



51yo Woman with Thyroid Mass

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Med-Peds Endo

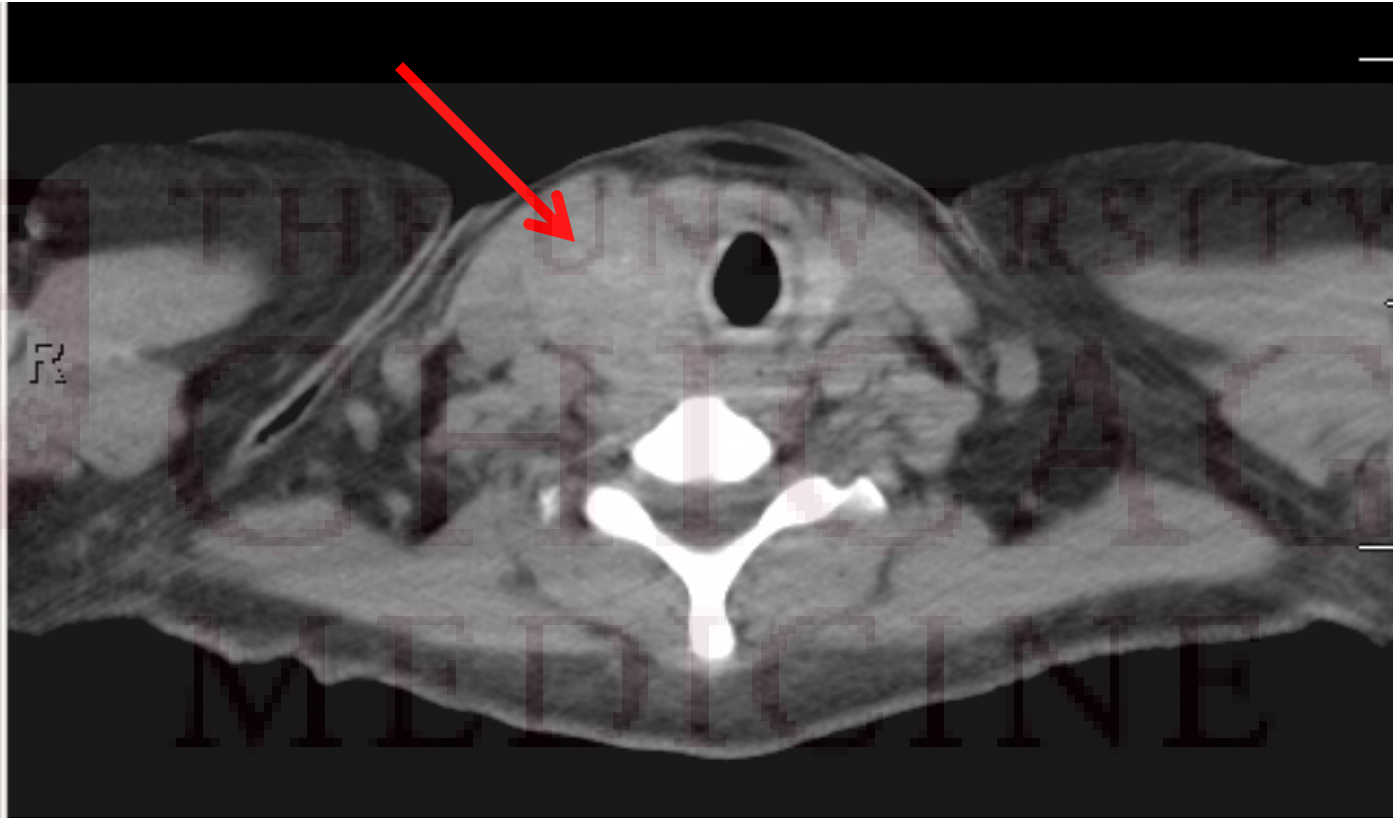
August 2, 2012

HPI

- 51yo African American Woman
- 1/2012: OSH ER: chest pain, 20lb weight loss, night sweats, early satiety; splenomegaly, R neck mass; +leukocytosis and myeloblasts on CBC, Bone marrow +: Diagnosis of AML
- 2/2012: chemo with daunorubicin + cytarabine
+Ph Chrom (9,22 transloc) found, started dasatinib
- 2/2012: 2 days prior to chemo starting, US-guided FNA of R thyroid/paratracheal mass; “everything was okay”
- 3/2012: repeat bone marrow negative (remission);
-transferred care to U of C due to insurance reasons
-felt diagnosis more consistent with CML in blast crisis
-preparations for stem cell transplant

HPI Continued

3/2012



Heterogeneously enlarged R thyroid lobe with 5x4cm nodule extending into posterior mediastinum and causing left-ward deviation of trachea

HPI Continued

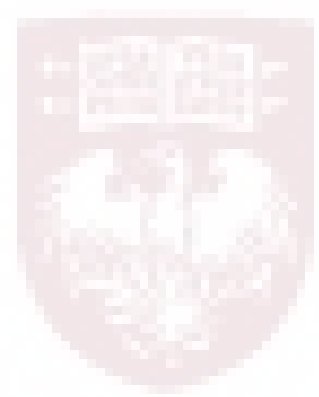
- 7/2012: admitted for chemo/plasma exchange/IVIG followed by haploidentical stem cell transplant (daughter) + cord blood + cellcept/prograf
- Endocrine consulted regarding management of thyroid mass
- - neck pain, SOB, dysphagia
- + palpitations intermittently, not in recent weeks
- + diarrhea in past couple months related to C diff+
- + wt loss prior to leukemia dx, stable since
- No history of radiation to neck

ROS

Remainder negative

PMH

- 1) CML
- 2) HTN
- 3) C diff colitis
- 4) Thyroid mass



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Family/Social

Family History

No primary relatives with thyroid disease/cancer

Maternal aunt had thyroidectomy for ? reasons

Social

Former employee of office supply company

Lives with mother, brother, daughter, grand-daughter



Allergies/Meds

Allergies: None

Medications:

Fludarabine

Melphalan

Antithymocyte globulin (ATG)

Allopurinol

Amlodipine

Aprepitant

Neupogen

Ganciclovir

Moxifloxacin

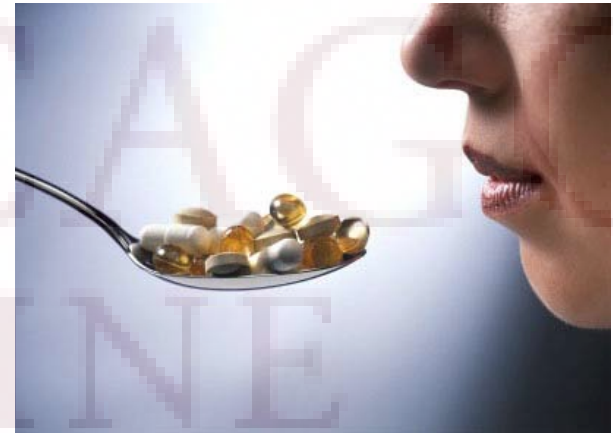
Voriconazole

Bactrim

Methylprednisolone 56mg IV q48h 7/2 -

Tacrolimus

Mycophenolate



Physical Exam

T 36.1 HR 103 BP 105/62 RR 20 Wt 53.8kg, BMI 22

Gen: Awake, sitting in bed, NAD

HEENT: moist; **no proptosis; short hair**

Neck: **asymmetric thyromegaly R>L (4x2cm), gland soft, compressible, irregular/bumpy texture**
trachea appeared midline
no cervical lymphadenopathy

CV: tachy, regular

Chest: clear bilaterally

Abd: soft, nontender, nondistended

Musc: **no edema** or weakness

Neurological: sensation normal, **no tremor**

Skin: warm/dry

Initial Recommendations

- Obtain FNA report from OSH
- Thyroid function tests



Thyroid function tests

	7/3 + 7/4
TSH (0.3-4)	0.2
fT4 (0.9-1.7)	0.9
T3 (80-195)	52
rT3 (160-353)	529

Sick euthyroid +/- suppression of TSH related to high dose steroids

FNA report from OSH

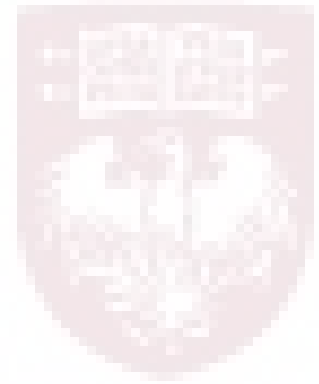
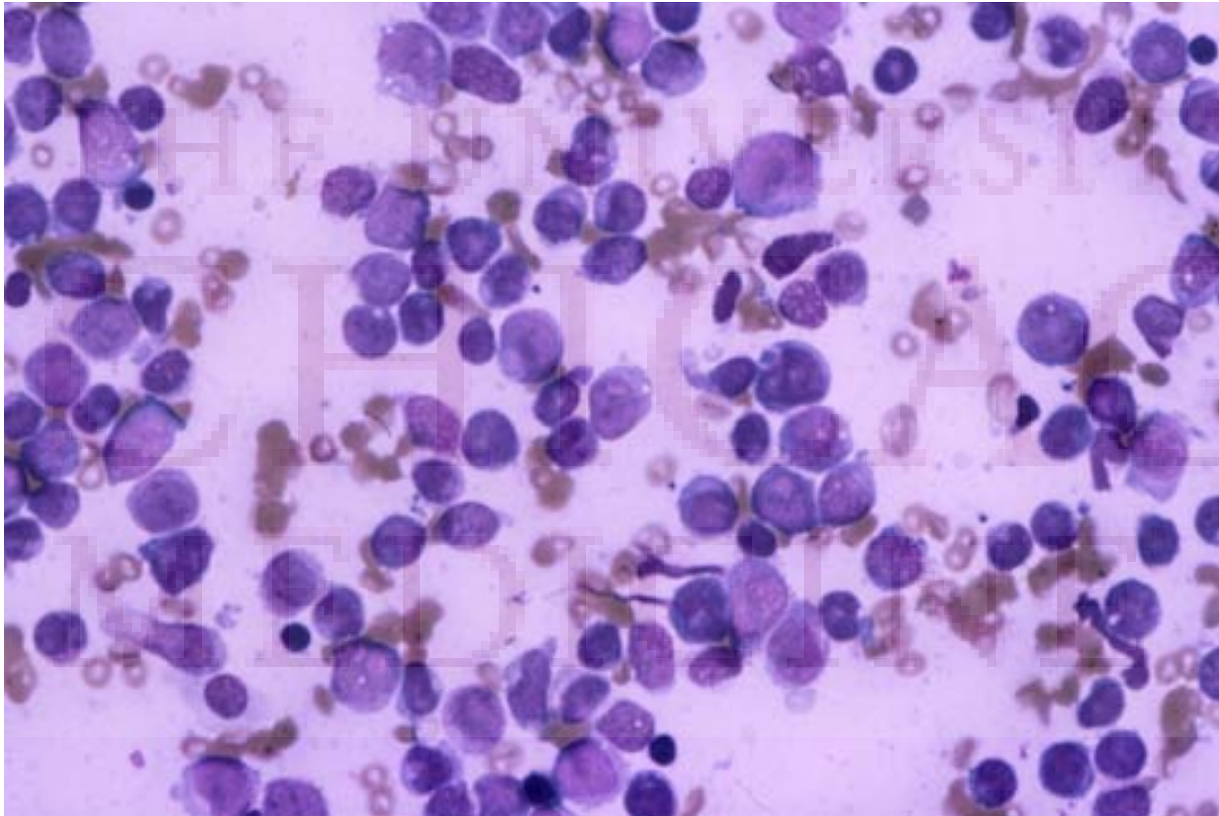
2/1/2012 (2 days before chemo)

- Thyroid Left lower lobe US guided FNA: benign follicular nodule, colloid type; rare leukemic blasts in background
- Thyroid Right lower lobe US guided FNA: numerous leukemic blast forms: consider leukemic involvement of thyroid (granulocytic sarcoma) vs. peripheral blood contamination; not possible to distinguish these based on morphologic features

Clinical Questions

- 1) How common is leukemia/lymphoma in FNA of the thyroid
- 2) Can extramedullary CML disease affect the thyroid gland?
- 3) Do tyrosine-kinase inhibitors affect thyroid function and/or TFTs?

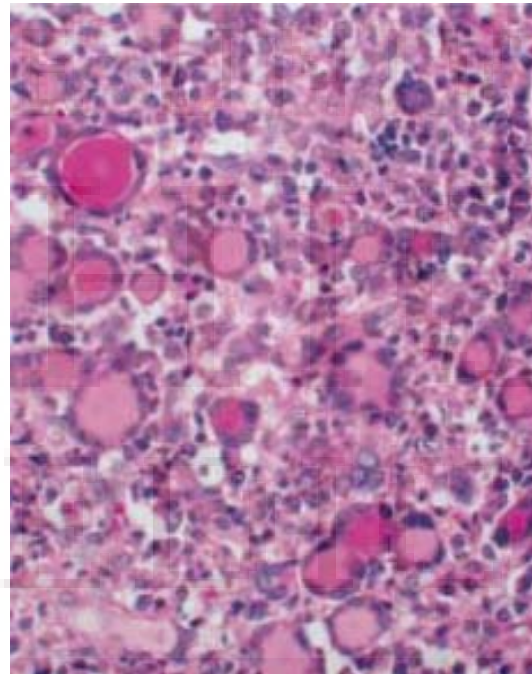
Thyroid FNA



Thyroid FNA and lymphoma/leukemia

- **Lymphomas** of thyroid gland represent < 5% of primary thyroid neoplasms
 - Rapidly enlarging with local symptoms common
 - FNA cytology may be difficult to distinguish from thyroiditis
 - Flow cytometry and immunohistochemistry may be necessary for diagnosis
- **Leukemia or lymphoma** can secondarily involve the thyroid gland when systemic (10% of autopsies)
 - Extramedullary leukemia = granulocytic sarcoma (chloromas)
 - 2-9% of pts with AML and much less common in CML
 - Sensitive to radiation/chemo and generally resolve in <3mo

CMMML presenting as Thyroid Mass



- 87 yo WF
- United Kingdom
- 6mo neck mass with dysphagia, fatigue, easy bruising, SOB
- Stony-hard diffuse goiter

Thyroid Dysfunction Caused by Second-Generation Tyrosine Kinase Inhibitors in Philadelphia Chromosome-Positive Chronic Myeloid Leukemia

1st gen: imatinib (Gleevec) 2001, sunitinib (Sutent)

2nd gen: nilotinib (Tasigna), **dasatinib** (Sprycel)

73 patients with CML+Ph

18 (25%) hypothyroidism

21 (29%) hyperthyroidism

* 10 of 39 patients developed persistent thyroid dysfunction

Mechanisms unclear:

- Induction of destructive thyroiditis?
- Inhibition of TPO?
- Block iodine uptake?
- Irreversible thyroid destruction?
- Capillary dysfunction?

Subsequent Hospital Course

- After stem cell transplant, slow improvement in counts
- C diff colitis

Endo recommendation:

- Treat underlying CML
- Serial thyroid ultrasounds, baseline and 3mo
- Monitor TFTs for thyroid dysfunction, next in 1mo or when pt felt improving
- Outside path slides obtained – our path read as colloid nodule with blasts, suspected peripheral contamination

Take Home Points

- Lymphoma is a rare type of primary thyroid malignancy, distinguished if thyroid is primary site
- Systemic leukemia/lymphoma can rarely involve the thyroid secondarily (and very rarely may present as thyroid mass)
- Thyroid dysfunction is common during treatment with tyrosine kinase inhibitors (TKIs), yet is generally transient and rarely requires treatment

References

- Kim et al. Thyroid dysfunction caused by second-generation tyrosine kinase inhibitors in philadelphia chromosome-positive chronic myeloid leukemia. *Thyroid* 2010. (20): 1209-1214.
- Adair et al. Chronic myelomonocytic leukaemia (CMML) presenting as thyroid mass. *British J of Haematology* 2003 (120): 548.
- Guermazi et al. Granulocytic sarcoma (chloroma): imaging findings in adults and children. *AJR* 2002 (178): 319-325.