A 9-Year-Old Female with Bilateral Leg Weakness After Influenza Vaccination

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A 9-year-old female developed bilateral leg weakness on the same day she received an influenza vaccination. Her condition had gradually worsened during the 5 months prior to her presentation. She had no family history of hereditary disease. Physical examination revealed muscle atrophy without fasciculation in all four limbs. Muscle power in the proximal and distal limbs was 3 of 5, and the deep tendon reflexes of the lower limbs were decreased bilaterally, but there was no sensory function impairment, urinary incontinence, or other autonomic nerve system dysfunction. Nerve conduction velocity test revealed axonal degeneration with demyelination in both upper and lower limbs. Lumbar puncture showed an elevation of total protein (223.07 mg/dL; normal range, 15-45 mg/dL) without pleocytosis. Antinuclear antibody, rheumatoid factor, and erythrocyte sedimentation rate tests showed no abnormalities. T2-weighted magnetic resonance imaging (MRI) of the cervical (Figure 1) and lumbar spine show symmetrical enlargement of bilateral peripheral nerves, with obvious enhancement.

Figure 1. Axial T2-weighted magnetic resonance image of the cervical spine at C6-7 shows symmetrical enlargement and high signals of bilateral peripheral nerves (arrows).

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Editor’s note: Each month, this department features a discussion of an unusual diagnosis. A description and images are presented, followed by the diagnosis and an explanation of how the diagnosis was determined. As always, your comments are welcome via email at pedann@Healio.com.
Diagnosis: Chronic Inflammatory Demyelinating Polyneuropathy

A diagnosis of chronic inflammatory demyelinating polyneuropathy (CIDP) was made on the basis of the MRI findings, elevation of total protein in the cerebrospinal fluid, and the clinical course of the condition (>2 months). The patient was prescribed intravenous immunoglobulin at a dose of 400 mg/kg/d (2 g/kg) and prednisolone at a dose of 5 mg three times per day (0.65 mg/kg/d) for 5 days, followed by rehabilitation and slowly taper off oral prednisolone for the next 6 months. Muscle power and walking endurance improved gradually.

DISCUSSION

Viral vaccination may rarely precipitate autoimmune neurological damage. CIDP involves an autoimmune response against peripheral nerve myelin. Intravenous immunoglobulin is an effective first-line therapy in most cases, with refractory cases responding to corticosteroids and rituximab. Adachi et al. reported that diffuse enlargement and abnormally high signals on MRI have been detected in 66.7% of cases on short tau inversion recovery (STIR), a slightly high signal in 50% of cases on T1-weighted images, and contrast enhancement of the plexuses in 31.6% of cases on gadolinium-enhanced images. STIR is sufficient to assist clinicians in diagnosing CIDP. Early diagnosis of CIDP with early treatment can prevent loss of nerve axons.

It is very difficult to implicate with certainty an etiologic role for a preceding vaccine in a patient who develops a polyneuropathy. In this case, we can not be certain that influenza vaccination was the cause of the polyneuropathy.

REFERENCES