KANSAS JOURNAL of MEDICINE

Acral Nodular Melanoma at a Site of Trauma

Sandra Jaroonwanichkul, B.A.[1], Emily Fan, B.S.[2], Stephanie Matthews, B.S.[2], Bao Vincent Ho, M.D.[2], John C. Hall, M.D.[3]
[1]University of Missouri-Kansas City, School of Medicine, Kansas City, MO
[2]University of Kansas School of Medicine, Kansas City, KS
[3]St. Luke's Hospital of Kansas City, Kansas City, MO

Received Feb. 4, 2023; Accepted for publication June 9, 2023; Published online July 25, 2023
https://doi.org/10.17161/kjm.vol16.19501

INTRODUCTION

Melanoma is a malignant cutaneous tumor that accounts for nearly 2% of cancer deaths worldwide. Acral melanoma is a rare melanoma subtype occurring on the palms, soles, and nail units, and nodular melanomas are characterized by prominent vertical invasion.[1,2] Although the role that trauma plays in the pathogenesis of melanoma is controversial, studies[3,4] have demonstrated an association between acral melanomas with mechanical or physical stress. We present a case of a patient who developed acral nodular melanoma (ANM) on his palm at a site where a history of local trauma directly preceded lesion formation. The situation was complicated by a lack of healthcare insurance, which was a significant barrier to receiving treatment.

CASE REPORT

A 54-year-old male presented to the dermatology clinic with a darkly pigmented nodular growth on his right palm measuring 1.2 x 0.8 x 0.4 cm (Figure 1). The patient built outdoor fencing for over 30 years and would use his right palm as a mallet to attach metal fence panels at their connective latches. Bruising was noticed in the area of trauma 10 years prior to presentation, which began to increase in size and cause significant pain over the course of three months. He was uninsured and presented to a federally qualified health center (FQHC), which provided healthcare services to medically underserved communities regardless of insurance status.

The patient had no family history of melanoma or other skin cancers. A shave biopsy was performed with gross findings displaying a crusted red-brown lesion measuring 1.2 x 0.8 x 0.4 cm. Histopathologic findings were consistent with malignant melanoma, acral, nodular type with areas of tissue necrosis and overlying ulceration. Neoplasm thickness was at least Clark's level III, at least Breslow's thickness 3.70mm, and pTNM staging of at least pT3b. However, the melanoma involved all the biopsy margins, so an accurate Clark, Breslow, and pTNM staging could not be obtained. S-100, SOX10, and HMB-45 immunohistochemical stains performed were all positive, confirming the diagnosis.

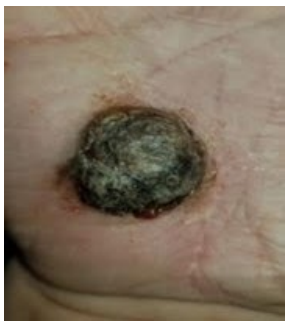

Figure 1. A darkly pigmented nodular growth on the patient's right palm.

DISCUSSION

The outcomes for patients with melanoma are largely dependent on the disease stage at diagnosis.[5] The diagnosis of acral melanoma tends to be delayed because patients often attribute their lesions to benign conditions such as infections and vascular lesions.[1] Initially this patient did not consider his lesion to be serious, mistakenly characterizing it as a bruise. Only when the lesion began to grow and become increasingly painful did he seek medical attention. In addition to the delay in diagnosis that our patient experienced, our patient was uninsured, which further impacts the ability to receive timely treatment. Uninsured patients are more likely to experience a delay in treatment, which was observed in our case.[6,7]

One previously reported case of a patient who developed advanced acral melanoma at a site of trauma exists, and he declined oncology consultation due to a lack of insurance. The patient thus succumbed to metastatic disease.[8] Our patient presented with ANM and is currently experiencing a delay in treatment. Since the FQHC he presented to does not provide comprehensive cancer care services, further steps involved referral of our patient to oncology and plastic surgery services. Due to his financial circumstances that were beyond our control, he was reluctant to receive medical care until he obtained Medicaid. Our patient had been waiting three months for Medicaid approval to be seen at an oncology clinic elsewhere. Over this time, he began to develop systemic symptoms, such as neurogenic pain, weight loss, poor sleep, numbness, and poor balance.

Considering that our patient had a delay in diagnosis due to his attributing his lesion as benign, this case raised the issue concerning the impact of routine skin cancer screening. In their 2009 and 2015 statements, the United States Preventative Services Task Force (USPSTF) did not recommend routine skin cancer screening by primary care physicians in the adult general population, citing insufficient evidence to conclude reliably that routine skin examination reduces morbidity or mortality from skin cancer among the general population.[9,10] Since then, there unfortunately have not been randomized control trials examining the impact of skin cancer screening, with only non-randomized studies providing insight to date.[11] A prospective, population-based cohort study involving 2,452 patients in New South Wales, Australia who were diagnosed with melanoma between 2006 and 2007 demonstrated melanomas that were diagnosed via routine skin checks were associated with a lower all-cause mortality, but not melanoma-specific mortality.[12] Melanoma mortality reductions in high-risk individuals included the population-based screening campaign in Schleswig-Holstein, Germany and the education and screening intervention at the Lawrence Livermore National Laboratory, in addition to several other epidemiological investigations.[9] Of note, five years after the screening campaign in Schleswig-Holstein, Germany, there was a decline in melanoma mortality rates by 48%.[10] However, this finding was not sustained over time.[10,13]

Since the 2009 and 2015 USPSTF statements regarding insufficient

evidence to recommend routine skin cancer screening in the adult general population by primary care physicians, the recent studies have highlighted that skin cancer screening may have the potential to reduce morbidity and mortality from melanoma.[11] Furthermore, certain populations had high rates of advanced-stage melanoma, including white middle-aged and older men and individuals with low socioeconomic status,[14] which was evident in our case. The USPSTF deemed further research on screening high-risk groups necessary to elucidate the benefit of skin cancer screening among these populations.[10] Before implementing population-based skin cancer screening in high-risk groups, evidence from randomized control trials demonstrating that benefits outweigh harms is necessary.[13]

In summary, the current recommendations regarding skin cancer screening as presented by the USPSTF and studies providing insight into the impact of skin cancer screening on mortality rates that have arisen in light of the current recommendations were highlighted. Taking into account that our patient would have been considered high-risk for advanced melanoma and that he was not aware of the seriousness of his lesion, thus presenting late for dermatologic consultation, the current case underscored the need for randomized control trials which demonstrate the impact of routine skin cancer screening among high-risk groups to determine if early detection reduces mortality in these populations.

REFERENCES

[1] Saw RP, Chakera AH, Stretch JR, Read RL. Diverse presentations of acral melanoma. Aust Fam Physician 2015; 44(1-2):43-5. PMID: 25688959.
[2] Durbec F, Martin L, Derancourt C, Grange F. Melanoma of the hand and foot: Epidemiological, prognostic and genetic features. A systematic review. Br J Dermatol 2012; 166(4):727-739. PMID: 22175696.
[3] Lesage C, Journet-Tollhupp J, Bernard P, Grange F. Mélanome acral post-traumatique: Une réalité sous-estimée? [Post-traumatic acral melanoma: An underestimated reality?]. [French] Ann Dermatol Venereol 2012; 139(11):727-731. PMID: 23199769.
[4] Park S, Yun SJ. Acral melanocytic neoplasms: A comprehensive review of acral nevus and acral melanoma in Asian perspective. Dermatopathology (Basel) 2022; 9(3):292-303. PMID: 35997352.
[5] Jain V, Venigalla S, Reddy VK, Lukens JN, Mitchell TC, Shabason JE. Association of insurance status with presentation, treatment, and survival in melanoma in the era of immune checkpoint inhibitors. J Immunother 2020; 43(1):8-15. PMID: 31498180.
[6] Amini A, Rusthoven CG, Waxweiler TV, et al. Association of health insurance with outcomes in adults ages 18 to 64 years with melanoma in the United States. J Am Acad Dermatol 2016; 74(2):309-316. PMID: 26670715.
[7] Elias ML, John AM, Maddukuri S, Schwartz RA, Lambert WC. Treatment delay in melanoma: A risk factor analysis of an impending crisis. Cutis 2021; 107(4):E19-E26. PMID: 34096856.
[8] Lambert Smith F, Wisell J, Brown M. Advanced acral melanoma. JAAD Case Rep 2015; 1(3):166-168. PMID: 27051719.
[9] Geller AC, Swetter SM, Weinstock MA. Focus on early detection to reduce melanoma deaths. J Invest Dermatol 2015; 135(4):947-949. PMID: 25785949.
[10] Tripp MK, Watson M, Balk SJ, Swetter SM, Gershenwald JE. State of the science on prevention and screening to reduce melanoma incidence and mortality: The time is now. CA Cancer J Clin 2016; 66(6):460-480. PMID: 27232110.
[11] Wu JH, Negbenebor N. Melanoma screening: The ethics of over- and underdiagnosis. R I Med J (2013) 2022; 105(3):17-21. PMID: 35349614.
[12] Watts CG, McLoughlin K, Goumas C, et al. Association between melanoma detected during routine skin checks and mortality. JAMA Dermatol 2021; 157(12):1425-1436. PMID: 34730781.
[13] Johansson M, Brodersen J, Gøtzsche PC, Jørgensen KJ. Screening for reducing morbidity and mortality in malignant melanoma. Cochrane Database Syst Rev 2019; 6(6):CD012352. PMID: 31157404.
[14] Geller AC, Swetter SM, Oliveria S, Dusza S, Halpern AC. Reducing mortality in individuals at high risk for advanced melanoma through education and screening. J Am Acad Dermatol 2011; 65(5 Suppl 1):S87-S94. PMID: 22018072.

Keywords: melanoma, skin cancer