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Central Hyperthyroidism Revealing A Thyrotropic Pituitary Adenoma In An Internal Medicine Unit: A Case Report

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ABSTRACT

Introduction: *TSH adenoma is the rarest cause of hyperthyroidism. We report the case of a 22-year-old female patient followed for hyperthyroidism revealing a TSH adenoma.*

Case Observation: *A 22-year-old female patient with no previous history presented a thyrotoxicosis syndrome with no amenorrhea, no galactorrhea or amenorrhea or recent weight gain. She experienced no dizziness, headaches or vomiting. Biological investigations were normal except for TSH or thyrotropin, which was elevated, associated with an increase tetraiodothyronine. A magnetic resonance imaging revealed a pituitary adenoma. Further investigation of other hormonal axes came back normal. The patient was put on carbimazole (40mg/day), propranolol and anxiolytics. A neurosurgical opinion was requested. We observed a good clinical evolution with regression of signs of thyrotoxicosis.*

Conclusion: *TSH pituitary adenoma is a pathology that is rarely described in the literature. Its treatment requires good coordination between surgeons and internists or endocrinologists.*

Keywords
Central hyperthyroidism, TSH, Adenoma, Treatment.

Abreviation
TSH: Thyroid stimulating hormon.

Introduction
Thyrotropin- or TSH-secreting pituitary adenoma is the rarest etiology of hyperthyroidism, accounting for less than 2% of all adenomas. Diagnosis has been facilitated by ultrasensitive TSH measurement and medical imaging [1]. They are also known as TSH-omas. Little data has been collected on this condition, making research into its etiopathogenesis difficult. It is responsible for the secretion of peripheral hormones by the thyroid gland, resulting in central hyperthyroidism [2]. We are presenting the observation of a 22-year-old female patient followed in internal medicine for a pituitary adenoma with TSH.

Observation
This 22-year-old patient with no specific pathological history was seen in consultation for the progressive onset of palpitations with sweating and tremors aggravated by physical exertion, associated with fatigability on exertion. These signs were associated with an altered general state of intense physical asthenia and weight loss,

which was not quantified. She had no amenorrhea or galactorrhea. Clinical examination revealed a frank thyrotoxicosis syndrome with tachycardia, fever, hypersudation and watery diarrhea. She was irritable and nervous. She showed no signs of intracranial hypertension syndrome. There was a goiter in the form of a diffuse, painless, vascular and non-compressive anterior cervical swelling. Blood count, ionogram and C-reactive protein were normal. Thyrotropin was elevated to 100 mIU/L (40 X normal) (0.4–4). Tetraiodothyronine was increased to 47pmol/l (8–25). Hyperthyroidism of central origin was identified. Other pituitary hormones were measured. FSH, LH, ACTH and GH were normal. Prolactinemia was normal.

Cervical ultrasound showed a diffuse hyperechoic and hypervascularized goiter.

Magnetic resonance imaging revealed a left-sided pituitary adenoma measuring 3 x 4.5 mm (Figure 1 and Figure 2).

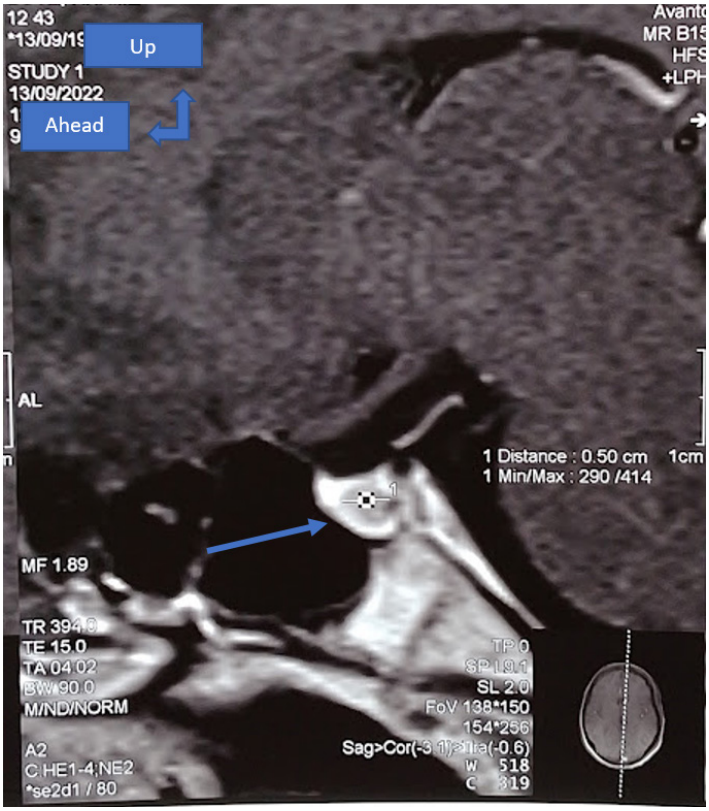

Figure 1: Pituitary adenoma in a patient with thyrotoxicosis syndrome.

The patient was offered treatment with carbimazole (40mg/day), an anxiolytic (alprazolam) and a beta-blocker (propranolol 40mg/day). Somatostatin derivatives were not available. A neurosurgical opinion was requested. Surgery was deferred in view of the size of the tumor and the absence of signs of intracranial hypertension. They recommended medical supervision. The patient improved clinically, with hormone levels returning to normal. A new radiological examination is scheduled before any medical decision is taken.

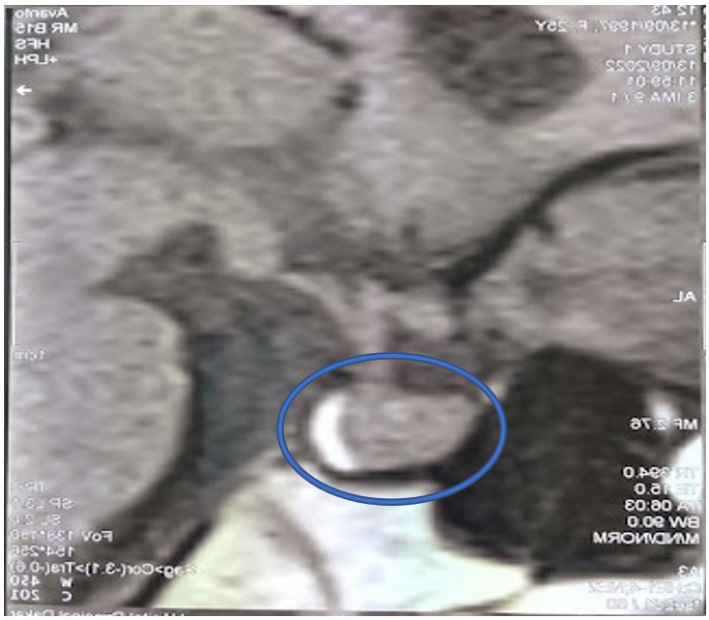

Figure 2: Pituitary adenoma in our patient.

Discussion

Central hyperthyroidism results from a pituitary cause with TSH (thyroid stimulating hormone) secretion. Pituitary adenoma is a very rare cause of central hyperthyroidism. It is difficult to diagnose in developing countries, not only because of the high cost of thyrotropin dosage, but also due to the need to investigate other pituitary hormonal axes [3]. The initial symptomatology may involve a thyrotoxicosis syndrome with signs of hypermetabolism. These signs are often associated with goiter. It is the increase in TSH combined with that of triiodothyronine that leads to suspicion of the diagnosis. These findings should lead to performing magnetic resonance imaging [4]. TSH levels may be normal in certain situations. Medical imaging is recommended to elucidate the diagnosis [5]. Female sex is the most frequently affected according to reported data, and microadenoma is rarer [4]. However, a very similar clinical picture can occur in thyroid hormone resistance syndrome. Differential diagnosis is made on the basis of the patient's history and appropriate laboratory tests, before pituitary imaging is considered. Isolated TSH measurement does not diagnose TSH adenoma, a rarely encountered situation whose management is debated [5]. A case of pituitary adenoma with fluctuating TSH secretion has also been described in the literature, making diagnosis difficult under certain conditions and leading to confusion with thyroid hormone resistance syndrome [6].

Surgical treatment is based on trans-nasal and sphenoidal adenectomy, which allows remission in the case of macro-adenomas. It is performed after monitoring thyroid function. Micro-adenomas are rarely treated surgically, which explains the delay in our patient's surgery. Somatostatin analogues or dopaminergic agonists are proposed as an alternative to medical treatment. Radiotherapy may also be suggested. Synthetic antithyroid drugs and beta-blockers can also help control the symptoms of hyperthyroidism [7]. We observed a satisfactory evolution in our

patient, which nevertheless implies ongoing surveillance with monitoring of hormone levels and imaging as required.

Conclusion

TSH pituitary adenoma is the rarest cause of hyperthyroidism. Its etiology is poorly understood due to the unavailability of data, especially in Africa, where publications are scarce.

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