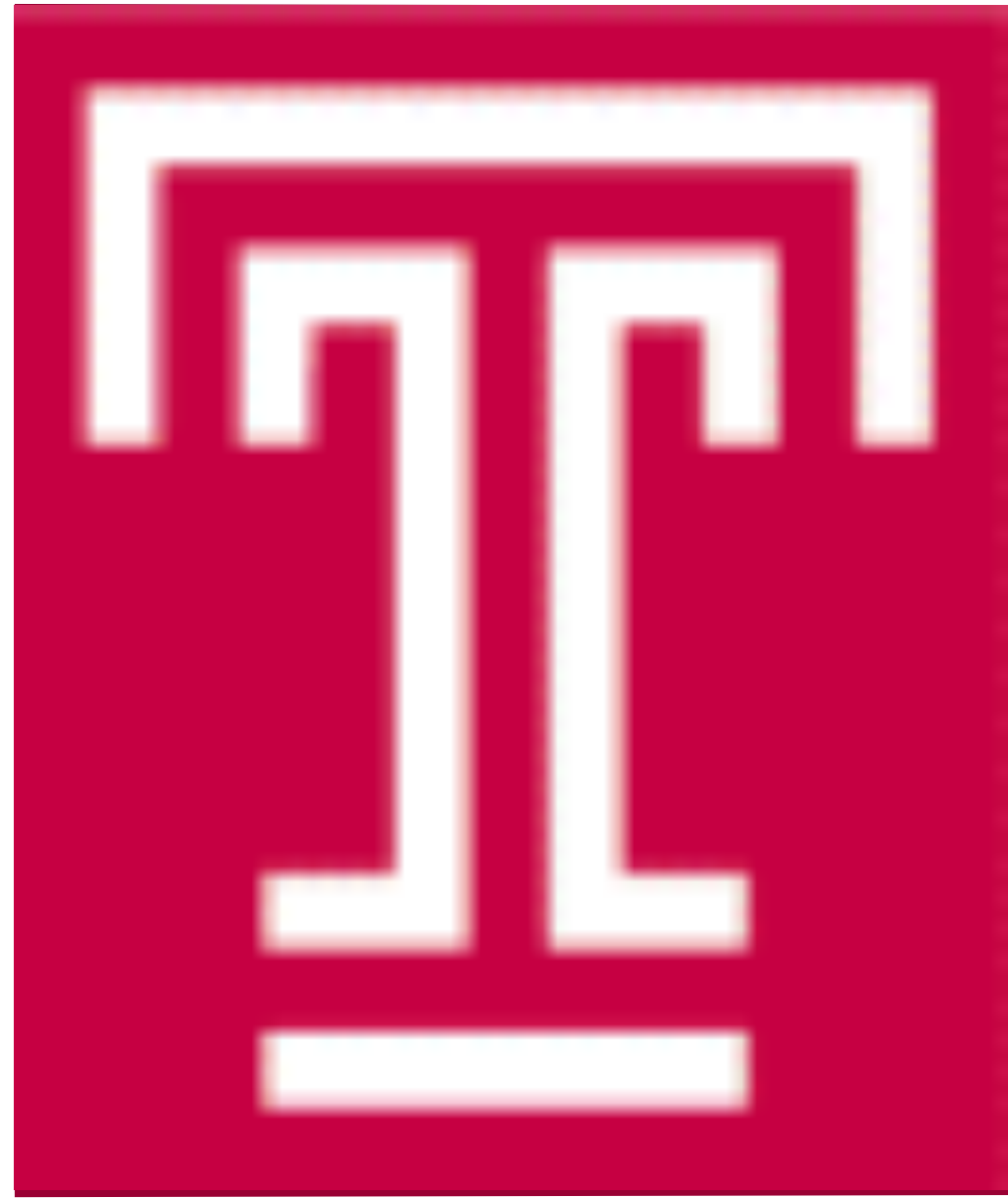




Posterior Interosseous Nerve Injury Status Post Distal Biceps Tendon Rupture Repair: A Case Report

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CASE DIAGNOSIS

- A 54-year-old right-hand dominant male presented with weakness in right wrist extension, third to fifth finger extension, and medial finger flexion that began about one month status post distal biceps tendon rupture repair.
- He was diagnosed with posterior interosseous nerve injury.

CASE DESCRIPTION

- A locksmith ruptured his right distal biceps tendon while extending his elbow against resistance.
- He was treated with a biceps tendon repair.
- Post-op MRI was unremarkable with the biceps button and biceps tendon in the appropriate position.
- Patient began to experience the right upper extremity weakness about one month after the repair.
- Physical exam of the right upper limb showed the following abnormalities:
 - 2/5 strength with extension of the fourth and fifth digits
 - 3/5 abductor digiti minimi strength
 - Mild atrophy of the abductor pollicis brevis
- EMG and NCS were performed post-op and at nine months.
 - Showed electrodiagnostic evidence of right posterior interosseous nerve injury with denervation and reinnervation as well as mild median nerve entrapment in the right wrist.
 - All remaining nerves were within normal limits.
 - Needle evaluation of the right abductor pollicis brevis showed increased motor unit duration.
 - The right extensor digitorum communis, extensor carpi ulnaris, and extensor indicis showed increased spontaneous activity, motor unit duration, and polyphasic potentials.
 - All remaining muscles showed no evidence of electrical instability.
- Occupational therapy/hand therapy noted an extensor lag of -30 degrees at the fourth and fifth digits.

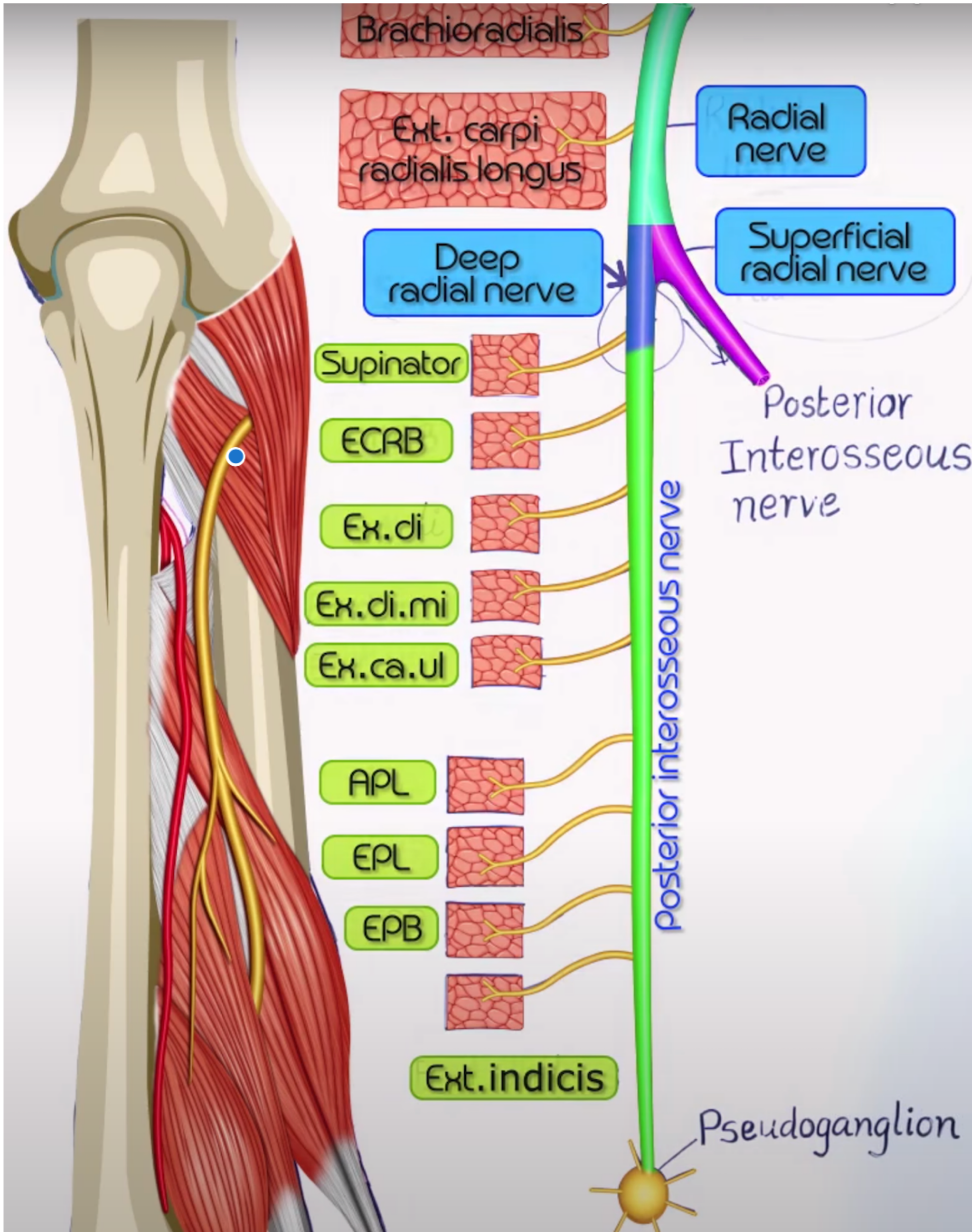


Figure 1: Image showing the radial nerve with its branches, including the posterior interosseous nerve, and the muscles that it innervates.

EMG

Muscle	Nerve	Root	Ins Act	Fibs	Psw	Amp	Dur	Poly	Int Pat	Recruit
Deltoid	Axillary	C5-6	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Biceps	Musculocut	C5-6	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Triceps	Radial	C6-7-8	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Abd Pollicis Brevis	Median	C8-T1	Nml	Nml	Nml	Nml	Incr	0	Nml	Nml
Abd Digiti Minimi	Ulnar	C8-T1	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Brachioradialis	Radial	C5-6	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Ext Digitorum Communis	Radial (Post Int)	C7-8	Nml	Nml	1+	Nml	Incr	1+	Nml	Nml
Ext Carpi Ulnaris	Radial (Post Int)	C7-8	Nml	Nml	1+	Nml	Incr	1+	Nml	Nml
Ext Indicis	Radial (Post Int)	C7-8	Nml	Nml	2+	Nml	Incr	1+	Nml	Nml

Figure 2: Table displaying the EMG results from the patient's right arm with some abnormalities noted

DISCUSSION

- There is limited information regarding the typical recovery period for a posterior interosseous nerve injury following distal biceps tendon repair.
- A case series concluded this resolves at most five months after surgery.
- The electrodiagnostic evidence displaying denervation and reinnervation shows promise for some degree of improvement.
- The patient is now one year out from surgery, and had attempted to go back to work but was unable to perform his duties due to the motor functional deficits in his hand.
- However, he has shown significant improvement in biceps strength and ability to extend his wrist, fingers, and thumb with physical and occupational therapy. Physical therapy noted objective improvements in range of motion, strength, and flexibility.

CONCLUSION

- A distal biceps tendon rupture is a fairly rare injury, occurring in only 3% of biceps tendon ruptures.
- This case represents a complication following surgical repair of a distal biceps tendon rupture, which has not been commonly reported.
- Posterior interosseous nerve injury only occurs in about 1-5% of patients following distal biceps tendon repair.
- Outpatient physical therapy and occupational therapy have lead to improvement in physical function and independence. Patient continues to attend occupational/hand therapy three times per week.

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