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Title

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Journal

Dermatology Online Journal, 21(7)

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Publication Date

2015

DOI

10.5070/D3217028116

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Peer reviewed

Case presentation

A case of hair re-pigmentation from a scalp melanoma

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Dermatology Online Journal 21 (7): 7

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Abstract

Hair re-pigmentation in adults is a rare phenomenon. We describe a 58-year-old woman who developed hair re-pigmentation on her vertex scalp as a marker of underlying melanoma. Histopathology revealed a nodular melanoma that was surrounding but not invading follicular epithelium. To our knowledge, there have only been 4 other previously published cases describing hair re-pigmentation in the setting of scalp melanoma. Focal hair re-pigmentation in adults should prompt a thorough evaluation for an underlying melanoma.

Case synopsis

A 58-year-old woman developed a “shock” of brown/blond hair in the background of grey hair 18 months prior to presentation. She was perplexed by the hair color change but thought that it might reflect her hair color “coming back”. Her husband detected a black papule at the center of her vertex scalp 8 months prior to her diagnosis. This papule increased in size and ulcerated, prompting her evaluation in our clinic and a biopsy to be performed (Figures 1 and 2). She had no prior history of melanoma. Her medical history was significant for debilitating rheumatoid arthritis that was well controlled on adalimumab for 8

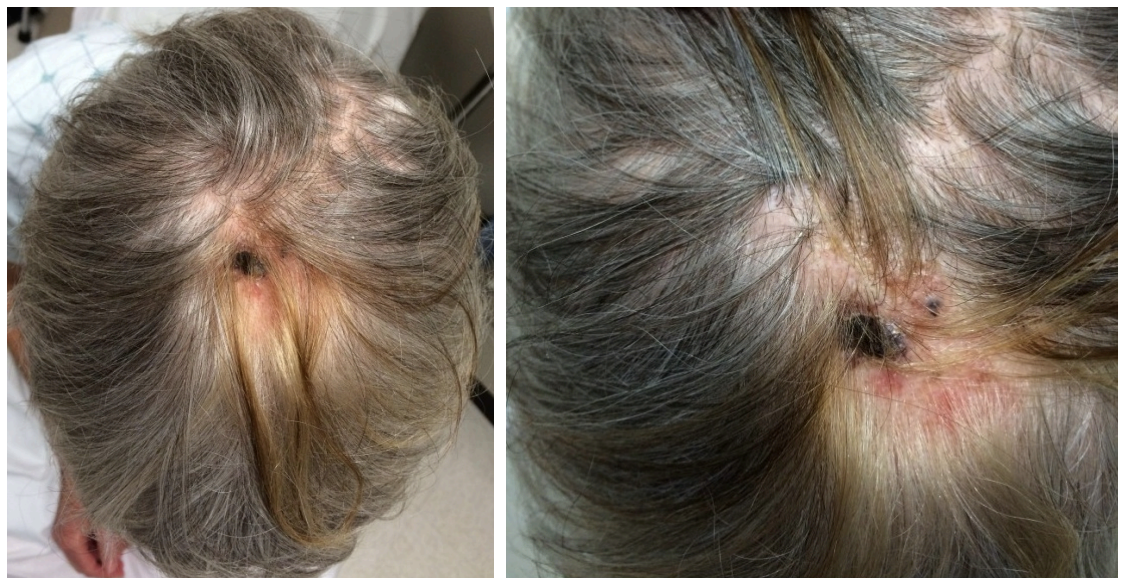


Figure 1 and 2. Clinical image of vertex scalp melanoma prior to wide local excision. 1) Patient was a type II Fitzpatrick skin phototype. Golden blond/brown hair was noted on her central vertex scalp in the setting of decreased hair density with grey/white hair throughout the rest of her scalp. 2) Within the area of the hair color change, a 1.9 by 0.9cm grey-black nodule with an area of focal crust was noted. Two non-contiguous grey-black papules were noted 1cm away from the primary nodule representing satellite lesions

years and methotrexate for 5 years.

An initial shave biopsy of the primary nodule revealed melanoma, which upon wide local excision demonstrated a thickness of 4.4mm (Figures 3 and 4). The sentinel lymph node dissection was positive in the right neck and she underwent a total right neck lymph node dissection revealing micrometastasis to 2 lymph nodes. A whole body PET/CT revealed multiple tiny pulmonary nodules concerning for metastatic disease.

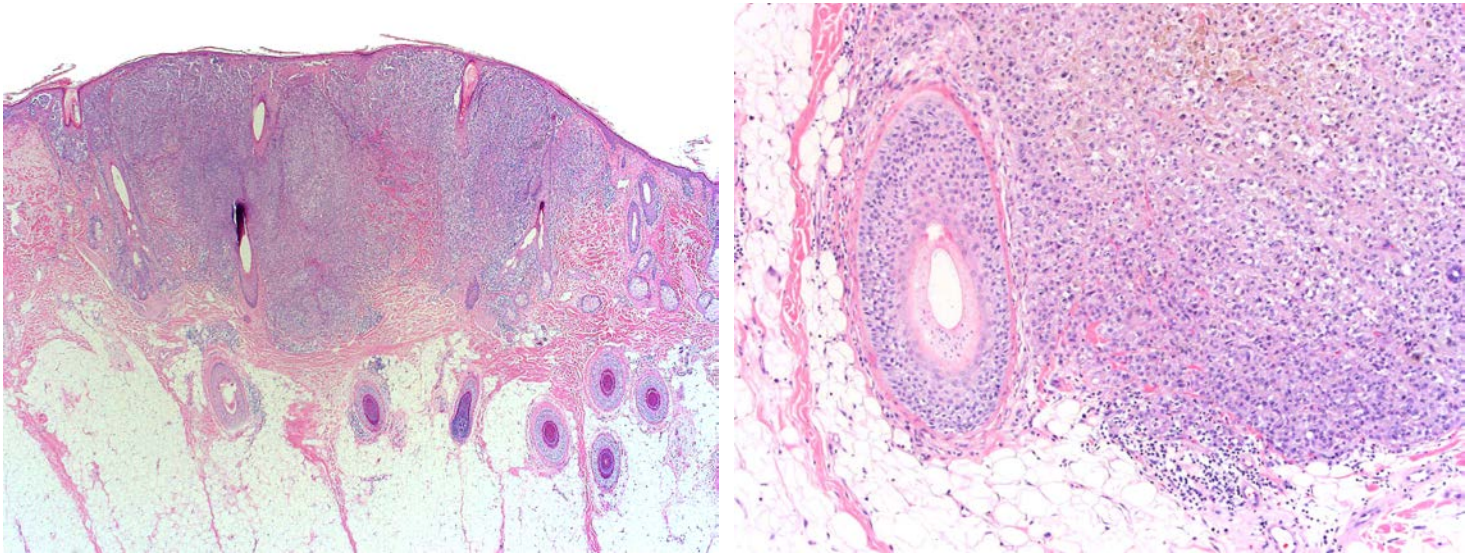


Figure 3 and 4. Melanoma Histopathology 3) Nodular melanoma surrounds the upper portion of hair follicles and extends to the dermal-subcutaneous junction. (hematoxylin-eosin, original magnification x20) 4) Melanoma does not directly invade follicular epithelium. (hematoxylin-eosin, original magnification x100)

She received a diagnosis of Stage IV malignant melanoma. Her tumor did not harbor a BRAF or c-KIT mutation. Her current management includes local radiation therapy to the cervical lymph node basin, chemotherapy with temozolamide, and close follow-up with repeat PET/CT monitoring

Discussion

The detection of scalp melanoma can be difficult for the patient and clinician. The head and neck region endures more ultraviolet radiation than any other site on the body, yet dense hair coverage makes early detection challenging. Scalp melanomas are therefore diagnosed later and occur at a more advanced Breslow thickness with higher rates of ulceration, in-transit metastasis, and sentinel lymph node involvement compared to non-scalp sites [1].

Hair pigment change in the setting of scalp melanoma appears to be a rare event based on the limited reports in the literature. Poliosis has been described in the context of a conjunctival, orbital, and scalp melanoma [2-4]. In this setting, poliosis is likely occurring as a consequence of an immunological response to an underlying malignant melanoma. To our knowledge, hair re-pigmentation has been described in only 4 prior case reports [5-8]. Inzinger et al reported a case of a 91-year-old woman with a 10-year history of hair re-pigmentation in the setting of a 3.5mm thick, stage IIIB melanoma with evidence of invasion within hair follicles on histology [6]. Three other published cases reports describe hair re-pigmentation in the setting of scalp melanomas without melanocytic invasion into hair follicles: a 7mm thick, amelanotic desmoplastic scalp melanoma and 2 cases of scalp lentigo maligna [5, 7, 8]. In our case and the 4 previously published cases, a diagnosis of melanoma could have been made earlier if hair re-pigmentation was recognized as a concerning feature for melanoma by either the patient or clinician.

The lack of follicular bulb invasion by the melanoma in our case suggests that hair re-pigmentation may have occurred by paracrine secretion of melanocyte activating factors by the surrounding melanoma. Both the reduction of hair bulb melanocytes and the reduction of tyrosinase activity and melanosome transfer have been postulated as a potential cause for the loss of hair pigment with age [9]. The phenomenon of localized hair re-pigmentation is highly unusual and indicates a perturbation of this process. The development of hair re-pigmentation in adults should raise a high suspicion for malignant melanoma.

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