

Secondary parkinsonism after anterior cerebral artery aneurysm rupture

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Introduction

Various neurological symptoms may occur after acute cerebral aneurysm rupture depending on its specific region. Secondary parkinsonism by increased ventricular pressure near the basal ganglia after cerebral hemorrhage are thought to cause mechanical disruption of dopaminergic system. Symptoms of parkinsonism including bradykinesia, tremor and stereotypy may disrupt functional recovery. It can be controlled by dopaminergic medication, which means accurate diagnosis of secondary parkinsonism is important for these stroke patients. We report a case of parkinsonism after anterior cerebral artery aneurysm rupture with successful management with dopaminergic agent.

Case report

A 61-year old male patient was admitted with mental deterioration and undergone hematoma removal and external ventricular drain insertion due to subarachnoid hemorrhage after left anterior cerebral artery aneurysm rupture. (Figure 1,2) After surgical treatment, he was transferred to local rehabilitation hospital. He was readmitted 3 months after discharge for percutaneous endoscopic gastrostomy (PEG) after esophageal ulcer induced by repetitive Levin tube irritation and referred to rehabilitation clinic after the intervention. On neurologic examination, he had perfect score at mini mental state examination with some attention deficit observed at computerized neurocognitive test. He had no focal motor or visuospatial deficit. In spite of this neurologic status, he presented severe functional disability due to bradykinesia, impaired oral movement, tongue and palate tremor and uncontrolled stereotypic movement of drawing a circle. He had gait disturbance, unable to express a full verbal sentence, continue oral feeding or remove his tracheostomy. Single photon emission computed tomography (SPECT) images of the brain showed reduction of radioisotope uptake in both caudate and putamen which represented low perfusion in corresponding lesion. (Figure 3) Levodopa (Madopar 250mg P.O TID) was challenged under diagnosis of secondary parkinsonism. Two weeks after medication, his symptom radically improved as he could walk independently, PEG and tracheostomy was removed as improvement of dysphagia and dysarthria. His Unified Parkinson's Disease Rating Scale declined from 48 to 6. Finally, he showed marked improvement of functional ability at discharge.

Conclusion

This is a case of successful management of secondary parkinsonism diagnosed 3 months after acute cerebral hemorrhage. Decreased regional cerebral blood flow in both basal ganglia corresponded with his symptoms and the dopaminergic agent had vasodilatory effect on the striatal vessels, increasing local blood flow. This eventually showed marked improvement changing his functional prognosis. If a patient develops clinical features of parkinsonism and those symptoms are not improved even after acute stroke, the

possibility secondary parkinsonism-like syndrome following appropriate management should be considered.

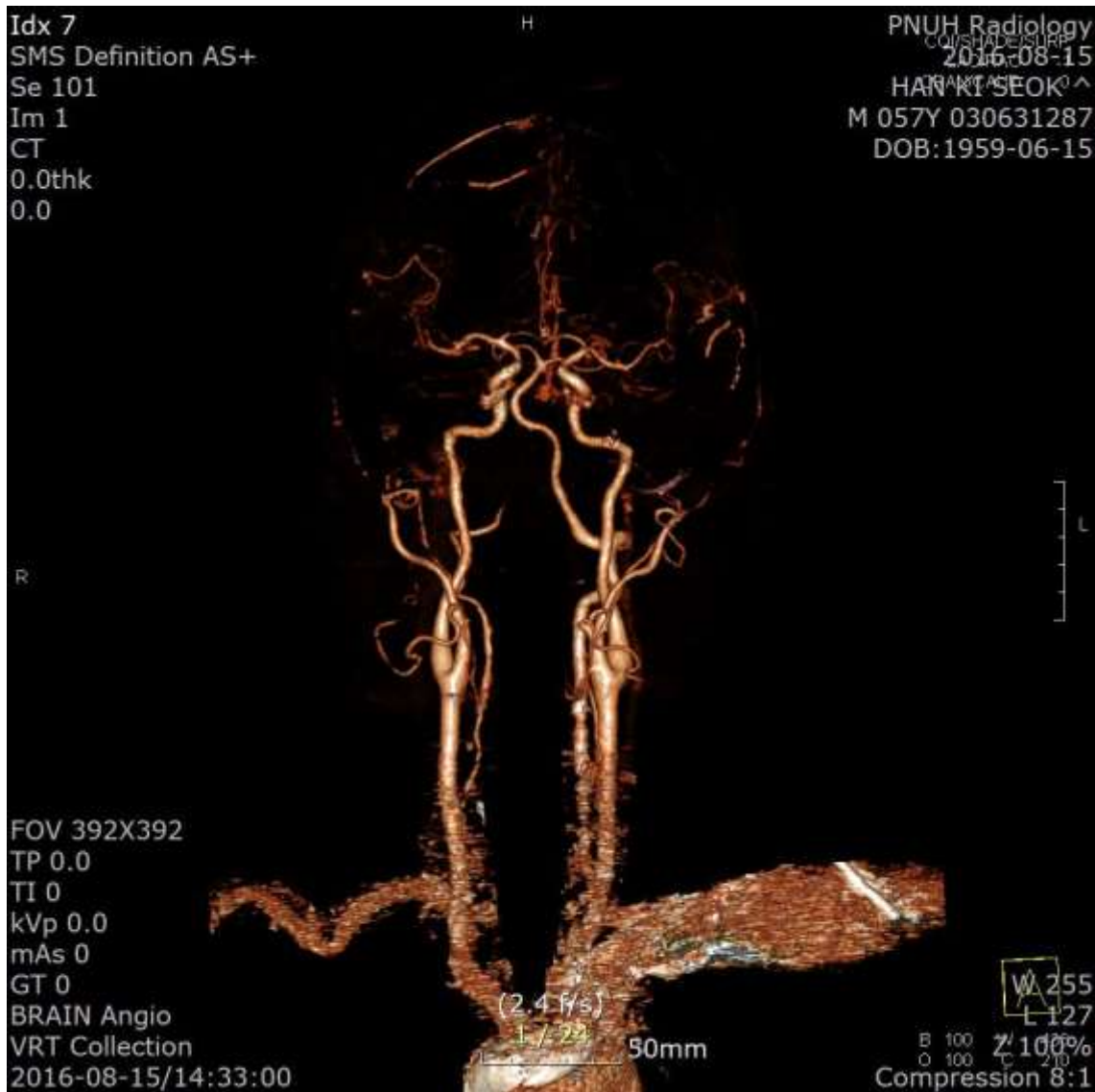


Fig. 1. Brain computed tomography angiography showing left anterior cerebral artery aneurysm rupture.

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Fig. 2. Brain computed tomography showing subarachnoid hemorrhage.

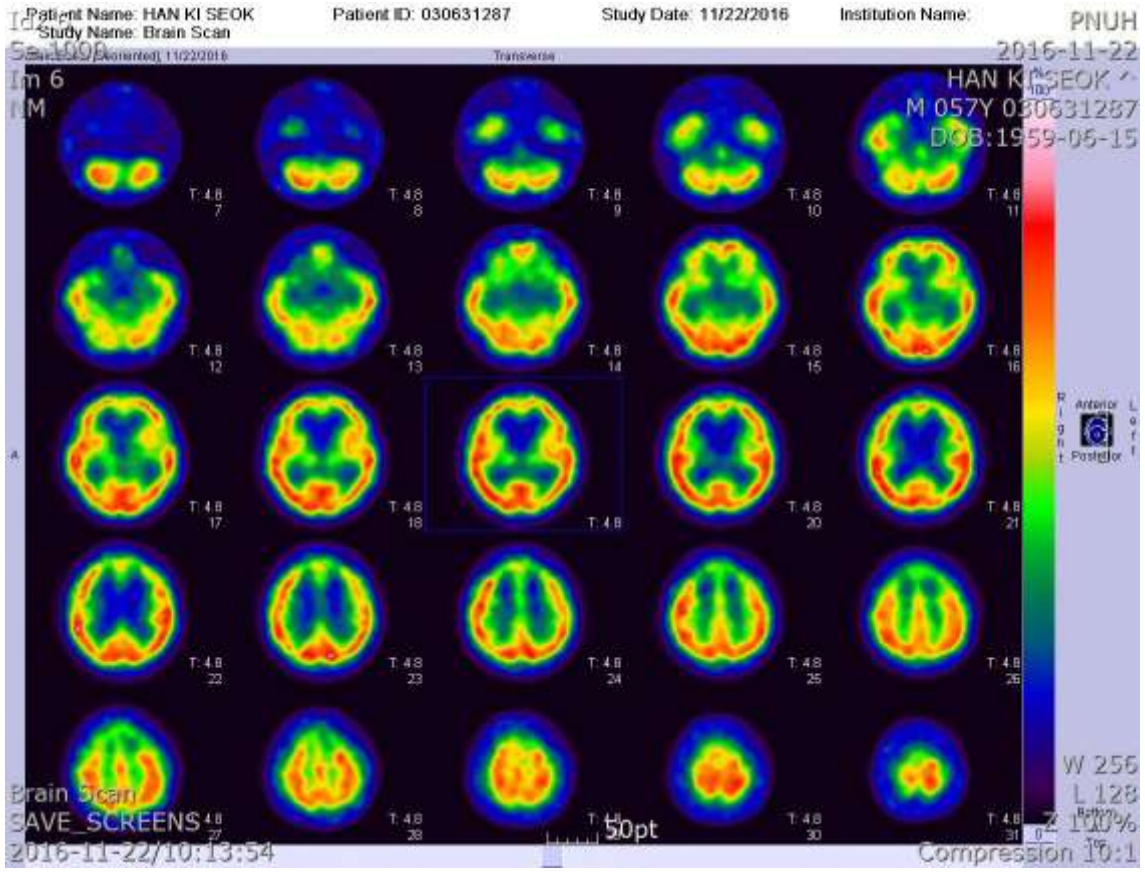


Fig. 3. SPECT image showing moderately decreased perfusion at both basal ganglia.