



# 44F with Thyroid Mass

Isabel Casimiro, MD PhD  
6/29/17

# Consult Question

- Work up for neck/thyroid mass concerning for cancer?



THE UNIVERSITY OF  
CHICAGO  
MEDICINE

# Consult Question

- Work up for neck/thyroid mass concerning for cancer?



THE UNIVERSITY OF  
CHICAGO  
MEDICINE

# Initial Management



# Initial Management

- History and Physical Exam
- Measurement of serum TSH
- US to confirm presence of nodule, assess sonographic features and presence of additional nodules and LN

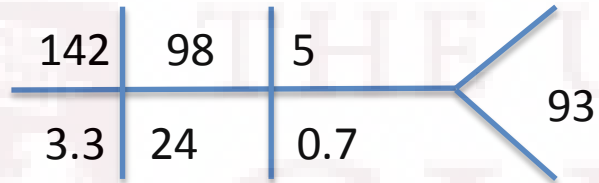
# HPI

- 44F w Hx of tobacco abuse, substance abuse on methadone presented to an OSH for SOB.
- Found to have pulmonary nodules became septic requiring intubation and 3 week ICU stay.
- Course was complicated by development of cholecystitis and eventually fistula/wall abscess.
- MRI, CT and neck US from OSH show very large L sided mass (not biopsied).
- Pt reports being told it “was too close to something important” as the reason for it not being biopsied initially. Reports the mass was very large and then “went away the next day.”

# Physical Exam

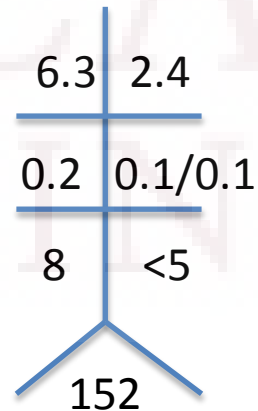
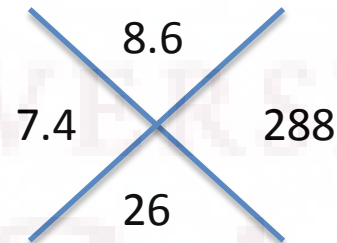
- VS: HR: 80, BP: 100/60, T: 36.9 C, Wt: 73.1kg (161 lbs), SpO2: 96%
- Constitutional: NAD
- HENT: EOMI, oropharynx clear
- Neck: supple, L sided mass palpated near or within thyroid bed extending to SCM
- CV: RRR, nml S1/S2
- Pulm: good respiratory effort, CTAB
- Abd: soft, non-tender, bandage across middle abdomen
- Ext: No edema
- Neuro: alert, oriented
- Skin: warm, dry, dark under eyes
- Psych: Not agitated

# Labs



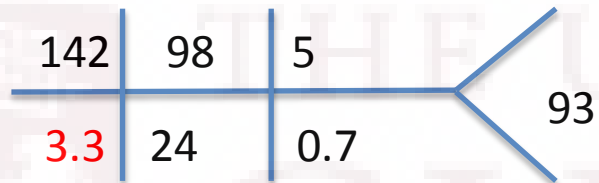
Ca++ 8.4  
Phos 3.8  
Mag 1.7

TSH: 4.06  
FT4: 0.72  
T3: 113



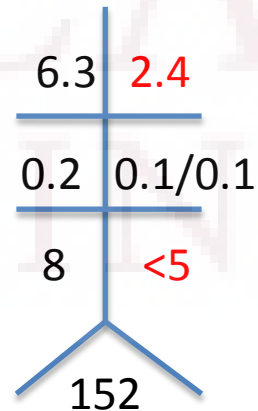
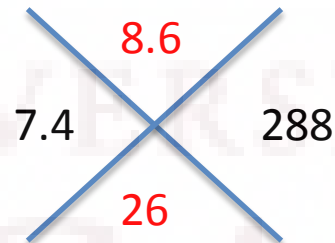


# Labs

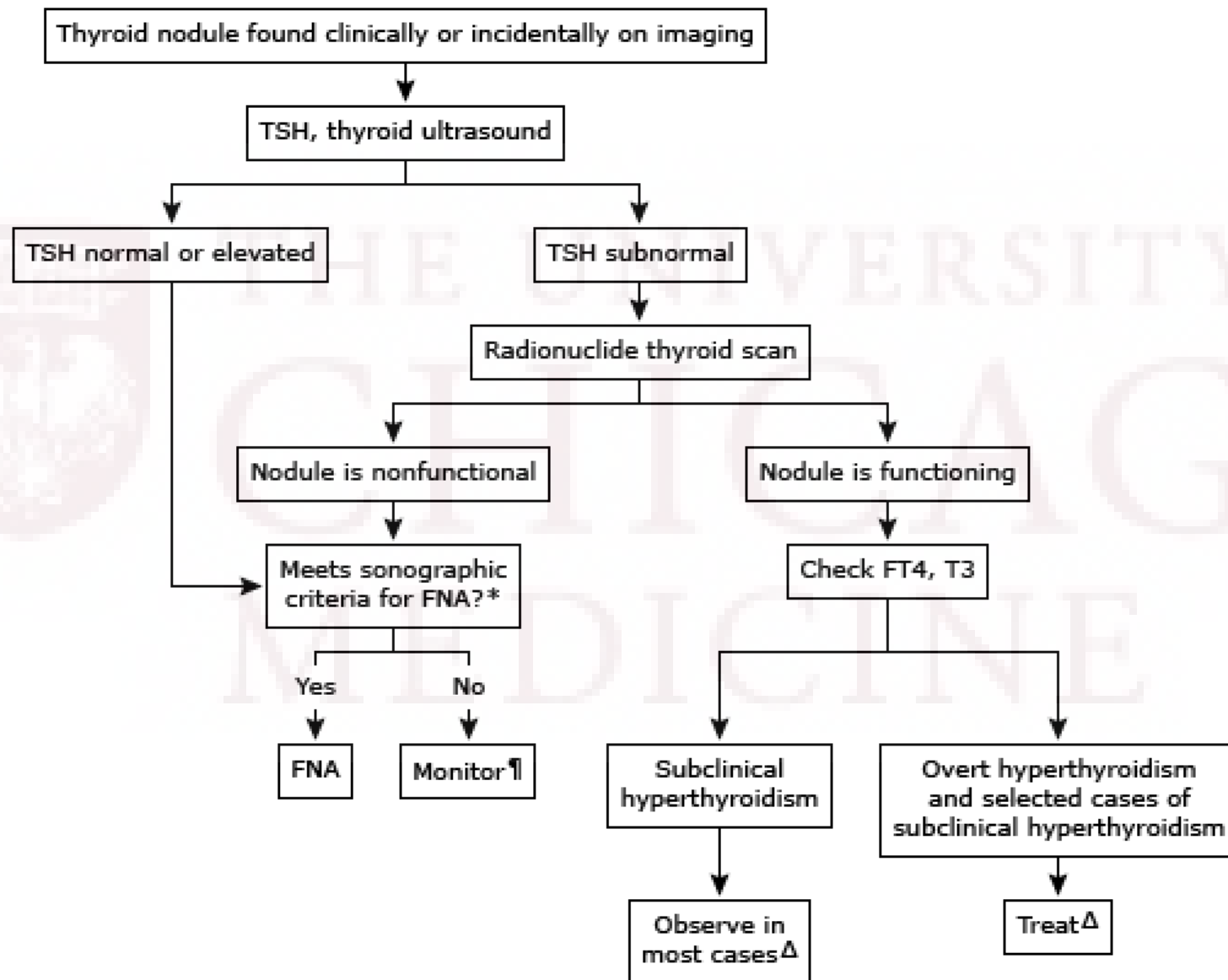


Ca++ 8.4  
Phos 3.8  
Mag 1.7

TSH: 4.06  
FT4: 0.72  
T3: 113



# Initial evaluation of a patient with a thyroid nodule



## Causes of thyroid nodules

Benign	Malignant



THE UNIVERSITY OF  
CHICAGO  
MEDICINE

## Causes of thyroid nodules

Benign	Malignant
Multinodular (sporadic) goiter ("colloid adenoma")	
Hashimoto's (chronic lymphocytic) thyroiditis	
Cysts (colloid, simple, or hemorrhagic)	
Follicular adenomas	
Macrofollicular adenomas	
Microfollicular or cellular adenomas	
Hürthle cell (oxyphil cell) adenomas	
Macro- or microfollicular patterns	

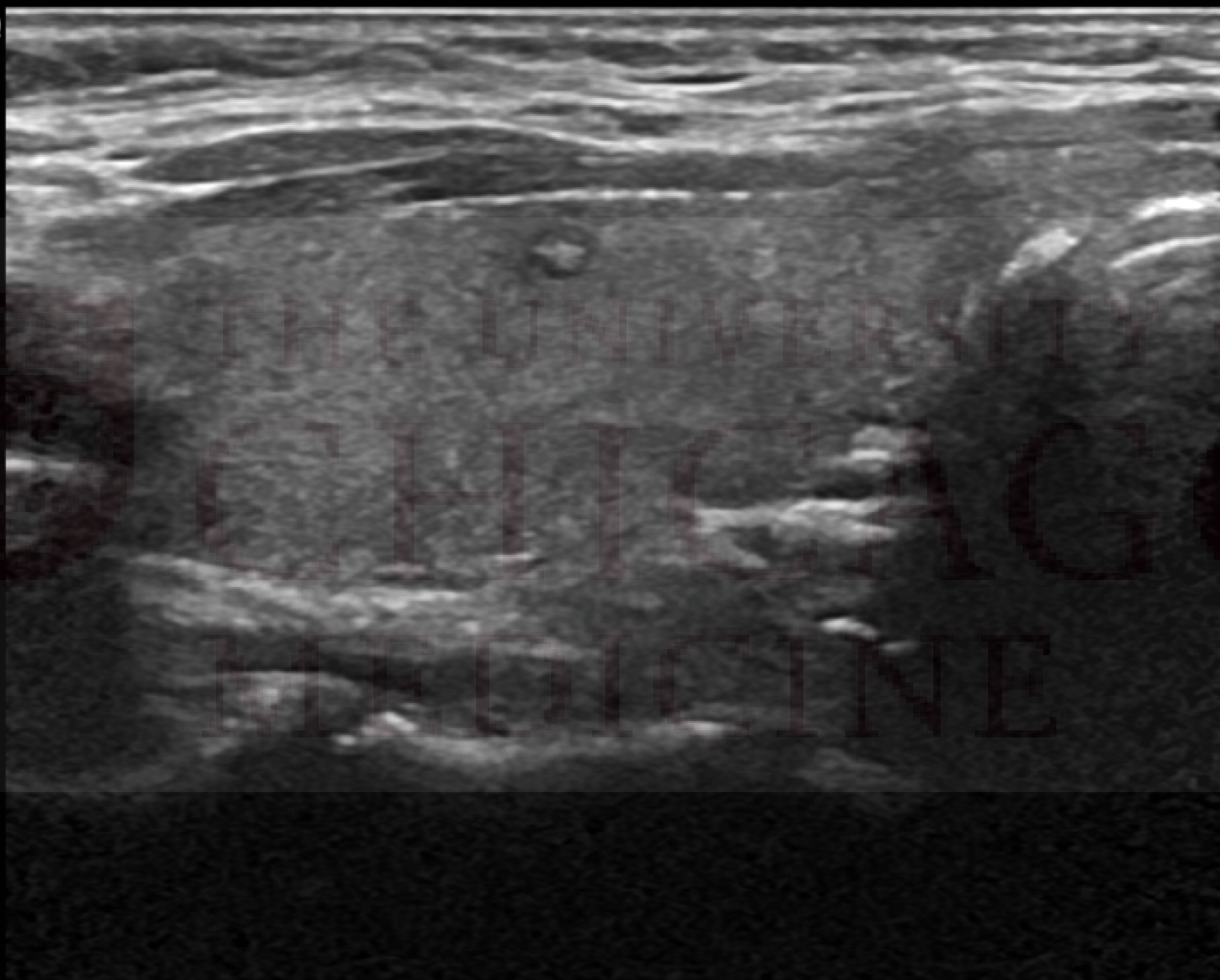
## Causes of thyroid nodules

Benign	Malignant
Multinodular (sporadic) goiter ("colloid adenoma")	Papillary carcinoma
Hashimoto's (chronic lymphocytic) thyroiditis	Follicular carcinoma
Cysts (colloid, simple, or hemorrhagic)	Minimally or widely invasive
Follicular adenomas	Oxyphilic (Hürthle cell) type
Macrofollicular adenomas	Noninvasive follicular thyroid neoplasm with papillary-like nuclear features
Microfollicular or cellular adenomas	Medullary carcinoma
Hürthle cell (oxyphil cell) adenomas	Anaplastic carcinoma
Macro- or microfollicular patterns	Primary thyroid lymphoma
	Metastatic carcinoma (breast, renal cell, others)

# Thyroid US Images



LOGIQ  
E9



LONG RIGHT THYROID

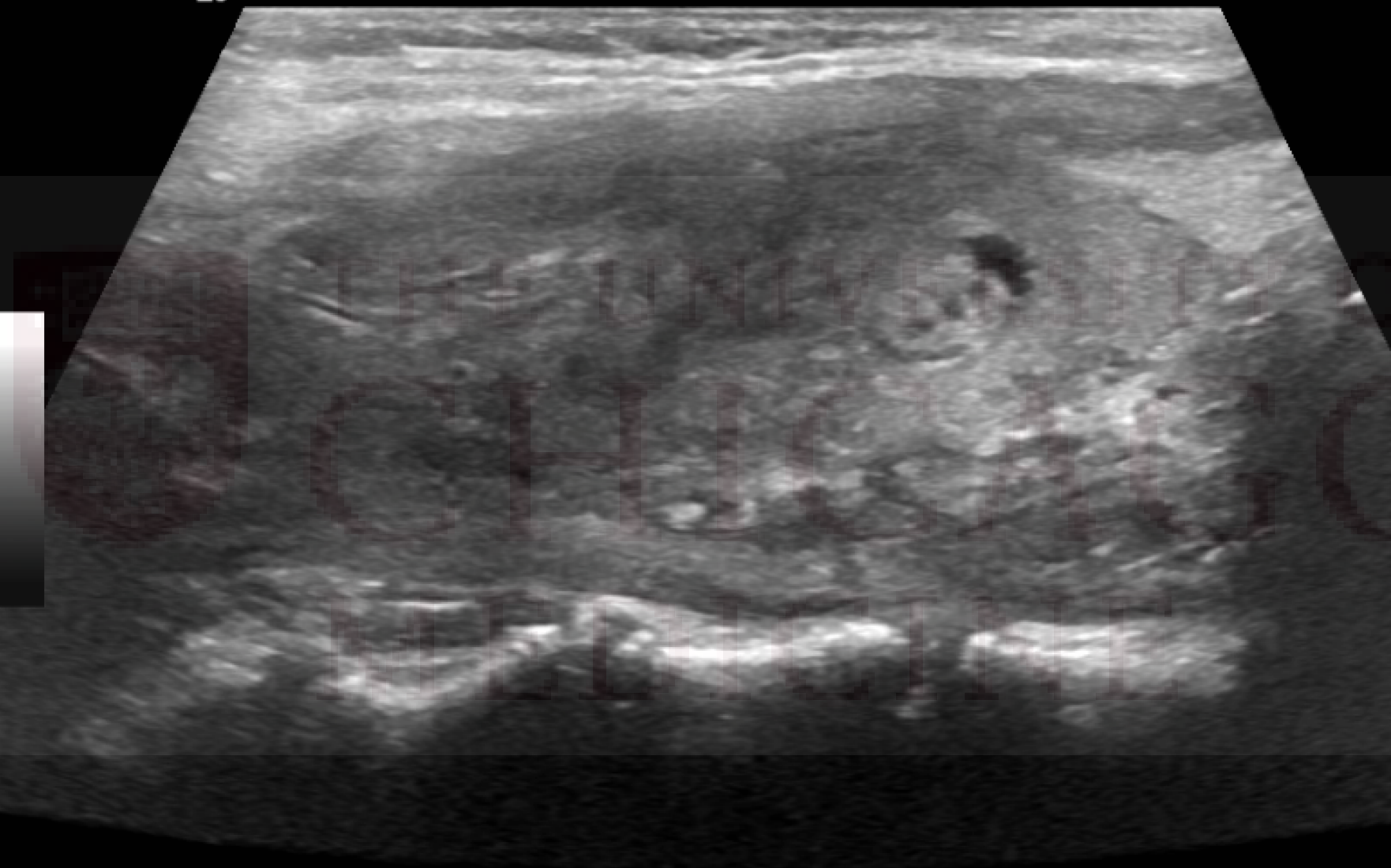
FR  
- CH  
- F  
- G  
- S/  
- M  
- D  
- DR  
- AC

2-

3-

4-

LOGIQ  
E9



LONG THYROID LEFT

0-  
- CH  
- Fr  
- G  
- S/  
1-M  
- D  
- DR  
AC



2-



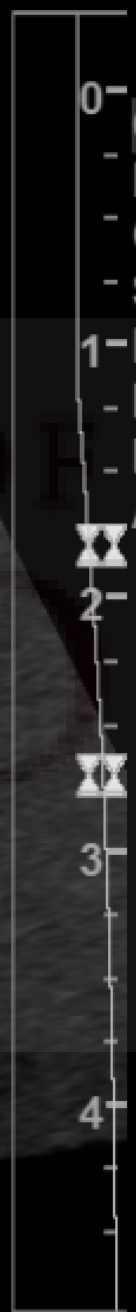
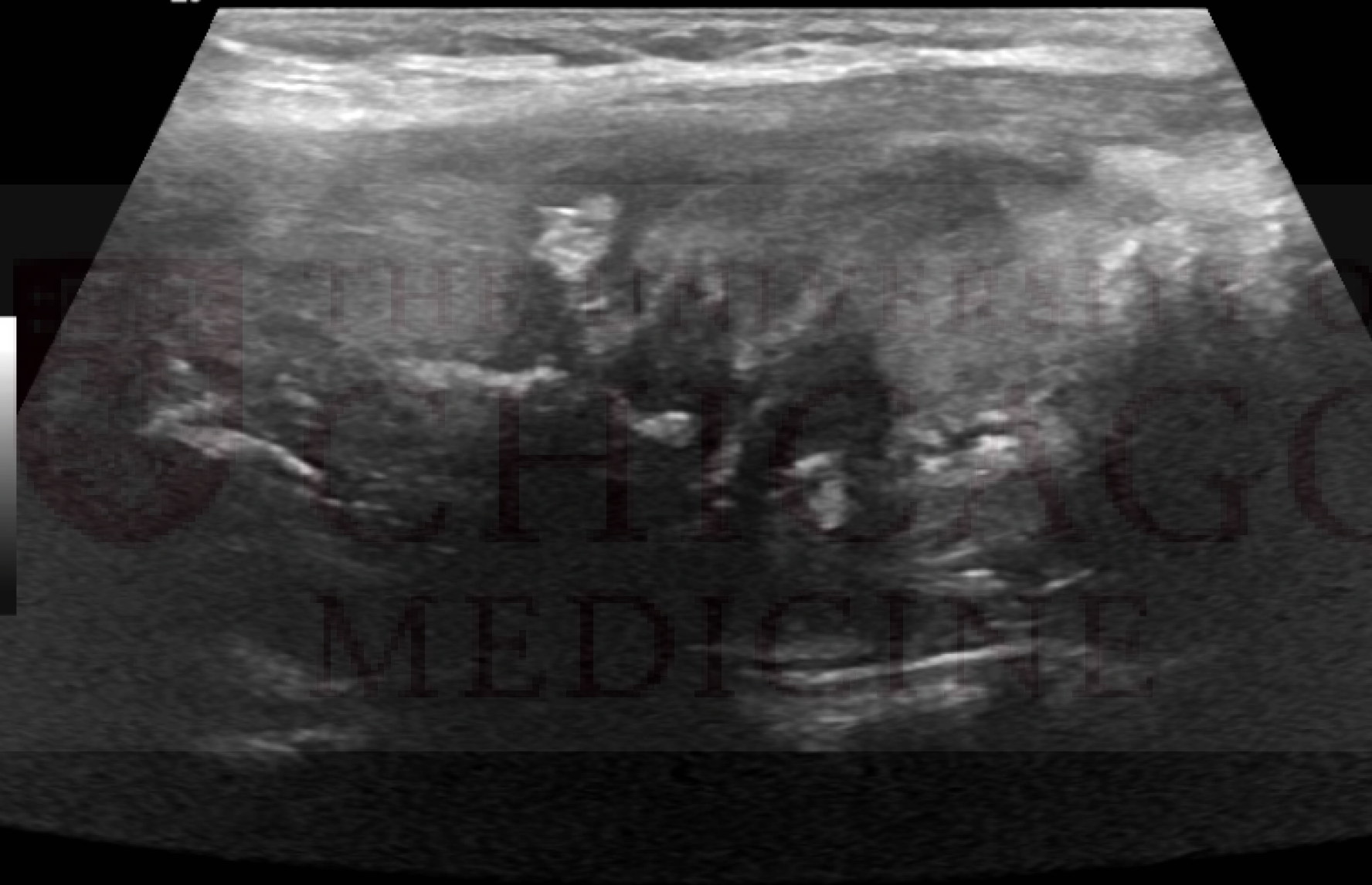
3-

4-

Im

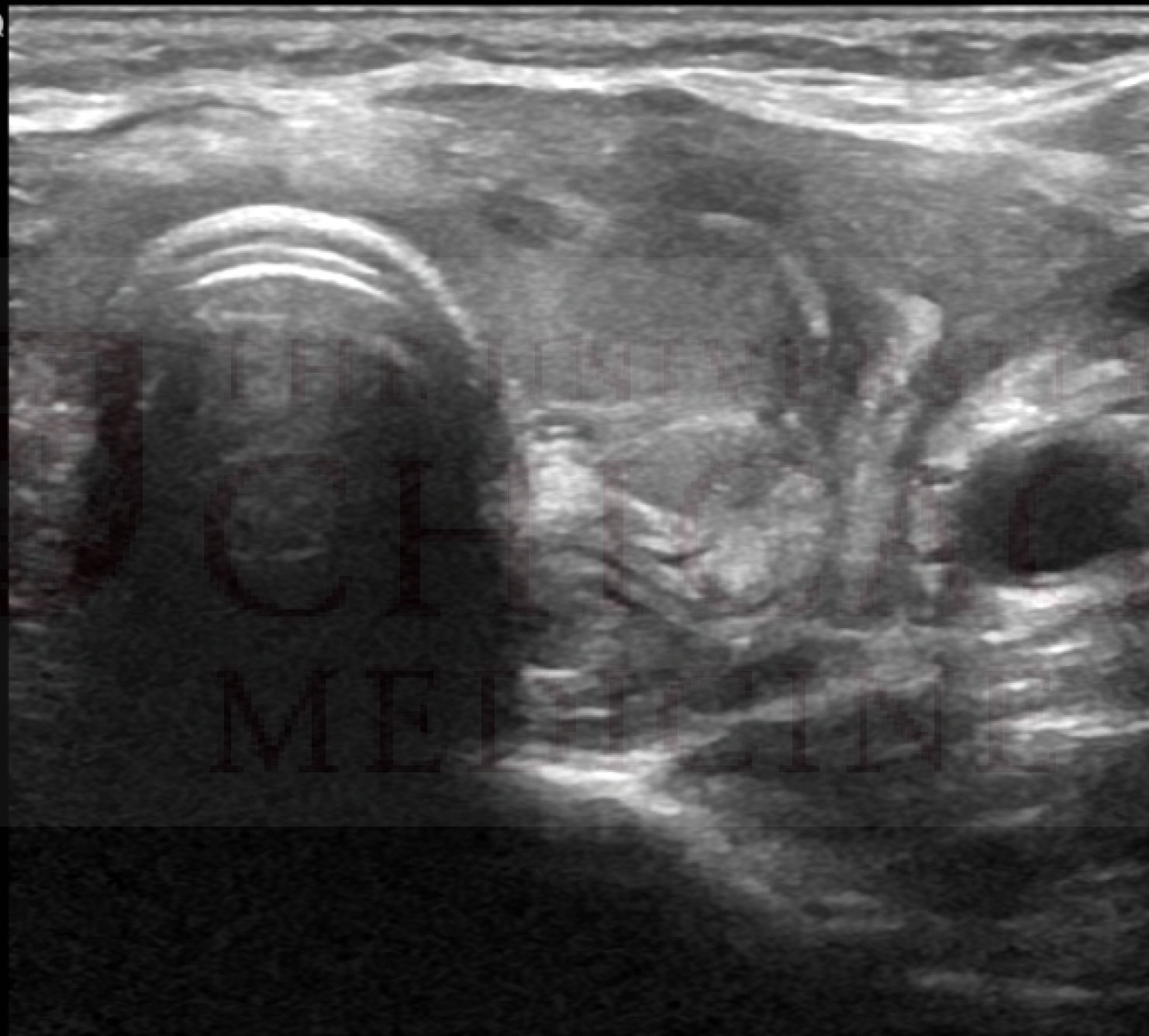


LOGIQ  
E9



LONG THYROID LEFT L/M

LOGIQ  
E9



TRANS THYROID LEFT S/I

1-

2-

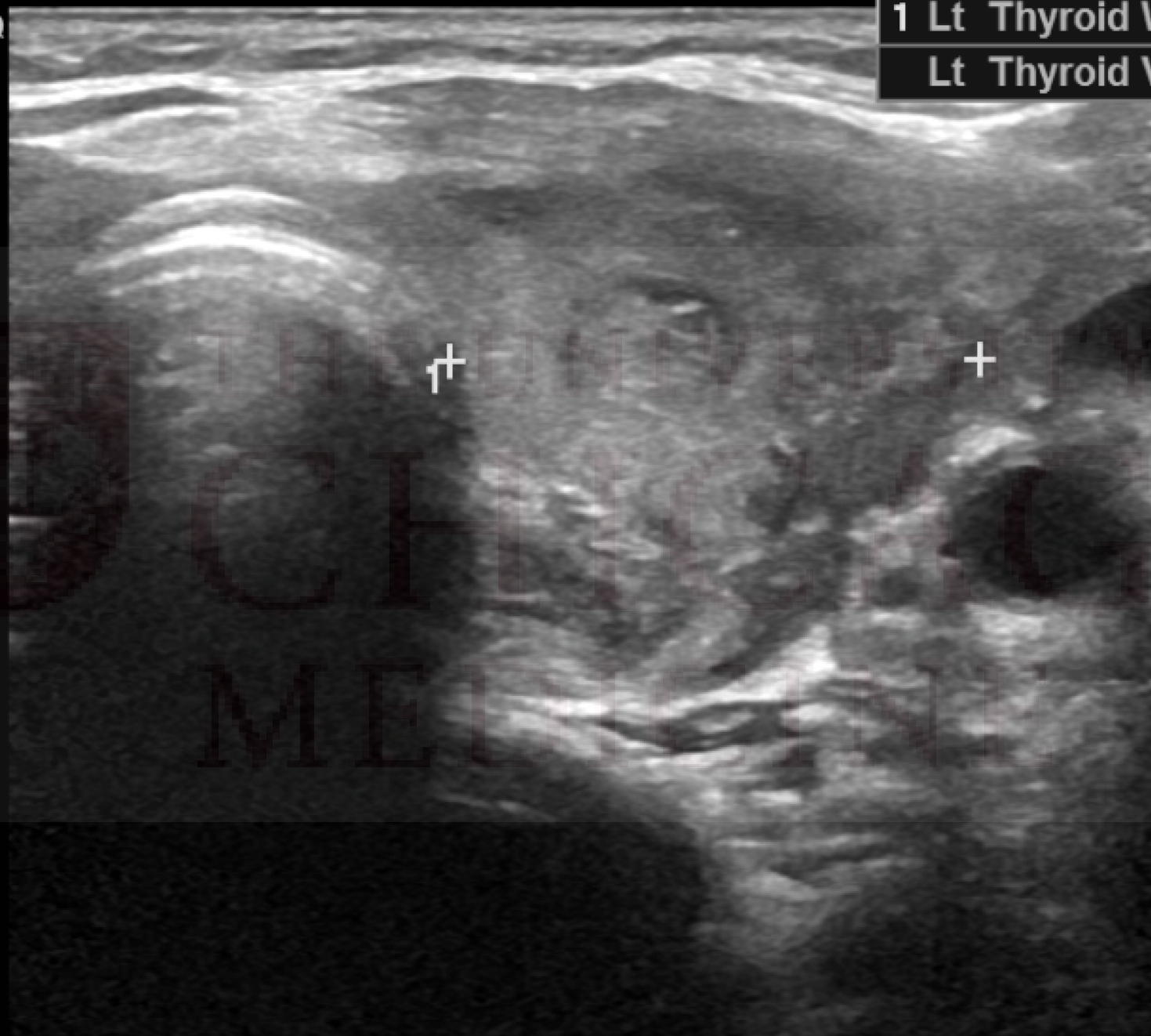
3-

4-

LOGIQ  
E9

1 Lt Thyroid W 2.29 cm

Lt Thyroid Vol 11.56 ml

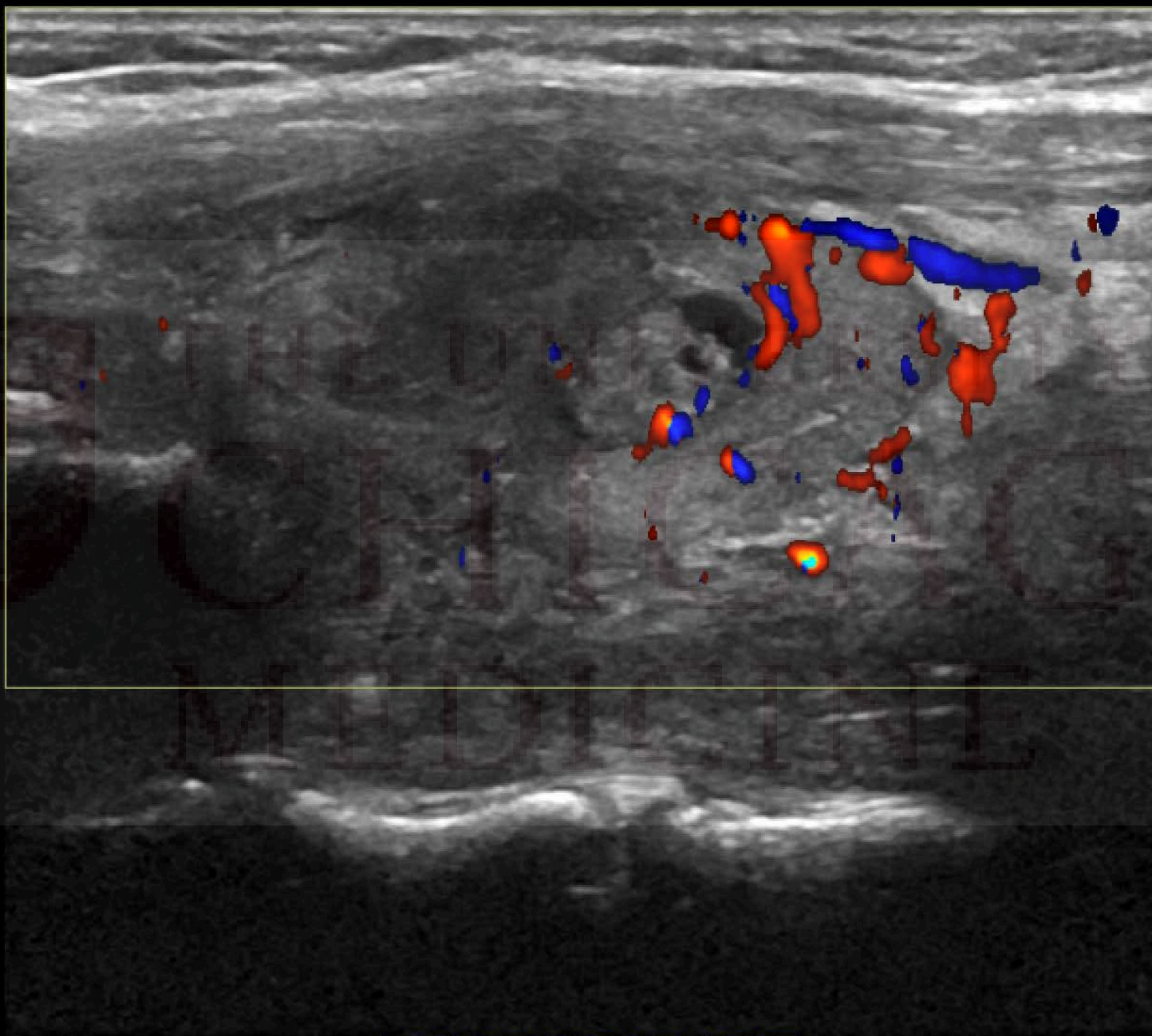


TRANS THYROID LEFT



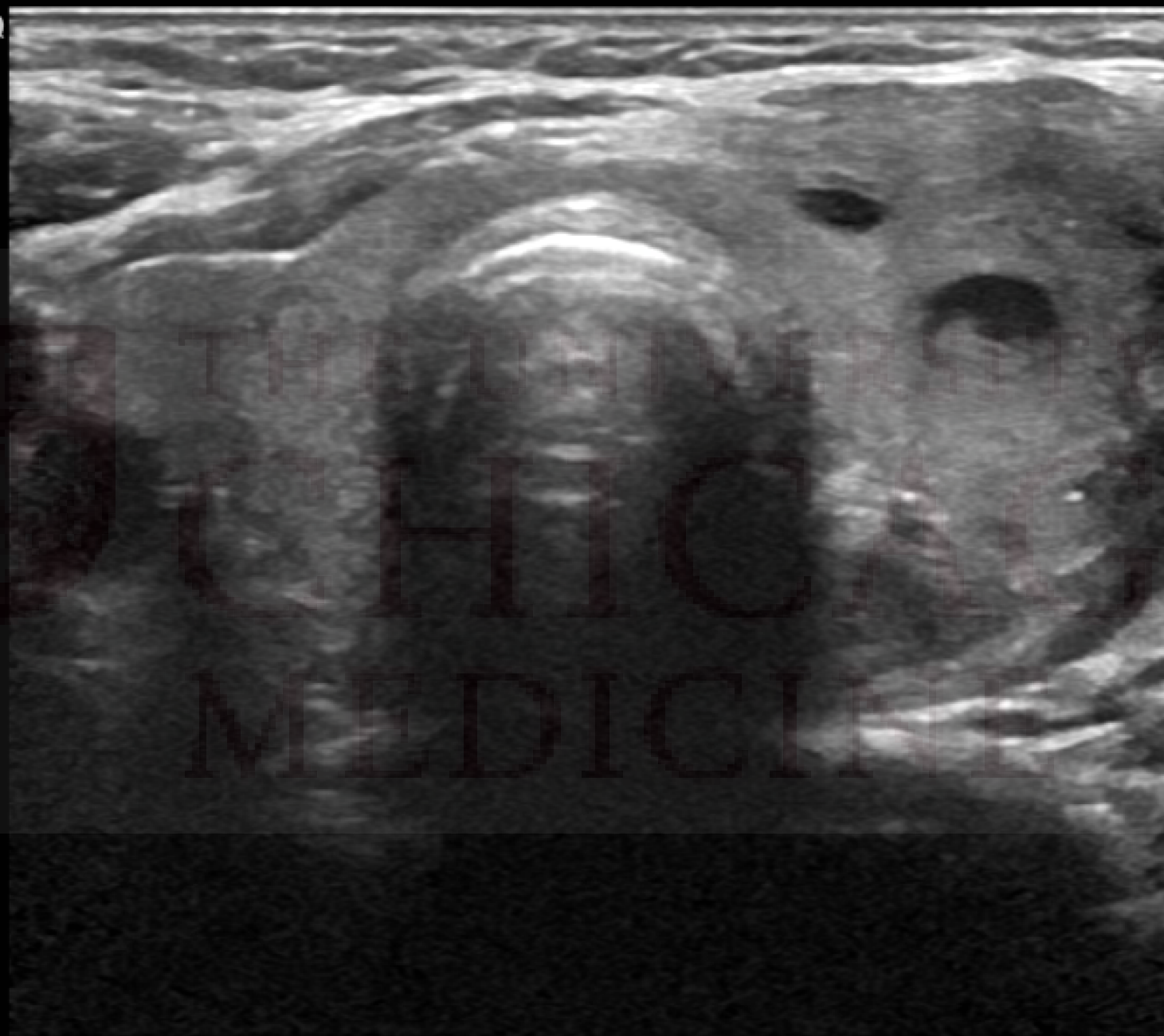
LOGIQ  
E9

2  
12  
cm/s



**LONG THYROID LEFT**

LOGIQ  
E9



TRANS ISTHMUS S/I

1-S

M

D

D

A

A

A

A

A

A

A

A

A

A

A

A

A

A

A

A

A

A

A

A

A

# Final Read

- History: Thyroid mass. Please compare to OSH US for changes.
- IMPRESSION: Large dominant mass left lobe with suspicious features. The appearance is unchanged and the outside hospital US of 2/27/17. Recommend biopsy. Small nodule with possible calcification in the right lobe.

## Causes of thyroid nodules

Benign	Malignant
Multinodular (sporadic) goiter ("colloid adenoma")	Papillary carcinoma
Hashimoto's (chronic lymphocytic) thyroiditis	Follicular carcinoma
Cysts (colloid, simple, or hemorrhagic)	Minimally or widely invasive
Follicular adenomas	Oxyphilic (Hürthle cell) type
Macrofollicular adenomas	Noninvasive follicular thyroid neoplasm with papillary-like nuclear features
Microfollicular or cellular adenomas	Medullary carcinoma
Hürthle cell (oxyphil cell) adenomas	Anaplastic carcinoma
Macro- or microfollicular patterns	Primary thyroid lymphoma
	Metastatic carcinoma (breast, renal cell, others)

What about thyroid masses  
that aren't nodules?

# Thyroid mass/infiltration

- Amyloid goiter, diffuse lipomatosis, sarcoidosis (granulomas), scleroderma (fibrosis)
- Langerhans cell histiocytosis (<40 cases), cystinosis (cystine crystals/fibrosis)
- Hereditary hemochromatosis (iron deposition)
- Infectious processes



# Initial Management

- History and Physical Exam
- Measurement of serum TSH
- US to confirm presence of nodule, assess sonographic features and presence of additional nodules and LN

# Additional History

- At OSH Pt found to have skin and pulmonary nodules
- She developed foot drop and paresthesia
- MRI showed T1/T2 vertebral body enhancing lesion
- R ankle osteomyelitis
- Develops large L sided neck mass MRI, CT and US performed
- Skin nodules biopsied and R ankle osteomyelitis I&D both reveal blastomycosis
- Pt was treated with amphotericin B, this was discontinued due to ATN, switched to itraconazole

# Review of US imaging with Radiology

- Additional Hx given
- Report Addendum: Comparison shows that the large lesion in the left lobe of the thyroid is more solid and organized compared to the prior examination. Although difficult to measure I believe it is also smaller. This is consistent with healing abscess. Biopsy not recommended.

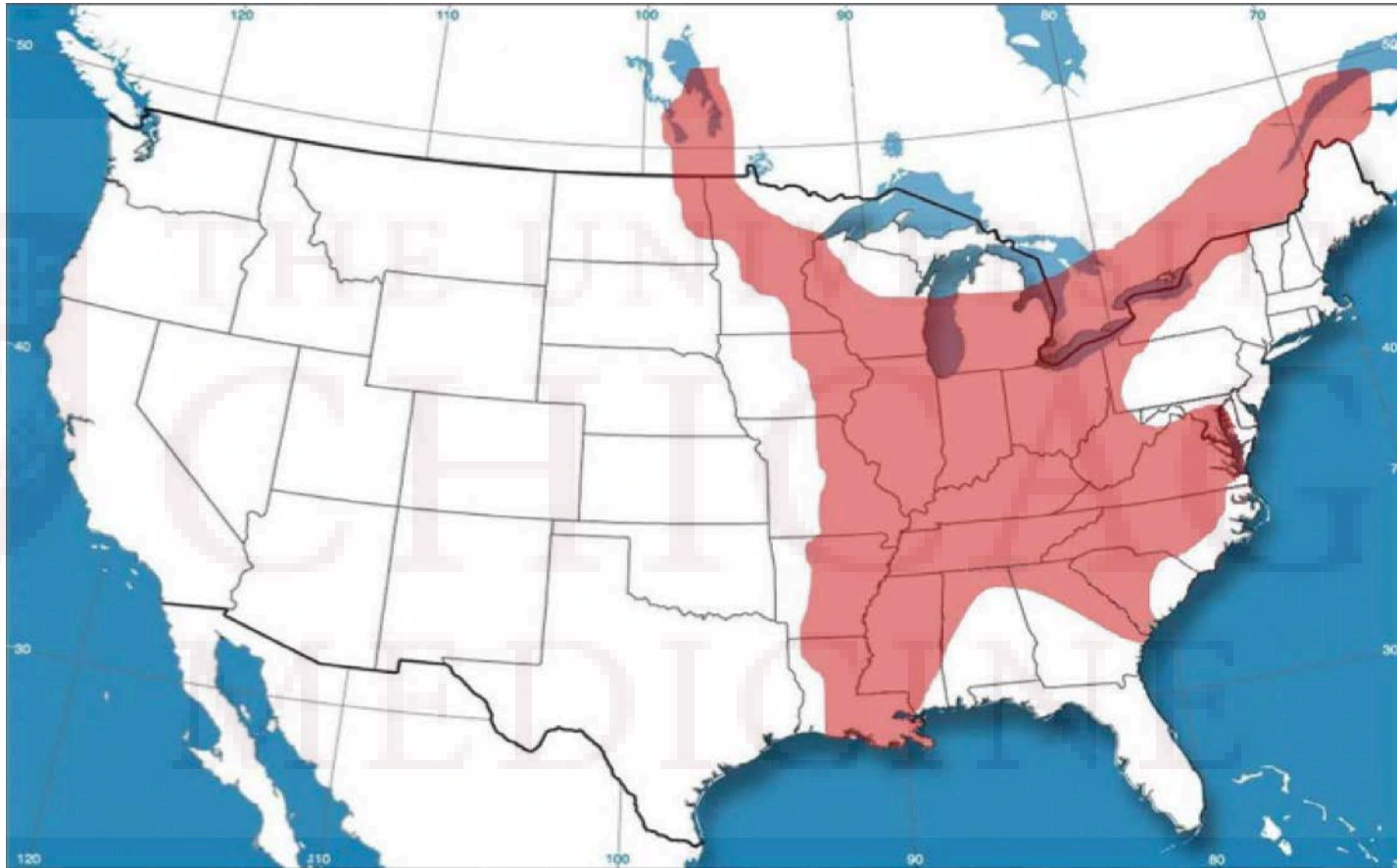
# Infectious Thyroiditis

- Acute or suppurative thyroiditis is due to bacterial, fungal or parasitic infections
- Very rare because the thyroid gland is relatively resistant to infections
  - Hypervascular
  - Encapsulated
  - High iodine content & generation of hydrogen peroxide within the gland
- Fungal thyroiditis is even more rare (31 cases between 1900-1980)
  - 4 known cases of blastomycosis involving the thyroid
- Acute thyroiditis more often seen in immune deficiency

# Blastomycosis

- Uncommon granulomatous infection caused by the dimorphic fungus *Blastomyces dermatitidis*
- Can manifest as chronic pulmonary symptoms or disseminated disease
- Most common route of infection is inhalation of conidia, or spore form into alveoli which transform to yeast form
- Incidence: 0.3-1.5 cases/100,000 population in endemic areas

# Areas Endemic For Blastomycosis



Endemic to central US, particularly areas surrounding the Mississippi, Missouri, and Ohio Rivers

# Case 1

- Woodcutter from D.C
- Large R neck mass and skin abscesses
- FNA: wide neck budding yeast with thick capsule
- 24hr radioactive uptake in thyroid (0.7%), thyroid scan showed normal left lobe and nonvisualization of isthmus & right lobe; Normal TFTs
- Pt improved with itraconazole

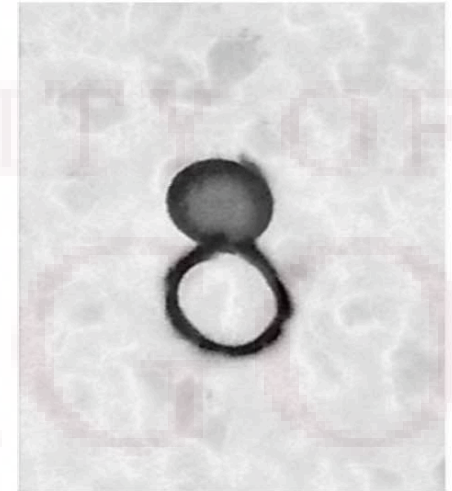
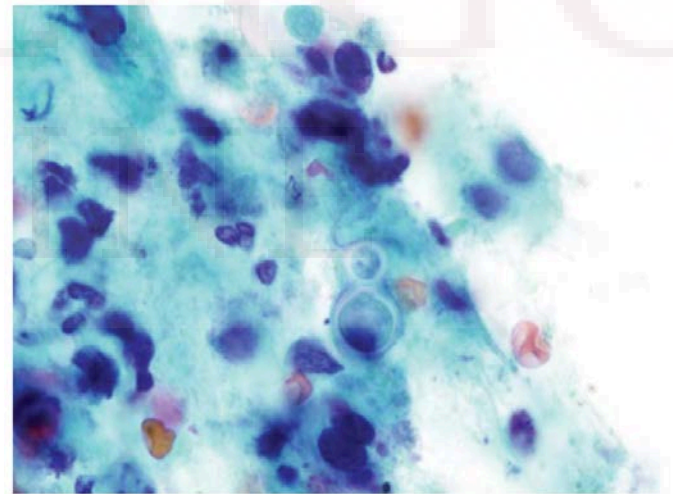
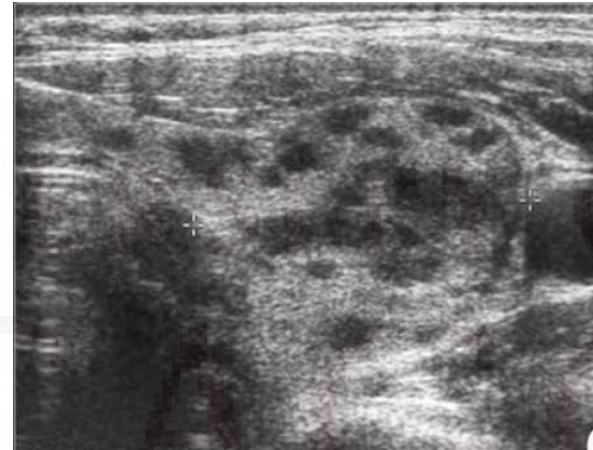


FIG. 3. Budding yeasts shown on fine-needle aspiration biopsy obtained percutaneously that stained positive with silver methamine and negative with mucicarmine.

Moinuddin, S et al. Acute Blastomycosis Thyroiditis.  
THYROID. Volume 18, Number 6, 2008

# Case 2

- East Indian man in Texas with reported travel to Canada & Guyana
- Rigors, weight loss, pulmonary & abdominal nodules, L thyroid 2.5cm complex cystic nodule
- FNA: necrotizing granulomatous thyroiditis with numerous budding yeast with morphologic features suggestive of *Blastomyces*
- Normal TFTs
- Pt improved with itraconazole



Harvey, AM., et al. Disseminated Blastomycosis  
Diagnosed by FNA of the Thyroid. Diagnostic  
Cytopathology, Vol 39, No 6. 2010.

**Fig. 3.** *B. dermatitidis* showing a 10–20  $\mu$ m broad-based budding yeast with a thick-walled, refractile capsule (Papanicolaou,  $\times 1,000$ ). [Color figure can be viewed in the online issue, which is available at [wileyonlinelibrary.com](http://wileyonlinelibrary.com).]



# Continued Course

- We did not recommend FNA because Pt had already been on antibiotics for >2 wks
- Mass likely not cancer given its decreasing in size & known disseminated blastomycosis
- Followed in ID clinic with plan to treat with itraconazole for 1 year
- Repeat TFTs 3 months later:
  - TSH: 0.46
  - FT4: 0.91
  - T3: 175

# Conclusions

- Initial evaluation of thyroid nodules first includes history & physical exam, measurement of TSH & US
- Infiltration of the thyroid may occur as a manifestation of generalized disease, an autoimmune or infectious process
- Infections of the thyroid gland are uncommon and fungal thyroiditis is even more rare
- *Blastomycosis* can present as a thyroid mass and can mimic other diseases clinically & radiographically

# References:

- Moinuddin, S et al. Acute Blastomycosis Thyroiditis. THYROID. Volume 18, Number 6, 2008
- Harvey, AM., et al. Disseminated Blastomycosis Diagnosed by FNA of the Thyroid. Diagnostic Cytopathology, Vol 39, No 6. 2010
- UpToDate: Diagnostic approach to and treatment of thyroid nodules
- UpToDate: Infiltrative thyroid disease

# Objectives

- Evaluation of a Pt with thyroid nodules
- Discussion of etiology of thyroid masses that are not typical thyroid nodules
- Learn about infectious thyroiditis