

The Variability of Margin Definitions Used In the Clinical Treatment of Soft Tissue Sarcomas:
A Multi-Institutional Study

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Background: Surgical resection forms the cornerstone of treatment for virtually all soft tissue and bone sarcomas. The type and adequacy of the resection is described by the surgical margin and is an important determinate of oncologic outcomes in these scenarios. Despite the importance of the concept of the surgical margin in the treatment of sarcomas there is considerable variability in the systems that are used to describe margins in the literature and in clinical practice. This makes it difficult to compare the results of different research studies and to make evidence based clinical recommendations.

Purpose: The purpose of the current study is to determine the variability in the margin terminology that is in current use in the clinical treatment of soft tissue sarcomas. The variability will be evaluated within each institution and between the different institutions participating in this study.

Patients and Methods: The case logs of orthopedic oncologists from 7 participating institutions were retrospectively reviewed to identify patients who underwent surgical resection of a soft tissue sarcoma from August 1st, 2009 to December 31st, 2013. Patients were included if they underwent a wide resection of a soft tissue sarcoma. Patients with a diagnosis of well differentiated liposarcoma/atypical lipomatous tumor were excluded. The pathology report from the definitive resection was reviewed for the terminology that was explicitly used for the description of the surgical margins. Margins were classified as MSTS / Enneking classification, Residual tumor (R) classification, dichotomous classification (positive/negative), closest distance to tumor, or other.

Results: 209 patients were identified that met the inclusion criteria. Dichotomous classification (positive/negative) or margins was used in 85% of the pathology reports and the use was consistent in all institutions. Distance to closest margin was reported in 76% of the cases and was also used in all institutions. 41% of the reports contained a MSTS / Enneking classification of the margins, and this system was only used in 3/7 institutions. The Residual tumor (R) classification was only used in 3% of the pathology reports.

Conclusions: Dichotomous descriptions and distance to closest margins are used consistently in all of the centers in the study. The MSTS / Enneking system is used on a regular basis in less than half of the institutions but not used at all in the others. The Residual tumor (R) classification was not used on a regular basis in any of these centers. The literature concerning the outcomes of soft tissue sarcoma treatment is not uniform in its use of margin descriptions and may not mirror the margin definitions that are used in clinical practice. The authors encourage a future direction of study to work on standardizing margin definitions throughout both the literature and clinical practice of the treatment of soft tissue sarcomas.