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**Title:**

An episode mimicking a versive seizure in acute bilateral pontine stroke.

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# Abstract

Pontine ischemia usually results in focal deficits such as hemiparesis, facial palsy, dysarthria, disorders of eye movements or vertigo. Although rarely described, involuntary abnormal movements and «convulsions» due to pontine lesions can also occur. Here we describe a 67-year-old woman known for hypertension who presented with a tonic movement mimicking a versive seizure in the acute phase of a bilateral pontine ischemia. Post-stroke movement disorders are a well-known phenomenon. They are usually associated with supratentorial lesions and rarely occur in the acute phase, but “seizure-like” episodes can be seen in pontine ischemia. Awareness of such a rare phenomenon is useful for the management of acute stroke patients.

## Introduction

Pontine ischemia usually results in focal deficits such as hemiparesis, facial palsy, dysarthria, disorders of eye movements or vertigo. Here we describe a patient who presented with a tonic movement mimicking a versive seizure in the acute phase of a bilateral pontine ischemia. Involuntary abnormal movements and «convulsions» due to pontine lesions are rarely described and should be kept in mind.

## Presentation of case

A 67-year-old woman known for hypertension came to our hospital because of an acute right-sided hemiparesis, dysarthria and a gaze drift to the right (NIHSS 9). After ruling out a haemorrhage with a cerebral CT scan, a left pontine stroke was suspected and the patient received IV rt-PA 145 minutes after symptom onset. An initial improvement of the hemiparesis was observed. An hour and a half after the end of thrombolysis, the patient loudly complained of unexpected dizziness, then rose and extended her left arm while her head leant to the left. The patient kept this tonic posture for about 30 seconds without responding. She was drowsy for the following hours and the right-sided hemiparesis worsened. Another unenhanced CT scan did not show any hemorrhagic complication. The EEG was normal. She was nevertheless treated with sodium valproate because of a clinically suspected seizure. In the evening, hemiparesis recovered, dysarthria still wavered and alertness was normal. An hour after waking on the next morning, massive dysarthria, upgaze palsy and left-sided hemiplegia briskly developed (NIHSS 11). A cerebral MRI confirmed a bilateral pontine and right mesencephalic acute ischemia due to a thin and irregular basilar artery (figure 1). She left our ward for a rehabilitation clinic with a partial left-sided hemiparesis, upgaze limitation and dysarthria, but neither abnormal limb movement nor seizure.

## Discussion

Post-stroke movement disorders are a well-known phenomenon. Two series of 56<sup>1</sup> and 29<sup>2</sup> patients concluded that abnormal involuntary movements are unusual (3.6% and 1% of stroke patients respectively)

and occur with acute or delayed onset. Chorea, dystonia, tremor, parkinsonism, stereotypia, «jerky dystonic unsteady hand», asterixis, jaw myoclonus and hemiakathisia were described. The lesions that induced movement disorders were all located above the cerebellar tentorium (either in the basal ganglia, the thalamus or the cortex), except for 2 patients with dystonia and contralateral pontine lesion, 1 patient with rubral tremor and mesencephalic hematoma and 1 patient with bilateral tremor and bilateral pontine lesion. These two studies show that infratentorial lesions are rarely involved in the genesis of movement disorders. However a series of four patients brings to light that pontomesencephalic hematomas may induce dystonia<sup>3</sup> with at least a month latency before onset.

Allan H. Ropper described a series of 8 patients with seizure-like episodes after basilar occlusion<sup>4</sup>. These patients had tonic-clonic-like movements or extended limb posture and some of them were treated for seizure or even intubated.

Our patient presented an episode which falls in the range of a versive seizure due to an acute ischemia, obviously of pontine origin. Because of its early onset, this phenomenon cannot be explained by “post stroke movement disorders” and although the clinical manifestation is suggestive of a versive seizure, the localization of the proven ischemic event invalidates this possibility. Our hypothesis is that this manifestation arises from some sort of spontaneous discharges of the cortico-spinal tract suffering from ischemia. The unresponsiveness of the patient is rather linked to the intensity of dizziness than to any epileptic disorder. Awareness of such a rare phenomenon is useful for the management of acute stroke patients although seizure-like episodes should prompt routine investigations to rule out true epileptic seizures.

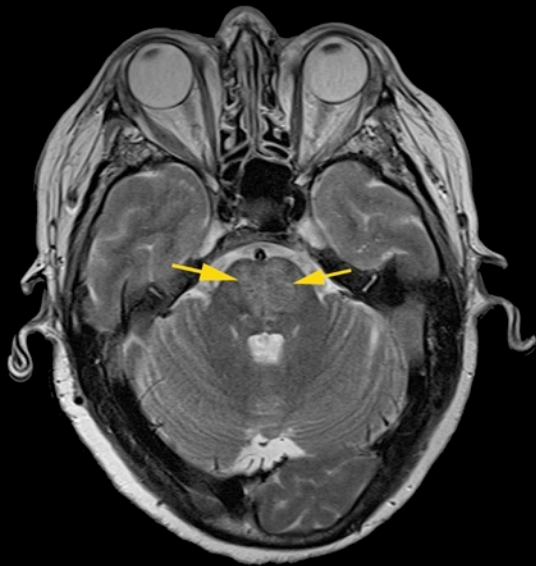
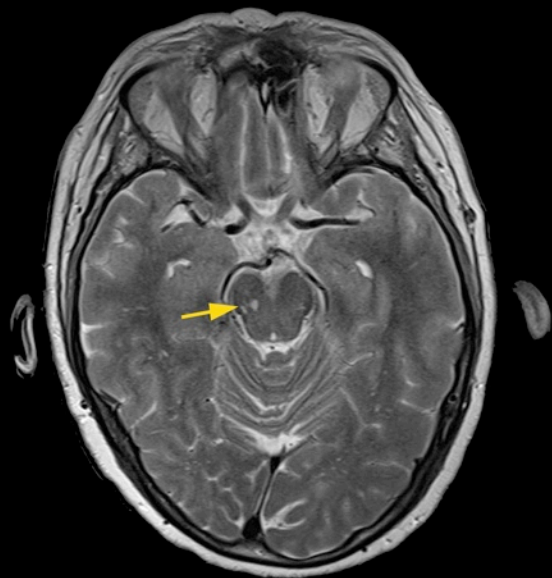
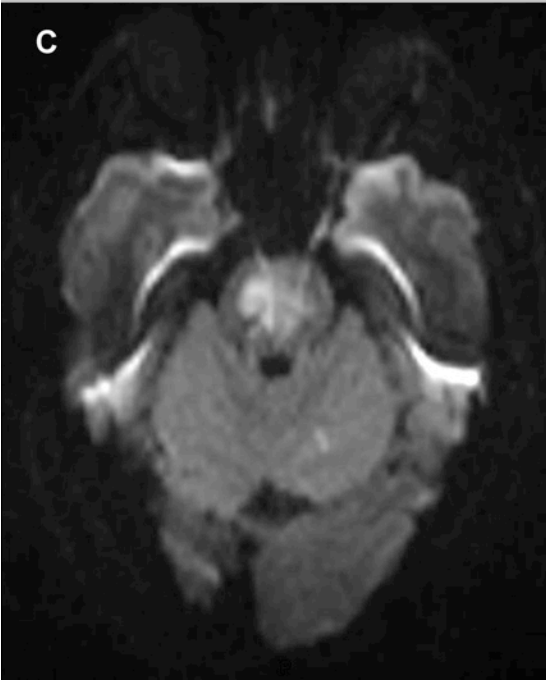
## **References:**

1. F Alarcó n, JC M Zijlmans, G Duenas, N Cevallos. Post-stroke movement disorders: report of 56 patients. J Neurol Neurosurg Psychiatry 2004; 75:1568–1574
2. F. Ghika-Schmid, J. Ghika, F. Regli and J. Bogousslavsky. Hyperkinetic movement disorders during and after acute stroke: The Lausanne Stroke Registry. J Neurol Sci. 1997 Mar 10;146(2):109-16.
3. Thomas J. Loher, MD1\* and Joachim K. Krauss, MD2. Dystonia Associated with Pontomesencephalic Lesions. Mov Disord. 2009 Jan 30;24(2):157-6
4. Ropper AH. 'Convulsions' in basilar artery occlusion. Neurology.1988 Sep;38(9):1500-1

## **Figures :**

### **Figure 1:**

- A: T2 weighted images depicting bilateral pontine stroke
- B: T2 weighted images depicting right mesencephalic stroke
- C: Diffusion weighted images confirming an acute bilateral pontine stroke
- D: Magnetic Resonance Angiography showing a thin and irregular basilar artery

**A****B****C****D**