MANAGEMENT IN PRACTICE

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PATIENT 1

- **A 27-year-old female presents to the office with the chief complaint of chronic fatigue for 4 months. She has gained4 kg in 3 months, despite a decreased appetite. She also complains of depression, increased sleep, lack of energy, hair loss, and cold intolerance. Her past medical history is unremarkable, and she takes no medications. She has never had any surgeries.**

- **Which of the following physical examination findings would be expected?**
- **A-**Tachycardia
- **B-**Exophthalmos
- **C-**Fine tremor
- **D-**Peripheral sensory loss
- **E-**Delayed relaxation in reflexes

THE CORRECT ANSWER IS "E."

WHY

- The history given is consistent with a hypothyroid state. Symptoms of hypothyroidism include thinning hair, dry skin, a hoarse and deep voice, bradycardia, and a prolonged relaxation in the reflexes.
- Tachycardia and a fine tremor are more typical of hyperthyroidism, and exophthalmos is characteristic of Graves' disease (one specific cause of hyperthyroidism). Proximal muscle weakness may occur in hypothyroidism, but sensory loss is not typical (although hypothyroidism, diabetes, gout, rheumatoid arthritis, obesity, and connective tissue disorders can contribute to carpal tunnel syndrome which may be the initial presenting symptom of these diseases).

HOW CAN THE DIAGNOSIS OF HYPOTHYROIDISM BEST BE CONFIRMED?

- **A-**Elevated thyroid-stimulating hormone (TSH) level
- **B**L-ow TSH level
- **C-**Thyroid biopsy
- **D-**Radionuclide scan
- **E-**Serum thyroglobulin

THE CORRECT ANSWER IS "A."

- The TSH is the most sensitive test for both hypo- and hyperthyroidism, and changes in the TSH can precede abnormalities in serum thyroxine (best measured as free T4) level. An elevated TSH occurs when the pituitary detects insufficient thyroid hormone production (low free thyroxine), and TSH production is shut off when the pituitary detects an excess of thyroid hormone circulating (elevated free thyroxine

- TSH alone is usually sufficient for initial screening for thyroid disease.

"C," a biopsy, is used to evaluate thyroid masses and nodules.

A radionuclide scan ("D") is also used in the evaluation of thyroid masses and can (mostly) differentiate functioning adenomas from carcinomas and benign cysts.

"E," the serum thyroglobulin measurement, is used to **monitor** thyroid carcinoma (and is *not* the initial screening).

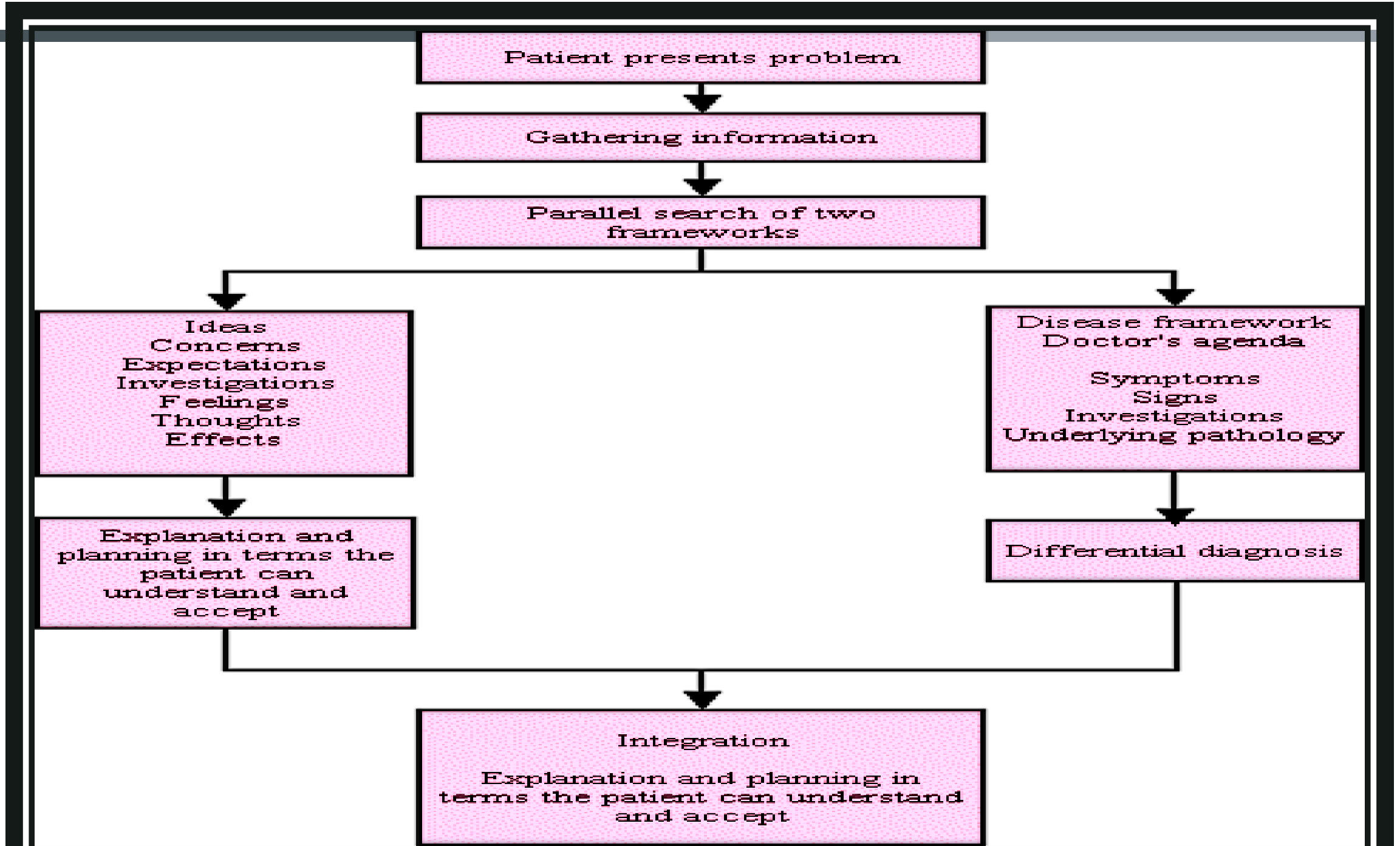
- **Her laboratory results are normal except for glucose 115 mg/dL, TSH 22.3 μIU/mL (reference range is typically 0.27–4.20 but may vary per lab), free T4 0.56 ng/dL (reference range typically 0.93–1.70).**

BASED ON PREVALENCE, LABS, AND PRESENTATION, WHAT IS THE MOST LIKELY CAUSE OF THIS PATIENT'S DISEASE?

- **A-**Autoimmune hypothyroidism
- **B-**Iatrogenic hypothyroidism
- **C-**Tuberculosis infiltration of the thyroid gland
- **D-**Nonfunctioning pituitary adenoma
- **E-**Congenital hypothyroidism

THE CORRECT ANSWER IS "A."

- " Autoimmune hypothyroidism (Hashimoto thyroiditis) is the most common cause of hypothyroidism in areas where there is adequate iodine
- If this patient had a pituitary adenoma causing hypothyroidism, the TSH (as well as the free T4) would be low, since the pituitary is the source of TSH.
- Congenital hypothyroidism causes a severe developmental delay and a constellation of other signs and is tested for at birth as part of routine neonatal screening. Tuberculosis is a rare cause of hypothyroidism, but is the most common cause of **adrenal** failure worldwide.


Patient presents problem
Gathering information
Parallel search of two frameworks
Ideas
Concerns
Expectations
Investigations
Feelings
Thoughts
Effects
Disease framework
Doctor's agenda
Symptoms
Signs
Investigations
Underlying pathology
Explanation and planning in terms the patient can understand and accept
Differential diagnosis
Integration
Explanation and planning in terms the patient can understand and accept