

# Teaching NeuroImages: Hippocampal sclerosis in cerebral malaria

Kaitlyn Lillemoe, MD, Danielle Brewington, MD, Aaron Lord, MD, Barry Czeisler, MD, Ariane Lewis, MD, and Arielle Kurzweil, MD

*Neurology*® 2019;93:e112-e113. doi:10.1212/WNL.00000000000007725

## Correspondence

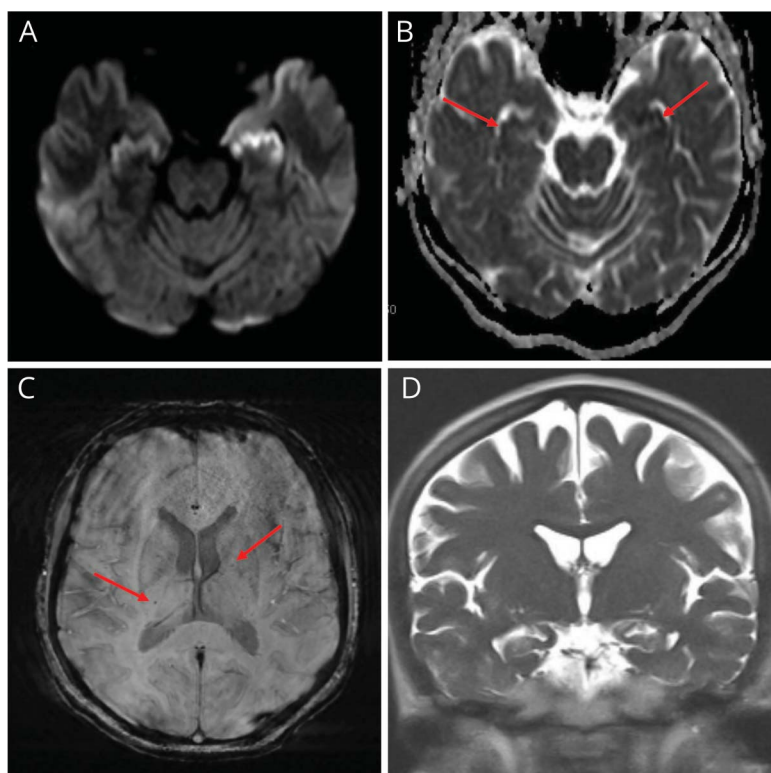
Dr. Lillemoe  
kaitlyn.lillemoe@gmail.com

## Figure MRI scans in cerebral malaria

## MORE ONLINE

### →Teaching slides

[links.lww.com/WNL/A915](https://links.lww.com/WNL/A915)



Brain MRI with (A) positive diffusion-weighted imaging and (B) apparent diffusion coefficient dropout (arrows) consistent with acute ischemia. (C) Susceptibility-weighted imaging shows small areas of microhemorrhage (arrows) in the deep white matter. (D) Follow-up MRI 2 months later demonstrates bilateral hippocampal sclerosis.

A 39-year-old woman presented with fever, malaise, and headache after visiting Tanzania. Peripheral smear showed *Plasmodium falciparum* and *Plasmodium ovale* with parasitemia >14%. Within hours, she became unresponsive. MRI demonstrated punctate foci of microhemorrhage throughout the deep white matter, and hippocampal restricted diffusion (figure). Five days of video-EEG were negative for seizure. She was discharged after 3 weeks of quinidine, doxycycline, and primaquine. Repeat MRI showed bilateral hippocampal sclerosis; repeat EEG was normal. Follow-up examination was only notable for short-term memory impairment.

Both microhemorrhages and ischemia are seen in cerebral malaria.<sup>1</sup> Diffuse edema and T2 white matter hyperintensities are also common,<sup>2</sup> although not appreciated here. Given prolonged EEG monitoring without seizure, the bilateral hippocampal sclerosis is likely secondary to microvascular ischemia.

From the Departments of Neurology (K.L., D.B., A. Lord, B.C., A. Lewis, A.K.) and Neurosurgery (A. Lord, B.C., A. Lewis), NYU Langone Medical Center, New York. Go to [Neurology.org/N](https://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.

### Author contributions

K. Lillemoe: study concept and design, manuscript preparation. D. Brewington, A. Lord, B. Czeisler, A. Lewis: data collection and analysis, manuscript editing. A. Kurzweil: study concept and design, manuscript preparation.

### Study funding

No targeted funding reported.

### Disclosure

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

### References

1. Potchen M, Kampondeni S, Seydel K, et al. Acute brain MRI findings in 120 Malawian children with cerebral malaria: new insights into an ancient disease. *Am J Neuroradiol* 2012;33:1740–1746.
2. Rasalkar DD, Paunipagar BK, Sanghvi D, Sonawane BD, Loniker P. Magnetic resonance imaging in cerebral malaria: a report of four cases. *Br J Radiol* 2011;84:380–385.

# Neurology®

## Teaching NeuroImages: Hippocampal sclerosis in cerebral malaria

Kaitlyn Lillemoe, Danielle Brewington, Aaron Lord, et al.

*Neurology* 2019;93:e112-e113

DOI 10.1212/WNL.0000000000007725

**This information is current as of July 1, 2019**

<b>Updated Information &amp; Services</b>	including high resolution figures, can be found at: <a href="http://n.neurology.org/content/93/1/e112.full">http://n.neurology.org/content/93/1/e112.full</a>
<b>References</b>	This article cites 2 articles, 2 of which you can access for free at: <a href="http://n.neurology.org/content/93/1/e112.full#ref-list-1">http://n.neurology.org/content/93/1/e112.full#ref-list-1</a>
<b>Citations</b>	This article has been cited by 1 HighWire-hosted articles: <a href="http://n.neurology.org/content/93/1/e112.full##otherarticles">http://n.neurology.org/content/93/1/e112.full##otherarticles</a>
<b>Subspecialty Collections</b>	This article, along with others on similar topics, appears in the following collection(s): <b>All global neurology</b> <a href="http://n.neurology.org/cgi/collection/all_global_neurology">http://n.neurology.org/cgi/collection/all_global_neurology</a> <b>Critical care</b> <a href="http://n.neurology.org/cgi/collection/critical_care">http://n.neurology.org/cgi/collection/critical_care</a> <b>Hippocampal sclerosis</b> <a href="http://n.neurology.org/cgi/collection/hippocampal_sclerosis">http://n.neurology.org/cgi/collection/hippocampal_sclerosis</a> <b>MRI</b> <a href="http://n.neurology.org/cgi/collection/mri">http://n.neurology.org/cgi/collection/mri</a> <b>Parasitic infections</b> <a href="http://n.neurology.org/cgi/collection/parasitic_infections">http://n.neurology.org/cgi/collection/parasitic_infections</a>
<b>Permissions &amp; Licensing</b>	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: <a href="http://www.neurology.org/about/about_the_journal#permissions">http://www.neurology.org/about/about_the_journal#permissions</a>
<b>Reprints</b>	Information about ordering reprints can be found online: <a href="http://n.neurology.org/subscribers/advertise">http://n.neurology.org/subscribers/advertise</a>

*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 © 2019 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.

