NEUROPATHIC PAIN AND LOWER EXTREMITY WEAKNESS FOLLOWING PCI

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INTRODUCTION

We discuss pain management for iatrogenic femoral nerve palsy following percutaneous coronary intervention for cardiac arrest. The patient, a 61-year-old male, underwent emergent PCI after multiple cardiac arrests. He was stabilized and did undergo CABG and stent placement. Subsequently, he developed right lower extremity weakness and severe dysesthesias and neuropathic pain on arrival to the acute inpatient rehabilitation unit.

CASE PRESENTATION

Patient is a 61-year-old male who presented to acute inpatient rehabilitation for deconditioning and deficits in mobility and ADLs related to recent cardiac arrest. The patient was found unresponsive in his house. EMS arrived at the scene and was intubated on route to the hospital. He did achieve ROSC, however he did subsequently lose his pulse approximately 5 times during his ER work-up and required subsequent resuscitation. He was emergently taken to the cardiac cath lab for a ST-Elevation myocardial infarction and underwent percutaneous coronary intervention with access through his right groin. He then presented to acute rehabilitation and was noted to have right lower extremity weakness and dysesthesias on admission.

Initial PE is documented below

Right LE: HF 2/5, HE 5/5, KF 5/5, KE 3/5, ADF 5/5, APF 5/5

Left LE: HF 5/5, HE 5/5, KF 5/5, KE 5/5, ADF 5/5, APF 5/5

Sensory: Impaired to light touch and pinprick over the right anterior thigh, otherwise intact in the bilateral upper and lower extremities.

EMG/NCS DATA

Nerve Conduction Studies
Anti Sensory Summary Table

Site	NR	Peak (ms)	Norm Peak (ms)	P-T Amp (μV)	Norm P-T Amp	Site1	Site2	Delta-P (ms)	Dist (cm)	Vel (m/s)	Norm Vel (m/s)
Right Sup Peron Anti Sensory (Ant Lat Mall)											
14 cm		3.8	<4.0	36.8	>5.0	14 cm	Ant Lat Mall	3.8	14.0	37	
Right Sural Anti Sensory (Lat Mall)											
Calf		NR									

Motor Summary Table

Site	NR	Onset (ms)	Norm Onset (ms)	O-P Amp (mV)	Norm O-P Amp	Site1	Site2	Delta-0 (ms)	Dist (cm)	Vel (m/s)	Norm Vel (m/s)
Right Femoral Motor (Vastus Med)											
Abv Ing Lig		NR									
Below Ing Lig		13.8		0.0							
Right Peroneal Motor (Ext Dig Brev)											
Ankle		6.0	<6.5	0.2	>1.3	B Fib	Ankle	10.1	34.0	34	>38
B Fib		16.1		0.2		Popit	B Fib	2.8	10.0	36	>40
Popit		18.9		0.3							
Right Tibial Motor (Abd Hall Brev)											
Ankle		6.1	<6.1	6.5	>4.4	Knee	Ankle	12.7	43.0	34	>39
Knee		18.8		5.0							

EMG

Side	Muscle	Nerve	Root	Ins Act	Fibs	Psw	Amp	Dur	Poly	Recrt	Effort	Comment
Right	VastusLat	Femoral	L2-4	Incr	1+	2+	Nml	Nml	0	Reduced	Nml	
Right	BicepsFemS	Sciatic	L5-S1	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml	
Right	AntTibialis	Dp Br Peron	L4-5	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml	
Right	Med Gastroc	Tibial	S1-2	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml	

Impression:

1. This is an abnormal study
2. There is electrodiagnostic evidence of right femoral neuropathy.
3. There is no electrodiagnostic evidence of peripheral polyneuropathy, myopathy, right lumbar radiculopathy.
4. Cannot exclude right peroneal motor neuropathy, although decreased amplitude on NCS is likely down to technical factors as his sensory studies are within normal limits.
5. Limited study as patient only tolerated testing in the right lower extremity, recommend repeating the study with comparison to the left lower extremity in 3 to 6 months.
6. Clinical correlation is advised

DISCUSSION

The diagnosis was challenging as the patient's unilateral lower extremity weakness and symptoms were initially felt to be secondary to a CVA despite normal MRI versus an L3 radiculopathy with questionable findings on lumbar MRI. Physical examination and electrodiagnostic studies later confirmed the diagnosis of femoral nerve palsy. Approximately 3.8 femoral nerve injuries per 100,000 procedures were reported during percutaneous coronary interventions, with higher rates in patients with congestive heart failure or coagulopathy. The patient underwent a rehabilitation program focusing on strengthening and mobility for the affected extremity.

Despite improvement in lower extremity functioning, the patient continued to have severe debilitating neuropathic pain in his affected extremity that persisted past discharge and in outpatient follow ups. The patient was trialed on gabapentin at various dosages at the previous institution with no relief. Ultimately, he benefited from a combination of duloxetine, pregabalin, amitriptyline and breakthrough tramadol.