

Teaching Video NeuroImage: Spontaneous Upbeat-Torsional Nystagmus From Medial Medullary Infarction

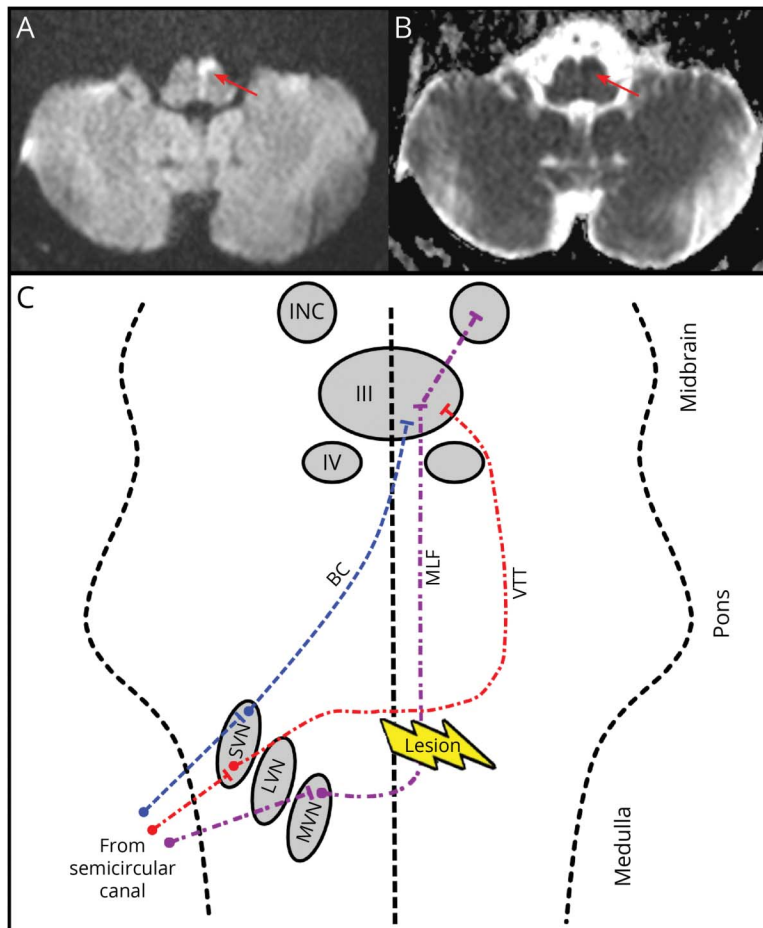
David Edward Hale, MD, and Kemar Earl Green, DO

Neurology® 2021;97:e2355-e2356. doi:10.1212/WNL.00000000000012659

Correspondence

Green
kgreen66@jhmi.edu

Figure Central Localizations of Spontaneous Upbeat-Torsional Nystagmus



Diffusion-weighted imaging (DWI) revealing restricted diffusion in the left anterior medulla and paramedian left medulla (A, arrow) with apparent diffusion coefficient (ADC) correlation (B, arrow) suggesting an acute infarct. Pathway imaging (C) adapted from vertical semicircular canal pathways by Gold.² MLF and extra-MLF central localizations of spontaneous upbeat-torsional nystagmus. Patient's ischemic stroke represented by lightning bolt in the MLF pathway. BC = brachium conjunctivum; VTT = ventral tegmental tract; MLF = medial longitudinal fasciculus; SVN = superior vestibular nucleus; LVN = lateral vestibular nucleus; MVN = medial vestibular nucleus; IV—fourth nerve nucleus; III = third nerve nucleus; INC = interstitial nucleus of Cajal.

A 71-year-old man presented with acute dizziness and right-sided paresthesia. Examination revealed spontaneous torsional nystagmus (top pole of eyes beating to the left) with a milder upbeat component (Video 1), right-sided weakness, and right hemisensory loss. MRI brain showed an acute left medial medullary infarct (Figure). Spontaneous

MORE ONLINE

Video

Teaching slides

links.lww.com/WNL/B502

From the The Johns Hopkins University School of Medicine (D.E.H.), Department of Neurology, Baltimore, MD; and The Johns Hopkins University School of Medicine (K.E.G.), Department of Neurology, Division of Neuro-Visual & Vestibular Disorders, Baltimore, MD.

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.

upbeat-torsional nystagmus typically results from selective damage to the vertical semicircular canal pathways in the medullary medial longitudinal fasciculus (MLF), often resulting in an ipsilesional-beating torsional nystagmus.¹ It is important to note that extra-MLF lesions in the brachium conjunctivum and ventral tegmental tract can also produce similar findings (Figure).^{1,2} Although upbeat-torsional nystagmus is more commonly observed in posterior canal benign paroxysmal positional vertigo, it is elicited by the Dix-Hallpike maneuver and is not continuous or spontaneous.

Acknowledgment

The authors thank Dr. Charlotte Sumner for staffing this patient during hospital admission.

Study Funding

The authors report no targeted funding.

Disclosure

D.E. Hale reports no disclosures relevant to the manuscript; K.E. Green reports no disclosures relevant to the manuscript. Go to [Neurology.org/N](https://www.neurology.org/N) for full disclosures.

Appendix Authors

Name	Location	Contribution
David E. Hale Jr., MD	The Johns Hopkins University School of Medicine, Baltimore	Drafted and revised the article for intellectual content
Kemar E. Green, DO	The Johns Hopkins University School of Medicine, Baltimore	Revised the article for intellectual content

References

1. Leigh RJ, Zee DS. *The Neurology of Eye Movements*. 5th ed. Oxford University Press; 2015.
2. Gold D. Vertical semicircular canal pathways. In: Eccles SS, ed. Health Sciences Library, University of Utah. Accessed March 1, 2021, collections.lib.utah.edu/ark:/87278/s6xq1s4t.

Neurology®

Teaching Video NeuroImage: Spontaneous Upbeat-Torsional Nystagmus From Medial Medullary Infarction

David Edward Hale and Kemar Earl Green

Neurology 2021;97:e2355-e2356 Published Online before print August 16, 2021

DOI 10.1212/WNL.0000000000012659

This information is current as of August 16, 2021

Updated Information & Services	including high resolution figures, can be found at: http://n.neurology.org/content/97/23/e2355.full
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): All Cerebrovascular disease/Stroke http://n.neurology.org/cgi/collection/all_cerebrovascular_disease_stroke Nystagmus http://n.neurology.org/cgi/collection/nystagmus Ocular motility http://n.neurology.org/cgi/collection/ocular_motility Vertigo http://n.neurology.org/cgi/collection/vertigo
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.neurology.org/about/about_the_journal#permissions
Reprints	Information about ordering reprints can be found online: http://n.neurology.org/subscribers/advertise

Neurology® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright © 2021 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.

