HASHIMOTO ENCEPHALOPATHY WITH POSITIVE OLIGOCLONAL BANDS IN CEREBROSPINAL FLUID

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Abstract: Introduction: Hashimoto encephalopathy (HE) is a rare and often misdiagnosed entity. Except high levels of the thyroid peroxidase (anti-TPO) and antithyroglobulin (anti-TG) antibodies, neurophysiological and psychological tests are beneficial for the diagnosis. The presence of oligoclonal bands in the cerebrospinal fluid (CSF) of these patients is very rare. We present a patient with HE and oligoclonal bands in CSF with good clinical response on corticosteroid therapy. Case report: Male patient, 39 years old, suddenly developed focal neurologic deficit. He had elevated anti–TPO and anti TG antibodies, impaired concentration on psychologist report and oligoclonal bands in CSF. Slowing of electroencephalography activity was normalized with full clinical recovery of the patients, after corticosteroid therapy. The patient is in clinical remission 5 years after establishing the diagnosis.
Conclusion: Oligoclonal bands in the CSF may be helpful in the diagnosis of HE considering that it is still poorly understood entity. Also fast diagnosis of HE and treatment with corticosteroids are important for a full recovery of this patients.
Key words: Hashimoto encephalopathy, cerebrospinal fluid, oligoclonal bands

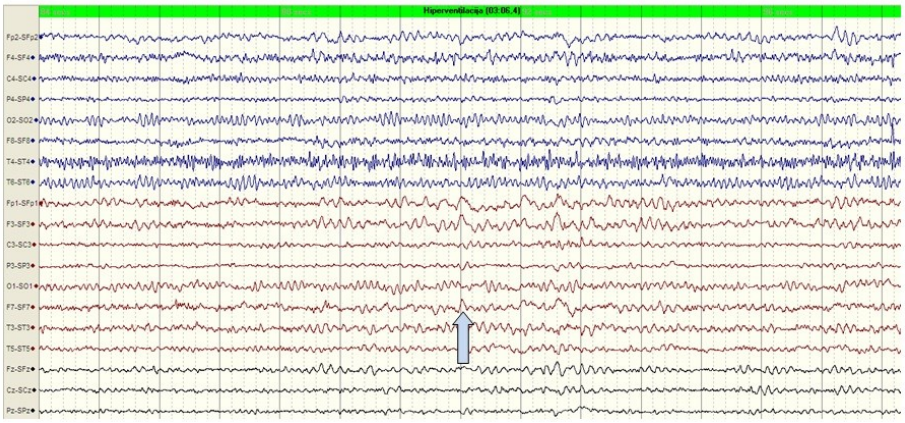
INTRODUCTION

Hashimoto encephalopathy (HE) is a cerebral disorder in patients with autoimmune disease of the thyroid gland [1]. The first case of HE with high serum concentrations of thyroid peroxidase (anti-TPO) and antithyreoglobulin (anti-TG) antibodies, thyroiditis, cognitive decline and tremor was described by Brain in 1966 [2]. It is known today that prevalence of this disorder is 2/100 000, with female predominance (gender ratio 4:1). HE usually begins in 5th or 6th decade of life [3]. Possible clinical manifestation of HE are cognitive impairment, psychiatric manifestation (confusion, interference with memory, alteration of consciousness from somnolence to coma, amnesia, psychotic symptoms), seizures, focal neurological deficits, movement disorders, headache [4]. HE is considered as a vacuities of cerebral small blood vessels. This is supported by perivascular lymphocytic inflammation in the brain tissue, presence of unknown pathogenic autoantibodies and immune complexes in some HE patients, specific astrocyte binding of anti-TPO antibodies, and good response to steroid treatment as a hallmark of the diagnosis [5]. The presence of oligoclonal bands in cerebrospinal fluid is reported in only few HE cases [6]. We present a case of a patient with HE and oligoclonal bands in cerebrospinal fluid (CSF) with a good recovery after corticosteroid therapy.

CASE REPORT

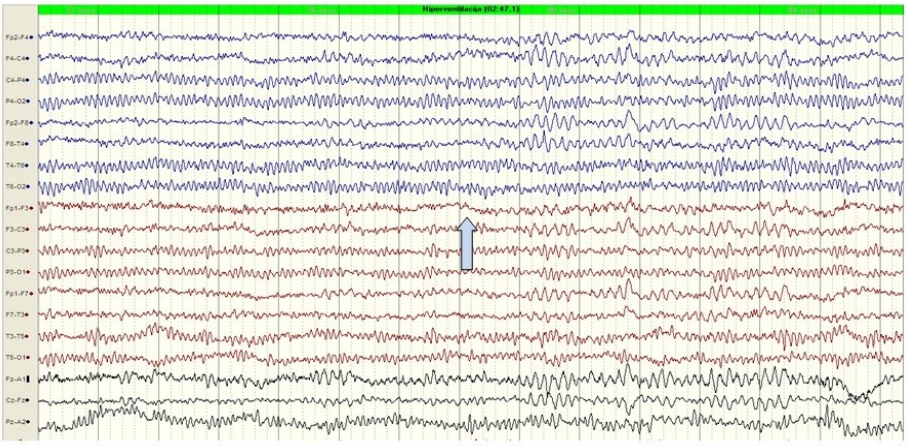
Male, 39 years old, patient was hospitalized as an emergency case due to transitory confusion and aphasia (developed suddenly) with later amnesia for that period. He was normotensive with normal cardiac status and with normal neurological status at the time of hospitalization. Multislice scanner angiography was normal. On electroencephalography (EEG) performed on the same day, intermittent delta-theta activity in left frontotemporal part of the brain was registered (Figure 1). There was spontaneous and nearly complete recovery of speech disturbances next day, but difficulty in the nomination and confusion persisted. Magnetic resonance imaging of his head and carotid duplex ultrasound, made on the second day, were normal. The patient had headaches, concentration and memory disturbances and elevated anti –TPO antibodies in the last few years, although he has had normal thyroid hormonal status all the time.

Figure 1. EEG on the first day of hospitalization: during hyperventilation theta (about 6 Hz) and delta (2-3 Hz) activity over left frontotemporal region.



In laboratory findings during hospitalization high values of anti-TPO 127.2 IU/ml (0.0-5.7) and the anti-TG 1405.47 IU/ml (0.0-4.11) were noted, followed by normal values of the thyroid hormones and normal remaining laboratory findings. In CSF protein content of 0.58 g/l (0.15 – 0.45), albumin coefficient of 7.79 (up 5.7) with positive oligoclonal band was present. Report of a clinical psychologist showed neither cognitive decline efficiency nor cognitive dysfunction, but concentration was impaired. Due to the subjective feeling of weakness in his right arm nerve conduction study (NCS) was performed, and conduction block of the median nerve in his right cubital region was detected. Spontaneous recovery on the control EEG was registered (intermittent theta activity over the temporal regions in both hemispheres) (Figure 2).

Figure 2. EEG after spontaneous resolution of speech problems, and before starting corticosteroids in the treatment: the intermittent activation of the HV 6-7 Hz bilaterally



We also performed some additional tests such as: CSF cultures, autoimmune workup, drugs screen. All of the results were normal. Based on previously mentioned findings, the diagnosis of HE was established in this patient and he was treated with three-day pulsed corticosteroid therapy (500 mg daily, iv) followed by alternative oral corticosteroid therapy during next 6 months. Headache reduced significantly and finally stopped, and there were no confusion and speech disturbances after start of the therapy. Clinical recovery was monitored, supported by neurophysiological recovery recorded on the EEG (Figure 3) and NCS (Figure 4.). No new clinical symptoms or signs in next 7 years were reported.

Figure 3. EEG done after completed corticosteroid therapy: during hyperventilation no change in the basic activities

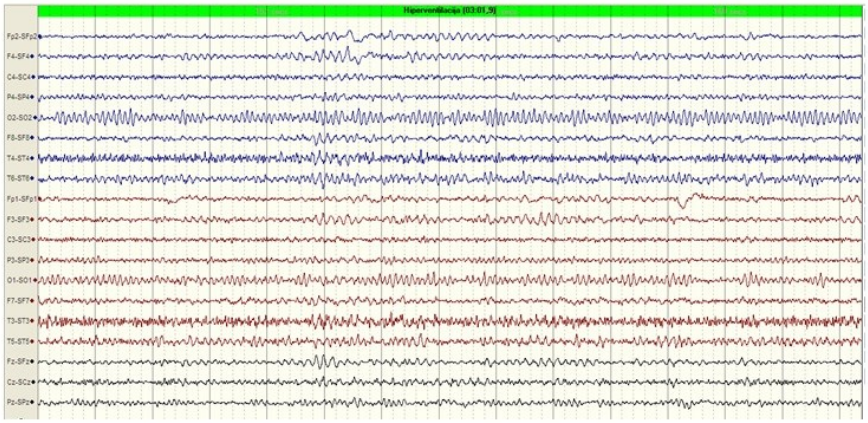
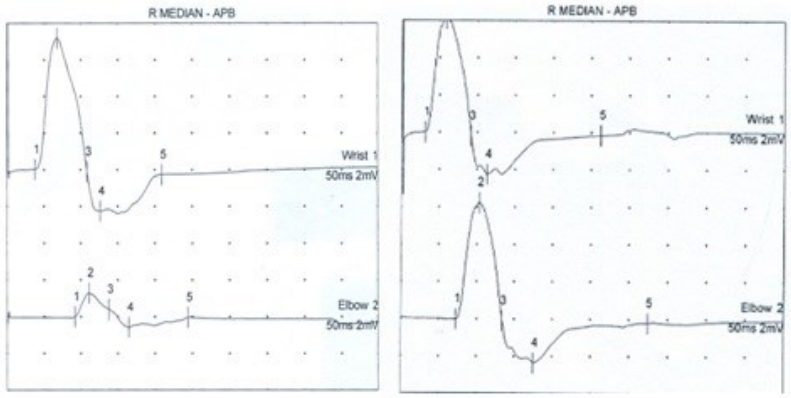


Figure 4. Conduction block of the median nerve and normal findings after several months of corticosteroid therapy



DISCUSSION

HE is a very rare, poorly understood and often misdiagnosed entity. Abnormal elevations of thyroid antibodies are required for HE diagnosis: anti-TPO in all patients and anti-TG in half of them [7]. In the present patient, both antibodies were multiplied more than hundred times, but he had no pathologic findings of thyroid hormones at the time of diagnosis. It is interesting that initial higher serum TPO antibodies titers are associated with more satisfactory outcomes [8]. However, as high titer of plasma anti-TG antibodies has been detected in patients with B hepatitis, C hepatitis, in patients with type 1 diabetes and Helicobacter pylori infection, specificity of plasma anti-TG antibodies in HE diagnosis is low [9]. Except presence of high titer of anti-TPO antibodies and clinical manifestation, there are no well-established diagnostic criteria for HE, so HE is a diagnosis of exclusion. A broad list of differential diagnoses must be kept in mind and ruled out (e.g toxic metabolic encephalopathies, meningoencephalitis, psychiatric disease, stroke, drug abuse etc). In our patient tumor markers, drug screening, laboratory of his blood and CSF and radiological brain exploration exclude other disorders considered important in differential diagnosis.

Presented patient had acute speech disturbances, followed with confusion and amnesia, and residual headache after one day of spontaneous regression of the symptoms. EEG findings are nonspecific in HE and the most common EEG abnormality is slowing from mild to severe degree, which is observed in more than 95% of cases. EEG findings may be used for evaluation of patient`s response to steroid

treatment [10]. There was severe slowing of EEG activity on the day of occurrence of the deficit with it`s reduction on next day after spontaneous regression of symptoms of the disease in presented patient. Upon completion of treatment and full clinical recovery, EEG normalized.

CSF examination may be needed in order to exclude infectious or other form of autoimmune encephalitis. Hyperpoteinorachia is present in 85% HE patients and decrease with the treatment of the disease [11]. Abnormal elevation of CSF thyroid antibodies is found in 62–75% of diagnosed HE patients, which are absent in the healthy individuals. CSF thyroid antibodies may persist after clinical improvement [12]. Presented patient had hyperproteinorachia and positive oligoclonal bands in CSF which is very rarely present in HE patients. The majority of patients with HE have normal MRI brain findings, as seen in the case of presented patient [13].

Good respond to steroid therapy is hallmark of diagnosis HE. Treatment with prednisone (1–2 mg/kg/ daily) is recommended. The treatment could begin with high-dose IV methylprednisolone (500–1000 mg/d) and then continues with oral protocol. Up to 40% of patients experience complete remission after the first course of corticosteroid therapy [14]. Some patients improve without steroid treatment. The patient's spontaneous regression of the symptoms was achieved after one day, while remaining symptoms retreated by the inclusion of a corticosteroid therapy. In cases resistant to corticosteroids, immunosuppressive medications should be added, such as azathioprine, cyclophosphamide and methotrexate or immunomodulatory therapy like given immunoglobulin intravenously [15]. Plasma exchange has been shown to remove anti-TPO antibodies and significantly reduces them in HE patients but without improvement either clinical or neurophysiologic parameters [16]. Majority of the cases have good outcomes.

Oligoclonal bands in the CSF may be helpful in the diagnosis of HE considering that it is still poorly understood entity. Also fast diagnosis of HE and treatment with corticosteroids are important for a full recovery of this patients.

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