



# Piriformis Syndrome: A Case with Non-Discogenic Sciatalgia

## *Priformis Sendromu: Nondiskojenik Siyatåljili Bir Olgu*

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### ABSTRACT

Piriformis syndrome is a clinical picture of non-discogenic sciatica caused by compression of the sciatic nerve by the piriformis muscle. It has variable etiologies and the patho-physiology is not fully understood. The major etiology was known to be the spasm, edema and inflammation of the piriformis muscle and sciatic nerve compression of the muscle later on. Patients can be diagnosed immediately with a comprehensive clinical examination and early diagnosis makes the treatment much easier. Diagnosis of the piriformis syndrome, a very rare cause of low back pain, first requires that this syndrome is remembered, and then a differential diagnosis should be performed. A case of piriformis syndrome diagnosed in a patient who presented with low back pain is reported in this study.

**KEYWORDS:** Piriformis syndrome, Back pain, Sciatica

### ÖZ

Piriformis sendromu, priformis kasının siyatik sinire basisi sonucu oluşan non diskojenik siyatålji tablosudur. Etiyolojisi değişken olmakla birlikte patofizyolojisi tam olarak anlaşılamamıştır. Ancak ana neden priformis kasında spazm ve inflamasyona bağlı ödem ve bunun sonucunda ileri dönemlerde ortaya çıkan siyatik sinir basisi olarak özettlenebilir. Kapsamlı klinik değerlendirme ile koymulan erken teşhis uygun tedavi surecini hızlandırır. Bel ağrısının çok nadir sebeplerinden bir tanesi olan priformis sendromu tanısının konulabilmesi için öncelikle böyle bir hastalığın olduğunu hatırlanması sonra da ayırcı tanıların iyi bir şekilde ekarte edilmesi gereklidir. Bu yazıda bel ağrısı şikayeti ile başvuran bir hasta'da tespit edilen priformis sendromu rapor edilmiştir.

**ANAHTAR SÖZCÜKLER:** Priformis sendromu, Bel ağrısı, Siyatålji

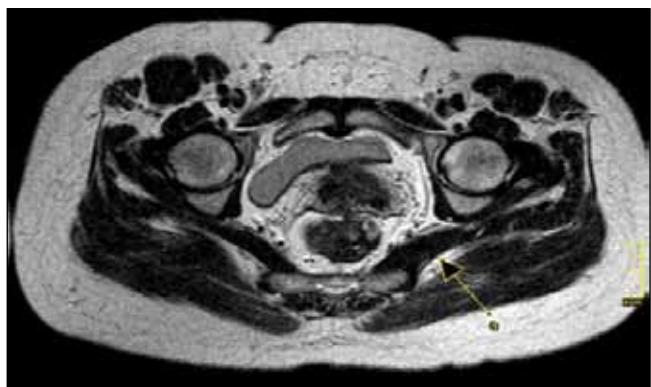
### INTRODUCTION

Piriformis syndrome (PS) is a sciatic neuropathy condition caused by compression of the sciatic nerve by the piriformis muscle. It has been classified as primary and secondary. While the primary condition is caused by intrinsic pathology originating from the piriformis muscle such as myofascial pain or myositis ossificans as a result of trauma, the secondary condition is caused by other causes of hip pain due to pathology of adjacent structures of the sciatic notch (13,15). Etiology usually depends on individual predisposition or congenital anomalies. However, trauma such as falling in the sitting position or heavy lifting can also trigger the condition. The mechanism here is internal rotation of the hip or sciatic nerve impingement under the tendinous portion of the piriformis muscle due to spasm of the muscle (1,9).

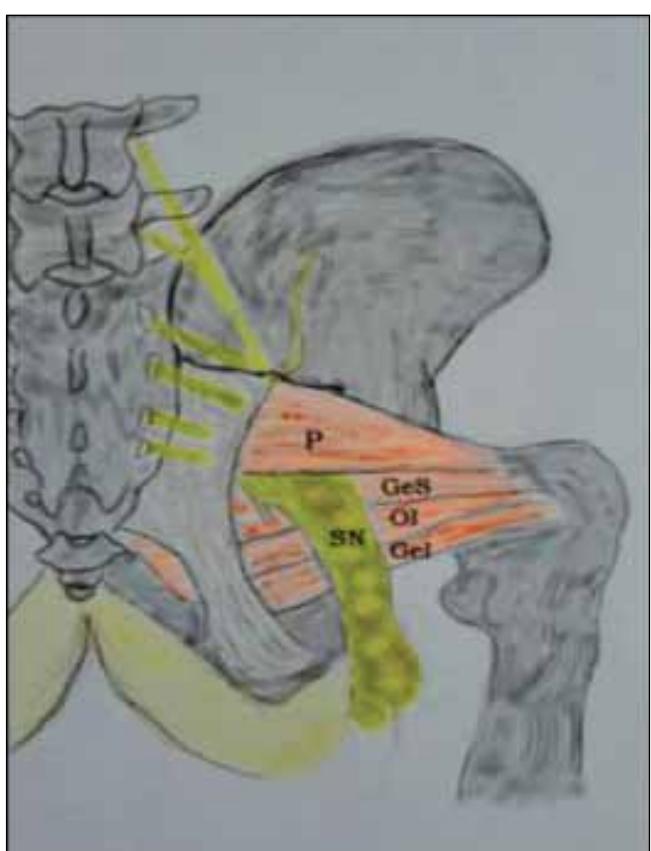
The prevalence of PS in patients with low back pain was reported by Bernard et al. as 0.33%, Pace and Nagle as 6% and Parziale as 5% (3,10,12). PS is more prevalent in women than men and this situation was evaluated to be due to the wide angle of the quadratus femoris in the pelvis (4).

### CASE REPORT

A 41-year-old male patient was admitted to our outpatient clinic with ongoing pain for 6 months in the low back and left hip. The patient had no history of trauma or coercion. Sitting for a long time such as bus ride, long-distance walking, and climbing stairs led to appearance of the pain on the left hip and thigh but this was not continuous. The patient's medical history revealed no widespread body pain, fatigue, muscle weakness, limb swelling, skin rash, uveitis, dry mouth, eye dryness, sores in the mouth and genital area, recurrent abdominal pain, fever of unknown origin and weight loss. On physical examination, the Schober test was evaluated as negative, Laseque test as positive and FABER (flexion, abduction, and external rotation) as partially positive. There was tenderness on deep palpation in the right gluteal region. Lumbosacral joint AP/L X-ray was taken in order to evaluate the sacroiliac and lumbosacral joints and lumbar spine. Radiographs revealed no pathology of the patient's lumbar spine and sacroiliac joint. The patient's complete blood count, sedimentation rate, CRP and ASO values were within



**Figure 1:** Pelvic magnetic resonance imaging. **a:** Asymmetric thicker appearance of left piriformis muscle, according to the right.



**Figure 2:** Anatomic structure of the piriform muscle. **P:** piriform muscle, **GeS:** superior gemellus muscle, **OI:** obturator internus muscle, **GeI:** inferior gemellus muscle.

normal limits, ANA, anti-ds DNA, anticardiolipin antibodies and HLA-B27 were negative. Lumbar and sacroiliac joint MRI of the patient was obtained on suspicion of discopathy. Diffuse annular bulging mainly at L4-5 levels at the right side was detected but there was no root and spinal nerve compression on magnetic resonance imaging (MRI). The sacroiliac joints found to be normal on MRI of the sacroiliac

joints. However an asymmetric increase in the size of the left piriformis muscle of the patient compared to the right was observed (Figure 1). After this identification, tenderness was noticed on the patient's passive hip abduction and internal rotation for piriformis muscle (Freiberg sign), and on hip flexion and internal rotation on adduction (Pace sign). There was pain and a slight loss of strength on active abduction and external rotation of hip. No neurological deficit was detected. Electrophysiological studies were within normal limits. Sonographic examination of the vascular structures in the lower extremities revealed no pathological findings. The patient was diagnosed with piriformis syndrome when the complaint, history, physical examination, and laboratory results were evaluated together. Warm sitz baths, hip abduction strengthening exercises and piriformis stretching exercises were used. Patient's treatment was discontinued due to a decrease in the complaints. The piriformis syndrome should be kept in mind as a rare situation in daily practice as a non-discogenic reason, besides lumbar discopathy, in the differential diagnosis of patients presenting with low back and hip pain.

## DISCUSSION

The piriformis muscle is a flat pyramidal-shaped muscle that originates from the anterior surface of the sacrum and the joint capsule of the sacroiliac joint. It passes through the greater sciatic foramen and attaches to the upper surface of the greater trochanter of the femur. It is adjacent to the obturator internus, gemellus superior and inferior muscles (Figure 2). The function of the piriformis muscle varies according to the position of the hip. The piriformis muscle is innervated by branches of the L5, S1 and S2 spinal nerves. This muscle rotates the extended thigh laterally and abducts the flexed thigh. This muscle also provides postural stability in standing and walking. The sciatic nerve adjacent to this muscle originates from the L4-S3 roots of the lumbosacral plexus and leaves the pelvis through the greater ischiadic foramen by passing under the piriformis muscle (4-7).

PS is diagnosed with history, clinical findings and physical examination findings. A history of trauma to the gluteal region such as falling is often reported (9,11,14). Pain and tenderness in the hip exist in the majority of patients. When the piriformis muscle hypertrophies as a result of the compressed sciatic nerve that passes under the muscle, pain in the form of sciatalgia, radiating from back of the thigh to all the lower extremity, and dysesthesia of the leg and foot are seen. Sitting on hard surfaces, sitting, crouching down, walking or running for a long time, and climbing stairs increases symptoms (1,2,8). On physical examination, tenderness on palpation is detected from the sacrum to the greater trochanter, where the piriformis muscle is located (13).

There is no definitive diagnostic test. X-ray radiographs, magnetic resonance imaging, and electrophysiological evaluation can be performed for the differential diagnosis. Lumbar degenerative disc disease, spinal stenosis, lumbar facet syndrome, spondylolysis, spondylolisthesis, myofascial

pain, trochanteric bursitis, chronic hamstring tendinitis, fibrous adhesions of other muscles around the sciatic nerve, pelvic diseases (tumors, endometriosis) should be considered in differential diagnosis. PS may be misdiagnosed as lumbar disc herniation since it causes classic sciatica pain but examination of the lumbosacral and sacroiliac joints are normal.

After diagnosis, the treatment approach consists of stages and conservative treatment is successful in most patients. Non-steroidal anti-inflammatory drugs, analgesics, and myorelaxant agents may initially control the inflammation, pain and spasm (1,12).

Warm sitz baths relax the muscle in the gluteal region. Progressive piriformis stretching exercises provide flexibility and increase strength. The gluteus medius muscle, one of the abductors of the hip, should be strengthened in particular. Physical therapy modalities such as ultrasound can be added to this exercise therapy. Ultrasound application helps to reduce pain, spasm and inflammation (1,8,12). If physical therapy modalities do not provide sufficient improvement, anesthetic and steroid agents can be injected into the piriformis muscle (1,10,12). Surgery can be used if conservative treatment methods fail. Sciatic nerve decompression is performed for the fibrous band or other compressive lesions in this case.

### CONCLUSION

Treatment of PS, which may result from anatomical variations or traumas, may become quite complex and is often confused with spinal radiculopathies and spinal degenerative disorders. Effective results can be achieved using less invasive therapeutic methods with early diagnosis. Keeping PS in mind for evaluation of the common complaint of low back pain and reaching an early diagnosis are very important for both physicians and patients.

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