Brachioradial Pruritus: An Underrecognized Neuropathic Manifestation of Cervical Spondylosis

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Background

- Brachioradial pruritus (BRP) is a localized neuropathic itch syndrome classically affecting the dorsolateral upper extremities, often presenting with minimal primary dermatologic findings but prominent secondary excoriations and lichenification (1,3).
- Symptoms can significantly impair sleep, daily function, and quality of life(1).
- The leading hypothesis suggests a neuropathic origin related to cervical nerve root irritation or compression, with ultraviolet exposure acting as a potential exacerbating factor(2,3).
- Imaging and electrodiagnostic studies frequently demonstrate cervical spine abnormalities corresponding to symptomatic dermatomes, supporting this neuroanatomic association(3).
- Due to its overlap with dermatologic conditions such as eczema or contact dermatitis, BRP is often misdiagnosed, delaying appropriate management.

Case Description

- A 55-year-old female with chronic cervical spondylosis and seronegative spondyloarthritis presented for evaluation of persistent neuropathic pruritus of bilateral posterior upper extremities. She reported over 20 years of constant neck pain with fluctuating severity, localized to the base of the neck with occasional occipital involvement. She denied any preceding acute injury.
- An MRI of her cervical spine revealed multilevel cervical spondylosis and moderate bilateral foraminal narrowing at the C4-C5, C5-C6, C6-C7 levels. On physical exam, motor strength was graded as 5/5 in both upper and lower extremities. Sensation to light touch was intact. Reflexes were unremarkable, and Hoffman's test was negative.
- Over the past 7 years, she developed flares of a pruritic rash, initially over the left upper arm and later involving both arms, primarily between the shoulder and elbow with occasional extension to the forearm (Figure 1). Pruritus has been severe, disturbing sleep, and typically preceding a scaly rash. Excoriations and scars from scratching are present, especially at night.
- Topical steroids and antihistamines have been ineffective, while nighttime ice and topical menthol provide only partial relief.
- Dermatology evaluation with biopsy revealed nonspecific inflammation; an initial diagnosis of eczema was later revised to brachioradial pruritus. Her flares typically last 1-2 months.
- She takes pregabalin 100mg nightly which provides significant relief; with attempts to taper below 50mg resulting in recurrence of the rash. Nonsteroidal anti-inflammatory drugs had also provided moderate relief to her musculoskeletal pains but were limited by gastrointestinal intolerance.

Brachioradial Pruritus remains underdiagnosed due to its frequent misclassification as a primary dermatologic condition



Figure 1: Scaly rash initially localized to the left upper extremity, with extension of the rash to the left forearm

Discussion

- This patient experienced years of symptoms before the diagnosis of brachioradial pruritus was attained. The initial diagnosis of eczema and nonspecific biopsy findings illustrate how BRP can be misinterpreted as a primary dermatologic condition. The patient's MRI-demonstrated multilevel cervical spondylosis and foraminal narrowing, together with the dermatomal distribution of symptoms, support the growing evidence implicating cervical nerve root pathology in BRP.
- BRP is primarily a clinical diagnosis. However, cervical imaging should be considered when symptoms are chronic, treatment-resistant, associated with neck pain or neurologic symptoms, or when cervical pathology is suspected. The absence of primary lesions, the neuropathic quality of symptoms, and the characteristic response to cooling (the "ice pack sign") help distinguish BRP from inflammatory dermatoses(4).
- Given BRP's neuropathic features and poor response to antihistamines or topical steroids, neuromodulators are often used. Pregabalin provided substantial symptom relief, consistent with published systematic review data supporting gabapentinoids and tricyclic antidepressants as first-line pharmacologic therapy(5). Gradual tapering is recommended to minimize symptom recurrence, with the pace individualized through shared decision-making(6). Emerging evidence also suggests benefit from cervical epidural steroid injections in refractory cases(7).

Conclusion

- Brachioradial pruritus is a reminder that persistent pruritus may be a neuropathic complaint warranting neuromuscular evaluation. This case serves to add to the growing body of evidence bringing focus to a potentially debilitating condition and should guide PM&R and pain management physicians in identifying coexisting cervical radicular features, coordinating targeted evaluation, and implementing rehabilitation strategies alongside dermatologic management.

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