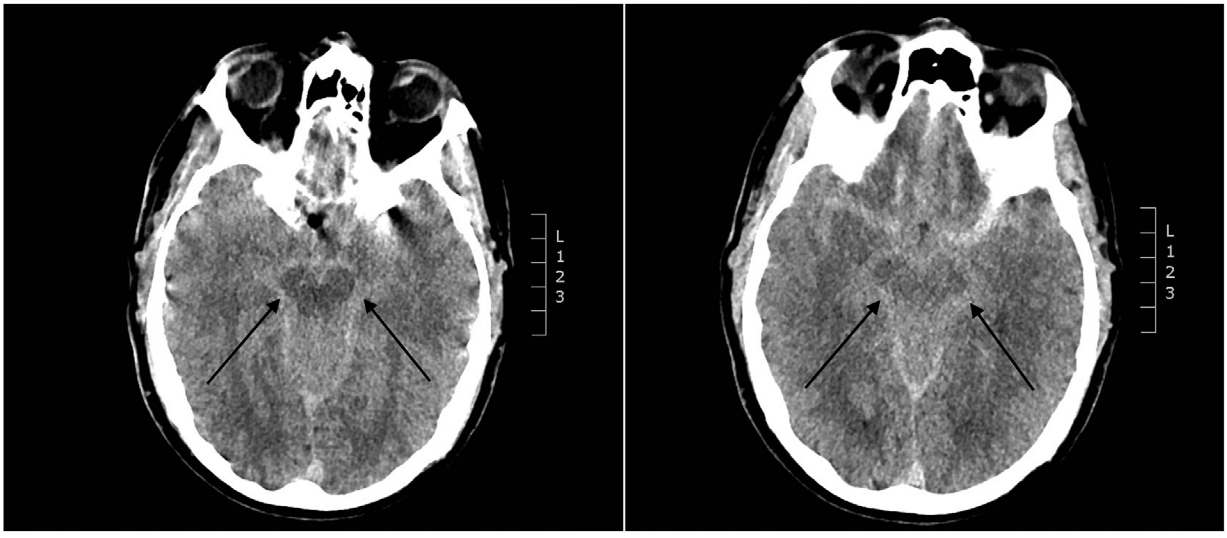

FIGURE 1 (A and B) CT brain with axial view demonstrating hyperdense gadolinium contrast in the basal cisterns extending into the Sylvian fissure

2 | DIAGNOSIS

2.1 | Pseudo-subarachnoid hemorrhage due to inadvertent subarachnoid gadolinium administration

The patient's seizures resolved after lorazepam 4 mg intravenously, but his continued mental status decline required intubation and mechanical ventilation. Angiography was negative for aneurysms. After 3 days of supportive care, he was discharged home neurologically intact.

Pseudo-subarachnoid hemorrhage refers to the radiographic appearance of subarachnoid hemorrhage on CT when there is actually no blood present in the cisterns, fissures, or ventricles.[1] Although rare, multiple etiologies of pseudo-subarachnoid hemorrhage have been identified including meningitis,[2] hypoxic encephalopathy,[3] leptomeningeal carcinomatosis, and iatrogenic.[1] In this case, inadvertent iatrogenic intrathecal gadolinium resulted in both clinical and radiographic mimicry of subarachnoid hemorrhage. Gadolinium is generally safe when administered intravenously, but it bypasses the blood–brain barrier when administered intrathecally and becomes neurotoxic. Neurotoxicity usually develops within 1 hour of infusion and may present with headache, seizures, coma, or death.[4]

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How to cite this article: Blair TE, Bae WIS, Celedon MA. Man with altered mental status. *JACEP Open*. 2020;1:302–303. https://doi.org/10.1002/emp2.12052