

HEMIBALLISMUS AFTER HEMORRHAGIC STROKE

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INTRODUCTION

Ischemic or hemorrhagic stroke may be accompanied by movement disorders (1), either hyperkinetic or hypokinetic. Hyperkinetic movement disorders after stroke comprise dystonia (2-4), chorea with or without hemiballismus (5), tremor (6), parkinsonism (7), segmental or focal myoclonus, athetosis, pseudathetosis, and asterixis (8).

Hemiballismus is a movement disorder characterized by involuntary, arrhythmic, and large amplitude excursion of a limb, usually from a proximal joint, with an element of rotation (9). Ballismus is explainable with lesions in the subthalamic nuclei, cerebral cortex, corpus striatum, thalamus and brainstem. (10)

The frequency of post-stroke abnormal movements is unclear, the prevalence in a swiss registry being 1% with an incidence of 0.08% per year (8). Of them, hemichorea-hemiballismus is the most common, while dystonia is the next most common disorder (11).

CASE REPORT

We present the case of a 72 year-old man, with a history of prostate hypertrophy, osteoporosis, kidney stones, compression fractures at T12-L2 level, smoking and alcohol consumption. The patient had been admitted in 2013 in the National Geriatric Institute “Dr. Ana Aslan”, and was recommended treatment with Aspirin 75 mg/day, Metoprolol

50 mg/day, Carbamazepin 400 mg/day, Simvastatin 20 mg/day, Sermion 60 mg/day, but the patient self-interrupted the medication.

He presented involuntary movements of his upper left limb for three days before he presented to the general practitioner’s office, who referred him to our Department for further clinical investigation.

General examination revealed bilateral gonarthrosis, normal pulmonary and cardiac findings, BP = 130/90 mm Hg, HR = 78 bpm, anxious state.

Neurologic examination revealed ballismus of the upper left limb, hypertonia of the left limb, without any other further neurologic finding.

We performed a brain CT which showed a hyperdense lesion at the level of the right cerebral peduncle – interpreted as a cavernoma, or a hemorrhagic stroke; leukoaraiosis and cerebral atrophy. (Fig. 1)

Because the result was inconclusive, we performed a cerebral MRI, describing a lesion of approximately 1 cm in diameter, T1 – isointense, T2, FLAIR – hyperintense, with restriction on DWI sequence, and topographically corresponds to the site of the CT lesion, multiple areas suggesting leukoaraiosis, cerebral atrophy, lacunes (Fig. 2).

Laboratory findings:

The final diagnosis was hemorrhagic stroke at the level of the subthalamic nucleus, with contralateral associated hemiballismus, cerebral atrophy, Compression fractures at T12-L2 level, prostate hypertrophy.



FIGURE 1. Brain CT showing a hyperdense lesion at the level of the right subthalamic nucleus



FIGURE 2. Coronal T1-weighted image taken several days after the initial CT presents a hypointense area at the level of the right subthalamic nucleus

The outcome was favourable, under iv macro-molecular solutions, antihypertensive medication.

DISCUSSION

Usually ischemic stroke manifests as focal neurologic deficits. Hemorrhagic stroke has an onset with headache, vomiting, seizures, nuchal rigidity, and focal neurologic deficit (12). However small haemorrhages may be clinically silent or mimic an ischemic stroke.

Several risk factors for hemorrhagic stroke have been noted, such as hypertension, arterio-venous malformations, ruptured saccular aneurysm, cavernous angioma, trauma, hematologic disorders, intratumoral hemorrhage, septic embolism, amyloidosis (12).

The patient had a history of alcohol and tobacco intake, risk factors associated with cerebral amyloidosis. Also, he did not follow any medication that was prescribed by the gerontologist.

The particularity of the case was the subacute onset with just involuntary movements of the upper left limb. He did not present any of the typical findings of a cerebral hemorrhage. Also he had a normal blood pressure.

The initial brain CT failed to provide detailed information about the lesion. It was first interpreted as a cavernous angioma, so a brain MRI had to be performed, which did not emphasize any arterial malformations. Also the MRI did show the retraction of the hemorrhagic collection.

Further investigation should have included a cerebral angiography, but it could not be performed on technical grounds.

In the end, the patient was diagnosed with hemorrhagic stroke at the level of the subthalamic nucleus, with contralateral associated hemiballismus, probably in context of a cerebral amyloidosis, the patient having an important history of alcohol and cigarette intake.

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