

Utility of Dermoscopy in Cutaneous Small Vessel Vasculitis: Preliminary Observations from a Study of 30 Cases

Abstract

Background: Dermoscopy is a non-invasive diagnostic technique that provides an added advantage to the routine clinical diagnostic exercise. Role of dermoscopy in cutaneous small vessel vasculitis has not been explored well. **Objective:** This study was intended to delineate the dermoscopic features of cutaneous small vessel vasculitis and to correlate them with histopathological findings of the disease. **Materials and Methods:** This was a cross-sectional study involving 30 patients with cutaneous small vessel vasculitis confirmed by histopathology and direct immunofluorescence. In each patient, dermoscopic features of early/evolving and established lesions were recorded. Dermoscopic-histopathological correlation was assessed for established lesions. **Results:** On dermoscopy, the early/evolving lesions showed a dull red background in all the 30 (100%) patients, red globules in 8 (26.7%), and red dots in 4 (13.30%) patients. The established lesions showed red background in 28 (93.3%) patients, white and yellow structureless areas in 19 (63.33%) patients each, red globules in 18 (60%), and red dots in 16 (53.3%) patients. A statistically significant association between red globules and red blood cell extravasation was noted ($P=0.01$). White and yellow structureless areas also showed a statistically significant association between sparse ($P=0.023$) and dense ($P=0.007$) perivascular infiltrates, respectively. **Conclusion:** Dermoscopy of cutaneous small vessel vasculitis exhibits fairly reliable and reproducible features correlating well with histopathological aspects of the disease. Hence, inclusion of dermoscopy in the clinical diagnostic protocol for cutaneous small vessel vasculitis is beneficial in complementing the clinical diagnosis and in differentiating from other inflammatory purpuras.

Keywords: Cutaneous small vessel vasculitis, dermoscopy, histopathology

Introduction

Cutaneous vasculitis refers to inflammation of superficial dermal blood vessel walls constituted mainly of neutrophils. Cutaneous vasculitis involves the vessels alone or as a part of systemic disease.^[1,2] Histopathology is confirmatory and direct immunofluorescence (DIF) further classifies cutaneous vasculitis.^[3] Studies utilizing dermoscopy are limited to urticarial vasculitis. This study was undertaken to describe the dermoscopic findings in cutaneous small vessel vasculitis (CSVV) based on duration of the lesions and to correlate them with histopathological findings.

Materials and Methods

This was a cross-sectional study involving 30 CSVV patients confirmed by histopathology and DIF attending the authors' department between January

2021 and June 2022. Patients presenting with typical clinical feature of CSVV, i.e., palpable purpura with or without other lesions such as petechiae, erythematous papules, plaques, nodules, vesicles, bullae, ulcers, irrespective of age, sex, and duration of the disease, were enrolled after informed written consent.

A thorough history and clinical examination was performed and the findings were recorded. Patients belonged to the Fitzpatrick type IV-V skin phototype. For dermoscopy, only palpable purpuric lesions were considered. Such lesions were categorized as "early/evolving" and "established" lesions depending on whether they were less than or more than 48 hours old, respectively. Polarized dermoscopy was performed using DermLite™ DL3 (3Gen Inc., San Juan Capistrano, California, USA) and images captured using a digital camera attached to it. Dermoscopic features were recorded in

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standard pattern analytical terminologies. Two punch biopsy samples, each from an established (identified as the most representative lesion by dermoscopy) and an early/evolving lesion, were obtained for histopathological and DIF studies, respectively. Dermoscopic-histopathological correlation was assessed and statistically analyzed.

Statistical analysis of the data was performed using Statistical Package for Social Sciences (IBM Corp. 2011 IBM SPSS Statistics for Windows, Version 20.0, Armonk, New York). Results were presented as mean (median) \pm SD, counts, percentages, and diagrams. Pearson/Spearman's Correlation was used to find the correlation between quantitative variables. The association of categorical variables was computed using the Chi-square test. A *P* value of < 0.05 was considered statistically significant. All statistical tests performed were two-tailed.

Results

Patient characteristics

Study population comprised 17 male (56.7%) and 13 female (43.3%) patients. A mean (\pm SD) age of 34.60 (\pm 15.44) years ranging from 10-80 years, and a mean (\pm SD) disease duration of 10.5 (\pm 6.9) days were noted. Majority of the patients presented with palpable purpura and petechiae [Figure 1a]. Direct immunofluorescence categorized 14 (46.70%) and 16 (53.30%) patients as having CSVV and Henoch-Schonlein purpura (IgA type CSVV), respectively.

Dermoscopic findings

Early/evolving lesions showed a dull red background in all the 30 (100%) patients followed by red globules and red dots in 8 (26.7%) and 4 (13.3%) patients, respectively [Figure 2a and b]. A red to red-purple background was the commonest finding in established lesions seen in 28 (93.3%) patients [Figure 2c and d]. Yellow [Figure 3a] and white structureless areas [Figure 3a and b] in 19 (63.33%) patients each, red globules [Figure 2d] in 18 (60%), and red dots [Figure 2c and d] in 16 (53.3%) patients were other findings in established lesions. Perifollicular scaling in 12 (40%), follicular keratotic plugs in 11 (36.7%), and violaceous patches in 2 (6.7%) patients were less frequent findings in established lesions.

Histopathological findings

The predominant histopathological findings [Figure 1b and c] observed were leucocytoclasia in 27 (90%), dilated vessels in 21 (70%), sparse perivascular neutrophilic infiltrate in 17 (56.6%), red blood cell (RBC) extravasation in 16 (53.3%), fibrin deposits in 15 (50%), and dense perivascular neutrophilic infiltrate in 13 (43.3%) cases.

Dermoscopic-histopathological correlation

Dermoscopic-histopathological correlation and their statistical relation are presented in Table 1. A statistically

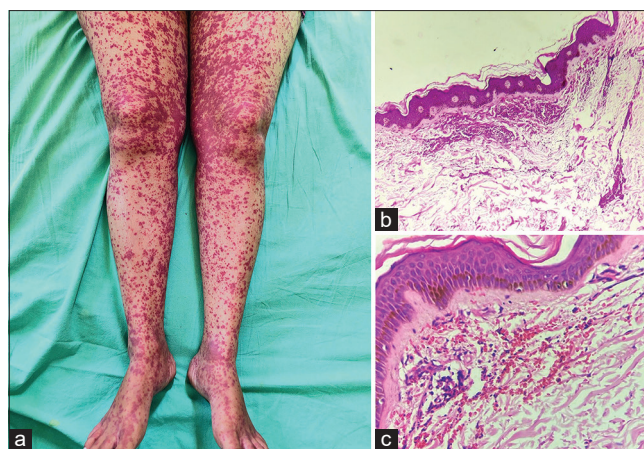


Figure 1: Multiple petechiae and palpable purpurae over bilateral lower extremities (a) Histopathology showing perivascular neutrophilic infiltrate, infiltration of the vessel walls, leucocytoclasia (b) and extravasated red blood cells (c). [H and E, x5 (b) and x10 (c)]

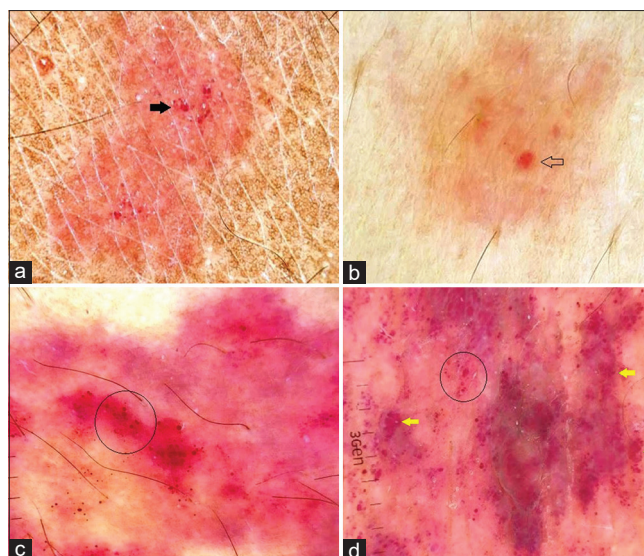


Figure 2: Dermoscopy of early/evolving lesion (a and b) showing a dull red background, red dots (a, black solid arrow), and red globule (b, black hollow arrow). Dermoscopy of established lesion (c and d) showing a red to red-purple background and multiple red dots (c and d, black circles) and red globules (d, yellow arrows) [$\times 10$, DermLite™ DL3, polarized dermoscopy]

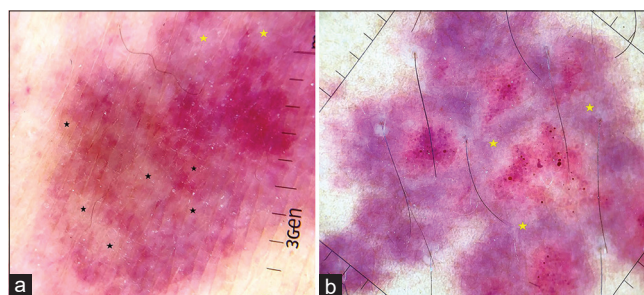


Figure 3: Dermoscopy of established lesions showing yellow structureless areas (a, black stars) and white structureless areas (a and b, yellow stars) over a red-purple background [$\times 10$, DermLite™ DL3, polarized dermoscopy]

significant correlation between red globules and RBC extravasation was seen (*P*-0.011) but not between the red

