Diagnostic Approaches for Guillain-Barré Syndrome: A Case Report of Unusual Presentation

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Background: Guillain-Barré Syndrome is a rare demyelinating disorder of the peripheral nervous system that affects roughly 3,000-6,000 Americans each year. It is usually preceded by a recent gastrointestinal or respiratory illness, commonly associated with microbes such as *Campylobacter jejuni, Mycoplasma pneumoniae* and the Influenza virus to name a few. Typically, paralysis starts in an ascending pattern from lower to upper extremities and lungs. However, there can be atypical presentations. Here, we present diagnostic markers that can be used in the absence of a typical presentation.

Case Presentation: We present the case of a 54-year-old male with no previous medical history who arrived at the emergency department with a chief complaint of bilateral upper and lower extremity weakness. The symptoms started two days prior, when he returned from a 10-day trip to Pakistan. He stated the weakness started with his upper extremities, then became unable to ambulate today. He endorsed a fever and sore throat that appeared independent from each other for one day each that resolved five days prior with antibiotics. He denies chills and recent gastrointestinal/respiratory illness. His vitals were stable upon admission, cranial nerves were intact, 4 / 5 upper extremity strength, and 3 / 5 lower extremity strength.

He was admitted and assessed by neurology and internal medicine teams. Initial MRI of the brain showed pansinusitis for which the patient was asymptomatic. Lumbar puncture showed an albuminocytologic dissociation, with a protein of 85 (15-45) and normal white blood cell count. His condition rapidly progressed to 0/5 strength for upper/lower extremities, with no acute respiratory distress. Reflexes were 0/4 bilaterally in biceps, triceps, and brachioradialis, with 1 / 4 bilaterally in patellar and ankles. He was given IVIG 25 g for five days for suspicion of Guillain-Barré Syndrome. His respiratory status was monitored with serial decline Sniff Tests and baseline PFTs. His strength slightly improved throughout the hospital course with this treatment.

He was transferred to another hospital after a 7-day course in our hospital and coordinated care with the original neurologist. A week after discharge, his CSF analysis from our hospital contained IgG Gangliosides GM1 and GD1b, West Nile Virus IgG, and Lyme Disease P58 IgG antibodies. With the confirmation of Guillain-Barré potentially via West Nile, he received plasmapheresis and has reportedly started to regain function of his upper extremities.

Conclusions: This patient's unusual presentation shows the importance of CSF analysis, despite lacking typical pathophysiology. By analyzing the CSF protein count and establishing an albuminocytologic dissociation, initial therapy could be started early in the hospital course to mitigate further disease progressions. With later confirmation of CSF IgG Gangliosides GM1 and GD1b, high specificity autoantibodies, more targeted treatments could be implemented.