

# Barral Institute Case Report

## Neural Manipulation – Anxious Bladder

Lenora Klassen, PT, CNMP

lenoraklassen@yahoo.com

### **Abstract**

Ankle sprains are a very common event for many children, as is bladder dysfunction of varying types. This case study showed the connection of the tibial nerve to the level of activation of the bladder.

### **Key Words**

Ankle sprain, tibial nerve, anxious bladder, neural manipulation, pediatrics

### **Introduction**

8 year old boy presents with right ankle pain and history of chronic ankle sprains. Medical intake also included a history of anxious bladder symptoms.

### **Method**

Treatment 1: GL/LL: Right tibial nerve at the ankle. Joint assessment: inverted calcaneus, soft end feel. Induction treatment of both the flexor retinaculum and the tibial nerve as it passes under. A second LL of the tibial nerve showed a restriction in the medial plantar branch. Elongation induction of the medial plantar nerve and the plantar fascia was performed. Medial and Lateral plantar nerve balanced.

A couple days after the first treatment, email from the boy's father mentioned an increased urge to urinate beginning 45 minutes after the first treatment. This began an investigation on the correlation between anxious bladder and the tibial nerve. (see reference list)

Treatment 2: GL/LL: bladder, EL: inferior hypogastric plex R. Bladder induction with inferior hypogastric plex. Plexus balance with tibial n at ankle, balance med/lateral plantar nerves and sural nerve. Movement re-education with gait.

Treatment 3: GL/LL: medial plantar nerve. EL: sacral plex. Treatment: elongation induction medial plantar nerve with sacral plex. Finish with balancing with bladder.

### **Results**

Within 45 minutes of the first treatment the boy had increased urge to urinate that continued for 3 days before tapering to the regular urgency. After three treatments the bladder urgency began to decrease slowly.

### **Discussion**

The connection between the tibial nerve and the bladder is not so much a mechanical connection as a reflexive one. The tibial nerve sends sensory feedback to the sacral plexus and influences the micturition

center creating a decrease in bladder urgency. Conservative treatment like the stimulation of the tibial nerve at the ankle via electrical stimulation has been shown to be effective. This case study demonstrates that manual neural manipulation of the same nerve could also have a reflexive effect on the bladder. This would be an area where greater exploration would be encouraged.

Some literature suggested an activation of the anxious bladder symptoms for a short time at the beginning of treatment and requires long term stimulation of the tibial nerve to resolve the bladder urgency.

It is uncertain with only one case study how much intervention is required of manual therapy and what kind of home maintenance exercises might be beneficial to self treat the anxious bladder via the tibial nerve with manual therapy. However, after this case study, it begs to be studied further.

## References

Barral, J. P., Barral, J. P., & Croibier, A. (2007). *Manual therapy for the peripheral nerves*. Elsevier Health Sciences.

Amarenco, G., Ismael, S. S., Even-Schneider, A., Raibaut, P., Demaille-Wlodyka, S., Parratte, B., & Kerdraon, J. (2003). Urodynamic effect of acute transcutaneous posterior tibial nerve stimulation in overactive bladder. *The Journal of urology*, *169*(6), 2210-2215.

Peters, K. M., MacDiarmid, S. A., Wooldridge, L. S., Leong, F. C., Shobeiri, S. A., Rovner, E. S., ... & Feagins, B. A. (2009). Randomized trial of percutaneous tibial nerve stimulation versus extended-release tolterodine: results from the overactive bladder innovative therapy trial. *The Journal of urology*, *182*(3), 1055-1061.

Staskin, D. R., Peters, K. M., MacDiarmid, S., Shore, N., & de Groat, W. C. (2012). Percutaneous Tibial Nerve Stimulation: A Clinically and Cost Effective Addition to the Overactive Bladder Algorithm of Care. *Current Urology Reports*, *13*(5), 327–334. <http://doi.org/10.1007/s11934-012-0274-9>

Van Der Pal, F., Van Balken, M. R., Heesakkers, J. P., Debruyne, F. M., & Bemelmans, B. L. (2006). Percutaneous tibial nerve stimulation in the treatment of refractory overactive bladder syndrome: is maintenance treatment necessary?. *BJU international*, *97*(3), 547-550.