Clinical Image

Primary motor cortex infarction mimicking C7 motor radiculopathy

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An 87-year-old man with hypertension presented with left arm weakness immediately after getting out of bed in the morning. Medical Research Council (MRC) scale demonstrated muscle weakness solely in the left triceps (grade 3/5) and forearm pronator (grade 3/5). No sensory impairment was recognized. The left biceps and brachioradialis reflexes were brisker. The left triceps reflex was inverted, which had not been recognized before. The other reflexes were normal. These clinical manifestations were reminiscent of C7 motor radiculopathy. The left Hoffmann sign was positive, while the Babinski sign was negative. Ultrasonography revealed moderate stenosis of both internal carotid arteries (right side, 56.1%; left side, 55.9%) according to the North American Symptomatic Carotid Endarterectomy Trial (NASCET) criteria [1]. Motor nerve conduction study (inching test) at the left elbow was normal. The cervical MRI revealed moderate spondylotic changes at the levels of C5/C6 and C6/C7. Diffusion-weighted MRI showed a small infarction (Figure 1) next to the medial part of the precentral knob [2] of the contralateral primary motor cortex. An apparent diffusion coefficient map demonstrated a hypointense lesion in the infarcted region. MR angiography vaguely exhibited the right distal anterior cerebral artery. In this case, the ischemic infarct affecting the primary motor cortex may be due to atherosclerotic changes of the carotid artery, suggesting an arterio-arterial thromboembolic stroke mechanism. There have been several reports that lesions restricted to the premotor cortex [3] and the pons [4] could cause a contralateral arm weakness. Thus, when patients with risk factors for stroke develop clinical features mimicking acute-onset cervical motor radiculopathy, primary motor cortex infarction should be considered as a differential diagnosis in the clinical setting.

Figure 1. Axial brain diffusion-weighted MRI shows an acute small infarction next to the medial part of the right precentral knob (arrow).

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