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Hormone Wars: The Thyroid Strikes Back! A Case of Hashimoto Encephalopathy Manifesting as Diffuse Extremity Weakness and Confusion

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Hormone Wars: The Thyroid Strikes Back!
A Case of Hashimoto Encephalopathy Manifesting as Diffuse Extremity Weakness and Confusion

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Case Presentation

A 42-year-old female with a past medical history of schizoaffective disorder recently discontinued on multiple psychiatric medications, stable HIV, and hypothyroidism presented with a chief complaint of diffuse extremity weakness and Parkinsonism-like symptoms.

History of Present Illness

- 4-month history of jerking leg movements bilaterally
- 2-week history of "feeling paralyzed" with difficulty ambulating
- Recent long-term hospitalization at a psychiatric facility as a ward of the state
- Multiple changes to psychiatric medication regimen, including abrupt discontinuation of clozapine and risperidone
- Abrupt onset confusion at facility and decreased level of interaction at facility prior to admission

Exam

- T 98.8F, BP 114/66, P 73, RR 18, SpO2 94% on room air
- Neck: thyroid without nodules or enlargement
- Neuro: CN II-X intact. XI: 0/5 muscle strength on shoulder shrug or head turn. Bilateral shoulder and forearm strength 1/5 bilaterally; hip and thigh flexion/extension 0/5 bilaterally; sensation intact to bilateral upper and lower extremities
- Mental status: disoriented to time, place, situation. Oriented to person.

Work Up and Hospital Course

Admission Labs and Work Up:

- See Table 1. Calcium 10.8, magnesium 1.6, lithium level 1.2. Other lab values unremarkable
- Imaging studies without acute abnormality: CT head w/o contrast, MRI brain, MRI cervical/thoracic/lumbar spine

- CSF fluid analysis: elevated protein, mildly elevated glucose
- Blood, CSF, urine cultures show no growth
- Continuous EEG: generalized slowing consistent with encephalopathy; no epileptiform activity
- CSF negative for VDRL, HSV, VZV, EBV, CMV, fungal elements

- Ativan challenge: 2mg lorazepam every 2 hours for 24 hours; if positive, suggestive of neuroleptic catatonia. In this patient, this was negative

Treatment:

- Dexamethasone challenge resulted in improvement of muscle weakness, confusion
- Prolonged prednisone course with months-long taper

Lab	Value	Normal Limit
WBC, CSF	3	0-5
Glucose, CSF	64	40-60
Protein, CSF	82	12-39
Thyroglobulin Ab, Serum	910	0.3-9
Thyroid Peroxidase Ab, Serum	>1200	<4
TSH, Serum	1.36	0.33-4.70

Table 1: Pertinent lab values for the diagnosis of Hashimoto encephalopathy

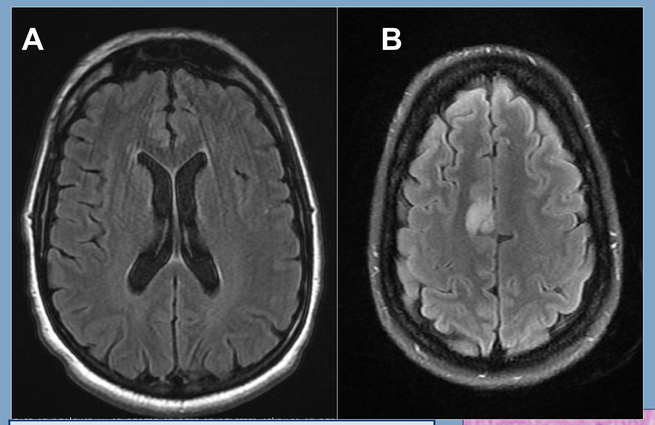

Figure 1: A) Axial T2 FLAIR brain MRI in this patient without acute abnormality, a common finding in Hashimoto encephalopathy. B) T2 FLAIR MRI brain finding in another patient with HE showing a focal area of hyperintensity in the right frontal lobe.

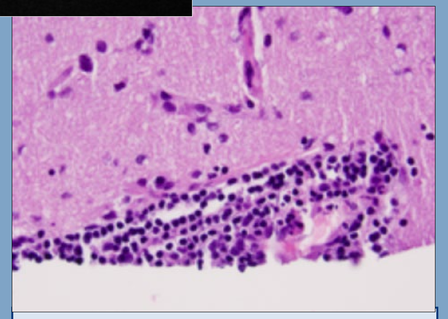

Figure 2: H&E stain showing cortical perivascular lymphocytic infiltrate, found in Hashimoto encephalopathy

Discussion

Overview

- Hashimoto encephalopathy is a rare disorder affecting patients who are commonly euthyroid, thought to be an immune complex inflammatory response in the cerebral vasculature
- HE more commonly affected by women than men
- It is characterized by fluctuating neurologic symptoms, most commonly behavior disturbances, confusion, and gait disturbances

DIAGNOSIS

- TSH can range from euthyroid to hypothyroid
- TPO Ab and thyroglobulin Ab are commonly significantly elevated
- CSF findings: elevated protein, lymphocytic infiltrate
- EEG: non-specific slowing suggestive of encephalopathy
- MRI: normal, some cases with focal hyperintensity

MANAGEMENT

- High dose prednisone with a prolonged course and taper; often months
- >90% respond to corticosteroid therapy
- IVIG and plasmapheresis have shown improvement in some cases

Conclusion

- Here we present a 42-year-old female with a rare case of Hashimoto encephalopathy manifesting as confusion and weakness

- The most common clinical presentations for HE include cognitive impairment, ataxia, and focal neurologic deficits

- This case demonstrates that presentation of a primary autoimmune disorder can manifest despite normal TSH and unrevealing imaging findings

- This patient responded to high dose prednisone for 2 weeks with a prolonged taper and 4 days of IVIG with resolution of muscle weakness and confusion

References

Kothbauer-Margreiter I, Sturzenegger M, Komor J, Baumgartner R, Hess CW. Encephalopathy associated with Hashimoto thyroiditis: diagnosis and treatment. *J Neurol.* 1996;243(8):585-593. doi:10.1007/BF00900946

Menon V, Subramanian K, Thamizh JS. Psychiatric Presentations Heralding Hashimoto's Encephalopathy: A Systematic Review and Analysis of Cases Reported in Literature. *J Neurosci Rural Pract.* 2017;8(2):261-267. doi:10.4103/jnrp.jnrp_440_16

Rukmangadachar LA, Dandapat S, Bit-Ivan EN, Peng YY. Hashimoto's encephalopathy - presenting with epilepsia partialis continua and a frontal lobe lesion. *Clin Case Rep.* 2017;6(1):136-142. Published 2017 Dec 5. doi:10.1002/ccr3.1306

Uwatoko H, Yabe I, Sato S, et al. Hashimoto's encephalopathy mimicking a brain tumor and its pathological findings: A case report. *J Neurol Sci.* 2018;394:141-143. doi:10.1016/j.jns.2018.09.008

Wang J, Zhang J, Xu L, Shi Y, Wu X, Guo Q. Cognitive impairments in Hashimoto's encephalopathy: a case-control study. *PLoS One.* 2013;8(2):e55758. doi:10.1371/journal.pone.0055758