Isolated Central Sulcus Hemorrhage in a Case of Cerebral Amyloid Angiopathy

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ABSTRACT

Central sulcus hemorrhage in an elderly patient may occur without an obvious etiology like hypertension or trauma. This may be attributed to cerebral amyloid angiopathy. We report a case of a patient who presented clinically with recurrent transient ischemic attacks, had isolated central sulcus hemorrhage on computed tomography head and was finally found to have numerous unforeseen hemorrhages on gradient recalled echo (GRE) sequence, both cortical and subcortical. This lead to a diagnosis of cerebral amyloid angiopathy in this patient.

Keywords: Central sulcus hemorrhage, cerebral amyloid angiopathy, GRE

Intracranial hemorrhage is a common presentation in Neurology Emergency Department encountered in day-to-day practice. Trauma and hypertension are the two most common harbingers of intracranial hemorrhages. In young patients, arteriovenous malformations are another important cause. Thus, when noncontrast computed tomography (NCCT) head reveals an intracranial hemorrhage in a normotensive patient, CT angiography brain is a norm to look for any aneurysm or arteriovenous malformation. It has been seen in elderly patients that cerebral amyloid angiopathy (CAA) is a common cause and thus should be kept in mind when no obvious cause of sulcal subarachnoid hemorrhage is apparent on angiogram of brain vessels. Thus, in these cases, magnetic resonance imaging (MRI) brain with gradient recalled echo (GRE) sequence should follow to rule out CAA.

CASE REPORT

A 75-year-old nonhypertensive female presented with history of recurrent transient episodes of right-sided weakness and numbness of body for 3 days. There was no history of headache, dizziness, vomiting or visual disturbances. There was no history of trauma, hypertension, diabetes or coronary artery disease.

On examination, vitals were normal. Neurological examination did not reveal any sensory or motor deficits.

The laboratory investigations were normal. Unenhanced CT head scan (Fig. 1) revealed a hyperdense left central sulcus suggestive of left central sulcus hemorrhage

Figure 1. NCCT head showing left central sulcus hemorrhage.

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without any mass effect. CT angiogram brain did not reveal any vascular malformations. Since the cause of hemorrhage was not apparent yet, MRI brain was carried out which revealed hyperintensity in left central sulcus area on T2-weighted image (Fig. 2) along with numerous cortical/subcortical hemorrhages in bilateral cerebral hemispheres on GRE sequence (Fig. 3).

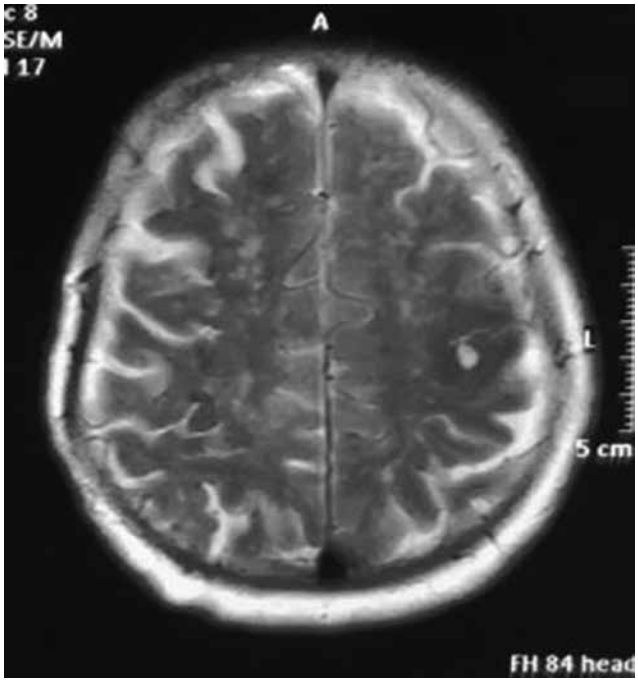

Figure 2. MRI brain axial view T2-weighted image showing left central sulcus hemorrhage.

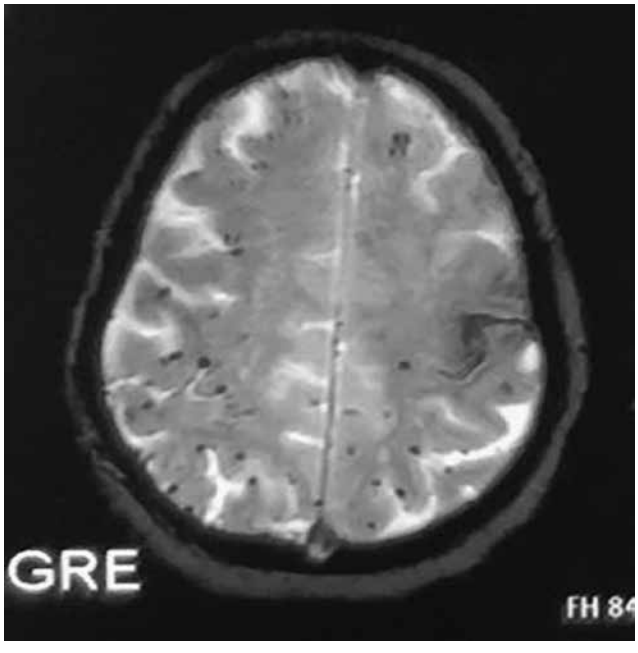

Figure 3. MRI brain GRE sequence showing multiple cortical/subcortical hemorrhages in bilateral cerebral hemispheres.

Thus, a diagnosis of CAA was made, applying the Boston criteria.[1] Patient was discharged in a stable condition after 5 days of hospital stay.

DISCUSSION

The most common causes of cortical, subcortical and sulcal subarachnoid hemorrhage are trauma, aneurysm rupture, vascular malformations, vasculitis, amyloid angiopathy, hypertension, arterial dissection, bleeding diathesis, drug abuse, malignancy, posterior reversible encephalopathy syndrome (PRES) and venous thrombosis.[2] CAA occurs due to amyloid deposition in brain, producing increased fragility of blood vessels.[3] Amyloid deposition in brain occurs in other diseases like Alzheimer's dementia, Creutzfeldt-Jacob disease, spongiform encephalopathies and postradiation necrosis. Due to its predilection for cortical and subcortical vessels, most of the hemorrhages in CAA are peripheral with sparing of white matter and basal ganglia. Apart from intracranial hemorrhage, there are varied clinical manifestations of CAA in the form of leukoencephalopathy, atrophy and cerebral volume loss, vascular luminal narrowing and ischemia and amyloidoma.[2]

Nontraumatic isolated central sulcus hemorrhage in elderly, normotensives is a rare finding and can be a presentation of cerebral amyloid angiopathy. There have been few cases in literature reporting the same.[2,4,5] NCCT head is the first imaging modality easily accessible for identification of hemorrhage. CT and MR angiogram brain is the next to look for aneurysms or arteriovenous malformations. Having these excluded, MRI brain with GRE or susceptibility weighted imaging (SWI) sequences should be carried out to look for cortical and subcortical hemorrhages in other locations. Combining the clinical and radiological findings and application of Boston criteria, a working diagnosis of CAA is made. Biopsy is not required in such cases to reach at a diagnosis. Management of such patients involves control of comorbidities like hypertension, supportive treatment and avoiding any antiplatelet or anticoagulant medications (which can worsen the condition in CAA).[2]

CONCLUSION

Cerebral amyloidosis is a common presentation and cause of intracranial hemorrhage in elderly after hypertension, trauma- and drug-induced hemorrhages. It can be easily identified through MRI brain with GRE sequence. This helps to guide future management and

prognosis of the patient. As seen in this case, isolated central sulcus hemorrhage is a rare imaging finding and may represent the index finding of cerebral amyloidopathy.

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