

Dermoscopy of Lymphoplasmacellular Erosive Dermatitis of the Scalp Reveals Striking Similarities to Lymphoplasmacellular Balanitis of Zoon

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Introduction

We describe an erosive dermatitis of the scalp characterized by a prominent inflammatory lymphoplasmacellular infiltrate and presenting orange structureless areas with linear vessels on dermoscopy.

Case Presentation

We herein report a case series of 4 male patients, aged 77-86 years, presenting non-tender eroded plaques and crusts on the scalp, persisting for several weeks. They all showed androgenic alopecia and actinic damage, reporting history of actinic keratoses and squamous or basal cell carcinomas. On dermoscopy, the eroded lesions showed red-orange structureless areas with tortuous and telangiectatic linear vessels, together with white-yellow scales and crusts (Figure 1). Biopsies were performed and histopathological examination showed a prominent lymphoplasmacellular

infiltrate in both reticular and superficial dermis (Figure 2), together with admixed eosinophils, neutrophils and mast cells and intraepidermal spongiosis. The histopathological picture suggested therefore a subacute dermatitis that we called 'lymphoplasmacellular erosive dermatitis of the scalp' (LEDS). All patients were treated for 25-30 days with beta-methasone 0.1% and fusidic acid 2% cream (twice daily), obtaining complete response.

Conclusions

Our case series underlines that differential diagnosis of eroded lesions and crusts on the scalp can be sometimes troublesome: neoplastic diseases should be primarily excluded, but LEDS should be considered among other entities (Table 1) [1,2].

LEDS seems to share many aspects with erosive pustular dermatosis of the scalp (EPDS), such as advanced age, actinic damage, history of previous trauma/surgery [3,4].

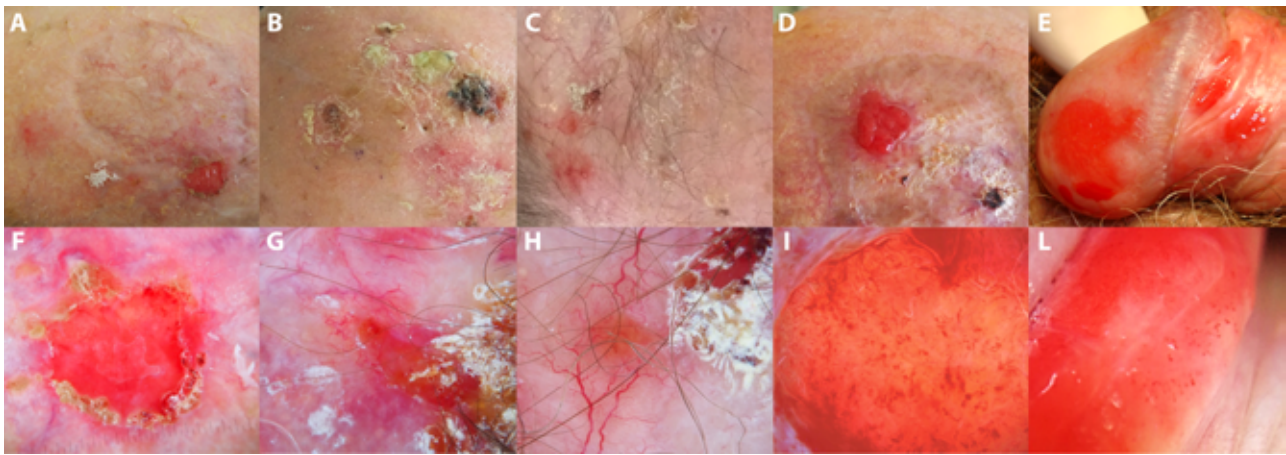


Figure 1. (A-D) Lymphoplasmacellular erosive dermatitis of the scalp: clinical appearance of eroded plaques and crusts. (E) Clinical image of Zoon balanitis: erythematous lesions on glans penis and prepuce. (F-I) Dermoscopic features of lymphoplasmacellular erosive dermatitis of the scalp: red-orange structureless areas with tortuous and telangiectatic linear vessels, white-yellow scales and crusts. (L) Dermoscopic features of Zoon balanitis: red-orange areas with small tortuous linear vessels.

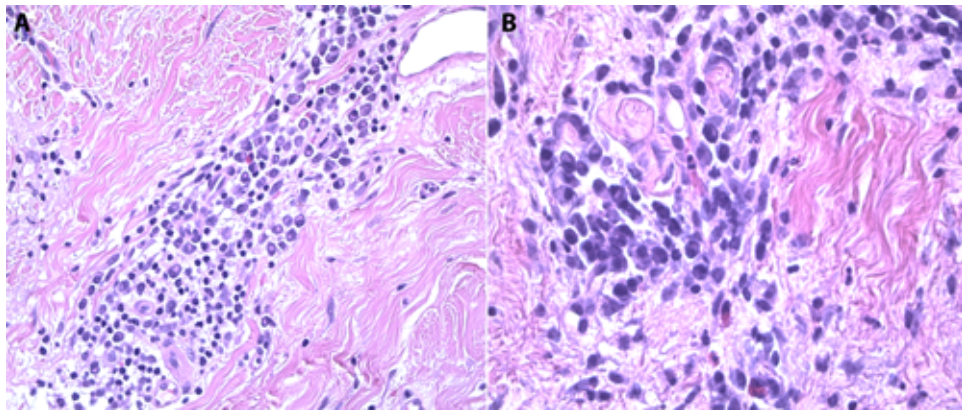


Figure 2. Histopathological features of lymphoplasmacellular erosive dermatitis of the scalp. (A-B) Dermal infiltrate presenting numerous plasma cells, H&E stain, 40x (A) and 63x (B) magnification.

Histopathologically, classical EPDS shows a mixed inflammatory infiltrate, with lymphocytes, plasma cells, and neutrophils, often forming pustules [3]. Instead, a predominant lymphoplasmacellular infiltrate is not a classic histopathological feature of EPDS, but biopsy timing as well as local and systemic immunological factors could play a role in determining this appearance. On dermoscopy, EPDS shows serum-hematic crusts, loss of follicular ostia and hair tufting, enlargement of dermal vessels and visualization of hair bulbs through a thinned skin [3], milky-red and white areas, linear but also polymorphous vessels [1]. Instead, in our cases we observed a remarkable orange structureless background with focused linear vessels. Notably, this dermoscopic pattern has been linked to the so called idiopathic lymphoplasmacellular mucositis-dermatitis (ILPMD), a group of disorders presenting a dense non-neoplastic plasma-cell infiltrate of uncertain etiology, that usually affect mucosal areas such as genitalia (typified by Zoon balanitis/vulvitis) [5,6]. Orange areas can be observed in several

conditions, including those characterized by a dense/compact cellular infiltrate, causing the so-called ‘mass effect’, such as granulomatous dermatoses. Notably, in these cases, vessels are usually well-focused as the dermal infiltrate/deposit pushes them toward the skin surface [7]. Interestingly, the orange hue in Zoon balanitis has been attributed to hemosiderin deposits [6], but could also be due to the aforementioned ‘mass effect’. In addition, another relevant similarity between LEDS and Zoon balanitis is the clinical course, with response to topical steroid administration and frequent recurrences [4].

In conclusion, while LEDS could be interpreted as a variant of EPDS, the peculiar dermoscopic findings (orange structureless areas and linear vessels) apparently related to distinctive histological features (dense lymphoplasmacellular infiltrate) suggest that LEDS may be also categorized within the spectrum of chronic idiopathic lymphoplasmacellular dermatitis. Further investigations on a larger number of cases are needed to better define this entity.

Table 1. Differential diagnoses of entities presenting with eroded lesions and crusts on the scalp: description of dermoscopic features and useful clues.

| Differential diagnosis | Dermoscopic appearance | Clues and other features |
|--|--|---|
| Neoplastic diseases (if ulcerated) | | |
| Basal cell carcinoma | Presence of typical signs such as on-focus arborizing vessels, blue-grey ovoid nests and globules/dots, brown spoke wheel or leaf like areas, ulcerations or erosions, shine white streaks, structureless white to red areas [2] | Relatively frequent on scalp presenting actinic damage; diagnosis can be more easily assessed focusing on non-ulcerated areas [2] |
| Squamous cell carcinoma | Red structureless areas with polymorphous vessels (linear, hairpin or glomerular vessels), ulcerations, white halos surrounding vascular structures, white-yellow to light brown structureless areas (keratin), targetoid-appearing hair follicles (white circles) [2] | Relatively frequent on scalp presenting actinic damage; differential diagnosis may be difficult, in particular with poorly differentiated squamous cell carcinoma [2] |
| Merkel cell carcinoma | Milky-red and shiny white areas, pink or purple hue, polymorphous vessels (often linear irregular, dotted, arborizing or glomerular vessels), ulcerations [1] | Very rapid growth [1] |
| Amelanotic melanoma | Pigment remnants, milky red areas, more than one shade of pink, white structures, polymorphous vessels (more often linear irregular and dotted, but also hairpin vessel), ulcerations [2] | Often shows pigment remnants that can be a very useful diagnostic clue [2] |
| Atypical fibroxanthoma | Pink-red and white structureless areas, linear irregular vessels, white lines, ulcerations [1] | Rapid growth [1] |
| Inflammatory diseases | | |
| Classic erosive pustular dermatosis of the scalp | Crusts, erosions, milky red areas, on-focus polymorphous vessels, hair tufting, skin atrophy (visualization of dermal vessels and hair bulbs) [1,3] | Shares many clinical and dermoscopic features with lymphoplasmacellular erosive dermatitis of the scalp [1,3] |
| Bullous diseases such as localized cicatricial bullous pemphigoid (Brunsting Perry disease) and pemphigus vulgaris | Erosions and scarring alopecia; acantholytic hair casts in pemphigus vulgaris [1] | Subepidermal blisters (Bursting Perry disease) or intraepidermal blisters (pemphigus vulgaris). Direct immunofluorescence and circulating antibody tests are useful. Pemphigus vulgaris often involves other body areas [1] |
| Severe bacterial or fungal infection | Perifollicular pustules, purulent discharge; hair change in fungal infection (black dots, broken hairs, comma hairs, corkscrew, zigzag and barcode hairs) [1,3] | Painful lesions; microbiological test are useful [1,3] |
| Discoid lupus erythematosus | Erythematous patches, scaling, follicular plugging and arborizing vessels; hyperpigmentation, white areas, atrophy and scarring alopecia in later phases [1,3] | Direct immunofluorescence shows immunoglobulin and complement deposition on skin sample (positive lupus band test). |
| Folliculitis decalvans | Hair tufting, follicular pustules, scarring alopecia [1,3] | / |
| Neutrophilic dermatoses such as sub-corneal pustular dermatosis | Flaccid pustules and vesicles, erosions [3] | Usual localization is trunk and main folds, scalp is rarely involved [3] |
| Pyoderma gangrenosum | No specific dermoscopic features; clinically ulcer with undermined borders [1,3] | Painful lesions; histopathology can show neutrophilic infiltrate; scalp localization is infrequent [1,3] |

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