Expert Opinion

Migraine Versus Multiple Sclerosis

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A headache associated with focal neurological signs and symptoms is always a clinical dilemma.

CLINICAL HISTORY

This 36-year-old woman developed a back of the head and right-sided throbbing associated with nausea and light sensitivity lasting a couple of hours on the evening of October 17, 1999. She awoke the next morning at about 7 AM with a throbbing in the back of her head, again lasting several hours. She felt unsteady walking and had numbness and tingling of the right upper and lower extremities, trouble getting words out, and felt confused. On October 19, she noted numbness of the right side of the mouth and right lip. When initially evaluated 2 days later, she still had a little numbness of the right side of the body, her balance still seemed a bit unsteady, and her speech a bit slow.

There was a history of recurring headaches since her teens, occurring about every 2 weeks during the previous 6 months. She described a right- or left-sided throbbing with nausea and light sensitivity lasting about 4 hours without aura. There was no history of hypertension, diabetes, or heart disease. Family history was positive for migraine in her mother and daughter.

General physical and neurological examinations were entirely normal except for slight pronator drift of the right arm and diminished pinprick over the right face and right side of the body.

An MRI scan of the brain revealed a number of small punctate areas of mostly subcortical high T1 and FLAIR signal with one area in the right optic radiation and another near the area where the major forceps of the corpus callosum meets the occipital white matter radiations. An MRA of the brain and neck was normal. Cerebrospinal fluid revealed the following: glucose, 58 mg/dL; protein, 38 mg/dL; white blood cells, 7; red blood cells, 12; negative VDRL; and absence of oligoclonal bands. Her erythrocyte sedimentation rate was 7 mm/hr; the antinuclear antibodies were negative; rheumatoid factor was negative; the anticardiolipin antibodies and lupus anticoagulant were negative; and there was normal protein S and C activity. An ECG and 2-D echocardiogram were normal.

Questions.—What is the most likely diagnosis? Is this migraine or could this be a first episode of multiple sclerosis? What types of headaches are associated with multiple sclerosis?

EXPERT COMMENTARY

I believe the most likely diagnosis is complicated migraine. There is certainly not enough evidence to diagnose definite multiple sclerosis, and my suspicion is very low that this is actually a first episode of something that will later turn out to be MS.

This is a young woman who developed multifocal (apparently predominantly left hemisphere) symptoms that lasted for several days, appearing in the setting of a recurring headache very typical of a migraine. Clinically, this would appear to be a complicated migraine or even a stroke in the setting of a migraine.

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Given her current evaluation, the only aspect raising a question of MS is her abnormal MRI. The issue is how much weight should be given to an abnormal MRI scan in a patient who appears to have a better alternative diagnosis (migraine).

To address the issue of the MRI scan, it is important to remember that overinterpretation of MRI scans is the leading cause for misdiagnosis of MS today.[1] Many patients are erroneously labeled with MS because of some nonspecific signal changes on an MRI scan that was ordered to evaluate syncope, headache, memory loss, paresthesias, or other vague symptoms. To guard against this common error, a number of criteria have been proposed to diagnose MS on the MRI scan and distinguish it from the multitude of other nonspecific signal changes. These include T2 and FLAIR signal intensities that are primarily periventricular rather than more peripheral, oval in shape rather than round or punctate, "fuzzy" or irregular at the margins rather than sharply defined, and oriented perpendicular to the ventricles as though radiating away from them. True MS lesions are commonly seen in the corpus callosum (and hence, best seen on sagittal images where they are oval or oblong and perpendicularly oriented). Infratentorial lesions are also more likely to represent MS and are seldom a simple aging or "nonspecific" process. Nevertheless, even these guidelines are imperfect.

Among the processes that can mimic MS in this age group are migraines, hypertension, and other causes of small-vessel ischemia such as diabetes or vasculitis. This patient's MRI scan is, thus, more consistent with migraine than with MS.

A more interesting question concerns the role of headache in patients with MS. A number of retrospective surveys and questionnaires have found occasional patients with MS who recalled significant headaches at the time of their very first MS symptoms. A German study found 8% of patients with MS with headaches at the onset of their illness, whereas a French study found 2%, and two British surveys similarly documented a 2% incidence.[2] However, the classic study of clinical MS by Kurtzke et al reported 26% of patients had a headache with their first bout.[3] The only prospective study to examine this issue found that 7 of 104 patients with MS had a headache accompanying the first symptom, but in only 1 did the headache subsequently recur with future relapses.[4] The presence of a headache would, thus, not mitigate against a diagnosis of MS if this patient had other supporting evidence (such as previous neurologic symptoms, positive oligoclonal bands, etc).

Interestingly, patients with MS consistently report more headaches than matched controls or the general population at large. There does seem to be some sort of association between headaches and MS. However, these headaches are generally easily classified as either migraines or tension headaches and there is no specific or unique "MS headache." The diagnosis of these headaches is usually straightforward. Conventional therapy is also effective, and the migraines seen in patients with MS are no more difficult to control than those in other patients and require no special diagnostic workup nor therapeutic approach. The same is true of tension headaches and other headache syndromes.

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