Teaching Video NeuroImages: Pathologic yawning

A sign of brainstem involvement in acute disseminated encephalomyelitis?

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Figure Brain MRI

Axial views show normal T1 (A), asymmetric T2 (B), and fluid-attenuated inversion recovery (FLAIR) (C) hyperintensity of the dorsal brainstem involving the reticular formation (arrowheads) at the level of cranial nerves V, VI, and VII nuclei, and T2 and FLAIR hyperintensity of the bilateral, left more than right, insula (arrows).

A 15-year-old boy had acute-onset encephalopathy following a viral prodrome, associated with frequent, dramatic yawning without EEG change (video). There were no focal deficits on examination. CSF protein elevation (1.72 g/L) without pleocytosis, brain MRI (figure), and significant improvement following methylprednisolone were consistent with acute disseminated encephalomyelitis (ADEM). Pathologic yawning is described in other demyelinating diseases, neuromyelitis optica spectrum disorder and multiple sclerosis, but is rarely reported with ADEM. Although prior reports postulated that brainstem and hypothalamic lesions are responsible,¹ yawning is a complex reflex mediated by both supratentorial and infratentorial structures; its precise localization is not yet defined.²

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Name	Location	Contribution
Veronica Birca, MD	Department of Pediatrics, Division of Child Neurology, Montreal Children's Hospital, McGill University Health Centre, Canada	Conception and design; acquisition, analysis, and interpretation of data; literature review; drafting of manuscript and critical revision; final approval

Appendix (continued)

Name	Location	Contribution
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Kenneth A. Myers, MD, PhD	Research Institute, Department of Pediatrics, Division of Child Neurology, Montreal Children's Hospital, McGill University Health Centre, Canada	Conception and design; acquisition, analysis, and interpretation of data; literature review; drafting of manuscript and critical revision; supervision; final approval

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