

CASE REPORTS

Brachioradial Pruritus as a Symptom of Cervical Radiculopathy

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Abstract. Brachioradial pruritus is characterized by the presence of pruritus on the lateral aspect of the arms. The etiology of this enigmatic entity is the subject of some debate —some authors claim that brachioradial pruritus is a photodermatosis whereas others attribute it to the presence of underlying cervical radiculopathy. In these case reports, we present our experience with brachioradial pruritus and discuss the role of underlying neuropathy in its etiology and that of other types of localized pruritus such as notalgia paresthetica, anogenital pruritus, and burning mouth syndrome.

Key words: brachioradial pruritus, gabapentin, cervical radiculopathy.

PRURITO BRAQUIORRADIAL COMO SÍNTOMA DE RADICULOPATÍA CERVICAL

Resumen. El prurito braquiorradial (PBR) se caracteriza por la presencia de prurito localizado en la cara lateral de los brazos. Se trata de una entidad enigmática con una etiología controvertida; mientras que algunos autores consideran el PBR como una fotodermatosis, otros atribuyen su aparición a la presencia de una radiculopatía cervical subyacente.

En este artículo se presenta nuestra experiencia con esta entidad y se discute el papel de una neuropatía subyacente en la etiología de este y otros pruritos localizados como la notalgia parestésica, el prurito anogenital o el síndrome de la boca ardiente.

Palabras clave: prurito braquiorradial, gabapentina, radiculopatía cervical.

Introduction

Brachioradial pruritus is a rare condition characterized by persistent pruritus on the lateral aspects of the arms. The condition was first described by Waisman¹ in 1968 in workers from tropical countries who had been exposed to excessive sunlight, hence its classification as a photodermatosis for years.^{2,3} Since Heyl⁴ first suggested that brachioradial pruritus might be caused by nerve root compression in the cervical segments C5-C8 in 1983, there have been many reports of the condition in association with degenerative disease, trauma, and intramedullary spinal cord tumors.⁵⁻⁷ Whether brachioradial pruritus is a photodermatosis, the result of cervical neuropathy, or a combination of both is still the subject of debate.

We describe our experience with 4 patients with brachioradial pruritus in 2005 and discuss other types of localized pruritus that appear as a manifestation of vertebral nerve root compression.

Case Descriptions

Case 1

A 53-year-old woman presented with a 2-year history of pruritus on the lateral aspect of both arms. The condition worsened in the summer and when exposed to heat and improved with the application of ice. Noteworthy in the patient's history was rheumatoid arthritis, arterial hypertension, osteoporosis, and use of antidepressants.

Skin examination revealed lesions caused by scratching of the affected areas; the lesions included excoriations and postinflammatory hypopigmented macules (Figure).

Nuclear magnetic resonance (NMR) imaging showed considerable degenerative changes in the vertebral discs, marginal osteophytes in segments C3-C4, C5-C6, and C6-C7, diffuse enlargement in the corresponding intervertebral discs, and bilateral foraminal involvement in segments C5-C6.

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Manuscript accepted for publication August 31, 2007.

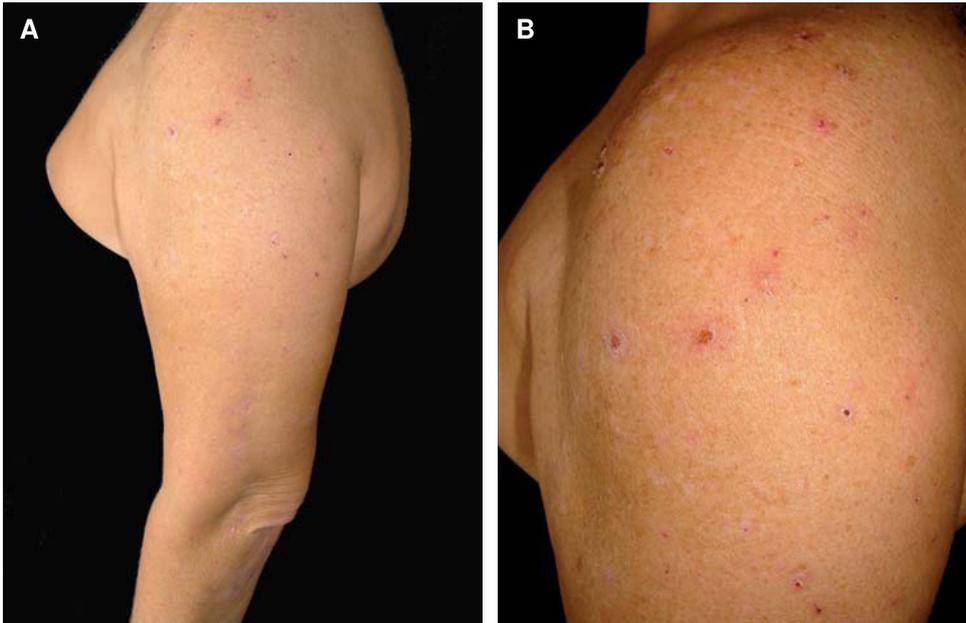


Figure. Patient 1.
A, lesions on the lateral aspect of both arms caused by scratching.
B, close-up of lesions.

Brachioradial pruritus was diagnosed and the patient was started on gabapentin, which succeeded in improving the symptoms at a maintenance dose of 800 mg/d divided into 3 doses a day. Previous treatments including topical corticosteroids, tacrolimus, pimecrolimus, pramoxine, sunscreens, and capsaicin, and systemic corticosteroids, doxepin, and antihistamines had all been ineffective.

After 6 months of treatment with gabapentin, the pruritus started to return gradually and it was decided to withdraw this drug and replace it first with pregabalin (maximum dose, 600 mg/d divided into 3 doses), which was ineffective, and then with oxcarbazepine (maximum dose, 1800 mg/d, divided into 3 doses), which yielded a partial response.

Case 2

A 38-year-old woman presented with pruritus on the lateral aspect of both arms that had started 3 months earlier. The itching had appeared at the beginning of the summer, as had occurred the previous year. Noteworthy in her history was systemic lupus erythematosus, hepatitis B virus infection, and a kidney transplant.

No skin lesions were observed in the affected areas during the skin examination. The patient was prescribed treatment with topical sunscreen and gabapentin (300 mg/8h) and responded well within a few weeks.

Appropriate imaging studies were requested but the patient did not attend.

Case 3

A 46-year-old woman presented with a 1-year history of pruritus in the upper and lateral aspects of both arms that improved with the application of ice. Her medical history was remarkable for rheumatoid arthritis.

Skin examination revealed lesions caused by scratching in the affected areas. NMR imaging of the cervical area showed evidence of cervical arthrosis with foraminal compression, posterior disc protrusion at C3-C4, a left posterior paramedian disc herniation at C4-C5, mild posterior disc protrusion at C5-C6, and a right posterior paramedian disc herniation at C6-C7.

Given the suspicion of brachioradial pruritus, the patient was started on gabapentin (300 mg/8h) and responded well. She has continued to take this maintenance dose and has remained free of symptoms to date.

Case 4

A 59-year-old woman presented with a 10-year history of pain and pruritus on the lateral aspect of the left arm. Her medical history was significant for osteoporosis, chronic hepatitis C virus infection, and chronic anxiety. Ten years earlier, NMR imaging of the cervical region had revealed disc herniation at C5-C6.

Skin examination revealed excoriations and residual scarring on the lateral aspect of the left arm.

Treatment was initiated with gabapentin (300 mg/8h) and pruritus improved within a few days. The patient has continued to take this maintenance dose and has remained free of symptoms to date.

Discussion

Brachioradial pruritus may or may not present with skin lesions caused by scratching on 1 or both of the lateral aspects of the arms, in addition to changes due to chronic photoaging in affected areas. Patients without visible lesions risk being labeled neurotic and prescribed antidepressants. Indeed, half of the patients in our series were taking medication for depression.

The etiology of brachioradial pruritus has been greatly disputed.⁸ Initially, it was thought to be caused by exposure to sunlight, hence the terms solar pruritus and summer brachioradial pruritus. Supporting this theory was the fact that symptoms appeared or got worse in summer and that the condition mostly affected patients living in tropical countries whose jobs involved considerable exposure to sunlight. Brachioradial pruritus, however, does not occur in children (in whom photosensitive dermatoses are very common) and it never affects the face. Furthermore, the effectiveness of sunscreens and similar protective treatments is variable.

Brachioradial pruritus was subsequently described in patients with cervical radiculopathy, mainly affecting C5-C6, secondary to vertebral or spinal cord disease. In one particular series, an association between brachioradial pruritus and cervical spine disease was confirmed in 57% of patients.⁶ This theory, however, does not explain why the condition appears or gets worse in summer. Furthermore, the location of the pruritus is not consistent with C5-C6 dermatomes, but this could have several explanations: multiple vertebrae and hence multiple nerve roots may be involved; dermatomes can have overlapping innervation; and a nerve root can innervate more than one dermatome simultaneously.

In a study by Wallengren et al,⁹ biopsies of affected and healthy skin performed during the summer and symptom-free periods in patients with brachioradial pruritus and controls revealed a decrease in cutaneous innervation in affected skin in summer, with normalization during remission. On the basis of their findings, they suggested that sun exposure might be a triggering factor and cervical spine disease a predisposing factor. Like other authors, we also believe that cervical spine compression and prolonged sun exposure must occur simultaneously for brachioradial pruritus to develop.⁸ The exposure threshold above which symptoms appear, however, is highly variable and probably depends on factors that are still unknown.

Brachioradial pruritus is not the only condition featuring localized pruritus for which an underlying neuropathogenic

mechanism has been suggested. Several studies of patients with notalgia paresthetica, a condition involving unilateral pruritus in the shoulder blade area, have shown the presence of spinal nerve root compression in a considerable percentage of patients (61%).¹⁰ More recently, Cohen et al¹¹ reported that 80% of patients with anogenital pruritus had lumbosacral radiculopathy and suggested that symptoms could be treated with paravertebral blockade. Finally, trigeminal small-fiber sensory neuropathy has been demonstrated in patients with glossodynia (burning mouth syndrome), which is characterized by a burning or tingling sensation in the oral mucosa, tongue, or lips.^{12,13}

Treatment outcomes are often disappointing in brachioradial pruritus. Until the underlying pathogenic mechanisms are fully elucidated, it would seem wise to continue to prescribe topical sunscreens as a protective measure. Oral antihistamines and topical corticosteroids tend to be completely ineffective. Although good results have been obtained with topical capsaicin, the role of this substance P antagonist has been strongly debated as it showed no beneficial effect compared to placebo in 2 randomized controlled trials.^{14,15} One of the most common treatments for brachioradial pruritus and other types of localized pruritus in which nerve compression is suspected is gabapentin, an antiepileptic drug widely used to treat neuropathic pain with good results.¹⁶⁻¹⁸ The effectiveness of other newer antiepileptic drugs such as pregabalin and oxcarbazepine is much less clear, although there have been isolated reports of satisfactory results.¹⁹ Good results have also been described for acupuncture²⁰ and cervical spine manipulation.²¹

Two of our patients reported relief following the application of ice. This positive response to cold, referred to in the literature as the ice-pack sign, is considered to be highly suggestive of brachioradial pruritus.²² The effectiveness of ice is believed to be due to the involvement of heat receptors, hence the worsening of symptoms with heat and relief with cold.

At least 3 of our patients had spinal cord disease and another 3 showed clear improvement with gabapentin, suggesting, at least in our setting, that the presence of underlying cervical radiculopathy should be ruled out in all patients with brachioradial pruritus.

Conflicts of Interest

The authors declare no conflicts of interest.

References

1. Waisman M. Solar pruritus of the elbows (brachioradial summer pruritus). *Arch Dermatol.* 1968;98:481-5.
2. Walcyk PJ, Elpern DJ. Brachioradial pruritus: a tropical dermatopathy. *Br J Dermatol.* 1986;115:177-80.

3. Wallengren J. Brachioradial pruritus: a recurrent solar dermatopathy. *J Am Acad Dermatol.* 1998;39:803-6.
4. Heyl T. Brachioradial pruritus. *Arch Dermatol.* 1983;119:115-6.
5. Cohen AD, Masalha R, Medvedovsky E, Vardy DA. Brachioradial pruritus: a symptom of neuropathy. *J Am Acad Dermatol.* 2003;48:825-8.
6. Goodkin R, Wingard E, Bernhard JD. Brachioradial pruritus: cervical spine disease and neurogenic/neuropathic [corrected] pruritus. *J Am Acad Dermatol.* 2003;48:521-4.
7. Kavak A, Dosoglu M. Can a spinal cord tumor cause brachioradial pruritus? *J Am Acad Dermatol.* 2002;46:437-40.
8. Rogers S. Brachioradial pruritus—an enigmatic entity. *Clin Exp Dermatol.* 2004;29:637-8.
9. Wallengren J, Sundler F. Brachioradial pruritus is associated with a reduction in cutaneous innervation that normalizes during the symptom-free remissions. *J Am Acad Dermatol.* 2005;52:142-5.
10. Savk O, Savk E. Investigation of spinal pathology in notalgia paresthetica. *J Am Acad Dermatol.* 2005;52:1085-7.
11. Cohen AD, Vander T, Medvendovsky E, Biton A, Naimer S, Shalev R, et al. Neuropathic scrotal pruritus: anogenital pruritus is a symptom of lumbosacral radiculopathy. *J Am Acad Dermatol.* 2005;52:61-6.
12. Lauria G, Majorana A, Borgna M, Lombardi R, Penza P, Padovani A, et al. Trigeminal small-fiber sensory neuropathy causes burning mouth syndrome. *Pain.* 2005;115:332-7.
13. Forssell H, Jaaskelainen S, Tenovuo O, Hinkka S. Sensory dysfunction in burning mouth syndrome. *Pain.* 2002;99:41-7.
14. Knight TE, Hayashi T. Solar (brachioradial) pruritus—response to capsaicin cream. *Int J Dermatol.* 1994;33:206-9.
15. Goodless DR, Eaglstein WH. Brachioradial pruritus: treatment with topical capsaicin. *J Am Acad Dermatol.* 1993;29:783-4.
16. Scheinfeld N. The role of gabapentin in treating diseases with cutaneous manifestations and pain. *Int J Dermatol.* 2003;42:491-5.
17. Winhoven SM, Coulson IH, Bottomley WW. Brachioradial pruritus: response to treatment with gabapentin. *Br J Dermatol.* 2004;150:786-7.
18. Kanitakis J. Brachioradial pruritus: report of a new case responding to gabapentin. *Eur J Dermatol.* 2006;16:311-2.
19. Savk E, Bolukbasi O, Akyol A, Karaman G. Open pilot study on oxcarbazepine for the treatment of notalgia paresthetica. *J Am Acad Dermatol.* 2001;45:630-2.
20. Stellan A. Neurogenic pruritus: an unrecognised problem? A retrospective case series of treatment by acupuncture. *Acupunct Med.* 2002;20:186-90.
21. Tait CP, Grigg E, Quirk CJ. Brachioradial pruritus and cervical spine manipulation. *Australas J Dermatol.* 1998;39:168-70.
22. Bernhard JD, Bordeaux JS. Medical pearl: the ice-pack sign in brachioradial pruritus. *J Am Acad Dermatol.* 2005;52:1073.