
52-year-old Man with Recurrent Papillary Carcinoma

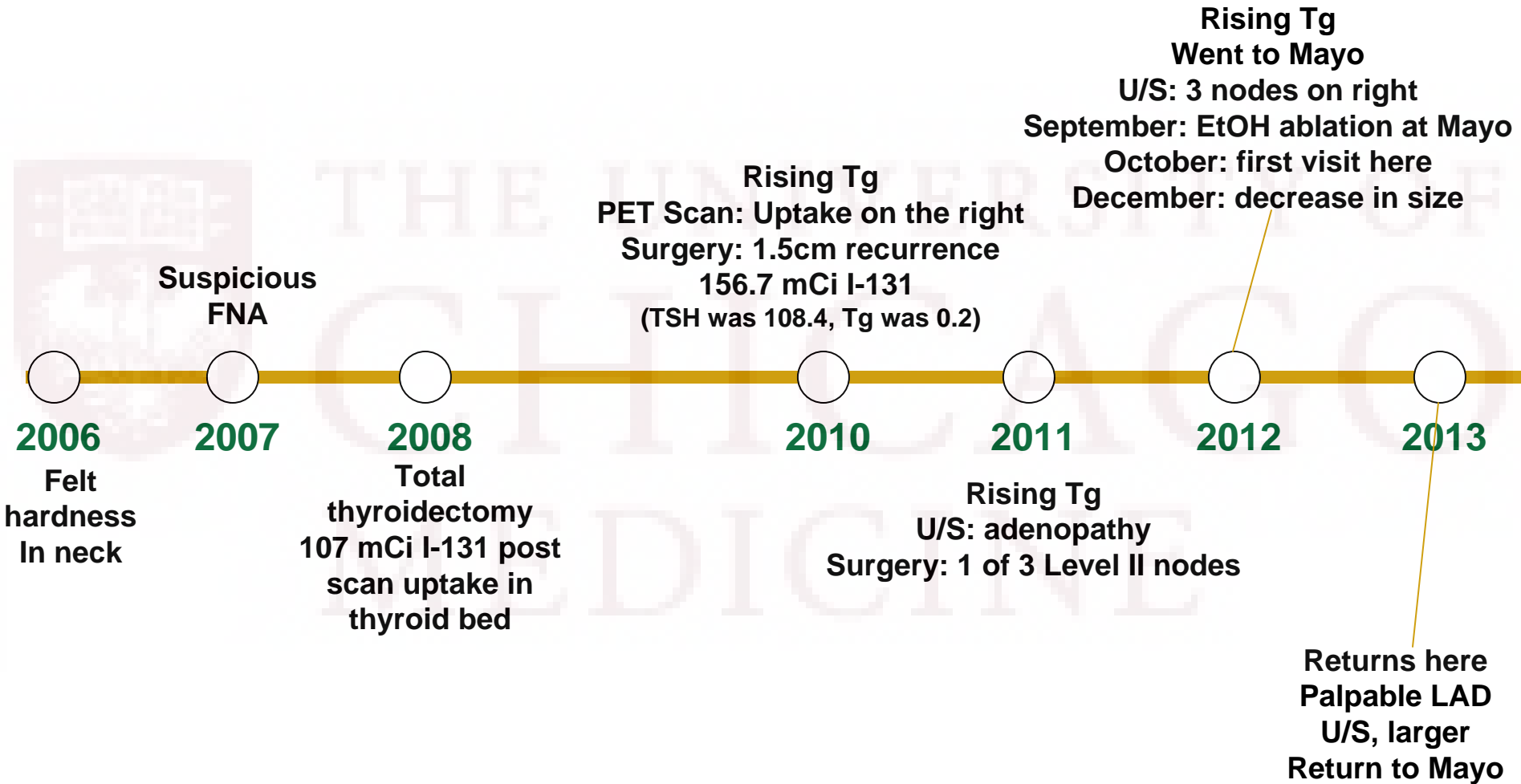
Celeste C. Thomas

March 14, 2013

History of Present Illness

- While visiting with family 7 years ago noted a hardness in his lower neck.
 - 6 years had a suspicious FNA
 - 5 years ago the nodule was followed with repeat FNA followed by total thyroidectomy
 - Pathology not available but report of multifocal papillary thyroid carcinoma with the largest lesion 3.5 or 3.9 cm in size
 - Treated with 107 mCi RAI, post-therapy scan apparently only showed uptake in the thyroid bed
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History of Present Illness



September 2012

- **US revealed three level VI nodules in right bed (largest 1.6 x 1.4 x 1 cm)**
- **Neck CT revealed 4 nodules in or adjacent to the right thyroid bed. (14 mm, 6 mm, 10 mm, 8 mm)**
- **Chest CT revealed a 3 mm indeterminate nodule in RUL and mild granulomatous disease**
- **He decided to pursue ethanol ablation over further surgery, and received a first treatment of ethanol at Mayo in September 2012.**
- **TSH was 0.07, free T4 1.5, Tg 8.9, and anti-Tg antibodies < 20.**

October 2012

- **Established care at U of C**
- **Planning to return to Mayo for additional ethanol injections and thyroglobulin levels in December**

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Ultrasound report – Right Level VI Ablation Sites

Ablation Site	Dimensions Before Ablation (9/25/2012)	Dimensions After Ablation (12/10/2012)
1	10mm x 14mm x 16mm	8mm x 11mm x 14mm
2	8mm x 12mm x 12mm	7mm x 12mm x 10 mm
3	5mm x 8mm x 9mm	6mm x 7mm x 7mm

February 2013

- **Wife requested that her family doctor check patient's thyroglobulin levels → risen to 15.5 ng/mL.**
 - **He sometimes feels there is something on the right side of his neck but it is not always palpable**
 - **He sometimes has difficulty swallowing but that is also not consistent and he attributes it to dry mouth.**
 - **He has noticed no change in his voice, no difficulty breathing when supine.**
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Medications / Allergies

■ Medications

- levothyroxine (SYNTHROID) 137 mcg
Oral tablet One tab
per day, with an extra
tab 1 day per week. Use
Synthroid brand
 105 Tab 3
- Calcium 500 mg PO
daily

■ No known drug allergies

History

■ Past Medical History

- Malignant neoplasm of thyroid gland
- Post-surgical/ablative hypothyroidism
- Vitamin D deficiency

■ Past Surgical History

- Thyroidectomy, total/complete, April 2008
- Thyroidectomy, removal remaining tissue, May 2010
- Thyroidectomy, removal remaining tissue, 2011
- correction of deviated nasal septum
- hernia repair

■ Family History

- Mother 76 years, alive and well, possible depression
- Father 80 years, alive and well
- 2 sisters and 1 brother, alive and well
- Daughter, Hypothyroidism

■ Social History

- Married, 2 children (Son age 26 years, Daughter age 20 years)
- Never smoked
- Trained as an electrical engineer
- Possibly exposed to welding products
- No known radiation exposure

Review of Systems

- General: Negative for fevers, chills, night sweats, weight change, heat/cold intolerance
 - HEENT: Negative for headache, blurry vision
 - Neck: **Positive for possibly something on right side of the neck;** Negative for limited movement
 - Respiratory: Negative for cough, wheezing
 - Cardiovascular: Negative for chest pain, shortness of breath, palpitation, lightheadedness
 - Gastrointestinal: Negative for abdominal pain, nausea, vomiting, diarrhea, constipation
 - Genitourinary: Negative for dysuria, hematuria
 - Skin: Negative for diaphoresis, new rash
 - Muskuloskeletal: Negative for myalgias
 - Neurological: Negative for weakness, numbness, tingling
 - Psychiatric/Behavioral: Negative for anxiety, depression
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Physical Exam

- BP 132/78 | Pulse 64 | Ht 188 cm (6' 2") | Wt 89.631 kg (197 lb 9.6 oz) | BMI 25.37 kg/m²
 - Gen: well-nourished, well-developed, comfortable-appearing in no acute distress
 - HEENT: EOMI, PERRLA
 - Neck: well-healed scar, no palpable tissue in the thyroid bed
 - Lymphatic: **two - three firm (largest approximately 2cm) lymph nodes in the right anterior cervical area, immediately right of the thyroid bed**
 - Lungs: clear to auscultation bilaterally
 - CV: regular rate, no extra heart sounds
 - GI: bowel sounds present, soft, not distended, non-tender
 - GU: deferred
 - Musculoskeletal: normal gait and station
 - Neurologic: no tremors, reflexes 2+ in biceps and patellar b/l
 - Skin: warm, dry, no lesions on feet
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Impression and Plan

- **Recent thyroglobulin level is rising with palpable lymphadenopathy that, by exam, may be slightly larger than recent ultrasound report from Mayo in Dec 2012**
 - **We will repeat thyroglobulin with our assay and perform ultrasound here (today if possible). Will discuss next steps based upon results.**
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Ultrasound

- **Dimensions per Mayo report after ablation:**
 - 8mm x 11mm x 14mm
 - 7mm x 12mm x 10 mm
 - 6mm x 7mm x 7mm
- **Ultrasound here**
 - **Group of three enlarged, heterogenous-appearing lymph nodes is seen in right level VI**
 - largest node measuring 1.8 x 1.8 x 1 cm located at the anterior/superior aspect of the right thyroid surgical bed.
 - Superior to this largest node are the two additional nodes
 - medial one measuring 1.8 x 1.4 x 0.9 cm
 - lateral one measuring 1.1 x 0.7 x 1 cm.

Labs

- **Thyroglobulin** 16 ng/mL
- **Thyroglobulin Ab** Negative
- **Thyrotropin** 0.05 (L) mcU/mL
- **Thyroxine, Free** 1.70 ng/dL

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Clinical Questions

- **Indications for EtOH Ablation of Well-differentiated thyroid cancer**
- **Outcomes**

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History*

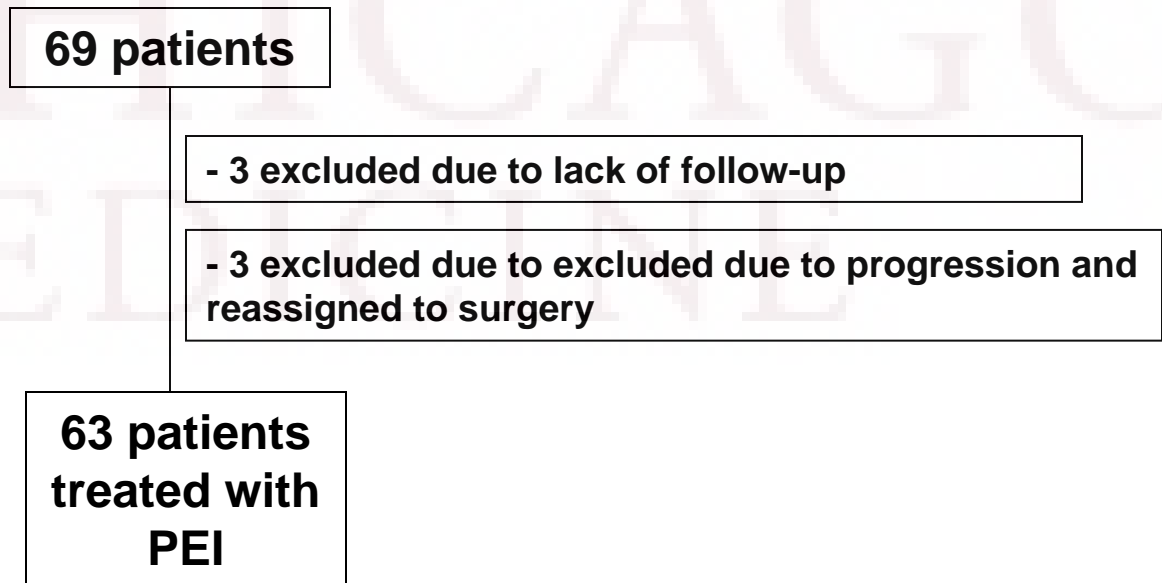
- Employed since the 1980s for treatment of small hepatocellular carcinomas
- 1988 Charboneau and Hay at Mayo ablated a parathyroid adenoma in a patient unsuitable for neck re-exploration
- 1991 used at Mayo to treat to neck nodal metastases in pt s/p 3 neck surgeries c/b right recurrent laryngeal nerve injury to avoid possible tracheostomy
 - Two level VI nodes did not recur for 20 year follow-up*

Indications

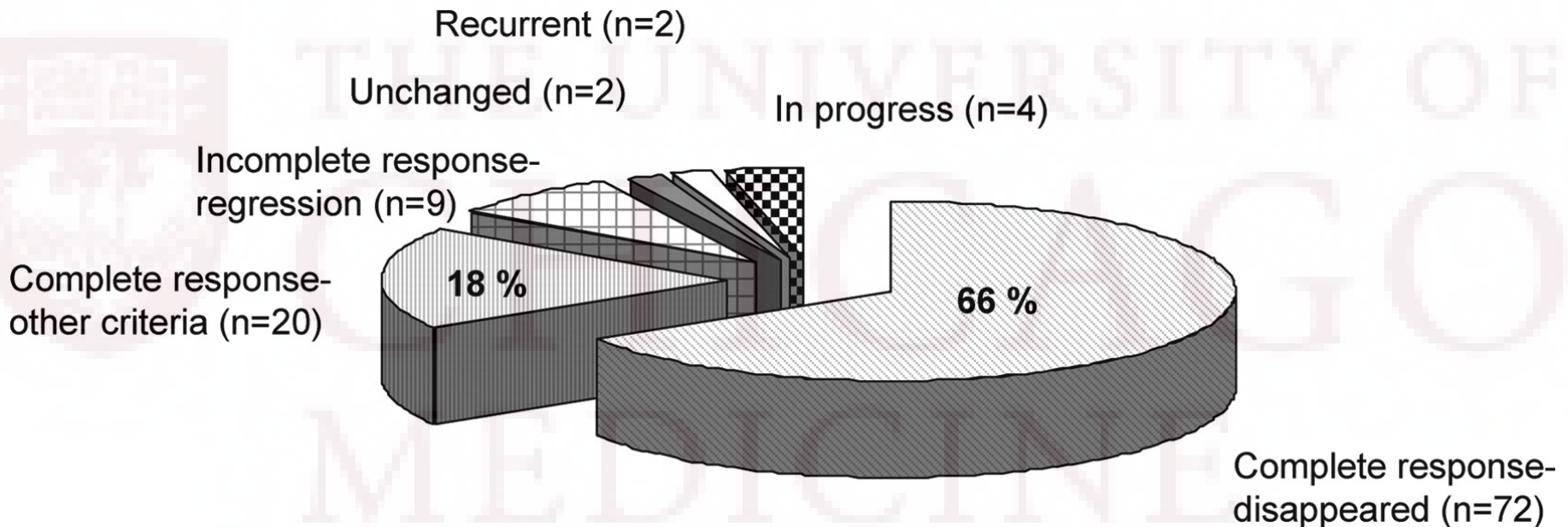
- **History of repeated neck explorations**
- **ATA 2009 Guidelines***
 - **The rates of cervical lymph node metastases generally range from about 20% to 50% in most large series of DTC, with higher rates in children or when micrometastases are considered**
 - **The location and number of lymph node metastases is often difficult to identify before, during, or after surgery, especially micrometastases**
 - **Although postoperative ¹³¹I given to ablate the thyroid remnant undoubtedly destroys some micrometastases, the most common site of recurrence is in cervical lymph nodes, which comprise the majority of all recurrence.**
 - **Future research must consider the dilemma of minimizing iatrogenic patient harm versus preventing cancer morbidity and (perhaps) mortality.**
 - **Perhaps techniques will be developed to safely remove or destroy small cervical nodal metastases, which in some cases would otherwise progress to overt, clinically significant metastases.**
 - **Conversely, the clinical significance of very small (<0.5 cm) nodal metastases needs to be clarified by long-term follow-up studies.**
 - **Development of a cost-effective method to determine which metastases can be safely followed without intervention would be of great benefit.**

Retrospective Analysis

- Over 5 years, 69 patients with papillary thyroid carcinoma and cervical metastatic lymph nodes were retrospectively included in this study
- Patients had undergone total thyroidectomy followed by RAI



The outcome of PEI treatment of neck lymph node metastases (n = 109)



Take Home Points

- Ethanol ablation is a consideration for patients with recurrent neck metastasis
 - Clearly indicated when repeat surgery puts patient at increased risk for significant surgical complications
 - University of Chicago radiology performs the procedure on selected patients
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