A Unique Case of Non-Systemic Vasculitic Neuropathy Presenting as Acute Painful Left Foot Drop

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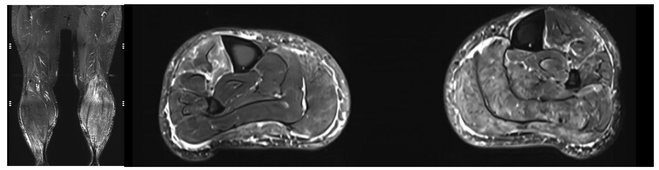
Introduction

Foot drop can result from numerous etiologies that can localize anywhere from the cortex to the muscle. Common etiologies include fibular neuropathy, Radiculopathy, lumbosacral plexopathy, ALS, tumors, spinal cord lesions, etc. Non-systemic vasculitic neuropathy (NSVN) is a rare cause of foot drop. It commonly presents with acute painful sensory or sensorimotor deficits in a mononeuritis multiplex pattern. NSVN is frequently misdiagnosed because it's symptoms often mimics other common entrapment, metabolic, or demyelinating neuropathies.

Case Presentation

History: This is a 69-year-old male with no significant past medical history who presented with an acute left foot drop, which started after he climbed 7 flights of stairs. It was associated with sharp, stabbing pain in the lateral foot and heel, numbness to bottom of feet and mild low back and left hip pain.

Studies: MRI lumbar spine was negative for radiculopathy. MRI neurography demonstrated edema and enhancement in the bilateral calf musculature, suggestive for denervation. Symptoms were more pronounced in the left foot, but present in right foot as well. Electrodiagnostic studies demonstrated length dependent sensory neuropathy and left sciatic neuropathy.



Figures 1 and 2. Coronal (left) and axial (right) bilateral lower extremity MRI.

Diagnosis: Given abruptness of symptoms, there was concern for vasculitis. Right sural nerve and gastrocnemius were biopsied for reconstruction. This demonstrated recanalized perineurial vessel in the sural nerve, and neurogenic atrophy in the gastrocnemius, compatible with chronic vasculitis. Because his serum studies did not show any evidence of systemic vasculitis, he was diagnosed with non-systemic vasculitic neuropathy (NSVN).

Imaging Findings

Sensory NCS

Nerve / Sites	Rec. Site	Onset ms	Peak ms	SNAP Amp µV	Dist cm	Vel m/s	Temp. °C
R Ulnar - Dig V							
Dig V	Wrist	1.88	2.56	**6.8**	11	58.7	
Palm	Wrist	1.44	1.98	15.2	8	55.7	
R Radial							
Forearm	Snuffbox	2.00	2.50	17.3	11	55.0	
R Sural - Lat Mall							
Calf	Lat Mall	**NR**	**NR**	**NR**	11	**NR**	
L Sural - Lat Mall							
Calf	Lat Mall	**NR**	**NR**	**NR**	11	**NR**	35.3

Motor NCS

Nerve / Sites	Rec. Site	Lat. ms	Amp mV	Dist cm	Vel m/s
L Peroneal - EDB					
Ankle	EDB	**NR**	**NR**	8	
FibHead	EDB	**NR**	**NR**	31	**NR**
R Peroneal - EDB					
Ankle	EDB	**NR**	**NR**	8	
L Peroneal - Tib Ant					
Fib Head	Tib Ant	3.38	**0.5**		
Knee	Tib Ant	5.35	**0.6**	10	50.5
R Peroneal - Tib Ant					
Fib Head	Tib Ant	2.56	2.8		
Knee	Tib Ant	4.50	2.3	9	46.5
L Tibial - AH					
Ankle	AH	**NR**	**NR**	8	
R Tibial - AH					
Ankle	AH	**NR**	**NR**	8	

EMG Summary Table

	SA				Amp		Dur		PolyP	Rate		Recr	Comment
Muscle	IA	Fib	PSW	Fasc	#	-	#	-	-	#	-	Pattern	-
L. Tib Ant, DeepPer, L4-5	NI	3+	2+	None								NoAct	
L. Gastroc Med,Tibial, S1-2	NI	2+	2+	None								NoAct	
L. Gastroc Lat,Tibial,L5-S1	NI	2+	2+	None								NoAct	
L. Vast Med, Femoral, L2-4	NI	0	0	None	All	NI	All	NI	NI	All	NI	NI	NI
L. T Fasc Lat,SupGlut,L5-S1	NI	0	0	None	All	NI	All	NI	NI	All	NI	NI	NI
L. Bic Fem SH, SciPer,S1-2	NI	0	0	None	All	NI	All	NI	NI	All	NI	NI	NI
L. Bic Fem LH,SciTib,L5-S1	NI	0	0	None	All	NI	All	NI	NI	All	NI	NI	NI
L. L4-S1 Dors Pr Rami	NI	0	0	None	NE								NI
L. L3-5 Dors Pr Rami	NI	0	0	None	NE								NI
R. Tib Ant, DeepPer, L4-5	NI	2+	2+	None	Few	LRG	All	NI	NI	All	NI	NI	
R. Gastroc Med,Tibial, S1-2	NI	1+	1+	None	All	NI	All	NI	NI	All	NI	NI	

NE: Not Examined

Figure 3. Electrodiagnostic study results.

Discussion

- NSVN is a rare but a true cause of painful acute focal neuropathy.
- It may occur without the presence of systemic vasculitis.
- Providers need to include a vasculitis etiology in the differential when acute motor deficits are accompanied by neuropathic pain and asymmetric nerve involvement on electrodiagnostic studies.
- Early recognition is essential to evaluate and treat to prevent further neurologic deficits.

Conclusion

The differential diagnosis for painful foot drop is extensive. While NSVN is quite rare, it should be consider when there is pain, motor deficits and isolated nerve involvement on electrodiagnostic studies.

It is important to recognize signs and symptoms concerning for vasculitis to expedite further workup to prevent a delay in diagnosis. Unfortunately chronic pain is common in NSVN but neurological deficits can improve with early diagnosis and treatment

References

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