Hashimoto’s Encephalopathy Presenting as Recurrent Brief Psychotic Episodes in a 13-Year-Old Girl: A Case Report

Nalakath A. Uvais1,*

1Department of Psychiatry, Iqraa International Hospital and Research Centre, Calicut, Kerala, India

Abstract: Background: Hashimoto’s encephalopathy (HE) is a debilitating manifestation of an autoimmune reaction against the thyroid that rarely can present with prominent psychiatric symptoms. It is often under-diagnosed primarily due to its variety of symptoms as well as a lack of definitive diagnostic criteria.

Methods: We report the case of a 13-year-old girl who was diagnosed with HE after presenting with recurrent and severe psychosis with fever and a thyroidopathy. The patient had prominent visual hallucinations and paranoid delusions. Between episodes, the patient did not show evidence of psychiatric symptoms. This patient struggled with several incorrect diagnoses and treatments for two years before the correct diagnosis of HE was made and displayed marked improvement upon corticosteroid administration.

Discussion: This case illustrates the importance of increasing awareness of HE as well as including HE in a differential diagnosis when paediatric patients present with psychosis and concurrent thyroidopathy.

Keywords: Thyroid, anti-TPO, psychosis, immunotherapy, paranoid delusions, visual hallucinations.

1. INTRODUCTION

Psychosis associated with thyroid abnormalities is well known (Das et al., 2017; Haider et al., 2016). Thyrotoxic psychosis was first described 150 years ago (Brownlie et al., 2000). Hashimoto’s encephalopathy or steroid responsive encephalopathy associated with autoimmune thyroiditis (SREAAT) is also well known among neuropsychiatrists (Castillo et al., 2006). The estimated prevalence of SREAAT is 2.1 per 100,000 (Ferracci et al., 2004). In paediatric populations, it is relatively rare, with only about 60 cases described to date (Lee et al., 2018). But psychosis without encephalopathy associated with high anti thyroid antibodies that responds to steroid therapy or immune modulation is not much described in the literature, especially in children and adolescents (González, 2014). Here, we report the case of a 13-year old girl presenting with recurrent episodes of fever and psychosis with high anti-thyroid peroxidase (anti-TPO) antibodies levels in serum and her treatment course.

2. CASE REPORT

A 13-year old girl, studying in 8th standard with no significant past medical or psychiatric illnesses, was hospitalized after being brought by her parents with complaints of recurrent febrile episodes for two years recently accompanied by abnormal behavior. The episodes occurred once to twice a month lasting for a few days. The last two episodes were associated with seeing various animals around her, as well as reduced sleep and appetite. A formal mental status examination revealed persecutory and referential delusions, visual hallucinations, and an anxious affect. She had no evidence of seizure activity, movement disorder or delirium. There was no past history or family history of mental illness.
The patient had already been worked up for prolonged febrile illness without any conclusive findings. Her haemogram, ESR, CRP, Chest x ray, USG abdomen and pelvis and Trans-thoracic Echocardiogram were within normal limits. On examination, she was conscious and fully oriented. No thyroid enlargement was noted. No cranial nerve abnormalities or focal neurological deficits were present. Investigations conducted at our centre including brain MRI and EEG were normal. CSF study showed glucose 64mg/dl against a blood glucose level of 83 mg/dl, protein 13mg/dl, total leukocyte count 2/mm3 all lymphocytes. CSF for anti NMDA antibody was negative. Her thyroid function test done as a part of routine work was as follows: TSH 5.019 µU/ml (ref range: 0.51-4.30); T3 0.9 ng/ml (ref range : 0.91-2.18); T4 5.98 microgram/dl.(ref range : 5.91-13.2 0). Anti TPO Ab was done as TSH was mildly elevated, which was found to be 3970 IU/ml (ref range: 0-32).

The patient was treated with intravenous methyl prednisolone 1000mg daily for 3 days followed by oral prednisolone 1mg/kg and was started on oral l thyroxine 50 microgram daily and was discharged. During follow up after one week she was slightly better and complained of reduced sleep, for which oral clonazepam 0.25 mg was added at bed time PRN. During the next follow-up after one month, she reported to having about 50% relief in her symptoms, hence the prednisolone dose was reduced by 5mg. When seen again at two months post discharge, she reported having symptom relief of around 90%, and formal mental status examination revealed no active psychopathology except for anxious affect. A repeat TSH at this time was 6.9µU/ml. Thyroxine was increased to 75µg/day and prednisolone was further reduced.

3. DISCUSSION AND CONCLUSION

We present the case of a 13-year-old girl with probable antithyroid psychosis who responded well to steroid therapy. Our patient had recurrent febrile periods before developing psychosis which lead us to assume the organicity of the psychotic illness.

Hashimoto’s encephalitis is believed to be under-diagnosed due to its myriad of clinical presentations as well as the lack of definitive diagnostic criteria. The diagnosis of Hashimoto encephalopathy is based on clinical manifestations, increased antithyroid antibody, and exclusion of other possible causes of encephalopathy. The majority of the pediatric cases reported have been teenagers, with a median age at diagnosis of 14 years with a female predominance in a ratio of about 4:1 (Lee et al., 2018). Elevated antithyroid antibody titer is important in the diagnostic criteria of Hashimoto encephalopathy. Anti-thyroid peroxidase antibody titer is most commonly found to be elevated in 80–100% of patients with Hashimoto encephalopathy followed by Anti-thyroglobulin antibody and antithyroid stimulating hormone receptor antibody (Lee et al., 2018). Most pediatric patients present with slowly progressive encephalopathy with seizure as the most common presenting symptom (60–80%). But our case presented with prominent hallucinations and delusions along with fever. There were no signs of delirium or no episode of seizures reported. Her EEG was normal.

The differential diagnosis in our case was psychosis NOS and schizophrenia. However, the lack of persistent psychotic symptoms and a good response to immunotherapy ruled out both of these conditions.

Encephalopathy associated with autoimmune thyroid diseases (EAATD) is very common, but pure psychosis without encephalopathy is rarely reported. This condition was referred to as antithyroid psychosis by Manuel Menéndez González (2014), who reported 4 cases of psychosis with high anti-thyroid antibodies that responded to immunotherapies. The peculiarities of our case when compared to these cases are: 1) the younger age of onset, 2) very high anti-TPO ab levels, 3) history of fever episodes before the onset of symptoms that could not be explained by any other illness and which also disappeared following steroid therapy, 4) resolution of symptoms without initiation of antipsychotic medication, and 5) a normal EEG.

The pathogenesis of HE remains unclear. However, there are multiple hypotheses in the published literature. Initially, it was thought to be associated with localised cerebral oedema (Brain et al., 1966). Others have hypothesised that HE results from autoimmune vasculitis, a toxic effect of thyrotropin-releasing hormone, or that it has an immunopathological basis similar to relapsing acute disseminated encephalomyelitis (Seipelt et
This report highlights the importance of screening for organic causes of psychiatric symptoms presenting for the first time in children. The main importance of diagnosing these cases is that HE is a treatable disorder and a proper diagnosis can spare children from years of incorrect treatment and save them from the side effects of antipsychotic drugs.

ABOUT THE AUTHOR

Dr. Uvais is a Consultant Psychiatrist at Iqraa International Hospital and Research Centre, Calicut, Kerala, India.

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