5-Year Outcomes of Melanoma of the Foot based on Depth of the Lesion

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Statement of Purpose

The current guidelines for the management of primary cutaneous melanoma are based on biopsy results and the maximum tumor thickness. However, the foot is unique anatomically, which may affect prognosis and clinical outcomes following treatment. Previous studies have suggested anatomic location on the foot as an important factor for clinical outcomes. Specifically, for a given depth, what is the 5-year recurrence rate for lesions between 1.01-2 mm, 2.01-4 mm, and >4 mm, respectively (both Fisher’s exact test p-value <0.001). There were 5 patients with local recurrence and 3 patients with systemic recurrence. Of the 8 patients with recurrence, 4 died within 5 years due to melanoma. Sentinel lymph node biopsy was positive in none of the patients with melanoma in situ, 20% of patient with lesions 1.01-2mm, 71% of patients with lesions 2.01-4mm, and 57% of patients with lesions >4mm. The overall 5-year mortality of lesions >2mm was 39% compared to 2% for lesions <2mm. And on initial biopsy, 41% of lesions were >2mm.

Results

There were 18 deaths within 5 years and the overall 5-year survival rate was 76%. Five of these deaths were unrelated to melanoma). The 5-year mortality, with metastatic melanoma as the cause of death was 17%, meaning the survival rate was 83%. The overall death rates were 3%, 10%, 41%, and 64% for patients with melanoma in situ, lesions 1.01-2mm, 2.01-4mm, and >4mm, respectively (both Fisher’s exact and log-rank tests p-value <0.001). Sentinel lymph node biopsy was positive in none of the patients with melanoma in situ, 20% of patients with lesions 1.01-2mm, 71% of patients with lesions 2.01-4mm, and 57% of patients with lesions >4mm. For the 12 total patients with positive sentinel lymph node biopsy, 50% of them died within 5 years. There were 3 patients overall who required proximal amputation. The rates of distant metastatic disease were 30%, 71%, and 79% for patients with lesions 1.01-2mm, 2.01-4mm, and >4mm, respectively (Fisher’s exact test p-value <0.001). Twenty-two patients with advanced disease received chemotherapy, radiation, or both. The overall 5-year mortality in these patients was 63%. The 5-year mortality of lesions >2mm was 39% compared to 2% for lesions <2mm. And on initial biopsy, 41% of lesions were >2mm.

Methods

We conducted a retrospective observational cohort study within Northern California Kaiser from 2007-2009. All patients 18 and over who were diagnosed with primary melanoma of the foot were included. Patients with an unknown depth of the lesion were excluded. A total of 76 patients were identified. We performed bivariate analyses using chi-square or Fisher’s exact tests to compare baseline categorical demographic and clinical characteristics across categories of Breslow depth (<1mm, 1.01-2mm, 2.01-4mm, and >4mm). For the outcome measures (local recurrence, positive sentinel lymph node biopsy, distant metastatic disease, and 5-year survival), we calculated incidence rates and 95% confidence limits. Rates were stratified by Breslow depth to plot Kaplan Meier survival curves.

Literature Review

The current guidelines for the management of primary cutaneous melanoma are based on biopsy and the maximum tumor thickness, or Breslow depth. Surgical margins for invasive melanoma should be at least 1cm and no more than 2cm clinically measured around the primary tumor (1). For some areas of the foot, this requires extensive skin grafting and reconstruction (2). Acral lentiginous melanoma has been reported to have a low recurrence rate, but this is independent of histological type (3). Previous studies have suggested that anatomic location on the foot has an independent influence on survival. 5-year survival has been reported to be as low as 52% for patients with primary melanoma of the foot and ankle compared to 84% for patients with primary melanoma elsewhere on the lower extremity (4). There is limited research evaluating the clinical outcomes of melanoma of the foot, which makes it difficult to offer specific guidelines for the management. One study found the overall local recurrence rate of foot melanoma to be 32.6%. The recurrence rate for lesions between 1-4mm was 47% of those with positive nodes (+13) the recurrence rate was 31% (5). Sentinel lymph node biopsy should be offered to patients with clinically negative nodal status (6). The number of excised lymph nodes is associated with survival of melanoma patients with lymph node metastasis. Of those with positive Sentinel lymph node biopsy (N = 22), 63% Mortality - 5-year mortality despite systemic treatment (N = 16)

Methodology / Procedure

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References