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LETTER TO THE EDITOR

Accuracy of ultraviolet-induced fluorescence dermoscopy in porokeratosis: An observational study

Dear Editor,

Porokeratosis is a group of uncommon hereditary genodermatoses typified by abnormal keratinization,[1] with porokeratosis of Mibelli (PM), and disseminated superficial actinic porokeratosis (DSAP) being the two most common variants.[2] The clinical and predisposing factors vary from one variant to another, having in common the histological characteristic of cornoid lamella, a parakeratotic vertical stack of corneocytes in the corneum layer of the epidermis.[2] These corneocytes have different degrees of dysplasia, explaining the potential of malignant transformation, thereby arising the importance of proper diagnosis and follow-up.[2] Dermoscopic examination has been showed to significantly facilitate the recognition of porokeratosis by revealing the typical keratin rim with a double free edge, yet such a clue is not visible in all the lesions.[3] Ultraviolet-induced fluorescence (UVF) dermoscopy is a new dermoscopic technique employing a UV-light source (365 nm) to evoke fluorescence by skin chromophores based on Stokes shift phenomenon, with possible consequent detection of UV-induced fluorescent findings not/poorly visible on conventional dermoscopy.[4] In this retrospective observational study, we evaluated the accuracy of UVF dermoscopy in highlighting the typical peripheral keratotic tract of porokeratosis as compared to polarized dermoscopy.

Fifty-four lesions from 11 patients with histologically confirmed porokeratosis (M5/F6; mean age: 61.7 years) were included (nine instances of DSAP and three of PM). As per our routine protocol for images collection, target lesions had been randomly chosen; no patient had received specific treatments in the previous 8 weeks. In all cases, dermoscopic pictures had been taken before biopsy through a hand-held dermatoscope (10 × magnification) (Dermlite DL5—San Juan Capistrano, CA, United States) coupled with a high-resolution camera or smartphone. Two experienced dermoscopists (E.E, G.S.) independently analyzed the images to assess the presence or absence of the peripheral keratotic tract (defined as a tract with a double free edge showing either white-gray/brown or white/blue hue on polarized and UVF dermoscopy, respectively). Afterwards, a second meeting between evaluators to reach a consensus was conducted, with the final decision to mark as present/absent based on unanimous agreement. All the analyses were performed using SPSS

TABLE 1 Summary of the prevalence of peripheral keratotic tract in porokeratosis lesions under polarized dermoscopy and ultraviolet-induced fluorescence (UVF) dermoscopy.

		Polarized dermoscopy	UVF-dermoscopy	
Patient	Number of lesions analyzed	Evidence of peripheral keratotic tract *N* (%)	Evidence of peripheral keratotic tract *N* (%)	*p-value**
1	13	10 (76.9)	12 (92.3)	
2	7	7 (100.0)	7 (100.0)	
3	5	3 (60.0)	5 (100.0)	
4	2	0 (0.0)	2 (100.0)	
5	4	3 (75.0)	4 (100.0)	
6	7	5 (71.4)	6 (85.7)	
7	3	2 (66.7)	3 (100.0)	
8	4	3 (75.0)	4 (100.0)	
9	4	4 (100.0)	4 (100.0)	
10	7	5 (100.0)	7 (100.0)	
11	5	5 (100.0)	5 (100.0)	
Total	54	47 (87.0)	52 (96.3)	0.161

**p-value* <0.10 deemed as statistically significant (analyses performed according to Fisher's exact test).

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software (version 22, IBM, Armonk, NY). Fisher's exact test was used to compare findings between polarized and UVF-dermoscopy; tests were two tailed and a *p-value* of <0.10 was deemed statistically significant. Cohen's kappa coefficient was calculated to assess the interobserver concordance. Table 1 summarizes all the analytic findings. In detail, we found that the dermoscopic clue was evident on 87% (47/54) and 96% (52/54) of the lesions on polarized and UVF dermoscopy, respectively; although the prevalence was higher with the latter setting, the difference did not reach statistical significance ($p = 0.161$). However, when considering the prevalence of patients showing the peripheral keratotic tract in all included lesions, the difference turned out to be significant (9/11 vs. 4/11; $p = 0.081$). Additionally, the agreement between evaluators was higher for UVF-dermoscopy examination [Kappa values of 0.76 ("substantial" agreement) and 0.87 ("almost perfect" agreement) for polarized and UVF-dermoscopy, respectively]. Figure 1 depicts differences between polarized and UVF-dermoscopic examination of peripheral keratotic tract.

Our study is in line with the larger analysis on dermoscopy of porokeratosis with regard to the prevalence of peripheral keratotic

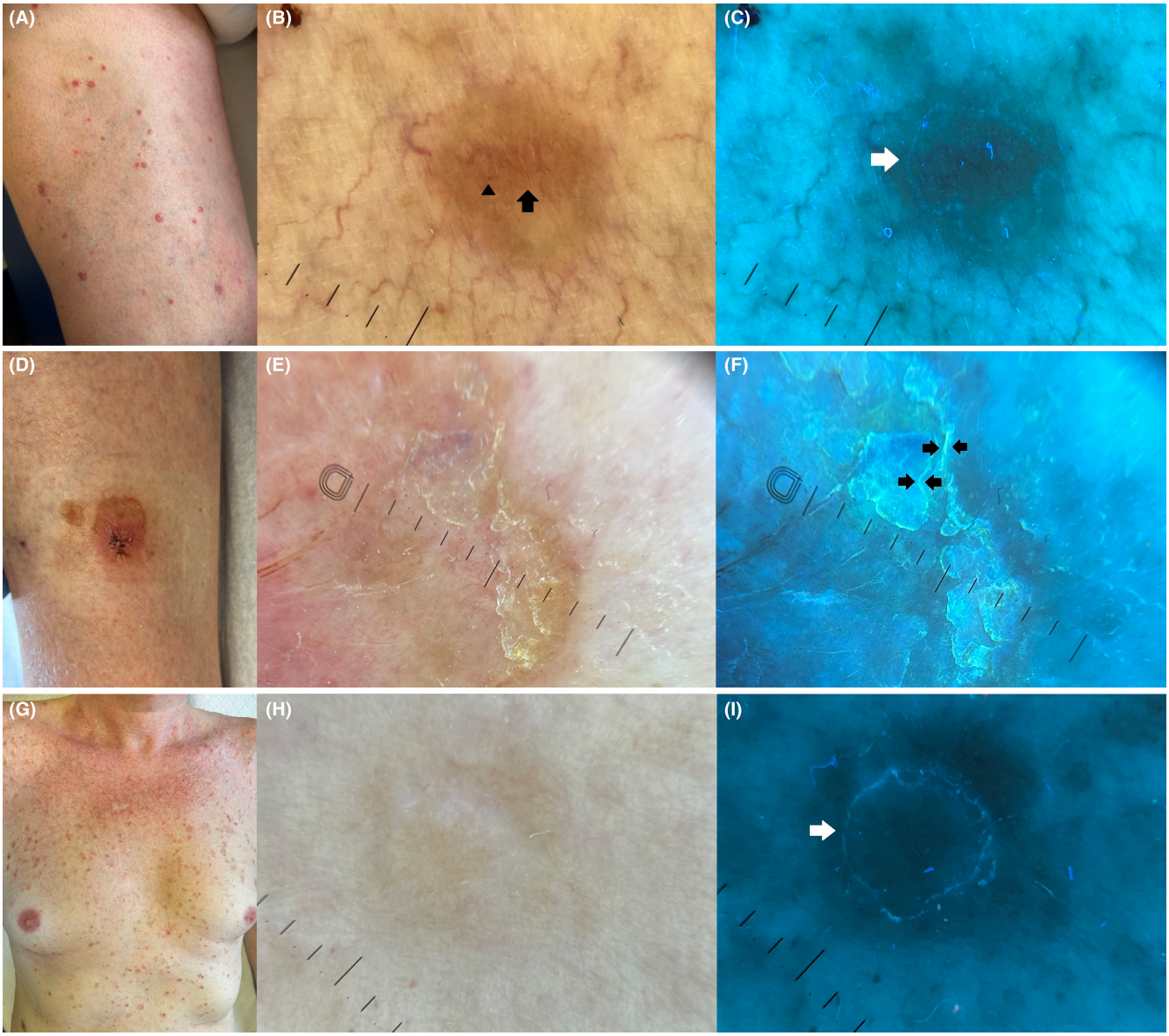

FIGURE 1 Red papules on the right thigh (disseminated superficial actinic porokeratosis) (A), polarized-light dermoscopy shows some linear (arrow) and dotted (arrowhead) clustered vessels in the centre with no clear peripheral keratotic tract with double free edge (B), UVF-dermoscopy shows a white-blue peripheral keratotic tract with double free edge (arrow) (C), Two scaly patches on the right leg (porokeratosis of Mibelli) (D), polarized-light dermoscopy reveals peripheral scaling with no clear evidence of keratotic tract with double free edge (E), UVF-dermoscopy displays blue keratotic tracts with double free edge (black arrows) at the periphery (F), Red papules on the chest (disseminated superficial actinic porokeratosis) (G), on polarized-light dermoscopic examination peripheral keratotic tract with double free edge is not clearly evident (H), UVF-dermoscopy shows a white-blue peripheral keratotic tract with double free edge (arrow) (I).

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tract, showing that more than 10% of lesions may lack such a clue.[3] Interestingly, albeit not statistically significant (because of the limited sample size), our findings highlighted that UVF-dermoscopy may show this dermoscopic feature in a higher number of lesions. Besides, our data emphasized that UVF-dermoscopic examination performs better when it comes to the reliability to detect the typical peripheral keratotic tract as it is more commonly seen in all lesions for each patient and has a higher interobserver agreement rate, with consequent advantages in terms of diagnose, follow-up and selection of biopsy site.

FUNDING INFORMATION

None.

CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

All the data are contained in the manuscript.

ETHICS STATEMENT

The study was performed according to the principles outlined in the Declaration of Helsinki and the Declaration of Taipei. Consent to Publication form has been signed by the patients included in this study.

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REFERENCES

1. Inci R, Zagoras T, Kantere D, et al. Porokeratosis is one of the most common genodermatoses and is associated with an increased risk of keratinocyte cancer and melanoma. *J Eur Acad Dermatol Venereol*. 2023;37:420-427.
2. Vargas-Mora P, Morgado-Carrasco D, Fustà-Novell X. Porokeratosis: a review of its pathophysiology, clinical manifestations, diagnosis, and treatment. *Actas Dermosifiliogr*. 2020;111:545-560.
3. Zaar O, Polesie S, Navarrete-Dechent C, et al. Dermoscopy of porokeratosis: results from a multicentre study of the international Dermoscopy society. *J Eur Acad Dermatol Venereol*. 2021;35:2091-2096.
4. Pietkiewicz P, Navarrete-Dechent C, Goldust M, Korecka K, Todorovska V, Errichetti E. Differentiating Fordyce spots from their common simulators using ultraviolet-induced fluorescence Dermatoscopy-retrospective study. *Diagnostics*. 2023;13:985.

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