Kernohan’s notch in chronic subdural hematoma: findings on magnetic resonance imaging

Case report

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A 69-year-old man presented with mild left-sided hemiparesis of 2 years’ duration. A computerized tomography (CT) scan revealed a left-sided chronic subdural hematoma and a midline shift to the right. Magnetic resonance (MR) imaging obtained on admission to the hospital also disclosed a deformity of the right crus cerebri. After drainage and irrigation of the hematoma through a single burr hole, the left hemiparesis improved significantly. Magnetic resonance imaging performed 9 days after the operation revealed that the size of the subdural hematoma had diminished and the deformity of the crus cerebri had improved markedly. Kernohan’s notch, caused by a supratentorial mass and producing ipsilateral hemiparesis or hemiplegia, is rarely demonstrated radiographically. This may be the first reported case in which Kernohan’s notch in chronic subdural hematoma has been demonstrated on MR imaging.

Key Words • Kernohan’s notch • chronic subdural hematoma • magnetic resonance imaging

Discussion

Compression of the crus cerebri against the free edge of the tentorium caused by a contralateral mass was first described by Kernohan and Woltman in 1929. They reported a 47-year-old man with a brain tumor in the left frontotemporal lobe whose symptom was left-sided hemiparesis.

We could find only two case reports of Kernohan’s notch demonstrated on MR imaging. Cohen and Wilson reported Kernohan’s notch in a 19-year-old man with acute epidural hematoma, and Jones and colleagues described a 25-year-old man with acute subdural hematoma. In both cases, T2-weighted MR imaging disclosed a high-intensity lesion in the contralateral crus cerebri postoperatively and ipsilateral hemiparesis improved postoperatively. However, radiographic demonstration of Kernohan’s notch in chronic subdural hematoma has not been reported until now.

Cooper, et al., described the CT appearance of traumatic brainstem hemorrhages and emphasized the value of thin slices to improve resolution. However, because of artefacts, a CT scan is not as effective in detecting small lesions in the brainstem. In our patient, no abnormal sign was detected in the brainstem using a CT scan. Recently, MR imaging was shown to be very effective in detecting abnormal findings such as pathological lesions and transtentorial herniation in the brainstem. The change in the deformity of the crus cerebri closely paralleled the
neurological recovery in our patient, and the diagnosis of Kernohan’s notch was formulated.

At our institute, MR imaging is not usually performed in chronic subdural hematoma, which can be easily diagnosed using CT scanning. However, the discrepancy between the CT findings and the neurological findings in this patient prompted us to use MR imaging. To accurately evaluate the pathophysiological mechanism of the symptoms, MR imaging should be performed even in patients with chronic subdural hematoma when neurological findings cannot clearly be accounted for based on the CT scan.

References

Manuscript received June 3, 1994.
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