Case Report

Cerebellar Hemorrhage Following an Uncomplicated Lumbar Spine Surgery: Case Report

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Remote cerebellar hemorrhage is rare but potentially fatal complication of cranial and spinal surgeries. The pathophysiology of this condition following spinal surgery is thought to be related to venous bleeding from cerebellar sagging and cerebrospinal fluid (CSF) hypotension. Most reported cases in the literature following spinal surgery involve intraoperative CSF leakage. We present a case of remote cerebellar hemorrhage following uncomplicated lumbar spinal decompression and fusion without CSF leakage.

Key Words: Remote cerebellar hemorrhage—spine surgery—spinal fusion—lumbar fusion—case report

Case Presentation

A 58-year-old African American woman with hypertension presented with 2 years of lower back pain and bilateral lumbosacral radiculopathy due to lumbar stenosis. After failure of conservative therapies, she underwent lumbar 2 to sacral 1 laminectomies and fusion.

Surgery was tolerated well and no durotomy or cerebrospinal fluid (CSF) leakage was encountered. On postoperative day (POD) 4, the patient was briefly hypertensive, with peak systolic pressure 220 mm Hg, followed 12 hours later by acute onset headache, confusion, hypertension, ataxia, and right sixth nerve palsy with preserved consciousness. Computed tomography showed bilateral curvilinear cerebellar hemispheric hemorrhages involving the cerebellar folia with compression of the fourth ventricle and hydrocephalus (Fig 1). A right frontal external ventricular drain was placed at Kocker's point and infusion of hypertonic saline was initiated with improvement. Two days later the patient had decline of consciousness due to worsening brainstem compression and underwent decompressive suboccipital craniectomy. MRI and computed tomography angiogram showed no evidence of tumor, ischemic stroke, or vascular anomaly. She gradually improved and the external ventricular drain was removed on POD 16. No shunt placement was required. She was discharged to acute inpatient rehab on POD 18. At 3 month follow-up she demonstrated no evidence of hydrocephalus, with stable gait ataxia.

Discussion

Remote cerebellar hemorrhage (RCH) is a rare complication of spinal and supratentorial surgery, but can lead to significant morbidity and mortality.[1-6]

Radiographic workup for RCH shows characteristic findings of cerebellar hemorrhage that extends to the folia and vermis close to the tentorium in the rostral part of cerebellum. The layering, streaky pattern of hyperdense blood intermixed with cerebellar parenchyma is referred to as the "zebra sign."[7]

CSF leakage is a known risk of spinal surgery, and has been noted to be a risk factor in the majority of RCH cases

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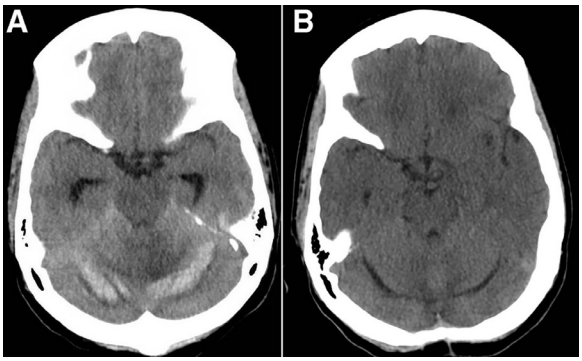

Figure 1. *(A) Noncontrast computed tomography (CT) of the brain demonstrates bilateral hyperdensities in the rostral cerebellum with so-called "zebra sign" evident on the right side. Dilated temporal horns of the lateral ventricles with effacement of the fourth ventricle without overt brainstem compression are also demonstrated, indicative of developing obstructive hydrocephalus. (B) Follow-up CT of the brain demonstrating resolution of cerebellar hemorrhage with loss of cerebellar tissue and resolution of hydrocephalus.*

from spinal surgery, even when repaired intraoperatively.[8] No reports definitively explain the pathologic mechanism of RCH, but it has been postulated to be from cerebellar sagging leading to venous occlusion and subsequent bleeding secondary to increased venous pressure, or hemorrhagic transformation of a venous infarction. Additionally, durotomy may be unapparent intraoperatively in some cases of CSF leak.[8]

In our case, a durotomy was not encountered intraoperatively. Hypertension is a risk factor for intracranial hemorrhage, however hemorrhage appeared venous in its pattern. Careful workup and management is vital to care for unusual presentations of RCH.

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