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DOI: 10.46903/gjms/22.04.1572

CASE REPORT

SAPHENOUS NEUROPATHY WITH ASSOCIATED TARSAL TUNNEL SYNDROME: A CASE REPORT FROM SAUDI ARABIA

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ABSTRACT

The lower limb's peripheral nerves can become trapped at different places of their anatomical courses. The foundation of diagnosis is comprised of nerve conduction testing and clinical evaluation. The current case of saphenous nerve entrapment in an adductor canal associated with tarsal tunnel syndrome highlighted that medial knee pain is frequently misdiagnosed as saphenous nerve entrapment because the vastoadductor membrane is often not well-studied. Diagnostic delay usually results from the inability to directly identify the entrapment until after surgical decompression is done. This case study describes the effective diagnosis and non-invasive treatment of an adult male patient's with spontaneous nerve entrapments. A rehabilitation exercise program and physiotherapy can help the patient overcome the knee pain due to SN entrapment.

KEY WORDS: Entrapment of the saphenous nerve at the adductor canal; Vastoadductor Membrane; Pain; Tarsal Tunnel Syndrome.

Cite as: Alrowaili MQ. Saphenous neuropathy with associated tarsal tunnel syndrome: a case report from Saudi Arabia [case report]. Gomal J Med Sci 2024 Oct-Dec ;22(4):396-8. https://doi.org/1046903/gjms/22.04.1572

INTRODUCTION

The vast majority of the time, knee pain is unrelated to saphenous nerve entrapment. Its clinical appearance, which can mimic more frequent causes of knee discomfort, may make it challenging to diagnose or accurately notice.[1] Most typically, the nerve becomes imprisoned when it leaves the adductor canal via the vastoadductor membrane. In this instance, a case of a male patient with spontaneous saphenous nerve entrapment was successfully treated using the Myofascial Release Technique in addition to rehabilitative therapy is presented here.[2,3] The close proximity of saphenous nerve entrapment affecting the infrapatellar branch to several other knee structures makes diagnosis challenging. Numerous conditions, such as medial meniscus tear, plica disorders of the knee, patellofemoral syndrome and lumber radiculopathy are imitated by entrapment of SN.[1-5] Tarsal tunnel syndrome, sometimes called posterior tibial nerve neuralgia or tibial nerve dysfunction, is a type of entrapment neuropathy caused by compression of the tarsal tunnel's internal tissues. While far less prevalent, it is comparable to carpal tunnel syndrome of the wrist. The medial and lateral plantar nerves are formed by the posterior tibial nerve prior to their bifurcation in the tarsal tunnel. The lateral plantar nerve supplies sensory innervation to the medial calcaneus and lateral heel. The posteromedial heel receives sensory innervation from the medial calcaneal nerve, which normally arises from the posterior tibial nerve proximal to the tarsal tunnel. A tarsal tunnel patient's prognosis varies. Patients who are recognized early in the disease course and have an identifiable etiology typically have a successful outcome. The clinical diagnosis of tarsal tunnel syndrome is challenging and uncommon as was in our case reported here. Thus, orthopedic specialists are the most qualified to handle these cases. The need for surgical intervention may arise from the etiology.

The diagnosis of nerve entrapments has been the subject of debate in the literature.[6] Diagnostic corticosteroid or anesthetic injections, together with nerve conduction testing, have been discussed in the literature as ways to identify such conditions.[7-9] Furthermore, as of right now, there is not much data available on the validity or precision of diagnostic procedures in the event of entrapment of lower limb nerves. A study has also addressed the use of diagnostic ultrasonography and MRI in such cases.[10] Most of these diagnostic tests have time and budget limitations. In this report, we would like to call attention to an uncommon case of entrapment of SN at the adductor canal associated with a tarsal tunnel syndrome.

Case Report

A 45-years old male presented with sporadic and progressive stabbing pain in the right knee since two years. It was centered anteriorly and medially and was accompanied by numbness beneath and medially above the patella**.** The pain

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Date Submitted: 14-01-2024
Date Revised: 29-08-2024
Date Accepted: 14-09-2024

was 4 on the visual analog scale (VAS: 0-10), and flexion of the knee when more than 90 degree exacerbated the pain associated with infrequent numbness and tingling in the right foot mainly in the medial aspect. The pain started gradually, even though there was no history of trauma, surgery, or past history of pain in the right knee. The examination of both hips was normal, and the Trendelenburg's sign was negative.

There were no visible symptoms of bruising, edema in the foot, or venous stasis on examination of the right knee or lower extremities. Tenderness were palpable when the thigh's medial aspect was touched, about 10 centimeters away from the medial epicondyle. There was no evidence of a motor deficiency found during the neurological examination of the lower extremities on the left or right. Sensory nerve conduction study of right saphenous and medial and lateral plantar nerves showed a delay in latencies.

Both the active and passive ranges of motion of the right knee were fully extended without any pain and no signs of bone or ligamentous ailments were observed. The magnetic resonance imaging shows no abnormality and nerve conductive study consistent with right saphenous entrapment neuropathy with mild to moderate tarsal tunnel syndrome. In our case conservative management was prescribed consisted of myofascial release therapy of the saphenous nerve from its entrapment. The patient in our case study after two weeks reported a decrease in pain intensity of no more than two out of ten on the VAS scale, and discomfort subsided after four weeks of physiotherapy. After six months of follow-up exercises, the patient's remission of symptoms persisted without any pain or paresthesia returning. The patient was still symptom-free at the 6-month follow-up, with an absence of discomfort or unusual sensations.

DISCUSSIONS

A complete history and physical examination should be part of a clinical evaluation for those who may have saphenous nerve entrapment. The most common complaints made by patients during a medical history review include pain in the medial knee and/or leg[11] and possible saphenous nerve injuries from physical trauma or past surgical treatments.[12.13] Pain in patients with saphenous nerve entrapment has been found to be distributed as follows: 90% at the knee, 7% at the thigh, and 3% in the calf. It can occur even at night.[14] In the absence of motor weakness, a physical examination at the site of the lesion may show signs of dysesthesia or hypoesthesia as well as a positive Tinel's test result.[15] Along with resistant hip adduction or flexion[15,16] and pain, upon examination at the adductor canal exhibits pain during walking. Neural tension along the saphenous nerve may also be increased, resulting in pain when prone hip extension (reversed Lasegue's sign) occurs.[16]

After a clinical diagnosis of saphenous nerve entrapment, additional investigations, such as nerve conduction studies or advanced imaging, may be required. Saphenous nerve entrapment was diagnosed only after a thorough follow-up clinical examination in cases where adductor canal injuries were apparent.[17-20]

The most common treatments for saphenous nerve entrapments that have been reported in the literature are excision of any fibrous tissue around the nerve (surgically) and corticosteroid injection.[21,22] As per earlier literature, the approach to treating entrapment involves utilizing nerve gliding, manipulating joints, soft tissue procedures, and employing exercises to address joint dyskinesis.[15,16] Understanding saphenous nerve entrapments into an adductor canal has been rendered possible by this case report. The available literature on conservative treatment techniques for nerve entrapments limit understanding about its actual effectiveness on a patient's recovery. Therefore, caution should be exercised when choosing conservative treatment techniques.[16]

Because the vastoadductor membrane is not well documented, entrapment of the saphenous nerve is a widely overlooked cause of medial knee pain, which often results in incorrect diagnoses.[11] Diagnosis is often delayed because direct identification of the entrapment usually happens only following surgical decompression. This case report describes our non-invasive diagnosis and successful treatment of an adult male patient's spontaneous saphenous nerve entrapment. A rehabilitation exercise program and physiotherapy helped the patient feel less subjectively pained.

It is still difficult to determine which patients will benefit more from conservative versus surgical treatment for tarsal tunnel syndrome, and diagnostic uncertainty makes care difficult.

Some individuals may benefit from conservative treatment; nevertheless, physical therapy[22], shoe modifications, and activity reduction are crucial. Patients who have a compressive lesion might benefit from surgery.[13] Depending on the cause of tarsal tunnel syndrome, different conservative treatments have different degrees of efficacy. Reducing tissue stress, discomfort, and inflammation is the main aim in such patients.

Patients with tarsal tunnel syndrome have a cautious prognosis generally. Remissions and relapses are frequent, and some individuals never fully recover from their symptoms.

The pathology's natural history, prognosis, and diagnosis should be further investigated in primary care settings due to its diagnostic challenges. Reducing diagnostic problems may be possible by carefully using nerve tensioning, nerve course palpation, and palpation during neural tensioning. [23] Further study on the application of these approaches should be conducted as they might give clinicians a valuable clinical tool for the timely finding and treatment of saphenous nerve entrapment and tarsal tunnel syndrome.

CONCLUSIONS

In our case study, an adult male patient's spontaneous saphenous nerve entrapment along with tarsal tunnel syndrome was successfully identified and non-invasively treated. The patient experienced relief from subjective pain through a physiotherapy and rehabilitative exercise regimen. More knowledge about the diagnostic approach to different nerve entrapments may open the door to new discoveries about this infrequently documented condition.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
GRANT SUPPORT AND FINANCIAL DISCLOSURE
None declared.