

Hemidystonia caused by frontal cortical infarction

Vladimir Miletić · Katarina Blažina

Received: 24 July 2014 / Accepted: 8 August 2014
© Belgian Neurological Society 2014

Keywords Stroke · Movement disorders · Hemidystonia · Cerebral cortex

A 71-year-old woman was examined in the emergency room because of motor dysphasia, right-sided supranuclear facial palsy and moderate right-sided hemiparesis (3/5) that occurred 5 h prior to admission. Her past medical history included poorly controlled hypertension, dyslipidemia, atrial fibrillation, ischemic stroke with left-sided hemiparesis and complete resolution of neurological deficit afterward, breast cancer for which she had undergone right mastectomy, chemotherapy and radiation therapy. There was no history of diabetes mellitus, no prior exposure to neuroleptics or recent change in therapy. Initial brain computed tomography (CT) scan showed no responsible lesion. Chest radiography was normal, and atrial fibrillation was observed on electrocardiogram. Routine laboratory investigations including glucose and glycated hemoglobin were normal. 18 h after stroke onset, the patient developed involuntary, patterned, hemidystonic movements of the right extremities characterized by shoulder abduction, flexion at the elbow, knee flexion and foot dorsiflexion (video). During this episode, the patient was conscious and responsive. Brain CT scan was repeated and revealed ischemic lesion

in the left frontal cortical region (Fig. 1). After initiating haloperidol (2 mg once per day) the symptoms subsided, and no additional episodes of involuntary movements occurred afterward.

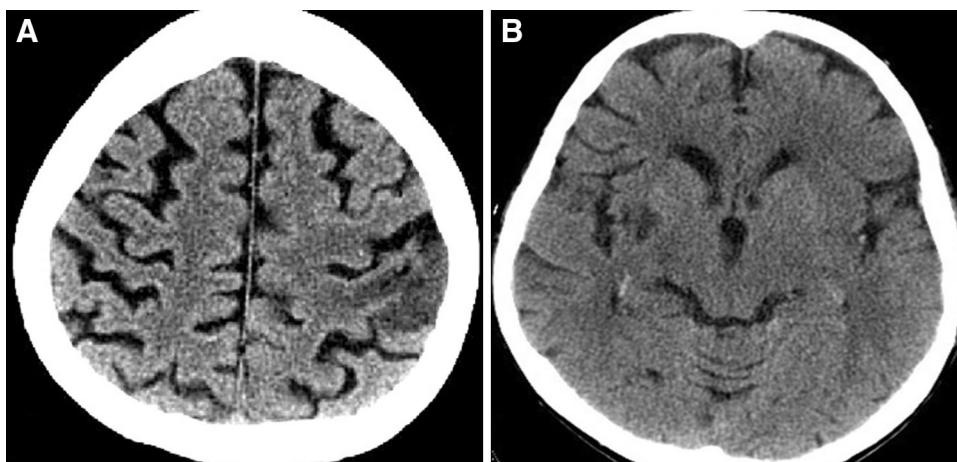
The prevalence of hyperkinetic movement disorders associated with stroke is estimated to be 1 % [1]. The most common post-stroke hyperkinetic movement disorders are hemiballism and hemichorea, followed by dystonia [1, 2]. Hemiballism and hemichorea occur within the first 5 days of stroke onset, often being an initial and only presentation of stroke. In contrast, the development of post-stroke dystonia is delayed, ranging from 2 weeks to several years [2], and dystonic postures and movements are rarely reported as a presenting feature of stroke [3].

The results of numerous neuropathological and neuroimaging studies strongly support a role of the basal ganglia in the pathophysiology of dystonia, with lentiform nuclei lesions being most frequent findings. However, no specific lesion localization can be attributed to particular movement disorder. As such, dystonia is not exclusively related to basal ganglia dysfunction, and lesions outside the basal ganglia disrupting highly organized complex interaction between the cerebellum, striatum, thalamus and cortex can induce dystonia as well [4].

Electronic supplementary material The online version of this article (doi:10.1007/s13760-014-0354-3) contains supplementary material, which is available to authorized users.

V. Miletić (✉) · K. Blažina
Department of Neurology, Movement Disorders Centre,
University Hospital Centre Zagreb, Kišpatičeva 12,
10000 Zagreb, Croatia
e-mail: vladimir.miletic@gmail.com

Fig. 1 **a** Brain non-contrast CT scan demonstrating acute ischemic lesion in the *left* frontal cortical region, **b** Chronic ischemic lesion in the *right* putamen



In conclusion, dystonia can occur in acute stroke phase and is not solely restricted to basal ganglia lesion.

Informed consent Written informed consent was obtained from the patient for publication of this case report and any accompanying electronic supplementary material.

Conflict of interest The authors declare that they have no conflict of interest.

- Alarcon F, Zijlmans JC, Duenas G, Cevallos N (2004) Post-stroke movement disorders: report of 56 patients. *J Neurol Neurosurg Psychiatry* 75:1568–1574
- Nishimura K, Uehara T, Toyoda K (2014) Early-onset dystonia after supplementary motor area infarction. *J Stroke Cerebrovasc Dis* 23:1267–1268
- Neychev VK, Gross RE, Lehericy S, Hess EJ, Jinnah HA (2011) The functional neuroanatomy of dystonia. *Neurobiol Dis* 42:185–201

References

- Ghika-Schmid F, Ghika J, Regli F, Bogousslavsky J (1997) Hyperkinetic movement disorders during and after acute stroke: the Lausanne Stroke Registry. *J Neurol Sci* 146:109–116