Spontaneous obliteration of an arteriovenous malformation associated with head trauma

Case illustration

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This 46-year-old man presented to Massachusetts General Hospital in 1978 for evaluation of a seizure disorder. A contrast-enhanced computerized tomography (CT) scan revealed a left-sided posterior temporal arteriovenous malformation (AVM). Cerebral angiography results confirmed the presence of a 3 × 3.5–cm left temporal AVM with both superficial and deep drainage (Fig. 1). Because of the lesion's location within eloquent cortex, the decision was made to follow the lesion conservatively.

In March 1999, the patient fell into an exposed manhole, hitting his occiput on an adjacent car bumper. He immediately experienced a headache, but did not lose consciousness. The headache persisted for a 48-hour period, at the end of which the patient experienced a seizure that was accompanied by right-sided hemiparesis. A head CT scan revealed a small hemorrhage with edema in the left temporal area (Fig. 2), and a magnetic resonance image (not shown) revealed an enhancing left temporal mass with flow voids and a heterogeneous T2 signal that was consistent with a diagnosis of a thrombosed AVM. The results of cerebral angiography were significant for an irregular left middle cerebral artery (MCA) branch with stasis leading into the area of hemorrhage. There was no evidence of an early draining vein. This was believed to be consistent with the presence of a thrombosed AVM. Cerebral angiography performed 5 months later yielded normal findings (Fig. 3).

Spontaneous obliteration of a cerebral AVM is a known event that is believed to be quite rare, occurring in less than 1% of cases.1 This is the first report of such an event occurring in direct association with head trauma. Minor head trauma has been associated with thrombosis of venous sinuses; the cause is unknown but may be related to an increased hypercoagulable state.2 We suggest that the angioarchitecture of the AVM may have been disrupted at the time of trauma, leading to venous occlusion, thrombosis, and the associated small hemorrhage.

References