Case Report

Solar Lentigo Evolving into Fatal Metastatic Melanoma in a Patient Who Initially Refused Surgery

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Lentigo maligna may not progress to invasive disease for many decades. We present the unusual case of a woman who underwent well documented periodic evaluations and occasional biopsies of a nasal lesion that gradually progressed from lentigo, to melanoma in situ of lentigo maligna type, to invasive disease, and finally to fatal metastatic melanoma. She had declined curative resection of her tumor for cosmetic reasons. Her clinical course is unusual in that photographs and biopsies document the progression from solar lentigo to fatal disease.

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INTRODUCTION

Lentigo maligna was once classified as benign because invasive disease typically does not develop for many years. Lentigo maligna is now used to describe a progressive, intraepidermal melanocytic proliferation (MMIS) arising on sun-damaged skin. Lentigo maligna is typically slowly progressive, and rarely fatal.[1,2] The clinical and histologic diagnosis of early melanoma in situ can be challenging. Biopsy of suspicious lesions is essential in order to avoid delay in treatment.[3] With the increasing incidence of melanoma, lentigo maligna has even been encountered in younger individuals. Biopsy usually reveals solitary units and small nests of atypical melanocytes along the dermal-epidermal junction, extension down adnexal structures, solar elastosis, effacement of the rete ridges; and an infiltrate of lymphocytes.[4] Immunohistochemistry and morphometrics can help differentiate solar lentigo and melanoma in situ in challenging cases.[5,6] We present the case of a woman who underwent periodic evaluations and occasional biopsies of a slowly progressive pigmented lesion that evolved from solar lentigo into fatal metastatic melanoma.

CASE REPORT

A 91-year-old woman presented for treatment of invasive melanoma of the nose. She reported a long history of a pigmented lesion on the left side of her nose that had been gradually increasing in size over many years. Review of her records revealed that she had undergone cryotherpy for what was clinically diagnosed as a solar lentigo on the left side of her nose more than two decades previously. Biopsy was performed 12 years prior to presentation when the lesion recurred as an irregular brown macule that was suspected of being either a solar lentigo or early evolving lentigo maligna on clinical examination. The biopsy at that time revealed lentiginous pigmentation along the dermal-epidermal junction but no increased proliferation of atypical single melanocytes (**Figure 1**). Melan-A stain failed to reveal nest formation or pagetoid spread of atypical melanocytes (**Figure 2**). The findings were interpreted as that of a solar lentigo. Follow up evaluation and biopsy three years later (nine years before the current presentation) revealed findings diagnostic of melanoma in situ of lentigo maligna type (**Figures 3 & 4**). She was evaluated by numerous physicians but declined definitive treatment of the lesion and opted for periodic re-evaluation with a plastic surgeon. She used cosmetic camouflage and was generally pleased with her ability to conceal the lesion. Shortly before her most recent presentation, she noted induration and thickening of the area (**Figure 5**). Biopsy revealed invasive melanoma with Breslow depth of 4.1 mm (**Figure 6**). Associated squamous cell carcinoma was noted in the excisional specimen.

Excision of the melanoma was followed by full thickness skin graft reconstruction. Sentinel lymph node evaluation revealed metastatic melanoma. Careful clinical examination failed to reveal evidence of a second primary melanoma or evidence of a regressed lesion. She declined systemic adjuvant therapy and over the next several months developed progressive metastatic disease to lungs, hilar and cervical lymph nodes, brain and sacrum. She was placed in hospice care and died less than one year after surgical treatment.

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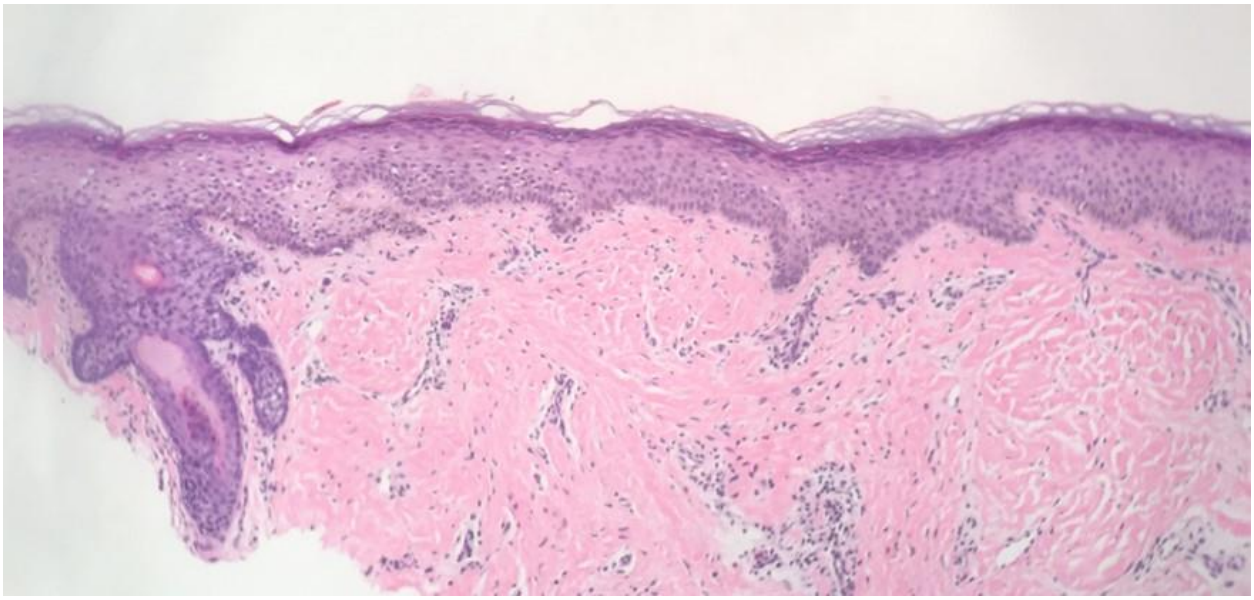

Figure 1. Biopsy reveals lentiginous pigmentation along the dermal-epidermal junction, but no large nests or pagetoid spread of atypical melanocytes consistent with solar lentigo (Hematoxylin and eosin stained sections; original magnification 400x).

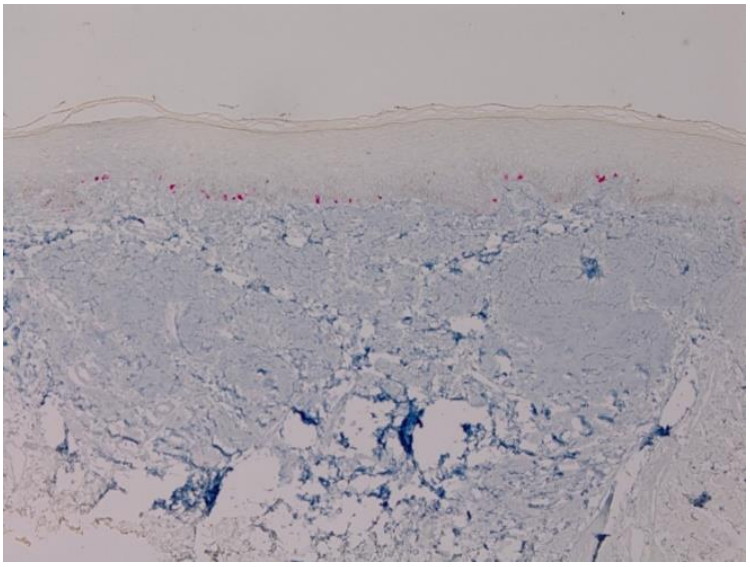

Figure 2. Melan-A stain fails to reveal nest formation, pagetoid spread of melanocytes, or an irregular distribution of melanocytes (Immunohistochemistry; original magnification 400x).

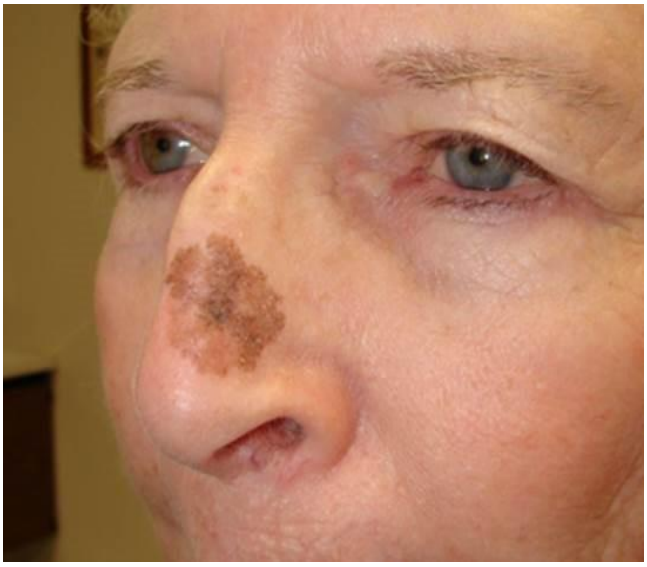

Figure 3. A photograph taken three years after the biopsy noted in **Figure 1** reveals an asymmetric pigmented lesion with variable color.

DISCUSSION

Lentigo maligna may be associated with slow growth but can eventually progress to metastatic and fatal disease. Early lesions can be difficult to diagnose, but the increased number of single atypical melanocytes noted on sun damaged skin coupled with extension down adnexal structures allow for diagnosis.[1] Sun damaged skin and lentigines may be associated with an increased number of single melanocytes. Some discrete macular lesions that are larger and darker than typical solar lentigines have been referred to as an "unstable lentigo" when associated with melanocytic hyperplasia that does not extend beyond the margin of the lesion.[7] Unstable lentigines are suspected of being a precursor lesion to melanoma in situ of lentigo maligna type. How often progression to invasive disease occurs is still unclear.

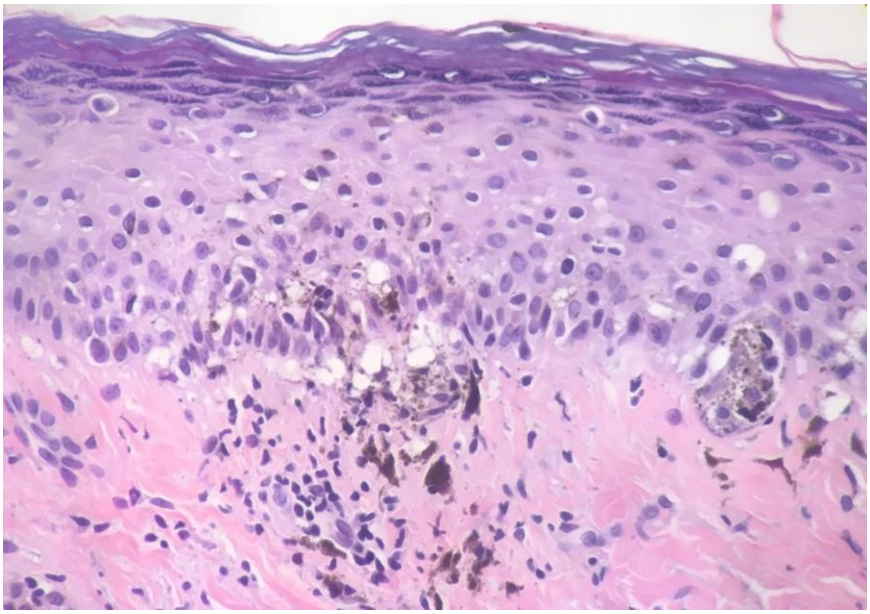

Figure 4. Biopsy three years after the biopsy shown in Figure 1 reveals irregular nests along the dermal-epidermal junction, upward migration of single melanocytes, and melanophages in the dermis as well as a sparse lymphocytic infiltrate now diagnostic of melanoma in situ of lentigo maligna type (Hematoxylin and eosin stained sections; original magnification 600x).

Figure 5. An indurated and irregularly pigmented lesion on the nose is noted at the most recent presentation.

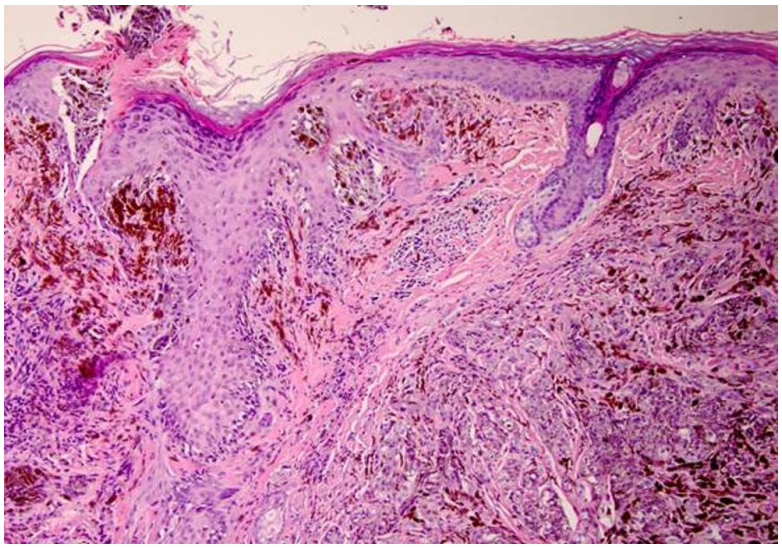

Figure 6. Biopsy reveals atypical melanocytes distributed irregularly along the dermal-epidermal junction and extending into the dermis (Hematoxylin and eosin stained sections; original magnification 200x).

Our patient's medical record and history document a slow but clear progression from lentigo to melanoma in situ of lentigo maligna type to invasive melanoma. The presence of a squamous cell carcinoma within the excisional specimen is another uncommon finding noted in the literature.[8] Complete excision may require a significant margin of normal-appearing skin which can make it difficult to achieve an optimal cosmetic outcome.[9] Early detection is critical as lentigo maligna has been reported in increasingly younger patients.[10] Confocal reflectance microscopy can be performed in vivo and assist in diagnosis.[11] Detection of macromelanosomes can also be a useful clue on histologic examination.[12] Surgical excision with careful margin control is the preferred treatment. Topical imiquimod can be used in

some instances but has a lower cure rate. Our patient's fatal outcome serves as a warning and demonstrates the importance of early definitive treatment of melanoma in situ despite cosmetic concerns.

CONFLICT OF INTEREST
None.

FUNDING
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