Clinical THYROIDOLOGY



TSH Secreting Tumors Can Be Cured By Long Term Octreotide Treatment

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SUMMARY • • • • • • • • • • • • • •

Background

A measurable serum TSH level in the presence of frankly increased $FT_4\ and\ FT_3$ is a very unusual situation. It should direct the diagnosis either toward thyroid hormone resistance or toward a pituitary adenoma secreting TSH (TSHoma). The main differential diagnosis of TSHomas is resistance to thyroid hormones (generalized, peripheral, or central) (1, 2). In TSHomas, the basal α -subunit has a tendency to be slightly increased but not in resistance to thyroid hormones. MRI and a TRH test that shows a minimal increase of serum TSH and of its α -subunit can distinguish the two conditions. Genetic screening of the beta T₃ receptor will usually establish the diagnosis of thyroid hormone resistance, even though there are some cases that have not been elucidated genetically. The TSHoma described here can be considered a classical case on grounds of both biologic and imaging results. The patient has been treated for 4 years with octreotide with shrinkage of the tumor and return to normal thyroid function even after stopping treatment.

Method and Results

A 19-year-old male patient, who was diagnosed with a TSHoma, presented with frank hyperthyroidism but measurable serum TSH levels (TSH, 4.3 mU/L, FT₄, 52 pmol/L, and total T₃, 4.9 nmol/L). An MRI revealed a macroadenoma with suprasellar extension. Visual field defects were not reported. The TRH test showed no response of serum TSH, and the α -subunit also did not increase. There was no associated hypersecretion of growth hormone or prolactin. Within 4 months after treatment with octreotide, thyroid function normalized and a repeat MRI showed a marked decrease of the tumor. Following these encouraging results the patient was maintained on octreotide treatment for 4 years, when MRI images indicated the disappearance of the tumor. Then the treatment was stopped. The patient remained has euthyroid and there was no evidence of recurrence of the pituitary tumor as documented by MRIs during the next 4 years.

Conclusions

In many centers, treatment of TSHomas with octreotide or dopaminergic agonists is the first-line treatment, with the aim of obtaining control of the hyperthyroid state and facilitating the neurosurgical approach. Several cases have been reported in which surgery was delayed or declined, so that the patients remained on conservative treatment over the years. The success in terms of control of hyperthyroidism is usually good, but few data are available on the size of the tumors (3). Therefore, the main interest of this case lies in the facts that during treatment the tumor disappeared and that even 4 years after stopping treatment there was no recurrence of either hyperthyroidism or of the tumor. It therefore adds a new brick favoring the strategy of conservative treatment of these tumors.

ANALYSIS AND COMMENTARY • • • • •

The patient described here had, like many patients with TSHomas, a large macroadenoma with suprasellar extension. If there had not been a very rapid response to the drug treatment, the patient would certainly have had surgery. Yet the follow-up indicated that the pituitary tumor had indeed been cured. This patient is probably unique for having been observed *continued on next page* TSH Secreting Tumors Can Be Cured By Long Term Octreotide Treatment

during several years after stopping treatment without recurrence. A similar course is known for other pituitary tumors, most typically for prolactinomas, that may be definitely cured with conservative treatment (4).

It is interesting that several conservatively treated TSHomas have been followed by other groups without surgical intervention (3). It is not known whether some of these patients have been taken off treatment without recurrence of the tumor. Possibly some of these cases will join the list started by the present case of being cured after long-term drug treatment. Obviously, the question remains whether one of the two treatments, octreotide or dopaminergic agents, has superior efficacy. To my knowledge this is not known. The number of published cases of TSHomas is still small, and it is certainly advisable to treat these patients with great prudence.

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REFERENCES

- 1. Refetoff S, Weiss RE, Usala SJ. The syndromes of resistance to thyroid hormone. Endocr Rev 1993;14:348-99.
- Refetoff S. Resistance to thyroid hormone: one of several defects causing reduced sensitivity to thyroid hormone. Nat Clin Pract Endocrinol Metab 2008;4:1.
- 3. Kienitz T, Quinkler M, Strasburger CJ, Ventz M. Long-term management in five cases of

TSH-secreting pituitary adenomas: a single center study and review of the literature Eur J Endocrinol 2007;157:39-46.

 Colao A, Di Sarno A, Cappabianca P, Di Somma C, Pivonello R, Lombardi G.Withdrawal of longterm cabergoline therapy for tumoral and nontumoral hyperprolactinemia. N Engl J Med 2003;349:2023-33.