


Case Vignette

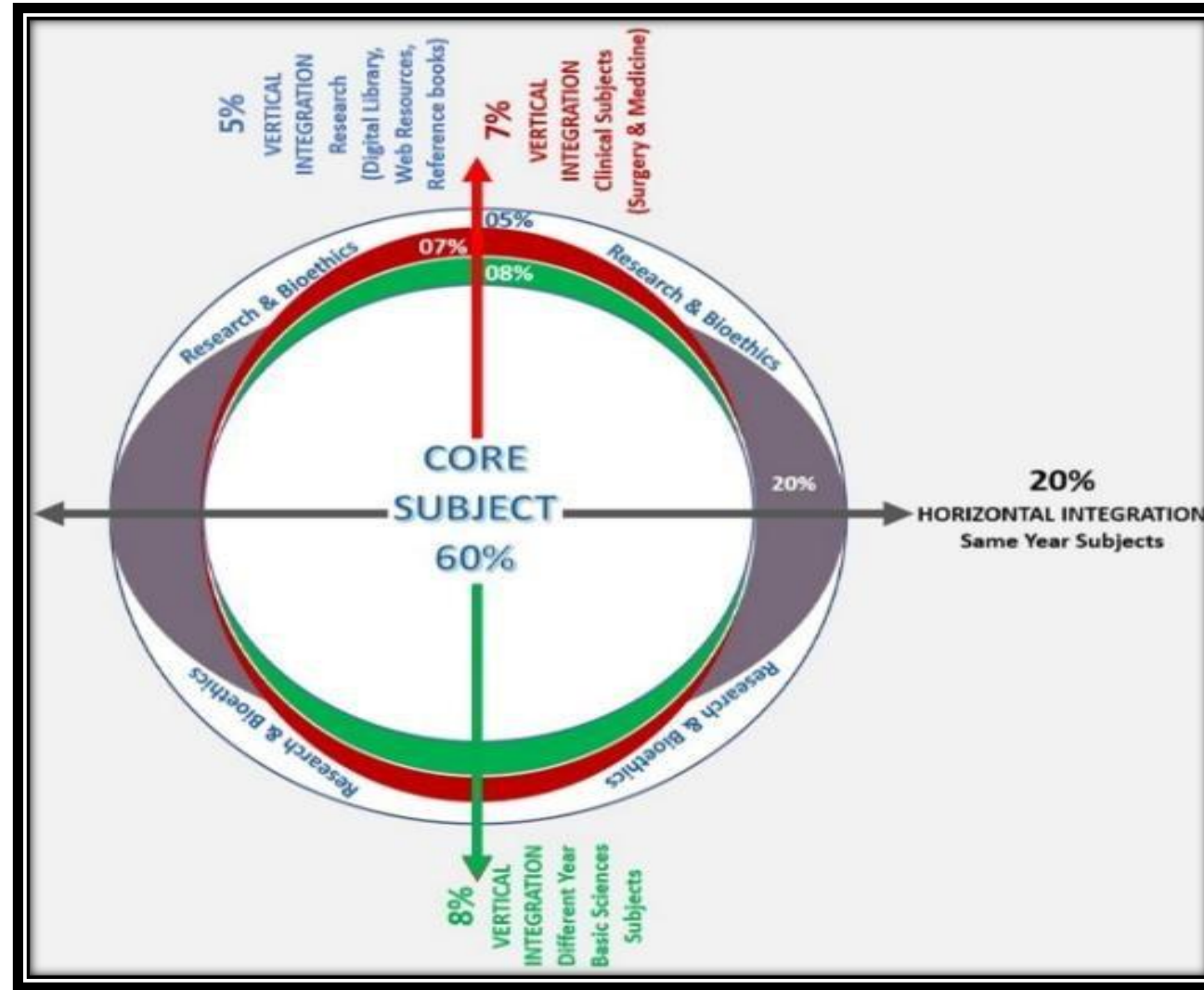
A 21-year-old female, presented in medical OPD with the complaints of decrease sleep, anxiety, heat intolerance, increase frequency of defecation and palpitations for the last 2 months. According to the patient she has lost 5 kgs of her weight over the period of a month.

On examination: pulse 120/min and BP 140/100 mmHg. Patient has a staring gaze and a midline swelling in the neck which moves with swallowing.



Hyperthyroidism And Graves' Disease

Dr. Nida Anjum, MU-II, HFH



LECTURE CONTENT ANALYSIS

CORE CONTENT	60%
HORIZONTAL INTEGRATION	20%
VERTICAL INTEGRATION	15%
RESEARCH & ETHICAL ISSUES	5%

Learning Objectives

At the end of the lecture students should be able to:

1. Define hyperthyroidism and Graves' disease, elucidating their underlying pathophysiology.
2. Describe the clinical manifestations and signs of hyperthyroidism including Graves diseases.
3. Explain the laboratory investigations used in the diagnosis of hyperthyroidism.

Learning Objectives

At the end of the lecture students should be able to:

4: Describe extrathyroidal manifestations of Graves' disease.

5: Describe the management options for hyperthyroidism.

6: Differentiate between hyperthyroidism and hypothyroidism.

Definitions

Thyrotoxicosis: clinical, physiological, and biochemical findings that result when tissues are exposed to excess thyroid hormone irrespective of the underlying etiology.

Hyperthyroidism: conditions in which hyperfunction of the thyroid gland leads to thyrotoxicosis.

Epidemiology

- 10 times more common in females than in males in the UK.
- Prevalence is approximately 2 % of the female population.
- Annual incidence is 3 cases per 1,000 females.

Classification of the etiology of thyrotoxicosis

Associated with Hyperthyroidism

Excessive thyroid stimulation

Graves disease

TSH pituitary adenoma

Thyroid nodules with autonomous
function

Toxic MNG

Toxic solitary nodule

Classification of the etiology of thyrotoxicosis

Not Associated with Hyperthyroidism

Thyroid inflammation

Postpartum, Sub-acute thyroiditis

Drug Induced thyroiditis

Ectopic thyroid tissue

Strauma ovarii

Metastatic thyroid cancer

Clinical Symptoms and signs of Thyrotoxicosis

Symptoms

- Weight loss, increased
- Hyperactivity, Irritability, appetite insomnia
- Increase stool frequency
- Heat intolerance, sweating
- Oligomenorrhea, loss of libido
- Fatigue

Symptoms of Graves' Disease

Graves' disease is the most common cause of hyperthyroidism, which causes the following symptoms:



Rapid heartbeat (palpitations).



Increased appetite.



Weight loss.



Feeling shaky and/or nervous.



Diarrhea and/or more frequent bowel movements.

Clinical Symptoms and signs of Thyrotoxicosis

Signs

- Sinus tachycardia, Atrial fibrillation
- Fine tremors, Hyperreflexia
- Warm and moist skin
- Palmer erythema
- Hair loss
- Muscle weakness
- Congestive heart failure
- Hypokalemic periodic paralysis

Graves Disease

- Autoimmune disorder, antibodies production against TSH receptors.
- Thyroid stimulating antibodies bind to TSH receptors, acts as analog.
- Genetic predisposition: CTLA-4, HLA- DR 3.
- More common in females.
- Association with other autoimmune disorders.



ARCHOPACHY



OPHTHALMOPATHY

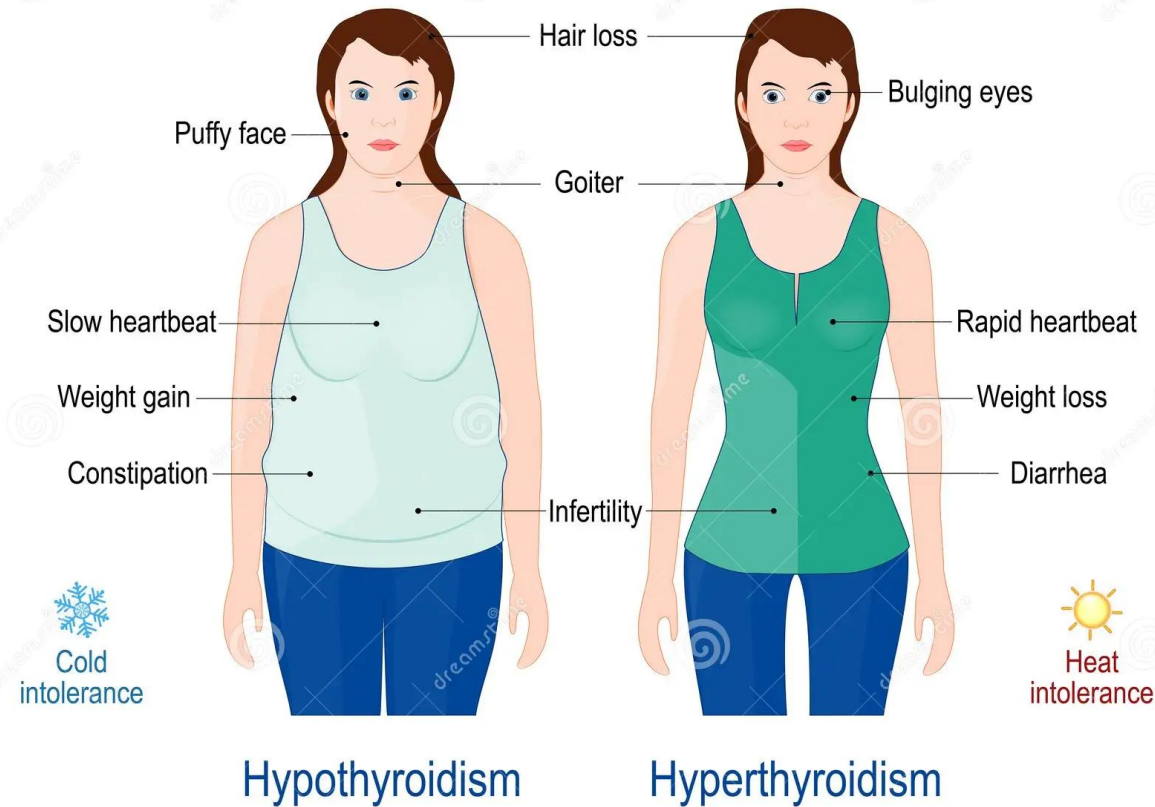


THYROID DERMOPATHY



DIFFUSE GOITER

Disorder of the thyroid gland





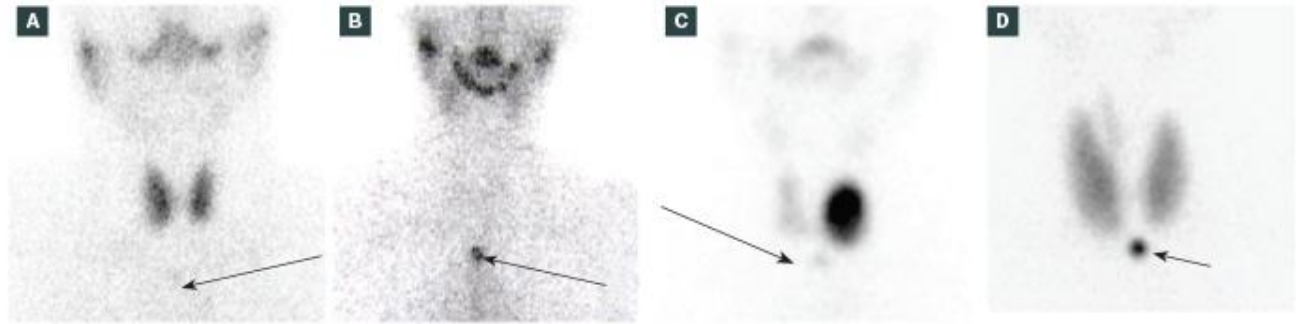
Diagnostic test for Hyperthyroidism

Thyroid Function test

Condition	TSH	T ₃	T ₄
Primary Hyperthyroidism	Undetectable	↑	↑
Subclinical Hyperthyroidism	↓	Normal	Normal
Secondary Hyperthyroidism	Normal or ↑	↑	↑

Thyroid Antibodies

Condition	Anti- TPO	Antithyroglobulin	TSH receptor
Graves Disease	70 to 80%	30 to 50 %	70 to 100 %

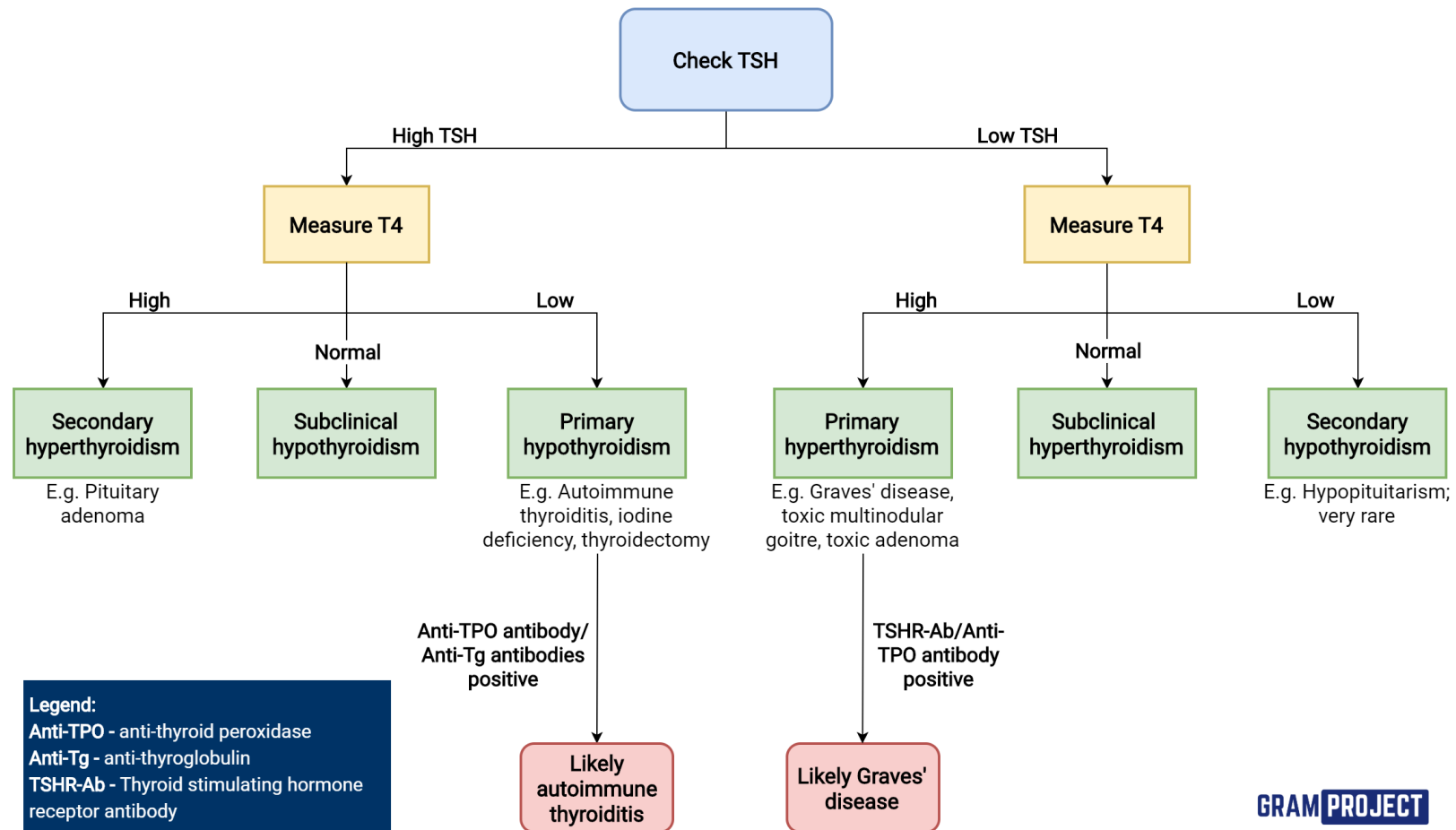


Diagnosis	Normal thyroid	Thyroiditis	Left toxic adenoma	Graves' disease
Thyroid uptake	Diffuse, symmetrical	Low or absent	Increased in nodule Contralateral reduced	Diffuse, symmetrical
Salivary gland uptake	Normal	Appears prominent	Appears reduced	Appears reduced

Thyroid Scan




Thyroid function tests (TFTs)





Management of Hyperthyroidism



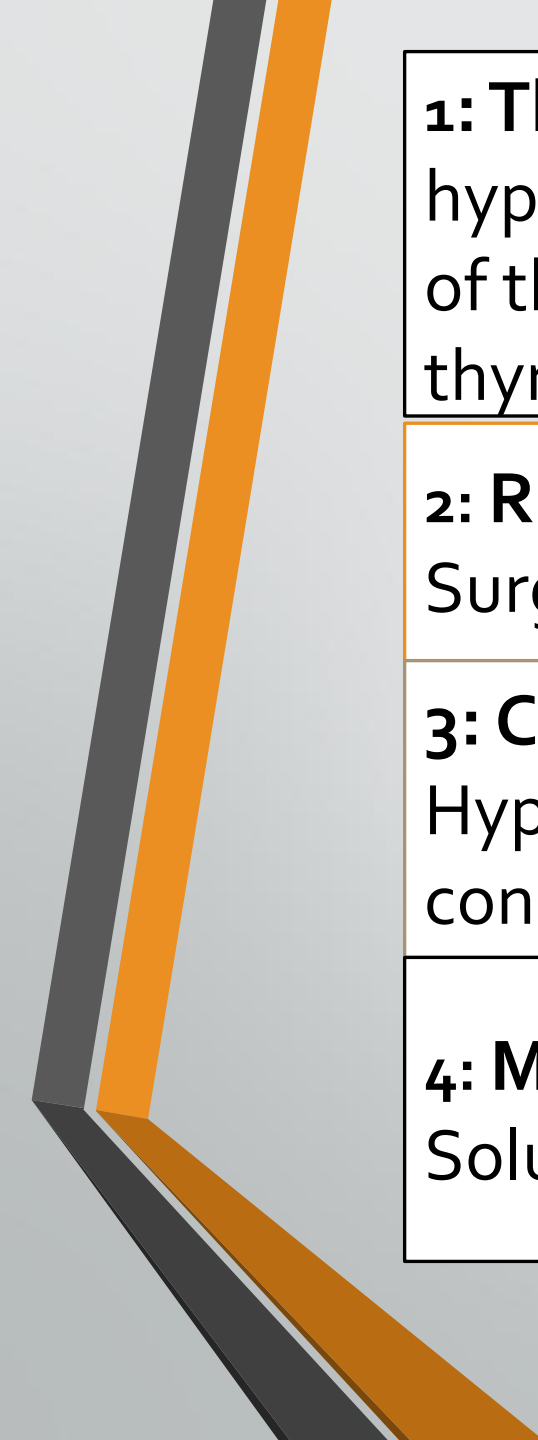
1: Antithyroid drugs:
Carbimazole, Propylthiouracil

2: Radioactive Iodine

3: Thyroidectomy



Complication of Hyperthyroidism




1: Thyroid storm: A severe, potentially fatal, hypermetabolic condition triggered by an overabundance of thyroid hormones (THs) in individuals experiencing thyrotoxicosis.

2: Risk factors: untreated or undertreated thyrotoxicosis, Surgery, Infection, Radioactive iodine therapy

3: Clinical Features: Tachycardia, Hyperthermia, Hypertension, Severe agitation, Confusion, and Loss of consciousness

4: Management: IV propranolol, Thionamide, Iodine Solution, Glucocorticoid.

RESEARCH

► Cureus. 2023 Jun 23;15(6):e40851. doi: [10.7759/cureus.40851](https://doi.org/10.7759/cureus.40851) 

COVID-Induced Hyperthyroidism in a 30-Year-Old Female: A Case Study

[Benjamin Ilyaeu](#)^{1,✉}, [Sabina N Muminiy](#)², [Emmanuella Borukh](#)³, [Emmanuel Izrailov](#)⁴, [Yakubmiyer Musheyev](#)⁵,
[Stella Ilyayeva](#)⁶

Editors: Alexander Muacevic, John R Adler

► [Author information](#) ► [Article notes](#) ► [Copyright and License information](#)

PMCID: PMC10363334 PMID: [37489189](#)

ETHICS

Ethical Issue	Key Concerns
Informed Consent and Education	Ensuring patients understand treatment options (e.g., antithyroid drugs, radioactive iodine, surgery) along with potential complications like hypothyroidism.
Patient Autonomy	Respecting patient decisions regarding treatment choices, especially when opting out of recommended therapies.
Risk of Overtreatment	Avoiding excessive suppression of thyroid function, which may lead to iatrogenic hypothyroidism.
Equity in Access to Care	Ensuring access to diagnostic tests (e.g., thyroid function tests) and treatment across different socioeconomic groups.
Management During Pregnancy	Ethical considerations when managing hyperthyroidism in pregnancy, ensuring fetal safety while treating maternal hyperthyroidism.
Research Ethics	Ensuring ethical conduct in research on new treatments, including clear communication of risks and benefits to participants.
Thyrotoxic Crisis (Thyroid Storm)	Ethical dilemmas in emergency settings, particularly when a patient lacks the capacity to consent to treatment.



Thank You