

A Rare Consequence of Patient Positioning Causing Postoperative Median Neuropathy

Kristen M. Meier MD, Steven M. Koehler MD, Andrew J. Lovy, Jaehon Kim MD Michael R. Hausman MD

Department of Orthopedics, Icahn School of Medicine at Mount Sinai, New York, NY

Introduction

- This is the first report of a mixed median neuropathy associated with patient positioning of elbows in full extension.
- Positioning can dramatically impact patient outcomes.

Objectives

- Describe five patients with six affected median nerves. All had numbness and paresthesias in the radial digits including in the palmar cutaneous branch. Patients had pain in the volar forearm and with passive elbow extension. They had paralysis of the FPL and FDP to the index finger.

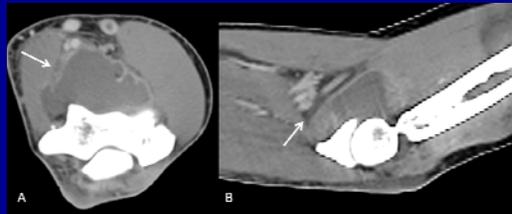


Figure 1 CT scan of a patient with brachialis syndrome. A: Axial view of distal arm demonstrating brachialis muscle swelling and central fluid attenuation consistent with intraoperative muscle necrosis. B: Sagittal view of the distal arm demonstrating brachialis muscle swelling and necrosis overlying the coronoid process.

Methods

- Patients underwent surgical decompression of the proximal median nerve at the elbow via release of the lacertus fibrosis.
- We divided patients into expedient (three patients) and delayed (two patients) decompression.
- Follow-up varied from two weeks to one year, depending on the rate of recovery post-decompression. No patients were lost to follow-up.

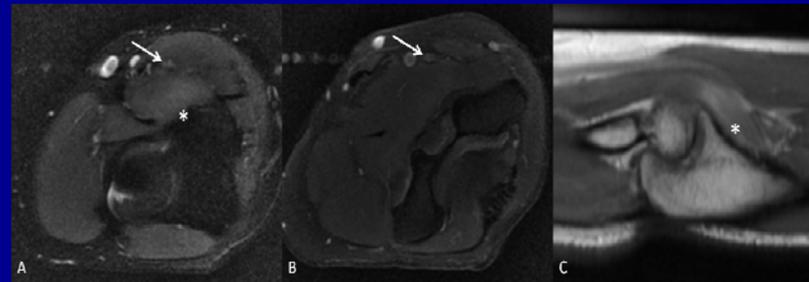


Figure 2A-C Magnetic resonance imaging of a patient with brachialis syndrome. A: T2-weighted, axial view of the distal arm demonstrating increased signal and enlargement of the median nerve (arrow). There is increased signal and enlargement of the brachialis muscle consistent with edema. B: T1-weighted sagittal view of the distal arm demonstrating increased signal in the brachialis muscle as it is tented over the coronoid process in extension.

Results

- Average time to symptoms was 1 hour post index procedure. 2 patients had time to decompression at 25 and 92 days. CT showed brachialis fluid attenuation consistent with necrosis. In the subsequent three patients, the time to decompression was 16, 21 and 22 hours. Swelling and neural compression were observed on CT, but no necrosis (Fig 1). MRI demonstrated brachialis increased signal and median nerve enlargement (Fig 2). In the patients with delayed decompression, there was only partial neurological recovery up to one year. Both patients continued to have sensory deficits and FPL and FDP weakness, although improved. In the patients expediently decompressed (patients 3-5), full neurological recovery occurred in 1 to 14 days.

Conclusion

- Elbow extension during surgery compresses the brachialis against the coronoid process causing brachialis ischemia, resulting in swelling and compression of the median nerve against the lacertus fibrosis. Prompt decompression yields full recovery.