Teaching NeuroImages: The Motor Band Sign in Amyotrophic Lateral Sclerosis

Joshua Budhu, MD, Joseph Rosenthal, MD, PhD, Erika Williams, MD, PhD, and Tracey Milligan, MD

Neurology® 2021;96:e1092-e1093. doi:10.1212/WNL.0000000000010848

Correspondence

Dr. Budhu
jbudhu@mgh.harvard.edu

Figure Brain MRI Without Contrast

Susceptibility-weighted imaging (SWI) on 1.5 Tesla MRI demonstrating bilateral symmetric hemosiderin deposition along the central sulcus, layering the precentral gyrus.

A 71-year-old woman presented with several months of progressive lower extremity weakness, followed by bulbar weakness. On examination, she had diffuse muscle atrophy, fasciculations, weakness, and hyperreflexia. A diagnosis of clinically definite ALS was made using the El Escorial criteria. At the time of presentation and imaging, she had both severe upper and lower motor neuron involvement. Her ALSFRS-R score was 15, indicating advanced disease. Her brain MRI showed increased signal on susceptibility-weighted imaging, consistent with superficial siderosis along the central sulcus (figure). This finding has been named the “motor band sign”.¹ The intracellular iron may be from microglial phagocytosis of degenerated neurons in the motor strip.² Careful scrutiny of susceptibility-weighted imaging should be performed when considering motor neuron disease, as this can be helpful in making the diagnosis.

Study Funding

No targeted funding reported.

MORE ONLINE

→Teaching slides

links.lww.com/WNL/B221

From the Department of Neurology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA.

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.

Disclosures

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

Appendix Authors

Name	Location	Contribution
Joshua Budhu, MD	Brigham and Women's Hospital, Harvard Medical School, Boston, MA	Conception, writing, critical revision, and final approval of the text and images
Joseph Rosenthal, MD, PhD	Brigham and Women's Hospital, Harvard Medical School, Boston, MA	Critical revision and final approval of all text and images

Appendix *(continued)*

Name	Location	Contribution
Erika Williams, MD, PhD	Brigham and Women's Hospital, Harvard Medical School	Critical revision and final approval of all text and images
Tracey Milligan, MD	Brigham and Women's Hospital, Harvard Medical School, Boston, MA	Critical revision and final approval of all text and images

References

1. Chakraborty S, Gupta A, Nguyen T, Bourque P. The "motor band sign:" susceptibility-weighted imaging in amyotrophic lateral Sclerosis. *Can J Neurol Sci* 2015;42:260–263.
2. Kwan JY, Jeong SY, van Gelderen P, Deng H, Quezado MM, Danielian LE, et al. Iron accumulation in deep cortical layers accounts for MRI signal abnormalities in ALS: correlating 7 tesla MRI and pathology. *PLoS One* 2012;7. doi: 10.1371/journal.pone.0035241.

Neurology®

Teaching NeuroImages: The Motor Band Sign in Amyotrophic Lateral Sclerosis

Joshua Budhu, Joseph Rosenthal, Erika Williams, et al.

Neurology 2021;96:e1092-e1093 Published Online before print September 14, 2020

DOI 10.1212/WNL.0000000000010848

This information is current as of September 14, 2020

Updated Information & Services	including high resolution figures, can be found at: http://n.neurology.org/content/96/7/e1092.full
References	This article cites 2 articles, 0 of which you can access for free at: http://n.neurology.org/content/96/7/e1092.full#ref-list-1
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): All Clinical Neurology http://n.neurology.org/cgi/collection/all_clinical_neurology Amyotrophic lateral sclerosis http://n.neurology.org/cgi/collection/amyotrophic_lateral_sclerosis_ Anterior nerve cell disease http://n.neurology.org/cgi/collection/anterior_nerve_cell_disease MRI http://n.neurology.org/cgi/collection/mri
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 © 2020 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.