Triple-Therapy for Prurigo Nodularis: A Case Report

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Abstract

Prurigo nodularis (PN) is a chronic condition of unknown etiology that presents with pruritic, excoriated dome-shaped lesions on the extremities. It is challenging to treat using topical therapies alone. Newer options include monoclonal antibodies, as well as excimer UVB and psoralen UVA phototherapies. While these have shown clinical efficacy, they may

Introduction:

Prurigo nodularis (PN) is a cutaneous condition of unknown etiology postulated as a nodular presentation of lichen simplex chronicus [1]. The estimated incidence and prevalence are 0.003% and 0.033%, respectively [2]. PN presents as multiple erythematous, dome-shaped lesions 1-2 cm in diameter, commonly on the extensor extremities [1]. PN is often treatement resistant and requires prolonged regimens. Therapy aims to decrease inflammation and pruritus using corticosteroids, vitamin D analogs, calcineurin inhibitors, antihistamines, opiate antagonists, immunomodulators, and neuromodulators [1]. More recently, monoclonal antibodies have shown utility in treating PN [3,4]. These are often expensive and inaccessible for all patients. This case details widespread, refractory prurigo nodularis successfully treated with a combined regimen of UVB phototherapy, cryotherapy, and intralesional corticosteroids. This regimen is effective, safe, easily accessible, and affordable.

Case Presentation:

A 42-year-old woman presented with a 14-year history of severely itchy skin lesions. The lesions were originally mildly pruritic, later progressing to severe pruritus with associated burning discomfort and purulent discharge. The patient had therapy with topical and oral corticosteroids by a number of physicians with no improvement. She subsequently developed Cushing syndrome from systemic corticosteroids. She presented to the current authors with diffuse, nodular lesions covering most of her body. Examination revealed indurated, hyperpigmented nodules with perilesional erythema [Figure 1]. Lesional biopsy demonstrated marked hyperkeratosis, focal parakeratosis, patchy hypergranulosis, acanthosis, papillomatosis, spongiosis, and exocytosis. A perivascular infiltrate and eosinophils with vertically oriented fibrosis of dermal tissue was seen [Figure 3]. A subsequent diagnosis of prurigo nodularis was made. To treat the lesions, she underwent 19 total biweekly UVB phototherapy sessions over the next three months, each lasting 70 seconds. An initial dose of 3.5 J/cm^2 was applied, and increased by 0.05-0.1 J each visit. The lesions were also treated with adjuvant cryotherapy and intralesional corticosteroids at monthly intervals. Triamcinolone 10-80 mg/ml was injected, with dose depending on lesion size and severity. Following three months of this regimen, the appearance of her lesions greatly improved [Figure 2]. She endorsed similar improvement in associated symptoms.

Discussion:

A combination of UVB phototherapy, cryotherapy, and intralesional corticosteroids was used to treat refractory prurigo nodularis (PN). Despite known individual effectiveness for PN, clinical studies have not, to the knowledge of the authors, evaluated the benefit of combination therapy with these agents. A prospective, open label trial noted marked response of PN to 32 UVB courses [5]. Our patient responded to fewer sessions of UVB therapy, possibly due to additional agents. The use of excimer UVB and psoralen UVA (PUVA) for PN is supported by previous literature [6,7]. While our patient responded to UVB therapy alone, these may be beneficial should relapse occur. Although excimer technology may improve healing and limit adverse effects, it is not available in all centers.

Reports of cryotherapy for prurigo nodularis exist, although limited [8,9]. Cryotherapy durations from 5-30 seconds may be beneficial[8,9]. Hypopigmentation is expected after treatment and may offset the hyperpigmentation of PN lesions [9]. Patients should be counselled on blister formation, which is common following cryotherapy.

The immunosuppressive action of corticosteroids is well-known, although their systemic use often leads to adverse effects, similar to our patient. High-dose topical corticosteroids and intralesional injection have a highly effective locally at PN lesions, and sparing many of the adverse effects of systemic corticosteroids [10].

Conclusion:

Given the effectiveness of UVB phototherapy, cryotherapy, and intralesional corticosteroids as individual agents, it is reasonable that combination therapy would also treat PN. We recommend that physicians consider this triple-therapy regimen when prurigo nodularis lesions are refractory and other agents are not readily available.

References:

1. H. DJG, Habif TP. Eczema and Hand Dermatitis: Self-Inflicted Dermatoses, Prurigo Nodularis. In: Habif's Clinical Dermatology: A Color Guide to Diagnosis and Therapy. Elsevier; 2021:115-116.
2. Morgan, C.L., Thomas, M., Ständer, S., Jabbar-Lopez, Z.K., Piketty, C., Gabriel, S., Currie, C.J. and Puelles, J. (2022), Epidemiology of prurigo nodularis in England: a retrospective database analysis. Br J Dermatol, 187: 188-195. *https://doi.org/10.1111/bjd.21032*
3. Beck KM, Yang EJ, Sekhon S, Bhutani T, Liao W. Dupilumab Treatment for Generalized Prurigo Nodularis. *JAMA Dermatol* . 2019;155(1):118-120. doi:10.1001/jamadermatol.2018.3912
4. Ständer S, Yosipovitch G, Legat FJ, et al. Trial of Nemolizumab in Moderate-to-Severe Prurigo Nodularis. *N Engl J Med* . 2020;382(8):706-716. doi:10.1056/NEJMoa1908316
5. Ferrándiz C, Carrascosa JM, Just M, Bielsa I, Ribera M. Sequential combined therapy with thalidomide and narrow-band (TL01) UVB in the treatment of prurigo nodularis. *Dermatology* . 1997;195(4):359-361. doi:10.1159/000245988
6. Hammes S, Hermann J, Roos S, Ockenfels HM. UVB 308-nm excimer light and bath PUVA: combination therapy is very effective in the treatment of prurigo nodularis. *J Eur Acad Dermatol Venereol* . 2011;25(7):799-803. doi:10.1111/j.1468-3083.2010.03865.x
7. Saraceno R, Nisticò SP, Capriotti E, de Felice C, Rhodes LE, Chimenti S. Monochromatic excimer light (308 nm) in the treatment of prurigo nodularis. *Photodermatol Photoimmunol Photomed* . 2008;24(1):43-45. doi:10.1111/j.1600-0781.2008.00318.x
8. Mayala EV, Mavura DR, Robert M, Masenga EJ. Prurigo nodularis comparative treatment outcome in patients attending a tertiary hospital in northern Tanzania. *Dermatol Ther* . 2021;34(2):e14855. doi:10.1111/dth.14855
9. Waldinger TP, Wong RC, Taylor WB, Voorhees JJ. Cryotherapy Improves Prurigo Nodularis. *Arch Dermatol.* 1984;120(12):1598–1600. doi:10.1001/archderm.1984.01650480060020
10. Kowalski EH, Kneiber D, Valdebran M, Patel U, Amber KT. Treatment-resistant prurigo nodularis: challenges and solutions. Clin Cosmet Investig Dermatol. 2019;12:163-172. Published 2019 Feb 28. doi:10.2147/CCID.S188070