

# ENDORAMA

## “A CASE OF INCIDENTAL THYROID NODULE”

Kelvin Memeh MD, MRCS  
Fellow, Endocrine Surgery.

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- Learning objectives:
  - Diagnosis and work up of Medullary thyroid cancer
  - Considerations during surgery
  - Post operative surveillance

- 79 y/o F who presented for evaluation of bilateral thyroid nodules found incidentally.
  - Originally underwent CXR. This was followed up with CT Chest which showed a left thyroid nodule.
  - No compressive or toxic symptoms.
  - No hx of head/neck or chest radiation

- ROS: Negative
- PMH: HTN, Vit D Deficiency
- FH: Neg for thyroid cancer or other malignancy; Negative for other endocrinopathy

- Physical Exam:

- Trachea normal, normal range of motion,
- Phonation normal.
- Neck supple. No neck tenderness present.
- No tracheal deviation, no edema
- Normal range of motion present.
- No thyroid mass palpable and no thyromegaly .

- Next test?



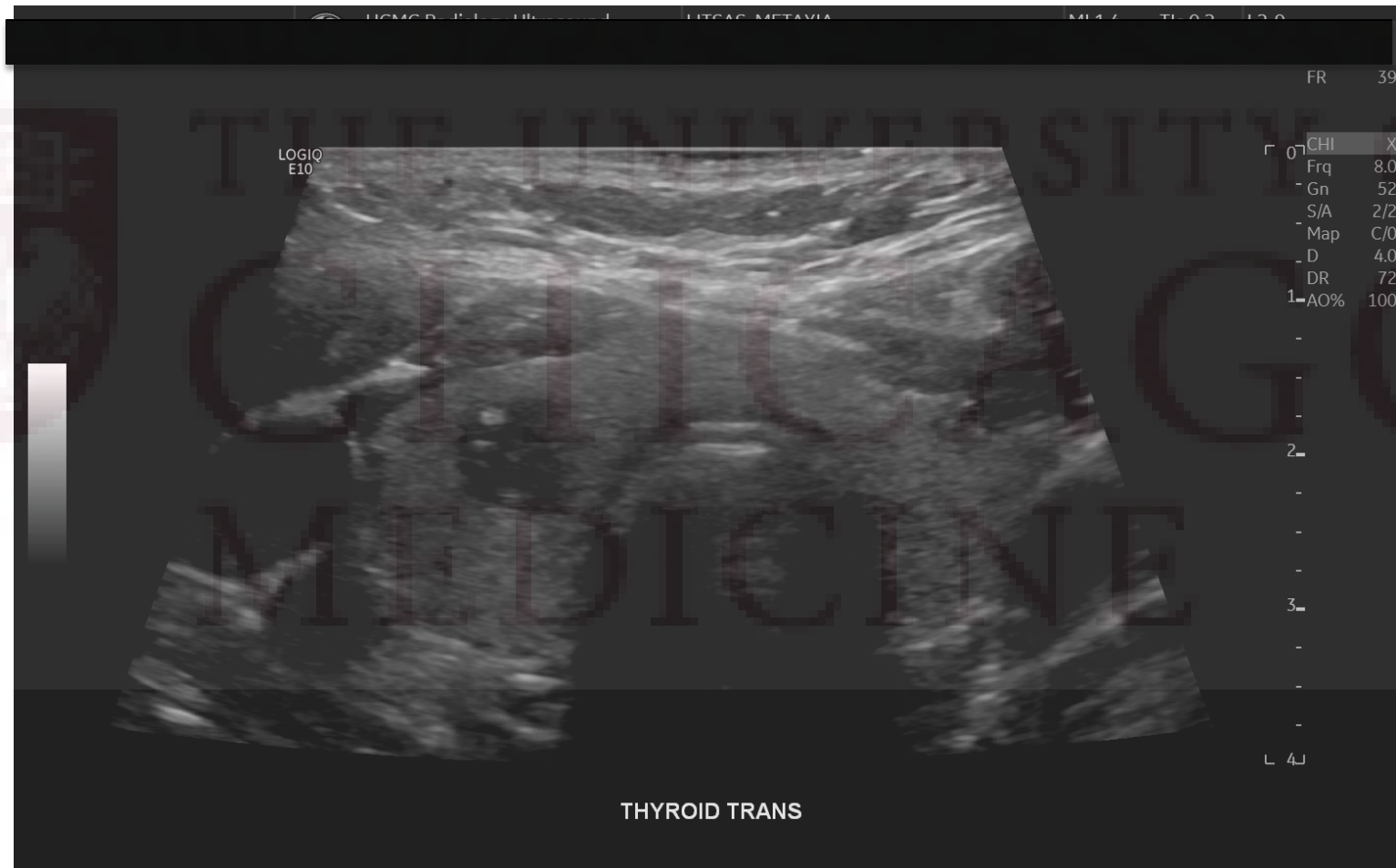
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- Thyroid Ultrasound



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# DIAGNOSTIC WORK UP

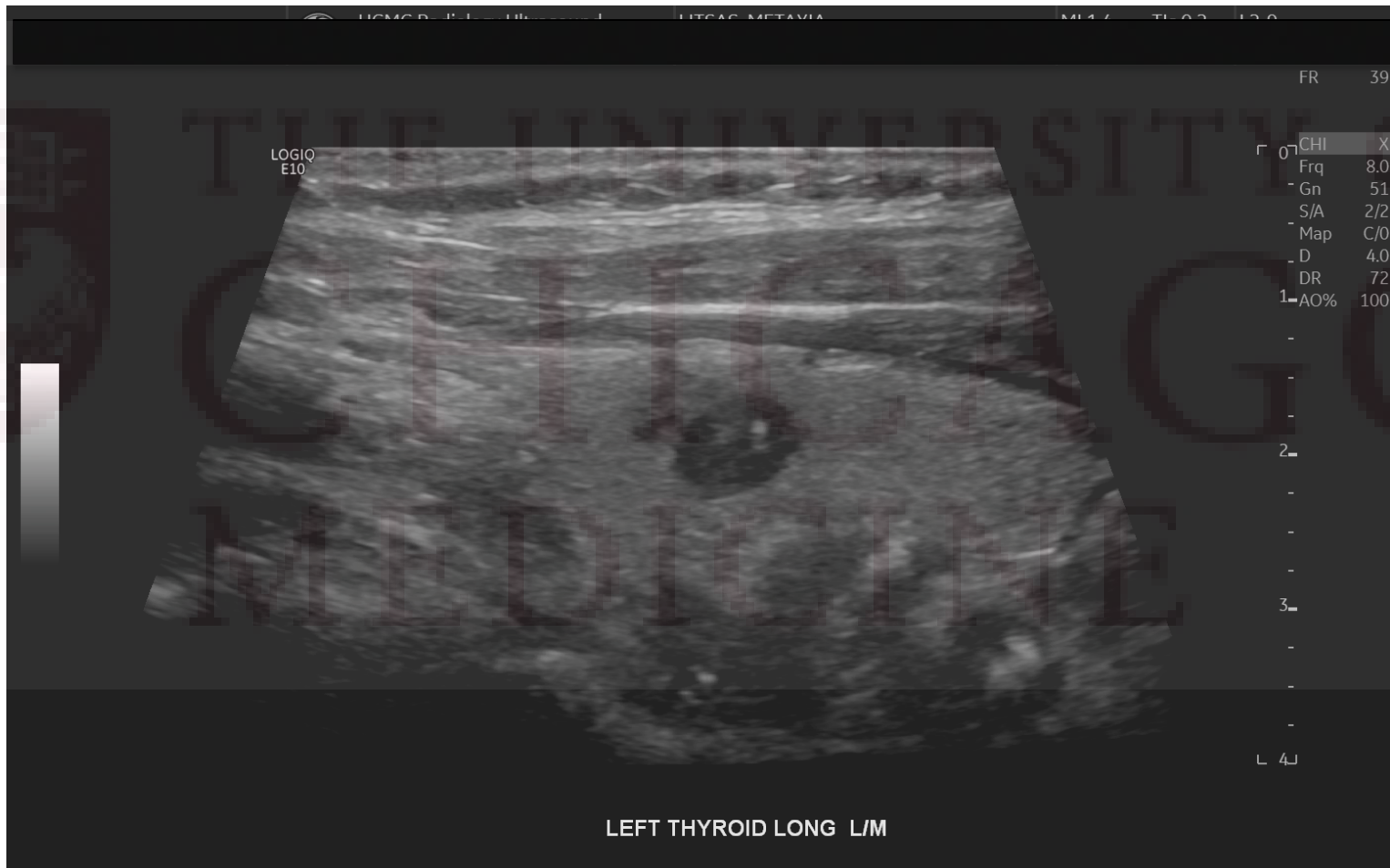




# DIAGNOSTIC WORK UP



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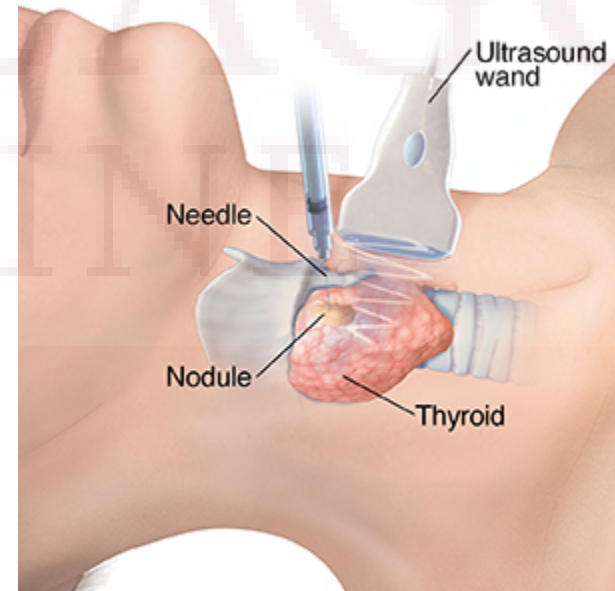
# DIAGNOSTIC WORK UP

- Thyroid Ultrasound:
  - Right lobe 1.1x0.9x1.0cm nodule, TiRADS 5; highly suspicious.
  - Left lobe 1.2x0.8x1.2cm nodule, TiRADS 5; highly suspicious.
  - No suspicious lateral LN

# DIAGNOSTIC WORK UP

- **Bilateral FNA:**

- Right Nodule FNA: AUS
- Left lobe Nodule FNA: suspicious for medullary thyroid cancer.



- Ready to go to OR?



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# DIAGNOSTIC WORK UP

- CEA 17.5 (<3.5)
- Calcitonin 217 (<5)
- TSH 2.5
- PTH and Calcium level normal
- Serum metanephrines normal
- Genetic testing

- Plan?




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# TREATMENT

- OR

- Total thyroidectomy
- Central node dissection
- Bilateral recurrent laryngeal nerve monitoring





- Pathology (pT1b(m), N1a)

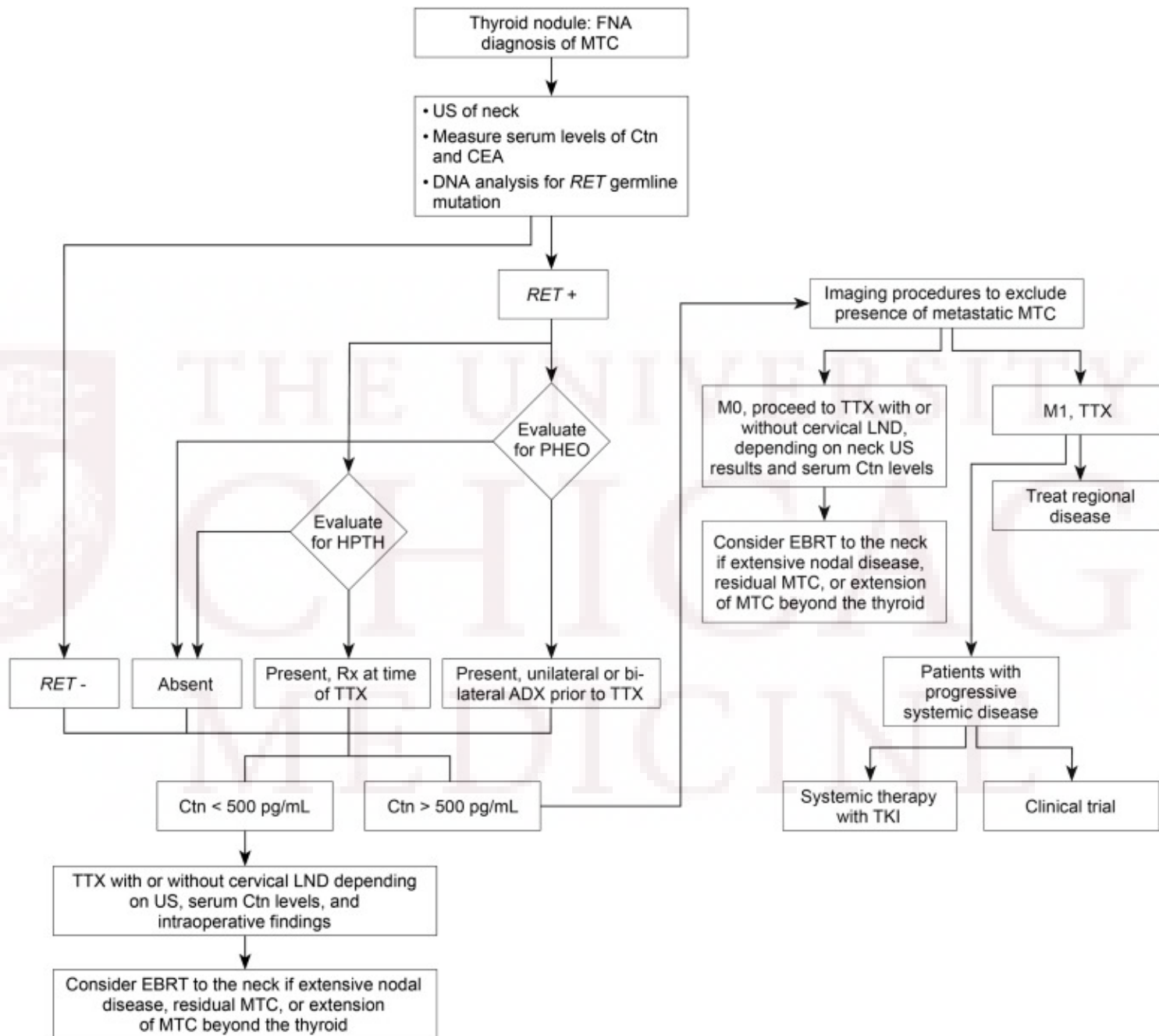
- Total thyroidectomy: MTC (1.5 cm right lobe, 1 cm left lobe)
- Left level 6 lymph node: MTC (2/6), largest focus 0.2 cm, no extranodal extension.
- Right level 6 lymph node; no carcinoma (0/1).

# MEDULLARY THYROID CANCER

- Neuroendocrine tumors arising from parafollicular( C) cells of the thyroid
- Comprises 1-2% of thyroid cancers
- MTC arises sporadic( 75%) or hereditary (25%)
- Which hereditary syndromes ?

# MEDULLARY THYROID CANCER

- Hereditary Syndromes:
  - MEN2A
  - MEN2B
  - Familial MTC
- RET (**Re** arranged during **T**ransfection) in 1985
  - RET is a protooncogene is expressed by neural crest cells
  - Located on chromosome 10
  - Encodes a transmembrane receptor of the tyrosine kinase family



# TREATMENT

THYROID  
Volume 25, Number 6, 2015  
© American Thyroid Association  
DOI: 10.1089/thy.2014.0335

SPECIAL ARTICLE

## Revised American Thyroid Association Guidelines for the Management of Medullary Thyroid Carcinoma

The American Thyroid Association Guidelines Task Force  
on Medullary Thyroid Carcinoma

Samuel A. Wells, Jr.,<sup>1,\*</sup> Sylvia L. Asa,<sup>2</sup> Henning Dralle,<sup>3</sup> Rossella Elisei,<sup>4</sup> Douglas B. Evans,<sup>5</sup>  
Robert F. Gagel,<sup>6</sup> Nancy Lee,<sup>7</sup> Andreas Machens,<sup>3</sup> Jeffrey F. Moley,<sup>8</sup> Furio Pacini,<sup>9</sup> Friedhelm Raue,<sup>10</sup>  
Karin Frank-Raue,<sup>10</sup> Bruce Robinson,<sup>11</sup> M. Sara Rosenthal,<sup>12</sup> Massimo Santoro,<sup>13</sup> Martin Schlumberger,<sup>14</sup>  
Manisha Shah,<sup>15</sup> and Steven G. Waguespack<sup>6</sup>

# SURGICAL STRATEGIES

MTC in neck and no US evidence of neck nodes

- TT+ CND (level VI)

\* 50 – 75% will have mets to central cervical LN

Wells SA Jr, Asa SL, Dralle H, et al. Revised American Thyroid Association guidelines for the management of medullary thyroid carcinoma. *Thyroid*. 2015;25(6):567–610.  
doi:10.1089/thy.2014.0335

Moley JF, DeBenedetti MK. 1999. Patterns of nodal metastases in palpable medullary thyroid carcinoma: recommendations for extent of node dissection. *Ann Surg* 229:880–887; discussion 887–888

# SURGICAL STRATEGIES

- MTC in neck and cervical nodes
  - TT+ CND (level VI)

## MTC + lateral neck nodes positive on US

- TT, + Central node and Lateral ND
  - \* 10.1, 77% and 98 % if 0, 1-4 Or > 4 LN are positive in the central neck
- Consider contralateral neck dissection if calcitonin >200

Machens A, Hauptmann S, Dralle H. 2008. Prediction of lateral lymph node metastases in medullary thyroid cancer. Br J Surg 95:586–591

Machens A, Dralle H. 2010. Biomarker-based risk stratification for previously untreated medullary thyroid cancer. J Clin Endocrinol Metab 95:2655–2663

# SURGICAL STRATEGIES

- MTC in neck and no cervical nodes →
  - TT+ CND (level VI)
- MTC + lateral neck nodes positive on US
  - TT, + central and Lateral ND
  - Consider contralateral neck dissection if calcitonin >200

MTC + no neck metastases+ no distant metastases

- TT, CND, consider lateral neck dissection based on calcitonin levels (No consensus)



# MEDULLARY THYROID CANCER

- Post operative surveillance?



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# MEDULLARY THYROID CANCER

- Thyroid C-cells secrete hormones or amines
  - Adrenocorticotrophic hormone (ACTH)
  - Chromogranin
  - Calcitonin
  - Carcinoembryonic antigen (CEA)
  - Neurotensin

# MEDULLARY THYROID CANCER

- Thyroid C-cells secrete hormones or amines

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- **Calcitonin**
- **Carcinoembryonic antigen (CEA)**
- Neurotensin

# MEDULLARY THYROID CANCER

- **Post operative surveillance: Calcitonin and CEA Serum**
  - Concentrations are directly correlated to the C-cell mass.
  - Tumor markers to evaluate recurrence or progression
  - 3 months post op, then every 6months x 1year, then annually
  - When elevated together → progression of disease
  - ?Utility of Neck US in the setting of normal CEA/Calcitonin.
  - CEA and Calcitonin normal or low → advanced and de-differentiation of cells

- Back to our patient



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- Post operative Surveillance

- Thyroid Ultrasound
- Calcitonin – Undetectable (<5)
- CEA 6 (<3.5)
- Genetic testing