

Local Recurrence of Acral Lentiginous Melanoma in a Split Thickness Skin Graft

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Statement of Purpose:

Pedal melanoma poses a challenge to clinicians who must balance adequate oncologic resection with preservation of limb function. There is limited literature that looks at melanoma solely in the foot, specifically with rates of metastasis and recurrence, and only a few cases of metastasis to a split thickness skin graft. This case report presents our observation and treatment of an acral lentiginous melanoma (ALM) with local recurrence to a split thickness skin graft after initial resection.

Literature Review:

Acral lentiginous melanoma accounts for 2-3% of all melanomas¹. It is a relatively rare melanoma subtype which disproportionately affects people of color, and carries a worse prognosis than other types of melanoma due to a more advanced stage at presentation, and tends to exhibit more aggressive behavior². Prognosis of these lesions are determined by location, depth, biological properties of the primary lesion, and evidence of metastatic disease. Treatment of acral lentiginous melanoma include initial biopsy followed by wide local excision, with possible adjuvant chemotherapy³. The risk of local recurrence is reported as 2-5% in the literature and is associated with worse long⁴. The mechanisms of recurrence include incomplete excision of the primary lesion, in transit metastasis, a second primary melanoma, and hematogenous spread⁵. To our knowledge there have only been 3 reported cases in the literature involving malignant melanoma in a skin graft⁶. We present a case of a 62 year old male with local recurrence of acral lentiginous melanoma to a skin graft after initial wide local excision.

Case Report:

The patient is a 62 year-old male who initially presented with a locally aggressive, non-ulcerative, pigmented lesion to the proximal aspect of the left 5th digit that had been progressive in nature for 2 years. He underwent initial radical surgical resection of the lesion with amputation of the 4th and 5th digits followed by primary closure and adjuvant chemotherapy. The initial biopsy was reviewed by pathology and was confirmed as acral lentiginous melanoma. 36 months after the initial procedure, the patient was evaluated in the clinic and noted to have local recurrence of melanoma. The patient then underwent 4th and 5th partial ray amputations with 2 centimeter clear margins as well as application of a split thickness skin graft from the ipsilateral thigh to cover the surgical wound. 24 months after application of the split thickness skin graft, the patient returned to clinic with hyperpigmented, ulcerative changes within the split thickness skin graft consistent with local recurrence of melanoma. The patient returned to the operating room for local wedge-type biopsy and sentinel lymph node (SLN) biopsy to confirm clinical diagnosis.

Surgical pathology report: Pathology showed broad, poorly circumscribed and asymmetric atypical compound melanocytic proliferation and dermal invasion with severely atypical melanocytes. This is consistent with a diagnosis of ulcerative ALM. The lesion was negative for BRAF V600 mutation, had a Breslow depth of ≥ 2.62 mm, Clark level IV, a mitotic rate of 1/mm² and staging T4N2M0. SLN biopsy revealed regional inguinal metastasis.

Post-operative course: At present, the patient is refusing any further surgery, including a below knee amputation, and was started on Opdivo, a targeted PD-1 receptor for unresectable melanoma to prevent regional and distal metastasis. At 72 month follow-up, there has been no progression while on chemotherapy with no proximal metastasis noted bi-annual CT surveillance.

Analysis and Discussion:

Our case study represents one of the few documented cases of recurrent melanoma to a split thickness skin graft in the literature. The mainstays of treatment for recurrent melanoma consists of wide excision and sentinel lymph node biopsy, followed by adjuvant chemotherapy or immunotherapy. In this case, the patient refused a more proximal amputation, but he was amenable to starting nivolumab (Opdivo®, Bristol-Meyers Squibb) immunotherapy, a targeted PD-1 inhibitor which is FDA approved for use in unresectable or metastatic melanoma for patients with a negative BRAF V600 mutation⁷. We hypothesized that the recurrence of this melanoma occurred through in transit metastasis via lymphatic spread due to adequate resection at the initial surgery with clear margins on histopathology, and the presence of a positive sentinel lymph node biopsy at the surgery for recurrence.

The development of a local recurrence in a patient with cutaneous melanoma following adequate resection of the primary tumor has historically been associated with a poor prognosis with 5 and 10-year survival rates of 9 and 5 percent, respectively. In contrast, there is an 86 percent five-year survival rate for those who do not develop a local recurrence³. With the introduction of immunotherapy adjuvants, the 5 and 10-year survival rates increase to 50 and 35 percent, respectively⁷. Other factors that increase the risk of local recurrence include increased tumor thickness, ulceration of the primary lesion, desmoplastic histology, and lymph node positive disease³. Wider excision has also been reported to lower the risk of recurrence, but in this case would have resulted in a less functional limb, and has not been shown in the literature to increase the long term survival rate⁸.

In summary, recurrent acral lentiginous melanoma is a rare occurrence and poses a challenge to the surgeon to balance adequate resection with limb function. With appropriate surgical excision and advances in immuno- and chemotherapy the prognosis and survival rates of patients with recurrent disease are improving, however still remain poor compared to other forms of cutaneous melanoma.

References:

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Figure 1: Melanoma of the 5th toe at initial presentation



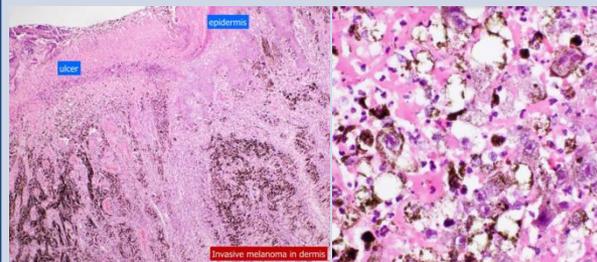
Figure 2: Wide resection of melanoma with partial 4th and 5th ray resection. Clean margins were obtained



Figure 3: Foot healing after application of split thickness skin graft to amputation site



Figure 4: Presentation at 24 months from initial surgery with recurrent melanoma



Figures 5 and 6: Histology slides showing melanocyte proliferation with invasion into the dermis