43yo F with Papillary Thyroid Cancer

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Endorama
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HPI

- 43 year old female referred by Dr. Angelos and her PMD for further management of PTC.
- Nov ’10 – PMD felt thyroid nodule; no h/o radiation exposure, no fam h/o thyroid ca
- Thyroid U/S: 2.3cm nodule on L w/ calcifications
- FNA: suspicious for papillary thyroid cancer

HPI

- Referred to Dr. Angelos
- FNA results confirmed in our lab
- Jan ’11: Pt underwent total thyroidectomy;

  - margins, +2/4 lymph nodes (left and peritracheal), no complications
- 1/19/11: started LT4 125mcg → developed palpitations week later , so decreased to 100mcg
- Pt referred to us 3/31/11 for Thyrogen stimulated RAI treatment

ROS

- + heat intolerance
- + hair loss, which is improving
- + poor sleep since diagnosis
- No wt changes

- Otherwise negative

PMH

PMH:

- PTC s/p thyroidectomy (2.3cm, +2/4 LN's)
- Vit D Deficiency
- Anxiety
- HTN

PSH:

- Partial hysterectomy '09

Meds:

- Levothyroxine 100mcg Daily
- Lexapro 20mg Daily
- Norvasc 10mg Daily
- MVI
- Ambien 10mg qHS PRN

- Allergies: Vicodin

PMH

Family History:

- Mom: HTN
- Dad: healthy
- M GM: hypothyroidism
- M GF: DM2
- 1brother, 2 sisters: healthy
- 2 daughters: healthy

Social History:

- Lives with husband, 13yo and 17yo dtrs
- Works in Marketing at hospital in IN
- No Tob
- + <1 drink/day

Physical Exam:

BP138/80 HR80 Ht: 5'7" Wt: 74.4kg BMI 25.7

- Gen: NAD
- Eyes: EOMI, no exopthalmos or lid lag
- ENT: OP clear
- Neck: no LAD, +horizontal, well-healed scar, no thyroid tissue appreciated
- CV: RRR, no M
- Pulm: CTA b/l
- Abd: +BS, soft, NT/ND
- Ext: no edema
- Neuro: no tremor, 2+ DTRs
- Psych: nl affect

Laboratory Evaluation:

- Calcium 8.7

Further tests?

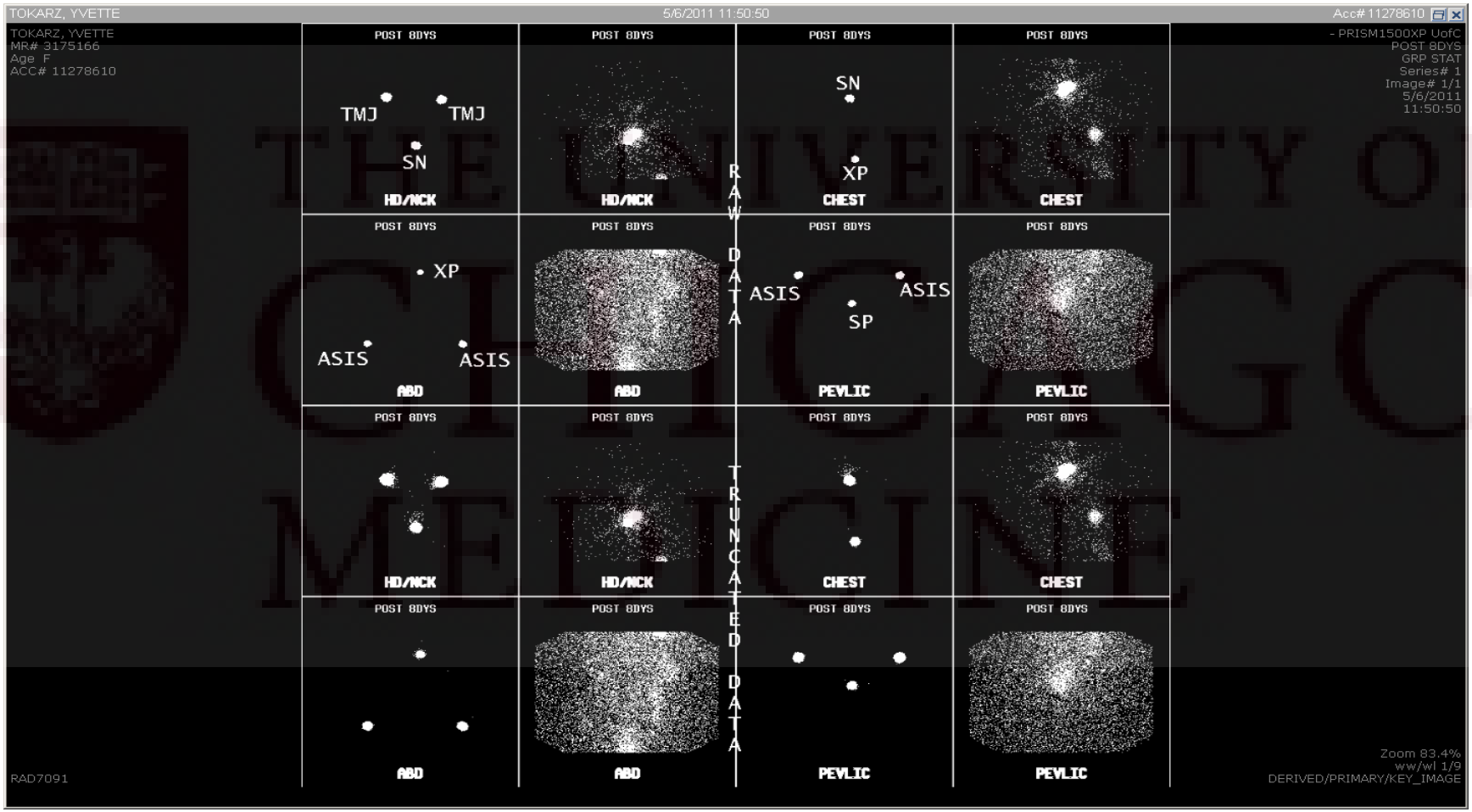
- TSH: 0.82 mcU/mL

PLAN?

RAI Treament

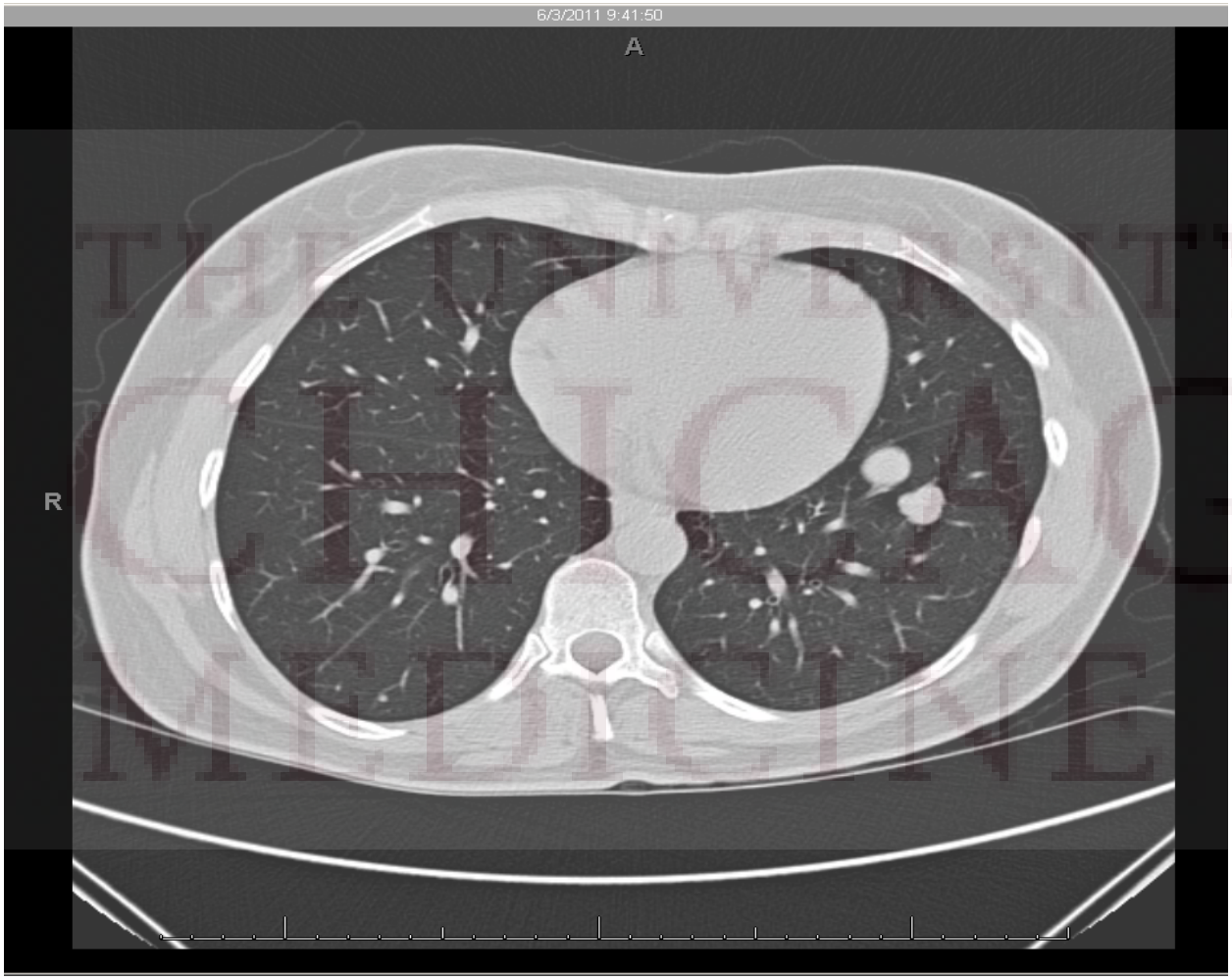
- Thyrogen Stimulated
- TSH 27.38
- She received 30mCi I^{131}

10d s/p RAI Total Body Scan



Stimulated TG 325 (Suppressed TG 5)

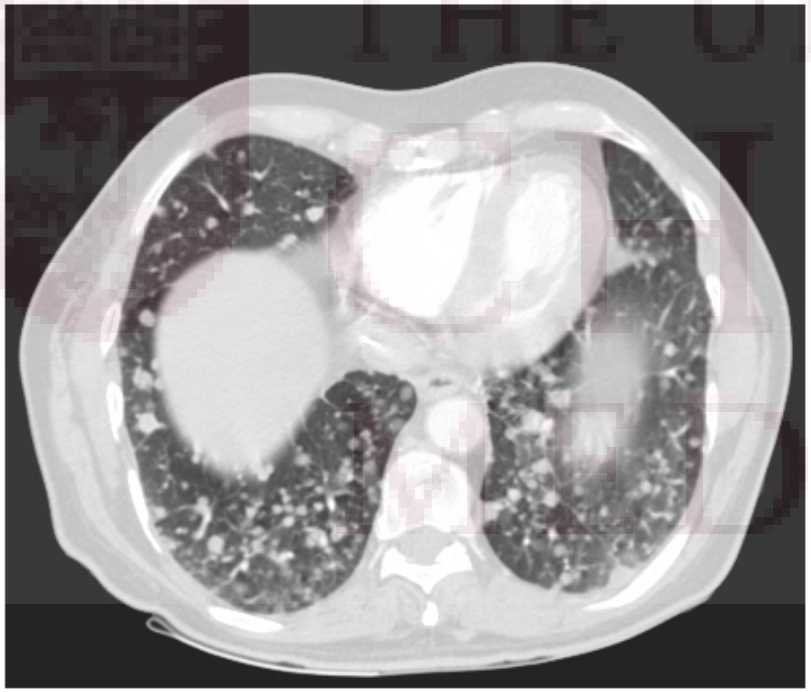
CT Chest



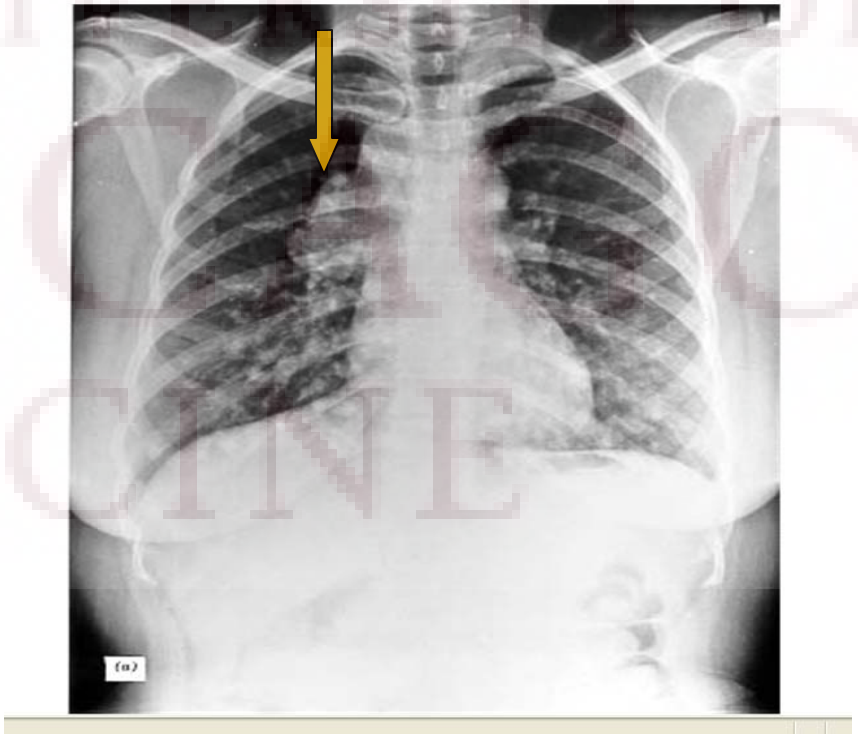
Two left lower lobe partially calcified nodules, and numerous micronodules. These are probably the result of prior granulomatous disease, although metastases remain in the differential diagnosis.

Lung Metastases from PTC or benign, iodine-avid lesions?

PTC lung mets: Snowflake appearance



Follicular lung mets: discrete, large nodules



Lung Metastases from PTC or **benign, iodine-avid lesions**?

- Physiological uptake of radioiodine may be seen in salivary glands, nasal mucosa, gastric mucosa, colon, mammary glands and choroid plexus. These tissues contain mRNA for the sodium iodide symporter (NIS).

- False + uptake has been seen in renal cysts, pathologic exudate, bronchiectasis, granulomatous inflammation, and sarcoid.

Further information

- Patient noted known history of L lung lesion, which has been “stable” for ?20 years
- Most recent CT scan 2 years prior
- Has +PPD but no h/o active or latent TB
- Has never required treatment for TB, no h/o BCG vaccine

What to do next?

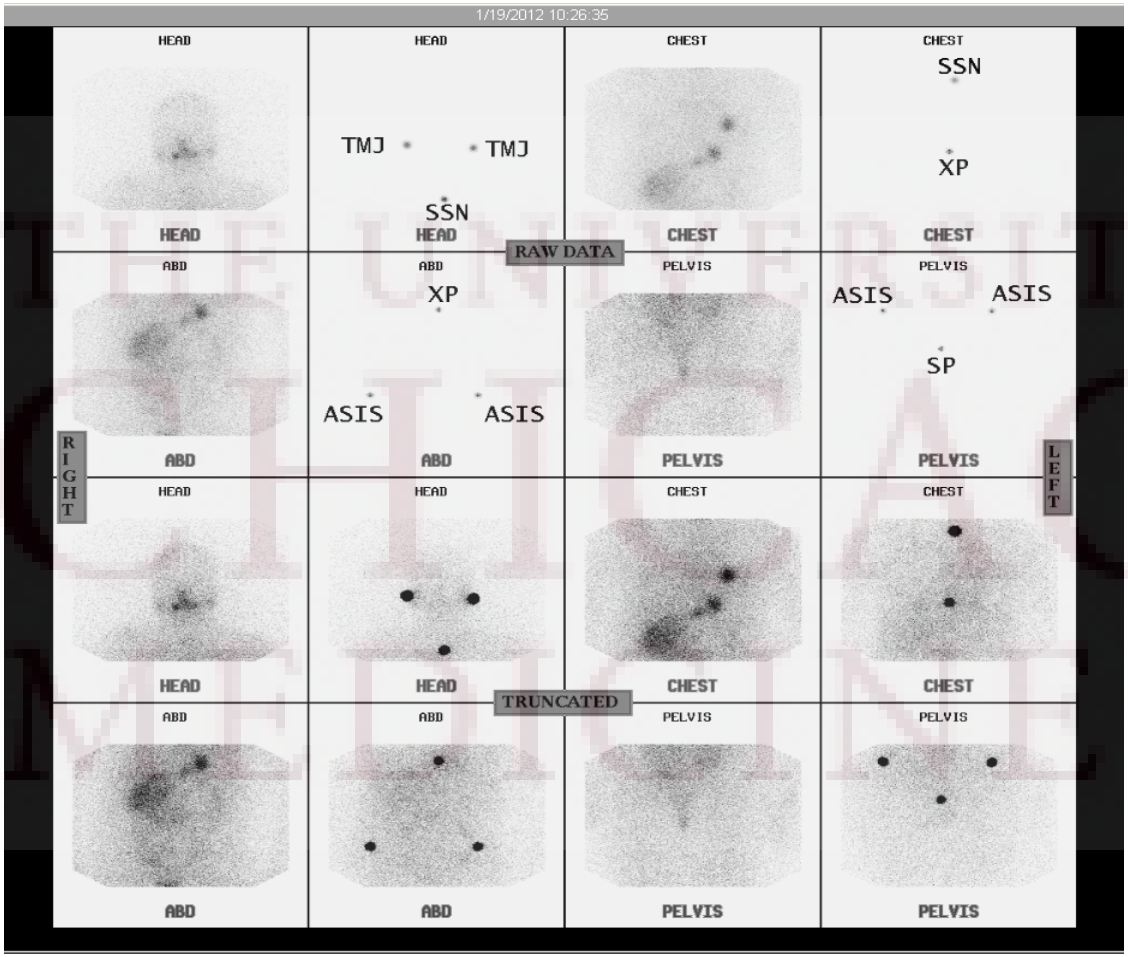
- Radiology compared her previous CT with current: unchanged
- We decided to wait 6-9 months and re-evaluate the mass to see if grew, decreased in size or remained the same after RAI.

8 Months Later…

Withdrawal of thyroid hormone treatment for TBS

- TSH: 47.02, TG: *pending*

I^{131} Total Body Scan



Stimulated TG 225

Is the lung lesion metastatic PTC?

Plan:

- Lung biopsy with TG immunostaining
- If +, treat with 150mCi I^{131}

Take Home Points

- Lung metastases from papillary and follicular thyroid cancers generally look different
- There are iodine-avid lesions other than thyroid tissue that can cause false positive tests on total body scan
- Thyroglobulin can be helpful if concerned that uptake on TBS is false positive.

References

- Carlisle MR, Lu C, McDougall IR. The interpretation of 131I scans in the evaluation of thyroid cancer, with an emphasis on false positive findings. *Nucl Med Commun.*2003 Jun;24(6):715-35.
- Greenler DP, Klein HA. The scope of false-positive iodine-131 images for thyroid carcinoma. *Clin Nucl Med. 1*989 Feb;14(2):111-7.
- Langer JE, et al. Chronic granulomatous lesions after thyroidectomy**:** imaging findings**.** *AJR Am J Roentgenol.* 2005 Nov;185(5):1350-4.
- http://www.thyroidmanager.org