Published in final edited form as:

J Am Acad Dermatol. 2012 May ; 66(5): e179–e180. doi:10.1016/j.jaad.2011.05.028.

Effects of contiguous scars in dermoscopic evaluation of clinically atypical melanocytic nevi

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Keywords

Dermoscopy; atypical nevi; atypical melanocytic nevi; biopsy; scar

To the Editor

Dermatologists are increasingly using dermoscopy to help identify melanocytic lesions requiring histopathologic evaluation.¹ Although no uniformly accepted rating scale exists, several are available for grading melanocytic lesions.² Dermoscopy can be an adjuvant tool for identifying potential melanocytic malignancies. However, history and overall clinical appearance of a lesion, particularly in comparison to other lesions on the same patient, remain essential considerations.³ Herein, we highlight how the presence of a scar can alter dermoscopic evaluation of clinically atypical nevi (CAN) and discuss the importance of considering scar maturity and evolution when dermoscopically evaluating CAN with scar-like features.

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Conflicts of interest: The authors have no conflicts of interest to declare.

Prior presentation: None.

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As part of an IRB-approved trial investigating the feasibility of a melanoma chemoprevention strategy, we enrolled fifteen subjects with truncal nevi >8-mm classified as CAN based on asymmetry, border irregularity, and color variegation. At baseline, a partial 4-mm punch biopsy of CAN was performed; 4 weeks later, remaining nevus was excised. Dermoscopic photographs were obtained at baseline and pre-excision. Two dermatologists experienced in dermoscopy independently evaluated all images using the 7-point rating scale.² One reviewer was blinded, while the second was aware a biopsy was performed on the original CAN.

Dermoscopic evaluation at baseline was similar for both reviewers, but there was no correlation between week-4 post-biopsy scores [Spearman correlation (0.25), kappa (0.01)]. The blinded reviewer interpreted scar as an atypical vascular pattern and/or regression features, leading to scores >3 (reflective of possible malignancy on 7-point scale) in two-thirds of week-4 images. In contrast, the other reviewer, given *a priori* knowledge of a scar, disregarded these features, and gave scores >3 only once. Figure 1 displays a representative pair of baseline and week-4 dermoscopic images. Overall, there was no correlation between dermoscopic scores and histologic evaluation (weighted kappa≤0; kendall's coefficient of concordance 0.26), and no increase in histologic atypia from baseline to excision (p=0.83). Importantly, week-4 biopsies exhibited scar and diffuse lentiginous changes with variable cytologic atypia, but no evidence of malignant transformation despite elevated dermoscopy scores (Figure 2).

These observations underscore the importance of history and context in dermoscopic examination of CAN.⁴ Many patients can provide information regarding trauma or scarring related to a suspicious lesion; however, some cannot, particularly for lesions in less visible locations or if there have been numerous previous biopsies. Angiogenesis in early scar formation/evolution can be interpreted as atypical vascular networks or signs of regression, and studies have identified scar-like features dermoscopically in regressed melanocytic malignancies.⁵ Our results suggest that presence of an adjacent or contiguous scar can change interpretation of dermoscopic findings in evaluation of CAN, particularly without history of previous interventions or trauma. Dermoscopy is most helpful as a tool to help define intrinsic atypia, and grading scales, by definition, do not account for history. In our study, dermoscopy alone, without history, could not independently determine whether scar-like changes evident macroscopically or on dermoscopy were due to biopsy and scar formation, or an evolving atypical melanocytic lesion. While its use has limitations, dermoscopy continues to be an evolving field that holds promise as an important data point for diagnosing, monitoring, and managing concerning melanocytic lesions.

Acknowledgments

Funding sources: This work was supported in part by NIH K07 CA111653 and The ASCO Cancer Foundation (Career Development Award). Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect those of ASCO and The ASCO Cancer Foundation.

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Figure 1.

Dermoscopy of a clinically atypical nevus (CAN). Dermoscopy image at baseline (A): first reviewer score on 7-point scale was 0 and second reviewer (blinded) score was 0. Dermoscopy image four weeks after 4 mm punch biopsy of the same CAN (B): first reviewer score was 0 and second reviewer (blinded) score was 5, wherein points were given for atypical pigment network (*), atypical vascular patterns (arrows), and regression structures (arrowheads).

Figure 2.

Histology of the same clinically atypical nevus (hematoxylin and eosin stain) from Figure 1 at baseline (A) and at subsequent excision 4 weeks later (B). Diffuse lentiginous epidermal changes with melanocytes exhibiting variable, random cytologic atypia (arrows), and small, poorly formed nests (arrowheads) without increased atypia are noted both before and after biopsy without significant change aside from presence of scar (*).