

Barral Institute Case Study

Neural Manipulation – Ankle Pain

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Abstract: A case study of a 50-year-old male suffering with left ankle pain after tibia and fibula fractures with surgical fixation. His symptoms resolved after manual therapy that included joint mobilization, myofascial release techniques and neural manipulation.

Key words: tibial fracture, fibular fracture, ankle pain, neural manipulation, PNF, dynamic stretches.

Diagnosis: left ankle pain in 50-year-old male

Date: 10/4/2017

History: This right hand dominant male that suffered tibial and fibular fractures after tripping off a curb when walking his dog. He was taken to ER, ankle was relocated and placed in walking boot. Few days later surgical placement of titanium rods into tibia and fibula was performed. He began traditional PT 6 weeks later and had 8 sessions. He was discharged with a home program but complained of continued stiffness and pain in ankle, as well and LBP on his left and tightness in his left leg. Past medical history includes R shoulder pain in 2013, R knee injury in high school, off and on neck stiffness. Medications include Advil for pain prn, supplements. Aggravating factors include walking, any weight bearing, moving ankle, sleeping it aches. Alleviated by gentle stretches, Advil and ice helps some but pain doesn't go away. Test results pre---op positive Tib/Fib Fx and post op good alignment titanium plates.

Objective Assessment:

Presents with walking boot on left foot, antalgic gait with limited terminal extension, decreased stride length and cadence. Functional squat showed decreased folding at left hip with an early heel rise on left. Incision was clean and dry and healing well, ankle was still swollen and skin was red/purplish in color. He was 10 weeks post op.

General Listening: L sacrum

Local listening: L sacral plexus to sciatic nerve

Manual Thermal: L lower back, post hip and thigh, and L ankle

Pre Treatment pain 5/10.

Left Ankle Plantarflexion = 30° Dorsiflexion=3° Inversion=25°Eversion=8°

Standing Functional UE NTT: R=180° and L=160°.

Standing Trunk Flexion =85% Extension=30% with pain in left SI jt.

Extension Slump Dural tension test R=---40° L=---55°

Hip PROM IR R=35° L=22° ER R=50° L=36°.

Strength testing of B hips were 5/5.

Figure 8 measurements at ankle R=52.5cm and L=57cm.

Restrictions in left innominate and left foot joint mobility as well as fascia.

Procedure/Treatment: Patient was seen for an initial evaluation and treatment session that lasted 75 minutes and 4 follow up visits approximately every 3---4 weeks. Treatment initially addressed his restrictions at his left innominate and sacrum. The associated neural structures were treated first including side lying dura technique, sacral plexus, and sciatic under piriformis. Then joint mobilization to increase left innominate extension in gait. The remaining focus was on left ankle and LE. It included neural techniques for LFCN, distal sciatic, fibular nerves (common, superficial and deep), tibial nerve to medial and lateral plantar nerve, saphenous at ankle and 1st ray. Joint mobilization and intraosseus techniques to calcaneus, talus, cuneiforms, mets for foot

mobility with PNF neuro re--ed with new ROM after. Given HEP of dynamcic stretches that

targeted hamstrings/sciatic nerve and gastroc/solues with a triplanar emphasis. He was instructed to focus on nerve glides and not holding more than 5 sec and not "over stretching" but just going into edge of barrier.

Reassessment after 5 sessions:

Pain 1/10. No longer in walking boot (was D/C after 8 weeks). Only minimal decreased terminal push off on left LE in gait. Gait had much improved and able to return to construction type work. Functional squat showed good folding at left hip with only minimal early heel rise on left.

Left Ankle Plantarflexion = 48° Dorsiflexion=14° Inversion=40°Eversion=20°

Standing Functional UE NTT: R=180° and L=180°

Standing Trunk Flexion =95% Extension=WFL

Extension Slump Dural tension test R=neg L=---5°

Hip PROM IR R=45° L=42° ER R=50° L=50°

Figure 8 measurements at ankle R=52.5cm and L=54cm.

Still some fascial restrictions in left surgical scar and thickened tissue over the area.

Discussion: Findings indicate S/P fractures and surgical fixation further treatment to neural structures that may have been injured during the trauma need to be address. Traditional exercise based PT may not affect the neural structures enough to return to full function. It is also suggested that treatment to the entire system is important after trauma and not just to the localized site of fracture as this case had proximal joint and neural restrictions affecting his gait.

Conclusion and Recommendations: Further assessment of neural tension at after trauma as a limiting factor in full return to function needs to be further studied. The idea of treating just at the area of pain may cause true areas of restrictions and tension to be missed. These areas would not be found without the guide of general and local listening.

Treating Therapist: Veronika Campbell, PT, MPT, CSCS, NSC

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