



## When the Thyroid Speaks to the Brain: Steroid-Responsive Encephalopathy Presenting as Refractory Status Epilepticus in an Adolescent Girl

**Dr. Dhandapani.R**

K.G.Hospital , C.L.W , Indian Railways , Chittaranjan , West Bengal

**\*Corresponding Author:**

**Dr. Dhandapani.R**

K.G.Hospital , C.L.W , Indian Railways , Chittaranjan , West Bengal

Type of Publication: Case Report

Conflicts of Interest: Nil

### Abstract

Hashimoto's encephalopathy (HE), also known as steroid-responsive encephalopathy associated with autoimmune thyroiditis (SREAT), is a rare autoimmune neurological disorder. Pediatric cases are uncommon and often mimic infectious or other autoimmune encephalitis. A 15-year-old girl presented with focal seizures involving the right hand which progressed to secondary generalized tonic-clonic seizures and became status epilepticus. Despite antiepileptic therapy, seizures persisted, requiring ventilatory support and continuous sedation. Caregivers reported preceding confusion, mood swings, irritability, hair loss, and menorrhagia. MRI brain with contrast was normal, while EEG demonstrated diffuse slowing with epileptiform discharges. CSF study was deferred due to parental refusal. The diagnosis of Hashimoto's encephalopathy was considered as a differential. Her Thyroid evaluation revealed elevated TSH (42  $\mu$ IU/mL) and anti-thyroid peroxidase antibodies (95 IU/mL). She was started on High-dose intravenous corticosteroids which was followed by a rapid clinical recovery. We suggest that Hashimoto's encephalopathy should be considered in pediatric patients with unexplained refractory seizures and neuropsychiatric symptoms. Early corticosteroid therapy can lead to dramatic and complete recovery.

**Keywords:** Hashimoto's encephalopathy, pediatric seizures, steroid-responsive encephalopathy, autoimmune thyroiditis, status epilepticus

### Introduction

Hashimoto's Encephalopathy (HE), or steroid-responsive encephalopathy associated with autoimmune thyroiditis (SREAT), is an infrequently diagnosed neuroimmunological syndrome<sup>1</sup>. Pediatric presentations are especially rare<sup>2</sup>. It often manifests through abrupt or progressive onset of seizures, behavioural disturbances, or altered consciousness<sup>3</sup>. Early detection and initiation of immunosuppressive therapy are critical for favourable outcomes<sup>4</sup>.

### Case Summary :

A 15-year-old girl experienced a focal seizure involving her right hand that lasted about 10 minutes and subsided without intervention after 5 minutes.

Within an hour, in EMD she developed a generalised tonic-clonic seizure, so a levetiracetam loading dose was given. Due to persistent seizures, she was shifted to the PICU, where fosphenytoin was also administered as seizures were refractory. All treatable causes of seizures were ruled out by then. As the seizure remained refractory she was started on midazolam infusion after intubation. She also received empirical antibiotics and supportive care for suspected meningoencephalitis<sup>5</sup>. The patient's caregivers reported recent behavioural shifts, hair thinning, and heavy menstrual bleeding.

Lab tests showed elevated TSH (42  $\mu$ IU/mL) and high anti-TPO antibody titers (95 IU/mL). Thyroid ultrasound suggested autoimmune thyroiditis (TIRADS III), leading to clinical suspicion of HE. Due to clinical instability and parental concerns, CSF analysis wasn't done. On day 2 Seizure activity reduced in EEG as the patient started on high-dose intravenous methylprednisolone. She clinically improved and was extubated on day 3 of admission, followed by Oral steroids, resulting in significant neurological improvement. Gradually, antiepileptics were tapered, and Lacosamide was started and changed later to oral form. Patient improved rapidly and was treated and discharged with oral steroids and thyroid supplementation.

### Investigations

Neuroimaging was unremarkable with no evidence of inflammation or structural anomalies. MRI brain was normal. EEG detected interictal epileptiform discharges. Thyroid function tests confirmed hypothyroidism with raised anti-thyroid antibodies. Ultrasound of thyroid was suggestive of Thyroiditis. CSF analysis was deferred in view of parental concerns.

### Management

Initial treatment included antimicrobial agents, supportive care and antiepileptic medications. Corticosteroids were started upon strong suspicion of Hashimoto's Encephalopathy which led to marked clinical recovery. The AEDs were progressively reduced as the patient stabilized and steroids were tapered.

### Outcome

At a follow-up conducted 3 months post-discharge, the child had no recurrence of seizures, demonstrated normal cognitive functioning, and was gradually being weaned off antiepileptic medications. Her EEG findings normalized, and thyroid parameters showed signs of recovery.

### Discussion

In cases of pediatric encephalopathy where seizures and behavioral changes are unexplained, HE should be considered. The absence of diagnostic findings on imaging and EEG often delays recognition. A high index of suspicion is required. A close differential is Limbic encephalitis. Elevated anti-thyroid antibodies remain the most consistent indicator. Corticosteroids are the mainstay of treatment. Lacosamide offers a beneficial safety profile in managing focal seizures.

### Conclusion

HE is a treatable cause of refractory seizures in children and should be part of the differential in relevant clinical scenarios. Timely immunotherapy can bring about significant improvement. Lacosamide may serve as an effective adjunct in managing the acute phase.

### References

1. Ferracci F, et al. J Neurol Sci. 2004;217(2):165-8.
2. Fatourechi V. Best Pract Res Clin Endocrinol Metab. 2005;19(1):53-66.
3. Castillo P, et al. Arch Neurol. 2006;63(2):197-202.
4. Chong JY, et al. Arch Neurol. 2003;60(2):164-71.
5. Menon V, et al. Indian J Endocrinol Metab. 2013;17(5):877-880