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The Case of a Dual-Secreting Macroadenoma

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Introduction

Pituitary adenomas are estimated to occur in 17% of the population.[1] One-half of pituitary adenomas secrete a distinct hormone, most often prolactin, GH or ACTH.[1] Prolactinomas are the most common - 50% of functional pituitary tumors and 40% of pituitary tumors overall.[1] Dual-secreting pituitary adenomas are exceedingly rare. We aim to describe a pituitary macroadenoma (>1 cm in size) secreting both **prolactin** and **ACTH** with significant mass effect.

Case Presentation

- An 87-year-old female presents to Endocrine clinic with **bitemporal hemianopsia** and **fatigue** in October 2017
- Brain MRI revealed a 2.0 x 1.1 x 1.2 cm pituitary mass displacing the optic chiasm and left optic nerve
- No headaches, galactorrhea, weight or appetite changes
- VS: *BP* 122/72 *HR* 75 *O2* 98% on RA *RR* 12
- Physical exam notable for bitemporal visual field defect

- The patient was deemed a poor Neurosurgical candidate due to her age and comorbidities
- Started on **Levothyroxine** and **Cabergoline** for treatment
- Over time, her vision loss and fatigue improved
- Prolactin level**:** 591 ng/mL → 199 ng/mL in 2 months
- Macroadenoma stable in size on repeat brain imaging in February 2018

Table 1: Initial Laboratory Findings

Lab	Result	Normal Range
Prolactin (pre-dilution)	591 ng/mL	5-23 ng/mL
Prolactin (post-dilution)	395 ng/mL	5-23 ng/mL
ACTH	103 pg/ml	6-58 pg/mL
Cortisol	15 ug/dl	N/A
TSH	0.64 uIU/mL	0.30-4.50 uIU/mL
Total T4	0.6 ng/dL	0.6-1.5 ng/dL

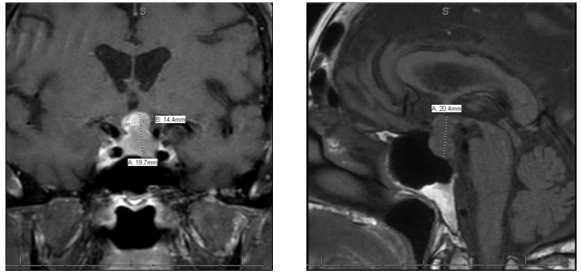

Figure 1: Pituitary Mass

Table 2: Dexamethasone Suppression Test

Dexamethasone Suppression Test	Before	After
Low-dose (1 mg)	ACTH 103 pg/ml Cortisol 15 ug/dl	ACTH 32 pg/ml Cortisol 5.1 ug/dl
High-dose (8 mg)	ACTH 103 pg/ml Cortisol 15 ug/dl	ACTH 3.7 pg/mL Cortisol 0.9 ug/dl

Discussion

Our case is unique as it describes a pituitary macroadenoma with concurrent secretion of **prolactin** and **ACTH**. The patient presented with a **subclinical Cushing's disease** given her test results yet lack of multiple symptoms and normal physical exam. Gradual growth of the adenoma led to **mass effect** and a **secondary hypothyroidism**.

While the adenoma was stable in size, no pituitary apoplexy and resolution of her visual field defect indicates some treatment response.

Dual-secreting pituitary adenomas are **rare**. In a 6-year study at UCSF, 22 of 593 patients diagnosed with pituitary adenomas had dual GH and prolactin secretion (3.7%).[2] **As for coexistent prolactin and ACTH tumor secretion, very few cases have been reported.**[3]

Neuroendocrine tumors have the potential for significant morbidity due to potent endocrine effects and critical mass effect as seen in our patient.[1] Early diagnosis and treatment is critical to reduce morbidity and mortality of this disease.

References

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