Prurigo Nodularis

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Prurigo nodularis is a chronic skin disorder that is frequently misdiagnosed. It is characterized by multiple pea-sized nodules that develop on the skin, particularly on the anterior leg and thigh. These lesions are intensely pruritic and frequently become excoriated and infected. The cause of prurigo nodularis is unknown, and treatment is directed at reducing inflammation and controlling symptoms. The condition is typically of long duration and is refractory to treatment.

Key words. Prurigo; dermatitis; diagnosis; patient care management; treatment outcome. (*J Fam Pract 1993; 37:495-498*)

Intractable skin conditions that do not respond to treatment can be frustrating for both patient and physician. Patients with prurigo nodularis experience intractable itching and consequent breakdown and secondary infection of the affected skin. In addition, lack of sleep and the cosmetic effects of the condition can lead to psychological and social suffering. This unfortunate situation is compounded by the many uncertainties about the cause, diagnosis, and treatment of the condition.

In practice, however, the recognition and management of prurigo nodularis can be highly rewarding. As illustrated by the following case report, patients may benefit substantially from understanding the diagnosis and achieving a sense of control over the condition, although complete cure may not be achieved.

Case Report

During consultation about chronic asthma, a 57-year-old woman made no comment about the lesions on her legs (Figure 1). When asked, she reported a history of "chronic eczema" that began in approximately 1960. The lesions had begun as intensely pruritic, discrete erythematous nodules on the anterior surface of the lower legs. Initial treatment with corticosteroid creams was unsuccessful, and the lesions gradually had become more severe and more widespread.

During the 30-year duration of this condition, she had been treated episodically with a variety of corticosteroid creams and both systemic and local antibiotics, and had been admitted once to the hospital because of cellulitis secondary to the skin lesions. The patient had difficulty in identifying all the treatments that had been used, but based on both recognition of drug names and those previous medical records that could be accessed, it appeared that treatment had included ultrapotent corticosteroid creams. Throughout this time, she had been under regular medical supervision for asthma and had developed osteoporosis and obesity.

As shown in Figure 1, there were multiple indurated nodules on both legs. Several lesions appeared ulcerated and infected. The skin also showed signs of excoriation and areas of scarring and postinflammatory hypopigmentation at the site of previous lesions, particularly around the ankles.

The patient was somewhat bemused by the physician's interest, but she agreed to further investigation on the basis that a treatable condition might be diagnosed. She was referred to a dermatologist, who diagnosed prurigo nodularis based on history and the appearance of the lesions. The histologic findings on biopsy were also consistent with this diagnosis (Table 1).

A multifaceted treatment program was begun, which was integrated with the treatment of her other medical conditions. Local antibiotic (Polysporin) and

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Figure 1. Ulcerated, infected lesions of prurigo nodularis. Note scarring and hypopigmentation at sites of previous lesions.

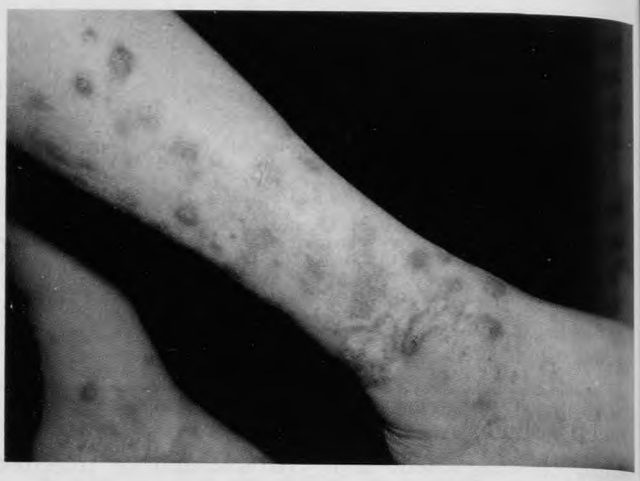

Figure 2. The patient shown in Figure 1 after 6 months of treatment. New lesions can be seen in spite of overall improvement.

steroid (triamcinolone) creams were used to control secondary infection and reduce pruritus; oral hydroxyzine was also prescribed as needed to reduce pruritus; and individual skin lesions were injected with triamcinolone and lidocaine. The patient was also encouraged to continue her use of mild soaps and mild laundry detergents. Over a 6-month period, significant improvement was achieved (Figure 2). The patient was delighted by the results of treatment, although she knew that complete clearing was not expected.

For financial reasons, she did not complete the course of intralesional injections and was lost to follow-up until she suffered a fall approximately 9 months after the original consultation with the family physician. In the 3 months since the last intralesional injection, she had used local steroid cream on new lesions. Although these had begun to ulcerate and become more widespread, the general appearance of the skin showed healing with scarring and scaling. Both hypo- and hyperpigmentation were present in healed tissues. Arrangements were made to inject the new and resistant lesions. Cryotherapy was suggested as an alternative for any areas that did not respond to injection, but the patient declined this form of treatment.

She currently has a few residual lesions but expresses confidence in her ability to deal with new lesions. She is seen regularly, principally to monitor her other serious medical conditions. Although the prurigo nodularis is not cured, there has been marked improvement both in her dermatologic condition and in her coping skills. She took special delight this summer in purchasing skirts and dresses for the first time in 30 years.

Table 1. Histologic Findings of Prurigo Nodularis

Acanthosis
Hyperkeratosis
Papillomatosis
Epidermal mast cells
Lymphocytes
Eosinophils
Increased epidermal mitotic figures
Neural hyperplasia
Dermal inflammatory infiltrate

Data adapted from Jorizzo et al,[1] Lever and Shaumburg-Lever,[2] Rowland Payne,[3] and Harris et al.[4]

Discussion

Diagnosis

Prurigo nodularis may be undiagnosed or misdiagnosed for many years. The skin lesions and itching may have been present for so long that symptoms may be regarded by the patient as "normal for my legs." A diagnosis of "chronic eczema" is frequently given, although this term describes a symptom rather than diagnosing a disease entity.

The diagnosis is based on history, clinical appearance, and an identifying histologic appearance found on biopsy. Besides the progression of the lesions, the intense, continual pruritus over long periods is characteristic of prurigo nodularis and may be the most useful diagnostic feature.

The lesions are most often approximately circular irregular nodules of 0.5 to 3 cm in diameter. The surface of these nodules may be rough or depressed or contain a crater. Plaques and postinflammatory hyperpigmentation may also be present.[1] There may also be areas of hypo-

pigmentation or active keloid formation. The nodules usually become infected and show signs of chronic excoriation. Surrounding skin is normal apart from the signs of previous lesions.

Several histologic changes are found in biopsy specimens of prurigo nodularis lesions (Table 1). Not all cases of prurigo nodularis show all the elements listed in Table 1, but a sufficient number of these features should be present to contribute to the diagnosis. The histologic findings are not pathognomonic, but when combined with evidence from history and clinical findings, an accurate diagnosis can be made. If epithelial hyperplasia is marked, multiple keratoacanthomas may mimic prurigo nodularis.[2] Some of the histologic findings, such as increased mast cells and increase in mitotic figures, have also been reported in precancerous skin.[5,6] It has been suggested that prurigo nodularis could be a predisposing condition for malignant change,[7] but no studies have addressed this association.

Etiology and Epidemiology

Prurigo nodularis occurs mainly in middle-aged women, although cases have been reported in both sexes and in persons aged 5 to 75 years.[3,7] Large studies have not been carried out to determine incidence or prevalence, or to identify population groups at increased risk of developing the condition. Most of the literature on this condition is based on individual case reports. An additional difficulty is the confusion caused by use of descriptive terminology for similar conditions that may be related, share clinical features or causes, or be distinct diseases.[7,8]

The etiology of prurigo nodularis is unknown but it is generally thought to be a form of neurodermatitis. The initial lesion is intensely pruritic, which sets up a vicious cycle of scratching, mechanical trauma, reactive hyperplasia, infection, scarring, and attempted healing. The cause of the original lesion is unknown.

There has been speculation that prurigo nodularis is a cutaneous marker of an underlying systemic condition. Several entities have been suggested (Table 2), principally based on case reports and clinical observations. A common denominator in initiation or exacerbation of the condition could be stress. Our patient reported exacerbation of her skin lesions at times of increased psychological stress as well as during times of exacerbation of asthma and occurrence of other physical illnesses. This observation appears to be typical.

Treatment

Prurigo nodularis is a chronic condition in which cure cannot be expected. The goals of therapy are to identify and treat any underlying condition and make life tolerable for the patient. Patients may be surprisingly tolerant of the cosmetic appearance, but are highly motivated by the opportunity to relieve the extreme pruritus. As the pruritus is both a symptom and a contributor to the condition, it should be suppressed by pharmacologic treatment.

Table 2. Prurigo Nodularis and Associated Disorders

Suggested causes of prurigo nodularis
Systemic[3,9–14]
Anemia
Hepatic dysfunction
Myxedema
Malabsorption
Renal failure
Hemodialysis/aluminum overload
Hodgkin's disease
Cutaneous[3,15]
Insect bites
Venous stasis
Folliculitis
Nummular eczema
Psychosocial[4]
Stress
Depression
Diseases simulating prurigo nodularis
Reactive perforating collagenosis[16]
Keratoacanthoma[2]
Hypertrophic lichen planus[1]
Cutaneous granular cell tumor[17]
Bullous pemphigoid[18,19]

Many therapies have been advocated for prurigo nodularis. The three principal treatment modalities are intralesional injection of corticosteroids, cryotherapy, and systemic and local corticosteroids. Treatment of individual lesions by injection or cryotherapy is tedious and expensive, and may be uncomfortable for the patient. Advice should be given about the use of emollients and mild soaps and laundry detergents as well as other general measures to reduce the severe, intractable pruritus. Individual patients may require adjunctive treatment with antibiotics to control infection, and systemic antihistamines to decrease pruritus and provide mild sedation. Sedatives and anxiolytic medications have been used to relieve the distress of severe itching and unsightly skin lesions.

Several alternative therapies have been reported that may be useful in selected patients. Thalidomide,[20] ultraviolet radiation,[21] occlusive membranes,[22] benoxaprofen,[23] and arotinoid acid[24] have all been described as useful treatments in small numbers of selected patients or in individual cases. The three principal treatment modalities remain treatments of choice, and the alternative therapies are reserved for cases in which the principal

therapies are unsuccessful or contraindicated. All patients should be followed, both to assess the response of the condition to treatment and to monitor any adverse effects of treatment.

References

1. Jorizzo JL, Gatti S, Smith EB. Prurigo: a clinical review. J Am Acad Dermatol 1981; 4:723–8.
2. Lever WF, Schaumburg-Lever G. Histopathology of the skin. 7th ed. Philadelphia: JB Lippincott, 1990:155.
3. Rowland Payne CM, Wilkinson JD, McKee PH, Jurecka W, Black MM. Nodular prurigo—a clinicopathological study of 46 patients. Br J Dermatol 1985; 113:431–9.
4. Harris B, Harris K, Penneys NS. Demonstration by S-100 protein staining of increased numbers of nerves in the papillary dermis of patients with prurigo nodularis. J Am Acad Dermatol 1992; 26:56–8.
5. Asboe-Hansen G. A survey of the normal and pathological occurrence of mucinous substances and mast cells in the dermal connective tissue in man. Acta Derm Venereol (Stockh) 1950; 30:338–47.
6. Green RM, Cordero A, Winkelmann RK. Epidermal mast cells. Arch Dermatol 1977; 113:166–9.
7. Doyle JA, Connolly SM, Hunziker N, Winkelmann RK. Prurigo nodularis: a reappraisal of the clinical and histological features. J Cutan Pathol 1979; 6:392–403.
8. Arnold JL Jr, Odom RB, James WD. Andrew's diseases of the skin. 8th ed. Philadelphia: WB Saunders, 1990:59–60.
9. Suarez Cc, Pereda JM, Mmoreno LM, Garcia-Gonzalez F, Gomez-Orbaneja J. Pruurigo nodularis associated with malabsorption. Dermatology 1984; 1969:211–4.
10. Shelnitz LS, Paller AS. Hodgkin's disease manifesting as prurigo nodularis. Pediatr Dermatol 1990; 7:136–9.
11. Hurwitz RM. The evolution of perforating folliculitis in patients with chronic renal failure. Am J Dermatopathol 1985; 7:231–9.
12. Brown MA, Geroge CRP, Dunstan CR, Kalowski S, Corrigan AB. Prurigo nodularis and aluminum overload in maintenance haemodialysis [letter]. Lancet 1992; 340:48.
13. Fina L, Grimalt R, Berti E, Caputo R. Nodular prurigo associated with Hodgkin's disease. Dermatology 1992; 1982:243–6.
14. Hurwitz RM, Melton ME, Creech FT, Weiss J, Handt A. Perforating folliculitis in association with hemodialysis. Am J Dermatopathol 1982; 4:101–8.
15. Iijima S. Prurigo nodularis. Tohoku J Exp Med 1951; 54(3):73–80.
16. Henry JC, Jorizzo JL, Apisarnthanarax P. Reactive perforating collagenosis in the setting of prurigo nodularis. Int J Dermatol 1983; 22:386–7.
17. Noppakun N, Apisarnthanarax P. Multiple cutaneous granular cell tumors simulating prurigo nodularis. Int J Dermatol 1990; 20: 126–9.
18. Massa MC, Connolly SM. Bullous pemphigoid with features of prurigo nodularis. Arch Dermatol 1982; 118:937–9.
19. Roenigk RK, Dahl MV. Bullous pemphigoid and prurigo nodularis. J Am Acad Dermatol 1986; 14:944–7.
20. Winkelmann RK, Connolly SM, Doyle JA, Padilha-Goncalves A. Thalidomide treatment of prurigo nodularis. Acta Derm Venereol (Stockh) 1984; 64:412–7.
21. Hann SK, Cho MY, Park YK. UV treatment of generalized prurigo nodularis. Int J Dermatol 1990; 29:436–7.
22. Meyers LN. Use of occlusive membranes in the treatment of prurigo nodularis. Int J Dermatol 1989; 28:275–6.
23. Hindson C, Lawlor F, Wacks H. Treatment of nodular prurigo with benoxaprofen. Fr J Dermatol 1982; 107:369.
24. Hirschel-Scholz S, Salomon D, Merot Y, Saurat JH. Anetodermic prurigo nodularis (with Pautrier's neuroma) responsive to arotinoid acid. J Am Acad Dermatol 1991; 25(2 Pt 2):437–42.