Newland Melanoma: Case Report and Literature Review

James Connors DPM¹, Michael Coyer DPM², Gina Hild DPM², Mark Hardy DPM, FACFAS³

1. Podiatric Medicine and Surgery Resident, Mercy Health, Cleveland Ohio, NOFA Member
2. Mercy Health Podiatric Medicine and Surgery Residency Training Program Faculty, CCF Cleveland, NOFA Alumni
3. Director of Foot and Ankle Surgery, Mercy Health, Cleveland Ohio, Director NOFA Foundation

Introduction

Melanoma is a heterogeneous group of malignant tumors that arise from melanocytes, the cells responsible for producing melanin, the pigment that gives skin its color. Accurate pathologic diagnosis of melanocytic tumors requires a high index of suspicion and recognizes subtle architectural and cytologic features [7]. The silhouette of the lesion at low power can be rather deceiving [10]. The use of fluorescence in situ hybridization (FISH) analysis demonstrated cytogenetic abnormalities that were pathologic features of melanoma [12]. Genetic analyses of melanomas have revealed that nevi and melanomas are not as different as once thought, and that many features that are absent in unequivocally benign lesions [8]. In an attempt to develop a fluorescence in situ hybridization (FISH) assay to detect common aberrations in nevi, probes against 20 different genomic regions were evaluated in situ hybridization (FISH) assay to detect common aberrations in melanomas have been developed [3]. Unequivocal melanomas showed that patients with a positive test were significantly more likely to develop metastases or die of melanoma [1]. Unequivocal melanomas showed that patients with a positive test were significantly more likely to develop metastases or die of melanoma. The use of fluorescence in situ hybridization (FISH) analysis demonstrated cytogenetic abnormalities that were pathologic features of melanoma [12]. Genetic analyses of melanomas have revealed that nevi and melanomas are not as different as once thought, and that many features that are absent in unequivocally benign lesions [8]. In an attempt to develop a fluorescence in situ hybridization (FISH) assay to detect common aberrations in melanomas, probes against 20 different genomic regions were evaluated [3]. Unequivocal melanomas showed that patients with a positive test were significantly more likely to develop metastases or die of melanoma compared with patients whose melanomas were negative by FISH [1,11].

Case Report

We report on a 45-year-old man who presented for an appointment for diabetic foot care. Past medical history significant for diabetes mellitus with peripheral neuropathy, retinopathy, HTN, obstructive sleep apnea, general OA, and hyperpotassemia. States he has had the dark lesion on his right ankle for several years and has not noticed any changes to size, shape, or color. Past surgical history of Lpma excision, left thigh in 2007. No significant family medical history. On physical examination, pedal pulses were palpable bilateral. Capillary refill time measured less than 3 seconds to all digits bilateral. No loss of protective sensation was noted. Small lesions may appear more consistent with an intradermal melanocytic nevus and larger cells may consist of atypical melanocytes within a dermal nest. The low power microscopic features of this complex skin lesion can be quite deceiving [10]. The use of fluorescence in situ hybridization (FISH) analysis demonstrated cytogenetic abnormalities that were pathologic features of melanoma [12]. Genetic analyses of melanomas have revealed that nevi and melanomas are not as different as once thought, and that many features that are absent in unequivocally benign lesions [8]. In an attempt to develop a fluorescence in situ hybridization (FISH) assay to detect common aberrations in melanomas, probes against 20 different genomic regions were evaluated [3]. Unequivocal melanomas showed that patients with a positive test were significantly more likely to develop metastases or die of melanoma compared with patients whose melanomas were negative by FISH [1,11].

Results

Biopsy: Histological examination showed nevus lesion with sharp lateral border expanding into papillary dermis and reaching reticular dermis with sparse lymphocytic infiltrate at the base (40x, HE). Nevus lesions consisted of clusters and sheets of medium to large sized nevus cells, which focially showed atypia and few mitotic figures (40x, HE). Nevus cells showed maturation in the deeper portions of the lesions (200x, HE).

Histologic results: Originally diagnosed atypical compound nevus with moderate melanocytic dysplasia, completely but narrowly excised. Report diagnosis amended to acral nevus melanoma. Significant cytologic atypia and the neoplastic melanocytes had prominent nucleoli. Given this finding, additional molecular testing was performed. FISH was performed for providing the pictures of the histological slides and biopsy description. This also favored the diagnosis of melanoma. With these results, the diagnosis was changed to melanoma. Larger melanomas with abundant pale cytoplasm were present. FISH showed aberrations in the larger melanocytes only. Diagnosis—melanoma arising in a melanocytic nevus (hematoxylin and eosin).

Discussion

Recognition of nevus melanomas of smaller cell types requires a high index of suspicion and recognizes subtle architectural and cytologic features [7]. Architectural features are basic symmetry, with good circumscription in a nodular or verrucous pattern lacking any significant radial growth phase or epidermal invasion [8]. Long, thin rete ridge expansion or sheetlike growth, and pseudomatureation are common [9]. The low power microscopic features of this complex skin lesion can be quite deceiving [10]. The use of fluorescence in situ hybridization (FISH) analysis demonstrated cytogenetic abnormalities that were pathologic features of melanoma [12]. Genetic analyses of melanomas have revealed that nevi and melanomas are not as different as once thought, and that many features that are absent in unequivocally benign lesions [8]. In an attempt to develop a fluorescence in situ hybridization (FISH) assay to detect common aberrations in melanomas, probes against 20 different genomic regions were evaluated [3]. Unequivocal melanomas showed that patients with a positive test were significantly more likely to develop metastases or die of melanoma compared with patients whose melanomas were negative by FISH [1,11].

Acknowledgements

Steven D. Billings MD, co-head of anatomic pathology, Cleveland Clinic, for providing the pictures of the histological slides and biopsy description. The Northern Ohio Foot and Ankle Foundation Web: www.nofafoundation.org E-mail: nofafoundation@ohiofootankle.org

References