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Introduction

Prolactin-staining pituitary neuroendocrine tumors (PRL PitNET) may be sub-classified by clinical and biochemical presentation to include 1) silent (normal serum prolactin levels), 2) clinically silent (elevated serum prolactin without clinical symptoms of hyperprolactinemia), and 3) functional (hyperprolactinemia with symptoms attributable to hyperprolactinemia).

Objective

To better understand factors contributing to radiographic and biochemical remission following endoscopic endonasal transsphenoidal surgery (ETSS) of functional subtypes of PRL PitNET.

Methods

An IRB-approved, retrospective cohort study of patients undergoing endoscopic endonasal transsphenoidal surgery for histologically confirmed PRL PitNET via the endoscopic endonasal approach between 2011 and 2024 was performed. Demographic as well as clinical, radiographic, and perioperative data were obtained from the electronic medical record. Patients were subsequently stratified into 1) silent (normal serum prolactin levels), 2) clinically silent (elevated serum prolactin without clinical symptoms of hyperprolactinemia), and 3) functional (elevated serum prolactin with symptoms attributable to hyperprolactinemia) cohorts for analysis.



Silent
- IHC Hormone Positive
- No evidence of biochemical abnormality
- No clinical symptoms

Clinically Silent
- IHC Hormone Positive
- Evidence of biochemical abnormality on labs
- No clinical symptoms

Functional
- IHC Hormone Positive
- Evidence of biochemical abnormality on labs
- Clinical evidence of disease

Figure 1: Spectrum of hormone secretion activity in PitNETs.

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Results

Preoperative Demographics

Total	Silent	Clinically Silent	Functional	p-value
278	90 (32.4%)	47 (16.9%)	141 (50.7%)	
Age (years) (Mean ± SD)	53.8 ± 16.9	50.0 ± 13.9	43.6 ± 13.8	(p<0.001)*
Tumor Volume cm ³ (Median, IQR)	1.13 (0.362 – 2.70) cm ³	2.51 (0.864 – 5.749) cm ³	0.933 (0.254 – 3.96) cm ³	(p=0.052)
Tumor extension into suprasellar space	27 (28.4%)	23 (24.2%)	45 (47.4%)	(p=0.054)

Postoperative Outcomes after GTR

Total	Silent	Clinically Silent	Functional	p-value
241	85 (35.2%)	39 (15.8%)	117 (49.0%)	
Postoperative Biochemical Remission	NA	37 (94.9%)	90 (76.9%)	(p=0.05)*
Postoperative Dopamine Agonist Therapy	NA	1 (2.6%)	21 (17.9%)	(p<0.001)*
Dopamine Agonist Resistance	NA	NA	11 (52.4%)	NA
Biochemical Recurrence after Surgery Alone	NA	NA	4 (4.3%)	NA

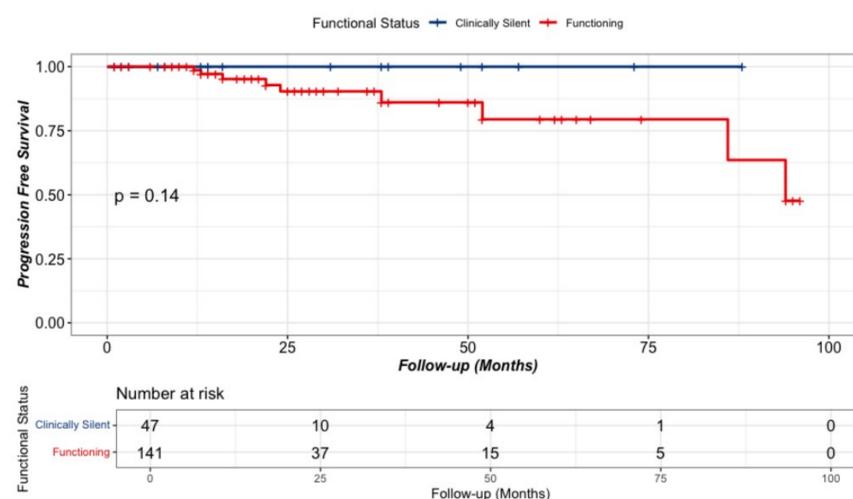


Figure 2. Biochemical Progression Free Survival Analysis of Clinically Silent and Functioning PRL Pit-NET

Discussion/Conclusion

Outcomes for patients with distinct clinical presentations of prolactin PitNETs appear unique. Surgical intervention for PRL PitNET is an effective treatment strategy for tumors <2cm without high grade cavernous sinus invasion and can be considered for first-line treatment by experienced, multidisciplinary skull base teams.

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