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A Treatable Reason of Myopathy: Hypothyroidism

Miyopatinin Tedavi Edilebilir Bir Nedeni: Hipotiroidi

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Dear Editor,

Various neurologic complications may be seen in thyroid disorders. These complications may include cranial and peripheral nerve disorders, cerebellar ataxia, encephalopathy, coma, seizures, sleep disorders and myopathy. Both hyperthyroidism and hypothyroidism may lead to myopathy manifestation. Proximal muscle weakness, muscular pain on exercise, pseudohypertrophy due to muscle edema, decreased deep tendon reflexes, and stiffening in muscles are seen in hypothyroidism myopathy (1).

Increased creatine kinase (CK) levels have been reported depending on the severity of the disease (2). The aim of the treatment is euthyroidism of the patient. A complete clinical and biochemical improvement is achieved in most patients. Although occasionally improvement of the myopathy picture takes longer, the average duration of CK levels to return back to the normal values has been reported as 2 to 12 weeks (3,4).

A 28-year-old female patient presented with the symptoms of leg pain, fatigue, weakness, and difficulty in climbing up stairs for about 15 days. A neurologic examination revealed mild paresis in proximal muscles. Deep tendon reflexes were hypoactive. Bilateral plantar reflex revealed the Babinski sign. In biochemical examination CK was found as 10535 U/L, and thyroid stimulating hormone (TSH) as 32.38 µIU/mL (Table 1). Electromyography showed findings compatible with mild myogenic exposure in proximal muscles (Table 2). With L-thyroxine therapy, CK and TSH values were dramatically decreased and returned to normal at the second month of treatment as CK: 120 U/L and TSH: 2.68 µIU/ mL, and a complete clinical improvement was observed. Our patient is currently taking L-thyroxine therapy 100 mg/day and is clinically stable.

The main symptoms of hypothyroidism myopathy include weakness, cramps, muscular pain, decreased reflexes and myoedema (4). Muscular pain on effort is a typical finding. In our patient, muscle pain was also prominent (1). Although CK values are reported as 10 times higher than normal values, higher values reaching 29,000 U/L have also been reported (2,5). The effective treatment method is euthyroidism of the patient. CK values can be rapidly improved with thyroxine therapy (2-12 weeks); however, weakness may continue for 1 to 6 years (3). In our patient, CK values returned to normal after 10 weeks and clinical improvement was observed. In hypothyroidism myopathy, muscle biopsy may reveal atrophy, necrosis, and hypertrophy in the fibers, and an increased number of nuclei and connective tissues. However, these changes are mild and non-specific. We did not plan a biopsy because we achieved a rapid recovery in our patient with thyroxine therapy. Our case supports hypothyroidism-related myopathy with clinical, laboratory findings, and response to treatment.

Table 1. Thyroid stimulating hormone and creatine kinase values of the patient at admission and follow up

	10.02.2015	16.03.2015	20.04.2015	02.10.2015
TSH (µIU/mL)	32.38	19.22	2.68	0.22
CK (U/L)	10535	2592	120	101

TSH: Thyroid stimulating hormone, CK: Creatine kinase

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Table 2. Electromyography findings			
Sensory messages	**Latency-ms**	**Amplitude-µV**	**Speed-m/s**
Right median	2.19	33.5	50.3
Right ulnar	1.82	17.9	54.9
Right sup. per	1.72	7.7	46.5
Right sural	2.6	17.8	50
Motor messages	**Latency-ms**	**Amplitude-µV**	**Speed-m/s**
Right median	2.66	10.2	
	7.05	8.9	53.2
Right ulnar	1.93	11.9	
	5.31	8.9	65
	6.3	10.6	80.8
Right com. per	3.33	4.6	
	10	4.1	43.5
	12.34	3.7	46.9
Right tibial	3.7	7.9	
	11.46	7.5	47.7
Needle biopsy revealed small and short-term motor unit potentials with being prominent in deltoid, biceps and iliopsoas muscles			

The first finding of thyroid disorders may be a neurologic symptom. Early recognition of thyroid dysfunction is important because rapid clinical improvement can be achieved with appropriate treatment. Thyroid function tests should also be primarily evaluated in patients presenting with myopathy manifestation.

Ethics

Informed Consent: Consent form was filled out by all participants.

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Authorship Contributions

Surgical and Medical Practices: S.Ü.Ö., C.E., Concept: S.Ü.Ö., C.E., Design: S.Ü.Ö., S.A., Data Collection or Processing: C.E., S.Ü.Ö., Analysis or Interpretation: C.Ö., C.E., Literature Search: S.Ü.Ö., C.E., S.A., Writing: S.Ü.Ö.

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