

How Atopic is Prurigo in the Tropics?: An Etiological Survey in South India

Sir,
Prurigo nodularis is a chronic inflammatory condition of uncertain etiology, reported to be more common in middle-aged women.^[1] The prevalence of atopic diathesis in patients of prurigo has been reported to be as high as 77%.^[2] There is no similar data on South Indian patients with prurigo nodularis. Further, *Parthenium hysterophorus* is a weed that grows rampantly in some areas of rural South India. Contact dermatitis to parthenium has been reported to cause prurigo-like nodules.^[3] Hence, this pilot study was planned to assess the role of various known etiopathological factors, especially atopy and parthenium sensitivity in our patients of prurigo nodularis.

The present study was a cross-sectional study done over a period of 1 year at the Dermatology Outpatient Department of a tertiary care hospital catering mainly to the rural population of Puducherry and Tamil Nadu. After getting approval from the Institute Ethics Committee, a total of 31 patients with prurigo nodularis, clinically diagnosed by consensus among two independent dermatologists, were recruited over a period of 1 year and evaluated. After obtaining informed consent from the patient, the demographic and clinical details were entered in the predesigned proforma. Skin biopsy, tissue culture and sensitivity, Mantoux test, serum lactate dehydrogenase levels, thyroid function tests, serum immunoglobulin E (SrIgE) levels, and patch tests were done on all the patients. A psychiatry consultation was obtained to assess any comorbid psychiatric disorders or mental stress. Data obtained were tabulated in an Excel chart and summarized using descriptive statistics.

Among the 31 patients enrolled in the study, 23 were females and 8 were males, with an approximate M:F ratio of 1:3. Twelve patients were students and eight were homemakers. Nearly half ($n = 14$) of the patients were less than 20 years of age (mean \pm standard deviation (SD): 31 ± 18.5). Most patients had lesions on their shins [Figures 1 and 2]. None of the patients had any other dermatological disorder or personal or family history of atopy or childhood eczema or flexural dermatitis. However, serum eosinophilia ($>5 \times 10^8/L$) was seen in 11 patients and raised SrIgE levels (>300 IU/mL) was seen in 14 patients.

Two patients exhibited positive patch tests for fragrance fragrance mix, 1 for parthenium and 1 for colophony. Four patients gave history of significant stress, though none of the patients were diagnosed to have a major or minor psychiatric illness. This was in contrast to a study where 50% of 46 patients were found to have a psychological disorder requiring intervention.^[2] However, Iking *et al.* reported absence of a monofactorial underlying psychological factor, and presence of psychological factors occurring in association with other systemic or dermatological factors in only 11 patients (5.6%) in their study.^[1] Two patients were diagnosed to have prurigo of pregnancy. Five patients had nutritional anemia. Thyroid function tests were normal in all the patients. Acid-fast bacilli were demonstrated in the tissue of one patient through tissue staining; however, culture did not grow any bacteria. In two other patients, Mantoux test was reactive. Skin biopsy was suggestive of prurigo nodularis in most patients; neural hyperplasia was seen only in two cases. Extravasation of red blood cells without other features

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Figure 1: Excoriated lichenified papulonodular lesions on the lower extremities



Figure 2: Multiple, hyperpigmented, papulonodular grouped lesions, some with a depigmented center

of vasculitis was seen in 14 patients, and lymphocytic infiltration of the dermis was seen in all patients.

There are few studies assessing the etiopathogenesis of prurigo nodularis in Western and Asian populations. In a study on 108 German patients with prurigo, nearly half of the patients had either an atopic predisposition or atopic dermatitis.^[1] Miyachi *et al.* and Tanaka *et al.* have also observed the relationship of atopy with prurigo nodularis.^[4,5] Interestingly, in our study, none of the 31 patients had a personal or family history of allergic rhinitis, bronchial asthma, and recurrent flexural dermatitis.

None suffered from childhood atopic dermatitis according to the UK working party diagnostic criteria. The World Allergy Organization defines atopy as “a personal and/or familial tendency, usually in childhood or adolescence, to become sensitized and produce Immunoglobulin E antibodies in response to ordinary exposure to allergens, usually proteins.”^[6] SrIgE levels were found to be high in nearly half ($n = 14$) of our patients. In the absence of other features of atopy, this could be attributed to nematode infestation or to insect bite hypersensitivity. There were no underlying systemic factors detected in our study,

except for pregnancy and nutritional anemia ($n = 5$). Food intolerance, malabsorption, and iron deficiency anemia were the common systemic abnormalities detected in 108 patients with prurigo nodularis by Iking *et al.*^[1]

In conclusion, the atopic background, including respiratory allergy and childhood eczema or flexural dermatitis, appears to have no role in our rural patients with prurigo nodularis. Parthenium hypersensitivity, mycobacterial infections, and psychological stress appear to play lesser role in these patients, than would be expected. Our study is limited by the small sample size and the lack of controls. Larger, community-based, case-control studies to detect association with common sensitizers in our population may be required to develop therapeutic strategies to deal with this distressing condition.

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Conflicts of interest

There are no conflicts of interest.

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