**Abstract**

We report the case of a 61-year-old male of Haitian origin who presented with a lesion under his right first finger, which had been present for up to 15 years. Nail matrix biopsy showed subungual melanoma in situ. Acral lentiginous melanoma (ALM), the most common type diagnosed in black patients, is more likely to be detected at an advanced stage than other melanoma subtypes. The delayed diagnosis and treatment may lead to poorer prognoses for affected individuals.

**Introduction**

The lifetime risk for developing melanoma in Caucasians is estimated to be 1 in 50, while it is 1 in 1,000 in the black population. Black patients have a tendency to develop lesions on sun-protected mucosal and acral sites. Lesions are common on the foot, which is speculated to be related to traumatic injury and preexisting nevi. The major subtype of melanoma observed among blacks, Hispanic and Asian patients is acral lentiginous melanoma (ALM). It is estimated to account for more than 50 percent of all melanomas in black patients, compared to an estimated 5 percent in Caucasians. ALM is more likely to be detected at an advanced stage, with larger tumor size, than other subtypes of melanoma, attributed to a delay in appropriate management resulting from misdiagnosis.

**Case Report**

A 61-year-old male presented with the chief complaint of a pigmented lesion on the right first finger (Figure 1). The lesion had been present for 10 to 15 years. It started as a brown/black streak that traveled down the nail. The patient noticed widening of the lesion, to just over 8 mm, as well as color change. Upon examination, there appeared to be a Hutchinson or pseudo-Hutchinson sign evidenced by macular, deeper pigmentation at the eponychium. He reported black crust at the distal nail, which he would trim down with nail clippers weekly. He denied pain, trauma or bleeding. The lesion was evaluated by his PCP in Texas many years ago, and per the patient, the PCP was unsure of the diagnosis and offered the possible etiology of a fungal infection. At that time, no intervention or diagnostic workup was performed. Later, after moving to Arizona, he was seen by his current PCP and referred to our office.

The patient denied sunscreen use and denied any history of blistering sunburns in childhood. He grew up in Haiti and spent the third third of his life there. He moved to the United States and resided in New York and New Jersey for many years before transferring to Texas and then later Arizona. He reported very little time spent in the sun.

A complete review of systems was negative. The patient denied any significant past medical history and had no previous surgeries. His family history was noncontributory, and there was no family history of melanoma. Patient reported no prescription medications. His over-the-counter medications included a multivitamin, honey bee pollen, L-lysine and Echinacea. His allergies included hydrocodone, with reported nausea and vomiting. The patient worked as an engineer. He denied any chemical use or UV exposure related to hobbies or work. Social history was negative.
After the patient’s first office visit, it was highly recommended that he have a nail matrix biopsy to rule out melanoma. The patient stated that he wanted to discuss it with his wife and obtain a second opinion. He returned for a second opinion scheduled with another physician in the group, who again recommended nail matrix biopsy. The patient returned and had two punch biopsies taken of the nail matrix, which showed subungual melanoma in situ that extended to the lateral margin (Figure 2). He then underwent slow Mohs surgery with two layers to clear all margins (Figure 3). The surgery site was left to heal by secondary intention.

Discussion
Melanoma is a disease of malignant transformation of melanocytes. In Caucasians, the number of cases of the disease worldwide is increasing faster than for any other form of cancer.1,11,12 The lifetime risk for developing melanoma in Caucasians is estimated to be 1 in 50, while it is 1 in 1,000 in the black population.1 Black patients have a tendency to develop lesions on sun-protected mucosal and acral sites, particularly the foot, which is speculated to be related to traumatic injury and preexisting nevi.1,9 Low socioeconomic status is associated with poor survival independent of race or type of melanoma.15 The major subtype of melanoma observed in black, Hispanic and Asian populations is acral lentiginous melanoma.1 It is estimated to account for more than 50 percent of all melanomas in black patients, compared to an estimated 5 percent in Caucasians. Acral lentiginous melanoma is more likely to be detected at an advanced stage than other melanomas, attributable to treatment delays due to misdiagnosis. Common misdiagnoses include benign skin lesions such as wart, dermatophyte infection, foreign body, ulcer, callus, mole, traumatic wound, keratoacanthoma, ingrown toenail, infected toenail and subungual hematoma.1,2 Misdagnosis is especially common with unpigmented lesions and lesions involving the nails.2

Relative to other anatomic sites, plantar and subungual melanomas exhibit a higher misdiagnosis rate.2 The delay in diagnosis leads to a higher incidence of thicker, more invasive tumors at presentation.3 Histologic prognostic predictors include size and shape of primary lesion, invasion, presence of ulceration and mitotic activity.4 Prognosis can be assessed by clinicopathologic variables including age, location, tumor thickness, presence of ulceration, stage of disease, and race. Overall survival time for black patients with cutaneous melanoma is significantly shorter than for Caucasians with the disease. Bellows et al. performed a chart review of 198 patients with melanoma presenting from 1975 to 1977 at Charity Hospital New Orleans, 44 of whom were black. The majority of the black patients developed melanoma on the acral surface of the foot. The authors reported that the mean survival time for black patients with cutaneous lesions was 45 months, compared to 135 months for Caucasian patients.5 There are conflicting data regarding whether the difference in survival is due to race or to advanced disease at presentation.

It is debatable whether ALM is an inherently more aggressive form of melanoma or whether delayed diagnosis accounts for the lower survival rate. In a retrospective review by Ridgeway et al., it was found that only thickness was a prognostic variable for disease-free survival and overall survival in ALM cases. According to the authors, “this histologic subtype does not, in itself, affect the outcome” of patient survival when compared to patients with superficial spreading melanoma and nodular melanoma.6,7

There is also controversy related to whether race is an independent prognostic factor in survival. There is evidence that supports that melanoma in black patients follows a more aggressive course even after controlling for stage of disease, tumor thickness, ulceration, anatomic site, socioeconomic status and histologic type.1 There is also evidence refuting that race is an independent risk factor and that reliable prognostic variables include Clark and Wihm’s level, clinical stage, and ulceration.14 In a study by Cormier et al., patients who were Hispanic, black, American Indian or Asian were more likely to present with stage IV melanoma compared with patients who were Caucasian.10

Melanoma is one of the deadliest forms of skin cancer and is a public health concern for ethnic populations. Better understanding of the different presentations of melanoma in each ethnic background, and screening individuals of all backgrounds, will lead to earlier detection and help minimize the disparities in survival rates. As cutaneous melanoma is a visible disease of the skin, both the practitioner and the patient have a role in recognizing suspicious lesions and lesions that are evolving. The time taken to make a diagnosis depends on the patient seeking medical attention and also on the practitioner being prudent about biopsies and having a strong clinical suspicion when examining nontraditional areas for melanoma and nontraditional presentations. Richard et al. studied the reasons for delay in melanoma diagnosis in 590 patients and found that risk factors included male gender, increasing age and low education level.11 In a second examination regarding delays in physician diagnosis, risk factors included acral locations and lack of lesion pigmentation.15 It was also found in this study that when patients saw dermatologists rather than general practitioners, medical delays were shorter, doctor’s attitudes were frequently appropriate, and melanomas were thinner at diagnosis.14

Conclusion
The incidence of melanoma is rising. As the rate increases, especially in the younger population, there is a great need for screening and education. This includes patient education and also physician/healthcare provider education. Discussing the signs and potential symptoms of melanoma with patients will help them to seek out medical care at an earlier stage. The threshold for biopsy for the clinician should also be decreased. When a lesion is being treated and is not improving in the appropriate manner, a biopsy is warranted. Referring to a physician who is comfortable with nail matrix biopsy is also important in shortening the presentation-to-diagnosis time and improving morbidity and mortality.
References


