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Hypomania in a Patient with Congenital Familial Hypothyroidism and Mild Mental Retardation

R Mahendran

ABSTRACT

This is a case of a 25-year-old lady with congenital familial hypothyroidism and mild mental retardation presenting with an affective psychosis. The occurrence of hypomanic symptoms in a severe hypothyroid state is unusual and only one other case has been reported. The possible etiological role of a sharp fall in circulating thyroxine levels and its effects on cerebral catecholamines is proposed.

Keywords: congenital familial hypothyroidism, hypomania

INTRODUCTION

Congenital familial hypothyroidism is a rare disorder with genetic aetiology. Failure of thyroid development is inherited as a Mendelian recessive defect. In the heterozygous state, the child may only be goitrous but in the homozygous state the child may be both goitrous and a cretin[1,2].

The physical features of hypothyroidism are characteristic and well-known and the patient's disposition is often described as sluggish and inert. Psychological changes with hypothyroidism include lethargy, dulling of personality and slowing of cognitive functions including impaired recent memory, concentration and simple calculations. The common mood change is one of apathy[3].

Severe psychiatric illnesses have been reported with hypothyroidism. In the early literature, the term 'myxoedema madness' was used to describe a psychosis with hallucinations and delusions associated with severe hypothyroidism. Asher in his classical paper on 'myxoedema madness' reported five patients with a schizophrenic presentation with marked paranoid symptoms, two with dementia and two with depressive features[4].

Lishman commented that 'there is no form of psychosis specific to myxoedema ...'. There have been case reports of hypothyroidism with organic symptoms, depression, schizophreniform and paranoid symptoms[5-7]. However the most frequent association has been with depressive symptoms[8,9]. This is an unusual case of a severe hypothyroid and mildly retarded patient who presented with hypomanic symptoms. Hypomanic type of symptoms are more often likely to be associated with a thyrotoxic state. A literature search revealed only one report of coexistent hypomania and severe hypothyroidism[10].

Department of Mental Health
Woodbridge Hospital
10 Buangkok Green
Singapore 539747

R Mahendran, DPM, MMed (Psych), FAMS

Case report

P, a foreigner, was first seen at the age of 25 with a one month history of change in behaviour. Her family reported that she frequently left home and wandered aimlessly. She would accost strangers and talked to them and she became increasingly bad tempered, stubborn and made verbal threats of violence when not allowed to have her way. Her parents noted that she was talkative and grandiose in her speech. They also noted that she had lost weight (4 kg in two months), had poor appetite and insomnia. They sought psychiatric help as they could no longer cope with her behaviour.

Her parents related that P had been on thyroid treatment since young. The second of five children, she had a full term normal birth. She had fits when she was one month old and was noted to be a 'quiet baby'. At six months of age, doctors noted that she was exceedingly fat and further investigations were carried out. She was started on iodine bromide but the dose was not known. Her developmental milestones were delayed; she walked after the age of two and spoke her first words after the age of four.

P had no formal schooling but was taught to write at home and could read a little. Menarche was at age sixteen. From the age of 21, follow-up treatment was irregular and for about three months prior to the onset of her symptoms, she was not on any medication. Her premorbid personality was that of a quiet person who always stayed at home and helped with household chores; she was timid, shy and had no friends.

Various investigations were done in her homeland in 1990. The EEG was reported as within normal limits and her CT scan report was normal. Her urine was screened for inborn errors of metabolism and was negative for phenylketonuria, alcaptonuria, homocystinuria and Maple syrup urine disease. The thyroid function tests at that time were as follows: T_3 25 ng/mL (normal range 60 – 200), T_4 1 – 2 ug/dL normal range 4.5 – 12.5), TSH 28 uIU/mL (normal range 0.6 – 5.5).

Family history

When her hypothyroidism was diagnosed at six months of age, her older sister who was then two years

old, was also being investigated. The sister's developmental milestones were also delayed. Her older sister and a younger sister were subsequently treated for hypothyroidism. She had two other siblings who were well and not on any treatment. There is no family history of mental illness.

During the first examination, P was talkative, overfamiliar, disinhibited and childish. There was inappropriate cheerfulness and laughter. Her talk was on random disconnected topics and she had grandiose and persecutory ideas. Physical examination revealed a very thin young lady with poor personal hygiene, height 1.3m, weight 38 kg, mild pallor, no goitre, heart and lungs normal and no gross central nervous system deficits. A provisional diagnosis of psychosis with affective features and mental retardation was made. Urgent biochemical investigations revealed a haemoglobin count of 10g% and severe hypothyroidism (Table I).

Table I – Results of investigations done

	Normal values	First admission	Blood results at 5 months	Blood results at 7 months	Blood results at 13 months
Hb	10 g% – 13g %	10 g%	13.2 g%	13.2 g%	13.9 g%
Total T_4	59.3 – 154.8 nmol/L	5.1	100.4	86.2	115.8
T_3 uptake	0.77 – 1.29	0.8	0.83	0.81	0.81
FTI	0.59 – 1.5	0.04	0.83	0.7	0.94
TSH	0.5 – 5 mu/L	85.7	0.5	6.8	4.1
Total T_3	1.2 – 3.4	1.2	2.3	1.4	1.2

P was started on thioridazine 25 mg twice daily which was gradually increased to 25 mg in the morning and 75 mg at night. She was also prescribed L-thyroxine 0.1 mg in the morning, as well as iron and folate supplements. She settled slowly with treatment, becoming less talkative and restless over the next two weeks. Five months later, repeat thyroid function test results indicated a rise in thyroid levels. She was euthymic and mentally stable at that time. Psychological assessment was done and Raven's progressive matrices test revealed an IQ of 63 (mildly mentally retarded range). Neuropsychological tests could not be done because of language difficulties.

Seven months after her first visit, her parents reported that she had again refused medication for about two weeks and had begun to wander about, was irritable and was not eating properly. Her symptoms were similar to that of the first admission. The thyroid function tests revealed a slightly raised TSH level but the other levels were within normal limits (Table I).

She was again prescribed thioridazine 25 mg in the morning, 75 mg at night and L-thyroxine 0.1 mg per day and she again settled slowly. P remained well on outpatient follow-up until six months later when she had another relapse for the third time. This was thirteen months after her first admission. The two-week history of recurrence of her symptoms was again associated with non-compliance with oral medication. She was started on tab haloperidol 1.5 mg at night, L-thyroxine 0.1 mg in the morning, thioridazine 100 mg at night and was discharged about one week later when her condition stabilised. The thyroid function tests were within normal limits during the third relapse of her psychiatric illness. A few weeks later, P returned to her homeland and there has been no further contact with her.

DISCUSSION

The biochemical findings of low serum T_3 and T_4 levels and high serum TSH confirm a primary hypothyroidism but clinically this case showed none of the typical physical features associated with hypothyroidism. The thyroid hormone levels responded to replacement and regular estimations of plasma T_4 and TSH levels were done to assess dose adequacy.

The aetiology of mental disturbances in hypothyroidism is unclear and various hypotheses have been suggested. The basis for these has been that thyroid hormones increase beta-adrenergic receptor activity and promote the action of catecholamines at central receptor sites[11].

Low thyroxine levels can cause changes in cerebral metabolism and together with its effects on cerebral catecholamines, could cause mental slowing and cognitive changes. In addition, as in any mental illness, premorbid personality and intrapsychic vulnerability, family history and social factors can predispose or precipitate a psychotic illness in a person with hypothyroidism.

Although hypothyroidism is usually described as being accompanied by depressive symptoms, Delange has reported that mood changes with hypothyroidism can include irritability with some patients becoming markedly agitated and aggressive[2]. Interestingly, a case quoted in Lishman was of an acute schizophrenia like psychosis occurring in a patient during the fifth week of starting treatment with carbimazole for thyrotoxicosis. He suggested that the psychosis could have been precipitated by the rapid alteration in the level of circulating thyroxine from severe excess to normal levels and the effects of this change on cerebral catecholamines[3].

P's first episode of hypomania which occurred with severe hypothyroidism, could have been a chance occurrence. But it is also possible that the fairly rapid alteration from normal to severely low levels of circulating thyroid hormones when she stopped thyroid treatment, could have precipitated the first psychotic episode. Given that subsequent recurrences of her mental symptoms occurred when she was euthyroid, it is likely that she has an underlying predisposition to a hypomanic illness whether due to vulnerability or genetic factors. The antipsychotic medication helped control the symptoms and when she stopped taking them, her symptoms recurred.

It is unfortunate that she was lost to follow-up and the progression of her psychiatric and medical problems could not be followed through. This remains an interesting case for its atypical presentation and symptomatology.

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