

Case 3-2017: A Man with Cardiac Sarcoidosis and New Diplopia and Weakness

TO THE EDITOR: In the Case Record discussed by Samuels et al. (Jan. 26 issue),¹ the autopsy of the unfortunate patient who died of granulomatous amebic encephalitis revealed numerous perivascular radiating hemorrhagic areas. This finding is typical in patients with meningoencephalitis caused by *acanthamoeba* species but unusual in patients with neurosarcoidosis, in whom intracranial hemorrhages are extremely rare and if present are readily seen on computed tomography (CT).^{2,3} The initial findings on CT and CT angiography of the head in the patient in this Case Record were reported to be normal.

An analytic sensitivity test to detect brain hemorrhages of any cause not found on CT is spectrophotometry.⁴ In the cerebrospinal fluid (CSF), bilirubin has a yellowish color commonly referred to as xanthochromia. A small amount of CSF bilirubin is easily missed by visual inspection.⁴ In the patient in this Case Record, the CSF was reported to be colorless, clear, and without xanthochromia on admission and on hospital days 5 and 6. The CSF was reported to be yellow only on hospital day 9. The interpretation of this finding as xanthochromia in the presence of an elevated level of CSF total protein is a common mistake.

Was CSF spectrophotometry performed in this patient? An early diagnosis of hemorrhagic meningoencephalitis, on the basis of findings on CSF spectrophotometry, would have narrowed the differential diagnosis at presentation and guided emergency management.

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No potential conflict of interest relevant to this letter was reported.

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DIRECTORS OF THE MASSACHUSETTS GENERAL HOSPITAL CORE LABORATORY REPLY:

CSF bilirubin concentrations typically become abnormally high within 12 hours after a subarachnoid hemorrhage. This elevation stems from the metabolism of heme contained within the hemorrhaged red cells.

As Petzold's letter indicates, spectrophotometry, a technique commonly used in some countries other than the United States,¹ provides a sensitive method for detecting elevated concentrations of CSF bilirubin. Petzold further suggests that spectrophotometry may have led to an earlier diagnosis in our patient. However, spectrophotometry was not performed, since our hospital, like almost all other hospitals in the United States,² does not offer this technique. Instead, our laboratory inspects CSF specimens visually for xanthochromia, a yellow color that suggests increased concentrations of bilirubin.

Spectrophotometry may provide greater analytic sensitivity than visual inspection to detect bilirubin at lower concentrations and greater analytic specificity to distinguish bilirubin from other substances.^{3,4} However, this advantage is potentially gained at the cost of reduced clinical specificity^{3,4} for diagnosing subarachnoid hemorrhage. The clinical value of CSF spectrophotometry and whether this technique should be more widely adopted in the United States remain topics of ongoing debate.

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