Teaching NeurolImages: Notched Delta and Angelman Syndrome

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Case Description

We report a 9-year-old boy with a history of Angelman syndrome (AS) with associated epilepsy, behavioral issues, intellectual disability, and sleep disturbance. Genetic testing revealed a methylation imprinting defect, thereby confirming the diagnosis of AS. His seizures were well controlled on monotherapy with clobazam and he underwent a routine EEG (figure), which showed a notched delta pattern.

Notched delta pattern, one of the characteristic EEG findings in AS, is characterized by delta waves intermixed with spikes or sharp waves giving it a “notched” appearance. In the context of a suggestive phenotype, this EEG pattern should raise suspicion for AS. Clinicians should be reminded, nonetheless, that notched delta can be seen in other conditions such as Rett syndrome and different chromosomal abnormalities including 4p(-) syndrome. Lastly, patients with AS may have other patterns on EEG such as persistent rhythmic high-voltage 4-6 Hz activity. [1,2,3]

Appendix 1. Authors

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
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Teaching Slides -- http://links.lww.com/WNL/B425

References
**Figure**

Title: Routine EEG shows notched delta pattern [sensitivity 20 uV/mm, LF 1 Hz, HFF 70 Hz, notch on/60 Hz, timebase 30 mm/sec].

Legend: EEG: bipolar (A) and referential/average (B) show bilateral occipital, right more than left, delta waves (200-250 uV, 4 Hz) superimposed with spikes (arrows) consistent with notched delta.
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