A 25-Year-Old Man with Bilateral Foot Numbness

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Case Description

A 25-year-old man presents with a complaint of bilateral foot numbness (L > R) for the last five months and a history of lower back pain. The numbness was isolated to the dorsum of the foot and affected digits 3-5. It increased with elliptical trainer exercise and with prolonged periods of driving. He noted that ambulation improved symptoms.

The physical examination was negative for atrophy, swelling, or erythema. Lower-extremity reflexes were symmetrical. Left ankle dorsiflexion was slightly weaker than on the right. Sensation was intact to light touch, and there was a small decrease in temperature in the left foot. Straight leg raise and facet loading tests were negative. Electrodiagnostic studies for neuropathy and radiculopathy were also negative. Lower extremity palpation demonstrated tenderness in the anterior portion of the fibular head as well as restricted posterior translation. Percussion over the left fibular head provoked symptoms of numbness and tingling in the dorsum of the foot that was consistent with the patient's complaints.

Case Diagnosis

The diagnosis discovered in this presentation was that of entrapment of the common peroneal nerve caused by anterior displacement of the proximal fibular head. The history indicated that excessive dorsiflexion provoked symptoms. We investigated the motion of the fibula and its relation to the common peroneal nerve. The physical exam was consistent with an anteriorly displaced fibular head and hypersensitivity of the peroneal nerve. It was suspected that unbalanced ligamentous tension was holding the fibular head in a constant state of protraction.

The peroneal nerve is a branch of the sciatic nerve, which supplies movement and sensation to the lower leg, foot, and toes. The common peroneal nerve runs over the proximal fibular head and may be compressed by dysfunction of the fibula. Dorsiflexion causes anterior displacement of the fibular head while plantar flexion results in posterior displacement. Either of these motions done in excess can result in postural compensation, reduced range of motion, and possible compression of neurological structures. In this case, compression of the common peroneal nerve resulted in symptoms of numbness along the distal nerve root consistent with a neuropathy.

Discussion/Treatment

The fibula was placed in a position of ease with anterior displacement proximally and posterior displacement distally for approximately 90 seconds at which time the ligamentous tension softened. When retested for ligamentous tension, the fibular head was able to translate anteriorly and posteriorly within an equal range of motion. Furthermore, the left fibular head was no longer tender and percussion of the fibular head was unable to reproduce symptoms of numbness.

The patient was educated on the maintenance of range of motion in ankle dorsiflexion/fibular head protraction and plantar flexion/fibular head retraction with an adequate exercise program and avoidance of prolonged periods of dorsiflexion. The patient was sent to physical therapy for additional education to ensure understanding. After the first physical therapy session the patient stated, "I can hardly feel the numbness." The patient was found to be proficient in a home exercise program within half of the prescribed physical therapy sessions and the patient was successfully discharged.

Conclusion

The peroneal nerve is susceptible to injury at the site of the fibular head. This injury can be the result of postural compensations and common movement patterns. If a person has a posture of excessive dorsiflexion or plantar flexion at the ankle it can result in unbalanced ligamentous tension at both the ankle and at the proximal fibular head. This will compromise the fibular head range of motion resulting in possible compression of the peroneal nerve with neuropathy-like symptoms. In order to both correct the unbalance and prevent it from recurring, a movement diagnosis must be established and efforts made to improve full functional range of motion at the ankle and fibular head. Techniques such as osteopathic balanced ligamentous tension, joint mobilization, and a proper exercise prescription are of great value in restoring the anatomical integrity of the joints and soft tissues responsible for both movement and generation of pain.

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