Notalgia Paresthetica Associated With Cervical Spinal Stenosis and Cervicothoracic Disk Disease at C4 Through C7

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The estimated time to complete this activity is 1 hour.

GOAL
To understand notalgia paresthetica (NP) to better manage patients with the condition

LEARNING OBJECTIVES
Upon completion of this activity, you will be able to:

1. Recognize the symptoms of NP.
2. Discuss the association of NP and cervical spine disease.
3. Perform thorough initial assessment of patients with NP to assess cervicothoracic involvement.

INTENDED AUDIENCE
This CME activity is designed for dermatologists and general practitioners.

CME Test and Instructions on page 82.

This article has been peer reviewed and approved by Michael Fisher, MD, Professor of Medicine, Albert Einstein College of Medicine. Review date: January 2010.

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Drs. Alai, Skinner, Nabili, Jeffes, Shahrokni, and Saemi report no conflict of interest. The authors discuss off-label use of botulinum toxin injections, carbamazepine, doxepin hydrochloride, gabapentin, oxcarbazepine, and thalidomide. Dr. Fisher reports no conflict of interest. The staff of CCME of Albert Einstein College of Medicine and *Cutis*® have no conflicts of interest with commercial interest related directly or indirectly to this educational activity.

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Notalgia paresthetica (NP) is a common refractory, sensory, neuropathic syndrome with the hallmark symptom of localized pruritus of the unilateral infrascapular back. It generally is a chronic noncurable condition with periodic remissions and exacerbations. While the dermatologic syndrome may be multifactorial in etiology, a possible association with underlying cervical spine disease should be evaluated for proper treatment. Collaborative multispecialty evaluation by

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dermatology, radiology, orthopedic surgery, and neurology may be indicated for primary management of this condition. First-line therapy for NP with associated cervical disease may include nondermatologic noninvasive treatments such as spinal manipulation, physical therapy, massage, cervical traction, cervical muscle strengthening, and oral nonsteroidal anti-inflammatory drugs and muscle relaxants. Notalgia paresthetica may in fact be a cutaneous sign of an underlying degenerative cervical spine disease. We report a case of a patient with cervical spinal stenosis that corresponded directly with the clinical findings of NP.

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Case Report

A 37-year-old right-handed woman presented with a 2-year history of intermittent bouts of recurrent itch on the right infrascapular region of the back overlying the T5-T6 dermatome. Clinical examination revealed a slightly dusky, tan to hyperpigmented, nonindurated patch of the right infrascapular back without associated sensory alternations to touch, vibration, or pinprick, consistent with notalgia paresthetica (NP) (Figure 1). Orthopedic examination confirmed decreased range of motion in the neck with associated marked bilateral cervical muscle spasm, particularly on the left side.

Magnetic resonance imaging (MRI) of the cervical and thoracic spine revealed multiple osteophytes and mild disk protrusions at C4 through C7 (Figure 2). Laboratory testing, including a full chemistry and hepatic panel, revealed a normal complete blood cell count and normal IgE levels. Test results for human immunodeficiency virus infection and *Helicobacter pylori* IgG and IgM were negative, but hepatitis B virus surface antibodies were revealed from prior vaccination. Chest radiography and computed tomography of the chest, abdomen, and pelvis did not reveal any abnormalities.

The patient's medical history was remarkable for atopy, seasonal and environmental allergies, asthma, allergy to sulfonamide, and multiple mild automobile-related whiplash injuries 15 to 20 years prior with subsequent intermittent infrascapular back and neck pain. Treatment of back and neck pain included intermittent chiropractic spinal adjustments, physical therapy, acupuncture, trigger point injection with triamcinolone acetonide, and botulinum toxin intramuscular neck injections. Failed therapies for NP included potent topical steroids, such as clobetasol propionate cream 0.05%; oral antihistamines, including hydroxyzine hydrochloride, diphenhydramine hydrochloride, and chlorpheniramine maleate; and intralesional triamcinolone acetonide injections.

Three months following initial presentation the patient developed an acute onset of a markedly pruritic, raised, 2- to 3-cm dusky plaque that arose just below the preexisting NP patch. The patient requested injectable treatment of the refractory lesion that failed to resolve after application of topical clobetasol propionate twice daily for 5 days. Intralesional triamcinolone acetonide 2.5 mg/mL (total volume 2 mL) was administered and quickly

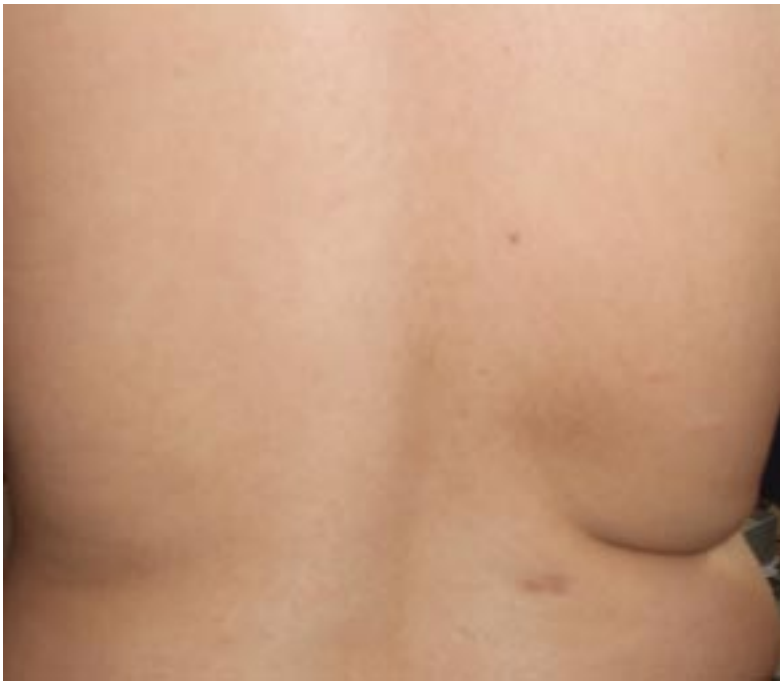

Figure 1. Mild hyperpigmentation of the right infrascapular back.

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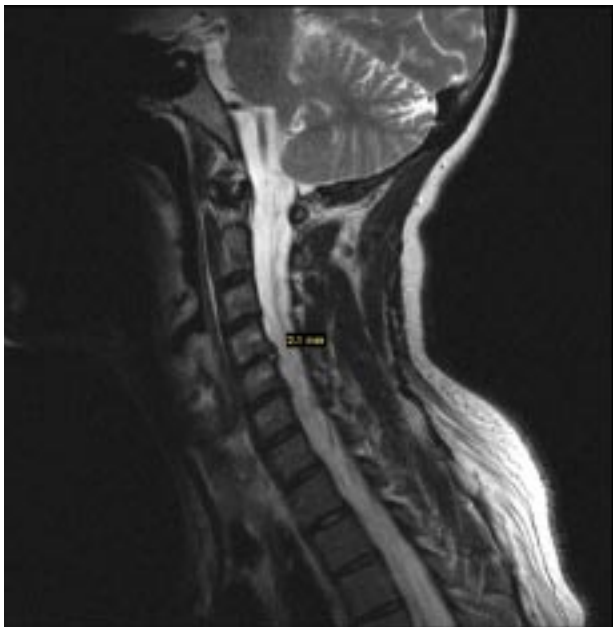

Figure 2. Magnetic resonance imaging of the cervical spine revealed multiple osteophytes and mild disk protrusions at C4 through C7.

relieved symptoms, resulting in long-standing dermal atrophy and hyperpigmentation in the treated area.

The patient logged a direct correlation of the exacerbation of cutaneous symptoms of NP with onset of cervical pain over 2 years. Spontaneous remissions were observed in hyperpigmentation and itch corresponding with a temporary decrease in infrascapular back and neck pain.

Comment

Notalgia paresthetica is a common refractory, sensory, neuropathic syndrome of the back skin, classically of the unilateral infrascapular region. It is primarily a localized pruritus syndrome. The condition was first named more than 60 years ago and described as episodic itching or pain on a small patch of the midback, usually an area of skin just past easy reach.[1-5] Additional features of the dermatologic condition may include localized burning, pain, tenderness, hyperalgesia, or dysesthesia. Notalgia paresthetica may be associated with a poorly circumscribed, tan or hyperpigmented patch in the symptomatic area. It tends to be a chronic condition with periodic remissions and exacerbations. While not life threatening and generally not associated with other comorbidities, it frequently decreases quality of life and causes much discomfort and nuisance to affected patients.

Treatments of NP with topical modalities generally have failed and are refractory because the location is difficult to reach. To date, there is no clearly described etiology and no uniformly effective therapy for NP. Although the etiology of NP is unclear, 2 proposed mechanisms include (1) increased localized sensory innervation of the affected skin areas and (2) neuropathy from degenerative cervicothoracic disk disease or direct nerve impingement.[5-7]

A study by Savk et al[8] in 2000 showed 7 of 10 patients with NP had substantial radiographic changes in the vertebrae that corresponded to the dermatome of the cutaneous lesion. Furthermore, all patients demonstrated typical neurological examination results, standard electrodiagnostic results, and histopathology consistent with postinflammatory hyperpigmentation. There were no amyloid deposits on pathologic examination of the skin.[8]

An earlier study published in 1991 evaluating the mechanism of NP studied if cutaneous symptoms were caused by alternations on the cutaneous innervation of the involved infrascapular area.[5] The researchers postulated that increased dermal innervation to the areas would be found on histologic examination; however, no measurable change in the distribution of neuropeptide-immunoreactive axons was found. There was an increase in the number of intradermal protein gene product 9.5–immunoreactive nerve fibers and epidermal dendritic cells compared with unaffected areas from the same participants and unaffected controls. They concluded that the symptoms of NP may be related in part to increased sensory epidermal innervation of the affected skin areas.[5] Histologic studies have shown cutaneous changes in a few cases involving lichen amyloidosis, which may be secondary to the localized chronic scratching and rubbing.[1,6]

Clinical observations in orthopedics have established a clear relationship between the upper thoracic/infrascapular region and the lower cervical spine. Frequently, cervical disk disease presents as referred pain in the upper thoracic and infrascapular area. Similarly, some tumors of the cervical medulla also have presented as infrascapular pain.[4] Direct involvement and actual entrapment of the posterior rami of T2 through T6 spinal nerves has been speculated.[5] However, symptoms from the cervical area are referred directly to the infrascapular back. In some cases, degenerative vertebral and disk changes corresponding to the affected dermatome may be observed.

The literature supports radiographic imaging of the cervical and thoracic spine to exclude disk disease and possible nerve compromise.[1,3,7] With recent advances in radiography and availability of MRI, earlier detection and intervention of cervical disk disease may be possible. Early recognition may promote timely intervention and treatment to

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prevent cervical spine disease progression. In addition to degenerative cervical disks, osteoarthritis, and cervical spine strain and muscle spasm, a neoplasm or other pathology of the cervical spine may contribute to NP.

A relationship between NP and brachioradial pruritus as 2 types of localized pruritus syndromes has been postulated. The association of brachioradial pruritus and cervical spine disease and description of the disease as a possible neuropathic/neurogenic condition also support a probable neuropathic association of NP.[3-5,8,9] In contrast to NP, which is generally strictly unilateral, brachioradial pruritus may uncommonly involve the bilateral upper extremities.

Topical therapies aimed at the back skin may be ineffectual or partially effective as basic emollients. It may be difficult to accurately measure response to various therapies because NP has periodic spontaneous remissions and exacerbations. A placebo response may be considered with some therapies. The differential diagnosis of NP may include allergic or irritant contact dermatitis, fixed drug eruption, infection, neurodermatitis, dermatophytosis, neoplasm, lichen amyloidosis, arthropod reaction, lichen simplex chronicus, and other hypersensitivity reactions.

During the initial assessment of patients with NP it is important to obtain a thorough history of osteoarthritis, prior neck trauma, motor vehicle accident, vertebral fracture, cervical neoplasm or malignancy, or cervical disk disease. In the absence of a medical history of cervical spine disease, radiography or MRI of the cervical spine may aid in diagnosis and treatment.

For more generalized and chronic pruritus, full laboratory workup including complete blood cell count, chemistry panel with renal and liver functions, chest radiography, and other studies may be warranted to exclude underlying physiologic causes of pruritus. Alternatively, proper management of NP may involve a multispecialty cooperative effort of dermatology with radiology; orthopedic surgery; neurology; and possibly adjunctive fields including acupuncture, chiropractic, and physical therapy.

While to date there has been no uniformly effective therapy for NP, current therapeutic options for localized itch syndromes include capsaicin cream,[10] eutectic mixture of local anesthetic cream, topical steroids, pramoxine cream, topical cooling or ice pack applications, oral steroids, compounded 10% to 25% camphor and menthol preparations, menthol creams, flurandrenolide tape, intralesional corticosteroid injections, botulinum toxin injections,[11] oral antihistamines, hydroxyzine hydrochloride, doxepin hydrochloride, topiramate, anticonvulsant medications, carbamazepine antidepressant medications, gabapentin, oxcarbazepine,[12] thalidomide,[13] paravertebral local anesthetic block, cervical epidural injection, surgical resection of the rib,[14] transcutaneous electrical nerve stimulation,[15] and many others. Some of the current oral therapies may exert their effect through the spinal nerves and central nervous system, thereby supporting the neuropathic etiology of NP.[3,5,16,17]

First-line therapy for NP with associated cervical disease may include nondermatologic noninvasive treatments such as spinal manipulation, physical therapy, cervical soft collars, massage, cervical traction, transcutaneous electrical nerve stimulation, cervical muscle strengthening and increased range of motion, cervical discectomy with fusion, oral nonsteroidal anti-inflammatory drugs (eg, ibuprofen, celecoxib, ketorolac tromethamine), and oral muscle relaxants (eg, carisoprodol, cyclobenzaprine hydrochloride, methocarbamol, metaxalone). Other medical measures for degenerative cervicothoracic disk disease or direct nerve impingement as introduced also may be considered.

Conclusion

Notalgia paresthetica may not be solely a skin disease but a cutaneous sign of an underlying degenerative cervical spine disease. The striking association of NP with degenerative or traumatic cervicothoracic disk disease suggests that early spinal nerve impingement may contribute to the pathogenesis of the cutaneous symptoms of the disease. Additional studies are needed to further assess the relationship of NP and cervical spine disease. Larger studies are needed to determine if the relationship is causal or coincidental. While topical therapies may seemingly help decrease localized NP symptoms in some cases, systemic or broader scope spinal evaluation may be warranted to fully evaluate refractory cases. Cervical spinal imaging and treatment may be appropriate as primary or first-line therapy in many cases of NP.

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