

# Severe Parsonage-Turner Syndrome associated with COVID-19

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## Case Diagnosis

Severe Parsonage-Turner Syndrome associated with COVID-19

## Case Description

The patient is a 48 year old without medical history who was hospitalized for COVID-19 related pneumonia and respiratory failure. He required intubation for 11 days. Upon extubation he noted severe, diffuse left upper extremity weakness and numbness throughout hospitalization. He underwent acute rehabilitation, but his left arm impairments did not improve. MRI showed inflammation and swelling of the brachial plexus distal divisions, lateral, medial, posterior cords, and all visualized branches. Left arm nerve conduction studies showed no responses. Left arm EMG showed severe diffuse active motor axon denervation as well as minimal to no MUAP recruitment. This confirmed brachial neuritis or Parsonage-Turner Syndrome. He was treated with a short course of high dose oral steroids with outpatient physical and occupational therapy. He used a left arm orthotic to support the monoplegic arm as needed.

## Discussions

At the time of submission, other documented cases of brachial neuritis appear scarce. It would be expected for COVID-19 to cause brachial neuritis since growing data show COVID-19 to be strongly associated with an immune-mediated inflammatory response. This process is also believed to cause the nerve damage observed with brachial neuritis. Furthermore, viral infection is already an established trigger of brachial neuritis.

## Conclusions

This patient has made gradual motor improvements. Recent left biceps flexion demonstrated 3/5 compared to prior 1/5 strength. However, left arm functional use remains very limited. We expect a growing number of similar cases as more patients are treated for COVID-19. Through October 2020 our inpatient rehabilitation unit has treated 83 COVID-19 patients and has so far identified four patients with brachial plexopathy following COVID-19 hospitalization.

EMG Summary Table											
			Spontaneous					MUAP			Recruitment
Muscle	Nerve	Roots	IA	Fib	PSW	Fasc	H.F.	Amp	Dur	PPP	Pattern
L. Biceps brachii	Musculocutaneous	C5-C6	2+	None	1+	None	None	N	2+	2+	Red (mild)
L. Extensor digitorum communis	Radial	C7-C8	2+	3+	2+	None	None				Red (severe)
L. Pronator teres	Median	C6-C7	3+	2+	2+	None	None	2+	1+	1+	Red (severe)
L. First dorsal interosseous	Ulnar	C8-T1	3+	2+	1+	None	None				Discrete

Figure:  
A. Patient’s EMG findings  
Disclosures:  
None