



Pruritus: An Overlooked Symptom of Spinal Tumors

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Case Report

History

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ABSTRACT

A 65-year-old female patient, with no known diseases and no regular medication usage, presented with a complaint of itching that had been ongoing for the past two years. Itching initially started in approximately five cm areas on the bilateral below-knee flexor surfaces. The patient, whose complaints persisted, was referred to the internal medicine outpatient clinic by dermatology. On physical examination, erythematous excoriated papules were observed in the areas affected by itching. The patient's blood sugar, liver and kidney function tests, complete blood count, erythrocyte sedimentation rate, thyroid function tests, urinalysis, stool parasitology were all normal or negative. The patient reported a sensation of coldness in the same area, was referred to neurosurgery to investigate the etiology of possible neuropathic itching. The patient's spinal imaging, revealed a spinal mass. She underwent surgery performed by a neurosurgeon, during which the spinal mass was completely removed. She reported that her itching had completely disappeared post-operatively. The concept of itching as a variant of pain is not very new. Any damage occurring in the central nervous system or peripheral nervous system that affects the neurons responsible for transmitting and processing itch can lead to neuropathic itching. Focusing on spinal cord pathologies, any condition that damages the spinal cord may cause itching, depending on the level of damage. In cases of itching with dermatomal localization, where pain, hot or cold sensations, and paroxysmal itching are present, additional imaging methods or investigations for etiology should be performed.

Keywords: pruritus, neuropathic, spinal tumor, itching

Kaşıntı: Spinal Tümörlerin Gözden Kaçan Bir Belirtisi

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ÖZET

Bilinen herhangi bir hastalığı olmayan ve düzenli ilaç kullanımı olmayan 65 yaşında kadın hasta, iki yıldır devam eden kaşıntı şikayeti ile başvurdu. Kaşıntı başlangıçta iki taraflı diz altı fleksör yüzeylerinde yaklaşık beş santimetrelilik alanda başlamıştı. Fizik muayenede kaşıntının olduğu bölgelerde eritematöz ekskoriye papüller görüldü. Hastanın kan şekeri, karaciğer ve böbrek fonksiyon testleri, tam kan sayımı, eritrosit sedimentasyon hızı, tiroid fonksiyon testleri, idrar tahlili, dışkı parazitolojisi normal idi. Aynı bölgede soğukluk hissi bildiren hasta, olası nöropatik kaşıntının etiyolojisinin araştırılması için beyin cerrahisine yönlendirildi. Hastanın görüntülemesinde spinal tümör saptandı. Beyin cerrahisi tarafından gerçekleştirilen ameliyatta omurga kitlesi çıkarıldı ve hasta, ameliyat sonrası kaşıntılarının tamamen kaybolduğunu bildirdi. Ağrının bir çeşidi olarak kaşıntı kavramı çok yeni olmamakla birlikte, merkezi veya periferik sinir sisteminde meydana gelen ve kaşıntının işlenmesinden sorumlu nöronları etkileyen herhangi bir hasar, nöropatik kaşıntıya yol açabilir. Omurilik patolojilerine odaklanacak olursak, spinal korda zarar veren herhangi bir durum, hasarın derecesine bağlı olarak kaşıntıya neden olabilir. Ağrı, sıcak veya soğuk hissi, paroksizmal kaşıntının olduğu dermatomal kaşıntı durumlarında ek görüntüleme yöntemleri veya etiyolojiye yönelik araştırmalar yapılmalıdır.

Anahtar Kelimeler: pruritus, nöropatik, spinal tümör, kaşıntı

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Introduction

In the 17th century, Samuel Hafenreffer defined itch as "an unpleasant sensation that arouses the desire or reflex to scratch." Chronic itch is often associated with pain due to its complex nature.¹ Severe itching is a rare symptom that can occur during the course of various diseases, and its mechanism and treatment are not yet fully understood. It can manifest directly in primary dermatological conditions such as dermatitis, psoriasis, drug reactions, and insect bites, or secondarily in systemic diseases such as cholestasis, uremia, malignancies, and infections.

The difference between chronic itching and pain lies in the perception they create. Pain induces avoidance, whereas itching is relieved by mechanical stimulation of the affected area.² Neuropathic pruritus is defined as a debilitating form of chronic itching, about which not much is known to date. This condition may develop as a result of various neurological events and is associated with damage to the somatosensory nervous system, accounting for approximately 10% of chronic itching cases.³ Syringomyelia, transverse myelitis, radiculopathies, thoracic spine masses, brain tumors, strokes, and abscesses are among the conditions associated with neuropathic itching to date.⁴ Other findings that suggest the itching seen in these conditions is of neurogenic origin include burning and stinging pains accompanied by persistent itching, sensations of wetness, electric shocks, numbness, tingling, and a severe cold sensation.⁵

Neuropathic pruritus, associated with spinal cord problems and known as the "ice-pack sign," has been described in the literature. Patients report relief by placing ice blocks on the affected areas. This condition is generally observed in the upper back, neck, and, rarely, the upper chest regions.⁶

In this case report, we will describe the journey of a patient who had been experiencing severe itching for two years. The patient was initially referred to the internal medicine outpatient clinic for the investigation of systemic diseases, eventually diagnosed with a spinal tumor, and subsequently underwent surgery.

This report aims to contribute to the literature by emphasizing the importance of a comprehensive and multidisciplinary approach in diagnosing atypical causes of pruritus. It highlights the diagnostic challenges and the need for healthcare providers to consider rare but serious underlying conditions, such as spinal tumors, in patients with unexplained chronic itching. Additionally, it underscores the role of thorough clinical evaluation and appropriate use of diagnostic imaging in uncovering unexpected etiologies that may not be immediately apparent in routine clinical practice.

Case Report

A 65-year-old female patient, with no known diseases and no regular medication usage, presented to the dermatology clinic with a complaint of itching that had

been ongoing for the past two years and was gradually increasing in severity. The itching initially started in approximately five cm areas on the bilateral below-knee flexor surfaces and then spread to the surrounding areas. Intense scratching led to the development of excoriated papules in the affected regions. Topical corticosteroids and antihistamines were prescribed in the dermatology clinic, but these treatments elicited no response. The patient, who had no symptoms other than itching, did not have any notable features in her family history.

The patient, whose complaints persisted, was referred to the internal medicine outpatient clinic by dermatology for the investigation of possible systemic diseases. On physical examination, erythematous excoriated papules were observed in the areas affected by itching, along with post-inflammatory hypopigmented and hyperpigmented areas secondary to scratching. (see Figure 1) The patient's fasting blood sugar, aspartate aminotransferase, alanine aminotransferase, creatinine, alkaline phosphatase, complete blood count, erythrocyte sedimentation rate, thyroid function tests, urinalysis, stool parasitology, and tests for anti-HIV, HBs-Ag, anti-HBs, anti-HBc, and anti-HCV were all normal or negative. The dermatologist was contacted again, and a swab was taken from the excoriated papules for bacterial and viral cultures, but no growth was observed. A punch biopsy sample taken during follow-up showed mild hyperkeratosis and superficial keratinocyte necrosis. The pathology report indicated that the sample was compatible with excoriated dermatitis. The patient, who was no longer under follow-up by dermatology, reported a sensation of coldness and occasional electric shocks in the same area, as well as lower back pain that worsened, particularly when standing, in addition to the itching. Given these additional symptoms, the patient was referred to neurosurgery to investigate the etiology of possible neuropathic itching.



Figure 1. Erythematous excoriated papules secondary to itching.

The patient's spinal MRI, taken at the neurosurgery outpatient clinic, revealed a spinal mass (see Figure 2). The patient underwent surgery performed by a neurosurgeon, during which the spinal mass was completely removed without complications. Pathological analysis confirmed the diagnosis of meningioma. One

month after the surgery, the patient returned to the internal medicine clinic for a follow-up visit. She reported that her itching and lower back pain had completely disappeared post-operatively.

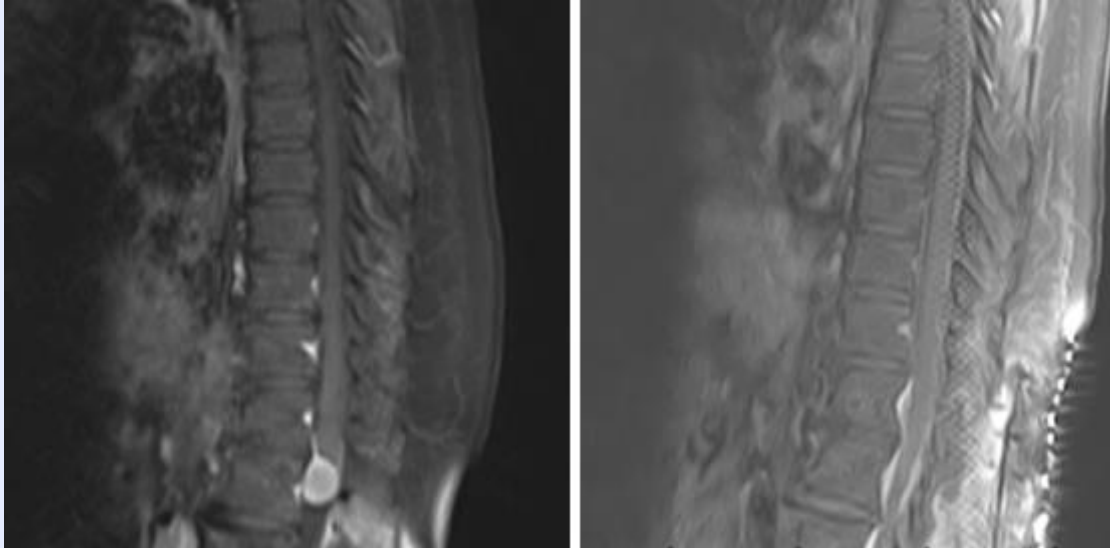


Figure 2. Preoperative and postoperative images of spinal tumor of patient.

Discussion

Explanations regarding the neural basis of itching and pain are not yet clear in the literature. It is known that the neural pathways for itch involve an itch-specific labeled line. These pathways include mechanosensitive C fibers and myelinated polymodal C fibers. Centers related to itch in the central nervous system include the somatosensory cortex, accessory somatosensory cortex, and insula.⁷ The concept of itching as a variant of pain is not very new. Any damage occurring in the central nervous system (CNS) or peripheral nervous system (PNS) that affects the neurons responsible for transmitting and processing itch can lead to neuropathic itching.⁸

In the literature, causes of neuropathic itching related to PNS involvement include herpes zoster, small fiber neuropathy, notalgia paresthetica, neuropathic anogenital itching, post-burn itching, and ganglioneuropathies. Spinal pathologies such as transverse myelitis, cavernous hemangiomas, and ependymomas are also noted. Additionally, CNS-related causes include uremic itching, neuropathic itching that develops after cerebrovascular accidents (CVA), brain abscesses, aneurysms, and various brain tumors.⁹

Among the cases of neuropathic pruritus reported so far, brachioradial pruritus has been observed to predominate. Heyl was the first to describe brachioradial

pruritus in the literature, examining 14 cases and associating this itching with cervical nerve compression.¹⁰ The first case in which brachioradial pruritus was associated with a spinal tumor was described by Kavak et al. in our country. In this case, the patient's main complaint was defined as neck pain and a burning sensation accompanied by itching in the affected area. An MRI taken following the report of burning sensations revealed a spinal mass.¹¹ Similarly, in our case, the patient experienced an electric shock sensation and lower back pain in addition to the itching. These complaints led us to suspect neuropathic itching, and spinal imaging revealed a mass. The neurosurgeon also attributed the lower back pain to dural irritation and extradural nerve root compression caused by the tumor's mass effect.

Focusing on spinal cord pathologies, any condition that damages the spinal cord may cause itching, depending on the level of damage. For instance, an intramedullary spinal tumor was detected in a 19-month-old child who complained of localized itching in the neck, shoulder, and arm, without any other complaints or diseases.¹² In another case, paroxysmal itching resulting from Chiari malformation and syringomyelia was reported in a 16-year-old woman.¹³ In cavernous hemangiomas, hemosiderin-laden macrophages can cause ectopic transmission in adjacent nerves, leading to severe itching in these lesions.² In cases of itching with dermatomal

localization, where pain, hot or cold sensations, and paroxysmal itching are present, additional imaging methods or investigations for etiology should be performed. Gliosis, tumor-induced spinal cord compression, and damage to the skin may be underlying causes of itching.

There are no specific guideline recommendations for the treatment of neuropathic itch. Diagnosis and treatment can be quite challenging for clinicians, and management should be multidisciplinary. Both pharmacological and non-pharmacological treatment methods have been suggested. Pharmacological treatments include topical glucocorticosteroids, calcineurin inhibitors, and anesthetics. Systemic treatments include anticonvulsants, opioids, antihistamines, and serotonin receptor blockers.¹² In our case, since the primary cause was a spinal mass, the patient's complaints completely disappeared after surgery.

Conclusion

Neuropathic itch is a subtle and debilitating cause of systemic itching, often unaccompanied by specific skin lesions. Many cases of neuropathic itch go undiagnosed and unreported. Clinical suspicion is crucial for diagnosis, and radiological or functional investigations may be necessary in selected cases.

List of Abbreviations

MRI: magnetic resonance imaging, **CNS:** central nervous system, **PNS:** peripheral nervous system, **CVA:** cerebrovascular accidents

Declarations

Ethics approval and consent to participate: A consent has been taken from subject regarding writing of this case report.

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