FHL, examination and associated symptoms

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The examination of FHL can be rather straightforward and only add a few seconds to a clinical assessment. Under normal conditions, the 1st MTP joint can dorsiflex even when the metatarsal head is lowered. This motion is facilitated by the normal function of the plantar fascia. In this condition exists when failure of dorsiflexion under load exists. Testing can be done either in the non-weight bearing state. In either case, failure for the 1st MTP of dorsiflexion to occur will be a positive test for FHL.

Non-weight bearing (Figure 1)

With the patient seated in an examination chair or lying supine on a table, the examiner locates themselves at the foot end of the table. Testing the left foot will be described, and simply reversed for the right. The medial forefoot is grasped with the left hand, and the thumb of the examiner is positioned just under and slightly proximal to the 1st metatarsal head. Moderate (not high or low) pressure should be exerted to dorsiflex the metatarsal head. Then, the right thumb of the right hand is placed plantar to the inferior surface of the interphalangeal joint of the hallux. A dorsiflexion force is then exerted on the interphalangeal joint, pushing upward, while simultaneously maintaining the dorsiflexion force under the 1st metatarsal head. The test is positive when less than 15º is possible. The test is negative when more than 15º is available. It is not unusual to have positive findings on one side, and negative on the other, although it is recommended that this testing procedure be repeated if there is a clinical suspicion of FHL and this is not confirmed on the initial testing.

Weight bearing (Figure 2)

The subject stands barefoot and the examiner kneels at the foot of the subject. Weight is then transferred to the side to be tested, by partially lifting the non-test foot to only barely allow amount of weight. The examiner then takes their index finger and places if firmly under the dorsal aspect of the hallux. Next, attempt to dorsiflex the great toe. A positive test is confirmed by an inability to achieve 15º of dorsiflexion.

Assessment by Symptoms

One of the reasons that FHL has been overlooked as a clinical entity is that there is often a pain in the 1st MTP joint on occasion to look at this joint with the appropriate level of clinical suspicion. Most often, the location of pain is what draws the clinician’s attention. Therefore, reviewing a series of symptoms that may be associated with FHL can aid the clinician in the right path. The remote symptoms diagnostic pathway can be divided into the following:

Lateral foot symptoms

Neuroma
Chronic lateral foot pain
Chronic ankle sprain
Recurrent symptoms
Plantar fasciitis
Achilles tendinitis
Posterior symptoms
Chronic knee pain (PFPS)
Chronic lower back pain
Chronic daily headaches with or without migraines

Weight shift laterally will be promoted. This will often cause lateral symptoms and other associated symptoms. The patient may have to compensate for the loss of motion and function for the 1st MTP joint. The patient may report pain on the lateral side of the foot, and often pain on the ankle. This may be due to the inability to dorsiflex the hallux.

Refoot Symptoms

There is a natural propensity among clinicians to look at the area of pain for local pathology that may be producing symptoms. However, with both plantar fasciitis and Achilles tendinopathy, the pathomechanical process that can either produce or perpetuate pain may be related to the 1st MTP joint. As the body advances over the planted foot, the ability of the foot to lift is directly related to the overall gait at the MTP joints. Should this pivotal motion fail to occur in a timely fashion, then stress may be applied to these more proximal structures, and ultimately produce a painful state. In the case of the plantar fascia, its largest gap inserts directly to the base of the proximal phalanx of the hallux. Lack of proper function will create a repetitive stress to the fascia’s origin at the base of the calcaneus. In the case of the Achilles tendon, its point of insertion is the connection of the Achilles to the posterior calcaneus, so during heel rise, the plantar fascia would have to be applied should the distal pivot malfunction. If this happens, treatment specifically to the tendon may be required to render the patient asymptomatic, managing the forces that radiate the relatively remote 1st MTP joint, may be necessary to prevent recurrence. This concept will be covered in more depth in future articles, as well as on the www.vasyli.com website.

Postural Symptoms

The realization of pedal dysfunction to postural dysfunction has been long established in the literature. When sagittal plane restriction is considered, many of the mechanisms can be explained, and a treatment plan evolved.

Imagine a subject walking down a hallway; if an obstacle were to suddenly be placed into their path, they would trip and fall forward. The cause of the forward fall is specifically related to the affects of momentum; a body in motion will tend to stay in motion and adjust to an imposed force. Therefore, a proximal flexion moment must be produced when the component suddenly becomes restricted.

During normal walking, sagittal plane restriction can produce this type of flexion moment within the torso. This can create a reactive strain to the lumbar and cervicocranial spine, with musculoskeletal dysfunction, may lead the body attempts to maintain upright posture via extension. When sufficient overuse occurs, these musculoskeletal patterns become locked, and create repeated pain phenomena. Details of these neural patterns have been previously published, but are consistent with symptoms such as migraine headaches (trigeminal), and psychosomatics (quadratus lumborum and glutaeus).

Other stress to the lumbar structures can also be directly related to sagitally imposed mechanics, and these will be detailed in further articles.

Conclusion

The identification of FHL during the biomechanical examination will result in specific changes to orthotic management. The VASYLI THINKTANK is specifically designed to manage FHL and the consequences that arise. When properly identified and addressed, patient outcomes and compliance with treatment can improve.

REFERENCES: