Background: Thyrotoxicosis can be mistaken for conditions such as atrial fibrillation and pulmonary embolism (PE) given the nonspecific symptoms of fatigue, palpitations, and dyspnea. Patients often undergo further imaging on presentation to the emergency room (ER), many of which use iodine for contrast. This can put patients at increased risk for iodine induced hyperthyroidism and delay definitive treatment in patients with Graves' disease, the most common cause of hyperthyroidism.
Clinical Case: A 53-year-old male with history of hyperthyroidism, atrial fibrillation, and prior PE presented with palpitations to the ER. He developed worsening dyspnea on exertion and palpitations over the last three days. He was unable to afford his medications, including methimazole, for the last nine months. In the ER he was in atrial fibrillation with rapid ventricular response. Due to concern for PE, he underwent a CTA with contrast, which was negative. His physical exam was notable for a diffusely enlarged goiter. His labs showed low TSH <0.01 (norm 0.35-5.50mIU/L) and high free T4 >7.77 (norm 0.9-1.8ng/dL). TSH stimulating antibodies were elevated at 1.9 (norm <1.3 TSI index), consistent with Graves' hyperthyroidism. Endocrinology was then consulted for severe thyrotoxicosis, initially treating the patient with PTU and propranolol. The patient was transitioned to methimazole and continued propranolol on discharge. Since he was given contrast, plan was for repeat thyroid uptake scan and iodine ablation in 3 months. However, patient was not compliant with medications, resulting in readmission for thyrotoxicosis 3 months later.
Conclusion: This case highlights the impact of increased use of contrast in imaging in hyperthyroid patients. Hyperthyroid patients are at an increased risk for emboli. However, iodine can cause contrast-induced hyperthyroidism and delay definitive treatment of Graves' disease. As almost half of thyrotoxic patients receive iodinated contrast prior to an endocrine consultation, endocrinologists should work with emergency physicians to develop a set of guidelines to identify at risk populations for hyperthyroidism (1). We advocate for urgent thyroid testing in patients with new onset atrial fibrillation, a history of Graves' disease, specific symptoms of Graves', or those taking thyrotoxic-inducing medications. This will assist in determining if patients should receive a prophylactic dose of anti-thyroid medication prior to iodinated contrast imaging. These guidelines can help prevent contrast induced hyperthyroidism and disruptions in treatment of Graves' while still imaging patients for other diagnoses on the differential.
Reference: (1) Giacomini A, et al. Urgent thyroid-stimulating hormone testing in emergency medicine: A useful tool? *J Emerg Med*. 2015;49(4):481-487.

Thyroid

THYROID DISORDERS CASE REPORT

Case Report of Postpartum Thyroid Nodule Size Reduction

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Introduction: Thyroid nodules are very common. They occur more commonly in women with an increased prevalence of thyroid nodules reported in pregnancy. Most thyroid nodules diagnosed during pregnancy are benign. Pregnancy causes major physiological changes including changes in the levels of thyroid hormones and the elevation of thyroid binding globulin. Thyroid nodules may also occur in people with abnormal thyroid function tests manifesting as hyperthyroidism or hypothyroidism. We present a unique case of a new diagnosis of a large thyroid nodule that has significantly decreased in size after 20 months postpartum. Case description: Patient is a 31 year old female with past medical history of anxiety and white coat hypertension who was diagnosed with a 3.3 x 2.3 x 2.1 cm thyroid nodule a month following delivery. Patient did not have any abnormalities in her thyroid function tests before, during, or after pregnancy. She remained euthyroid throughout the pregnancy and in the postpartum period. Fine needle aspiration biopsy of the nodule showed atypia of undetermined significance (Bethesda Category III). The specimen was further analyzed by afirma testing that confirmed benign pathology. Twenty months postpartum, the thyroid nodule significantly decreased in size to 1.9 x 1.4 x 1.2 cm. **Conclusion:** Thyroid hormone levels physiologically change during pregnancy and this may affect the growth of thyroid nodules. We just presented a patient who exhibited a significant decrease in the size of her thyroid nodule. Sahin et al. showed that while the size of the thyroid nodule increases during pregnancy the number of nodules remains unaffected. Kung et al. showed that pregnancy is associated with an increase in the size of preexisting thyroid nodules as well as the number of newly developed thyroid nodules. Vanucchi et al. showed that although the thyroid gland becomes larger, particularly in late pregnancy, the sizes of any preexisting thyroid nodules remained unchanged and patients' thyroid gland size returned to normal after delivery. The current literature provides conflicting data on this topic. The true association between pregnancy and thyroid nodules is unknown. Contemporary literature is ambiguous on this topic and more scientific studies are required to find the true association between pregnancy, the formation of thyroid nodules, and increase in the size or number of thyroid nodules.

Thyroid

THYROID DISORDERS CASE REPORT

Challenging Thyroid Storm in Pregnancy, Case Report

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Background: Thyroid storm is a rare complication of hyperthyroidism It can lead to life-threatening complications such as Arrhythmias, multiorgan failure and disseminated intravascular coagulation (DIC) (1). In pregnant patients can cause spontaneous abortions, fetal demise (2). Aggressive treatment under critical care settings is needed.

Clinical Case: We report a case of 24-year-old Indian female twelve weeks pregnant; background of Graves' disease for five years, was on carbimazole but she discontinued since she became pregnant. Presented to Hamad general hospital with nausea, vomiting and altered mental status for one day. She was afebrile, normotensive, tachypneic, tachycardiac with heart rate of 150bpm, and confused. Investigations showed supraventricular tachycardia aborted by adenosine and amiodarone, TSH was < 0.01mIU/l(0.3-4.2) and FT4> 100 pmol/L(11.6-21.9),normal baseline liver function and complete blood counts. In the emergency department, she was managed for thyroid storm with hydrocortisone, propranolol, propylthiouracil (PTU), iodine solution and cholestyramine. Then suddenly she deteriorated requiring intubation and vasopressor support under care of Medical Intensive Care Unit (MICU) progressed to multiorgan failure; acute liver injury, acute kidney injury and DIC. So, PTU was stopped and started on plasma exchange followed by total thyroidectomy and tracheostomy. US pelvis showed nonviable fetus, so dilation and curettage were done by obstetric team. Afterwards, she markedly improved except her conscious level and kidney function which required Hemodialysis. MRI brain showed small subdural hematoma treated conservatively and Wernicke encephalopathy treated with thiamine with substantial response and spontaneously breathing. Post thyroidectomy she required calcium supplementation and levothyroxine, liver function and coagulation parameters back to baseline.

Conclusion: Thyroid storm in pregnancy is a medical emergency with high mortality rate, it needs high index of suspicion and early aggressive management by a multidisciplinary team. Plasmapheresis may be considered for challenging cases as a bridge for definitive therapy. Thyroidectomy may be the only option in selected cases like our case.

References: 1. Karger S, Führer D. Thyreotoxische Krise--ein Update [Thyroid storm--thyrotoxic crisis: an update]. Dtsch Med Wochenschr. 2008 Mar;133(10):479-84. German. doi: 10.1055/s-2008-1046737. PMID: 18302101. **2.** Ma Y, Li H, Liu J, Lin X, Liu H. Impending thyroid storm in a pregnant woman with undiagnosed hyperthyroidism: A case report and literature review. *Medicine (Baltimore)*. 2018;97(3):e9606. doi:10.1097/MD.0000000000009606

Thyroid

THYROID DISORDERS CASE REPORT

Choriocarcinoma Induced Thyrotoxicosis in a Male Adult

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Introduction: Germ cell tumors normally occur in the gonads but may be found in extragonadal sites (due to abnormal migration of germ cells during embryogenesis). Metastatic choriocarcionomas are non-seminomatous germ cell tumors which overproduce beta Human Chorionic Gonadotropin (hCG). Rarely, thyrotoxicosis can be driven by germ cell tumor-mediated hCG excess. This hormone binds to the TSH receptor with reduced potency compared to intact TSH. Paraneoplastic thyrotoxicosis, driven by extremely high levels of hCG, is a rare condition which can be associated with choriocarcinomas. **Case Presentation:** We present a case of 29-year-old man with metastatic extragonadal choriocarcinoma under active treatment with oxaliplatin, paclitaxel, gemcitabine (2 cycles completed), right upper lobe resection and whole brain radiation. He was admitted for small bowel obstruction and persistent tachycardia which prompted evaluation of thyroid function. His initial labs were remarkable for TSH <0.01 mclU/mL (0.27-4.20 mclU/mL), FT4 of 6.38 ng/dL (0.93-1.70 ng/dL), total T3 261 ng/dL (75-170 ng/dL), and beta hCG 578,259 mlU/ML (0-2 mlU/ML). His most recent round of chemotherapy was 7 days prior to admission. He was started on atenolol and methimazole but his FT4 rapidly declined, hence methimazole was stopped after one dose of 40 mg. Sevenfold decrease in FT4 to 0.93 ng/dL correlated with fivefold decrease in beta hCG levels to 98,921 mlU/ML. A week later his FT4 increased to 2.42 ng/dL along with increase of beta hCG to 448,116 mlU/ML. At this point he developed multiple complications due to progressive metastatic disease including acute urinary retention, shortness of breath, abdominal pain, tachycardia, acute anemia and thrombocytopenia, anxiety and was started on methimazole as part of palliative treatment for symptom relief. Unfortunately, he passed away three weeks after initial presentation of thyrotoxicosis due to widespread disease. **Discussion:** Choriocarcinoma is very rare and aggressive germ cell tumor especially in males. Unfortunately, the widespread nature of choriocarcinomas at the time of diagnosis is a major main reason for poor prognosis. Clinical manifestations of thyrotoxicosis associated with choriocarcinoma such as tachycardia, anxiety, tachypnea are variable and often can overlap with constitutive symptoms in widespread malignancy. Even if a definitive cure of choriocarcinoma is not attainable, recognizing an associated paraneoplastic thyrotoxicosis can provide an important pathway to provide palliative symptom relief.

Thyroid

THYROID DISORDERS CASE REPORT

Coexistence of Thyroid Hormone Resistance and Autoimmune Thyroid Disease: Not a Mere Coincidence

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Introduction: The coexistence of thyroid hormone resistance and autoimmune thyroiditis was initially thought to be a chance event. In a large cohort study, Barcoff et al. demonstrated an increased likelihood of thyroid autoantibodies in patients with thyroid hormone resistance (RTH). We report a unique case to epitomize the coexistence of these two conditions and discuss the postulated mechanisms.

Clinical **Case:** A 22-year-old woman with a history of Hashimoto's thyroiditis, attention deficit hyperactivity disorder, and migraine presented to the endocrinology clinic with symptoms of weight loss, fatigue, decreased appetite,