

AN ENTRAPMENT FOR LUMBAR DISC SURGERY, PIRIFORMIS SYNDROME: A COMPILATION

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Abstract: Piriformis syndrome is a neuromuscular disorder that occurs when the sciatic nerve is compressed by the piriformis muscle. The ability to recognize piriformis syndrome requires an understanding of the structure and function of the piriformis muscle and its relationship to the sciatic nerve. The consequences of the clinical evaluation made by ignoring this syndrome are often underestimated.

Keywords: Piriformis syndrome, Sciaticnerve, Radiculopatı.

LOMBER DİSK CERRAHİSİNE BİR TUZAK, PİRİFORMİS SENDROMU: DERLEME

Özet: Piriformis sendromu piriformis kasının siyatik siniri sıkıştırması ile oluşan nöromusküler bir hastalıktır. Klinik uygulamalarda lomber radikülopati ile benzer şikayete neden olması nedeni ile sıklıkla gözden kaçır. Piriformis sendromunu anlaşılabilmesi için piriformis kası ile siyatik sinir yapılarının fonksiyon ve ilişkisinin bilinmesi gerekir. Bu sendromu gözardı ederek yapılan klinik değerlendirmenin doğuracağı sonuçlar sıklıkla önemsizdir.

Anahtar Kelimeler: Piriformis sendrom, Siyatik Sinir, Radikülopati.

Introduction:

Piriformis syndrome (PS) is an uncommon neuromuscular disorder that occurs with the strangling of the sciatic nerve by the piriformis muscle. The disorder usually occurs when the sciatic nerve is compressed or irritated by the muscle. An important feature of the disease is that PS is often overlooked in clinical practice because its presentation may be similar to that of lumbar radiculopathy. In US, it is reported that the patients with low back pain and sciatica were turned out to be PS at the rate of 6-8%(1). The ability to recognize PS requires an understanding of the structure and function of the piriformis muscle and its relationship to the sciatic nerve (3). The author review the anatomic and clinical features of this condition, summarizing the medical diagnosis and management.

Anatomy of the Piriformis

Piriformis is one of the muscles of the gluteal region. It is located both within the pelvis and posterior to the hip joint. It originates from the second to fourth lateral masses of the sacrum on its anterior surface and passes laterally to exit the pelvis through the greater sciatic foramen. Lying posterior to the femoral head, it inserts into the superior and medial border of the greater trochanter of the femur (Figure 5). It is innervated by the anterior primary rami of S1 and S2. It is innervated by the anterior primary rami of S1 and S2 (2). Piriformis has certain functions as well as the abduction of the flexed thigh, stabilization of the hip joint and lateral rotation of the thigh in the extended position. The sciatic nerve passes alongside the piriformis muscle, goes down the back of the leg. Nerve compression can usually be occurred by the spasm of the piriformis muscle at this access point.

Anatomical variants of piriformis muscle are common. These are of particular importance, especially for the treatment of needle injections. Sometimes, they also constitute the cause of the syndrome (Figure 1,2,3,4).

The sciatic nerve is the largest nerve in the body resulting from a combination of the common fibular (peroneal) nerve and the tibial nerve. Sciatica is a set of symptoms rather than a diagnosis for what is irritating the root of the nerve, causing the pain. This point is important, because treatment for sciatica often differs, depending upon the underlying cause of the symptoms and pain levels (6).

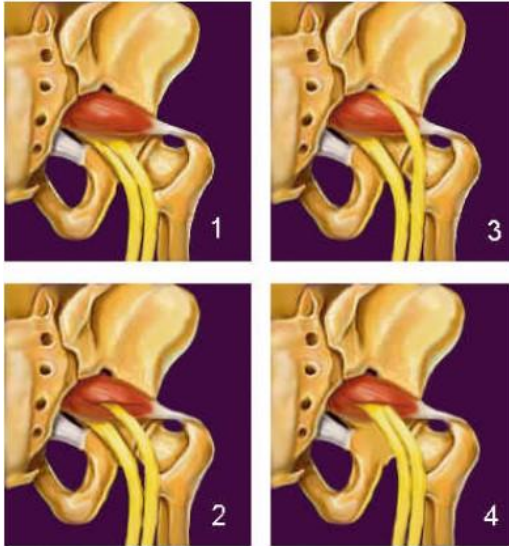


Figure 1,2,3,4. Usually seen Anatomical variants of the piriformis muscle.

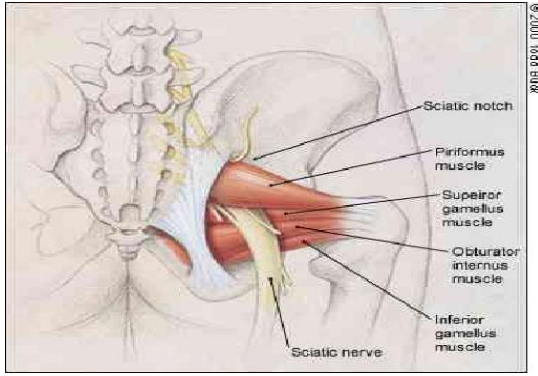


Figure 1. Normal anatomical appearance of the region that causes the piriformis syndrome.

PS usually starts with pain, tingling, or numbness in the buttocks. Pain can be severe and extend down the length of the sciatic nerve, which is called sciatica. Pain may also be triggered while applying firm pressure directly over the piriformis muscle, or sitting for long time. Therefore, PS is the more common than thought to be and is not taken into account due to unknown or little recognition, and discussed in terms of diagnostic criteria, clinical features and treatment options in this study (7).

Diagnosis

There is no definitive test, MRI or EMG findings for PS (5). In many cases, there is a history of trauma to the area, repetitive and vigorous activity such as long-distance running or prolonged sitting. Diagnosis of PS is generally made by physical examination using a variety of movements to elicit pain to the piriformis muscle. In physical examination, attempts are made to stretch the irritated piriformis and provoke sciatic nerve compression, such as the Freiberg, the Pace, and the FAIR (flexion, adduction, internal rotation) maneuvers. Conditions to be ruled out include herniated nucleus pulposus (HNP), facet arthropathy, spinal stenosis, and lumbar muscle strain. Pushing on it also exacerbates the pain. In some cases, a contracted piriformis muscle can be found on physical exam. Because symptoms can be similar in other conditions, radiologic tests such as MRIs may be required to exclude other causes of sciatic nerve compression (8).

Treatment

If the pain is caused by sitting or certain activities, try to avoid positions that trigger pain for a while. Symptomatic relief of muscle and nerve pain can be obtained by non-steroidal anti-inflammatory drugs and muscle relaxants. Conservative treatment usually begins with stretching exercises and massage, and refraining from contributory activities, such as running, bicycling, etc. Some clinicians recommend physical therapy, including the

teaching of stretching techniques, massage, and strengthening of the muscles to reduce the strain on the piriformis. Chiropractors may suggest stretching exercises that will target the piriformis, but may also include the hamstrings and hip muscles in order to adequately reduce pain and increase range of motion (4). Patients with PS may also find relief from ice and heat. Ice can be helpful when the pain starts, or immediately after an activity that causes pain. This may be simply an ice pack, or ice massage. Alternating heat and ice is often helpful (9).

Failure of conservative treatments described above may lead to consideration of various therapeutic injections such as local anesthetics, anti-inflammatory drugs, corticosteroids, botulinum toxin (Botox), or a combination of the three. Injection technique is a significant issue since the piriformis is a very deep seated muscle. A radiologist may assist in this clinical setting by injecting a small dose of medication containing a paralyzing agent such as botulinum toxin under high-frequency ultrasound or CT-guided control. This inactivates the piriformis muscle for 3 to 6 months, without resulting in leg weakness or impaired activity (10).

Surgery may be recommended as a last resort. The prognosis is generally good. Minimal invasive surgery using newly reported techniques has also proven successful in a large-scale formal outcome published in 2005 (8).

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