Palmoplantar Lesions of Lichen Planus

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Abstract

Introduction: Palmoplantar lesions of lichen planus (LP) are uncommon and may not always have classical clinical features of LP. A variety of morphological types has been described in literature. Aim and Objectives: The aim was to study and classify the clinical variants into distinct easily recognisable categories for quick recognition and early treatment initiation. Methods: All patients diagnosed with LP over a period of 5 years were evaluated for palmoplantar lesions in our hospital. The clinical and histopathological features of the palmoplantar lesions were then studied. Results: Out of 424 patients of LP, 55 (12.9%) had palmoplantar lesions. Histopathology was consistent or at least compatible with LP in 44/55 patients. For the purpose of assessment, only patients with histopathology consistent with LP were included (n = 44) in the study. Just over half of the patients were male, with most patients (43.2%) having had LP lesions elsewhere for 6 months before palmoplantar lesions were noticed. Soles were more frequently involved than palms. The sites most often involved were the centre of the palms (45.2%), and the instep of the soles (63.9%). The predominant morphological presentation was psoriasiform (47.7%). One patient had ulcerative lesions of LP on both his soles which is a very rare variant. Notably, nearly half of the patients (20/44) had mucosal (mostly oral) lesions characteristic of LP. This was significant as typical oral lesions of LP help in identifying palmoplantar lesions that do not have classical lichenoid morphology. Conclusion: LP lesions on palms and soles need to be identified keeping a high index of suspicion and differentiated from other papulosquamous conditions so that specific treatment can be initiated early.

Key Words: Eczematous, hyperkeratotic, lichen planus, palmoplantar, psoriasiform

What was known?
- Palmoplantar lesions in lichen planus (LP) are less common
- The clinical presentation may not be typical of LP
- The histopathology is usually compatible or consistent with LP and is a very useful tool in diagnosing such patients.

Introduction

Lichen planus (LP) involving the palms and soles is uncommon and usually does not have typical morphological findings; thus, it is often misdiagnosed.1,2 Various authors have described different morphological patterns of palmoplantar LP: erythematous scaly plaques, punctate keratoses, diffuse hyperkeratosis, ulcerated lesions, vesicular lesions, umbilicated papules, and diffuse hyperpigmentation of the palms and/or soles, mostly as isolated case reports or short series.3–11 We conducted this study to evaluate the clinical and histopathological characteristics of palmoplantar LP and to categorise the lesions into distinct, easily recognisable clinical groups.

Methods

All patients diagnosed with LP in the outpatient department over 5 years were recruited in the study. The patients were diagnosed on the basis of both clinical and histopathological findings. They were given patient information sheets to read and were then asked to sign the informed consent forms. Their demographic details were entered in preset pro forma. During this time, a total of 424 patients of LP were seen in the department, out of which 55 had palmoplantar lesions.

Palmoplantar lesions were defined as those appearing on the ventral aspect of the palms, fingers, soles,
and toes, excluding the wrists and ankles. The clinical features of the patients with palmoplantar lesions were studied in detail and entered in the proforma. Significant findings in the history such as duration of illness before palmoplantar lesions appeared, initial site of lesions, personal and family history of LP, vitiligo and atopy, and drug intake were recorded. Mucocutaneous examination was then carried out to study the lesions on the skin, scalp, nails and mucosae, sites of palms and soles involved, morphology of the lesions, number, grouping, Koebner's phenomenon, edge, and symmetry. Biopsies were taken from representative lesions on the palms or soles of all consenting patients and histopathological characteristics noted.

Results

Fifty-five patients had LP lesions on the palms and soles, out of a total of 424 patients with LP (12.9% patients). Males slightly outnumbered females (54.5% vs. 45.4%). The mean age was 32.5 year (range: 12–65), with the highest number of patients presenting in their 3rd decade.

Histopathological examination was done in these 55 patients after obtaining consent, and in 44 of them, the findings were consistent with LP [Figures 1c and 2c]. In the remaining 11, nonspecific features were seen along with few features suggestive of LP. The most frequent findings were irregular hypergranulosis (52.4%) and colloid bodies (43.2%). For the final analysis, only those patients were included whose histopathology findings were consistent or compatible with the diagnosis of LP (n = 44/55).

Most patients reported onset of LP on skin away from the palms and soles or in the oral cavity; only 4 (9.1%) had initial lesions on the palmoplantar area. Most of the patients reported itching over the palmoplantar lesions (86.4%).

Sole involvement was slightly more common (36/44) than palmar involvement (31/44). The most common sites involved over the palms were the central palm (45.2%) and thenar eminence (41.9%). Lesions were also found over the hypothenar eminence and edges of the palm (32.3% each) while lesions on ventral aspect of the fingers were least common (seen only in 19.4%). On the soles, the instep was the most common site (63.9%) followed by the edges of the sole (38.9%) and less commonly over the heels, toes, and balls of the feet.

Almost half of the patients had >10 lesions on their palms and/or soles (47.7%) while approximately one-fourth each had <5 and 5–10 lesions. Less than one-fifth patients had grouping of lesions. Most of the patients with involvement of the edges of the palms and/or soles had lesions extending onto the dorsal surface too. Lesions were almost always bilateral on the palmoplantar area.

Most patients with involvement of both the palms and soles had morphologically similar lesions at both the sites.

On the basis of our observations, we were able to categorise the lesions into the following distinct morphological patterns:

a. Lichenoid: Well-defined erythematous papules and plaques, with violaceous to hyperpigmented margins, fine whitish adherent scales, and koebnerisation may be present

b. Psoriasiform: Erythematous papules and plaques with well-defined edges, smooth or scaly surface, with collarette of scales

c. Eczematous: Ill-defined, diffuse, erythematous to hyperpigmented scaly plaques with a hyperkeratotic or glazed surface

d. Punctate keratotic: Hyperpigmented, hyperkeratotic papules with central plug/crater

e. Ulcerative: Frankly ulcerative painful oozing/hemorrhagic lesions.

The most common presentation was psoriasiform [Figure 1] (21/44; 47.7%) followed by eczematous type [Figures 3 and 4] (12/44; 27.3%). Punctate hyperkeratotic papules and classical lichenoid lesions were present in 5 patients each [Figures 2 and 5] (11.4%). One young male patient had well-defined, painful ulcers on his soles which oozed blood on walking [Figure 6]. The ulcers had a raw oozing floor with well-defined irregular violaceous margins. Healed
ulcers had depigmented centres and hyperpigmented margins. The palms and nails were uninvolved; however, the clue to the diagnosis was typical lesions of LP on his buccal mucosae. None of our patients had vesicles or vesicle-like papules, bullae, umbilicated papules, petechiae, or diffuse hyperpigmentation over the palms/soles.

LP lesions on the rest of the body were classic violaceous papules and plaques in the majority (43.2%); other forms seen were hypertrophic, LP pigmentosus (in 7/44 patients or 15.9%). Seven patients who seemed to have isolated palmoplantar involvement initially were seen to have mucosal lesions (7/44 or 15.8%). We did not come across any patient with solely palmoplantar LP. However, these clinical descriptions can be extrapolated to such patients too. A single patient had generalised reticulate LP pigmentosus with eczematous type of palmoplantar LP on the soles.[4]

Notably, mucosal involvement was seen in nearly half of the patients with palmoplantar lesions (20/44), and as mentioned earlier, 7 of them did not have lesions over the rest of the body. Thus, mucosal lesions were a significant and frequent accompanying feature. In the majority of the patients, oral mucosa (mainly lips and buccal mucosa) were involved; however, in two patients only, the glans penis had annular violaceous plaques. None of the patients had a history of relevant drug intake before lesion onset. Two patients had a family history of LP.

Discussion
In our study, lesions of LP on palms and/or soles were seen in 12.9% patients. Sánchez-Pérez et al, in their study, had reported an incidence of 26%, but they attributed the high percentage to referral bias.[4] Singh and Kanwar, in their study on 441 cases of LP, had reported 5 patients with lesions on palms and/or soles and 1 patient with ulcers on the palmoplantar area.[5] Kachhawa et al had studied 375 Indian patients with LP and reported 3.5% of patients with palmar and 4.3% of patients with sole involvement.[5]

Males outnumbered females and the maximum number of cases fell in the 20–30-year age group, in concordance with other Indian studies (though western literature shows a higher age group of 30–60 years).[2,5] All barring 6 patients complained of itching in their lesions since
pruritus is the predominant symptom of LP, including palmoplantar lesions.

We noted that sole lesions were more common than those on the palms, similar to the observations made by Sánchez-Pérez et al.\textsuperscript{4} The most commonly involved sites were the instep and edge of the feet and the thenar eminence and centre of the palms. The digits were very infrequently involved.

Various morphological types of palmoplantar LP have been reported in literature, mostly as isolated case reports: erythematous scaly plaques, diffuse yellow hyperkeratosis or keratoderma, punctate hyperkeratotic hyperpigmented papules and plaques, diffuse hyperpigmentation, vesicle-like papules, bullae, ulcers, umbilicated papules, and even petechiae.\textsuperscript{3-11} Sánchez-Pérez et al grouped the palmoplantar lesions in their series of 36 patients according to the predominant morphological pattern as (i) erythematous scaly pattern – well-defined hard erythematous plaques or (ii) hyperkeratotic pattern – diffuse yellow hard papular lesions, resembling keratoderma.\textsuperscript{4} However, most Indian studies have not reported the yellow hyperkeratotic lesions, most likely due to the darker Fitzpatrick skin types of the population. Furthermore, there were a variety of other clinical morphologies that we saw in our series, and hence, we devised a simpler classification, based on the predominant morphology of the lesions – classical lichenoid, psoriasiform, eczematous, punctate keratotic, and ulcerative. Psoriasiform was more common than lichenoid, hence laying credence to the fact that palmoplantar LP is usually not lichenoid in appearance. One patient had ulcerative LP of the soles; the diagnosis of which had been missed initially due to the atypical appearance but was later diagnosed owing to the typical oral lesions; none of the other rarer variants was seen though we must admit this could be attributed to missed diagnosis or misdiagnosis.

Palmoplantar LP lesions, in contrast to classic LP lesions, do not have Wickham’s striae (due to thick stratum lucidum of the palms and soles) and are not shiny. Since the clinical features in palmoplantar LP are not always suggestive of the diagnosis, biopsy is extremely useful. The differential diagnosis includes psoriasis, acquired palmoplantar keratoderma, verruca vulgaris, callus, xanthomas, syphilis, Kyrie disease, acrokeratosis paraneoplastica, punctate porokeratosis, lichen simplex chronicus, tinea pedis/tinea manuum, and eczematous hand dermatitis.

Palmoplantar psoriasis presents either with typical erythematous scaly plaques with clearly demarcated margins or more diffuse thick hyperkeratotic plaques and sometimes as palmoplantar pustulosis. There is the absence of vesiculation, and the lesions are mostly nonitchy. LP on the palms and soles may be itchy and may present in a variety of clinical presentations, as discussed. The violaceous colour instead of erythema may be difficult to appreciate on palms and soles.

Histopathology may serve to differentiate LP from psoriasis as it is generally consistent across different clinical variants. It consists of hyperkeratosis with focal wedge-shaped hypergranulosis, irregular acanthosis, liquefaction degeneration of the basal cell layer and a band-like superficial dermal lymphohistiocytic infiltrate, colloid bodies in the deep epidermis and superficial dermis, and Max Joseph spaces. Saw-toothing of the papillae is another commonly seen histopathologic feature.

**Conclusion**

Thus, palmoplantar lesions of LP are an uncommon yet distinct manifestation and are often missed clinically due to the morphological differences from classical LP. Any lesion on the palmoplantar areas in a patient with cutaneous and/or mucosal LP should prompt a biopsy for confirmation of diagnosis and appropriate management.

**Declaration of patient consent**

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

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**Conflicts of interest**

There are no conflicts of interest.
What is new?

• Lichen planus (LP) of the palms and soles is not so uncommon; the low incidence may in fact be due to missed diagnoses or misdiagnoses.
• There is a need for high index of suspicion and easy-to-visualise clinical descriptions to aid quicker diagnosis.
• Other clinical descriptions of palmoplantar lesions of LP are there in literature, for e.g., diffuse yellow hyperkeratosis, but all may not be observed in Indian population.

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