Bosphorus Medical Journal
Boğaziçi Tıp Dergisi

Case Report

DOI: 10.14744/bmj.2020.29290

Bosphorus Med J 2020;7(2):63–66

An Unusual Case of Piriformis Syndrome: Peroneal Neuropathy

Nadir Görülen Bir Piriformis Sendromu Prezantasyonu: Peroneal Nöropati

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ABSTRACT

Piriformis syndrome (PS) is a syndrome consisting of symptoms that occur due to compression of the sciatic nerve at the level of the piriformis muscle (PM). The most commonly reported complaints (cardinal features) are radiation to the ipsilateral tight, buttock pain, and reproduction of pain on prolonged sitting. In this study, we report a 64 years old female case presented with peroneal neuropathy symptoms without gluteal pain and sciatica and treated using ultrasound-guided PM injection successfully.

Keywords: Diagnostic injection; diagnostic ultrasound; peroneal neuropathy; piriformis syndrome; sacroiliac dysfunction; ultrasound.

ÖZET

Piriformis sendromu (PS), siyatik sinirin piriformis kası (PK) seviyesinde sıkışması nedeniyle ortaya çıkan semptomlardan oluşan bir sendromdur. En sık bildirilen şikayetler (kardinal özellikler) kalça ağrısı, ipsilateral uylukta yansıyan ağrı ve uzun süreli oturmakla ağrının artmasıdır. Bu yazıda gluteal ağrı ve siyatalji olmadan peroneal nöropati semptomları ile başvuran ve ultrason rehberliğinde PK enjeksiyonu ile başarıyla tedavi edilen 64 yaşında bir kadın olgu sunulmuştur.

Anahtar sözcükler: Diagnostik enjeksiyon; diagnostik ultrason; piriformis sendromu; peroneal nöropati; sakroiliak disfonksiyon.

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Cite this article as: Güleç GG, Aktaş İ, Ünlü Özkan F, Bayrak D. An Unusual Case of Piriformis Syndrome: Peroneal Neuropathy. Bosphorus Med J 2020;7(2):63–66.

Received: 06.04.2020
Accepted: 27.04.2020

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Piriformis syndrome (PS) is a syndrome consisting of symptoms that occur due to compression of the sciatic nerve at the level of the piriformis muscle (PM).[1, 2] Many factors were reported in the etiology of the PS, including long-term sitting, pregnancy, gluteal traumas, PM hypertrophy and spasticity, compression of the PM by the myofascial bands, PM inflammation, PM and sciatic nerve variations, as a complication of total hip arthroplasty or as a complication of the cesarean section under spinal anesthesia.[1] In most cases, however, PS is widely believed to be myofascial in origin and arises from a trigger point of PM.[3] Gluteal pain and pain (and paresthesia) in the back of the thigh are the most common symptoms.[4, 5] The clinical picture is usually dominated by signs and symptoms of irritation/compression of the sciatic nerve. PS is a diagnosis that may account for 6% of the patients seen for a complaint of sciatica.[6]

The sciatic nerve comprises the lateral division, which eventually forms the common peroneal nerve, and the medial division, which forms the tibial nerve. Most of the peroneal fibers are prominently affected in the proximal sciatic nerve lesion.[7] Sciatic neuropathy may present with foot drop. Although few foot drop cases due to PS presented with the gluteal pain and

radiating tigh pain were reported,[8, 9] PS presenting with peroneal nerve neuropathy symptoms has not reported yet without the other symptoms of PS. Herein, been report a female case presented with peroneal neuropathy symptoms without gluteal pain and sciatica and treated by ultrasound-guided PM injection successfully.

Case Report

A 64-year-old woman was evaluated for the complaints of progressive pain and numbness in the lateral right calf and foot for seven months. She was diagnosed with lumbar disc hernia, and operation was recommended by neurosurgery and orthopedic clinics, magnetic resonance imaging (MRI) of the lumbar region demonstrated L4-L5 disc extrusion and right L5 root compression. On her physical examination, there was no limitation and pain of low back and hip region. Straight Leg Raise (SLR) and Laseque tests were negative. Motor examination revealed a 4/5 right foot dorsiflexion, marked hypoesthesia along the right lateral calf with normoactive deep tendon reflexes. Complete blood count, routine blood biochemistry and acute phase reactants were within the normal range. Visual Analogue Scale (VAS) was 9 (on 0–10 scale; 0 = no pain, 10 = unbearable pain maximum score). According to the patient's symptoms and physical examination findings, electrophysiological evaluation was carried out for the differential diagnosis considering radiculopathy, peroneal neuropathy and anterior tarsal tunnel syndrome. Electromyography (EMG) and nerve conduction studies were in normal ranges. Patient was reassessed due to normal EMG results. Sacroiliac joint pain provocation and mobilization tests were found positive on the right side. Additionally, deep palpation of the piriformis region was painful. FAIR (flexion-adduction-internal rotation), Frieberg and Pace tests were positive. For the differential diagnosis of PS from sacroiliac dysfunction, the patient was administered ultrasound-guided sacroiliac joint and PM local anesthetic injection (lidocaine 2%). Although no improvement of signs and symptoms with the sacroiliac injection was achieved, shortly after 4 cc lidocaine injection into the PM, (Fig. 1) her pain decreased substantially and the patient was diagnosed as PS. Following the diagnosis, medical and physical therapy were administered, including non-steroidal anti-inflammatory drugs (NSAID), muscle relaxants, myofascial stretching and gluteal muscle strengthening exercises, superficial and deep heat modalities. At the second year follow up, she was completely asymptomatic. Patient's consent was obtained for this case report.

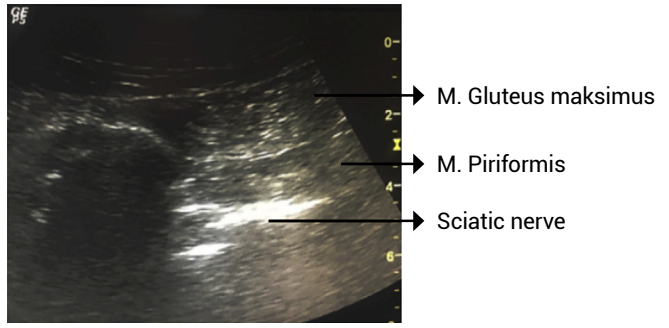

Figure 1. Ultrasound Imaging of Piriformis Muscle And Sciatic Nerve.

Discussion

Sciatic nerve is derived from the ventral rami of the L4-S3 spinal nerve. The nerve comes out from pelvis through the greater sciatics foramen, entering the gluteal region anterior to PM. After reaching the lateral aspect of ischial tuberosity, the nerve runs between the ischium and great trochanter and then descends into the sub gluteal area. At the popliteal fossa, the nerve divides into its major components.[10] Anatomical variations of the PM and sciatic nerve are thought to be predisposed for the development of PS and affect its clinical presentation.[11–13] In addition, because the common peroneal division has fewer, larger fascicles and less supportive tissue compared to the tibial division and due to its lateral location in the sciatic notch, it is thought to be more vulnerable to compression and more prone to strain injuries than tibial division.[14, 15]

Gluteal pain, pain in the back of the thigh and sciatica-like symptoms are the most reported clinical findings of the PS.[3, 4] Pain aggravation by sitting is one of the important clinical signs.[3, 4, 15, 16] Tenderness with deep palpation and positive SLR test are important physical examination findings.[3, 4] However, these clinical findings may also be positive in pathologies, such as facet syndrome, sacroiliac joint problems and lumbar disc herniation. These pathologies should definitely be considered in the differential diagnosis.[16] Provocative stretching maneuvers (Frieberg, Pace, Beatty, FAIR) can be used, although their sensitivity and specificity are controversial.[17] MRI can provide useful information about PM and the course of the sciatic nerve and can identify lesions that can be observed and suppress the nerve in that area. Electrodiagnostic studies are most useful to rule out other causes of back/gluteal pain, such as lumbosacral radiculopathy, plexopathy, or sciatic neuropathy. EMG is usually normal unless severe, longstanding compression has led to denervation in PS changes in the muscle.[18]

In our case, the absence of pain and sciatica symptoms in the gluteal region did not initially suggest the diagnosis of PS. Complaints of pain and numbness in the lateral toe and calf and loss of muscle strength in the foot dorsiflexion suggested L4-5 radiculopathy and peroneal neuropathy. Although L4-5 radiculopathy was seen in MRI, the diagnosis of radiculopathy was eliminated by the physical examination and EMG findings. Peroneal neuropathy was also eliminated by normal nerve conduction studies. Sacroiliac dysfunction is also a common cause of low back pain. It is associated with PS. PM stabilizes the sacroiliac joint.[10] Sensitivity with palpation in the piriformis area and positive piriformis and sacroiliac pain provocation and mobility tests suggested PS and sacroiliac dysfunction. Sacroiliac dysfunction and PS diagnosis are confirmed by sacroiliac joint and PM injection. In this case, the diagnostic injection was performed with ultrasound-guide to both PM and sacroiliac joint. Because there was no improvement of symptoms with the sacroiliac injection, the diagnosis of sacroiliac dysfunction was excluded. After the PM ultrasound-guided local anesthetic injection, the symptoms disappeared completely. The diagnosis of PS was confirmed.

Local anesthetic (LA) injection that is administered into the PM is accepted as a reference diagnostic test. The dramatic and almost immediate relief of pain produced by the infiltration of the PM is considered to be a diagnostic aid for PS.[19] Ultrasound-guided method improves the reliability and accuracy of the injection.[20]

Medications, including NSAIDs, muscle relaxants, and neuropathic agents, such as gabapentin and pregabalin and physical therapy, including stretching and strengthening exercises, remain mainstays for the treatment.[2] Local anesthetic and steroid injections for the PS can be used in diagnosis and treatment. However, Mısıroğlu et al.[20] reported that the addition of CS to LA did not provide an additional benefit. Botulinum toxin injections are used to achieve long-term muscle relaxation.[21] Surgical intervention, including tenotomy of the PM tendon and sciatic nerve decompression, should be considered only in cases that are refractory to other treatments.[22]

Although few foot drop cases that arising from PS presenting with the gluteal pain and radiating tight pain were reported,[8, 9] PS presenting with peroneal nerve neuropathy symptoms has not been reported yet.

Conclusion

In conclusion, PS is a syndrome that must be considered in the differential diagnosis in patients with gluteal region pain and sciatica, as well as in patients with peroneal neuropathy. Ultrasound-guided injection is very important and useful for diagnosis and treatment.

Disclosures

Informed consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

Authorship Contributions: Concept – İ.A., G.G.G.; Design –İ.A., D.B., G.G.G.; Supervision – İ.A., F.Ü.Ö.; Materials – İ.A., F.Ü.Ö., G.G.G.; Data collection &/or processing – G.G.G., D.B.; Analysis and/or interpretation – İ.A., F.Ü.Ö.; Literature search – G.G.G.; Writing – G.G.G., D.B.; Critical review – İ.A., F.Ü.Ö.

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