Biopsies for Soft Tissue Sarcoma of the Hand: Dangers, Hazards, and Outcomes

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INTRODUCTION:

This study evaluated the quality of biopsies in patients referred to a tertiary sarcoma center for the definitive management of soft tissue sarcoma of the hand and assessed the impact of the quality of the biopsy on definitive surgical management and local and distant recurrence. Secondary goals of the study were to determine risk factors associated with suboptimal biopsies.

METHODS:

Patients treated with definitive surgical resection of soft tissue sarcoma of the hand from 1995 through 2019 were analyzed. Biopsies were prospectively classified as acceptable or suboptimal based on the ease of incorporation into a standard limb salvage incision or amputation. The impact of the biopsy class on the resection margins, need for amputation and/or soft tissue coverage, MSTS score, and oncologic outcome was assessed. Risk factors for suboptimal biopsies, including size, depth, location, and type of biopsy were evaluated.

RESULTS:

One third all biopsies performed externally were suboptimal. Patients with suboptimal biopsies were more likely to have undergone excisional biopsies, have positive margins at the time of definitive resection, and require soft tissue coverage. The time between biopsy and first intervention and the time between biopsy and surgery was twice as long in the patient who underwent external biopsy. There was no difference in MSTS score, need for amputation, or local recurrence or overall survival. Patients who underwent acceptable biopsies had 5-year disease-free survival (DFS) of 94% (95% CI 88%, 100%) compared to 5-year DFS of 83% (95% CI 69%, 100%). Risk factors for suboptimal biopsies included size, depth, and location in the carpal tunnel, volar/radial palm, first webspace, and thumb proximal to the interphalangeal joint.

DISCUSSION AND CONCLUSION:

Patients who underwent suboptimal biopsy were more likely to have positive margins and require soft tissue coverage at definite resection and may have worse disease-free survival. Tumors that were deep, in certain anatomic locations, and larger than 2.5 cm were at higher risk of undergoing suboptimal biopsy when performed externally. We advocate for referral to a sarcoma center for biopsy if the tumor is larger than 2.5 cm or in a high-risk anatomic location.