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Case Report

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Non-ketotic Hyperglycemia Hemichorea-Hemiballismus: A lucky Catch

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Abstract

Case Summary: *A 73-year-old man with past medical history of hypertension, type 2 diabetes mellitus and depression, presented with new onset right arm and leg movements. The physical exam showed right hemi body choreic movements and decreased reflexes to 1+ on the affected side. Laboratory abnormalities included blood glucose level of 310 mg/dL and a glycohemoglobin of 13.6 mg/dL. CT head showed increased density of the right caudate nucleus and right lentiform nucleus. Blood glucose was controlled by adjusting his insulin regimen and his abnormal movements resolved within seven days.*

Discussion: *Development of involuntary movements is one of the least common neurological manifestations in uncontrolled diabetes mellitus and, it is more common in elderly patients. Contralateral hyperdensities in the contralateral basal ganglia in the CT is essential for diagnosis. Course and prognosis are benign. Most cases achieve a full recovery within six months of strict glucose control.*

Conclusion: *Strict glucose control is the primary therapy for neurological complications in non-controlled diabetes mellitus. Proper identification of the disease is fundamental for the prompt resolution of symptoms.*

Keywords: Hyperglycemia, Hemichorea-Hemiballismus, non-controlled diabetes mellitus

Introduction

Ballismus-chorea is an irregular, poorly patterned, involuntary movement disorder which is usually unilateral but may present bilaterally. Hyperglycemia represents less than 5% of cases [1]. Its low prevalence makes non-ketotic hyperglycemia hemichorea-hemiballismus a formidable diagnostic challenge.

Case History

A 73-year-old man with past medical history of hypertension, type 2 diabetes mellitus and depression, present to the Emergency Department with new onset right arm and leg movements, which started a week before presentation. His medications include Lisinopril, Metformin, Januvia, and Venlafaxine. He denies smoking, recreational drug use, and alcohol intake. Family history is noncontributory. The physical exam is grossly normal except for right hemi body choreic movements and decreased reflexes to 1+ on the affected side. Laboratory abnormalities include an elevated blood glucose level of 310 mg/dL and a glycohemoglobin of 13.6 mg/dL. Head computerized tomography showed an increased density of the right caudate nucleus and right lentiform nucleus (Figure1). In this case, the laboratory findings and diagnostic brain imaging lead to the diagnosis of Non-ketotic hyperglycemia hemichorea-hemiballismus. Blood glucose was controlled by adjusting his insulin regimen during his hospital stay. His abnormal movements resolved within seven days. Follow up in six months as an outpatient demonstrated complete cessation of the abnormal body movements.

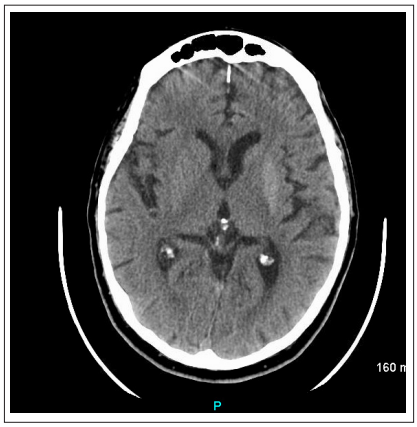

Figure 1: Increased density within the right caudate nucleus and right lentiform nucleus

Discussion

Uncontrolled diabetes mellitus can lead to different types of neurological complications. However, development of involuntary movements is one of the least common neurological manifestations. Chorea and ballismus are the results of an imbalance between indirect and direct pathways in the basal ganglia, which lead to excessive dopaminergic activity, resulting in the abnormal movements [2].

This condition was first described by Bedwell in 1969 [3]. It is more common in elderly patients, particularly females, especially Asian. 73.3% of cases are unilateral, and the remainder is bilateral.

Contralateral hyperintensity on T1-weighted MRI and hyperdensities in the contralateral basal ganglia in the CT is essential for diagnosis [4]. The diagnosis is made in the context of the typical radiological and clinical features in the setting of pronounced hyperglycemia and the absence of ketoacidosis.

Course and prognosis are benign. Most cases achieve a full recovery within six months of strict glucose control. In 15-20 % of patients, the symptoms persist even after blood glucose is controlled, especially if they had uncontrolled hyperglycemia for a prolonged period [5]. Dopamine receptor blockers are considered in refractory cases, however glycemic control is the mainstay of treatment.

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