

Electrodiagnostics

Evaluation and Management of a Patient with Myopathy

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Myopathies disrupt the metabolic function and structure of muscle cells and are the result of genetic disruptions, endocrine dysfunction, inflammation, infections, or metabolic imbalances.¹⁻³ Myopathies are usually classified as inherited or acquired myopathies.¹⁻³ Polymyositis and dermatomyositis are examples of acquired, inflammatory myopathies.¹⁻⁴

This case details the history, clinical exam, electrophysiological testing, laboratory studies, and interventions for a 40-year-old man with acquired, inflammatory dermatomyositis affecting both upper extremities (BUE), both lower extremities (BLE), and the bilateral lower lumbar paravertebral muscles (PVM).

Following the electrophysiological evaluation, the patient was referred by his primary care provider to a rheumatologist. At the time of the rheumatology examination, the patient had skin rashes on his hands and thigh regions which were not present at the time of the electrophysiological evaluation. The rheumatologist diagnosed the patient with dermatomyositis with similar presentation and electrophysiological findings to polymyositis, but with a skin rash present during physical examination.¹⁻⁴ The patient was treated with prednisone, an autoimmune suppressive agent, and three months following the electrophysiological examination the patient stated that he was “feeling much better” and had “less pain with activity in the muscles in both arms and legs”.

1. BACKGROUND

Myopathies disrupt the metabolic function and structure of muscle cells and are the result of genetic disruptions, endocrine dysfunction, inflammation, infections, or metabolic imbalances.¹⁻³ Myopathies are usually classified as inherited or acquired myopathies.¹⁻³ Patients presenting with acute or progressive muscle weakness without a clear genetic link often undergo electrophysiological testing to exclude other potential conditions (motor neuron diseases, neuromuscular junction disorders, and motor neuropathies), confirm the diagnosis and characteristics of myopathic changes, and to identify potential muscles for biopsy.¹⁻⁵

Myopathies usually present with relatively symmetric proximal muscle weakness that is not associated with sensory loss.¹⁻³ The combination of skin rash and progressive muscular weakness in proximal greater than distal limb muscles suggests the diagnosis of dermatomyositis which is an acquired, inflammatory myopathy.¹⁻⁶ Dermatomyositis

is found more commonly in women than men, and may begin at any age with peak incidence between 5-25 years and 45-64 years.^{1,2} Dermatomyositis may be found in adults with the underlying medical condition of a malignancy.^{1,2}

Electrophysiological testing, including nerve conduction studies (NCS) and needle electromyography (EMG), provides a means to classify the chronicity, severity, distribution, and extent of involvement in patients with myopathy.¹⁻⁶ This case study will highlight the history, clinical examination, laboratory studies, and electrophysiological testing in a patient with weakness and pain in BUE and BLE secondary to dermatomyositis.

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