

The Influence of unplanned excision in stage III soft tissue sarcoma.

Frank Traub MD PhD ^{1m}, Anthony M Griffin MSc ⁵¹, Peter C Ferguson MD MSc ^{1,2}, Jay S Wunder MD MSc ^{1,2}

1 University Musculoskeletal Oncology Unit, Mount Sinai Hospital, Toronto, ON, Canada M5G 1X5

2 Division of Orthopedic Surgery, Department of Surgery, University of Toronto, Toronto, ON, Canada M5G 1X5

Objectives:

Soft tissue sarcomas are a group of rare mesenchymal neoplasms comprising 1% of all malignant tumors. Unfortunately it is not uncommon for patients with soft tissue sarcomas to present and be treated initially in the community setting as potentially benign lesions. This situation usually leads to an inadequate sarcoma excision, often referred to as a “Whoops! Procedure” with subsequent referral to a specialty sarcoma center. Inadequate excision of large, deep and high grade sarcomas, commonly referred to as stage III tumours, presents significant challenges to the multidisciplinary treatment team and is thought to put the patient at high risk of disease recurrence, complications, and poor functional outcome. The purpose of this study was to determine the impact of an unplanned sarcoma excision on treatment and subsequent oncologic and functional outcome for patients with stage III extremity soft tissue sarcoma.

Materials and Methods:

From the prospectively collected database at a tertiary referral sarcoma center, we identified all patients with large, deep, high grade and localized (ie Stage III) soft tissue sarcomas of the extremities treated between 1989 and 2010. Patient records were reviewed to identify patient demographics, tumor details, treatment, complications, function and oncologic outcomes. Patients with stage III extremity soft tissue sarcomas who underwent an initial unplanned excision elsewhere and then re-excision in the sarcoma center (Group 1: Re-excision treatment) were compared to patients who had an initial planned sarcoma resection at our centre (Group 2: Planned treatment).

Results:

500 patients with stage III soft tissue sarcomas of the extremities were identified of whom 94 patients (18.8%) presented following a previous inadequate excision performed elsewhere (Group 1). All 94 patients in Group 1 underwent re-excision in an attempt to achieve clear margins. After re-excision, 12.7% of these patients had positive resection margins and 82.9% had residual tumor identified histologically in the re-excision specimen. In the Re-excision Group, the rate of skin grafts, rotational or

free flaps and amputation was significantly higher compared to patients in Group 2 who underwent an initial Planned sarcoma resection ($p=0.013$). The rates of local recurrence, metastasis-free survival and overall survival were not significantly different between the two groups. Radiotherapy and chemotherapy was applied equally to both groups. Function following Re-excision or Planned Treatment were not significantly different (p -value 0,24).

Conclusion:

Soft tissue sarcomas are a group of rare mesenchymal neoplasm's comprising 1% of all malignant tumors. Unfortunately it is not uncommon that soft tissue sarcomas undergo initial inadequate excision and are then referred to specialist services. From the prospectively collected database at our institute we reviewed the records of all patients with Stage III soft tissue sarcomas of the extremities treated between 1989 and 2010. 500 patients with soft tissue sarcoma stage III of the extremities were identified of whom 94 patients presented following previous inadequate excision. All 94 patients underwent re-excision in an attempt to achieve clear margins. After re-excision, 83% patients were found to have residual tumor. In the re-excision group the rate of skin grafts, flaps and amputation was significantly higher ($p=0.013$). The rates of local recurrence, metastasis-free survival and overall survival were different but not significant.

Initial unplanned excisions of Stage III soft tissue sarcomas leads to an unfavorable clinical course and necessitates more extensive surgery as evidenced by higher rates of skin grafts, flaps and amputations, but without a negative effect on oncologic outcomes after wide re-resection and multidisciplinary treatment.