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Statement of Purpose

Acral lentiginous melanoma (ALM) lesions are found on the palms, soles and nails. ALM is of particular importance because it is regarded as one of the more aggressive types of melanoma due to the inherent molecular differences in these tumors and a delay in diagnosis frequently caused by an initial misdiagnosis.¹ ALM is commonly misdiagnosed as fungal infections, warts, and diabetic foot ulcers, which can lead to delay in definitive treatment and increase in poor patient outcomes.^{1,2} This case series documents three cases of acral lentiginous melanoma who underwent excision with medial plantar artery flap reconstruction.

Literature Review

Cutaneous melanoma is categorized into four main subtypes: superficial spreading (70% of cases), nodular (15-30%), lentigo maligna (5-10%), and acral lentiginous (2-10%).¹ The incidence of cutaneous melanoma is rising faster in the United States than most other cancers. Incidence of ALM is similar across racial and ethnic groups, but is a disproportionate percentage of melanomas in darker-skinned patients. In the United States, 18% of patients diagnosed with ALM are black, Asian, Pacific Islander and Hispanic.

Case Study

Three patients were diagnosed with Acral Lentiginous Melanoma, who then underwent a sentinel lymph node biopsy, melanoma excision, and medial plantar artery flap reconstruction. All three surgeries were performed by Dr Buonocore, with one surgery in conjunction with Dr Gambardella.

Case Study Continued

The patients' ages were 48, 65, and 67 with two males and one female. 65 year old African-American male was diagnosed as malignant Acral Lentiginous Melanoma Clark Level 3 from a biopsy performed of the plantar left heel lesion by Podiatric Surgeon Dr Gambardella. 48 year old Hispanic male was treated with local wound care for a left heel lesion for 11 months before a biopsy was performed, resulting in Acral lentiginous melanoma with 3mm thickness and Clark's level 4. This patient also underwent conjunctive chemotherapy due to metastasis of the melanoma into the groin lymph nodes. 67 year old Hispanic female, initially diagnosed with a right plantar heel ulcer which was shaved several times before a biopsy was performed with resultant ALM diagnosis.



Intraoperative Biopsy Pathology Specimens Results: The excised lesions collected from the surgical procedures were sent to Pathology for analysis and diagnosis. All three patients had the diagnosis of malignant melanoma from each of the lesions resected. Each patient had sentinel lymph nodes also sent to Surgical Pathology, with only one patient having both sentinel lymph nodes positive for metastatic melanoma. The patient subsequently followed up with a Surgical oncologist and an Oncologist where they were treated with Chemotherapy alone.

Case Study Continued

One patient underwent a revisional flap procedure after the initial surgery resulted in a pressure wound injury requiring a segment of the heel to be debrided and a revision of the medial plantar artery flap to be performed, which eventually went on to heal. The other two patients healed uneventfully both the medial plantar artery site and the donor site which was covered with a split thickness skin graft. One patient had recurrence of another melanotic lesion on the donor site of the medial plantar artery flap skin, which was later excised with a rotational flap closure performed by Dr Gambardella.



Analysis & Discussion

Acral lentiginous melanoma regarded as one of the more aggressive types of melanoma due to its more aggressive biological behavior.¹ There are several factors in determining the staging of melanoma, with the sentinel node status the most predictive factor for survival and recurrence in non-metastatic melanoma.¹ Two of the patients in this study had 2-3 sentinel node biopsies and all were found to be negative for metastatic malignant melanoma. One of the patients had both sentinel lymph nodes positive for metastatic melanoma. The study by Ocanha-Xavier et al compared the various Melanoma subtypes; superficial spreading melanoma (SSM), ALM and Nodular melanoma and their respective rates of metastases and death.

Analysis & Discussion Continued

Their results found that regression was more frequent in SSM and ALM subtypes, and that the only deaths by melanoma were found in the ALM subtype. Our single patient who had metastatic ALM is still alive today and noted to be doing well on Chemotherapy treatment.

Acral lentiginous melanoma is the least common subtype of cutaneous melanomas as a whole, but it is found to be the most common subtype in black Americans.³ Bradford et al found that the largest proportion of ALM was found in black Americans (36%) with a 5 year survival rate of 77.2% and a ten year survival rate of 71.5%. They also found that the Breslow thickness and stage of the ALM at presentation correlated with decreased survival rates. It was determined that ALM is associated with a worse prognosis than cutaneous malignant melanoma overall.⁴ All three of our patients survived their procedures of sentinel lymph node biopsy, melanoma excision, and medial plantar artery flap reconstruction with Dr Buonocore. All have remained healed to their plantar surgical sites, with one recurrence of ALM that was also successfully resected. Radical excision of the plantar foot melanoma with sentinel node biopsy, and medial plantar artery flap reconstruction continues to be a viable treatment option for Acral lentiginous melanoma.

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