Case Presentation of Sporadic Hemiplegic Migraine

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Background

Hemiplegic migraine is an uncommon presentation of a common condition, migraine headaches, that can mimic other disorders both clinically and radiologically. Patients typically present with unilateral weakness that accompanies a migraine headache attack, but is typically not the only aura. Associated auras can take the form of impaired vision, speech, sensation, or language. While these symptoms can be caused by several other conditions, the unique clinical course of symptoms, and relatively new data regarding the MRI findings associated with sporadic hemiplegic migraine can help distinguish this from other disorders, and is illustrated by the following case.

The Case

An 18-year-old woman with a history of migraine with visual aura presented to the hospital after experiencing acute onset right sided numbness, weakness, vision loss, aphasia, and headache pain over the course of hours prior to competing in a track and field meet, her event being the shot put. She was evaluated at another hospital, and while TPA was considered, was not given as there was nobody to report a clear time of onset of her symptoms. She was then transferred to SMH where she was again evaluated for a neurovascular event. She had vessel imaging that did not show evidence of a dissection. An MRI was obtained and there was debate initially as to whether these findings were suggestive of an acute stroke, or if they were more consistent with hemiplegic migraine knowing her history. At the time the MRI was being interpreted, she remained symptomatic (around 24 hours after presentation).

The Twist

- Her initial MRI showed a faint focus of high signal on diffusion-weighted images within the temporal lobe. At this time there was increased concern for an ischemic event, particularly since her symptoms were persistent, and she had never had an episode similar to her current one.

- Repeat MRI with an ASL perfusion scan showed very subtle cortical edema along the left parieto-occipital convexity, associated with hypoperfusion throughout the left cerebral cortex. No evidence of restricted diffusion on repeat scan, and the initial restricted diffusion was thought to be due to artifact. These findings were most consistent with autonomic dysregulation of vascular tone and blood flow secondary to hemiplegic migraine.

Case Conclusion

- Her hemiplegia and aphasia, and head pain persisted for almost another 24 hours, but she then returned to normal. Her MRI, and clinical course, was thought to be consistent with hemiplegic migraine.

- She met all criteria for hemiplegic migraine except that she has only had one episode of a hemiplegic migraine:
  - Aura consisting of both of the following: Fully reversible motor weakness, visual field loss, sensory symptoms, language symptoms, and her aura was unilateral
  - She experienced numbness that spread over a period of time greater than 5 minutes
  - Her non-motor symptoms lasted between 5 and 60 minutes, and her motor symptoms lasted less than 72 hours, and her symptoms were associated with head pain

Closing Thoughts

- Cortical hyperperfusion has been reported during and immediately after the active headache phase of migraine, often following a hypoperfused aura phase.
- MRI perfusion weighted imaging has been used for characterization of hemodynamic changes in migraine aura. There have been case reports of sporadic hemiplegic migraine, with alternative MRI sequences to identify blood flow abnormalities consistent with hemiplegic migraine, with the goal to eventually identify the pathogenesis for migraine and hemiplegic migraine

Sources