



MEN What? A Tour of the Endocrine Glands

Priya Dedhia MD PhD¹, Kerri Lopez BS¹, Anupama Reddy DO², Jon McHugh MD³, Eric Langer DO², Barbra Miller MD¹

1 Division of Endocrine Surgery, Department of Surgery, University of Michigan
2 Tri-County Endocrinology & Nuclear Medicine, McLaren Health Care – Macomb, MI
3 Division of Anatomic Pathology, Department of Pathology, University of Michigan

Disclosures



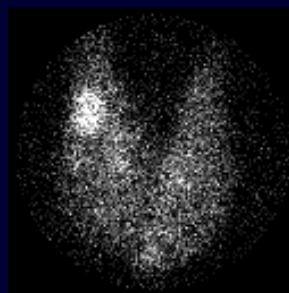
PD, KL, AR, JM, BM - Nothing to disclose

Eric Langer, DO – Speakers Bureau: Novo Nordisk and Medtronic

History



- 53yo Iraqi F presents to outside facility for thyroid evaluation
 - Multinodular goiter since childhood, subclinical hyperthyroidism diagnosed 2007
 - No dysphagia, SOB, voice changes, tenderness
 - Benign thyroid FNA in 2010 (site unknown)
 - TSH 0.29 (0.50-4.78), free T3 3.3, free T4 1.4, TSI and TPO Ab negative
 - Surveillance US demonstrated enlarging nodule in right lobe
 - I-123 scan with increased uptake in right lobe, no photopenic areas, no contralateral suppression, 24 hr uptake 25.8%
- PMH: Migraines, back pain, nephrolithiasis, tachyarrhythmia
- FH: Hyperthyroidism in multiple siblings



Physical Exam

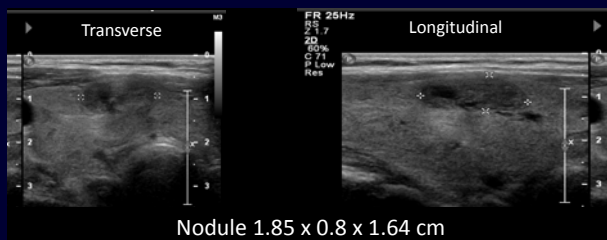


- Vital Signs: 37.1 °C, 93, BP 122/68, 18, 5'4", 85.367 kg, BMI 32.49 kg/m². Non-Cushingoid appearance.
- HEENT: WNL
- Neck: diffusely enlarged thyroid, soft, mobile, non-tender. No obvious cervical lymphadenopathy.
- Chest: clear to auscultation bilaterally
- CV: RRR
- Abdomen: soft, no striae
- Extremities: warm, dry, and neurovascularly intact
- Skin: warm and dry, intact, no edema, no rashes
- Neurologic: A&Ox3, motor and sensory exam intact
- Normal bilateral vocal cord motion by videolaryngoscopy

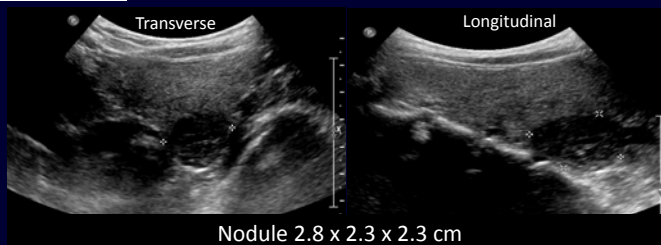
Ultrasound



Right lobe - 10.4 x 6.0 x 3.8 cm



Left lobe - 8.0 x 4.0 x 3.7 cm



FNA

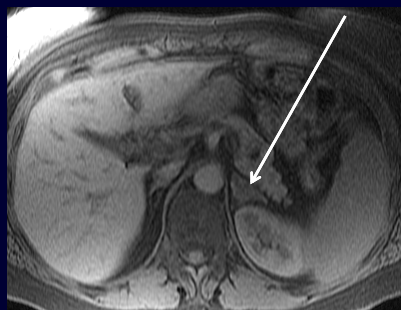


- Right nodule
 - Colloid nodule
 - Rare atypical cells similar to left nodule but less abundant
- Left nodule
 - High grade malignant neoplasm of unknown etiology
 - Numerous singly dispersed and clustered malignant cells with sparse cytoplasm
 - Irregular nuclear membranes, coarse chromatin, variable nucleoli
 - Background benign follicular cells and occasional clusters of benign lymphoid cells

Oh by the way....



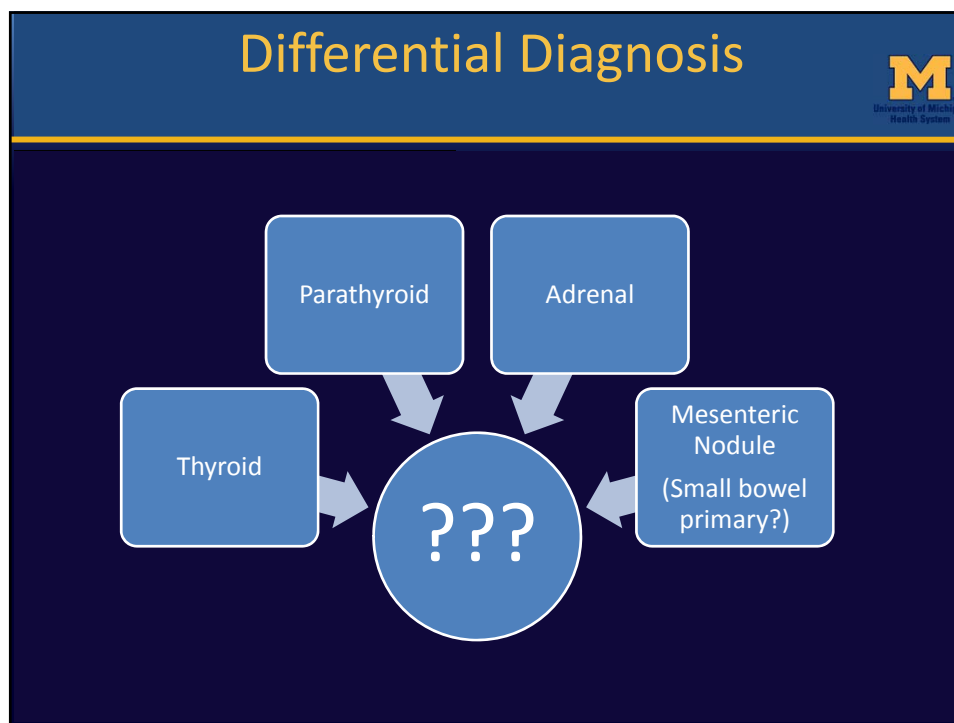
- “They told me I have an adrenal nodule. Can you look at it, too?”
- Incidentally noted on MRI done for back pain in past year
- 2.4 x 2.0 x 2.7 cm indeterminate left adrenal nodule
 - Heterogeneous
 - 13% signal loss between phases
 - No macroscopic fat



Additional Lab Studies



- CBC/Electrolytes – WNL
- Aldosterone – 10.9 (4-31 ng/dL)
- Renin - <0.1 ng/mL/hr
- Potassium – 4.5 mmol/L
- Plasma metanephrine – 0.33 (<0.50 nmol/L)
- Plasma normetanephrine – 0.45 (<0.90 nmol/L)
- ACTH – 27 (5-52 pg/mL)
- 24 hour urine free cortisol - 21.2 (<45 mcg)
- 1mg overnight dex suppression a.m. cortisol - 0.7 (4-20 mcg/dL)
- 17OH Progesterone and free testosterone - WNL
- Calcitonin - <2 (<12 pg/ml)
- CEA - <1 (<3.0 ng/ml)
- Ca - 10.1 (8.6-10.3 mg/dL)
- PTH - 115 (10-65 pg/mL)
- 25-OH Vitamin D – 22 (25-100 ng/mL)



Surgery

- Total thyroidectomy with limited sampling of central neck lymph nodes
 - Thyroid frozen section indeterminate
 - Firm, borderline enlarged central neck LN benign by frozen section analysis
- Right inferior parathyroidectomy
 - Other parathyroid glands with normal morphology
 - Baseline PTH – 224 pg/ml
 - Final PTH – 16 pg/ml

University of Michigan Health System

Treatment



- Treatment
 - Hem/Onc consult
 - 6 cycles Rituxan-CHOP chemotherapy
 - 4 Intrathecal methotrexate treatments
 - Further adrenal and mesenteric nodule evaluation deferred until their response to chemo could be assessed
 - Follow-up PET CTs x 2
 - Complete metabolic resolution of disease including adrenal and mesenteric abnormalities



Discussion

Key Teaching Points



- Rare, aggressive subtype of extranodal diffuse large B-cell lymphomas
- 1 case/million, median age 70 years
- **Presentation**
 - Fever of unknown origin
 - CNS and/or cutaneous involvement
 - Hemophagocytic syndrome
- **Treatment:** R-CHOP with CNS prophylaxis
- 66% survival at 2y with R-CHOP
- Follow-up: Exam & labs every 2 mo for 1 yr, then every 4-6 mo, unclear role for surveillance imaging

- **Diagnosis**
 - Tissue biopsy (including brain and random skin)
 - MRI Head resembles vasculitis
- **Staging**
 - Peripheral blood smear
 - Whole body CT and PET scan, MRI head
 - CSF cytology, BM biopsy



Orwat DE, et al. Arch Pathol Lab Med. 2012

Involved organs	n (%)
Bone marrow	54 (56)
Liver	14 (15)
Spleen	13 (14)
Skin	6 (6)
Lung	5 (5)
Lymph node	3 (3)
Adrenal	2 (2)
Brain	2 (2)
Kidney	2 (2)
Waldeyer ring	1 (1)
Psoas muscles	1 (1)
Uterus	1 (1)
Thyroid	1 (1)
Testes	1 (1)
Paranasal sinus	1 (1)
Ureter	1 (1)
Ileum	1 (1)

Murase T, et al Blood 2007