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Necrosis and vascular invasion identifies high-risk small soft tissue sarcomas

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BACKGROUND:
Soft tissue sarcomas (STS) are a heterogeneous group of malignant tumors with varying propensity for metastasis. Overall, small STS (≤5 cm) have a good prognosis. There are, however, tumors that do metastasize. We analyzed risk-factors for metastasis in a cohort with small STS in order to investigate if high-risk tumors may be identified at diagnosis and hence may qualify for adjuvant treatment trials.

PATIENT SELECTION:
239 adult patients with ≤5cm STS tumors of extremities or trunk wall were identified in our population-based register. 8 had metastatic disease at diagnosis and 1 patient with localized disease was never operated. 230 patients were included. Uni- and multivariate analysis cox regression analysis were performed to identify risk factors for metastatic disease at 5 years.

RESTULTS:
24/230 cases developed metastasis; none with grade 1 or 2 tumors (4-grade system) metastasized and they were therefore excluded from further analysis. In the high grade group the presence of either necrosis or vascular invasion was associated with a 3-fold increased risk of metastatic disease (95% CI 1-7). If both risk factors were present the HR was 11 (95% CI 4-31). Nearly half (8/18) of the patients with tumors revealing both vascular invasion and necrosis developed generalized disease.

DISCUSSION & CONCLUSION:
Necrosis and intratumoral vascular invasion (which can be assessed on routine H&E stainings) have been shown to be prognostic factors in STS in general but have not been investigated specifically in small STS which are considered to have a good prognosis We found that the presence of tumor necrosis and vascular invasion implied a high risk for metastatic disease also in small sarcomas.

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