

## Atypical Presentation of Hypothyroidism Mimicking Rheumatism: A Case Report

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ARTICLE INFO	ABSTRACT
<p><b>Article type:</b> Case Report</p> <hr/> <p><b>Article History:</b> <b>Received:</b> 16 Nov 2024 <b>Accepted:</b> 30 Dec 2024</p> <hr/> <p><b>Keywords:</b> Atypical presentation, Case report, Hypothyroidism</p>	<p><b>Introduction:</b> Hypothyroidism typically manifests as tiredness, somnolence, weight gain, cold intolerance, hair loss, menstrual abnormalities, and musculoskeletal symptoms. Non-specific musculoskeletal symptoms are common and impair the patient's quality of life. Hypothyroid myopathy has been described as fatigue, myalgia, cramps, stiffness, myoedema, and weakness.</p> <p><b>Case Report:</b> Here, we present a patient with muscular cramps and numbness of the toes, initially diagnosed with rheumatism. After a year of treatment with no positive results, the patient was diagnosed with hypothyroidism due to abnormal levels of thyroid hormone. Three months after treatment with levothyroxine, the patient experienced a complete resolution of symptoms.</p> <p><b>Conclusion:</b> This particular case underscores the crucial need to consider hypothyroidism as a differential diagnosis in all patients with unexplained musculoskeletal symptoms. By doing so, we can avoid potential misdiagnoses and ensure timely and effective treatment.</p>
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**Introduction**

Hypothyroidism is the insufficiency of thyroid hormones that fails to meet the body's metabolic requirements. It usually manifests itself insidiously, so patients may not seek medical attention. Clinical manifestations vary depending on the extent and duration of hormone deficiency. Common symptoms include fatigue, somnolence, weight gain, constipation, cold intolerance, hair loss, reproductive and menstrual abnormalities, and neurologic and musculoskeletal symptoms (1). Non-specific musculoskeletal symptoms are common and impair the patient's quality of life (2). Hypothyroid myopathy has been previously described as fatigue, myalgia, cramps, stiffness, myoedema, and weakness (2). Hypothyroid myopathy in children manifests as the Kocher-Debre-Semelaigne syndrome, which involves classic features of cretinism as well as widespread muscular hypertrophy and weakness, mainly in proximal parts. (3). There are three main types of myopathy related to hypothyroidism in adults: Myasthenic syndrome, vigorous atrophy of the muscles, and Hoffmann syndrome, which is mainly seen in adults and includes painful spasms, pseudohypertrophy, stiffness, and proximal muscle weakness (2,4).

Musculoskeletal symptoms of hypothyroidism can also appear in the setting of neuropathies as a neurologic involvement. There is a vast majority of neurologic complications of hypothyroidism, ranging from neuropathies like carpal tunnel syndrome to myxedemic coma (5). Hypothyroid neuropathy typically presents as a symmetric and distal-predominant distribution of sensory disturbance.

Tingling, sensory loss, and painful dysesthesias are common. Atrophy and distal weakness are rare presentations in severe cases (6). In this case, we present an unusual instance of primary hypothyroidism, presented with muscular cramps and numbness in the toes, initially misdiagnosed as a rheumatic disease.

**Case Report**

A 50-year-old man was referred to the Endocrine Clinic due to elevated TSH levels. He had been suffering from muscle cramps, leg pain, toe numbness, and back pain for the past year. He was initially treated with sulfasalazine for one year as a rheumatologic disease, but it was ineffective. After a comprehensive evaluation, including consultation with a neurologist, he was then prescribed Gabapentin 300 mg daily for presumed idiopathic polyneuropathy. The patient had an elevated level of TSH detected during a follow-up examination, which led to a referral to the endocrine clinic. Upon physical examination, an overt goiter was observed. The patient was diagnosed with Hashimoto's Thyroiditis and was prescribed 50µg of levothyroxine daily, which was later increased to 100µg /day. The patient was advised to change his diet and lifestyle positively to address his impaired fasting plasma glucose levels. After three months of thyroid hormone replacement therapy, the patient was completely symptom-free. The size of the goiter had significantly reduced, and all laboratory findings were within the normal range after 6 months (Table 1). Informed consent was obtained from the patient to publish his information.

**Table 1.** Laboratory data of the patient on baseline and follow up sessions

Lab data	Baseline	3rd month of treatment	6th month of treatment	13th month of treatment	16th month of treatment	Normal range
TSH	118 mIU/L	56	8.5	7	1.7	0.3- 5mIU/ml
T3	33	-	-	-	-	75-195 ng/dl
T4	0.8	5	9	12	-	4.6 to 11.2 mcg/dL
Anti-TPO	433	-	-	-	-	Positive ≥8 IU/ml
CPK	1140 U/L	-	-	42	30	24-192 U/L
FBS	139 mg/dl	-	122	110	108	65-110 mg/dl
HbA1c	6.5%	6.6	-	-	5.7	Non diabetic: 3-6%
LDL	247	-	-	-	-	Normal <130 mg/dl
Cr	1.3 mg/dl	-	-	-	-	0.6-1.4mg/dl
Vitamin B12	409 pg/mL	-	-	-	-	187-883pg/ml
WBC	7000	-	-	-	-	4000- 10000
Hb	13.5 g/dl	-	-	-	-	M:13-18 g/dl
ESR	55	34	22	-	-	M :0-12 mm/h

Abbreviations: WBC= White blood count, Hb= hemoglobin, FBS= fasting blood sugar, HbA1c= hemoglobin A1c, LDL= low density lipoprotein, CPK= creatine phosphokinase, ESR= erythrocyte sedimentation rate, Cr= creatinine, TSH= thyroid stimulating hormone, Anti-TPO= anti-thyroid peroxidase

## Discussion

The clinical picture of hypothyroidism can vary greatly, and classical findings may not always be present (1). It is possible for overt hypothyroidism to go undiagnosed, which can lead to a misdiagnosis of an unrelated disease. Hypothyroid myopathy is a condition where muscle-related symptoms are the only manifestation of hypothyroidism without the usual classical symptoms (2). Common musculoskeletal symptoms of hypothyroidism include myoedema, muscle cramps, and muscle hypertrophy (7). Rheumatic symptoms that may be associated with hypothyroidism include joint pain (polyarthralgia), reduced hand dexterity, carpal tunnel syndrome, gout, chondrocalcinosis, frozen shoulder syndrome, generalized muscle stiffness, hypothyroid myopathy, secondary osteoarthritis, Dupuytren's contracture, muscle cramps, muscle hypertrophy and dermatomyositis and polymyositis (7,8).

A study conducted by Olatunde Odusan and colleagues examined the thyroid function in 840 patients with rheumatologic symptoms, of which 126 were found to have hypothyroidism. The most frequently reported symptom among these patients was generalized body pain, and the main laboratory finding was an elevated level of the enzyme creatine phosphokinase (CPK) (9). Mild to moderate myopathy and sensorimotor neuropathy may occur as neurological symptoms of acquired hypothyroidism and generally resolve with thyroid hormone replacement therapy (10). Musculoskeletal symptoms that occur in hypothyroidism, such as myopathy, can usually be resolved with thyroid hormone replacement therapy (11).

A 34-year-old woman suffered from severe generalized weakness, especially in her shoulders, hands, and lower limbs, which made it difficult for her to perform daily tasks. Laboratory tests revealed high CPK, LDH, and aldolase levels, as well as elevated TSH levels. Initial diagnosis and treatment for polymyositis was unsuccessful, but after further evaluation, including a muscle biopsy, hypothyroidism was identified as the cause. Treatment with levothyroxine resulted in gradual improvement in muscle enzyme levels and overall symptoms (12).

In this study, a patient presented with muscle pain, cramping in the legs, numbness in the toes, and back pain as the only symptoms of hypothyroidism. The patient reported muscle pain and cramping in the lower limbs, with elevated levels of the enzyme creatine phosphokinase (CPK). The patient was incorrectly diagnosed with a rheumatic disease and treated for a year without improvement. After three months of thyroid hormone replacement therapy, all musculoskeletal symptoms and CPK levels were normalized.

## Conclusion

Given the similarities in symptoms between hypothyroidism and rheumatologic disorders, it is crucial to include hypothyroidism as a differential diagnosis when evaluating muscle cramps and elevated levels of creatine phosphokinase (CPK).

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