Silent pituitary neuroendocrine tumor

- Early adjuvant radiation reduces the rate of recurrence following surgery for silent corticotroph pituitary neuroendocrine tumors
- Prevalence and clinical associations of USP8 variants in corticotroph tumours: a systematic review and aggregate data meta-analysis of 2171 cases
- Non-recurrent mutations and copy number changes predominate pituitary adenoma genomes
- An unexpected case of frontal headache: Silent corticotroph pituitary neuroendocrine tumor presenting as a sphenoid sinus mass
- Functional Transformation of a Corticotroph Pituitary Neuroendocrine Tumor 128 Months Following Primary Excision ? A Case Report
- Clinical and Radiographic Presentation and Surgical Outcomes of T-Box Pituitary Transcription Factor (TPIT) Silent Corticotroph Pituitary Neuroendocrine Tumors: A Multi-institutional Experience and Review of the Literature
- Splicing diversity enhances the molecular classification of pituitary neuroendocrine tumors
- Multiple microcysts and clivus invasion diagnose T-box pituitary transcription factor 19 lineage adenomas in non-functioning pituitary adenomas

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In the 2022 World Health Organization classification of tumors of the pituitary gland, nonfunctioning PitNETs are classified according to their frequency as silent gonadotroph tumors, silent corticotroph tumors, silent immature PIT1-lineage tumors, null cell tumors, and other tumors [1)]

Pituitary neuroendocrine tumors are stratified into functional or silent categories based on their pattern of hormone expression and secretion. Preliminary evidence supports differential clinical outcomes between some functional Pituitary neuroendocrine tumor subtypes and silent Pituitary neuroendocrine tumor subtypes.

Gupta et al. collected and analyzed the medical records of all patients undergoing resection of Functional or Silent from a single high-volume neurosurgeon between 2007 and 2018 at Brigham and Women's Hospital. Descriptive statistics and the Mantel-Cox log-rank test were used to identify differences in outcomes between these cohorts, and multivariate logistic regression was used to identify predictors of radiographic recurrence for SPAs.

The cohort included 88 SPAs and 200 FPAs. The majority of patients in both cohorts were female (48.9% of SPAs and 63.5% of FPAs). SPAs were larger in median diameter than FPAs (2.1 cm vs. 1.2 cm, $p < 0.001$). The most frequent subtypes of SPA were gonadotrophs (55.7%) and corticotrophs (30.7%). Gross total resection (GTR) was achieved in 70.1% of SPA resections and 86.0% of FPA resections ($p < 0.001$). SPAs had a higher likelihood of recurring (hazard ratio [HR] 3.2, 95% confidence interval [95%CI] 1.6-7.2) and a higher likelihood of requiring retreatment for recurrence (HR 2.5; 95%CI 1.0-6.1). Subset analyses revealed that recurrence and retreatment were more likely for subtotally resected SPAs than subtotally resected FPAs, but this pattern was not observed in SPAs and FPAs after GTR. Among SPAs, recurrence was associated with STR (odds ratio [OR] 9.3; 95%CI 1.4-64.0) and younger age (OR 0.92 per year; 95%CI 0.88-0.98) in multivariable analysis. Of SPAs that recurred, 12 of 19 (63.2%) were retreated with repeat surgery (n = 11) or radiosurgery (n = 1), while the remainder were observed (n = 7). There were similar rates of recurrence across different SPA subtypes.

Patients undergoing resection of SPAs should be closely monitored for disease recurrence through more frequent clinical follow-up and diagnostic imaging than other adenomas, particularly among patients with STR and younger patients. Several patients can be observed after radiographic recurrence, and the decision to retreat should be individualized. Longitudinal clinical follow-up of SPAs, including an assessment of symptoms, endocrine function, and imaging remains critical [2].

1)

Wan XY, Chen J, Wang JW, Liu YC, Shu K, Lei T. Overview of the 2022 WHO Classification of Pituitary Adenomas/Pituitary Neuroendocrine Tumors: Clinical Practices, Controversies, and Perspectives. Curr Med Sci. 2022 Dec;42(6):1111-1118. doi: 10.1007/s11596-022-2673-6. Epub 2022 Dec 22. PMID: 36544040.

2)

Gupta S, Hoffman SE, Mehta NH, Hauser B, Altshuler M, Bernstock JD, Smith TR, Arnaout O, Laws ER. Elevated risk of recurrence and retreatment for silent pituitary adenomas. Pituitary. 2024 Feb 12. doi: 10.1007/s11102-024-01382-3. Epub ahead of print. PMID: 38345720.