The Diagnostic Challenge of Amyotrophic Lateral Sclerosis During the COVID-19 Pandemic

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Case Diagnosis

A 64 year old woman with an initial diagnosis of cervical myelopathy and Acute Motor Axonal Neuropathy (AMAN) was subsequently diagnosed with Amyotrophic Lateral Sclerosis (ALS).

Case Description

A 64 year old woman with a diagnosis of cervical myelopathy and AMAN was admitted to an inpatient rehabilitation facility with quadriplegia and reduced respiratory capacity, which was attributed to new onset cardiomyopathy.

Her rehabilitation course was notable for dyspnea and failure to progress in therapies. Later, she developed progressive dysphonia, dysphagia, and reduction in her vital capacity.

Given her progressive symptoms, electrodiagnostic testing was repeated and the findings were consistent with ALS. She changed her code status to Do Not Resuscitate (DNR) and decided against tracheostomy. She opted for percutaneous gastrostomy tube (PEG) placement prior to discharge home with hospice.

Table 1: Comparison between Diagnoses

	Cervical Myelopathy	**AMAN**	**ALS**
Onset	Gradual	Rapid	Gradual
Natural History	Variable	Monophasic	Progressive
Upper Motor Neuron Signs	Present	Absent	Present
Lower Motor Neuron Signs	Absent	Present	Present
Sensory Changes	Present	Absent	Absent
Respiratory Dysfunction	Possible	Common	Common
Tongue atrophy	Absent	Rare	Common
Sensory NCS	Normal	Normal	Normal
Motor NCS	Normal	Abnormal	Abnormal
Activation	Reduced activation	No change	No change
Denervation changes	Minimal	Fibrillation potentials, positive sharp waves	Fasciculation potentials, fibrillation potentials, positive sharp waves
Recruitment	No change	Reduced	Reduced
Motor Unit Remodeling	None	Possible	Present

Discussion

- ALS is a progressive neurodegenerative disorder that can mimic other neurologic conditions.
- Cervical myelopathy and AMAN have signs and symptoms that overlap with ALS.
- Key differentiating factors between these conditions is natural history, physical exam findings, and electrodiagnostic findings.
- The COVID-19 Pandemic precluded the patient's follow-up with her neurologist, and made medical record acquisition difficult.
- The use of telehealth medicine for repeated follow up could have been useful in this case.

Conclusion

- ALS remains a diagnostic challenge due to its progressive nature and shared features with other neurologic conditions.
- Serial examination and repeat electrodiagnostic testing can secure a diagnosis in an ambiguous clinical scenario.
- Maintaining close communication with all members of the clinical team facilitates diagnosis and clinical decision making.

References

1. Preston, D. C., & Shapiro, B. E. (2005). *Electromyography and neuromuscular disorders: Clinical-electrophysiologic correlations*. Philadelphia: Elsevier Butterworth-Heinemann.

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