An Atypical Presentation of Mononeuritis Multiplex with Symmetrical Peripheral Neuropathy : A Case Report

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Setting

Tertiary care teaching hospital

Case Description

A 55-year-old female with past medical history of Rheumatoid Arthritis and Vitiligo was admitted to the hospital for palpitations and shortness of breath, accompanied by numbness of bilateral feet and hands, progressively worsening over one month. She also complained of limb weakness and difficulty walking. Serologic testing revealed significantly elevated Myeloperoxidase (MPO) levels. Electrodiagnostic studies showed a symmetrical, primarily motor axonal neuropathy with features of demyelination isolated to the lower extremities. Sural SNAPs were absent and upper extremity studies were normal. The patient was diagnosed with mononeuritis multiplex likely secondary to underlying vasculitis. The patient was treated with a three-day course of high dose pulse intravenous steroids, along with Gabapentin, Rituximab, and bedside physical therapy. Her pain and weakness improved and she was discharged home on oral prednisone.

Nerve Conduction Studies
Motor Summary Table

Site	NR	Onset (ms)	Norm Onset (ms)	O-P Amp (mV)	Norm O-P Amp	Neg Dur (ms)	Neg Area (mV·ms)	Site1	Site2	Delta-0 (ms)	Dist (cm)	Vel (m/s)	Norm Vel (m/s)
Left Peroneal Motor Run #1 (Ext Dig Brev)													
Ankle		9.5	<5.5	0.0	>2.5	6.09	0.11	B Fib	Ankle	6.1	34.0	56	>40
B Fib		15.6		0.2				Poplt	B Fib	8.7	9.0	10	>40
Poplt		6.9		0.1		1.88	0.08						
Right Peroneal Motor (Ext Dig Brev)													
Ankle		6.6	<5.5	0.1	>2.5	5.94	0.56	B Fib	Ankle	11.5	34.0	30	>40
B Fib		18.1		0.2		3.13	0.33						
Left Peroneal TA Motor (Tib Ant)													
Fib Hd		4.1		1.7	>2.5	17.50	16.94	Poplt	Fib Hd	1.8	12.0	67	>40.0
Poplt		5.9		1.3		4.53	3.13						
I		15.6		2.9		-8.91							
Right Peroneal TA Motor (Tib Ant)													
Fib Hd		4.2		1.7	>2.5	4.06	3.89	Poplt	Fib Hd	1.6	10.0	63	>40.0
Poplt		5.8		2.1		3.75	4.52						
Left Tibial Motor (Abd Hall Brev)													
Ankle		6.7	<6.0	1.2	>3.0	5.31	4.43	Poplt	Ankle	10.8	38.0	35	>40
Poplt		17.5		0.4		3.44	0.54						
Right Tibial Motor (Abd Hall Brev)													
Ankle		7.0	<6.0	0.6	>3.0	3.75	1.60	Poplt	Ankle	11.3	40.0	35	>40
Poplt		18.3		0.4		4.22	1.12						
Left Ulnar Seg Motor (Abd Dig Minimi)													
Wrist		3.1	<3.4	9.3	>4	6.09	31.64	B Elbow	Wrist	4.6	27.5	60	>50
B Elbow		7.7		8.9		6.25	30.97	A Elbow	B Elbow	4.3	28.0	65	
A Elbow		12.0		5.0		6.56	18.48						

Sensory Summary Table

Site	NR	Onset (ms)	Norm Onset (ms)	O-P Amp (uV)	Norm O-P Amp	Site1	Site2	Delta-0 (ms)	Dist (cm)	Vel (m/s)	Norm Vel (m/s)
Left Sural Sensory (Lat Mall)											
Calf 1	NR				>10.0	Calf 1	Lat Mall		14.0		>36
Right Sural Sensory (Lat Mall)											
Calf 1	NR				>10.0	Calf 1	Lat Mall		14.0		>36
Left Ulnar Sensory (5th Digit)											
Wrist		2.8		14.9	>18.0	Wrist	5th Digit	2.8	14.0	50	>48.0
I		2.9		17.4							

EMG

Side	Muscle	Nerve	Root	Ins Act	Fibs	Prw	Amp	Dur	Poly	Fascic	Recrt	Int Pat	Comment
Left	BicepsFemS	Sciatic	L5-S1	Nml	0	0	Nml	Nml	Nml	0	Nml	Nml	
Right	BicepsFemS	Sciatic	L5-S1	Nml	0	0	Nml	Nml	Nml	0	Nml	Nml	
Left	MedGastroc	Tibial	S1-2	Nml	0	0	Nml	Nml	Nml	0	Nml	Nml	
Right	MedGastroc	Tibial	S1-2	Nml	0	0	Nml	Nml	Nml	0	Nml	Nml	
Left	AntTibialis	Dp Br Peron	L4-5	Nml	0	0	Nml	Nml	Nml	0	Nml	Nml	
Right	AntTibialis	Dp Br Peron	L4-5	Nml	0	0	Nml	Nml	Nml	0	Nml	Nml	
Left	VastusMed	Femoral	L2-4	Nml	0	0	Nml	Nml	Nml	0	Nml	Nml	
Right	VastusMed	Femoral	L2-4	Nml	0	0	Nml	Nml	Nml	0	Nml	Nml	

EMG / NCS study depicting mononeuritis multiplex

Case Diagnosis

Mononeuritis Multiplex is a progressive and painful neuropathy that affects two or more nerves. It typically presents as an asymmetrical neuropathic pain which may progress to loss of sensation and weakness. It is commonly seen with systemic diseases. As the disease progresses, symptoms become more symmetrical.

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Discussion

If detected early, a patient can fully recover from Mononeuritis multiplex. In addition to medical management of the underlying cause of Mononeuritis multiplex, a patient may benefit from orthotic interventions and/or rehabilitation therapies to increase strength and range of motion, promote safety awareness in the setting of sensory impairment, and maintain functional independence. Aggressive immunosuppressive therapy is often prescribed in patients with mononeuritis multiplex secondary to vasculitis. Delay in treatment may result in gastrointestinal, genitourinary, and cardiac complications that can lead to morbidity and mortality.

Conclusion

Mononeuritis multiplex can easily be confused with other types of peripheral neuropathy on electrodiagnostic studies, particularly when it presents symmetrically. The electrodiagnostician should strongly consider the diagnosis when patients have a history of autoimmune conditions. Muscle and nerve biopsy may be necessary to confirm the diagnosis when electrodiagnostic studies are inconclusive. In addition to treating the underlying cause of Mononeuritis multiplex, patients may benefit from rehabilitative interventions to improve function and promote safety.

References:
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