A case of chronic inflammatory demyelinating polyneuropathy after Pfizer COVID-19 vaccination.

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Introduction

Chronic inflammatory demyelinating polyneuropathy (CIDP) is an acquired immune-mediated polyneuropathy characterized by peripheral demyelination, resulting in symmetrical sensory loss and distal and proximal muscle weakness. Diagnosis of CIDP is dependent on disease presentation for greater than eight weeks and can have progressive or relapsing-remitting clinical course.

The most common form, typical CIDP, accounts for 50 to 60 % of all cases and is characterized by symmetric sensorimotor polyneuropathy. Weakness occurs in proximal and distal muscles with greater motor than sensory loss.

Diagnosis of CIDP is made through a combination of clinical findings and laboratory findings. Nerve conduction studies show evidence of demyelinating neuropathy and cerebral spinal fluid shows evidence of elevated protein without pleocytosis. Laboratory studies are crucial in eliminating differential diagnosis.

There are no specific predisposing risk factors for CIDP that have been clearly identified. However, it is thought that the disease has an immunological basis and can have multiple triggers. CIDP has been reported after vaccination, especially with the influenza vaccine.

The FDA approved the novel Pfizer COVID-19 vaccination for emergency use in December of 2020. Safety and efficacy is still being monitored and adverse effects of this vaccination range from anaphylactic reactions to neurological effects including Guillain-Barre syndrome and transverse myelitis. These neurological adverse effects are exceedingly rare at rates of less than 1 in 10,000.

While CIDP has been reported after influenza, tetanus, and other common vaccinations, this is the first reported case of CIDP after COVID-19 vaccination to our knowledge.

General Criteria for CIDP Diagnosis	
Clinical	• Symmetric involvement of arms and legs • Proximal and distal muscle • Weakness > Sensory symptoms • Gait ataxia secondary to large fiber sensory loss
Time	• Progression over at least 2 months
Reflexes	• Areflexia or hyporeflexia
EMG	• Demyelinating neuropathy
CSF	• Increased protein without pleocytosis

Case

A 34-year-old right-handed male with an unremarkable past medical history presented with bilateral distal paresthesias, proximal and distal muscle weakness, and fine motor difficulties. Symptoms initially manifested with toe numbness, approximately two weeks after receiving the first dose of the Pfizer COVID-19 vaccine in December of 2020.

Paresthesias gradually progressed from lower extremities to upper extremities. Two months after the initial COVID-19 vaccine, symptoms worsen with decreased muscle strength, difficulties with fine motor activities, difficulties climbing stairs, and lifting objects above his head. Neurologic evaluation revealed 4/5 strength in upper and lower extremities, generalized hyporeflexia, decreased vibration, and proprioception.

By four months, symptoms progressed to warrant a trip to the emergency department due to severely diminished strength and difficulty walking. The patient's gait was ataxic and symptoms were predominantly motor. Additionally, he developed a tremor in all four extremities. Neurological exam at this point continued to show 4/5 strength in upper and lower extremities, areflexia in the lower extremities, and inability to walk on tiptoes.

MRI of the brain and spine revealed no abnormalities. Nerve conduction studies were consistent with demyelination (Fig 1) and cerebral spinal fluid analysis revealed albuminocytologic dissociation. The patient was diagnosed with CIDP and began steroids after poor response to a four-day treatment course of IVIG 2g/kg which resulted in partial improvement of strength. The patient continues to have residual parasthesias, but has improvement of gait. The patient continues to follow up with long-term prednisone therapy.

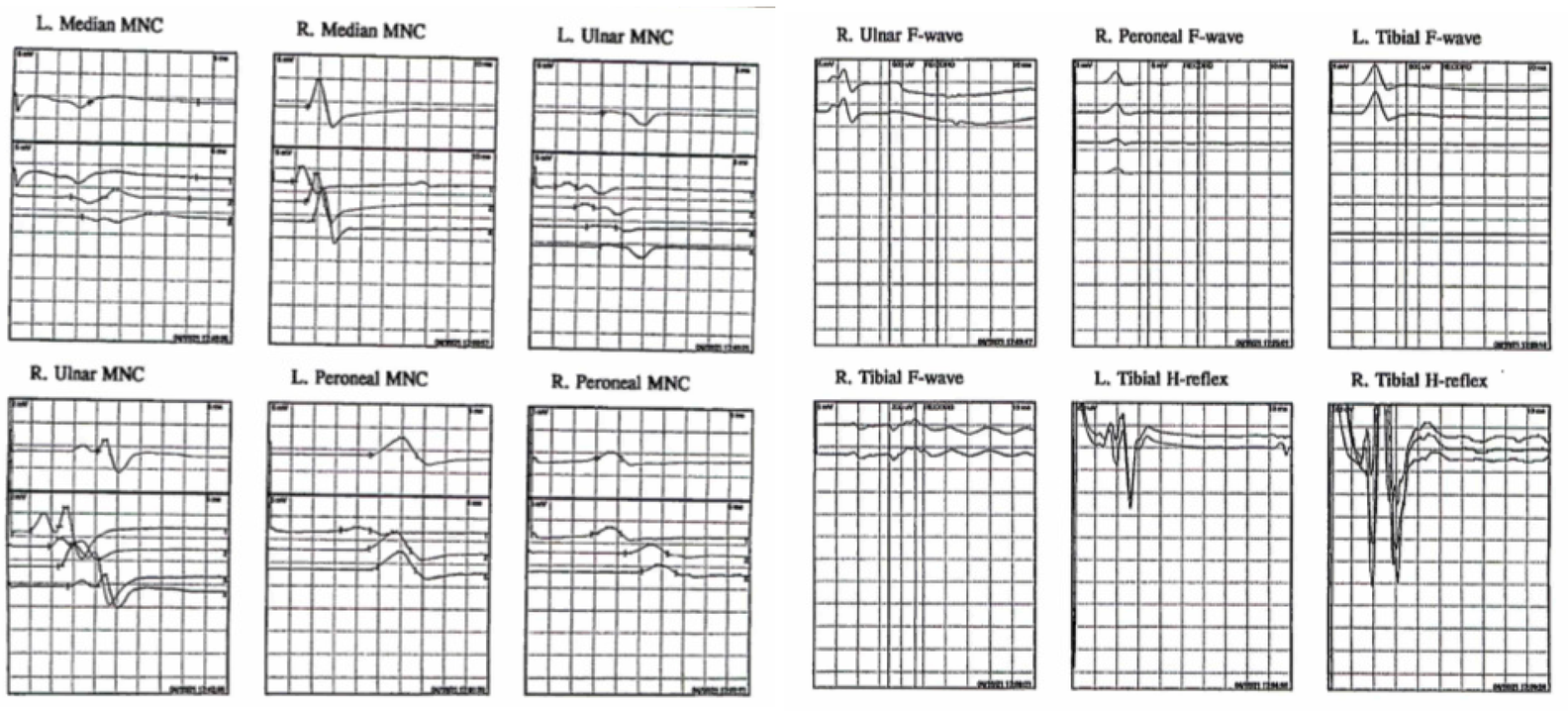

Figure 1: Nerve Conduction Studies

Conclusions

Demyelinating polyneuropathies are a rare complication of vaccination. While the benefits outweigh the risks of immunization, we aim to inform of this potential complication.

References

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Questions?

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