An incomplete picture: challenges of partial biopsies in large diameter atypical melanocytic lesions

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Abstract

Large diameter atypical pigmented lesions (LDAPL) can be challenging to diagnose accurately using partial biopsies because of pathologic heterogeneity, while at the same time large excisions of these lesions confer significant morbidity to patients. Consequently, clinicians are often challenged by the management of these lesions. In this case, we describe an elderly patient with a history of multiple basal cell carcinomas, prior melanomas, and a family history of melanoma who presented with an irregularly pigmented brown and dark brown patch on his upper back. This lesion was evaluated with multiple partial incisional biopsies from the most atypical appearing areas of the lesion identified on dermoscopy, each showing mild and moderate atypical melanocytes. However, the patch continued to change clinically and eventually the patient underwent a 5mm wide local excision, which revealed severely atypical melanocytic proliferation with areas consistent with melanoma in situ. This case highlights the need for clinicians to lower their threshold for excisional biopsy of LDAPL in high-risk patients.

Keywords: partial biopsy; melanoma; melanocytic proliferation; atypical pigmented lesions

Introduction

Clinicians are challenged to perform an adequate biopsy of large diameter atypical pigmented lesions (LDAPL), which provides pathologists adequate tissue for accurate diagnosis while also minimizing morbidity and optimizing cosmesis for patients.

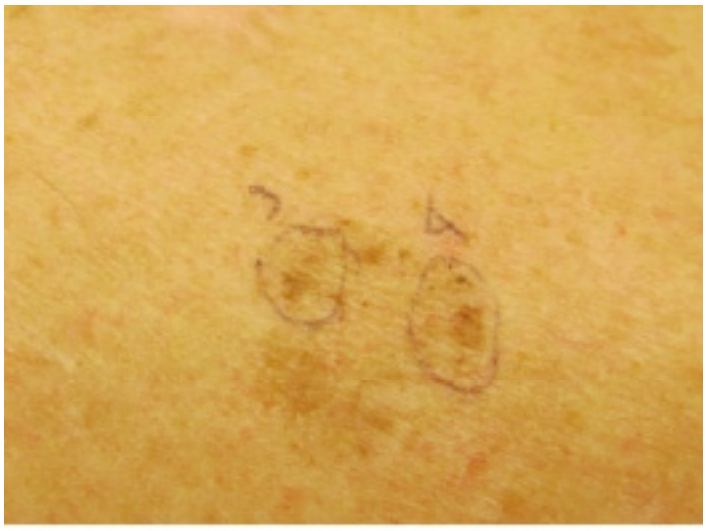

Figure 1A. *Examination of the right upper back revealed a 3.6 x 2.4 cm irregularly pigmented brown broad patch. Two incisional shave biopsies were performed at 10 and 3 o'clock.*

Guidelines written by the American Academy of Dermatology and National Comprehensive Cancer Network recommend partial incisional biopsies of the most atypical-appearing area of LDAPL [1, 2]. However, given the pathologic complexities of broad melanocytic proliferations, even multiple biopsies of these lesions can fail to provide a complete picture for accurate diagnosis.

Case Synopsis

An 82-year-old man with a history of multiple basal cell carcinomas, 3 prior melanomas (MMs), a family history of MM in a granddaughter, and a history of extensive sun exposure presented for routine skin examination. On examination, there was an irregularly pigmented brown and dark brown broad patch on his upper back measuring 3.6 x 2.4

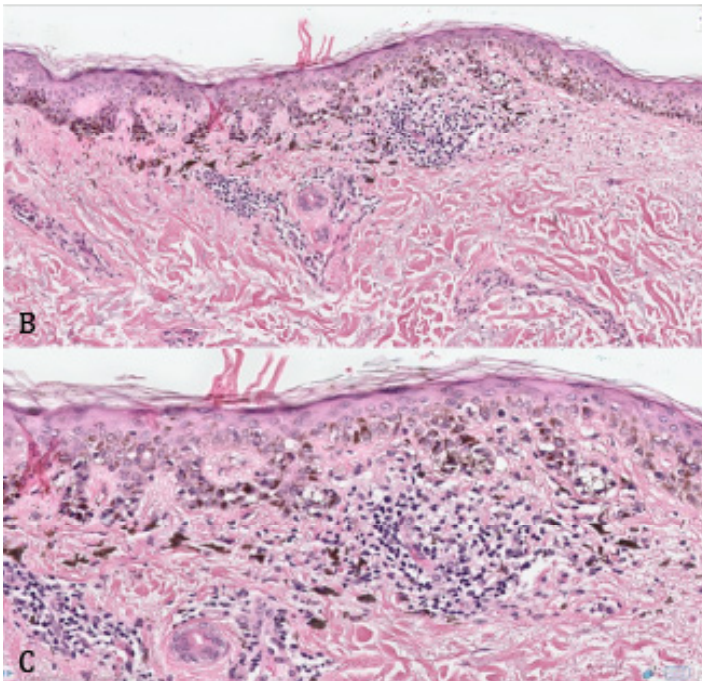

Figure 1B and C. *Histopathology of one biopsy revealed a lentiginous and focally nested melanocytic proliferation with mild-moderate atypia shown at (B) 100x and (C) 200x, (H&E).*

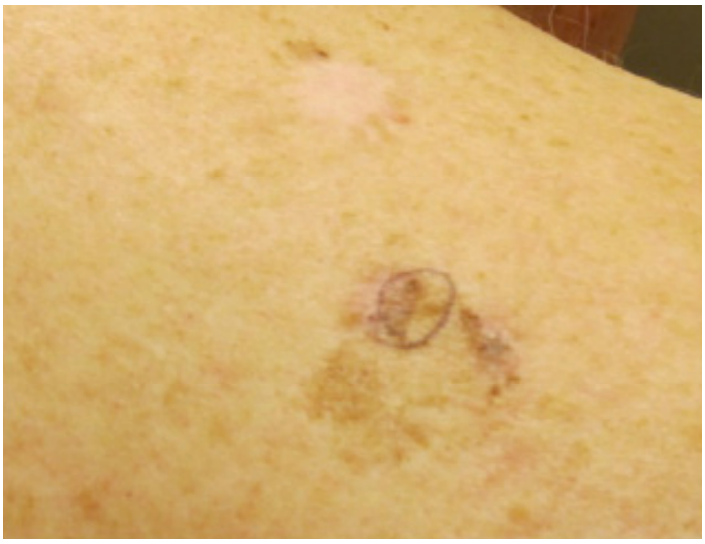

Figure 2A. *After 6 months, the same lesion had darker irregular pigmentation of the superior pole. An additional incisional shave biopsy was performed at 12 o'clock.*

cm (**Figure 1**A). Dermoscopy revealed a slightly irregular pigment network, but no blue-white veil, atypical dots/globules, pseudopods, streaks, milky-red areas, or other signs of MM. Notably, the new LDAPL was asymptomatic and not abutting any of the prior MM scars. Two shave biopsies were performed at 10 o'clock and 3 o'clock (**Figure 1**A) from the most atypical areas of the lesion revealing lentiginous melanocytic proliferation; one showed mild atypia, and the other showed mild-moderate atypia (**Figure 1** B, C). Therefore, clinical observation was recommended. The lesion was then evaluated again 6 months after initial presentation, and given the continued darkening and irregularity of his LDAPL (**Figure 2**A), an additional shave biopsy was performed of the most atypical appearing area at 12 o'clock. This biopsy revealed a mild-focal moderately atypical lentiginous melanocytic proliferation (**Figure 2** B, C). Since this area overlapped with the scar from the previous biopsy it was surmised that some of these changes were regenerative. Given the patient's reluctance to seek surgical treatment and the clinical concern for a thin MM, a non-surgical approach was discussed utilizing imiquimod (5%) 5 times a week for 6 weeks. Three months later, the patient reported no noticeable inflammation or change to his LDAPL. However, it was unclear if he consistently used the imiquimod. Finally, more than 2 years after presentation, the patient was convinced to have the entire patch excised given continued darkening of the superior pole of the lesion. Pathology revealed a severely atypical intraepidermal melanocytic proliferation, with areas consistent with melanoma in-situ (MMIS), lentigo maligna (LM) type (**Figure 3** A, B). He subsequently underwent a 5 mm wide local excision and has had no recurrence since.

Case Discussion

There are several difficulties with partial incisional biopsies of LDAPL exemplified by this case. Studies have highlighted the pathologic heterogeneity of atypical melanocytic lesions [3], suggesting that the most clinically atypical areas may not necessarily correlate with the most severe pathology in an incisional biopsy. In addition, the phenomenon of pseudomelanoma can make tracking a lesion with prior biopsies challenging [4]. In our case, it was difficult to know if the darkening pigment near the biopsy sites represented evolution of an incipient MM versus pseudomelanoma, or if the pathologic findings of severe atypia/MMIS were induced by the prior biopsies. Finally, multiple biopsies revealing low-levels of atypia of a lesion can make it harder to convince patients to undergo a large surgical excision in potentially sensitive areas despite a high level of clinical suspicion.

Currently, there are no guidelines for the management of de novo atypical melanocytic proliferations, which

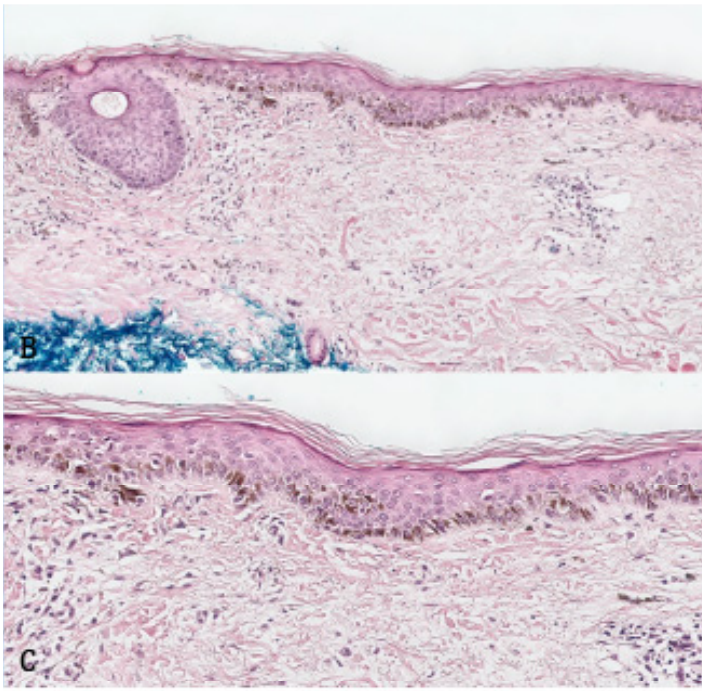

Figure 2B and C. *Histopathology of the biopsy revealed a lentiginous melanocytic proliferation with mild-focal moderate atypia shown at (B) 100x and (C) 200x, (H&E).*

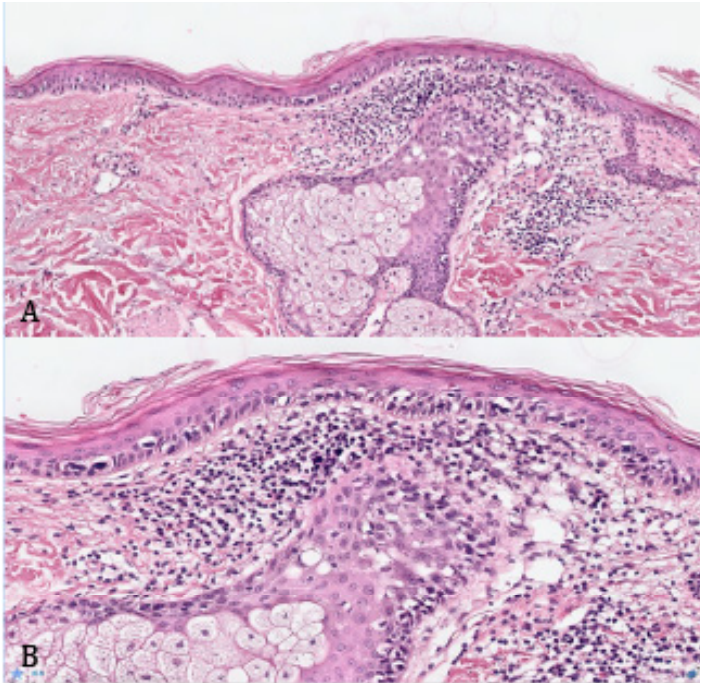

Figure 3. *An excisional biopsy of the lesion revealed a severely atypical intraepidermal melanocytic proliferation, with areas consistent with melanoma in-situ, lentigo maligna type shown at (A) 100x and (B) 200x, (H&E).*

may be distinct from dysplastic nevi. The biology and evolution of such lesions would be an area of interest for future studies. Physicians may need to lower their threshold for recommending an excisional biopsy of concerning LDAPL, particularly when evaluating lesions in high risk, and elderly populations at risk for LM. Our experience suggests that the excisional biopsy still remains the gold standard in providing pathologists a complete picture of a concerning lesion; the cornerstone of management of concerning LDAPL should be the degree of clinical suspicion.

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