Introduction

While COVID-19 presents primarily with fever and respiratory symptoms, neurological manifestations have been increasingly reported. As with MERS-CoV and SARS-CoV, peripheral nervous system disease, specifically Guillain Barre Syndrome (GBS), has been documented in SARS-CoV-2 patients. The diagnosis of GBS and prompt treatment are paramount as patients can rapidly decompensate, with one fifth of COVID-19-associated GBS patients necessitating mechanical ventilation. We present a patient with COVID-19 who developed GBS, a likely post-Infectious and immune-mediated complication of SARS-CoV-2.

Case Description/Hospital Course

A 78-year-old woman with a history of rheumatoid arthritis and Graves disease, presented unresponsive to the Emergency Department (ED). On admission, she was found to be febrile (103 F), hypertensive (190/90 mm Hg), and tachycardic (180 beats per minute). The patient had supraventricular tachycardia requiring adenosine and amiodarone infusion. Laboratory studies were significant for leukocytosis, hypernatremia, hypercalcemia, decreased TSH, elevated free T4, and elevated troponin I level. CT Angiography demonstrated ground-glass opacities and multiple small sub-segmental pulmonary embolisms (see Image 1 and 2). Her admission diagnosis included hypoxemic respiratory failure secondary to COVID-19 pneumonia, pulmonary embolism and thyrotoxic storm.

Day 2

- The patient developed new onset lower extremity weakness, initially believed to be critical illness myopathy.

Day 5

- Progression showed bilateral upper and lower extremity flaccid paralysis.
- Exam showed complete areflexia with quadriplegia, absent myoclonus, negative Babinskis and Hoffman sign. She had normal cranial nerves and sensory exam.

Day 7

- Lumbar puncture demonstrated no leukocytes, normal glucose with elevated protein. A presumptive diagnosis of acute inflammatory demyelinating polyneuropathy subtype of GBS was made and MRI and nerve studies were not pursued.
- The patient was started on 5- day course of intravenous immunoglobulins (IVIG).

Day 14

- The patient showed significant improvement in her neurologic symptoms.
- She ultimately was discharged to short term rehabilitation for residual weakness.

Discussion

- In the most recent systematic review, 73 cases of GBS associated with COVID-19 were reported, with 8 from the United States.
- In majority of patients, GBS manifestations occur after COVID-19 symptoms. Specifically, patients developed areflexia and flaccid paralysis within a median of 14 days (minimum 2 days-maximum 33 days) of acquiring the infection.
- The classic albuminocytological dissociation of the cerebrospinal fluid is observed in majority of COVID-19 patients who develop GBS, similar to our patient.
- Patients are managed with IVIG or plasmapheresis; similar to classic GBS.
- Patients who showed no improvement or had poor outcomes were those with higher frequency, by clinical history or radiological evidence of COVID-19 pneumonia.
- It is imperative to have a high index of suspicion, particularly in the geriatric population to help prevent rapid progression and decrease the risk of morbidity and mortality associated with GBS in the setting of COVID-19.

References