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Case Report of Hypothyroidism as a Cause of Ataxia

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Abstract **Case Report**

The hypothyroidism is a rare cause of ataxia. It is typically reversible by thyroid hormone replacement therapy. The cerebellar dysfunction has been attributed to metabolic and physiological effects of the endocrine disorder. In a few patients, however, ataxia has persisted despite thyroid replacement therapy. Other mechanisms may be involved in ataxia associated with thyroid disorders.

Keywords: Hypothyroidism, Ataxia, endocrine disorder.

INTRODUCTION

The hypothyroidism is a rare cause of ataxia. The cerebellar dysfunction has been attributed to metabolic and physiological effects of the endocrine disorder. Hypothyroidism should be suspected in all cases of ataxia, as it is easily treatable.

CASE REPORT

We present a case of a 56-year-old male who reported to us with history of instability of gait since one year which was acute in onset and progressive, there was also history of hearing impairment and constipation since 3 years without improvement despite several symptomatic treatments. There was no history of weakness in any part of body, headache, vomiting, convulsions or alteration of sensorium. There was no history of trauma to the head, fever or drug intake.

On examination, his vitals were normal. Cognitive functions were normal. Neurological examination showed gait ataxia, dysarthria and dysmetria on finger-nose and heel-to-knee tests. The gait was wide-based and there was a tendency to fall to right side. His fundus was normal. His power was normal but had hung up reflexes. Sensory system was normal.

His hemogram was normal. Serum electrolytes, blood sugar, renal and liver function tests were normal. Total cholesterol: 191 mg/dL, triglycerides: 345 mg/dL, HDL cholesterol: 45 mg/dL, LDL cholesterol: 77mg/ dL.viral serologies were negative. T3:0,1 (0,3-5pmol/dL) T4: 1.5 pmol/dL (12-22), TSH: >100 uIU/mL(0.27-5.5). The Serum anti-TPO antibody was not available.

Cervical ultrasound showed an appearance related to thyroiditis: Reduced thyroid with heterogeneous echo structure size, alternating hypo and hyperechogenic range producing a tabby aspect of the gland and hypervascularization on Doppler. MRI brain was normal (Figures 1 and 2). Electrocardiogram and trans-thoracic ultrasound were normal with left ventricular ejection fraction below 50%.

He was started on 25 µg/day of thyroxine with gradual increase every two weeks.

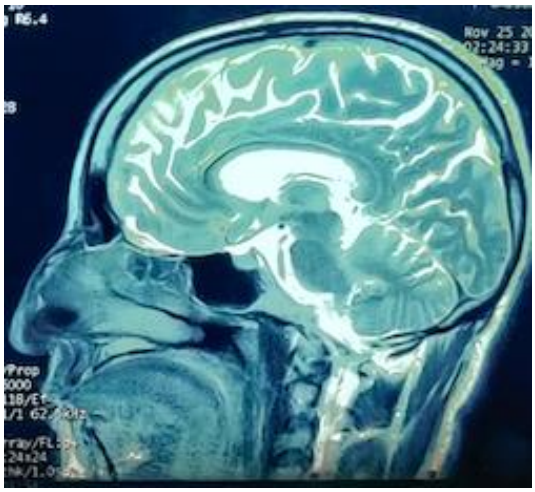

Figure 1: T2 weighted MRI showing normal cerebellum

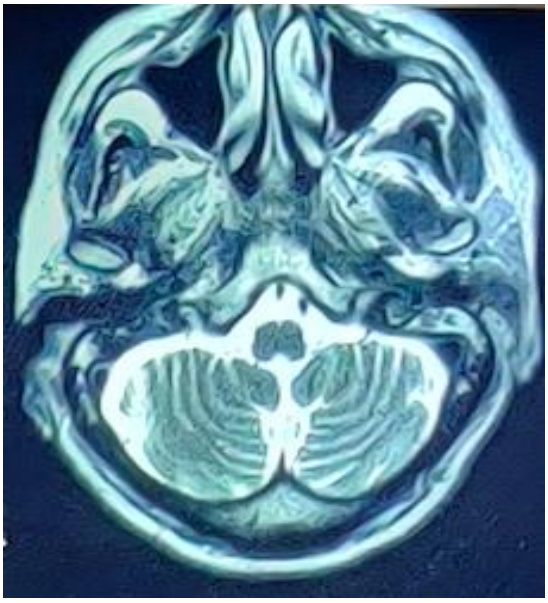

Figure 2: T2 weighted MRI brain showing normal cerebellum

DISCUSSION

Hypothyroidism has previously been recognized as a cause of gait ataxia as well as other symptoms of cerebellar dysfunction [1-3].

Stroke, viral encephalitis and drugs can also cause acute cerebellar ataxia. Mass lesions in the posterior fossa, infections such as HIV, and vitamin deficiencies like B1 and B12, alcohol and paraneoplastic syndromes are causes of sub-acute onset cerebellar ataxia in an adult. Hypothyroidism has been recognized as a cause of gait ataxia [4].

However, the pathogenesis of cerebellar ataxia in hypothyroid state is not clear. Restoring a euthyroid state with L-thyroxine has reversed the cerebellar symptoms in most patients, suggesting that their symptoms were due to endocrine mediated dysfunction of the cerebellum [5].

Pathophysiologically, it has been suggested that in hypothyroid state, there is a reduction of cardiac output, cerebral blood flow and metabolic insult by reduced oxygen and glucose consumption by cerebellar neurons which paramount to cerebellar ataxia [6-9].

In some patients with hypothyroidism, however, the cerebellar deficits have persisted or progressed despite thyroid replacement therapy [5].

CONCLUSION

We report a case of cerebellar ataxia in patient with hypothyroidism. Hypothyroidism presenting as cerebellar ataxia is rare, but is one of the reversible causes. Profound signs of hypothyroidism may or may not be present.

We highly recommend testing of thyroid function in all cases presenting as acute or subacute onset cerebellar ataxia.

REFRENCES

1. Barnard, R. O., Campbell, M. J., & McDonald, W. I. (1971). Pathological findings in a case of hypothyroidism with ataxia. *Journal of Neurology, Neurosurgery & Psychiatry*, *34*(6), 755-760.
2. Cremer, G. M., Goldstein, N. P., & Paris, J. (1969). Myxedema and ataxia. *Neurology*, *19*(1), 37-46.
3. Takayanagi, K., Satoh, A., Yoshimura, T., Hazama, R., Ide, Y., Tsujihata, M., ... & Nagataki, S. (1982). A case of myxedema associated with cerebellar ataxia and various neurological findings. *Nihon Naika Gakkai zasshi. The Journal of the Japanese Society of Internal Medicine*, *71*(7), 995-998.
4. Kotwal, S. K., Kotwal, S., Gupta, R., Singh, J. B., & Mahajan, A. (2016). Cerebellar ataxia as presenting feature of hypothyroidism. *Archives of endocrinology and metabolism*, *60*, 183-185.
5. Selim, M., & Drachman, D. A. (2001). Ataxia associated with Hashimoto's disease: progressive non-familial adult onset cerebellar degeneration with autoimmune thyroiditis. *Journal of Neurology, Neurosurgery & Psychiatry*, *71*(1), 81-87.
6. Cremer, G. M., Goldstein, N. P., & Paris, J. (1969). Myxedema and ataxia. *Neurology*, *19*(1), 37-46.
7. Jellinek, E. H., & Kelly, R. E. (1960). Cerebellar syndrome in myxoedema. *The Lancet*, *276*(7144), 225-227.
8. Barnard, R. O., Campbell, M. J., & McDonald, W. I. (1971). Pathological findings in a case of hypothyroidism with ataxia. *Journal of Neurology, Neurosurgery & Psychiatry*, *34*(6), 755-760.
9. Gagneja, S. (2018). Hypothyroidism masquerading as cerebellar ataxia, *IP indian journal of neurosiences*, 4(3, 163-165.