

# Radiologic-pathologic correlation of 100 consecutive biopsied soft tissue musculoskeletal lesions after multimodality imaging.

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## Abstract

**Purpose:** To correlate radiologic imaging diagnosis with histopathology in cases with soft tissue musculoskeletal lesions. Before ultrasound (US)-guided core needle biopsy, radiologic imaging diagnosis was done using multimodality imaging. Correlation of histopathologic Method: diagnoses after biopsy and surgical specimen was done. Prospectively, 100 consecutive patients (53 males, 47 females, median age 51 years) with a musculoskeletal soft tissue mass underwent US, computed tomography (CT) and magnetic resonance (MRI). US-guided core needle biopsy was done in all patients. Fifteen MRI parameters and corresponding parameters on US and CT were evaluated for making a radiologic diagnosis. Multivariate logistic regression analysis was used for imaging parameters predictive for malignancy. Histopathologies after biopsy were correlated with radiologic diagnosis in all patients **Results:** There were and with the surgical specimen in 92% of the cases. 70 benign lesions (53 benign tumors and 17 tumor-like lesions) and 30 malignant lesions (26 malignant tumors and 4 metastases). The overall imaging accuracy for benign and malignant tumors was 92%. Nine cases (9%) were false-positive (4 benign tumors, 1 tumor-like lesion and 4 metastases) and 2 (2%) were false-negative. The correlation between imaging staging and histopathology was 63.6% for malignant tumors. MRI had the highest diagnostic accuracy (89%) compared with US (78%) and CT (83%). A diagnostic imaging algorithm was created. Histopathology after **Conclusion:** A combination biopsy correlated in all surgical specimens. of individual multimodality imaging parameters improved radiologic imaging diagnosis in differentiation between benign and malignant soft tissue musculoskeletal lesions. US-guided core needle biopsy is recommended as the procedure of choice for obtaining representative specimens of soft tissue musculoskeletal tumors for histological examination because of its high diagnostic accuracy and low complication rate.