CASE REPORT

Case Report: Dermoscopic features of oral lichen planus - the evolution of mucoscopy [version 2; referees: 2 approved]

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Abstract
Dermoscopy, a non-invasive technique for cutaneous diagnosis is being increasingly studied in various disorders of the skin, nails and scalp. However, it has been under-utilized for the diagnosis and characterization of mucosal disorders. The dermoscopic characterization of cutaneous lichen planus and its variants has been well documented with Wickham’s striae constituting the hallmark of the condition. However, the dermoscopic features of oral lichen planus with hand-held or videodermoscopy remain to be elucidated. We present the case of a young adult man who presented with asymptomatic white lacy lesions over a bluish-black background over the tongue, patchy hyperpigmentation of the buccal mucosae and gingivae, and longitudinal melanonychia involving some nails. History of intake of any drugs preceding the lesions, smoking, chewing of betel nut and dental implants was negative. Family history was non-contributory. There were no cutaneous lesions suggestive of lichen planus. Mucoscopy (dermoscopy of the mucosa, oral in this case) and onychoscopy were done followed by biopsy from the tongue that confirmed the diagnosis of lichen planus. Oral mucoscopy of the tongue revealed a tri-colored pattern with structureless veil-like grey-white areas (modified Wickham’s striae), well-demarcated red glossy erosions, and violaceous-to-brown clods. Additionally, vascular pattern of dotted and linear to curved vessels along the borders of leukoplakia-like areas and erosions were observed. Onychoscopy confirmed lichen planus-associated melanonychia. Dermoscopy also proved useful in conveniently ruling out other disorders typified by mucosal and nail pigmentation such as Laugier Hunziker syndrome and drug-induced changes. Although direct oral microscopy has been used in defining features of oral lichen planus, to the best of our knowledge this case is the first report on mucoscopy or dermoscopy of oral lichen planus

Keywords
dermoscopy, mucoscopy, lichen planus, oral, mucosal, leukoplakia, veil-like, speckled-pearly erosion, dotted, linear, curvilinear, vessels, clods, brown

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Introduction

Dermoscopy has unleashed opportunities of exploring structures and features of the skin invisible to the unaided eye. Inflammamoscopy, i.e. dermoscopy of inflammatory dermatoses has sufficiently advanced to the point of facilitating dermoscopic differentiation between plaque psoriasis, eczema and pityriasis rosea. Wickham striae (WS) characterized by white crossing streaks are the dermoscopic hallmark of cutaneous LP. A background of dull red color, and vessels of mixed morphology (dotted and linear) represent additional dermoscopic findings of LP, There is paucity of data on dermoscopy of mucosal, especially oral lichen planus (OLP), which is encountered in more than one-third cases of cutaneous LP, with an estimated global prevalence of 0.5–2.2%.

Case details

A 19-year-old Indian gentleman was evaluated for asymptomatic patchy pigmentation over multiple finger and toe nails, the tongue, and buccal cavity, noticed eighteen months back. There was no history of preceding trauma, drug intake, soreness of mouth, or dental procedures or amalgam filling. He denied addictions like smoking or chewing of betel nut or tobacco. Current and past medical history were unremarkable. There was no history of parental consanguinity, familial nail pigmentation or any familial pigmentary disorder. Examination of oral mucosa revealed poor oral hygiene. The dorsum of the tongue revealed violaceous to dark grey discoloration extending onto the ventral surface, interspersed with white reticular lesions and focal tiny bright red erosions (Figure 1). Buccal mucosae revealed brown colored macules with focal presence of white reticular lesions. Lingual papillae projections appeared blunted in the discolored central area. Although mild desquamative gingivitis with gingival hyperpigmentation were appreciable, the lips were spared with no visible freckling (Figure 2). Examination of nails revealed longitudinal melanonychia of multiple fingers and toe nails (Figure 3). Relevant hematological and biochemical investigations ruled out hepatitis, dyslipidemia, diabetes and thyroid disorder.

Dermoscopic features

Video dermoscopy (EScope; polarized mode, x20) of the dorsum of the tongue revealed blunting of papillae (Figure 4), in contrast to the preserved papillary pattern observed in the peripheral portion (Figure 5). The affected area displayed a tri-color pattern constituted by – 1) structureless veil-like grey-white to bluish-white areas, 2) bright red slightly depressed areas, and 3) interspersed violaceous-to-brown clods. A few foci of speckled-pearly white structures were also observed (Figure 4). Dotted and linear to curvilinear vessels were visible at the junction of the white and red areas. Dermoscopy from the surrounding normal-appearing areas of the tongue dorsum revealed the typical fungiform lingual papillae (Figure 5). Dermoscopy from buccal mucosa only revealed diffusely spread violaceous clods. Onychoscopy revealed multiple 3–4 mm wide uniformly pigmented parallel linear bands of pigmentation with pseudo-Hutchinson sign (Figure 6).
Investigations and diagnosis

A 10% KOH smear from the oral mucosa was negative for candidiasis. Histopathology revealed irregular acanthosis, basal layer vacuolization, necrotic keratinocytes, moderately dense interface dermatitis and pigment incontinence (Figure 7). A final diagnosis of erosive oral lichen planus was made.

Discussion

The dermoscopic features of cutaneous LP are typified by the presence of a dull red background, white crossing streaks of WS (multiple patterns), and mixed pattern of dotted and linear vessels at the periphery of the lesions. OLP may occur in isolation, or in association with cutaneous and/or nail LP. Buccal mucosa and tongue are most commonly affected, followed by gums and labial mucosa. In contrast to the well documented dermoscopic features of cutaneous LP, lichen planus pigmentosus, nail lichen planus and lichen planopilaris, the dermoscopic characterization of OLP is almost non-extant. To the best of our knowledge, there is a single case report of dermoscopy...
evaluation of 10 women with vulvar LP, Borghi et al. reported that WS in more than half the patients gave a similar veil-like structureless grey-white to blue-white appearance. They also observed white homogenous areas in 50% patients.

In our experience, LP involving the cutaneous aspect of the lip displays the typical WS, whereas the mucosal aspect shows WS resembling LLAs. Dotted and linear to curvilinear vessels were visible at the junction of the white and red areas, akin to the vascular pattern observed in dermoscopy of cutaneous LP. The fourth feature from the tongue lesion was blunting of lingual papillae. This feature may depend on the morphological sub-type of OLP.

The onychoscopic findings of uniform-colored 3–4 mm broad bands of longitudinal melanonychia and the pseudo-Hutchinson’s sign stemming from hyperpigmentation of the nail bed and matrix reflecting through the transparent nail folds may be seen in LP, with other common reported causes being racial pigmentation, Laugier-Hunziker syndrome (LHS), and drug-induced melanonychia.

Conclusion
We suggest that a tri-colored pattern constituted by modified WS with a veil-like grey-white to bluish-white structureless morphology (or LLAs) and focal speckled-pearly appearance, red erosions, and violaceous-to-brown clods, in addition to dotted and linear to curved vessels along the junction of LLAs and erosions are characteristic of OLP. Last but not the least, akin to the evolution of other sub-specialties of dermoscopy (trichoscopy, inflammoscopy, entomodermoscopy, onychoscopy etc.), mucoscopy needs to be explored more to extend the versatility of dermoscopy for diagnosis of mucosal disorders.

Data availability
No data is associated with this article.

Consent
Written informed consent for publication of the clinical details and clinical images was obtained from the patient himself.

Competing interests
No competing interests were disclosed.

Grant information
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Version 2

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Competing Interests: No competing interests were disclosed.

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Version 1

Referee Report 16 March 2018
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This case report enumerates the dermoscopic findings of oral lichen planus, which is described less in literature. The images, descriptions of each dermoscopic finding, histopathological correlation and discussion is aptly written. Wickham striae seen as veil-like structureless grey-white to bluish white areas, and specked-pearly pattern are highlighting dermoscopic features described here, for oral lichen planus. These findings need to be validated on larger studies.

Short comings -
1] Mention of how the videodermoscope was used / modified to examine the buccal mucosa either though a description or through an image, would have been more informative
2] Correction of description of image 4 - 'Yellow areas' to 'yellow arrows'; needs to be done

Is the background of the case's history and progression described in sufficient detail?
Yes

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?
Yes
Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?
Yes

Is the case presented with sufficient detail to be useful for other practitioners?
Yes

**Competing Interests:** No competing interests were disclosed.

**Referee Expertise:** Dermoscopy and trichoscopy

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Yes

Is the case presented with sufficient detail to be useful for other practitioners?
Yes

**Competing Interests:** No competing interests were disclosed.

**Referee Expertise:** Dermoscopy

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