COVID-19 Related Plexopathy Without Prone Positioning: A Case Study

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Case Diagnosis

COVID-19 related pan-plexopathy

Case Description

- 32-year-old male presented with:
  - Hematochezia
  - Fever
  - Dyspnea

→ Diagnosed with anemia and COVID-19

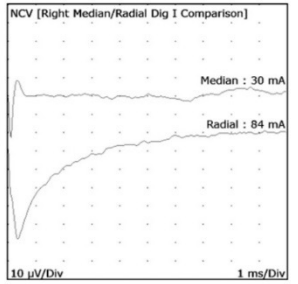
- Patient remained intubated following gastral lumenoscopy with worsening pulmonary edema.
- Upon extubation three days later, patient complained of right upper extremity weakness, painful paresthesias over the posterolateral forearm, and bilateral hand numbness.
- Right upper extremity manual muscle testing: 2/5 shoulder abduction, 1/5 elbow flexion, 4/5 elbow extension, 4/5 finger abduction
- *Notes on treatment:*
  - No steroids were given
  - Patient was not prone-positioned during intubation (nor other positions stretching the upper extremities)

Assessment / Results

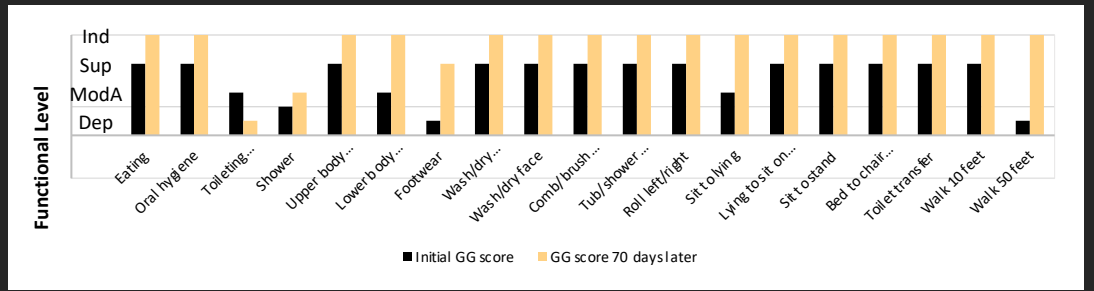
- Incomplete subacute right pan-plexopathy, preferentially affecting the upper trunk and lateral cord, with ongoing active denervation and no signs of re-innervation.
- Evidence of a superimposed severe bilateral carpal tunnel syndrome with active denervation, suspected secondary to edema from recent blood transfusion

Stim Site	NR	Peak (ms)	P-T Amp (μV)	Site1	Site2	Delta-P (ms)	Dist (cm)	Vel (m/s)
Left Median Acr Palm Anti Sensory (3rd Digit)								
Wrist	NR						14.0	
Right Median Acr Palm Anti Sensory (3rd Digit)								
Wrist	NR						14.0	
Left Ulnar Anti Sensory (5th Digit)								
Wrist		3.6	7.6	Wrist	5th Digit	3.6	14.0	39
Right Ulnar Anti Sensory (5th Digit)								
Wrist	NR			Wrist	5th Digit		14.0	

Stim Site	NR	Peak (ms)	P-T Amp (μV)	Site1	Site2	Delta-P (ms)
Left Median/Radial Dig I Comparison (Digit 1 - 10cm)						
Median	NR			Median	Radial	
Radial		2.7	9.0			
Right Median/Radial Dig I Comparison (Digit 1 - 10cm)						
Median	NR			Median	Radial	
Radial	NR					



Side	Muscle	Nerve	Root	Ins Act	Fibs	Psw	Amp	Dur	Poly	Recrt	Comment
Left	Deltoid	Axillary	C5-6	Nml	Nml	Nml	Nml	Nml	0	Nml	
Left	Biceps	Musculocut	C5-6	Nml	Nml	Nml	Nml	Nml	0	Nml	
Left	Triceps	Radial	C6-7-8	Nml	Nml	Nml	Nml	Nml	0	Nml	
Left	PronatorTer	Median	C6-7	Nml	Nml	Nml	Nml	Nml	0	Nml	
Left	1stDorInt	Ulnar	C8-T1	Nml	Nml	Nml	Nml	Nml	0	Nml	
Left	Abd Poll Br	Median	C8-T1	Nml	2+	2+	Nml	Nml	0	Nml	
Right	Deltoid	Axillary	C5-6	Nml	3+	3+	Nml	Nml	0	Dec	1 unit
Right	Biceps	Musculocut	C5-6	Nml	4+	4+	Nml	Nml	0	Dec	1 unit
Right	Triceps	Radial	C6-7-8	Nml	1+	1+	Nml	Nml	0	Nml	
Right	PronatorTer	Median	C6-7	Nml	2+	2+	Nml	Nml	0	Nml	
Right	1stDorInt	Ulnar	C8-T1	Nml	4+	4+	Nml	Nml	0	Nml	
Right	Abd Poll Br	Median	C8-T1	Nml	4+	4+	Nml	Nml	0	Nml	



Treatment

- ✓ Bilateral wrist splints
- ✓ Scheduled for carpal tunnel releases
- ✓ Gabapentin
- ✓ Modalities, including desensitization therapy, cryotherapy, massage, and passive range of motion

Functional Improvement

Patient achieved functional improvement in all but one ADL (toileting hygiene) from date of admission to inpatient rehabilitation facility to 70 days later.

Discussion

This is the first documented case of COVID-19 related plexopathy that is not associated with prone positioning. Viral infection is hypothesized as the etiology of plexopathy in this case, potentially related to neuronal infiltration with subsequent inflammatory response or an ischemic process.

Conclusion

The COVID-19 pandemic continues to evolve. Additionally, we face the threat of future novel viruses. Continued research into the neurologic sequelae of patients afflicted with this infection will guide future treatments and rehabilitation.