Winged Scapula Secondary to Neuroborreliosis

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Keywords

central nervous system bacterial infections, central nervous system, infections, infectious disease medicine, brachial plexus neuropathies, neuromuscular diseases

A 76-year-old woman presented to the hospital with 10 days of back pain, right deltoid weakness, and a circular rash. Examination showed a right pronator drift and weakness of right shoulder abduction and elbow extension. Diffuse leptomeningeal and lumbar root enhancement was seen on magnetic resonance imaging of the spine (Figure 1). Cerebrospinal fluid (CSF) studies showed 440 white blood cells (87% lymphocytes) and 137 mg/dL protein. *Borrelia burgdorferi* testing showed positive serum immunoglobulin G (IgG) and negative CSF polymerase chain reaction (PCR). Testing for herpes simplex virus, eastern equine encephalomyelitis, West Nile virus (WNV), enterovirus, varicella zoster virus, and cytology was negative. She was presumptively treated for neuroborreliosis with intravenous ceftriaxone for 4 weeks. Magnetic resonance imaging 1 month later showed near resolution of enhancement (Figure 1). Frozen pretreatment CSF samples were reanalyzed for antibodies to *Borrelia burgdorferi* using antibody capture enzyme immunoassay (EIA), demonstrating CSF:serum ratio of IgM = 2.2, IgG > 42, and IgA = 19.4 (normal range < 1). Examination showed medial winging of the right scapula on arm flexion (Figure 2), most likely due to unilateral long thoracic nerve palsy from *Borrelia burgdorferi*. Only 3 such cases have been reported in Europe.¹⁻³ To our knowledge, this is the first case of *Borrelia burgdorferi* long thoracic nerve palsy to be reported in North America, illustrating that neuroborreliosis is an important diagnostic consideration in patients with peripheral nerve palsies in endemic areas and the superior sensitivity of EIA over PCR in its diagnosis.⁴ Informed consent was obtained from the patient for this publication.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Figure 1. Initial T1 precontrast (A) and postcontrast (B) thoracic spine magnetic resonance imaging (MRI) showing leptomeningeal enhancement; T1 precontrast (C) and postcontrast (D) thoracic spine MRI showing posttreatment resolution; T1 postcontrast axial MRI at T10 showing initial nerve root enhancement (E) with posttreatment improvement (F).

Figure 2. Right medial scapular winging.