

# Everything Thyroid

# Common Causes of Hypothyroidism

- Autoimmune thyroiditis
- Surgical removal of thyroid gland
- Medication Therapy
- Iodine and iodine containing medications
- Neck radiation
- Post Partum thyroiditis

# Prevalence of Hypothyroidism

- Greater in women
- Increases with age
- Mild hypothyroidism ( NHANES 1999-2002 ) was found in 3.4 % US population
- More prevalent in the Caucasian population
- More frequently seen with other autoimmune diseases like vitiligo, celiac disease and type 1 diabetes

# Hypothyroidism Signs

- Depression
- Bradycardia
- Hoarse voice
- Edema
- Hypothermia
- Pallor or yellow skin
- Delayed reflex relaxation

# Hypothyroidism Symptoms

- Cold intolerance
- Fatigue, lethargy
- Weight gain
- Memory defects
- Muscle cramps
- Heavy menses, infertility
- Skin, hair , nail changes
- Constipation

# Common Causes of Hyperthyroidism

- Graves Disease
- Autonomous Thyroid Nodule
- Toxic Multinodular Goiter
- Medications ( amiodarone, interferon)
- Thyroiditis
- Iodine load

# Signs of Hyperthyroidism

- Proptosis
- Tremors
- Sleep disorder
- Tachycardia
- Goiter
- Warm skin
- Psychosis

# Symptoms of Hyperthyroidism

- Weight loss
- Palpitations
- Heat intolerance
- Diarrhea
- Blurred or double vision
- Miscarriage
- Skin, hair, nail changes

# Common Tests used to Evaluate Thyroid Function

- TSH: thyroid stimulating hormone
- Free Thyroxine level : FT4
- Thyroid peroxidase antibodies ( TPO)
- Total thyroxine level : T4
- Total T3 level
- Thyroid Stimulating Immunoglobulins ( TSI)
- Thyroglobulin level ( TG level)

# Thyroid Medication and Pregnancy

- Women who have hypothyroidism and become pregnant, usually require an increase in the dose of Levothyroxine about 30-50 %
- Start the dose change @ 8 weeks of gestation
- Elevated maternal TSH levels can have an impact on pregnancy outcomes

# Hypothyroidism, Management

- Thyroid hormone replacement has impacts in many organ systems
- Adherence may play a role as a cause of under- and over-replacement of thyroid hormone
- Standard of care for thyroid hormone replacement is levothyroxine

# Thyroid Hormone Replacement

- Before changing the Thyroid hormone dose make sure you review with the patient, face to face the following:
  - Compliance
  - 'Absorption
  - Medication Quality
  - The Time to Recheck Thyroid function tests will be another 10-12 weeks.

# Hyperthyroidism Management

- Methimazole preferred unless treating hyperthyroidism in pregnancy then PTU is preferred
- Beta blockers and Prednisone to be considered if the patient is thyrotoxic
- Radioactive Iodine is the gold standard therapy for Hyperthyroidism if the thyroid uptake and scan are appropriate

# Challenging Thyroid Cases

# Low TSH and Rx Prednisone

- 83 y/o woman, history of RA.
- Feels tired, recent wt. loss.
- Medications include Embrel, prednisone, lipitor and plavix.
- TSH 0.116, Free Thyroxine level 1.2.
- I-123 thyroid uptake and scan normal.
- Exam : R thyroid nodule @ 2 cm.

# Next Best Step

Thyroid ultrasound

Rx methimazole as pt. has biochemical and clinical hyperthyroidism.

Repeat TFT in 6 weeks.

No other testing is indicated.

# Hypothyroidism and Neck Pressure

- 60 y/o woman, c/o wt. gain , pressure in the neck area and dysphagia. She is a nurse and works with a local radiologist .
- TSH 2 on LT4 100 mcgm daily.
- Examination was normal.
- She requested more evaluations including neck CT, Nuclear medicine study and US

# Is More Testing necessary ?

- She feels as a nurse , she is providing reliable history and the NP ordered all the tests she requested and they came back normal.
- She wants a referral to an endocrinologist.
- Further evaluation revealed long working hours, sleep disorder, lack of exercise and wt. gain of 6 pounds last 6 months.

# Neck pain, abnormal CT

- 76 y/o woman who had a neck CT plus and minus contrast to evaluate neck pain and reported possible thyroid nodule R side. TFT done 5 days after CT showed low TSH.
- Denies h/o neck radiation .
- Exam : normal thyroid gland.
- She is concerned because of h/o breast cancer.

# Next Best Step

- Thyroid biopsy - US guided ( FNAB )
- Repeat CT scan of the neck plus and minus contrast in 6 months
- Obtain thyroid US
- Rx Methimazole as pt. has a low TSH.

# Thyroid nodule, Osteoporosis

- 74 y/o woman with severe osteoporosis was found to have a R thyroid nodule, hot on NM study, TSH low , free thyroxine level normal T3 elevated.
- She denies any symptoms of hyperthyroidism.
- Exam showed a large thyroid gland and a 3 cm R sided thyroid nodule.

# Best next step

- US guided FNAB R thyroid nodule as measured 3 cm.
- Rx Methimazole.
- Repeat Thyroid Ultrasound in 6 months
- Refer for I-131 Tx.
- Tell the patient no further evaluation is needed.

# I need an appointment today

- A 75 y/o man who calls the office to be seen today because he is not feeling well.
- He lost 10 pounds last 6 weeks, feels anxious, can not sleep and is hot all the time. He takes coumadin, amiodarone, toprol.
- He just saw his Cardiologist PA and the dose of toprol was increased because of tachycardia.

# What should you do next ?

- Order Thyroid ultrasound
- Order NM study thyroid
- Refer to endocrinologist
- Obtain TSH , Free T4, T3
- Rx Methimazole.

# High thyroid peroxidase antibodies

- A 26 y/o woman c/o wt gain, fatigue irregular menses.
- Overall she is healthy, except for h/o vitiligo.
- Mother has h/o goiter
- TSH 1.3, thyroid peroxidase antibodies elevated.
- She is worry about the labs and her immune system.

# Fatigue and Mood Swings

- 50 y/o woman c/o fatigue and mood swings.
- Her PMD ordered TFT and general labs and all came back normal.
- She read about thyroid disease causing those symptoms and requested Thyroid Ultrasound .
- US showed 2 small nodules 4-5 mm in size.

# Best Next Step

- Refer her for NM study Thyroid
- Refer her for FNAB
- Provide her reassurance that the thyroid nodules are small and no other evaluation is needed.
- Investigate other causes for her symptoms.

# Thyroid Nodule Cold on Scan

- A 28 y/o woman had a physical exam that showed a Left thyroid nodule with cystic components 3.9 cm.
- NM study showed that the Left thyroid nodule was cold on scan.
- FNAB was benign but she complaints of dysphagia and fatigue.
- TSH normal

# Best Next Step

- Refer for Surgical evaluation
- Provide reassurance that her biopsy was benign and she will be OK
- Obtain a CT scan neck plus and minus contrast to evaluate for tracheal and esophageal compression.
- Give her Levothyroxine as will decrease the size of the nodule and she c/o fatigue.

# Weight Loss After Diuretic Therapy

- A 65 y/o woman lost 30 pounds last 3 months after diuretic therapy for CHF and Atrial Fibrillation.
- She was on LT4 and was d/c because her TFT were in the hyperthyroid range.
- She is not on Amiodarone.
- Recent labs : Free thyroxine level was 6 ( normal up to 1.8 )

# Best Next Step

- Referral to Endocrinology
- Arrange for I- 131 tx because she is hyperthyroid.
- Arrange for NM study thyroid and see her in 2 weeks.
- Start Rx methimazole and Prednisone.

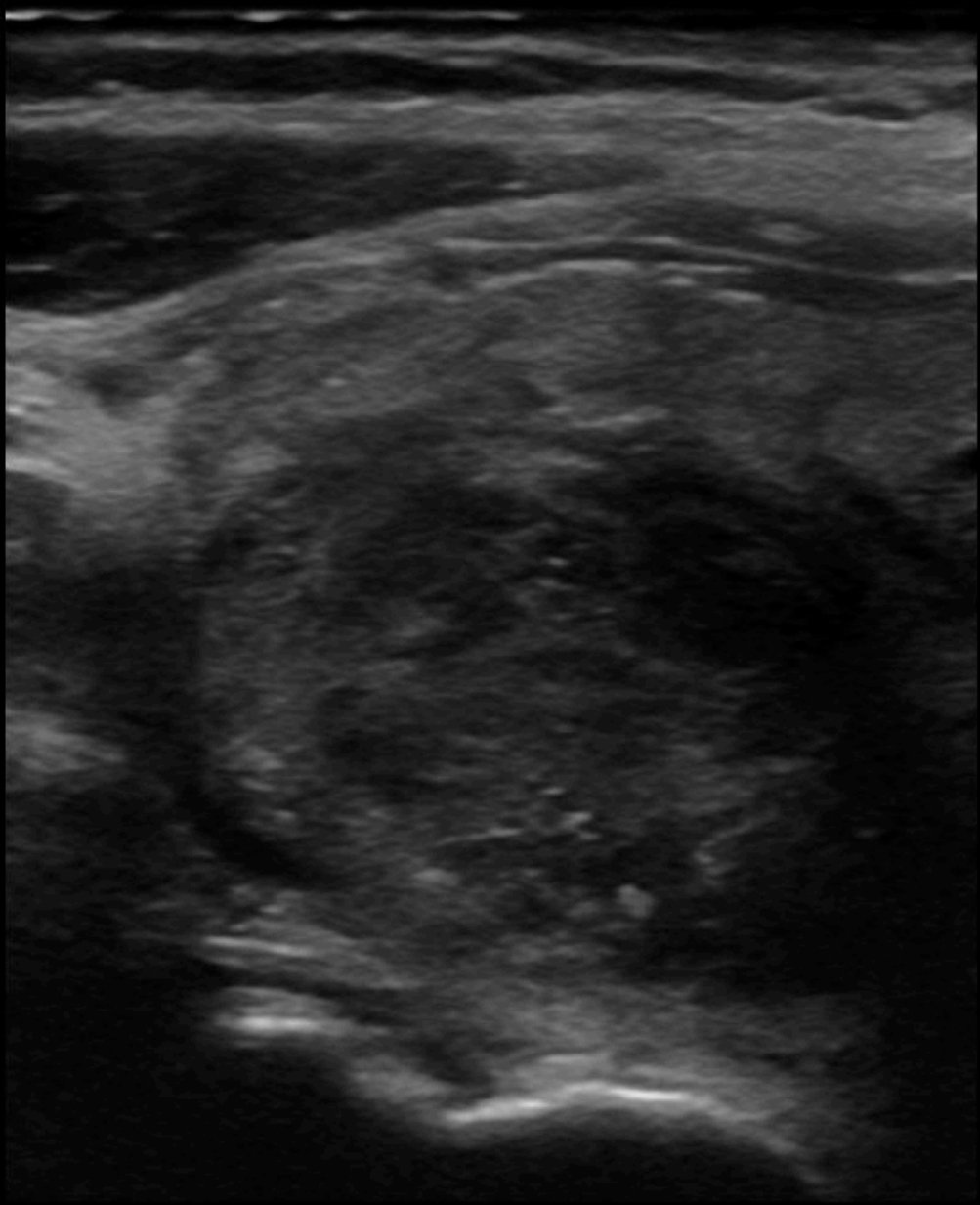
# Hashimoto's and Goiter

- A 56 y/o woman c/o neck discomfort, hot flushes, fatigue.
- Has hypothyroidism on RX.
- TSH 2.2
- She has a goiter on exam and thyroid US showed a L sided nodule 2 cm.
- Thyroid peroxidase antibodies elevated.

# Best Next Step

- Obtain a NM study of the thyroid because we need to know if the nodule is cold or hot on scan.
- Refer for FNAB
- Increase the dose of levothyroxine aiming to decrease the size of the nodule.
- Observation only because she has h/o Hashimoto's.

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L9



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- Frq	14.0 MHz
- Gn	68
- S/A	2/2
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- DR	69
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- AO	100 %

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RT THYROID TRANS MID



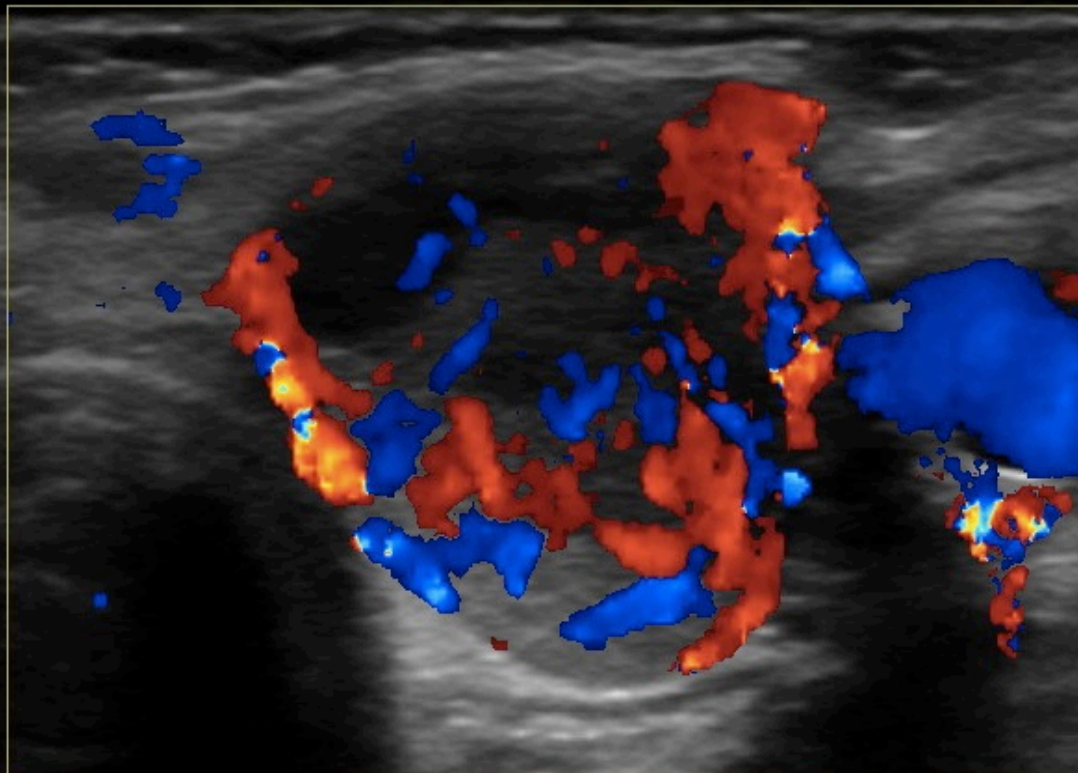
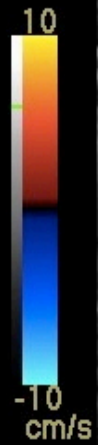
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Thyroid

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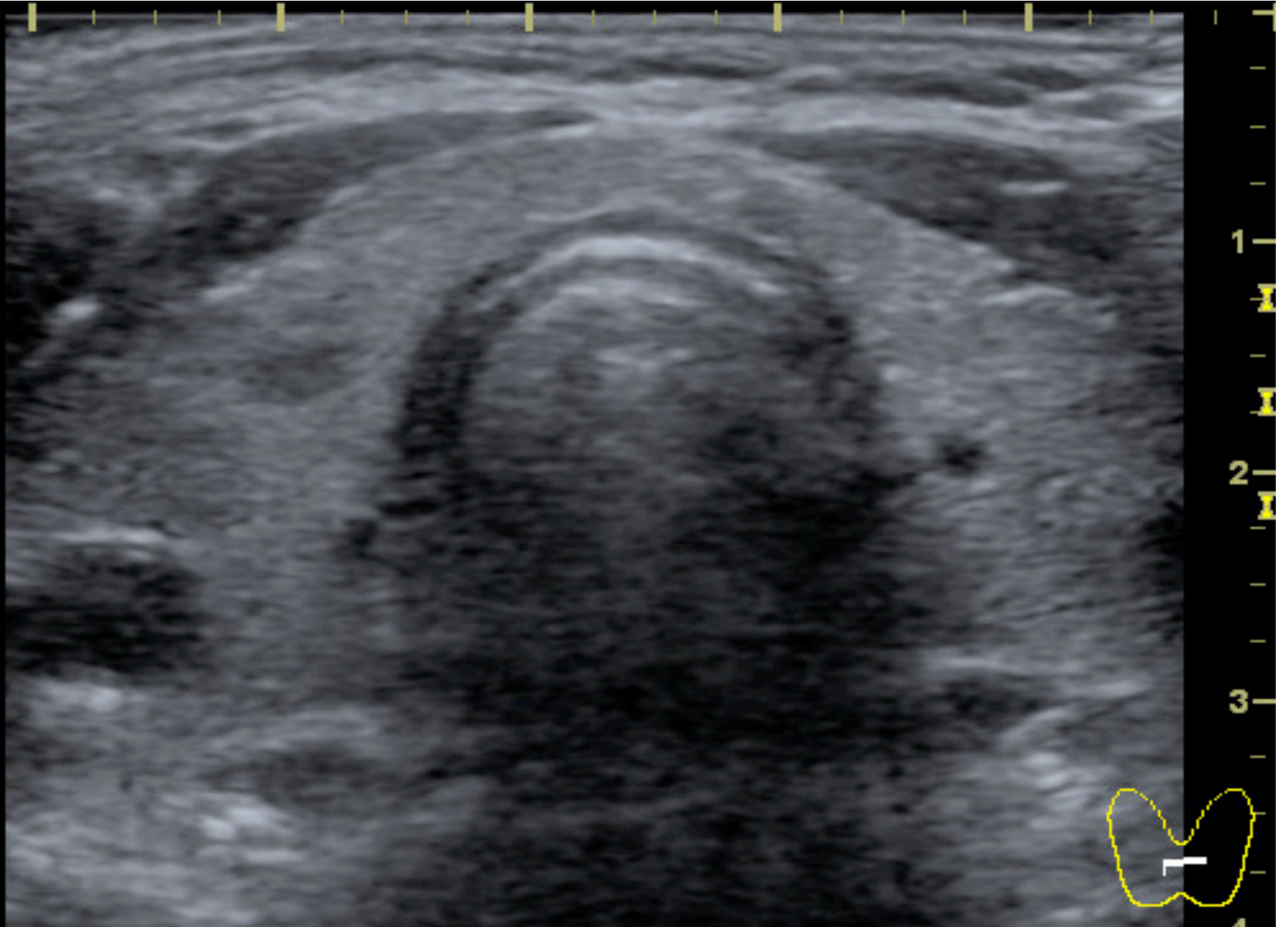


- CF  
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 - Gn 34  
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PALP LUMP FNA  
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L9



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CINE LOOP INF TO SUP ISTHMUS

**Gracias**

**Thank You**