



Case Presentation

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Case Report of Moyamoya Disease in an Adult African American Woman

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Abstract

Background: Moyamoya disease is a progressive occlusive cerebrovascular disorder character by stenosis or occlusion of the terminal internal carotid arteries and development of an abnormal collateral vascular network. Although classically associated with East Asian populations, it can occur in individuals of other ethnic backgrounds. **Case Presentation:** A 44-year-old African American woman with hypertension and a previous ischemic cerebrovascular event developed a general seizure following an elective gynecologic procedure. Neurologic evaluation and cerebrovascular imaging demonstrated bilateral proximal anterior and middle cerebral artery occlusive disease with collateralization compatible with moyamoya disease. She had no clear secondary cause for the angiographic pattern and remained without major cognitive decline. **Conclusion:** Moyamoya disease should remain in the differential diagnosis of recurrent ischemic events or seizures in adults regardless of ethnic background. Recognition of characteristic vascular imaging findings is important because delayed diagnosis may expose patients to recurrent cerebrovascular injury.

Keywords: Moyamoya disease; cerebrovascular disease; ischemic stroke; seizure; cerebral angiopathy; adult woman; African American

Introduction

Moyamoya disease is a chronic progressive steno-occlusive cerebrovascular disorder involving the terminal internal carotid arteries and their major branches, accompanied by development of fragile collateral vessels at the base of the brain. The angiographic appearance has traditionally been described as a “puff of smoke.”

The condition is most frequently reported in East Asian populations, but cases occur in North America and Europe and may be underrecogn when the patient's demographic background is not considered typical. The distinction between idiopathic moyamoya disease and moyamoya syndrome secondary to another disorder is clinically important.

We present a teaching case, with patient and author information, illustrating the diagnosis of moyamoya disease in an adult African American woman with seizure and prior ischemic stroke.

Case Presentation

A 44-year-old African American woman was admitted for observation after an elective outpatient gynecologic procedure. Her medical history included treated hypertension and a remote ischemic stroke with transient left-sided weakness. She was independent in activities of daily living and had no known family history of cerebrovascular disease.

During postoperative recovery, she developed a sudden general tonic-clonic seizure lasting approximately 45 seconds. She was confused and fatigued during the immediate postictal period. There was no reported tongue injury or urinary incontinence. Neurologic examination after recovery showed no persistent focal motor deficit, and her baseline cognitive function was preserved.

Brain magnetic resonance imaging demonstrated chronic ischemic changes without a new large territorial infarction. Magnetic resonance angiography showed severe narrowing/occlusion involving the proximal anterior cerebral and middle cerebral arteries bilaterally. Collateral vessels were prominent around the circle of Willis and basal cerebral circulation. Computed tomography angiography supported the presence of a chronic progressive steno-occlusive process.

The combination of bilateral proximal arterial occlusion and characteristic collateralization was considered consistent with moyamoya disease. Secondary causes were reviewed clinically, and no convincing associated condition was identified in this case.

The patient and family were counseled regarding the progressive nature of the disorder and the risk of future ischemic or hemorrhagic events. She was discharged with neurology follow-up, vascular risk-factor management, seizure precautions, and referral for cerebrovascular surgical evaluation. At six-month follow-up in this scenario, she remained clinically stable without recurrent stroke.

Discussion

Moyamoya disease can present with transient ischemic attacks, ischemic stroke, intracranial hemorrhage, headache, seizures, or cognitive symptoms. Adult patients may have a different clinical course from children, and recognition can be delayed when symptoms are attributed to more common vascular disorders.

Neurovascular imaging is central to diagnosis. Progressive stenosis or occlusion at the terminal internal carotid arteries and proximal anterior or middle cerebral arteries, together with an extensive collateral network, provides the characteristic radiologic pattern. Digital subtraction angiography remains important when detailed vascular mapping is required, particularly when revascularization is being considered.

Management should be individual according to symptoms, cerebral perfusion, vascular anatomy, and the presence of associated conditions. Surgical revascularization is an important treatment strategy for appropriately selected symptomatic patients. Medical management and surveillance may be used in selected circumstances, but they do not reverse the underlying progressive arteriopathy.

This case emphasizes that ethnicity should not be used as an exclusion criterion. Adult patients from diverse populations can develop moyamoya disease, and characteristic imaging findings should prompt appropriate neurovascular evaluation.

Conclusion

Moyamoya disease should be considered in adults with unexplained recurrent ischemic events, seizures, or characteristic intracranial arterial stenosis. Careful interpretation of vascular imaging can establish the diagnosis and facilitate timely referral for special neurovascular management.

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