outcomes and prognosis. **Case Presentation:** 7 2 year-old male with a remote history of left sided RCC presented with worsening diplopia, blurry vision and headaches for 2 months. Physical exam was remarkable for right sided ptosis with right oculomotor, trochlear and abducens palsy. Computed Tomography Imaging (CT) of the brain showed hyperdense sellar/suprasellar fullness. Magnetic Resonance Imaging (MRI) with and without contrast of the brain showed 2.2 x 1.7 cm enhancing mass in the right cerebellopontine angle with local mass effect concerning for a pituitary tumor. Laboratory work-up was remarkable for hyperprolactinemia 36.5 ng/mL, low TSH <0.015 mU/L, and normal ACTH, FSH and LH levels. Patient underwent endoscopic trans-nasal resection of pituitary tumor. Surgical pathology of the tumor was consistent with metastatic renal cell carcinoma. He was discharged with appropriate multidisciplinary outpatient follow up with endocrinology, oncology and radiology. **Discussion:** Pituitary metastasis is very rare and often mistaken for pituitary adenoma. Only 7% of Pitutary metastases are symptomatic. Symptom presentation depends on the location of metastases. They include diabetes insipidus (45.2%), visual field defects (27.9%), hypopituitarism (23.6%), ophthalmoplegia (21%), headache (15.8%) and hyperprolactinemia (6.3%). Although, there is no gold standard imaging for sellar masses, both thin-section CT and MRI are beneficial. CT is used for visualizing bony destruction and calcification, on the other hand MRI demarcates lesions in that area. Due to its rarity, there is no standardized guideline therapy for pituitary metastasis and it should be individualized based on patient's presentation, but it should be multidisciplinary approach of surgical resection, postoperative stereotactic radiosurgery, chemotherapy, and hormone replacement therapy. Prognosis of metastases to pituitary is very poor, with reported six to twenty-two months post resection survival. Factors contributing to prolonged survival are younger age, single/small metastases, and locally guided radiation therapy. **Conclusion:** This case is to shed light on early recognition of sellar metastasis as a challenging diagnosis especially in patients with rapidly growing pituitary mass and neurological symptoms with history of malignancy for better outcomes.

Neuroendocrinology and Pituitary

NEUROENDOCRINOLOGY AND PITUITARY CASE REPORTS

A Rare Case of Thyrotropin Secreting Pituitary Macroadenoma Primarily Treated With Somatostatin Analogue

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Introduction/Background: Thyrotropin secreting pituitary adenomas (TSH-oma) are a rare cause of hyperthyroidism. They account for <1% of the cases of hyperthyroidism with a reported incidence of 2.8 per 1 million in Sweden. Diagnosis is suspected by the presence of elevated T4 and T3 in the setting of an unsuppressed TSH level. The presence of large pituitary adenoma is highly suggestive of the diagnosis and can be differentiated from thyroid hormone resistance by elevated alpha subunit and SHBG levels. Trans-sphenoidal surgery is the definitive treatment. Peri-operative medical treatment with somatostatin analogues is indicated to achieve euthyroidism and prevent surgical risks and thyroid storm. The use of somatostatin analogues as a primary treatment for TSH-oma is still under investigation. We hereby report a rare case of TSH-oma where somatostatin analogues successfully resulted in normalization of thyroid function and tumor size reduction.

Clinical Case: A 61 years old gentleman with a history of hypothyroidism diagnosed three years before presentation to the Pituitary clinic. He was treated with Levothyroxine. On clinical examination, he had mild tremor and warm sweaty palms with no stigmata of Grave's disease. The thyroid function test showed elevated free T4 of 3.6 ng/dl (0.9-1.7), elevated free T3 of 8.6 pg/ml (2.0-4.4), and a high TSH level of 9.10 μIU/ml (0.27-4.20). His prolactin level was mildly elevated at 24.8 ng/ml(4.0-15.2). Testosterone, IGF-1, and cortisol levels were normal. An MRI of his pituitary gland showed large pituitary macroadenoma with suprasellar extension and mild compression of the optic nerve. He had an elevated alpha subunit of 5.6 ng/ml (<1.37) and a high SHBG level of 198 nmol/l(10-80). TSH adenoma was diagnosed and he was planned for trans-sphenoidal surgery. Pre-operative treatment with somatostatin analogue Lanerotide 90 mg monthly injection was initiated. Interestingly normal thyroid function was observed approximately 1 month after his first injection. Repeat MRI showed a considerable decrease in the size of the pituitary macroadenoma. The patient opted to hold on to surgery and to continue on medical treatment. His thyroid function remains normal 15 months after initiation of treatment and his MRI continues to show stable pituitary adenoma.

Conclusion: Somatostatin analogues can be used as a primary treatment for thyrotropin secreting pituitary adenomas when the patient is unable or unwilling to undergo surgery. It is use is associated with normalization of thyroid function and in some cases with a reduction in the adenoma size.

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A Rare Event: Pituitary Apoplexy 6 Weeks After Gamma Knife Radiosurgery for a Non-Functioning Pituitary Macroadenoma

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Background: Pituitary apoplexy is a very uncommon side effect of gamma-knife radiosurgery, with only one other case to our knowledge. We report an acute presentation of pituitary apoplexy within 6 weeks of single fraction gamma-knife stereotactic radiosurgery for a non-functioning

pituitary macroadenoma. **Clinical Case:** An 84-year-old male presented initially to his GP with lethargy. He was found to have a non-functioning pituitary macroadenoma 23Tx17APx12CC mm, with right cavernous sinus invasion causing cranial nerve IV palsy and panhypopituitarism. He declined transsphenoidal surgery. He was managed with pituitary hormone replacement therapy, including full anterior hormone replacement. Approximately 6 months after his initial diagnosis, he underwent single fraction stereotactic gamma knife radiosurgery aimed at local control. One month after single fraction gamma knife radiosurgery the patient presented to another hospital with a new two-day history of nausea, vomiting and persistent bilateral retro-orbital headache. On examination, he was afebrile and alert, with a new third nerve palsy of the right eye. The initial diagnosis was presumed steroid-underdosing by the non-treating team. An MRI of the brain and pituitary gland was performed. Review by the patient's usual multidisciplinary pituitary care team confirmed acute pituitary apoplexy, with new haemorrhage on imaging in the gland post-gamma knife radiosurgery, with the additional clinical relevant development of a right cranial nerve III palsy. Review of the biochemistry showed to the patient to have a cortisol of <28nmol/L (despite Cortate ingestion), TSH <0.005mIU/L (RI: 0.40-5.00), T4 10.6 pmol/L (RI: 10.0-20.0) and T3 4.1 pmol/L (RI: 2.3-5.7). The patient was commenced on dexamethasone to aid reduction of swelling in the pituitary fossa, and there was resolution of the third nerve palsy. Pituitary apoplexy usually occurs spontaneously without any known precipitant. It has been reported to occur in association with other conditions including fractionated radiotherapy, head trauma, estrogen, anticoagulants[1]. Gamma knife radiosurgery is a form of stereotactic radiosurgery for intracerebral lesions, with lower overall dose and usually complications. **Conclusion:** To our knowledge, this is the second case of gamma-knife associated pituitary apoplexy. It raises the importance of recognising an acute clinical deterioration in our patients. **References:** 1. Briet C, Salenave S, Bonneville JF, Laws ER, Chanson P. Pituitary apoplexy. Endocrine reviews. 2015 Dec 1;36(6):622-45.

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Acknowledging the Blind Spot of Bitemporal Hemianopsia: Keeping a High Index of Suspicion for Pituitary Macroadenomas in Uncommon Presentations

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Background: Hyperglycemia in patients with type 2 diabetes mellitus commonly manifests as symptoms of polyuria, polydipsia, fatigue, and weight loss as a result of insulin resistance. In cases of severe hyperglycemia, patients may also experience visual disturbances and dizziness as a result of swelling of the lens and dehydration respectively. These symptoms are not generally accompanied by gait disturbance or fixed, focal deficits on neurological examination. As such, symptoms such as double vision, peripheral field vision loss, cranial nerve deficits, or significant unsteadiness may warrant a more extensive neurologic workup rather than simply attributing all symptoms to hyperglycemia. **Clinical Case:** A 57-year-old woman presented to the emergency department with five days of fatigue, polyuria, polydipsia and pre-syncope associated with dizziness. She also described double vision in her peripheral visual fields and episodes of gait disturbances causing her to have to lower herself to the ground on multiple occasions, without loss of consciousness. Her neurologic examination demonstrated mildly ataxic finger-to-nose testing and concern for peripheral field vision loss. Intake lab work revealed a blood glucose of 725 mg/dL and a hemoglobin A1C of 13.4%. Initial neuroimaging with computed tomography was unremarkable. Though her symptoms were thought to be due to severe hyperglycemia, an MRI brain was obtained due to abnormal neurologic examination. MRI demonstrated a 1.9 cm pituitary macroadenoma abutting the optic chiasm with concern for hemorrhage. Subsequent lab evaluation determined the pituitary macroadenoma non-functional with TSH, free T4, free T3, AM cortisol, AM ACTH, and prolactin all within normal limits. Her hyperglycemia was treated with insulin with clinical improvement in all regards except visual symptoms. She was deemed safe for discharge with neurosurgical follow-up regarding surgical removal of her macroadenoma. **Conclusion:** Although hyperglycemia may present with broad symptoms including vague neurologic symptoms, it is critical to keep a broad differential diagnosis when atypical symptoms such as persistent vision changes and gait disturbances are present, especially after improvement in glycemic control has been obtained. A low threshold should be held for obtaining neuroimaging, as it is prudent to rule-out life-threatening causes of neurologic dysfunction.

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Acromegaly in a Young Women With Pituitary Hyperplasia Secondary to a Neuroendocrine Tumor

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Acromegaly is rarely due to an excess of the GH-releasing hormone (GHRH) and pituitary hyperplasia on histology should alert to its presence. **Clinical Case:** A 35-year-old was referred to surgery with a confirmed diagnosis of symptomatic acromegaly. Her GH failed to suppress during an oral glucose tolerance test (OGTT), her IGF-1 and prolactin was high. Her serum calcium was normal and her chromogranin B was high. MRI scan suggested microadenoma. Her surgery was deferred because of Covid 19, and she was treated with somatostatin analog (SSA). She finally had surgery in July. The histology and immunocytochemistry suggested pituitary hyperplasia with diffuse positivity for chromogranin and synaptophysin. GH was positive in the majority of the cells with many cells positive for Prolactin and ACTH. FSH and LH were positive in scattered cells with patchy positivity of TSH. A solitary nodule was noted in her neck during an examination. We