

Recurrent Stroke

Recurrent Stroke Caused by Spondylotic Compression of the Vertebral Artery

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Compression of the vertebral arteries within the transverse foramina by cervical osteophytes has been postulated to produce symptoms of posterior circulation ischemia [1]. Some authors dispute this association because many patients are elderly and have concomitant atherosclerotic vascular disease [2]. A documented case of posterior circulation stroke attributed exclusively to spondylotic involvement of the vertebral artery has not been reported. I describe a patient who suffered recurrent stroke as a result of focal high-grade stenosis of the left vertebral artery by uncovertebral osteophytes.

A 55-year-old man was well until February 1992, when he was awakened from sleep with vertigo, ringing in the head, repeated vomiting, and marked gait ataxia. He was evaluated in the emergency room and discharged after a normal noncontrast head computed tomography [CT] scan. He felt normal the following day, but 4 days later had a brief episode of mild vertigo. Ten days later he awoke and noted marked impairment of vision. He was seen by an optometrist, and perimetry testing demonstrated a left homonymous hemianopsia. The patient was referred for neurological consultation. There was no history of neurological or cardiac disease, hypertension, smoking, recreational drug use, or trauma. General physical examination was normal, including blood pressure and pulse. Neurological examination showed a left homonymous hemianopsia and mild dysmetria and incoordination of the left upper extremity. Laboratory studies were normal, including complete blood cell count, platelets, partial thromboplastin time, erythrocyte sedimentation rate, cholesterol, and antinuclear antibodies.

Magnetic resonance imaging of the brain revealed hyperintensity in the left cerebellar hemisphere on T2-weighted images, consistent with infarction in the territory of the posterior inferior cerebellar artery. Subacute infarction of the right occipital lobe was demonstrated on T1-weighted gadolinium-enhanced images, in addition to infarction of the right inferomedial temporal lobe.

Bilateral vertebral angiography demonstrated focal high-grade stenosis of the left vertebral artery at the C4 level . The aortic arch, origins of the vertebral and carotid arteries, and the intracranial vertebral and basilar arteries were normal, without evidence for atherosclerotic disease. Fine-cut CT images identified a large uncovertebral osteophyte at C4 projecting into and severely narrowing the left transverse foramen. The patient was started on sodium warfarin (Coumadin), and 1 month later underwent successful surgical decompression of the vertebral artery.

Posterior circulation ischemia and infarction are often attributable to atherothrombotic disease of the intracranial and extracranial vertebral arteries The vertebral artery passes through the transverse foramina of the upper 6 cervical vertebrae before emerging from the atlas to course posteriorly and medially around the articular processes. More than 30 years ago Sheehan and colleagues provided angiographic evidence that cervical spondylosis may result in hemodynamically significant vertebral artery compression. They described 20 patients with transient symptoms including dizziness, vertigo, ataxia, diplopia and drop attacks More recent angiographic studies of patients with vertebrobasilar ischemia or posterior circulation infarction have not reported spondylotic disease affecting the vertebral arteries as an etiological factor.

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