

Protocols for Managing Lumbar Disc Injuries

Todd Turnbull, DC, CCSP

What are your procedures for managing disc-injured patients? Since a [lumbar disc](#) injury is one of the most common causes of lower back pain, having a set of protocols to follow will help you be more efficient. Areas for protocol development include evaluation, manipulation and therapeutic recommendations.

Causes

A disc herniation may occur suddenly in an event such as a fall or an accident. Often, a twisting or torsional movement is involved. Disc problems may also occur gradually with repetitive straining of the lumbar spine.¹ With disc protrusion, the annulus fibrosus is intact, while a herniation allows the nucleus pulposus to extrude outside the fibers. Herniations tend to be more challenging to correct and may require surgery to remove the extruded material.

The psoas muscles attach directly to the anterior portion of the lumbar discs and vertebrae. Contraction of the psoas muscle pulls the lumbar vertebrae anterior. When the muscles are hypertonic, they create excess tension on the discs and generate compressive forces in the lumbar spine. Reducing psoas hypertonicity can provide great relief for those suffering low back pain and allow the disc bulging to return to normal alignment.

Evaluation

Diagnostic options when faced with possible lumbar disc involvement include imaging studies and physical examination. MRI is the standard test for picturing disc distortion. Physical exam procedures can incorporate posture and gait analysis, range of motion, the straight leg raise, lumbar compression and manual muscle testing.

Patients with lumbar disc injuries are usually easy to identify; they present with [antalgic posture](#). When they rise from a seated position, they are guarded and unable to achieve a fully erect posture without pain. Range-of-motion testing will reveal an increase in pain and/or difficulty when the patient attempts lumbar extension or lateral flexion.

Having disc-injured patients lie supine and attempt to perform the straight leg raise will reveal difficulty or inability to elevate the involved side leg off the table. They will also have difficulty contracting the hip flexors on the involved side while lying supine.

Manual muscle testing of the psoas muscles will show weakness. The psoas muscles may test weak bilaterally, but will be worse on the involved side.

Correction

To reduce a hypertonic, weak psoas muscle requires extension and internal rotation of the thigh simultaneously. With the patient lying supine, induce hip extension by bringing the lower leg off the side of the table and rest it on top of your knee. Next, reach the superior hand under the thigh and contact the lesser trochanter. Place the other hand on the opposite side of the thigh and create

internal rotation of the thigh with both hands while maintaining hip extension.

Hold this grip and perform several gentle nudges further into the restricted motion to release psoas tension. Immediately retest the psoas to monitor patient progress. Muscle power output of the psoas will increase when the hypertonicity is reduced. Patient mobility should increase and pain should decrease immediately. (Video footage of this maneuver is available on YouTube.²) Note that other hypertonic hip flexor muscles may continue to restrict motion and prevent patient progression.

Rehabilitation

Research suggests [traction](#) in the form of inversion therapy can provide amazing relief to disc-injured patients. In a study conducted by Dr. J. Sheffield, 175 patients who were unable to work due to back pain were treated. After eight inversion treatments, 155 patients were able to return to their jobs full time. The study concluded that the main basis for improvement was the stretching of paraspinal vertebral muscles and ligaments, and possibly the widening of intravertebral discs.³

The constant compression of the lumbar discs from gravity is reversed during inversion therapy. During disc decompression from inversion therapy, patients are encouraged to perform gentle rotation, lateral flexion and flexion / extension movements.

Therapeutic stretching is another recommended modality used to continue the healing process at home. The lunge stretch is utilized for repeated release of hip flexor tension. It is best performed with the uninvolved leg in front with the knee bent. Keep the heel down and the knee straight for the back leg. Sink into the stance and begin to bend the torso backward. As the psoas muscle begins to stretch, encourage small side-to-side movements with the pelvis to detangle muscle fiber adhesions.

The psoas muscle is the only muscle to attach directly to the lumbar discs and should be evaluated for strength and mobility on every disc patient. Correcting the psoas can provide total pain relief, restore postural alignment and eliminate disc bulging. Retest motion and power output frequently during treatment sessions to confirm patient response. Response to treatment should be immediate and observable by both doctor and patient.

Patients suffering from disc injury have guarded muscle memory patterns that need to be updated. Using the psoas correction technique above with traction therapy and lunge stretches retrains the memory patterns, allowing muscle fibers to return to a normal slide-and-glide state. Healthy muscles are strong, flexible and pain-free!

References

1. Herniated Lumbar Disc. NYU Hospital for Joint Diseases: <http://hjd.med.nyu.edu/>.
2. Access the video at www.youtube.com/watch?v=JXqd6cMHa50 or search for "Psoas & Iliacus Correction by Dr. Todd Turnbull" on YouTube.
3. Sheffield F. Adaptation of tilt table for lumbar traction. *Arch Phys Med Rehabilitation*, 1964;45:469-472.

FEBRUARY 2013