



Thyroiditis

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Introduction

- Thyroiditis includes a group of individual disorders causing ***thyroidal inflammation*** but ***presenting in different ways***
- ***Confusing terminology***
- Present with ***Hypo or Hyperthyroidism***

no classification is ideal
no symptoms unique to thyroiditis

1. Infectious thyroiditis, (either acute or chronic)
2. DeQuervain's thyroiditis, (subacute thyroiditis (SAT))

PAINFUL

3. Autoimmune thyroiditis, chronic, Hashimoto's, or lymphocytic thyroiditis
4. Postpartum Thyroiditis
5. Riedel's thyroiditis, unknown etiology- (invasive fibrous or chronic sclerosing thyroiditis)
6. Drug induced thyroiditis

PAINLESS

Case 1

- a 36-year old woman presented with **4 weeks** of low anterior **neck pain** and **2 days of fatigue, fever.**
- nervousness, slight difficulty during swallowing,
- nearly 2 pound weight loss

- A family history of thyroid disease was not elicited.
- She has been taking Ibuprofen 200 mg twice a day



BP - 144/88, pulse **108/min regular**

Clinically, **Euthyroid**

Thyroid gland - slightly enlarged,
tender, firm, ? nodule

Laboratory data

- TSH – **0.03** mIU/L
- FT4 - **3.7** ng/dl (0.76 to 1.46 ng/dl),
- TT3 – **188** ng/ml (60- 180 ng/mL)

- ESR - **58** mm/min, WBC – 11,000, neutophilia
- CRP - **31.3** mg/L (normal 0.0-8.0 mg/L)

- **negative** TRAb, AntiTPO



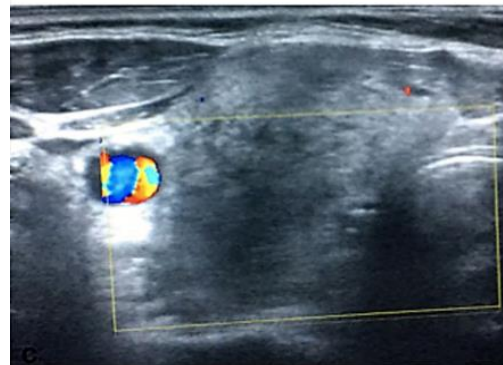
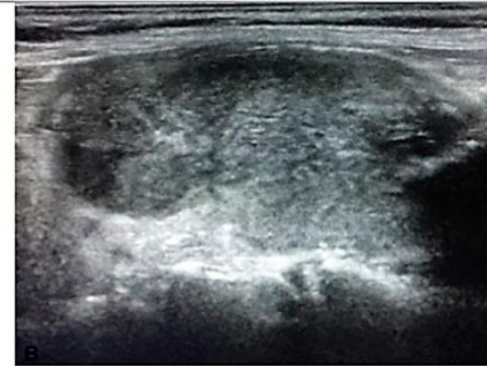
Hyperthyroid
Increased inflammatory markers
Negative autoimmunity

Thyroid USG

Focal hypoechoic areas



Diffuse heterogeneity



Decreased color flow Doppler

Scientific Reports, (2019) 9:16899

Clinical findings

Swelling with pain and tenderness in the thyroid gland.

Laboratory findings

1. Elevation of C-reactive protein and/or erythrocyte sedimentation rate.
2. Elevation of serum (FT4) and suppression of (TSH) : $< 0.1\mu\text{U/ml}$
3. Hypoechoic lesion (USG) at a painful portion of the thyroid gland

If Meet 4 criteria = Subacute Thyroiditis/ DeQuervain's thyroiditis

What will be the next step ?

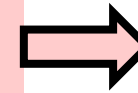
ATD ?/ Surgery?/ Biopsy?

biopsy of the thyroid gland is usually not necessary in subacute thyroiditis

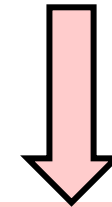
**A cause can rarely be established
?? Viral**



**unregulated release of
preformed thyroid
hormone from damaged
thyroid follicular cells**



**clinical findings of
thyrotoxicosis**



**TSH level is suppressed,
fT4 level may be elevated
compared to the TT3 level**

“Thyroid dysfunction caused by thyroiditis is less severe than other forms of endogenous thyrotoxicosis”

**Nonsteroidal anti-inflammatory drugs (NSAIDs)
ibuprofen (800-1200 mg/day in divided doses)
Median time for resolution of pain is 5 weeks (range 1–20 weeks)**

**Fail to respond
(or) present initially with
moderate to severe pain and/
(or) thyrotoxic symptoms.**

**Beta-blockade controls the
symptoms of thyrotoxicosis**

**Prednisolone – 30- 40 mg/day, tail off 5 mg per week 6-8 week
(or)
15 mg 2 weeks, 5 mg taper every 2 week**

**Corticosteroids should be discontinued when
the ¹²³I uptake returns to normal**

DDx of painful thyroid gland

➤ INFECTIOUS THYROIDITIS

- 0.1-0.7% of thyroid disease (rare)
- Children, 20–40 yr
- immune-compromised patients.
- Presentation – euthyroid
- 12% presented - thyrotoxicosis
- 17% were said to be hypothyroid



Abscesses will require surgical exploration and drainage

Aerobic: , Anaerobic
Clostridium septicum
Gram negative bacilli

➤ BLEEDING INTO THYROID CYST

Prednisolone more quickly resolved symptoms of subacute thyroiditis than did the NSAIDs

Corticosteroid therapy does not prevent development of permanent hypothyroidism

ATDs have no role in the treatment of subacute thyroiditis

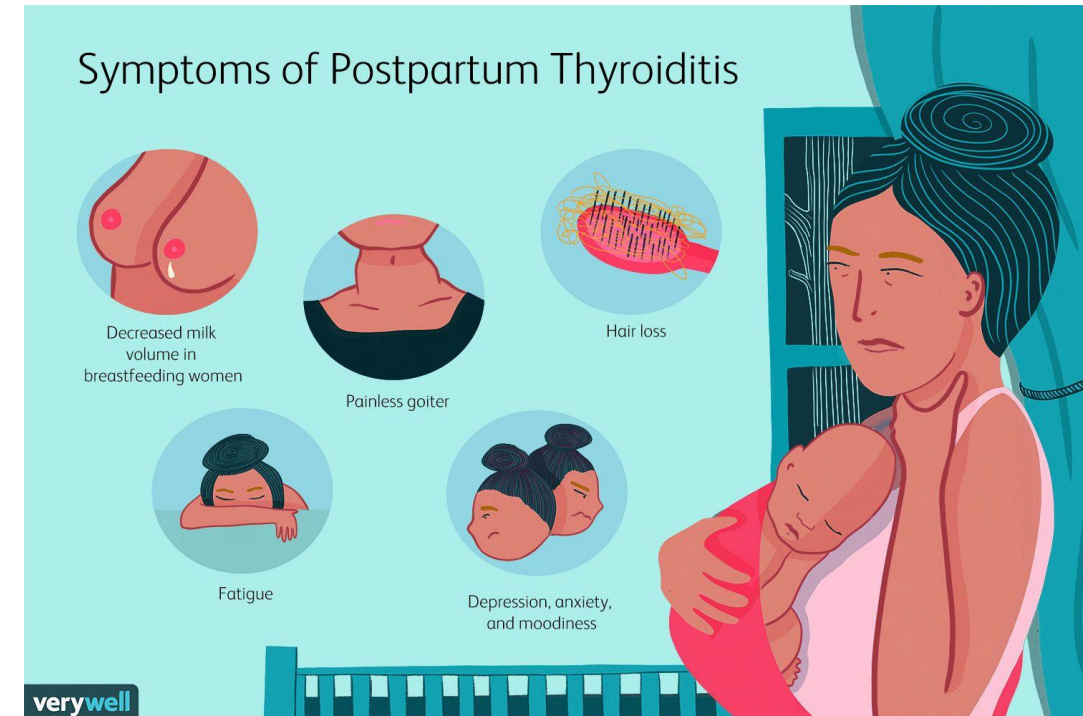
Surgical intervention is not the primary treatment for subacute thyroiditis

Case 2

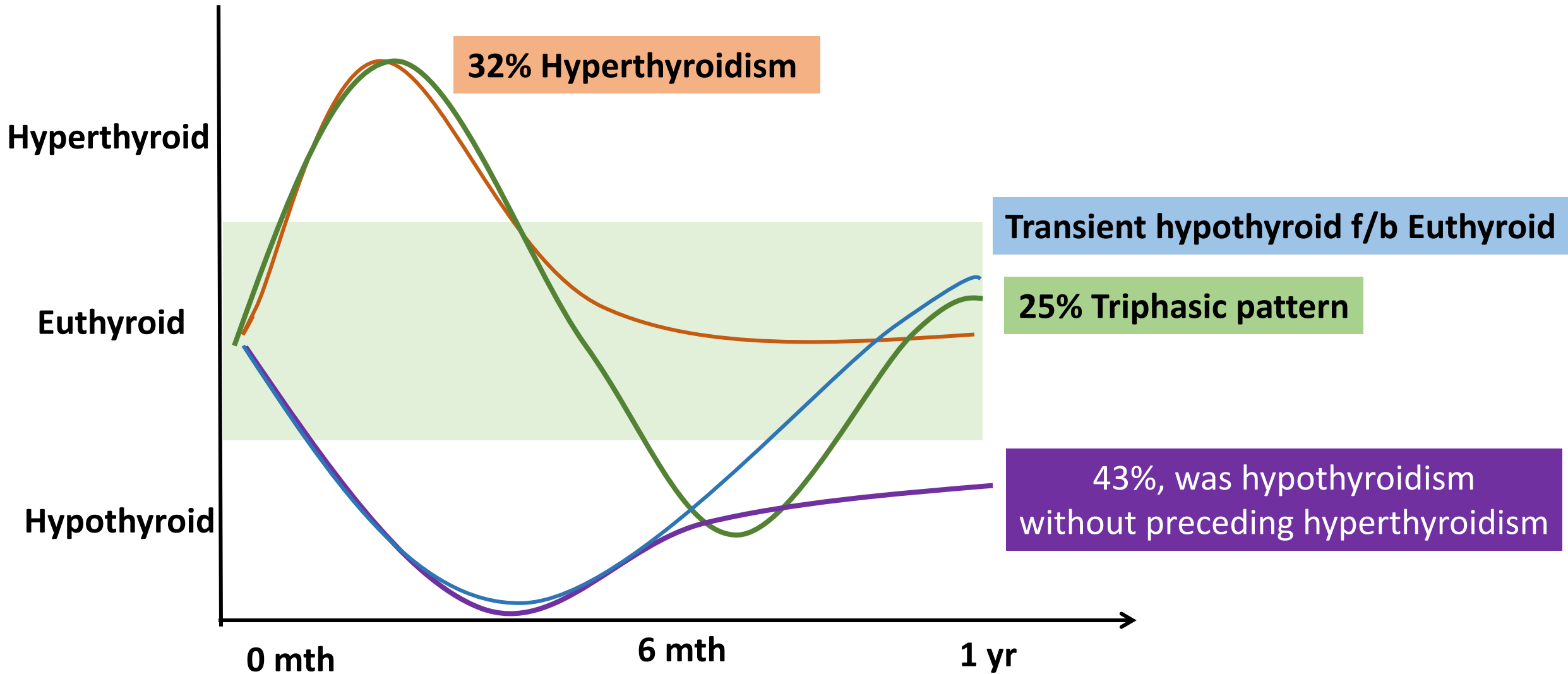
- 35 year old lady, **delivered a baby 3 month** ago.
 - C/O - palpitations, fatigue, heat intolerance, insomnia and irritability
 - No relevant thyroid D/O before
 - a small, non-tender, firm goiter is present
 - Afebrile, BP was 144/88, pulse 108/min and regular.
 - **TSH- 0.01, fT4- 2.3 ng/dl (0.76 to 1.46 ng/dl),**
 - **Anti –TPO- 200, TRAb – 0.8**
- Hyperthyroid**
Positive autoimmunity (Anti-TPO)

sporadic painless thyroiditis in the first year postpartum, hyperthyroidism/ hypothyroidism = POST PARTUM THYROIDITIS

- An exacerbation of an underlying **autoimmune** thyroiditis, (immunological rebound)
- **Positive Anti TPO Abs** in the first trimester were **27 times** more likely to develop postpartum thyroiditis than those with negative



What are the Presentations of postpartum thyroiditis?

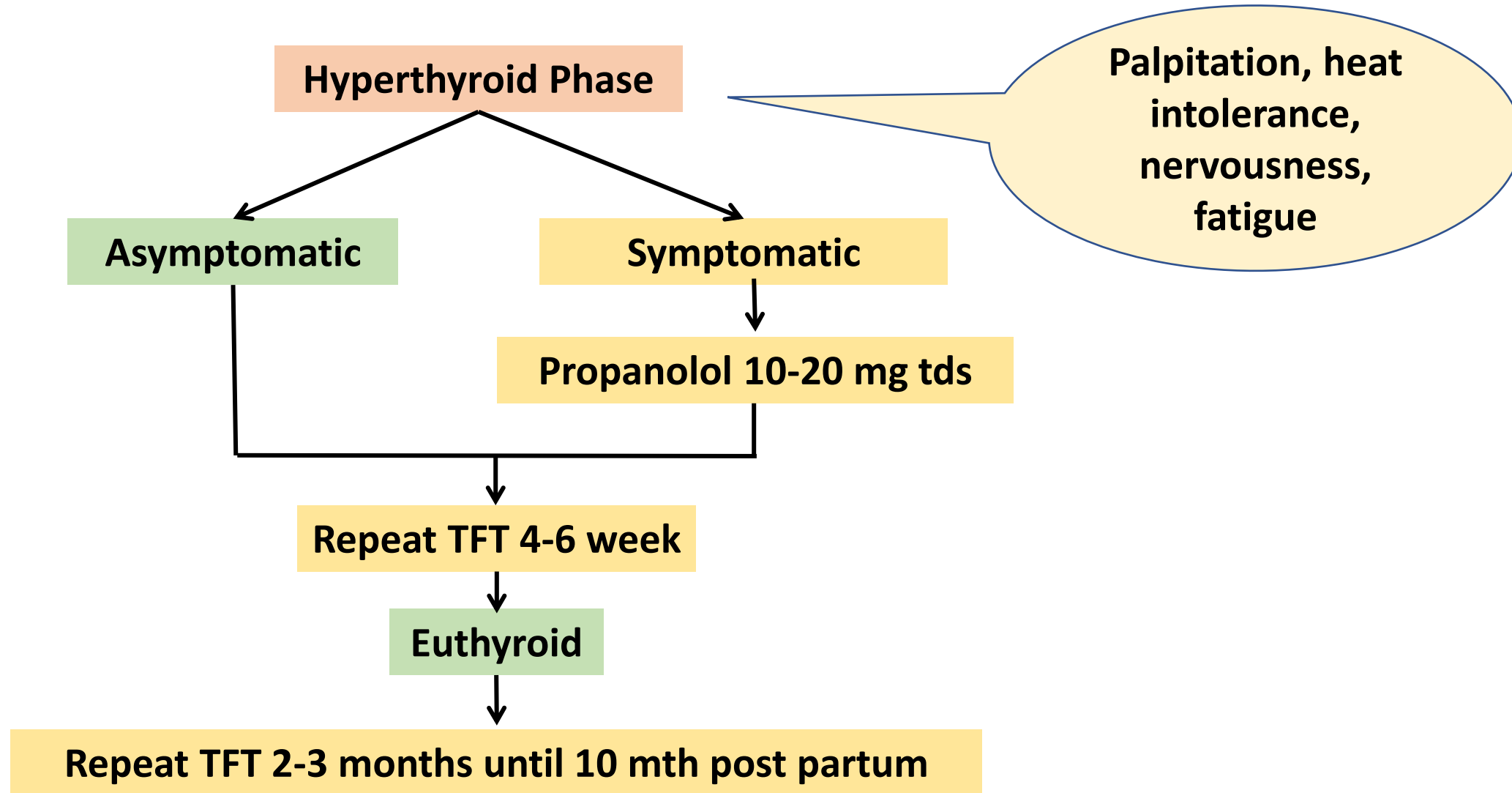


Postpartum Graves' disease vs postpartum thyroiditis

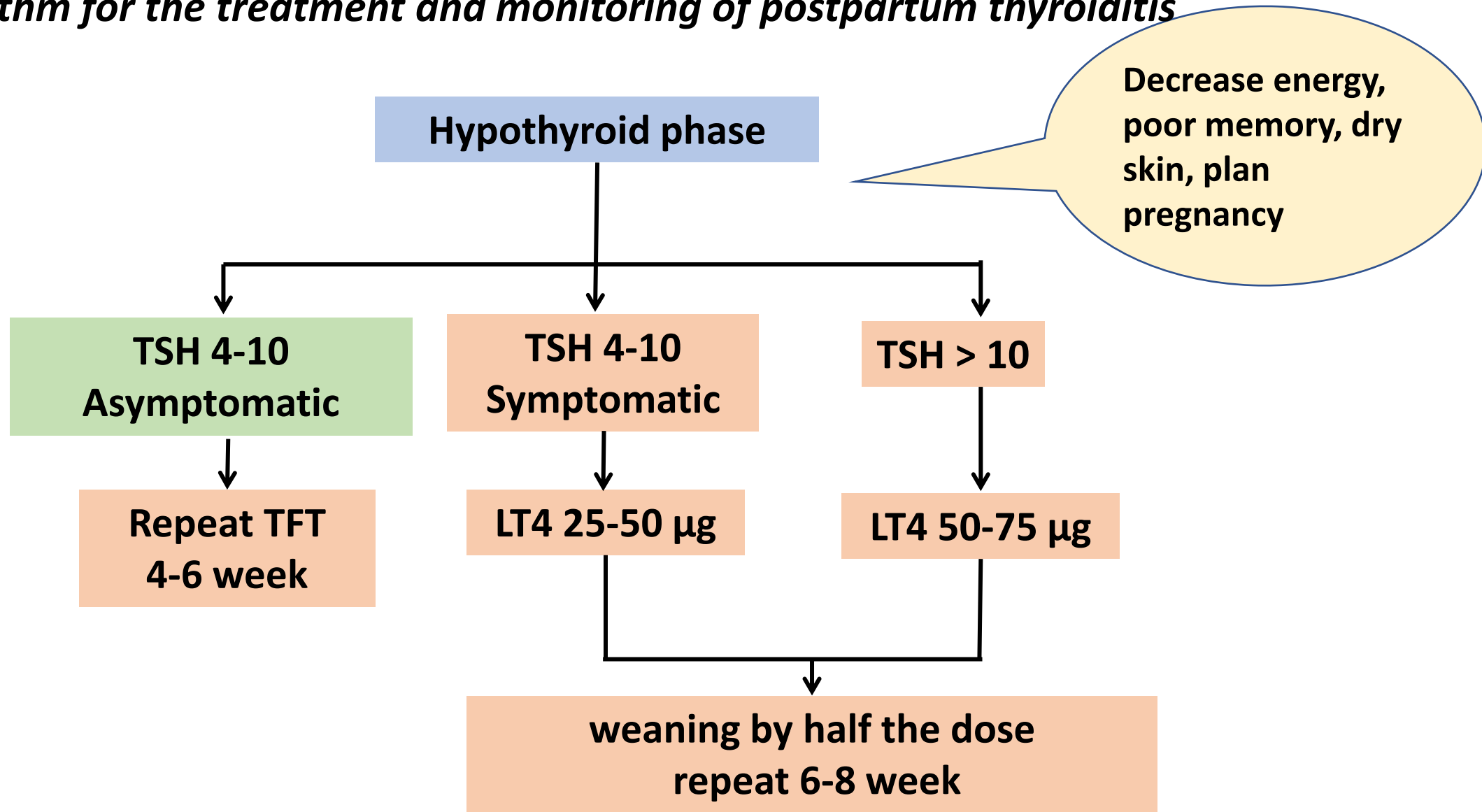
	Postpartum Grave's Disease	Thyrotoxic PPT
Prevalence (%)	0.2	4
Months after delivery	4–12	2–4
Severity of symptoms	Often severe	Usually mild
Goiter (%)	90	0–40
Thrill and Bruit	May be present	Absent
Ophthalmopathy (%)	10-50	Absent
T4/T3 ratio	T3 predominant	T4 predominant
TRAb	Positive	Negative
TPOAb (%)	75	80

J Clin Endocrinol Metab, September 2002, 87(9):4042–4047

An algorithm for the treatment and monitoring of postpartum thyroiditis



An algorithm for the treatment and monitoring of postpartum thyroiditis



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The management of PPT is largely empirical and directed towards ***symptom control.***

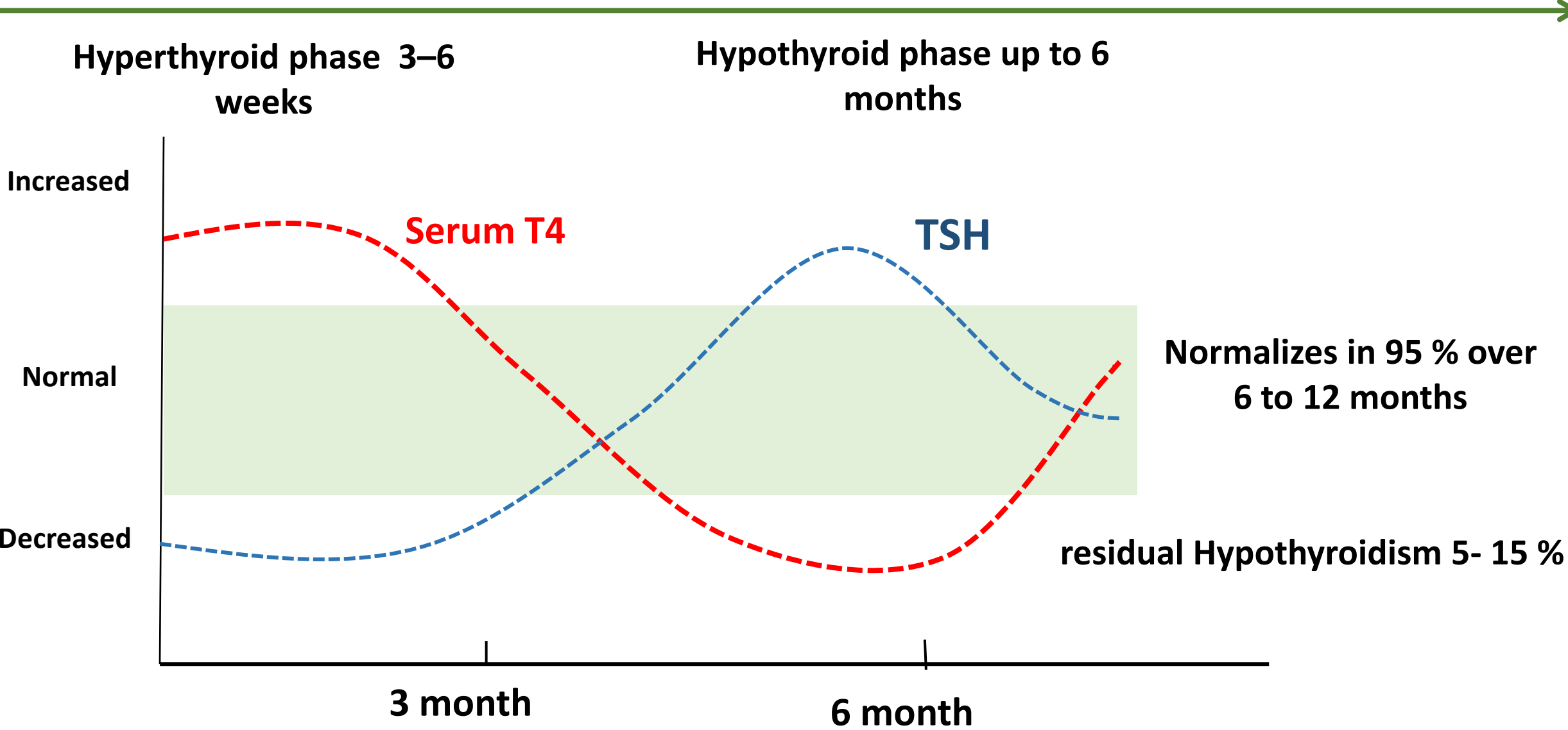
There is no firm evidence base from clinical trials

Need to ***differentiate*** from postpartum Grave's disease

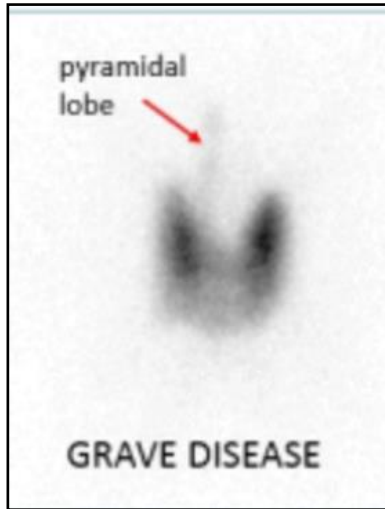
There is very little evidence for intervention that alters the course or duration of the disease

**It is important to differentiate between Grave's disease and
hyperthyroid phase of Thyroiditis
Treatment is different
Course of the disease is different**

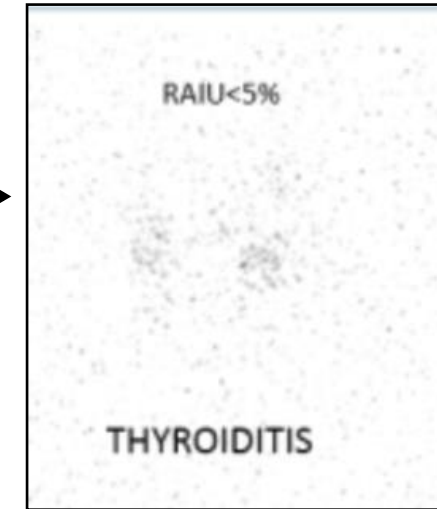
Clinical Course of Thyroiditis



How to differentiate Grave's disease from Thyroiditis



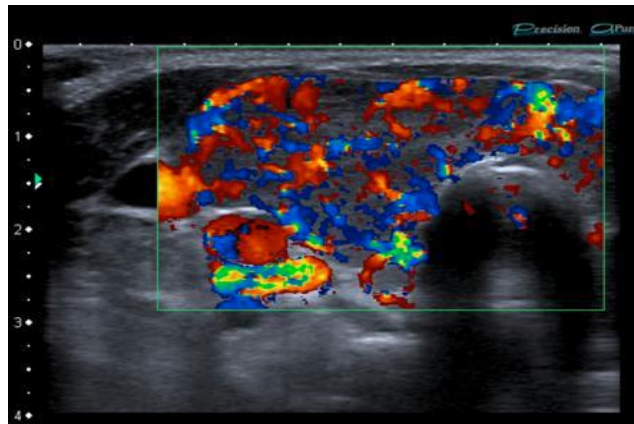
Thyroid uptake scan



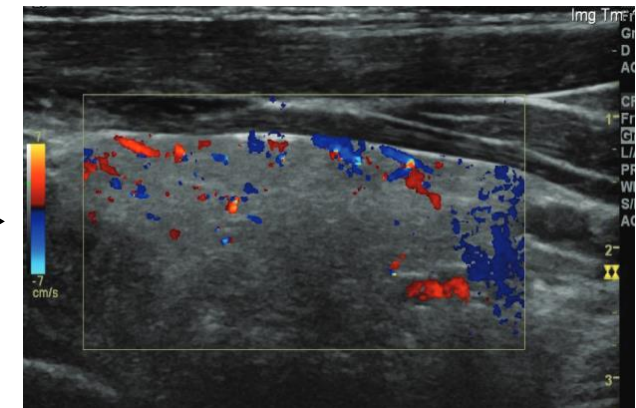
Significantly elevated TRAb

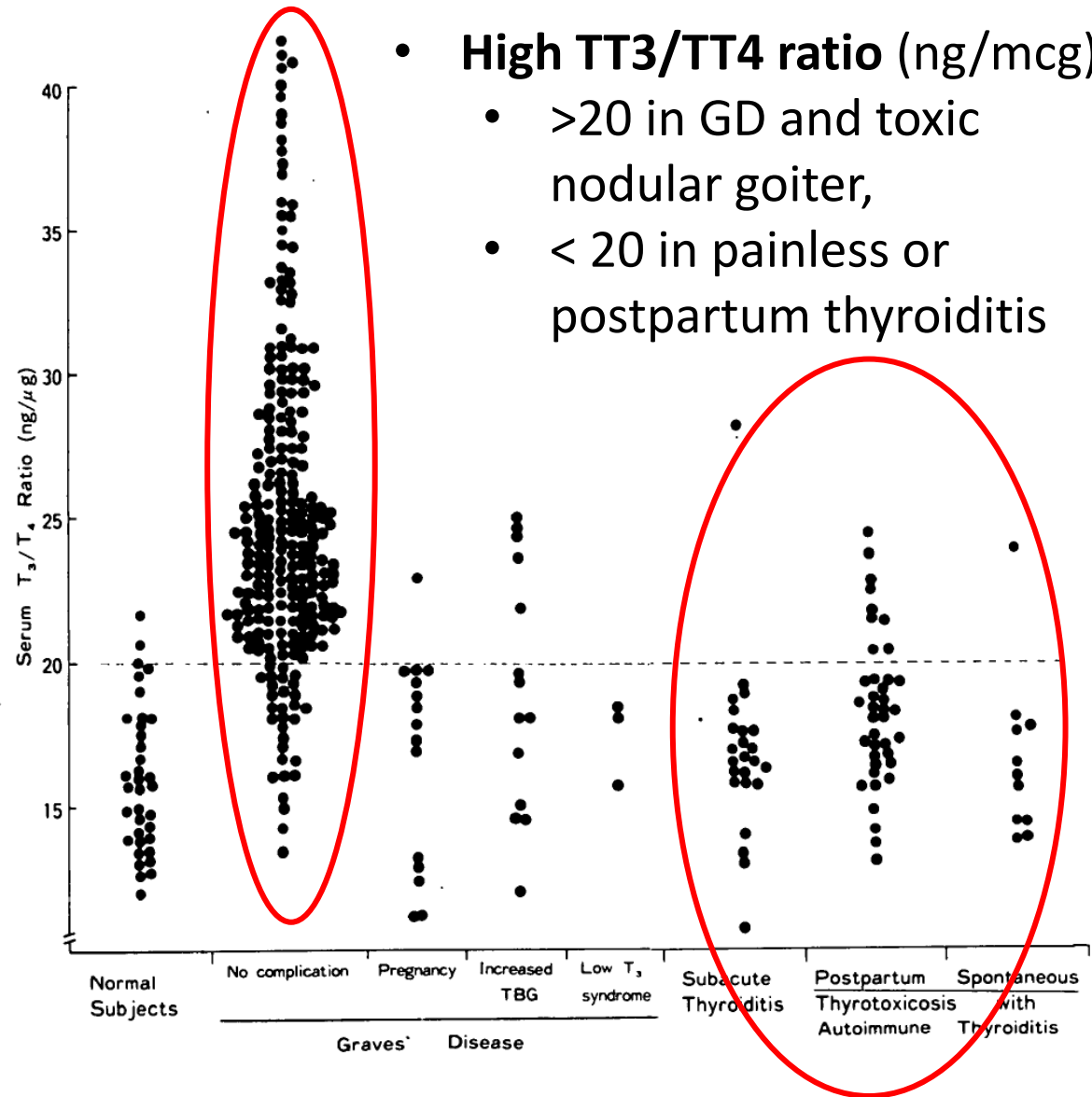
Thyroid Antibodies

Low or absent TRAb



Thyroid USG Doppler





J Clin Endocrinol Metab 53: 113, 1981

Case 3



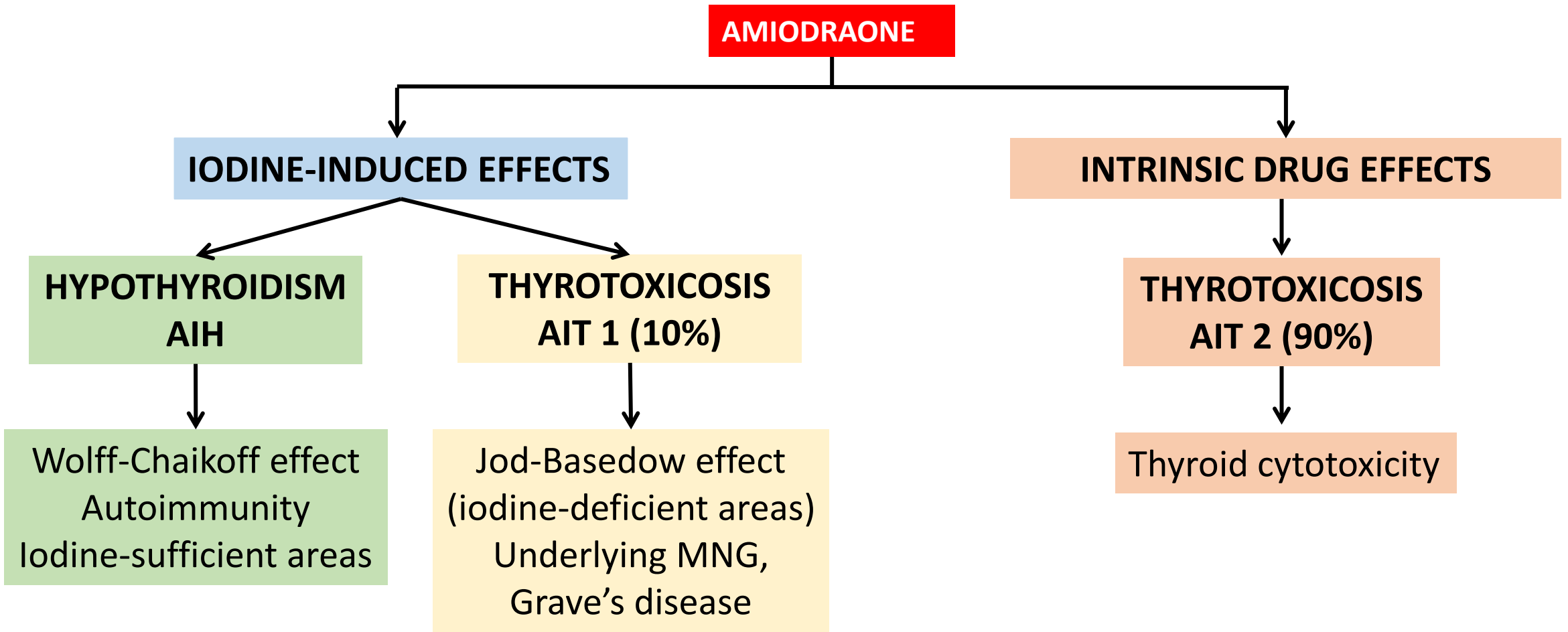
- 60 year old lady came to see Primary care physician.
- She has underlying IHD and H/O ventricular arrhythmia and taking Amiodarone 200 mg bd for 2 years
- she denied any ATD before

- She has a firm multinodular goiter (painless), features of hypothyroidism is noted
- **TSH- 19 mIU/L, fT4 – 0.5 (0.76 to 1.46 ng/dl)**
- **TPO - < 8 – TRAb - <0.8**

**Hypothyroid
negative autoimmunity
Drug history**

Shall we stop Amiodarone?

How Amiodarone can effect thyroid?



The American Journal of Medicine, Vol 118, No 7, July 2005

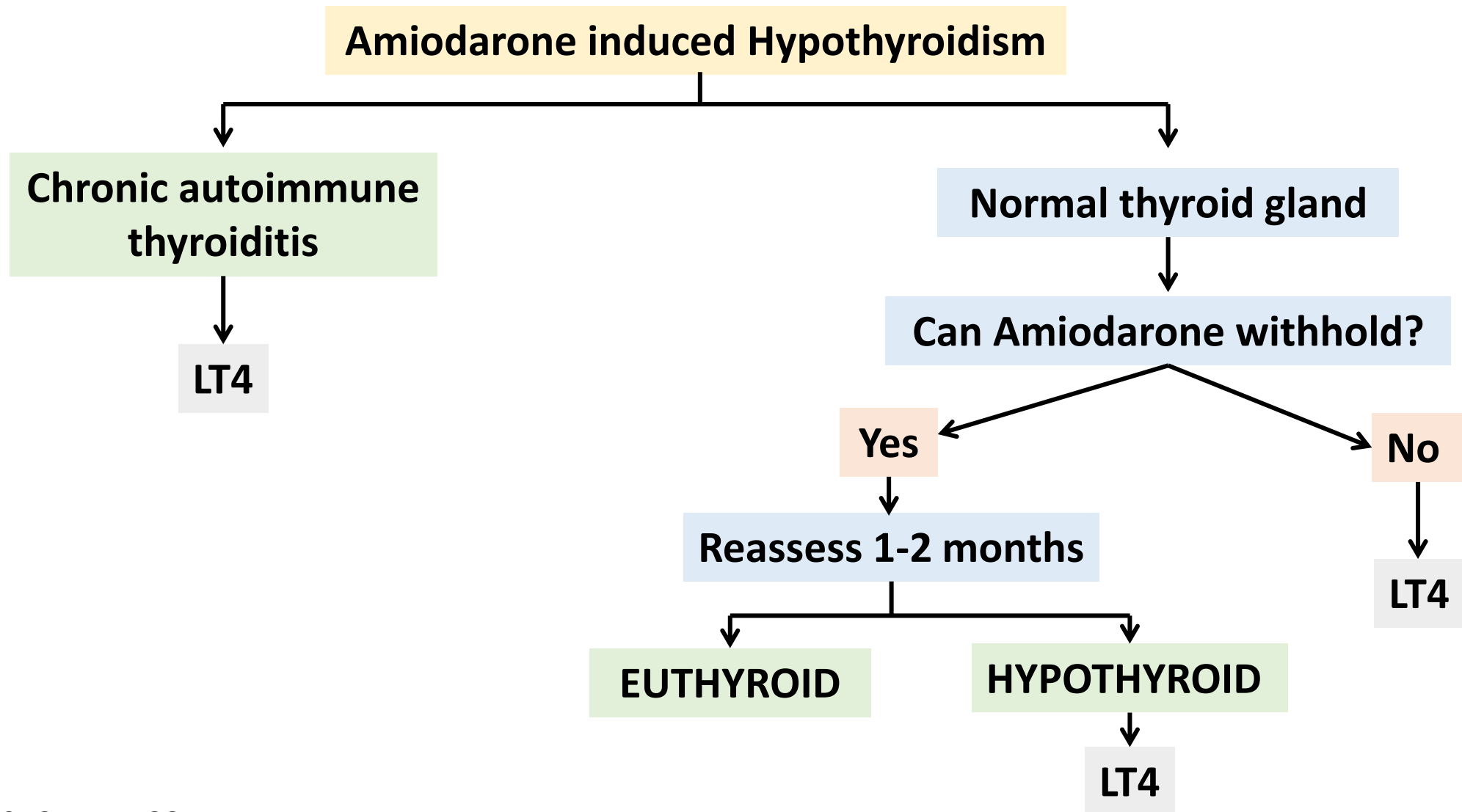
Amiodarone-induced thyrotoxicosis (AIT)
Amiodarone-induced hypothyroidism (AIH)

Common features of the two main forms of Amiodarone-induced thyrotoxicosis

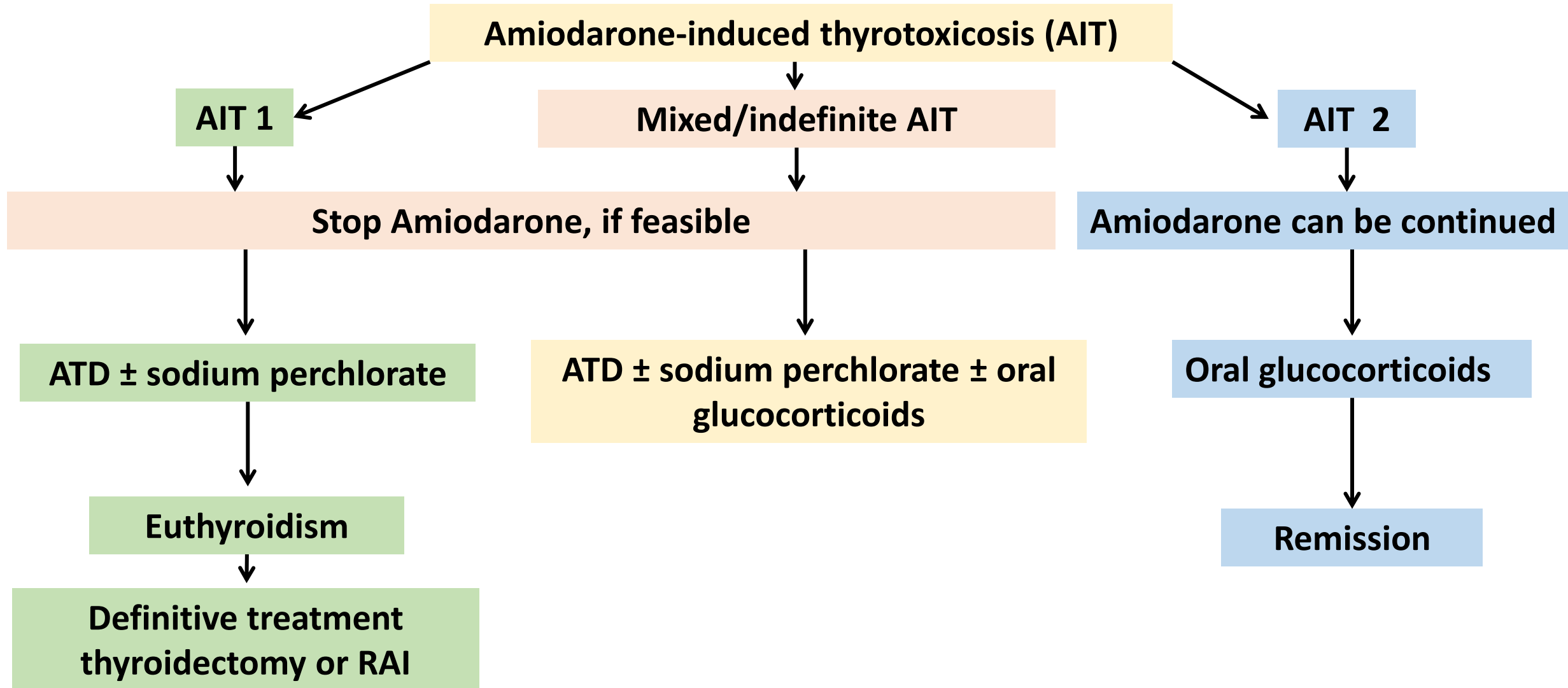
	AIT type 1	AIT type 2
Aetiology	Iodine toxicity	Thyroiditis
Signs of clinical thyroid disease	Yes	No
Onset time after starting Amiodarone	Short (median 3 months)	Long (median 30 months)
Goitre	Frequent	Infrequent
Thyroid antibodies	Positive	Negative
Radioiodine uptake	Normal	Decreased
Vascularity (Doppler)	Increased/normal	Reduced
Thyroglobulin	Normal or slightly elevated	Very elevated
Subsequence definitive treatment	Required	No

Eur Thyroid J 2018;7:55–66

Algorithm for the management of Amiodarone-induced hypothyroidism



Algorithm for the management of amiodarone-induced thyrotoxicosis (AIT)



- Thyroid examination and TPOAb, TSH, fT4,TT3 at the beginning and 6 monthly
- **AIH** does *not require Amiodarone withdrawal*
- **L-T4 treatment** is recommended in all cases of overt AIH

- **AIT** patients should be considered at risk of an emergency treatment at any time due to the increased **mortality and morbidity**, (elderly and/or if a reduced LV dysfunction)

- **High daily doses of the drug** (40–60 mg/day of methimazole or equivalent doses of PTU) (longer than usual periods to become Euthyroid)

Case 4

- 33 year old lady
- Feeling of fullness in the neck, generalized fatigue, weight gain, cold intolerance, and diffuse muscle pain
- Non tender goiter
- No H/O thyroidectomy, RAI, no relevant drug

- **TSH** – 30 IU/ml
- **fT4** – 0.5 (0.76 to 1.46 ng/dl)
- **Anti TPO** – 350 IU/ml (< 9)
- **TRAb** - < 0.8



Hypothyroid
Positive autoimmunity (AntiTPO)

Hashimoto thyroiditis = Commonest cause of Hypothyroidism

Commonest form of thyroiditis

Hashimoto thyroiditis is a **histologic diagnosis** (Lymphocytic infiltration)

Primary hypothyroidism without any other cause of hypothyroidism + **Anti TPO (+)**

Rarely initial hyperthyroid phase

No need to do uptake scan



SUSPECT THYROIDITIS

NO

Pain?

YES

Drugs causing
Thyroiditis

Drug induced
thyroiditis

ATD or
Steroid

Postpartum
1yr? **

TT4 to TT3 ratio, Thyroid USG with Doppler flow, RAIU, Autoantibodies

Symptomatic

Infectious
Thyroiditis **

Inflammatory markers

Antibiotics/drainage

Sub acute
Thyroiditis **

NSAIDs, Steroids

**ATD is not useful, because there is no excess thyroid hormone production

