

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

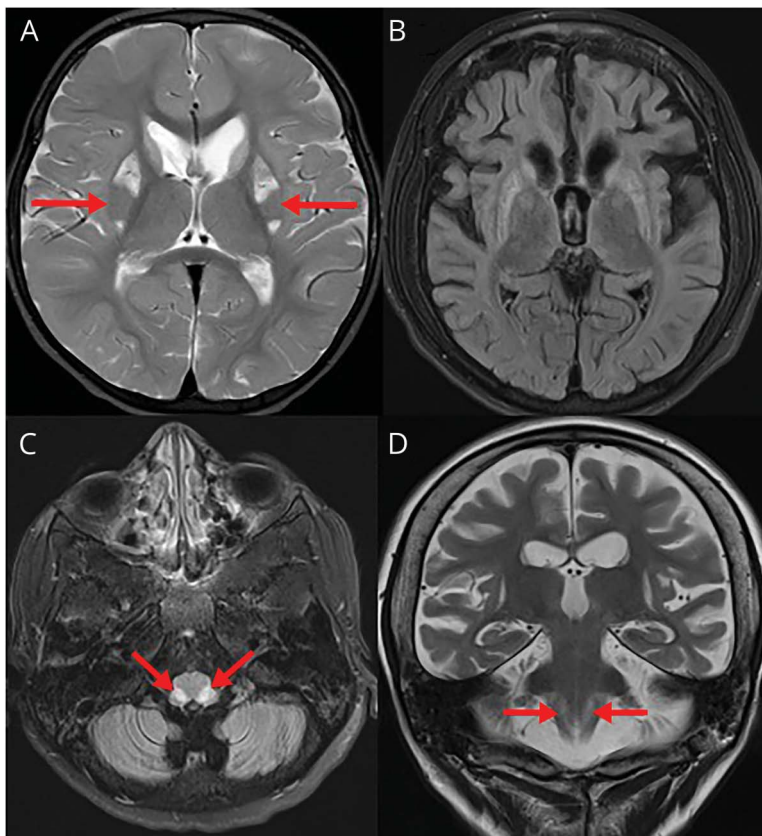
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Figure Brain MRI



Brain MRI at age 2 years shows the classic “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 fluid attenuated inversion recovery sequence (C, arrows) and T2-weighted images (D, arrows).

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 (Figure, A and B) and symmetric nucleus tractus solitarius (NTS)

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Name	Location	Contribution
Bindu Parayil Sankaran, MD, DM, FRACP, PhD	Children's Hospital at Westmead, NSW, Australia	Designed and conceptualized study, analyzed and interpreted the data, and drafted the article for intellectual content
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Shanti Balasubramaniam, FRACP	Children's Hospital at Westmead, NSW, Australia	Designed and conceptualized study, analyzed and interpreted the data, and drafted the article for intellectual content

involvement (Figure, C and D). She was ventilator dependent and subsequently died from the effect of the disease.

Bilateral NTS involvement is a rare occurrence in a neurologic 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 correlation of central neurogenic respiratory failure.

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