

Coexisting Turner's syndrome, Hashimoto's thyroiditis, and growth hormone deficiency

Sir,

Turner's syndrome, caused by numeric and/or structural abnormalities of the X-chromosome, represents one of the most common chromosomal abnormalities in females. It is associated with a wide spectrum of clinical features, such as gonadal dysgenesis and short stature. Short stature in Turner's syndrome is usually not attributed to growth hormone (GH) deficiency. It results in part from haploinsufficiency of the short stature homeobox-containing gene located in the pseudo-autosomal region of the X-chromosome.^[1]

Although Hashimoto's thyroiditis has been estimated to affect around 50% of Turner's syndrome patients, the coexisting of GH deficiency has rarely been reported.^[2-4]

A 17-year-old girl was referred to our department for investigation of short stature and delayed puberty. The examination revealed a body weight of 42 kg, a body mass index of 24.5 kg/m² and a blood pressure of 130/70 mmHg. The patient's height was 130 cm (< -4 standard deviation). Her bone age corresponded to that of a 14-year-old girl. She had a round face, a webbed neck, a low hairline and a short fourth metacarpal. Multiple café-au-lait spots were observed in her body. Secondary sex characteristics were absent (tanner stages: Breast development: Stage 1 and pubic hair: Stage 1). The rest of the clinical examination was normal.

Hormonal investigations revealed hypergonadotropic hypogonadism and primary hypothyroidism. Antiperoxidase antibodies were positive with a titer of 500 IU/ml (NR <15).

After L-dopa stimulating test, the peak of GH was 0.16 μ IU/ml. Insulin-induced hypoglycemia test confirmed GH deficiency (peak GH = 0.16 μ IU/ml). Prolactin concentration and the response of cortisol to insulin-induced hypoglycemia test were normal. IGF1 concentration was beyond the normal range (27 ng/ml, NR: 220–850).

Magnetic resonance imaging (MRI) of the hypothalamic and pituitary region was normal. The karyotype analysis

showed 45 × 0 without mosaicism. Renal ultrasonography revealed a congenital unique malrotated kidney. Cardiac ultrasonography was normal.

The diagnosis of Turner's syndrome was established according to the coexisting of dysmorphic syndrome, deficiency of sex hormones and karyotype of 45 × 0. Hashimoto thyroiditis with hypothyroidism was confirmed according to elevated thyroid-stimulating hormone (TSH) and positive antiperoxidase antibodies.

In addition to sex and thyroid hormone deficiencies, our patient presented GH deficiency. Thyroxine and GH substitution therapy were initiated. GH was prescribed at the dose of 0.7 IU/kg/week for 6 months without any height gain. Therefore, sex steroid replacement therapy was started.

Because of increased frequency of autoimmunity in Turner's syndrome possibly due to a complex interplay of genetic and environmental factors, repeated screening with TSH measurements should be part of the long-term care of girls with Turner's syndrome.^[5] Conversely, GH deficiency is not a common finding in these patients. It has been reported in few cases where a combined GH, gonadotropin, and thyrotropin deficiency was confirmed.^[4]

In our patient, there were no other pituitary insufficiency and MRI was normal. In this case, GH deficiency could be related to the hypothyroidism. In fact, the insufficiency of thyroid hormone could inhibit the biosynthesis and release of GH.^[3]

GH deficiency should be considered only when the short stature is lower than that usually found in Turner syndrome.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

**Ibtissem Oueslati^{1,2}, Karima Khiari^{1,2},
Insaf Hadj Ali², Néjib Ben Abdallah^{1,2}**

¹Department of Endocrinology, Tunis El Manar University, Faculty of Medicine, ²Department of Endocrinology, Charles Nicolle Hospital, Tunis, Tunisia

Corresponding Author: Dr. Ibtissem Oueslati,
Boulevard du 9 Avril, Bab Souika, 1006, Tunis, Tunisia.
E-mail: medibtis@yahoo.fr

REFERENCES

1. Rao E, Weiss B, Fukami M, Rump A, Niesler B, Mertz A, *et al.* Pseudoautosomal deletions encompassing a novel homeobox gene cause growth failure in idiopathic short stature and Turner syndrome. *Nat Genet* 1997;16:54-63.
2. Larizza D, Calcaterra V, Martinetti M. Autoimmune stigmata in Turner syndrome: When lacks an X chromosome. *J Autoimmun* 2009;33:25-30.
3. Jin W, Cheng FX, Xiao MS, Fan Y, Dong W. Concurrent occurrence of chronic lymphocytic thyroiditis with hypothyroidism and growth hormone deficiency in a Turner's syndrome patient. *J Pediatr Endocrinol Metab* 2011;24:237-9.
4. Bougacha-Elleuch N, Elleuch M, Charfi N, Mnif F, Belghith N, Abdelhedi F, *et al.* Unusual association of Turner syndrome and hypopituitarism in a Tunisian family. *Curr Res Transl Med* 2016;64: 9-13.
5. Bianchi I, Lleo A, Gershwin ME, Invernizzi P. The X chromosome and immune associated genes. *J Autoimmun* 2012;38:J187-92.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code:	Website: www.ijem.in
	DOI: 10.4103/2230-8210.183458

Cite this article as: Oueslati I, Khiari K, Ali IH, Abdallah NB. Coexisting Turner's syndrome, Hashimoto's thyroiditis, and growth hormone deficiency. *Indian J Endocr Metab* 2016;20:573-4.