

thyroid disease. She had COVID 7 months ago, complicated by allograft rejection. She was tachycardic, febrile but not in acute distress. Neck exam revealed diffuse thyromegaly with tenderness on right lobe without bruit, palpable cervical lymphadenopathy nor tremors. Labs showed WBC  $12.8 \times 10^9/L$  (4.8-10), and ESR 50 ml/hr (20-40). On admission, she developed AKI and immunosuppressant meds were discontinued. She was started on broad-spectrum antibiotic. CT chest reported moderate loculated right pleural effusion with mid and lower lobe consolidation. Blood and urine culture, pleural fluid, sputum culture for acid-fast bacilli (AFB) and QuantiFERON-TB were negative. Upon persistent fever, RIPE therapy (rifampin, isoniazid, pyrazinamide, ethambutol) was started and stopped after 10 days due to transaminitis and negative TB PCR. Further labs showed TSH 0.04 mIU/ml (0.27-4.2), FT4 2.81 ng/dl (0.93-1.7), TT3 127 ng/dl (80-200), negative TPO and TSI. Endocrinology was consulted for thyroiditis. Ibuprofen and Propranolol were initiated with continuation of prednisone. Repeat thyroid labs normalized in 4 days. US thyroid noted diffuse, heterogenous thyromegaly without hypervascularity or abscess. CT neck showed diffuse thyromegaly 4.2x7.2x7.5 cm in size; right thyroid lobe extended to posterior clavicle with enhanced capsule, without discrete lymph node or vascularity changes, suggestive of thyroiditis. Fine needle aspiration (FNA) of left thyroid lobe drained 3 ml purulent fluid and AFB were seen on direct smear. She was diagnosed as TT, but unable to restart RIPE therapy due to worsening liver function. She expired after cardiac arrest due to intracranial bleeding and brain abscess. Thyroid tuberculosis is a rarely reported clinical entity. This is the first reported case of secondary TB (TT) in post-COVID infected patient from reactivation of latent TB. In our case, follicular destruction caused initial hyperthyroidism with later recovery. It can be difficult to distinguish subacute from suppurative thyroiditis due to TB. Imaging may not always show clear abscess formation. FNA is crucial for diagnosis, and drainage of any abscess. Anti-TB meds can be given, surgery is rarely required. TT should be considered in any immunocompromised patient with fever and neck pain. Imaging should also include evaluation for any CNS spread of TB. Early detection and treatment will help reduce significant morbidity and mortality.

## Thyroid

### THYROID DISORDERS CASE REPORT

#### *Two Cases of Graves' Hyperthyroidism Treated With Homeopathic Remedies Containing Herbal Extracts from *Lycopus* spp. and *Melissa officinalis**

Daniel Kaplan, MD<sup>1</sup>, Chrysoula Dosiou, MD<sup>2</sup>.

<sup>1</sup>STANFORD UNIVERSITY, Mountain View, CA, USA, <sup>2</sup>Stanford University School of Medicine, Atherton, CA, USA.

**Background:** Plant extracts from species of *Lycopus* (bugleweed) and *Melissa officinalis* (lemon balm) have long been used as folk remedies in the treatment of hyperthyroidism<sup>1</sup>. *In vitro* studies have shown that extracts from bugleweed and lemon balm inhibit stimulation of thyroid hormone production by both TSH and Graves' antibodies<sup>1</sup>. An *in vivo* study in rats showed that oral bugleweed extract alters extra-thyroidal T4 conversion<sup>2</sup>.

**Case 1:** A 64 year-old woman presented for routine examination and was found to have a TSH of 0.01 mIU/L on 6/6/2016. Labs the next month showed FT4 1.4ng/dL (0.8-1.8) and FT3 4.7pg/mL (2.3-4.2). TSI was elevated to 275% (Normal<140%), consistent with Graves'. She did not have symptoms of hyperthyroidism. The patient's cat had been treated for hyperthyroidism with Thyrosoothe (TS), a formulation containing extracts from bugleweed and lemon balm. After being diagnosed with hyperthyroidism, the patient began taking TS. On 9/12/16 the patient's labs were improved with TSH 0.02mIU/L, FT4 0.88 ng/dL (0.8-1.8) and Total T3 86 (76-181). Three months later, the patient's TSH was 1.89 with normal FT4, Total T3 and TSI. She took TS for 9 months. Her thyroid function tests have remained normal since starting TS, without the need for any other anti-thyroid medications.

**Case 2:** A 46 year-old female presented with periorbital edema in July 2018 and was referred to an ophthalmologist, who diagnosed her with thyroid eye disease. She was also complaining of palpitations and "jitteriness". She was found to be hyperthyroid on labs and was treated with methimazole (MMI) between August 2018 and February 2019, requiring doses of up to 10mg BID. In March 2019 she stopped MMI due to transaminitis and began taking a thyroid tincture containing bugleweed and lemon balm extract. She has remained euthyroid on the herbal tincture, her transaminitis has resolved, and she has not required any further anti-thyroid medication. Her TSI, which was 0.84 IU/L (Normal<0.55) in May 2019, normalized to 0.36 IU/L in June 2020, after 15 months on this tincture, which she is still taking.

**Conclusion:** *In vitro* and rat studies of bugleweed and lemon balm extract have demonstrated anti-thyroidal effects. This is the first report of the use of these plant extracts in the treatment of two patients with Graves' disease, in whom it led to restoration of euthyroidism and normalization of TSI titers. Further study of the anti-thyroidal effects of bugleweed and lemon balm in humans is warranted to evaluate its potential role as an adjunctive therapy in Graves' disease.

**References:** 1. Auf'Mkolk, M., et al. "Extracts and Auto-Oxidized Constituents of Certain Plants Inhibit the Receptor-Binding and the Biological Activity of Graves' Igs\*." *Endocrinology*, vol. 116, no. 5, May 1985, pp. 1687-93. 2. Winterhoff, H., et al. "Endocrine Effects of *Lycopus Europaeus* L. Following Oral Application." *Arzneim. Forsch.*, vol. I, no. 44, 1944.

## Thyroid

### THYROID DISORDERS CASE REPORT

#### *Unusual Presentation of Myxedema Coma in Type 1 Diabetes Mellitus With Hyperglycemia and Polysubstance Abuse*

Yumna Hamid, MD<sup>1</sup>, Steven Douedi, MD<sup>1</sup>, Johnathan Nold, MD<sup>1</sup>, Raquel Kristin Ong, MD<sup>2</sup>, Jennifer Cheng, DO<sup>3</sup>, Khin Zin, MD<sup>4</sup>.

<sup>1</sup>JERSEY SHORE UNIVERSITY MEDICAL CENTER, Neptune, NJ, USA, <sup>2</sup>Jersey Shore University Medical Center, Tinton Falls, NJ, USA, <sup>3</sup>Jersey Shore University Medical Center, Neptune, NJ, USA, <sup>4</sup>Jersey Shore University Medical Center Endocrine Fellowship Program, Neptune, NJ, USA.