

# Teaching Video NeuroImage: Isolated Undulating Tongue Hyperkinesia Following a Basilar Stroke

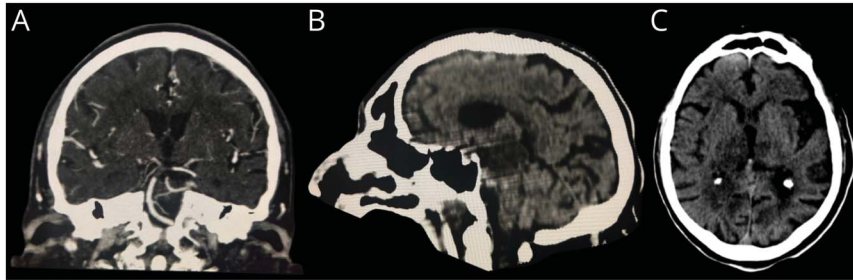
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## Figure Patient's Neuroimaging



Cerebral angiogram shows occlusion of the distal portion of the basilar artery (A). Sagittal section of the follow-up head CT shows hypodensity affecting the midbrain and part of the pons (B). Axial section of the follow-up head CT shows hypodensity mainly affecting the right thalamocapsular region (C).

An 82-year-old man with a history of hypertension and coronary revascularization presented with sudden-onset right hemiparesis and disorientation lasting 5 hours. On admission, he was intubated because of gasping and a Glasgow Coma Scale of 3. Hemorrhagic stroke was suspected, but ruled out by the initial head CT, which revealed old cerebellar lacunae. The following day, the comatose, now unsedated patient exhibited tetraparesis; fixed, nonreactive pupils; and corneal reflex, but no oculoccephalic reflex. Rhythmic undulating tongue movements without palatal or limb involvement were first observed (Video 1). EEG revealed no epileptiform activity. Follow-up head CT showed acute ischemic lesions in the thalamocapsular region, midbrain, and pons while angiogram revealed distal basilar artery occlusion (Figure). Involuntary tongue movements, though rare, have been associated with various conditions such as stroke, trauma, and epilepsy.<sup>1,2</sup> These movements may result from disinhibition within the inhibitory reticular formation projecting to hypoglossal neurons, suggesting the pontine reticular formation as a central pacemaker.<sup>2</sup>

## Author Contributions

D.A. Santos: drafting/revision of the manuscript for content, including medical writing for content; major role in the acquisition of data; study concept or design; analysis or interpretation of data. F.O. Costa: drafting/revision of the manuscript for content, including medical writing for content; major role in the acquisition of data; study concept or design. H.N. Dourado: drafting/revision of the manuscript for content, including medical writing for content; major role in the acquisition of data. J.A. Ferreira: major role in the acquisition of data. H. Castro-Lima: drafting/revision of the manuscript for content, including medical writing for content.

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## References

1. Postert Th, Amoiridis G, Pöhlau D, Hoffmann V, Przuntek H. Episodic undulating hyperkinesias of the tongue associated with brainstem ischemia. *Mov Disord*. 1997;12(4):619-621. Available at: [onlinelibrary.wiley.com/doi/10.1002/mds.870120429](https://onlinelibrary.wiley.com/doi/10.1002/mds.870120429)
2. Lee PH, Yeo SH. Isolated continuous rhythmic involuntary tongue movements following a pontine infarct. *Parkinsonism Relat Disord*. 2005;11(8):513-516. doi: 10.1016/j.parkreldis.2005.07.002