

TITLE: MR imaging of soft tissue masses: the relationship of lesion size, depth and diagnosis.

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ABSTRACT:

Aims: To identify the relationship between depth and size of soft tissue mass lesions relative to histological diagnosis in a range of malignant neoplastic, benign neoplastic and non-neoplastic conditions on MR imaging.

Method: The MR imaging findings of 571 consecutive patients referred to our tertiary referral centre for orthopaedic oncology with a suspected soft tissue sarcoma were reviewed and included in the study. The patient age, histological diagnosis, lesion size and lesion depth were recorded.

Results: There were 288 males and 283 females (Mean age 48 years, age range 2-92 years). The mean age was 54.1 years for malignant neoplastic lesions compared with 40.1 years for benign neoplastic and 45.4 years for non-neoplastic conditions. There was a significant age difference when malignant lesions were compared with benign neoplastic and non-neoplastic lesions ($p < 0.001$). No significant relationship was present between lesion depth (480 deep, 91 superficial) and diagnosis (288 malignant neoplastic, 197 benign neoplastic and 86 non-neoplastic lesions). A significant relationship was however identified between lesion size and diagnosis ($p < 0.001$). Furthermore, a significant relationship was identified when lesion size greater than 5cm, lesion depth and diagnosis were analyzed.

Conclusion: Current guidelines suggest the most important variables for assessing risk of malignancy in a soft tissue lesion include size, depth, increasing size and pain. The current study suggests that relationship to fascia has no relationship to malignant potential. Significant risk factors include increasing patient age and lesion size greater than or equal to 5cm.