Hemiballism-Hemichorea Following Subthalamic Nucleus Hemorrhage

Hiromi Tateno, Keisuke Suzuki*, Madoka Okamura, Hidehiro Takekawa, Takahito Nishihira, Ayaka Numao, and Koichi Hirata

Department of Neurology, Dokkyo Medical University, Japan

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*Corresponding author: Keisuke Suzuki, Department of Neurology, Dokkyo Medical University, 880 Kitakobayashi, Mibu, Shimotsuga, Tochigi 321-0293, Japan, Tel: +81-282-86-1111; Fax: +81-282-86-5884; E-mail: keisuke@dokkyomed.ac.jp

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Case Study

A 67-year-old man with untreated hypertension was admitted due to sudden onset involuntary movements involving the left arm and leg. Examination disclosed irregular coarse and twisting movement involving both distal and proximal muscles in the left arm and leg (Figure 1A). Magnetic resonance imaging

and computed tomography of the brain revealed an acute hemorrhage in the right subthalamic nucleus (STN) (Figure 1B-D). His hemiballismus-hemichorea improved within a few days following administration of risperidone 1 mg/day. However, after admission, the patient became restless, agitated and delirious and these symptoms were resolved by administration of haloperidol 3mg/day and tiapride 50mg/day.

Hemiballism-hemichorea is a rare hyperkinetic movement

Figure 1: (A) The photographs of the patient showing hemiballism-hemichorea involving the left arm and leg. Coronal, (B) and sagittal, (C) T2 weighted brain magnetic resonance images show a high signal intensity lesion involving the right subthalamic nucleus. A brain computed tomography (D) Reveals a high density area in the right subthalamic nucleus.

disorder [1], which typically ensues from a lesion of the contralateral STN. However, in the study including 21 patients with hemiballism-hemichorea, only 5 patients had STN lesions [1]. It can also be caused by lesions involving the afferent or efferent pathways of the STN, caudate, globus pallidus, corpus striatum, thalamus, insular parietal, temporal, or frontal cerebral cortex [1-4], and in non-ketotic hyperglycemia [5]. In addition, although rare, a patient presented with left-sided hemiballism with ipsilateral STN without contralateral basal ganglia lesions were reported [6]. Brain imaging findings of our patient clearly detect a small hemorrhage in the STN and support the importance of STN involvement in producing hemiballism-hemichorea. Given changes in the mental state in our patient, cortical involvement was suggested, which presumably resulted from disinhibition of the thalamocortical pathway due to diminished STN activity [7]. However, brain scintigraphy was not performed in our patient.

A sudden onset of hemiballism-hemichorea should prompt immediate brain imaging despite a paucity of neurological

abnormalities.

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