Dermatology Practical & Conceptual

Magnified Dermoscopy of Pigmented Squamous Cell Carcinoma in Situ

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Introduction

Dermoscopy is a diagnostic technique optimizing skin cancer detection and reducing the excision rate. However, ambiguous lesions may cause diagnostic dilemmas and require additional noninvasive imaging techniques or be referred to pathology for confirmation. While 10–20-fold magnification may not be enough, high and super-high magnification dermoscopy (magnified dermoscopy) may supplement this armamentarium.

Case Presentation

During a routine examination, a 1 mm wide standing out, irregularly shaped macule was found on the sun-damaged back of a 55-year-old Caucasian male (Figure 1A).

Dermoscopy revealed dark brown lentigo-like lesion (Figure 1B); 90× magnification revealed gray/brown reticular lines, pigmented follicular and eccrine circles, and dotted vessels within the grid, raising the suspicion of lentiginous melanoma in situ (LMis) (Figure 1C). 400× magnification

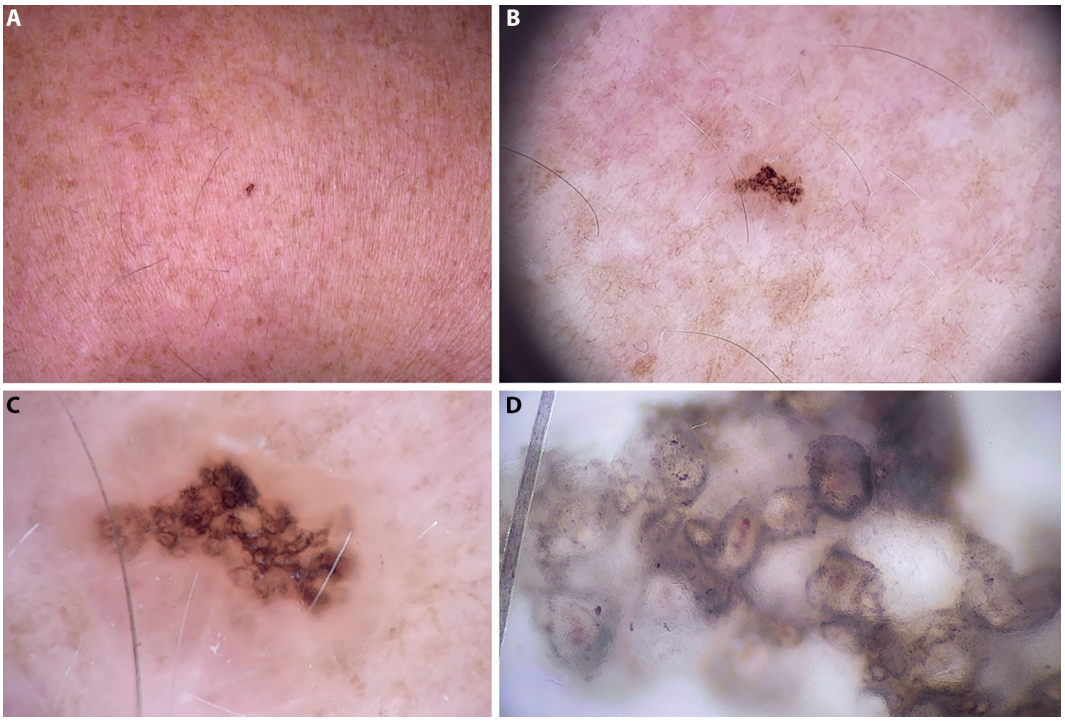

Figure 1. Pigmented squamous cell carcinoma in situ (pSCCis) in a middle-aged male: A) clinical presentation; B) polarized dermoscopy displaying dark brown lentigo-like macule (Medicam 1000s, FotoFinder Systems, Germany; magnification 20×); C) polarized magnified dermoscopy revealing randomly-arranged ring-shaped structures and centered doted vessels (Medicam 1000s, FotoFinder Systems, Germany; magnification 90×); D) magnified dermoscopy showing pigmented circles of variable size, composed of dots and clods non-uniform in size and spacing (FotoFinder Medicam 1000s, FotoFinder Systems, Germany; magnification 400×).

displayed gray-to-brown circles of variable diameters made up of dots and clods, non-uniform in size, and surrounding the dermal papillae, yet with no "cellular spread". Inside them, centered dotted papillary vessels could be identified (Figure 1D). Pathology report was pigmented squamous cell carcinoma in situ (pSCCis) (Figures 2A–C).

Discussion

Diagnostically challenging flat pigmented lesions should be differentiated from melanoma, nevi, pigmented keratinocytic cancers, solar lentigo, and benign lichenoid keratosis. pSCCis in Caucasians is rare. Classical dermoscopic clues to pSCCis is the pattern of pigmented dots or small circles of linear arrangement, scale, polarizing-specific white lines, and/or uniform clustered linear coiled vessels, sometimes surrounded with a whitish halo [1], which were absent in our case.

In pSCCis, neoplastic cells require increased nutrition, resulting in the formation of classical uniform linear coiled vessels. In the presented case, the vascular arrangement was non-uniform, supposedly correlating to the spatial variability of cellular atypia. While radial growth of pigmented melanocytic tumors commonly leads to the pattern of reticular lines in non-facial non-acral skin, where the visual density of "stacked" pigmented cells around the dermal papillae and follicular and eccrine ostia generate circular structures, we demonstrate that this mechanism is not exclusive to melanoma [2]. While these phenomena might not be observed under classical dermoscopy, magnified dermoscopy may facilitate distinguishing pigmented benign and malignant proliferations presenting a reticular pattern. To date there is no report on distinguishing pSCCis from LMis with this method. We suspect that the absence of "cellular spread" may serve as a diagnostic indicator against a melanocytic origin. Moreover, the absence of blue-purple structures reported in lichen planus-like keratosis and uniform brown polygonal structures reported in solar lentigos advocated against these diagnoses [3]. Despite the presence of hyperpigmented eccrine circles [2], the observed morphology was not in line with typical findings for LMis.

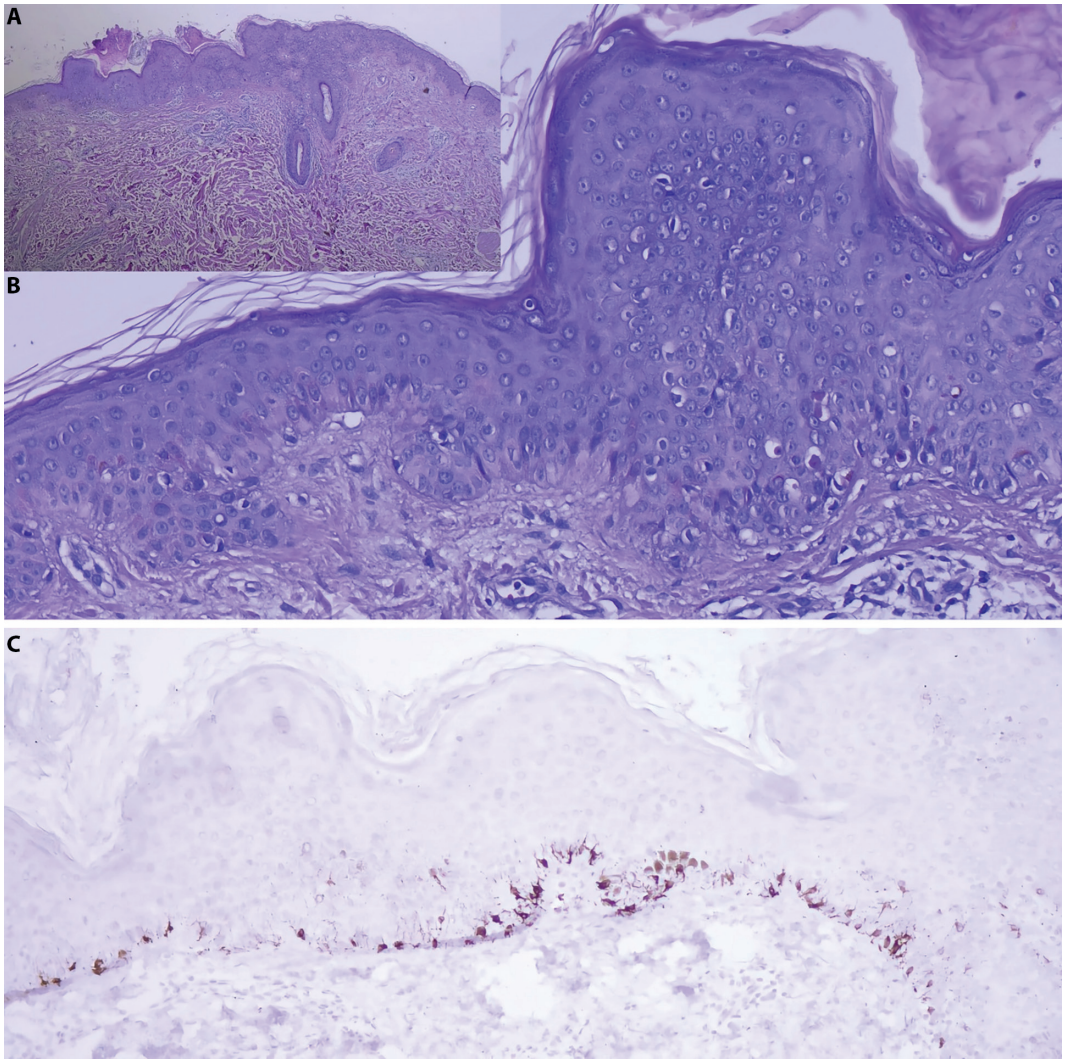

Figure 2. Pathology of pigmented squamous cell carcinoma in situ (routine H+E stain). A) Atypical keratinocytes can be seen in the lower epidermis at 40× and at B) 100× magnification. C) Melan A staining does not display abnormal melanocytes (mag. 100×).

Conclusion

While conventional dermoscopy fails to assess pigmented microlesions, this problem might be addressed with magnified dermoscopy, which allows better insights into a lesion's morphology and cellularity, thus contributing to early detection and better prognosis. Wider adoption of the method in clinical practice could be warranted if supported by results from larger studies assessing patterns at the cellular level and confirming their diagnostic accuracy.

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