

Brachial Plexopathy In A Patient With COVID-19 After Prone Positioning. The Role Of Acute Inpatient Rehabilitation: A Case Report

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Case History

Acute Care Hospital

- A 53-year-old male presented with COVID-19 pneumonia and was intubated for acute respiratory failure
- Given persistent hypoxia despite ventilator support, patient was placed in **prone** positioning for 16 hours daily for several days
- Hospital course was further complicated by right upper extremity weakness without acute abnormalities on MRI brain or cervical spine

Acute Inpatient Rehabilitation

- Physical examination was remarkable for profound proximal right upper extremity weakness and associated muscle atrophy
- MRI of the right brachial plexus (BP) demonstrated asymmetric thickening and edema involving C5/6 nerve roots, extending into the common trunk, consistent with brachial plexopathy

MRI

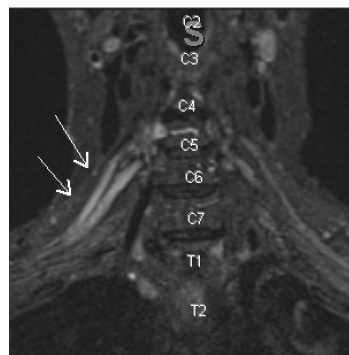


Figure 1:
MRI Brachial Plexus without IV Contrast

Outcome

After tailored therapy for right BP injury focusing on

- Open and closed chained shoulder stabilization exercises
 - ROM
 - Fine motor coordination
 - Electrical stimulation
 - Splinting and therapeutic taping
- Patient demonstrated at least a 2-point gain on manual muscle testing deltoids, biceps, and triceps strength with improved ROM on discharge

Table 1. Manual Muscle Testing

	Admission	Discharge
SA	1/5	3/5
EF	2/5	4/5
EE	2/5	4/5
WE	4/5	4/5
FF	4/5	4/5

SA, shoulder abduction; EF, elbow flexion; EE, elbow extension; WE, wrist extension; FF, finger flexion

Table 2. Range of Motion

Active ROM by Region	Admission	Discharge
SF (gravity eliminated)	---	30
SF (against gravity)	---	0
ER (gravity eliminated)	37	50
IR (gravity eliminated)	46	55
EF (against gravity)	0	105
EE (gravity eliminated)	120	120
EE (gravity eliminated)	lacking 20	lacking 10

SF, shoulder flexion; ER, external rotation; IR, internal rotation; EF, elbow flexion; EE, elbow extension

Discussion

- Brachial plexopathy is a peripheral nerve injury that typically leads to unilateral shoulder pain and neurological deficits
- Though it is rare, brachial plexopathy has been reported after prone positioning post operatively, especially in patients who are positioned in shoulder abduction with external rotation and posterior displaced
- Prone positioning has been reported to be an effective treatment used to reduce mortality and increase oxygen perfusion in patients with early COVID-19 ARDS

Conclusion

- Brachial plexopathy can be seen in survivors of COVID-19 post prone positioning
- This case highlights that multidisciplinary approach during acute inpatient rehabilitation can aid the recovery process of this rare peripheral injury

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