

## HYPERGLYCEMIC INDUCED HEMICHOREA HEMIBALLISM

**Mihai Rosca, Athena Mergeani, Dora Morosanu, Florina Antochi**  
*Neurology Department, Emergency University Hospital, Bucharest, Romania*

### ABSTRACT

Non-ketotic hyperglycemia has been described as a rare metabolic cause of hemichorea hemiballismus, especially in elderly patients with newly diagnosed or poorly controlled diabetes. We present the case of a 63-year-old male presenting with HCHB and characteristic findings on brain CT scan.

**Key words:** hemichorea, hemiballismus, hyperglycemia, hyperintense putamen signal

### BACKGROUND

Hemichorea-hemiballismus (HCHB) is a continuous, involuntary movement disorder, involving both proximal and distal groups of muscles on one side of the body, including the face in some cases (1). The disorder is usually the result of a destructive lesion of the contralateral subthalamic nucleus or its connections. It has also been seen with scattered encephalomalacic lesions involving the internal capsule and basal ganglia. Vascular lesions, hemorrhagic or occlusive in nature, are the most common cause, but HCHB has been found in association with tumors and plaques from multiple sclerosis in the subthalamic nucleus (2). There are many reports of nonketotic hyperglycemia provoking hemichorea-hemiballismus with characteristic brain imaging including hyperdensity of the contralateral basal ganglia on brain CT scan and increased signal intensity on T1W MRI (3). The pathophysiology is presumed to be ischemic changes in the striatum associated with hyperglycemia and hyperviscosity (4). Undiagnosed diabetes mellitus should always be suspected in patients who develop hemiballistic or hemichoreic movements. When hyperglycemia is detected and corrected, the movement disorder usually resolves within few days and may not require symptomatic therapy (5).

### CASE STUDY

We report the case of a 63-year-old male admitted in the Neurology Department of Emergency University Hospital for sudden onset involuntary movements of left side, three days prior to hospitalization. There was no personal or family history of movement disorders and he was not on any medication; in the last six months he presented polyuria, polydisia and weight loss. He was conscious, alert with normal higher mental functions and cranial nerve examination. He had continuous, violent, flinging involuntary movements of the left upper and lower extremities. Otherwise the neurological examination was normal.

The cerebral CT scan performed at admission showed mild hyperintensity of the right striatum. His random blood sugar was 476 mg% and, serum osmolality was 304 milli-osm/L, with hypertriglyceridemia (476 mg/dl), hypercholesterolemia (347 mg/dl) and mild renal impairment ( blood creatinine =1,7). Urine analysis did not reveal ketones. MRI could not be performed because the patient had a metallic implant in his right arm.

His blood sugar was controlled with insulin; he received 0,5 mg clonazepam daily and his status started to improve. The hemichoreic-hemiballistic movements stopped in a few days and patient

*Author for correspondence:*

Florina Antochi, MD, PhD, Neurology Department, Emergency University Hospital, 169 Splaiul Independentei, Bucharest, Zip Code 050098, Romania  
*email:* flrant@yahoo.com

recovered completely within seven days. By the time of discharge he remained insulin dependent.



**Figure 1.** CT brain scan showing mild hyperdensity of the right striatum

#### REFERENCES

1. Dewey RB Jr, Jankovic J. – Hemiballism-hemichorea; clinical and pharmacologic findings in 21 patients. *Arch Neurol.* 1989;46:862-867
2. Merritt's Neurology 10th Edition (June 2000); by H. Houston  
**Textbook of Neurology Merritt (Editor), Lewis P. Rowland (Editor), Randy Rowland By Lippincott Williams & Wilkins Publishers**
3. Sitburana O, Ondo WG. – Tetrabenazine for hyperglycemic induced hemichorea-hemiballismus. *Movement disorders* 2006; 21:2023-5
4. Kon Chu, MD; Dong-Wha Kang, MD, PhD; Dong-Eog Kim, MD; Seong-Ho Park, MD, PhD; Jae-Kyu Roh, MD, PhD. – Diffusion-weighted and gradient echo magnetic resonance findings of hemichorea-hemiballismus associated with diabetic hyperglycemia: a hyperviscosity syndrome? *Arch Neurol.* 2002 Mar;59(3): 448-52
5. Ifergane G; Masalha R; Herishanu YO. – Transient hemichorea/hemiballismus associated with new onset hyperglycemia. *The Canadian Journal of Neurological Sciences.* 2001;28(4):365-8.