



Psychotic Symptoms in a Patient with Hashimoto's Thyroiditis

K. Kontoangelos^{1,2*}, M. Economou^{1,2}, A. Kandaraki², V. Mylona³,
I. Makrygiannis³ and G. N. Papadimitriou¹

¹1st Department of Psychiatry, Athens University Medical School, Eginition Hospital, Athens, Greece.

²University Mental Health Research Institute, Athens, Greece.

³2nd Department of Internal Medicine, Sismanoglio Hospital, Athens, Greece.

Authors' contributions

This work was carried out in collaboration between all authors. Author KK designed the study and wrote the first draft of the manuscript. Author ME contributed to the first draft of the manuscript. Author AK managed the literature searches of the manuscript. Authors VM and IM also managed the literature searches of the manuscript and Author GNP had the overall supervision and corrected the final draft. All authors read and approved the final manuscript.

Case Study

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ABSTRACT

Objective: Psychopathological symptoms, depression, apathy, memory and sleep disorders, have been reported in patients with Hashimoto's thyroiditis, but psychotic symptoms without psychiatric background are extremely rare.

Method: A 74 year male patient without previous psychiatric history was presented with acute psychotic symptoms to the emergency department and was hospitalized for three days.

Results: The laboratory profile showed the presence of high titer of serum thyroid antibodies (ANTI-TG>4000IU/ml, n.r.=0.0-115.0 IU/ml), high titer (corrected) of serum Anti-thyroid peroxidase antibodies (A-TPO: 386.7 IU/ml, n.r.:0.34 IU/ml) and high Thyroidstimulating hormone TSH: 45.6 μ IU/ml, n.r.:2.03-4.01 μ IU/ml, T4(Thyroxine =6.98 μ g/dL, (n.r.:5.10-14.10 μ g/dL), T3triiodothyronine=0.84ng/mL (n.r.:0.80-2.00ng/mL). The diagnosis of primary hypothyroidism was made due to Hashimoto's thyroiditis.

*Corresponding author: Email: kontange@hol.gr;

Conclusion: Since psychiatric symptoms may be one of the earliest manifestations of hypothyroidism, they are often misdiagnosed as functional psychiatric disorders. This confusion can lead to delayed treatment.

Keywords: Psychosis, Hashimoto's thyroiditis.

1. INTRODUCTION

Hashimoto's thyroiditis is commonly considered as a well-defined clinicopathological entity, characterized by the presence of goiter and serum thyroid antibodies [1]. Psychopathological symptoms of Hashimoto's thyroiditis are related with depression, apathy, memory and sleep disorders [2]. The impact of thyroid hormones on the proper function of the central nervous system has been known for many years and may occur both in cases of hypo- as well as hyperthyroidism [3]. We present a case of a patient with Hashimoto's thyroiditis and acute psychotic symptoms without a previous psychiatric or endocrinological medical history.

2. MATERIALS AND METHODS

A 74-year male patient without previous psychiatric or clinical history was admitted to the emergency department by his family. The patient was hospitalized for three days with acute psychotic symptoms. Due to a skin lesion on the scalp, performed multiple washes with iodized solution, consuming around 2 litres of solution over four days. He had always been in a good physical health in he was not on any medical treatment. When the patient was admitted to the hospital, he had visual hallucinations, disorganized speech, disorganized behaviour, excessive motor activity and insomnia during the last three days. From his medical history, there was no previous psychopathology or personal or family history of thyroid disorders. He was treated with injection Haloperidol 10mg/mL I.M. twice a day for three days and the patient recovered completely and the psychotic symptoms subsided. The laboratory workup revealed the presence of a high titer of serum thyroid antibodies (ANTI-TG>4000IU/ml, n.r.= 0.0-115.0 IU/ml), a high titre of serum A-TPO: 386.7 IU/ml, n.r.:0.0-0.34.0 IU/ml and high TSH: 45.6 μ IU/ml, n.r.: 2.03-4.01 μ IU/ml, T4 (Thyroxine =6.98 μ g/dL,(n.r.:5.10-14.10 μ g/dL),T3 triiodothyronine=0.84ng/mL (n.r.:0.80-2.00ng/mL). The imaging tests (MRI) were negative. Mini mental state examination was MMSE=13/30, and was completely improved after the treatment.

3. DISCUSSION

According to DSM-IV [4], the above clinical case belongs to the category of "psychotic disorders due to a general medical condition". The key feature of this disorder is predominant hallucinations or delusions due to a general medical condition. This diagnosis is not given if it takes place exclusively during a delirium or Alzheimer's-type dementia or vascular dementia with delusions. Hallucinations may involve any of the senses, but some causes may favour certain hallucinations.

Endocrinopathies associated with psychotic symptoms include Hashimoto encephalopathy, which is a rare clinical entity associated with Hashimoto's thyroiditis. This is characterized by the detection of high titres of antithyroid antibodies in the blood, and responds to treatment with corticosteroids. From a pathophysiological point, it is probably due to the development

of cerebral oedema in combination with autoimmune vasculitis accompanying hypothyroidism or the toxic effect of thyrotropin releasing hormone (TRH) [5].

However in our patient the role of excess iodine solution use cannot be excluded, as a factor which further aggravated the thyroid function by blocking thyroid hormone release. Inorganic iodide in excess inhibits organification of iodide and thyroxine synthesis from an affected thyroid gland by autoimmune thyroiditis (Wolf- Chaikoff effect). It has been shown that iodine excess is a risk factor for developing hypothyroidism in antibody –positive subjects [6]. Therefore the iodine solution used by our patients could have a triggering effect on further thyroid hormone reduction and possibly contributing to the acute psychotic picture. Nevertheless co-occurrence hypothyroid and psychosis by chance is a possibility and cannot be excluded. As is suggested by the reviewer follow up data are necessary which actually in outpatient exist and support that treatment with thyroxine (corrected) alone maintain patient health status satisfactory free of further psychotic events with normal thyroid function tests, almost a year post event.

The pathogenesis of hypothyroidism is divided into primary, secondary and iatrogenic causes. Primary hypothyroidism has several potential causes, one of which is thyroid failure after Hashimoto's thyroiditis. The mental status examination of a hypothyroid patient may reveal a broad spectrum of dysfunctions, ranging from mild attentional impairment to significant agitated delirium or psychosis [7]. Symptoms of psychological dysfunction in hypothyroidism most commonly include forgetfulness, fatigue, mental slowness, inattention and emotional lability. Perceptual changes may develop with alterations of taste, hearing and vision. Delusions and hallucinations may also occur as the disease progresses [8,9]. The prevalence of neuropsychiatric symptoms of thyroid deficiency is related to the fact that most hormones present in the human body are represented in the central nervous system. The hormones are present either through synthesis within the central nervous system or through synthesis at a distant point and admission across the blood-brain barrier. The brain appears to have a unique sensitivity to thyroid hormone and to utilize it differently than other organ systems [10]. Hormone receptors are located within neural networks throughout the brain especially in the amygdala and hippocampus. These receptors in turn can influence neural activity. The thyroid is important for both the maturation of the central nervous system and the maintenance of homeostasis. It has been demonstrated that in hypothyroidism the utilization of available thyroid hormone favours the brain. The neurobehavioral effect of T4 may be related to its action on neurotransmitters [11].

Asher described the classic manifestations of hypothyroid-induced psychosis in 1949. Asher's study of 14 patients and the resulting description of myxedema madness has often been cited as a typical example of psychosis secondary to hypothyroidism, subsequent case reports have revealed considerable variation in clinical psychotic presentations [12]. Psychosis typically emerges after the onset of physical symptoms, often over a period of months or years. Disorders may occur in patients with either clinical or subclinical hypothyroidism, suggesting that psychosis may be unrelated to the absolute degree of thyroid hormone deficit [13]. However, the fact that the patient recovered without corticosteroid does not exclude the diagnosis of HE. It may imply that the role of excess amount of exogenous iodine, absorbed from skin, had precipitated the rather acute onset hypothyroidism and therefore reduction of thyroxine release from the affected thyroid gland due to autoimmune thyroiditis.

This case report highlights the importance of screening for organic causes of psychiatric symptoms presenting for the first time in older patients as well as the importance of

ascertaining thyroid function in patients with affective and behavioural problems. Since psychopathological symptoms may be one of the earliest manifestations of hypothyroidism, they are often misdiagnosed as functional psychiatric disorders. This confusion can lead to delayed treatment.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

All authors hereby declare that the research was approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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