



Radial Neuropathy after Prolonged COVID-19 Related ICU Stay

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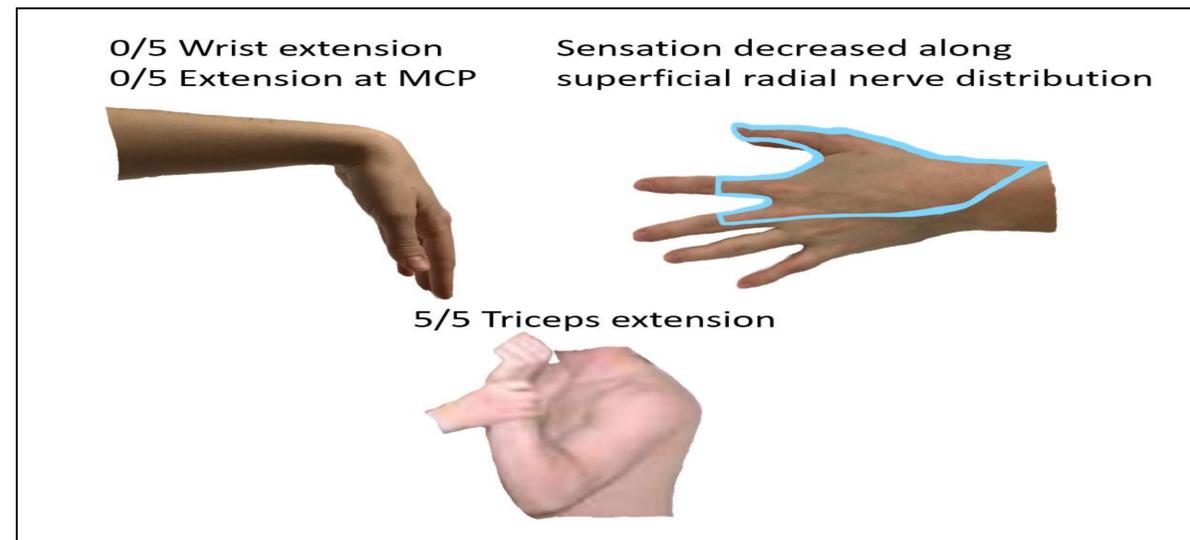
INTRODUCTION

- Patients with severe COVID-19 who meet diagnostic criteria for ARDS often undergo prolonged periods in prone positioning in accordance to current guidelines.
- Recent case studies have identified that patients discharged after prolonged COVID admissions frequently experience neurologic complications⁴. Etiology behind these observations has yet to be elucidated.
- Information about these patients, their injuries, and their prognosis will be important as expectations and guidelines for COVID-19 rehabilitation continue to evolve.

CASE PRESENTATION

- 38-year-old male with no relevant past medical history presented with left upper extremity weakness and dorsal hand paresthesia which he first noticed after regaining consciousness two months after ICU admission for acute respiratory distress syndrome and myocardial infarction secondary to COVID-19. During his ICU stay, pt required a tracheostomy and PEG tube, both were removed at discharge six weeks prior to presentation.
- Neuromuscular exam: LUE visible muscle atrophy, strength: triceps 5/5, biceps: 5/5, wrist extensors: 0/5, MCP: 0/5, grip 3/5, supination 3/5, pronation 5/5
- Sensory Exam: decreased sensation along the dorsum of the left hand.
- Skin exam: right heel healing pressure ulcer, mildly hypertrophic scar right forearm.
- EMG findings: consistent with radial nerve injury at the spiral groove of the humerus.
- The patient was provided a wrist splint and referred to occupational therapy.

KEY CLINICAL EXAM FINDINGS



DISCUSSION

- Radial nerve palsy results from injury to the radial nerve, and presenting symptoms vary based on injury location¹.
- Given our patient's clinical presentation, including diminished extension at the wrist and MCP joints, preserved elbow extension and flexion, and decreased sensation limited to the dorsum of the hand, his level of injury is likely distal to the spiral canal but proximal to the posterior interosseous nerve¹.
- The mechanism of injury in our patient is unclear but may be related to complications of COVID-19. Although CNS complications seem to be more common in COVID-19 patients, multiple sources have also noted PNS findings^{2,3}.
- Therefore, his injury may be a result of direct virus mediated damage to the nerve, increased susceptibility to damage resulting from hypercoagulability and inflammation seen with COVID-19 infections, secondary injury from prone positioning for ARDS treatment, or a combination of these factors⁴.

CONCLUSIONS

- Radial nerve palsy can be a complication of prolonged ICU stay in COVID-19 patients
- Radial nerve palsy in patients with history of severe COVID-19 may be related increased nerve injury susceptibility.
- While rare, physiatrist should have high clinical suspicion for potential neurologic manifestations related to COVID-19 and post-infection treatment.

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