levels were elevated (43.45 mU/mL, reference range 2.59 - 18.5 mU/mL) suggesting secondary polycythemia. The patient had a negative smoking history and a pulse oximetry of 98%; there was no evidence of hypoxia that could cause an elevation in EPO. Other differential diagnoses including pheochromocytoma, Cushing's syndrome from ectopic ACTH production, and renal and brain tumors were excluded. Biopsy of the liver lesions is not technically feasible at this time. Since discovery of the erythrocytosis, the patient has undergone repeated therapeutic phlebotomies, to maintain acceptable hematocrit levels.
**Conclusion:** We believe that our patient's case may be the first reported case of ectopic EPO production from medullary thyroid cancer causing polycythemia. We encourage other clinicians to report similar clinical cases in order to better understand this rare clinical entity.

## Thyroid
### THYROID CANCER CASE REPORTS

***A Case of T3 Thyrotoxicosis With Concomitant Follicular Thyroid Carcinoma***

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**Introduction:** The coexistence of hyperthyroidism and thyroid cancer is considered a rare event. In these cases, the follicular thyroid carcinoma subtype is an even more rare finding. It is highly unlikely to find follicular carcinoma in a hyperactive thyroid nodule. **Clinical Case:** We report a case of an 85-year-old female with a past medical history of atrial fibrillation presenting to the clinic after she has noticed enlargement of her neck two weeks prior. The patient was seen by her primary care physician who ordered a CT neck that revealed a goiter and the patient was subsequently referred to our clinic. On further questioning, the patient denied palpitations, sweats, difficulty swallowing, heat or cold intolerance, weight changes, bowel changes, or any other complaints. The patient denied any prior history of thyroid disease or exposure to goitrogens. Her past medical history was not significant for any auto-immune related diseases. She denied any family history of thyroid disease or malignancy. On physical examination, the patient had a normal eye exam and mild goiter with a small palpated right thyroid nodule. Initial thyroid ultrasound revealed a heterogenous right lobe measuring 7.1 cm x 7.3 cm x 5.9 cm with one superior nodule measuring 1.3 cm x 0.7 cm x 0.8 cm and a heterogenous left lobe measuring 2.0 cm x 1.5 cm x 1.1 cm. Laboratory blood work up revealed total T4 of 10.5 µg/dL(normal: 5.0 to 12.0µg/dL), elevated total T3 at 322 ng/dl (normal: 80-220 ng/dL), suppressed TSH <0.01 uIU/mL (normal: 0.40-4.00 uIU/mL), markedly elevated thyroglobulin 2828 ng/mL(normal: 1-84 ng/mL), as well as elevated anti-TPO Ab 63.5 IU/mL (10.0-35.0 IU/mL). The patient underwent a thyroid uptake scan that revealed increased uptake in the right lobe. Three months after presentation, the patient underwent fine-needle aspiration (FNA) which was benign (Bethesda classification II). A decision was made to start the patient on Methimazole and the subsequent thyroid profile showed an improvement in her T3 and TSH, but thyroglobulin continued to uptrend despite treatment. The patient then underwent another thyroid ultrasound one year later that revealed increased right lobe size to 10.3 cm x 6.3 cm x 6.4 cm with enlargement of the superior nodule to 8.5 cm x 4.6 cm x 6.4 cm. The left lobe was also enlarged from the prior scan measuring 3.9 cm x 1.2 cm x 1.0 cm. The patient underwent a second FNA from that nodule which also revealed benign hyperplastic nodule (Bethesda classification II). Despite the benign FNA finding, a decision was made to perform genetic testing given the rapid progressive enlargement of the nodule. The genetic testing revealed TERT promoter gene mutation with a high risk for malignancy. The patient then underwent total thyroidectomy and the pathological analysis showed a 9 cm follicular thyroid carcinoma of the right nodule. The patient then underwent successful I-131 radioactive Iodine ablation. Subsequent thyroid ultrasounds were negative and TSH continued to downtrend while the patient continued to take thyroid hormone replacement. This patient's presentation is unique in many aspects. The patient presented with a hyperactive hot nodule while follicular carcinoma of the thyroid gland is typically associated with clinical euthyroidism and a scan showing a cold nodule(1). In a study of 425 hyperthyroid patients, thyroid cancer was diagnosed in 7 (1.65%) hyperthyroid patients, and histological examination revealed the presence of papillary carcinoma in 5 cases and follicular carcinoma in only 2 cases (2). Our patient also had two negative FNAs despite the presence of follicular carcinoma. Hence, we are shedding the light on the importance of genetic testing in the setting of negative FNA for rapidly enlarging thyroid nodules. **Conclusion:** We urge physician's awareness that on rare occasions, follicular thyroid carcinoma can be present in a hyperactive thyroid with a hot nodule. In the presence of negative FNA, hyperfunctioning rapidly growing thyroid nodules should be carefully evaluated by further genetic testing for the presence of concurrent malignancy. **References:** (1) Yunta PJ, Ponce JL, Prieto M, Lopez-Aznar D, Sancho-Fornos S: Solitary adrenal gland metastasis of a follicular thyroid carcinoma presenting with hyperthyroidism. Ann Endocrinol 2001;62:226-229 (2) Raimondo Gabriele, Departments of Surgery 'Pietro Valdoni': Thyroid Cancer in Patients with Hyperthyroidism. Horm Res 2003;60:79-83 DOI: 10.1159/000071875

## Thyroid
### THYROID CANCER CASE REPORTS

***A Rare Case of Aggressive Ectopic Thyroid Cancer in a Patient With Graves Disease***

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**Background:** Ectopic thyroid tissue is a rare entity with a prevalence of 1 per 300,000 persons. Malignancy in ectopic thyroid tissue is reported in <1% of these cases.[1] We report a case of aggressive papillary carcinoma in ectopic thyroid gland in a patient with Graves' disease.
**Case:** A 65-year old woman was incidentally found to have a 3.1 cm mass with coarse calcifications in the superior mediastinum on CT scan of chest. Ultrasound confirmed the