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Case Series

Dermoscopy of lichen nitidus: a study of 20 cases

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ABSTRACT

Lichen nitidus (LN) is a chronic inflammatory lichenoid dermatosis, commonly seen in childhood or early adulthood. In this case series, we studied the various dermoscopic features of LN and correlate them with clinical variants, duration of disease and histopathology. A total of 20 patients of LN were studied. The mean age was 25.7 years with 45% and 55% male and female, respectively. The median duration of disease was 6 months. The dermoscopic findings seen on non-polarizing mode were-shiny elevated surface with absence of skin markings (100%), scaling (70%), radial ridges (50%) and central depression (35%). Findings seen on polarizing mode were-hypopigmentation (100%), brown shadow (70%), linear vessels (65%), accentuation of surrounding reticulate pigment network (65%), diffuse erythema (45%). Newer findings seen were central grey-brown structureless areas (30%), speckled brown pigment (40%), curvilinear vessels (50%), branching/serpentine vessels (20%), radial vessels (10%), white dots and streaks (30%) and ring-in-ring appearance (5%). LN presents fairly distinctive dermoscopic features and dermoscopy can be a non-invasive, painless aid in differentiating it from close clinical differentials and avoid the need for a biopsy, especially in children.

Keywords: Dermoscopy, LN, Lichenoid disorders

INTRODUCTION

Lichen nitidus (LN) is a chronic inflammatory lichenoid dermatosis, more commonly seen in childhood or early adulthood. It is characterized by development of pinpoint to pinhead-sized papules, which are usually asymptomatic and skin-coloured to hypopigmented, with a flat, shiny surface. The sites commonly involved are upper extremities, trunk, buttocks, and genitalia, with occasional involvement of nails and palms and soles. The common clinical differentials that need to be differentiated are lichen scrofulosorum, follicular eczema, follicular psoriasis, keratosis pilaris and PMLE. The diagnosis can be confirmed through histopathological examination which shows a flattened parakeratotic epidermis with acanthotic rete ridges extending downwards like a claw clutching a 'ball like' lymphohistiocytic inflammatory infiltrate, giving a characteristic "ball in claw appearance." Basal cell hydropic degeneration is also seen in some cases.[1] Knowledge of dermoscopic features of LN can be a valuable non-invasive and painless diagnostic aid to differentiate and rule out clinical mimics, especially in children where an invasive method like biopsy may not always be feasible. Therefore, through this study, we identify newer dermoscopic patterns seen in LN, dermoscopic patterns with respect to different clinical variants and duration of disease, and histopathological correlation of dermoscopy findings.

CASE SERIES

In a span of 6 months, 20 patients of LN were studied. Only biopsy proven cases of LN were included in the study. Clinical features (age, sex, duration, symptoms, morphology and site) were recorded. Dermoscopy was

done in both non polarized and polarized modes using were studied using a self-illumination digital dermatoscope Dino-lite AM4113/AD4113 series. Dermoscopic features were studied and correlated clinically.

The mean age was 25.7 years with a range of 6-65 years. 50% patients were in the pediatric age group. 45% and 55% patients were male and female, respectively. The median duration of disease was 6 months with a range of 7 days to 2 years. In symptomatology, 55% patients were asymptomatic while 45% complained of itching. Forearms, arms, dorsal aspect of hands and back were the most common sites in the decreasing order of the frequency.

Koebner phenomenon was seen in 60% cases and associated atopy in 40% cases. Associated diseases like psoriasis and lichen planus was seen in 5% and 15% patients, respectively. Nail involvement was seen in 45% patients.

The clinical variants seen were generalized (60%), actinic (20%), palmoplantar (15%) and follicular (5%) (Figure 1).

Dermoscopic findings seen on non-polarizing and polarizing modes are depicted in Table 1. The findings seen on non-polarizing mode were-shiny elevated surface with absence of skin markings (100%), scaling (70%), radial ridges (50%) and central depression (35%) (Figure 2). Findings seen on polarizing mode were-hypopigmentation (100%), brown shadow (70%), linear vessels (65%), accentuation of surrounding reticulate pigment network (65%), diffuse erythema (45%) (Figure 3).

The newer dermoscopic findings seen are depicted in Table 2.

Two types of pigmentary patterns were seen: central grey-brown structureless areas (30%) and speckled brown pigment (40%). Newer vascular patterns seen were curvilinear vessels (50%), branching/serpentine vessels (20%), radial vessels (10%). Other patterns seen were white dots and streaks (30%) and ring-in-ring appearance (5%) (Figure 4 and 5).

In the actinic variant, diffuse erythema and brown structureless areas were seen in 75% of the cases. A characteristic “fern-leaf” pattern was seen in 1 case. In the follicular variant, three zones were seen from inside to outside-perifollicular collarette scaling, rim of hypopigmentation and rim of accentuated pigment network. Two patterns were seen in the palmoplantar variant-circular pits with brown rim and circular pits with keratotic plugging (Figure 6).

The dermoscopic findings with respect to the duration of the disease are depicted in Table 3. In acute disease (<6 months), the most common dermoscopic findings were-brown globules and speckled pigment (60%), brown shading (60%), and scaling (60%). In chronic disease (>6 months), the most common dermoscopic findings were linear vessels (80%), brown shadow (80%) and scaling (75%) followed by curvilinear vessels (60%).

Table 1: Dermoscopic findings of LN on non-polarizing and polarizing modes, (n=20).

Variables	Percentage (%)
Non-polarizing	
Shiny elevated surface with absence of skin markings	100
Scaling	70
Radial ridges	50
Central depression	35
Polarizing	
Hypopigmentation	100
Brown shadow	70
Linear vessels	65
Accentuation of surrounding reticulate pigment network	65
Diffuse erythema	45

Table 2: Newer dermoscopic patterns observed in LN, (n=20).

Dermoscopy findings	Percentage of total study population (%)
Pigmentary patterns	
Central grey-brown structureless areas	30
Speckled brown pigment	40
Newer vascular patterns	
Curvilinear vessels	50
Branching/ Serpentine vessels	20
Radial vessels	10
Other patterns	
White dots and streaks	30
Ring in ring appearance	5

Table 3: The dermoscopic findings with respect to the duration of the disease.

Dermoscopic finding	Acute (< 6 months), (n=11) (%)	Chronic (> 6 months), (n=9) (%)
Scaling	60	75
Brown shadow	60	80
Linear vessels	45	80
Curvilinear vessels	20	60
Branching vessels	0	25
Whitish dots and streaks	10	45
Brown globules and speckled pigment	60	30
Diffuse erythema	50	20

Figure 1 (A-D): The variants of LN seen; generalized, actinic (arrow), palmoplantar (encircled) and follicular variant (encircled).

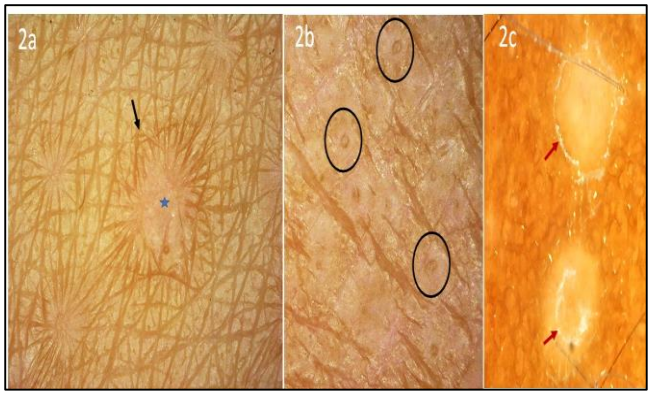

Figure 2 (A-C): Dermoscopy of LN (non-polarized mode; 20x) showing shiny surface with absent skin markings (star) and radial ridges with characteristic 'star burst' appearance (arrow). Dermoscopy of lichen nitidus (non-polarized mode; 20x) showing a central depression (encircled). Dermoscopy of lichen nitidus (non-polarized mode; 20x) showing central and peripheral scaling (arrow).

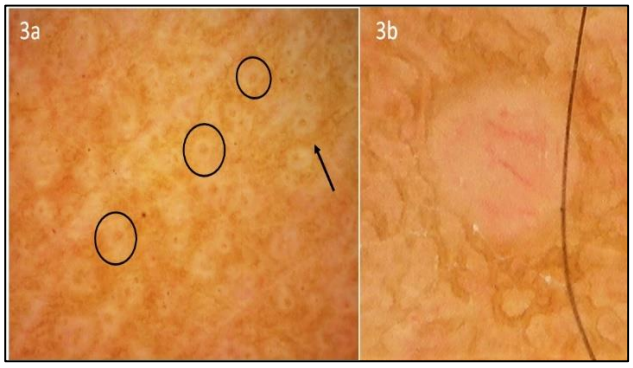

Figure 3 (A-B): Dermoscopy of LN (polarized mode; 20x) showing circumscribed hypopigmentation with central brown shadow (encircled) surrounded by accentuation of pigment network (arrow). Dermoscopy of LN (polarized mode; 100x) of diffuse erythema and linear vessels.

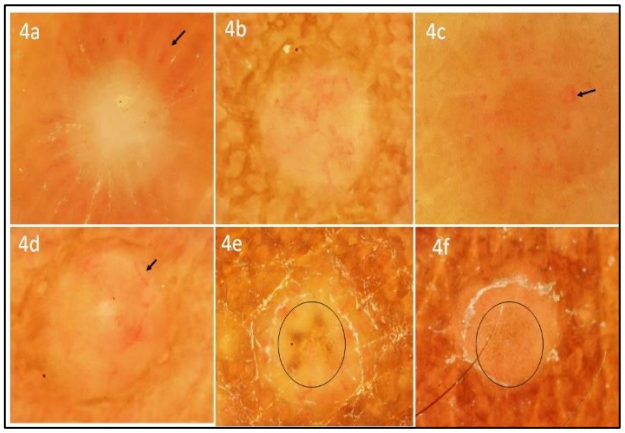

Figure 4 (A-F): Dermoscopy of LN (polarized mode; 100x) of various vascular patterns seen in LN. Radially arranged vessels with 'sunray appearance', branching/serpentine vessels, curvilinear vessels arranged radially and linear vessels. Dermoscopy of LN (polarized mode; 80x) of pigmentary patterns seen in LN: brown structureless areas and brown speckled pigment.

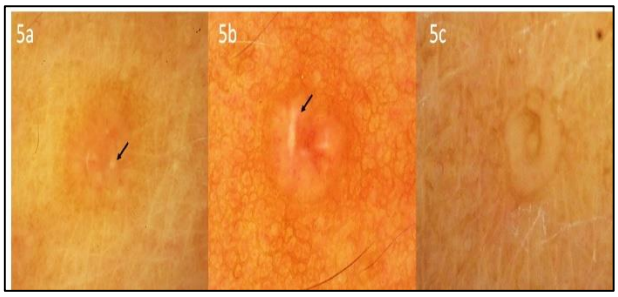

Figure 5 (A-C): Dermoscopy of LN (polarized mode; 80x) showing white globules and streaks and a characteristic 'ring within ring' appearance.

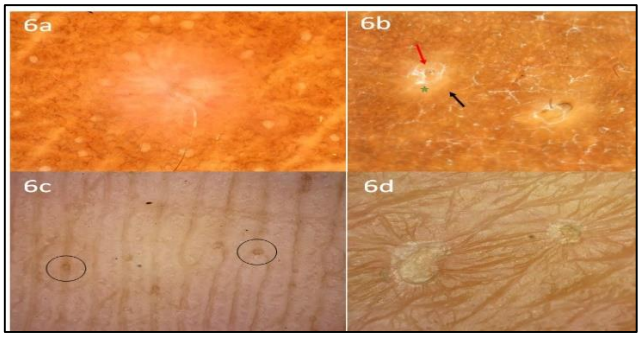

Figure 6 (A-D): Dermoscopy of actinic LN (polarized mode; 80x) of characteristic "Fern-leaf" pattern. Dermoscopy of follicular LN (polarized mode; 40x) showing three zones were seen from inside to outside - perifollicular collarette scaling (red arrow), rim of hypopigmentation (star) and rim of accentuated pigment network (black arrow). Dermoscopy of palmoplantar LN (non-polarized mode; 100x) showing 2 patterns: Circular pits with brown rim (encircled) and circular pits with keratotic plugging.

DISCUSSION

LN is a chronic inflammatory lichenoid dermatosis, more commonly seen in childhood or early adulthood. It is characterized by development of pinpoint to pinhead-sized papules, which are usually asymptomatic and skin-coloured to hypopigmented, with a flat, shiny surface. Sites commonly involved are upper extremities, trunk, buttocks, and genitalia, with occasional involvement of nails and palms and soles.[1] Clinical variants of LN are confluent, vesicular, haemorrhagic, palmoplantar, follicular, perforating, linear and generalized.[2] Out of these, 4 types of variants were assessed in this series. (Generalized, actinic, palmoplantar and follicular, in decreasing order of frequency.)

There was a slight female preponderance seen. Clinically, 55% patients were asymptomatic while 45% complained of itching, consistent with the previous studies and the asymptomatic nature of illness in general.[3] Forearms, arms, dorsal aspect of hands and back were the most common sites in decreasing order of frequency.

Koebner phenomenon and atopy were seen in 60% and 40% cases, respectively. Associated diseases like psoriasis and lichen planus was seen in 5% and 15% patients, respectively. Nail involvement was seen in 45% with longitudinal ridging being the most common finding. Other nail changes seen were subungual hyperkeratosis and pitting. Trachyonychia, longitudinal ridges, transverse ridges, and median canaliform dystrophy are other reported nail changes in LN.

On dermoscopy, on non-polarizing mode the most common findings in decreasing order of frequency were shiny elevated surface with absence of skin markings, scaling, radial ridges and central depression. On polarizing mode, hypopigmentation, brown shadow, linear vessels, accentuation of surrounding reticulate pigment network and diffuse erythema were the most common findings in decreasing order of frequency. Absent skin markings and hypopigmentation were the most common finding seen in 100% cases, with similar results seen in a series of 8 cases.[4] The second most common finding seen in our study was a central brown shadow and scaling. The patterns of scaling seen were a peripheral collarette and central collarette scaling.

Certain newer dermoscopic patterns in LN were identified. Two types of pigmentary patterns seen: central grey-brown structureless areas and speckled brown pigment. These correlate with the pigment incontinence on histopathology, and are distinct from the central brown shadow which is lighter, more homogenous, and corresponds to the ball like infiltrate on histopathology.

Newer vascular patterns observed in decreasing order of frequency were curvilinear vessels, branching/serpentine vessels and radial vessels, apart from the already described linear vessels of LN, which happened to be the most common vascular pattern. Two other patterns seen were observed- white dots and streaks (30%) and ring-in-ring appearance (5%).

On correlating the dermoscopic findings with clinical variants, diffuse erythema and brown structureless areas were the most common findings in the actinic variant. A characteristic “fern-leaf” pattern was seen in 1 case. The fern leaf pattern has reported previously as a feature of actinic LN, although the authors had concluded that it may be seen in other lichenoid disorders as well.[5] In the follicular variant, three characteristic zones were seen from inside to outside-perifollicular collarette scaling, rim of hypopigmentation and rim of accentuated pigment network. Two patterns were seen in the palmoplantar variant-circular pits with brown rim and circular pits with keratotic plugging, which has not been reported before. Other findings like ovoid pits surrounded by peripheral silvery scales arranged linearly and multiple pitted punctual hemorrhages, described previously in palmoplantar LN were not seen.[6,7]

Dermoscopic evolution of the lesion showed that the early lesions were better appreciated on polarizing mode and the earliest finding being loss of skin markings and hypopigmentation. The radial ridges, central depression, brown shadow and peripheral pigment network accentuation were comparatively less defined or absent in the early lesion as compared to the well-formed lesion.

The dermoscopic findings were also correlated with respect to the duration of the disease. Interestingly, vessels were more commonly seen in chronic cases (> 6 months) while pigmentary patterns were more commonly seen in early disease (< 6 months). This could be due to the pigment incontinence caused by vacuolar degeneration of basal layer in early disease whereas the pressure induced by the focal infiltration may be responsible for the easier visibility of vessels through the atrophic epidermis in the late stages.

On correlating dermoscopic findings with histopathologic findings, the well circumscribed hypopigmented circles corresponded to acanthotic epidermis, central depression & Brown shadow correlated with the focal dense ball like infiltrate, radial ridges (starburst appearance) correlated with elongated rete ridges at the edge of the lesion, loss of skin markings correlated with the flattening of epidermis overlying the infiltrate, peripheral & central scaling correlated with focal parakeratosis, pigment globules and speckled pigment corresponded to pigment incontinence in the upper dermis due to vacuolar degeneration of the basal layer and vascular patterns correlated to dilated vessels in upper dermis visible on dermoscopy due to epidermal atrophy.

CONCLUSION

Being a fairly common disorder seen in childhood, dermoscopic features of LN has not been studied

extensively. This series describes the dermoscopic features of LN, with many interesting novel pigmentary and vascular dermoscopic patterns identified. Absent skin markings and hypopigmentation were the most common as well as earliest findings. Vessels were more common in chronic cases while pigmentary patterns were more common in early disease. LN presents fairly distinctive dermoscopic features and dermoscopy can be a non-invasive, painless aid in differentiating it from close clinical differentials and avoid the need for a biopsy, especially in children.

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