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Case Report

Two Endocrine Disorders, One Postpartum Period: "The Coexistence of Thyroiditis and Hypophysitis," A Case Report

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Abstract

The postpartum period is a phase during which various endocrine disorders may arise due to changes in the immune system. Postpartum thyroiditis and postpartum hypophysitis (lymphocytic hypophysitis) are two autoimmune diseases that typically occur independently but are rarely found together in the same patient.

Postpartum thyroiditis usually starts with thyrotoxicosis and progresses to hypothyroidism, while postpartum hypophysitis can lead to adrenal insufficiency and dysfunction of other pituitary hormones.

This case report discusses a female patient who presented with severe headaches, fatigue, and hypotension five months after childbirth. The patient was diagnosed with both postpartum thyroiditis and postpartum hypophysitis simultaneously, and dysfunction of both the thyroid and pituitary was detected. Hormone replacement therapies were administered, and the patient's symptoms were brought under control.

This case emphasizes the importance of carefully evaluating both thyroid and pituitary function during the postpartum period. Early diagnosis and appropriate treatment are crucial for preventing potential complications and improving long-term health outcomes.

More Information

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Introduction

The postpartum period is a phase during which various endocrine disorders may develop due to immunological changes that occur during pregnancy. Two of these disorders, postpartum thyroiditis and postpartum hypophysitis (lymphocytic hypophysitis) are typically seen independently but can rarely occur together. Both conditions arise as a result of immune-mediated inflammation, and their simultaneous presence can lead to dysfunction of both the thyroid and pituitary glands.

Postpartum thyroiditis is an autoimmune disorder characterized by inflammation of the thyroid gland within the first year after childbirth [1]. This condition typically begins with a thyrotoxicosis phase and often progresses to a hypothyroidism phase. The immune system, which is suppressed during pregnancy to protect the fetus, can become reactivated postpartum, triggering autoimmune reactions in the thyroid gland. Postpartum thyroiditis is usually a temporary process; however, in some cases, permanent hypothyroidism may develop [2].

Postpartum hypophysitis (lymphocytic hypophysitis), on the other hand, is a rare condition resulting from inflammation of the pituitary gland after childbirth [1]. This condition can lead to serious endocrine disorders, such as adrenal insufficiency and hypocortisolism, due to a decrease in adrenocorticotropic hormone (ACTH) production. The pathogenesis of postpartum hypophysitis is related to an excessive immune response [3].

While postpartum thyroiditis typically begins with thyrotoxicosis and progresses to hypothyroidism, postpartum hypophysitis can cause significant dysfunction of the pituitary gland, especially by leading to adrenal insufficiency. The simultaneous occurrence of these two conditions complicates the diagnosis and treatment process. Both thyroid and pituitary functions need to be closely monitored,

and appropriate hormone replacement therapies must be administered promptly.

This clinical association highlights the importance of careful endocrinological monitoring during the postpartum period. Regular evaluation of thyroid and pituitary functions can enable early diagnosis and treatment, contributing to the prevention of long-term complications.

Case report

A 27-year-old female patient presented to the internal medicine clinic on 12-11-2023 with complaints of headache, nausea, fatigue, and palpitations. The patient had delivered via normal vaginal birth five months ago and reported that her symptoms had been present for approximately one week. She had used a low dose of levothyroxine during pregnancy and had discontinued the medication following her doctor's advice after childbirth.

On physical examination, the patient's blood pressure was 80/40 mmHg, and her heart rate was measured at 110 beats per minute. Due to hypotension, she was hospitalized for further investigation and treatment. Her complete blood count and biochemistry were normal. Inflammatory markers, CRP, and ESR were within normal limits. Thyroid function tests: TSH: 0.02 µIU/mL (0.35 - 4.94), Free T3: 8.5 pg/mL (1.71 - 3.71), Free T4: 1.65 ng/dL (0.7 - 1.48), Anti-Tyroglobulin (Anti-TG): 6.25 IU/mL (0 - 54.11), Thyroid Peroxidase Antibody (Anti-TPO): 685 IU/mL (0 - 5.6), Thyroid Receptor Antibody (TRAB): Negative. Fasting cortisol: <1 µg/dL, ACTH: 9.27 pg/mL. Growth hormone, IGF-1, LH, FSH, and prolactin were within normal limits. Thyroid ultrasound showed heterogeneous and occasionally hypoechoic areas in the thyroid gland. Thyroid scintigraphy revealed no activity retention in the thyroid region, consistent with subacute thyroiditis. Pituitary MRI showed homogeneous contrast enhancement in the pituitary parenchyma.

Based on clinical and laboratory findings, the patient was diagnosed with concurrent postpartum thyroiditis and postpartum hypophysitis. The patient was started on intravenous fluid support, stress-dose steroids, and propranolol treatment. During follow-up, the patient's symptoms improved, and steroid treatment was reduced to maintenance doses.

On follow-up, the patient's TSH level returned to normal. However, the patient remained dependent on steroid treatment, which is continued in long-term follow-up.

Discussion

The postpartum period marks the beginning of a recovery process during which women undergo significant physical and hormonal changes. Postpartum thyroiditis and lymphocytic hypophysitis (postpartum hypophysitis) are rare but serious endocrine disorders. Both conditions develop as a result of immune-mediated inflammations and represent significant health issues that threaten women's health during the postpartum period. The concurrent presence of these disorders complicates the diagnosis and treatment process, but early diagnosis and appropriate treatment can improve the prognosis.

Postpartum thyroiditis is an autoimmune disease that typically occurs within the first year after childbirth, especially following the suppression of the immune system during pregnancy. During pregnancy, the immune system is suppressed to prevent the rejection of the fetus. However, after delivery, the immune system is reactivated, leading to autoimmune reactions in the thyroid gland. The prevalence of postpartum thyroiditis ranges from 3% to 8% throughout the postpartum period [5].

Postpartum thyroiditis typically begins with a thyrotoxic phase. During this phase, the thyroid gland secretes an excessive amount of hormones, leading to symptoms such as palpitations, sweating, irritability, weight loss, and fatigue. In rare cases, it can present with heart failure. Hidemichi Kouzu and colleagues have reported a case of peripartum cardiomyopathy triggered by postpartum thyroiditis [6]. As the inflammation of the thyroid gland progresses, a transition to hypothyroidism (thyroid hormone deficiency) may occur. This can cause symptoms such as fatigue, weight gain, depression, and cold intolerance.

Postpartum thyroiditis is generally a temporary condition; however, some patients may develop permanent hypothyroidism [4,7]. Therefore, thyroid function should be regularly monitored for up to one year after childbirth. Thyroid function tests (TSH, free T4) and clinical symptoms play an important role in the follow-up of the disease. Treatment is usually symptomatic, with beta-blockers used during the thyrotoxic phase and levothyroxine treatment for the hypothyroid phase. In our case, the patient who initially presented with a thyrotoxic picture later became euthyroid.

Postpartum hypophysitis (lymphocytic hypophysitis) is a rare but serious disease that develops during the postpartum period. The pituitary gland is a central regulator of the body's hormonal balance, responsible for the production of a range of critical hormones, including ACTH (adrenocorticotropic hormone), TSH (thyroid-stimulating hormone), and FSH (follicle-stimulating hormone). Lymphocytic hypophysitis is typically characterized by inflammation resulting from the immune system attacking the pituitary gland. This condition can lead to various endocrine disorders, such as adrenal insufficiency, hypothyroidism, gonadotropin deficiency, and growth hormone deficiency [8].

Postpartum hypophysitis is usually marked by decreased cortisol and ACTH levels. This results in hypokortisism (adrenal insufficiency) due to the adrenal glands' inability to

produce sufficient cortisol. Symptoms of this condition may include fatigue, loss of appetite, hypotension, hypoglycemia, muscle weakness, and depression. Additionally, lymphocytic hypophysitis can affect other pituitary functions, leading to clinical conditions such as hypothyroidism or gonadotropin deficiency [8].

Lymphocytic hypophysitis is typically treated with cortisol replacement. Corticosteroid therapies, such as prednisone or hydrocortisone, are used to support adrenal function and manage symptoms [9]. The response to treatment depends on the patient's clinical condition and the severity of the inflammation in the pituitary gland. In our case, stress-dose steroids were administered, and the patient experienced clinical improvement but remained permanently dependent on cortisol.

Lymphocytic hypophysitis is generally managed with cortisol replacement therapy. Corticosteroids such as prednisone or hydrocortisone are used to support adrenal function and control symptoms. The response to treatment depends on the patient's overall clinical condition and the severity of inflammation in the pituitary gland [9]. In our case, clinical relief was achieved with stress-dose steroid therapy, but the patient became permanently cortisol-dependent.

Postpartum thyroiditis and lymphocytic hypophysitis are typically diseases that occur independently. However, since both conditions develop as a result of excessive activation of the immune system, they can rarely occur together. This situation can complicate clinical evaluation and management, as both disorders lead to similar symptoms such as fatigue, weakness, depression, and weight changes. Additionally, the variety of hormonal imbalances can make diagnosis more complex.

In such a case of co-occurrence, careful endocrine testing is of great importance. Thyroid function tests (TSH, free T4), adrenal function tests (cortisol, ACTH), and pituitary function tests (gonadotropins, growth hormone, prolactin) help determine the extent of the disease. Additionally, imaging methods like MRI can be useful to assess inflammation and structural changes in the pituitary gland.

Postpartum hypophysitis is a rare disease, and there is no standard treatment protocol. Treatment typically involves replacing the deficient hormones and controlling symptoms. According to a systematic meta-analysis by Krishnappa, et al. high-dose glucocorticoids are effective in treating severe cases of postpartum hypophysitis; in mild and moderate cases, oral glucocorticoids are beneficial [10]. In cases resistant to glucocorticoid therapy, immunotherapies may be considered as alternatives.

The treatment approach should be personalized based on the severity and subtype of the disease. Managing side effects and hormonal evaluation are critical components of the treatment process. Regular monitoring of thyroid function during the transition to hypothyroidism and cortisol-ACTH levels is essential. The response to treatment is evaluated based on the improvement in hormone levels and symptoms.

Conclusion and clinical recommendations

Postpartum thyroiditis and lymphocytic hypophysitis are rare but clinically significant autoimmune endocrine diseases in the postpartum period. Postpartum thyroiditis usually begins with thyrotoxicosis and progresses to hypothyroidism, while lymphocytic hypophysitis progresses with pituitary hormone deficiencies, particularly adrenal insufficiency.

The co-occurrence of these two diseases can complicate the diagnosis and treatment processes. Regular thyroid and pituitary function evaluation is crucial for early diagnosis. Treatment should include hormonal replacement and symptom management.

Adopting a multidisciplinary approach in the postpartum period provides significant advantages in both the diagnosis and treatment process. Long-term follow-up is necessary for maintaining hormonal balance and improving patients' quality of life.

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