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Suspected neuralgic amyotrophy coexisted with peripheral polyneuropathy mimicking septic arthritis

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Introduction

Neuralgic amyotrophy (NA), also known as Parsonage-Turner syndrome is a peripheral nervous system disorder with core features; episodes of extreme pain at symptom onset, rapid multifocal paresis and atrophy of the affected muscles, and slow recovery requiring months to years. NA would be diagnosed clinically first and needs to exclude other cause of plexopathy or neurological conditions. We experienced a meaningful case and would report.

Case report

A 42-year-old woman visited an emergency room with right shoulder pain and weakness for 3 weeks. The character of pain was stabbing and visual analogue score (VAS) was 8. She complained of chill and decreased mentality for several days before. She had received hemodialysis for end stage renal disease (ESRD). She was diagnosed as type 1 diabetes mellitus (T1DM) and prescribed insulin. Laboratory test showed WBC 5870/uL, segment neutrophil 72.0% and CRP 3.11mg/dL. A magnetic resonance imaging showed focal effusion with enhancement at right glenohumeral joint, subacromial subdeltoid bursa and right biceps tendon sheath. The orthopedic surgeon performed an arthroscopic incision and drainage, but operative finding was clear. Also, systemic inflammation and fever were continued. Finally, she was diagnosed as infective endocarditis and had aortic valve replacement surgery. She was referred to department of rehabilitation medicine for cardiac rehabilitation but she still complained of right shoulder weakness. On physical examination, muscle strength was as follow: right shoulder abduction P- grade, shoulder flexion P grade, elbow flexion & extension F grade, wrist flexion & extension G grade. On electrodiagnostic (EMG) test, there was diffuse motor and sensory peripheral polyneuropathy which showed mixed severe axonal injury and demyelinating pattern. The needle EMG of right shoulder muscles implied mixed myopathic and axonal degenerative pattern. These findings were also showed on the opposite side. Therefore, electrodiagnostic confirm was not decisive (table 1, 2 and fig 1). She was prescribed NSAIDs for pain control and applied physiotherapy of electrical stimulation and strengthening exercise for shoulder weakness and limited range of motion. It is hard to start systemic steroid pulse therapy because of the medical history of ESRD on HD, osteoporosis and T1DM. The shoulder pain was decreased from VAS 8 to 5 at discharge and changed to dull ache. Muscle strength of shoulder was improved but still weak: right shoulder abduction P- grade, shoulder flexion P grade, elbow flexion & extension F+ grade.

Conclusion

In this case, we reminded that patient's chief complain is the most important key to find diagnosis and determine treatment. Considering the clinical course, NA would be considered. Early intervention of physiatrist and appropriate management could prevent unnecessary procedure or surgery.

Table 1. Summary table of nerve conduction studies

Site	NR	Onset (ms)	Peak (ms)	O-P Amp (μV)	P-T Amp (μV)	Dist (cm)	Vel (m/s)
Motor conduction study							
Left Axillary Motor (Deltoid)							
Clavicle	†						
Right Axillary Motor (Deltoid)							
Clavicle		5.00		0.8	0.9		
Left Median Motor (Abd Poll Brev)							
Wrist		4.53		4.7	7.0		
Elbow	*						
Right Median Motor (Abd Poll Brev)							
Wrist		4.69		5.6	8.2	17.5	40.0
Elbow		9.06		3.4	5.2		
Left Musculocut Motor (Biceps)							
Clavicle	†						
Right Musculocut Motor (Biceps)							
Clavicle		6.72		1.7	2.9		
Left Radial Motor (Ext Ind Prop)							
8cm		3.52		1.1	1.8		
Up Arm	*						
Right Radial Motor (Ext Ind Prop)							
8cm		2.73		4.0	8.7	9.0	44.1
Up Arm		4.77		3.0	6.6		
Left Ulnar Motor (Abd Dig Minimi)							
Wrist		5.16		0.6	0.9	11.0	38.1
Elbow		8.05		0.4	0.7		
Right Ulnar Motor (Abd Dig Minimi)							
Wrist		4.45		3.1	5.8	10.5	37.2
B. Elbow		7.27		2.7	5.1	10.0	25.6
A. Elbow		11.17		0.9	2.0		
Sensory							
Left Lat Ante Brach Cutan Sensory (LABC)							
Site1	*						
Right Lat Ante Brach Cutan Sensory (LABC)							
Site1	NR						
Left Med Ante Brach Cutan Sensory (MABC)							
Site1	*						
Right Med Ante Brach Cutan Sensory (MABC)							
Site1	NR						
Right Median Sensory (2nd Digit)							
Wrist	NR						
Left Superficial Radial Sensory (Wrist)							
Radial	NR						
Right Superficial Radial Sensory (Wrist)							
Radial	NR						
Left Ulnar Sensory (Wrist)							
5th Digit	NR						
Right Ulnar Sensory (Wrist)							
5th Digit	NR						

† could not be tested due to left endovascular stent insertion site

* could not be tested due to left brachio-cephalic fistula site

Table 2. Needle electromyogram findings

Side	Muscle	Nerve	Root	Ins Act	Fibs	Psw	Amp	Dur	Poly	Act	Recrt	Int Pat	Comment
Right	Rhomboid	DorsalScap	C5	Incr	+1	+1	Nml	Nml	Nml	Nml	Early	Nml	
Right	Infraspinatus	Suprascapular	C5-6	Incr	+1	+1	Nml	Nml	Nml	Nml	Early	75%	
Right	Deltoid	Axillary	C5-6	Incr	+1	+1	Nml	Nml	Incr	Nml	Nml	75%	
Right	Biceps	Musculocut	C5-6	Decr	+1	Nml	Nml	Nml	Nml	Nml	Early	Nml	Fibrotic sensation
Left	Infraspinatus	Suprascapular	C5-6	Incr	+2	+2	Nml	Nml	Nml	Nml	Early	Nml	

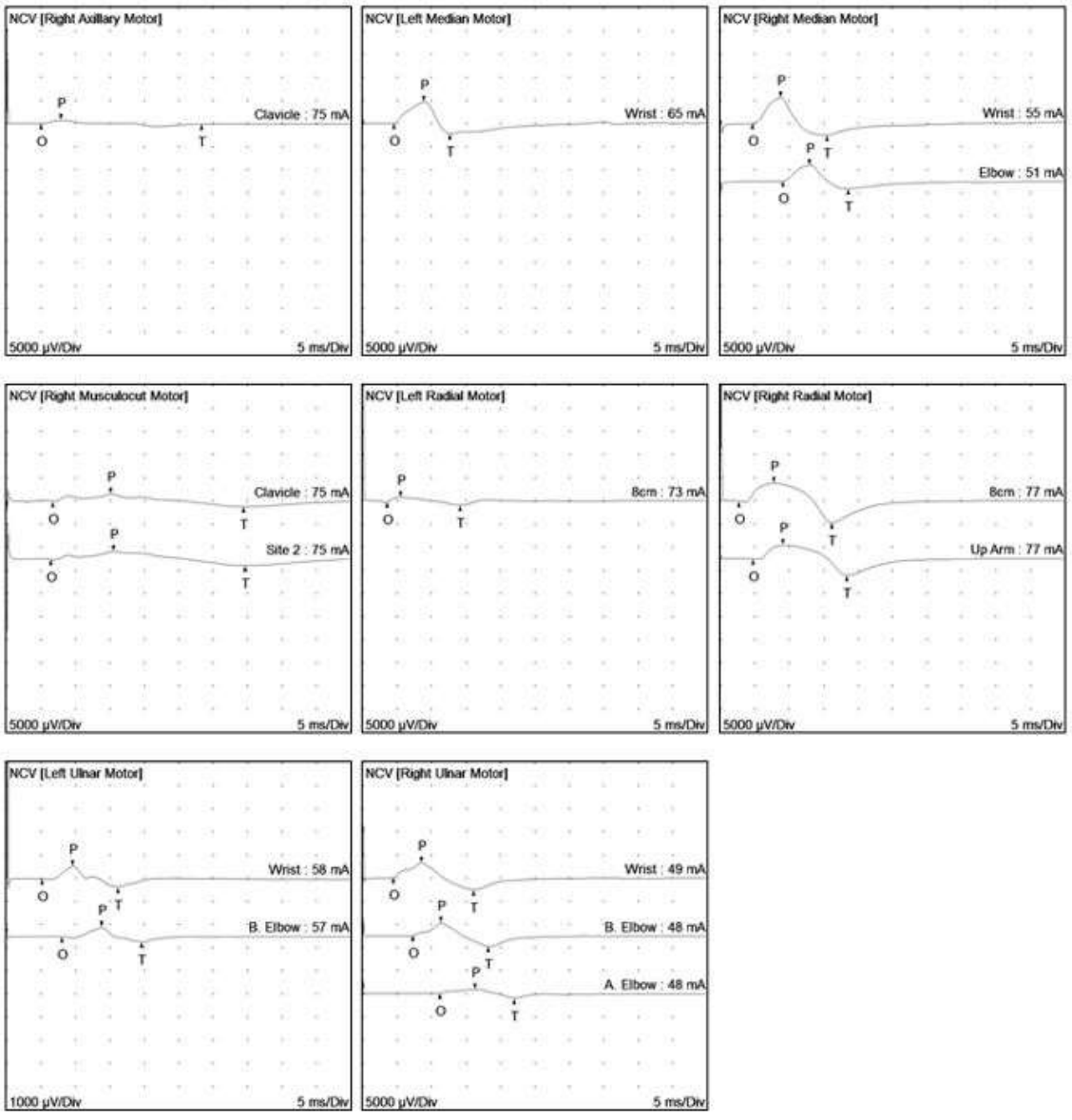

Fig 1. Waveforms of nerve conduction studies