

Answer

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The correct answer is D: acute confusional migraine (ACM). The patient was discharged the next day. One month later EEG was performed under normal circumstances, and a neurologist diagnosed migraine headaches.

Migraines are the most common form of headache in children, occurring in 1%–10% of preadolescents.^{1,2} Childhood migraines are characterized by recurrent attacks interrupted by symptom-free intervals.^{2,3} Children rarely present with auras, but often exhibit autonomic symptoms such as pallor, nausea, vomiting and abdominal pain.¹ Discrete migraine equivalents or precursors have been observed from infancy to adolescence, in which headache is not prominent.⁴ One example is ACM.⁴

Gascon and Barlow⁵ applied the term “confusional migraine” in 1970, although migraines with altered consciousness were reported as early as 1873.^{2,5} ACM may be due to localized cerebral edema from increased vascular permeability or primary neuronal dysfunction related to neurogenic inflammation, but these theories remain speculative.^{2,6} The syndrome seems to affect both genders equally.⁶ It typically occurs in children or adolescents, sometimes as the first manifestation of a migrainous tendency, but it is not widely recognized, occurring in less than 1% of pediatric migraineurs.^{1,4,6} Only 51% of patients have previous migraines or recurrent headaches, but 77%–100% have a strong family history.^{2,4,6} Episodes may occur after minor head trauma,^{7,8} and may present with focal neurologic deficits, including anisocoria.⁶ The confusional state lasts from 30 min to 24 h and is preceded or followed by a common migraine headache.^{6,7}

ACM is a diagnosis of exclusion. When children present to the ED with altered consciousness, focal deficits or headache following head trauma, the differential diagnosis includes intracerebral injury, toxic ingestion, nonconvulsive seizure, post-ictal state, encephalitis, hypoglycemia and metabolic derangement.^{2,6} In cases of ACM, results of blood work, CT and MRI will be normal; these tests are useful only in their ability to rule out more dangerous causes of brain dysfunction. In the presence of normal investigations, it is difficult to differentiate ACM from post-ictal states, but as a general rule the latter resolves more quickly than the former.⁹ Some authors have documented EEG findings (transient diffuse slow wave [delta] activity) in subjects

with ACM, but this resolves within 24–72 h of the acute episode.⁹ Single photon emission computerized tomography may suggest cerebral artery hypoperfusion, but these latter investigations are rarely available in the ED.

Emergency physicians should be aware of this interesting migraine equivalent, because patients with a first episode will often present to the ED.⁴ If life-threatening etiologies have been excluded and ACM seems likely, treatment consists of simple analgesics and sleep. Symptoms normally resolve within several hours, and almost universally resolve within 24 hours.^{2,6} Anti-migraine medications like sumatriptan, dihydroergotamine, metoclopramide and prochlorperazine may be useful, as may prophylactic agents such as beta-blockers and calcium-channel blockers, but none of these agents have been systematically studied in ACM.^{2,6}

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