

CASE REPORT

A Geriatric Case of Acute Motor and Sensory Axonal Neuropathy (AMSAN) following Viral Encephalitis

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ABSTRACT

Acute Motor and Sensory Axonal Neuropathy is a rare form of Guillain-Barré syndrome (GBS). The incidence after viral encephalitis is rare in contrast to other variants of GBS. We reported a very rare case of Acute Motor and Sensory Axonal Neuropathy in a 70-year-old man after viral encephalitis, diagnosed by clinical evaluation, Electromyography (EMG) and Nerve Conduction Studies (NCS).

Key Words: *Acute Motor and Sensory Axonal Neuropathy, AMSAN, Guillain-Barré syndrome, Viral Encephalitis, EMG/NCS.*

Case

A 70 years old man presented in the Emergency Room of Capital Hospital, Islamabad with a complaint of high-grade fever for 4 days, sudden onset weakness in left upper limb and altered level of consciousness for 1 day. The level of consciousness according to Glasgow Coma Scale (GCS) of the patient was E₂M₂V₂=6/15. The temperature was 102°F. Rest of the physical examination was normal. CRP of the patient was raised to 69 mg/dl while Blood C/S and Urine C/S were negative. CT Scan showed senile cerebral atrophy. The patient was admitted as a case of viral encephalitis and treatment was started. The level of consciousness improved gradually with GCS 15/15 on the 6th day of admission, but the patient had developed quadriparesis with areflexia and loss of vibration and proprioception in lower limbs.

Electromyography (EMG) and Nerve Conduction Studies (NCS) were done that showed the following findings.

- Low compound muscle action potentials amplitude & conduction velocity in (bilateral) Median Nerve, Ulnar Nerve, Tibial Nerve & (Right) Common Peroneal Nerve.
- Unevokable motor response in (Left) Common Peroneal Nerve.
- Unevokable F-wave response in sampled nerves.

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- Low sensory nerve action potentials amplitude & conduction velocity in (bilateral) Median Nerve & Ulnar Nerve.
- Unevokable sensory response in (bilateral) Sural Nerve.
- The electrophysiological study, suggestive of AMSAN.

Introduction

Guillain-Barré syndrome (GBS) is an acute, severe autoimmune polyradiculoneuropathy.¹ Infections with *Campylobacter jejuni*, CMV, EBV, *Mycoplasma pneumoniae*, *Hemophilus influenzae*, HSV and VZV are some of the known antecedent infections in GBS patients.² Axonal variants of GBS are AMAN, AMSAN and pharyngeal-cervical-brachial weakness.³ Acute Motor Sensory Axonal Neuropathy (AMSAN) is a rare and severe variant of GBS having a prolonged recovery course.⁴

We reported a rare case of post encephalitis AMSAN in a 70 years old man.

Discussion

GBS is a form of polyradiculoneuropathy that is immune mediated and can occur after various viral or bacterial infections.⁵

In this article we provide a detailed report of a geriatric case of GBS AMSAN-type after viral encephalitis. According to the Brighton diagnostic protocol, following clinical, neurophysiological and laboratory criteria, the patient fulfilled the Level-2 criteria for GBS diagnosis.⁶

A case of Guillain-Barré syndrome (GBS) caused by Japanese encephalitis virus was reported in China in 2022 but that didn't have sensory nerve involvement.⁷ A similar case was also reported in China back in 2014.⁸ A number of case reports

related to AMSAN and COVID 19 are published.⁹ But both sensory and motor variant GBS (AMSAN) after viral encephalitis is rare in literature.

Conclusion

There should be more research towards this aspect of viral encephalitis. It should be diagnosed and treated earlier with keeping in mind, one of its complication, AMSAN, a rare form of GBS that usually has a serious clinical course and slower recovery than the common demyelinating form of GBS. So, suspicion of the clinician is important as early diagnosis and intervention with immunotherapy can improve the outcome.¹⁰

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CONFLICT OF INTEREST

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DATA SHARING STATMENT

The data that support the findings of this study are available from the corresponding author upon request.

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