

LETTER TO THE EDITOR

A three-cohort comparison with videodermatoscopic evidence of the distinct homogeneous bushy capillary microvascular pattern in psoriasis vs atopic dermatitis and contact dermatitis

Editor

In recent years, some studies have suggested that the diagnosis of psoriasis may be enhanced by videocapillaroscopy (VC) and videodermoscopy (VD), non-invasive techniques able to 'in vivo' identify modifications of microvascular skin architecture.^{1–10} In psoriatic lesions, low magnification obtained by standard dermatoscopy (10×) shows the presence of a red-dotted pattern. Higher magnification (100–400×) by VC or VD highlights the presence of typical elongated and convoluted 'bushy' capillaries that are homogeneously distributed within the plaque. Mean diameter of these 'bushes' is reported to be about 70–80 µm,^{6–9} compared to capillary loops in healthy skin that are typically 15–25 µm in diameter. Studies evaluating the vascular pattern in psoriatic plaques are, however, limited to relatively small series of patients.^{2–4,6,8,10}

Based on these considerations, we conducted a three-cohort comparison study in a large series of adult patients with erythematous–desquamative dermatitis to assess the prevalence of 'bushy' capillaries in lesional skin. One hundred and five consecutive psoriatic patients (66 M/39 F; median age 45 years, range 19–71 years) affected by clinically or histologically confirmed plaque psoriasis were sequentially enrolled over a 6-month

period. Exclusion criteria were the use of topical and/or systemic psoriatic treatment 2–4 weeks before participation respectively. In each subject, up to three non-hyperkeratotic target lesions were chosen from different body areas, including arms, trunk or legs. VD evaluation at ×150 (Easyscan®, Business Enterprise, Trapani, Italy) was performed in the centre of the plaque by an independent operator. In each field, capillary morphology was evaluated and the diameter of at least 10 different capillary loops was measured using the enclosed software. For cohort comparison, 50 subjects with atopic dermatitis and 50 with allergic or irritant contact dermatitis were selected and matched with the psoriasis cohort by sex and age. The primary endpoint of the study was to assess the presence of homogeneous 'bushy' capillaries within the target lesions for each cohort. The secondary endpoint was to determine differences in microvascular patterns by anatomical sites (arms vs trunk vs legs) in the psoriasis cohort. Statistical analysis was performed using Statistical Package for the Social Science (SPSS) 18.0 software (Hong Kong). Chi-square test was used for assessment of each cohort. $P < 0.001$ was considered significant. If the Chi-square was greater than the critical value, we concluded that the differences were significant.

A total of 177 psoriatic plaques were analysed and in all cases the presence of monomorphic, homogeneously distributed, 'bushy' capillaries was observed (Fig. 1). This distinct pattern proved to be statistically significant ($P < 0.01$) when compared to the two control cohorts, in which the vascular pattern was not specific, showing normal looking capillaries (25% of cases), slightly dilated capillaries (30% of cases) and/or isolated 'bushy' capillaries (45% of cases) (Fig. 2). The mean diameter of 'bushy' capillaries in the psoriatic lesions was 83.9 µm (range

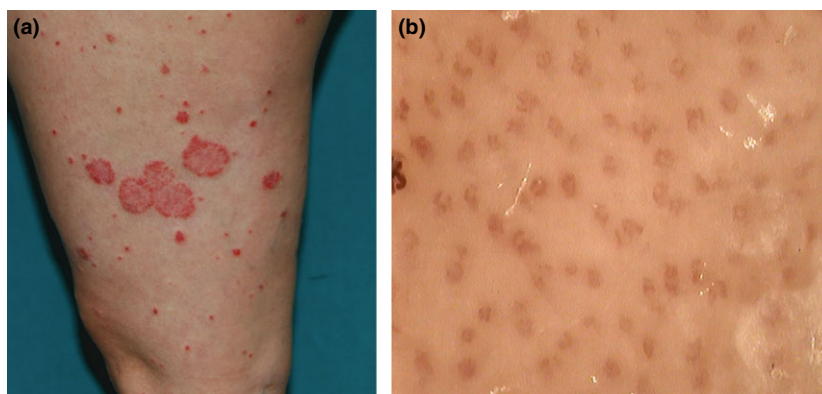


Figure 1 (a) Psoriatic plaques on the left thigh. (b) VD examination showing the presence of homogeneously distributed, elongated and convoluted capillaries, configuring a typical bushy pattern (original magnification: ×150).

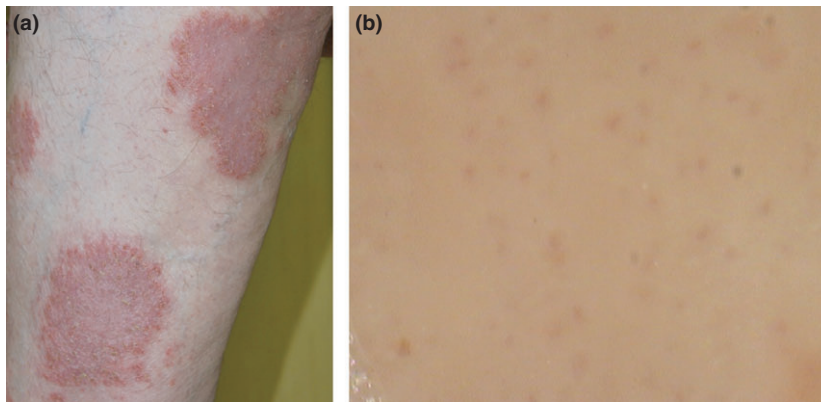


Figure 2 (a) Eczematous plaques on the right thigh. (b) VD examination showing the presence of slightly dilated capillaries. No bushy capillaries are evident (original magnification: $\times 150$).

50–146 μm). Evaluated target anatomical sites included 58 psoriatic plaques located on the arms, 55 on the trunk and 64 on the legs; the mean capillary diameters were 79.2 μm (range 50–125 μm), 82.6 μm (range 55–146 μm) and 89.3 μm (range 57–125 μm), respectively, with no statistic significance ($P > 0.01$).

Our study demonstrates that the ‘bushy’ capillary pattern is typically present in psoriatic plaques and is therefore a feature with high disease specificity. ‘Bushy’ capillary diameter in the psoriatic plaques seems to be not affected by anatomical area. In addition, identification of this vascular pattern by VD may allow to rule out other inflammatory erythematous–desquamative disorders such as atopic and contact dermatitis that may sometimes show clinical features that may resemble psoriasis. In conclusion, evaluation of the vascular pattern by VD represents a non-invasive and affordable approach that may be useful in daily clinical practice.

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DOI: 10.1111/jdv.12998