Teaching Video NeuroImages: Cluster Breathing in Brainstem-Sparing Bihemispheric Cerebral and Cerebellar Lesions

Roger M. Meza, MD, Hans Schulz, MD, Diego Alva, MD, and Alberto J. Espay, MD, MSc

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Correspondence

Dr. Espay
alberto.espay@uc.edu

Figure Brain MRI and Monitoring Screen

Postcontrast sagittal and coronal T1-weighted brain MRI demonstrated nodular bihemispheric lesions as well as contrast-enhancing bilateral cerebellar lesions with no mass effect on the brainstem. Screenshots of the respiratory monitor at the bottom document the cluster-breathing waveforms in the mean airway pressure (Paw, in cm H₂O) and volume (flow, in L/min).

A 65-year-old comatose man with metastatic melanoma developed rapidly cycling breathing, with clusters of approximately 10 abdominal excursions within 3 seconds, interspersed by 10 seconds of apnea (video 1 and figure), mimicking abdominal myoclonus. Introduced by Plum and Posner¹ as a respiratory pattern associated with lesions in the low pons or high medulla, cluster breathing can occur without pontomedullary lesions when respiratory alkalosis accompanies bihemispheric lesions.² It differs from the constant tachypnea of central neurogenic hyperventilation, also associated with respiratory alkalosis, and from the crescendo-decrescendo breathing pattern of Cheyne-Stokes. Combined cerebellar and cerebral lesions may suffice to affect brainstem-mediated respiratory control in the absence of brainstem lesions.

Study Funding

No targeted funding reported.

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From the Neurology Service (R.M.M., H.S.) and Emergency Service (D.A.), Hospital Regional Docente de Trujillo, Peru; and Department of Neurology (A.J.E.), UC Gardner Neuroscience Institute and Gardner Family Center for Parkinson's Disease and Movement Disorders, University of Cincinnati, OH.

Go to Neurology.org/N for full disclosures. Funding information and disclosures deemed relevant by the authors, if any, are provided at the end of the article.

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Appendix Authors

Name	Location	Contribution
Roger M. Meza, MD	Hospital Regional Docente de Trujillo, Peru	Evaluation of patient, drafted the manuscript for intellectual content

Appendix *(continued)*

Name	Location	Contribution
Hans Schulz, MD	Hospital Regional Docente de Trujillo, Peru	Major role in the acquisition of data, review of manuscript
Diego Alva, MD	Hospital Regional Docente de Trujillo, Peru	Major role in the acquisition of data, review of manuscript
Alberto J. Espay, MD, MSc	University of Cincinnati, OH	Critical review of manuscript, supervise all review cycles

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