Dynamic Chiropractic

SOFT TISSUE / TRIGGER POINTS

Proximal Hamstring Syndrome

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Have you ever had a patient with pain extending from the ischial tuberosity to the popliteal space? They complain mainly of pain while sitting (e.g., driving or sitting at a movie). Sometimes the patient is forced to change positions or stand up for relief. If they are an athlete, the pain occurs especially when sprinting and driving the leg forward. Rarely is pain felt when running slowly or lying down. A history of previous hamstring tears[1] or a preceding trauma is not necessarily the cause. Often the patient is diagnosed as having "sciatica."

A recent article in the *American Journal of Sports Medicine* (*AJSM*) discusses a surgical release for the proximal hamstring syndrome.[2] Conservative treatment for this condition has included shortwave diathermy, ultrasound, electrotherapy, stretching, muscle exercises, anti-inflammatory drugs, muscle relaxants, corticosteroids and local analgesic injections.[1] There are no studies reporting on this condition using manual loading methods such as the Graston Technique, active release technique (ART) or friction massage.

The histology and clinical findings that proximal hamstring syndrome presents with suggest a typical situation in which manual loading might prevent surgery. In the AJSM study, the surgeons, who performed a total of 47 operations on 44 patients, thought that the cause of pain was scarring or a fibrotic band between the proximal hamstring tendons and the sciatic nerve.[2]

The thickest tendinous band usually lies in the bulk of the biceps muscle, closely connected to the sciatic nerve.[1] The sciatic nerve passes laterally to the biceps femoris muscle near the ischial tuberosity and then under the biceps femoris muscle. Biopsy showed dense, tendon-like fibrosis. This is a chronic condition often associated with sitting or running. Tenderness is found by the ischial tuberosity and the proximal hamstring attachment area; weakness is a common complaint.

A particular hamstring resisted test was found to be positive in most cases. Testing of the prone patient with the knee flexed 30 degrees was positive in 39 of 41 pre-operated patients; 35 demonstrated moderate or severe hamstring weakness, four displayed mild weakness, and only two had normal power.[2] The examiner resisted behind the heel of the prone patient with the other hand on the belly of the hamstring to assess the quality of the muscular contraction.

Next, the knee was flexed to 90 degrees and the examiner again attempted to overcome the patient's contraction. At 90 degrees of flexion, 25 of the 41 patients were normal, 12 were mildly weak and none exhibited marked weakness, according to the study.

It is interesting to note that some patients with chronic hamstring tear or with a palpable defect in their hamstrings demonstrated an increased range of straight-leg-raising (SLR) of between 10 and 20 degrees. One would think that a previous hamstring tear would create a scar and result in a limited SLR.

Nerve conduction studies were not significant, indicating that there may not be actual sciatic nerve

compression or damage in this syndrome. While surgical treatment produced significant pain relief in 86 percent of the cases, the authors were not convinced as to what the surgical release procedure was actually accomplishing. They were not able to prove that scarring and fibrosis actually caused tethering of the sciatic nerve. It is possible that the operation just treated the enthesopathy and scarring of the proximal hamstring tendons, and had nothing to do with releasing the sciatic nerve.

Some conditions that might be differentially diagnosed could be the piriformis syndrome; in this case, the tenderness is usually found in the buttock of the piriformis belly. When the piriformis is involved, pain occurs when testing resisted abduction in combination with external rotation of the thigh or forced internal rotation of an extended thigh (Freiburg's sign). In ischiogluteal bursitis, the patient usually presents with difficulty finding a comfortable position at night.

Most hamstring tears have pain distally in the muscle belly, and a palpable defect may be present. Of course, the hamstring tendon at or near the ischial tuberosity could be torn, creating scar tissue. This type of tear could cause pain to radiate up or down. The differentiation between the 30- and 90-degree flexion test may not be positive and the pain would not necessarily radiate to the popliteal space. Either way, the use of mechanical load, breaking down scar tissue and creating new extracellular matrix, might do the trick.

References:

1. Puranen J, Orava S. The hamstring syndrome. A new diagnosis of gluteal sciatic pain. *Amer J Sports Med* 1988;16(5):517-21.
2. Young IJ, van Riet RP, Bell SN. Surgical release for proximal hamstring syndrome. *Amer J Sports Med* 2008;36(12):2372-8.

JANUARY 2009

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