Dance-de-Diabetes: a Rare Complication of Non-Ketotic Hyperglycemia

Sumit Bhasker

Corresponding Author: Sumit Bhasker
sumitbhasker@gmail.com

ABSTRACT

Diabetes mellitus, its diagnosis, and treatment along with the management of complications particularly Diabetic Ketoacidosis and the ominous Hyperglycemic osmolar Non-Ketotic Coma are well acquainted with all Physicians and Internists. Hemiballismus is an aberrant movement disorder that is characterized by uncontrolled, random, large-amplitude movements of the limbs. It is usually caused by a vascular lesion that involves the contralateral subthalamic nucleus (STN). The authors present a case of Diabetes mellitus presenting denovo with Non-Ketotic Hyperglycemia manifesting with hemiballismus. Their brain CT scan pictures showed non-enhancing hyperdensities in the contralateral basal ganglia, and the MRI showed hyperintensities on T1W image and hypo-intensities on the T2W image. The patient was managed with aggressive glycemic control with insulin infusion along with Dopamine (D2) Receptor antagonist Tetrabenazine. This case illustrates the importance of considering movement disorders in the differential diagnosis of hyperglycemic emergencies and distinguishing it from other intracranial pathologies as prompt diagnosis and treatment of hyperglycemia has a favorable prognosis.

Keywords: Hemiballismus, Non-ketotic hyperglycemia, Neurological manifestations, Movement disorder.

1. INTRODUCTION

Hemiballismus (Greek for dancing) is characterized by continuous, violent, involuntary flinging movements of limbs, usually affecting one side of the body. This movement disorder is attributed to lesions of the contralateral Sub-Thalamic Nucleus. Hyperosmolar hyperglycemic nonketotic syndrome (HHNS), a hyperglycemic emergency, can be associated with various neurological manifestations. Hemiballismus is a rare manifestation of Non-Ketotic hyperglycemia affecting predominantly Elderly postmenopausal females associated with unique radiological features with a resolution of symptoms with prompt glycemic control and Dopamine (D2) receptor blockers like Tetrabenazine.

2. CASE REPORT

An 82-year-old lady with no known comorbidities was brought to our emergency department with a history of rapid, catapulting, involuntary movements of Left upper and lower limb since two days. There was no history suggestive of Loss of consciousness, seizures, Stroke/TIA, Traumatic head injury. On Examination, She was hemodynamically stable. Neurologic examination revealed periodic choreiform and hemiballistic movements involving Left side of body2. On evaluation, she had a blood sugar of 520 mg%, normal venous pH (7.42), and negative urinary ketones. Her HbA1c was 15% confirming a prolonged period of chronic Hyperglycemia. Computerized tomography (CT) revealed diffuse hyperdensity of the Right basal ganglia (Figure 1), which was further corroborated on magnetic resonance imaging (MRI) as increased T1-weighted signal intensity with abnormal enhancement in the Right caudate and lentiform nuclei (Figure 2).

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She was initiated on insulin infusion, and Tetrabenazine (D2 Antagonist) and later on Glycemic control was optimized with Basal and bolus regime. Her symptoms gradually resolved over a week.
3. DISCUSSION

Our case illustrates the fact, which hemichorea-hemiballismus, however rare it may be, can be the first manifestation of uncontrolled Hyperglycemia, especially in Elderly postmenopausal Asian women. The pathogenesis is attributed to hyperglycemia-induced perfusion changes in the contralateral striatum and ischemic excitotoxicity of GABAergic neurons leading to excessive inhibition of the STN and excitatory cortical output. The diagnosis is made in the context of CT scans showing an area of hyperdensity in the contralateral basal ganglia, which can be distinguished from hypertensive hemorrhage as there is no associated mass effect, edema, or volume loss, and the internal capsule is usually spared. The mainstay of treatment is aggressive glycemic control with a resolution of hemichorea-hemiballismus in the majority of cases. In refractory cases, drugs that block postsynaptic dopamine (D2) receptors, such as haloperidol or risperidone, or Tetrabenazine 5 can be used.

4. CONCLUSION

Diabetes mellitus, its diagnosis, and treatment along with the management of complications particularly Diabetic Ketoacidosis and the ominous Hyperglycemic osmolar Non-Ketotic Coma are well acquainted with all Physicians and Internists. This case illustrates the importance of considering movement disorders in the differential diagnosis of hyperglycemic emergencies and distinguishing it from other intracranial pathologies as prompt diagnosis and treatment of hyperglycemia has a favorable prognosis.

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