

## Post-stroke restless arm syndrome mimicking hemichorea–hemiballism

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Dear Editor

Post-stroke movement disorders manifest as a wide range of hyper- and hypokinetic movement disorders, such as parkinsonism, chorea, ballism, myoclonus, dystonia, tremor, stereotypies, and akathisia [1]. These movement disorders could occur immediately after an acute stroke or develop later, whereas some conditions may represent a delayed-onset progressive movement disorder [1, 2]. Although rare, secondary restless limbs syndrome could also develop following any lesions of stroke [2, 3]. We report a 65-year-old male who was thought to have a post-stroke hemichoreoballism; a thorough history taking finally diagnosed it as post-stroke restless arm syndrome. He was initially admitted with left thalamic infarction involving the posterolateral nucleus with initial symptoms of mild hemiparesis (Medical Research Council motor grade IV+) and dysesthesia on the right side, predominantly on the upper extremity. On discharge, no neurological deficits were observed. On his visit to the outpatient clinic, he complained of hyperkinetic movements in his right arm since 10 days after discharge. Symptoms observed were irregular and coarse hyperkinetic movements involving the

right upper extremity, dominant on the proximal part, without any accompanying motor weakness (see the video segment—initial). Hyperkinetic movements were not perceived during voluntary motion such as writing and eating. At that point, his movement disorder was assumed compatible with a subacute onset post-stroke chorea-ballism. Routine laboratory tests, including a complete blood count, fasting glucose and electrolytes, blood urea nitrogen, creatinine, electrolytes, liver function and thyroid function to exclude usual causes of chorea-ballism, were all within normal ranges. No polysomnography was performed. Other possible secondary causes of chorea, including offending drugs or recent infections, were also absent. Oral haloperidol administered owing to the initial diagnosis, paradoxically worsened his hyperkinetic movements. Thorough examination and history taking revealed that the symptoms did not interrupt his daily activities, and developed only when his arm or hand was in a resting state, typically worsening at night. In addition, he would compulsively move his right arm, to alleviate the unpleasantness of prickling and pain. These symptoms were compatible with secondary restless arms syndrome [3–5]. His monolimb chorea-ballism and dysesthesia markedly improved after administration of oral levodopa 150 mg daily (see the video segment—post-levodopa treatment). The hyperkinetic movement recurred immediately when levodopa was discontinued for some days. The patient was, therefore, diagnosed with secondary restless arm syndrome mimicking post-stroke hemichorea-ballism, after left thalamic infarction.

Post-stroke dyskinesia is mostly reported as a pure movement disorder. However, this manifestation can be heterogeneous, encompassing several components of movements and various temporal relationships [2]. Movement disorders are unusual complications following

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cerebral vascular lesions, observed in less than 1% of patients after an acute stroke. Chorea-ballism is the most common type of secondary movement disorder following stroke. Post-stroke restless limbs (including legs or arms) syndrome was usually acute and short-lasting [2]. The prevalence of stroke-related restless limbs syndrome is 12.4%, and is more common in women [3]. Clinicians unacquainted with restless limbs syndrome often compare it with post-stroke vascular chorea-ballism. Although 22–50% of patient with typical primary restless legs syndrome experience similar sensory symptoms in their arms, a possible secondary etiology should always be considered, since unpleasant symptoms localized in the arms are rare [4]. Given that the treatment of these two conditions is opposite, it is critical to differentiate vascular chorea-ballism from post-stroke restless limbs syndrome. In this case, the dopamine-depleting agent, haloperidol which alleviates the choreic movement, aggravated his symptoms. Careful history taking and close observation of the patient are warranted for a proper diagnosis of this condition.

#### **Compliance with ethical standards**

**Disclosure of potential conflicts of interest** Nothing to declare.

**Research involving human participants and/or animals** Case with one human patient.

**Informed consent** We got an informed consent from a patient.

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