

# A Study of 10 Cases of Ashy Dermatitis and Lichen Planus Pigmentosum

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**Abstract:** Ashy dermatosis is characterized by symmetric ashy gray-colored confluent macules with polycyclic margins over the body. The etiology of ashy dermatosis or EDP (*Erythema dyschromicum perstans*) is unknown. lichen planus pigmentosus (LPP) is characterized by hyperpigmented dark brown or slate grey macules distributed mostly over exposed areas and flexures. There are exacerbations and remissions occasionally accompanied by pruritus. The lesions lack the erythematous border seen in EDP. We selected five patients each of LPP and EDP from the dermatology OPD for the study. Oral mucosal involvement was seen in 3 or 60% patients of LPP and in none of the patients of Ashy dermatosis. Pruritus was seen in 100% patients with LPP and was seen in none of the patients with ashy dermatosis. Lesions over photoexposed sites and flexures was seen in 100% patients of LPP and 60% patients of ashy dermatosis. Trunk involvement was seen in 40% patients of LPP and 100% patients of ashy dermatosis.

## INTRODUCTION

The etiology of ashy dermatosis or EDP (*Erythema dyschromicum perstans*) is unknown. It is a controversial entity and is sometimes considered as a variant of lichen planus.<sup>1</sup> It is characterized by slowly progressive, diffuse darkening of the face, arms, neck, and trunk. Dark colored individuals are most commonly affected in their second decade of life. However, a number of etiological factors like ingestion of ammonium nitrite, nematodes infestation, radiographic contrast media, cobalt allergy, and chlorothalonil exposure among banana farm workers have been implicated.<sup>2,3,4</sup> Women and darker-skinned individuals are more often affected.

Ashy dermatosis presents two main clinical aspects: the ashy-color maculae, and the involvement mainly in darker-skinned patients often from Latin America and Asia. It is characterized by bluish-grey color of the lesions, which is not present in other post-inflammatory conditions and also it has preference for dark-skinned patients in certain ethnic groups. The blue-grey color can be explained by the Tyndall effect because of the melanin found in the dermis. Bluish dermal melanocytoses are also more common in these same racial and ethnic groups. Perhaps the particular size and distribution of melanosomes in these groups predisposes them to development of ashy dermatosis. Some authors suggest that the condition is no more than a post-inflammatory pigmentary change in dark-skinned people.<sup>5</sup> Many authors point out that ashy dermatosis could be just the outcome of prolonged damage to the basal cell layer in many conditions with a lichenoid pattern, essentially just a type of post-inflammatory hyperpigmentation stage. The hyperpigmentation in ashy dermatosis is attributed to the presence of dermal melanophages.

The histopathological study of ashy dermatosis shows superficial perivascular dermatitis, with a mild perivascular lymphocytic infiltrate in the papillary dermis and atrophy of the suprajacent epidermis.<sup>6</sup> Melanophages are usually present in the papillary dermis. There is focal vacuolar alteration of basal layer with mild to moderate infiltrate of lymphocytes and histiocytes intermixed with melanophages with evidence of some Civatte-bodies in the dermis. The term LPP should be reserved for those cases where in addition to hyperpigmented macular patches, the patient has either some lesions or history of lesions in past suggestive of LP. Lichen planus pigmentosus, a distinct clinical entity commonly encountered in the Indian population, should be considered in the spectrum of lichenoid disorder.

The aim of this analyse the clinical and histopathological features of Lichen planus pigmentosum and ashy dermatosis.

## MATERIAL AND METHODS

We selected five patients each of LPP and EDP from the dermatology OPD for the study. Written informed consent was obtained from all the patients for the study. Prior approval of hospital ethical committee was taken before the study. Detailed history was taken in all the patients regarding the site of onset of pigmentation, its rate of progression, associated symptoms and family history of similar pigmentation. History of use of cosmetics (soaps, toiletries etc) and drug intake was taken before the study. Changes in oral mucosa, hair and nails were also noted. Routine investigations were done in all the patients. Specialized investigation including histopathological examination was done in all the patients. In histopathology, specific features looked for were: basal cell degeneration, colloid bodies and the nature and site of infiltrate.

## RESULTS

**Demographics:** Patients were equally distributed in the age groups 10-50 years; There were 8 females and 2 males, ratio being 4:1. Clinical presentation in two categories of cases is shown in the following table.

**Table :** Table showing clinical features of LPP and Ashy Dermatitis

SR NO	CLINICAL FEATURES	NO OF PATIENTS(LPP)	%	NO OF PATIENTS (ASHY DERMATOSIS)	%
1	Pruritus	5	100%	Nil	-
2	Lesions over photo exposed sites & flexures	5	100%	3	60%
3	Oral mucosal involvement	3	60%	0	-
4	Trunk involvement	2	40%	5	100%

The duration of the disease was between 4 months and 10 years. Palms and soles were spared in all the patients. In 2 patients of EDP elevated red border suggestive of *erythema dyschromicum perstans* (EDP) was seen around the pigmented patches. In patients with LPP, bluish black pigmentation (Fig 1) was seen in 3 patients and purplish pigmentation was seen in 2 patients. The pattern of pigmentation was diffuse in 3(60%) patients, reticular in 1(24%) and perifollicular pigmentation mostly on arms and forearms was seen in 1 patient. Oral mucosal involvement was seen in 3 or 60% patients (Fig 2) of LPP and in none of the patients of Ashy dermatosis. Pruritus was seen in 100% patients with LPP and was seen in none of the patients with ashy dermatosis. Lesions over photoexposed sites and flexures was seen in 100% patients of LPP and 60% patients of ashy dermatosis. Trunk involvement was seen in 40% patients of LPP and 100% patients of ashy dermatosis. There was no

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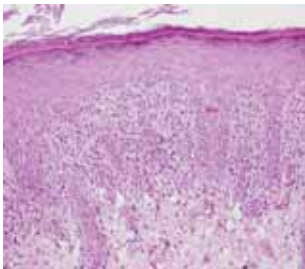
apparent relation of development or aggravation of pigmentation with the use of oils or toiletries in any patient. There was one patient with positive family history of lichen planus. There was no history of any intake of known photosensitizing drugs and none of the female patients were on oral contraceptives.



**Fig. 1** - A 50 years old female having Lichen Planus Pigmentosus



**Fig. 2** - Oral mucosal lesions in the same patient



**Fig. 3** - Photomicrograph of the same patient of LPP showing acanthosis, lichenoid mononuclear dermal infiltrate and Civatte bodies (H & E stain 100x)



**Fig. 4** - Ashy Dermatitis in a 35 years old patient without mucosal involvement

## DISCUSSION

Ashy dermatitis is known by the many different names by which the disease is also known, such as erythema dyschromicum perstans, erythema chronicum figuratum melanodermicum. In fact, some clinicians consider ashly dermatitis to be nothing but a variant of LP.<sup>7</sup> Onset is usually between the first to third decades of life. It starts abruptly or slowly as an ashly gray asymptomatic symmetric macular lesion of approximately 0.5 cm-2 cm over the trunk and spreads centrifugally to face (Fig 4) and extremities. Early lesions have elevated erythematous active borders about 1-2 mm. However, this border is often not present and eventually disappears after several months. Also, the erythematous border may not be perceptible in such dark-skinned patients.<sup>8</sup> Lesions are oval, polycyclic, or irregular in shape. The palms, soles, scalp, nails, and mucous membranes are typically spared. Histology shows lichenoid dermatitis (Fig 3). When light hits the skin, the long wave lengths of light are preferentially absorbed by the melanin of the melanophages which characteristically are present in the dermis in ashly dermatitis, Shorter wave lengths are scattered by the collagen bundles, similar to scatter in the sky by various molecules composing the air, and the outcome is a bluish lesion to the human eye. Ashly dermatitis or EDP has a slow onset and is unlikely to resolve spontaneously.

Bhutani et al. described 40 Indian patients with similar symptoms to those reported by Ramirez, except that about one-third had associated lichen planus clinically and histologically.<sup>9</sup> This entity was called lichen planus pigmentosus, and it is considered a macular variant of lichen planus. Bhutani et al 1974, introduced a new entity which they labelled as lichen planus pigmentosus (LPP).<sup>10</sup> It is characterized by hyperpigmented dark brown or slate grey macules distributed mostly over exposed areas and flexures. There are exacerbations and remissions occasionally accompanied by pruritus. The lesions lack the erythematous

border seen in EDP. The clinical association of this disorder with lesions of classical lichen planus in about one third of the patients and demonstration of colloid bodies on histopathology prompted Bhutani et al to coin the term lichen planus pigmentosus. They suggested that ashly dermatitis is similar to LPP and it was further emphasized that AD is a macular variant of lichen planus. Vega et al. reported in 1992 that LPP and ashly dermatitis are distinct entities and presented clinical differences between the two.<sup>11</sup> Some argue that ashly dermatitis may be a variant of LP. This was based on the clinical observation that EDP may accompany, precede, or follow lesions of LP and from the similarities shared on histology and immunofluorescence. The two disorders may be histologically indistinguishable. LPP is differentiated by the distribution of lesions in photoexposed and flexures, presence of lesions of LP subsequently or simultaneously and the associated pruritus.<sup>12,13</sup> On the other hand, EDP does not have any predilection for photoexposed areas. It is usually not pruritic. In EDP, the lesion starts as a symmetrical ashly gray macules over the trunk that spreads in a centrifugal manner to involve the extremities with polycyclic margins.<sup>14,15</sup> There can be residual hypopigmented halo in cases of EDP. LPP is a chronic condition with relapses and remissions, whereas EDP has a chronic and insidious course. Thus, EDP is a distinct clinical entity characterized by pigmented lesions which are initially small, discrete, illdefined oval to round macules which later become confluent to form large areas of pigmentation. The pigmentation varies from bluish-black to slate-grey or purplish. It may be diffuse or reticular. The lesions are only mildly pruritic and face and neck are the most frequent initial sites of involvement. Later the trunk and extremities may be involved. The palms and soles are spared and involvement of oral mucosae is infrequent. Both the sexes are affected. The course is chronic and persistent. The histopathological findings are same as observed in other disorders exhibiting a lichenoid tissue reaction. Ashly dermatitis is differentiated from Lichen planus pigmentosus by the absence of pruritus, the lack of involvement of the oral mucosa, and the bluish-black discoloration of skin.

## CONCLUSION

We conclude by stating that EDP and LPP should be considered as distinct entities.

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