

1. What is the likely diagnosis?

Secondary hypothyroidism or tertiary hypothyroidism (less likely).

There are certain features that are very suggestive for hypothyroidism such as:

- a deep voice
- Delayed Achilles' tendon reflex time
- Bradycardia

2. What are the symptoms that made you consider that diagnosis?

- Obesity
- Constipation
- Mental retardation
- Cold intolerant
- deepening of the voice

3. What physical findings supported the diagnosis?

4. Which lab data supported the diagnosis?

- TSH
- Serum T3/T4
- Serum cholesterol

Explain-Hypothalamic-Pituitary-Thyroid axis and interrelationship.

5. What are the most likely causes?

- Pituitary tumor
- Pituitary infarction
- Sarcoidosis,
- Histiocytosis X,
- Hemochromatosis,
- Metastatic carcinoma involving pituitary, hypothalamus or stalk,
- Rathke's cleft cyst, craniopharyngioma, carotid artery aneurysm compressing pituitary, infundibuloma, hypothalamic tumor (germinoma, meningioma, hamartoma)

6. What additional aspects of the history and physical examination could provide relevant information to help in the diagnosis?

- secondary adrenal insufficiency to confirm the disorder is involving the pituitary
- the presence of galactorrhea is non-specific because it may be present in primary hypothyroidism because of increased TRH or secondary hypothyroidism because of interruption of PIF
- the presence of hypogonadism is non-specific because it may be primary in a 50 year old woman or secondary
- a space-occupying mass such as headache, bitemporal hemianopsia, 3rd, 4th, or 6th nerve defects, seizures, rhinorrhea, meningitis
- history of shock or massive hemorrhage at time of delivery as well as inability to breast feed and amenorrhea afterwards
- symptoms of systemic illness
- symptoms of hypothalamic disease such as diabetes insipidus, narcolepsy, excessive appetite or marked anorexia, hyperthermia or marked hypothermia.

7. What additional tests would help confirm the diagnosis?

- MRI with gadolinium enhancement to document the presence of a mass
- Baseline and dynamic anterior pituitary hormone testing for deficiencies and overproduction
- Testing for other tumor markers (alpha subunits)

8. What are some of the cardiac risk factors that are present in this patient?

- Moderate obesity
- Hypertension
- Hypercholesterolemia

9. What are the treatment options?

- Evaluate if secondary hypoadrenalism is present.
- If present treat simultaneously with the treatment of the hypothyroidism.
- Then treat the cause of the secondary hypothyroidism.
- Also evaluate whether hypogonadism and/or growth hormone deficiency is present and treat accordingly.