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**Title:** Soft tissue sarcomas: Delay in diagnosis does not affect survival

**Background:** Several studies have shown tumor size to be an important factor in predicting outcomes in soft tissue sarcomas, yet many patients present with tumors far larger than the typical patient included in previous studies.

**Purpose:** The aim of this study is to stratify patients with tumors over 10 centimeters (cm) in largest dimension.

**Patients and Methods:** From our soft tissue sarcoma database, 399 patients were retrospectively reviewed from 2001-2008. 93 patients had a tumor less than 5cm in greatest dimension; 144 patients with tumor 5-10cm; 100 patients with tumor >10-20cm and 62 patients greater than or equal to 20cm. Tumor characteristics, survival outcomes including local recurrence, distant metastasis, and overall survival were analyzed.

**Results:** Compared with tumors <5cm, tumors 10-20cm and  $\geq$ 20cm were more frequently located in the lower extremity, found deep to fascia, experienced wound complications, and required radiotherapy ( $p < 0.05$ ). Sarcomas 20cm or larger had the highest frequency of positive deep margins ( $p < 0.05$ ). Sarcomas 10-20cm and  $\geq$ 20cm have increased rates of distant metastasis and mortality (death hazard ratios 2.43, 2.25 respectively,  $p < 0.0001$ ), yet there is no difference in survival when comparing these two groups (Figure 1). There was no difference in age, sex, or local recurrence among groups.

**Conclusions:** Increasing soft tissue sarcoma size portends a poor prognosis in regards to metastatic disease and death. There is no significant change in mortality after a sarcoma reaches 10cm in greatest diameter. Accordingly, delay in diagnosis is unlikely to alter survival. Larger patient series are needed to further stratify patient populations and develop better survival nomograms.

Figure 1: Kaplan-Meier Curve for overall survival in soft tissue sarcoma based on tumor size

