Case Report

A rare cause of a piriformis syndrome

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Abstract. Background and objective: A less common but important cause of buttock and leg pain known as “Piriformis Syndrome”. Piriformis syndrome is all intrinsic pathology of the piriformis itself, such as myofascial pain, anatomical variations, hypertrophy, and myositis ossificans or it is caused by trauma to the pelvis or buttock. In this case report we are going to present a rare cause of piriformis syndrome.

Case report: Our first case was a 32 year old woman. She was referred to our pain clinic for leg pain that radiates from buttock to backside of the knee for 5 years. She did not have any problems in her history or laboratory findings. But in her lower extremity ortho roentgenogram, her leg was 2 cm short at the effected side. Second case was a 23 year old woman who had pain radiating from gluteal region to backside of the knee. In her history she had a car accident two years ago. In this accident, she had a fracture of collum femoris, and her leg was 1 cm short at the effected side.

Conclusion: We conclude that “short leg” is one of the rare causes of piriformis syndrome and can be seen alone or with the other causes. The injection on piriformis muscle could be more effective for the patients who have PS after the “short leg” treated.

Keywords: Piriformis syndrome, short leg, injection

1. Introduction

A less common but important cause of buttock and leg pain may result from anatomic abnormalities of the piriformis muscle or nerve irritation by the piriformis muscle, known as “Piriformis Syndrome” (PS) [3]. In 1947 Robinson introduced the term PS by describing six characteristics: 1) trauma 2) pain in the muscle, with sciatica and difficulty walking 3) worsening with squatting or lifting 4) a sausage-like mass within the muscle 5) positive Lasèque sign 6) gluteal atrophy [9, 23]. Many of these diagnostic criteria have been disputed since that time, and today PS is typically characterized as a syndrome consisting of isolated sciatic pain limited to the buttock with radiation down the thigh, with no sensory deficits, and for which no other discernable cause can be found, and has frequently been described as being exacerbated by prolonged sitting and walking [18,19,24]. Primary PS is all intrinsic pathology of the piriformis itself, such as myofascial pain, anatomical variations, hypertrophy, and myositis ossificans or it is caused by trauma to the pelvis or buttock [19,22]. Moreover, the piriformis can be spastic, inflamed [23] or it can be seen as myofascial syndrome [22] or as myositis ossificans [1]. Secondary PS includes all other etiologies such as a herniated disc, facet syndrome, trochanteric bursitis, sacroiliac joint dysfunction, endometriosis or other conditions impinging the sciatic nerve [3,18]. The location of the pain is typically imprecise, but it is often present in the hip, coccyx, buttock, groin, or distal part of the leg.

Treatment includes physical therapy combined with the use of anti-inflammatory drugs, analgesics and muscle relaxants to reduce inflammation, spasm, and pain. Patients who do not improve on a conservative regime become candidate for more aggressive therapy, such as local injection of anesthetic and corticosteroid prepa-
rations, which may reconfirm the diagnosis through therapeutic success [3,19,26].

In this case report we are going to present a rare cause of PS, “short leg”.

2. Case report

Our first case was a 32-year-old woman. She was referred to our pain clinic for leg pain that radiated from the buttock to the back side of the right knee. She did not have a history of trauma. Her Visual Numerical Rating Scale (VNRS) was 8. Pain was exacerbated by prolonged sitting and walking. In her physical examination Lasègue 60° (+), had Freiberg (+). She had tenderness in sciatic notch, and in flexion, adduction, and internal rotation (FADIR) of the hip. The result of electromyography was non-specific. A pelvic MRI showed the absence of mass lesions in pelvis and lumbar MRI showed the absence of compression on nerve roots. So, she was diagnosed as PS and scheduled for a piriformis injection.

Two weeks after the piriformis injection in her control examination, she had Lasègue (−), Freiberg (−). She did not have any pain in FADIR of the hip. Her VNRS was 0 and her medication was ceased.

Six months later, she was referred to our pain clinic with the same complaints. She had Lasègue 60° (+), Freiberg (+), and a pain in the same zone. She was again scheduled for a piriformis injection, but we also tried to diagnose the probable cause of the PS. She did not have any problems in her history or laboratory findings. However, in her lower extremity ortho roentgenogram, her leg was 2 cm short on the affected side. After the consultation with an orthopaedist, she was given a sole plate. The same procedure was performed and medication was given. Again, two weeks later, her VNRS was 0. She was called for a control examination twice in one year. She did not have any complaints at these examinations. She is still in remission four years after she began to use the sole plate.

The second case was a 23-year-old woman who had pain radiating from the gluteal region to the back side of the right knee. She was involved in a car accident two years previous. In this accident, she fractured her col-

2.1. Technique

After obtaining informed consent the patient with suspected PS is placed in the prone position. The buttock area on the affected side is widely prepped and draped in a sterile fashion. Antero-posterior view of the right hemi-pelvis and acetabular region is obtained. The most inferior aspect of the sacroiliac joint and of the most superior-lateral aspect of the right acetabulum is identified, and then a metal marker is placed on a line adjoining these two structures, about one-third of the way medial from acetabular landmark.

A 22-gauge, 10 cm insulated needle was inserted perpendicular to the piriformis muscle. At this point, the patient was asked if she was having any buttock pain and if it coincided with her usual pain.

After an affirmative response from the patient, Iohexol [2–4 ml] is injected to outline the piriformis muscle, and the spread into the belly of the piriformis muscle is seen real time via fluoroscopy (Fig. 1). Correct needle placement was confirmed with fluoroscopy. Triamcinolone 40 mg in 5–6 ml normal saline is injected. After the procedure, the patient is brought to the recovery room for one hour or until any leg numbness subsides, whichever period is longer. Parasetamol 1 g/day and klorzoksazon 750 mg/day were given to both patients as a supportive medication before and after the procedure.

3. Discussion

PS, a term first coined by Robinson [23], affects five to six percent of patients referred for the treatment of back and leg pain [8,19]. It is caused by trauma to the pelvis or buttock [17], hypertrophy of the piriformis muscle [5,10,13], anatomic abnormalities of the piriformis muscle or the sciatic nerve [5,25], piriformis inflammation [11,18,25], or piriformis myositis [6]. Some investigators consider PS to be a form of myofascial pain syndrome [22]. A history of trauma is
usually elicited in approximately 50 percent of cases of the syndrome [17]. The trauma is usually not dramatic and may occur several months before the initial symptoms. It may also follow total hip arthroplasty [21,28] and as a complication of cesarean section under spinal anesthesia [29].

The differential diagnoses of PS include the causes of low back pain and sciatica. Usually mistaken for a herniated disc, the patient with piriformis syndrome usually does not have neurologic deficits [17]. Spinal stenosis, facet syndrome, sacroiliac joint dysfunction, trochanteric bursitis, myofascial pain syndrome, pelvic tumor, endometriosis, and conditions irritating the sciatic nerve should be considered in the differential diagnoses of the syndrome.

The clinical, radiologic and neurophysiological diagnosis of PS needs special attention [4,7,11,12]. Freiberg test has been used to reveal PS. During this test, the physician performs flexion, adduction and medial rotation of the hip in the supine position. An increase in pain during this stretch test assists in the diagnosis of PS by the physician [3,4,11,18]. Also pain in straight leg raising tests, Lasègue sign, is noted as a cardinal characteristic in the earliest report of the syndrome and is noted in most patients. FADIR test was always positive in patients with PS [2]. Buttock tenderness in the region of the greater sciatic foramen is present in almost all patients [18]. There is one case report with positive scintigraphic findings in which Tc-99m administration in a patient with PS demonstrated abnormal uptake of the muscle [15]. In other case report, a patient with typical PS in whom piriformis muscle enlargement was documented by CT scan and MRI was reported [14]. The MRI findings of PS was also demonstrated in some studies [20,24]. The PS is a term in literature that commonly refers to sciatic nerve entrapment by the piriformis muscle. But there are many reports of patients with the PS but no neurologic deficits [17,27]. The symptoms are due to impingement on the proximal sciatic nerve by the piriformis muscle.

In the first case, PS was not related with trauma because no trauma history. With pelvic MRI, we determined the absence of mass lesions and with lumbosacral MRI, the absence of compression on nerve roots. The lower extremity electromyography was in normal limits. In physical examination, Lasègue 60° (+), had Freiberg (+). She had tenderness in sciatic notch and a pain with palpation at the trajectory of piriformis muscle. With these symptoms and examination findings, she was diagnosed as PS and piriformis injection was performed. After six months from the first piriformis injection, she was again referred to our pain clinic for the same pain. So, we tried to diagnose the probable other cause of the PS. In her lower extremity ortho roentgenogram, her leg was 2 cm short on the affected side. After the consultation with an orthopaedist, she was given a sole plate and piriformis injection was performed again. She was treated with this second injection which confirmed “short leg” alone is a cause of piriformis syndrome.

In the second case, PS was related with trauma. However in her lower extremity ortho roentgenogram, her leg was 1 cm short on the painful side. According to our clinic experience, “short leg” alone was a cause of PS. So, after the consultation with an orthopaedist, she was given a sole plate. Two weeks later, the piriformis injection was performed and she was treated just with first injection. Unless she was given a sole plate to treat “short leg”, her complaints could relapse and might need another injection. So, this could lead loss of time and might increase the costs. In our opinion if short leg was suspected with one of the causes of PS, piriformis injection could be performed after the short leg was treated.

4. Conclusion

We conclude that “short leg” is one of the rare causes of PS and can be seen alone or with the other causes. The injection on piriformis muscle could be more effective for the patients who have PS after the “short leg” treated.
References


