

Soft Tissue Sarcomas Abutting The Femur: Does Bone Resection Improve The Oncological Outcome?

Rebecca Lewis, Hazem Wafa, Czar Louie Gaston, Jose Albergo, Robert Grimer, Ashish Mahendra
Glasgow Royal Infirmary, 84 Castle Street, Glasgow, G4 0SF, United Kingdom
The Royal Orthopaedic Hospital NHS Foundation Trust, Birmingham, United Kingdom

Background: Soft tissue sarcomas abutting the bone are challenging to treat. Segmental bone resection is necessary in cases with evidence of bone invasion on the preoperative magnetic resonance imaging (MRI) scans. However, it is not clear whether the periosteal margin is an adequate margin in those cases of soft tissue sarcomas abutting the bone without a preoperative radiological evidence of bone invasion.

Purposes: The aim of this study is to determine whether segmental bone resection improves the local control and overall survival in patients with soft tissue sarcomas abutting the femur.

Patients and Methods: Between 2007 and 2014, 72 patients with soft tissue sarcomas abutting the femur were treated at our two institutions. All cases with radiological evidence of bone involvement were excluded from the study. There were 47 males and 25 females with a mean age of 60 years (range, 10 to 90 years). The most common histologic subtypes were undifferentiated sarcoma (n= 45), myxoid liposarcoma (n= 6), and synovial sarcoma (n= 5). Forty-seven patients (65%) had soft tissue resection only while in nine patients (12%) the resected specimen involved a segment of the femoral bone with subsequent reconstruction using an endoprosthesis in eight and a structural allograft in one patient. Eight patients had primary amputation (11%), while the remaining eight (11%) received palliative treatment for evidence of widespread metastatic disease at presentation. The percent contact of the overall circumference of the femur was measured at the level of the greatest contact on transaxial magnetic resonance imaging (MRI) scans using picture archiving and communication system (PACS) software.

Results: Eight patients (11%) developed local recurrence in the soft tissues at a mean of 23 months (range, 2 to 53 months). All patients who developed local recurrence underwent soft tissue resection only at the time of the primary surgery (17%), while local recurrence was not detected in any of the patients who underwent bone resection (p= 0.41). The overall survival at 5 years in this cohort was 47% as compared to 60% for those without evidence of bone contact. There was no statistical difference in the overall survival between patients who underwent bone resection and those who had soft tissue resection only.

Conclusions: Bone resection may result in better local control in soft tissue sarcomas abutting the bone without evidence of true bone invasion. A multicenter study is needed to determine the best treatment protocol of these challenging cases.

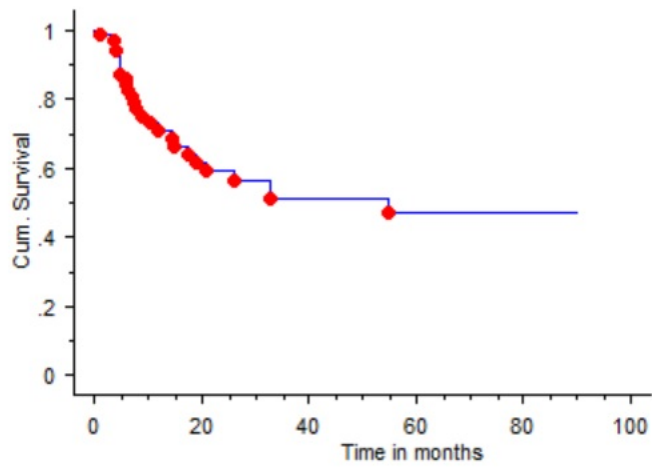


Fig 1. Kaplan-Meier analysis demonstrated an overall 5-year survival of 47% for the entire cohort.