Gradient Echo T2*-weighted MR Findings of Diabetic Chorea and Ballismus

Yoshiharu Taguchi, Shutaro Takashima and Kortaro Tanaka

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Picture 1. Brain computed tomography (A) on admission showed high densities in the right putamen. Brain MR, performed on the 13th day after admission, revealed a high signal intensity on a T1-weighted image (B) in the right putamen, and a low signal intensity on DWI (C), T2-weighted (D) and gradient echo T2*-weighted images (E).

A 76-year-old man had suddenly developed involuntary movement in his left arm, which had been gradually aggravated. He was admitted to our hospital twelve days after onset. He had no past history of diabetes mellitus, hypertension, cerebral infarction, parkinsonism or other neurologic disease. On neurologic examination, he was alert with normal cranial nerves. Although his muscle strength and deep

tendon reflexes in all extremities were normal, he showed an involuntary movement like chorea and ballismus in his left arm. On admission, the blood glucose level was 348 mg/dL, hemoglobin A1c was 15.1% and plasma osmotic pressure was 308 mOsm/kg. Brain computed tomography (Picture 1A) showed high densities in the right putamen. He was diagnosed as having diabetic chorea and ballismus.

Department of Neurology, Toyama University Hospital, Toyama

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Correspondence to Dr. Yoshiharu Taguchi, ytagu@med.u-toyama.ac.jp

Brain MR (Picture 1B-E), performed on the 13th day after admission, revealed high signal intensity on a T1-weighted image in the right putamen, and low signal intensity on DWI, T2-weighted and gradient echo T2*-weighted images.

It is well known that hemichorea-hemiballismus can result from non-ketotic hyperglycemia in diabetes mellitus. However, the pathophysiology of diabetic chorea and ballismus is still undetermined. Although striatal hyperintensity on T1-

weighted images has been pointed out, there have been only a few reports on gradient echo T2*-weighted imaging in patients with diabetic chorea and ballismus (1, 2). A low signal intensity on T2* sequences in part of the putamen could reveal more apparently a petechial hemorrhage with hemosiderin deposition in patients with diabetic chorea and ballismus.

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