

Neurogenic Pruritus: An Unrecognised Problem?

A Retrospective Case Series of Treatment by Acupuncture

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Summary

Intractable localised segmental pruritus without a rash has been reported over the years under various titles depending on the area of the body affected. Notalgia paraesthetica and brachioradial pruritus are the two terms used for what is believed to be a form of neuropathy. The clinical observations reported here suggest that other localised cases of pruritus exist that share common clinical features, and the term neurogenic pruritus is suggested to encompass these under one clinical condition. Acupuncture has been used to treat skin conditions, of which pruritus is one symptom. This retrospective study looked at the symptomatic relief of neurogenic pruritus in 16 patients using acupuncture. In 12 cases the affected dermatomes of the body were innervated by cervical spinal nerves, seven innervated by dorsal spinal nerves and four innervated by the lumbar spinal nerves. Seven patients had areas affected by two different regions of the spine. Restricted neck and / or back movements were noted in patients as were areas of paravertebral spasm / tenderness of the muscles. Total resolution of symptoms as judged by VAS occurred in 75% of patients. Relapse occurred in 37% of patients within 1-12 months following treatment. Acupuncture appeared to be effective in alleviating the distressing symptom of itching in patients presenting with neurogenic pruritus.

Keywords

Brachioradial pruritus, neurogenic pruritus, notalgia paraesthetica, pruritus, acupuncture

Introduction

Pruritus, which is restricted to segments of the body and unassociated with a rash, has been described in the literature under terms such as notalgia paraesthetica and brachioradial pruritus.^{1,3} Notalgia paraesthetica usually presents with pruritus around the shoulder blade area, and its dermatomal innervations are located between thoracic spinal nerves T2 and T6. Brachioradial pruritus affects the area of the upper arm and forearm with a presumptive dermatomal distribution of cervical spinal nerves C5 and C6. The pruritus is thought to be due to a sensory neuropathy but its exact pathogenesis remains ill-understood.^{2,6} The prevalence of the condition has never been determined but certain reports suggest it is a rare occurrence. Acupuncture has been used to treat skin conditions but only one study has looked at treating pruritus as a symptom in this manner.^{7,8} The pruritus in this study was usually associated with a rash and auriculotherapy was the

method of acupuncture treatment. This practice describes the clinical features of sixteen cases of pruritus unassociated with a rash involving different dermatomal segments, some of which cannot be encompassed under the diagnosis of notalgia paraesthetica or brachioradial pruritus. The study also looked at the effects of the use of acupuncture to treat this type of condition.

Methods

A manual search of patient records was performed in a single-handed general practitioner practice to identify patients that had presented with a history of pruritus affecting a segment of the body but not associated with a rash during the period November 1992 to March 2002. The records were searched not only for dermatographic data but also the area of the body affected by the pruritus, its duration and response to self-medication if used to treat the problem.

A 100 point visual analogue score for degree

of itching was completed by the patient both on presentation with their pruritus and two to four weeks after completion of their acupuncture for the condition. Blood was taken to exclude metabolic causes of pruritus. The reports of x-rays of the spine that had been taken in the past were reviewed.

All patients underwent deep intramuscular stimulation acupuncture to the para-vertebral muscles in the dermatomal segments of the body affected by the pruritus. Treatment was also given to other segments of the body not affected by the pruritus if paravertebral spasm and tenderness was detected. One to three inch 32G needles were inserted into the paravertebral muscles affected and manually stimulated until the spasm had subsided. The duration of manual stimulation varied from several seconds to up to one to two minutes. Acupuncture was repeated every one to two weeks until the patient felt they required no further treatment because the pruritus had lessened or subsided.

Results

Sixteen patients, six male, were identified that had presented with segmental pruritus unassociated with a rash. The age of the patients ranged from

41-79 years (median 68 years).

The duration of symptoms prior to presentation to the general practitioner varied from 4-52 weeks (median eight weeks). Seven of the patients had self-medicated with either a variety of steroid or antihistamine-based creams or oral antihistamines prior to the consultation but with little or no benefit. Other symptoms associated with the pruritus were headaches (one patient), neck pain (two patients), hotness (one patient) or dryness of the skin (one patient), and excoriation of the skin from scratching (two patients) in the area of pruritus. Nine patients were on no medication at the time of presentation with their symptoms. There had been no change in medication of the other seven patients prior to or at the time of presentation with pruritus. The dermatomal segments of the body affected by pruritus at presentation are shown in Table 1. Ten patients had a single area but seven patients had two separate areas of pruritus. Physical examination revealed restricted neck movements in ten patients and restricted lumbar movements in two patients. Paravertebral tenderness and / or tightness of the paravertebral muscles was noted in 13 patients usually in the area of skin affected by the pruritus and innervated by the spinal nerves

Table 1 Dermatomal segments of pruritus in the patients studied and the visual analogue scores for degree of itching pre and post acupuncture treatment

Patient	Dermatomal Segments (S)	Pre-treatment VAS	Post-treatment VAS	Relapse Y / N	Relapse time (months)
GB	C4 – C5	80	12	Y	12
BL	C6 – C7	78	0	Y	12
MT	C5 – C6	80	0	N	-
EL	C7 – T12	75	0	N	-
DW	C4 – C5	75	0	N	-
AR	C2 – C3	84	21	Y	3
JW	T6 – T8 L1 – L2	82	0	N	-
PS	C3 – C7	71	0	Y	11
PP	C4 – C5 L1 – L3	85	0	N	-
DY	T2 – T12	80	0	N	-
CR	C4 – T1	86	0	N	-
JM	C4 – C6	80	5	Y	1
KC	T2 – L2	55	0	Y	2
JJ	C5 – T10	85	0	N	-
JA	C4 – T2 L2 – L4	77	24	N	-
JD	T1 – T12	75	0	N	-

of that dermatome. Five patients had paravertebral tenderness / tightness in other segments of the spine unassociated with pruritus. Sympathetic over-activity of the skin at the level of the spine associated with the pruritus was seen in six patients, the signs of sympathetic over-activity being one or more of the following: trophoedema where the skin is tight and wrinkles absent, peau d'orange effect and where the matchstick test may be positive.⁹

All haematological and biochemical tests were normal except in two patients, one of whom had an IgG lambda band, although bone marrow / lymph nodes biopsies on follow-up revealed his gammopathy to be benign. The second patient had both an immuno-deficiency and lymph node biopsy of lymphoma three months prior to presentation with pruritus. X-rays of the spine had been performed in nine patients and showed degenerative changes to be present in seven patients and scoliosis in two patients. The visual analogue scores before and after completion of acupuncture treatment are shown in Table 1. In total 12 patients had complete resolution of their pruritus, and four patients partial resolution, which they deemed to be of a minor nature not to warrant further therapy. A total of 2-6 treatments (median four) were required to resolve the pruritus. Over a follow-up period of seven months (range 0.25-9 years) six patients relapsed, which required further acupuncture treatment. The relapse of pruritus occurred within 1-12 months of their last acupuncture treatment.

Discussion

This report is the first time that a group of patients with pruritus that is restricted to a variety of dermatomes throughout the body has been reported in primary care. The areas of pruritus described by our patients would suggest that this condition is not restricted to the dermatomes of the thoracic spine, as in *notalgia paraesthetica* but can affect the dermatomes of the cervical and lumbar region of the spine in addition. There are other odd case reports of pruritus affecting different dermatomes of the body in the literature lending support to this observation.^{10,11} The findings of restricted neck / back movements, paravertebral tenderness and / or tightness of the

paravertebral muscles in association with the pruritus together with sympathetic over-stimulation of the skin would suggest that the pruritus is a form of pre-neuropathy or neuropathy. Other studies have come to similar conclusions and noted that the neuropathy may be related to disturbance of neural function probably due to an underlying degenerative condition of the spine.^{2,3} X-rays of the spine have shown a problem in up to 70% of patients in these case reports and a high proportion of our patients were noted to have spinal problems, notably scoliosis and degenerative spinal disease. However a normal x-ray or MRI scan, including EMG tests should not exclude the possibility of disturbed neural function. Gunn believes that one can have a preneuropathy without MRI or x-ray evidence of nerve impingement.⁹ He described the skin findings of trophoedema where the skin is tight and wrinkles absent as well as peau d'orange of the skin at different levels of the spine as a manifestation of sympathetic over-stimulation as a result of this pre-neuropathy. He also believes muscle shortening is an early irritative sign indicative of neuropathy and this may explain the paravertebral tightening and tenderness found in the majority of our patients. But why should the itch sensation occur instead of pain? Itch is transmitted via unmyelinated C fibres and it is also known that strong stimulation of these fibres results in pain whilst mild stimulation gives the itch sensation.¹² Therefore the itch sensation could arise as a result of mild neural irritation, probably as a result of these nerves passing through tight muscles as they traverse their way to the periphery.

The areas affected in our patients would have led to a diagnosis of *notalgia paraesthetica* in one patient and brachioradial pruritus in two patients. This would have left the other 13 patients with pruritus of unknown aetiology. Grouping all patients under the term neurogenic pruritus would allow these patients to be adequately diagnosed and give an explanation for their clinical symptoms as well as describing the pathophysiology of the condition. This would then lead to earlier diagnosis and instigation of appropriate treatment instead of the wasteful use of treatments such as steroid-based creams and antihistamines used by our patients prior to

presentation.

Types of treatment given in the past to treat patients especially with notalgia paraesthetica have included the following: Capsaicin cream to the areas of itching, that works by depleting the terminal nerve endings of various neuropeptides, in particular substance-P - one of the substances believed to cause the itch sensation. However, on stopping the cream the itching returned rapidly in this study.¹³ Oral treatment with oxcarbamazepine (used for its treatment of neuropathic pain) only partially resolved the itching which quickly returned on stopping treatment.¹⁴ Most of the patients withdrew from this study due to the side effects of the drug. One study has shown physiotherapy, with or without ultrasound, targeted to the spinal level causing the problem to be of benefit in up to 75% of patients, with some patients relapsing after completion of treatment.³ Our patients were treated with acupuncture to the paravertebral muscles of the area affected by pruritus with resolution of symptoms. A similar treatment using a paravertebral local anaesthetic block has also been used to alleviate patients' symptoms of notalgia paraesthetica with some success.¹⁵ Possible mechanisms by which acupuncture and other physical therapies could alleviate the pruritus in these patients include relieving the neural irritation of the spinal nerves as they transverse the paraspinal muscles as a result of the resolution of the muscle spasm in these segments, or by stimulating the release of opioid peptides in the dorsal horn which inhibit the release of nociceptive information.¹⁶

The number of patients that have presented with this type of pruritus to the practice would suggest a prevalence rate of one to two cases per year to a G.P. with this list size. There may be an element of under-reporting of the condition due to the fact that some patients may be self-medicating, especially if their symptoms are not severe - this led some of our patients to present late with this condition. Other presenting cases have led to treatment with inappropriate medication due to lack of understanding of the condition. This is definitely one condition that can be safely and effectively managed in primary care without the need for secondary referral to a dermatologist. The key to the diagnosis is the

distribution of the pruritus, unassociated with a rash, in association with the secondary findings of one or more of the following: restricted neck or back movements, paravertebral tenderness / tightness or trophoedema / peau d'orange appearance of the skin in the dermatomes affected. A spinal condition such as scoliosis and degenerative disease of the spine appears to be a predisposing factor. The term neurogenic pruritus given to this condition would be both descriptive and simplistic and encompass all the clinical terms previously described for this type of symptomatology. This would then lead to easier diagnosis and management of such patients.

In conclusion, when patients present with neurogenic pruritus, physical therapies such as physiotherapy or acupuncture should be considered as a treatment to alleviate the problem. This would lead to less secondary care referrals and reduction in the use of pharmacological agents which, as demonstrated, tend not to be beneficial and can have unwanted side effects and possible drug interactions.

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