Dermatology Practical & Conceptual

Identifying Pitfalls for Diagnosing Pigmented Bowen Disease on Reflectance Confocal Microscopy: Misleading Dendritic Cells

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Key words: Bowen's disease, squamous cell carcinoma in situ, reflectance confocal microscopy, dermatoscopy, dermoscopy, dendritic cells

Citation: Farabi B, Rao BK, Jain M. Identifying pitfalls for diagnosing Pigmented Bowen's Disease on Reflectance Confocal Microscopy: Misleading dendritic cells. *Dermatol Pract Concept.* 2023;13(1):e2023030. DOI: https://doi.org/10.5826/dpc.1301a30

Accepted: June 13, 2022; **Published:** January 2023

Funding: None.

Competing Interests: None.

Authorship: All authors have contributed significantly to this publication.

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Introduction

Pigmented Bowen disease (pBD) is a rare variant of squamous cell carcinoma in situ of the skin. Precise diagnosis of pBD can be difficult based only on clinical and dermatoscopic findings. Reflectance confocal microscopy (RCM) plays an important role by showing atypical keratinocytes and full thickness atypia in vivo. Previous studies showed confounding presence of hyper-refractile elongated dendritic cells in pigmented actinic keratosis (AK)/pBD on RCM [1].

We present a case of pBD located on the facial skin misdiagnosed as lentigo maligna with RCM due to the presence of abundant hyper-refractile, atypical dendritic cells in the interfollicular spaces.

Case Presentation

A 73-year-old female with skin type II was seen for a 5 mm pigmented lesion on the right cheek (Figure 1A). Dermatoscopic examination showed an asymmetrical pigmented lesion with multiple colors, pigmented circles, and dotted and fine linear vessels on an erythematous background (Figure 1B). RCM images at the spinous and supra-papillary/basal layer showed an atypical honeycomb (Figure 1, C and D) pattern and numerous bright edged papillae (Figure 1E) and dispersed bright fusiform and stellate shaped cells with thin dendrites (Figure 1F). A complete surgical excision of the lesion was performed with 2 mm of tumor-free margins. Histopathology revealed a pBD including full thickness keratinocytic atypia, prominent basal layer pigmentation,

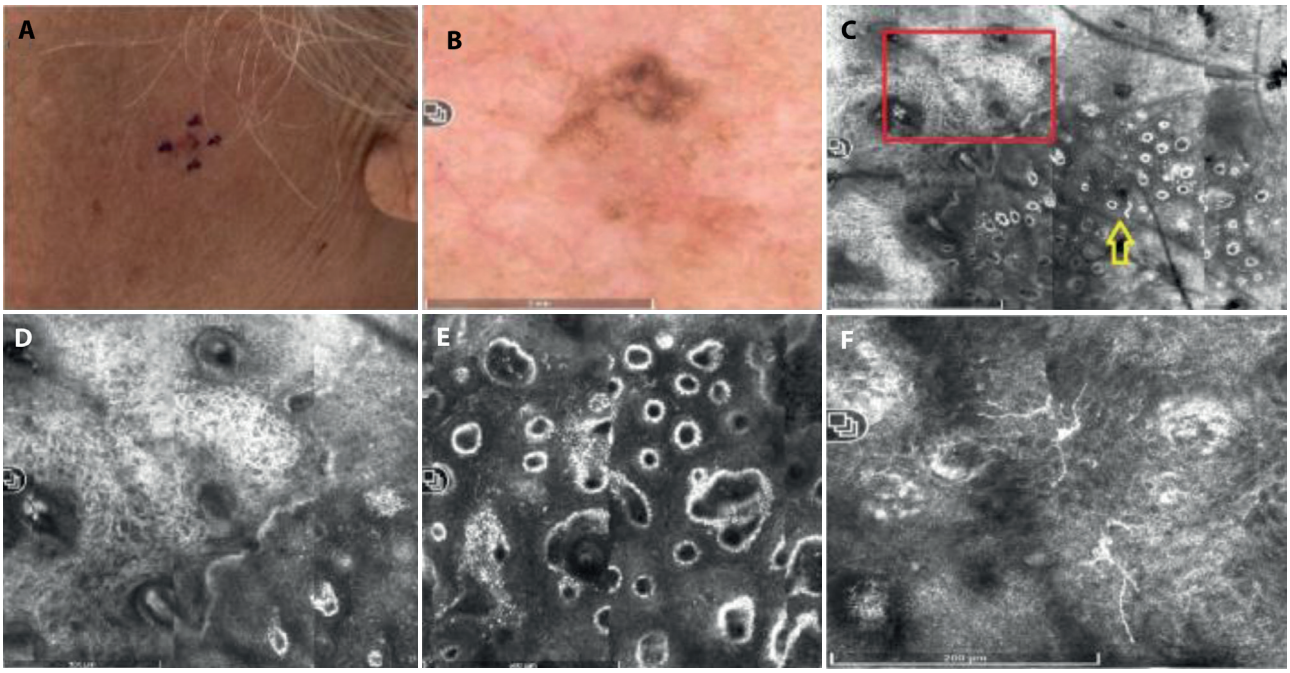

Figure 1. (A) Clinical examination of the lesion on the right preauricular area shows a 5 mm diameter asymmetrical pigmented. (B) Dermatoscopy reveals an asymmetrical pigmented lesion with multiple colors, pigmented circles, dotted and fine linear vessels on an erythematous background. (C) RCM images at the spinous and suprapapillary/basal layer shows an atypical honeycomb pattern and numerous bright edged papillae. (D) Higher magnification of atypical honeycomb pattern adjacent to the lesion which is highlighted with red bracket in (C). (E) Higher magnification of bright ringed-edged papillae at the level of dermo-epidermal junction shown with yellow arrow in (C). (F) Higher magnification of dendritic cells between ringed edged papillae (this image is obtained with VivaStack mode).

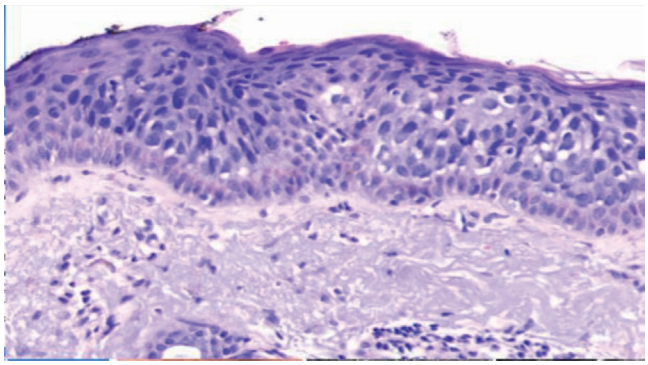

Figure 2. Histologic examination shows full thickness keratinocyte atypia, disorganization of the keratinocyte and prominent basal layer pigmentation with dermal melanophages.

and dermal melanophages (Figure 2). The patient continues routine care via skin cancer surveillance.

Conclusions

The diagnosis of pBD can be challenging clinically due to relative rarity and various clinical presentations. Dermatoscopy can be a helpful tool in diagnosing these lesions [2]. However, in equivocal cases, RCM plays an important role in differentiating pBD from lentigo maligna (LM). Typical RCM features of BD are full thickness keratinocytic atypia and architectural disorganization of the epidermis which presents as atypical or disarranged honeycomb pattern. Recent studies highlighted that intraepidermal dendritic cells can be found in pigmented AK/pBD which creates a potential diagnostic pitfall. Moscarella et al reported dendritic cells in 12/17 cases of AK/BD [3]. Persechino et al found bright interfollicular dendritic cells in 53% of AK cases [4]. RCM features of LM includes atypical melanocytes and nests surrounding adnexal openings, sheets of cells composed of mainly dendritic cells giving a 'medusa head' appearance at dermo-epidermal junction (DEJ). Folliculotropism is a typical feature of LM and is visualized as dendritic, atypical cells infiltrate the follicles [4]. Thus, it is important to visualize

DEJ in detail and follicular structures for signs of dendritic cell infiltration to rule out LM. Other clues for pBD are numerous marked small bright rings at DEJ [5,6]. Since DEJ is infiltrated by malignant melanocytes in LM, presence of regularly shaped bright rims can signify pigmented AK/pBD.

Intraepithelial hyper-reflective dendritic cells are found quite high in pBD. The exact nature of these cells is unknown, and density of dendritic cells can correlate with clinical pigmentation of the lesion. Thus, it is imperative to be aware of the presence of dendritic cells. In the presence of dendritic cells in a pigmented lesion should not prompt extensive surgical excision without the evidence of melanocytic neoplasm. In doubt, incisional biopsy of the lesion should be considered to avoid extensive surgical treatment. Thus, RCM plays a critical role for the management of facial pigmented lesions in aesthetically sensitive sites.

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