
Hair loss in pityriasis versicolor lesions: A descriptive clinicopathological study

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Background: We have observed that hair thinning and/or loss occur at times as a presenting symptom or sign in patients with pityriasis versicolor (PV).

Objective: Our objective was to verify and explore this clinical observation and depict its underlying pathology.

Methods: A total of 39 patients with PV were examined during a period of 11 months and skin biopsy specimens were taken from lesional and nonlesional skin. Hematoxylin-eosin- and periodic acid-Schiff-stained sections were examined and described. Results were statistically analyzed.

Results: Hair loss and/or thinning within PV lesions was shown in 61.5% of patients (P value < .0005), appearing most commonly on forearms, abdomen, and neck as well as the beard area (only in male participants). Histopathologically, in addition to the classically described features of PV, basal hydropic degeneration, follicular degeneration, miniaturization, atrophy, plugging, and/or hair shaft absence occurred in 46% of lesional versus 20.5% of nonlesional biopsy specimens (P value < .05); these changes appeared to be directly or indirectly related to the presence of *Malassezia* organisms in hair follicles and/or stratum corneum.

Limitations: Some patients with PV lesions on the face did not approve facial biopsy.

Conclusion: This study provides clinical and histopathological evidence that PV lesions may be associated with hair thinning and/or loss. (J Am Acad Dermatol 2013;69:e19-23.)

Key words: hair loss; hair shaft; histopathology; hydropic degeneration; hyphae; *Malassezia*; pityriasis versicolor.

Pityriasis versicolor (PV) is a superficial mycosis caused by the genus *Malassezia*, with 3 dominant species: *M globosa*, *M sympodialis*, and *M furfur*.¹ The current study was planned to investigate a clinical observation that to our knowledge has not been hitherto described, namely hair thinning and/or hair loss within PV lesions. The aim of the study was to document this phenomenon, to find its prevalence, and to attempt identification of the various histopathological changes associated with this clinical sign. Literature review revealed that increased hair shedding was correlated with

Abbreviations used:

HF:	hair follicle
IL:	interleukin
L:	lesional
NL:	nonlesional
PV:	pityriasis versicolor
SC:	stratum corneum
TNF:	tumor necrosis factor

overgrowth of *Malassezia* in seborrheic dermatitis.² A study of 110 patients with PV included 6 patients

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with scalp lesions, none of whom showed hair loss, breakage, or invasion of hair shafts.³ PV lesions surrounding follicular ostia have been described,^{4,5} nonetheless no hair loss or thinning has been reported. Previous histopathological studies on PV have shown that *Malassezia* could occupy perifollicular⁶ or infundibular⁵ locations and that they were usually abundant in the stratum corneum (SC).⁷ To our knowledge, no study has previously described clinical hair thinning/loss associated with histopathological evidence of hair follicle (HF) or hair shaft damage in PV.

METHODS

The study protocol was approved by the departmental and institutional research ethical committees, and patients signed written consent forms. For each of the 3 patients younger than 18 years, one parent signed the consent form. All patients with PV who had not received local or systemic therapy for PV during the preceding 4 weeks were eligible for inclusion. The nature of the study was explained and patients who agreed to participate in the study were included successively. Patients were subjected to history taking, general and dermatologic examination, Wood light examination, and photography of lesions with consent and without showing facial features. Diagnosis was based on clinical and Wood light examination. Details pertaining to lesion color, extent, hair involvement, and associated scalp scaling were documented. Two skin biopsy specimens, PV lesion and nonlesional (NL), were performed under local anesthesia. Skin biopsy specimens were fixed in paraffin and stained with hematoxylin-eosin and periodic acid-Schiff. Longitudinal sections were preferred to view the follicular infundibulum and SC. All biopsied sites included at least one visible hair or follicular ostium, whether or not clinical hair thinning or loss was noted. When patients declined facial biopsy, lesions having intact hairs were sometimes biopsied in spite of the presence of hair thinning or loss on facial lesions; follicular ostia or visible hairs were always included in the biopsy specimen. These details were considered during analysis of results. Statistical analysis of data was done using Microsoft Excel 2007 (Microsoft Corp, New York, NY) and SPSS, Version 18 for Microsoft Windows (SPSS Inc, Chicago, IL).

RESULTS

During the study period (which lasted 11 months, from October 1, 2009, to August 30, 2010) 39 patients with PV were eligible for inclusion; these patients ranged in age from 13 to 52 years; 28 were male (71.8%) and 11 were female (28.2%).

Clinical findings

PV occurred in single or multiple areas that varied among the patients. More than 80% of patients had their clinical lesions on back, chest, neck, and/or arms, whereas more than 50% had facial lesions. Beard area involvement was observed in 17 of the 28 male patients (60.7%). Hypotrichosis and/or alopecia within PV lesions was observed in 24 of the 39 studied patients (61.5%) (Fig 1) whereas hairs appeared normal in PV uninvolved skin ($P < .0005$) (Table I). Hair thinning or loss in PV lesions ranged from 6% to

40% in various body areas and reached 76.5% in the beard area of male patients, sometimes simulating alopecia areata.

Histopathology

The major pathological findings observed in hematoxylin-eosin- and periodic acid-Schiff-stained sections of both lesional (L) and NL PV skin of studied patients are presented in Fig 2. Hydropic degeneration of the epidermal basal cell layer, spongiosis, exocytosis, reticular degeneration, acanthosis, epidermal thinning, and/or hyperpigmentation of the basal layer were observed. Hydropic degeneration of the basal cell layer was present in 56.4% of L biopsy specimens and 17.9% of NL biopsy specimens ($P = .001$) (Table II). Regarding all other epidermal changes, no significant difference was found when comparing L and NL skin. Mononuclear cell infiltrate was observed in the papillary and/or upper reticular dermis. Follicular abnormalities included atrophy, degeneration, miniaturization, keratotic plugs, infundibular dilatation, and/or absent hair shaft (Figs 3 to 7). One or more of these features were noted in 46.2% of L versus 20.5% of NL biopsy specimens ($P = .031$) (Table II). Presence of hyphae in HF, surrounding hair shaft and within SC in L biopsy specimens, is illustrated in Fig 5. Ten (25.6%)

CAPSULE SUMMARY

- To our knowledge, hair thinning or loss has not been reported as a manifestation of pityriasis versicolor.
- This study provides clinical evidence and histopathological findings denoting various stages of hair follicle pathology related to the presence of *Malassezia* organisms in a considerable number of patients with pityriasis versicolor.
- Reassurance and possibly prolonged or systemic therapy may be necessary in patients with pityriasis versicolor and hair thinning or loss.

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