A POSSIBLE GBS / TM OVERLAP SYNDROME AFTER A RECENT COVID 19 INFECTION

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Introduction

Neurological manifestations are common in COVID-19. It can cause life-threatening acute muscle weakness due to NM disorders such as acute transverse myelitis (TM) and Guillain-Barré syndrome (GBS). [1]

Since TM and GBS are immune-mediated inflammatory diseases, it is possible for both disorders to be concurrent, referred to as GBS/TM overlap syndrome. [2]

There are very few case reports of overlap syndrome in the general population, and most cases were triggered by infections such as influenza; [3] however, to the best of our knowledge, this has not been reported in COVID-19 patients.

Objective:

- Broad differentials with rare causes such as GBS/TM overlap syndrome.
- High degree of clinical suspicion.

Case Presentation

A 77-yo man with COVID-19 initially treated with IV bamlanivimab, and oral dexamethasone, returned within 5 days with worsening generalized weakness, severe back and leg pain, constipation, and multiple ground-level falls.

On exam: Power 5/5 in b/l UL, 1/5 b/l proximal LL, 4/5 b/l distal LL. DTR hypoactive in the UL and absent in the LL, normal muscle tone, no tremors, gait was not assessable, as he was unable to bear weight, b/l flexor planter responses, intact light touch, temperature, and vibration sensation in the hands and feet.

Lab work: Normal ANA, B-12, bacterial and fungal culture. Serological tests were negative for CMV, EBV, VDRL, HSV and normal paraneoplastic and autoimmune CSF panel.

GBS was diagnosed due to the presence of motor signs, albumino cytological dissociation in CSF examination, and axonal damage per the nerve condition study. He was treated with IVIG but no significant improvement in weakness was noted.

Considering the patient's worsening back pain, new urinary retention that necessitated Foley catheter insertion, and the spinal MRI findings (Image 1-2) supported a diagnosis of TM. Therefore, a possible overlap between GBS and TM was established. After being treated with 1g IV corticosteroid daily for 5 days, the patient showed partial recovery with power 4/5 right hip but 0/5 on left hip. Plasmapheresis was initiated on the 12th day, for 5 sessions. He was discharged on the 22nd day after significant recovery.

Imaging

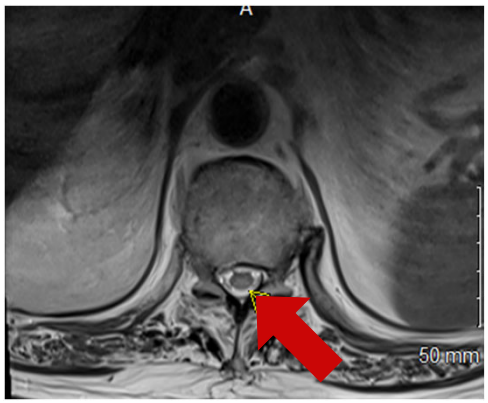

Image 1

A whole spine MRI sagittal sections with gadolinium showed no signal changes in the spinal cord

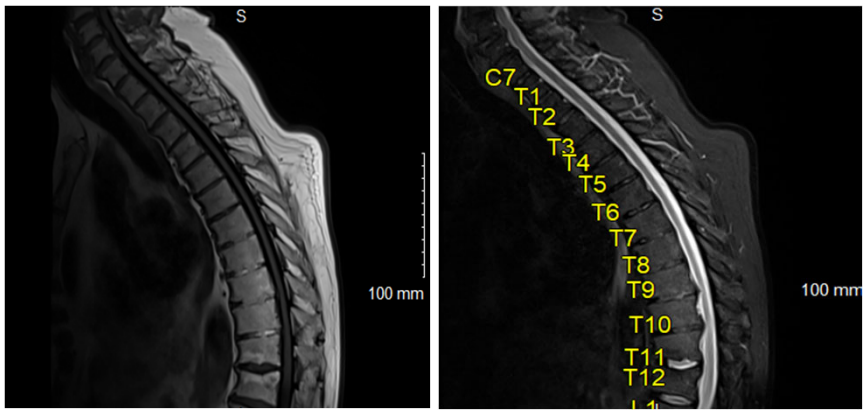

Image 2

Thoracic axial spinal T2 weighted MRI: abnormal T2-hyperintense signals within the central thoracic spinal cord, extending from T7-T8 inferiorly to T11 and T12 with multiple old canal stenoses at the cervical and lumbar levels and lack of root enhancement.

(Image obtained with permission from Northeast Georgia Medical Center, Gainesville, GA)

Discussion

NM disorders in COVID-19 is extensively described by authors as a recognizable complication. Both GBS and TM have been reported separately in COVID-19. [1]

Currently, the treatment for GBS/TM overlap syndrome in the general population is not clear. However, we know that IVIG and plasmapheresis can be effective for both GBS and TM individually, and intravenous corticosteroids are usually the initial treatment for TM only. [4]

Guo et al.[5] reviewed 23 cases and showed that IV corticosteroids alone are not effective, and that the therapy with the most favorable outcomes is the combination of IVIG and intravenous corticosteroids.

Limitations:

- Adverse effect profile of bamlanivimab is not well known.
- Literature review did not have spinal MRI findings in enough GBS-related COVID-19 cases for comparison.
- Rarity of GBS/TM overlap syndrome in general population and of TM in COVID.

Conclusion

GBS is usually the initial diagnosis of GBS/TM overlap syndrome in general population which is the same in our patient with recent diagnosis of COVID-19. TM concurrently can be missed initially in GBS related COVID-19 patients secondary to limited MRI use during the pandemic. This can delay patient's recovery and increase the length of stay.

It is critical to perform a spinal MRI with and without gadolinium enhancement in suspected GBS-related COVID-19 patients to evaluate for possible TM concurrency.