Knee and Leg Radiating Pain

"Peroneal Nerve Entrapment"

ICD-9CM: 355.3 Lesion of lateral popliteal nerve

Diagnostic Criteria

History: Line of pain on lateral side of knee and calf
Paresthesias, potential numbness and weakness
Onset precipitated by trauma or pressure to lateral knee, constrictive garment, brace, or cast around upper calf

Physical Exam: Symptoms reproduced with peroneal nerve tension test
Symptoms reproduced with palpation/provocation of common peroneal nerve

Cues: Perform a SLR to the point of first resistance, then plantarflex and invert the ankle and foot - inquire regarding symptoms with hip extension and flexion while maintaining plantar flexion and inversion
Common Peroneal Nerve Palpation

Cues: 5 = Fibular head/proximal tibiofibular joint
      Nerve is located posterior and medial to the superior tibiofibular joint
      Assess symptom response to palpation
Peroneal Nerve Entrapment

ICD-9: 355.3 lesion of the lateral popliteal nerve

Description: Defined as a state of altered transmission in a peripheral nerve because of mechanical irritation from related anatomical structures. Entrapment neuropathy of the common peroneal nerve across the knee can occur in different regions. It can occur as the nerve passes beneath the biceps femoris tendon in the popliteal fossa or over the bony prominence of the fibular head and in the fibular tunnel formed by the origin of the peroneus longus muscle and the inter-muscular septum. The updated name for the peroneal nerve is the fibular nerve.

Etiology: Peroneal nerve entrapment usually is attributed to excessively thick fibrous arch and narrowing of the tunnel through which the nerve passes. The suspected causes of this disorder vary, but all causes relate to space occupying disorders of the peroneal nerve as it courses through the posterolateral region of the knee and superolateral region of the leg. Suspected causes of peroneal nerve entrapment are: trauma or injury to the knee; fracture of the fibula; use of a tight plaster cast (or other long-term constriction) of the lower leg; habitual leg crossing; wearing of high boots; pressure to the knee from positions during deep sleep or coma; or injury during knee surgery. Risk factors for developing this condition are the following: being extremely thin or emaciated, having diabetes, or having polyarteritis. The diagnosis is confirmed by a nerve conduction velocity - short segment stimulation technique.

Physical Examinations Findings (Key Impairments)

Acute Stage / Severe condition

- Positive Tinel's sign at the neck of the fibula
- Decreased sensations, numbness or tingling on the dorsum of the foot
- Weakness of the ankles or feet
- Pain with provocation of the entrapment site
- Gait abnormalities - such as: "Slapping" gait, foot drop (unable to hold foot horizontal), or toe drag during swing phases

Sub Acute Stage / Moderate Condition

In this stage you will see symptoms similar to the acute stage except the symptoms might ease up and will be to a lesser extent.
Intervention Approaches / Strategies

**Acute Stage / Severe condition**

Goals: Remove or decrease structures causing entrapment
- Keep edema or pooling of blood to a minimum
- Increase movement of nerve in between tissue
- Maintain strength, endurance, and sensations in unaffected sites.

- **Manual Therapy**
  - Soft tissue mobilization to restricted fascia or myofascia near entrapment site
  - Joint mobilization to restricted accessory motions in the superior tibiofibular, patellofemoral or tibiofemoral joint

- **Physical Agents**
  - Electrical stimulation to maintain muscle functioning if a paresis is present
  - Ultrasound for inflammation reduction

- **Therapeutic Exercises**
  - Nerve mobility exercises

- **External Devices (Taping/Splinting/Orthotics)**
  - An ankle-foot orthosis for the severely impaired with drop foot until return of function of ankle dorsiflexors

**Sub Acute Stage / Moderate Condition**

Goal: Remove entrapment structures and increase movement of peroneal nerve through entrapment sites.

- **Approaches / Strategies listed above**

Note that surgery to decompression of peroneal nerve entrapment site may be required in severe cases or when symptoms persist or recovery remains incomplete for three to four months.
Selected References


5. MEDLINE Plus Medical Encyclopedia Common peroneal nerve dysfunction 
*http://www.nlm.nih.gov/medlineplus/ency/article/000791.htm*
Manual Therapy for “Peroneal Nerve Entrapment”

**Examination:** Superior Tibiofibular Accessory Movements

**Treatment:**
- Joint Mobilization: Posterior-Medial Glide (supine w/ wedge)
  Anterior-Lateral Glide (tibia on chair - use pisiform)
- Soft Tissue Mobilization: Lateral Popliteal or Calf area (p. 57)
- Nerve Mobilization: AROM and PROM progression

**Impairment:** Limited Superior Tibiofibular Posterior/Medial Glide

Cues: Position the patient with slight knee flexion under a mobilization wedge - with the heel just off the edge of the table
  Stabilize the tibia into internal rotation
  The treatment plane runs posterior -medially, thus, the mobilization force is directed medially, or, it is directed straight posteriorly if the tibia is internally rotated
  Use a “soft” thenar eminence as the mobilization contract
Impairment: Superior Tibiofibular Anterior/Lateral Glide

Fibular Anterior/Lateral Glide

Cues: Position the patient with the involved knee flexed and with the tibia resting on a low table or a chair (Provide a stationary table or chair for the patient to hold on to for balance)
Stabilize the tibia with one hand
Mobilize the fibula anterio-laterally with the hypothenar eminence of the other hand using a trunk lean
Catch a large portion of the lateral gastrocnemius to cushion the pressure – careful not to compress the common peroneal nerve

The following reference provides additional information regarding this procedure: