

Unusual Sciatic Pain due to Wallet Compression A Clinical Case Series and Literature Review

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Abstract

Objective: To present a case series of sciatic pain in young doctors, produced by external compression of the sciatic nerve by a wallet.

Summary of background data: Sciatic pain is a common problem in adults and it may be caused by various intraspinal or extraspinal pathologies. Disc rupture and degenerative spine disease are the most common intraspinal causes, while extraspinal etiology remains very rare.

Methods: Description of two cases with sciatic pain produced by external compression of the sciatic nerve at the gluteal region is presented, with review of the relevant literature.

Results: Complete resolution of the sciatic symptoms was achieved at 3 months following removal of the wallet from the back pocket.

Conclusions: When sciatica is the only clinical finding, especially in the young patient, extraspinal causes should be suspected, as early diagnosis could reduce suffering and discomfort of the patient and prevent unnecessary procedures and investigations.

Keywords: Sciatica; Extraspinal; Intraspinal; Wallet; Compression

Introduction

Sciatic pain secondary to nerve root compression usually presents with well-defined distal motor and sensory involvement and reflex changes. Dural mobility tests may be useful in the diagnosis of sciatica, because the dura and nerve roots are sensitive to pain [1,2]. On the other hand, in lumbosacral plexopathy, several nerve roots may be involved with a patchy distribution with no clear anatomical localization [3,4]. The most common intra-spinal cause of sciatica is disc herniation, occurring most often at the L4-5 and L5-S1 segments [5]. Low back pain can be present in most cases. When sciatica is the unique clinical finding, especially in young patients, extraspinal causes should be investigated. These usually result from pelvic pathology and can easily be missed [6]. Due to the long path of the sciatic nerve, it can be compressed by several factors at different anatomical locations. We report here two cases of sciatic pain, in young doctors, produced by external compression of the sciatic nerve by their wallets, and review the relevant literature.

Case 1

A 55-year-old cardiologist presented to the spine clinic 3 years ago, complaining of burning pain in his right buttock, shooting down the posterior aspect of his thigh. These complaints started a year before and

worsened in the last three months, especially while sitting. Conservative treatment, including non-steroidal anti-inflammatory drugs and physiotherapy gave no improvement. A CT-scan of the lumbar spine that was performed previously, did not reveal any compressing pathology of the neural elements. On examination, there was localized tenderness over the sciatic nerve in the gluteal area, no muscle weakness or atrophy were observed, straight leg raising was normal and Lasegue test was negative. Active and passive hip joint movements were normal and Patrick's test was negative.

Case 2

A 45-year-old gynecologist presented to our clinic a year ago with complains of pain at the left retro-trochanteric area, radiating to the thigh down to the popliteal area. The pain was mainly when sitting down. No treatment has been offered before, but a CT-scan has been performed, with no remarkable pathology. On examination, no abnormality was found except for localized tenderness on pressing the sciatic nerve at the gluteal area and the posterior thigh.

In both cases, a heavy wallet was noticed to be placed in the right and left back pocket of the patients, respectively, pressing on the gluteal area, especially while sitting down. Both doctors were advised to remove the wallet immediately from the back pocket, as this seemed to be the only reasonable cause for their sciatic pain. After two weeks, their symptoms improved significantly, and 3 months later, they were completely free of symptoms.

Discussion

To the best of our knowledge, our two cases of external compression of the sciatic nerve at the gluteal area by a wallet, resulting in sciatic pain, are the first cases to be reported of this mechanism. Yet, we found two "letters to the editor" containing anecdotal reports describing four cases of exogenous compression of the sciatic nerve by wallets, golf balls and handkerchiefs [7,8]. In addition, tools and cell phones in back pockets and prolonged sitting on hard surfaces, including car seats, can produce sciatica [9].

Early diagnosis in our cases could have prevented unnecessary exposure to irradiation and medical and physical therapy and shortened the period of their discomfort and suffering. The symptoms of sciatica were already described accurately by Cotugno; however, reference to sciatica was made as early as 1547 in an article by Aurelianus, "connecting Sciatica and Psoas disease" [10]. Hippocrates mentioned disease along the sciatic nerve. Also, though sciatica as such is not referred to in the Bible, mention is made of the sciatic nerve, in the account of Jacob's struggle with his unknown adversary (Genesis 32:33) [10].

Sciatic pain is a common problem and is observed in up to 40% of adults at some point in their life. It may be caused by various intraspinal or extraspinal pathologies [6,11]. Sciatica due to disc rupture and degenerative spine disease is more common than sciatica due to all non-spinal causes taken together [9]. The most common occurrence of disc prolapse is at L4-5 and L5-S1 segments [5]. The clinical diagnosis of disc herniation as the cause of sciatica should be relatively easy based on the symptoms (sciatica with or without back pain, increasing with coughing, sneezing or other forms of Valsalva maneuver, paresthesias in dermatomal distribution of the nerve root and weakness), physical signs such as antalgic scoliosis and different variations of the straight-leg-raising test [9]. The final diagnosis of disc rupture should be supported and confirmed by imaging such as CT and MRI. Additionally, these modalities have a role in exploration of the pelvic fossa when sciatic compression is suspected in those regions. Disc bulging and related minor deformities generally do not cause nerve roots compression and therefore are not an explanation of persistent sciatica [9]. The clinician should also be aware that minor abnormalities are commonly seen on MRI in patients without back pain or radicular symptoms and that disc rupture is seen in less than 1% of asymptomatic patients [12].

Extraspinal radiculopathy due to lumbosacral plexus (LSP) pathology is extremely rare [11] and can result in lower extremity pain, sensory disturbance and weakness. The pain pattern and accompanying symptoms are the major factors suggesting a non-discogenic etiology of sciatica [13]. The origin of LSP pathologies can be neurogenic or related to neighboring tissues, such as neoplastic (neurogenic and non-neurogenic tumors), trauma, infections, gynecological pathologies and others [13].

Piriformis syndrome and gynecological conditions account for most cases of extralumbal sciatica [14-17]. The term "piriformis syndrome" was first introduced by Robinson in 1947. Its incidence among patients with LBP has been reported to be 5%-36% [18,19]. The etiologies of this syndrome include muscular hypertrophy, myositis ossificans, muscular fibrosis, hematoma secondary to traumatic injury, sciatic nerve anatomical abnormalities or vigorous physical activity [13]. In this syndrome, the patient complains of sciatic pain without evidence of disc rupture, prominent pain and localized tenderness over the

piriformis muscle, aggravated by passive hip movement in flexion, abduction and internal rotation [20].

Al-Khodairy et al. in their review article on sciatica in the female patient, found that endometriosis was the commonest gynecological or obstetrical disorders to cause sciatica or leg pain, followed by pregnancy and labor related sciatica, fibroids, sacral osteophytes, endosalpingiosis, vaginal needle interventions, pelvic metastasis, piriformis sciatica, adenomyosis, intra uterine device, hematocolpos, tuboovarian abscess and retroverted uterus [1]. They also postulated that some pregnant patients might have sacral stress fractures known to produce sciatica or symptoms mimicking sciatica. Sciatic pain could be associated with the gluteal compartment syndrome, commonly associated with sciatic nerve compression that usually results from prolonged immobility without frequent repositioning and can be encountered with short procedures in the lithotomy position [21,22].

Traumatic pathologies may result in sciatic nerve injury causing sciatic pain. Most commonly, post-traumatic LSP occur in conjunction with severe bone fractures, especially of the pelvic girdle, the acetabulum and the SIJ [13], hip fracture dislocations, hip surgery, hematoma and injections [23]. Sciatic nerve injury may also occur following proximal hamstrings injuries/avulsions, especially in athletes. Edema, inflammation and hematoma formed around the affected tendon may potentially compress the adjacent sciatic nerve [24,25]. The main symptom of PHT is pain in the lower gluteal region, sometimes radiating along the hamstrings to the posterior thigh [13]. A case of sciatica, which was developed as a complication of post-traumatic pelvic heterotopic ossification was reported by Panagiotopoulos et al. The sciatic nerve was found to be bluish, distorted and compressed in an hourglass fashion around a heterotopic bone mass [6]. In addition, injury of the sciatic nerve after yoga meditation is a known entity, called "lotus neuropathy" [26,27].

In cases with pain at the gluteal area or posterior hip pain, ischial bursitis, referred pain from the lumbar spine, SI joint dysfunction, hip extensor or rotator muscle pain, proximal hamstrings rupture, early arthritis and piriformis syndrome, should always be on the differential diagnosis. Posterior hip pain is the least common type of hip pain and is typically caused by extra-articular conditions [28-32]. A tense, irritated obturator internus muscle tendon should be considered as a possible source of sciatic nerve impingement with radiating pain and should be considered as a differential diagnosis for sciatica if the patient reveals normal radiographic and clinical examination results directed towards the spine and hip joint [33].

The sciatic nerve can be involved in infectious disease as well. Iliopsoas, pelvic abscesses and gluteal abscesses are the principle causes of sciatic nerve infection and sciatica. Gluteal abscesses are occasionally encountered owing to infected hematoma and intramuscular injections [13].

Moraes et al. reported a rare case of osteochondroma of the ischium, which evolved with compression of the sciatic nerve, thus causing sciatic pain [24]. "Toilet seat" sciatic neuropathy as a complication of gluteal compartment syndrome has been reported in alcoholic intoxicated people falling asleep on a toilet seat [34]. Mert et al. reported a case of sciatic nerve compression by an extrapelvic cyst secondary to wear debris after a cementless total hip arthroplasty [35]. Another rare case of sciatic neuropathy as the first sign of metastasizing prostate cancer was reported by Hansen et al. [36].

Conclusions

When sciatica is the unique clinical finding, especially in the young patient, extraspinal causes should be investigated. These usually result from pelvic pathology and can easily be missed [6]. The awareness of the physician and the consideration of the differential diagnosis in these cases can result in early diagnosis and treatment, reducing the suffering and discomfort of the patients, preventing unnecessary procedures and investigations and avoiding exposure to irradiation.

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