Teaching NeuroImages: Mesial temporal sclerosis after a prolonged unprovoked seizure in an infant

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At age 15 months, this previously healthy girl presented with an unprovoked seizure with right-sided clonic movements and facial twitching for 8 minutes. Serial MRIs revealed evolution from diffusion-weighted changes suggestive of edema to left hippocampal hyperintensity on T2 images and subsequently atrophy suggestive of mesial temporal sclerosis (MTS)1 (figures 1 and 2). After seizure freedom for 6 months, she presented with seizures characterized by staring, lip smacking, swallow automatism, and gagging. Left temporal lobectomy for pharmacologically intractable epilepsy confirmed MTS on pathologic examination with seizure freedom since then. This case illustrates initial insult, silent period, and evolution to MTS visualized on MRI in an infant.2

AUTHOR CONTRIBUTIONS
Dr. Pinto: drafting/revising the manuscript, study concept or design, analysis or interpretation of data. Dr. Miller-Horn: drafting/revising the manuscript, analysis or interpretation of data, acquisition of data, study supervision. Dr. Guilhoto: drafting/revising the manuscript, acquisition of data. Dr. Harini: drafting/revising the manuscript, analysis or interpretation of data, study supervision, Dr. Morrison: drafting/revising the manuscript. Dr. Prabhu: drafting/revising the manuscript, analysis or interpretation of data, identifying and interpreting the findings depicted in this case study, figure selection and preparation, manuscript editing. Dr. Kothare: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, study supervision. Dr. Loddenkemper: drafting/revising the manuscript.

Figure 1
Brain MRI images at initial presentation

(A) Decreased diffusion at initial presentation in the left hippocampus is indicated by increased signal (arrow) on diffusion-weighted images (A) and hypointense signal (arrow) on the corresponding apparent diffusion coefficient map at initial presentation (B). (C) Coronal view T2-weighted image shows the left hippocampal edema (arrow) at initial presentation (15 months old).

(B) Coronal view T2-weighted image shows the left-sided hippocampal volume loss (arrow) and T2 prolongation suggestive of hippocampal sclerosis on the follow-up study at 38 months of age.

Figure 2
Brain MRI at 2 months and from the initial seizure and follow-up at 38 months of age

(A) Coronal view fluid attenuation inversion recovery in the second brain MRI shows the relative abnormal signal (arrow) in the left hippocampal formation. (B) Coronal view T2-weighted image shows the left-sided hippocampal volume loss (arrow) and T2 prolongation suggestive of hippocampal sclerosis on the follow-up study at 38 months of age.
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DISCLOSURE

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