Bilateral Globus Pallidus Injury in Myxedema Coma

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Clinical Presentation

- Postsurgical hypothyroidism following total thyroidectomy, COPD, morbid obesity, hypertension, type 2 diabetes mellitus, and alcohol use disorder presented after being found unresponsive at home.
- On transfer from OSH, became encephalopathic, hypothermic to 33.9 C, bradycardic to 40s, continued hypotension

Clinical Presentation

- Lab evaluation significant for TSH 21 μIU/mL and free T4 <0.1 ng/dL
- Further history revealed marked levothyroxine nonadherence, with the patient taking his prescribed 200 μg dose only once weekly. The clinical and laboratory findings supported a diagnosis of myxedema coma.

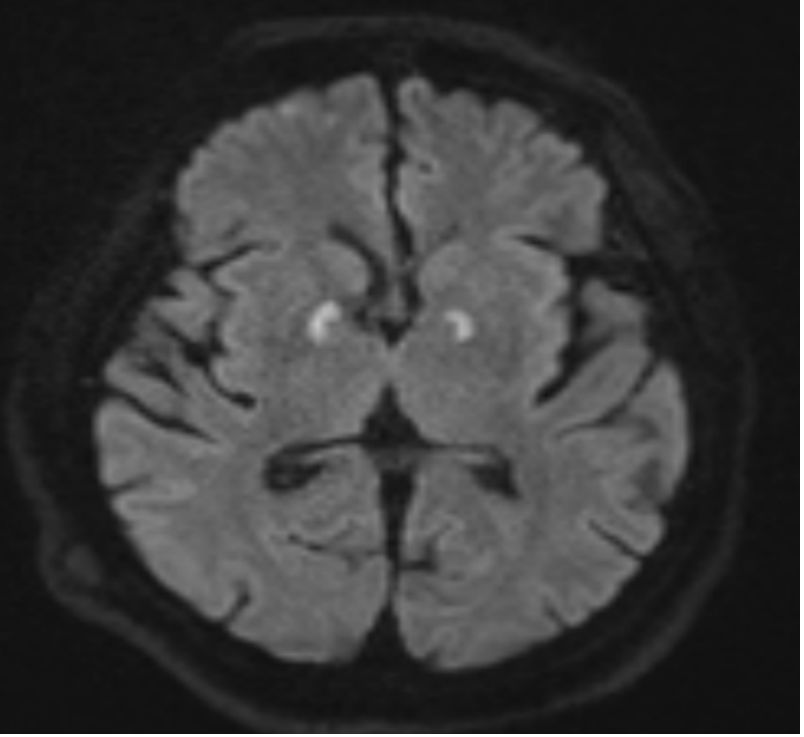
Imaging

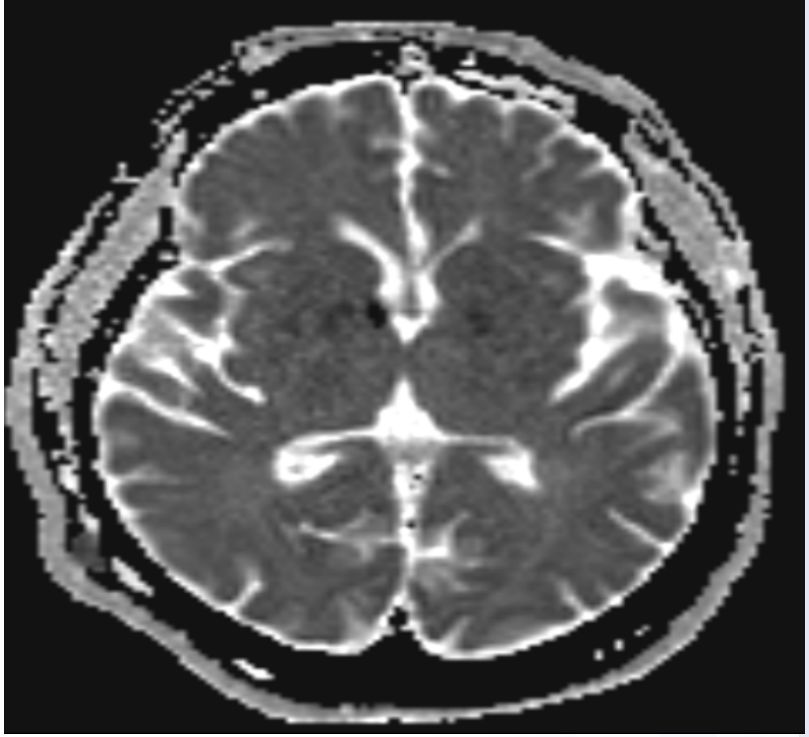
- Initial noncontrast head CT w/ small acute intraparenchymal hemorrhage
- MRI demonstrated symmetric restricted diffusion confined to the bilateral globus pallidi
- Punctate and linear susceptibility within the affected globus pallidi
- Subtle symmetric T2/FLAIR hyperintensity was also present within the bilateral hypothalami without corresponding restricted diffusion.

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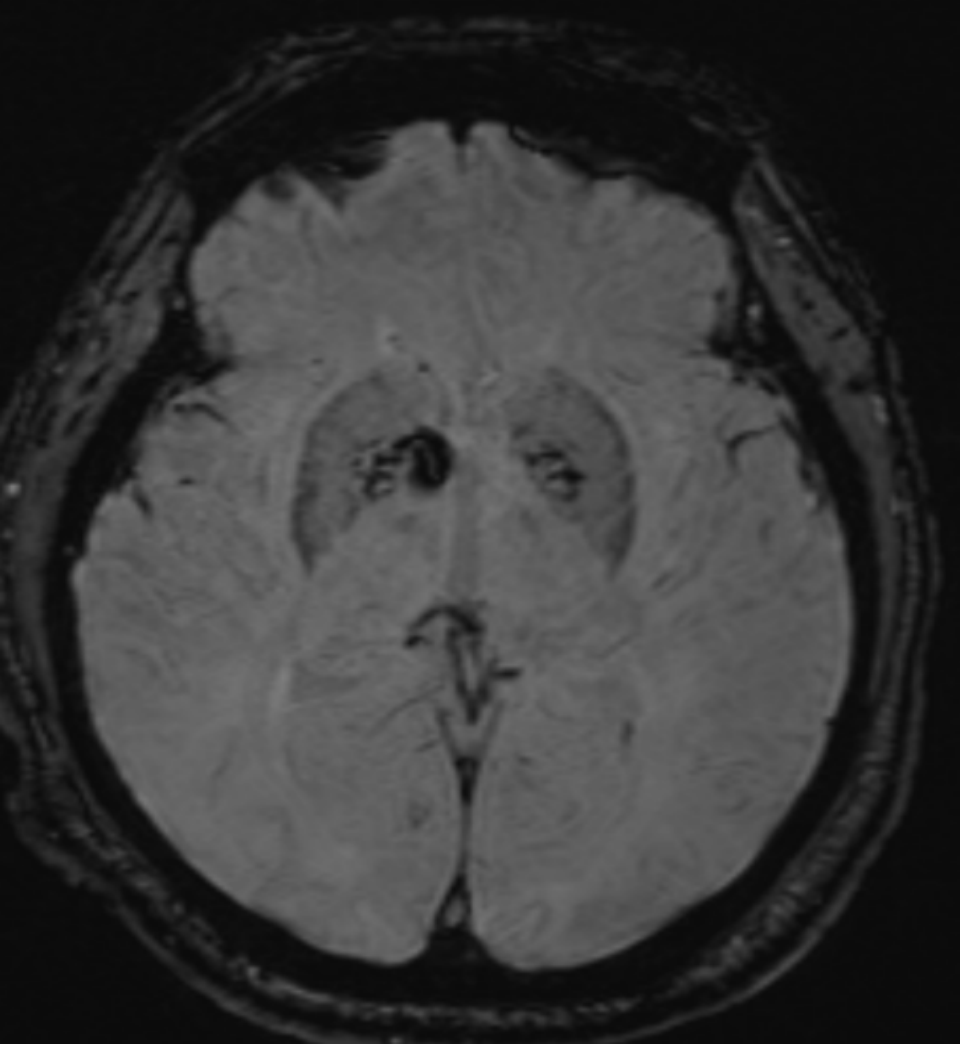
- Axial noncontrast CT at presentation demonstrates a small acute parenchymal/subepen dymal hemorrhage along the right caudothalamic groove.





- Axial DWI and ADC images demonstrate symmetric restricted diffusion involving the bilateral globus pallidi, consistent with cytotoxic injury.

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- SWI demonstrates bilateral, right greater than left, susceptibility within the affected globus pallidi, compatible with associated petechial hemorrhage.

Management

- The patient was treated for myxedema coma with intravenous levothyroxine, stress-dose hydrocortisone, passive rewarming, and supportive care.
- Patient placed on CIWA protocol for admitted daily alcohol use.
- Neurosurgery recommended conservative management of the small right caudothalamic hemorrhage with follow-up imaging

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Outcome

- The patient experienced rapid improvement in mental status and cardiopulmonary function.
- He was discharged five days after presentation on oral levothyroxine and supplemental oxygen.
- At discharge, he was alert and fully oriented without focal neurologic deficits.

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Take Home Points

- Symmetric globus pallidus injury suggests a systemic toxic, metabolic, or hypoxic process and classically raises consideration of a wide differential
- Pallidal cytotoxic injury in myxedema coma may reflect combined metabolic dysfunction and secondary hypoxic injury rather than a direct effect of hypothyroidism.

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Take Home Points (Cont.)

- Severe hypothyroidism and myxedema coma should be considered in the appropriate clinical context when symmetric deep gray nuclear abnormalities are encountered.
- Substantial neurologic recovery may occur despite restricted diffusion and petechial hemorrhage involving the globus pallidi

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