Ashy dermatosis, lichen planus pigmentosus and pigmented cosmetic dermatitis: Are we splitting the hair?

Sir,

What's in a name? That which we call a rose
By any other name would smell as sweet

-William Shakespeare, Romeo and Juliet

The first description of ashy dermatosis is credited to Ramirez of El Salvador in 1957 who termed these patients *Los cenicientos,* meaning the ashen ones.[1] It was later called "erythema dyschromicum perstans" to highlight the erythematous halo around pigmented macules.[2] In the 1970s, Bhutani *et al.* gave a detailed account of a similar disease presenting as brown-to-slate-gray macules on the face, trunk and flexures of Indian patients. The histopathology showed pigment incontinence, accompanied by interface dermatitis in some cases. It was considered a macular variant of lichen planus and was termed "lichen planus pigmentosus."[3] Around the same time, another pigmentary disorder was described in Japan by Nakayama *et al.* by the name of "pigmented cosmetic dermatitis," now also known as Riehl's melanosis, and cosmetic allergens were implicated in causing the pigmentation.[4] Ever since, existence of these disorders as distinct entities or as variants of the same disease has been a topic of incessant debate.

All three entities share several features – varying shades of brown-to-slate-gray macular hyperpigmentation without antecedent inflammatory lesions on the face, trunk and upper limbs [Figure 1]; and thinned epidermis, pigment incontinence and basal cell vacuolization on histopathology [Figure 2]. Even the patient profile is similar – young-to-middle-aged females with dark skin complexion are preferentially affected. Bhutani considered ashy dermatosis and pigmented cosmetic dermatitis to be the same disease as lichen planus pigmentosus, but this view is not shared by all.[5,6]

In a clinicopathological study of ashy dermatosis and lichen planus pigmentosus, patients with ashy dermatosis (n = 20) were described as having symmetrical asymptomatic blue-gray macules with an erythematous border, where as patients with lichen planus pigmentosus (n = 11) had pruritic, darker macules without the active red border. Histological differences were not significant.[7] Notably the erythematous halo, described as a characteristic feature of ashy dermatosis and the primary differentiating feature, was absent in 60% of patients with ashy dermatosis. Further, the authors do not state what "gold standard" was used to reliably distinguish between these two

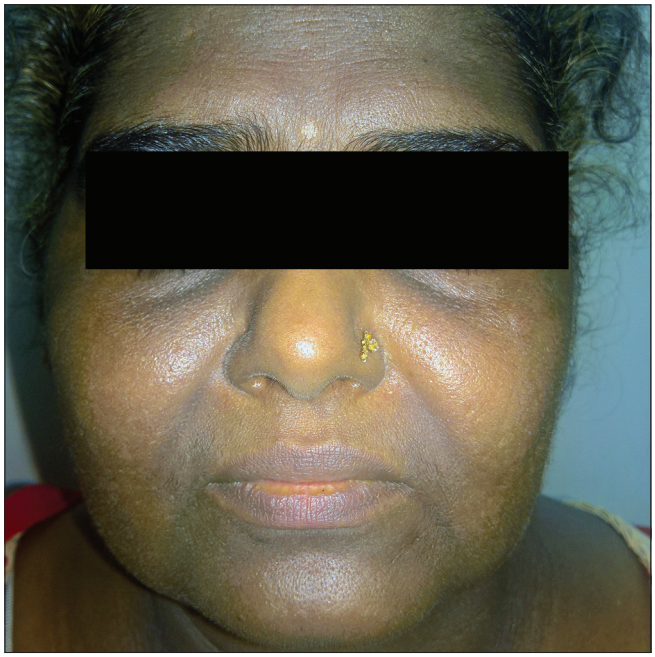

Figure 1a: Diffuse brown-to-slate-gray pigmentation on the face

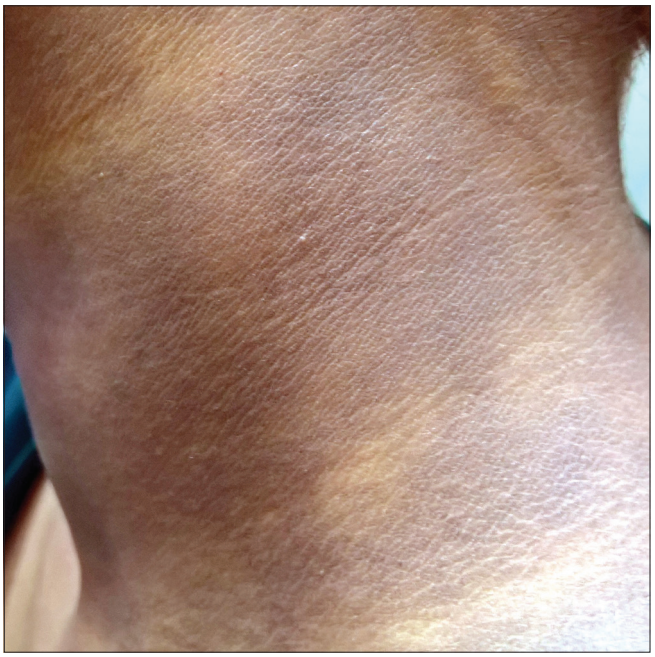

Figure 1b: Ill-defined, patchy, slate-gray pigmentation on the neck

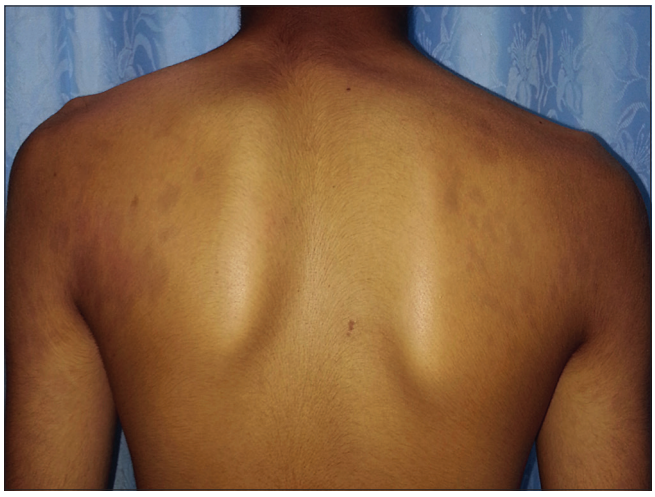

Figure 1c: Well-defined, oval, grayish macules present on the scapular area and upper arms symmetrically

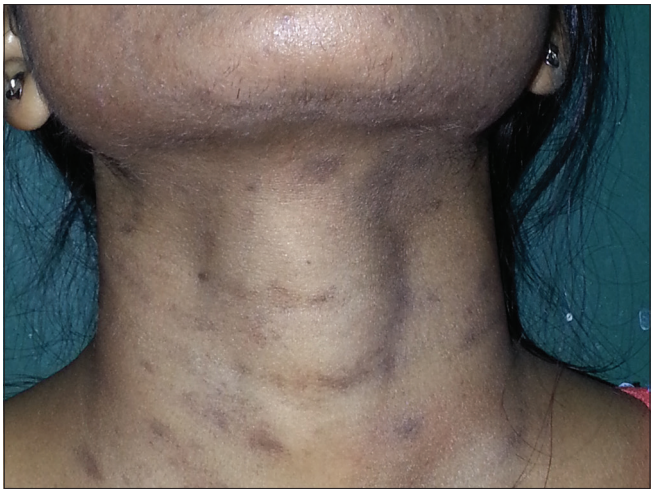

Figure 1d: Discrete, slate-gray, macules on the neck

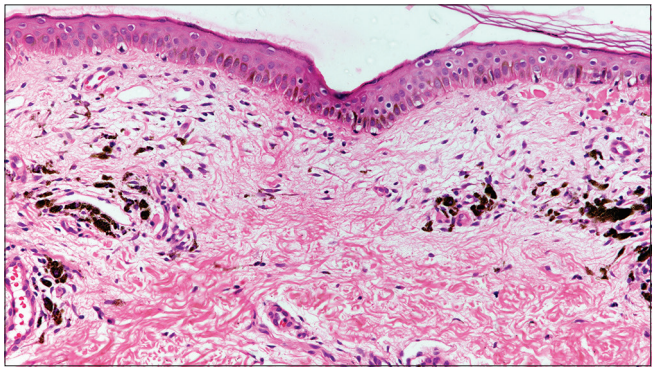

Figure 2a: Pigment incontinence in the superficial dermis is the histopathological hallmark. Colloid bodies are a tell-tale sign of a previous interface dermatitis (hematoxylin and eosin, ×200)

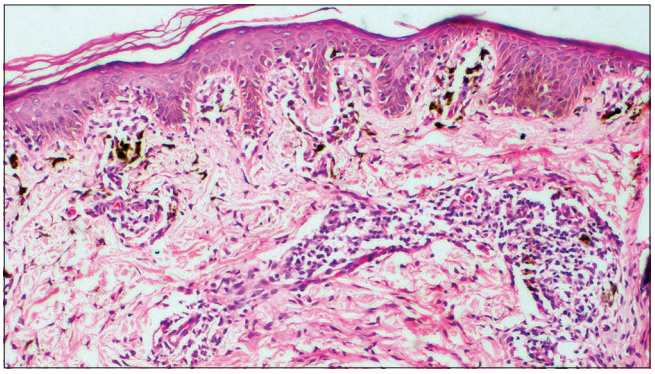

Figure 2b: Early (active) lesions may show vacuolar basal cell damage of the epidermis and superficial perivascular lymphohistiocytic infiltrate, apart from pigment incontinence (hematoxylin and eosin, ×100)

largely overlapping entities in their study. Recently, Chandran *et al*. also suggested that ashy dermatosis and lichen planus pigmentosus are distinct entities and that a diagnosis of lichen planus pigmentosus should be considered in patients with past or current evidence of lichen planus.[8] Though a potential clue, majority (70-85%) of patients present with only macular pigmentation without lichen planus elsewhere.[3,9]

One faces similar dilemma when trying to discern lichen planus pigmentosus from pigmented cosmetic dermatitis as well. Nakayama believed that the macules in pigmented cosmetic dermatitis are darker than lichen planus pigmentosus, and are usually bizarre-shaped, patchy or reticulate. Histological differences include epidermal spongiosis and lack of a band-like lichenoid infiltrate.[10] These clinical patterns of pigmentation have been reported in lichen planus

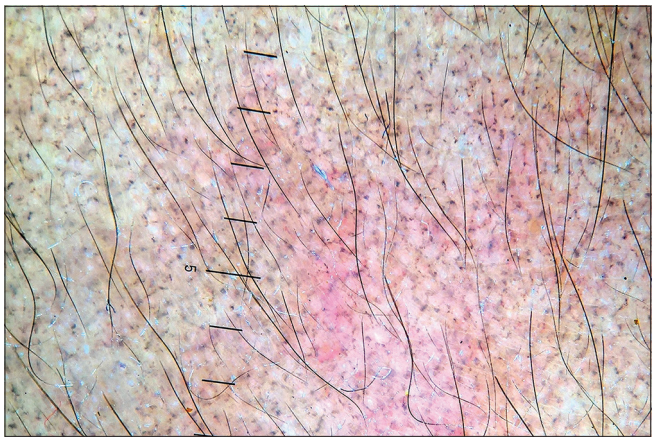

Figure 3a: Gray-brown dots and globules arranged in a linear interrupted pattern (hem-like pattern) in some areas (yellow arrows), over a background of focal erythema (Heine Delta 20T®, polarized light, ×10)

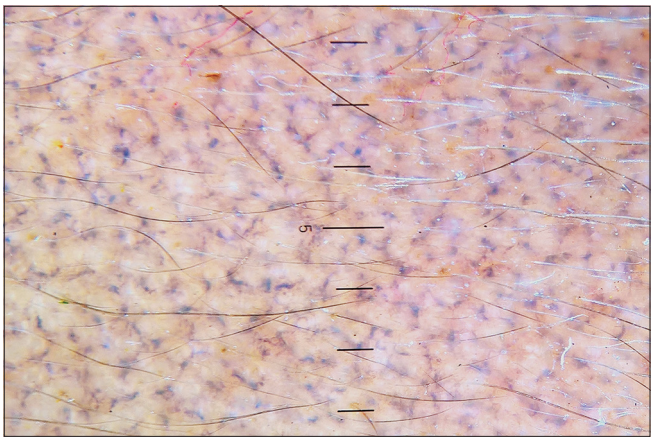

Figure 3b: Accentuation of the pseudoreticular pigment network with dots/globules in some areas (Heine Delta 20T®, polarized light, ×10)

Table 1: Clinical, histological and dermoscopic features of lichen planus pigmentosus, pigmented cosmetic dermatitis and ashy dermatosis

	Lichen planus pigmentosus	Pigmented cosmetic dermatitis	Ashy dermatosis
Clinical features			
Lesion morphology	Discrete oval macules which may coalesce to form sheets of pigmentation	Bizarre-shaped, reticular, patchy or diffuse hyperpigmentation	Well-to-ill-defined macules and patches
Color hue	Slate-gray-to-dark brown	Various (black, dark brown, pale brown, bluish purple)	Ashy-or-blue-gray, brown
Erythematous hue	Absent	Absent	May be present
Sites of predilection	Face, neck, trunk and upper limbs, can be flexural	Face and neck, sometimes extending to arms and shoulders	Face, neck, trunk and upper limbs
Pruritus	May be present	Usually present	Absent
Histological features			
Epidermal atrophy	Can be present in old lesions	Often present	Often present
Hypergranulosis	Usually present	Absent	Absent
Epidermal spongiosis	Absent	May be present	Absent
Basal cell damage	Usually present	Usually present	Usually present
Colloid bodies	Usually present	Maybe present	Usually present
Band-like lichenoid infiltrate	Usually absent, but can be present in early lesions	Absent	Absent
Pigment incontinence	Present	Present	Present
Dermoscopic features			
Dots/granules (globules)	Usually present	Present	Present
Accentuated pseudoreticular pigment network	Usually present	Present	Absent
Pigment accentuation around follicular/eccrine openings	May be present	Absent	Absent
Follicular keratotic plugs with perifollicular whitish halo/targetoid appearance	May be present, appears to be related to facial site	May be present, appears to be related to facial site	Absent
Erythema and telangiectasias	May be present	Often present	Absent
Loss of facial vellus hair	May be present	Absent	Absent
Flour-like scales	Absent	Often present	Absent
Whitish areas	Absent	Absent	May be present

pigmentosus as well, whereas a lichenoid infiltrate is seen only in a subset of cases (18–63%), probably in early active lesions.[9,11] The clinical and histological differences are debatable, and even patch testing does not appear to be a reliable tool. While not every patient diagnosed as pigmented cosmetic dermatitis has a positive patch test, contact sensitivity to para-phenylenediamine, nickel, fragrances and other cosmetics has been reported in lichen planus pigmentosus and ashy dermatosis also.[12] We found one third (n = 17/50, 34%) of our patients with facial lesions of lichen planus pigmentosus to have a positive patch test. Dermoscopic examination revealed gray-brown dots/globules as the most common finding [Figure 3a], followed by accentuation of pseudoreticular network [Figure 3b]. Further, we did not find any significant differences in the dermoscopic findings between patients with and without positive patch test results.[13] Similar dermoscopic findings have been reported by Pirmez *et al.* in lichen planus pigmentosus.[14] Some of these, such as pseudonetwork and dots/globules, have been reported in Riehl's melanosis as well.[15] Dermoscopy of ashy dermatosis, reported in only a few cases so far, is also similar.[16] Dermoscopic evaluation of these disorders is still at a nascent stage, and its utility in their differential diagnosis needs to be further explored. The clinical, histological and dermoscopic features of lichen planus pigmentosus, pigmented cosmetic dermatitis and ashy dermatosis, as described in the literature, are summarized in Table 1.

The differentiating points among these entities are too variable (such as pruritus, pigment hue, pattern, symmetry) and too subtle (erythematous halo) to be regarded as robust discriminating criteria. The occurrence of classic lichen planus in patients with ashy dermatosis further suggests that the two disorders may be related.[17] It is likely that these "differences" are merely variations in the spectrum of the same disease or may represent different stages in the evolution of disease. A disease may have different names in different regions – what we prefer to call "lichen planus pigmentosus" in the Indian subcontinent may be more commonly known as "ashy dermatosis" in Latin America. We believe that these pigmented macules represent a clinical reaction pattern, instead of a specific disease, with different underlying causes. Triggers can be several – contact allergens, food allergens, drugs, viral infections or a systemic cause such as thyroid dysfunction. A subset of these cases may truly be idiopathic. Irrespective of what we choose to label it, a thorough history regarding drugs, cosmetics and other potential allergens is essential, which will dictate further management. In the absence of unambiguous clinicopathological differences, should a distinction be made among these overlapping entities?. Is there a difference in the natural course of these entities and/or response to treatment or removal of implicated allergens? Currently available information on these aspects is limited but there appears to be no significant difference.[7,11] Future prospective carefully designed studies are needed to answer these important questions. Lack of a uniform nomenclature has been a hindrance in furthering research on these poorly understood entities. A global forum is presently working to reach a consensus on the nomenclature. Till that time, a descriptive term such as "macular hyper-pigmentation of uncertain etiology" may be better which encompasses the clinical and histological features of these pigmentary disorders, while also emphasizing their poorly understood etiopathogenesis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for his images and other clinical information to be reported in the journal. The patient understand that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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