Surgical Management of Clinically Silent Thyrotropin Pituitary Adenomas: A Single Center Series of 20 Patients

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Introduction
Thyrotropinomas (TSHomas) are rare tumors that can be divided into two subtypes: secretory TSHomas and silent TSHomas.

Patients with preoperative hyperthyroidism or those who underwent transphenoidal resection at the USC Keck Pituitary Center between 2000-2016.

Patients whose tumors demonstrated TSH immunopositivity in pathologic evaluation.

Silent TSHomas are defined by absence of preoperative hyperthyroidism despite TSH immunopositivity on pathologic evaluation.

We report the clinical presentation, histopathological characteristics, and surgical outcomes of our silent TSHomas.

Methods
A retrospective review was conducted to identify patients with histologically and biochemically proven silent TSHoma who underwent transphenoidal resection at the USC Keck Pituitary Center between 2000-2016.

Patients whose tumors demonstrated TSH immunopositivity in at least scattered cells were included in this study.

Patients with preoperative hyperthyroidism or those who underwent prior thyroidectomy were excluded.

1,244 operated pituitary adenomas 2000-2016

37 cases with TSH immunopositivity

9 cases with hyperthyroidism

28 cases with no hyperthyroidism

7 cases with acromegaly

1 case with history of thyroidectomy

20 cases included in study

Results

Clinical Presentation

- Dizziness
- Incidental finding
- Oligo/amenorrhea
- Decreased libido
- Fatigue
- Tumor recurrence
- Headache
- Vision loss

Preoperative Endocrine Status

- Panhypopituitarism
- Hyperprolactinemia
- Hypogonadotropic hypogonadism
- Hypothryoidism
- Normal

Clinical Presentation

Twenty patients were included with a mean age of 51.8 years and 35% female.

Nineteen patients (95%) had macroadennomas with a mean maximum tumor diameter of 29.9 mm +/- 14.9 mm.

Extrasellar growth was identified in 17 patients (85%): • 16 (80%) with suprasellar extension • 13 (65%) with cavernous sinus invasion • 4 (20%) with infrasellar invasion

Postoperative complications included delayed hyponatremia (10%), epistaxis (10%), transient diabetes insipidus (5%), cerebrospinal fluid leak (5%), hydrocephalus (5%), and meningitis (5%). There were no deaths.

Median follow-up time was 18.5 months (range: 3-184 months). At latest follow up, 9 patients (45%) had no evidence of disease and 11 patients (55%) had stable residual disease based on MRI.

Conclusions
This case series describes the aggressive presentation and surgical outcomes of silent TSHoma.

The majority of silent TSHomas in our series were macroadennomas, presented with vision loss and/or headache, and expressed immunopositivity for TSH and alpha-subunit in addition to other anterior pituitary hormones, most commonly LH and FSH.

Surgical complications were few considering the aggressive presentation accompanied by structural and endocrinologic abnormalities.

References