Teaching Video NeuroImage: Abnormal Movements due to Brainstem Release Phenomenon

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Figure Brain MRI Sequences Demonstrating Global Ischemic Injury

(A) Axial diffusion-weighted image and (B) apparent diffusion coefficient.

A 15-month-old child with spinal muscular atrophy presented with refractory myoclonic status epilepticus post cardiorespiratory arrest. During therapeutic burst suppression, the patient developed rhythmic upper extremity movements (video), only during the suppression phase, with cessation in the burst phase. Brain MRI (figure) showed global ischemic injury.

These abnormal movements could arise from deep-seated epileptic focus.^{1,2} However, reflexive, fleeting movements, occurring exclusively during periods of cortical suppression, are likely due to brainstem release phenomenon,^{1,2} secondary to extensive cerebral injury, with relative preservation of the brainstem, and should not be misinterpreted as seizures. Existent literature suggests that ictal SPECT can differentiate between brainstem release and seizure.³

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Disclosure

The authors report no disclosures relevant to the manuscript. Go to [Neurology.org/N](https://www.neurology.org/N) for full disclosures.

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Name	Location	Contribution
Kshama Ojha, MD	Children's Mercy Hospital, University of Missouri-Kansas City	Role in study concept, acquisition, and analysis of data and drafting and revision of manuscript
Julie Grace Gianakon, MD	Children's Mercy Hospital, University of Missouri-Kansas City	Role in acquisition and analysis of data and manuscript revision
Mohammed Ilyas, MD	Children's Mercy Hospital, University of Missouri-Kansas City	Role in study concept, acquisition and analysis of data, and drafting and revision of manuscript

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