Teaching NeuroImages: Bilateral Nucleus Tractus Solitarius Lesions in Neurogenic Respiratory Failure

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A 7-year-old girl with MEGD(H)EL [3-Methylglutaconic aciduria, dystonia-deafness, (hepatopathy), encephalopathy, Leigh-like syndrome, SERAC1][1] presented with worsening respiratory compromise. The evaluation showed type II respiratory failure (e.g., hypercapnic) necessitating mechanical ventilation. Cerebral MRI demonstrated progression of known changes in MEGD(H)EL (Fig A&B) and symmetric nucleus tractus solitarius (NTS) involvement (Fig C&D). She was ventilator dependent and subsequently succumbed to the disease.

Bilateral NTS involvement is a rare occurrence in a neurological setting.[2] NTS plays a crucial role in the continuous modulation of chemoreceptor mediated respiration and other respiratory reflexes.[2] This case illustrates the neuroimaging correlate of central neurogenic respiratory failure.
References

Title and legend to the figure:

Figure: Brain MRI

Brain MRI at age 2 years shows the classical ‘putaminal eye’ sign (A- arrows). MRI at age 7 years shows progressive atrophy and gliosis of basal ganglia and cortical atrophy (B) and bilateral symmetrical signal changes of the nucleus tractus solitarius on FLAIR (C- arrows) and T2-weighted images (D-arrows).
## Appendix 1.

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
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<tbody>
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