

### Introduction

Common peroneal nerve (CPN) neuropathy is the most common lower extremity neuropathy, and is third most common overall following median and ulnar neuropathies

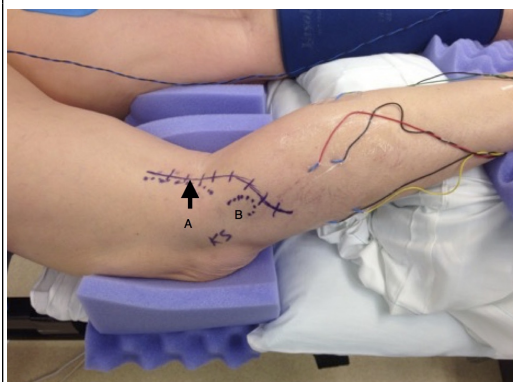
### Methods

A retrospective review of a prospectively maintained single-institution database of all cases of CPN palsy that underwent decompression and neuroplasty over a five- year period was performed.

### Learning Objectives

To help clinicians recognize the signs and symptoms of common peroneal neuropathy as well as the possible workup and management strategies including surgical decompression

#### Patient Position



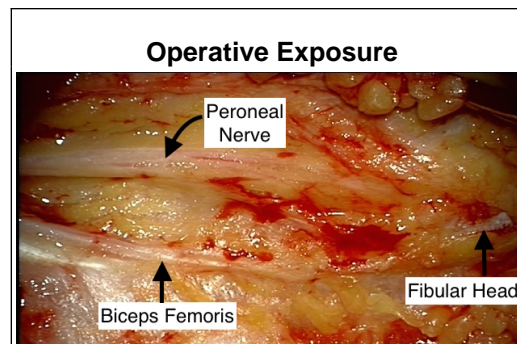
A: Biceps Femoris | B: Fibular head

### Results

Sixteen patients underwent neuroplasty of the CPN over the five years. The average age was 44 years old with a male preponderance (56%), and a mean follow up of 28 months. In 7 patients, common peroneal neuropathy followed an unrelated surgical procedure. In 8 patients, a traumatic injury to the ipsilateral extremity preceded the onset of CPN palsy. The most common presentation was weakness with a loss of sensation. Pain alone was a presenting symptom in 9 patients. The most commonly involved muscles were the tibialis anterior and extensor hallucis longus. Only five patients had a positive Tinel's sign at the site of compression. Prone positioning provided excellent surgical exposure of the CPN from the distal thigh to the peroneal tunnel. Clinical improvement following surgery was noted in 14 of the 16 patients. The remaining 2 patients had a full motor exam pre and post surgery with decreased pain and improved sensation. The most consistent improvement was noted in the TA ( $p=0.02$ ) and EHL ( $p=0.03$ ); a trend towards greater improvement with shorter time to surgery was noted. No complications related to the surgical site or CPN were encountered and no patient had a decline in neurological exam as a consequence of the surgery.

### Conclusions

Common peroneal neuropathy usually presents with a foot drop and decreased sensation or pain. Surgical neuroplasty of the CPN at the lateral fibular neck in a prone position allows decompression of the nerve from the distal thigh to the peroneal tunnel in the proximal leg. Significant improvement in motor strength following surgery, particularly of the TA and EHL may be noted. A trend towards greater recovery with decreased time to surgery is also noted.



### References

1. Robinson, L.R., Traumatic injury to peripheral nerves. *Muscle Nerve*, 2000. 23(6): p. 863-73.
2. Maalla, R., et al., Peroneal nerve entrapment at the fibular head: outcomes of neurolysis. *Orthop Traumatol Surg Res*, 2013. 99(6): p. 719-22.
5. Mahan, M., *Neurosurgery Knowledge Update*. 115 Common Peroneal Entrapment across the Fibular Head, ed. R.E. Harbaugh. Vol. 1. 2015, Verlagsgruppe, Stuttgart, New York, Delhi, Rio: Thieme.
6. Calhoun, J. <http://emedicine.medscape.com/article/1234607-treatment>. 2015 [cited 2015 August 27].
7. Boyd, K.U.B., Justin M, Injury and Compressive Neuropathy in the Lower Extremity, in *Nerve Surgery*, S.E.Y. Mackinnon, Andrew, Editor. 2015, Thieme: Verlagsgruppe, Stuttgart, New York, Delhi, Rio.
8. Spinner, R.J., J.L. Atkinson, and R.L. Tiel, Peroneal intraneural ganglia: the importance of the articular branch. *A unifying theory*. *J Neurosurg*, 2003. 99(2): p. 330-43.
9. Marciniak, C., et al., Practice parameter: utility of electrodiagnostic techniques in evaluating patients with suspected peroneal neuropathy: an evidence-based review. *Muscle Nerve*, 2005. 31(4): p. 520-7.
10. Derr, J.J., P.J. Micklesen, and L.R. Robinson, Predicting recovery after fibular nerve injury: which electrodiagnostic features are most useful? *Am J Phys Med Rehabil*, 2009. 88(7): p. 547-53.
11. Katirji, B., *Electromyography in Clinical Practice*. 2007, Philadelphia, PA: Elsevier.
12. Thoma, A., et al., Decompression of the common peroneal nerve: experience with 20 consecutive cases. *Plast Reconstr Surg*, 2001. 107(5): p. 1183-9.
13. Ducic, I. and J.M. Felder, Minimally invasive peripheral nerve surgery: peroneal nerve neurolysis. *Microsurgery*, 2012. 32(1): p. 26-30.
14. Meyer, T.N., et al., Decompression of the common peroneal nerve: experience with 20 consecutive cases. *Plast Reconstr Surg*, 2002. 109(5): p. 1755-6; author reply 1756.
15. Van Langenhove, M., A. Pollefliet, and G. Vanderstraeten, A retrospective electrodiagnostic evaluation of footdrop in 303 patients. *Electromyogr Clin Neurophysiol*, 1989. 29(3): p. 145-52.